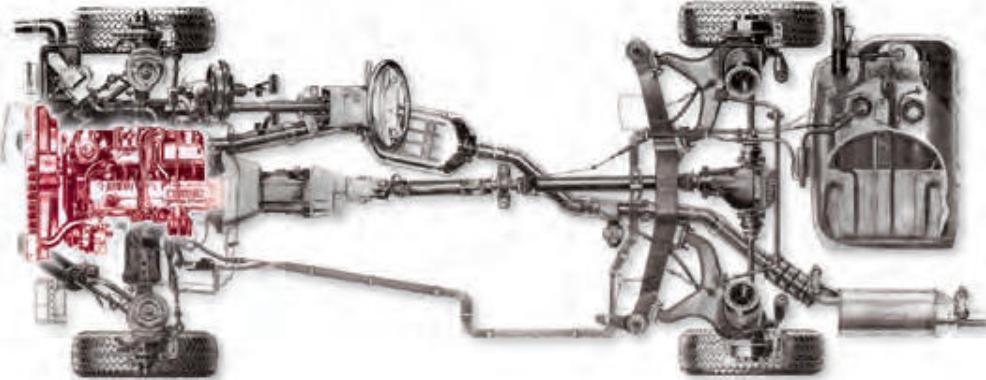


# 5. AUTOMOTIVE SPECIAL TOOLS

ENGINE	
DRIVELINE SYSTEM	
STEERING SYSTEM	
SUSPENSION SYSTEM	
TIRE & WHEEL	
BRAKE SYSTEM	
ELECTRIC SYSTEM	
BODY	

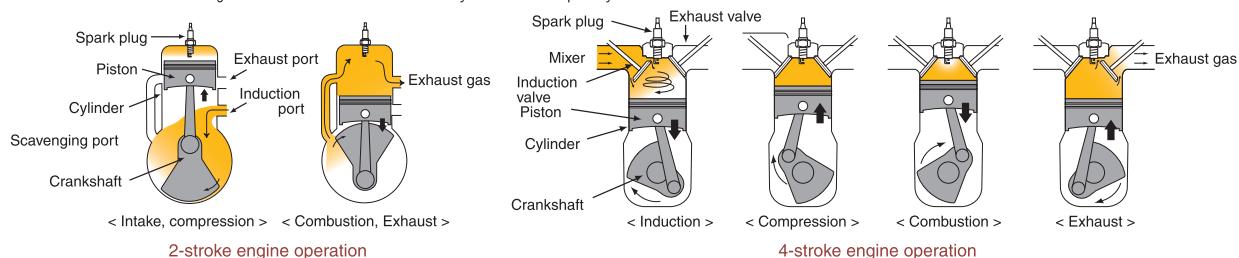
### Dismantling the Mechanism (1)

# Mechanism of Engine


**MECHANISM 1**

### Combustion setup

Most vehicles nowadays use gasoline engines. However, depending on the combustion type, gasoline engines are divided into "2-stroke" and "4-stroke" categories. Gasoline is burned in the cylinder to create heat energy. Heat energy is then turned into kinetic energy as it is transferred from piston to crankshaft. One engine movement can be divided into 4 steps - induction, compression, combustion, and exhaust. 2-stroke engines only have a two-step up/down piston movement ("Induction and Compression" step and "Combustion and Exhaust" step). 4-stroke engines have four piston movements as previously mentioned. With the same displacement, a 2-stroke has a larger output than a 4-stroke. However, most cars use a 4-stroke engine due to the increased fuel economy and exhaust capability.


**MECHANISM 2**

### Engine Makeup

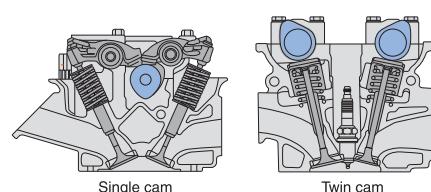
When viewed externally from top to bottom, the engine is divided into an upper cylinder head, a cylinder block, and an oil pan. Many cylinder heads and cylinder blocks are made from cast iron or aluminum alloy. A gasket is placed between the two and they are locked together. This head gasket increases air tightness, and prevents gas, and oil & coolant leaks, as it is a sheet type of packing.

The cylinder head is made up of a combustion chamber together with pistons and an intake/exhaust valve & camshaft is built in. A water jacket is provided to circulate coolant around the combustion chamber. In addition, the cylinder block is the main part and houses the pistons. The lower part is made up of a shaft bearing area that holds the crankshaft.

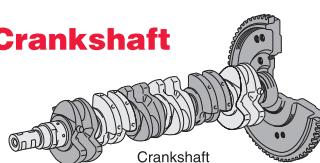
**MECHANISM 3**

### Valve System

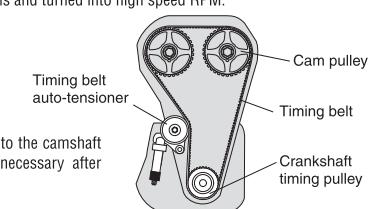
The system that drives the engine intake/exhaust can be a single cam (SOHC) driving the valve with a cam shaft, or a twin cam (DOHC) that separately drives the induction and exhaust valves with two cam shafts. Timing adjustments can be carried out easily to the camshaft as it is of a singular design. However, the operation of the parts situated midway along the shaft is sluggish. Although smooth, high-speed RPM is possible by using just one twin cam for the two camshafts, the structure is complicated and adjustments are difficult.


**MECHANISM 4**

### Crankshaft

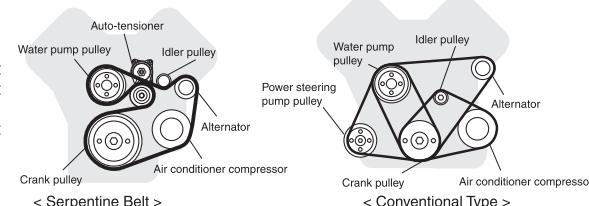


The crankshaft is a component that allows the pistons up/down movements inside the cylinder into a rotary motion, and is built into the lower part of the cylinder block. The crankshaft consists of a crank journal that is on the crankshaft's main axle, a crank pin that connects the piston's connecting rod (con-rod) and a crank arm that connects the crank pin and the crank journal. The crankshaft has been made out of special steel and cast iron for wear resistance, sturdiness and strength, so that large amounts of power can be transferred from the pistons and turned into high speed RPM.


**MECHANISM 5**

### Timing belt

The role of the timing belt (a device with a chain instead of a belt is called a "timing chain") is to transfer power to the camshaft through the cam pulley for valve open/close operation. If the belt system is being used, replacement is necessary after approximately one hundred thousand kilometers.


**MECHANISM 6**

### Role of the Belt and Auto-tensioner

On the exterior of the crankshaft timing pulley there is another belt that transfers crankshaft power to the alternator (generator), the air conditioner's condenser, and to the water pump that sends coolant around the engine. Conventionally, a number of belts were used. However, nowadays it has become mainstream to have a single Serpentine Belt driving all the devices at once. An auto-tensioner is installed to adjust the tension of this belt.

1. Remove the undercover → 2. Remove the drain plug → 3. Drain the oil → 4. Remove and replace the oil filter → 5. Refit the drain plug → 6. Refit the undercover

## Changing Engine Oil

●SCREWDRIVER ●T-SHAPED WRENCH

●SOCKET ●CLIP CLAMP TOOL

●OFFSET WRENCH ●OTHER TOOLS

ENGINE

1

Remove the undercover

2

Remove the drain plug

3

Drain the oil

Change the oil easily and effectively with a **KTC** oil drainer.

Use a tray to catch the waste oil.

- Use a large wide hat type funnel to catch the waste oil.
- Use a funnel with an attached net to prevent debris such as drain plug from falling into the tank.
- Remove the wide hat for use in hard to reach areas.
- Offsetting is possible from the unit and the pipe making work easy. (\*This pack (Oriku-kun) is not included)

Air pressure for easy discharge of used oil.

- Discharge is possible without a complex operation.
- Discharged hose can be stored when it is not being used.

A large tank with a level gauge attached.

- The tank's free capacity can be seen and calculated.
- Large amounts of oil can be stored safely in large capacity tanks.

Moveable parts tray

- Convenient for temporarily storing tools, i.e. draining plug, etc. Size: 95 x 150 x 45

Pipe handles allow for easy movement.

Large castors provide easy movement and stability.

- Curbs and steps pose no problems. (2 front wheels)

The castor wheels are equipped with a double brake mechanism that prevents both travel and swivel.

- The machine can be held steady during operation. (1 rear wheel and both front wheels of the machine (Oriku-kun))

### 3/8"sq. HEX. BIT SOCKET DRAIN PLUG WRENCH

No.	S	D	L	ℓ	▼g	④
AE503-10	10	18	38	8	50	5

POWERFIT®

- 38mm length body enable to operate in a narrow space.
- Can be used for hexagon socket head type of TOYOTA and NISSAN.
- Less oscillation and stable operation.

### OIL DRAINER

No.	Draining Tray	Castor's Diameter	Air Coupler	Draining	Draining	▼kg	
No.	Full Capacity	Front (fixed)	Rear (moving)	for Input	Hose	by Air Pressure	
GOD80B	12 ℥	●	φ 150	φ 80	20PM by Nitto Koki	φ 19 2m	● 32

• Draining Tray Size: Large Diameter 580 (Small Diameter 370) x Height 300mm

\*Comes in packs of 3

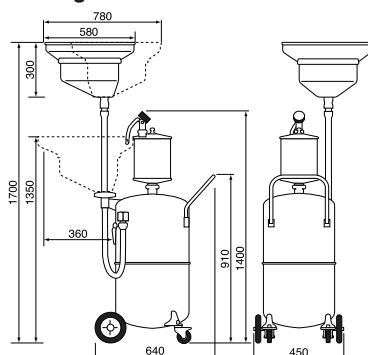
\*Replacement parts are available. Check with your dealer for details.

\*Only use engine oil. Do not use any other type of oil.

### Multi-functional

The transparent cylinder shows the state of draining clearly.

Talk to customers while checking the waste oil.



### Suction Adaptor

Suction Adaptor A	For Volkswagen
Suction Adaptor B	For BMW

### Suction nozzle (detachable)

Flexible suction nozzle	Made of resin	Outer diameter φ 5x700mm
Flexible suction nozzle	Made of resin	Outer diameter φ 6x700mm
Flexible suction nozzle	Made of resin	Outer diameter φ 8x700mm
Metal suction nozzle	Copper ore	Outer diameter φ 5x700mm
Metal suction nozzle	Copper ore	Outer diameter φ 6x700mm
Flexible suction nozzle	Made of resin	Outer diameter φ 7x1,000mm

### ●3/8"sq. HEX. BIT SOCKET DRAIN PLUG WRENCH



### ●OIL DRAINER



1. Remove the undercover → 2. Remove the drain plug → 3. Drain the oil → 4. Remove and replace the oil filter → 5. Refit the drain plug → 6. Refit the undercover

### 3 Drain the oil

#### ● OIL DRAINER [STANDARD TYPE]



#### OIL DRAINER

No.	Waste oil tray total capacity	Caster diameter Forward (fixed) Backward (free)	Input air coupler	Drain hose	Air pressurized oil discharged	▼kg
GOD80E	12 ℥	φ150 φ80	Nitto Kohki 20PM	φ19 2m	●	29

• Waste oil tray size: 440 diameter x 160mm height

\* Spare parts are configured. Please contact your dealer for details.

\* Do not use it for oils and fats other than engine oil.

Tank  
80 ℥

**Standard Type** Budget model that supports upward and downward draining

Suppressing the overall height, it is safe even in lifting up 1Box type.  
Space-saving storage with the adoption of straight handle.

#### Suction Adapter

Suction Adapter A	For Volkswagen
Suction Adapter B	For BMW

#### Suction Nozzle (for Draining)

Flexible Suction Nozzle	Resin	Outside diameter φ5x700mm
Flexible Suction Nozzle	Resin	Outside diameter φ6x700mm
Flexible Suction Nozzle	Resin	Outer diameter φ8x700mm
Flexible Suction Nozzle	Resin	Outer diameter φ7x1,000mm
Metal Suction Nozzle	Copper alloy	Outer diameter φ5x700mm
Metal Suction Nozzle	Copper alloy	Outer diameter φ6x700mm

#### OIL DRAINER

No.	Tank	Castor's Diameter	Air Coupler	Oil Discharge Methods	▼kg
	Full Capacity	Available Capacity	Fixed	Draining for Input	
GOD24B	24 ℥	20 ℥	φ 125	20PM by Nitto Koki	φ 19 2m manual 13.7

\*Only use engine oil. Do not use any other type of oil.

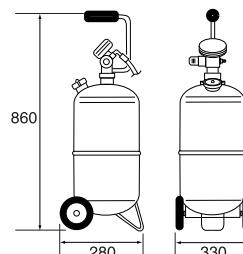
\*Replacement parts are available. Check with your dealer for details.

Tank  
24 ℥

#### Movable model

Small, movable, lift-out type.

Convenient for providing outside services



#### ● FLEXIBLE SUCTION NOZZLE FOR OIL DRAINER (GOD24B · GOD80B · GOD80E)

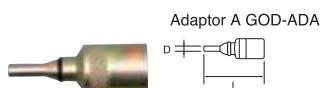
GOD-5X700F

GOD-6X1500F

#### ● METAL SUCTION NOZZLE FOR OIL DRAINER (GOD24B · GOD80B · GOD80E)

GOD-6X700M

#### ● SUCTION ADAPTOR FOR OIL DRAINER (GOD24B · GOD80B · GOD80E)



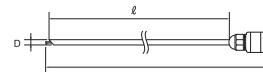
#### Suction nozzle (detachable)

Flexible suction nozzle	Made of resin	Outer diameter φ5x700mm
Flexible suction nozzle	Made of resin	Outer diameter φ6x700mm
Flexible suction nozzle	Made of resin	Outer diameter φ8x700mm
Metal suction nozzle	Copper ore	Outer diameter φ 5x700mm
Metal suction nozzle	Copper ore	Outer diameter φ 6x700mm
Flexible suction nozzle	Made of resin	Outer diameter φ 7x1,000mm

#### NYLON SUCTION TUBE (for GOD24B/GOD80B/GOD80E)

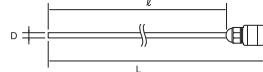
No.	D	L	ℓ	Nozzle Material
GOD-5X700F	5	750	700	Nylon (Reinforced with Metal Core)
GOD-6X700F	6	750	700	
GOD-6X1500F	6	1,550	1,500	
GOD-7X1000F	7	1,050	1,000	
GOD-8X700F	8	750	700	

• GOD-6X1500F has a convenient length for 1BOX cars and the like.



#### BRASS SUCTION TUBE (for GOD24B/GOD80B/GOD80E)

No.	D	L	ℓ	Nozzle Material
GOD-5X700M	5	750	700	Brass
GOD-6X700M	6	750	700	



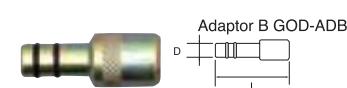
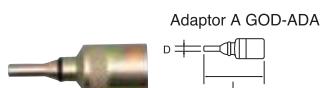
#### SUCTION ADAPTOR (for GOD24B/GOD80B/GOD80E)

No.	D	L	ℓ
GOD-ADA	5	57	
GOD-ADB	13	52	

• Adaptor is for mounting on the oil level gauge without the use of nozzle.

GOD-ADA: For Volkswagen

GOD-ADB: For BMW



\*Please check the merchandise inventory for a product that is marked by before placing an order.



4 Remove and replace the oil filter

### KTC Oil Filter Wrench Series

There are four KTC wrenches available to deal with the various types of oil filters - cup type, chain type, band type and adjustable type. In particular, there are 31 sizes in total for the cup size - 12 sizes for domestic cars, 13 sizes for imported cars and 6 sizes for larger vehicles.



Cup type      Chain type      Band type      Adjustable type

#### ● Characteristics of **KTC** Oil Filter Wrenches

##### ● A low height, easy fit, non-slip large design

A design that is restricted in height, easy to operate, and has a large area for the oil filter wrench and the oil filter to work in (depth of the fitting area).

##### ● Improved operation!

With its gripped outer shape, slippage when fitting the oil filter by hand is reduced.

##### ● The aluminum tool weighs only 60% of conventional steel products.

Through aluminum die-casting, the wrench has been molded into a single entity\* to weigh just 60% of conventional steel products.

\*With a large diameter, an insert manufacturing method is employed that has applied steel onto the driving angles (Structural steel).

##### ● Drive tool choice

Depending on the working requirement, an inserting type or a hexagonal type is available. (For domestic and imported vehicles: Use the driver 3/8"sq. hexagonal 2-faced width 24mm) (For larger diameters: Use the 1/2"sq. hexagonal 2-faced width 27mm)

#### CUP TYPE OIL FILTER WRENCH SET

##### Cup type oil filter wrench set (12 sets)

No. AVSA12A	▼kg 4.1
Oil filter wrench	AVSA-063, 064, 067, 073, 074, 079, 080, 089, 092, 095, 099, 101
Metal case (390x245x75)	

##### Cup type oil filter wrench set (8 sets)

No. AVSA08A	▼kg 3.7
Oil filter wrench	AVSA-064, 067, 073, 079, 080, 095, 099, 101
Metal case (390x245x75)	

3/8" sq.

#### ● CUP TYPE OIL FILTER WRENCH SET D.PAT.



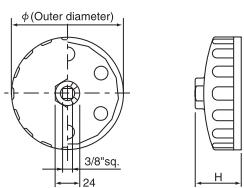
AVSA08A



AVSA12A

#### Japanese cars CUP TYPE OIL FILTER CARTRIDGE WRENCH

No.	Interior measurement	Φ (Outer diameter)	H	Shape	▼g	■
AVSA-063	63	72	35	14 Sides	80	10
-064	64	72	35	14 Sides	80	10
-067	66.5	74	35	14 Sides	80	10
-073	72.5	80	35	14 Sides	90	10
-074	74	82	35	15 Sides	90	10
-079	79	86	40	15 Sides	100	10
-080	79.5	86	40	15 Sides	110	10
-089	89	96	40	15 Sides	120	10
-092	92	99	40	15 Sides	130	10
-095	94.5	102	45	15 Sides	140	10
-099	99	106	45	15 Sides	140	10
-101	100.5	108	45	15 Sides	150	10



3/8" sq.

#### ● CUP TYPE OIL FILTER WRENCH D.PAT.



## 4 Remove and replace the oil filter

### CUP TYPE OIL FILTER WRENCH DESIGNED FOR AMERICAN & EUROPEAN CARS D.PAT.



3/8" sq.

#### Designed to grip tightly even when the filter has been expanded by heat.

To deal with an oil filter cover made of resin that is heat expanded, the AVSA-074C and 087 version grips the whole length of the filter unlike conventional types. This wrench has been designed to hold the filter tightly even when the filter is heat expanded.

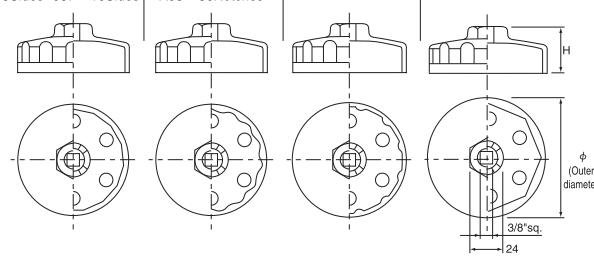


### CUP TYPE OIL FILTER CARTRIDGE WRENCH For American & European cars

No.	Size dimensions	$\phi$ (Outer diameter)	H	Shape	$\nabla g$	Box
AVSA-074	74	82	35	14 Sides	90	10
-074C	74C	82.5	50.5	14 Sides	100	10
-075	75	81	35	15 Sides	90	10
-076	76	82	35	15 Sides	90	10
-086	86	95	46.5	16 Sides	120	10
-087	87	96	68	16 Sides	210	10
-A74	A74	81	35	15 Notches	90	10
-A75	A75	82	35	30 Notches	90	10
-A93	A93	100	40	36 Notches	140	10
-B76	B76	83	35	12 Indents	90	10
-B86	B86	93	40	18 Indents	120	10
-C76	C76	86	35	8 Sides	90	10
-C95	C95	103	40	10 Sides	120	10

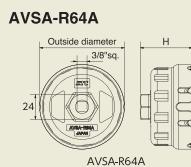
• A wrench for removing/installing oil filters in imported cars.

074 14Sides 076 15Sides | A74 15Notches | B76 12Indents | C76 8Sides  
074C 14Sides 086 16Sides | A75 30Notches | B86 18Indents | C95 10Sides  
075 15Sides 087 16Sides | A93 36Notches |

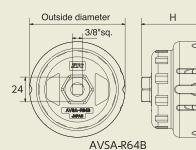


### OIL FILTER WRENCH FOR FILTER PAPER

3/8" sq.



### AVSA-R64B



### For Filter Paper Replacement

No.	Inside diameter	$\phi$ (outside diameter)	H	$\nabla g$	Box
AVSA-R64A	71	81	50	410	1
AVSA-R64B	81	91	59	540	1

#### Usage

- For the attachment and removal of the filter paper replacement type.

Application 

- Aluminum/resin filter paper replacement type oil filter cup that's used for Toyota, etc.

\* Example: Prius · VOXY · Vitz, etc.

#### Features

- It is a dedicated tool for the attachment and removal of the aluminum/resin filter paper replacement type oil filter cup that's used for Toyota, etc.
- Since it drives with the protrusion (rib) of the filter cap, biting and slipping can be prevented.

Main Application Small (AVSA-R64A): Prius · VOXY · Vitz, etc.,  
Large (AVSA-R64B): Mark X, Crown, Hiace, etc.

Supports the aluminum/resin filter paper replacement type oil filter cup that's used for Toyota, etc.



CAUTION \* Do not use it for cartridge type oil filters.

\* This product is for manual use. Do not use power tools such as impact wrench.

### Correspondence Table of Oil Filter Wrench for Filter Paper

#### AVSA-R64A

	Car Name	Model Year	Engine Type
ALUMINUM (Small) Item Number: 15620-40030	bB	2006 to 2014	
	COO (Daihatsu)	2006 to 2014	K3VE 3SZVE
	DEX (Subaru)	2008 to 2014	
	IQ	2008 to 2014	1KR 1NR
	VITZ	2005 to 2014	1KR 1NR K3VE
	PASSO/BOON (Daihatsu)	2004 to 2014	
	PASSO SETTE	2008	3SZVE
	TREZIA	2010 to 2014	
	PORTE	2012 to 2014	1NR (1.3L)
	SPADE	2012 to 2014	
	COROLLA AXIO	2005 to 2012	
	BELTA	2005 to 2012	1KR

#### AVSA-R64B

	Car Name	Model Year	Engine Type
ALUMINUM (Large) Item Number: 15620-31050	IS250 / 350	2005 to 2014	4GR 2GR
	MARK X	2004 to 2014	4GR
	MAJESTA	2003 to 2008	3GR 4GR
	CROWN	2008 to 2014	
	CROWN COMFORT	2007 to 2014	1TR
	GS430/350	2005 to 2012	3UZ 2GR
	GS250 / 350 / 450h	2012 to 2014	4GR 2GR
	HILUX SURF	2004 to 2005	2TR
	LAND CRUISER PRADO	2004 to 2014	
	REGIUSACE	2004 to 2014	
	TOYOTA	2007 to 2014	1TR 2TR
	VELLFIRE	2008 to 2014	
	ALPHARD	2008 to 2014	2GR
	ESTIMA	2006 to 2014	
	VANGUARD	2007 to 2012	

#### AVSA-R64B

	Car Name	Model Year	Engine Type
PLASTIC (Small) Item Number: 15620-37010	IST	2007 to 2010	
	COROLLA AXIO / FIELDER	2006 to 2014	
	PRUMION	2007 to 2014	
	WISH	2009 to 2014	
	AURIS	2008 to 2014	
	PRIUS	2005 to 2014	
	PRIUSα/MEBIUS (Daihatsu)	2011 to 2014	
	GT200H	2010 to 2014	
	PREMIO	2007 to 2014	
	ALLION	2011 to 2014	
	ISIS	2011 to 2014	
	AVENSIS	2009 to 2014	
	NOAH	2007 to 2014	
	VOXY	2007 to 2014	

2ZR(1.8L)

3ZR

	Car Name	Model Year	Engine Type
PLASTIC (Large) Item Number: 15650-38020	LS600h/LS600hl	2008 to 2014	2UR
	LS460/460i	2006 to 2014	
	GS460	2007 to 2012	1UR
	MAJESTA	2009 to 2014	
	FJ CRUISER	2010 to 2014	1GR
	LAND CRUISER PRADO	2009 to 2014	

\*Please check the merchandise inventory for a product that is marked by before placing an order.

1. Remove the undercover → 2. Remove the drain plug → 3. Drain the oil → 4. Remove and replace the oil filter → 5. Refit the drain plug → 6. Refit the undercover

**CUP TYPE OIL FILTER CARTRIDGE WRENCH**

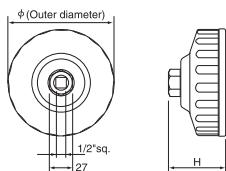
No.	φ (Outer diameter)	H	Shape	▼g	kg
AVSA-101B	117	64	15 Sides	550	10
-106B	124	64	16 Sides	570	10
-108B	125	66	16 Sides	610	10
-110B	125	68	17 Sides	610	10
-118B	135	68	16 Sides	650	10
-125B	142	70	18 Sides	750	10

**Usage**

- Removal of the engine oil filter cartridge for 2-4t class trucks/buses, etc.

**Characteristics**

- By employing the insertion method, iron (steel materials) has been used for the drive parts and the thickness of the aluminum section has been increased for improved durability.



**●BIG SIZE CUP TYPE OIL FILTER WRENCH D.PAT.**



Remove and replace the oil filter

4



**CUP TYPE OIL FILTER CARTRIDGE WRENCH SET**

No. AVSA5 ▼kg 4.0

Oil filter wrench metal case AVSA-101B, 106B, 108B, 110B, 118B  
(430×285×76)

**●BIG SIZE CUP TYPE OIL FILTER WRENCH SET (5 sets) D.PAT.**

1/2" sq.



## Oil Filter Wrench Application Table for Japanese Car

- KTC oil filter wrench (AVSA) has the size that matches the genuine oil filter.
- Size may not match when using market goods or the like (rattling, biting, etc.).
- Even with the same engine model, size may vary depending on the model year and supply period of genuine parts.
- Do not use anything other than the box end oil filter wrench for the filter paper replacement type oil filter cap.

Manufacturer	Engine Model	Oil Filter Wrench
Toyota	1AZ-FSE, 1NZ-FE, 1NZ-FNE, 1NZ-FXE, 1SZ-FE, 1TR-FE, 1TR-FPE, 1ZZ-FE, 2AZ-FE, 2AZ-FSE, 2AZ-FXE, 2E, 2NZ-FE, 2SZ-FE, 2ZZ-GE, 3AR-FAE, 3E, 3S-VE, 3S-FSE, 3S-CE, 3S-GTE, 4A-FE, 4A-FHE, 4A-GE, 4A-GZE, 4E-F, 4E-FE, 4E-FTE, 4S-FE, 5A-FE, 5A-FHE, 5E-FE, 5E-FHE, 5K, 5K-J, 5K-U, 5S-FE, 7A-FE, 7K, 7K-E, EJ-DE, EJ-VE, HC-EJ, K3-VE2, K3-VET, KF, KF-DET, KF-VE 1G-FE, 1G-GE, 1G-GEU, 1G-GP, 1G-GPE, 1G-GTEU, 1G-GZE, 1GR-FE (~2009), 1JZ-FSE, 1JZ-GE, 1JZ-GTE, 1KD-FTV, 1MZ-FE, 1N, 1ND-TV, 1RZ, 1RZ-E, 1UR, 1UR-FE, 1UR-FSE, 1UZ, 1UZ-FE, 2JZ-FSE, 2JZ-GE, 2JZ-GTE, 2KD-FTV, 2MZ-FE, 2RZ-E, 2TZ-FE, 2UZ-FE, 3MZ-FE, 3RZ-FE, 3RZ-FP, 3UZ-FE, 3UZ-FPE, 3UZ-FE, 3VZ-E, 3VZ-FE, 4VZ-FE, 5V-EU, 5VZ-FE, 7M-GE, 7M-GTEU, 1N-T (Available for -099)	AVSA-064
	2Y, 2Y-J, 2Y-PU, 2Y-U, 3Y, 3Y-E, 3Y-EU, 3Y-P, 3Y-PE, 3Y-U, FA20	AVSA-079
	1C, 3B, 3F, 3F-E, 5V-EU, B	AVSA-095
	1FZ-FE, 2L, 2L-T, 2L-TE, 2L-THE, 11B, 14B, 14B-T, 15B-CNG, 15B-F, 15B-FP, 15B-FT, 15B-FTE, 15B-LPG, 1BZ-FNE, 1BZ-FPE	AVSA-095 or -099
	1HD-FT, 1HD-FTE, 1HD-T, 1HZ, 1KZ-TE, 1N, 1PZ, 5L	AVSA-099
	2C, 2C-T, 3C-E, 3C-T, 3C-TE, 3L, 4B	AVSA-099 or -095
	1GZ-FE, 1GZ-FNE	AVSA-110B
	(Filter paper replacement type) 1KR, 1NR, 1NR (1.3L), 2ZR (1.8L), 3SZ-VE, 3ZR, K3-VE	AVSA-R64A
	(Filter paper replacement type) 1GR (2009~), 1TR, 1UR, 2GR, 2TR, 3GR, 4GR	AVSA-R64B
	(Filter paper replacement type) 1UR, 2GR, 2UR, 3UZ, 4GR	AVSA-R64B
LEXUS		
Nissan	CA16D, CA16DE, CA16S, CG10DE, CG13DE, CGA3DE, CR10DE, CR12DE, CR14DE, HR12DDR, HR12DE, HR15DE, HR16DE, K6A, KA20DE, KA24DE, KA24E, MR16DDT, MR18DE, MR20DD, MR20DD-SM23, MR20DE, MRA8DE, QG13DE, QG15DE, QG18DD, QG18DE, QG18DEN, QR200DD, QR20DE, QR25DD, QR25DE, R06A, R2, RF (2005~), SR16VE, SR18DE, SR18DI, SR20DE, SR20DET, SR20DT, SR20VE, SR20VET, TB48DE, VG20DET, VG20DT, VG20E, VG20P, VG30D, VG30DE, VG30DET, VG30DETT, VG30DT, VG30E, VG30ET, VG33E, VH41DE, VH45DE, VK45DD, VK45DE, VQ20DE, VQ23DE, VQ25DD, VQ25DE, VQ25DET, VQ25HR, VQ30DD, VQ30DE, VQ35DE, VQ35HR, VQ35HR+HM34, VQ37VHR, VR38DETT, Z20 RB20D, RB20DE, RB20DET, RB20DT, RB20E, RB20P, RB25D, RB25DE, RB25DET, RB26DETT 3G83, 4A30, F8, L8, RF (2003~) A12, A15, CA18DE, CA18DET, CA18DT, CA18ET, CA18i, CA20, CA20P, CA20S, GA13DE, GA13DS, GA15DE, GA15DS, GA15E, GA15S, GA16DE, GA16DS, MA09ERT, MA10ET, MA10S, NA16, NA16S, NA20, NA20P, NA20PE, NA20S 4JG2, R2 BD30, CD17, CD20, CD20E, CD20ET, CD20ETI, CD20T, CD20Ti, D5, ED35, FD42, FD46, LD20, LD20T, QD32, QD32ETI, RD28, RD28E, RD28ETI, RD28T, TB42E, TB42S, TD23, TD25, TD27, TD27ETI, TD27T, TD27Ti, TD42, TD42T, Z18P	AVSA-064 or -080 AVSA-067 AVSA-080 AVSA-089 AVSA-092
Mitsubishi	3A90, 3B20, 3G83, 4A30, 4A31, 4A90, 4A91, 4B10, 4B11, 4B12, 4G13, 4G15, 4G19, 4G63, 4G64, 4G91, 4G92, 4G93, 4G94, 4J10, 4J11, 4J12, 6A10, 6A11, 6A12, 6A13, 6B31, 6G7, 6G72, 6G73, 6G74, 6G75, 8A80, G32B, G33B, G37B, G63B, Y7 4D56, 4D65, 4D68, R2, WL 4M40, 4M41 4M40 (Delica - Space Gear)	AVSA-064 or -067 AVSA-067 AVSA-079 AVSA-092 AVSA-101B AVSA-101B or -106B AVSA-106B
MAZDA	13B, 13B-MSP, 20B, B3, B5, B6, BP, CR12DE, D5, E3, E5, F6A, F8, FE, FP, FP-DE, FS, FS-DE, GA13DE, GA13DS, GA15, GA15DE, GA15DS, HR15DE, J20A, J5, JE, JF, K6A, K8, KF, KJ, KL, MR18DE, P3-VPS, PE-VPR, PE-VPS, PN, PY-VPR, QG13DE, QG15DE, QG18DE, QG18DEN, R06A, SR18DE, Z5, ZJ-VE, ZJ-VEM, ZL, ZY-VE PE-VPS LF-VD H20A, H25A RF R2 CD17, CD20 VS, WL, XA YJ (4HF1), YM (4HG1) AJ, AJ-DE, GY	AVSA-064 or -067 AVSA-067 AVSA-074 AVSA-079 AVSA-064 or -067, -079, -089 AVSA-089 or -101B, -064 AVSA-092 AVSA-101B AVSA-108B AVSA-A93
	B16A, B16B, B18B, B18C, B20A, B20B, B21A, C35A, D12A, D13B, D13C, D15B, D16A, D17A, E07A, E07Z, ECA, F18A, F18B, F20A, F20B, F20C, F22A, F22B, F22C, F23A, G20A, G25A, H22A, H23A, J25A, J30A, J32A, J35A, J37A, K20A, K20B, K24A, L13A, L15A, LDA, LDA-MF5, LDA-MF6, LEA-MF6, P07A, PA07, R18A, R20A, S07A, ZC 4JG2 (~1995~), 4JX1, 6VD1, 6VE1, C30A, C32A, C32B, G32A 4JG2 (~1995)	AVSA-063 AVSA-080 AVSA-089
	F6A, F6B, G10, G13B, G15A, G16A, J18A, J20A, J24B, K10A, K12B, M13A, M15A, M16A, M18A, MR20DE K6A, K6A revised	AVSA-064 AVSA-064 or -063
	CB, CL, EF-CK, EF-CL, EF-CS, EF-DEM, EF-DET, EF-EL, EF-ES, EF-FL, EF-GL, EF-GS, EF-HL, EF-JL, EF-KL, EF-NS, EF-RL, EF-RS, EF-SE, EF-TS, EF-VF, EF-VE, EF-VN, EF-VS, EF-XL, EF-XS, EF-ZL, EF-ZS, EJ-DE, EJ-VE, HC, HC-EJ, HD, HD-EP, HE, HE-EG, JB-DET, JB-EL, JB-JL, JC-DET, K3-VE2, K3-VET, KF-DET, KF-VE (Filter paper replacement type) 1KR, 1NR, 2ZR (1.8L), 3SZ-VE, K3-VE	AVSA-064 AVSA-R64A
	EA71, EA82, EF10, EF12, EJ15, EJ16, EJ18, EJ20, EJ22, EJ25, EL15, EN07, ER27, FA20, FB16, FB20, FB25, GA15DE, GA15DS, K3-VE, KF, KF-DET, KF-VE, QG15DE, QG18DE 6VD1, EG33, FA20 EZ30, 4JB1, 4JG2 CD17, CD20 (Filter paper replacement type) 3SZ-VE, K3-VE	AVSA-064 AVSA-079 AVSA-080 AVSA-092 AVSA-R64A
	CD17, CD20 4XC1, 4XE1, 4XF1, 4EC1, 4EE1, 4ZB1 4FC1, 4FC1-T, 4JB1, 4JG2	AVSA-092 AVSA-079 AVSA-089

\* Data is from September 2013

## Oil Filter Wrench Application Table for American & European Car

Manufacturer	Car (Engine) Model	Oil Filter Wrench
Volkswagen	Gasoline car	AVSA-074
AUDI	Gasoline car	AVSA-074
Opel	Vita, Astra, Vectra, Calibra, Omega Former Omega AVSA-092	AVSA-075
BMW	3 Series Late E30 Model 4-Cylinder 3 Series 4-Cylinder (filter paper replacement type) before '02 N-Series Engine (N42 · N45 · N46 · N52 · N54)	AVSA-074 AVSA-074C AVSA-086
Mercedes	Gasoline 4, 6, 12-Cylinder *1 Class C 272, 273	AVSA-074 AVSA-074C
PORSCHE	All current cars Before 93 Model of 911	AVSA-074 AVSA-092
Peugeot *2	All cars	AVSA-B76, B86
Citroen *2	GS, GSA, CX2400, CX2500 Diesel CX2500, AX, BX, ZX, XM-V6 Xantia	AVSA-B76 AVSA-B86
Renault *2	Twingo, Lutecia, Megane	AVSA-B76, B86
FIAT	Panda, Uno Tipo, Coupe Fiat	AVSA-C76 AVSA-C95
Lancia	Thema V 3.0L Thema 2.0L, Delta, Dedra, Prisma	AVSA-B86 AVSA-C76
Alfa Romeo	164, 147 155, 75, Spider, 145, 156	AVSA-C76 AVSA-C95
Ferrari	328 348	AVSA-095 AVSA-B86
Saab	All cars	AVSA-075
GM	Cadillac Fleetwood Brougham, former Trans-Am, former Camaro, Chevy G-20 Grand-Am Cadillac Concours, Allante, Eldorado, Seville, Fleetwood Elegans Sedan, Fleetwood 60 Special, Fleetwood Regal, Astro, Bonneville, S-10 Blazer, Blazer Silverado Camaro Sports '94 Model or later, Park Avenue, current Corvette, Cadillac Escalade, Hummer H3 Saturn	AVSA-092 AVSA-075 AVSA-A74 AVSA-076
Ford	Taurus, Seven, Mustang 3.8L, Thunderbird, Lincoln Continental 3.8L, Probe 2.5L · 3.0L Thunderbird, Mustang 5.0L · V8 4.6L · 5.8L all models, Explorer, Escape XLT (V6) Mustang GT (V8 2005-) Probe 2.2L Laser gasoline cars, Telstar gasoline cars, Festiva Focus, Escape XLT (direct 4) Ka, Lincoln SL, Mondeo V6 Laser diesel cars Telstar diesel cars Mustang GT (V8 2005-) Mondeo Escape 3L (V6) AJ type Escape 2L (L4)	AVSA-A75 AVSA-A93 AVSA-092 AVSA-064 AVSA-067 AVSA-074 AVSA-076 AVSA-079 AVSA-089 AVSA-092 AVSA-095 AVSA-A74 AVSA-A93
Chrysler	Grand Cherokee, Cherokee	AVSA-092
Rover	Mini M/T, 100 Series, 200 · 400DOHC1.6L 200 · 400 · 600 · 800SOHC2.0L Sterling 4-Door Sedan 200 · 400DOHC 2.0L, 600 · 800DOHC, 2.3L Discovery, Range Rover, MGF1.8L E-RD18K	AVSA-076 AVSA-079 AVSA-095
Jaguar	Former V6 Direct 6, V12 V8	AVSA-A75 AVSA-095 AVSA-076
Volvo	V40, S40, S60, C70, V70, S80, Cross Country * It cannot be used for the round head oil filter of the former 70 Series ('98 model or earlier).	AVSA-087

\*1. Since the parts for 190E '94 model have been changed, applicable product may not be available.

\*2. For Renault, Peugeot and Citroen, size may vary in new car parts, long-life, etc.

Purchase of both AVSA-B76 and B86 is recommended.

### ● Design that securely hooks onto the filter even in thermal expansion

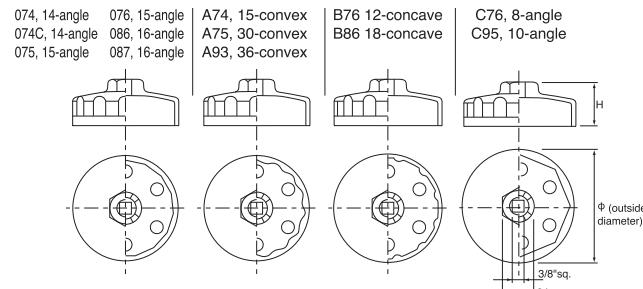
AVSA-074C and 087 are designed with longer total length than normal type, larger allowance with the oil filter and to firmly hang onto the filter even in thermal expansion to support the resin oil filter cover that expands with heat.



Oil filter cap and replacement filter paper for VOLVO



### ● Shape of cup-type oil filter wrench for imported cars



## Oil Filter Wrench Application Table for Large Size Car

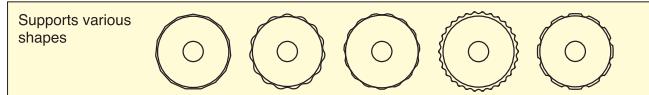
	Car Name	Car Model	Engine Model	Model Year	Filter Size
Toyota	DYNA·TOYOACE	XZU130, 140	J05C		AVSA-108B
		RX4J	J05CT		AVSA-118B
		RX4JET	J05C		
		XZU3□	S04		AVSA-101B
Hino	Coaster		N04C		
		XZB50	N04C		
	Ranger	BU212M	15B-F		AVSA-099
		HV116HU	14B		
		FC3J	J07C-NA		
		FB2W	W04D		
	Rainbow	AB2W	W04D		
	Dutro		S05C, S05D		
	Ranger	FC, FD, FF, FT, GD17□	H07C		AVSA-108B
	Rainbow	KG, RJ, RR, RT, RU17□	H07C		
	Ranger-Liesse (Bus)	FD, FF, GD, RR, SD2H	H07C		
		RB, RH1W, RH160	W04C		
		FC, FD3W, CH16□	W06E		
		FB, FC, RH, RX4J	J05C		
		XZU130, 140	J05C		
		FC3J	J07C		
		FD7J	J07E		
	Ranger	FC, FD, FF, FT, GD3H	H07D		
		CH, RJ, RR, RU, RU3H	H07D		
		FD, FE, FF, FT, FX1J	J08C		
		GD, GK, GX, CH, RJ1J	J08C		
		RU, RR1J, FC, FD2J	J08C		
		FD, FG, GK, RU1H	H06C		
		FC5J, FJ5J	J07CT		
		FC7J	J07ET		
			J05E		
	Ranger	FC1J, FD1J, FE1J	J08C		AVSA-118B
		FG1J, FJ1J, FT1J	J08C		
		FX1J, GD1J, GK1J	J08C		
		GX1J, CH1J, HR1J	J08C		
		HU1J, RJ1J, RR1J	J08C		
		RU1J	J08C		
	Rainbow	RH4J, RX4J	J05CT		
		RH4J, RX4J	J05C		
		HU8J, RU8J	J08E		
	Ranger	FD8J, FE8J, FG8J	J08E		
		GD8J, GK8J	J08E		
	Profia	FH1A, FN1A, FR1A, FW1A	A09C		
		GN1A, PR1A, SH1A	A09C		
	Poncho II	BDG-HX6	J05D		AVSA-108B
ISUZU	Elf	U · KC · KK-NKR66		H2/6~	AVSA-118B
		KC · KK · KR-NKR71 · 72 · 75		H7/3~	
		KR · PB · AFG-NKR81 · 82		H14/5~	
		KC · KK-NPR66		H7/3~	
		KC/KK/KR/PA/PB-NPR70 · 71 · 72 · 75 · 81		H7/3~	
		KR-NKS81E		H14/6~	
	Forward	PB-NKS81A		H16/6~	
		ADG · PKG-FRR90 (Engine 4HK1-T)		H17/7~	
Nissan	Atlas	KC · KK · KR-AKR66 · 71 · 81		H7/6~	AVSA-118B
		KC/KK/KR/PA/PB/PDG-APR66 · 70 · 71 · 72 · 75		H7/6~	
		PB-APS81A		H16/6~	
UD	Condor	KC · KK-BKR66 · 71		H7/6~	AVSA-118B
		KC · KK · PB · PA-BPR66 · 70 · 71 · 72 · 75 · 81		H7/6~	
			MD92		
	GH5		MK Series, LK Series		AVSA-118B
Mitsubishi Fuso	Canter	FE□	4D30		AVSA-101B or -089
		FE□, FG□	4D32		
		FE□, FG□	4D33	~H4, 5	
		FE□, FG□	4D33	H4, 5~	
		FE□, FF□	4D34		
		FE□, FG□	4D35		
		FE□	4D36		
		FE□	4M51		
		FE□	4M42		
		FE□, FG□	4M50		
		FE□	4M51		
	Canter · Guts	FB□, FD□	4M40		AVSA-101B or -106B
		FB70B	4M42		
	Challenger	K94W	4D56		AVSA-101B
		K94WG			
		K97WG	4M40		AVSA-101B or -106B

\* "□" in the table represents multiple models.

## ADJUSTABLE OIL FILTER WRENCH

No.	Applicable Dia.	D	W	H	▼g	Box
AVSA-6379	φ63~79	56	66	41	300	1

**Usage** • Cartridge type oil filter removal of light ~ standard-sized vehicles.  
**Application** • Up to φ63~79 oil filter equipped vehicles (excluding filter paper replacement type).  
 • Special size oil filter equipped vehicles such as Mazda.  
 • Imported cars with special shape oil filter.  
**Features** • Removal dedicated tool for cartridge type oil filters up to φ63~79.  
 (excluding filter paper replacement type)  
 • It is an adjustable type that supports oil filters of various shapes.  
 \* Spare parts are configured. Please contact your dealer for details.



Firmly catches with 3-stage claw.

Can easily be mounted by one hand.

Work in tight spaces is possible with low height when mounted.

**CAUTION** • It is dedicated for removal. It cannot be used to attach oil filters.  
 • Please do not use it for the filter paper replacement type.

## Supply Parts (Drive Set for Adjustable Double Oil Filter Wrench)

No.	Square	Set Contents	Box
AVSA-6379-K	3/8"sq.	Drive x1, Plate · Steel Spacer · Button Bolt with Hex. Socket (M5xL8) · with Hex. Socket Button Bolt (M4xL5) 2pcs. each	1

## CHAIN TYPE OIL FILTER WRENCH

No.	Applicable Dia.	▼g	Box
AE502	φ 89~142	600	1

## Usage

- For removal of cartridge type oil filters from standard~heavy vehicles

## Application

- For cartridge type oil filters with outer diameter of 89~142mm (nominal size 89~125mm).

## Characteristics

- Light and compact
- The tool can operate in a narrow space.
- Drive tools can be chosen according to work condition.
- A 1/2"sq spinner handle or an off-set wrench (with 24mm width across flat) can be used to operate this tool.
- Loosening can be done securely.

This tool is structured to prevent chain from coming off.

## CHAIN TYPE CARTRIDGE WRENCH

No.	Applicable Dia.	L	▼g	Box
CW-90140	φ 90~125 (Effective Dia. φ 90~140)	140	530	10

## Purpose

For removing and replacing oil filter cartridge and fuel filter.

- Applicable to light and medium size cars up to 4t.

## Special Features

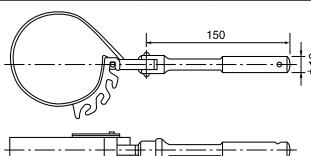
- Give little damage on filters.
- Original flex band mechanism avoids concentrated load on cartridges.
- Wide application.
- Can be used on cartridge type filter(φ 90~125)and fuel filter.

\* Due to the thickness of the chain (10.4mm), cannot be used for some types of filters with narrow niches.

## OIL FILTER CARTRIDGE WRENCH

No.	Applicable Dia.	▼g	Box
FF-8095	φ 80~95	400	10
FF-90110	φ 90~110	410	10

- Adjustable band type.
- Easy for squeezing and slip resistance.



## ●ADJUSTABLE OIL FILTER WRENCH

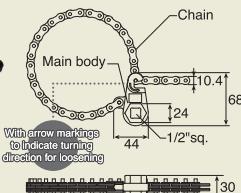


Remove and replace the oil filter

4



## ●CHAIN TYPE OIL FILTER WRENCH



## ●CHAIN TYPE CARTRIDGE WRENCH



## ●OIL FILTER CARTRIDGE WRENCH



Refit the drain plug

5

①Stripping the packing

②Attaching the drain plug

③Measuring the tightening torque

●OFFSET WRENCH  
●DIGITAL RATCHET

## ●DRAIN PLUG WRENCH

## ●OTHER TOOLS

## ●STAINLESS SCRAPER

Refit the undercover

6

## ●SCREWDRIVER

## ●T-SHAPED WRENCH

## ●SOCKET

## ●OTHER TOOLS



## ENGINE

## LLC Refill

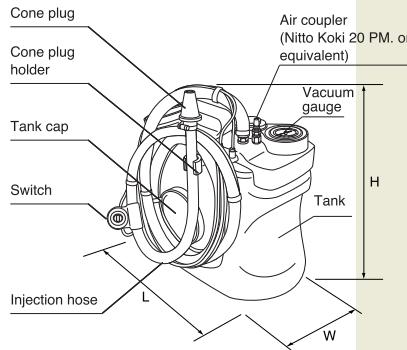
Replacing fluid  
Injecting LLC

1

## ● COOLANT CHARGER

Handy switch for  
increased work efficiencyHose holder for compact  
storageVacuum gauge  
faces upward for  
easy reference  
while operating.Effective tank  
capacity of 15 litersLevel of colored  
coolant remaining is  
readily visible  
through the tank wall.Tank design  
ensures minimal  
leftover coolant

\* Wagon sold separately



## COOLANT CHARGER

No. AE401	▼kg 4.5
L×W×H	420×300×450mm
Hose length	2.5m
Effective tank capacity	15 liters
Tank material	Polyethylene
Max. vacuum	Approx. 0.09 Mpa
Air consumption	Approx. 120~190 liters/min~
Applicable air pressure	0.6~1.0 MPa
Ambient temperature	7~50°C

**Air removal is unnecessary after injection coolant!  
Can be used for two coolants by exchanging tanks.**

## Purpose

- Injection of automobile engine coolant.

## Application

- For mini-cars, compact cars, and small trucks up to the 1.5-t class. (A cone plug L-size adapter (sold separately) is necessary for some non-Japanese cars.)

## Features

- Injects coolant efficiently, without mixing in air.
- Tank and body are separable. Two types of coolant (red / green) can be injected by using a spare tank (sold separately).
- Pressure adjustment for injected air is not necessary.
- The switch for alternating between vacuum and injection is close to hand.

Tank and body are  
separable

## Spare Tank Set (Tank &amp; caps)

## No. AE401-ST

Total length	420mm (Base length: about 360)
Width	220mm
Height	370mm

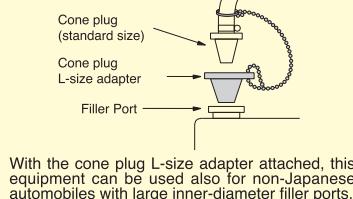
## Cone Plug L-Size Adapter

## No. AE401-CPL

Total length	-
Width	63mm
Height	45mm

## Application Table for Cone Plug L-Size Adapter

Inner diameter of radiator cap	Main makers & models
34~40mm	Volkswagen (all models) Audi (all models) Volvo (all passenger cars) Rover (200~600, FREELASDER) Fiat (all models)



## 1 Replacing fluids Injecting LLC

\*Closing the hose when using the coolant charger

### ●PINCH OFF PLIERS



PSA57



PSA34

#### PINCH OFF PLIERS

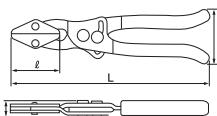
No.	L	$\ell$	D	T	Opening rate	$\nabla g$	
PSA34	140	33	48	5	23	75	
PSA57	233	57	65	18	50	340	

#### Usage

- Car hose closing operations.
- This tool is convenient when closing hoses in the cooling system, especially when using the coolant charger produced by KTC.
- Closing the brake hose when removing the strut, etc.
- Closing the ATF hose when removing/installing the AT.
- Closing the vacuum hose when inspecting the auxiliary instruments under deceleration, etc.
- Closing the fuel hose when changing the fuel filter.
- Closing the fuel and oil hose for motorcycles.
- The multi-level automatic lock function is employed, enabling the tool to lock the pliers position simply by grasping, allowing for speedy operation.
- Opening the grip will release the locked pliers position.

#### CAUTION

- Check that the pliers are firmly locked into position before use.

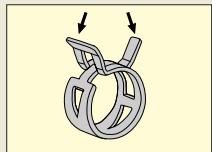


#### Outer diameter of applicable hose

PSA34	Outer diameter $\phi 19\text{mm}$
PSA57	Outer diameter $\phi 41\text{mm}$

## 2 Hose replacement ① Removing the hose clip.

### ●HOSE CLIP PLIERS



#### HOSE CLIP PLIERS

No.	L	$\ell$	W	T	$T_1$	$T_2$	$\nabla g$	
AE92	210	32	50	9	25	20	300	

#### Purpose

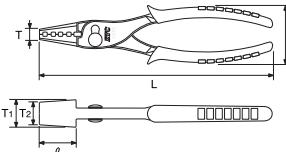
- Removing/installing hose clips.

#### Application

- Hose clips with diameter of 12-47mm. (except for screw types)

#### Characteristics

- The teeth edges are designed for firm grasping, preventing the hose clip from sliding out of the pliers, this is useful in confined or hard to reach areas. (Fig. 1)
- The shape (trapezoidal) of the teeth allows grasping from vertical, horizontal, diagonal, and other various positions.
- A hilt equipped resin grip allows easy gripping and prevents slippage.



#### Examples of use

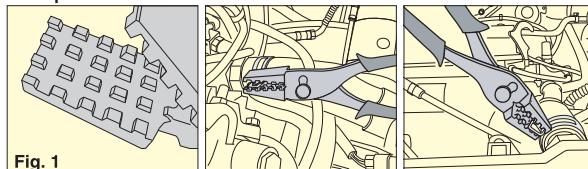


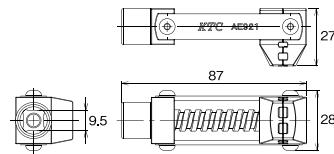
Fig. 1

## 2 Hose replacement ② Since the drive area is 3/8"sq., it can be used together with other power tools.



Example in use: AE921+BE3-150+BE3-Q

### ●HOSE CLIP TOOL (for mini-vehicles)



#### HOSE CLIP TOOL

No. AE921	$\nabla g150$	1
HOSE CLIP TOOL		



\* BE3-Q in the photo is not included in the price.

#### Application

- Hose clip fixing the cooling system hose of Suzuki vehicles (Wagon R, etc.) (Vehicle type with the lock position facing side or downward)

- Vehicle type that shows difficulty in work with pliers type tool

#### Features

- Work can be conducted without removing sensors, duct, hose, etc. near the hose clamps.

- Since the tool is a screw type, it can be held with hose clamps loosened. Assembly/removal can be conducted at a narrow work space.

- Since the tool has the same end shape as that of AE92, the hose clip does not slip and the tool does not come off abruptly.

RADIATOR HOSE PLUCKER							
No.	d	D	ℓ	L	▼g	⊕	
AE45 -1	6	26	90	185	100	10	
-2	6	26	90	185	100	10	
-3	6	26	90	185	100	10	

**Purpose**

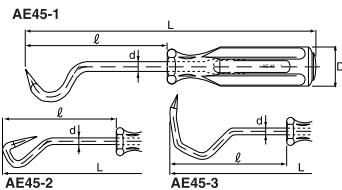
- Pulling out hoses and removing stickies.

**Special Feature**

- 3 kinds of pluckers with specially shaped tips for use in narrow spaces.
- Specially angled tip for covering even back side of a hose.

**●RADIATOR HOSE PLUCKER**

Hose replacement

③Pulling out hoses  
and removing  
stickies

# About the LLC

## ● The role of the engine radiator and water

The engine is continuously exposed to heating from the combustion of fuel, and will naturally overheat if left in this state. The radiator plays the role of sustaining the optimum temperature by cooling the engine.

Cooling devices are divided into air-cooled and water-cooled types. Most cars commonly use the water-cooling system. The water-cooled type circulates cooled water (coolant) throughout the engine system using a water pump in order to cool the engine. The water that is heated from this process is directed back to the radiator for cooling, and is circulated back to the engine. This process is repeated.



Fluid tester (AG601)

► P.192

## ● LLC

Because the liquid used in the radiator is mainly water, freezing will occur in temperatures less than 0°C, and boiling and evaporation will occur in temperatures over 100°C. Both of the above situations will cause engine trouble. LLC is a product that lowers the water freezing point, and raises the boiling point.

Previous coolants were known as anti-freeze, however, improvements have been made to these products giving them a longer useful life. These are now known as LLC (Long Life Coolant). One of the disadvantages of using anti-freeze was that it would have to be replaced after winter whereas the LLC can be used all year around. One of the disadvantages of using LLC is that the radiator can become blocked causing damage to the water pump and cause overheating and then possible engine trouble.

LLC concentration and freezing temperatures standards

LLC concentration	Freezing temperatures
30%	-15°C
35%	-20°C
40%	-24°C
45%	-28°C
50%	-36°C
55%	-41°C
60%	-54°C

## ● LLC concentration

There is a 30% concentration ratio of LLC in new vehicles. Because the freezing temperature is lowered when the concentration is high, the concentration ratio is increased in cold areas. However, the concentration ratio should not exceed 60%. LLC concentration ratios relating to cold temperatures are shown above. Current temperatures can be tested with the fluid tester (P. 227).

## ● LLC color

LLC main ingredient, ethylene glycol, is a poisonous product. The coolant is colored to help prevent mistaken use. The coolant is red mainly in Toyotas and green mainly in Nissan vehicles. However, the color does not affect performance. However, avoid using two different colored coolants.

## ● LLC toxicity

LLC main ingredient is ethylene glycol and is poisonous to humans. Drinking LLC may lead to death. The recently introduced PRTR law is specific to special chemical substances. Care must be taken when handling.

Tool basics

### PRTR Law

PRTR (Pollutant Release and Transfer Register): This law deals with waste matter (pollutants) entering the environment and aims to improve the management of the environment. This law has been designed to build a system that carries out strong control of chemical substances and environmental protection. The law was put into practice in 2001, and obligates those who deal in pollutants, which can endanger the health of others, to understand their actions and report to the Government.

## ● KTC's CO<sub>2</sub> emission cutting proposal

Presently, problems concerning the cutting of CO<sub>2</sub> emissions have been getting much attention. However, KTC believes that CO<sub>2</sub> emissions can be reduced over and above maintenance alone.

This is believed to be the eliminating of idling after LLC is injected when carrying out the air bleeding process. By using the KTC's Coolant Charger (No. AE401), the air bleeding process can be completed without idling after the LLC has been added. This means that if the Coolant Charger was to be utilized in every service center that over 30 million cars (\*1) that have their LLC replaced annually when renewing their fitness certificate, would not need to be idling while the process was carried out. In other words, the air bleeding process time for each vehicle is around 30 minutes. This calculates to about 0.4 liters of fuel and in CO<sub>2</sub> emission terms, around 270 g (\*2). By this calculation, there is around 8,100t of CO<sub>2</sub> being emitted into the atmosphere every time the renewal process is carried on the vehicles out there today.

\*1 The actual figure may be different to what is stated here as the figure of 30 million yearly fitness certificate checks includes light weight, as well as diesel powered vehicles.

\*2 This data has been supplied by the Environmental Department

## Replacing various belts

Belt replacement

1

Can reach a wide range of locations.

## FREE POSITION WRENCH SET

## ●FREE POSITION WRENCH SET PAT.P. D.PAT.



<Example>  
Wagon R  
Compressor Removal/Installation

(Photo 1)  
Wide variation of sizes



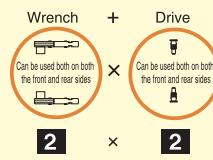
(Photo 2)  
Wrench and handle are separate for combination as required



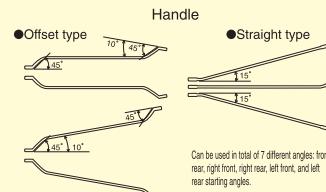
(Photo 3)  
Fast operation is possible with crank motion



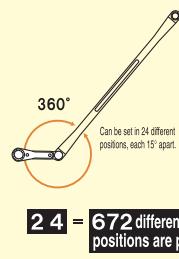
The wrench, drive and handle combination makes any job possible.



2 x 2 x



7 x



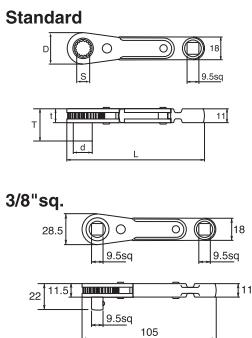
360°  
Can be set in 24 different positions, each 15° apart.

24 = 672 different wrench positions are possible.

## ●Free positioning wrench set

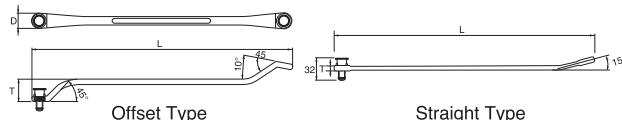
No. ATE104	▼kg1.2	1
Free positioning wrench	AE101-10, 12, 14	
Free positioning wrench handle	AE102 <Offset>	*including drive

No. ATE107	▼kg1.7	1
Free positioning wrench	AE101-10, 12, 14	
12mm short	AE101-12S	
Insertion angle 3/8"sq.	AE101-3R	
Free positioning wrench handle	AE102 <Offset>	*including drive
	AE103 <Straight>	



[Free positioning wrench series chart]

Product name	Product number	AE102	AE103	ATE104	ATE112	ATE107
Wrench	AE101-10			●		●
	-12			●		●
	-13			●		●
	-14			●		●
	-15			●		●
	-17			●		●
Handle	12mm short	AE101-12S				●
	Insertion angle 3/8"sq.	AE101-3R			●	●
Offset type (45°-45°×10°)	AE102-HD		●		●	●
	AE103-HD		●		●	●
	Drive	AE102-DA	●	●	●	●×2



\*Please check the merchandise inventory for a product that is marked by before placing an order.

## ●Free positioning wrench

No.	S	D	T	t	d	L	▼g	1
AE101-12S	12	24	14	10.5	17	106	115	5

• Suitable for cooler belt adjustment bolts on the Suzuki Alto Wagon R (F6A, K6A).

## ●Free position wrench/3.8"sq.

No.	▼g	1
AE101-3R	155	5

As the tools are equipped with an insertion angle, it is possible to use the wrench on a 9.5sq standard semi-deep socket or a deep socket, etc.

• The wrench can be used on automobiles ranging from light to One-box type (including imported vehicles).

<Recommended for 5.5-14mm hexagonal bolts and nuts with 2-faced widths.>

• Although limited, can also be used as short wrench.

## ●Free positioning wrench handle (offset type) &lt;AE102-HD+AE102-DA&gt;

No.	D	T	L	▼g	1
AE102	22	31	370	320	1

## ●Free positioning wrench handle (straight type) &lt;AE103-HD+AE102-DA&gt;

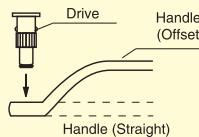
No.	D	T	L	▼g	1
AE103	22	7	370	210	1

## ●Method of use

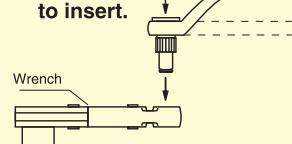
### Connecting the wrench and the handle

- ① Insert the drive to the back of the handle.
- ② Push down on the top of the driver, to insert the driver into the square shaped hole of the wrench.

#### ① Insert the driver

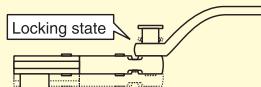


#### ② Push down on the top of the driver, to insert.



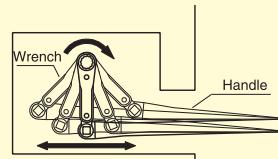
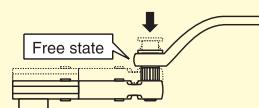
### Loosening/tightening bolts & nuts

Lock the connecting area of the handle and the wrench together and then set in the desired angle.  
(The wrench can be set in 24 positions at 15° increments)



### Place in a free state for high speed rotation

High speed crank operation is possible by pulling and pushing the handle.



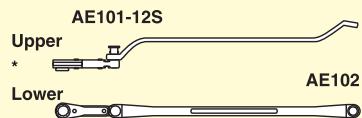
The illustrations below show 2 pictures. The upper picture shows what the tool looks like when pieced together. The lower picture shows the fixed angle that the tool is used at.

## ●Examples

### ① Suzuki Alto

#### Cooler belt adjustment

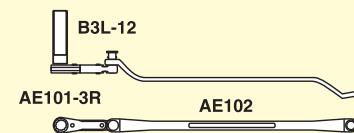
- A thin shaped socket is extremely effective when used in engine compartment



### ② Daihatsu Move

#### Alternator belt adjustment

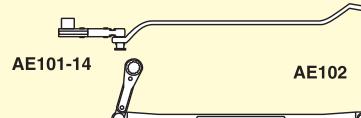
- This type is easy to use inside engine compartment.



### ③ Nissan Cube

#### Starter installation bolt

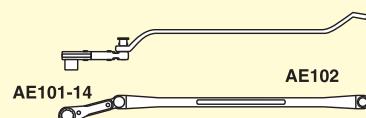
- This type can be used in a lifted up position.



### ④ Toyota Bitz

#### Drive shaft mount stay

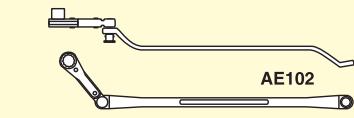
- This type can reach deep areas if in a lift up position.



### ⑤ Toyota Voxy

#### Strut tower installation bolt

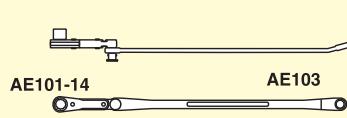
- Excellent for replacing the struts in engine compartment.



### ⑥ Mitsubishi Chariot Grandes

#### Power steering belt adjustment

- Can be used in pipe crossing in engine compartment.



## ENGINE

## BELT TENSIONER WRENCH SET

No. ATE175	▼kg 1	1
Belt tensioner wrench	AE107-500	
Exclusive socket 14,17,19mm	AE107-14W,17W,19W	
3/8" sq. Driver	AE107-3A	

## Usage

- This is an exclusive tool for loosening the tensioner when replacing belts used in vehicles that are fitted with auto-tension type drive belts (with 1 belt only).

## Application

- Is effective for working on domestic vehicles from light-weight to normal passenger vehicles, and especially on One-box type vehicles (FF vehicles).

## Characteristics

## Wrench

- This is a thin, exclusive long rotating head ratchet off-set wrench used for working on vehicles fitted with auto-tensioning. A large swing angle can be taken while working inside small engine compartments without interfering with pulleys and other obstacles.
- Provides easy operations on damper type auto-tensioners fitted in many heavy FF vehicles because of a non-slip, easy hold, and resin type grip.

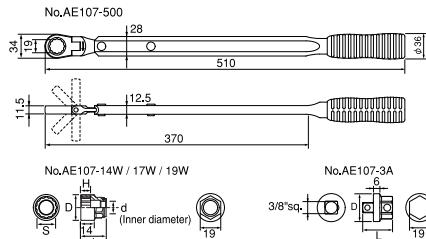
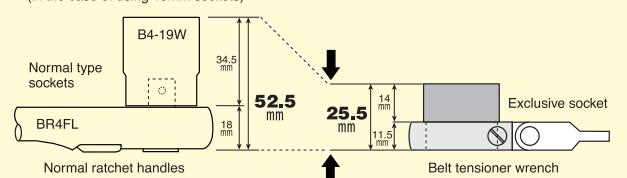


## Exclusive socket 3/8" sq. Driver

- The exclusive socket can be set at 14/17/19mm, and is convenient where socket length must be changed frequently.
- A pierced type of thin design that helps eliminate slipping off the bolt.
- Normal sockets can also be used as the 3/8"sq driver is installed onto the offset area of auto-tensioner wrench.

