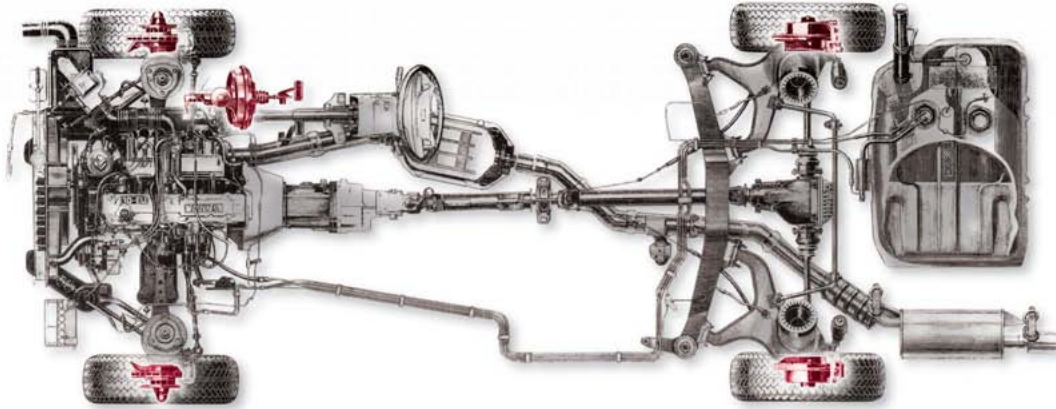


# 5. AUTOMOTIVE SPECIAL TOOLS

## Dismantling the Mechanism (6)

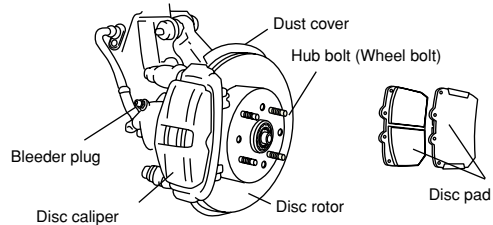
# Brake System Mechanism



### MECHANISM 1

#### How the disc brake works

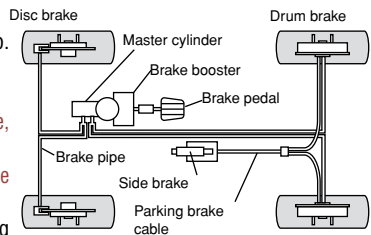
The disc brake is a device that works by pressing a brake pad against the disc rotor that rotates with the wheel. Compared to the drum brake, the disc brake is far more effective and stable, allowing for a larger braking force and is used on the front wheels of passenger vehicles and light trucks.



### MECHANISM 2

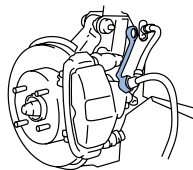
#### Brake system

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.

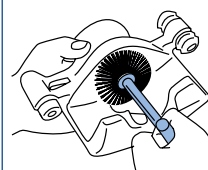


#### Disc brake tools

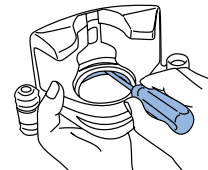
Offset wrench for bleeder plugs  
No.ABX7-08-10



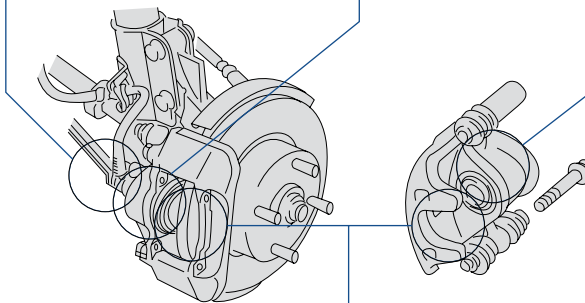
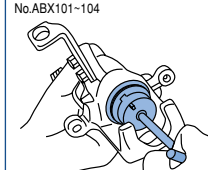
disc cylinder polisher  
No.ACPD-54-64



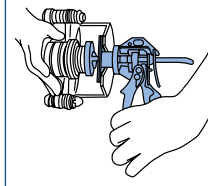
Seal pick tool  
No.ABO-100



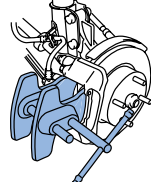
Disc parking tool  
(parking attached for discs)  
No.ABX101-104