## Comparison of the head section

(in the case of using 19mm sockets)



## Replacement parts: Belt tensioner wrench

No.	▼g	
AE107-500	850	

## Exclusive Socket 3/8"sq. Driver

Product name	No.	S	D	d	H	L	▼g
Exclusive socket 14mm	AE107-14W	14	22	11	8.5	26	35
17mm	-17W	17	24	13	9	26	40
19mm	-19W	19	26	13	9	26	40
3/8" sq. Driver	-3A	-	26	-	-	28	60

## ● BELT TENSIONER WRENCH SET

Belt replacement

1



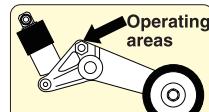
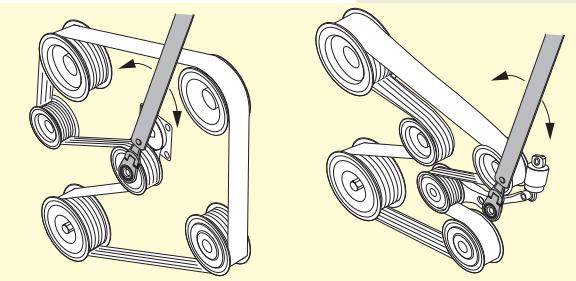
Normal sockets can also be used with this driver.

## Exclusive socket

Covers a wide range of domestic vehicles.



Insert the exclusive hexagonal socket into the offset section.



Damper fitted auto-tensioner

Auto-tensioner



- Make sure that all operators read the Owner's Operator Manual carefully before usage.
- Do not use for non-specified purposes.

## BELT TENSIONER WRENCH (OFFSET TYPE)

No. AE107-260	▼g 375	1
Belt Tensioner Wrench	Caliber 19mm	

Usage

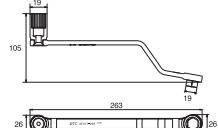
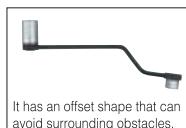
- Toyota's 2.4l (2AZ) equipped vehicles: Vellfire, Alphard [May '08 or later], Mark X Geo, etc.

Features

- Precise work with optimal posture is possible even in tight spaces by using in combination with AE107-500.
- The body has an offset shape to avoid surrounding obstacles.
- Dedicated design that supports vehicles that can only be worked on from the lower part of engine room.

\* Spare parts are configured. Please contact your dealer for details.

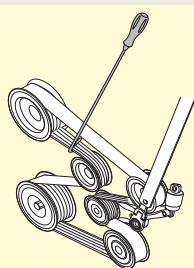
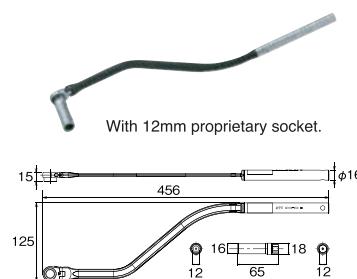
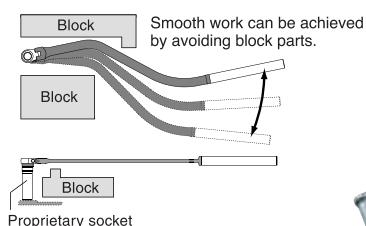
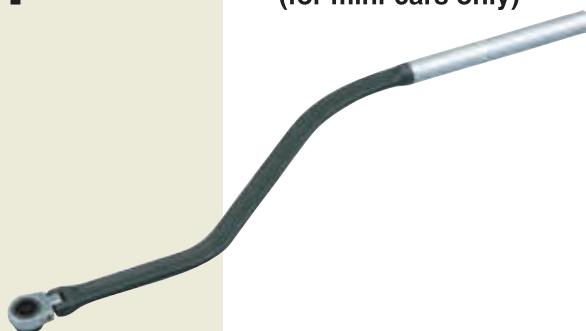
## ● BELT TENSIONER WRENCH (OFFSET TYPE)



## ENGINE

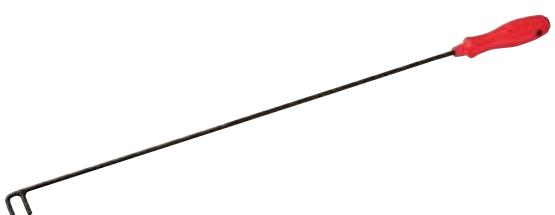
## Serpentine belt replacement

## 1 Belt replacement

●BELT WRENCH SET  
(for mini-cars only)

## ●BELT HOOK TOOL

Expected release date: July 2005



## BELT HOOK TOOL

No.	d	D	L	$\ell$	$\nabla g$	1
AE108	6	34	660	540	200	1

**Removal of auto-tension type drive belts is easier when a belt tensioner wrench (No. ATE175) is used as a set.**

## Usage

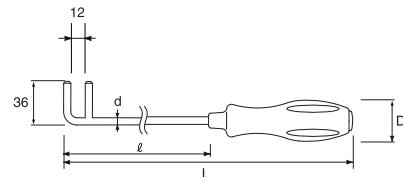
- Acts as a guide when replacing engine belts, and dealing with wiring or piping.

## Application

- Mainly used in domestic and imported passenger vehicles where V belts and ribbed belts are common. (Belts with 7 ridges or more)

## Characteristics

- Hooks that use rounded shafts make belt replacement easier and do not damage new belts.
- Belts that are normally difficult to replace, such as the wide and long serpentine belt, are quickly replaced.
- Due to its length (660mm), the tool is very effective in vehicles with tight engine compartments such as in the One-box vehicle type.



## ●FREE POSITIONING WRENCH



P.223

## ●HANDY BAR



P.302

## Replacing timing belt

## ENGINE

Removing belts

1

## ●FLAT TYPE EXTRA-LONG OPEN END WRENCH



P.121

## CRANK PULLEY HOLDER

No. AE701	▼kg 3.9	1
-----------	---------	---

Crank pulley holder (body)	1
Pin	2
Set bolt for the pin (hex hole attached)	M8 Length 25: 2
Set bolt (hex hole attached)	M6 Length: 35-40-50-60-70-80-90: 2 of each
	M8 Length: 40-45-60-75-85-100: 2 of each
Washers	M6: 2 M8: 4

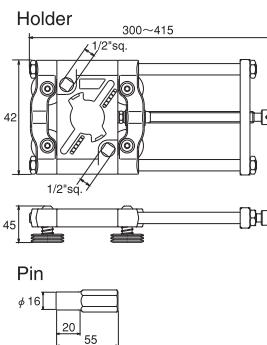
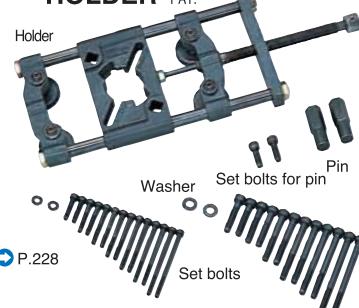
## A new crank pulley holding tool that can deal with various shapes

## Usage

- Mainly for crank pulley removal operations (timing belt replacement, oil seal replacement, engine O/H operations) in automobiles (FR vehicles) with vertically placed engines. Can be used together with a crank pulley double-strength wrench to loosen the crank pulley lock belt.

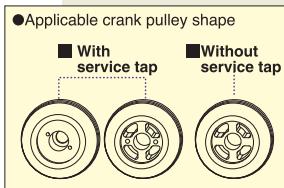
\* The crank pulley puller manual type (AE702), or the hydraulic type (CPU13) is essential when removing the crank pulley.

## ●CRANK PULLEY HOLDER PAT.



Removing crank pulley

2



## Easy to attach

- Simply attach the rotation claw onto the groove of the crank pulley and use the grip to tighten. (The center sliding position can be lined up when fitting the crank pulley.)

## Thin Design! (Thickness 45mm)

- It is not necessary to remove the radiator condenser when carrying out work. (Excluding some vehicles)

## Replacement parts

Product name	No.	Contents	1
Pin set	AE701-1	Pins: 2 M8 set bolts for pins (hex hole included): length 25: 2 bolts Washer M8: 2	1
Set bolt set	-2	Set bolt (hex hole included) M6: Length: 35-40-50-60-70-80-90: 2 M8: Length: 40-45-60-75-85-100: 2 Washer M6: 2 M8: 2	1

## CRANK PULLEY HOLD PLATE

No. CPH1	▼kg 2	1
----------	-------	---

Crank Pulley Hold Plate	1
Set Bolt	M6: Length: 30-40-50-60-70-80-90: 2 M8: Length: 40-45-60-75-85-100: 2
Washer	M6: 2, M8: 2
ADAPTER	M10: 2

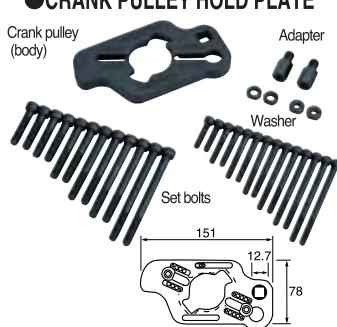
## Purpose

- Use to hold and take out pulley: plate as fixed with service tap of crank pulley; spinner handle (1/2"sq.) is set in.
- Applicable to crank pulley with service tap.
- Prevents pulley from rotating together and enables fastening/loosening of center lock bolt.
- Usable with AE-10.

\* For removing a crank pulley, AE702 OR CPU 13 is required.

Spare parts (set bolts and washers) are No. CPH128 (Crank Pulley Hold Plate Spare Set). For the details, refer to page 213 (Crank Pulley Tool No. CPHU2).

## ●CRANK PULLEY HOLD PLATE



## CRANK PULLEY LOCK BOLT WRENCH

No.	Handle Opening	Square Drive	L	W	H	▼kg	1
AE-10	125~1,160	S37mm L80mm	12.7	862	70	60	4.3

• Accessories	Square Drive S37mm L80mm	Each 1 pcs.
Set Bolt	M8×1.25(Length30mm)	2 pcs.

## Supply Square Drive Short Long

No.	L
AE-10-1	37(Short)
AE-10-2	80(Long)

## Purpose

- Removing Crank Pulley Lock Bolt for changing Timing Belt, Crank Short, Oil Seal, etc.)

## Application

- Crank Pulley installed car with service tap except diesel engine over 3,000cc, Toyota3F, 1FZ Type Engine, Nissan VH Type Engine, RB26DETT Type Engine.
- Can be used on vehicles with crank pulleys that do not have service taps when used with the AE701.

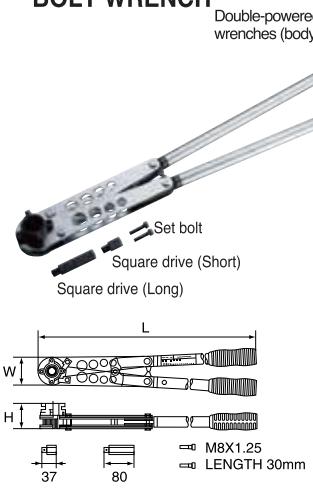
## Special Feature

- Newly developed multiplying mechanism (Double Reverse) enables to loosen lock bolts without using impact wrenches.
- Can be used without removing radiators and condensers for shorter work time.
- CPH1 or AE701 is necessary for this operation.
- Cannot be used with AE11.
- Replacement parts are available. Check with your dealer for details.



• THIS TOOL IS EXCLUSIVELY FOR LOOSENING BOLTS.

## ●CRANK PULLEY LOCK BOLT WRENCH





Use situation (AE703)



Use situation (AE703A)

## ●CRANK PULLEY HOLD WRENCH FOR HONDA

(AE703)  
\* 24mm wrench or 1/2"sq spinner handle is necessary for this operation.(AE703A)  
\* 1/2"sq spinner handle is necessary for this operation.

### CRANK PULLEY HOLD WRENCH

No.	▼g	単品
AE703	450	1
AE703A	400	1

#### Usage

- Crank pulley turn prevention tool for Hondas
- \* Crank pulley removal is not possible.
- Use the AE701 (or the CPH1) and the AE702 (or the CPU13) or carry out crank pulley removal.

◆ P.227 and P.228.

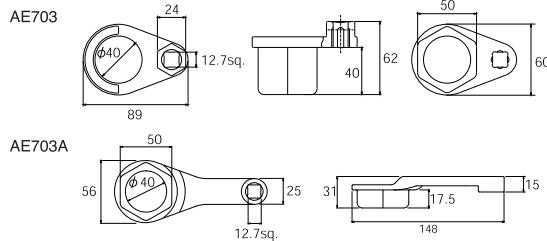
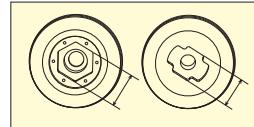
#### Application

##### AE703

- The crank pulley shown in the right hand diagram is a 50mm 2-faced flat type used in Honda cars.
- \* Cannot be used on some NSX models.

##### AE703A

- For Honda Life since 2003 (modelJB5-JB8)
- \* Cannot be used on some of the old model of Honda Lifes (working space: less than 30mm)



## 3 Crank pulley removal

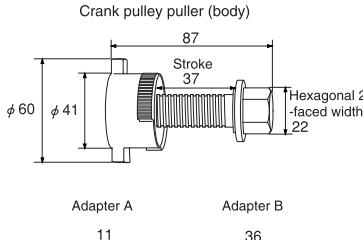


Example of AE701 + AE702 Use



Example of CPH1 + AE702 Use

## ●CRANK PULLEY PULLER (MANUAL TYPE)



### CRANK PULLEY PULLER

No. AE702	▼g 500	単品
Crank pulley puller (body)	1	
Adapter A	1	
Adapter B	1	

#### Manual type crank pulley removal tool

##### Usage

- Crank pulley removal.
- \* The crank pulley holder (AE701) or the crank pulley hold plate (CPH1) is essential when removing the crank pulley. ◆ P.227
- \* The clawed crank pulley puller (AE11) cannot be used in a combination.

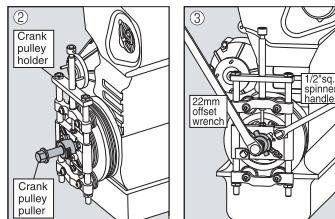
##### Characteristics

- Ideal for work in tight places due to its light weight and compactness.
- Stroke adjustment is possible due to 2 types of adapters.

##### Operating example

When a crank pulley holder (AE701) is utilized

- ① Set the crank pulley holder (AE701 or CPH1) to the crank pulley and remove the lock bolt.



② Select the adapter A/B combination and then fit it to the crank pulley holder.

③ Select the adapter A/B combination according to the required crank pulley removal stroke.

③ Use the spinner handle to lock. Using a 22mm offset wrench or a drive tool turn the screw of the crank pulley puller and remove the crank pulley.

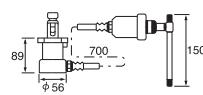
#### Replacement parts

Product name	No.	Contents	単品
Adapter A	AE702-1	Adapter A 1	1
Adapter B	-2	Adapter B 1	1

## ●CRANK PULLEY PULLER (HYDRAULIC TYPE)



CPU13



### CRANK PULLEY PULLER

No. CPU13	▼kg 1.7	単品
Crank Pulley Puller	1 pcs.	
Cylinder Adapter	2 pcs.	

#### Purpose

- Pulling out crank pulley.

#### Features

- Strong power by hydraulic pressure.
- The remote control facilitates use of the tools in the limited space of engine room.
- \* For removing the crank pulley AE701 AE11 and CPH1 are required. ◆ P.227
- \* Replacement parts are available. Check with your dealer for details.

#### Service Parts CRANK PULLEY PULLER SPARE SET

##### No. CPU12

Cylinder Adapter Long, Short Each 1 pcs.



Example of CPH1 + AE701 Use



An example of AE702 + CPU13

\*Please check the merchandise inventory for a product that is marked by before placing an order.

## CRANK PULLEY TOOL SET A

No. ATE7A	▼kg 6.8	1
AE701 Crank pulley holder (body)	1	
Pin	2	
Set bolt for the pin (hex hole included)	M8: Length 25: 2	
Set bolt (hex hole included)	M6: Length: 35-40-50-60-70-80-90: 2 each	
	M8: Length: 40-45-60-75-85-100: 2 each	
Washers	M6: 2 M8: 4	
AE702 Crank pulley puller (body)	1	
Adapter A	1	
Adapter B	1	
Metal case (390×245×75)		

The application is of a broad variety with a low price on the standard type.

## Usage

- Tightening/loosening of the crank pulley lock bolt
- Crank pulley removal, manual type

## Application

- Sets which are available with the either service taps included/excluded.

## ●CRANK PULLEY TOOL SET A



## CRANK PULLEY TOOL SET B

No. ATE7B	▼kg 8	1
AE701 Crank pulley holder (body)	1	
Pin	2	
Set bolt for the pin (hex hole included)	M8: Length 25: 2	
Set bolt (hex hole included)	M6: Length: 35-40-50-60-70-80-90: 2 each	
	M8: Length: 40-45-60-75-85-100: 2 each	
Washers	M6: 2 M8: 4	
CPU13 Crank pulley puller (body)	1	
Adapter A	1	
Adapter B	1	
Metal case (390×245×75)		

A wide variety of easy, correct removal techniques is possible due to hydraulics.

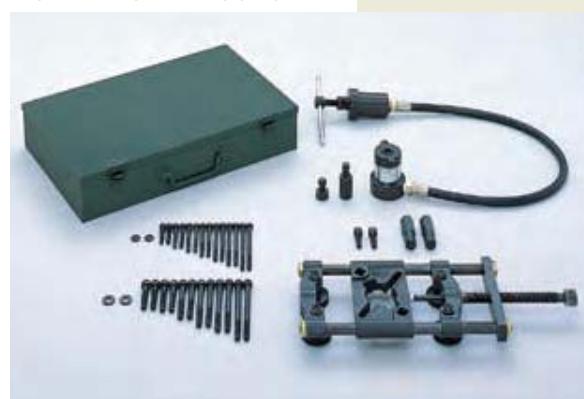
## Usage

- Tightening/loosening of the crank pulley lock bolt
- Crank pulley removal, hydraulic type

## Application

- Sets which are available with the either service taps included/excluded.

## ●CRANK PULLEY TOOL SET B



## CRANK PULLEY TOOL SET C

No. ATE7C	▼kg 1.9	1
CPH1 Crank pulley hold plate (body)	1	
Set bolt (hex hole included)	M6: Length: 30-40-50-60-70-80-90: 2 each	
	M8: Length: 40-45-60-75-85-100: 2 each	
Washers	M6: 2 M8: 2	
Adapter	M10: 2	
AE702 Crank pulley puller (body)	1	
Adapter A	1	
Adapter B	1	

\* Metal case is not included.

Reasonable type at a low price.

## Usage

- Tightening/loosening of the crank pulley lock bolt
- Crank pulley removal, manual type

## Application

- Sets applicable for pulleys with fitted service taps.

## ●CRANK PULLEY TOOL SET C



## CRANK PULLEY TOOL

No. CPHU2	▼kg 6	1
CPU13 Crank pulley puller (body)	1	
Output cylinder adapter	2	
CPH1 Crank pulley hold plate (body)	1	
Set bolt (hex hole included)	M6: 14 M8: 12	
Washers	M6: 2 M8: 2	
Adapter	M10: 2	

## Metal case

Usage • Crank pulley removal with the service tap fitted

Characteristics • Work time is reduced, as the radiator, condenser does not need to be removed. (Some vehicles may not be included.)

- When outside of the garage, it is not necessary to turn drive tools in the narrow confines of an engine compartment making the job easier.

• Other companies do not stock the outer parts of crank pulleys. However, as the CPHU2 uses service taps, and as the torsion damper rubber does not break down, it can be used freely.

- Torque can be controlled when tightening.

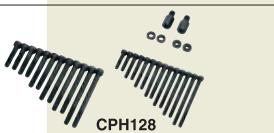
Application • Service taps are fitted to crank pulleys of vehicles ranging from light weight to normal passenger type and small trucks. (Excluding diesel vehicles that exceed 3000cc)

## ●CRANK PULLEY TOOL



●Removing and fitting crank pulley lock nut

●Crank pulley removal



4 Cam pulley lock

5 Timing belt replacement

6 Fitting the crank pulley, tightening the lock bolt

7 Checking Torque

## ●CAM PULLEY LOCK TOOL



## CAM PULLEY LOCK TOOL

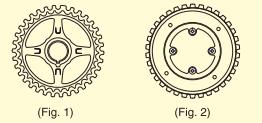
No.	▼g
AE82	860

**The cam pulley ensures excellent locking.  
It supports smooth timing belt removal.**

**Usage** • This is a tool that helps hold the 2-cam pulley's position, and helps prevent slippage when removing the timing belt in DOHC gasoline engines.

**Application** • Ranges from domestic light weight to normal passenger type vehicles with DOHC gasoline engines (FF, FR vehicles).

- As the insides of cam pulleys in some Honda and Mitsubishi vehicles are uneven, the pulley can move when tools that are in a fixed position are forced from the outside. (Fig. 1)
- It may not be possible to use this tool on some vehicles with adjustable valve timing as the shape can differ. (Fig. 2)



## Characteristics

- It is possible to fix the cam pulley in a set position during timing belt replacement before removing the timing belt and up to the end of the operation.
- Install by the use of the knob only.
- Operating space is saved when installing/ removing the timing belt as the center bolt is in an offset position.
- Is possible to be used in vehicles where there are obstacles between the 2 cam pulleys.



Usage

**CAUTION** • Make sure that all operators read the Owner's Operator Manual carefully before usage.

## ENGINE

## Disassembling, Inspecting and Installing Engine

1 Checking Torque

## ●CAM PULLEY HOLD WRENCH



## CAM PULLEY HOLD WRENCH

No. AE81	▼kg 1.1	1
Cam pulley hold wrench (body)	1	
Straight pin	2	
Flange fitted pin	2	

## Usage

- Exclusive cam pulley stopper tool

**Application** Diagram below: Cam pulley shape



## Characteristics

- The arm is opened/closed by a spring mechanism; this keeps constant tension on the opening action of the tool increasing safety.
- There are 2 types of stopping pins, both them fit the 2 types of cam pulleys mentioned above.
- The grip part is knurled, is easy to grasp and power is easy to apply.

## Replacement parts

Product name	No.	Contents
Straight pin	AE81-5	Straight pin: 2 1
Flanged pin	-6	Flanged pin: 2 1

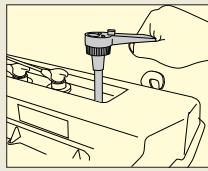
**CAUTION**

• Make sure that all operators read the Owner's Operator Manual carefully before usage.

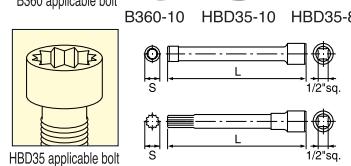
2 Removing Head Cover

## ●HEXAGONAL WRENCHES

3 Removing Head Bolt



## ●1/2"sq. CYLINDER HEAD BOLT WRENCH · SET



## CYLINDER HEAD BOLT WRENCH·SET

No. HBD353	▼g 355	
HBD35-8, 10		
B360-10		

No.	S	L	▼g	1
HBD35- 8	8	100	110	5
-10	10	115	115	5
B360 -10	10	130	130	5

## Purpose

- For fastening/loosening head bolts when removing/installing cylinder heads of engines

**CAUTION**

• DO NOT USE A TOOL WITH A POWER TOOL SUCH AS AN IMPACT WRENCH, ETC.

## CYLINDER HEAD BOLT SOCKET WRENCH · SET

No. HB352  
HB35-8, 10

▼g 300

5

mm

No.	S	L	▼g	5
HB35 - 8	8	80	140	5
- 8T	8	90	150	5
- 10	10	105	160	5

## Purpose

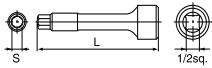
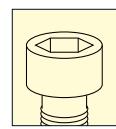
- For use on head bolt with hexagon end.



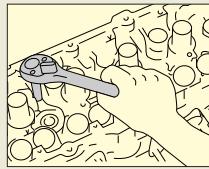
- DO NOT USE A TOOL WITH A POWER TOOL SUCH AS AN IMPACT WRENCH, ETC.

● 1/2"sq. CYLINDER HEAD BOLT  
SOCKET WRENCH-SET

1/2"sq.



- Hexagon bolt is made of special spring steel for superb durability.
- Also can be used on cap screw bolts (with hexagon hole) 8mm. & 10mm.

3 Removing  
Head Bolt

## CYLINDER HEAD BOLT SOCKET WRENCH-SET

No. B3502  
B350-10, 12

▼kg 1.3

5 1

mm(12pt.)

No.	S	L	▼g	5
B350 -10	10	190	600	5
-12	12	200	700	5

## FPurpose

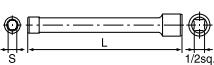
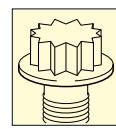
- Special wrench for removing/installing engine cylinder head bolts.



- DO NOT USE A TOOL WITH A POWER TOOL SUCH AS AN IMPACT WRENCH, ETC.

● 1/2"sq. CYLINDER HEAD  
BOLT SOCKET WRENCH-  
SET

1/2"sq.



- Socket part with suitable wall thickness properly treated for superb durability.

## CYLINDER HEAD BOLT &amp; FLY-WHEEL BOLT WRENCH-SET

No. ATBP603

▼kg 1.6

5 1

3/4"sq.

For head bolts ABP6-14WP  
For head bolts & fly-wheels ABP6-19WP, 22WP

mm(Triple Square)

No.	S	D <sub>1</sub>	D <sub>2</sub>	H	L	▼g	5
ABP6-14WP	14	22.5	38	15	140	400	5
-17WP	17	26	38	16	90	540	5
-19WP	19	29	38	16	90	550	5
-22WP	22	33	38	16	120	650	5

## Usage

- This is a wrench that is exclusively designed for the removal and installation of engine cylinder head bolts and fly-wheel bolts.

## Characteristics

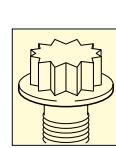
- For bolts of Isuzu and MitsubishiFuso and fly-wheel bolts.



- DO NOT USE A TOOL WITH A POWER TOOL SUCH AS AN IMPACT WRENCH, ETC.

● 3/4"sq. CYLINDER HEAD BOLT &  
FLY-WHEEL BOLT WRENCH-SET

POWERFIT®



- This 4 pcs. set can be used on both head bolts and fly-wheel bolts of Isuzu and MitsubishiFuso cars.

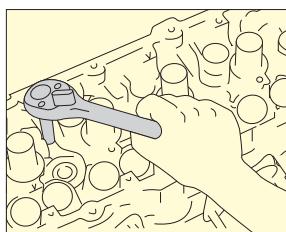
## TRIPLE SQUARE (12P) BIT SOCKET SET

No. TBT304TS

▼g 320

5 1

3/8"sq.

3/8"sq. Triple Square Bit Socket BT3-M5, M6, M8, M10  
Socket Holder EHB305● 3/8"sq. TRIPLE SQUARE  
BIT SOCKET SET

- Do not use power tools such as impact wrench.

**3** Removing Head Bolt**●3/8" & 1/2"sq. TRIPLE SQUARE (12P) WRENCH**

3/8" sq.

1/2" sq.

**TRIPLE SQUARE (12P) WRENCH**

No.	S	sq.	D	L	ℓ	▼g	✉
BT3-M 5	M5	9.5	17	72	43	50	10
-M 6	M6	9.5	17	72	43	51	10
-M 8	M8	3/8"	18.5	72	43	65	10
-M10	M10	3/8"	18.5	72	43	65	10
BT4-M12	M12	1/2"	22	76	40	110	10

**Purpose**

- Special wrench for special bolts with triple square holes such as head bolts, flange bolts of torsion joints, etc. of German cars.

**CAUTION**

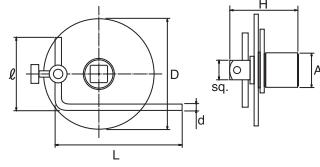
- DO NOT USE A TOOL WITH A POWER TOOL SUCH AS AN IMPACT WRENCH, ETC.

**■ Triple Square Replacement Bit**

No.	Applicable Part No.	Size	S	S <sub>1</sub>	L
T-M5	BT3-M5	M5	6.3	3.45	52
T-M6	BT3-M6	M6	6.3	4.34	52
T-M8	BT3-M8	M8	8	5.19	52
T-M10	BT3-M10	M10	10	6.96	52

**4** Installing and Fastening Head Bolt**●ANGULAR TORQUE GAUGE**

1/2" sq.

**ANGULAR TORQUE GAUGE**

No.	sq.	A	H	D	L	ℓ	d	▼g	✉
ATG30-1	1/2"	24.2	55	78.5	97	52	4.8	365	10

**Usage**

- For the fastening angle measurement of fastening bolt in plastic region (angle fastening bolt).

**Features**

- Small scale can measure in 5° increments, allowing the wide range of use for various engines of every manufacturer. (It can be used for imported cars as well as domestic.)

**CAUTION**

- Please don't tighten with a torque wrench when using this product. Torque wrench may be damaged by exceeding the set torque.

**How to Use**

1. Have the head bolt tightened by specific torque using a torque wrench.



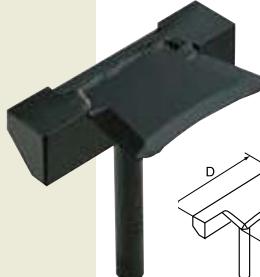
2. Set the angular torque gauge and stop the rotation with L-shape stopper.

3. Set the gauge needle at 0.

4. Tighten up to the specified angle with a spinner handle, etc.

**5** Torque checks**●TORQUE WRENCH**

P.175

**ENGINE****1** Cutting seal**●OIL PAN SEAL CUTTER****Removing oil pan****OIL PAN SEAL CUTTER**

No.	D	L	S <sub>1</sub>	S <sub>2</sub>	▼g	✉
TAG-48	70	78	48	24	180	10

**Purpose**

- Applied for removing oil pans with seal packings.

**Special feature**

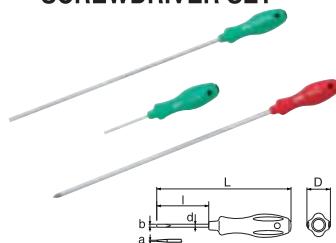
- Arc shaped cutter for hitting into seal part.
- The side cutter is sharp and when it digs into the base from the side it can slide easily.
- Sharp angled( $\alpha$ ) side cutter for deep contact and secure operation.
- Can be used in narrow spaces without handle.

**CAUTION**

- USE ANTI-DUST GLASSES WHEN USING THIS TOOL.

**2** Scraping Seal**●CERAMIC SCRAPER**

P.163

**ENGINES****1** Fastening/Loosening Adjustment Screw**●CARBURETOR SCREWDRIVER SET****Adjustment of idling****CARBURETOR SCREWDRIVER SET**

No. CD3	▼g 380	✉ 5
Carjet Screwdriver	CDZ-165	
Long Screwdriver, Flat	MDDZ-400	
Long Screwdriver, Cross	PDDZ-2	

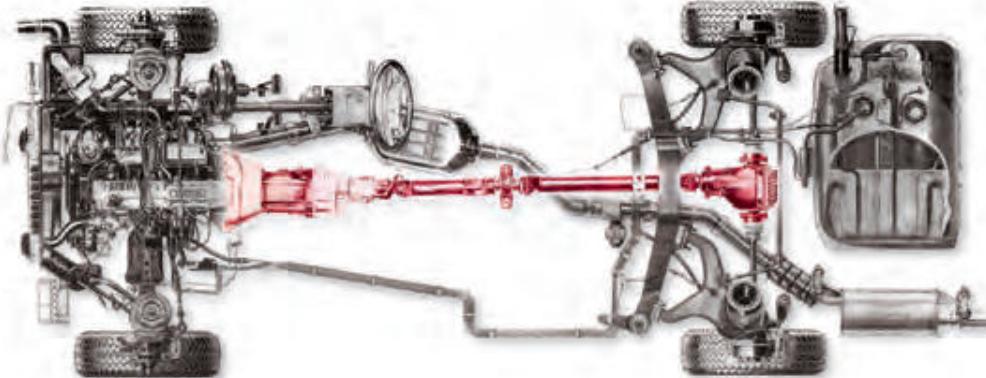
No.	Type	a	b	d	D	L	ℓ	▼g	✉
CDZ-165	Flat	0.7	3.5	3.5	27	155	60	40	5
PDDZ-2	Cross No.2	-	-	6	27	385	290	100	5
MDDZ-400	Flat	0.7	5.5	5.5	27	385	290	90	5

- For adjusting carburetors.

**WARNING**

- DO NOT USE THESE TOOLS WITH ELECTRIFIED OBJECTS.
- DO NOT USE A TOOL FOR PURPOSES OTHER THAN ADJUSTING CARBURETORS.

# Driveline System Mechanism

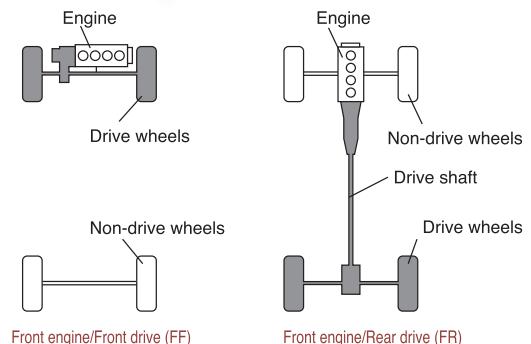


## MECHANISM 1

### FF model and FR model

As there are many types of drive mechanisms available in vehicles today, the FF method and the FR method are representative of most of these. Engines that are placed at the front of the chassis and that have the main drive going through the front wheels are known as FF (Front Engine Front Drive). Engines that are placed on the front side of the chassis and have the drive going through the rear wheels are known as FR (Front Engine Rear Drive).

As FR types have the steering mechanism and the drive mechanism separate, the system is easy to work with. However, a drive shaft is necessary to transfer the power from the engine to the rear wheels. Therefore, the drive shaft protrudes from the inner center of the vehicle. On the other hand, FF systems do not need a drive shaft and therefore have the merit of having the inner center of the vehicle free. However, as the steering mechanism and the drive mechanism have to be placed together, the system is more complicated.



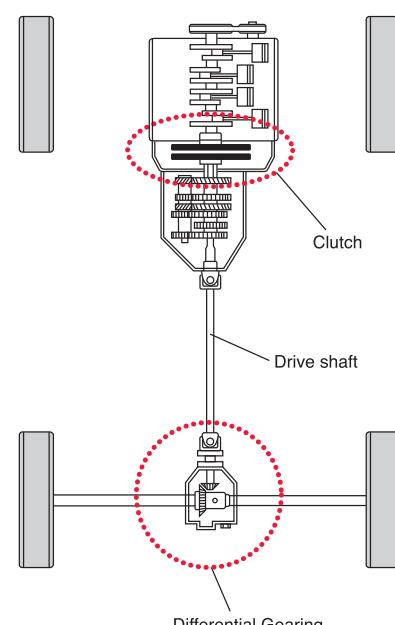
## MECHANISM 2

### Clutch

If the engine power and the transmission are connected directly, there is a large burden placed on the engine on starting.

Therefore, at the time of engine start, it is necessary to sever the relation with the transmission. Another way of looking at it is, the engine would stop if the effort of starting the engine were immediately placed on the transmission. It is here that the load is gradually placed on the transmission through a necessary mechanism known as a clutch.

The clutch, or the clutch plate (clutch disc) is fixed to the engine's flywheel where it transfers and takes away power from the drive system as it is activated on and off.



## MECHANISM 3

### Differential Gearing

The differential gearing plays the role of converting side directional rotation power towards forward motion, in other words, converting the power to forward motion when power is transferred to the rear wheels, it also helps in reducing speed and maximizing torque.

It also plays the role of adjusting the wheel speed on each side when driving around corners.

## DRIVELINE Transmission removal and attachment

### 1 Hanging Engine

This product is available as a set of 4 of each vehicle fender installation bolt, front support installation bolt, and strut tower installation bolt. These sets are known as set-points.

#### ● ENGINE HANGER

AE901K: Slide foot, Slide bar, Height adjustment foot x 2, Lifting tools, Connection plate x 1, and Installation bolts x 8

#### ENGINE HANGER FOR SHOCK ABSORBING BODY

No.	Capacity (Max. Load)	Winch weight ▲kg	▼kg	Box
AE901	2,450N(250kgf)	6	16	1

#### Purpose

- Dedicated tool for lifting up and hanging an automobile engine block.

#### Applications

- Engine block of FF vehicles from mini-cars to medium sized passenger cars (not applicable to the engine of trucks, vans and motorcycles).

Max usable load: Less than 2,450N (250kgf)

#### Characteristics

- In recent years, many vehicles have adopted impact absorbent bodies.
- Fenders have been designed so they can be adjusted back to be parallel with the ground even after they have been bent out of place in an accident.
- The tool has been designed to be able to deal with vehicles that have short fender ribs, and fenders that cannot be set correctly which conventional types have not been able to cope with to date.
- The tool can hold the engine in position whilst being able to move the chassis and also lift it up and down.
- The bridge can be set on an angle, and when carrying out belt replacement, the tool can be used to move the bridge from above the belt.
- This winch employs a rear type directional method. The drive area can be switched easily between the right and left sides that help movements to the desired position.
- Even with the chassis in a raised position, the winch can be used temporarily outside the garage by the use of a chain wheel.

\* This tool cannot be used on vehicles with resin set points.

\* Replacement parts are available. Check with your dealer for details.

#### Applicable details

Engine mass	Max usable load=2,450N (250kgf)
Chassis width	Max. slide width of bridge=1,550mm
Length of engine compartment	Foot max. slide width=810mm
Width of engine compartment area	Adjustment angle of slide bar=32° (To the side)
Difference between height and depth of engine compartment	Height adjustment foot retract/extension length=50mm
Incline angle of fender	Within 20°
Max. outer diameter of set point bolts	17.5mm
Max. height of set point bolts	20mm

#### ● Engine mechanical hanger optional kit (Kit corresponding to the previous model)

No.	▼kg
AE901K	8.5

- An optional kit designed for use on previous engine machine hangers (ATH10) bridge (bar), and one that work with impact absorbent bodies.

### 2 Removing/Installing Transmission

#### ● 3/8"•1/2"sq. NEW FLEX EXTENSION WRENCH

#### ● 1/2"sq. NEW FLEX WRENCH (WITH MAGNET)

#### NEW FLEX EXTENSION WRENCH

No.	Square Drive	L	▼kg	Box
BEF3020-950	Indents 1/2"sq. Notches 3/8"sq.	950	1.0	5

#### Purpose

- Removing/installing of clutch housing bolts.

#### Features

- Tip is 3/8"sq. with flexible head.
- Turns smoothly within the range of 40 degrees.

#### NEW FLEX WRENCH (WITH MAGNET)

No.	S	Socket (ℓ)	L	▼kg	Box
BEF31-12H	12	39	950	1.0	5
-14H	14	41	955	1.1	5
-17H	17	44	955	1.1	5

#### Purpose

- Suitable for disassembling/assembling transmission and clutches.

Also convenient for dismounting/mounting manifolds or diff-flanges.

#### Features

- Can be used as T Shape wrench, too.
- Turns smoothly within the range of 40 degrees.

\* DO NOT EXTEND THESE TOOLS WITH 2 PCS. OR MORE.

## DRIVELINE

## Disassembling Clutch

### 1 Installing Clutch Disc

#### ● CLUTCH ALIGNING TOOL

#### CLUTCH ALIGNING TOOL

No.	L	Applicable diameter	▼g	Box
CGP-1625	132	φ 16~25	120	1

- Innovative Clutch Aligning tool.
- It can be used on the work table.
- Just install the assembled unit on the car. Easy and quick operation.
- Made of special plastic for light and durable body.
- Covers almost all types of cars.

\* Not for use on cars.

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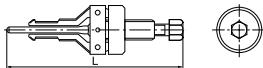
\*Please check the merchandise inventory for a product that is marked by before placing an order.

PILOT BEARING & BUSH PULLER

No.	Applicable Size	L	▼g	g
PBU-1219	Inner Dia. φ 12-19	145	215	10

**Purpose Features**

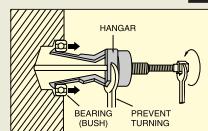
- Light and compact body for easy handling.
- Special claws offer firm gripping.
- Can be operated on the car.
- Wide application.
- \* Replacement parts are available. Check with your dealer for details.



PILOT BEARING & BUSH PULLER



Removing Pilot Bearing



2

Transmission/differential oil replacement

DRIVELINE

1

DRAIN PLUG SOCKET•SET(3pcs.)

No. ATC3013	▼g 245	g 1
1/2"sq. Drain plug socket	AC301-10,13,17	

No.	a	D	L	▼g	g
AC301-10	10.5	26.5	31	70	10
-13	13.1	26.5	31	85	10
-17	17.3	26.5	32	90	10

**Usage**

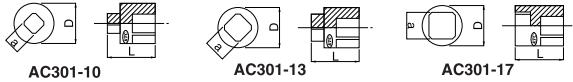
- A tool exclusively designed for tightening and loosening of drain plugs (filler) on transmissions, and differentials for Nissan and Subaru vehicles.

**Application**

- Mainly designed for Nissan FF types manual transmissions (AC301-10)
- Mainly designed for Nissan manual transmissions, rear differentials, Subaru 4WD rear differentials (AC301-13)

**Characteristics**

- Mainly designed for former Nissan FR types manual transmissions (AC301-17)
- By employing a 1/2" sq. drive, the tools can cope with drain plugs that have been tightened under heavy torque.
- Due to its hexagonal shape, the tool can be used with 24mm offset wrenches.



1/2"sq. DRAIN PLUG SOCKET•SET(3pcs.)



AC301-10 AC301-13 AC301-17

3/8"sq. HEX. BIT SOCKET DRAIN PLUG WRENCH

No.	S	D	L	ℓ	▼g	g
AE503-10	10	18	38	8	50	5

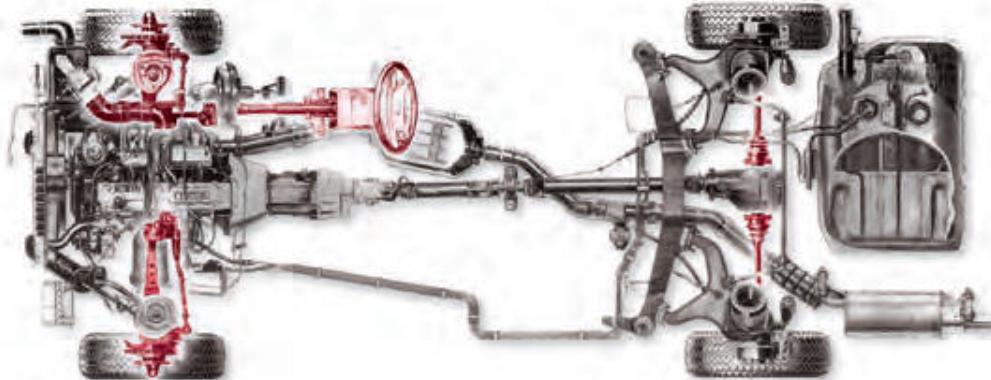
POWERFIT®

- 38mm length body enable to operate in a narrow space.
- Can be used for hexagon socket head type of TOYOTA and NISSAN.
- Less oscillation and stable operation.

3/8"sq. HEX. BIT SOCKET DRAIN PLUG WRENCH



# Steering System Mechanism

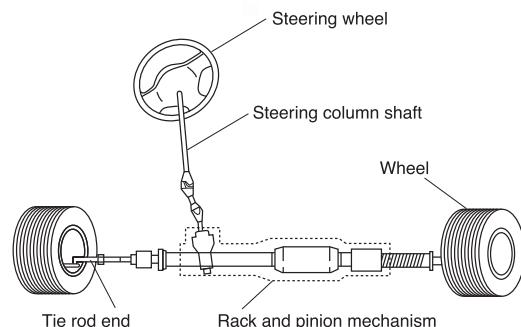


## MECHANISM 1

## Steering system makeup

By operating the steering wheel, the wheel direction is changed making the vehicle change direction. In other words, the steering system is a steering device. The fundamental mechanism allows the vehicle's direction to be changed when movement is transferred through the steering wheel gear box from the handle to the wheels.

There are many types of steering gear mechanisms available for steering systems. However, presently the main type is a combination of a rack and pinion gear. The rack gear connected at both ends by a tie rod is also known as the rack and pin method. However, because a large amount of power is required to change wheel direction, most vehicles now employ power steering mechanisms, which assist through hydraulics, and motorized mechanisms.



## MECHANISM 2

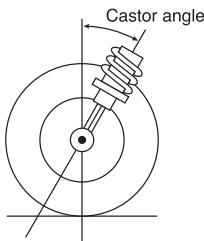
## Wheel alignment

The wheels are fitted on a slight angle (not horizontal or square) to assist steering and drivability, and to keep the vehicle traveling in a straight line. This adjustment is called "wheel alignment" and is made up of 4 elements - caster, camber, toe, king-pin angle.

### Castor

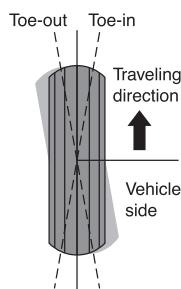
The front wheels are fitted off the axle on an angle, just as castors are fitted on the legs of chairs.

These are known as castors, by being set on an angle, help keep the vehicle in a constant aligned state.



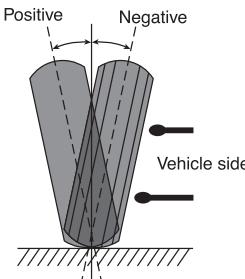
### Toe

Looking at the wheel angle from above, toe-in is known as when the vehicle's tracking moves inwards, and toe-out is known as when the tracking moves outwards. When the camber is set to positive, the tendency for the wheels to head outwards will be eliminated and the vehicle's forward tracking will improve.



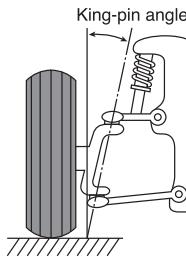
### Camber

The angle seen from the front that is made from the perpendicular line opposed to the ground, and the wheel incline, is known as the camber angle. A negative camber is where the bottom is open, and a positive camber is where the top is open. This affects the vehicle's operation, stability and cornering when turning.



### King-pin angle

When looking at the vehicle from the front, the king-pin axle faces towards the inside of the chassis leaning upwards. The angle that is perpendicular makes a line from the slant and the surface is known as the "king-pin angle". The angle that it is set to keeps the steering wheel in a straight position and also makes the steering return to the straight position after it has been turned.



## Side slip adjustment

### STEERING

#### TIE ROD LOCK NUT WRENCH

No.	D	T <sub>1</sub>	T <sub>2</sub>	T <sub>3</sub>	L	l	▼g	⊕
AS701	66	15	10	17	220	95	500	5

#### Usage

- Tightening and loosening Tie-rod end lock nuts in automobiles (light to normal automobiles)
- Side slip work at times of inspection and tire replacement.
- Rack boots replacement work

#### Application

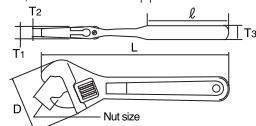
- Hexagonal, 2-faced 17~24mm width lock nuts for tie-rod ends (covers most domestically made light~normal sized automobiles).

#### Characteristics

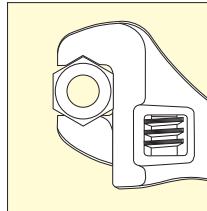
- The wrench is designed to grip the angles of the nut firmly and can loosen or tighten nuts without slipping.
- Even when a large amount of force is applied, the user's hand will not slip and injuries will not occur thanks to the width of the grip.
- The length of the tools means it does not become obstructed when the vehicle's steering wheels are at full rotate.

This means that the operation can be carried out without removing the tires. (Photo 1)

- As their measurements are provided, the size of the applicable nut can be selected in advance.

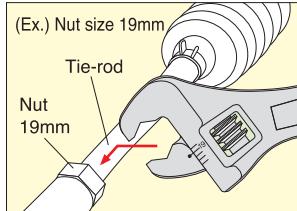


#### Holds the nut firmly



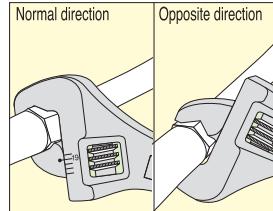
This wrench provides effective nut tightening / loosening without slippage. The shape of the wrench holds the angle of the nut.

#### The simple design of the set is ideal for nut



As the nut size has been set, it can be easily removed without obstructing the tie-rod.

#### The head is angled



As the head is angled it allows for both operating directions as required.

#### ●TIE ROD LOCK NUT WRENCH

Tightening and loosening Tie-rod end lock nuts

1



(Photo 1)



#### SIDE SLIP BOARD SET

No. ATG92	▼kg 31.5	⊕ 1(2 Cartons)
Side slip board		AG901
Step Board		AG902

#### ●Side slip board

No. AG901	▼kg 21.5	⊕ 1
Main body	×1	
Slope for side slip board	×2	

#### ●Step Board

No. AG902	▼kg 10	⊕ 1
Main body	×1	
Slope for side slip board	×2	Bolts with hexagonal holes (M5 ×10mm)×2

#### Characteristics

- Easy use without the need for heavy setting.
- The small and light design allows easy maneuverability.
- A separate type is available for vehicles with wider chassis.
- As the length is short the tool can be set up in tight spaces.
- As the height is low (28mm), vehicles can move on and off easily with slope.
- The displayed value remains at the maximum value.
- The needle can reset back to 0 easily by hand.
- The display range is a wide scale 0~20mm/m for both IN/OUT and is capable of handling imported vehicles as well.



Example of use No. ATG92

**CAUTION**

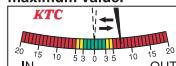
- Make sure that all operators read the Owner's Operator Manual carefully before usage.
- Make sure that all operators are qualified to use this device. (A qualified vehicle maintenance technician or a holder of a special certificate applicable for work in this area.)
- Do not use for non-specified purposes.
- Do not disassemble or modify this product.
- The AG902 (Step board) version does not have a side-slip display function attached. Use the ATG92 (Side slip board set) or the AG901 (Side slip board) x2 in combination with this product.

#### ●SIDE SLIP BOARD SET

Easy checks before vehicle fitness certificate inspections.  
Fast check, Side slip



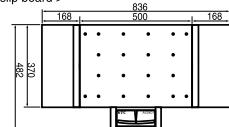
The displayed value remains at the maximum value.



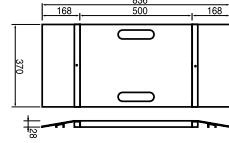
The needle can reset back to 0 easily by hand.

The display range is a wide scale 0~20mm/m for both IN/OUT and is capable of handling imported vehicles as well.

< Side slip board >



< Step board >



## STEERING

## Axe disassembling/assembling

**1** Wheel removal  
 ①Wheel cap removal  
 ②Wheel nut removal

## ●WHEEL CAP WRENCH

P.255

**2** Hub nut removal

## ●IMPACT WRENCH

P.255

## ●WHEEL NUT SOCKET FOR IMPACT WRENCH

## ●CROSS RIM WRENCH

## ●OTHER TOOLS

**3** Disc caliper removal

## ●SOCKET

## ●SOCKET

## ●OTHER TOOLS

**4** Tie-rod separation

## ●TIE-ROD END SEPARATOR

P.240

## ●BALL JOINT SEPARATOR

P.240

## ●BOX END WRENCH

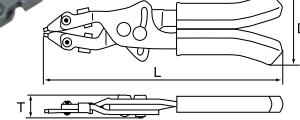
## ●SPINNER HANDLE

**5** Removing the axle assy

## ●PLASTIC HAMMER

**6** Snap ring removal

## ●SNAP RING PLIERS FOR HUBS



No.	D	T	L	▼g	■
AS307	58.5	18.2	228	310	5

## Usage

- Installing and removing the snap ring used in the hubs of vehicles.

## Application

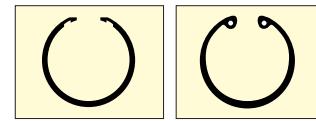
- The open range of the mouth of the snap ring pliers is min. 10mm~max. 36mm

## Characteristics

- Employs a non-stepped, automatic locking device. Can be locked to the desired position.
- The lock can be released easily from the handle.
- Only the claw can be easily replaced.
- All models, except the hole fitted snap ring type, can deal with notched type rings designed for certain models (Toyota).

## Replacement parts: Pointed claws

No.	Contents
AS3072	Claw R/L 1, Installation screws 2



**7** Removal/installation of the axle assy.

## ●MULTI PULLER

All axles can be disassembled and assembled with this set.

## Usage

- An exclusive tool designed for vehicle axle assembling/disassembling, steering wheel diff-companion flange mission bearing & gear removal, and also a range of bearing & gear removal.

Axle	Dismantling and fitting hubs and knuckles
Steering	Dismantling and fitting the bearing race
Differential	Removing the steering wheel
Transmission	Removing the companion flange
Others	Removing various types of bearings and gears

## Application

- Mainly used for the axles of light to normal FF vehicles
- Applicable for steering wheels, diff-companion flanges, transmission bearings and gears in light to normal vehicles.

Maximum weight when in use 19,600 N (2 t)

Hub bolts 4~5 Holes

Wheel bearing diameter  $\phi 64 \sim \phi 84$ Bearing race diameter  $\phi 47 \sim \phi 63$ Hub holder 1  $\phi 68 \sim 84$  mmHub holder 2  $\phi 76 \sim 106$  mm

## Characteristics

- The axle can be dismantled and refitted using 1 set.
- Is applicable for hub bearings that are attached to either the inner or outer sides.
- A hydraulic press can be used making operations both easy and fast.
- The removal/installation of the arms is carried out by a one-touch set ball type system.
- The center bolt is fitted with a bearing, which makes for a light drive torque.
- Is applicable to FR and 4WD rear vehicles, as well as FF axles.
- Has a varied use on the steering wheel, differential companion flange, transmission bearing and gearing, as well as the axle.
- Is possible for use on the removal of other bearings and gearing from other devices because of interchangeable parts.

\* Replacement parts are available. Check with your dealer for details.

## MULTI PULLER



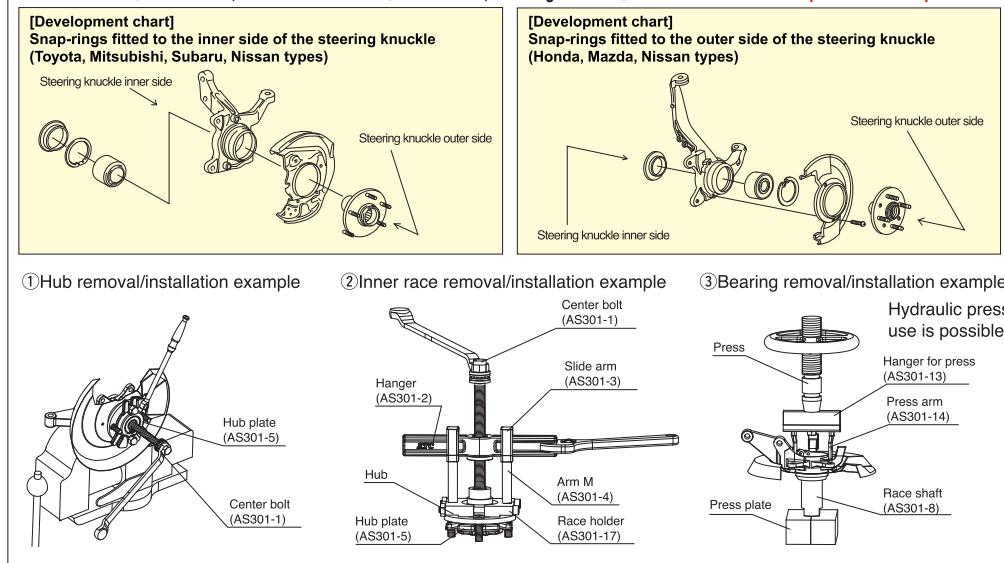
## ●Multi puller

No. AS301	▼kg 17
Center bolt assy	Hexagonal 2 faced 22mm width x length 280mm (M18 x 2.0)
Hanger	270 x 38 x 37 mm
Slide arm	60.5 x 30 x 20 mm
Arm M	$\phi 16 \times 105$ mm
Hub plate	$\phi 154 \times 24$ mm (Screw: M18 x 2.0, 1/2"sq. inc.)
Hub holder 1 assy.	$\phi 70 \times 34$ mm(Wing bolt (M6) inc.)
Hub holder 2 assy.	190/190 mm(Hexagonal adjustment bolt (M10) with hole inc.)
Race shaft	$\phi 55 \times 114$ mm(Screw: M18 x 2.0)
Plate (4 types)	A( $\phi 79 \times 15$ ) B( $\phi 71 \times 15$ ) C( $\phi 67 \times 15$ ) D( $\phi 60 \times 15$ ) 1 each
Hanger assy. for press	150 x 50 x 25 mm(Hexagonal bolt (M10) + washer inc.)
Press arm	$\phi 16 \times 75 \times 35$ mm
Hanger nut	$\phi 45 \times 18$ mm(Screw: M18 x 2.0)
Race holder assy.	90 x 140 mm(Hexagonal adjustment bolt (M10) with hole inc.)
Plate bolt	Hexagonal 2 faced 22mm width x length 34mm (M18 x 2.0)
Arm L	$\phi 16 \times 330$ mm
Claw	27 x 25 x 12 mm
M8 Bolt	Bolts with hexagonal holes (with washer) x 100 mm
M10 Bolt	M10 hexagonal bolt with hole for M10 (with washer) x 100 mm

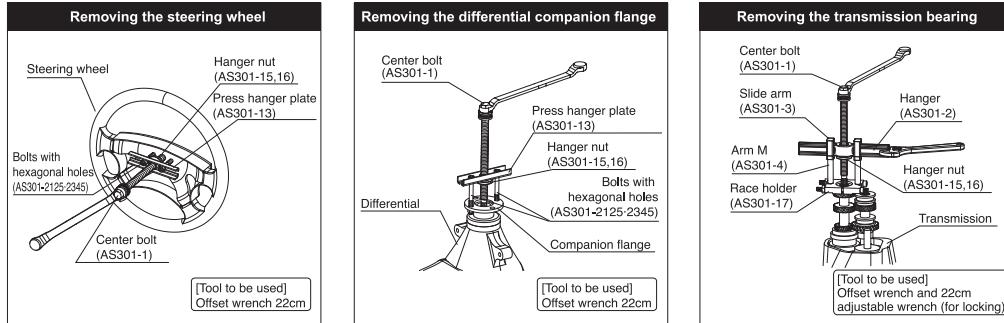
\*Please check the merchandise inventory for a product that is marked by before placing an order.

## ●Ex. Multi puller operation: The following operations are possible by the multi puller.

## 1. Hub removal/installation, Inner race removal/installation, Bearing removal/installation 1 set compatible for multiple makers.



## 2. Other operating example: The following operations are possible with the multi puller.



## Replacement parts

Center bolt assy.	No. AS301-1	Race shaft	No. AS301-8	Press arm	No. AS301-14	Bolt set for M8	No. AS301-2125
	Quantity 1		Quantity 1		Quantity 2		Quantity 2
	M18 x 2 screws, Full length: 280mm, Hexagonal 2-faced width: 22mm		M18 x 2 Screw, $\phi 55 \times 114mm$		16 x 75 x 35mm		M8 hex hole bolt full length 100mm
Hanger	No. AS301-2	Plate A	No. AS301-9	Hanger nut	No. AS301-15	Bolt set for M10	No. AS301-2345
	Quantity 1		Quantity 1		Quantity 1		Quantity 2
	270 x 38 x 37mm		$\phi 79 \times 15$		$\phi 45 \times 18mm$		M10 hex hole bolt full length 100mm
Slide arm	No. AS301-3	Plate B	No. AS301-10	Hex hole bolt for the hanger nut	No. AS301-16		
	Quantity 2		Quantity 1		Quantity 2		
	61 x 30 x 20mm		$\phi 71 \times 15$		$M5 \times 10mm$		
Arm M	No. AS301-4	Plate C	No. AS301-11	Race holder assy.	No. AS301-17		
	Quantity 2		Quantity 1		Quantity 1		
	$\phi 16 \times 105mm$		$\phi 67 \times 15$		90 x 140mm, M10 hex hole bolt (hex nut) included		
Hub plate	No. AS301-5	Plate D	No. AS301-12	Plate bolt	No. AS301-18		
	Quantity 1		Quantity 1		Quantity 1		
	Insertion angle 1/2"sq. M18 x 2screw $\phi 154 \times 24mm$		$\phi 60 \times 15mm$		M18 x 2 screws, Full length: 34mm, Hexagonal 2-faced width: 22mm		
Hub holder 1 assy.	No. AS301-6	Hanger assy. for pressing	No. AS301-13	Arm L	No. AS301-19		
	Quantity 1		Quantity 1		Quantity 2		
	$\phi 70 \times 34mm$ , Wing bolt M6 included		150 x 64 x 31mm, M10 hex bolt (washer) included		$\phi 16 \times 330mm$		
Hub holder 2 assy.	No. AS301-7			Claw assy.	No. AS301-20		
	Quantity 1				Quantity 2		
	190 x 190mm, M10 hex hole bolt (hex nut) included				27 x 25 x 12mm		

## ●IMPACT WRENCH

## ●WHEEL NUT SOCKET FOR IMPACT WRENCH

## ●OTHER TOOLS

## ●TORQUE WRENCH SET FOR THE WHEEL NUT

① Attaching the wheel nut  
② Checking torque

1. Removing wheel → 2. Removing tie rod → 3. Removing pitman arm → 4. Removing lock nut → 5. Separating & removing drive shaft & hub → 6. Disassembling/Installing drive shaft band → 7. The attaching of the drive shaft to the chassis → 8. Attaching the wheel

**STEERING**

**1** Removing wheel  
① Removing Wheel Cap

① Removing Wheel Nuts

**2** Removing tie rod

**3** Removing pitman arm

## Drive shaft disassembling/assembling

● **WHEEL CAP WRENCH**



P.254

● **ALUMINUM WHEEL CENTER CAP WRENCH**



P.254

● **OTHER TOOLS**

● **IMPACT WRENCH**



P.200

● **WHEEL NUT SOCKET FOR IMPACT WRENCH**



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● **CROSS RIM WRENCH**



P.134

● **TIE ROD END SEPARATOR (OFFSET TYPE)**



**TIE ROD END SEPARATOR**

No.	L	W	H	▼kg	Box
AS201	135	55	116	1.6	1

**Purpose**

- Separating tie rod end.

**Features**

- Tough! Power increased!
  - Rated output power: 15kN(1.5t), maximum power, 30kN(3t)
  - Applicable to larger output power compared with former model (BJU-1945).
- High Durability Design
  - Durability enhanced by offset shape.
  - Fits various vehicle models.
  - Range of opening: 16mm-50mm
  - Applicable tie rod end: from mini cars to large passenger cars (3L)
- Easy operation raises work efficiency.
  - Use of thrust bolt alone enables easy installation and removal of tie rod end.
  - Smooth job using with a drive tool.
  - Square drive (3/8"sq.) adopted. Can hold counterforce of driving tool.

**Application Table**

Object	Models	Mini Cars	Compact Cars
Tie Rod End		●	●
Suspension	Upper	●	△
	Lower	X	X

● **BALL JOINT SEPARATOR (OFFSET TYPE)**

PAT. P



**BALL JOINT SEPARATOR (OFFSET TYPE)**

No.	L	W	H	▼kg	Box
AS202A	165	70	160~200	3.0	1

**Purpose**

- Separating ball joint.

**Features**

- Study design of the rated output, 2.5t
- Use of thrust bolt alone permits removal and pulling out of rod end.
- Smooth job using with a drive tool.
- Square drive (3/8"sq.) used. Can hold counterforce of driving tool.

**Spare parts**

No.	Name	▼kg	Box
AS202-A24	Claw	0.7	1
AS202-J	Jaw	0.7	1

**PITMAN ARM PULLER**

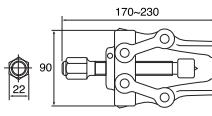
No.	Application	▼kg	Box
PAU-3747	Mini & Compact cars, trucks & tractors	1.5	1

**Usage**

- Pulls of pitman arm from center shaft quite easily.
- Forged claws with proper heat-treatment.
- A cord supplied for tying to prevent fall off.
- Fastening and claws will contact deeply to inside.

**Application**

- Pitman outer diameter  $\phi 37\text{--}\phi 47$

\*Please check the merchandise inventory for a product that is marked by  before placing an order.

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1. Removing wheel → 2. Removing tie rod → 3. Removing pitman arm → 4. Removing lock nut → 5. Separating & removing drive shaft & hub → 6. Disassembling/Installing drive shaft band → 7. The attaching of the drive shaft to the chassis → 8. Attaching the wheel

**LOCK NUT CHISEL**

No.	a	b	D	L	ℓ	▼g	⊕	
AS404	0.4	4.5	50	173	51	350	10	

**Purpose**

- Removal (Attachment) of sealed type lock nuts on drive shafts.

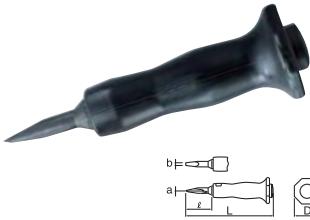
**Application**

- Most of sealed type lock nuts used on drive shafts.

**Features**

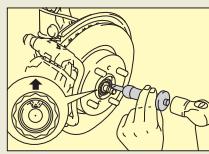
- Sealing and pulling up of sealed part lock nuts is possible with one single chisel.
- Ship-shaped tip facilitates pulling up of the caulked part by hitting the chisel head.
- Grip, made of rubber, is easy to handle and is provided with the flange for protection of your hand.
- Forged and strong!

● **LOCK NUT CHISEL**



Removing lock nut

4



**IMPACT SOCKET FOR HUB NUT**

1/2" sq.

1/2"sq. Impact Socket For Hub Nut Set

No. ATS3082 ▼g 730 ⊕ 1

Hub Nut Socket AS308-30W, 32W

1/2"sq. Impact Hub Nut Socket

No.	S	D <sub>1</sub>	D <sub>2</sub>	H	L	ℓ	▼g	⊕	
AS308-30W	30	42	29	15	75	55	360	1	
AS308-32W	32	44	29	15	75	55	370	1	

**Usage**

- Impact wrench loosening of double hexagonal shape front (rear) axle hub nuts used in Toyota.

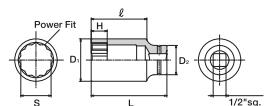
**Features**

- Socket for impact wrench that has adopted the double hex. that matches the shape of hub nut.
- Aperture depth that matches the hub nut shape and thin-walled outside diameter shape are used.
- Semi-deep type with 75mm total length that does not interfere with the drive shaft threaded portion.

● **1/2"sq. IMPACT SOCKET FOR HUB NUT PAT.**



Attached pins and rings  
PR-2026



**SLIDE HAMMER PULLER**

No.	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	L	Shocker Weight	Screw Size	▼kg	⊕	
AUD3	60	68	30	14	580	1.2kg	W9/16-12	2.7	1	
AUD4	85	68	30	18	675	3.5kg	M18×2.0	5.5	1	

**Purpose**

- Body shop working.

**Application**

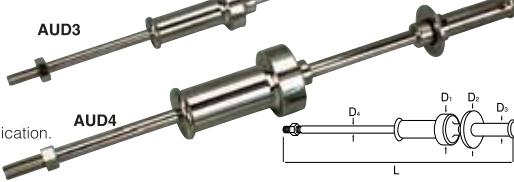
- For mini cars, passenger car and pick up trucks.

**Special features**

- Safety conscious design.
- Big and small hammers with weight 3.5kgs and 1.2kgs for wide application.

**CAUTION** • WHEN USING SLIDE HAMMER, MIND WORKING POSTURE AND THE POSITION OF HANDS. IMPROPER POSITION CAN RESULT IN INJURY.

● **SLIDE HAMMER PULLER**



Separating & removing drive shaft & hub

5

**SLIDE HAMMER PULLER ATTACHMENT**

Screw size conversion adapter set for slide hammer

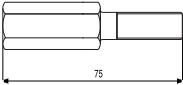
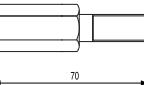
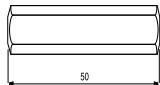
No. ATUD302	▼g 600	⊕ 1
AUD3-1820	Screw Size Puller Side W9/16-12 Object Side M18×2.0	
AUD3-G1/2	Screw Size Puller Side W9/16-12 Object Side G1/2	

No. ATUD402	▼g 600	⊕ 1
AUD4-9/16	Screw Size Puller Side M18×2.0 Object Side W9/16-12	
AUD4-G1/2	Screw Size Puller Side M18×2.0 Object Side G1/2	

Screw size convertible adapter set for slide hammer puller

No. ATUD307

AUD3-A1	Screw Size Puller Side W9/16-12 Object Side M18×1.5 Suzuki
AUD3-A2	Screw Size Puller Side W9/16-12 Object Side M19×1.5 Toyota
AUD3-A3	Screw Size Puller Side W9/16-12 Object Side M20×1.0 Nissan, Daihatsu
AUD3-A4	Screw Size Puller Side W9/16-12 Object Side M20×1.5 Mazda
AUD3-A5	Screw Size Puller Side W9/16-12 Object Side M22×1.0 Nissan
AUD3-A6	Screw Size Puller Side W9/16-12 Object Side M22×1.5 Nissan, Mazda, Mitsubishi, Daihatsu
AUD3-A7	Screw Size Puller Side W9/16-12 Object Side M24×1.5 Nissan, Honda



● **SLIDE HAMMER PULLER ATTACHMENT**

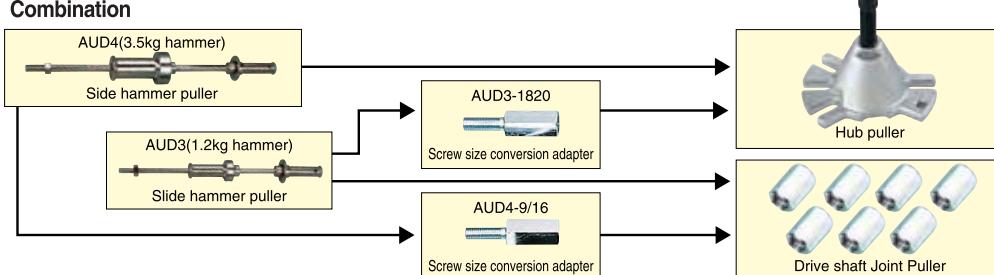


ATUD 302  
ATUD 402



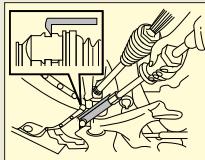
ATUD 307

**Combination**



\*Please check the merchandise inventory for a product that is marked by before placing an order.

## 5 Separating & removing drive shaft & hub



### ● DRIVE SHAFT REMOVER FOR SLIDE HAMMER

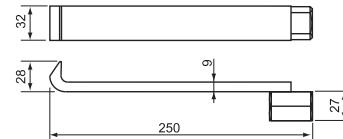


#### DRIVE SHAFT REMOVER FOR SLIDE HAMMER

No.	Size	Screw Size (puller-side)	▼g	Box
AUD3-AD1	250 x 32 x 28	W9/16-12	660	1

#### Purpose

- Removing drive shaft from trans-axle (FF vehicle).
- Used exclusively with slide hammer puller (AUD3).



### ● SLIDE HAMMER PULLER ATTACHMENT



#### HUB PULLER FOR SLIDE HAMMER

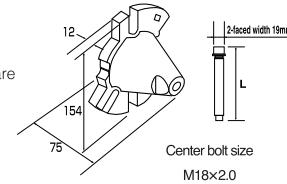
No.	Applicable Hub	▼kg	Box
AS30	PCD100mm~140mm Bolt M14smaller	1.4	1

#### Purpose

- Drawing axle shaft and brake drum.

#### Special feature

- Can be used for both 4 holes and 5 holes types.
- Can hold reactive force from driving tool as square drive (3/8"sq.) used.
- Open-end wrench usable as width across flats provided. Can hold counterforce.



#### Replacement parts

No.	Product name	L	2-faced width	▼g	Box
AS30-1	Center bolt (M18 x 2.0)	138	19	240	1

### ● HUB PULLER (FOR 6 HOLES) FOR THE SLIDE HAMMER PULLER



#### HUB PULLER FOR SLIDE HAMMER

No.	Applicable Hub	▼kg	Box
AS309	PCD140mm M14	2.5	1

#### Usage

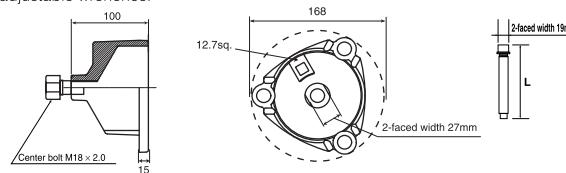
- Pulling out the axle shaft/brake drum and pushing out the drive shaft

#### Application

- 6 hole type hub for vehicles.

#### Characteristics

- Deep hole design is compatible with the front free wheel hubs on 4 wheel drive vehicles.
- With a 12.7sq drive, force application can be maintained by the drive tool.
- The 27mm 2-faced width allows the application force to be maintained while using adjustable wrenches.



#### Replacement parts

No.	Product name	L	2-faced width	▼g	Box
AS30-1	Center bolt (M18 x 2.0)	138	19	240	1

**BOOT BAND CUTTER**

No.	B <sub>1</sub>	B <sub>2</sub>	T	L	▼g	kg
AS402	24	41	11	193	260	10

**Usage**

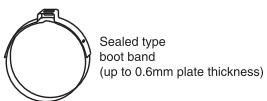
- Cutting the boot or boot band of the drive shaft

**Application**

- The stainless boot band of the drive shaft on light weight vehicles to standard vehicles.



Standard, modified boot bands



Sealed type boot band (up to 0.6mm plate thickness)

- Rubber drive shaft boot

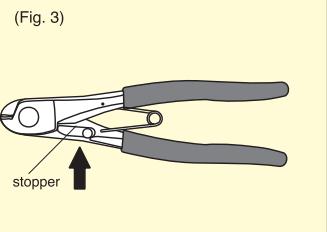
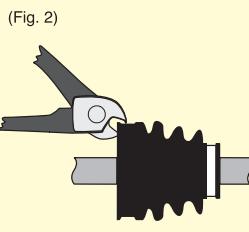
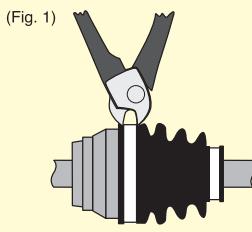
**Characteristics**

- Cutting can be conducted while the boot band is attached.
- The boot band can also be cut, increasing overall operation speed. (Fig. 1)
- The same tool can be used to cut the boot after cutting the band. (Fig. 2)
- The attached spring allows easy opening while the stopper allows storage in a compact form.
- Pushing the stopper while holding the handle will fix the tool in a position where the handle is closed, reducing the total storage space occupied by the tool. (Fig. 3)
- \* Springs are available as replacement parts. Check with your dealer for details.

**● BOOT BAND CUTTER**

Disassembling/  
Installing drive  
shaft band

① Removing  
Boot Band

**EXTERNAL SNAP RING PLIERS**

No.	D	L	ℓ	▼g	kg
AS403A	90	168	21	170	10
AS403B	90	168	21	170	10

**Usage**

- Useful in the removal and installation of snap-rings without grips that aid removal.

**Application**

<AS403A>

- Standard snap-ring without removal aid.
- Working with narrow rings in openings is easier as the tip of the claw is of a thin design.

<AS403B>

- This is a special tool designed for Honda snap-rings that are fitted in narrow openings with their gripping areas placed on an angle.
- Wear and tear is limited to the claw, and therefore only the claw needs replacing.

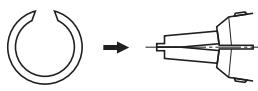
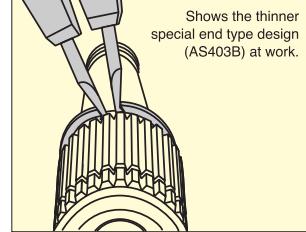
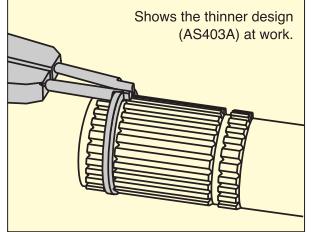
**Characteristics**

<AS403A>

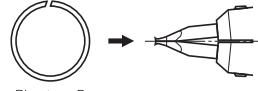
- As the tip is of a step fitted shape, previous hard to work with snap-ring removal/installation is now easier.
- Vertical and horizontal settings are possible depending on the position of the axle.

<AS403B>

- Suitable for snap-ring removal/installation in Honda vehicles that are traditionally hard to work with.
- \* Spare parts are available for springs and claw type screws.



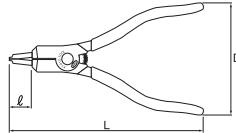
Ring type A



Ring type B

**● EXTERNAL SNAP RING  
PLIERS**

AS403A (Thin end type)

AS403B (Special tipped type)  
Exclusive to Honda vehicles**PARTS FOR REPLACEMENT END CLAW**

No.	Content of set
AS403A4	AS403A Claws: 4 sets
AS403B4	AS403B Claws: 4 sets

**6** Disassembling/  
Installing drive shaft  
band  
③Fastening/Cutting  
of Boot Band

④Sealing

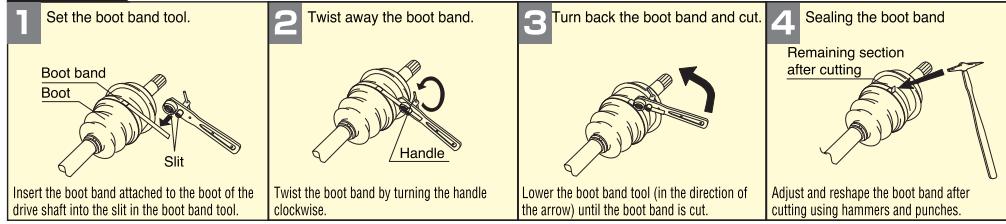
③Sealing of the boot  
band



●BOOTS BAND TOOL  
WITH CUTTER PAT. P



Method of use



●CENTER PUNCH



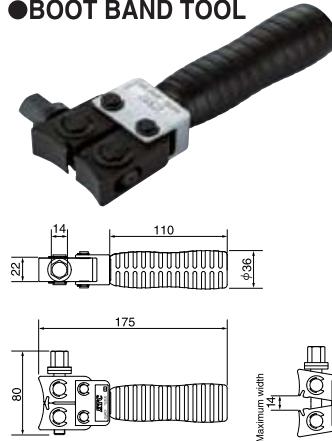
P.161

●HAMMER



P.158

●BOOT BAND TOOL



BOOTS BAND TOOL

No.	▼g	✉
AS405	750	1

Usage

- An exclusive tool used for sealing the boot band on the drive shaft of vehicles

Application

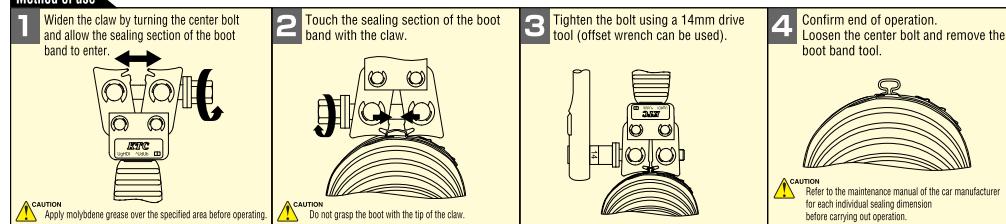
- The tool is compatible with light weight to passenger type vehicles using the sealing type boot band.(Can be used for imported vehicles)

Characteristics

- Sealing is made easy by a simple bolt screw-in operation.
- The operation is faster and easier when using wrenches, such as the ratchet type, etc. (Hexagonal 2-faced width 14mm)
- As the center bolt is fitted with a flange, an offset wrench can be used and the wrench will not slip off.
- A resin grip is employed for the handle to prevent slippage.
- A claw form has been employed to stop the sealing section from rising.

CAUTION • Make sure that all operators read the Owner's Operator Manual carefully before usage.

Method of use



**7** Housing Nut & Hub  
bolt removal

**8** Attaching the wheel  
①Attaching the  
wheel nut  
②Checking torque

●IMPACT WRENCH

●WHEEL NUT SOCKET  
FOR IMPACT WRENCH

●CROSS RIM  
WRENCH

●OTHER TOOLS

●TORQUE WRENCH SET FOR  
THE WHEEL NUT

\*Please check the merchandise inventory for a product that is marked by before placing an order.

## Housing Nut & Hub Bolt removal

### HOUSING NUT WRENCH (FOR HEXAGONAL AND OCTAGONAL NUTS)

No. AS351 ▼kg 4 1

Housing nut wrench for large vehicles (for hexagonal and octagonal nuts) 1

Metal Case (245x140x110)

\*Replacement parts are available. Check with your dealer for details.

#### Usage

- Loosening / tightening of the rear housing nuts

#### Application

- Width across flat rear housing nuts used in heavy vehicles (class 4t)

#### Characteristics

- Compatible with both hexagonal and octagonal types
- Specially designed claw to fit both hexagonal and octagonal types
- Special design helps avoid slipping.
- Claws are specially designed to firmly hold the surface of the nut.
- Size is easily adjustable.

Adjust size simply by tightening hexagonal knob with a 17mm drive tool.

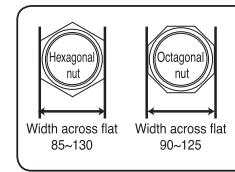
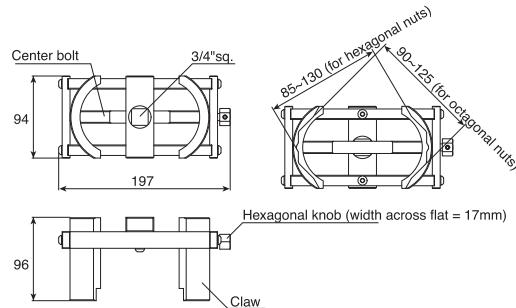
### ● HOUSING NUT WRENCH FOR LARGE VEHICLES (FOR HEXAGONAL AND OCTAGONAL NUTS) D.PAT.P



Metal case is included



\*3/4"sq drive tool (sold separately) is required for operation.



### HOUSING NUT WRENCH (FOR CIRCULAR NUTS)

No. AS352 ▼g 450 1

Housing nut wrench for small vehicles (for circular nuts) (Main body) 1

Pin A (for pin-hole diameter  $\phi 6.8\sim 9$ ) 2

Pin B (for pin-hole diameter  $\phi 9.1\sim 10$ ) 2

Wing nut 2

\*Replacement parts are available. Check with your dealer for details.

#### Spare parts

Product name	No.	Tip diameter
Pin A (2)	AS352-2	$\phi 6.5$
Pin B (2)	-3	$\phi 9$

#### Usage

- Loosening / tightening of the rear housing nuts

#### Application

- Width across flat rear housing nuts used in small vehicle (class 2t)

#### Characteristics

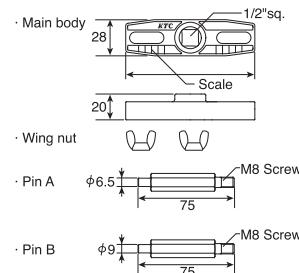
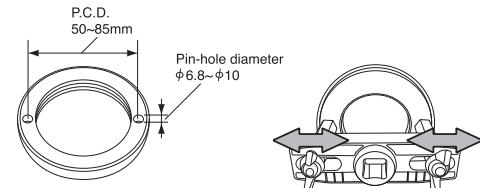
- Compatible with both hexagonal and octagonal types.
- Pitch is adjustable by sliding the pin.
- Easy to position

Easy to center as a scale is marked on the wrench.

### ● HOUSING NUT WRENCH FOR SMALL VEHICLES (FOR CIRCULAR NUTS)



\*1/2"sq drive tool (sold separately) is required for operation.



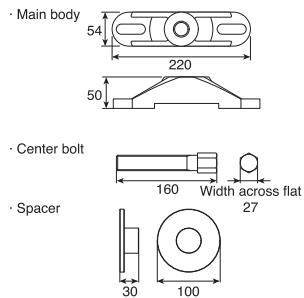


\*An off-set wrench (with 27mm width across flat) or a socket with a drive tool (sold separately) is required for operation.

## ● REAR HUB PULLER FOR LARGE VEHICLES



Metal case is included



### REAR HUB PULLER FOR LARGE VEHICLES

No. AS353	▼kg 3.5	1
Rear hub puller for large vehicles (Main body)	1	
Center bolt	1	
Spacer	1	

### Metal Case (245x140x60)

### Spare parts

Product name	No.
Center bolt	AS353-2
Spacer	-3

### Usage

- For removal of rear wheel hub

### Application

- Rear wheel hubs that are used in large vehicles (class 4t), which fulfills conditions below.
  - 8 or 10 holed (number of axle shaft attachment bolts)
  - P.C.D. 140~188mm
  - The size of axle shaft attachment bolt = M12~16

### Characteristics

- Aluminum wheel will not be scratched or damaged.  
Aluminum wheels will not be scratched as the tool is attached to the axle shaft attachment holes using the axle shaft attachment bolt.
- Light and compact  
Simple to set up.
- Removal operation made easy  
Hub is easily removed by tightening the bolt with an off-set wrench, or a socket with a drive tool (with 27mm width across flat).

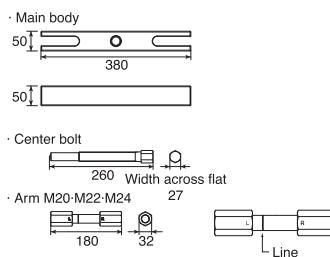


\*An off-set wrench (with 27mm width across flat) or a socket with a drive tool (sold separately) is required for operation.

## ● FRONT HUB PULLER FOR LARGE VEHICLES



Metal case is included



### FRONT HUB PULLER FOR LARGE VEHICLES

No. AS354	▼kg 12.1	1
Front hub puller for large vehicles (Main body)	1	
Center bolt	1	
Arm M20	2	
Arm M22	2	
Arm M24	2	

### Metal Case (380x240x75)

### Spare parts

Product name	No.
Center bolt (1)	AS354-2
Arm M20 (2)	-3
Arm M22 (2)	-4
Arm M24 (2)	-5

### Usage

- For removal of front wheel hub.

### Application

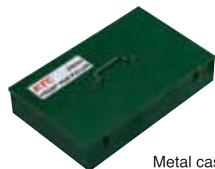
- Front wheel hubs that are used in large vehicles (class 4t), which fulfills conditions below
  - 6, 8, or 10 holed (6/8-hole: JIS system, 10-hole: ISO system) wheels
  - P.C.D. 222.25~335
  - Hub bolt size = M20x1.5, M22x1.5, M24x1.5

### Characteristics

- Aluminum wheel will not be scratched or damaged.  
Aluminum wheels will not be damaged as hub is removed by attaching this tool to hub bolts.
- Hub can be removed on both left and right wheels with just 1 arm.  
The arm is engraved with "L" and "R" to distinguish between left and right wheel.
- The tool comes with 3 arm types.  
There are three types of hub bolt size - M20, 22, and 24. The different sizes can be distinguished with number of lines on the arm.  
(M20: 1 line, M22: 2 lines, M24: 3 lines)



\*A 1/2"sq spinner handle or an off-set wrench (with 24mm width across flat) (sold separately) is required for operation.



Metal case (W380xD240xH75)

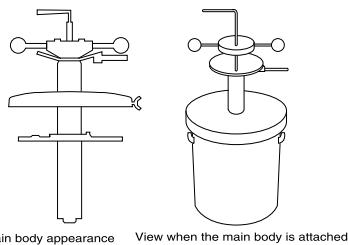
## Bearing grease charge STEERING

## GREASE EXCHANGER HIGHLOAD

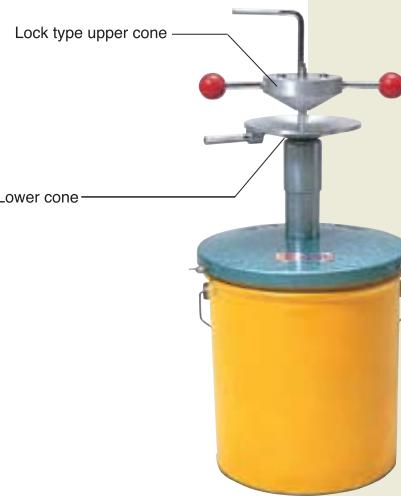
No.	Applicable Container	Applicable Bearings	▼kg	✉	
GZR18	16kg round cans	φ 15~100	19	1	

## Usage

- Suitable for exchanging grease used in heavy-load bearings of large-sized vehicles.
- For exchanging grease in the hub bearings during inspection and servicing of vehicles for general use.
- **Wide range of applications.**  
For bearings of various sizes used in automobiles (from mini-cars to large-sized trucks) and construction machinery.
- **Easy handing, improved work efficiency, keeps hands clean.**  
Grease can be exchanged easily, requiring no skill.  
Operator's hands stay clean and free of grease, so he can proceed working immediately.
- **Reduced grease consumption by eliminating waste.**  
Only a minimal amount of grease is required. Grease can be used completely to the bottom of a can, so you can save more grease than is possible with manual exchange operation.
- **Simple, highly reliable mechanism.**



## ● GREASE EXCHANGER "HIGHLOAD"



• GZR18 is the heavy-duty model of GZ18.

## GREASE EXCHANGER HIGHLOAD ASSY.

No. GZR182	▼kg 2.2	✉ 1
Upper cone	Applicable Bearings φ 15~100	

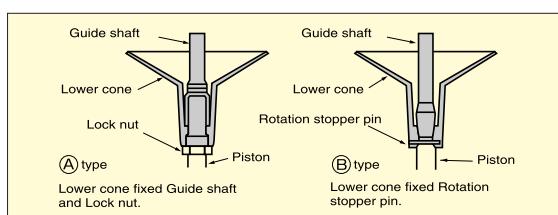
Lower cone

Handle

Rotation stopper handle

Guide shaft

- This kit of replacement parts for upgrading a GZ18 grease exchanger into a "HIGHLOAD" type heavy-duty grease exchanger can be used only with the (A) type model. Adaptability can be confirmed by pressing the bellows below the lower cone and checking if the lock nut is present.
- GZ18 can be used as GZ18 heavy duty model by assembling with these parts.



## ● ASSEMBLY PARTS FOR GREASE EXCHANGER "HIGHLOAD"



## GREASE EXCHANGER

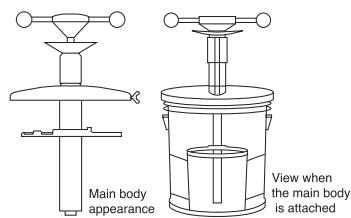
No.	Applicable Container	Applicable Bearings	▼kg	✉	
GZ18	16kg round cans	φ 15~100	8.2	1	

## Usage

- Grease charging heavy load bearings of large automobiles.
- Grease charging to hub bearing of various automobiles in inspection or service.

## Features

- Work time can be reduced to about 1/7 compared to the previous method.
- Useful in wide range of application.
- Keeps your hands clean and raises work efficiency.
- Grease in the can can be used up completely so waste can be eliminated and grease can be saved.
- KTC-original pumping unit exchanges grease easily by using fresh grease to push out old grease.



## ● GREASE EXCHANGER

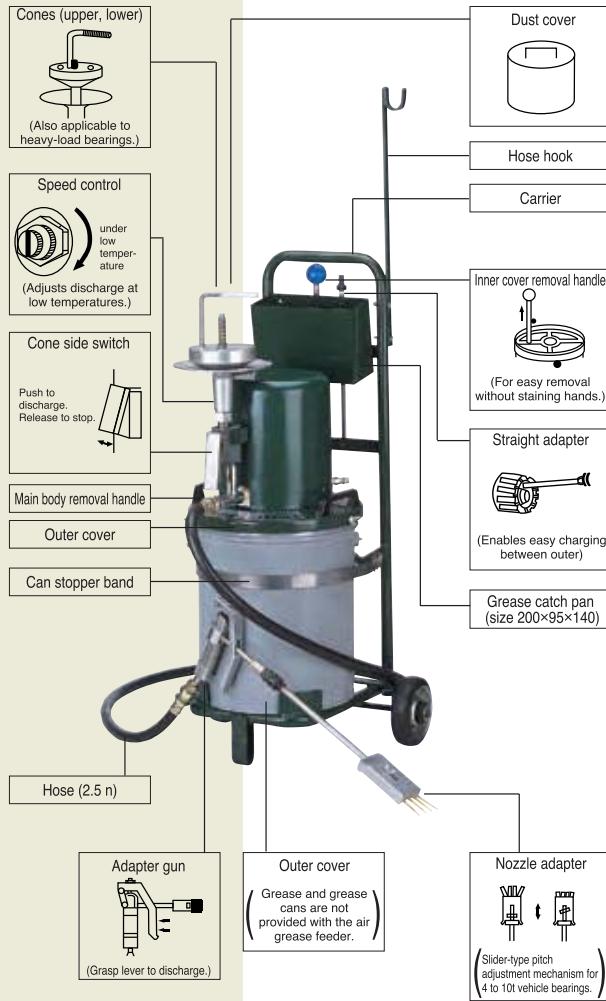


Condition of Use

## ●AIR GREASE FEEDER



## ●Name of parts and their applications



## AIR GREASE FEEDER

No. AVG35	▼kg 30
Pump type	Air-driven plunger pump
Size	460×360×1,190
Discharge	500g/min. on nozzle side (No.3 grease, 29°C, no load)
Discharge pressure	75~80kg / cm <sup>2</sup>
Air pressure	6~9.8kg / cm <sup>2</sup>
Grease type	No.0~No.3
Can	16kg pail can
Temperature Condition	0~40°C

## Applicable bearings

Cone side	Bore 15 to 100 mm
Hose side	Nozzle Adapter Nozzle adapter Bore 45 to 90 mm ( bearing pitch 15 to 21 mm, equivalent to front-rear tapered roller bearing for 4 to 10 t vehicles )

## Usage

Dedicated equipment for feeding grease into tapered roller bearings during grease exchange or supply for medium-to large-sized trucks.

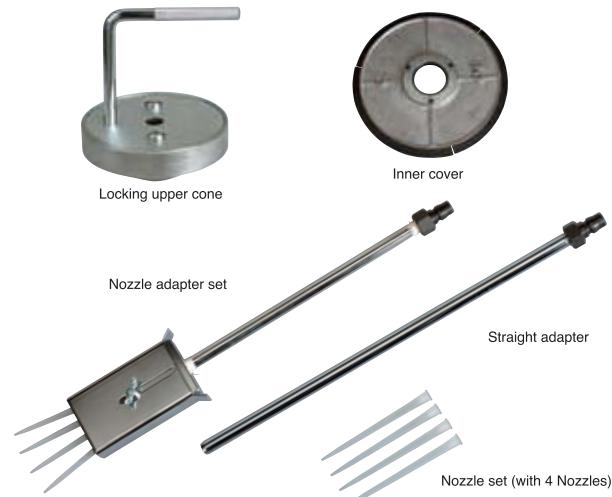
## Application

Bearings with cone side bores of 15 to 100 mm, hose side bores of 45 to 90 mm and bearing pitches of 15 to 21 mm.

## Features

- With the nozzle adapter, fresh grease pushes out old grease, without no need to remove each bearing.
- Grease can also be fed into a removed bearing by installing it on the cone.
- Grease can be fed even at around -10°C by proper piston speed control operation.
- Foreign objects (such as moisture and dirt) in compressed air are filtered out by an air filter, preventing air regulator operation failure.
- The built-in air regulator ensures air supply at optimal pressure.
- Easy operation and setup reduces work time.
- The carrier is equipped with a can stopper band and plate that prevents the grease can from falling or being displaced.

**CAUTION** • DO NOT PULL THE LEVER EVEN AFTER REMOVAL OF THE AIR HOSE. OTHERWISE, GREASE MAY SCATTER INTERNALLY DUE TO RESIDUAL PRESSURE.  
• STORE IN PLACES WHERE YOU CAN AVOID FREEZING.  
• USE CLEAN AIR FOR INPUT.



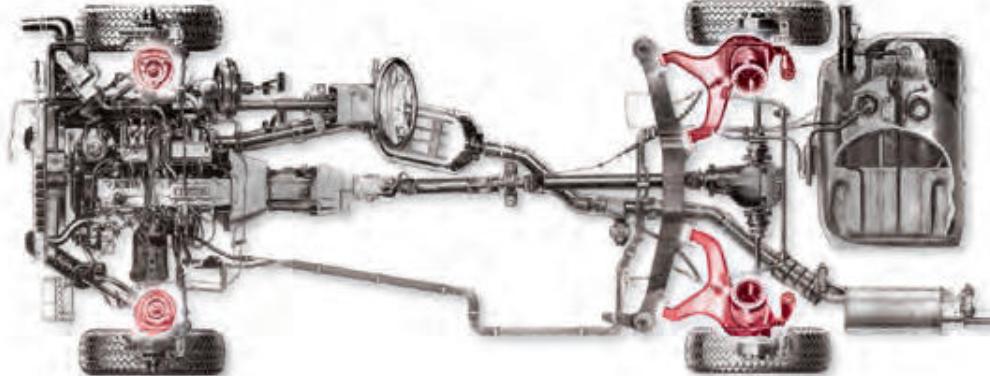
## Supply parts

No.	Part Name	Q'ty
AVG35-2	Locking upper cone	1
-4	Inner cover	1
-6	Straight adapter	1
-7	Nozzle adapter set	1 (with 4 nozzles)
-7-7	Nozzle set	1

\* These parts are also optionally available.



# Suspension System Mechanism



## MECHANISM 1

### The suspension

Suspension is designed to dissipate the load forced onto a vehicle by absorbing vibration and impact from the road, stabilizing the position of the car while driving, and sustaining the optimum balance of the car for comfortable driving. The suspension is constructed using a combination of spring or shock absorber that absorbs vibration/impact and a stabilizer that reduces horizontal movement (roll).

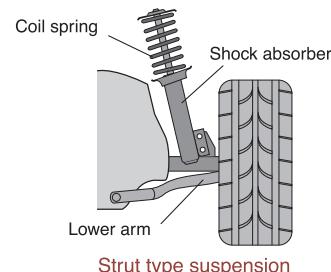
## MECHANISM 2

### Types of suspension

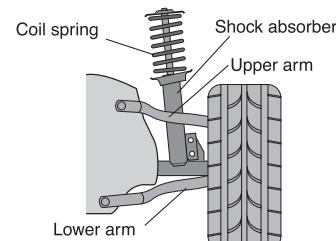
#### Strut type suspension

The lower part of the suspension system uses the lower arm attached to the chassis to receive the drive shaft where as the upper part is placed on the extension of the king pin, connected to the body with the coil spring attached to the shock absorber.

The system allows for a lower number of component parts, providing increased space as a merit, however, is less effective during larger rolls while cornering.



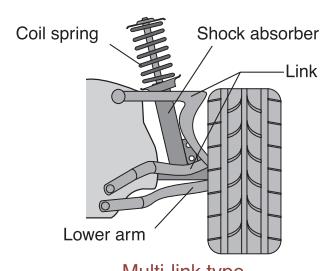
Strut type suspension



Double wishbone type

#### Double wishbone type suspension

The double wishbone type suspension system has independent moving right hand and left hand parts. The independent hanging type is most common. The two upper and lower suspension arms support the combined shock absorber and coil spring. The wishbone name likens the shape of the arm to the chest bone of birds. The system provides high rigidity, better stability and handling but due to the complex structure, the system occupies space.



Multi-link type

#### Multi-link suspension

The term multi-link is coined as the system is structured by dividing the lower arm into multiple links. The high control ability born of the multiple link system allows the vehicle to sustain the vehicle in an optimum balanced condition during roll, breaking, and acceleration. Recently, the system has been used in many luxury vehicles.

## SUSPENSION

## Disassembling/Assembling Suspension System

**1** Removing/Installing Wheel  
 ① Remove Wheel Cap  
 ② Remove/Installing Wheel Nuts

## ● WHEEL CAP WRENCH

## ● CENTER CAP WRENCH FOR ALUMINUM WHEEL

## ● OTHER TOOLS

**2** Pinching off Brake Hose  
 ① Block off of Hoses  
 ② Disassembling Pipe

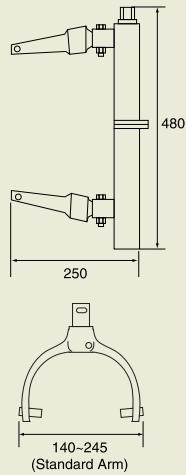
## ● IMPACT WRENCH

## ● WHEEL NUT SOCKET FOR IMPACT WRENCH

## ● CROSS RIM WRENCH

## ● OTHER TOOLS

**3** Removing/Installing Suspension System



## ● STRUT SPRING COMPRESSOR D.PAT.



## STRUT SPRING COMPRESSOR

No. AS10	kg 6.0	1
Body	AS10-1	
Standard Arm (Dia.90~170)	AS10-2	

## Applicable Coil Spring

Article	Applicable Capacity
Wire Dia.	18mm or smaller
Outer Dia.	Standard Am... 90~170mm Large Am ..... 135~220mm
Coiling Cycle	2 times or more
Coil Span	20mm or over

## Purpose

- For removing/installing coil springs used in automotive suspensions.
- Wide application for use on front- & rear-suspension of FWD(FF Cars) and RWD(FR Cars), strut type coil springs, etc.

## Special feature

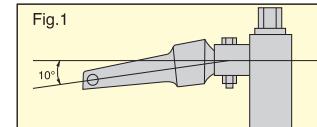
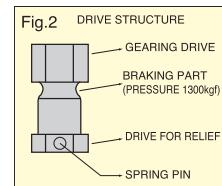
- If excessive load is applied on spring compressor, breaking mechanism will work inside the drive of center screw bolts. (Breaking load: 1,300kgf.) (Fig.2)
- Built in center screw bolts for protecting screw part.
- Compact pipe style body for easy operation.

## Body

No.	Dimension	kg	1
AS10-1	Length 480×φ 42	3.8	
Arm			
No.	Applicable Diameter	kg	1
AS10-2	Standard Am Dia. 90~170	2.2	1
AS10-3	Large Am Dia. 135~220	2.5	1

**WARNING**

- BEFORE USING THIS TOOL, CAREFULLY READ THE PROVIDED INSTRUCTIONS.
- NEVER APPLY OVER TORQUE ALTHOUGH BRAKE MECHANISM WORKS AT THAT TIME.
- NEVER USE THIS TOOL WITH IMPACT WRENCH.
- THIS TOOL IS SUITABLE FOR USING ON JAPANESE CARS.



## Cautionary points on handling the spring compressor

As a result of the investigations carried out based on consumer comments and questions concerning the usage of the previous spring compressor SPU-70315 (1987~1995) provided by our company, the following daily uses were occurring. It is requested that the User's manual and cautionary points along with the maintenance procedures of this product are read thoroughly before use.

If any faults are recognized under the inspection items within the inspection guidelines, stop using this product and replace with the spring compressor (product number: AS10) currently provided by our company.

## Explaining the situation

- Recent strut type springs have high spring numbers or illegally modified springs projecting a high stress load. Attachment and removal of springs that exceed the previous safety standards is being conducted.
- The tool is used when the span of the upper and lower arm (that hooks the spring during spring attachment and removal) is short. The spring characteristic allows for the compression that presses the spring to be different even when compressing the same amount.
- The spring is sometimes compressed using prohibited power tools (impact wrench) instead of the hand tool. Using a power tool to compress the spring is dangerous due to the immediate change in tightening strength, which can lead to compression exceeding the permissible range of the product.

The content explained above relates to an extremely dangerous operation on using the tools.  
Check the following inspection guidelines when using this tool.

Ex.) Standard number of springs (Load necessary in order to compress the spring by 1mm)  
 2 springs wound 363N/mm  
 3 springs wound 180N/mm  
 The compression load can double depending on the condition in which the spring is hooked (wound).

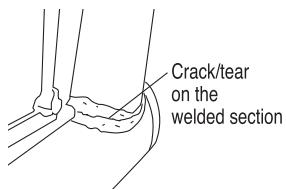
## Inspection guidelines

- Inspection spots and inspection methods (do not use if the following inspection items are faulty)

### ① Welded spot on the attachment section of the fixed arm

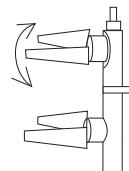
- Thoroughly clean the welded section using brake cleaners, etc. and visually check for any torn, cracked weld sections.

(Cracked or torn sections are faulty)



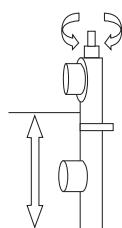
### ⑤ Moving and fixed arm sway inspection

- After properly attaching the fixed and moving arm to the main unit, check that the neck sways smoothly without unevenness. (If uneven, item (4) is swelled or the attachment section is deformed.)



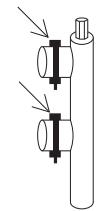
### ② Inspecting the center screw bolt

- From the slide groove on the main unit moving arm, visually inspect for unusual wear or bends on the center screw bolt.



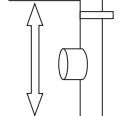
### ⑥ Fixed and moving arm attachment bolt

- Remove the fixed and moving arm attachment bolt from the main unit and visually check for bends, wear, and damage on the screw section.



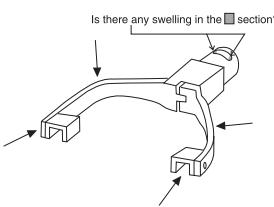
### ③ Moving arm friction inspection

- Turn the head-drive with your hands and check that the moving arm moves smoothly. (When rotation is uneven, the center screw bolt is worn or damaged.)



### ④ Individual inspection for the fixed and moving arm

- Remove both arms from the body and inspect for bends and wear.
- Inspect for any deformities on the hole for passing through the attachment bolt.
- Check that the arm can be removed easily.



If any faults are found in the above inspection, the parts have exceeded their useful life. Continuing to use these parts can cause damage and is dangerous. Avoid use.

The listed contents can be used for the inspection for AS10. Please perform these inspections.

## Cautionary points on use

- Never use an impact wrench as this can cause the spring compressor to break.

### [Pre-use inspection]

- Perform the following inspections before operation and check for any faults. (Do not use if there are any faults)

- ① Check that the attachment bolts and nuts on Arm 1 and Arm 2 are not loose.
- ② Arm 1 and Arm 2 necks should sway freely.
- ③ Turn the center screw bolt with your hands and check that Arm 2 moves smoothly along its full stroke.
- ④ The hook moves swiftly left and right.
- ⑤ There are no signs of cracking, deformity, or damage.

### [Attaching the spring]

- ① Attach to the diameter section of the spring when attaching the hook to the spring. (Fig. 2)
- ② Set to the widest position when considering the span of the hook for the upper and lower arms. (Distance between diagram 3A and B)
- ③ The spring pitch number (wind number) for the wind between the left and right hooks for the upper and lower arm must be equal. (Fig. 3)

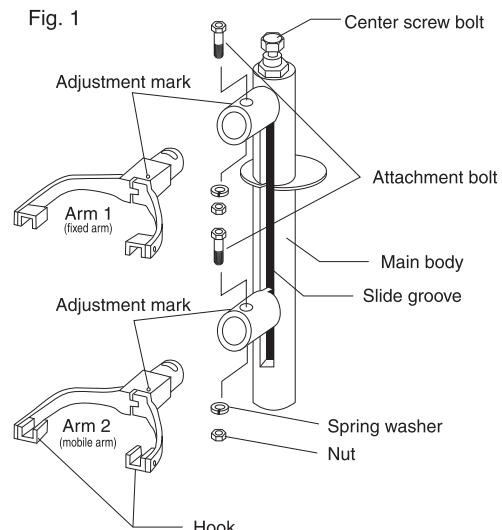


Fig. 2 Coil spring

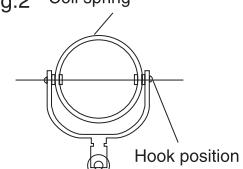
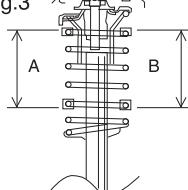


Fig. 3



Same right/left pitch (A=B)

### [In use]

- When the tightening force suddenly increases during compression, immediately stop operation and loosen the spring.
- Do not compress until the line spaces between the springs are filled.
- Take care as to avoid having the upper and lower arm attachment bolts touch when using springs with low pitch numbers (fewer winds).
- Many springs with low pitch numbers have a high load. Use a torque wrench to control the torque of the tightening drive when using. (Tightening drive torque should be below 44N·m)

### [Maintenance]

- Apply support the screw section of the center screw bolt and apply lubricant before use.
- When storing, make sure foreign particles/dust, etc. do not enter the slide groove section of the main unit.
- Do not disassemble or modify this product.

**4** Inspecting Torque

## ●TORQUE WRENCHES



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**5** Installing Wheel and Inspecting Torque

## ●IMPACT WRENCH



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## ●WHEEL NUT SOCKET FOR IMPACT WRENCH



P.256

## ●CROSS RIM WRENCH



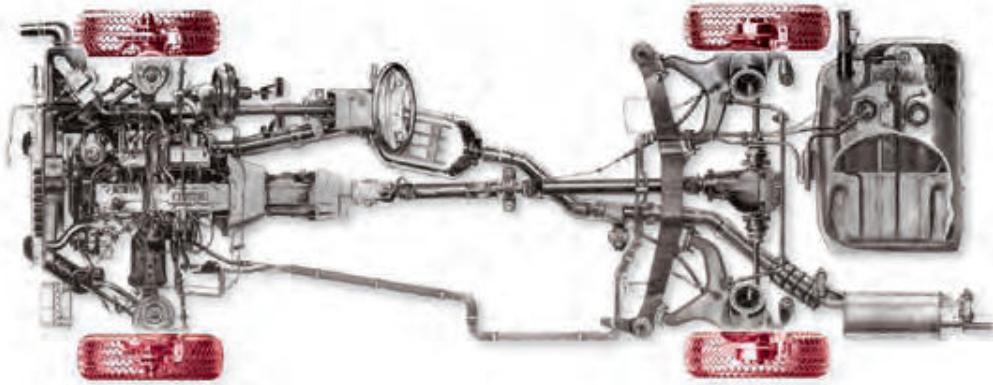
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## ●WHEELNUT TORQUE WRENCH



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# Tire & Wheel Mechanism



MECHANISM 1

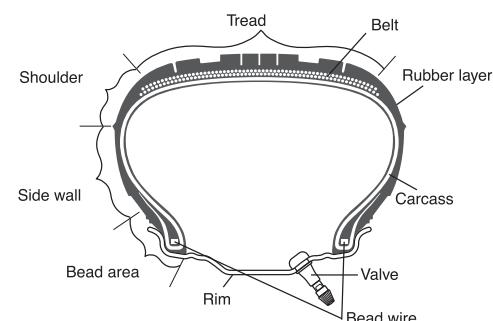
## Function and mechanism of tire

The tires support the weight of the vehicle, they not only transfer the drive and braking power, they also protect the vehicle from road shock and play a role in transferring the vehicle's functionality to the road.

The following details the parts of the tire structure: Tread: This is the area that comes into contact with the road. Shoulder: The area that protects the carcass of the tire. Sidewall: The area where the tire size and the manufacturer's name is displayed. Bead area: This is made up of the rubber layers, belts, carcass, and bead wire materials and is where the tire is fixed to the rim.



Cross section of a bias tire

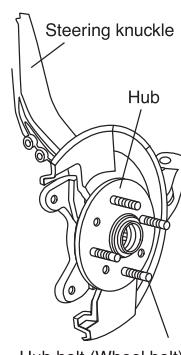


Cross section of a radial tire

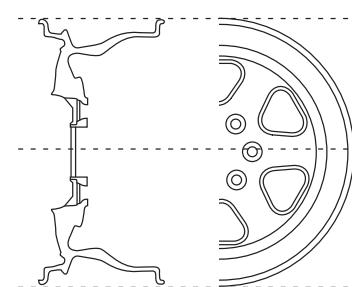
MECHANISM 2

## Wheel & hub

A wheel consists of a rim and tire which is attached to the "hub" assembly. In modern cars the hub is a disc which normally contains 4-6 bolts (or studs) and is attached to the axle by way of the axle nut. The average amount of bolts is between 4-6. The heavier the vehicle, the more wheel nuts/bolts will be required.



Hub bolt (Wheel bolt)

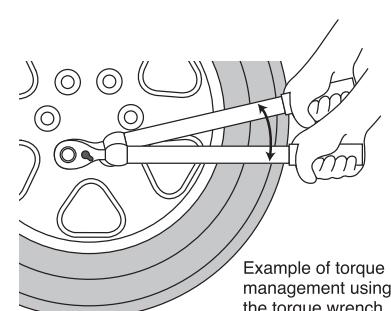


Cross section of wheel

MECHANISM 3

## Torque management suggestion

Not only the tires, but faulty attachment or tightening of the hub bolts (wheel nuts) will largely influence safe driving. For example, if tightening of the hub nut (wheel nut) is weak, the tire can fall off because of vibration. If tightening is too strong, the hub bolt can break. In order to prevent these accidents, the tightening torque should be managed with a torque wrench. The common tightening torque for passenger vehicles is 103N·m and this torque is relatively easy to achieve. If the hub-nut (wheel nut) of your vehicle cannot be loosened with the provided tire wrench (providing there is no rusting), the hub nuts have been tightened excessively.



Example of torque management using the torque wrench

## TIRE &amp; WHEEL

## Wheel attachment and removal

## 1 Installing Fender Cover

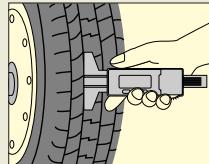
## ●FENDER COVER



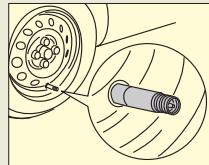
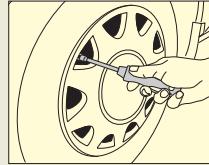
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## 2 Inspecting Tire Grooves

## ① Checking the tire groove

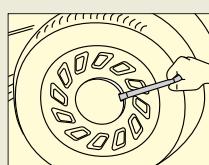
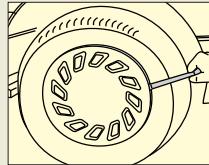


## ② Inspection and Adjustment of Air Pressure



## 3 Removing/Installing Wheel

## ① Removing Wheel Cap



## ●TIRE VALVE WRENCH



## TIRE VALVE WRENCH

No.	D	l	L	▼g	✉
AH2-4	17	165	235	40	1

## Purpose

- Used to remove/install valve core of tires of mini cars, compact cars, trucks and buses (except for motor cycles, construction vehicles and tire of double tires)

## Features

- Long shaft enables operation without hitting tire with the tool and improves work efficiency. (The length is 165mm.)
- Thinner handle to turn.

## ●TIRE AIR GAUGE



## TIRE AIR GAUGE

No.	Range	Minimal indication	Thickness	l	L	▼g	✉
AGT231	0~500kPa (0~5kgf/cm <sup>2</sup> )	10kPa	95	100	270	800	1
AGT232	0~1200kPa (0~12kgf/cm <sup>2</sup> )	10kPa	95	100	270	800	1

## Purpose

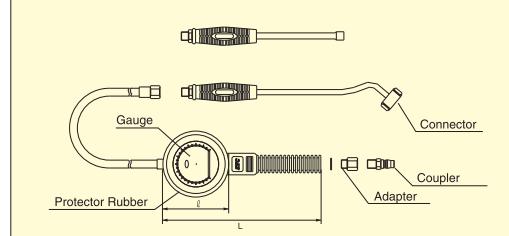
- Measuring, increasing and decreasing air pressure in car tires.

## Application

- Tire Air Gauge 500: for passenger cars and commercial cars (vans)
- Tire Air Gauge 1200: for motorcycles, passenger cars, trucks and buses.

## Features

- Light touch lever enables smooth fine adjustment.
- Large gauge (Φ 70mm) easy to read measurements. Possible to measure and decrease pressure without connection with the air hose.
- Swivel joint prevents hose twisting.
- Ultra-thin straight connector on the tip (tip: 11mm dia.) facilitates use for most of aluminum wheels (AGT231).
- Double connector usable for outer tire of double tires (AGT232).
- Usable for some of the inner tire depending on the notch shape of the wheel.



## Connectors for replacement:

Connectors	No.
Straight connector	AGT23-A1
Double connector	AGT23-A2
Clip Connector	AGT23-A3

## ●WHEEL CAP WRENCH



## WHEEL CAP WRENCH

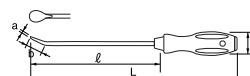
No.	a	b	D	l	L	▼g	✉
AH101	1.3	20	40	215	350	200	5

## Purpose

- Removing wheel cap from cars.

## Features

- Thin tip; easy to put in between wheel rim and wheel cap, with lower possibility of damaging wheel cap and wheel.
- Tip is bent for easy operation.
- Hand fitting plastic handle.



## ●CENTER CAP WRENCH FOR ALUMINUM WHEEL



## CENTER CAP WRENCH FOR ALUMINUM WHEEL

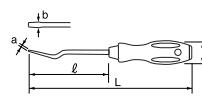
No.	a	b	D	l	L	▼g	✉
AH102	0.7	7	34	115	235	90	5

## Purpose

- Removing the center cap of aluminum wheel.

## Features

- Thin tip, easy to put into the notch, with lower possibility of damaging the cap and wheel.
- Tip is bent at two points for easy operation.
- Hand fitting plastic handle.



Removing/Installing Wheel

② Removing/Installing Wheel Nuts



## ● IMPACT WRENCH



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## SOCKET FOR ALUMINUM WHEEL

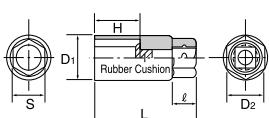
No.	S (Hexagonal)	D <sub>1</sub>	D <sub>2</sub>	H	ℓ	L	▼g	■
B35A-17H	17	24	21	22	15	60	140	10
-19H	19	26	21	24	15	60	140	10
-21H	21	27.5	21	27	15	60	140	10

## Purpose

- Specially for fasten/loosening aluminum wheel nuts of cars.
- With rubber cushion for plated and painted wheel nut.

**CAUTION** • DESIGNED SPECIALLY FOR THE ALUMINUM WHEEL AND ENDURES LOWER TORQUE BECAUSE OF ITS STRUCTURE.

1/2" sq.



POWERFIT®

## ● 1/2" sq. SOCKET SET FOR ALUMINUM WHEEL



## WHEEL NUT SOCKET

No.	S (Hexagonal)	D <sub>1</sub>	D <sub>2</sub>	H	L	▼g	■
B38Z-17H	17	24	22	22	100	200	5
-19H	19	26	22	24	100	200	5
-21H	21	27.5	22	26	100	200	5
-22H	22	29.5	22	27	100	200	5

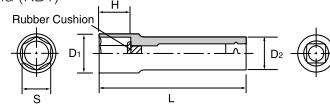
## Purpose

- Specially for fasten/loosening aluminum wheel nuts of cars.

## Features

- The whole length is 100mm, designed exclusively to fit the wheel. Use with a torque wrench improves work efficiency.
- With rubber cushion for plated and painted wheel nut.
- 22H is for Land Cruiser 100 and Honda Legend (KB1)

1/2" sq.



POWERFIT®

## ● 1/2" sq. WHEEL NUT SOCKET



## WHEEL NUT SEMI-LONG SOCKET WRENCH

No.	S (Hex.)	D <sub>1</sub>	D <sub>2</sub>	H	L	▼g	■
B38ZM-21H	21	27.5	22	26	130	300	5

## Usage

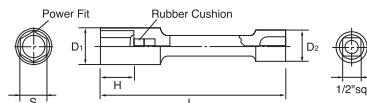
- It is a socket dedicated for the tightening and loosening of wheel nuts in automobile.

## Features

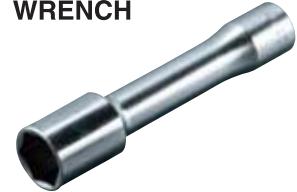
- It is a dedicated design with 130mm total length that matches the body shape.
- Usability is improved by using in combination with a torque wrench.
- It has a rubber cushion that's friendly for plated and coated nuts.

**CAUTION** • Withstand load is structurally low since it is dedicated for wheel nuts.

1/2" sq.



## ● 1/2" sq. WHEEL NUT SEMI-LONG SOCKET WRENCH



## WHEEL NUT LONG SOCKET

No.	S (Hexagonal)	D <sub>1</sub>	D <sub>2</sub>	H	L	▼g	■
B38ZL-17H	17	24	24	22	180	330	5
-19H	19	26	24	24	180	340	5
-21H	21	27.5	24	26	180	350	5

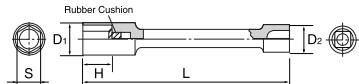
## Purpose

- Specially for fasten/loosening aluminum wheel nuts of cars.

## Features

- Long size most appropriate for RVs.
- Long size necessitates no extension bar and improves work efficiency.
- With rubber cushion for plated and painted wheel nut.

1/2" sq.



## ● 1/2" sq. WHEEL NUT LONG SOCKET



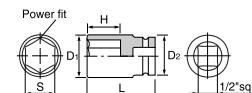
## 3 Removing/Installing Wheel

② Removing/Installing Wheel Nuts



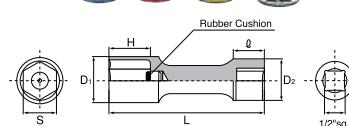
## ● 1/2"sq. IMPACT SOCKET SET FOR ALUMINUM POLISHED NUT (3pcs.)

1/2" sq.



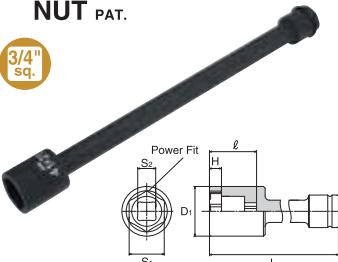
## ● 1/2"sq. Wheel nut socket set for impact wrench (long, thin type) PAT.P.

1/2" sq.



## ● 3/4"sq. IMPACT LONG COMBINATION SOCKET FOR WHEEL NUT PAT.

3/4" sq.



## ● 3/4"sq. IMPACT COMBINATION SOCKET FOR WHEEL NUT

3/4" sq.



## IMPACT SOCKET • SET (3pcs.) FOR ALUMINUM POLISHED NUT

No. ATBP403AL 415 1

Impact Socket Set For Aluminum Polished Nut ABP4-17ALP, 19ALP, 21ALP

Metal Case L165×W70×H40

• Set of 3 popular sizes (17, 19, &amp; 21).

POWERFIT®

## IMPACT SOCKET FOR ALUMINUM POLISHED NUT

No. S (Hexagonal) D<sub>1</sub> D<sub>2</sub> H L ▽g 1

No.	S (Hexagonal)	D <sub>1</sub>	D <sub>2</sub>	H	L	▽g	1
ABP4-17ALP	17	26	29	21	49	50	1
-19ALP	19	28.5	29	24	52	60	1
-21ALP	21	31	29	27	55	70	1

Attached pins and rings

PR-2026



- For use on aluminum wheel and surface-treated nuts. POWERFIT®
- Thin wall type with minimum outer diameter.
- Made of newly developed special aluminum alloy with special heat-treatment for superlative durability.

(Caution) Aluminum wheel nut tightening should be conducted according to the set torque defined by each manufacturer.



- CAUTION • USE ONLY ON WHEEL NUTS.
- FASTEN ALUMINUM WHEEL NUTS AT THE SPECIFIED TORQUE.

## WHEEL NUT SOCKET SET FOR IMPACT WRENCH

No. TBP4903 560 1

Wheel nut socket for impact wrench BP49-17, 19, 21

No.	S (Hexagonal)	D <sub>1</sub>	D <sub>2</sub>	H	ℓ	L	▽g	1
BP49-17	17	24.0	25	22	18	100	180	5
BP49-19	19	26.0	25	24	18	100	190	5
BP49-21	21	27.5	25	26	18	100	190	5
BP49-22	22	29.5	25	27	18	100	210	5

POWERFIT®

## Usage

- Compatible with exclusive socket wrenches and impact wrenches used to tighten and loosen vehicle wheel nuts.

## Characteristics

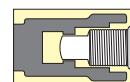
- Exclusive socket for the aluminum wheel
- A protective rubber cushion has been fitted for chrome or painted nuts.



- CAUTION • DO NOT USE EXCEPT FOR CAR WHEEL NUTS.
- SPECIALLY DESIGNED TO BE THINNER THAN ORDINARY PRODUCTS. DUE TO THE THINNER CONSTRUCTION, THIS SOCKET SET MAY BREAK DEPENDING ON THE WAY OF USE.

## IMPACT LONG COMBINATION SOCKET FOR WHEEL NUT

No.	S <sub>1</sub> Hex.	S <sub>2</sub> Square	D <sub>1</sub>	D <sub>2</sub>	H	ℓ	L	▽kg	1
ABP6ZL-4121TP	41	21	58	38	14	55	450	2.6	1



Attached pins and rings

PR-2833



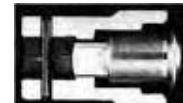
- CAUTION • Combine the black pin with black ring and silver pin with gray ring.

## IMPACT COMBINATION SOCKET FOR WHEEL NUT

mm

No.	S <sub>1</sub> Hexagonal	S <sub>2</sub> Square	D <sub>1</sub>	D <sub>2</sub>	H	L	ℓ	▽g	1
ABP6-3217TP	32	17	46.5	50	12	76	51	780	2
-3517TP	35	17	50	50	13	78	53	840	2
-3820TP	38	20	55	50	14	75	50	850	2
-4119TP	41	19	58	50	14	80	55	900	2
-4120TP	41	20	58	50	14	80	55	900	2
-4121TP	41	21	58	50	14	80	55	900	2

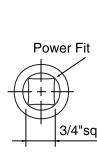
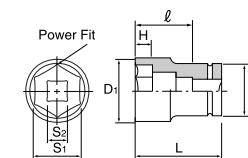
POWERFIT®



- A single, labor-saving wrench can be used to tighten or loosen both the outer and inner nuts.
- Is very effective for vehicles that have limited wheel and nut clearance due to the thin wall design.
- All the tools necessary for working on medium size (2t class) to large size (4t class) vehicles are provided.



- CAUTION • Match the black pin with the black ring, and the silver pin with the grey ring.



Attached pins and rings  
PR-4045  
Pin: Silver  
Ring: Grey

\*Please check the merchandise inventory for a product that is marked by before placing an order.

## 3 Removing/Installing Wheel

### IMPACT INNER SOCKET

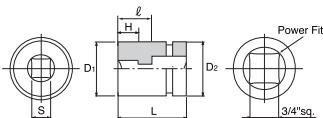
No.	S	D <sub>1</sub>	D <sub>2</sub>	H	L	ℓ	▼g	✉	mm
ABP6-17SQP	17	40	38	18.5	56.5	31.5	370	5	
-19SQP	19	40	38	18.5	56.5	31.5	322	5	
-20SQP	20	40	38	20.5	58.5	33.5	346	5	
-21SQP	21	40	38	22.5	60.5	35.5	350	5	



- Match the black pin with the black ring, and the silver pin with the grey ring.

POWERFIT®

### ●3/4"sq. IMPACT INNER SOCKET



### ●3/4"sq. IMPACT SOCKET (DEEP)

#### IMPACT SOCKET (DEEP)

No.	S	D <sub>1</sub>	D <sub>2</sub>	H	L	ℓ	▼g	✉	mm
BP6L-33TP	33	48	38	28	100	75	693	5	

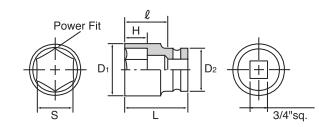
- Deep thin wall type that supports the new ISO wheel.

Attached pins and rings



- Combine the black pin with black ring and silver pin with gray ring.

### ●3/4"sq. IMPACT SOCKET (DEEP) PAT.



### IMPACT SOCKET FOR WHEEL NUT

No.	S	D <sub>1</sub>	D <sub>2</sub>	H	L	ℓ	▼g	✉	mm
ABP8-32TP	32	46.5	50	25	80	50	680	2	
-35TP	35	50	50	25	80	50	710	2	
-38TP	38	55	50	30	80	50	800	2	
-41TP	41	58	50	35	80	50	840	2	

POWERFIT®

- A tool with the thin wall design that can be used for car types with lesser clearance between the wheel hub and wheel nut.

- The outer diameter has been reduced by 94% in comparison with the previous products.

#### Usage

- Tightening and loosening wheel nuts (outer nut) for middle size vehicles (2 t~4 t) and large vehicles (4 t and above, such as buses).

- Match the black pin with the black ring, and the silver pin with the grey ring.



### ●1"sq. IMPACT SOCKET FOR WHEEL NUT (THIN)



### WHEEL NUT COMBINATION SOCKET FOR IMPACT USE

No.	S <sub>1</sub> Hexagonal	S <sub>2</sub> Square	D <sub>1</sub>	D <sub>2</sub>	H	L	ℓ	▼g	✉	mm
ABP8-3517TP	35	17	50	50	13	83	53	830	2	
-3820TP	38	20	55	50	14	80	50	840	2	
-4119TP	41	19	58	50	14	85	55	890	2	
-4120TP	41	20	58	50	14	87	57	900	2	
-4121TP	41	21	58	50	14	87	57	900	2	

POWERFIT®

- It is a labor-saving tool for the loosening/tightening work of both outer and inner nuts with just 1 wrench.

- It is a thin wall type that's also effective for vehicle models that have less clearance for wheel hubs and wheel nuts.

- Match the black pin with the black ring, and the silver pin with the grey ring.



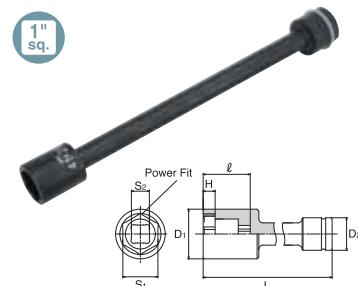
### ●1"sq. WHEEL NUT COMBINATION SOCKET FOR IMPACT USE (THIN)



\*Please check the merchandise inventory for a product that is marked by before placing an order.

### 3 Removing/Installing Wheel

#### ● 1"sq. IMPACT LONG COMBINATION SOCKET FOR WHEEL NUT PAT.

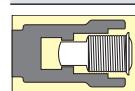


#### ● 1"sq. IMPACT SOCKET (DEEP) PAT.

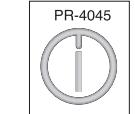


#### IMPACT LONG COMBINATION SOCKET FOR WHEEL NUT

No.	S <sub>1</sub> Hex.	S <sub>2</sub> Square	D <sub>1</sub>	D <sub>2</sub>	H	ℓ	L	▼kg	Set
ABP8ZL-4121TP	41	21	58	50	14	55	450	2.8	1



Attached pins and rings



- It is a labor-saving tool for the loosening/tightening work of both outer and inner nuts with just 1 wrench.
- It is a thin wall type that's also effective for vehicle models that have less clearance for wheel hubs and wheel nuts.
- Looseness is eliminated by integrating the combination socket and extension bar, allowing the torque management with higher accuracy even when torque wrench is used.
- With the long design of 450mm total length, it can be used without interference even with the wide body.

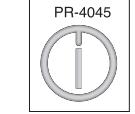
**CAUTION** • Combine the black pin with black ring and silver pin with gray ring.

#### IMPACT SOCKET (DEEP)

No.	S	D <sub>1</sub>	D <sub>2</sub>	H	L	ℓ	▼kg	Set
BP8L-33TP	33	48	49.5	25	100	70	832	2

- Deep thin wall type that supports the new ISO wheel.

Attached pins and rings



**CAUTION** • It may not be usable for some models.  
• Combine the black pin with black ring and silver pin with gray ring.

#### ● CROSS RIM WRENCH



#### ● 1/2"sq. WHEEL NUT TORQUE WRENCH · SET D.PAT.



#### WHEEL NUT TORQUE WRENCH · SET

1/2"sq. Wheel Nut Torque Wrench · Set

No.	Set Torque	▼kg	Set
WCMPA085	85N·m	1.1	1
WCMPA103	103N·m	1.1	1
WCMPA108	108N·m	1.1	1
1/2"sq. Wheel Nut Torque Wrench			
No.	Set Torque	▼kg	Set
WCMPA085	85N·m	1.1	1
WCMPA103	103N·m	1.1	1
WCMPA108	108N·m	1.1	1

#### Usage

- Unipotent torque wrench dedicated for automotive wheel nut.
- Applicable only in clockwise tightening direction. (It does not apply to the reverse screw.)

#### Application

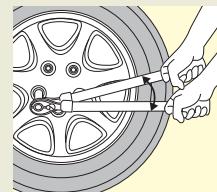
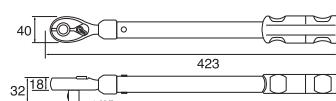
- WCMPA085: 85N·m specified torque (Suzuki, Nissan light vehicles)
- WCMPA103: 103N·m standard torque (Toyota, Daihatsu)
- WCMPA108: 108N·m standard torque (Nissan, Honda)

#### Features

- High-precision torque management is made possible with the design dedicated for each manufacturer specified torque.
- Total length is optimally set at 420mm to keep hands away from tires.
- Set torque can be determined by the neck cover color.
- Work time is reduced by the adoption of the ratchet head (36-gear).
- \* Repair kit (BR4E-K) is configured.
- \* Recommend to calibrate and adjust when using a repair kit.

**CAUTION** • Please use it upon confirming the manufacturer specified torque.

Details of Wheel Nut Socket  
P.255



Please check the tightening torque within the range of the arrow.

## WHEEL NUT TORQUE WRENCH SET

No. TWCMPA221	kg 1.3	1
1/2"sq. Torque wrench for wheel nut	WCMPA103	
1/2"sq. Exclusive socket for wheel nut 21mm	B38Z-21H	

## Usage

- This tool is a pre-set type torque wrench that is used to tighten vehicle wheel nuts 17, 19, and 21mm at a specified torque of 103N·m (10.5kgf·m). (The 17, 19mm sockets are sold separately.)
- Applicable for clockwise rotation tightening. (Is not applicable for anti-clockwise rotation tightening)

## Characteristics

- Reliable operation is possible through torque management. (For confirmation during inspection on completion)
- Work hours have been reduced with the employment of the ratchet head. (36 plate gears) The union structure allows for the firm sustenance of the socket. Socket replacement can be carried out easily.
- The full optimum length is designed so that the tire and the mechanic's hands do not interfere. (Full length has been set at 420mm, 55mm longer than in previous models.) The load on the handle has also been reduced during operation.
- The head angle changes with a light shock to the hands when the tightening torque is reached, enabling recognition of completion.
- The rubber cap attached to the base prevents entry of dirt and dust.
- Provided with a soft case that makes storage easy.

\*Replaceable parts are available for the ratchet section. Check with your dealer for details.

## Compatibility Table (Domestic Vehicles)

Nut size (mm)	Manufacturer	Examples of Compatible Cars
19 <small>*19mm socket is required (sold separately)</small>	Honda, Subaru	All passenger vehicles (except recreational and light vehicles)
	Isuzu	All passenger vehicles
21	Toyota, Nissan Mitsubishi, Daihatsu Mazda	All passenger vehicles (except recreational and light vehicles) All passenger vehicles (except recreational and light vehicles) All passenger vehicles (except recreational and light vehicles)

- The torque value for light vehicles with 17mm nuts differs from the one for regular vehicles. For this reason, the torque wrench above cannot be used. However, the torque wrench can be used on some foreign cars made outside of Japan.
- Compatible with wheel tightening torque value of 103N·m. (Not applicable to certain vehicles and wheels.)
- The wrench cannot be used for trucks and recreational vehicles, as the torque value required is too high.
- Check the torque value before using wrench on non-standard wheels.



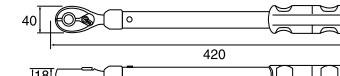
## CAUTION

- This torque wrench is exclusively designed for wheel nuts. Do not use this tool to tighten or loosen other bolts/nuts.
- The wheel tightening torque is set for domestically manufactured vehicle standard wheels. Check the torque settings for special wheels before use.
- This product is a measurement tool. Take extreme care when handling. Be sure to avoid dropping, throwing, or hitting this product.
- Hold the grip at the line as the center and apply even firm pressure.
- Applying pressure at other places (pipe part etc.) than the grip will give inaccurate torque readings.

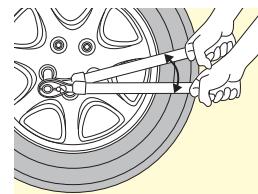
## ● 1/2"sq. WHEEL NUT TORQUE WRENCH SET

D.PAT.

1/2"sq.

Inspecting  
Tightening Torque 4

32 18 1/2"sq.



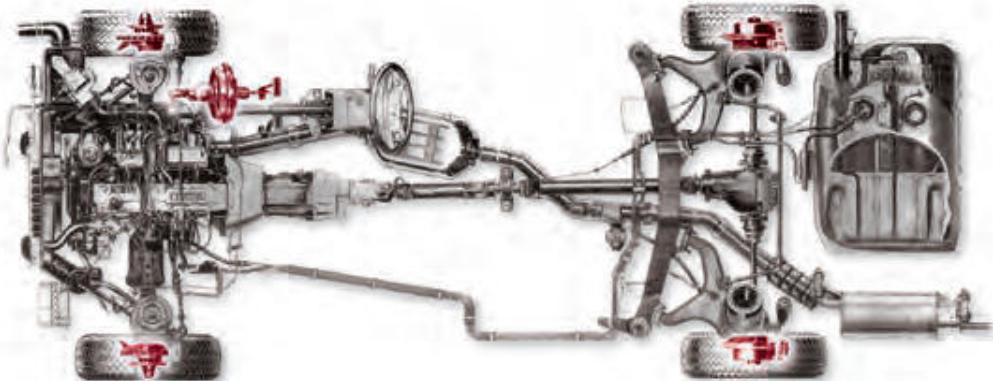
Confirm the tightening torque with the wrench positioned between the arrows, as shown in the diagram.

- Use this product multiple times to avoid misleading when the tool has been stored for a long time.
- Do not use during rain, high humidity levels, and in conditions where the tool is exposed to water.
- Do not disassemble this product. The torque settings can become faulty.
- Immediately stop use and request for an inspection/disassembly and adjustment when this product is dropped, submerged in water, emits abnormal sound, or operates faultily.
- Do not apply force after operation.

## 5. AUTOMOTIVE SPECIAL TOOLS

### Dismantling the Mechanism (6)

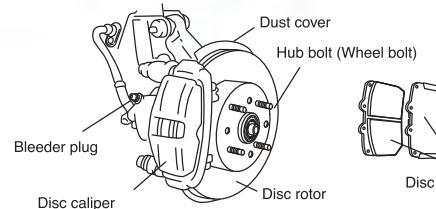
# Brake System Mechanism



#### MECHANISM 1

### How the disc brake works

The disc brake is a device that works by pressing a brake pad against the disc rotor that rotates with the wheel. Compared to the drum brake, the disc brake is far more effective and stable, allowing for a larger braking force and is used on the front wheels of passenger vehicles and light trucks.



#### MECHANISM 2

### Brake system

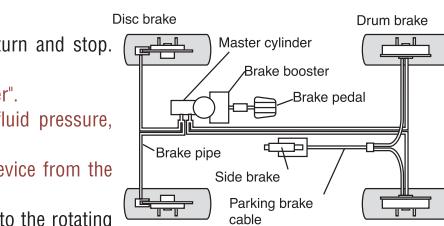
Braking is one of the basic functions being necessary for vehicles in order to drive, turn and stop. Brakes are an important device necessary for safe driving. The system consists of

2 main operations used by the driver - being the "Brake Pedal" and the "Parking Brake Lever".

The master cylinder that converts the pressure directed towards the brake pedal to fluid pressure, further directing the brake fluid to the braking device.

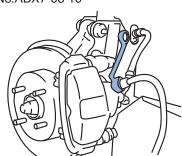
The "Brake Pipe" and "Brake Hose" that direct the brake fluid pressure to the braking device from the master cylinder.

The "disc Brake" and "Drum Brake" that transfer the braking pressure on the brake pedal to the rotating wheel. Respective categories are raised above.



#### Disc brake tools

Offset wrench for bleeder plugs  
No.ABX7-08-10



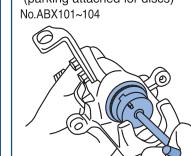
disc cylinder polisher  
No.ACPD-54-64



Seal pick tool  
No.ABO-100

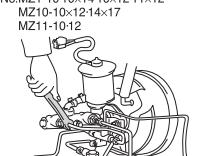


Disc parking tool  
(parking attached for discs)  
No.ABX101-104



#### Offset wrench for brake pipes

Offset wrench for brake pipes  
No.MZ1-10-10x14-10x12-11x12  
MZ10-10x12-14x17  
MZ11-10-12



Socket for brake pipes  
No.BZ25-10H



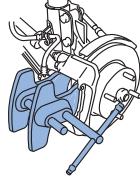
Claw-foot offset wrench for brake pipes  
No.MZ25-10H



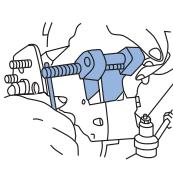
Rotating offset wrench for brake pipes  
No.MZF-10



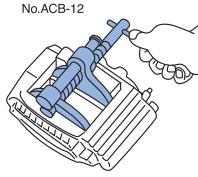
Disc brake piston tool  
No.ABX10



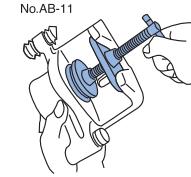
Disc brake piston tool  
No.AB-10



Disc brake piston tool  
(wide plate)  
No.ACB-12



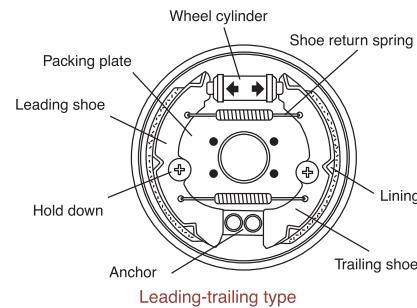
Disc brake piston tool  
(for single pistons)  
No.AB-11



MECHANISM 3

### How the drum brake works

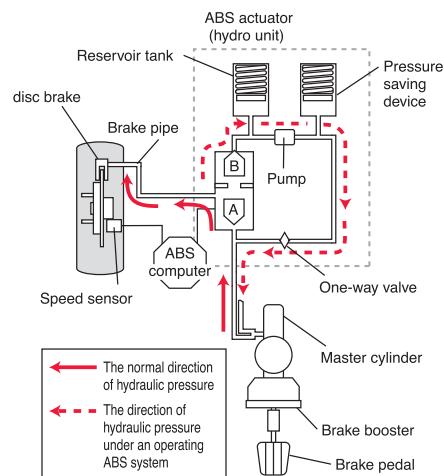
The brake drum is a device that works by pressing a brake shoe against the inner side of a cylindrical drum that rotates with the wheel axle. There are the leading-trailing type, 2 trailing type, and 2 leading type and other different types of drum brakes depending on the operating form of the brake shoe. The leading-trailing type is effective and stable for driving and reversing. However, due to the inferior cooling qualities, drying qualities when wet, and brake fade phenomenon through continuous use, the drum brake is often used for the rear wheel brake only.



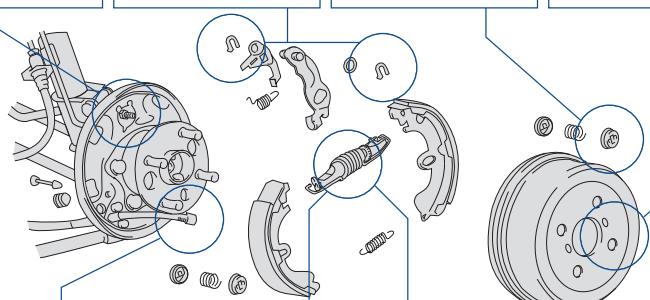
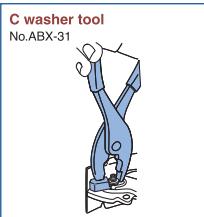
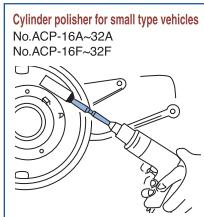
MECHANISM 4

### How the ABS (Anti-lock Brake System) system works

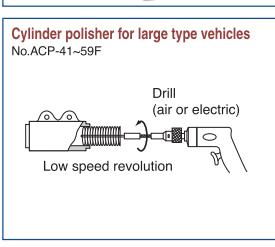
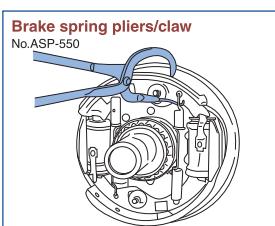
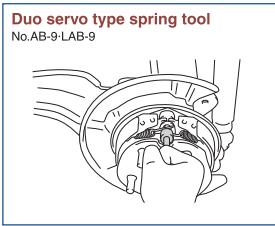
ABS is an electronic brake control system that increases braking hydraulic pressure in order to prevent the locking of the tires, providing better driving stability and handling. ABS works by having speed sensors on each wheel detect a slipping condition. The normally open valve A within the ABS actuator (as in the diagram on the right) is closed and valve B open, releasing brake fluid into the reservoir tank. Furthermore, the pump feeds back the brake fluid to the master cylinder for depressurization, mechanically creating a brake-pumping motion. As oil normally does not flow to the ABS actuator, air is not caught within the system when replacing brake fluid.



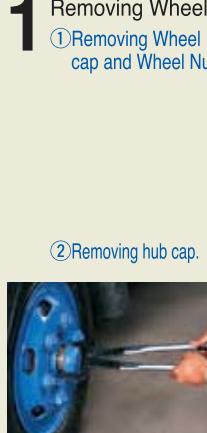
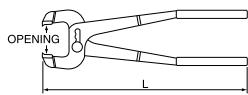
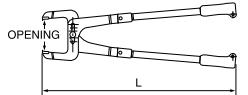
#### Drum brake tools



#### Large vehicle brake tool



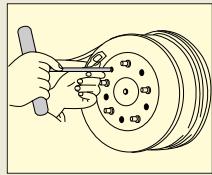
1 Removing wheel → 2 Disassembling/Installing drum brake → 3 Disassembling/Installing disc pad → 4 Replacing inner parts → 5 Adjusting shoe clearance →  
6 Replacing brake oil → 7 Installing wheel & Inspecting torque

BRAKE		Disassembling/Assembling Brake																															
Overall disassembly and attachment of the brake tool	<p><b>● DRUM BRAKE SERVICE TOOL SET (12 ITEM)</b></p>  <p>ATBX12</p>	<p><b>DRUM BRAKE SERVICE TOOL SET (12 item)</b></p> <table border="1"> <thead> <tr> <th>No. ATBX12</th> <th>kg 1.1</th> <th>1</th> </tr> </thead> <tbody> <tr><td>Tension spring tool</td><td></td><td>AB-7</td></tr> <tr><td>C washer tool</td><td></td><td>ABX-31</td></tr> <tr><td>Parking shoe lever tool</td><td></td><td>ABX-32</td></tr> <tr><td>Shoe hold spring tool</td><td></td><td>ABX-33, 34</td></tr> <tr><td>Tension spring tool</td><td></td><td>ABX-35</td></tr> <tr><td>Brake shoe adjustment tool</td><td></td><td>ABX301, 302, 303</td></tr> <tr><td>High grade L type standard hex shaft wrench</td><td></td><td>HLD100-6</td></tr> <tr><td>Brake drum removal tool (hex hole bolt M8 x 2 pieces)</td><td></td><td>ATBX14-1</td></tr> <tr><td>Tray (335 x 230 x 45)</td><td></td><td></td></tr> </tbody> </table>	No. ATBX12	kg 1.1	1	Tension spring tool		AB-7	C washer tool		ABX-31	Parking shoe lever tool		ABX-32	Shoe hold spring tool		ABX-33, 34	Tension spring tool		ABX-35	Brake shoe adjustment tool		ABX301, 302, 303	High grade L type standard hex shaft wrench		HLD100-6	Brake drum removal tool (hex hole bolt M8 x 2 pieces)		ATBX14-1	Tray (335 x 230 x 45)			<p><b>Usage</b></p> <ul style="list-style-type: none"> <li>A tool set that is exclusively designed for disassembling, attaching, and adjusting the brake drum on vehicles.</li> </ul> <p><b>Application</b></p> <ul style="list-style-type: none"> <li>The drum brake device that is used on vehicles ranging from light weight class vehicles to small trucks (up to 2 tons)</li> </ul> <p>• The tool set fits within the tool station (P.354-355) alongside the ATBX6.</p>
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\*Please check the merchandise inventory for a product that is marked by  before placing an order.

Disassembling/Installing  
drum brake

① Disassembling/Installing shoe



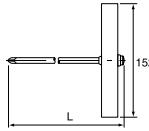
## SCREWDRIVER FOR BRAKE DRUM SCREW

No.	Tip	L	▼g	単
AB-5	Cross No.3	270	260	1

- For removing/installing brake drum bis.
- T shape handle with non-slip handle.
- Also used for removing/installing door hinge bolts.

**WARNING**

- DO NOT USE THIS TOOL WITH ELECTRIFIED OBJECTS.
- USE SCREWDRIVER APPROPRIATE TO SIZE OF THE SCREW.
- DO NOT USE SCREWDRIVER FOR ANY OTHER PURPOSE.



## SCREWDRIVER FOR BRAKE DRUM SCREW



## TENSION SPRING TOOL

No.	L	ℓ	▼g	単
AB-7	153	—	90	1
ABX-35	265	145	130	10

## Purpose

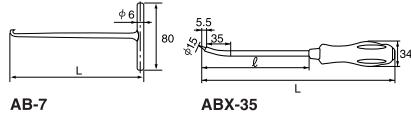
- Disassembling/installing tension spring for drum brake.

**AB-7**

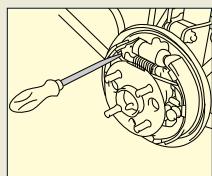
- Tip is designed to prevent spring coming off, and T-shape handle ensures safe operation.

**ABX-35**

  - Round shaft makes smooth spring movement. The easy-to-hold grip makes installation of spring easier.



## TENSION SPRING TOOL



## SHOE-HOLD SPRING CUP TOOL

No.	D	L	ℓ	▼g	単
ABX-33	10	195	75	100	10
-34	24	205	85	130	10

## Purpose

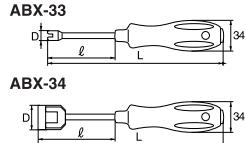
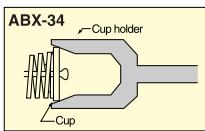
- Disassembling/installing shoe hold spring for drum brake.

**ABX-33**

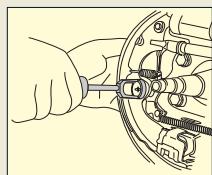
- Easy-to-hold grip suitable for pressing and turning of screw/pin.

**ABX-34**

  - Tapered cap holder suitable for good holding enables speed operation.



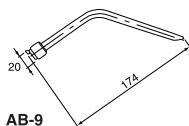
## SHOE-HOLD SPRING CUP TOOL



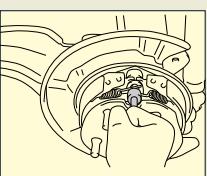
## DUO-SERVO TYPE BRAKE SPRING TOOL

No.	Application	▼g	単
AB-9	Medium sized cars (24tons) (2~4t) Hi Ace class	160	5

- Cover almost all models for dismounting/mounting brake shoe return springs using with Brake Spring Plier (ASP-550).



## DUO-SERVO TYPE BRAKE SPRING TOOL



## PARKING SHOE LEVER TOOL

No.	L	▼g	単
ABX-32	177	170	10

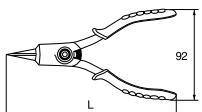
With one motion, parking cable can be installed/removed.

## Purpose

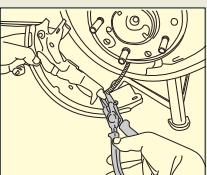
- Removing/installing parking cable.

## Features

- The claw, designed exclusively for this tool, ensures good holding of the parking cable.

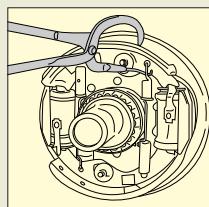


## PARKING SHOE LEVER TOOL



1 Removing wheel → 2 Disassembling/Installing drum brake → 3 Disassembling/Installing disc pad → 4 Replacing inner parts → 5 Adjusting shoe clearance → 6 Replacing brake oil → 7 Installing wheel & Inspecting torque

## 2 Disassembling/ Installing drum brake



② Cleaning Brake Shoe  
Bracket of Large Vehicles

## ● BRAKE SPRING PLIERS & CLAW



### BRAKE SPRING PLIERS [Claw (with a pin)]

No.	L	▼g	Gift
ASP-550	550	1,200	1

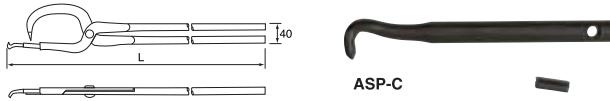
### Claw (with a pin)

No.	L	▼g	Gift
ASP-C	101	35	1

#### Purpose

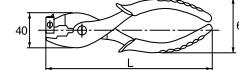
- Special tool for removing / setting of large sized vehicle (4-10 tons).

\*Do not use this claw with BSP-520 (conventional type).



ASP-C

## ● C-WASHER TOOL



### C-WASHER TOOL

No.	L	▼g	Gift
ABX-31	203	230	10

Good work efficiency with special claws.

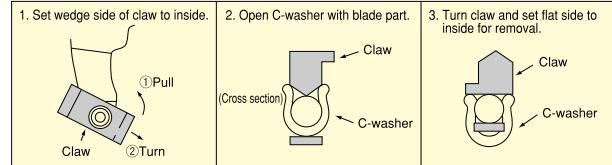
#### Purpose

- Removing/installing C-washer.

#### Features

- For quick work, use wedge side of claw to open C-washer flat side to push it out.

#### [Removing C-washer]



## ● BRACKET SANDER SET



Supplement paper



Rubber wheel



### BRACKET SANDER SET

No.	Contents						Car Models	▼g	Gift
	Paper		Rubber Wheel						
D <sub>1</sub>	l	No.	Pcs.	D <sub>2</sub>	L	Qty.			
APS306	30	25	#60	5	29	177	1	160	5
APS326	32	30	#60	5	31	177	1	160	5
APS356	35	35	#60	5	34	177	1	160	5

### SPARE PAPER SET FOR BRACKET SANDER

No.	Contents	Quantity	▼g	Gift
APS3010	#60 Paper for φ30	10pcs.	100	5
APS3210	#60 Paper for φ32	10pcs.	100	5
APS3510	#60 Paper for φ35	10pcs.	100	5

#### Purpose

- Cleaning brake shoe bracket of large vehicles.

#### Rubber wheel for bracket sander

No.	D <sub>2</sub>	L	▼g	Gift
APS-30G	29	177	110	10
APS-32G	31	177	110	10
APS-35G	34	177	110	10

Disassembling/  
Installing disc pad

① Removing Pad

## T-SHAPED DRUM REMOVER

No.	a	L	$\ell$	D <sub>1</sub>	D <sub>2</sub>	$\nabla g$		
ABX9-06	M6	160	100	14	9	200		
ABX9-08	M8	160	100	14	9	200		

## Application • Removal of brake drum mainly on mini-vehicles

**Features**

- Since the handle is operated with a sliding mechanism, the brake drum can be smoothly removed without interference of handles each other if two handles are used.
- Since the end screw is designed to be replaceable, only the end screw can be replaced if the screw is worn off.

## Part for replenishment

No.	Name		
ABX9-06A	M6 bit		
ABX9-08A	M8 bit		



No.ABX9-06

No.ABX9-08

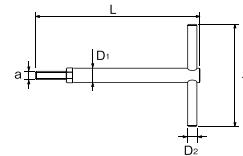
## ● T-SHAPED DRUM REMOVER



Since the handle is operated with a sliding mechanism, no interference of handles occurs if two handles are used.



When two handles are used, the brake drum can be removed in a stable manner.



## ● HEX. WRENCH

## ● PLIERS

## DISK-BRAKE SPREADER

No.	L	H	$\nabla g$		
ABX105	145~195	214	750		1

## Usage

- An exclusive tool designed for disk brake pad replacement, and also pushing out brake caliper pistons (single piston type) during overhauls.

## Characteristics

- The brake piston is returned easily by just operating the lever.
- Various positions are possible by turning the handle.
- One hand operation in removing from the caliper.
- Parallel movement with no piston damage, direct, straight pushing is possible.

## Application

- Is applicable for single piston types from light weight vehicles to small trucks (2 ton class)
- Brake (Cannot be used on parking brake body type brake calipers)

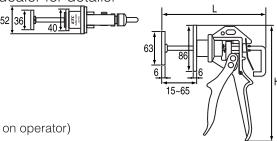
\*Replacement parts are available. Check with your dealer for details.

## Comparisons with previous KTC products.

Compared to the previous handle type, piston retrieval is completed in 12 sec\* with just holding the grip.

A 60% reduction is operation timing compared to previous products.

\*Piston will be ejected: 20mm → 0mm (Will vary depending on operator)



## ● DISK-BRAKE SPREADER



## DISC-BRAKE SPREADER

No.	Plate Opening	$\ell$	L	W	H	kg		
ABX10	10~75	125	155	86	117	1		5

Use of either plate A or B enables application to various car models.

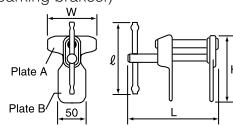
## Purpose

- Pushing in disc brake piston (single piston/2-piston types).

## Features

- Applicable to single piston caliper, parallel piston calipers, and opposed piston calipers of mini cars to small trucks (2t).

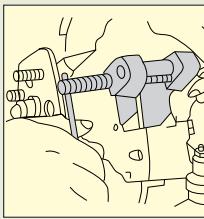
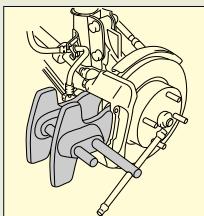
(Cannot be used on brake calipers combined with parking brakes.)



## ● DISK-BRAKE SPREADER D.PAT.



### 3 Disassembling/ Installing disc pad ③Replacing Piston



#### ● DISK-BRAKE SPREADER

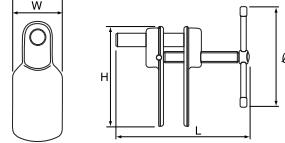


#### DISC-BRAKE SPREADER

No.	Plate Opening	ℓ	L	W	H	▼g	Box
AB-10	10~65	115	155	50	115	780	1

**Purpose** • Pushing in disc brake piston (2-piston type).  
**Features** • The claw for pushing in the piston makes parallel movement along guide. Operation possible by turn of the handle.  
 • Designed to prevent claw from widening the caliper or mounting when putting it in.

**Application** • Applicable for parallel piston caliper and opposed piston caliper of light cars to small trucks (2t). (Cannot be used on brake calipers combined with parking brakes.)



#### ● DISK-BRAKE SPREADER (WIDE PLATE) D.PAT.



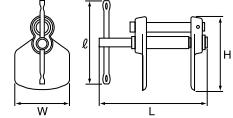
#### DISC-BRAKE SPREADER

No.	Plate Opening	Handle	Thickness	L	W	H	▼g	Box
ACB-12	10~87	150	5	184	90	120	1400	5

**Application** • From mini cars to small trucks.  
 • Cannot be used on brake calipers combined with parking brakes.  
 • Cannot be used on opposite 2 pistons brake caliper on the car.  
 • Can be used if it is dismantled from the car.

#### Special Features

- For use on opposite 4 pistons, parallel pistons & single pistons.
- Superb durability.
- Smooth work by handle.



#### ● DISC-BRAKE SPREADER SET WIDE TYPE



#### DISC-BRAKE SPREADER SET WIDE TYPE

No. ATCB5	▼kg 3.0	Box	1
Disc-Brake Spreader (Wide Plate)		ACB-12	
Plate A Set		ATCB2A	
Plate B Set		ATCB2B	

#### Usage

- Disc caliper piston return that's used in disc pad replacement work.

#### Application

- Supports Opposing 4, 6-Piston and Parallel 2-Piston Disc Calipers.
- Plate A Set: Opposing 4-Piston and Parallel 2-Piston Disc Calipers, caliper upper opening size of 125mm or more
- Plate B Set: Opposing 6-Piston Disc Caliper, caliper upper opening size of 150mm or more

#### Features

- Plate can be replaced to fit the used size based on Disc Brake Piston Tool (No.ACB-12).

	Caliper Type	Car Type	Manufacturer
Plate A 125mm	Parallel 2-Piston Disc Caliper	Small truck	Isuzu Elf
		Passenger car	Toyota Celsior, Aristo
	Opposing 4-Piston Disc Caliper	Passenger car	Nissan Cedric, Gloria, Elgrand, Liberty, Serena
Plate B 150mm	Opposing 6-Piston Disc Caliper	Passenger car	Mazda MPV, Bongo
		Passenger car	Mitsubishi Chariot
		Passenger car	Lexus LS, GS
		Porsche 928	
		Lexus IS F	

#### ● WIDE PLATE for DISC-BRAKE SPREADER (ACB-12)



#### WIDE PLATE for DISC-BRAKE SPREADER (ACB-12)

No. ATCB2A	▼g 670	Box	1
Dedicated Plate	125 x 77 x 11.3		x2

- It can be equipped to your disc-brake spreader (wide plate: No.ACB-12).

**CAUTION** • Plate set is dedicated for the disc-brake spreader (wide plate: No.ACB-12).

#### ● WIDE PLATE for DISC-BRAKE SPREADER (ACB-12)



#### WIDE PLATE for DISC-BRAKE SPREADER (ACB-12)

No. ATCB2B	▼g 920	Box	1
Dedicated Plate	150 x 87 x 11.3		x2

- It can be equipped to your disc-brake spreader (wide plate: No.ACB-12).

**CAUTION** • Plate set is dedicated for the disc-brake spreader (wide plate: No.ACB-12).

1 Removing wheel → 2 Disassembling/Installing drum brake → 3 Disassembling/Installing disc pad → 4 Replacing inner parts → 5 Adjusting shoe clearance →  
6 Replacing brake oil → 7 Installing wheel & Inspecting torque

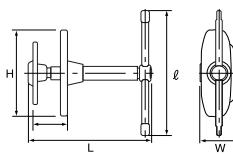
**DISC-BRAKE SPREADER**

No.	Plate Opening	ℓ	L	W	H	▼g	冊	
AB-11	12~77	125	122	36	86	345	1	

**Purpose** • Pushing in disc brake piston (single piston type).

**Features** • With this tool, the plate can make full contact for either high arm or low arm.  
• Ball-bearing center screw makes smooth movement.

**Application** • Applicable to single piston caliper of light cars to small vehicle (Max.:2t)  
(Cannot be used on brake calipers combined with parking brakes.)

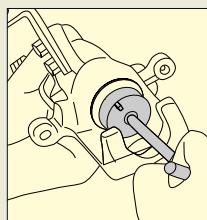


● **DISK-BRAKE SPREADER (SINGLE PISTON TYPE) D.PAT.**



Disassembling/  
Installing disc pad

3



**DISC PARKING TOOL SET (3pcs.)**

● Disc Parking Tool Set

No. ATBX13	▼g 200	冊 10	ABX102,103,104
Rotor (A·B) (C·D) (E·F)			



Note: AB101(Handle)is not included in ATB13.

**Features:**

- With three types of rotor, applicable to six types of brake piston.
- Small outer diameter allows installation through notch portion of the caliper.
- Precision-cast tool fits piston shape.
- Easy selection of applicable rotor and reduced coming off of rotor nail.

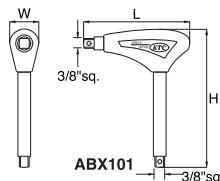
● **DISC PARKING TOOL SET (3pcs. Set)**



ABX101



ABX102 ABX103 ABX104



ABX101

● Rotor (A&B)

No.	L	W <sub>1</sub>	W <sub>2</sub>	▼g	冊	
ABX102	34	11	16	70	10	

● Rotor (C&D)

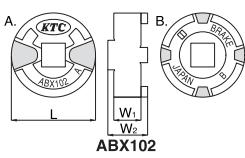
No.	L	W <sub>1</sub>	W <sub>2</sub>	▼g	冊	
ABX103	30	11	16	60	10	

● Rotor (E&F)

No.	L	W <sub>1</sub>	W <sub>2</sub>	▼g	冊	
ABX104	34	11	16	70	10	

● 3/8" sq. handle

No.	L	W <sub>1</sub>	W <sub>2</sub>	▼g	冊	
ABX101	105	135	28	250	10	

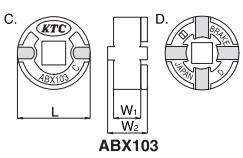


ABX102

Applicable Makers

A	B
---	---

Toyota, Mitsubishi,  
Mazda, Daihatsu,  
Nissan (Akebono Brake)

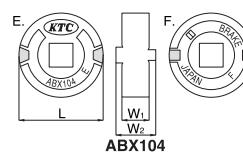


ABX103

Applicable Makers

C	D
---	---

Toyota (Aishin),  
Suzuki



ABX104

Applicable Makers

E	F
---	---

Volkswagen,  
Audi

Replacing inner  
parts

4



**SEAL PICK TOOL**

No.	a	D	d	L	ℓ	▼g	冊	
ABO-100	1	27	5	187	100	55	1	

The round tip prevents scratching.

**Purpose**

- Peeling off seal from disc brake.
- For removing O ring without damaging seals and boots.
- Ergonomic grip and long shank for removing seals and boots easily.

● **SEAL PICK TOOL**



Replacing inner  
parts

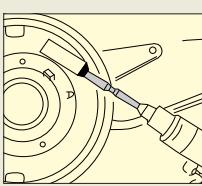
① Seal Picking

## 4 Replacing inner parts

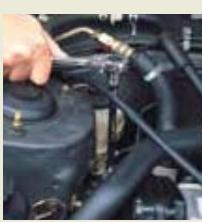
## ② Cleaning of Cylinder



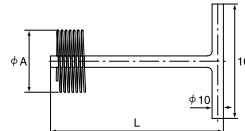
## ② Cleaning of Cylinder



## ③ Disassembling of the Pipe



## ● DISC CYLINDER POLISHER



## DISC CYLINDER POLISHER

No.	L	Cylinder Size (φ A)	▼g	Box
ACPD-54	150	48~53	180	1
-64	150	54~60	180	1

- For easy cleaning in disc brake cylinders.
- For cleaning inside the cylinders, rust in the seal groove, dust, etc.
- 2 sizes according to inner diameters of cylinders.
- With hand brush with wear resistance and elasticity.

## ● BRAKE CYLINDER POLISHER SET (6pcs.)



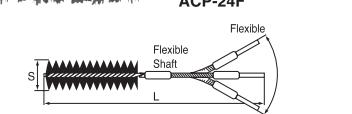
## BRAKE CYLINDER POLISHER SET (6pcs.)

No. ACP6	▼g 400	Box 5
For Aluminum Alloy Cylinder	φ 16 · φ 24 · φ 32	
Molded Cylinder	φ 16 · φ 24 · φ 32	

- For easy cleaning in disc brake cylinders.
- For cleaning inside the cylinders, rust in the groove, dust, etc.
- 2 sizes according to inner diameters of cylinders.
- With hard brush with wear resistance and elasticity.

**CAUTION** • BE CAREFUL OF DUST OR NYLON FIBER AS IT MAY CUT AND SCATTER.  
• WEAR EYE GLASSES WHEN USING THE TOOL.

## ● BRAKE CYLINDER POLISHER



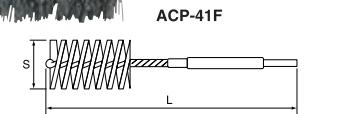
## BRAKE CYLINDER POLISHER

No.	S	L	Type	▼g	Box
ACP-16A	φ 16	172	Aluminum For cylinder	30	10
	φ 24	175		35	10
	φ 32	175		40	10
ACP-16F	φ 16	172	Mould For cylinder	30	10
	φ 24	175		35	10
	φ 32	175		40	10

- For cleaning brake wheel & master cylinders.
- Flexible shaft for easy operation.

**CAUTION** • BE CAREFUL OF DUST OR NYLON FIBER AS IT MAY CUT AND SCATTER.  
• WEAR EYE GLASSES WHEN USING THE TOOL.

## ● BRAKE CYLINDER POLISHER FOR LARGE SIZED VEHICLES



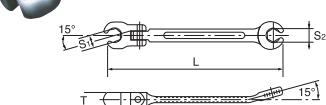
## BRAKE CYLINDER POLISHER

No.	S	L	Type	▼g	Box
ACP-41F	φ 41	220	Mould For cylinder	110	5
	φ 51	230		160	5
	φ 59	250		200	5

- The decisive factor is in the nylon threads which contain polishing agent.
- One polisher can be used for over 3000 cylinders.
- Easy to use. Finish in around 15~30 seconds.

**CAUTION** • SCATTERING OF THE NYLON THREADS AND PARTICLES CAN OCCUR, IF BREAKAGE OCCURS.  
• ALWAYS WEAR SAFETY GOGGLES WHEN USING.

## ● FLEX FLARE NUT WRENCH



## FLEX FLARE NUT WRENCH

No.	S <sub>1</sub> × S <sub>2</sub>	T	L	▼g	Box
MZF-10	10 × 10	10	143	80	5

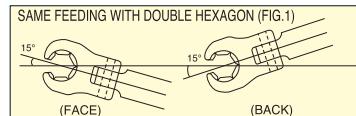
POWERFIT

## Purpose

- Fastening/loosening union nuts (flare nuts) on brake and clutch systems of many types of cars from mini-cars to small trucks.

## Special Feature

- Flexible head for wider application, particularly narrow space near master cylinders.
- 15° angled Hexagon head for getting same feeding with double hexagon by continuous reversing operation (Fig.-1)



1 Removing wheel → 2 Disassembling/Installing drum brake → 3 Disassembling/Installing disc pad → 4 Replacing inner parts → 5 Adjusting shoe clearance →  
6 Replacing brake oil → 7 Installing wheel & Inspecting torque

#### BRAKE PIPE TOOL SET (2pcs.)

No. AB252	▼g 105	10
Socket for Brake Pipe	BZ25-10H	
Claw foot for Brake Pipe	MZ25-10H	

##### Purpose

- Fastening/loosening flare nuts (union nuts) of brake and clutch systems of light cars to small trucks (2t).

##### Features

- Designed to be compact and effective for the flare nut of master cylinder installed in narrow space.

##### Application

- Applicable to flare nuts (10mm) of brake and clutch systems of all models of Japanese cars (mini cars, compact cars, passenger cars, light trucks and small trucks.)

##### Socket wrench for brake pipe

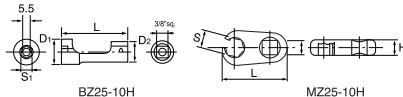
No.	S <sub>1</sub>	D <sub>1</sub>	D <sub>2</sub>	L	▼g	1
BZ25-10H	10	20	17	54	60	1

POWERFIT®

##### Claw foot offset wrench for brake pipe

No.	S	H	L	▼g	1
MZ25-10H	10	10	40	45	1

- Claw foot offset wrench for brake pipe has an angle of 15 degrees from the center line. The hexagonal end can be used as 12 point end (30 degrees) by repeated operation with the two sides.



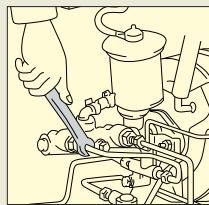
#### ● BRAKE PIPE TOOL SET (2pcs.)

3/8" sq.



##### Replacing inner parts

- ③ Disassembling of the Pipe



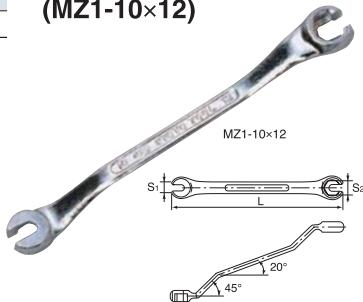
#### FLARE NUT WRENCH

No.	S <sub>1</sub> (Hexagonal shaped) × S <sub>2</sub> (Hexagonal shaped)	L	▼g	1
MZ1-10 × 12	10 × 12	160	80	5

POWERFIT®

- Fastening/loosening brake pipe flare nuts of mini, compact & medium sized cars of all car makers.
- 45°angled & straight ends for wider application.

#### ● FLARE NUT WRENCH (MZ1-10×12)



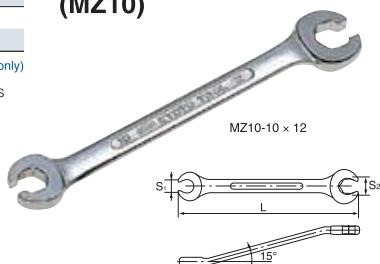
#### FLARE NUT WRENCH

No.	S <sub>1</sub> × S <sub>2</sub>	L	▼g	1
MZ10-10 × 12	10 × 12	145	80	5
-14 × 17	14 × 17	164	100	5

POWERFIT® (MZ10-10 × 12 only)

- Special wrench for removing/attaching brake pipe flare nuts and clutch pipe flare nuts (hydraulic type only).
- Contacting by 5 points for turning nuts securely.

#### ● FLARE NUT WRENCH (MZ10)



#### FLARE NUT WRENCH+SET (2pcs.)

No. MZ112	▼g 135	10
Flare Nut Wrench	MZ11-10, 12	

#### ● FLARE NUT WRENCH & SET (MZ11 2pcs.)

No.	S <sub>1</sub> × S <sub>2</sub> (Hexagonal shaped)	L	▼g	1
MZ11-10	10 × 10	150	60	10
-12	12 × 12	154	75	10

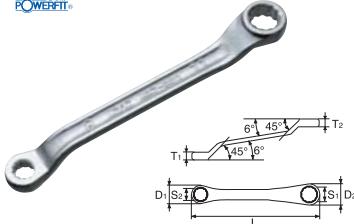
- Combination of Flare Nut Wrench and Open End Wrench.
- Open end for quick turning and split-ring end for final tightening.



No.	S <sub>1</sub> × S <sub>2</sub>	D <sub>1</sub>	D <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>	L	▼g	1
ABX7-0811	8×11	15.8	18.3	6.3	7.3	127	50	1

#### ● BLEEDER PLUG WRENCH

POWERFIT®

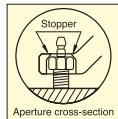


##### Usage · Application

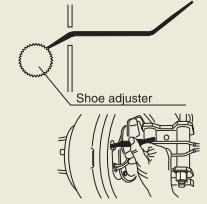
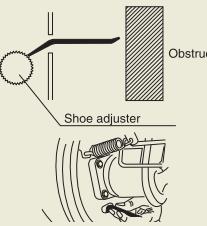
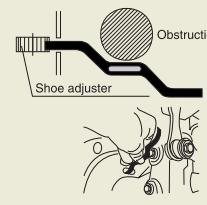
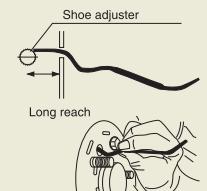
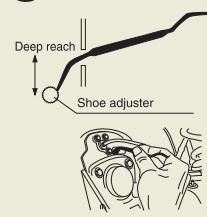
- Loosening/tightening work of 8×11mm bleeder plugs in Toyota Vellfire · Alphard (model year May '08 or later), Estima (model year January '06 or later), etc.

##### Features

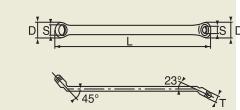
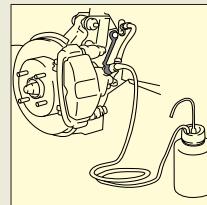
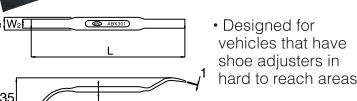
- By combining with the 8×11mm size, 1 unit can support both the front and rear.
- With a stopper provided on the bore top, it can be used while fixed on the hex. part of the bleeder plug.
- Short type that does not interfere with the tire or underbody.



## 5 Adjusting shoe clearance



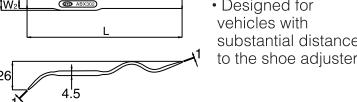
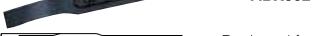
## 6 Replacing brake oil

● BRAKE SHOE ADJUSTER TOOL SET  
Standard Type

ABX301

• Designed for vehicles that have shoe adjusters in hard to reach areas.

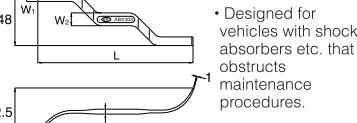
## Round Type



ABX302

• Designed for vehicles with substantial distance to the shoe adjuster.

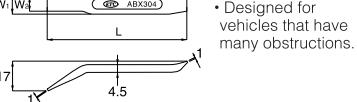
## Offset Type



ABX303

• Designed for vehicles with shock absorbers etc. that obstructs maintenance procedures.

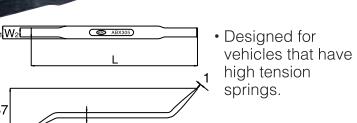
## Short Type



ABX304

• Designed for vehicles that have many obstructions.

## Long Type



ABX305

• Designed for vehicles that have high tension springs.

## BRAKE SHOE ADJUSTER TOOL SET

## ● For Passenger Cars (3pcs. Set)

No. ABX33	▼g 110	10	ABX301, 302, 303
Brake Shoe Adjuster Tools			

## ● For Medium-Sized Cars (2-3t class) (2pcs. set)

No. ABX32	▼g 75	10	ABX304, 305
Brake Shoe Adjuster Tools			

## Purpose

- Specialized tools for adjusting clearance between drum and brake shoe on drum brakes.

## Application

- Mainly for minicars and compact cars (ABX33)
- Mainly for trucks 2~4t (ABX32)

## Features

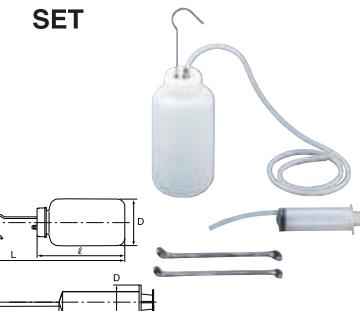
- Diverse shapes enable shoe adjustment in places previously inaccessible.
- Each tool has two types of curve and therefore broader application.

No.	Type	Application	L	W <sub>1</sub>	W <sub>2</sub>	▼g	10
ABX301	Standard Type	For Passenger Cars	140	12	8	40	10
ABX302	Round Type	For Passenger Cars	140	12	8	33	10
ABX303	Offset Type	For Passenger Cars	140	8	12	39	10
ABX304	Short Type	For Medium-Sized Cars	80	12	8	24	10
ABX305	Long Type	For Medium-Sized Cars	150	12	8	51	10

## ● Applicable Models

Type	Maker	Model
ABX301	Toyota	Ardeo / Starlet / Tercel / Corsa
	Crown / Hiace / Townace / Lightace	
	Nissan	Largo / Serena
	Mitsubishi	Toppo / Minica
	Subaru	Pleo / Vivio
ABX302	Daihatsu	301, 302, 304, 305 can be used as the drum is removed for adjusting.
	Suzuki	301, 302, 304, 305 can be used as the drum is removed for adjusting.
	Toyota	RAV4 / Ipsum / Gaia / Nadia
	Honda	Effective for adjustment form the drum side
	Daihatsu	301, 302, 304, 305 can be used as the drum is removed for adjusting.
ABX303	Suzuki	301, 302, 304, 305 can be used as the drum is removed for adjusting.
	Toyota	Corolla / Marino / Ceres / Sprinter / Vista / Spacio
	Mazda	Bongo
	Fuso	Fighter / Canter
	Isuzu	Elf (new) / Fargo
ABX304	UD	Condor
	Nissan	Bluebird / Primera / Presea / Be-1
	Mitsubishi	Bravo
	Daihatsu	301, 302, 304, 305 can be used as the drum is removed for adjusting.
	Suzuki	301, 302, 304, 305 can be used as the drum is removed for adjusting.
ABX305	Toyota	Dyna / Toyace
	Hino	Dutro / Ranger
	Mazda	Titan
	Isuzu	Elf (earlier models)
	Daihatsu	301, 302, 304, 305 can be used as the drum is removed for adjusting.
	Suzuki	301, 302, 304, 305 can be used as the drum is removed for adjusting.

## ● BLEEDER WRENCH SET



## ● BLEEDER PLUG WRENCH



## BLEEDER WRENCH SET

## No. ABX04 ▼g 320 1

Bleeder Plug Wrench ABX7-08, 10

Fluid catch tank (capacity: 1L) ABX7-T1

Fluid inhalator (50cc) ABX7-S1

## Replacement parts

No.	Product name	Materials	L	ℓ	D	Hose spec.	Capacity	▼g	1
ABX7-T1	Fluid catch tank	PE	282	182	100	Soft PVC $\phi 5 \times \phi 8 \times 1.1m$	1ℓ	170	1
ABX7-S1	Fluid intake container	PP	240	138	49	Silicone tube $\phi 3 \times \phi 6 \times 0.1m$	50cc	30	1

## Essential Tool for removing air of Brake Oil

## Purpose

- Replacing brake oil and bleeding air in the pipe.

## Application

- Applicable to bleeder for light cars to small trucks (2t class)

## Features

- Convenient combination of a large tank for waste oil and necessary tools for good work efficiency.

## BLEEDER PLUG WRENCH

No.	S	D	T	L	▼g	1
ABX7-08	8	16	7.5	141	60	1
-10	10	19	7.5	143	60	1

Stopper on the top of the opening enables easy operation.

## Purpose

- Fastening/loosening of bleeder plugs.

## Features

- Optimal rising angle enhances operability.

## ● SOCKET WRENCH FOR ELBOW CONNECTOR

No.	Sq.	S	D1	D2	H	L	A	B	▼g	□
ABX6-12	9.5	12	18.5	18	14	50	14	12	60	5
ABX6-14	9.5	14	22	20	17	50	17	14	80	5
ABX6-17	9.5	17	24	22	17	50	17	17	98	5
ABX6-19	9.5	19	26	24	21	50	21	19	110	5
ABX6-22	9.5	22	30	27.5	21	50	21	22	153	5
ABX6-34	12.7	34	45	41	20	44	19.5	27	300	5

## Usage

- Tightening tool for one-touch elbow connector that's used for trucks of 4t or more.
- Width across flats 34mm is for the tightening and loosening of connector for check valve that's used for Isuzu trucks.
- It can also be used to tighten and loosen elbow connectors (L-shape piping joint) used for general maintenance machinery.

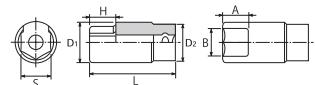


Usage State

## ● SOCKET WRENCH FOR EIBOW CONNECTOR



POWERFIT



## ● BRAKE BLEEDER

Continuous smooth feeding without pausing! Applicable to ABC Models.  
Quick One-man Operation!

## Purpose

- Replacing brake oil and supplying of brake oil during air-removing.

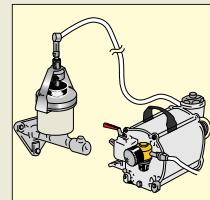
## Application

- Applicable to reserve tanks (inner diameter of inlet:  $\phi$  18-76) for mini cars and compact cars to small trucks (2t).

## Features

- Continuous feeding (pressured) shortens work time.
- Compact design: simple, low cost, but high performance.
- Easy to operate for air-driven method.
- One touch on the button enables air-removing of the tank.
- Plate rubber adopted for attachment by one action (see attachment A1).
- Expansion rubber with inner pressure ensures excellent contact (see attachments A2, B1 and B2).
- Special attachment enables quick installation (see attachments G1, G2, F1, F2 and H1).

## ● BRAKE BLEEDER PAT.P.



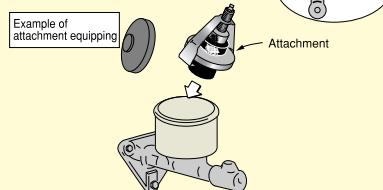
## ● BRAKE BLEEDER

No. ABX70	kg 8.5
Brake bleeder main body (with dust-proof cover),	L320×W205×H210 Tank Capacity 2ℓ Feeding Hose 3.5m
Attachment Set	
Attachment A1	ABX70-A1
Attachment A2	ABX70-A2
Attachment B1	ABX70-B1
Attachment B2	ABX70-B2
Clamp D1 (Claw)	ABX70-D1
Clamp E1 (Chain)	ABX70-E1
Attachment Case	Plastic case



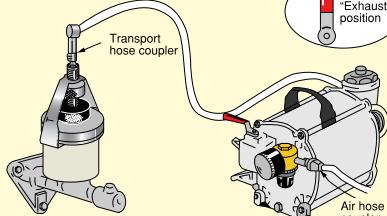
## ● How to Use Brake Bleeder

1 Equip the attachment on the reservoir tank.



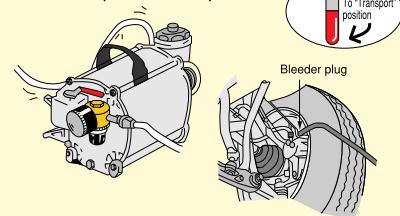
Remove the reservoir tank cap and equip the appropriate attachment on the tank.

2 Connect hoses.



Connect the transport hose coupler with attachment and air coupler with brake bleeder.

3 Transport brake liquid.



Switch the operation lever to "Transport" and transport brake liquid, replace brake liquid, or relieve air.

## No. ATBX70I

Brake Bleeder Main Body (with Dust-Proof Cover) L320×W205×H210, Tank Capacity 2ℓ, Compressed Transport Hose 3.5m 1 each				
Attachment A2	ABX70-A2	$\phi$ 32-45	Toyota, Nissan, Mitsubishi, Mazda, Daihatsu, Suzuki, Subaru, Isuzu, Daimler-Benz, OPEL, GM	1
Attachment Case				1

Trial set comes at a reasonable price.

- A set including an attachment with most applicable cars.



**7** Installing wheel & Inspecting torque

## ●IMPACT WRENCH



P.200

## ●WHEEL NUT SOCKET FOR IMPACT WRENCH



P.256

## ●CROSS RIM WRENCH



P.134

## ●WHEEL NUT TORQUE WRENCH SET



P.190

**SPECIAL BRAKE BLEEDER SET****●Attachment (separately sold)**

Product Name	Product No.	Applicable Size	Applicable Makers (Models)
Attachment A1	ABX70-A1	φ 18~31	Toyota, Nissan, Mitsubishi, Daihatsu, Audi, VW
Attachment A2	ABX70-A2	φ 32~45	Toyota, Nissan, Mitsubishi, Mazda, Daihatsu, Suzuki, Fuji H. I., Isuzu, Daimler-Benz, BMW, Opel, GM
Attachment B1	ABX70-B1	φ 46~60	Toyota, Honda, Mitsubishi, Daihatsu, Suzuki, Fuji H. I., Isuzu
Attachment B2	ABX70-B2	φ 61~76	Toyota, Nissan, Honda, Mitsubishi, Mazda, Suzuki, Fuji H. I.
Attachment F1	ABX70-F1	φ 36	Mazda (mainly Bongo)
Attachment F2	ABX70-F2	φ 60	Daihatsu (mainly one-box wagon)
Attachment G1	ABX70-G1	φ 42.5	Toyota (passenger cars in general)
Attachment G2	ABX70-G2	φ 56	Honda (mainly Acty and Odyssey)
Attachment H1	ABX70-H1	φ 75	Honda (mainly Odyssey)
Clamp D1	ABX70-D1		For ABX70-B1, B2
Clamp E1	ABX70-E1		For ABX70-B1, B2, H1

**Features**

- Simple attachment with a fit-and-press type plate rubber (attachment A1)
- Internal pressure-expanded rubber gives excellent contact (attachments A2, B1, B2)
- Special attachment enables easy equipping (attachments G1, G2, F1, F2, H1).

**●For Toyota****No. ATBX70T**

Brake Bleeder Main Body (with Dust-Proof Cover) L320 × W205 × H210, Tank Capacity 2ℓ, Compressed Transport Hose 3.5m 1 each

Attachment A1	ABX70-A1	1
Attachment B2	ABX70-B2	1
Attachment G1	ABX70-G1	1
Clamp E1	ABX70-E1	1
Attachment Case	Resin Case	1

**●For Nissan****No. ATBX70N**

Brake Bleeder Main Body (with Dust-Proof Cover) L320 × W205 × H210, Tank Capacity 2ℓ, Compressed Transport Hose 3.5m 1 each

Attachment A1	ABX70-A1	1
Attachment A2	ABX70-A2	1
Attachment B2	ABX70-B2	1
Clamp E1	ABX70-E1	1
Attachment Case	Resin Case	1

**●For Honda****No. ATBX70H**

Brake Bleeder Main Body (with Dust-Proof Cover) L320 × W205 × H210, Tank Capacity 2ℓ, Compressed Transport Hose 3.5m 1 each

Clamp E1	ABX70-E1	1
Attachment H1	ABX70-H1	1
Attachment G2	ABX70-G2	1
Attachment Case	Resin Case	1

**●For Mitsubishi****No. ATBX70M**

Brake Bleeder Main Body (with Dust-Proof Cover) L320 × W205 × H210, Tank Capacity 2ℓ, Compressed Transport Hose 3.5m 1 each

Attachment A1	ABX70-A1	1
Attachment A2	ABX70-A2	1
Attachment B1	ABX70-B1	1
Attachment B2	ABX70-B2	1
Clamp D1	ABX70-D1	1
Attachment Case	Resin Case	1

**●For Daihatsu****No. ATBX70D**

Brake Bleeder Main Body (with Dust-Proof Cover) L320 × W205 × H210, Tank Capacity 2ℓ, Compressed Transport Hose 3.5m 1 each

Attachment A2	ABX70-A2	1
Attachment B1	ABX70-B1	1
Clamp E1	ABX70-E1	1
Attachment F2	ABX70-F2	1
Attachment Case	Resin Case	1

**●For Mazda****No. ATBX70MZ**

Brake Bleeder Main Body (with Dust-Proof Cover) L320 × W205 × H210, Tank Capacity 2ℓ, Compressed Transport Hose 3.5m 1 each

Attachment A2	ABX70-A2	1
Attachment B2	ABX70-B2	1
Clamp E1	ABX70-E1	1
Attachment F1	ABX70-F1	1
Attachment Case	Resin Case	1

**●For Subaru/Suzuki****No. ATBX70SS**

Brake Bleeder Main Body (with Dust-Proof Cover) L320 × W205 × H210, Tank Capacity 2ℓ, Compressed Transport Hose 3.5m 1 each

Attachment A2	ABX70-A2	1
Attachment B1	ABX70-B1	1
Attachment B2	ABX70-B2	1
Clamp E1	ABX70-E1	1
Attachment Case	Resin Case	1



Attachment A1



Attachment A1



Attachment A2



Attachment A2



Attachment B1



Attachment B2 + Clamp E1



Attachment F1



Attachment B2 + Clamp D1



Attachment G1



Attachment F1



Attachment G2



Attachment G1



Attachment H1



Attachment H1 + Clamp E1



Clamp D1



Attachment Application Table for Break Bleeder												
● Toyota		● Nissan		● Daihatsu			● Isuzu					
Car Type	Model	Inside Diameter	Attachment	Car Type	Model	Inside Diameter	Attachment	Car Type	Model	Inside Diameter	Attachment	
			Conventional Dedicated				Conventional Dedicated				Conventional Dedicated	
bB	NCP31	ø42.5	- G1	AD Wagon	WFY10	ø34	A2	-	Elf	NPR6~	ø34	A2
	QNC20	ø54	- G3	Atlas	H41	ø24	A1	-		NKR~	ø42.5	A2
MR2	AW11	ø56	B1+D1 -		AKR66EA	ø42.5	A2	-	Gemini	JT151F	ø67	B1+D1(E1)
MR-S	ZZW30	ø42.5	A2 G1	Avenir	W10	ø34	A2	-	Bighorn	UBS69GW	ø54	B1+D1(E1)
RAV4 (including EV)	SXA10/10W/11 · ACA21W	ø42.5	A2 G1	Wingroad	WFY11 · Y12	ø34	A2	-	Fargo	WFS6~	ø33	Not applicable
WILL Vi	NCP19	ø42.5	- G1	X-TRAIL	PNT30	ø24	A1	-	Forward~	GIGA (4t~10t)	ø49	Not applicable
WILL VS	ZZE127	ø42.5	A2 G1	S-Cargo	G20	ø63	B2+E1	-	MU	UCS69DW	ø54	B1+D1(E1)
Isis	ANM10G	ø42.5	A2 G1	Elgrand	AVWE50	ø24	A1	-				
Arion	NZT240	ø42.5	A2 G1	Caravan	KRME24	ø24	A1	-				
Aristo	JZS147/161	ø42.5	A2 G1	Cube	BZ11	ø24	A1	-				
Altezza	GXE-10	ø42.5	- G1	Z10	Z10	ø34	A2	-				
Alphard	ANH10W	ø42.5	A2 G1	Sunny	SB14 · B13	ø34	A2	-				
Alphard Hybrid	ATH10W Series (2003/7~)	ø42.5	A2 G1		HB12	ø63	B2+E1	-				
Alex	NZE121	ø42.5	A2 G1	Sunny Truck	GB122	ø70	B2+E1	-				
Ist	NCP65	ø42.5	A2 G1	Safari	WYY61	ø34	A2	-				
Ipsum	SXM10G · ACM21W	ø42.5	A2 G1	Cima	Y34/33/32	ø34	A2	-				
Wish	ZNE10	ø42.5	A2 G1	Cedric · Gloria	Silvia	ø34	A2	-				
Vitz	KSP90	ø42.5	A2 G1		S14/15	ø34	A2	-				
	SCP10	ø42.5	- G1	Skyline	S13	ø70	B2+E1	-				
Wyndham	MCV20 · VCV11	ø42.5	A2 G1		R34/33	ø34	A2	-				
Verossa	JZX110	ø42.5	A2 G1	Stagea	R32	ø70	B2+E1	-				
Estima	MCR30W A2	ø42.5	A2 G1	Cedric	WGNC34	ø34	A2	-				
	TCR11/20G	ø23	A1 -	Cefiro	Y31	ø70	B2+E1	-				
Estima Hybrid	AHR10W Series (2003/7~2006/5)	ø42.5	A2 G1	Cefiro Wagon	A33/32 · WPA32	ø34	A2	-				
Opa	AHR20W Series (2006/6~)	ø42.5	A2 G1	Serena	PC24/C25	ø24	A1	-				
Camry Gracia	ZCT15	ø42.5	A2 G1		KBC23	ø34	A2	-				
Carina · Corona	SVX25W	ø42.5	A2 G1	Tida	C11	ø24	A1	-				
	ST202/190/210/AT212	ø42.5	A2 G1	Tino	HV10	ø34	A2	-				
AT170 (E1)	ø56	B1+D1 -		Terrano	YD21	ø70	B2+E1	-				
Carina ED	ST202 · 183	ø42.5	A2 G1	Basara	JHU30	ø24	A1	-				
Carib	AE111G/95G	ø42.5	A2 G1	Vanette	KHGNC22	ø24	A1	-				
Caldina	ST191/215W	ø42.5	A2 G1		SS28V	ø36	-	F1				
Curren	ST206	ø42.5	A2 G1	Pulsar · S-RV	FN15	ø34	A2	-				
Corolla	AE110/101	ø42.5	A2 G1	Fairlady Z	Z33	ø34	A2	-				
Corolla Fielder	ZZE123	ø42.5	A2 G1	Primera	GCZ32	ø70	B2+E1	-				
Cami	J100E	ø54	B1+D1 -	Primera Wagon	P10 · P11	ø34	A2	-				
Crown	GS130/131 · MS137JZS143/149/151/155/171	ø42.5	A2 G1	Bluebird	EU13 · U14	ø34	A2	-				
Crown Majesta	JZX149 · UZS186 Series	ø42.5	A2 G1		U11/12	ø70	B2+E1	-				
Grand Hiace	KCH16W	ø42.5	A2 G1	Bluebird Sylphy	QG10	ø34	A2	-				
Granvia	RCH11 · VCH10/16 · KCH10/16	ø42.5	A2 G1	Prairie EV	HM11 · PM11	ø34	A2	-				
Kluger	ACV20	ø42.5	A2 G1	Prairie Joy								
Kluger Hybrid	MHU28W Series (2005/3~)	ø42.5	A2 G1	Presage	HU30	ø24	A1	-				
Cresta	JZX101/90/81	ø42.5	A2 G1	President	H252	ø34	A2	-				
Coaster	HDB50	ø42.5	A2 G1	Presea	PR10	ø34	A2	-				
Cynos	EL5	ø70	B2+D1 -	March	AK12	ø24	A1	-				
Supra	GA70 · JZA80	ø42.5	A2 G1		K11	ø34	A2	-				
Starlet	EP81/91	ø70	B2+D1 -	Racine	RFNB14	ø34	A2	-				
Sparky	S221E	ø34	A2 -	Largo	W30	ø34	A2	-				
Spacio	AE111N	ø42.5	A2 G1	Liberty	PM12	ø24	A1	-				
Sprinter	AE101/81	ø42.5	A2 G1	R'nessa	NN30	ø34	A2	-				
Serra	EXY10	ø70	B2+D1 -	Legalis	JLR50 · JRR30	ø34	A2	-				
Celica	ST185/202	ø42.5	A2 G1	Leopard	Y33	ø34	A2	-				
Celsior	UCF11/21/31	ø42.5	A2 G1	Laurel	HC34 · GC35	ø34	A2	-				
Soarer	JZZ31 · GZ20	ø42.5	A2 G1		FNB12	ø63	B2+E1	-				
Tercel · Corsa	EL51/45/41 (E1)	ø70	B2+D1 -	HC33	ø70	B2+E1	-					
Dina	BU87	ø23	A1 -									
Townace	CR30	ø23	A1 -									
Townace Truck	YR28G · YM55	ø23	A1 -									
Chaser	1JX100 · GX100/81	ø42.5	A2 G1									
Toyoace	LH80	ø42.5	A2 G1									
Trueno	AE111/92 A2	ø42.5	A2 G1									
Noah	SR40/50 · CR40	ø42.5	A2 G1									
Hiace	LH119 · KZH106	ø23	A1 -									
	KDH200	ø42.5	A2 G1									
Hiace Regius	RCH41W · KCH40W	ø42.5	A2 G1									
Hilux	TRN215	ø42.5	A2 G1									
Hilux Surf	KZN · RZN185 · LN131V	ø42.5	A2 G1									
Harrier	MCU10W	ø42.5	A2 G1									
Harrier Hybrid	MHU38W Series (2005/3~)	ø42.5	A2 G1									
Vista	SV41/40/32/20	ø42.5	A2 G1									
Vista Ardeo	SV50	ø42.5	A2 G1									
FunCargo	NCP25/20	ø42.5	- G1									
Platz	SCP11	ø42.5	- G1									
Prius	NHW10/20/30	ø42.5	A2 G1									
Pronard	MCX20A	ø42.5	A2 G1									
Belta	KSP92	ø42.5	A2 G1									
Voxy	AZR60G · ZRR70G	ø42.5	A2 G1									
Porte	NPN10	ø42.5	A2 G1									
Mark II	GX71 (Later Period)	ø42.5	A2 G1									
	GX71 (Early Period)	ø56	B1+D1 -									
Mark II Wagon	SVX25W	ø42.5	A2 G1									
Mark X	GRX120	ø42.5	A2 G1									
LightAce	YR21	ø23	A1 -									
Raum	EXZ10	ø42.5	A2 G1									
Rush	NCP100	ø42.5	A2 G1									
Land Cruiser	HDJ81V/101K · UZJ100	ø42.5	A2 G1									
Land Cruiser Prado	KZJ90W/VZJ121W	ø42.5	A2 G1									
Levin	AE92	ø42.5	A2 G1									
● Lexus												
Car Type	Model	Inside Diameter	Attachment	Car Type	Model	Inside Diameter	Attachment	Car Type	Model	Inside Diameter	Attachment	
			Conventional Dedicated				Conventional Dedicated				Conventional Dedicated	
GS	UZS190 · URS190 Series (2005/7~)	ø42.5	A2 G1	Elf	NPR6~	ø34	A2	-				
GS Hybrid	GWS191 Series (2006/3~)	ø42.5	A2 G1		NKR~	ø42.5	A2	-				
LS	USF40 Series (2006/9~)	ø42.5	A2 G1	Gemini	JT151F	ø67	B1+D1(E1)	-				
LS Hybrid	UVF45/46 Series (2007/4~)	ø42.5	A2 G1	Bighorn	UBS69GW	ø54	B1+D1(E1)	-				

\*Please check the merchandise inventory for a product that is marked by  before placing an order.

● Mitsubishi

Car Type	Model	Inside Diameter	Attachment	
			Conventional	Dedicated
ek Wagon	H81W	φ34	A2	-
Outlander	CW5W	φ34	A2	-
GTO	Z16A	φ66	B2+D1	-
RVR • Chariot	N23W/33W	φ66	B2+E1(D1)	-
Airtrek	CU4W	φ34	A2	-
Charisma	DA2A	φ66	B2+D1	-
Galant	EA1A • E33A/35A/52A	φ66	B2+D1	-
Galant	EC5A	φ66	B2+D1	-
Canter	FE437E	φ34	A2	-
Chariot Grandis	N84W	φ34	A2	-
Challenger	K97W	φ66	B2+D1	-
DIAMANTE	F31A/17A	φ66	B2+D1	-
DION	CR9W	φ34	A2	-
DINGO	CQ2A	φ34	A2	-
DEBONAIR	S12A	φ66	B2+D1	-
DELICA	P35W • P51V	φ18	A1	-
DELICA SPACE GEAR	PD8W	φ34	A2	-
TOPPO	H31A/32V	φ58	B1+D1(E1)	-
TOPPO BJ	H46A	φ34	A2	-
PAJERO	V75W	φ34	A2	-
	V26WG/24WG	φ66	B2+D1	-
PAJERO Jr.	H57A	φ58	B1+D1(E1)	-
PAJERO Mini	H56A	φ58	B1+D1(E1)	-
MINICA	H22A	φ58	B1+D1(E1)	-
MINICAB	U41V/41T/11V	φ34	A2	-
MIRAGE	CA1A • CJ2A	φ66	B2+D1	-
LANCER	CK4A	φ66	B2+D1	-
LANCER CEDIA WAGON	CS5W	φ34	A2	-
LIBERO	CB5W	φ66	B2+E1(D1)	-
LEGNUM	EA1W	φ66	B2+D1	-

● Honda

Car Type	Model	Inside Diameter	Attachment	
			Conventional	Dedicated
CR-V	RD1	φ56	B1+E1	G2
	EF6	φ56	B1+E1	G2
HR-V	GH3	φ56	-	G2
NSX	NA1	φ75	B2+E1	H1+E1
S-MX	RH1	φ56	B1+D1(E1)	G2
Z	PA1	φ56	B1+D1(E1)	G2
Accord	CF1	φ56	B1+D1(E1)	G2
	CA3 • CD4	φ75	B2+E1	H1+E1
Ascot	CB1	φ75	B2+E1	H1+E1
Inspire • Vigor	CB5	φ75	B2+E1	H1+E1
Integra	DA5	φ56	B1+E1	G2
Elysion	DC2	φ75	B2+E1	H1+E1
Odyssey	RR3	φ56	B1+D1(E1)	G2
	RA6/5	φ56	-	G2
	RA2	φ75	-	H1+E1
Orthia	EL3	φ56	B1+D1(E1)	G2
Capa	GA4	φ56	B1+D1(E1)	G2
Civic	EK3/9	φ56	B1+D1(E1)	G2
	EG8/4 • EF2 • AH	φ56	B1+E1	G2
	RF1	φ56	B1+D1(E1)	G2
STEPWGN	HH4/3	φ56	-	G2
STREET-ACTY	RN1-6	φ56		G2
STREAM	SABER	φ56	B1+D1(E1)	G2
Cherokee	MX • R4	φ30	A1	-
TODAY	JW3 • JA4	φ56	B1+E1	G2
Torneo	CF4	φ56	B1+D1(E1)	G2
VAMOS	HM1/2	φ34	A2	-
BEAT	PP1	φ75	B2+E1	H1+E1
Prelude	BB6/5	φ56	B1+D1(E1)	Sealing Cap ASSY+E1 of G2
Prelude	BA5	φ75	B2+E1	H1+E1
Life	JA4	φ56	B1+D1(E1)	G2's
Lagreat	RL1	φ56	-	Sealing Cap ASSY+E1
Legend	KAB/7/3	φ56	B1+E1	
Logo	GA3	φ56	B1+E1	ASSY+E1

● Subaru

Car Type	Model	Inside Diameter	Attachment	
			Conventional	Dedicated
Impreza	GC8 • GC1 • GF6	φ34	A2	-
	GC8	φ67	B2+D1(E1)	-
Vivio	KW3A • KK3	φ60	B1+D1(E1)	-
Sambar	KS3N • KR6 • KV4	φ34	A2	-
Sambar Dias		φ34	A2	-
Sambar	KV4 • KS4	φ60	B1+D1	-
Domingo	KJ8 • FA7	φ34	A2	-
FORESTER	SF5	φ34	A2	-
Pleo	RA1	φ34	A2	-
Legacy	BG5/6/9 • BH5/BP5	φ34	A2	-
	BG5 • BF5 • BD5	φ67	B2+D1(E1)	-

● Suzuki

Car Type	Model	Inside Diameter	Attachment	
			Conventional	Dedicated
kei	HN11S	φ34	A2	-
MR Wagon	MF21S	φ34	A2	-
Alto	CN21S • HA11S	φ34	A2	-
Escudo	TD52W	φ60	B1+D1	-
	TD94	φ34	A2	-
Every	DA52W • DF51	φ34	A2	-
Cultus	AB34S	φ60	A2	-
SX4	TA41S	φ34	A2	-
Carry	DB51 • DA41P	φ34	A2	-
Crescent	GC41W	φ34	A2	-
Jimny	JA12W	φ60	B1+D1	-
	JA51W	φ67	B2+D1(E1)	-
Swift	HT51S	φ34	A2	-
CERVO	CN22S	φ34	A2	-
Wagon R	CT21S/51S	φ34	A2	-
Wagon R Wide	MP61S	φ34	A2	-

● Mazda

Car Type	Model	Inside Diameter	Attachment	
			Conventional	Dedicated
AZ-Wagon	CY21S	φ34	A2	-
MPV	LY3P	φ36	A2	-
	LVLR	φ36	A2	F1
MS-8	LW5W	φ36	Not applicable	
RX-7	MB5P • MBEP	φ36	A2	F1
	FC3S • FD3S	φ36	A2	F1
Capella	GF8P • GW8W	φ36	A2	F1
	CG2PP • GV8W • GD8S	φ67	B2+E1	-
Capella Wagon	GW8W	φ36	A2	F1
Carol	AA6PA	φ33	A2	-
Scrum	DL51V	φ34	A2	-
Sentia	HD55/55 • HEEA	φ36	A2	F1
TITAN	WGT4H	φ27.5	A1	-
	(Former)	φ36	-	F1
Demio	DY5W	φ36	A2	F1
	DW5W	φ67	B2+E1	-
Familia	BHALP • BJ3P	φ36	A2	F1
	BHA6R • BG6P • 5P			
FamiliaXG	MFY10	φ34	A2	-
FESTIVA	DA3PF	φ67	B2+E1	-
Premacy	CP8W	φ36	A2	-
FRIENDEE	SGLW	φ36	A2	F1
PROCEED	UF66M	φ36	A2	F1
Persona	MASP	φ67	B2+E1	-
Porter Cab	PC567	φ27.5	A1	-
BONGO	SS88H • SSF8W • SD2AT	φ36	-	F1
Eunos	500 CA8PE	φ36	A2	F1
EUNOS800	TA5P	φ36	A2	F1
Lantis	CBA8P • CBAEP	φ36	A2	F1
Luce H	BEY • HCFS • HCSS	φ36	A2	F1
Laser	BFSPF	φ67	B2+E1	-
Roadster	NA6CE	φ67	B2+E1	-

● Imported Cars

Manufacturer	Inside Diameter	Car Type	Model	Attachment	
				Conventional	Dedicated
Audi *2	φ30.5	80 2.0E	8CABK~	A1	-
		2.3E	4AAAR		
		A6	4AAB~		
Opel	φ32	Astra	XD200~	A2	-
		Current Vita	BY9506		
Chrysler	φ32	Dodge • Avenger	ABA-JSD27	A2	-
		Dodge • Caliber	ABA-PM20		
		JEEP • Wrangler	ABA-JK38S		
Saturn	φ36	Sedan • Coupe SL~		A2	-
Citroen	φ32	VF72AZ		A2	-
FIAT	φ36	Punto	ZFA1880~	A2	-
Ford	φ32	KA	WFOB~	A2	-
		Discovery	LJ~		
Peugeot	φ34	406	B-2343	A2	-
			DVF37CRFSW~		
Volvo	φ63	V70 Series		B2+D1	-
Mercedes	φ32	Benz E280		A2	-
		E210/202			
		V12			
Renault	φ36	Megane *1		A2	-
		Lutecia	ABA-RK4M		
Rover	φ33	MINI Cooper		A2	-
		200	XW~		
BMW	φ32	BMW	E-325 • 318ti	A2	-
GM	φ32	Cadillac	E-AE~	A2	-
VW*2		Golf	1HADZ	A1	-
		Polo	Current cars		

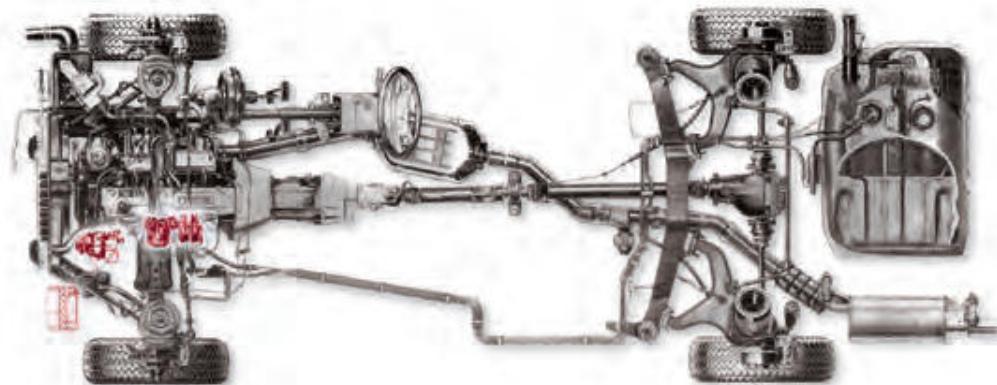
\*1: Battery cover needs to be removed.

\*2: Although Audi and VW apply to A1, since the outside diameter of their filler neck is larger than the rubber of A1, please be careful in center alignment during installation.

● Other Large Trucks

Manufacturer	Inside Diameter	Type Model	Attachment	
			Conventional	Dedicated
Hino	φ32	4t Series Ranger	A2	-
UD	φ92	10t Series Super Dolphin		
Fuso	φ80	4t-10t Condor ~ BigThumb		
	φ80	Old cars		
	φ95	4t-10t Fighter ~ Super Great		

# Electric System Mechanism



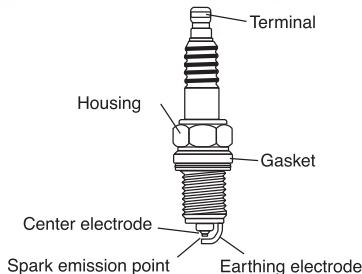
## MECHANISM 1

## Spark plug

The spark plug is designed to emit a high voltage spark directly into the combustion chamber. It is installed by screwing into the cylinder head.

The high voltage enters the spark plug via the top terminal and is transmitted through a ceramic insulator by the central electrode. As the current is grounded to an earthing electrode it creates a spark crossing the "gap".

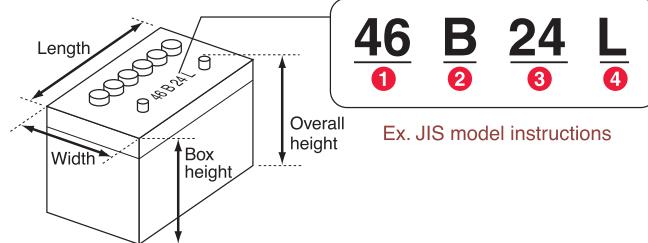
Sparks are discharged from the electrodes in a variety of shapes for different uses and functions.



## MECHANISM 2

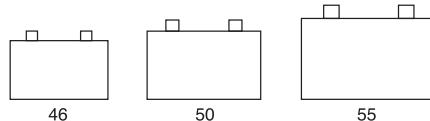
## Battery

As the model of the battery is placed on the topside, it is easy to find out information like capacity, position and size of the terminal polarity, etc. Knowing and understanding these rules makes it easy when selecting a correct battery for each vehicle.



### ① Capacity rank

The performance of the battery is shown here. (Battery capacity and start performance) The higher the numerical value, the higher the capacity, however, there is no "recommended specific" number. For a simple setting to follow (Up to 50: Will produce 2; Over 50: Will produce 5).



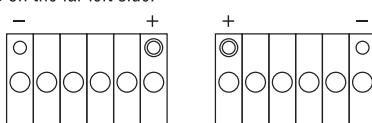
### ③ Battery length measurements (approx. cm)

The overall battery measurement is shown (approx. cm)  
Ex.: 46B24L (approx. 24cm)

## MECHANISM 3

## Alternator

This is a generator that produces electricity while the engine is running. The first type of generators produced electricity in the DC form, however, nowadays they are more stable, producing electricity in the AC form.



### ④ Battery terminal position

Positive terminal position is shown. On the "R" Type, the positive terminal is on the far right side, while on the "L" type, the positive terminal is on the far left side.

## Inspection, Cleaning and Replacing Spark Plug

## ELECTRIC SYSTEM

Removing Spark  
Plug Leads 1Removing Spark  
Plug 2

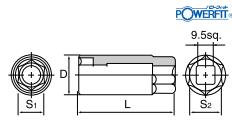
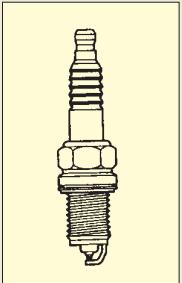
## SPARK PLUG SOCKET

No.	S <sub>1</sub> (6pt.)	S <sub>2</sub>	D	L	Spark Plug (Type)		▼g	sq.	✉	
					NGK	ND				
B3A-14SP	14	—	18.5	62			60	5	5	
-16SP	16	—	20	65			65	5	5	
B3A-13P	13	17	18	56	ER	r	72	3/8"	5	
-16P	16	17	21.5	62	BC,C	PQ,U	100	5	5	
-18P	18	19	23.5	62	D	X	130	5	5	
-20.8P	20.8	24	26.5	62	B	W	170	5	5	

- With Magnet for using in narrow spaces.
- \* B3A-16SP is thin wall type for use on 4-valve engine of Mitsubishi mini cars.
- The B3A-14SP is a socket designed to be compatible with the new Nissan engines HR15DE, MR18DE, MR20DE types.



- Do not place a wrench around the outside of the B3A-14SP and rotate it.

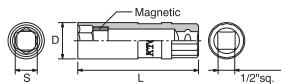
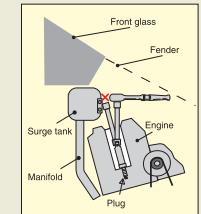
● 3/8"sq. SPARK PLUG  
SOCKETRemoving Spark  
Plug

## SPARK PLUG SOCKET

No.	S <sub>1</sub> (6pt.)	S <sub>2</sub>	D	L	Spark Plug (Type)	▼g	sq.	✉	
					NGK	ND			
B4A-16P	16	—	22	63.5	BC,C	PQ,U	110	5	
-19P	19	—	26.5	65	BM	WM	170	12.7	5
-20.8P	20.8	24	26.5	65	B	W	160	5	

- With Magnet for using in narrow spaces.

- \* B35P-19H for changing spark plugs on chain saws, mowing machines, small generators, etc.

● 1/2"sq. SPARK PLUG  
SOCKET

## UNIVERSAL SPARK PLUG WRENCH

No.	S(6pt.)	D <sub>1</sub>	D <sub>2</sub>	ℓ <sub>1</sub>	ℓ <sub>2</sub>	L	▼g	✉	
B3F-14SP	14	18.5	17	73	111	192	270	1	
-16SP	16	20	18	73	148	230	300	1	

## Purpose

- Removing/installing spark plug.

## Application

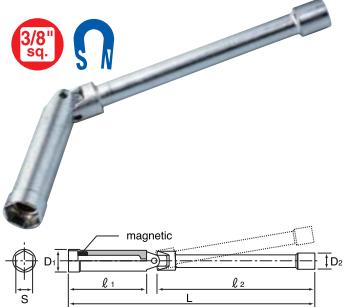
- Mini-van and wagon: effective for use on cars having small clearance between engine and cowl panel. Toyota's Ipsum, Hiace Rejias, Prius, Noa; Honda's Odyssey, and other models.
- Usable for replacing spark plugs on other models.

## Features

- No falling of the socket from the extension bar during operation as the 16mm plug socket and the bar are integrated into one piece of tool.
- Easy insertion into plug hole with universal joint used in the middle of the wrench. (the maximum flexible angle : 90 degrees).
- For specially thin socket, usable on 4-valve engine of Mitsubishi.

● 3/8"sq. UNIVERSAL  
SPARK PLUG WRENCH

D.PAT.

● 3/8"sq. SUPER LONG  
PLUG WRENCH

## SUPER LONG PLUG WRENCH

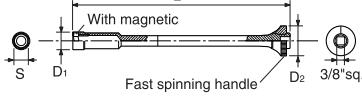
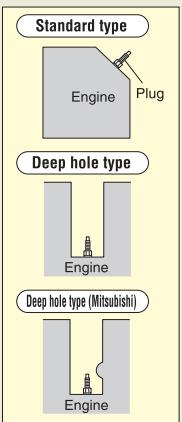
No.	S(6pt.)	D <sub>1</sub>	D <sub>2</sub>	L	▼g	✉	
B3P-16LL	16	20	35	250	250	5	

## Purpose

- Use for spark plug removal/installation.

## Characteristics

- This is a plug socket, extension bar, and quick spinner all in one new type of plug wrench.
- The operation is improved by eliminating time wastage and troublesome tool retrieval. The fast handle movement when using the ratchet (quick spin) also brings a positive effect.
- As the socket section is of a quite thick design, its uses are wide. (It can also be used on Mitsubishi light weight 4-valve engines).
- Dropping spark plugs is prevented as the tool is magnetic.
- The tightening angle is determined by a line mark on the side of the quick spinner.



## 2 Removing Spark Plug

## ●FLEX SHAPE SPARK PLUG WRENCH



## FLEX T SHAPE SPARK PLUG WRENCH

No.	S	L	Spark Plug(Type) NGK ND	Applicable Car	▼g	✉
PHF-16H	16	385	BC, C PQ, U	Toyota 4A-G, 1G-G Nissan VG20, VG30 Others Twin CAM For Multi Valves	500	10
-20.8H	20.8	530	B W		600	10

- T shape handle and magnetized socket with flex joint.
- For changing spark plugs in deep narrow quarters.

POWERFIT®



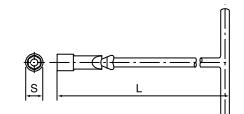
## ●SPARK PLUG WRENCH



## SPARK PLUG WRENCH

No.	S <sub>1</sub> (6pt.) S <sub>2</sub> (6pt.)	L	Applicable Car		▼g	✉
			NGK	ND		
PH-16×21	16 20.8	115	BU, C B	PQ, U W	130	5

- Can be used for 2 types of spark plugs.



## ●COMPACT SPARK PLUG WRENCH SET



## COMPACT SPARK PLUG WRENCH SET

No. B126P	▼kg 1	✉ 1
Spark Plug Wrench	B12P-16H, 18H, 20.8H	
Special Extension Socket	BE12-30, 45	
Ratchet Box-End Wrench	RM-10×12	
Metal Case L185×W105×H35	B126P-M	

- New type Spark Plug Wrench Set specially designed for use on motorcycles.
- Most usable sizes for wider application.

POWERFIT®

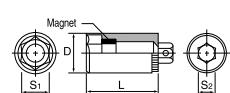
## ●COMPACT SPARK PLUG WRENCH SOCKET



## COMPACT SPARK PLUG WRENCH SOCKET

No.	S <sub>1</sub> (6pt.)	S <sub>2</sub>	D	L	Applicable Plug(Type) NGK ND	▼g	✉
B12P-16H	16	12	21.5	61	BC, C PQ, U	100	5
-18H	18	12	23.5	61	D X	120	5
-20.8H	20.8	12	26.5	61	B W	150	5

- New type Spark Plug Wrench
- Most suitable for the latest models of motorcycles and agri-machines with small hexagon head. (Can be used in the space where Ratchet Handles cannot be used due to the shape of the frame, cowling, or cylinder head.).
- Can be used on mini motorcycles.



## ●SPECIAL EXTENSION SOCKET

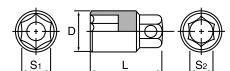


## SPECIAL EXTENSION SOCKET

No.	S <sub>1</sub> (6pt.)	S <sub>2</sub>	D	L	▼g	✉
BE12-30	12	12	17	30	40	5
-45	12	12	17	45	60	5

## Purpose

- Extending plug wrench (B12P-) for motorcycles.



## ELECTRIC SYSTEM

## Disassembling Alternator

## 1 Removing Alternator Belt

## ●FREE POSITIONING WRENCH



## ●FLAT TYPE EXTRA LONG BOXEND WRENCH



P.121

## ●HANDY BAR



P.302

ARMATURE BEARING PULLER

No.	BEARING APPLICABLE RANGE	▼g	1
ABU-1935	Outer $\phi$ 19~35 Inner $\phi$ 7 Over	210	1

- For small bearings.

Purpose

- For generators and alternators with built-in cooling fans.
- For removing armature bearings of reduction type starter motor, power tools, cleaner, etc.

No.

BEARING APPLICABLE RANGE

ABU-3262

BEARING APPLICABLE RANGE

Outer  $\phi$  32~62 Inner  $\phi$  10 Over (No.6201~6305)

# Disassembling Alternator

● ARMATURE BEARING PULLER D.PAT.



No.ABU-1935



No.ABU-3262

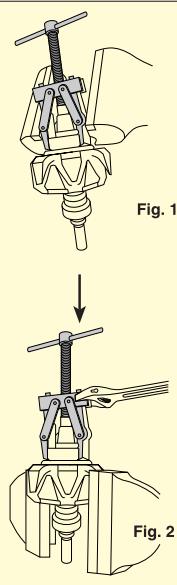
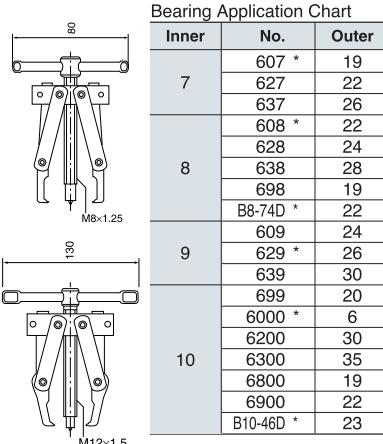


Fig. 1

Fig. 2



Inner	No.	Outer
7	607 *	19
	627	22
	637	26
8	608 *	22
	628	24
	638	28
	698	19
9	B8-74D *	22
	609	24
	629 *	26
	639	30
10	699	20
	6000 *	6
	6200	30
	6300	35
	6800	19
	6900	22
	B10-46D *	23

\*Frequently used types  
Note: For other bigger types than the above mentioned, please use ABU-3262.

# Headlight Axis Adjustment

HEADLIGHT ADJUST WRENCH

No. AMLB0810

▼g 290

1

Main Body Extension socket (Overall length 20mm)

Purpose

- Adjustment of headlight axis adjustment screws used on asymmetrical left-night odd-shaped headlights of automobiles.

Application

- Headlight axis adjustment screws with a width across flats of 8mm for automobiles from mini to standard sizes. Cannot be applied for models which do not use asymmetrical left-right odd-shaped headlights (sealed-beam headlights, etc.) and for one-box vehicles.

Features

- The 320mm-long body and timing belt enables headlight axis adjustment by remote operation from outside the engine room, without need to insert a tool or hand into the narrow area around headlights.
- The aluminum body has reduced main body weight to about 200 grams, making the wrench easy and less fatiguing to work with.
- The grip handle assures smooth, precise rotation in both directions, just like a stubby screwdriver.
- Usable with a wide range of vehicle models, because a total of four socket lengths, 0mm, 10mm, 20mm and 30mm, can be selected for use in combination with the extension socket. (Extension socket: No. AMLB8-0820)

REPLACEMENT PARTS

No.	Description	▼g	1
AMLB0810-320	Body	160	
-08	Extensione Socket 8mm	20	
-10	Extensione Socket 10mm	25	
-12	Extensione Socket 12mm	30	
-H	Grip Handle	55	

BELT EXCHANGE SET

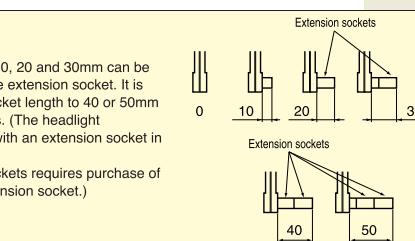
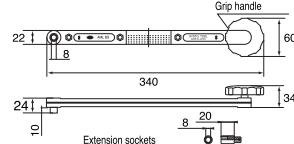
No.

Content

AMLB0810-1

Belt • Screw • Nut

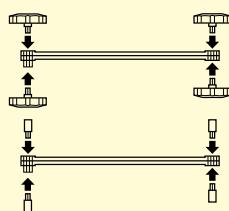
● HEADLIGHT ADJUSTMENT WRENCH



- Select the socket length and grip handle position according to the vehicle model and turn the headlight axis adjustment screw.

VARIETY OF USE

- The grip handle and extension socket can be attached to any of the four positions on the wrench bore.



- Any of four socket lengths of 0, 10, 20 and 30mm can be selected for combination with the extension socket. It is also possible to increase the socket length to 40 or 50mm by connecting extension sockets. (The headlight adjustment wrench is provided with an extension socket in the set.)

Connection of two extension sockets requires purchase of another optionally available extension socket.)

## ELECTRIC SYSTEM

## Headlight Axis Adjustment

## 1 Headlight Axis Adjustment

## ● HEADLIGHT ADJUST SCREWDRIVER



Extended: Axial length 290mm  
Normal: Axial length 230mm

## HEADLIGHT ADJUST SCREWDRIVER

No.	Count	D	d	s	L	l	Normal	Extended	Normal	Extended	▼g	✉	
AD701	No.2	39	5	6.3	340	400	230	290	180	1			

## Usage

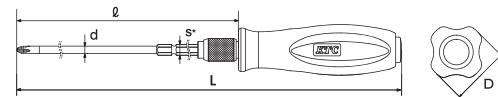
- Headlight optical axis adjustment dedicated screwdriver (cross No.2) for automobile, etc.

## Application

- Screw for headlight optical axis adjustment is cross No.2.

## Features

- Telescopic type with the axial length of 230mm · 290mm.
- Normally, it is set at the size (340mm total length) that easily fits in a tool box.
- Supports vehicle models with narrow service hole with the fine axis diameter of 5mm.



\* It is an opposite side size.  
• Axis is non-through type. • Magnet is not attached on the tip.

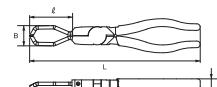
**CAUTION** • It cannot be used for some imported cars with special screw shapes.

## ELECTRICAL DEVICE

## Electric Works

## 1 Removing Connectors

## ● CONNECTOR HOUSING PLIERS D.PAT.P.



With Housing Claw A equipped  
With Housing Claw B equipped

With Housing Claw C equipped

\* AD101 is a set of the body and 3 types of housing claw (A, B, C).

## CONNECTOR HOUSING PLIERS

No.	Attached Claw	L	l	B	T	▼g	✉	
AD101	Claw A	208	53	25	12	177		
	Claw B	209	54	25	12	177	5	
	Claw C	194	39	34	12	176		

## Usage

- Unlocking and extraction of connector housing.

## Features

- Smoothly unlocks small, thin or recessed lock that's difficult to work with.
- Supports various shapes with 3 types of claw with different bending angles and tip shapes.
- Long claw that can avoid bundled wirings and reach deep places is adopted.
- \* Spare parts are configured. Please contact your dealer for details.

**CAUTION** • Please do not use it for usages other than the application.

## Supply Parts

No.	Product Name	Set Contents	▼g	✉	
AD101-123	Claw Set	Housing Claw A, B, C, 1 each	20	5	

Hex. socket screws are not included.

- If you already own the KTC straight snap ring pliers for hole (No.SCP-171, 1715), it can be used by replacing the claw. (Either screw can be used for the set screw.) P.283



Claw A

Claw B

Claw C



## CONNECTOR TOOL SET

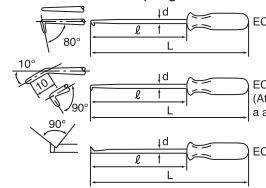
No. ECC6	▼g 300	1
Connector coupling tool	ECC-1R, 2R, 3R	
Connector terminal tool	ECC-1T, 2T, 3T	
Connector coupling and connector terminal removal tool set		

No.	d	L	l	▼g	1
ECC-1R	4	300	215	58	5
-2R	4	300	215	58	5
-3R	4	300	215	58	5
-1T	4	150	65	40	5
-2T	4	150	65	40	5
-3T	4	150	65	40	5

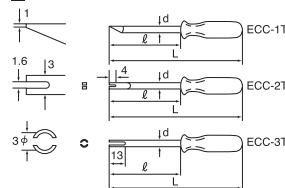
## Features

- Dedicated tools are easy to handle and remove.
- Easy operation in tight, hard-to-reach spaces.
- Parts can be removed without damage.

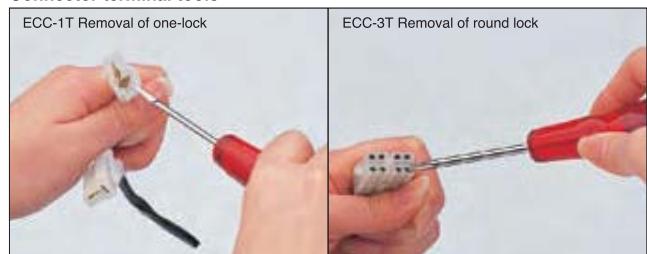
## ■ Connector coupling tool



## ■ Connector terminal tool

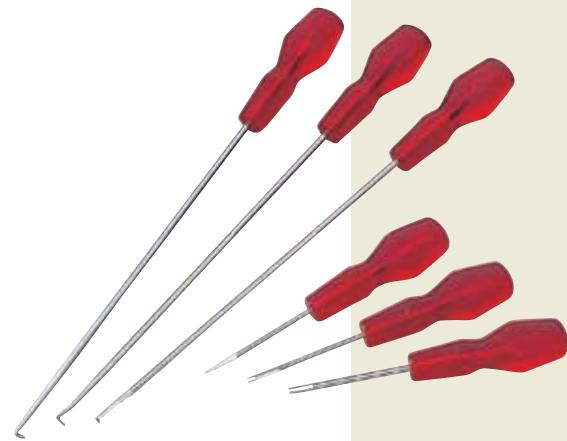


## Connector terminal tools



## ● CONNECTOR TOOL SET

Removing Connectors



## MULTI-PURPOSE CRIMPING PLIERS

No.	L	B	T	▼g	1
AD102A	187	56	22	160	10

## Usage

- For the wire harness repair of automobiles.

## Application

- Applicable wires: JASO AVS AVSS 0.3, 0.5, 0.85, 1.25.

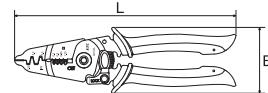
## Features

- Supports automotive low-voltage wires 0.3 · 0.5 · 0.85 · 1.25.
- Supports 3 usages of wire cutting · wire stripping · terminal crimping.
- With the lock function that's convenient in storage.



- Do not use it where current is live.
- It is a simple crimping tool that does not have a molding confirmation mechanism. It cannot be used in work that needs to guarantee the reliability.

## ● MULTI-PURPOSE CRIMPING PLIERS (FOR AUTOMOTIVE THREAD) D.PAT.P.



## MULTI-PURPOSE CRIMPING PLIERS

No.	L	B	T	▼g	1
AD102B	220	62.5	22.5	200	10

## Usage

- wire cutting · wire stripping · terminal crimping.

## Features

- Supports 3 usages of wire cutting · wire stripping · terminal crimping.
- With the lock function that's convenient in storage.

## Application

- Wire Stripping · Cutting

mm	0.25	0.3	0.4	0.5	0.65	0.8	1.0
AWG	30	28	26	24	22	20	18

- Crimping part (open barrel terminal)



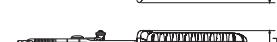
- Do not use it where current is live.

- Crimping part (sleeve terminal)

0.3sq.	0.5sq.	1.25sq.
0.5sq.	1.25sq.	2.0sq.

- It is a simple crimping tool that does not have a molding confirmation mechanism. It cannot be used in work that needs to guarantee the reliability.

## ● MULTI-PURPOSE CRIMPING PLIERS



## ELECTRIC SYSTEM

## 1 Removing/Installing Thermo-sensor and Oxygen Sensor

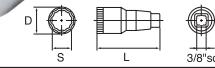


## Removing/Installing Thermo-sensor and Oxygen Sensor

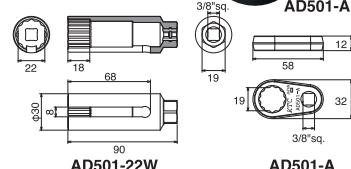
## ● 3/8"sq. THERMO-SENSOR SOCKET



B20T-19

● 3/8"sq. O<sub>2</sub> SENSOR SOCKET · SET

AD501-22W



## THERMO-SENSOR SOCKET

No.	S	D	L	▼g	■
B20T-19	19	26	73	55	1

**Purpose** • Specially designed in accordance with the size shape of thermo-sensor.  
**Application** • For Toyota, Nissan, Mazda, Honda and Daihatsu cars.  
**Special features** • Thin wall type with small diameter for using in narrow engine rooms.



• DO NOT USE THIS SOCKET FOR ANY PURPOSE, EXCEPT FOR REMOVING/INSTALLING THERMO-SENSORS.

O<sub>2</sub> SENSOR SOCKET · SET

No.	▼g	■
ATD5012	290	1
O <sub>2</sub> Sensor Socket · Set	AD501-22W	
O <sub>2</sub> Sensor Socket Attachment	AD501-A	

## Features

- Designed with the shape that matches O<sub>2</sub> sensors and optimal length.
- With 2 types of drive (3/8"sq, square, 19mm flats) configured, it supports the use of many driving tools.
- Obstacles can be avoided by using the attachment.

O<sub>2</sub> SENSOR SOCKET · SET

No.	▼g	■
AD501-22W	200	1

O<sub>2</sub> SENSOR SOCKET ATTACHMENT

No.	▼g	■
AD501-A	90	1

O<sub>2</sub> SENSOR WRENCH

No.	Aperture	Total length	▼g	■
AD502-22W	22	55	210	1

## Features

- It has a short total length that can be used in tight spaces.
- The drive offsets to avoid obstacles.
- Driving tool of 3/8"sq, square can be used.

**CAUTION** • When tightening the O<sub>2</sub> sensor, use a torque wrench and tighten at the torque designated by the manufacturer.

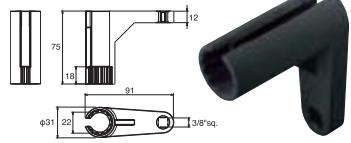
O<sub>2</sub> SENSOR WRENCH

No.	▼g	■
AD503-22W	350	1

## Features

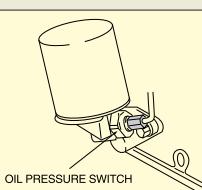
- It has a unique shape for avoiding obstacles and allows the removal of O<sub>2</sub> sensors without removing the front bumper, improving comfort in work.
- It is an item that, by adopting the shape that supports not only new Daihatsu models but also existing Daihatsu models and Suzuki, covers most of the light vehicles.

**CAUTION** • When tightening the O<sub>2</sub> sensor, use a torque wrench and tighten at the torque designated by the manufacturer.

● 3/8"sq. O<sub>2</sub> SENSOR WRENCH LONG TYPE

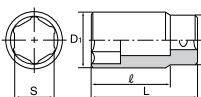
## ELECTRIC SYSTEM

## 1 Removing/Installing Oil Pressure SW



## Removing/Installing Oil Pressure SW

## ● 3/8"sq. OIL PRESSURE SOCKET · SET (2pcs.)



## OIL PRESSURE SOCKET · SET (2pcs.)

No.	▼g	■
B202HD	470	1
Oil Pressure Socket	B20-24HD,27HD	

No.	S (6pt.)	D <sub>1</sub>	D <sub>2</sub>	l	L	▼g	■
B20-24HD	24	32.5	28.5	46	58	230	1
-26HD	26	35	30	46	58	230	1
-27HD	27	36.5	31	46	58	240	1

## Purpose

- For removing/installing oil pressure switch.

## Special features

- With 3/8"square female drive for easy operation.

## ELECTRIC SYSTEM

## Battery replacement

## ● BATTERY CATCHER



## Removing vehicle batteries



This tool is great for removing batteries from hard to reach areas. There is a rubber pad on the gripping part of the tool to prevent scratching the battery.

## BATTERY CATCHER

No.	L	W	H	▼kg	■
ADV2	193	33	215	0.95	1

## Usage

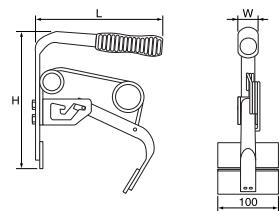
- Useful in battery removal and carrying

## Application

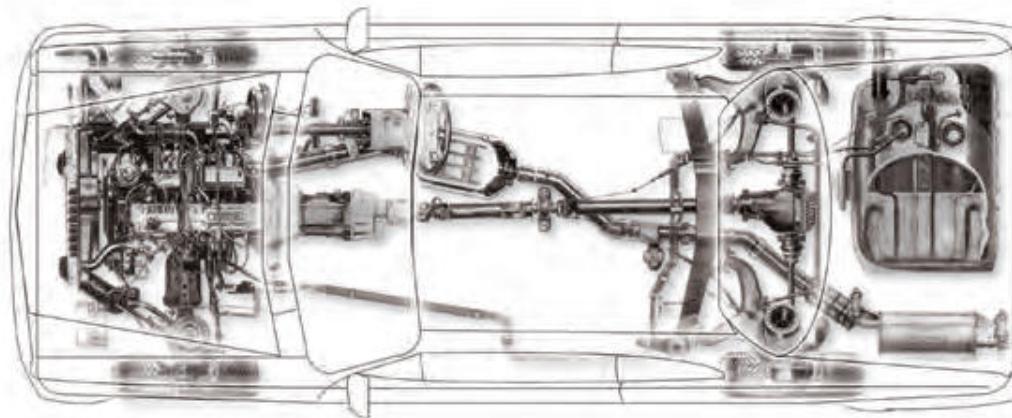
- From light weight vehicles to passenger and one-box car batteries.
- Battery width 120~180mm, Less than 22kg in mass.

(Sample battery size: JIS26A17RL~95D31RL)

\* Replacement grips are available. Check with your dealer or service provider for details.



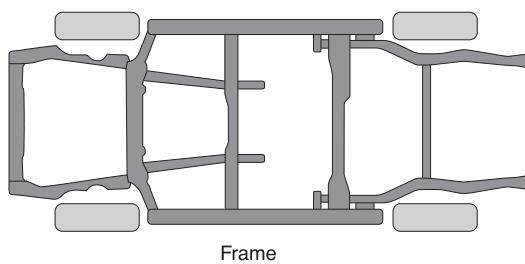
# Body Mechanism



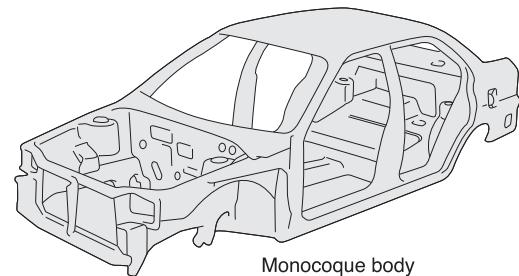
## MECHANISM 1

### Frame and monocoque body

The framework that is designed as a base for vehicles is called the Frame. The engine & suspension, steering mechanisms, body, are fitted to this. This structure is seen more frequently these days compared with previous models. In recent years, as the merit of a more rigid body that is even more lightweight is achieved, the monocoque body, where the frame is one with the body, is becoming more popular.



Frame

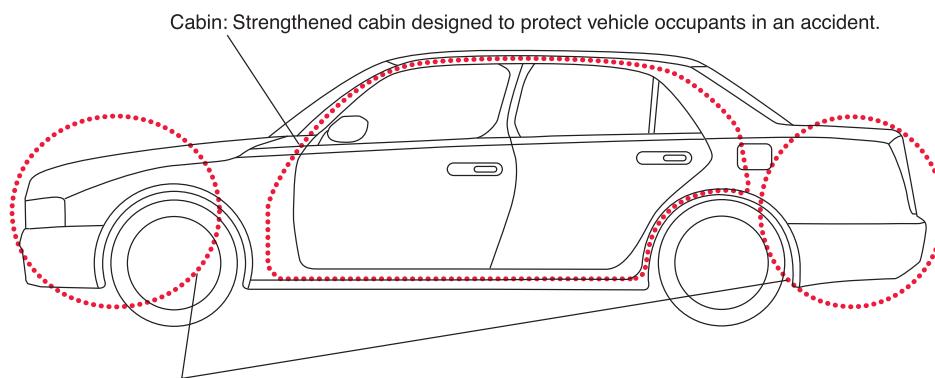


Monocoque body

## MECHANISM 2

### Impact absorbing body

Monocoque bodies are a countermeasure for impacts. There is a variety of names for these; impact absorbing body, crushable body, etc. However, these body structures all come from the "Front/Rear Impact Absorption" and "Strengthened cabin to protect vehicle occupants" designs. The names differ depending on the maker, however, GOA, ZONE, G-CON, RIZE, MAGMA, TAF, TECT. New cyclic structure bodies are in use at present.



Front/Rear structure: Front/Rear structural design to absorb impact force at the time of an accident.

BODY

Maintenance of Body

Damage  
Diagnosis/Estimates

● BODY COMPASS PAT.P.

Estimates are more accurate.

No.	L	H	▼kg	1
AP901	1,016	58	2	1

Usage

- This is an exclusive tool (estimates etc.) designed to assess the damage to a vehicle's body after an accident.

Application

- From light weight vehicles to normal passenger types (also compatible with foreign vehicles)

Damage assessment range	40~1700mm
Body measurement hole diameter	φ 5~10mm

Characteristics

- Sealing is made easy by a simple bolt screw-in operation.
- The operation is faster and easier when using wrenches, such as the ratchet type, etc. (Hexagonal 2-faced width 14mm)
- As the center bolt is fitted with a flange, an offset wrench can be used and the wrench will not slip off.
- A resin grip is employed for the handle to prevent slippage.
- Fitted with a claw shape that does not allow the sealed areas to lift.

As this unit is made from aluminum, there is a fiber-sheet fitted to act as an anti-wear plate for the aluminum areas. This is replaced when it wears down.

Replacement parts

Product name	No.
Fiber-sheet	AP901-1

\* Replacement parts are available. Check with your dealer for details.

Repair of Sheet Metal

● SLIDE HAMMER PULLER ATTACHMENT SET (5pcs.)

SLIDE HAMMER PULLER ATTACHMENT SET

No. AUD55T	▼kg 13.5	1
SLIDE HAMMER PULLER AUD5		
SLIDE HAMMER PULLER ATTACHMENT AUD5-B2,B21,B3,F1		

Usage

- Body shop working

Application

- For mini cars, passenger cars and pick up trucks.

Special features

- Big and small hammer with weight 3.5kgs and 1.2kgs for wide application.

CAUTION • TAKE YOUR FOOT HOLD SECURELY, MAINTAIN GOOD POSTURE, AND MIND POSITION OF YOUR HANDS WHEN USING THE SLIDE HAMMER.

● SLIDE HAMMER PULLER

SLIDE HAMMER PULLER

No.	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	L	Weight Shock	Screw Size	▼kg	1
AUD3	60	68	30	14	580	1.2kg	W9/16-12	2.7	1
AUD4	85	68	30	18	675	3.5kg	M18 x 2.0	5.5	1
AUD5	96	80	36	25	825	5.3kg	M22 x 2.5	8.4	1

- Wide range of application with shockers of 3 different weight, i. e. 5.3kgs., 3.5kgs., and 1.2kg.

- Applicable to mini/compact cars and small trucks.

CAUTION • TAKE YOUR FOOT HOLD SECURELY, MAINTAIN GOOD POSTURE, AND MIND POSITION OF YOUR HANDS WHEN USING THE SLIDE HAMMER.

BEFORE USING TOOLS.

- READ INSTRUCTION MANUALS BEFORE USE.

- TAKE YOUR FOOT HOLD SECURELY AND TAKE A GOOD BALANCE WHEN USING.

FOR YOUR SAFETY:

- ENSURE GRIP STOPPER PIN HAS BEEN INSERTED. (SEE FIGURE BELOW. AUD5 DOES NOT HAVE THE PIN.)

- HOLD THE TOOL WITH BOTH HANDS TO PREVENT UNEXPECTED MOVEMENT OF SHOCKER.

- USE IT ALONE.

- BE SURE TO INSTALL NUT TO TIP OF SHAFT. DO NOT ALLOW SHOCKER TO MOVE TOWARD TIP.

- BE SURE TO FIX ATTACHMENTS WITH CLOSED NUT.

- APPLY THIS TOOL TO THE PART FREE FROM DAMAGE BY HITTING.

- DO NOT ATTEMPT TO MODIFY A TOOL, OTHERWISE, YOU MAY DEGRADE QUALITY

CONSIDERABLY.

FOR DAMAGE PREVENTION

- SELECT ATTACHMENTS APPROPRIATE TO THE WORK.

- BE CAREFUL NOT TO DROP THE TOOL. DO NOT PLACE ANYTHING ON THE TOOL.

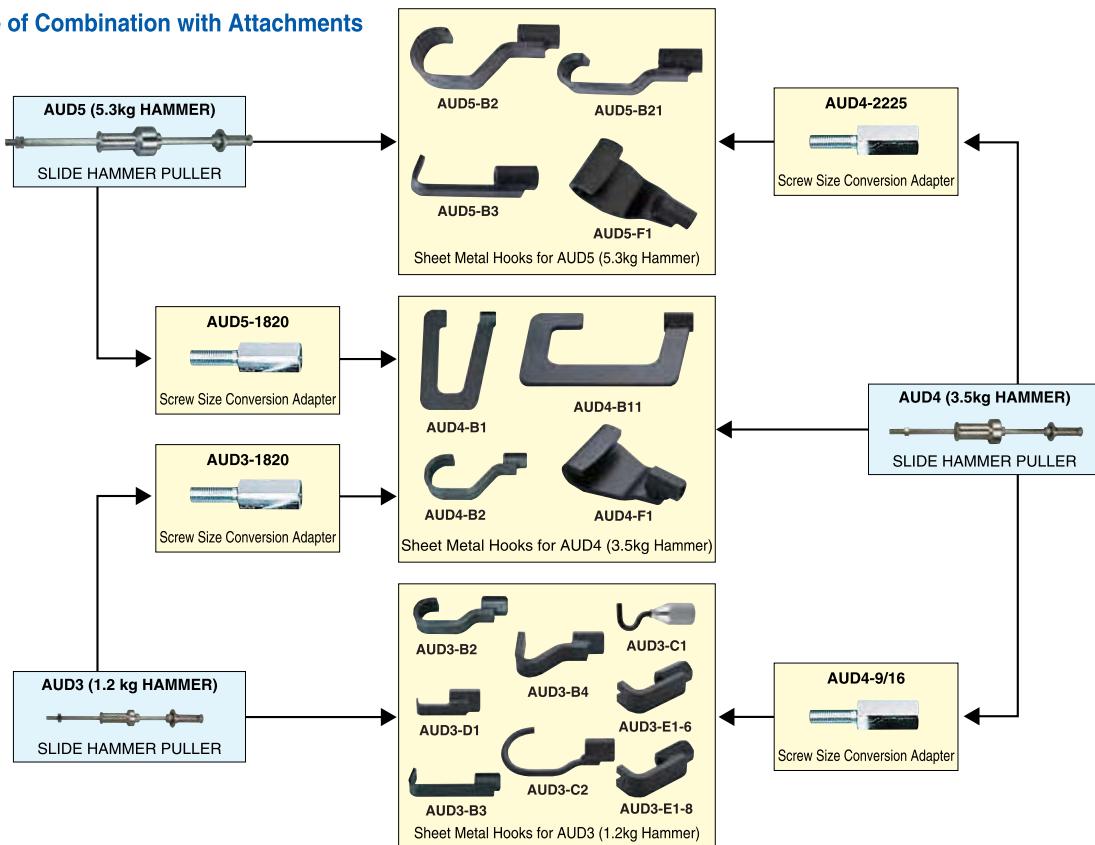
- DO NOT ALLOW MOISTURE, CHEMICALS, IRON POWDER OR DUST TO COVER THE TOOL.

\*Please check the merchandise inventory for a product that is marked by before placing an order.

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## Use slide hammer puller together with the attachments (separately sold).

### Example of Combination with Attachments



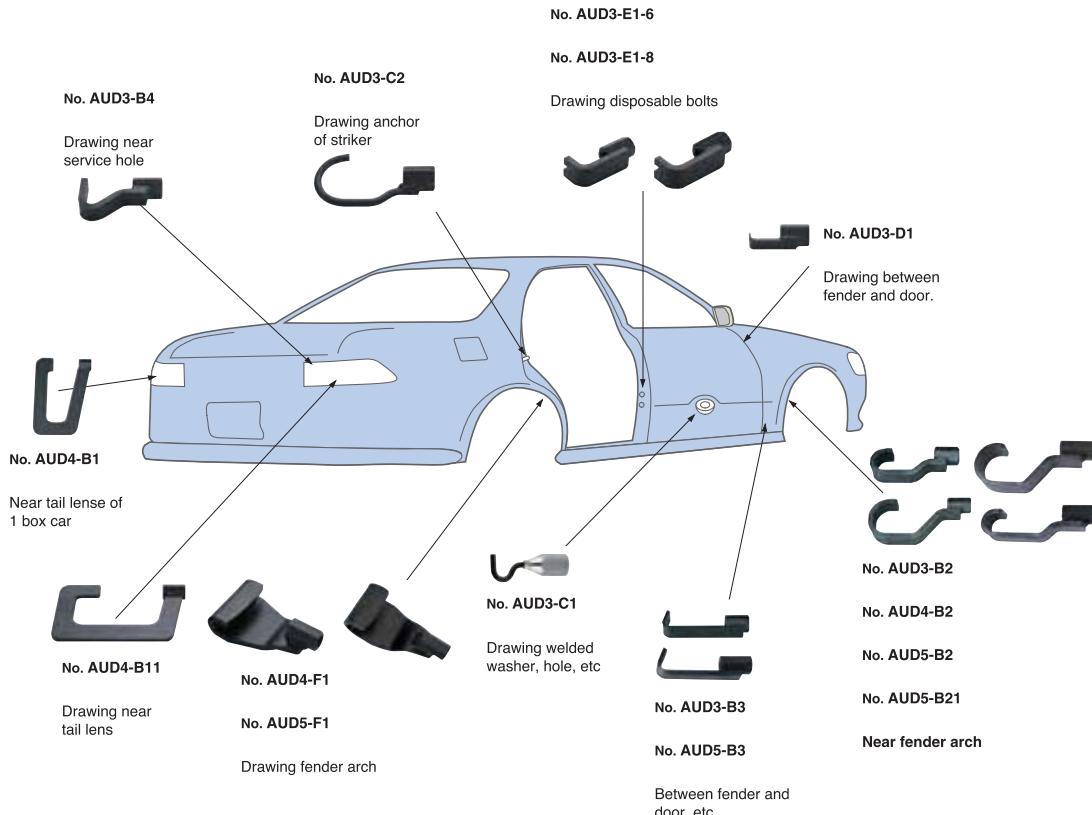
### Application

Applicable to mini/compact cars and trucks.

### How to Use

- To tip of the slide hammer puller, install attachment appropriate to work.
- Fix the attachment to puller with enclosed nut and offset wrench or similar tool.
- Slide the shocker and start to work.

### ● Example of Sheet Metal Drawing Operation



\*Please check the merchandise inventory for a product that is marked by before placing an order.

Repair of Sheet Metal

1

### ● SLIDE HAMMER PULLER ATTACHMENT HOOK

#### SLIDE HAMMER PULLER ATTACHMENT HOOK

#### SLIDE HAMMER PULLER ATTACHMENT SET (4pcs)

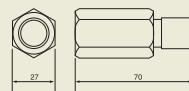
No. ATUD304 **▼kg 1.35** 1  
Attachments for Sheet Metal AUD3-B4,C2,D1,E1-8

#### SLIDE HAMMER PULLER ATTACHMENT SET (3pcs)

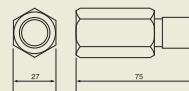
No. ATUD303 **▼kg 1.17** 1  
Attachments for Sheet Metal AUD3-B2,B3,C1

#### SLIDE HAMMER PULLER ATTACHMENT

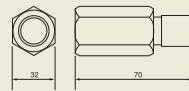
No.	AUD3-B2	AUD3-B3	AUD3-B4	AUD3-C1
	530g	500g	430g	140g
Screw Size at Puller side	W9/16-12	W9/16-12	W9/16-12	W9/16-12
Thickness x Width (mm)	9 x 32	9 x 32	9 x 25	Length 105
No.	AUD3-C2	AUD3-D1	AUD3-E1-6	AUD3-E1-8
	300g	220g	400g	400g
Screw Size at Puller side	W9/16-12	W9/16-12	W9/16-12	W9/16-12
Thickness x Width (mm)	Length 120	4.5 x 19	9 x 32	9 x 32
No.	AUD4- B1	AUD4-B11	AUD4-B2	AUD4-F1
	1.35kg	1.2kg	840g	1.1kg
Screw Size at Puller side	M18 x 2.0	M18 x 2.0	M18 x 2.0	M18 x 2.0
Thickness x Width (mm)	9 x 35	9 x 35	9 x 38	6 x 100
No.	AUD5-B2	AUD5-B21	AUD5-B3	AUD5-F1
	1.3kg	1.1kg	850g	1.9kg
Screw Size at Puller side	M18 x 2.0	M18 x 2.0	M18 x 2.0	M18 x 2.0
Thickness x Width (mm)	9 x 35	9 x 35	9 x 38	6 x 100



AUD3-1820, G1/2



AUD4-9/16, G1/2, 2225



AUD5-1820, G3/4

### ● ADAPTER-SET FOR SLIDE HAMMER PULLER



#### ADAPTER-SET FOR SLIDE HAMMER PULLER

#### ADAPTER-SET FOR SLIDE HAMMER PULLER (2pcs.)

No. ATUD302 **▼g 600** 1  
Adapter AUD3-1820, G1/2

No. ATUD402 **▼g 600** 1  
Adapter AUD4-9/16, G1/2

No.	Length	<b>▼g</b>	Screw Size (Puller)	(mm)	Screw Size (Object)	(mm)	Outer Hex A/F (mm)
AUD3-1820	70	300	W9/16-12	(14.2 x 2.1)	M18 x 2.0	—	27
AUD3-G1/2	70	300	W9/16-12	(14.2 x 2.1)	G1/2	(20.8)	27
AUD4-9/16	75	300	M18 x 2.0	—	W9/16-12	(14.2 x 2.1)	27
AUD4-G1/2	75	300	M18 x 2.0	—	G1/2	(20.8)	27
AUD4-2225	75	300	M18 x 2.0	—	M22 x 2.5	—	27
AUD5-1820	75	350	M22 x 2.5	—	M18 x 2.0	—	32
AUD5-G3/4	75	350	M22 x 2.5	—	G3/4	(26.4)	32

• Setting 12 kinds of attachments quite easily.  
Adapter for changing screw sizes enables setting 12 kinds of attachments easily for big or small hammer.

## Modification of Body

## FLAT CHISEL

No.	A	L	▼g	Box	
TAG-25x170	25	170	160	10	
-26x220 (with rubber stopper)	26	220	270	10	

- Flat & light body. Curved shape for easy use.
- Side blade for effective work. (Fig.1)
- Rubber stopper for safety job. (TAG-26x220)



• WEAR SAFETY EYE GLASSES WHEN USING THIS TOOL.

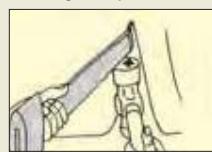


## ● FLAT CHISEL D.PAT.



## BODY

## Cutting Body



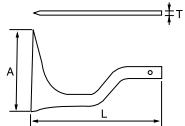
## BODY PANEL EDGEWAYS CHISEL

No.	L	A	T	▼g	Box	
TAG-200x320	320	200	9	1	10	

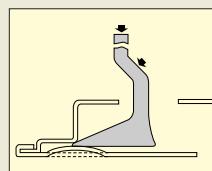
- Sharped edge on one side for effective lining on the corner of panel.
- Good impact transmission with center striking part for easy lining job.
- Various lining works are possible (Ex.1 : Removing inner cover of a door and inserting this tool through service hole, then hitting end of this tool for lining.  
Ex.2 : At the corner of a panel or a narrow space, putting the edge of this tool into the damaged part and adjusting the direction of lining by hitting each part for lining.)



• WEAR SAFETY EYE GLASSES WHEN USING THIS TOOL.

● BODY PANEL  
EDGEWAYS  
CHISEL

## Line Alignment



## AUTO PUNCH

No.	L	l1	l2	D1	D2	▼g	
UDP-4	160	90	70	28	34	160	

## Punches for Replacement

## No. UDP-4-1

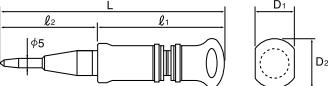
## Application

- For making when attaching optional parts. To eliminating distortion during sheet metal processing.
- For marking the fitting point to engage the parts.

## Features

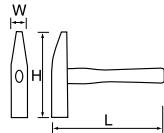
- Punch tip is made of highly durable hard steel.
- Continuous operations enhance operability.
- Quick marking with one hand without a hammer.
- Strength of punching adjustable by turning the handle.  
\* Harder punch: turn clockwise. Softer punch: turn counter-clockwise.  
\* The punch is made of abrasion-resistant SK steel.

## ● AUTO PUNCH



## SHEET METAL PROCESSING HAMMER

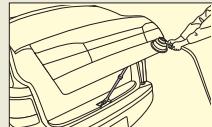
No.	Usage	L	W	H	▼g	Box	
UD5-1	Tapping at room temperature	250	38	190	1600	1	
-2	Variegation	300	30	143	290	1	
-3	Side repair from interior	300	30	100	300	1	
-4	Vertical repairs from interior	300	50	100	390	1	

● SHEET METAL  
PROCESSING HAMMER

## Working door sheet metal



## Working rear gate sheet metal



## ULTRA LONG T-TYPE TORX BIT SOCKET FOR DOOR HANDLE

No.	Nominal	D	L	l	▼g	
AP205-T20	T20	17	229	200	10	
AP205-T25	T25	17	229	200	10	

## Application

- Attaching and detaching of the outer handle in imported cars; mainly Mercedes Benz C-Class · E-Class (AP205-T20) and BMW (AP205-T25).

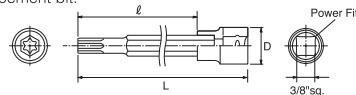
## Features

- It is an ultra-long type that does not interfere with the thickness of the door or door molding, making it ideal for the attaching and detaching of outer handles.
- Tip bit can be replaced.

## Replacement Bit

No.	Nominal
AP205-T20A	T20
AP205-T25A	T25

\* Set screw is attached with the replacement bit.

● 3/8"sq. ULTRA LONG  
T-TYPE TORX BIT  
SOCKET FOR DOOR  
HANDLE

## BODY

Protection of Front Shields and Seats



## Welding

## ●PROTECLOTH



## ●DISPOSABLE RESPIRATOR (3pcs.)

YAMAMOTO

Expected release date: July 2005



Anti-sever belt &amp; rubber type belt

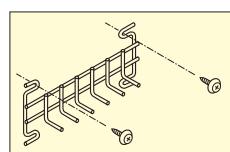
Belt length adjustment parts

\* YAMAMOTO is the registered trademark of Yamamoto Kogyo Co., Ltd.

## BODY

## Removal of Interior · Exterior Parts

## ●CLIP CLAMP TOOL SET [11pcs.]



Convenient hanger is included

## DOOR · GATE STOPPER

No. ATP9022 ▼g 700

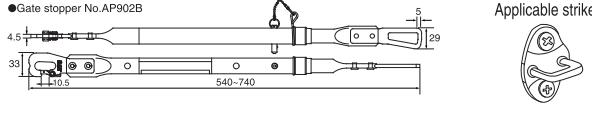
Door stopper AP902A

Gate stopper AP902B

Product name	No.	Full length	▼g
Door stopper	AP902A	190	200
Gate stopper	AP902B	540~740	500

**Application** • An exclusive tool for working sheet metal or part replacement on doors and rear gates when slightly open.  
• Door striker in the shape shown below. \* Striker size: Less than  $\phi$ 10mm (Does not fit chassis that are fitted with auto-lock door mechanisms)

**Characteristics** • Sets the part using the door locking area. • Can be used on most models.  
• Removal/installation is made easier.

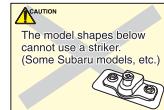


## Replacement parts Extend/retractable pin-set for the gate stopper

No.

AP902B-1

\* Exclusive for the gate stopper (No. AP902B). Contact your supplier or dealer for a replacement if this part is lost.



- Make sure that it is removed from the striker side when removing as there is a chance of scratching the body.
- Make sure that all operators read the Owner's Operator Manual carefully before usage.

## PROTECLOTH With Straps

No.	Size	Fixing Strap
AYPC-1	1250x1730	930mmx2

No.	Size
AYPC-2	820x1920
-4	1700x1920
-6	1700x2920

## Purpose

- Protecting front shields, seats, etc. from sparks caused by welding operation.

## Special Features

- With magic tape straps for fixing on front shields & seats. (AYPC-1)
- No magnets to damage car bodies by abrasion.
- Sheet approval No.JIS1323A. Temperature limit for continuous use : 1,000.C. Maximum : 1,650C.
- Containing no asbestos so harmless for human bodies.

## DISPOSABLE RESPIRATOR (3pcs.)

No.	Type	Possible operating time	▼g
YEA-4000	Head-band type	12 hrs	11 10

## Characteristics

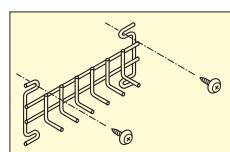
- High capacity mask that has passed national standards (Classification DS2)
- As there are no metal parts in use, replacement is easy.
- Fitted with a tough, rigid rubber belt that is difficult to sever.
- Adjust the length of the belt.



## BODY

## Removal of Interior · Exterior Parts

## ●CLIP CLAMP TOOL SET [11pcs.]



Convenient hanger is included

## CLIP CLAMP TOOL SET

No. ATP11 ▼g 1990

Angle Small AP20-6

Angle Medium AP20-10

Angle Large AP20-13

Long Middle AP20L-10

Long Large AP20L-13

Straight Small AP20-6B

Straight Middle AP20-10B

Straight Large AP20-13B

Long Straight Middle AP20L-10B

Long Straight Large AP20L-13B

Long Movable Support AP20L-P

## Usage

- Removal of linings and clips in automobile.

## Application

- Ideal for the lining of doors, backdoors, quarter panels, floors, etc. in domestic cars.

## Features

- Convenient hanger is included.

Please refer to P.290 for each single item.

\*Please check the merchandise inventory for a product that is marked by before placing an order.

**CLIP CLAMP TOOL SET**

No. ATP03A	▼g 340
Angle Small	AP20-6
Angle Medium	AP20-10
Angle Large	AP20-13

**Usage**

- Removal of linings and clips in automobile.

**Application**

- Ideal for the lining of doors, backdoors, quarter panels, floors, etc. in domestic cars.

Please refer to P.290 for each single item.

● **CLIP CLAMP TOOL SET  
ANGLE [3pcs.]**

**CLIP CLAMP TOOL SET**

No. ATP03B	▼g 370
Straight Small	AP20-6B
Straight Middle	AP20-10B
Straight Large	AP20-13B

**Usage**

- Removal of linings and clips in automobile.

**Application**

- Ideal for the lining of doors, backdoors, quarter panels, floors, etc. in domestic cars.

Please refer to P.290 for each single item.

● **CLIP CLAMP TOOL SET  
STRAIGHT [3pcs.]**

**CLIP CLAMP TOOL SET**

No. ATP03C	▼g 720
Long Medium Straight	AP20L-10B
Long Large Straight	AP20L-13B
Long Movable Support	AP20L-P

**Usage**

- Removal of linings and clips in automobile.

**Application**

- Ideal for the lining of doors, backdoors, quarter panels, floors, etc. in domestic cars.

Please refer to P.290 for each single item.

● **CLIP CLAMP TOOL SET  
LONG-STRAIGHT [3pcs.]**

**CLIP CLAMP TOOL SET**

No. ATP203A	▼g 130
Angle Short Small	AP203-6A
Angle Short Medium	AP203-10A

**Usage**

- Removal of linings and clips in automobile.

**Application**

- Ideal for the lining of doors, backdoors, quarter panels, floors, etc. in domestic cars.

Please refer to P.290 for each single item.

● **CLIP CLAMP TOOL SET  
ANGLE SHORT [2pcs.]**

**CLIP CLAMP TOOL SET**

No. ATP02	▼g 560
Long Middle	AP20L-10
Long Large	AP20L-13

**Usage**

- Removal of linings and clips in automobile.

**Application**

- Ideal for the lining of doors, backdoors, quarter panels, floors, etc. in domestic cars.

Please refer to P.290 for each single item.

● **CLIP CLAMP TOOL SET  
LONG ANGLE [2pcs.]**



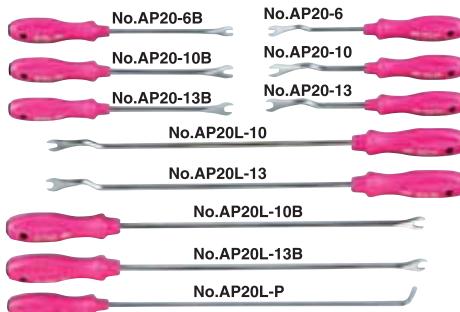
## BODY

## Removing Interior Fixtures and Exterior Parts

**1** Removing Interior Fixtures and Exterior Parts  
Removing Interior Fixtures and Clips



## ●CLIP CLAMP TOOL · SET D.PAT.



## Full Set Covers Wide Applications.

## Purpose

- Removing upholstery and clips of cars.

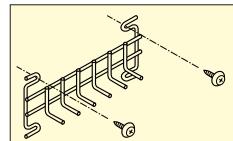
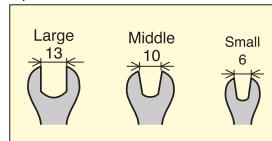
## Application

- Optimal for upholstery such as panels of front/rear doors flooring, quarter panels.

## Features

- Applicable to three sizes of clips. Comes in two types, curved and straight.
- Tip of large-size clip clamp tool is specially designed to fit clip shape.
- Full set (No. ATP11) includes a useful hanger. (Figure 1)

## Tip Sizes



(Fig.1) Useful Hanger  
\*(only for ATP11)

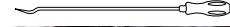
Product Name, Product Number	Size	▼g	Box	Angle Short Set	Angle Set	Straight Set	Long Angle Set	Long Straight Set	Full Set	
Angle short small No.AP203-6A	6	60	10	●						
Angle short middle No.AP203-10A	10	70	10	●						
Small No.AP20-6	6	100	10		●				●	
Middle No.AP20-10	10	120	10		●				●	
Large No.AP20-13	13	120	10		●				●	
Long-Middle No.AP20L-10	10	280	10			●			●	
Long-Large No.AP20L-13	13	280	10			●			●	
Straight-Small No.AP20-6B	6	110	10			●			●	
Straight-Middle No.AP20-10B	10	130	10			●			●	
Straight-Large No.AP20-13B	13	130	10			●			●	
Long-Middle-Straight No.AP20L-10B	10	280	10					●	●	
Long-Large-Straight No.AP20L-13B	13	280	10					●	●	
Long-Movable Fulcrum No.AP20L-P	-	160	10					●	●	
				ATP2032A	ATP03A	ATP03B	ATP02	ATP03C	ATP11	

## Angle Type

## Short



## Long



## Straight Type

## Short



## Long+Movable Fulcrum



## HANDY REMOVER · SET

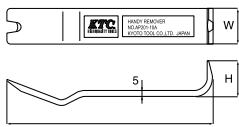
No. ATP2014	▼g 140	5
HANDY REMOVER	AP201-10A, 10P, N, W	

## Purpose

Removing upholstery and clips on cars.  
 • Applicable to variety of work.  
 • Handy and colorful (4 types)

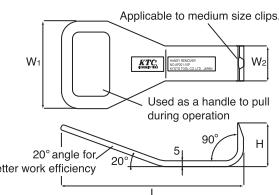
## Medium Size

No.	L	W	H	▼g	5
AP201-10A	180	30	31	30	5



## Pull Type (Medium size)

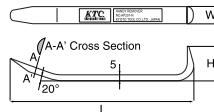
No.	L	W1	W2	H	▼g	5
AP201-10P	160	75	30	40	40	5



## Narrow Type

No.	L	W	H	▼g	5
AP201-N	160	15	30	10	10

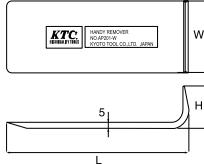
• The round bottom designed to avoid interference with instrument panel when removing the cluster of the panel.



## Wide Type

No.	L	W	H	▼g	5
AP201-W	160	60	35	60	5

• Flat blade suitable for removing glued parts such as laces.



## CLIP CLAMP TOOL · SET

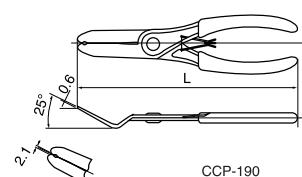
No. ATP2012	▼g 170	1
Clip Clamp Plier	CCP-190	
Clip Clamp Remover	AP201-10A	

• Clip Clamp Pliers : For removing clips and clamps.  
 • Clip Clamp Remover : For removing plastic and rubber fixtures.

## CLIP CLAMP PLIERS

No.	L	▼g	5
CCP-190	190	140	1

• For removing clips by clamping the shafts without damaging them.  
 • Holding the clip shaft in 3.5mm combined hole on the edge of the blade.  
 \* Springs are available as replacement parts. Check with your dealer for details.

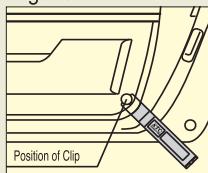


\*Please check the merchandise inventory for a product that is marked by before placing an order.

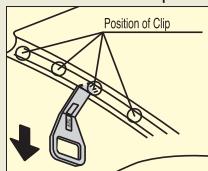
## ●HANDY REMOVER



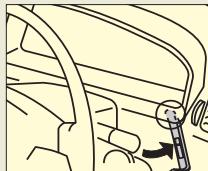
## Removing upholstery in general



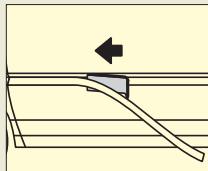
## Removing upholstery in general including ones around the pillar



## Removing upholstery



## Removing laces



## ●CLIP CLAMP TOOL · SET



## Removal of lining



Usage example: AP201-CN

## Removal of lining



Usage example: AP201-CF

Removal of lining  
Removal of audio panels, etc.Usage example: AP201-HS+  
AP201-HNLining · Hole Plug  
Switch Base Cover

Usage example: AP201-HN

Hole Plug  
Switch Base Cover

Usage example: AP201-HF

Removal of lining  
(doors, etc.)

Usage example: AP201-C

## Removal of lining



Usage example: AP201-WA

## ●HANDY REMOVER · SET

## HANDY REMOVER · SET

## HANDY REMOVER SET

No. ATP2015	▼g 125	5
Narrow Type Remover	AP201-CN	
Flat Type Remover	AP201-CF	
Spoon Type Spatula	AP201-HS	
Narrow Type Spatula	AP201-HN	
Flat Type Spatula	AP201-HF	

## Usage

- Remover has a new shape that allows the removal of clips in deep areas.
- Spatula type supports the removal of audio panels and service hole caps.

## Features

- Strong, hard remover is achieved by the use of fibered resin.
- It has a thin tip shape that does not easily damage the olefin resin with soft surface that's been used in recent vehicles.



AP201-CN



AP201-CF



AP201-HS



AP201-HN



AP201-HF



AP201-C



AP201-WA

## HANDY REMOVER SPATULA SET

No. ATP201H3	▼g 70	5
Spoon Type Spatula	AP201-HS	
Narrow Type Spatula	AP201-HN	
Flat Type Spatula	AP201-HF	

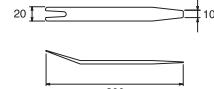
## Usage

- Supports the removal of audio panels and service hole caps.
- It is removed by lifting up using the narrow or flat type, then prying open with the spoon type.

## Narrow Type Remover

No.	▼g	5
AP201-CN	21	5

- With the thin tip shape, it can be inserted even in small gaps.

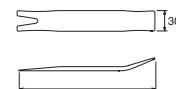


200

## Flat Type Remover

No.	▼g	5
AP201-CF	31	5

- Flat shape is maintained up to the grip, making it ideal for the removal of clips in deep places.

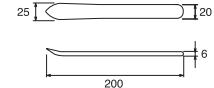


200

## Spoon Type Spatula

No.	▼g	5
AP201-HS	26	5

- By enlarging the tip shape, it is effective in prying open the panel that's been lifted by AP201-HN · AP201-HF.

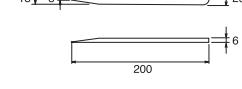


200

## Narrow Type Spatula

No.	▼g	5
AP201-HN	22	5

- By narrowing the tip, it can be used in places that used to need protection for the flat screwdriver tip.



200

## Flat Type Spatula

No.	▼g	5
AP201-HF	22	5

- By narrowing the tip, it supports the notch portion of switch base cover, etc.

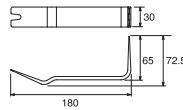


200

## Standard Type Remover

No.	▼g	5
AP201-C	31	5

- With the thin tip shape, it can be inserted even in small gaps.

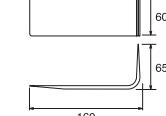


180

## Wide Type Remover

No.	▼g	5
AP201-WA	56	5

- With the thin tip shape, it can be inserted even in small gaps.



160

\*Please check the merchandise inventory for a product that is marked by before placing an order.

## CLIP CLAMP PLIERS

## SE

No. ATP2022

▼g 290

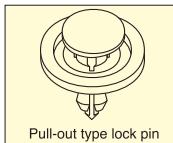
CLIP CLAMP PLIERS

AP202A, AP202B

No.	Type	L	W1	W2	T	▼g	g
AP202A	35°	196	25	53	9	145	5
AP202B	80°					145	5

## Purpose

- Removal and installation of shaft of plastic clips used on front/rear bumpers, front fender faces, etc.. at time of removal and insertion.



Pull-out type lock pin

## Application

- Plastic clips with pull-out type lock pin  
(Shaft diameter : 5-10, in case of installing the clips.)

## Features

- Lock pin (lock release) can be done with ease. (Fig.1)
- Clip can be pulled out after pulling out the lock pin. (Fig.2)
- Easy clamping and inserting of clip shaft at clip installation into car body (Fig.3)
- Pliers tip shaped to prevent damage to a clip.
- Pliers tip is angled to avoid damage to car body and interior covers.
- Pliers tip provided with arrow mark for easy alignment with the clip.



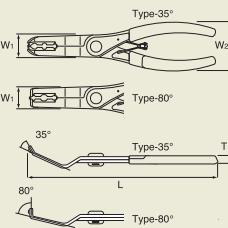
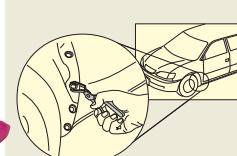
Type -35° (for flat planes)



Type -35° (for flat planes)

## CLIP CLAMP PLIERS

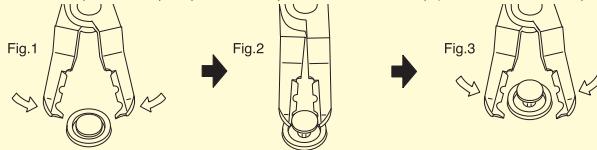
35°・80° (for pulling out lock pins)



Type -80°(for deep holes)

## How to Use the Pliers

To pull out the lock pin of the clip To pull out the clip itself. To install the clip (contract the shaft and push it in)



Top view



Side view

## CLIP CLAMP PLIER · SET

## Clip Clamp Tool Set

No. ATP2022A

▼g 300

Clip Clamp Pliers

AP202C, AP202D

## Clip Clamp Pliers D.PAT.P

No.	Type	L	B1	B2	T	▼g	g
AP202C	20°	202	25	53	9	150	5
AP202D	80°	200	25	53	9	150	5

## Usage

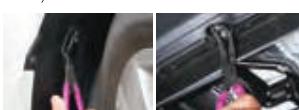
- Removal of 3-groove lock pin extraction type resin clip that's used inside the tire housing, undercover, bumper, etc. of automobile, as well as tightening and inserting of shaft when equipped.

## Application

- 3-groove lock pin extraction type resin clip that's used in Suzuki, Mazda and Nissan of '08 or later (clip equipped:  $\phi 5\sim\phi 10$  shaft diameter )

## Features

- It claws onto the lock pin from 3 directions to prevent the pin from breaking and allow the easy work.
- Spare parts are configured. Please contact your dealer for details.



20° type (for flat surface) 80° type (for tight space)

CLIP CLAMP PLIERS 20°・80°  
3-CLAW TYPE · SET (for  
EXTRACTING 3-GROOVE  
TYPE TRIM CLIPS) D.PAT.

## CLIP CLAMP PLIER

No.	Type	L	B1	B2	T	▼g	g
AP208A	35°	167	18	53	9	120	5
AP208B	80°	162	18	53	9	120	5

## Usage

- Removal of lock pin extraction type resin clip that's used in the front and rear bumpers, front fender liners, etc. of automobile as well as tightening and inserting of shaft when equipped.

## Application

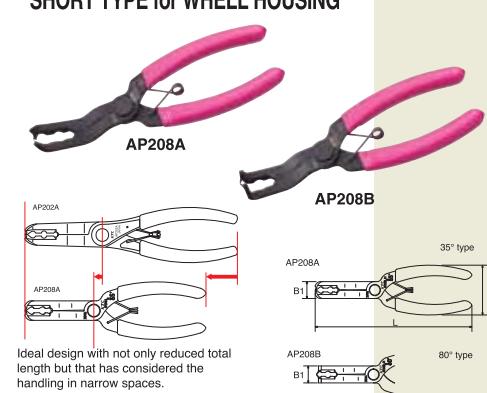
- 2-groove and 4-groove lock pin extraction type resin clips.  
(clip equipped:  $\phi 5\sim\phi 10$  shaft diameter)

## Features

- Since the short total length does not easily interfere, it can be used without removing the tire.
- Spare parts are configured. Please contact your dealer for details.

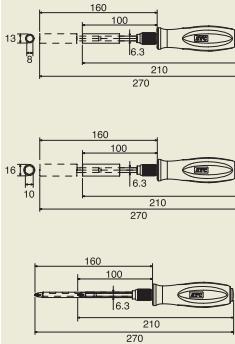


35° type 80° type

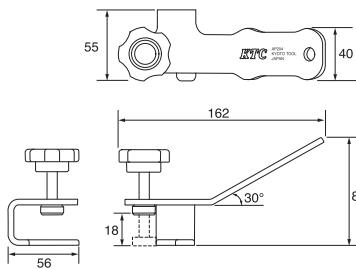
CLIP CLAMP PLIERS 35°・80°  
SHORT TYPE for WHELL HOUSING

Ideal design with not only reduced total length but that has considered the handling in narrow spaces.

\*Please check the merchandise inventory for a product that is marked by before placing an order.



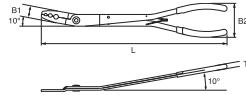
### ●WIPER ARM REMOVER



### ●TRIM CLIP PLIER FOR REAR GARNISH D.PAT.



AP207



T 10°

#### TRIM CLIP PLIER

No.	L	B <sub>1</sub>	B <sub>2</sub>	T	▼g	Box	
AP207	320	20	58	6	220	1	

#### Usage

- Removal of the trim clip for rear garnish in automobile.

#### Application

- Trim clip for rear garnish that's used in Toyota, Nissan, Honda, Mazda, Suzuki, etc.

#### Features

- It does not damage the clip, allowing it to be reused.
- Long total length allows the use for clips in deep places.
- Angled tip can easily dodge obstacles (wiring, etc.).



- Do not use for other than the trim clip for rear garnish.



### ●TELESCOPIC DRIVER · SET



AD601-08



AD601-10



AD601-P2

#### TELESCOPIC DRIVER · SET

#### TELESCOPIC DRIVER SET

No. ATD6013	▼g 530
Telescopic Driver 8mm (bore: hex.)	AD601-08
Telescopic Driver 10mm (bore: hex.)	AD601-10
Telescopic Driver Cross No.2	AD601-P2

#### Features

- Axial length can stretch between 100mm and 160mm, allowing 1 unit to have 2 roles.
- Tip with magnet can hold the bolt.
- Magnet at the tip moves, changing the height of the magnet for both with and without tray, securely holding the bolt. (AD601-08, AD601-10)

#### Telescopic Driver

No.	Tip Shape · Bore Size	▼g	Box
AD601-08	Hex. · 8mm	180	10
AD601-10	Hex. · 10mm	200	10
AD601-P2	Cross · No.2	150	10

### WIPER ARM REMOVER

No.	Full length	▼g	
AP204	162	300	

#### Usage

- Exclusive tools for removing car wiper arms.

#### Application

- Can be used on vehicles ranging from light to RVs that use full-con and semi-con type shield wipers.

\* There are some vehicle types that cannot use this system.

#### Characteristics

- Once the wiper arm is attached, removal can take place easily with only little effort.

#### Full-con shield, wipers

- Type of pivot part of the wiper arm is hidden by the bonnet.



#### Semi-con shield, wipers

- The pivot part of the wiper arm pivot is visible.



## Removal, Installation and Adjustment of Doors

### COURTESY LAMP SWITCH STOPPER

No.	L	D	AAA	▼g	⑥
ATP32	79	40	2	25x2	5

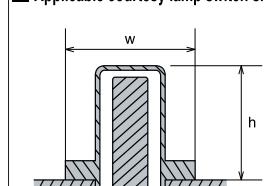
#### Usage

- When the door has been left in an open state, press the Courtesy switch to shut off the cabin's lamp and to stop the "open door alarm" from sounding.

#### Characteristics

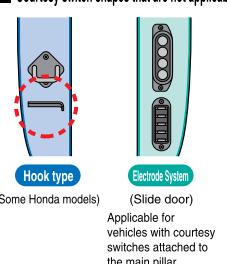
- Simply grasp the lever to apply or remove.
- As the switch has been made out of engineering plastic with glass fiber, it is both robust and light.
- The switch's rubber does not scratch.

#### Applicable courtesy lamp switch size



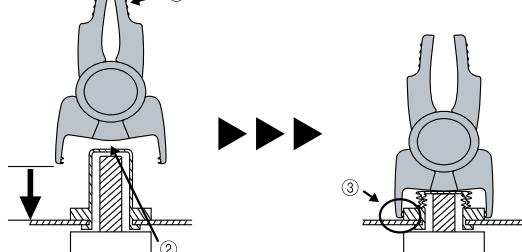
Width (w): 21.5~28.5mm  
Height (h): Over 10mm when switch is OFF

#### Courtesy switch shapes that are not applicable.



(Some Honda models)  
(Slide door)  
Applicable for vehicles with courtesy switches attached to the main pillar.

#### <Method of use>



① Grasp the lever part and open at the edge of the body.  
② Push vertically towards the courtesy switch push.

③ Fit so that the base of the courtesy switch's rubber cover catches the body's edge.  
④ Make sure of secure installation.

### COURTESY LAMP SWITCH STOPPER

D.PAT.PAT.P



Stopping the door  
caution alarm

1

Example of use (Front)



Example of use (Rear)



### DOOR BELT MOLDING REMOVER

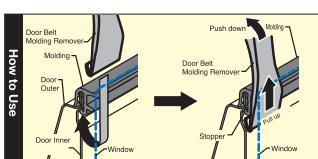
No.	B	D	L	I	▼g	⑥
AP206	22	34	220	100	120	10

#### Usage

- It is a dedicated tool for the removal of door belt molding (drain molding) that's used in light and standard-sized vehicles (limited to domestic. Some models are not supported).

#### Features

- It uses the tip claw shape that can easily be inserted into small gaps and slide.
- It has the angle that's hard to bend and can easily lift the door belt molding, improving workability.
- Easy-to-grip resin grip that minimizes the hand sore is adopted.



#### CAUTION

- Please be sure to work upon confirming the removal method on the maintenance manual.
- There are types in some vehicle models that cannot be removed by this remover. Door belt molding (drain molding), clip or the like may be damaged if forced.

### DOOR BELT MOLDING REMOVER



### DOOR HINGE BOLT WRENCH SET (2pcs.)

No. DMZ2	▼g 450	⑥ 10
Door Hinge Bolt Wrench	12, 14	

No.	S	D	L	▼g	⑥
DMZ-12	12	19	300	200	10
-14	14	22	300	250	10

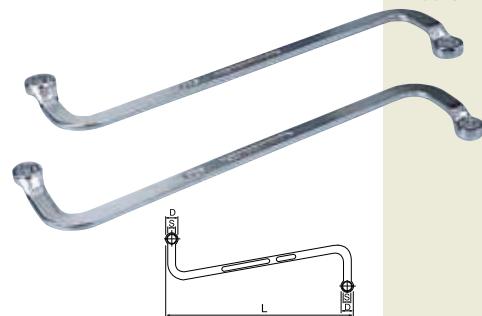
#### Purpose

- Special wrench for adjusting, removing and installing doors.

#### Features

- Can be used in narrow quarters where conventional wrenches cannot be used.
- Combination of 12x12(14x14) enables using right side and left side effectively.

### DOOR HINGE BOLT WRENCH SET



Removal,  
Installation and  
Adjustment of  
Doors

2

## 2 Removal, Installation and Adjustment of Doors

### ●DOOR HINGE BOLT RATCHET WRENCH



#### DOOR HINGE BOLT RATCHET WRENCH

No.	S	L	▼g	Box
DMR-12	12	250	250	10

#### Features

- Ratchet end for effective use in narrow spaces.
- Can be used from upper and lower sides of a hinge and left & right door.
- "S" shaped body for bypassing obstacles.
- Extruded shape of socket enables use on concave press-hinges, bypassing other bolts.
- 12 points ratchet end allows easy fitting into hinge bolts.

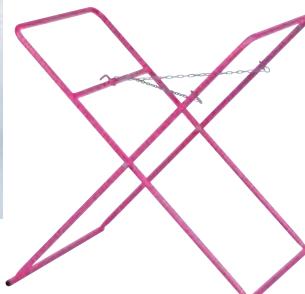
## 3 Adjustment of Door Striker

### BODY

### Painting

Painting bumpers, fenders and doors

### ●SPRAY HANGER



Can work on long wrap around bumpers.

#### SPRAY HANGER

No.	L×W×H standard (maximum value)	▼kg	Box
AP502	800×705×800(960)	7.3	1

#### With 4 pads

#### Usage

- Painting and drying work carried out on body parts that have been laid flat such as doors, engine hoods, rear gates and the bumpers of light to regular sized vehicles.

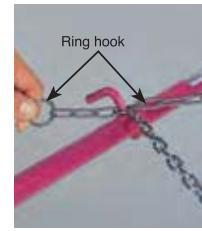
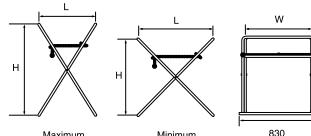
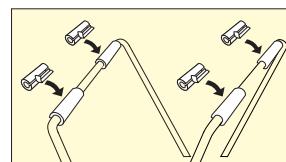
#### Characteristics

- Replacement parts
- The height can be adjusted to two levels (800mm and 960mm) by the ring hook position of the chain, according to the size of the object, or to the worker's height.
- Also applicable for long wrap around bumpers. (Maximum value)
- The legs are of flat steel with grating for grip.
- Folding type for compact storage.

Light construction for easy movement.

#### SPRAY HANGER

No. AP502PA	▼g 40	Box 1
Pads x 4 (for replacement)		



The height can be adjusted to two levels (800mm and 960mm) by the ring hook position of the chain.

**TILTING SPRAY HANGER**

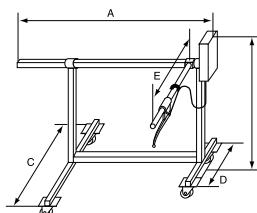
No.	A	B	C	D	E	Accessories	▼kg	Box
TSR1380	1350	834	800	400	400	Panel stays 1 kit Bumper stays 1 kit	17	1

**Purpose**

- Spraying of bumpers, fenders, doors, etc. of up to the smallest-sized vehicles.
- Features
  - The object can be rotated, so even portions which are hard to spray can be sprayed efficiently.
  - The rotation angle can be adjusted in increments as fine as 15°. An object can be fixed at a desired position according to the progress of work.
  - The versatile stays can move freely, vertically and horizontally, and can also be fixed.
  - Three kinds of stays can be used to spray paint on bumpers, fenders doors, engine hood, etc. (but not on tail gates).
  - The stay for use with engine hoods is optional.
  - The rotary mechanism has been designed not to turn more than 180° at any time, even if the lock wire is damaged.

**Option (Engine hood stay)**

No. TSR1380-OP1

**●TILTING SPRAY HANGER**Spraying Bumper,  
Fender and Door**●Usage example**

Fender



Panel stay

Engine hood

Engine hood stay  
(Option)

Bumper



Bumper stay

Door



Bumper stay

**SPRAY HANGER**

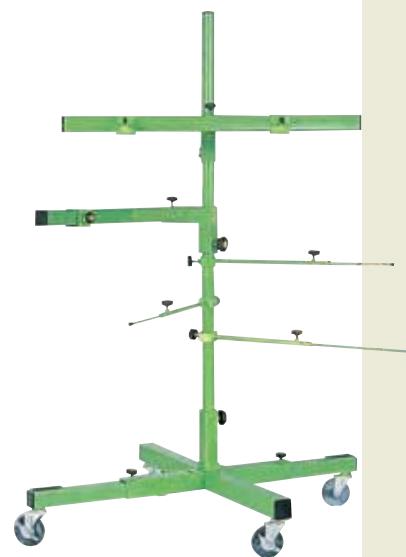
No.	H	▼kg	Box
TS1500	1685	28	1

A-single unit can be used to spray paint and dry parts including urethane bumpers, doors and tail gates.

- The universal arms can rotate freely 360°, improving efficiency by allowing for fine work to proceed on two sides simultaneously.
- Parts are attached to newly designed hooks and can be transported easily.
- Rugged construction and contractable feet make it possible to spray heavy objects.
- The universal casters with 100mm diameter transport the stand freely even inside a booth or on a grating.
- Attached parts can be detached easily, so the storage space can be saved.

Both the front and back sides of parts can be dried simultaneously to reduce expense.

- Rubber caps are provided to prevent parts damage, and rubber mats are attached on the base extensions to facilitate installation.

**●SPRAY HANGER**

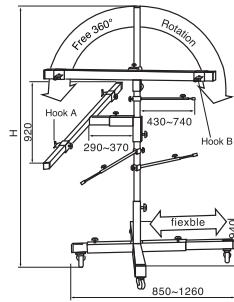
Door



Fender



Bumper





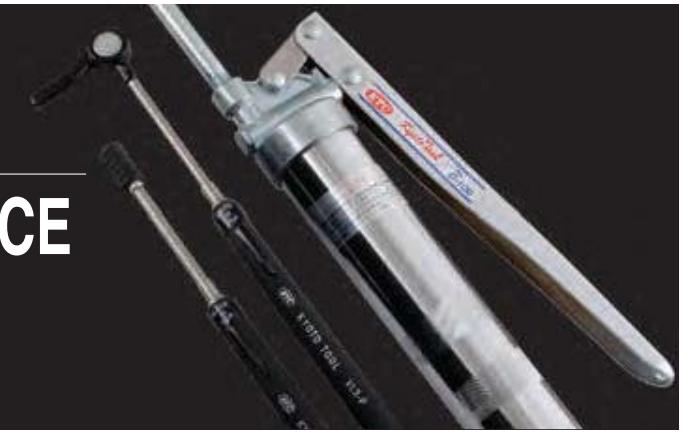
## 6. OTHER TOOLS and EQUIPMENT

AUTOMOTIVE MAINTENANCE ACCESSORIES

LIGHTS

## 6. OTHER TOOLS and EQUIPMENT

# AUTOMOTIVE MAINTENANCE ACCESSORIES



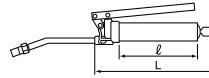
### ● GREASE GUN



### GREASE GUN

No.	Capacity	Discharge per time (cc)	Max. Discharge Pressure (kg/cm <sup>2</sup> )	Tube Dia.	L	$\ell$	Nozzle No.	$\nabla g$		
G - 80	80	0.75	25	32	214	145	G-120NS G-190NC G-190NC G-190NC G-190NC	500	10	
-100	100	0.75	25	38	238	175		600	10	
-200	200	1.27	25	48	330	138		900	10	
-300	300	1.23	25	48	320	235		930	10	
-500	500	1.00	25	62	340	265		1200	10	

• Can be used in narrow space.



### ● GREASE GUN (Cartridge Type)

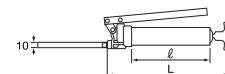


### GREASE GUN

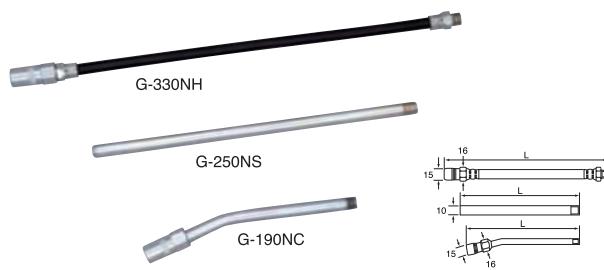
No.	Capacity	Discharge per time (cc)	Max. Discharge Pressure (kg/cm <sup>2</sup> )	Tube Dia.	L	$\ell$	Nozzle No.	$\nabla g$		
CG-400	400	1.45	25	56	360	290	G-250NS	1950	10	

#### Characteristics

- Cartridge type for easy grease charging. For saving grease.
- Comes with 1 cartridge. (Chassis Grease No.1 400g)



### ● NOZZLE FOR GREASE GUN



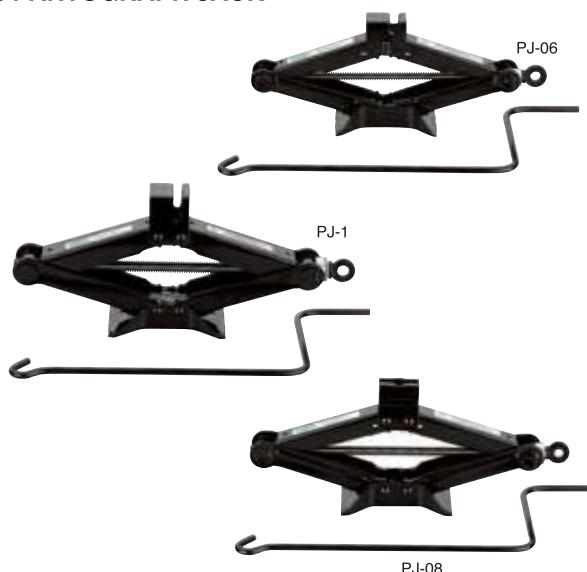
### NOZZLE FOR GREASE GUN

No.	Type	L	$\nabla g$		
G -120NS	Straight	120	30	1	
-180NS	Straight	180	60	1	
-250NS	Straight	250	200	1	
-450NS	Straight	450	270	1	
G -190NC	Chuck	163	100	1	
G -330NH	Hydro-hose	337	140	10	

#### Characteristics

- Exchangeable nozzles for multi purposes such as straight nozzles for pouring into the deep narrow space, freely twisting hydro-hose nozzles and chuck nozzles.

### ● PANTOGRAPH JACK



### PANTOGRAPH JACK

No.	Capacity kg	Height Max. Min.	$\ell$	L	W <sub>1</sub>	W <sub>2</sub>	Car Model	$\nabla kg$		
PJ-06	600	340 90	130	380	40	90	Mini cars & Mini trucks	1.8	10	
-08	800	380 105	140	410	45	100	Passenger cars under 2,000cc	2.4	5	
- 1	1000	415 115	150	440	45	120	Passenger cars over 2,000cc	3.7	5	

#### Characteristics

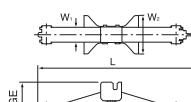
- Trapezoidal thread made by roll forming applied in the screw part for precision and durability.
- Comes with handle.
- PJ-08 has a movable head.

#### Spare parts

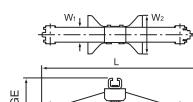
No.	Pats name	Length	$\nabla kg$		
PJ-06-H	Handle	460	0.3	1	

**CAUTION** • READ THE PROVIDED INSTRUCTION CAREFULLY BEFORE USE.

- DO NOT USE FOR THE LOAD OVER THE SPECIFIED CAPACITY.
- DO NOT PUT YOUR BODY OR ANY PART OF YOUR BODY SUCH AS HAND, FOOT, FINGER, ETC. BELOW THE CAR JACKED UP.



RANGE  
PJ-06, 1

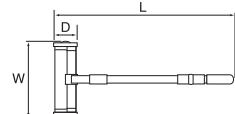
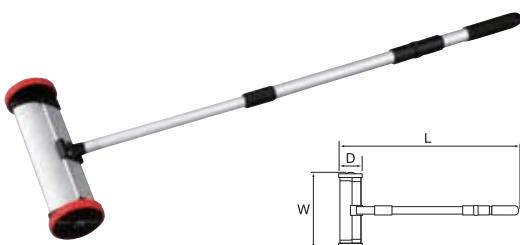


RANGE  
PJ-08

**MAGNETIC FINDER**

No.	L	W	D	Attractive Force (Reference)	▼kg	kg
VK-300	720~1035	318	95	Approx. 400g	1.3	1
VK-400	720~1035	398	95	Approx. 600g	1.5	1

- It is a cleaning tool that collects the parts and scraps that are scattered on the floor or passage of factory, etc.
- Casters allow the smooth work.
- With the release function that releases the magnetic force by handle, collected chips and the like can be safely removed.
- Handle is telescopic that's convenient in storage.

**● MAGNETIC FINDER****HAND PICKER**

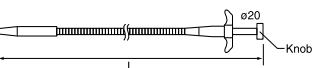
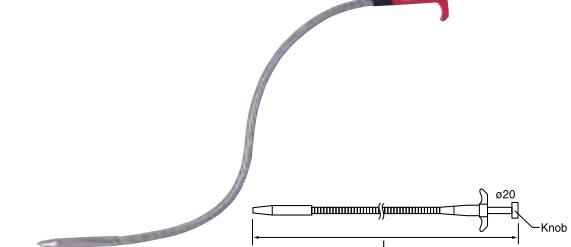
No.	L	▼g
VS4-3	512	170

**Purpose**

- A tool for picking up small objects fallen into narrow space you cannot reach or in liquid such as water.

**Features**

- Flexible rubber shaft you can bend in any way.
- Three claws easily catch resin, rubber, or aluminum objects which magnets cannot pick up.
- Large knob makes operation easy.

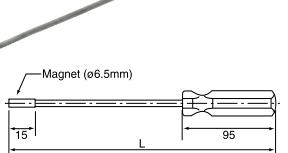
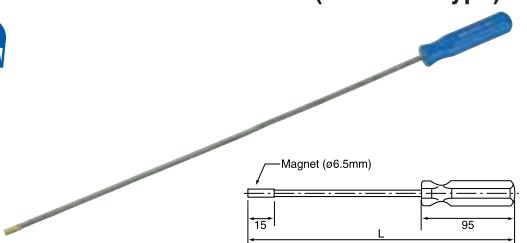
**● HAND PICKER****MAGNETIC PICK-UP TOOL**

No.	L	Magnet Outer Diameter	Magnet holding capacity (g)	▼g	kg
VL2-HD	520	6.5	450	115	20

**Special features**

- Neodymium magnet applied for much stronger power for picking up.
- Magnetized flexible pick-up tool.
- Convenient for picking up articles dropped in narrow quarters, inside machines, liquids or chips in grooves or holes.

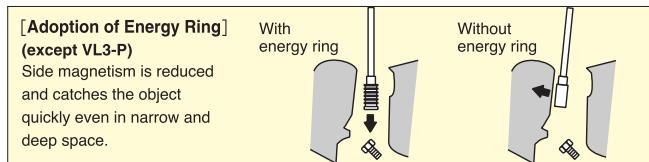
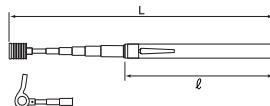
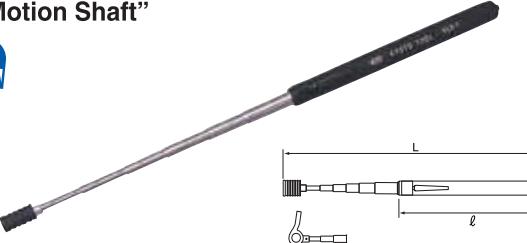
**CAUTION** • DO NOT USE WHERE ANY BAD EFFECT CAN BE CAUSED BY MAGNETISM.  
• DO NOT USE IN VERY HOT PLACE.

**● MAGNETIC PICK-UP TOOL (Powerful Type)****MAGNETIC PICK-UP TOOL****Telescopic Motion Shaft**

No.	Tip	L	ℓ	Magnet Diameter	Magnet Hanging Power (kg)	▼g
VL3-1	Small	185~815	145	8	1.3	70
VL3-2	Medium	185~815	145	15.6	6.3	90
VL3-P	Hook Type	185~815	145	12.6	1.1	70

**Special features**

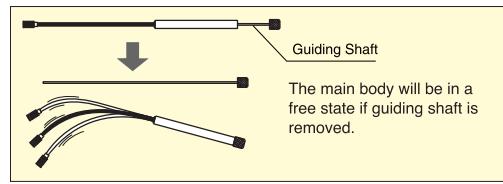
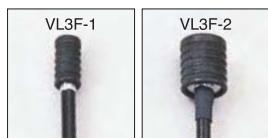
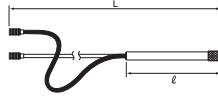
- 7-step shaft makes easy length adjustment.
- With a hook useful for storing in pockets.
- Energy ring reduces magnetism on the side, avoiding adherence to side objects in narrow space.

**● MAGNETIC PICK-UP TOOL "Telescopic Motion Shaft"****MAGNETIC PICK-UP TOOL****Free Shaft**

No.	Tip	L	ℓ	Magnet Diameter	Magnet Hanging Power (kg)	▼g
VL3F-1	Small	560	165	8	1.3	110
VL3F-2	Medium			15.6	6.3	130

**Special features**

- Free Shaft allows complicated moves.
- Magnet's direction can be determined from knob operation at grip end.
- The main body will be in a free state if you remove guiding shaft.
- Shaft section is coated with resin, making cleaning an easy job

**● MAGNETIC PICK-UP TOOL "Free Shaft"**

## ● CHECK MIRROR



## CHECK MIRROR

No.	Mirror Size	L	ℓ	▼g	
VS-2	Medium 44x66	190~870		70	
VS-3	Large 56x92	200~890	145	80	

## Purpose

- For inspection side or back of engine room or engine auxiliaries.
- Mirror section has an acrylic resin mirror which is difficult to break.
- Ball joint enables wide range of angles (Fig.1).
- Retention power is increased by fixing the ball joint with a bolt nut. (Fig.2)
- 7-step shaft makes length adjustment easy.
- For grip section a soft grip is employed. Easy to grip, hard to slip.

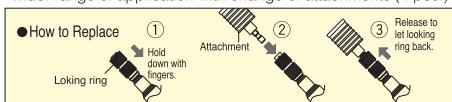
## ● MAG-MIRROR SET



## MAG-MIRROR SET

No. VLS5	▼g 280
Telescopic movement shaft	Full length: 180~810
Magnet	Small Magnet diameter: 8
Magnet	Medium Magnet diameter: 15.6
Mirror	Size:44x66
Magnifier	Size:44x66

• wider range of application with change of attachments (4 pcs.) to meet your requirements.



## ● HANDY BAR



## HANDY BAR

No.	Name	W	T	L	▼g	
LZ2-330	Handy Bar, Mini	19	10	330	530	5
-420	Handy Bar, Short	9	10	420	635	5
-600	Handy Bar, Long	19	10	600	800	5

## Purpose

Prying : For adjusting tension belts such as V-belt

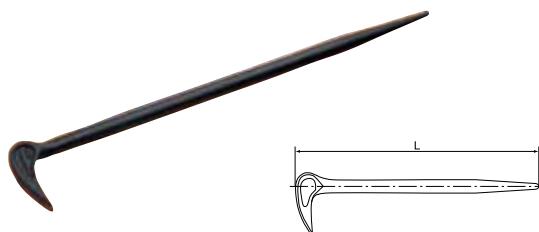
Widening : For removing missions from engines

: For separating struts and lower arms

Drawing : For drawing drive shafts from missions (def)

: For removing oil seals, gears, bearings, etc.

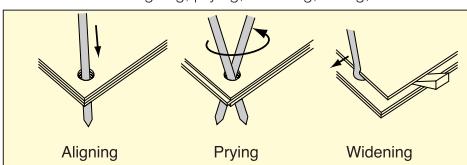
## ● ROLLING WEDGE BAR



## ROLLING WEDGE BAR

No.	Shank Dia.	L	▼g	
LZ1-450	ø16	410	685	1

• Convenient tool aligning, prying, widening, hitting, etc.



## ● SERVICE CREEPER

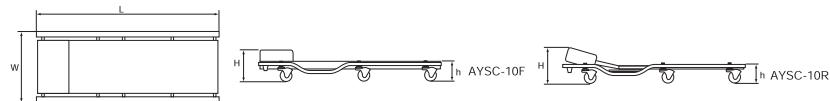


## SERVICE CREEPER

No.	L	W	H	h	Special Features	▼kg	
AYSC-20F	1030	440	105	85	6 wheels type for superb operability Big sized head rest applied for easy operation	7.5	1
-20R	1030	440	125 ~240	90	Made of sponge Made of urethane with head rest	8.5	1

• All items have swivel castors for good movability.

**CAUTION** • DO NOT USE ANY CASTORS WHICH ARE WEARED, OLD OR CANNOT TURN SMOOTHLY  
• DO NOT USE ON ANY SLOPE AND/OR ROUGH SURFACE.



\*Castors are set as replacement parts.  
Check with your dealer for details.

FENDER COVER				
No.	Size	▼g	Box	
AYC-2	400×1100	750	1	

#### Features

- Built-in magnet rubber in 4 positions make attachment to fender easy.
- With folding (stitches) easy to set on the fender.
- Inside is made of soft cloth that does not hurt the body, while outer surface is soft vinyl leather which absorbs shock.
- Work on car suspension possible even when the cover is on. Long enough to cover long nose cars.

**CAUTION** • DO NOT USE IN PLACES WHERE MAGNETISM MAY AFFECT ELECTRONIC PARTS, ETC.  
• MAGNET RUBBER PART TENDS TO COLLECT STEEL POWDER. REMOVE THE POWDER BEFORE USE.

## ● FENDER COVER



#### FRONT COVER

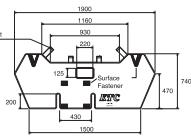
No. AYC-3	▼kg 1.1
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#### Application Features

- Compact cars and minivans of light (excluding 1Box and truck) or standard size.
- V-folded shape with surface fastener is used on the fender corner, precisely fitting light vehicles with the vehicle width adjusting mechanism. By expanding the folded part, it fits from compact cars to minivans.
- By adopting a slit on the license plate section, work from the service hole is possible while the front cover is attached. (Light vehicles)
- With an opening given on the hood lock part, the hood can be closed while the front cover is attached on the vehicle.
- Front fabric uses the material with excellent oil resistance that prevents oil or the like from seeping in, allowing it to be easily wiped with a rag or the like, and the back fabric uses a sponge material that is less likely to damage the body.



It can be expanded to be used for compact cars to minivans.



## ● FRONT COVER D.PAT.



#### COVERING SET

##### Covering Set

No. ATYC4014	▼kg 1.1
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Seat Cover · Steering Cover · AYC401, AYC402,  
Floor Mat Cover · Scuff Plate Cover · AYC403, AYC404

##### Seat Cover D.PAT.

No. AYC401	▼g 450
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#### Usage Application Features

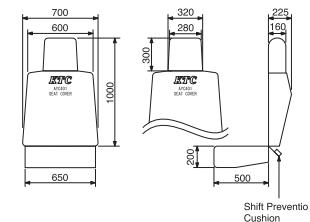
- Prevents contamination on the seat in maintenance and inspection.
- Supports from light vehicles to standard-sized minivans.
- Wide design that supports bench seat in light vehicles.
- Opened shoulder part that supports the driver's seatbelt (convertibles) and passenger seatbelt (pillar-less).
- Shift prevention cushion prevents the cover from shifting and achieves comfortable work.



Headrest part securely fits the height of the headrest by the strap on the back.

Seatbelt can be inspected while the seat cover is attached.

## ● COVERING SET



##### Steering Cover

No. AYC402	▼g 70
------------	-------

#### Usage Application Features

- Prevents contamination on the handle in maintenance and inspection.
- Supports from light vehicles to standard-sized minivans.
- Supports the steering of φ36~39.
- \* It may not be able to be attached depending on the handle shape.
- Opened handle center part that allows the easy maintenance and inspection of meters, etc.
- Fixed band is adopted which prevents slipping and shifting even when operating the handle left and right in looseness inspection.



Shift-resistant fixed band is included.

##### Floor Mat Cover

No. AYC403	▼g 230
------------	--------

#### Usage Application Features

- Prevents contamination on the floor mat in maintenance and inspection.
- Supports from light vehicles to standard-sized minivans.
- PVC that hardly slips even in working under rain is used on the front fabric and EVA that prevents slippage is used on the back fabric.
- It can be used repeatedly, reducing the cost compared to disposable type.



##### Scuff Plate Cover

No. AYC404	▼g 290
------------	--------

#### Usage Application Features

- Prevents contamination on the scuff plate in maintenance and inspection.
- Prevents scratches on the scuff plate during the fault diagnosis that uses OBD.
- Supports from light vehicles to standard-sized minivans.
- PVC that hardly slips even in working under rain is used on the front fabric and EVA that prevents slippage is used on the back fabric.

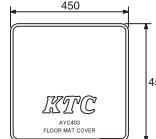


Drop-prevention function (surface fastener) is adopted.

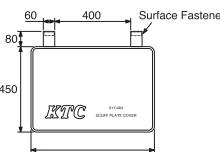
Idea for the fault diagnosis that uses OBD.



AYC403



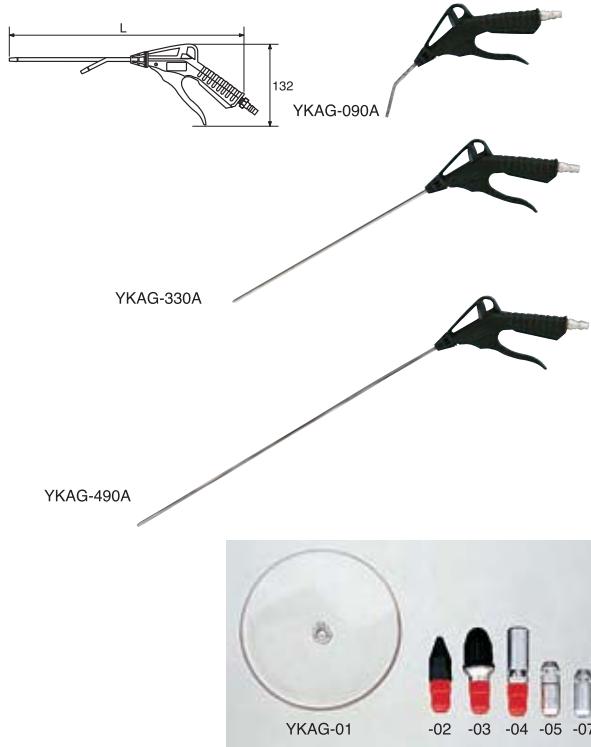
AYC404



Please do not drive or operate while this product group is equipped on the vehicle.

\*Please check the merchandise inventory for a product that is marked by before placing an order.

## ● AIR BLOW GUN



## AIR BLOW GUN

No.	Nozzle Length	Dia.	Material	Temp	L	▼g
YKAG-090A	90	0D ø6	Poliacetar 1D ø4 Oxymethylene	-40°C	254	145
-330A	320	1D ø4		~+60°C	492	180
-490A	490				666	210

\*For YKAG-090 only, the nozzle has 30° angle.

## Purpose

- Blowing off dusts, misture, etc.

## Special Feature

- Made of POM plastic light body and lever.
- 3 sizes of bodies and 7 kinds of accessories for multi purposes.

## ■ Optional Accessories

No.	Name	Size	Purpose
YKAG-01	Chip Shield	ø100	Avoiding blow-back in operation.
-02	Rubber Chip	50	For use in painted sur. face and soft material
-03	Silencer	55	For minimizing noise under 79 dB.
-04	Ventury	55	For strong blowing off.
-05	Air Curtain	35	Preventing blow-back.
-06	Extension	385	For doing remotejob.
-07	By-pass	30	For using in lower pressure.

\*For YKAG-090A only, the nozzle has 30° angle.

 CAUTION • BE CAREFUL OF DUST WHICH MAY SCATTER.  
• WEAR SAFETY GLASSES AND A MASK WHEN USING THE TOOL.

## ● COMPACT AIR BLOW GUN OPTIONAL NOZZLE



## COMPACT AIR BLOW GUN OPTIONAL NOZZLE

No.	Product Name
YKAGC-S	Silencer nozzle
YKAGC-95	95mm tube nozzle
YKAGC-R	Rubber chip nozzle

- It is an optional part for compact air blow gun (YKAGC-102).

\* Compact air blow gun (YKAGC-102) is discontinued.



YKAGC-S  
Silencer nozzle

It has the silencing effect of up to 79 db.



YKAGC-95  
95mm tube nozzle

For the air blowing of dust, dirt and moisture found in normal work

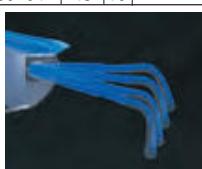


YKAGC-R  
Rubber chip nozzle

For the blowing of painted surfaces and soft materials that does not damage around work

SAFETY GLASSES						
No.	Type	Lens	Frame Color	Width×Max. Height	▼g	✉
YDA-360	1 Single lens	PET	Clear	150×56	52	10
-715	1 Single lens	PET-AF	Blur	140×56	39	10
-730	1 Single lens	PET-AF	Crystal Blue	160×64	43	10

- Can be fitted over prescription spectacles (YDA-360 only)
- Side length is adjustable (YDA-715, 221)
- To ensure comfortable operation, safety glasses have upper and side lenses to protect the worker's eyes from any flying debris.
- To ensure a comfortable fit and to prevent dust from getting in, the upper part of the safety glasses is made of elastomer cushion. This cushion will soften the shock if hit by flying debris. (YDA-715, 730)
- The lens can be adjusted for a perfect fit. (4 Levels, 38 Degrees) (YDA-715, 730)



Lens adjustment is possible (YDA-715, 730)

\*YAMAMOTO is the registered trademark of the Yamamoto Kogaku Co., Ltd.

### ● SAFETY GLASSES

YAMAMOTO®



### SAFETY GOGGLE

No.	Lens	Frame Color	Frame Material	Width×Max. Height	▼g	✉
YDB-530	Acet. Mistless, RET-AF	Clear	Flexible vinyl	150×56	85	10

- Can be fitted over prescription spectacles
- Can be used together with a mask
- The strap turns at the frame, preventing twist.
- Can also be fitted while wearing a safety helmet.

\*YAMAMOTO is the registered trademark of the Yamamoto Kogaku Co., Ltd.

### ● SAFETY GOGGLES

YAMAMOTO®



### MAGNETIC PARTS TRAY

No.	Material	Thickness (mm)	Size	▼g	✉
YKPT-RM	SUS430	0.5	ø150×41	370	1
-SM	SUS430	0.5	240×140×42	700	1
-MM	SUS430	0.6	358×158×42	1080	1
-LM	SUS430	0.6	294×275×42	1430	1

- Made of stainless steel tray for strong rust resistance.
- Rubber mounted magnet holds in 1,000 gauss magnetizing power.

**CAUTION** • DO NOT USE IN PLACES WHERE MAGNETISM MAY CAUSE TROUBLES.



YKPT-LM

### ● MAGNETIC PARTS TRAY



### STAINLESS PARTS TRAY

No.	Material	Thickness (mm)	Size	▼g	✉
YKPT-20	SUS304	0.5	200×120×45	160	1
YKPT-22	SUS304	0.5	220×132×46	185	1
YKPT-24	SUS304	0.5	240×144×48	225	1
YKPT-26	SUS304	0.5	260×156×50	260	1
YKPT-28	SUS304	0.5	280×168×50	290	1
YKPT-30	SUS304	0.5	300×180×55	350	1
YKPT-33	SUS304	0.5	330×198×57	400	1
YKPT-36	SUS304	0.5	360×216×60	465	1
YKPT-40	SUS304	0.6	400×240×66	740	1
YKPT-44	SUS304	0.6	440×264×71	840	1
YKPT-48	SUS304	0.6	480×288×77	980	1
YKPT-52	SUS304	0.6	520×312×82	1200	1

⟨Optional⟩ Special Partition Plate for Parts Tray (YKPT-20)

No.	Material	Thickness (mm)	Size	▼g	✉
YKPT-20S	SUS304	1.0	180×100×20	70	1

Efficiency of disassembly work improved by keeping parts in good order.

#### Purpose

- For temporarily placing parts of disassembled automobiles, motorcycles, or machines.

#### Features

- Various sizes of tray help you put disassembled parts in good order.
- Trays can be stacked for storage.
- Made of durable stainless steel.

### ● STAINLESS PARTS TRAY



## ● PARTS TRAY SET



No. TYKPT4A ▼kg 1.7

1 each of YKPT-20, 26, 33, 40 and partitioning plate for 20.



No. TYKPT5A ▼kg 1.7

YKPT-20 (2), 24 (2), 40 (1), and partitioning plates (2) for 20.



No. TYKPT4B ▼kg 1.9

1 each of YKPT-24, 30, 36, and 44.

## ● PARTS TRAY SET



Can be stored by stacking

## PARTS TRAY SET

No. TYKPT5 ▼kg 9.6

1

Parts Tray

YKPT-51L, 59L, 51H, 59H (1pcs. each)

Parts Tray (Punching Metal Type)

YKPT-51P (1pcs.)

- It can be stacked and stored to save the space.
- Seamless one-piece draw forming eliminates the concern for liquid such as water and oil to leak.
- Rust is prevented by the use of galvanized plate. (YKPT-51P is uni-chrome plated)
- YKPT-51P is a punching metal type.

## ● PARTS TRAY



YKPT-51L



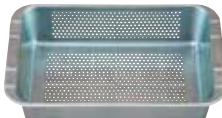
YKPT-59L



YKPT-51H



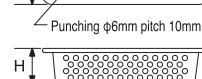
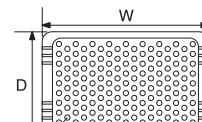
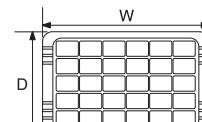
YKPT-59H

YKPT-51P  
Punching Metal Type

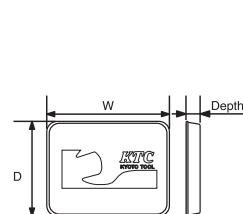
## PARTS TRAY

No.	W	D	H	Capacity (ℓ)	▼kg	Material	1
YKPT-51L	510	320	45	5	1.3	Galvanized Sheet Iron	
YKPT-59L	595	360	45	6	1.8	Galvanized Sheet Iron	
YKPT-51H	510	320	120	14	2.0	Galvanized Sheet Iron	
YKPT-59H	595	360	115	17.5	2.7	Galvanized Sheet Iron	
YKPT-51P	510	320	120	Punching Metal Type	1.8	Galvanized Sheet Iron	

- It can be stacked and stored to save the space.
- Seamless one-piece draw forming eliminates the concern for liquid such as water and oil to leak.
- Rust is prevented by the use of galvanized plate. (YKPT-51P is uni-chrome plated)
- YKPT-51P is a punching metal type.



## ● ALUMINUM PARTS TRAY LARGE &amp; SMALL



## ● ALUMINUM GARAGE TRAY



## ALUMINUM PARTS TRAY

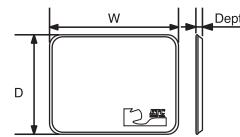
No.	W	D	Depth	Color	Material	1
YG-40S	210	150	30	Silver	Aluminum	
YG-40BK	210	150	30	Black	Aluminum	
YG-40G	210	150	30	Golden	Aluminum	
YG-39S	350	270	40	Silver	Aluminum	
YG-39BK	350	270	40	Black	Aluminum	
YG-39G	350	270	40	Golden	Aluminum	

Aluminum tray. Our logo, with its wrench motif, is laser-engraved across it. Use it for holding parts removed from cars or motorcycles during maintenance, or for catching oil.

## GARAGE TRAY

No.	W	D	Depth	Color	Material	▼kg	1
YG-41S	695	395	10	Silver	Aluminum	1.6	1

Large aluminum maintenance tray. Use it for holding large parts or tools while you're giving your car or motorcycle the maintenance it deserves. Or place it under the vehicle to keep your floor free of oil stains. Aluminum alloy for excellent rust- and corrosion-resistance, weighing just 1.6 kg. Easy cleanup too.



# 6. OTHER TOOLS and EQUIPMENT

## LIGHTS



### CAUTION LED LIGHTS

- Do not look directly at LED.
- Do not use oxyride or secondary batteries (NiCd, NiMh).

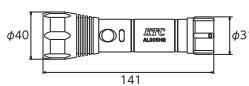
- It does not have the waterproof or dustproof function. Do not use in water or rain.
- Do not disassemble or modify.

#### LED HAND LIGHT

No.	Color (Body)	Size (Φ is head part)	Number of LED	Power consumption	▼ g (Battery not included)	Box	
AL805HB	Gunmetal gray	Φ40×141	1	High 3W Low 1W	125	1	

- Brightness is increased by 3W high-brightness LED equipped on the compact aluminum body. (Our conventional product comparison)
- High (3W) and Low (1W) can be switched.
- With an indicator that changes its color from green to red when the battery power is low.
- With a convenient strap hole. (Strap is not attached)

\* Spare parts are configured.  
Please contact your dealer for details.



LED	3W×1pcs.
LED rated life	35,000 hours
Use battery	AAA batteries (1.5V) × 3
Continuous use time (Alkaline battery, at room temperature)	High approx. 1.5 hours Low approx. 3.0 hours
Available temperature range	-20~60°C
Available humidity range	85% or less

\* Continuous use time is an estimate, which depends on the use condition.

#### ● LED HAND LIGHT



■ It can switch between High (3W) and Low (1W)

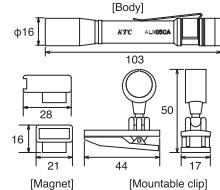


\* It is not covered for repair.

#### LED COMPACT LIGHT

No.	Color (Body)	Size (Φ is head part)	Number of LED	Power consumption	▼ g (Battery not included)	Box	
AL805CA	Gunmetal gray	Φ16×103	1	0.25W	23	1	

- It can be used for a longer period of time (approx. 4 times our conventional product) by the increase in the LED light performance.
- New circuit that reduces the power consumption is equipped on the small aluminum body.
- It supports various work scenes with the use of clip, mountable clip and magnet.
- Flexible arm of the mountable clip can be rotated by 360° to fine-tune the angle.



LED	0.25W×1pcs.
LED rated life	40,000 hours
Use battery	AAA batteries (1.5V) × 1
Continuous use time (Alkaline battery, at room temperature)	Approx. 3.5 hours
Available temperature range	-20~60°C
Available humidity range	90% or less

\* Continuous use time is an estimate, which depends on the use condition.

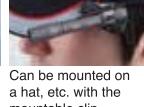
#### ● LED COMPACT LIGHT



Mountable clip



Magnet



Combined state

Compact with clip.  
Can be inserted in a chest pocket.

Can be mounted on a hat, etc. with the mountable clip.

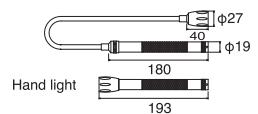
Can be pasted on various locations with the magnet.

\* It is not covered for repair.

#### LED FLEXIBLE LIGHT

No.	Color (Body)	Size (Φ is head part)	Number of LED	Power consumption	▼ g (Battery not included)	Box	
AL805F	650	420	1	1.00W	125	1	

- LED with higher directivity and brightness compared to the conventional LED is adopted.
- Body is made of lightweight and strong aluminum.



LED	1.00W×1pcs.
LED rated life	100,000 hours
Use battery	AA batteries (1.5V DC) × 3
Continuous use time (Alkaline battery, at room temperature)	Approx. 8 hours (at room temperature)
Available temperature range	-20~+60°C
Available humidity range	90%

#### ● LED FLEXIBLE LIGHT



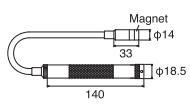
It also works as a hand light.

\* It is not covered for repair.

#### MAGNETIC HAND WITH LED LIGHT

No.	Total length	Flexible arm length	Number of LED	Power consumption	▼ g (Battery not included)	Box	
AL805MG	600	420	1	0.25W	96	1	

- Strong magnet is built into the head.
- Body is made of lightweight and strong aluminum.



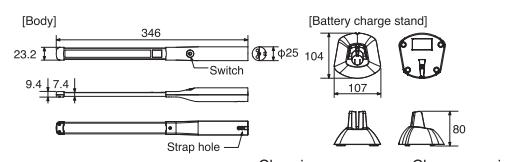
LED	0.25W×1pcs.
LED rated life	100,000 hours
Use battery	AA batteries (1.5V DC) × 2
Continuous use time (Alkaline battery, at room temperature)	Approx. 40 hours (at room temperature)
Available temperature range	-20~+60°C
Available humidity range	90%

#### ● MAGNETIC HAND WITH LED LIGHT



\* It is not covered for repair.

## ● CORDLESS LED LIGHT (SLIM TYPE) D.PAT.P.



Thin and narrow slim body is adopted.

Battery indicator that can be read at a glance.



● Do not look directly at LED.  
 ● Do not equip anything other than the attached strap.  
 ● Do not use in water or rain.

## CORDLESS LED LIGHT

No.	Number of LED	Available temperature range	Brightness (total flux)	Power consumption	Continuous use time	Charging time	▼g	✉	
AL807	12	0~50°C	High 240lm Low 150lm	High 3.6W Low 1.9W	High approx. 2 hours Low approx. 4 hours	Approx. 2 hours	130	1	

\* Continuous use time is an estimate, which depends on the use condition.

\* Charge time depends on the battery condition and charging environment.

Attachment: Battery charge stand, AC adaptor, strap

- It is an indoor working light with slim body.
- With thin, narrow and long slim body and cordless charging, work in tight and deep places such as engine room is possible.
- With the adoption of 12 LED and diffusion plate, unpleasant shadow during work is reduced, making it easy on the eyes.
- Long life is achieved by protecting the LED with heat sink.
- Accidental fall is prevented with strap.
- 2-stage brightness adjustment is possible with the switch.
- Charging type and cordless, it can be maneuvered in tight places.
- Balanced body shape with weight on the grip.

## ■ Supply parts

No.	Product Name
AL807-S	Battery Charge Stand
AL807-A	AC Adaptor
AL807-P	Strap

## ■ AC Adaptor

Input Voltage	AC100V
Input Frequency	50~60Hz
Output Voltage	DC5.5V
Output Current	2.5A
Maximum Power	13.75W
Cord Length	1.2m

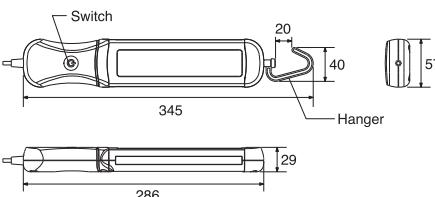
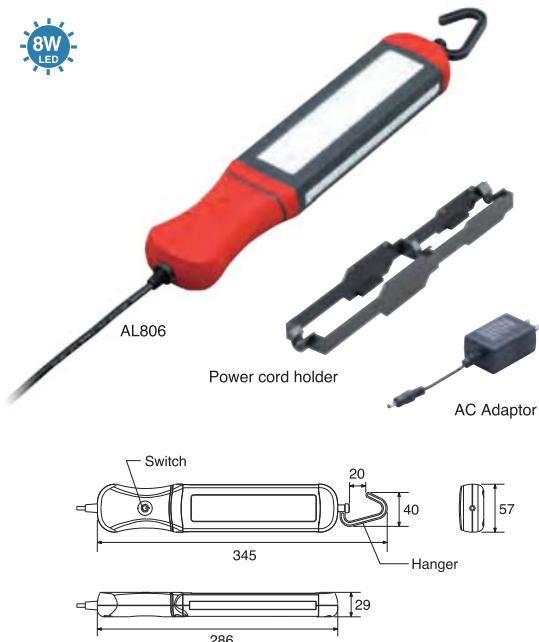


Accidental fall is prevented with the strap.

Can be charged with the strap attached.

\* It is not covered for repair.

## ● LED LIGHT D.PAT.P.



Hanger can become a stand.

Power cord holder for extension cord connection is attached.



● Do not look directly at LED.  
 ● Do not use in water or rain.

## LED LIGHT

No.	Number of LED	Available temperature range	Cord length	Brightness (total flux)	Power consumption	▼g	✉	
AL806	12	0~50°C	5m	440lm	8W	400	1	
AL806S	12	0~50°C	0.5m	440lm	8W	300	1	

Attachment: Hanger · mounting screws, AC adaptor, power cord holder

- Indoor working light with bright and wide light that's easy on the eyes.
- With the adoption of 12 LED and diffusion plate, unpleasant shadow is reduced, brightly illuminating the work area.
- Long life is achieved by protecting the LED with heat sink.
- 4-stage brightness adjustment is possible with the switch.
- Suspension angle can be adjusted by the hanger mounting position.
- Body is drip-proof and AC100V power dedicated.

## ■ Supply parts

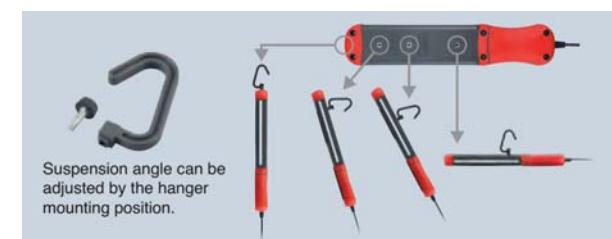
No.	Product Name
AL806-1	Hanger · mounting screws
AL806-2	AC Adaptor
AL806-3	Power cord holder

## ■ AC Adaptor

Input Voltage	AC100V
Input Frequency	50~60Hz
Output Voltage	DC24V
Output Current	0.5A
Maximum Power	12W



Short cord type is available



Hanger can be fixed in top 8 directions and back 4 directions according to the work environment.

# 7. MOTORCYCLE TOOLS

MOTORCYCLE TOOLS  
BICYCLE TOOLS

# 7. MOTORCYCLE TOOLS

## MOTORCYCLE TOOLS

### ● PORTABLE TOOL BAG (MEDIUM) SET



Details of Tool Bag [P.316](#)

Details of Portable Tool Bag [P.311](#)

#### PORTABLE TOOL BAG SET

No. SK3230	▼kg 2.5	□ 1
3/8"sq. Socket (6pt.)	POWERFIT® B3-08, 10, 12, 14	
3/8"sq. Extension Bar	POWERFIT® BE3-150	
3/8"sq. Ratchet Handle	BR3E	
Combination Wrench	POWERFIT® MS2-08, 10, 12, 14	
Combination Pliers (with Soft Grip)	PJ-150	
Needle Nose Pliers (Standard Type)	PSL-150	
Adjustable Wrench	WM-200	
Ratchet Screwdriver	DBR14 (Bit Size: Cross No.1, 2, 3, Flat 5.5, 6, 8 (Hex: 2.5, 3, 4, 5, Torx: T15, T20, T25, T30))	
Tool Bag (Black)	MCKB-B	
Portable Tool Bag	BKB-M	

• It is a carrying set with carefully selected tools in the easy-to-carry shoulder bag.

• It has a reflector line that increases the visibility from the car at night.

• It has pursued the safety without compromising the design as a bag.

• Auxiliary belt is added to suppress the movement of the bag even in violent ride.

### ● PORTABLE TOOL BAG (LARGE) SET



Details of Tool Bag [P.316](#)

Details of Portable Tool Bag [P.311](#)

#### PORTABLE TOOL BAG SET

No. SK3231	▼kg 2.5	□ 1
3/8"sq. Socket (6pt.)	POWERFIT® B3-08, 10, 12, 14	
3/8"sq. Extension Bar	POWERFIT® BE3-150	
3/8"sq. Ratchet Handle	BR3E	
Combination Wrench	POWERFIT® MS2-08, 10, 12, 14	
Combination Pliers (with Soft Grip)	PJ-150	
Needle Nose Pliers (Standard Type)	PSL-150	
Adjustable Wrench	WM-200	
Ratchet Screwdriver	DBR14 (Bit Size: Cross No.1, 2, 3, Flat 5.5, 6, 8 (Hex: 2.5, 3, 4, 5, Torx: T15, T20, T25, T30))	
Tool Bag (Black)	MCKB-B	
Portable Tool Bag	BKB-L	

• It is a carrying set with carefully selected tools in the easy-to-carry shoulder bag.

• It has a reflector line that increases the visibility from the car at night.

• It has pursued the safety without compromising the design as a bag.

• Auxiliary belt is added to suppress the movement of the bag even in violent ride.

#### Features of Portable Tool Bag (No.BKB-M, BKB-L)

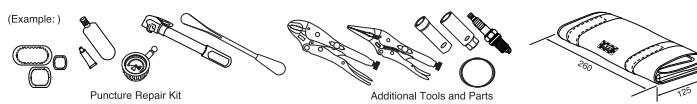


### RIDER'S MAINTENANCE TOOL SET

No. MCK317	▼kg 1.8	1
3/8"sq. Semi-deep socket (6pt.) <b>POWERFIT</b>	B3M-08, 10, 12, 14	
3/8"sq. Slide-head handle	BHM3	
3/8"sq. Extension bar	BE3-150	
3/8"sq. Hexagonal wrench	HB20-4, 5, 6	
Combination wrench <b>POWERFIT</b>	MS2-08, 10, 12, 14, 17	
Interchangeable driver set	DB4 Cross (No.2, No.3) Flat (head width 4.6)	
Pliers	PJ-150	
Adjustable Wrench	MW-200	
Tool Bag (Black)	MCKB-B (260×125×70mm when folded)	

**MODEL CHANGE** This model supercedes the MCK11, MCK21A.

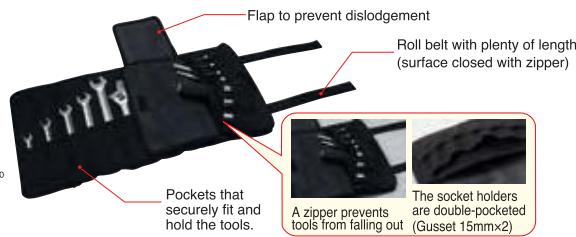
- The socket will allow easy operation in areas where open end wrenches and offset wrenches cannot reach.
- The drive tools employ a slide head handle and an extension bar for easy operation.
- The case can be folded down when traveling.
- The zipper prevents tools from falling out.
- By laying out the tool bag, it can be used as a replacement for tools/parts tray. E.g. Extra/spare parts, that are not included in the set.
- Plenty of space (second stage pocket, etc.) for storing tools. E.g. Extra/spare parts, that are not included in the set.
- Convenient for storing extra tools and spare parts.



\*MOTO CLUB is the registered trademark of KYOTO TOOL CO., LTD.

3/8" sq.

### ● RIDER'S MAINTENANCE TOOL SET



### MOTORCYCLE TOOL SET

#### No. SK35610XMC

Total 56 pcs.	▼kg 18	1 (2 Cartons)
• SK35610XMC	Tools × 1	
• SKX0213	Chest × 1	
<b>Contents</b>		
3/8"sq. Socket (6pt.) <b>POWERFIT</b> B3-08, 10, 12, 13, 14		
3/8"sq. Deep Socket (6pt.) <b>POWERFIT</b> B3L-08, 10, 12, 14		
3/8"sq. Hex. Bit Socket <b>POWERFIT</b> BT3-03, 04, 05, 06		
3/8"sq. Ratchet Handle BR3E		
3/8"sq. Spinner Handle BS3E		
3/8"sq. Quick Spinner <b>POWERFIT</b> BE3-Q		
3/8"sq. Extension Bar <b>POWERFIT</b> BE3-075, 150		
Box End Wrench (45° x 6" Long) <b>POWERFIT</b> M5-0810, 1113, 1214, 1719, 2224		
Ratchet Combination Wrench MSR1A-08, 10, 12, 13, 14, 17		
Plastic Grip Screwdriver (Flat) D1M2-5, 6		
Plastic Grip Screwdriver (Cross) D1P2-1, 2, 3		
Plastic Grip Stubby Screwdriver (Flat) D1MS-6		
Plastic Grip Stubby Screwdriver (Cross) D1PS-2		
Split Grip Screwdriver Through Type (Flat) FD-250		
Carburetor Jet Screwdriver CDZ-165		
Combination Pliers (with Soft Grip) PJ-200		
Adjustable Wrench WM-200		
Needle Nose Pliers PSL-150		
Diagonal Cutting Pliers PN1-150		
Combination Hammer UD7-10		
Locking Plier 150LN, 175CR		
L Shape Long Ball Point Hex-Key HL259SP		
Wrench Set (9 pcs.) (1.5, 2, 2.5, 3, 4, 5, 6, 8, 10)		
3/8"sq. T-Shaped Handle TH20		
Magnetic Parts Tray YKPT-RM		
Tray ETKT64-001A1 (Ratchet) ETKT64-001B1 (Offset Wrench) ETKT64-001B2 (Scissors)		

☞ The case is listed on P.334.

• It is a set with carefully selected tools ideal for the maintenance of motorcycles.

3/8" sq.

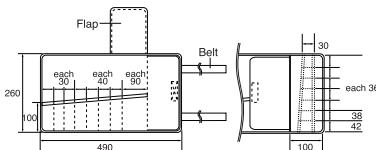
### ● MOTORCYCLE TOOL SET



### TOOL BAG

No.	Size when spread out	▼g	
MCKB-B	260 × 490 (Not including belt and flap)	270	

- Tool bag used for riders maintenance tool set.
- Materials: Nylon (Main body), PVC (Main body back), PP (rims, tapes)



### ● Tool Bag (Black)



When Folded

\*Please check the merchandise inventory for a product that is marked by before placing an order.

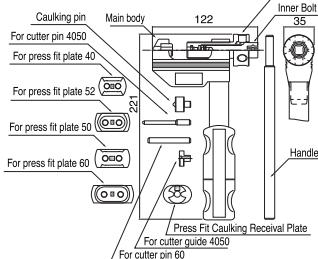
## ● MOTORCYCLE TOOL STATION® SET



## ● MOTORCYCLE TOOL STATION® SET



## ● DRIVE CHAIN TOOL SET



### MOTORCYCLE TOOL STATION® SET

No. SK7006B ▼kg 50.5 1 (2 Cartons)

80 tools/parts included

• SK7006BT Tools/Parts x1  
• SKR703A Tool Station x1

• A special new motorcycle tool set enclosed in the tool station.

Please refer P.22.

\*TOOL STATION is a registered trademark of KYOTO TOOL CO., LTD.

### MOTORCYCLE TOOL STATION® SET

No. SK6006B ▼kg 39.5 1 (2 Cartons)

69 tools/parts included

• SK6006BT Tools/Parts x1  
• SKR602A Tool Station x1

• A special new motorcycle tool set enclosed in the tool station.

Please refer P.22.

\*TOOL STATION is a registered trademark of KYOTO TOOL CO., LTD.

### DRIVE CHAIN TOOL SET

No. MCCU14 Number ▼kg 2.2 1

Main body	1
Outer Bolt	1
Inner Bolt	1
Handle	1
For cutter pin 4050	1
For cutter guide 4050	1
For cutter pin 60	1
For press fit plate 40	1
For 52	1
For 50	1
For 60	1
Press Fit Caulking Receival Plate	1
Caulking pin	1
Metal Case	1
	L270×W145×H32

#### Usage

- For motorcycle drive chain replacements.
- For removing chain pin, press fitting joint plates (including clip type), and caulking joint pins.

#### Application

- For chain sizes: 420 · 428 · 520 · 525 · 50 (530) · 532 · 630 · 632

#### Characteristics

- This tool can be used for most domestic motorcycles.
- Based on strength analysis, the design is in an optimum shape for durability and lightness that even professionals will approve.
- Highly durable cutter pin & caulk pin is made from heat-treated special steel (SK type).
- These parts have been designed to facilitate workflow.
- Bolt removal is not required as cutter pins can be replaced from the front of the inner bolt.
- The cutter pin can be used frequently in 40 and 50 series.
- Press fitting is designed for all sizes (press fitting caulk receiving plate), and as it can also be used in caulking, this allows for a much smoother operation.
- The inner bolt does not need to be set after the joint pin has been removed as the plate press fitting uses the same outer bolt.
- The grip and handle are designed so that strength may be applied easily.

\*A drive tool such as a separate 3/8"sq. ratchet tool is required when using this tool.

#### ■ Replacement Parts

No.	Product	1
MCCU-BA	Outer Bolt	1
-BB	Inner Bolt	1
-H	Handle	1
-CA	For cutter pin 4050	1
-CG	For cutter guide 4050	1
-CB	For cutter pin 60	1
-PA	For press fit plate 40	1
-PB	For press fit plate 52	1
-PC	For press fit plate 50	1
-PD	For press fit plate 60	1
-PT	Press Fit Caulking Receival Plate	1
-KA	Caulking pin	1

### VALVE SPRING COMPRESSOR

No. MCVU5	▼kg 1.4	1				
Body	L290~420xH172					
Attachment	MCVU-A16, A20, A24, A28					
*The attachment can also be used for a valve spring compressor (VSU4).						
No.	Part Name	D <sub>1</sub>	D <sub>2</sub>	ℓ	6pt.	
MCVU-A16	Attachment ø16.5	17	19	50	1	
-A20	Attachment ø20	20	22	50	1	
-A24	Attachment ø24	24	26	50	1	
-A28	Attachment ø28	28	31	50	1	

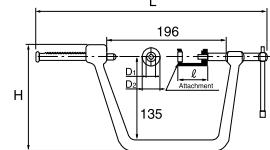
\*The attachment can also be used for a valve spring compressor (VSU4).

 This model supercedes the VSU4.

#### Purpose

SPECIAL TOOL FOR MAINTENANCE ON INTAKE & EXHAUST VALVE (REMOVING/INSTALLING VALVE SPRING) OF 4 CYCLE ENGINE.

- Guide Attachment of 4 sizes (ø16.5, 20, 24, 28) covers most types of motorcycles.
- Guide Attachment can be replaced by one-touch and wide opening for smooth operation on valve cutter.



### ● VALVE SPRING COMPRESSOR



### WIRE TWISTER

No.	L	Twistable Radius	▼g	6pt.	
WTP-210	205	0.8	240	1	

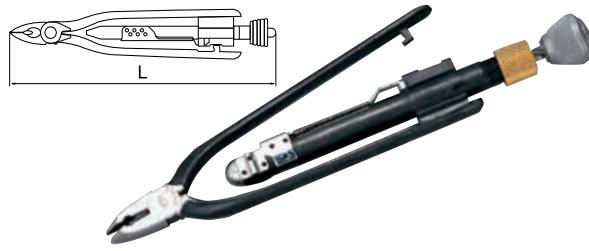
#### Purpose

- For twisting wire to wire-look bolt's head.
- Rotates clockwise

When used



### ● WIRE TWISTER



### SPARK PLUG WRENCH (SHORT TYPE)

No.	S	D <sub>1</sub>	D <sub>2</sub>	L	▼g	6pt.
MCPS-20.8	20.8	34	32	170	176	5

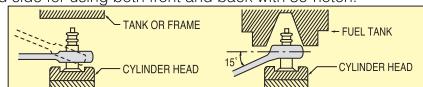
#### Purpose

SPECIAL WRENCH FOR REPLACING SPARK PLUG (20.8mm) OF 2-CYCLE WATER-COOLING ENGINE.

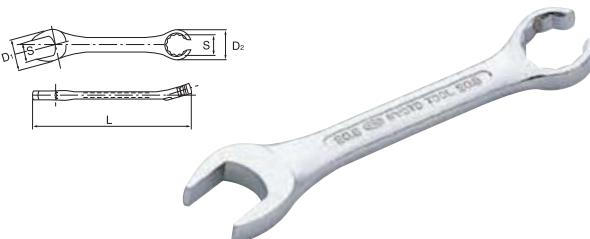
- Short length (170mm) for handy work.
- Convenient for use in narrow space where Socket Type Spark Plug Wrench cannot be applied.

(Open End) ● With 15° degree side for using both front and back with 30° notch.

(Box End) ● Can be used on hexagon part such as below tank.



### ● 20.8mm SPARK PLUG WRENCH, SHORT



## ● NIPPLE WRENCH



## NIPPLE WRENCH

No.	D <sub>1</sub>	A	B	C	D	E	F	T	L	▽g	✉
MCS2-100	20	4.5	5.1	5.8	6.1	6.4	6.6	10	100	80	1

## Purpose

SPECIAL WRENCH FOR FASTENING, ADJUSTING & CHECKING WHEEL SPOKE NIPPLE.

- One wrench applied to 6 sizes (4.5, 5.1, 5.8, 6.1, 6.4, 6.6) covering most of motorcycles.
- Small and light tool convenient for touring, racing etc.
- Drop forged and heat treated body for superb durability.
- The wrench is made with a high thickness (10mm) to help prevent nipples from scratching and losing their shape.

## ● TIRE VALVE WRENCH



## TIRE VALVE WRENCH

No.	a	b	D	e	L	▽g	✉
MVC-30	2.2	4.5	29	15	35	20	1

- Compact size covering many types of motorcycles when conventional long tools cannot be used.
- "Must Have" for repairing flat tires or changing tires/tubes.

## ● TIRE LEVER

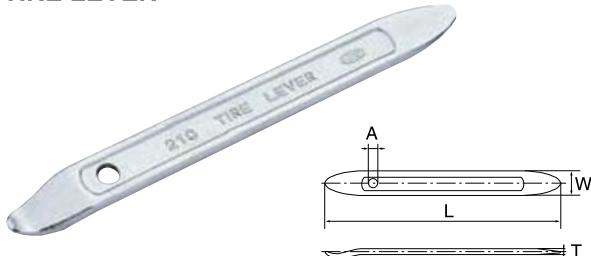


## TIRE LEVER

No.	A	T	L	▽g	✉
MCOL-260	23	1	265	170	5

- Thin and smooth tip provides smooth operation.
- Properly heat-treated for superb durability.
- Comfortable rubber handle with oil resistance enables sure gripping.

## ● TIRE LEVER



## TIRE LEVER

No.	A	W	T	L	▽g	✉
OHZ-210	7	22	5.5	210	100	1

- Short body (210mm) convenient for touring, etc.
- Drop forged and properly heat-treated for superb durability.

# 7. MOTORCYCLE TOOLS

## BICYCLE TOOLS



### BICYCLE TOOL SET

#### No. SK34010CY

Total 40 pcs. ▼kg 4.1 Ⓜ 1  
• Plastic Hard Case EKP-5

##### Contents

3/8"sq. Socket (6pt.) <sup>POWERFIT</sup>	B3-08, 09, 10, 11, 12, 13, 14, 15
3/8"sq. Hex. Bit Socket <sup>POWERFIT</sup>	BT3-03, 04, 05, 06, 08
3/8"sq. T-Type Torque Bit Socket <sup>POWERFIT</sup>	BT3-T25, T30
3/8"sq. Extension Bar <sup>POWERFIT</sup>	BE3-075
3/8"sq. Ratchet Handle	BR3E
Cross Plastic Grip Screwdriver Through Type	D7P2-2
Flat Plastic Grip Screwdriver Through Type	D7M2-6
L-Shaped Long Ball Point Hex-Key Wrench Set (9 pcs.)	HL259SP (1.5, 2, 2.5, 3, 4, 5, 6, 8, 10)
Combination Wrench <sup>POWERFIT</sup>	MS2-08, 10, 12, 13
Diagonal Cutting Pliers	PN1-150
Needle Nose Pliers (Standard Type)	PSL-150
MiniHammer	TUD3S
Adjustable Wrench	WM-250
Pedal Wrench	CP2-15A
Tire Lever Set (2 pcs.)	CTR12
3/8"sq. Socket Holder	EHB315

● The case is listed on P.344.

- Basic model for bicycle maintenance that adopts a plastic single-door case.
- The case has an easy-to-carry compact size.

3/8"sq.

### ● BICYCLE TOOL SET



\* Please use the dedicated cutter for the cutting of various bicycle cables.

### BICYCLE TOOL SET

#### No. SK34410XCY

Total 44 pcs. ▼kg 15 Ⓜ 1 (2 Cartons)  
• SK34410XCYT Tools x 1  
• SKX0213 Chest x 1

##### Contents

3/8"sq. Digital Ratchet Small Torque Type	GEK030-C3A
3/8"sq. Socket (6pt.) <sup>POWERFIT</sup>	B3-08, 09, 10, 11, 12, 13, 14, 15
3/8"sq. Hex. Bit Socket <sup>POWERFIT</sup>	BT3-03, 04, 05, 06, 08
3/8"sq. T-Type Torque Bit Socket <sup>POWERFIT</sup>	BT3-T25, T30
3/8"sq. Extension Bar <sup>POWERFIT</sup>	BE3-075
3/8"sq. Ratchet Handle	BR3E
Cross Plastic Grip Screwdriver Through Type	D7P2-2
Flat Plastic Grip Screwdriver Through Type	D7M2-6
L-Shaped Long Ball Point Hex-Key Wrench Set (9 pcs.)	HL259SP (1.5, 2, 2.5, 3, 4, 5, 6, 8, 10)
Combination Wrench <sup>POWERFIT</sup>	MS2-08, 10, 12, 13, 14, 15
Diagonal Cutting Pliers	PN1-150
Needle Nose Pliers (Standard Type)	PSL-150
Plastic Hammer	K9-6
Adjustable Wrench	WM-250
Pedal Wrench	CP2-15A
3/8"sq. Pedal Wrench (Crowfoot Wrench Type)	CP1-15
Tire Lever Set (2 pcs.)	CTR12
3/8"sq. Socket Holder	EHB315

• It is a Digital Ratchet adopted model for bicycle maintenance (torque measurement range: 2~30 N·m).

• Stationary chest with a plenty of storage is adopted for the case.

● The case is listed on P.344.

3/8"sq.

### ● BICYCLE TOOL SET



\* Please use the dedicated cutter for the cutting of various bicycle cables.

\* Digital Ratchet is a registered trademark of KYOTO TOOL.

### BICYCLE TOOL SET

#### No. CTX309

Total 9 pcs. ▼kg 0.8 Ⓜ 1  
• Active Tool Bag BKB-S

##### Contents

L-Shaped Ball Point Hex. Wrench	HLDA250-03, 04, 05, 06, 08
Palm Driver (Cross)	PDEA-2
MiniHammer	TUD3S
Tire Lever Set (2 pcs.)	CTR12

• It is a bicycle tool set in a compact active tool bag that focuses on the work efficiency in the daily maintenance of bicycle.

● Bag is listed on P.316.

\* "Standard retail price" displayed product is different from normal pricing.

### ● BICYCLE TOOL SET



## ● BICYCLE TOOL SET



### BICYCLE TOOL SET

No. CTX316

Total 16 pcs. ▼kg 1.2 1

• Active Tool Bag BKB-S

**Contents**

L-Shaped Ball Point Hex. Wrench	HLDA250-03, 04, 05, 06, 08
Replacement Driver Set	DB4 (Cross: No.2 x No.3, Flat: Tip Width 4 x 6, Handle)
Combination Wrench	MS2-08, 09, 10
Combination Wrench	MS3-15T
Needle Nose Plier	PSL-150
MiniHammer	TUD3S
Tire Lever Set (2 pcs.)	CTR12

- It is a bicycle tool set in a compact active tool bag that focuses on the work efficiency in the daily maintenance of bicycle.
- The scope of work is expanded by the inclusion of replacement driver set and combination wrench.
- Tools can be loaded and unloaded while hanging on the shoulder, increasing the work efficiency.

## ● BICYCLE TOOL SET DIGITAL RATCHET MODEL



### BICYCLE TOOL SET

No. CTX320

Total 20 pcs. ▼kg 2 1

• Active Tool Bag BKB-S

**Contents**

3/8"sq. Digital Ratchet Small Torque Type	GEK030-C3A
3/8"sq. Hex. Bit Socket	BT3-04, 05, 06
L-Shaped Ball Point Hex. Wrench	HLDA250-03, 04, 05, 06, 08
Replacement Driver Set	DB4 (Cross: No.2 x No.3, Flat: Tip Width 4 x 6, Handle)
Combination Wrench	MS2-08, 09, 10
Combination Wrench	MS3-15T
Needle Nose Plier	PSL-150
MiniHammer	TUD3S
Tire Lever Set (2 pcs.)	CTR12

- It is a bicycle tool set in a compact active tool bag that focuses on the work efficiency in the daily maintenance of bicycle.
- It is a torque management model that includes small torque type Digital Ratchet. (Torque measurement range: 2~30N·m)
- Tools can be loaded and unloaded while hanging on the shoulder, increasing the work efficiency.

## ● PORTABLE TOOL BAG



### PORTABLE TOOL BAG

No.

W

D

H

▼g

1

BKB-M

450

200

250

730

1

BKB-L

520

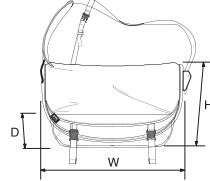
200

260

940

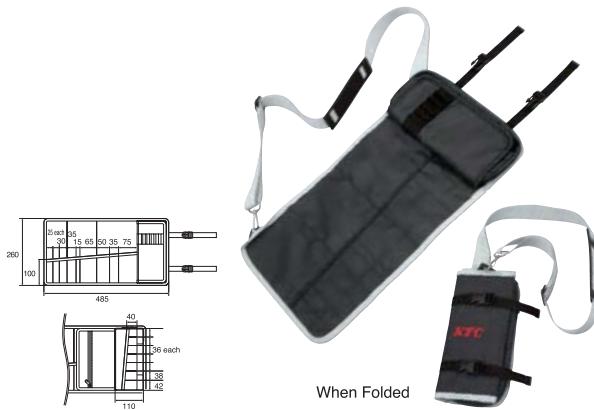
1

- Shoulder bag that's also ideal in the storage of bicycle maintenance tools.
- Uses a fabric with excellent durability.
- It has a reflector line that increases the visibility from the car at night.
- It has pursued the safety without compromising the design as a bag.
- Auxiliary belt is added to suppress the movement of the bag even in violent ride.
- Shoulder strap length can easily be adjusted with the buckle.



It firmly fits on the body, increasing the stability  
The model height: 170cm  
Active Tool Bag: No.BKB-M (left), No.BKB-L (right)

## ● PORTABLE TOOL BAG



### PORTABLE TOOL BAG

No.

Expend size

▼g

1

BKB-S

485x260 (excluding belt and flap)

280

- Tool bag that's also ideal in the storage of bicycle maintenance tools.
- It is a roll type that compactly fits when carrying around.
- It prevents the tools from jumping out with the resin buckle clasp.
- It can be used as a tray for parts or tools by spreading it out.
- Tools can be loaded and unloaded while hanging on the shoulder, increasing the work efficiency.
- Strap can be removed.



Tools can be loaded and unloaded while hanging it on the shoulder.

The model height: 170cm

Pocket under the socket storage part has a pad for relieving the impact

\*Please check the merchandise inventory for a product that is marked by before placing an order.

**MULTI TOOL for BICYCLE**

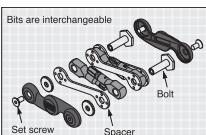
No. HLM04

▼g 95

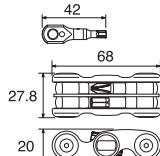
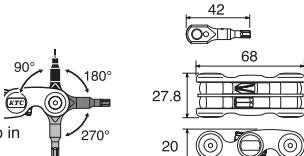
1

Hex. Bit 4, 5, 6  
Cross Bit No.2

- It has the outer shape that allows the easy retrieval of bits.
- With each bit independent structure, bits next to each other will not pop out.
- It has an easy-to-use structure that click stops at each point (90°, 180°, 270°).
- Bits can be interchanged as desired.



Bits are interchangeable  
Set screw  
Spacer



**●MULTI TOOL for BICYCLE (4 Bits) D. PAT.**



**CAUTION** • Please apply force in the rotation direction of the bolt. Tip may get damaged if force is applied in the falling direction of the axis.

**MULTI TOOL for BICYCLE**

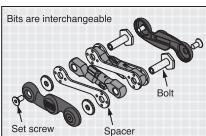
No. HLM08

▼g 175

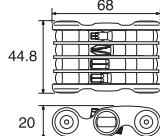
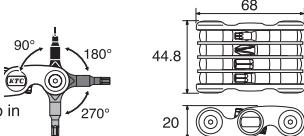
1

Hex. Bit 2, 2.5, 3, 4, 5, 6  
Cross Bit No.2  
Torx Bit T25

- It has the outer shape that allows the easy retrieval of bits.
- With each bit independent structure, bits next to each other will not pop out.
- It has an easy-to-use structure that click stops at each point (90°, 180°, 270°).
- Bits can be interchanged as desired.



Bits are interchangeable  
Set screw  
Spacer



**●MULTI TOOL for BICYCLE (8 Bits) D. PAT.**



**CAUTION** • Please apply force in the rotation direction of the bolt. Tip may get damaged if force is applied in the falling direction of the axis.

**BIT FOR MULTI TOOL**

No.	Product Name	1
HLM-H02	Multi Tool Hex. Bit 2mm	1
HLM-H025	Multi Tool Hex. Bit 2.5mm	1
HLM-H03	Multi Tool Hex. Bit 3mm	1
HLM-H04	Multi Tool Hex. Bit 4mm	1
HLM-H05	Multi Tool Hex. Bit 5mm	1
HLM-H06	Multi Tool Hex. Bit 6mm	1
HLM-2P	Multi Tool Cross Bit No.2	1
HLM-T25	Multi Tool Torx Bit T25	1

**●BIT FOR MULTI TOOL**



**L-SHAPED BALL POINT HEX. WRENCH SET (7pcs.)**

No. HLDA2507

▼g 230

1

L-Shaped Ball Point Hex. Wrench 1.5, 2, 2.5, 3, 4, 5, 6

- Round handle axis is used to prevent bending during use.
- Chrome-plated finish gives great texture, appearance and rust resistance.
- Excellent wear resistance and twist strength with the use of special steel alloy.
- Foldable original holder that's convenient in transport and tool management.



Holder expanded

**●L-SHAPED BALL POINT HEX. WRENCH SET (7pcs.)**



**CAUTION**

- Since the ball point has a low torque limit, please be careful not to apply too much force.
- Swing angle of the ball point will vary depending on the variation in the size and bolt.
- Please apply force in the rotation direction of the bolt. There is a risk of damage from the bent part if excessively pulled up or pushed down.

**L-SHAPED BALL POINT HEX. WRENCH SET (9pcs.)**

No. HLDA2509

▼g 630

1

L-Shaped Ball Point Hex. Wrench 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10

- Round handle axis is used to prevent bending during use.
- Chrome-plated finish gives great texture, appearance and rust resistance.
- Excellent wear resistance and twist strength with the use of special steel alloy.
- Foldable original holder that's convenient in transport and tool management.



Holder expanded

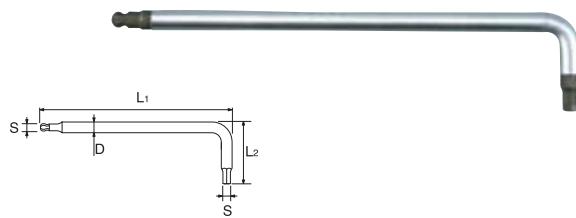
**●L-SHAPED BALL POINT HEX. WRENCH SET (9pcs.)**



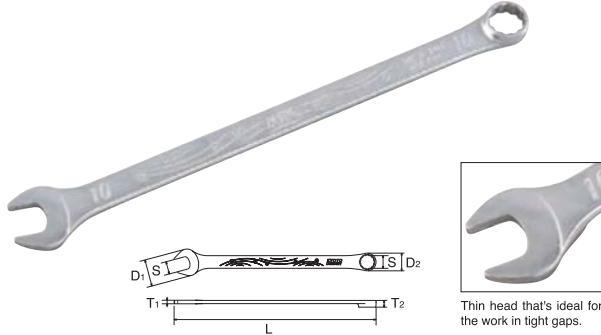
**CAUTION**

- Since the ball point has a low torque limit, please be careful not to apply too much force.
- Swing angle of the ball point will vary depending on the variation in the size and bolt.
- Please apply force in the rotation direction of the bolt. There is a risk of damage from the bent part if excessively pulled up or pushed down.

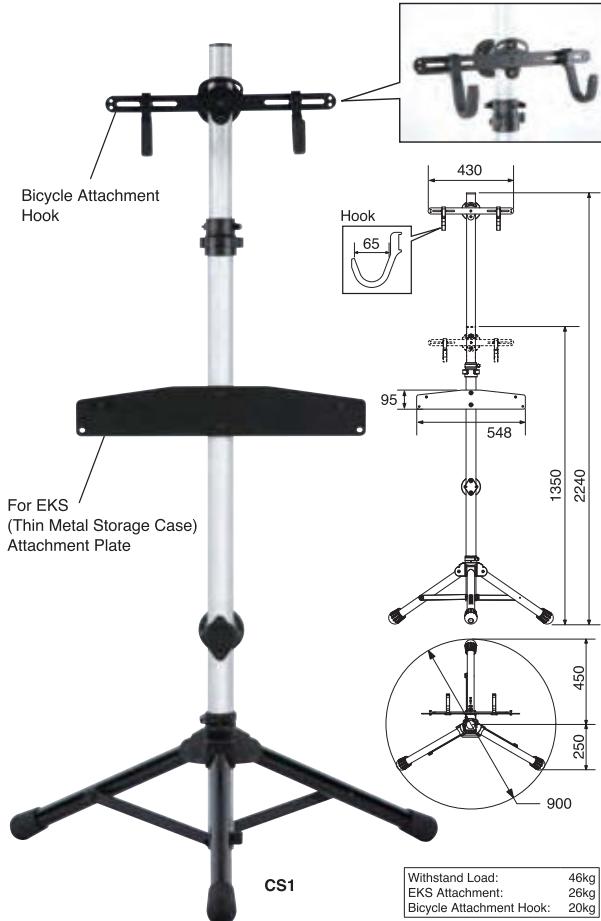
## ● L-SHAPED BALL POINT HEX. WRENCH



## ● COMBINATION WRENCH



## ● BICYCLE DISPLAY STAND



**CAUTION**

- It may not be usable depending on the bicycle shape.
- It is not a stand for the bicycle maintenance.
- It is not possible to add an EKS attachment plate to place 2 units of EKS (thin metal case).
- Please be sure to have fall prevention during installation.

### L-SHAPED BALL POINT HEX. WRENCH

No.	S	D	L <sub>1</sub>	L <sub>2</sub>	▼g	□
HLDA250-015	1.5	3	82	19	4	1
HLDA250-02	2	3	98	20	6	1
HLDA250-025	2.5	4	114	22	12	1
HLDA250-03	3	5	131	25	21	1
HLDA250-04	4	6	148	31	35	1
HLDA250-05	5	7	167	35	55	1
HLDA250-06	6	8	188	40	80	1
HLDA250-08	8	10	210	46	140	1
HLDA250-10	10	12	236	52	225	1

**CAUTION**

- Since the ball point has a low torque limit, please be careful not to apply too much force.
- Swing angle of the ball point will vary depending on the variation in the size and bolt.
- Please apply force in the rotation direction of the bolt. There is a risk of damage from the bent part if excessively pulled up or pushed down.

### COMBINATION WRENCH

No.	D <sub>1</sub>	D <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>	L	S	▼g	□
MS3-08T	18	11.5	3	4.5	150	8	25	1
MS3-10T	21.5	14.5	3	5.5	180	10	40	1
MS3-15T	32	21	4.2	8	240	15	105	1

- It is a thin combination wrench with the beautiful engraving of cherry blossoms drifting in the river.
- For the adjustment of various wires (8mm)
- For the attachment and detachment of light, fender and brake shoe (10mm)
- For the attachment and detachment of wheels and support wheels for children (15mm)

**CAUTION**

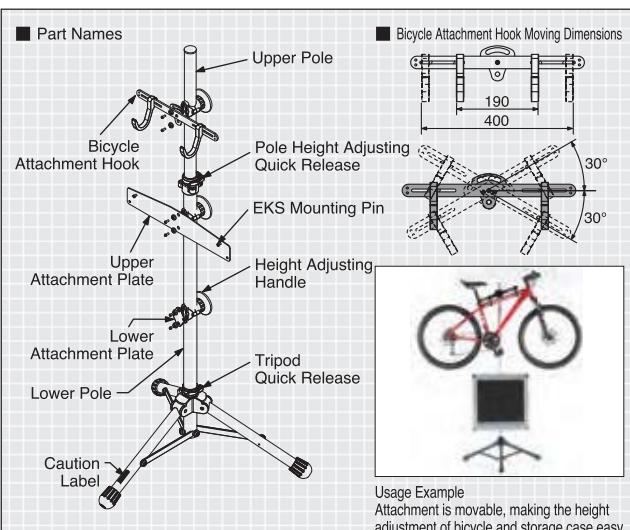
- Since it is a thin type with long total length, please be careful not to apply too much force.

### BICYCLE DISPLAY STAND

No. CS1	▼kg 8	□ 1
---------	-------	-----

#### BICYCLE DISPLAY STAND

- It is a self-supporting tripod type bicycle display stand with stability.
- Thin metal case (EKS-101, 103 P.342) can be equipped.
- Tripod can be folded, making it convenient in transport and storage.
- Bicycle attachment hook is available as an optional item.
- Another bicycle can be placed instead of the thin metal case.
- Spare parts are configured. Please contact your dealer for details.



#### Option

No. CS1-A1	▼g 500	□ 1
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#### Bicycle Attachment Hook



**TIRE LEVER SET (2pcs.)**

No.	S	B <sub>1</sub>	B <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>	L	▼g	Box
CTR12	Surface: 9, Back: 10	20	30	6	8	135	22x2pcs.	1

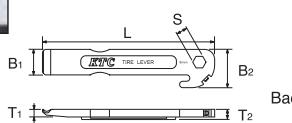
- Thin tip and long claw make it easy to pick up beats.
- With a guide angle given on the back rim side, it can easily be inserted between the tire and rim.
- It has a hook on the tip and opposite side to hook on a spoke.
- It has an offset wrench for the removal of rim nut that fixes the valve on the rim.
- It has an air removal pin for Schrader valve that removes the air in the tube.



Usage state

Offset wrench for the removal of rim nut

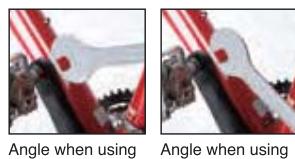
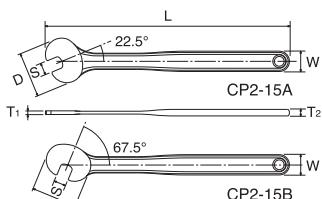
Air removal pin for Schrader valve


**● TIRE LEVER SET (2pcs.) D.PAT.**

**PEDAL WRENCH**

No.	S	D	W	L	T <sub>1</sub>	T <sub>2</sub>	▼g	Box
CP2-15A	15	56	25	300	4.5	8	270	1
CP2-15B	15	56	25	300	4.5	8	270	1

- Wrench tip is made thin, supporting various pedals.
- 2-item configuration in wrench tip angle (22°30', 67°30') that supports pedals with mounting angle that's difficult to work with.



Angle when using CP2-15A



Angle when using CP2-15B



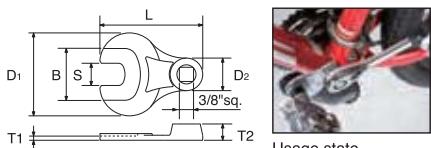
**CAUTION** • Please do not use it other than for attaching and detaching bicycle pedals.

**● PEDAL WRENCH**

**PEDAL WRENCH (CROWFOOT WRENCH TYPE)**

No.	S	D <sub>1</sub>	D <sub>2</sub>	B	T <sub>1</sub>	T <sub>2</sub>	L	▼g	Box
CP1-15	15	56	22	35	4.5	11	69.5	90	1

- It has a 3/8" Wsq. drive that allows the torque to be checked with a torque wrench.
- Wrench tip is made thin, supporting various pedals.

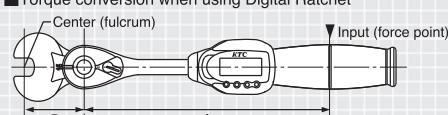
Usage state  
(Combination with GEK085-R3)

**CAUTION** • Please do not use it other than for attaching and detaching bicycle pedals.

**● PEDAL WRENCH (CROWFOOT WRENCH TYPE) D.PAT.**

**Torque conversion of pedal wrench (crowfoot wrench type)**

Torque value is determined by the distance from the fulcrum to force point and the force applied to the force point. Torque cannot be accurately measured if crowfoot type wrench is used, since the distance from the fulcrum to force point that's originally set on the torque wrench changes. Start working upon determining the value to be input on the torque wrench from the required torque value before measurement.

**■ Torque conversion when using Digital Ratchet**


Torque conversion formula:  $\frac{A}{(A+B)} \times \text{Required torque value} = \text{Input torque value}$   
Insert the wrench all the way in for the accurate measurement.

**■ Combination conversion example with Digital Ratchet**

Product Number	Conversion rate	Required torque value		
		30N·m	35N·m	40N·m
GEK030-C3/GWE3-030	75%	22.4	-	-
GEK060-R3/GWE3-060	75%	22.4	26.1	29.9
GEK085-R3/GWE3-085	80%	24.0	28.0	32.0

\* Conversion rate is an approximate. Please calculate in the manner described on left to obtain the accurate value.

Example: When tightening a pedal of 40N·m specific torque with Digital Ratchet GEK085-R3, the conversion rate is 80%, making the set torque of Digital Ratchet 32N·m.

**■ Recommended torque wrench**


Torque range: 17~85N·m

For more information on Digital Ratchet, Please see P.176.

**Related Items**


Digital Ratchet ® Small Torque Type P.175



Bit Socket

P.93~115



L-Shaped Hex-Key Wrench P.99~102



# Plumbing Tools

## 8. PLUMBING TOOLS

PLUMBING TOOLS

## 8. PLUMBING TOOLS

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**CAUTION**

**Ratchet pipe cutters, Miniature ratchet tube cutter, Tube cutter, Flex pipe cutter, PVC cutter**

- Make sure that you read the Owner's Operator Manual carefully before use.
- Do not use these tools to cut unspecified materials.
- Do not use the tools if they are cracked, chipped, worn or deformed, etc.
- Do not customize tools. The tools quality will decrease significantly if heated or modified.

Application Table of Ratchet Pipe Cutters

	Product and Product Code	Application	Copper Pipe	Steel Pipe	Wiring tube	Stainless steel pipe for general piping	Stainless steel pipe for piping	SUS Flexible Pipe	Plastic Pipe		
									Rigid polyvinyl chloride pipes for waterworks	Polyethylene pipes for waterworks	Polyethylene pipes for gas
Ratchet Pipe Cutters	PCR3-35 Ratchet Pipe Cutter	Nominal		10A~25A		13Su~30Su	10A~25A				
		Applicable Thickness		Max.3.2mm		Max.1.2mm	Max.3mm				
	PCR3-66 Ratchet Pipe Cutter For Large Size	Nominal		25A~50A	G36~G54 C39~C63	30Su~60Su	25A~50A				
		Applicable Thickness		Max.3.8mm	Max.G54: 2.8mm Max.C63: 2mm	Max.1.5mm	Max.3mm				
	PCRT2-35 Ratchet Pipe Cutter For Copper And Plastic Pipe	Nominal	1/2" ~ 1 1/4"						13~25	10~25	20~25
		Applicable Thickness	Max.1.65mm						Max.3.5mm	Max.5mm	Max.3.4mm
Rotary Pipe Cutters	PCRT2-66 Ratchet Pipe Cutter For Copper And Plastic Pipe, Large Size	Nominal	1 1/4" ~ 2 1/2"						30~50	25~50	25~50
		Applicable Thickness	Max.2.03mm						Max.4.5mm	Max.6.5mm	Max.5.5mm
	PCRT-23 D.PAT. Miniature Ratchet Pipe Cutter	Nominal	1/4" ~ 7/8"								
		Covered copper piping	1/4" ~ 1/2"								
		Applicable Thickness	Max.1.24mm								
	PC2-66 Tube Cutter	Nominal	1/4" ~ 2 1/4"			8Su~60Su			13~50		
		Applicable Thickness	Max.2mm			Max.1.5mm			Max.4.5mm		
	ZC30 Tube Cutter	Nominal	1/4" ~ 1"						13~20	10~20	15~20
		Applicable Thickness	Max.2mm						Max.3mm	Max.3mm	Max.3mm
	FV20 Flex pipe cutter	Nominal						1/2" ~ 3 3/4"			
		Applicable Thickness						Max.0.3mm			

\*Please check the merchandise inventory for a product that is marked by  before placing an order.

### ● RATCHET PIPE CUTTER PAT. D. PAT.

- Cut surface smooth because blade is a thin, special type.
- By automatic feeding mechanism, cutter maintains a stable feeding (force). There will be no excessive force.



● Body is made of aluminum. with chrome plated surface having good wear-resistance.

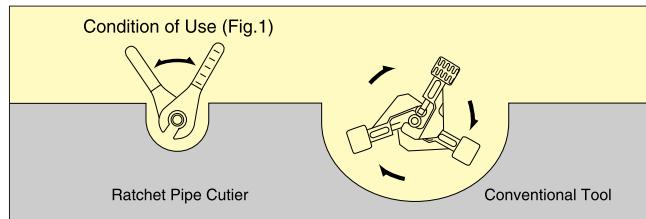
- Has a wide application up to outer diameter of 15.88mm (PCR2-35, PCRT2-35 only).

- Easy cutting in tight space.



- Purpose : For cutting various pipes from water supply pipes to electric or gas pipes.

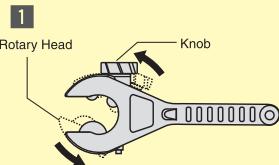
- Cutting is possible with the handle's swing of 8° Works well in cutting operation in a narrow space.



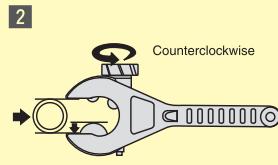
- Spare Blades : Spare blades are colored differently for each applicable pipe. It is easy to distinguish.



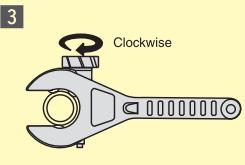
### ● How to Use



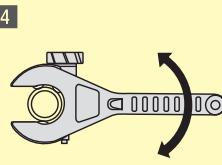
Turn the rotary head to fit the main body and the opening section of rotary head.



If cutter interferes with inserting pipe in the opening. turn the knob and move the cutter until pipe can be inserted.



Fit the pipe on the roller, turn the knob until it gets a little tight, and pinch the pipe with the cutter.



If you move the grip forward and backward, rotary head turns and with automatic cutter feeding mechanism, pipe is cut.

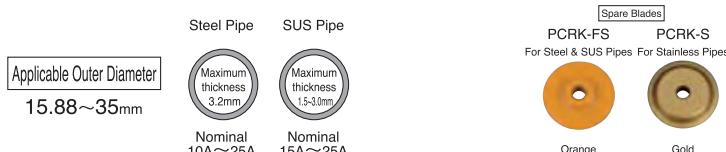
### RATCHET PIPE CUTTER

No.	L	W	Radius of Gyration	H	▼g	
PCR3-35	240	102	70	54	960	

\*A blade for steel pipes is attached on the main body.

#### Applicable Spare Blades

No.	Contents	
PCRK-FS	For Steel & SUS Pipe	1 piece
PCRK-S	For SUS Pipe	1 piece



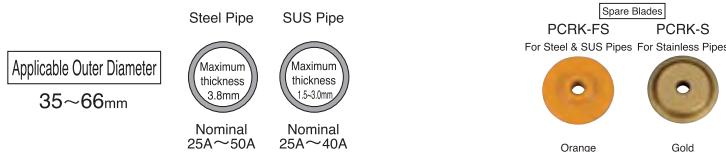
### RATCHET PIPE CUTTER

No.	L	W	Radius of Gyration	H	▼g	
PCR3-66	335	135	90	62	1,750	

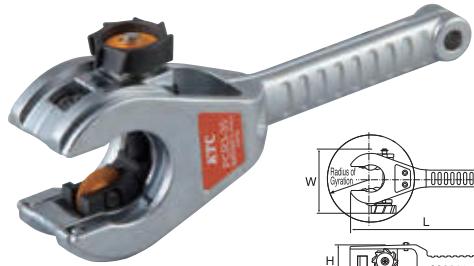
\*A blade for steel pipe is attached on the main body.

#### Applicable Spare Blades

No.	Contents	
PCRK-FS	For Steel & SUS Pipe	1 piece
PCRK-S	For SUS Pipe	1 piece

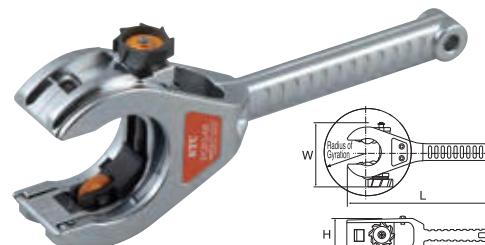


### ● RATCHET PIPE CUTTER PAT. D. PAT.



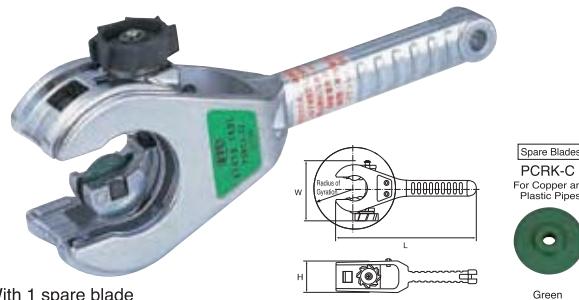
\*Replacement blade for steel & SUS pipes is included.

### ● RATCHET PIPE CUTTER FOR LARGE SIZE PAT. D. PAT.



\*Replacement blade for steel & SUS pipes is included.

### ● RATCHET PIPE CUTTER FOR COPPER AND PLASTIC PIPE PAT. D. PAT.



\*With 1 spare blade

#### RATCHET PIPE CUTTER FOR COPPER AND PLASTIC PIPE

No.	L	W	Radius of Gyration	H	▼g
PCRT2-35	240	102	70	54	960

\*Cannot be used on steel or SUS pipes.

#### Applicable Spare Blades

No.	Contents
PCRK-C	For Copper & Plastic Pipe 1 piece

Copper Pipe Rigid polyvinyl chloride pipes for waterworks Polyvinyl pipes for waterworks Polyvinyl pipes for gas

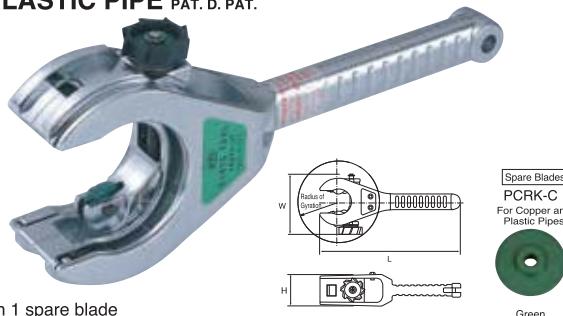
Maximum thickness 1.65mm Maximum thickness 3.5mm Maximum thickness 5.0mm Maximum thickness 3.4mm

Nominal 1/2"~1 1/4" Nominal 13~25 Nominal 10~25 Nominal 20~25

Applicable Outer Diameter

15.88~35mm

### ● RATCHET PIPE CUTTER FOR COPPER AND PLASTIC PIPE PAT. D. PAT.



\*With 1 spare blade

#### RATCHET PIPE CUTTER FOR COPPER AND PLASTIC PIPE

No.	L	W	Radius of Gyration	H	▼g
PCRT2-66	335	135	90	62	1,650

\*Cannot be used on steel or SUS pipes.

#### Applicable Spare Blades

No.	Contents
PCRK-C	For Copper & Plastic Pipe 1 piece

Copper pipe Rigid polyvinyl chloride pipes for waterworks Polyvinyl pipes for waterworks Polyvinyl pipes for gas

Maximum thickness 2.03mm Maximum thickness 4.5mm Maximum thickness 6.5mm Maximum thickness 5.5mm

Nominal 1 1/4"~2 1/2" Nominal 30~50 Nominal 25~50 Nominal 20~50

Applicable Outer Diameter

35~66mm

### ● MINI RATCHET TUBE CUTTER FOR COPPER D. PAT.



Bare Copper pipe Coated Copper Pipes

Applicable Outer Diameter

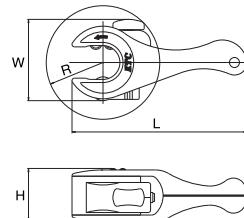
6~23mm

Maximum thickness 1.24mm

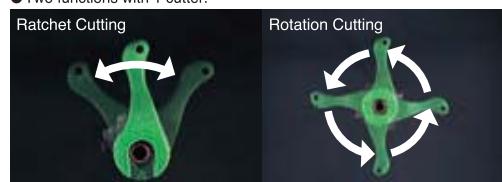
Nominal 1/4"~7/8"

Maximum thickness 1.24mm

Nominal 1/2"~1/2"



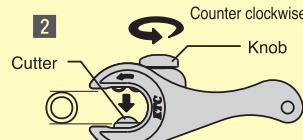
● Two functions with 1 cutter.



#### ● How to Use



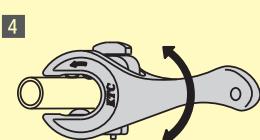
Turn the rotary head and fit the main body and the opening section of the rotary head.



If cutter interferes with inserting pipe in the opening, turn the knob counter-clockwise and move the cutter until pipe can be inserted.



Fit the copper pipe on the roller, turn the knob about 4 complete turns.



Move the handle forward and backward or rotate to cut the pipe. Automatic cutter feeding mechanism cuts the pipe completely.

**TUBE CUTTER**

No.	L	W	H	▼g	
ZC30	126	42	45	270	

\*A blade for copper, resin and stainless steel flexible pipe is attached on the main body.

**Purpose**

- For cutting copper or resin pipes.

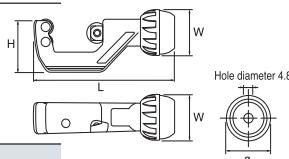
**Features**

- Adoption of resin roller and assisting roller has reduces deformation of pipe, burrs, etc. on the cut surface.

**Spare Blade**

No.	Cutting Dia.	Maximum Thickness	Quantity	
ZCK305	Cooper Pipe (ø3~30)	2.0mm	5 pieces	
	Plastic Pipe (ø3~30)	3.0mm		
	Stainless Steel Flexible Pipe (ø3~30)	0.3mm		
ZCK305S	Thin-wall Stainless Steel Pipe (ø3~30)	1.0mm	5 pieces	

- Rigidity against torsion and stability during cutting have been increased.

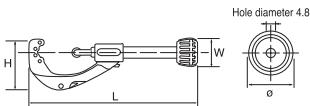
**●TUBE CUTTER D. PAT.**

\*With 1 spare blade

**TUBE CUTTER**

No.	Cutting Dia.	L	W	H	▼g	Box
PC2-66	ø6~66	201~282	42	90.5	730	1

- For cutting and chamfering copper pipes, copper pipes, etc.

**●TUBE CUTTER**

\*With 1 spare blade

**Spare Blade**

No.	Content	Quantity	
PCK305	For Copper Pipe	5pcs.	
PCK305S	For Stainless Pipe	5pcs.	
PC2665C	For P.V.C. Pipe	5pcs.	

**FLEX TUBE CUTTER**

No.	L	W	H	▼g	
VF20	126	42	45	220	

**Purpose**

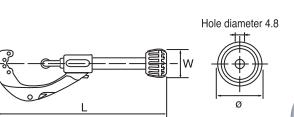
- For cutting stainless steel flexible pipes.

**Application**

- Stainless Steel Flexible Pipes for Gas Piping
- Stainless Steel Flexible Pipes for Water/Hot Water Supply.

**Features**

- Adoption of resin roller and assisting roller has reduced deformation of pipe, burrs, etc. on the cut surface.

**●FLEX TUBE CUTTER D. PAT.**

\*With 1 spare blade

**Spare Blade**

No.	Cutting Dia.	Maximum Thickness	Quantity	
ZCK305	Stainless Steel Flexible Pipe (ø3~30)	0.3mm	5 pieces	

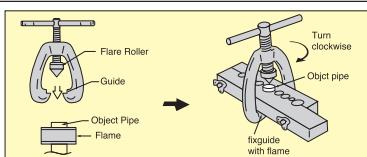
**TUBING TOOL SET**

No. VS31	▼kg 1.8	Box 1
Tube Cutter (ø3~30)	ZC30	
Flaring Tool		
Metal Case L230×W130×H35		

**Application**

Pipe Type	Size
Brake Pipe, Copper Pipe	3/16 · 1/4 · 5/16 · 3/8 · 7/16 · 1/2 · 5/8

• A set of flaring tool and tube cutter necessary for flaring of connection section of brake pipes or air conditioner pipes.

**●TUBING TOOL SET**

**CAUTION** • Make sure that you read the Owner's Operator Manual carefully before use.

**Related Items**

Adjustable Wrench

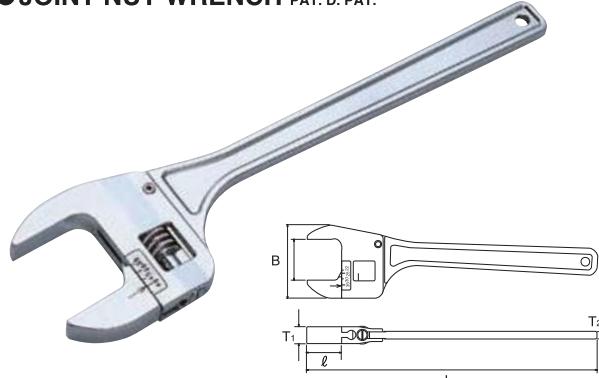


Pipe Wrench

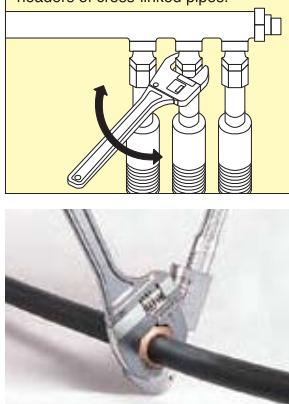


Aluminum Pipe Wrench P.167

## ● JOINT NUT WRENCH PAT. D. PAT.



Also applicable to work on headers of cross-linked pipes.



### JOINT NUT WRENCH

No.	B	T <sub>1</sub>	T <sub>2</sub>	Applicable Nut Width Across Flats	L	l	▼g	kg
FMR260	66	15	7.5	22~35	260	31	500	5
FMR330	88	15	7.5	35~49	330	43	700	5

#### Purpose

● A Wrench for tightening and loosening of mechanical joints for gas, water, hot water, or air conditioning pipes.

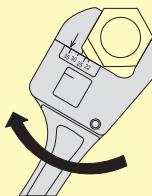
#### Features

- With ratchet mechanism, quick tightening and loosening of nuts possible with ease even in narrow spaces.
- Spanner type end enables application to both hexagonal and octagonal nuts with one wrench.
- Applicable to joints of different sizes.
- Engraved scale facilitates adjustment of size.

Type of Joint	No. (Applicable Nut Width Across Flats)	FMR260	FMR330
Stainless Steel Flexible Pipe Joint for Water and Hot Water	Hexagonal	8A, 10A, 13A, 15A, 16A	20A
Metal Joints for Polyethylene Water Pipe	Hexagonal/Octagonal	13A	13A, 20A, 25A
Union Nuts for Water Supply	Hexagonal/Octagonal	13A	20A, 25A
Flex Pipe Joint for Gas	Hexagonal	8A, 10A, 15A 20A	20A, 25A
Stainless Steel Flexible Pipe Joint for Water and Hot Water	Hexagonal	1/2", 3/4"	—
Flare Pipe Joint for Air Conditioner	Hexagonal	3/8", 1/2", 5/8"	3/4"

● How to Use Adjust the opening of joint nut wrench to fit width across flat of the nut in advance.

#### 1 Tighten the nut.



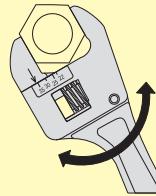
Turn the nut to tightening direction with joint nut wrench.

#### 2 Turn the joint nut wrench back to loosening direction.



With nut still held in between, turn the wrench to loosening direction.

#### 3 Tighten the nut



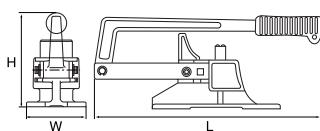
Repeat procedures 1 and 2 to complete.

## ● FLANGING TOOL



Body

Holder



### FLANGING TOOL

No.	L	W	H	▼kg
FV10	350	90	145	3.7

Flange can easily be made with a simple operation.

#### Purpose

● A tool to make sealing surface on joint section of stainless steel flexible pipes for water/hot water supply.

#### Application

● Stainless flex pipes, nominal 13.20 (except spiral shapes).

#### Features

- You only push down the handle to make flanges quickly and efficiently.
- It applies force to create uniform flanges.
- One holder is applicable to flexible pipes of 2 different sizes.



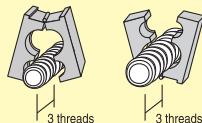
Holder

No.	▼g
FV10-1	310

#### ● How to Use

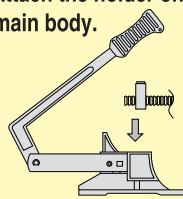
##### 1 Set flexible pipe on the holder.

Nomination 13 (1/2") Nomination 20 (3/4")



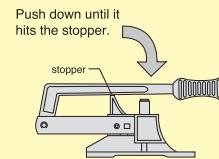
Set the flexible pipe into the holder of appropriate size with 3 threads projecting out of the holder end.

##### 2 Attach the holder onto the main body.

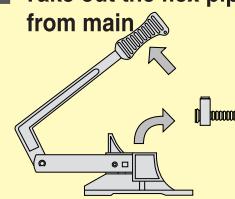


Attach the holder fixed with flexible pipe into the tool.

##### 3 Push down the handle. 4 Take out the flex pipe from main



Push down the handle until it hits the stopper.



Pull up the handle and take out the flex pipe with holder.

## PIPE BENDER FOR STAINLESS FLEXIBLE PIPE

No.	Shoe Side Handle			Guiding Handle			▼kg	kg	
	W	H	L	W	H	L			
FV30	210	77	803	112	65	700	3.5	1	

## Purpose

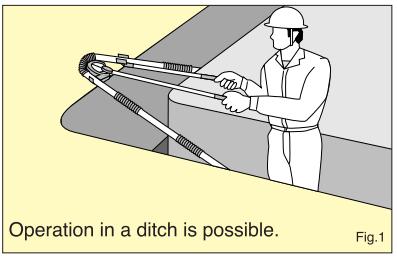
- A special tool for bending wavy stainless steel pipes used in piping from water supply pipe to meter up to 90 degrees.

## Application

- Wavy Stainless Steel Pipes Nomination 30su, 40su, 50su.  
(Cannot be used for bending any other types of pipes.)

## Features

- Use of guiding handle ; eliminates need of setting the pipe on the ground. Operation in a ditch (for piping) is possible (Fig.1).
- No need for complicated preparations. You can quickly, easily and smoothly bend the stainless steel pipe.
- With indication of angle (Fig.2).
- Mobile hook enables most appropriate bending for the pipe size.
- Made of high strength aluminum, the tool is light and easy to carry around.



Operation in a ditch is possible.

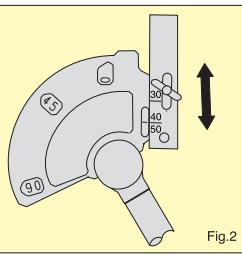
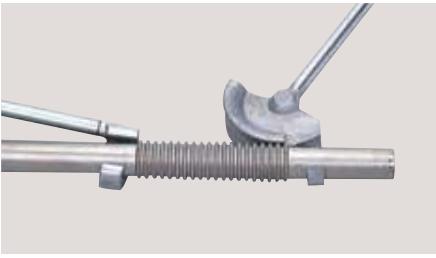
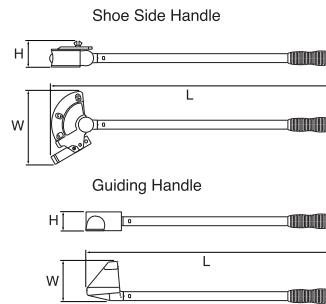


Fig.1

Fig.2



## ● PIPE BENDER FOR STAINLESS FLEXIBLE PIPE



## 4 SIZE STANDARD RATCHET BOXEND WRENCH

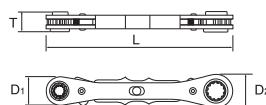
No.	Normal size	D <sub>1</sub>	D <sub>2</sub>	T	L	▼g	kg	
MR-0813	8×12·10×13	21	25	15	143	130	10	
-1014	10×13·12×14	25	28	15	166	160	10	

## Features

- Thin socket convenient for work in narrow spaces.
- Side is green which stands out in working environment. Made of resin and light.
- Wave shape grip : hand-fitted and easy to transmit force.



## ● 4 SIZE STANDARD RATCHET BOXEND WRENCH



**CAUTION** • The changeover switch must be operated properly to prevent breakages and idling.  
• For temporary tightening only. Do not carry out the final tightening adjustment with this tool.

## 4 SIZE LONG RATCHET BOXEND WRENCH

No.	Normal size	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	h <sub>4</sub>	D <sub>1</sub>	D <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>	L	▼g	kg	
MR-0813L	8×12·10×13	10	17.5	15	17.5	21	25	34.5	44.5	143	180	10	
-1014L	10×13·12×14	15	18	15	30	25	28	39.5	57.5	166	230	10	

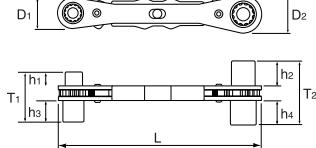
A "must" for piping work. Works in various situations.



## Purpose

- Tightening various cable way or piping support materials.
- Long socket enables to work in deep sections.
- Side is green which stands out in working environment. Made of resin and light.
- Wave shape grip ; hand-fitted and easy to transmit force.

## ● 4 SIZE LONG RATCHET BOXEND WRENCH



**CAUTION** • The changeover switch must be operated properly to prevent breakages and idling.  
• For temporary tightening only. Do not carry out the final tightening adjustment with this tool.



## 9. TOOL STORAGE

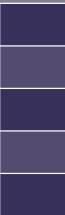
TOP CHEST

ROLLER CABINET

TOOL STATION, WAGON, and WALL HUNGING CASE

SPLIT-OPEN and TOP OPENING TOOL CASE

ACCESSORIES



## STORAGE TOOL COMPARISON CHEST

Size (Outer Dimension) as shown  
W x D x H



No.	EKR-1003	EKR-1004	SKX3306	EKR-113	EKR-103	SKX0213	SKX0012
Number of Drawers	3	4	3 + 3	3	3	3	2
Size (Outer Dimension)	725 x 390 x 410	725 x 390 x 410	660 x 310 x 370	540 x 280 x 335	510 x 275 x 325	520 x 215 x 300	300 x 150 x 145
Color	3 Silver+Red+Black	3 Silver+Red+Black	1 Red	1 Red+Silver+Black	1 Red+Silver	3 Silver+Red+Black	1 Red
	<a href="#">P.331</a>	<a href="#">P.331</a>	<a href="#">P.334</a>	<a href="#">P.332</a>	<a href="#">P.332</a>	<a href="#">P.334</a>	<a href="#">P.345</a>

## ROLLER CABINET & WAGON

No.	EKX-118	EKW-1005	EKW-1007	SKX3805	SK300-M	SK200-M	DC-904FA
Number of Drawers	8	5	7	5	-	2	4
Size (Outer Dimension)	740 x 540 x 1230	740 x 470 x 910	740 x 470 x 910	680 x 460 x 975	700 x 450 x 890	575 x 485 x 1130	580 x 450 x 900
Color	1 Silver+Red+Black	3 Silver+Red+Black	3 Silver+Red+Black	1 Red	1 Green	1 Light blue	1 Red
	<a href="#">P.336</a>	<a href="#">P.335</a>	<a href="#">P.335</a>	<a href="#">P.336</a>	<a href="#">P.340</a>	<a href="#">P.340</a>	<a href="#">P.341</a>

No.	DC-602F	SKX0514	SKR703A	SKR402A	SKX2704	SKX2614	SKX2613
Number of Drawers	2	4	3	2	Shelf 4	Shelf 1 Drawer 2	Shelf 3 Drawer 1
Size (Outer Dimension)	580 x 450 x 650	320 x 150 x 285	670 x 420 x 900	670 x 420 x 770	715 x 410 x 1011	775 x 515 x 880	715 x 410 x 880
Color	1 Red	1 Red	1 Silver	1 Silver	1 Red	1 Red	1 Red
	<a href="#">P.341</a>	<a href="#">P.345</a>	<a href="#">P.337</a>	<a href="#">P.338</a>	<a href="#">P.339</a>	<a href="#">P.339</a>	<a href="#">P.339</a>

## SPLIT-OPEN & SINGLE-DOOR CASE

No.	EK-1	SK330P-M	SK120-M	EK-3	EK-5	EKP-1
Size (Outer Dimension)	-	-	With tray for parts	-	-	With tray for parts
Color	430 x 225 x 225	445 x 280 x 250	405 x 200 x 170	410 x 210 x 150	375 x 175 x 112	540 x 350 x 350

No.	EKP-5	TCP1-1	EKB-2	EKB-1	EKB-3	
Size (Outer Dimension)	With tray for parts 385 x 202 x 140	- 385 x 190 x 65	- 455 x 190 x 60	- 275 x 150 x 50	- 275 x 150 x 35	
Color	1 Red	1 Beige	1 Silver	1 Silver	1 Silver	
	<a href="#">P.344</a>	<a href="#">P.344</a>	<a href="#">P.344</a>	<a href="#">P.344</a>	<a href="#">P.344</a>	

\*Please check the merchandise inventory for a product that is marked by before placing an order.

# 9. TOOL STORAGE

## TOP CHEST



### ●CHEST (3 STAGES, 3 DRAWERS) D.PAT.

No. **EKR-1003** (Silver) ▶kg 35 ⚡ 1

No. **EKR-1003R** (Red) ▶kg 35 ⚡ 1

No. **EKR-1003BK** (Black) ▶kg 35 ⚡ 1

- Body Size W725 x D390 x H410 Handle (Left and Right) Protruding Dimension 85 φ29
- Top Part w695 x d340 x h65 Withstand Load 20kg
- Drawer Size w600 x d325 x h45 x 2 Withstand Load 15kg  
w600 x d325 x h105 x 1 Withstand Load 20kg
- Top Mat x 1 • Drawer Mat x 4 • Partition Plate x 2 • Key x 2



Drawer Removal Method ⚡ P.333

\* Spare parts are configured. Please contact your dealer for details.



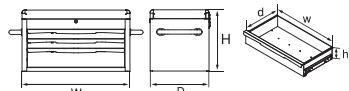
EKR-1003



EKR-1003BK



EKR-1003R



### ●CHEST (4 STAGES, 4 DRAWERS)

No. **EKR-1004** (Silver) ▶kg 39 ⚡ 1

No. **EKR-1004R** (Red) ▶kg 39 ⚡ 1

No. **EKR-1004BK** (Black) ▶kg 39 ⚡ 1

- Body Size W725 x D390 x H410 Handle (Left and Right) Protruding Dimension 85 φ29
- Top Part w695 x d340 x h65 Withstand Load 20kg
- Drawer Size w600 x d325 x h45 x 4 Withstand Load 15kg
- Top Mat x 1 • Drawer Mat x 4 • Partition Plate x 2 • Key x 2



Drawer Removal Method ⚡ P.333

\* Spare parts are configured. Please contact your dealer for details.



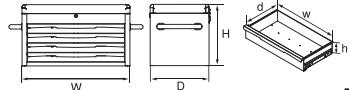
EKR-1004



EKR-1004BK



EKR-1004R



### ●FLAT CHEST (3 STAGES, 3 DRAWERS)

No. **EKR-2003** (Silver) ▶kg 33 ⚡ 1

No. **EKR-2003R** (Red) ▶kg 33 ⚡ 1

No. **EKR-2003BK** (Black) ▶kg 33 ⚡ 1

- Body Size W725 x D390 x H330 Handle (Left and Right) Protruding Dimension 85 φ29  
Top Area Withstand Load 20kg
- Drawer Size w600 x d325 x h45 x 2 Withstand Load 15kg  
w600 x d325 x h105 x 1 Withstand Load 20kg
- Top Mat x 1 • Drawer Mat x 3 • Partition Plate x 2 • Key x 2



Drawer Removal Method ⚡ P.333

\* Spare parts are configured. Please contact your dealer for details.



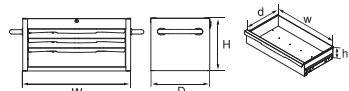
EKR-2003



EKR-2003BK



EKR-2003R



#### Top Cover



The top cover and grounded part of the body use the surface joint method rather than the steel plate cross-section.

#### Corner Bumper



Corner bumper reduces the risk of accidental injury. It also contributes to the protection of the chest body.

#### Function and Design

##### Inner Latch Mechanism Adopted Large Front Mold

Drawer uses the all-stage inner latch mechanism that prevents it from suddenly popping out. Durability is enhanced by separating the mold and latch.



#### Reliable usability

##### Rail Guard Thick Steel Plate Adopted

Drawer rail uses the mounting method by guide. Secures the rigidity of the drawer with plentiful 1.2mm thick steel plate, sustaining the comfortable use for a long period of time.





EKR-113



EKR-103



### Shape focused on storage



3/8"sq. deep socket or the like can be vertically stored in the top part.



Non-wasteful storage is possible with extra space in the drawer depth direction.



By making the third drawer deeper, items such as chemicals can finally be stored.



Drawer lock mechanism is released at the opening angle of about half of conventional products\*. There is no need to widely open the top cover.

\*Comparison with our SKX0213

### ●CHEST (3 STAGES, 3 DRAWERS)

No. EKR-113

▼kg 14

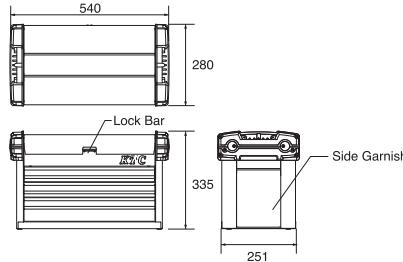
1

- Body Size W540 x D280 x H335
- Top Part w445 x d225 x h75 (Withstand Load 8.5kg)
- Drawer (Stage 1~2) w420 x d215 x h45 x 2 (Withstand Load 5kg)
- (Stage 3) w420 x d215 x h75 x 1 (Withstand Load 8.5kg)
- Top Mat x 1 • Drawer Mat x 3 • Partition Plate x 3



Drawer Removal Method P.333

\* Spare parts are configured. Please contact your dealer for details.



\* "Side garnish" has a structure that disengages for optional mounting.

### ●CHEST (3 STAGES, 3 DRAWERS) D.PAT.

Good Design Award Winning Product

No. EKR-103

▼kg 13

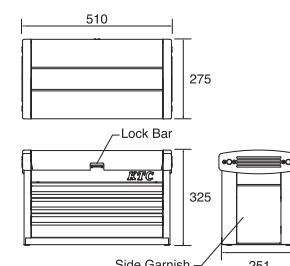
1

- Body Size W510 x D275 x H325
- Top Part w445 x d225 x h75 (Withstand Load 8.5kg)
- Drawer (Stage 1~2) w420 x d215 x h45 (Withstand Load 5kg)
- (Stage 3) w420 x d215 x h75 (Withstand Load 8.5kg)
- Top Mat x 1 • Drawer Mat x 3 • Partition Plate x 3



Drawer Removal Method P.333

\* Spare parts are configured. Please contact your dealer for details.



\* "Side garnish" has a structure that disengages for optional mounting.

EKR-502L



EKR-501  
EKR-301

### Useful accessories can be installed on EKR-103 and 113.

Photo at Right: EKR-103  
+ Lift (EKR-301)  
+ Side Table (EKR-301)  
+ Side Pocket L (EKR-502L)

### Shape focused on storage plus α

The top cover design is reminiscent of the engine head cover. Handles are built-in at shoulder width, allowing the chest to be comfortably carried. Back side of the handle has a shape that does not hurt the hand.  
(Handle back side photo is shown unpainted for clarity purposes, unlike the actual product.)



Handle back  
Aluminum legs that protect the chest bottom not only protect the case itself but do not scratch the location.

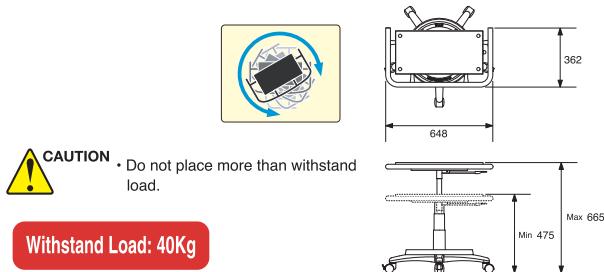


\*Please check the merchandise inventory for a product that is marked by before placing an order.

## ● CASTER TABLE for EKR-103 &amp; EKR-113

No.	▼kg	Box
EKR-301	10	1

- Dedicated stand for the chest (EKR-103 · EKR-113).
- Lift is continuously adjustable by operating the gas damper with lever.
- Top plate can rotate in every direction at 360°.
- Stability and mobility are ensured with the adoption of 5-legged casters.

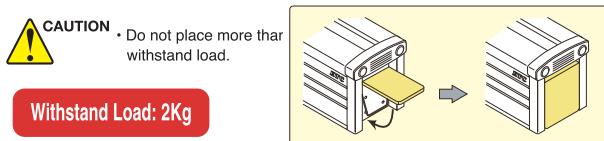


Usage state

## ● SIDE TABLE for EKR-103 &amp; EKR-113

No.	W	D	H	▼g	Box
EKR-501	180	149	13	315	1

- Dedicated wooden side table for the chest (EKR-103 · EKR-113).
- Small items, removed parts and the like can be placed.
- It can be stored in the side of the chest (EKR-103 · EKR-113) when not used.



Usage state

## ● LARGE SIZE SIDE POCKET for EKR-103 &amp; EKR-113

No.	W	D	H	▼g	Box
EKR-502L	250	100	121	900	1

- Dedicated side pocket for the chest (EKR-103 · EKR-113).
- Small items, removed parts and the like can be stored.
- Spray cans, rags and the like can be stored.
- Made of punching metal.



Usage state

## ● SMALL SIZE SIDE POCKET for EKR-103 &amp; EKR-113

No.	W	D	H	▼g	Box
EKR-502S	148	72	100	480	1

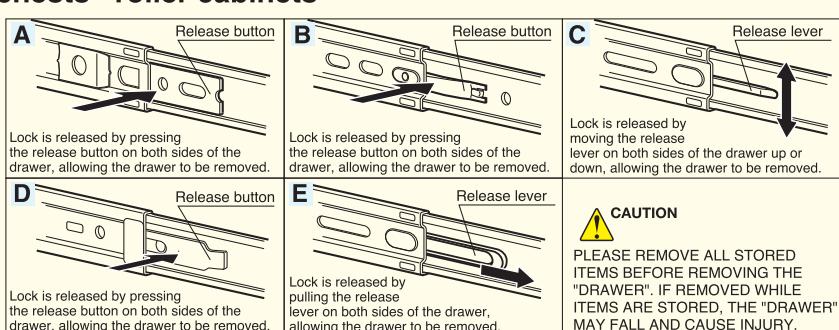
- Dedicated side pocket for the chest (EKR-103 · EKR-113).
- Small items, removed parts and the like can be stored.
- Spray cans, rags and the like can be stored.
- Made of punching metal.



Usage state

## Drawer removal method for chests · roller cabinets

Type	No.
A	EKR-118 (Stage 4~8) SKX2704/2613 SKX3306
B	SKX2614
C	EKR-113 (Stage 1~3) EKR-113/EKR-103 SKX0213/SKX3805 SKX3306 (Small Drawer) SKX3805
D	SKR703A/SKR602A SKR502A/SKR402A
E	EKR-1003/EKR-1004 EKR-2003 EKW-1005/EKW-1007 EKW-2006/EKW-2008





### ●CHEST (4 STAGES, 6 DRAWERS)

No. **SKX3306**

▼kg 23

1

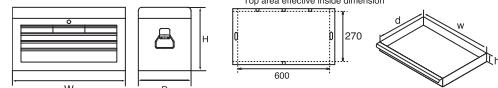
- Body Size W660 x D310 x H370
- Top Part w650 x d300 x h65, Withstand Load 15kg
- Drawer Size w170 x d270 x h40 x 3, Withstand Load 10kg  
w570 x d270 x h40 x 2, Withstand Load 15kg  
w570 x d270 x h60 x 1, Withstand Load 15kg
- Top Mat x 1 • Drawer Mat: Large x 3, Small x 3 • Partition Plate x 3 • Key x 2



Model Change It is the successor model of SKX3206.

Drawer Removal Method P.333

- 2 stays are adopted with the stopper function that prevents the lid from suddenly closing.
- Ball bearing slide rail is adopted for the smooth opening and closing of the drawer.
- All-stage locking system that can lock all drawers stages upon closing them along with the lid.
- \* Spare parts are configured. Please contact your dealer for details.



### ●CHEST (3 STAGES, 3 DRAWERS)

No. **SKX0213** (Solid Red)

▼kg 11

1

- Body Size W520 x D215 x H300
- Top Part w500 x d200 x h60 (Withstand Load 8.5kg)
- Drawer Size w455 x d190 x h45 x 3 (Withstand Load 5kg)
- Top Mat x 1 • Drawer Mat x 3 • Partition Plate x 3



Drawer Removal Method P.333

\* Spare parts are configured. Please contact your dealer for details.

### ●CHEST (3 STAGES, 3 DRAWERS)

No. **SKX0213S** (Metallic Silver)

▼kg 11

1

- Body Size W520 x D215 x H300
- Top Part w500 x d200 x h60 (Withstand Load 8.5kg)
- Drawer Size w455 x d190 x h45 x 3 (Withstand Load 5kg)
- Top Mat x 1 • Drawer Mat x 3 • Partition Plate x 3



Drawer Removal Method P.333

\* Spare parts are configured. Please contact your dealer for details.

### ●CHEST (3 STAGES, 3 DRAWERS)

No. **SKX0213BK** (Solid Black)

▼kg 11

1

- Body Size W520 x D215 x H300
- Top Part w500 x d200 x h60 (Withstand Load 8.5kg)
- Drawer Size w455 x d190 x h45 x 3 (Withstand Load 5kg)
- Top Mat x 1 • Drawer Mat x 3 • Partition Plate x 3



Drawer Removal Method P.333

\* Spare parts are configured. Please contact your dealer for details.

- Compact size with excellent storage space.  
It is compact while having a large storage space, with a convenient side handle for easy carrying.  
\*Spare parts are configured. Please contact your dealer for details.



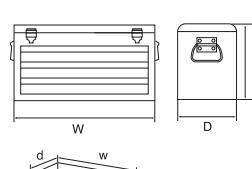
Bearing rail is adopted on the drawer for the smooth opening and closing.



KTC logo is embossed on the top.



Top panel is punched for a sense of rigidity



# 9. TOOL STORAGE

## ROLLER CABINET



### ● ROLLER CABINET (5 STAGES, 5 DRAWERS)

No. **EKW-1005** (Silver) ▼kg 74 ⚡ 1

No. **EKW-1005R** (Red) ▼kg 74 ⚡ 1

No. **EKW-1005BK** (Black) ▼kg 74 ⚡ 1

- Body Size W740 x D470 x H910 (including Caster H180)  
Handle Protruding Dimension 85 φ29  
Top Withstand Load: 140kg  
Maximum Withstand Load: 350kg (including the product weight)
- Drawer Size w600 x d405 x h45 x 2, Withstand Load 15kg  
w600 x d405 x h105 x 2, Withstand Load 20kg  
w600 x d405 x h230 x 1, Withstand Load 30kg
- Top Mat x 1 • Drawer Mat x 7 • Partition Plate x 4 • Key x 2



Drawer Removal Method ↗ P.333

\* Spare parts are configured. Please contact your dealer for details.



### ● ROLLER CABINET (7 STAGES, 7 DRAWERS)

No. **EKW-1007** (Silver) ▼kg 82 ⚡ 1

No. **EKW-1007R** (Red) ▼kg 82 ⚡ 1

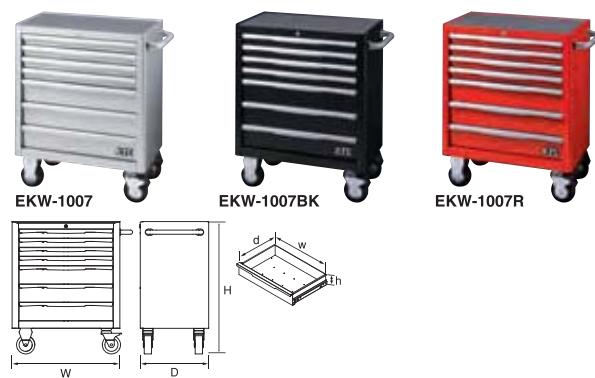
No. **EKW-1007BK** (Black) ▼kg 82 ⚡ 1

- Body Size W740 x D470 x H910 (including Caster H180)  
Handle Protruding Dimension 85 φ29  
Top Withstand Load: 140kg  
Maximum Withstand Load: 350kg (including the product weight)
- Drawer Size w600 x d405 x h45 x 4, Withstand Load 15kg  
w600 x d405 x h105 x 3, Withstand Load 20kg
- Top Mat x 1 • Drawer Mat x 7 • Partition Plate x 4 • Key x 2



Drawer Removal Method ↗ P.333

\* Spare parts are configured. Please contact your dealer for details.



### ● BASE CABINET (6 STAGES, 6 DRAWERS)

No. **EKW-2006** (Silver) ▼kg 84 ⚡ 1

No. **EKW-2006R** (Red) ▼kg 84 ⚡ 1

No. **EKW-2006BK** (Black) ▼kg 84 ⚡ 1

- Body Size W740 x D470 x H910 (including Base H50)  
Top Withstand Load: 140kg
- Drawer Size w600 x d405 x h45 x 2, Withstand Load 15kg  
w600 x d405 x h105 x 3, Withstand Load 20kg  
w600 x d405 x h230 x 1, Withstand Load 30kg
- Top Mat x 1 • Drawer Mat x 8 • Partition Plate x 4 • Key x 2



Drawer Removal Method ↗ P.333

\* Base cabinet (EKW-2006/EKW-2008 Series) supports the anchor bolt installation to the floor.

\* Spare parts are configured. Please contact your dealer for details.



#### Wide Body



Wide body that can store long objects horizontally. Highly practical size setting that prioritizes the usability at the maintenance site.

#### Balanced Rigidity and Beauty

##### Inner Frame

##### CO<sub>2</sub> Spot Welding

Flat side surfaces of EKW is achieved with the inner frame that secures the rigidity. The same inner frame structure is used for EKR.



#### 2-Way Lock & Large Wheel



Free caster uses the 2-way locking mechanism that simultaneously locks the rotation of the wheel and base.

#### Commitment for Safety

##### Round Shape

##### Edge Wrapping

Thorough bending is given for parts that come in contact with a human body. Not only the external but the cross-section of the drawer is processed, reducing the risk of injury such as cuts.



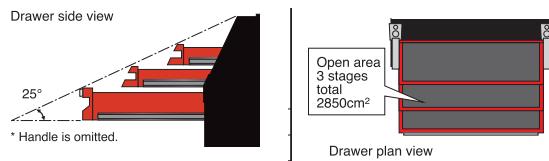


### Devised throughout for safety and comfort

#### Wide & Low Body

Improved storage capacity while being compact, it has a user-friendly ingenious trapezoidal form

By combining the cabinet and chest into 1 unit, extra structure becomes unnecessary, significantly improving the volumetric efficiency. With the total height that's indexed from the average height of Japanese, even the uppermost drawer stage can be easily accessed. The body top part has an ingenious trapezoidal form. Drawer is opened in terraced shape, allowing the stored items to be looked over at a glance. Safety lock mechanism is adopted with the centroid of 1st to 3rd drawer stage backwards and 4th to 8th drawer stage opening only 1 stage at a time, preventing the falling of the cabinet.



### ●BASE CABINET (8 STAGES, 8 DRAWERS)

No. **EKW-2008** (Silver) ▼kg 95 1

No. **EKW-2008R** (Red) ▼kg 95 1

No. **EKW-2008BK** (Black) ▼kg 95 1

• Body Size W740 x D470 x H910 (including Base H50)

Top Withstand Load: 140kg

• Drawer Size w600 x d405 x h45 x 4, Withstand Load 15kg  
w600 x d405 x h105 x 4, Withstand Load 20kg

• Top Mat x 1 • Drawer Mat x 8 • Partition Plate x 4 • Key x 2



Drawer Removal Method P.333

\* Base cabinet (EKW-2006/EKW-2008 Series) supports the anchor bolt installation to the floor.

\* Spare parts are configured. Please contact your dealer for details.

### ●ROLLER CABINET (8 STAGES, 8 DRAWERS) D.PAT.

No. **EKX-118** ▼kg 110 1

• Body Size W740 x D540 x H1230

• Drawer Size (Stage 1~3) w600 x d325 x h55 (Withstand Load 15kg)

• Drawer Size (Stage 4) w600 x d410~435 x h100 (Withstand Load 20kg)

• Drawer Size (Stage 5~6) w600 x d410 x h40 (Withstand Load 15kg)

• Drawer Size (Stage 7) w600 x d410~435 x h100 (Withstand Load 20kg)

• Drawer Size (Stage 8) w600 x d410~435 x h290 (Withstand Load 30kg)

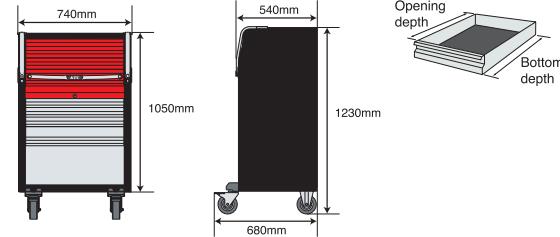
\* Depth of 4th and 7~8th stages differ in size of the opening and bottom parts. (See figure below)

• Partition Plate x 6 • Drawer Mat x 8 • Key x 2



Drawer Removal Method P.333

\* Spare parts are configured. Please contact your dealer for details.



#### Soft Closing Drawer

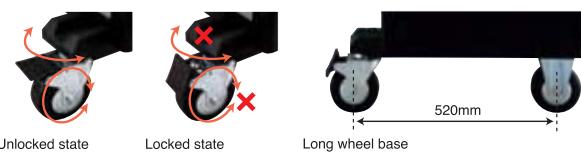
Soft suction rail that slowly retracts the drawer is adopted (stages 4~8 only). Soft closing mechanism is adopted that brakes just before closing the drawer, slowly retracting it thereafter. Fine movement can be experienced.



#### 2-Way Lock & Long Wheel Base Caster

##### Safety design that prevents the falling of the cabinet

Frontal free caster uses the 2-way locking mechanism that simultaneously locks the rotation of the wheel and base. Safety is improved with the long wheelbase design that's offset to the outer body, preventing the cabinet from falling.



### ●ROLLER CABINET (5 STAGES, 5 DRAWERS)

No. **SKX3805** ▼kg 60 1

• Body Size W680 x D460 x H975

w675 x d455, Withstand Load: 140kg

w580 x d405 x h60 x 2, Withstand Load 15kg

w580 x d405 x h135 x 2, Withstand Load 20kg

w580 x d405 x h210 x 1, Withstand Load 30kg

• Top Mat x 1 • Drawer Mat x 5 • Partition Plate x 5 • Key x 2



**Model Change** It is the successor model of SKX3705.

Drawer Removal Method P.333

\* Free caster simultaneously locks the rotation of the wheel and base. 2-way locking mechanism is adopted.

\* Ball bearing slide rail is adopted for the smooth opening and closing of the drawer.

\* All-stage locking system that can simultaneously lock all drawer stages upon closing them and turning the key.

\* Spare parts are configured. Please contact your dealer for details.

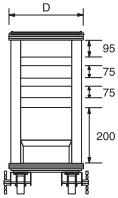
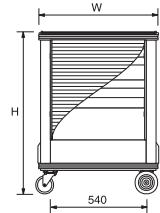


## 9.TOOL STORAGE

# TOOL STATION, WAGON, and WALL HUNGING CASE

### No. SKR703A ▼kg 39 ⚡ 1

- Unit size: W 670 x D 420 x H 900
- Size of trays: w 478 x d 360 x h 45 x 3 (Movable)
- Top mat x 1
- Partition panels x 8
- Dial lock x 1
- High-grade model.
- Lockable shutter-ideal for controlling stored items.
- The permissible load for each drawer is up to 10kg.
- The permissible load for the top plate is up to 140kg.

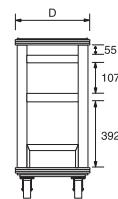
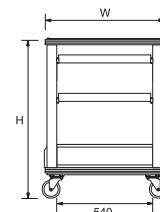


### ●TOOL STATION®



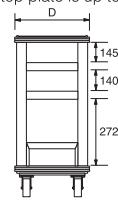
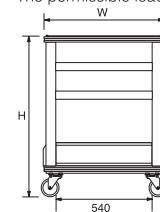
### No. SKR602A ▼kg 30 ⚡ 1

- Unit size: W 670 x D 420 x H 900
- Size of trays: w 510 x d 360 x h 45 x 2 (Movable)
- Top mat x 1
- Partition panels x 8
- Standard model.
- Practical and functional: front and back are clearly defined/efficient use of workshop space.
- The permissible load for each drawer is up to 10kg.
- The permissible load for the top plate is up to 140kg.



### No. SKR502A ▼kg 26 ⚡ 1

- Unit size: W 670 x D 420 x H 900
- Size of trays: w 536 x d 360 x h 45 x 2 (Fixed)
- Top mat x 1
- Partition panels x 8
- Basic model.
- Front and back are clearly defined. The basic functions have been condensed into this model.
- The permissible load for each drawer is up to 10kg.
- The permissible load for the top plate is up to 140kg.



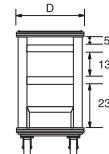
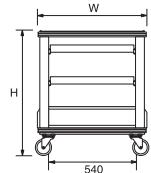
\*Refer to P.338 for methods on removing the drawer.

\*Replacement parts are available. Check with your dealer for details.

\*TOOL STATION is a registered trademark of KYOTO TOOL CO., LTD.


**No. SKR402A** ▼kg 27 ⚡ 1

- Unit size: W 670 x D 420 x H 770
- Size of trays: w 510 x d 360 x h 45 x 2 (Movable)
- Top mat x1
- Partition panels x8
- Compact model
- Height is 770 mm, lower than other models
- Being a low-line model, it is well suited for work in low places.
- The permissible load for each drawer is up to 10kg.
- The permissible load for the top plate is up to 140kg.



\*TOOL STATION is a registered trademark of KYOTO TOOL CO., LTD.

\*Replacement parts are available. Check with your dealer for details

**OPTION**

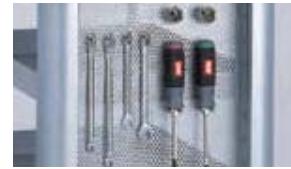

No.	
SKR-51	



No.	
SKR-53	



No.	
SKR-52G	

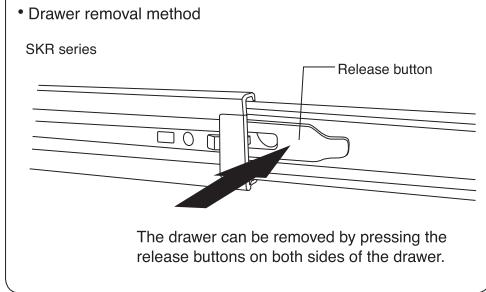


No.	
SKR-54S	

Panel hole ø3mm  
For  
SKR502A · SKR602A  
Accessories (for Side Punching Board)

SKR-54-A	4
SKR-54-B	4
SKR-54-C	4

\*Tools and spray cans seen within the pictures are examples of storage methods. These products are not included within the displayed retail price.


**Options-Part Hook Sets (for Side Punching Board)**

Product name	No.	Qty	Shape	Application
Hook Set A	SKR-54-A	10		Sockets
Hook Set B	SKR-54-B	10		Ratchet handles, screwdrivers, box end wrenches, etc.
Hook Set C	SKR-54-C	10		Open end wrenches, combination wrenches, etc.
Hook Set D	SKR-54-D	10		Box end wrenches (larger sizes)
Hook Set E	SKR-54-E	10		Sockets (larger sizes)

Hook screw (M3 x pitch 0.5, axis diameter ø5mm)

Product name	No.	Qty	Shape	Application
Hook J Set	SKR-54-J	10		Grip of pliers, rotation stopper of screwdrivers, etc.
Hook K Set	SKR-54-K	10		Deep sockets, etc.

**Side Pockets with Lining**


Convenient pockets left and right. For holding spray cans, cleaning rags, etc. Pockets include lining to stop scratches and damage when placing or removing items, and prevent injury from items catching on edges.

• 703A, 602A, 502A, 402A

**Removable Trays**


Trays can be removed completely, enabling exchange of trays as needed.

• 703A, 602A, 402A

**Sliding Shutter**


The sliding shutter permits safeguarding and control of stored items. The shutter can be easily opened and closed with one hand.

• 703A

**Lockable**


The unit is lockable, to reduce risk of theft.

• 703A

**Low Front Panel**


With low front panel, the opening is larger, making it easier to place or remove large or heavy objects.

• 602A, 502A, 402A

**4 Universal Castors**


The four castors turn smoothly in all directions. Stoppers on castors hold the unit stationary.

• 602A, 502A, 402A  
(Model 703A has two castors)

**Options**


A range of options can be attached at the holes on the inner sides of the supports.

• 703A, 602A, 502A, 402A

**Use of the Rear Panel**


Publicity or advertisements (by special order) on the rear panel can effectively promote your business in many ways. Front and back are clearly defined.

• 602A

**Special Orders**

- Color of the storage unit
- Advertisement / company name on the rear panel.
- \* Please ask at any KTC branch, sales office, dealer, or retail shop.

\*Please check the merchandise inventory for a product that is marked by before placing an order.

## ●WAGON (1 STAGE, 2 DRAWERS)

No. SKX2614

▼kg 48

1

- Body Size W775 x D515 x H880
- Drawer Size w630 x d445 x h65 x 2 (Withstand Load 25kg)
- Bottom shelf size w755 x d480 x h90 x 1 (Withstand Load 50kg)
- Top Space Mat x 1 • Drawer Mat x 2 • Tray Mat x 1



Drawer Removal Method P.333

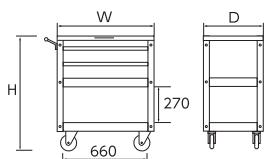
- All-wheel free caster (φ100 x 30mm) is adopted (Inner 2 wheels are with stoppers)
- The top opens for tools to be stored. Both sides have holders where drivers and the like can be stored.
- 2-stage locking method Lock of the drawer can be operated with the lever inside the top, and the top can be locked with a key.
- It is assembled by the customer.



&lt;Top opened&gt;

\* Tools are sold separately.

\*Spare parts are configured. Please contact your dealer for details.



## ●WAGON (4 STAGES, 1 DRAWER)

No. SKX2704

▼kg 29

1

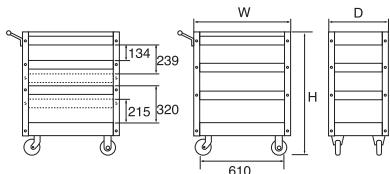
- Body Size W715 x D410 x H1011
- Drawer Size w570 x d275 x h65 x 1, (Withstand Load 5kg)
- Middle shelf size w705 x d400 x h60 x 2 (Withstand Load 15kg)
- Bottom shelf size w705 x d400 x h90 x 1 (Withstand Load 20kg)
- Top Mat x 1 • Drawer Mat x 1 • Tray Mat x 3



Drawer Removal Method P.333

- Free casters (2 wheels) with stopper and fixed casters (2 wheels). (φ100 x 30mm)
- Chest and the like can be placed on top. SKX0213, SKX0213S, SKX0213BK and SKX3306 can be placed on the top. (Top Withstand Load: 20kg)
- It is assembled by the customer.
- Mounting position of 2 stages on the middle shelf can be adjusted when assembling. (approx. 10mm)

\*Spare parts are configured. Please contact your dealer for details.



## ●WAGON (3 STAGES, 1 DRAWERS)

No. SKX2613

▼kg 24

1

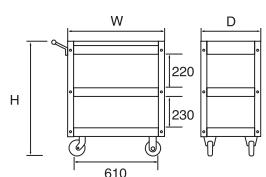
- Body Size W715 x D410 x H880
- Drawer Size w570 x d275 x h65 x 1, (Withstand Load 5kg)
- Middle shelf size w700 x d400 x h90, (Middle shelf withstand load 15kg)
- Bottom shelf size w700 x d400 x h90, (Bottom shelf withstand load 20kg)
- Top Mat x 1 • Drawer Mat x 1 • Tray Mat x 2



Drawer Removal Method P.333

- Free casters (2 wheels) with stopper and fixed casters (2 wheels). (φ100 x 30mm)
- Chest and the like can be placed on top. SKX0213, SKX0213S, SKX0213BK and SKX3306 can be placed on the top plate. (Top Withstand Load: 20kg)
- It is assembled by the customer.

\*Spare parts are configured. Please contact your dealer for details.





SK200-M



SK300-M

### MECHANIC DESK CASE

No. SK200-M

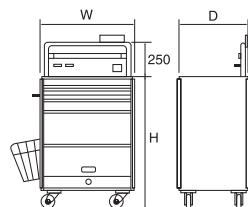
▼kg 50

1



- Size W575×D485×H880
- Drawer Size w504×d407×h50  
w504×d407×h85
- Divider · Large×4 · Middle×6 · Small×5
- Tool holder x1
- Spray can stopper x2
- Magnet base attached pipe x1
- Top mat x1
- Binder stand x1 pair
- Basket x1
- Key x2

• Specially developed for car mechanics. Practical functions will enhance work efficiency.



- Strong magnetic catch board for temporary holding tools.
- One-touch spray can fixer.



- Convenient bottom space with up and down drawer and lock.
- All free-way castors for smooth moving. (All of with stoppers)
- Rubber protector for not damaging other objects.



- A drawer can be locked to prevent the case from falling down.
- Tool-shaped tray for easy management. (Top drawer only)
- Convenient holder for keeping hammers, etc.
- With basket for keeping waste cloth, etc.

\*Spray cans seen within the pictures are examples of storage methods. These products are not included within the displayed retail price.

\*MECHANIC DESK is a registered trademark of KYOTO TOOL CO., LTD.

### WORK TRUCK CASE

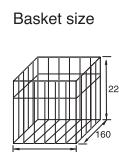
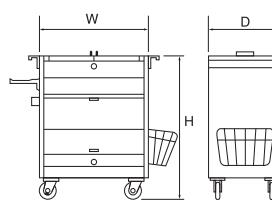
No. SK300-M

▼kg 50

1

- Size W700×D450×H890
- Divider · Large (Height 50mm) x4 · Large (Height 40mm) x1 · Small x2
- T type wrench hanger x1
- Grease pump holder x1
- Basket x1
- Key x2

• Specially developed for mechanics of large vehicles; functional and easy storing.



- Top cover is made of 2mm thick steel for using as work table.
- Upper layer box space with dividers for storing big size tools.



- Convenient holder for keeping hammers, etc.



- With basket for keeping waste cloth, etc.

\*Replacement parts are available. Check with your dealer for details

\*Please check the merchandise inventory for a product that is marked by before placing an order.



DC-904FA



DC-9036A



DC-9038A



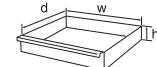
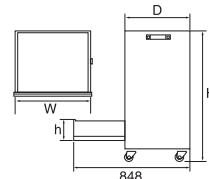
DC-602F



DC-6024



DC-6035



### ● WAGON (5 STAGE 4 DRAWER 1 LOCKER)

No. **DC-904FA** ▼kg 32 ⚡ 1



- Main unit size W580×D450×H900
- Drawer size w485×d410×h 40×1
- w485×d410×h 90×2
- w485×d410×h140×1

• Locker space opening w525×d410×h290×1

- Dividers within each of the drawers are sold separately. (Vertical × 2 + horizontal × 2 set)
- Comes with a drawer and locker (compartment).
- The permissible load for each drawer is up to approx. 30kg.
- The maximum permissible load is up to 160kg.
- Castor (diameter 100mm) is equipped with free moving stoppers, 2 fixed castors each.

### ● WAGON (6 STAGE 6 DRAWER)

No. **DC-9036A** ▼kg 40 ⚡ 1



- Main unit size W580×D450×H900
- Drawer size w485×d410×h 40×1
- w485×d410×h 90×2
- w485×d410×h140×3

• Dividers within each of the drawers are sold separately. (Vertical × 2 + horizontal × 2 set)

- Convenient for storing small items with 6 individual drawers.
- All drawers can be locked in one key position.
- The permissible load for each drawer is up to approx. 30kg.
- The maximum permissible load is up to 160kg.
- Castor (diameter 100mm) is equipped with free moving stoppers, 2 fixed castors each.

### ● WAGON (8 STAGE 8 DRAWER)

No. **DC-9038A** ▼kg 44 ⚡ 1



- Main unit size W580×D450×H900
- Drawer size w485×d410×h 40×3
- w485×d410×h 90×4
- w485×d410×h140×1

• Dividers within each of the drawers are sold separately. (Vertical × 2 + horizontal × 2 set)

- Convenient for storing small items with 8 individual drawers.
- All lock method. All drawers can be locked in one key position.
- The permissible load for each drawer is up to approx. 30kg.
- The maximum permissible load is up to 160kg.
- Castor (diameter 100mm) is equipped with free moving stoppers, 2 fixed castors each.

### ● WAGON (3 STAGE 2 DRAWER 1 LOCKER)

No. **DC-602F** ▼kg 23 ⚡ 1



- Main unit size W580×D450×H650
- Drawer size w485×d410×h 40×1
- w485×d410×h 90×1

• Locker space opening w525×d410×h245×1

- Dividers within each of the drawers are sold separately. (Vertical × 2 + horizontal × 2 set)
- The 650mm maximum height allows the unit to be used as a tool box table.
- Comes with a drawer and locker (compartment).
- The permissible load for each drawer is up to approx. 30kg.
- The maximum permissible load is up to 160kg.
- Castor (diameter 100mm) is equipped with free moving stoppers, 2 fixed castors each.

### ● WAGON (4 STAGE 4 DRAWER)

No. **DC-6024** ▼kg 28 ⚡ 1



- Main unit size W580×D450×H650
- Drawer size w485×d410×h 90×3
- w485×d410×h140×1

• Dividers within each of the drawers are sold separately. (Vertical × 2 + horizontal × 2 set)

- The 650mm maximum height allows the unit to be used as a tool box table.
- Convenient for storing small items with 4 individual drawers.
- All lock method. All drawers can be locked in one key position.
- The permissible load for each drawer is up to approx. 30kg.
- The maximum permissible load is up to 160kg.
- Castor (diameter 100mm) is equipped with free moving stoppers, 2 fixed castors each.

### ● WAGON (5 STAGE 5 DRAWER)

No. **DC-6035** ▼kg 29 ⚡ 1



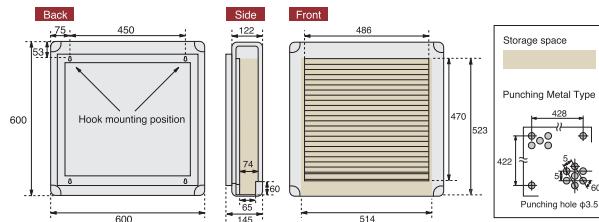
- Main unit size W580×D450×H650
- Drawer size w485×d410×h 40×2
- w485×d410×h 90×2
- w485×d410×h140×1

• Dividers within each of the drawers are sold separately. (Vertical × 2 + horizontal × 2 set)

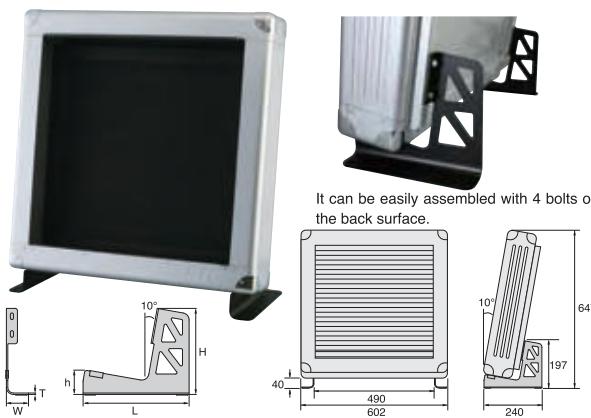
- The 650mm maximum height allows the unit to be used as a tool box table.
- Convenient for storing small items with 5 individual drawers.
- All lock method. All drawers can be locked in one key position.
- The permissible load for each drawer is up to approx. 30kg.
- The maximum permissible load is up to 160kg.
- Castor (diameter 100mm) is equipped with free moving stoppers, 2 fixed castors each.

\*Please check the merchandise inventory for a product that is marked by before placing an order.

\*Replacement parts are available. Check with your dealer for details



**CAUTION** Installation with an anchor is required whether wall-mounted or free-standing. Walls may need to be reinforced depending on the material and structure.



Tool storage example  
\*Tools are sold separately.



**CAUTION** Installation with an anchor is required whether wall-mounted or free-standing. Walls may need to be reinforced depending on the material and structure.

### ● THIN METAL STORAGE CASE (PUNCHING METAL TYPE)

No. **EKS-101**

▼kg 14

1

• Body Size

• Attachment

W600 × D145 × H600  
Hook A x5  
Hook B x10  
Hook C x10  
Hook D x10  
Hook J x5  
Hook K x5

#### New wave tool case that's evolved into a decor

Thin storage case with the maintenance style like never before that freely fits in various spaces. Tools can be viewed in a glance by opening the shutter, with smooth retrieval and storage.



\* Tools are sold separately.  
Tools of your choice can be stored by combining the punching board and various hooks.

Padlocking is possible once the shutter is closed.  
\* Key is sold separately.

Please purchase a separately sold hook set as needed.

Please refer to P.338 for details of the hook.

Body withstand load (loading capacity): 12kg, hook withstand load (per 1): 1kg

#### Supply Parts

No.	Product Name	Size
<b>EKS-501</b>	Punching Board for Thin Metal Storage Case	W470 × D11 × H522 1

\* Hook is not included.

### ● DESKTOP STAND SET FOR THIN METAL STORAGE CASE

No. **EKS-911**

▼kg 16.6

1

- Thin Metal Storage Case (Punching Board Type) EKS-101
- Desktop Stand for Thin Metal Storage Case EKS-301

- It is a set of the punching board type thin metal storage case EKS-101 and dedicated stand.
- With the thinness of 240mm depth, work space can be assured even when placed on a desk.
- With the slope of 10°, stored tools can easily be viewed.
- With a pad for not damaging the installation surface.

### ● DESKTOP STAND FOR THIN METAL STORAGE CASE [EKS body dedicated]

No.	L	W	H	h	T	▼kg	1
<b>EKS-301</b>	240	50	197	55	3.2	2.6	1

- Dedicated stand that allows the thin metal storage case EKS-101 and 103 to be used not only wall-mounted but independently.

### ● THIN METAL STORAGE CASE

No. **EKS-103**

▼kg 14

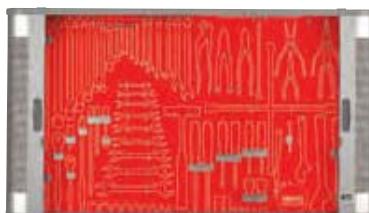
1

• Body Size

W600 × D145 × H600

Thin metal storage case for the tool set SK3568SS. With shadow pictures, it is also useful in the tool management. (Please refer to P.26 for more information on SK3568SS.)

It can be changed to the punching board type by mounting the punching board EKS-501 for thin metal storage case.



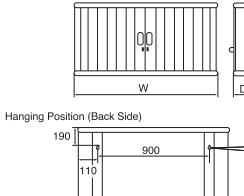
### ● WALL HUNGING TOOL CHEST (FOR VEHICLE MAINTENANCE)

No. **MK91A-M**

▼kg 18

1

- Body Size W1125 × D145 × H630
- Color Shutter: Silver, Tool Hanging Panel: Red
- Tool-shaped shadow pictures for hanging tools up.
- Hang-on-wall type with sliding shutter for security.
- It can be locked with a padlock, etc. (This product does not have a key.)



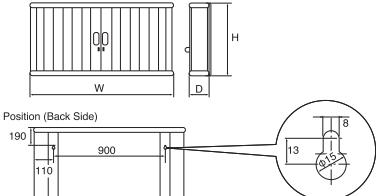
### ● WALL HUNGING TOOL CHEST (FOR GENERAL MACHINERY MAINTENANCE)

No. **MK81A-M**

▼kg 18

1

- Body Size W1125 × D145 × H630
- Color Shutter: Silver, Tool Hanging Panel: Red
- Tool-shaped shadow pictures for hanging tools up.
- Hang-on-wall type with sliding shutter for security.
- It can be locked with a padlock, etc. (This product does not have a key.)



\*Please check the merchandise inventory for a product that is marked by before placing an order.

# 9.TOOL STORAGE

## SPLIT-OPEN and TOP OPENING TOOL CASE



### ●SPLIT-OPEN METAL CASE D.PAT.P.

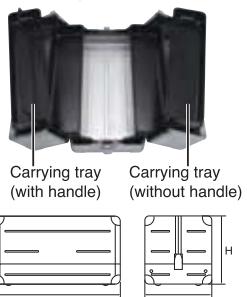
No. **EK-1**

▼kg 6.0 

- Size W430xD225xH225
- Carrying tray size (with/without handle) w 390xd100xh45
- Two types of removable carrying trays (with/without handle) have been set on the upper level. The unit can be easily transported after having included the necessary tools for the given working environment.
- The retractable handle provides precise movement without slack, preventing involuntary movement. Units can be loaded on top of each other by retracting the handle.
- Corners employ the R form for the benefit of users and the surrounding environment.
- The unit is composed of steel material.



- When open



EK-1

### ●SPLIT-OPEN METAL CASE

No. **EK-10**

▼kg 7 

- Body Size W440xD233xH230
- Carrying tray size (with · without handle) w390xd100xh45
- It can be locked with a padlock, etc. (This product does not have a key.)
- 2 types of removable carrying tray (with · without handle) is set on the upper stage. It can easily be carried to work sites with only what is needed.
- Retractable handle has precise movement without rattling or accidental falling. It can be stacked by putting down the handle.
- Corner pad protects the body even in a harsh environment.
- Corner pad is made of impact · scratch resistant rubber.
- Steel is used for the material.
- Carrying tray is set as a spare part. Please contact your dealer for details.



- When open



#### EK-1 Features



- Retractable handle that does not accidentally fall



- Round shape for the safety of people and objects

#### EK-10 Features



- Extra attention paid to the lock too. Lock on the case side can be locked with a padlock.



- Corner pad. Corners use rubber pads for the safety of people and objects.

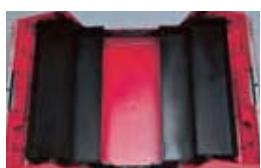
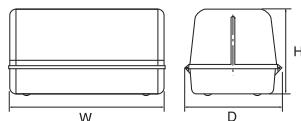
### SPLIT-OPEN and TOP OPENING TOOL CASE

### ●SPLIT-OPEN PLASTIC HARD CASE

No. **SK330P-M** ▼kg 4.0 

- Size W445xD280xH250

- The grip and lock can be accommodated flush with the top cover, making the flat top panel design flat and neat. Ease of storage has been improved and the grip has been made easier to grasp.
- The case weight has been reduced considerably. It is now only 4 kg, 30% less than our previous steel case product.
- Excellent oil resistance, shock resistance and strength-a tool box for the future!
- Made of Mostron plastic exclusively developed for automobiles. This tool case is lightweight, rugged and very easy to use.



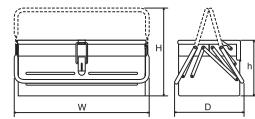
- Look at the flatness. The grip and the lock are below the surface.

### ●SPLIT-OPEN METAL CASE (RETRACTABLE HANDLE)

No. **SKC-MA**

▼kg 3.9 

- Body size W460xD230xH280 (including handle)  
Retractable Handle: h190
- Body inside dimension w410xd198xh130
- Tray size w410xd87xh49
- Partition plate mounting pitch: 57, tray partition plate x 12



\*Replacement parts are available. Check with your dealer for details

\*Please check the merchandise inventory for a product that is marked by  before placing an order.

### ●TOP OPENING METAL CASE

#### No. EK-3

▼kg 3.0 

- Size W410xD210xH150
- Carrying case W390xd100xh45

 This model supercedes the SK-40M, SK20-M

- Padlocks can be used to lock the unit. (This product does not include a lock function)
- The handle will not protrude when storing.
- A fixed tray is included in the unit for the storage of small screws and parts.
- The carrying tray (metallic) with handle can be removed from the unit case for easy transporting.
- The unit is composed of steel material.



### ●TOP OPENING METAL CASE

#### No. EKB-1

▼kg 0.8 

- Size W275xD150xH50

- Trunk type metal cases.
- Convenient for storage of tools and parts.



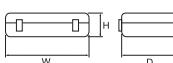
### ●METAL CASE

#### No. EKB-3

▼g 600 

- Body size W275xD150xH35

- It is useful for the management of tools, parts, etc.
- Steel is used for the material.



EKB-3

### ●PLASTIC HARD CASE

#### No. EKP-1

▼kg 3.5 

- Body size W540xD360xH350
- Inside tray size w290xd285xh90
- Inside dimension (with inside tray) w410xd275xh200



EKP-1

### ●METAL CASE

#### No. B4110-MA

▼kg 3.1 

- Body size W545xD185xH85
- Inside dimensions w530xd170xh80



B4110-MA

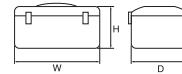
### ●METAL CASE

#### No. EK-5

▼kg 1 

- Body size

- Compact metal case that follows the stylish design of EK Series.
- It can be locked with a padlock, etc. (This product does not have a key.)
- It is useful for categorizing tools in the factory or carrying to the work place with only the necessary tools.
- Handle does not protrude and top is flattened at storage, making it easy for objects to be placed on top of the case.
- Steel is used for the material.



EK-5



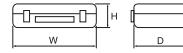
### ●TOP OPENING METAL CASE

#### No. EKB-2

▼kg 1.6 

- Size W455xD190xH60

- Trunk type metal cases.
- Convenient for storage of tools and parts.



EKB-2

### ●TOP OPENING METAL CASE

#### No. SK120-M

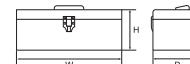
▼kg 4.0 

- Size W405xD200xH170

- Middle-sizes tray w390xd110xh45
- Carrying case w390xd110xh35

- Tray for parts w155xd 65xh20

- Practical size easy to carry with big storing capacity.



SK120-M



### ●PLASTIC HARD CASE

#### No. EKP-5

▼g 900 

- Body size W385xD202xH140

- Inside tray size w345xd148xh32

- Inside dimension (with inside tray) w345xd150xh65, inside tray partition plate x 2



EKP-5

### ●TOP OPENING PLA-HARD CASE

#### No. TCP1-1

▼kg 0.8 

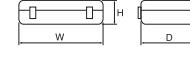
- Size W385xD190xH65

- So far we have the image that tool case=steel=durable while plastic may be fragile.

- To change such image, we have chosen a completely brand-new material.

- Mostron : new plastic exclusively developed for automobiles.

- This tool case is lightweight, rugged and very easy to use.



TCP1-1

# 9. TOOL STORAGE ACCESSORIES



## ● MINI CHEST & MINI CABINET SET

### No. SKX0010R

▼kg 7.5

- Set Contents  
MINI Chest (2 Stages, 2 Drawers): SKX0012  
MINI Cabinet (4 Stages, 4 Drawers): SKX0514



Drawer Removal Method P.333

- For the comfortable storage of tools, accessories and parts.
- Authentic, full-featured hobby case for any desired use.
- \* Spare parts are configured. Please contact your dealer for details.



### ● Usage example



\*Tools are sold separately.

## ● MINI CHEST (2 STAGES, 2 DRAWERS)

### No. SKX0012

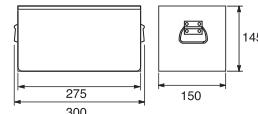
▼kg 3.1

- Body Size W300xD150xH145 (including side handles)
- Top Size w270xd140xh30x1
- Drawer Size w215xd130xh38x2
- Top Mat x 1 • Drawer Mat x 2



Drawer Removal Method P.333

- \* Spare parts are configured. Please contact your dealer for details.



## ● MINI CABINET (4 STAGES, 4 DRAWERS)

### No. SKX0514

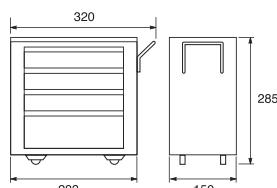
▼kg 4.4

- Body Size W320xD150xH285 (including side handles)
- Drawer Size w215xd130xh38x3
- Drawer Size w215xd130xh80x1
- Drawer Mat x 4 • Mini Cabinet Dedicated Mat x1 (It can't be locked. )



Drawer Removal Method P.333

- \* Spare parts are configured. Please contact your dealer for details.



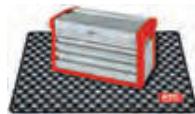
Mini Cabinet Dedicated Mat

## GARAGE MAT

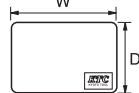
No.	Size	▼kg		
EKR-701	W900xD600	1.3	1	

- It is a conventional mat that can be used in various maintenance contexts.
- Prevent damage to the floor and case by laying it under a chest or split-open case. It also prevents scratches and dirt from the direct placement of parts.
- Mat can be laid when working in low position such as kneeling to reduce the knee ache.
- Material: polypropylene

## ● GARAGE MAT



Usage state



### ● WRENCH RACK (For open end wrenches, offset wrenches, and combination wrenches)

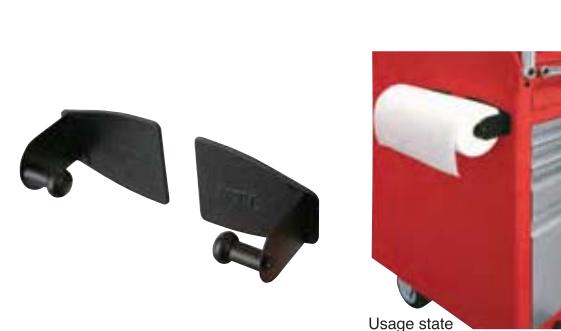


Three bases cover the floor of chest draw (SKX0203, 0203S, 0203B, 1202, 1203)

### ● MAGNETIC T-SHAPED WRENCH HOLDER



### ● MAGNETIC PAPER HOLDER



### ● HOLDER FOR IMPACT WRENCH



### WRENCH RACK

#### No. TEH1SM

Base	180×140×5.5	3 Bases
Rack Pin A	For small size (approx. 19×21)	3 holders ×4
Rack Pin B	For large size (approx. 19×21~24×27)	2 holders ×2
Rack Pin C	For small size	1 holder ×4
Pin	4	
Joint	4	

### Replacement Parts

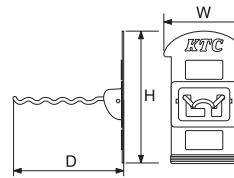
No.	Product	Amount
EH1SM210	Rack Pin A	10
EH1SM310	Rack Pin B	10
EH1SM410	Rack Pin C	10
EH1SM510	Pin	10
EH1SM610	Joint	10

- Allows for tidy storage in cabinets and toolboxes.
- \*SKX0203, 0203S, 0203B, 1202, 1203 (P.353) will fit perfectly when 3 racks are lined up.
- The base and rack pin can be arranged to your personal preference.
- Made with lightweight and chemically stable PP plastic.
- Organized tools will enable more efficient servicing, which will appeal to the customer.

### MAGNETIC T-SHAPED WRENCH HOLDER

No.	W	D	H	▼g	kg
YKHD-5TM	110	155	180	370	1

- It is a T-shape wrench holder that can be mounted by magnet.
- Arm can be folded when not in use.
- Sliding is prevented with rubber mold.



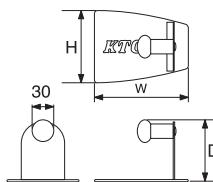
**CAUTION** • Do not place more than the withstand load.  
• Please install it on a flat iron plate with 0.8mm thickness or more.

Withstand Load: 3Kg

### MAGNETIC PAPER HOLDER

No.	W	D	H	▼g	kg
YKHD-RPM	130	85	102	640 (2 pcs.)	1

- Rolled paper rag can be attached with magnet.
- Left and right are independent, supporting the paper rag of φ120mm and 500mm width max.
- Sliding is prevented with the powerful rubber magnet.



**CAUTION** • Do not place more than the withstand load.  
• Please install it on a flat iron plate with 0.8mm thickness or more.

Withstand Load: 1Kg

### HOLDER FOR IMPACT WRENCH

No.	W1	W2	D	H	▼g	kg
YKHD-01	150	104	110	380	1	1

**Application** ● 1/2"sq. impact wrench with the hammer case of 82mm or less.

- Square 1/2"sq. socket.

**Features**

- Can be mounted on a cabinet or the like by powerful magnet.
- Stores an impact wrench neatly, allowing the smooth retrieval.
- Holder for impact wrench is processed for antiskid, preventing accidental fall.
- With a holder that allows the storage of 1/2"sq. socket.  
(It cannot be inserted into the socket holder with pin · ring attached.)
- Rubber is attached on the back magnet to prevent damage to the mounted object.

### Supply Parts

No.	Product Name	▼g	kg
YKHD-01A	Clip for Holder for Impact Wrench	10	

**CAUTION** • Do not place more than the withstand load.

**WARNING** • Be sure to remove the air hose when storing an impact wrench.

**MAGNETIC SPRAY CAN HOLDER**

No.	W	D	H	kg	Box
YKHD-02	405	100	134	1.1	1

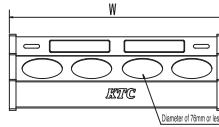
Attachment: Mounting screw x 2, mounting spacer x 2, antiskid sheet x 1.

**Application**

- Spray can with the diameter of 76mm or less and height of 350mm or less.

**Features**

- 4-hole type that can be mounted on a cabinet or the like by powerful magnet.
- Holder with depth that can store long cans such as parts cleaner.
- With antiskid sheet that prevents stored items from falling and suppresses noise when storing.
- Cover on both sides is resin-made that's safe for people and objects.
- Rubber is attached on the back magnet to prevent damage to the mounted object.
- It can be screw-fastened with the attached mounting screws and spacers.
- (Our roller cabinet EKW-1000 Series and No.SKX3805 are supported)



Withstand Load: 4Kg



- Do not place more than the withstand load.

**MAGNETIC SPRAY CAN HOLDER**

Usage state

**MAGNETIC PARTS BOWL**

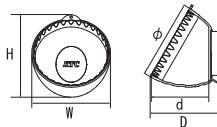
No.	Material of main body	φ (outer diameter)	W	D	d	H	kg	Box
YKHD-03S	ABS	114	114	99	83	113	180	1
YKHD-03L	ABS	153	153	132	114	161	380	1

**Usage**

- Storage bowl for screws, parts, accessories, etc.

**Features**

- Can be freely mounted on a cabinet or the like by powerful magnet.
- Store the removed screws during work to prevent loss.
- With the deep bowl shape, storage of plastic parts, etc. that don't adhere to the magnet is also possible.
- ABS with excellent crack and oil resistance is adopted.
- Resin-made that prevents accidental injury or damage to the parts.
- Rubber is attached on the magnet to prevent damage to the mounted object.



Withstand Load: 1Kg

YKHD-03S, 03L common

- Since it is resin, please do not apply heat.
- Do not place more than the withstand load.

**MAGNETIC PARTS BOWL**

Usage state

**MAGNET SHEET**

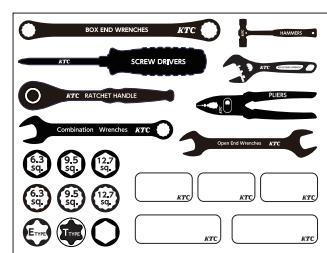
No.	Sheet size	Box
EHMG-1	W290 x H245	1

■ Stickers: 19 types total (22pcs.)

Offset Wrench	x1	6.3sq. (Hex., 12pt.)	x1 each
Driver	x1	9.5sq. (Hex., 12pt.)	x1 each
Ratchet Handlea	x1	12.7sq. (Hex., 12pt.)	x1 each
Combination Wrench	x1	E-Type Torx	x1
Hammer	x1	T-Type Torx	x1
Adjustable Wrench	x1	Socket (Hex.)	x1
Pliers	x1	Label (Small)	x3
Spanner	x1	Label (Large)	x2

• Stored items such as tools and squares can be displayed, allowing them to be checked at a glance.

• It can be used as a clasp for documents, etc.

**MAGNET SHEET**

Usage state

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A					
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AB-5	263	AD101-123	149 · 280	AL806 · S · 1~3	308
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ABO-100	267	AD502-22W	282	AP-175	152
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ABP6-17Y~21Y	91	AD601-P2	294	AP201-10P	291
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ABP8-17Y~21Y	91	AE-10-1	227	AP201-CF	292
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ABP8-3517TP~4121TP	86 · 257	AE101-12S	223	AP201-HF	292
ABP8ZL-4121TP	87 · 258	AE101-3R	223	AP201-HN	292
ABU-1935	279	AE102	223	AP201-HS	292
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ABX101	64 · 267	AE107-260	225	AP201-WA	292
ABX102	267	AE107-500	225	AP202A	293
ABX103	267	AE108	226	AP202B	293
ABX104	267	AE109-12W	226	AP202C	293
ABX105	265	AE109-450	226	AP202D	293
ABX301	270	AE401	219	AP203-10A	290
ABX302	270	AE401-CPL	219	AP203-6A	290
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ABX70	271	AE703A	228	AP207	294
ABX7-08 · 10	270	AE81	230	AP208A	293
ABX7-0811	269	AE81-5 · 6	230	AP208B	293
ABX70-A1 · A2	273	AE82	230	AP20L-10	290
ABX70-B1 · B2	273	AE901	234	AP20L-10B	290
ABX70-D1	273	AE901K	234	AP20L-13	290
ABX70-E1	273	AE92	220	AP20L-13B	290
ABX70-F1 · F2	273	AE921	220	AP20L-P	290
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ABX70-H1	273	AG602	192	AP502PA	296
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BS2L	53	BT4-T30L~T70L	110			EHB315
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BT2-03BPL~08BPL	97	CMD0282	188			EKB-1
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BT2-6M	93	CMD804	188			EKR-1003BK
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BT2-T6L~T30L	108	CMPB0152	189			EKR-1004
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BT2-T8HL~T30HL	114	CMPB0503	189			EKR-1004R
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BT3-03L~12L	96	CMPB1003	189			EKR-113
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BT3-03SS~12SS	95	CMPB2004	189			EKR-2003BK
BT3-1/8~7/16	96	CMPB3004	189			EKR-2003R
BT3-1/8BPL~5/16BPL	97	CMPB8006	189			EKR-301
BT3-1/8L~7/16L	96	CMPB8008	189			EKR-501
BT3-1/8S~7/16S	95	CP1-15	319			EKR-502L
BT3-1P~3P	94	CP2-15A · 15B	319			EKR-502S
BT3-6M	94	CPH1	227			EKR-701
BT3-M5~M10	232	CPH128	229			EKS-101
BT3-T20~T55	109	CPHU2	229			EKS-103
BT3-T20H~T55H	114	CPU12	228			EKS-301
BT3-T20HL~T55HL	115	CPU13	228			EKS-501
BT3-T20HS~T55HS	114	CS1	318			EKS-911
		CS1-A1	318			EKW-1005
						EKW-1005BK
						EKW-1005R
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EKW-1007BK	335	GED200-R4-U	187	HB35-8T	231	JH-3-100	205						
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EKW-2006	335	GED200-W36-U	187	HBD35-8-10	230	JH-4-100	205						
EKW-2006BK	335	GED200-W36-Z	183 · 185	HL107	102	JH-4-50	205						
EKW-2006R	335	GED-Z	184	HL259BSP	102	JH-5-100	205						
EKW-2008	336	GEK030-C3	176	HL259SP	102	JH-5-50	205						
EKW-2008BK	336	GEK030-C3A	176	HLD100-1.5~14	99	JH-6-100	205						
EKW-2008R	336	GEK030-C3-L	176	HLD1008	99	JH-6-50	205						
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EN-30S	152	GEK040-X13	178	HLD1508	99	JP-1-50	205						
EP-160	151	GEK060-R3	176	HLD1509	99	JP-2-100	205						
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FBH1-8X9~17X19	127	GEK085-R3	176	HLD200-1/16~3/8	102	JP-3-100	205						
FBS-10~19	127	GEK085-R3-L	176	HLD2009	100	JP-3-50	205						
FBS6	127	GEK085-R4	177	HLD2009B	102	JTAE115	204						
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FF-8095	217	GEK085-W36	177	HLD250-1/16~3/8	101	JTAE424	206						
FF-90110	217	GEK085-X13	178	HLD2508	100	JTAE471	205						
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FV20	325	GLK250	180	HLDS200-1.5~10	100	KZ12A	163						
FV30	327	GLK500	180	HLDS2009	100	KZ12B	163						
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G-190NC	300	GMM-025~075	191	HLDS2509	101	KZ142A	163						
G-330NH	300	GMN-15~30	191	HLH8	103	KZ142B	163						
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GDP-450	190	GOD-6X1500F	210	HLT7	110	KZ2L-18	164						
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GED030-C3A-Z	182 · 184	GOD-6X700M	210	HP-45130	262	KZ3-18A	165						
GED030-C3-U	186	GOD-7X1000F	210	HT10-2.5~10	103	KZ3L-18	165						
GED030-C3-Z	182 · 184	GOD80B	209	HTH-4~8	103	KZ3S-18	165						
GED030-R2-U	186	GOD80E	210	<b>J</b>									
GED030-R2-Z	182 · 184	GOD-8X700F	210	JAE101-B	205	KZ4-12-18	163						
GED040-X13-U	187	GOD-ADA	210	JAE402-B	206	KZ4-12-18	163						
GED040-X13-Z	183 · 185	GOD-ADB	210	JAE407	205	KZ4L-18	163						
GED060-R3-U	186	GU-75-100-150	167	JAH-065	203	KZ4S-18	163						
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GED085-R3-U	186	GX13-C4	178	JAH-110	203	KZS-40	165						
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GED085-R4-U	187	GX13-EMZ10	180	JAP436	200	KZSS-25	165						
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LT8H	116	MS3-08T · 10T · 15T	318	PCR3-35	323	<b>S</b>	
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M2510	120			PH45-323	158	SD30-8H	142
M253	121	OHZ-210	314	PH68-344	158	SD30-B	142
M25-5.5X7~24X27	121			PHB20-4~12	91	SD3-M	140
M256	120			PHB30-6~17	91	SD3-P	140
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MCCU14	312	PB32-10H~32H	90	PK8	161	SK300A	24
MCCU-BA-BB-CA-CB-CG-H	312	PB35-10H~32H	90	PMD18	138	SK300-M	340
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SK44310M	37	SOP-171	148	TB3L11X	56	TBT4L04BPH	99
SK444S	32	SOP-171LL	148	TB3M05	58	TBT4L04BPH	99
SK4510MXBK	38	SOP-172	148	TB3TW06	60	TBT4L07T	110
SK4510MXS	38	SOP-172LL	148	TB3TW10	60	TBT4L07TH	115
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AIR BLOW GUN	BRAKE SPRING PLIERS & CLAW	COURTESY LAMP SWITCH STOPPER
304	264	295
AIR GREASE FEEDER	BRAKE TOOL OFFSET TYPE SET	COVERING SET
248	180	303
AIR HOSE	BRAKE TOOL STRAIGHT TYPE	CRANK PULLEY HOLD PLATE
203	180	227
ALL PURPOSE SHEARS	BRUSH	CRANK PULLEY HOLD WRENCH
152	166	228
ALUMINUM GARAGE TRAY	 <b>C</b>	CRANK PULLEY HOLDER
306	 C-WASHER TOOL	227
ALUMINUM PARTS TRAY LARGE & SMALL	264	CRANK PULLEY LOCK BOLT WRENCH
306	CAM PULLEY HOLD WRENCH	227
ALUMINUM PIPE WRENCH	230	CRANK PULLEY PULLER
167	CAM PULLEY LOCK TOOL	(HYDRAULIC TYPE)
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55 · 66 · 73	CARBON BRUSH SET FOR REPLACEMENT	CRANK PULLEY PULLER (MANUAL TYPE)
ANGLE CUTTER (TRUE FLUSH CUT)	205	228
151	CARBURETOR SCREWDRIVER SET	CRANK PULLEY TOOL
ANGULAR TORQUE GAUGE	232	229
191 · 232	CASTER TABLE for EKR-103 & EKR-113	CRANK PULLEY TOOL SET
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279	CENTER CAP WRENCH FOR ALUMINUM WHEEL	CROSS · FLAT BIT SOCKET
ASSEMBLY PARTS FOR GREASE EXCHANGER "HIGHLOAD"	254	93 · 94 · 97
247	CENTER PUNCH	CROSS RIM WRENCH
AUTO PUNCH	161	134
161 · 287	CERAMIC & STAINLESS SCRAPER SET A · B	CROWFOOT WRENCH
 <b>B</b>	163	60
BABY SCREWDRIVER	CERAMIC SCRAPER	CROWFOOT WRENCH SET
140	163	60
BALL JOINT SEPARATOR (OFFSET TYPE)	CERAMIC SCRAPER LONG	CUP TYPE OIL FILTER WRENCH
240	163	211
BALL VALVE AIR COUPLER	CERAMIC SCRAPER SHORT	CUP TYPE OIL FILTER WRENCH DESIGNED FOR AMERICAN & EUROPEAN CARS
203	163	212
BALL-PEEN HAMMER	CHAIN TYPE CARTRIDGE WRENCH	CUP TYPE OIL FILTER WRENCH SET
158	217	211
BAND HOLD CUTTING PLIERS	CHAIN TYPE OIL FILTER WRENCH	CYLINDER HEAD BOLT & FLY-WHEEL BOLT WRENCH-SET
151	217	231
BASE CABINET (6 STAGES, 6 DRAWERS)	CHECK MIRROR	CYLINDER HEAD BOLT SOCKET WRENCH-SET
335	302	231
BASE CABINET (8 STAGES, 8 DRAWERS)	CHEST (3 STAGES, 3 DRAWERS)	CYLINDER HEAD BOLT WRENCH-SET
336	331 · 332 · 334	230
BATTERY CATCHER	CHEST (4 STAGES, 4 DRAWERS)	 <b>D</b>
282	331	 DEEP SOCKET
BATTERY PACK	CHEST (4 STAGES, 6 DRAWERS)	52 · 58 · 69 · 75
205	334	DEEP SOCKET SET
BELT HOOK TOOL	CHISEL	52 · 59 · 68
226	161	DEEP SOCKET WRENCH SET
BELT TENSIONER WRENCH (OFFSET TYPE)	CLIP CLAMP PLIERS 20° · 80° 3-CLAW TYPE · SET	51 · 56 · 67
225	293	DESKTOP STAND SET FOR THIN METAL STORAGE CASE
BELT TENSIONER WRENCH SET	CLIP CLAMP PLIERS 35° · 80° SHORT TYPE for WHELL HOUSING	342
225	293	DIAGONAL CUTTING PLIERS
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226	293	DIGITAL RATCHET
BENT EXTERNAL SNAP RING PLIERS	CLIP CLAMP TOOL SET	176 · 177
148	288~291	DIGITAL RATCHET [MEMORQ] ADJUSTABLE WRENCH TYPE For USB
BENT INTERNAL SNAP RING PLIERS	CLIP CLAMP TOOL SET ANGLE	187
148	289	DIGITAL RATCHET [MEMORQ] ADJUSTABLE WRENCH TYPE For Wireless Communication
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318	289	DIGITAL RATCHET [MEMORQ] ADJUSTABLE WRENCH TYPE WIRELESS HOST MODULE SET
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213	289	DIGITAL RATCHET [MEMORQ] COMPACT HEAD TYPE WIRELESS HOST MODULE SET
BIG SIZE CUP TYPE OIL FILTER WRENCH SET	CLUTCH ALIGNING TOOL	182
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BLEEDER WRENCH SET	COMBINATION WRENCH SET	182
270	127	DIGITAL RATCHET [MEMORQ] COMPACT HEAD TYPE WIRELESS HOST MODULE SET
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284	304	DIGITAL RATCHET [MEMORQ] COMPACT HEAD TYPE WIRELESS HOST MODULE SET
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FLEX RATCHET HANDLE	53 · 61 · 70
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REAR HUB PULLER FOR LARGE VEHICLES	246	SNIP (STRAIGHT LEFT CUTTING)	157	RIDER'S MAINTENANCE TOOL SET	34 · 311	SNIP (STRAIGHT RIGHT CUTTING)	157	T-SHAPED DRUM REMOVER	265	ROLLER CABINET (5 STAGES, 5 DRAWERS)	335 · 336	SNIP (STRAIGHT WIDE CURVES CUTTING)	157	T-SHAPED HEX. WRENCH	103	ROLLER CABINET (7 STAGES, 7 DRAWERS)	335	SOCKET	51 · 57 · 68 · 74 · 75 · 77	T-SHAPED WRENCH	63 · 133	ROLLER CABINET (8 STAGES, 8 DRAWERS)	336	SOCKET FOR 14mm RATCHET	130	T-SHAPED WRENCH HOLDER	338	ROLLER CABINET SET	16	SOCKET FOR ALUMINUM WHEEL	256	T-SHAPED WRENCH WITH SHORT HANDLE	133	ROLLING WEDGE BAR	302	SOCKET HOLDER • CLIP SET	55 · 66 · 73	T-TYPE IMPACT WRENCH & SET	88	RUBBER HAMMER	159	SOCKET SET	51 · 57 · 68	T-TYPE LONG TORX BIT SOCKET	108	<b>S</b>						SOCKET WRENCH SET	50 · 55 · 66	SOCKET SET FOR ALUMINUM WHEEL	255	T-TYPE LONG TORX BIT SOCKET · SET	109 · 110	SOFT GRIP SCREWDRIVER	143 · 144	SOCKET WRENCH FOR ELBOW CONNECTOR	61 · 70 · 271	T-TYPE SHORT TORX BIT SOCKET	108	SOFT GRIP SCREWDRIVER GIFT SET	143	SOCKET WRENCH SET	50 · 51 · 56 · 57 · 66 · 67 · 73 · 74	T-TYPE TORX BIT SOCKET	108	SOFT GRIP SCREWDRIVER SET	143	SOCKET WRENCH SET	50 · 55 · 66	T-TYPE TORX BIT SOCKET FOR TAMPER RESISTANT FASTENERS	113 · 114	SOFT ROUND SCREWDRIVER	145	SOFT GRIP SCREWDRIVER	143	T-TYPE TORX BIT SOCKET · SET	109	SOFT STUBBY SCREWDRIVER	144	SOFT ROUND SCREWDRIVER	145	T-TYPE TORX DRIVER · SET	111	SPARE BLADE FOR BOLT CLIPPER	153	SOFT STUBBY SCREWDRIVER	144	T-TYPE TORX DRIVER SET FOR TAMPER RESISTANT FASTENERS	116	SPARE TIPS FOR SNAP RING PLIERS	149	SPARE BLADE FOR BOLT CLIPPER	153	T-TYPE TORX L-SHAPED WRENCH	110	SPARK PLUG SOCKET	277	SPARE TIPS FOR SNAP RING PLIERS	149	T-TYPE TORX L-SHAPED WRENCH FOR TAMPER RESISTANT FASTENERS	116	SPARK PLUG WRENCH	278	SPARK PLUG SOCKET	277	T-TYPE TORX L-SHAPED WRENCH SET	110	SPARK PLUG WRENCH, SHORT	313	SPARK PLUG WRENCH	278	T-TYPE TORX L-SHAPED WRENCH SET FOR TAMPER RESISTANT FASTENERS	116	SPECIAL BATTERY CHARGER FOR LITHIUM ION BATTERY	205	SPECIAL EXTENSION SOCKET	278	TELESCOPIC DRIVER · SET	294	SPECIAL EXTENSION SOCKET	240			TENSION SPRING TOOL	263	SEAL PICK TOOL	267			TEST HAMMER	160	SEMI-DEEP SOCKET	58			THERMO-SENSOR SOCKET	282	SEMI-DEEP SOCKET SET	58			THICKNESS GAUGE	192	SEMI-SHORT RATCHET COMBINATION (FLEX TYPE)	129			THIN METAL STORAGE CASE	342					THIN METAL STORAGE CASE (PUNCHING METAL TYPE)	342					TIE ROD END SEPARATOR (OFFSET TYPE)	240
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ROLLER CABINET (5 STAGES, 5 DRAWERS)	335 · 336	SNIP (STRAIGHT WIDE CURVES CUTTING)	157	T-SHAPED HEX. WRENCH	103																																																																																																																																																																
ROLLER CABINET (7 STAGES, 7 DRAWERS)	335	SOCKET	51 · 57 · 68 · 74 · 75 · 77	T-SHAPED WRENCH	63 · 133																																																																																																																																																																
ROLLER CABINET (8 STAGES, 8 DRAWERS)	336	SOCKET FOR 14mm RATCHET	130	T-SHAPED WRENCH HOLDER	338																																																																																																																																																																
ROLLER CABINET SET	16	SOCKET FOR ALUMINUM WHEEL	256	T-SHAPED WRENCH WITH SHORT HANDLE	133																																																																																																																																																																
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