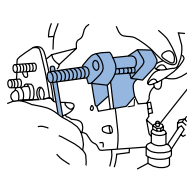
Brake piston re-setter  
No.ABX105



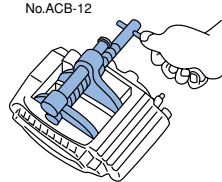
Disc brake piston tool  
No.ABX10



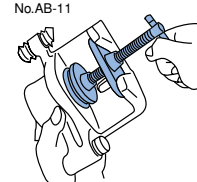
Disc brake piston tool  
No.AB-10



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

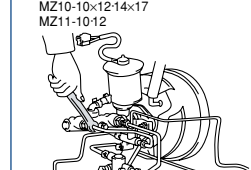


Disc brake piston tool  
(for single pistons)  
No.AB-11



#### 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



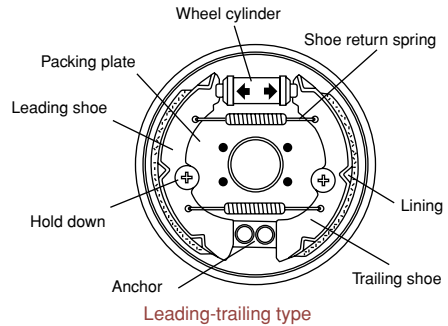
Rotating offset wrench for brake pipes  
No.MZF-10



**MECHANISM 3**

**How the drum brake works**

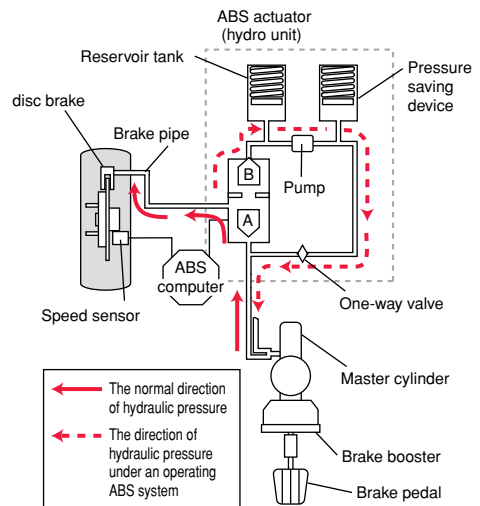
The brake drum is a device that works by pressing a brake shoe against the inner side of a cylindrical drum that rotates with the wheel axle. There are the leading-trailing type, 2 trailing type, and 2 leading type and other different types of drum brakes depending on the operating form of the brake 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**

<p><b>Cylinder polisher for small type vehicles</b> No.ACP-16A-32A No.ACP-16F-32F</p>	<p><b>C washer tool</b> No.ABX-31</p>	<p><b>Shoe hold spring tool</b> No.ABX-33-34</p>	<p><b>Brake drum screw driver</b> No.AB-5</p>
<p><b>Parking shoe lever tool</b> No.ABX-32</p>	<p><b>Tension spring tool</b> No.AB-7, ABX-35</p>	<p><b>Brake shoe adjustment tool</b> No.ABX301-305</p>	

**Large vehicle brake tool**

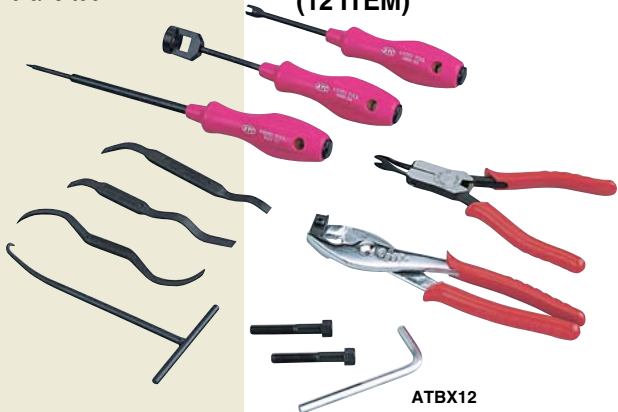
<p><b>Duo servo type spring tool</b> No.AB-9-LAB-9</p>
<p><b>Brake spring pliers/claw</b> No.ASP-550</p>
<p><b>Cylinder polisher for large type vehicles</b> No.ACP-41-59F</p> <p style="text-align: center;">Drill (air or electric) Low speed revolution</p>

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

### ●DRUM BRAKE SERVICE TOOL SET (12 ITEM)



ATBX12

### DRUM BRAKE SERVICE TOOL SET (12 item)

No. ATBX12	kg1.1	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 × 230 × 45)			



#### Usage

- A tool set that is exclusively designed for disassembling, attaching, and adjusting the brake drum on vehicles.

#### Application

- The drum brake device that is used on vehicles ranging from light weight class vehicles to small trucks (up to 2 tons)

- The tool set fits within the tool station (P.354-355) alongside the ATBX6.

### ●DISC BRAKE SERVICE TOOL SET (6 ITEM)



ATBX6

### DISC BRAKE SERVICE TOOL SET (6 item)

No. ATBX6	kg1.6	1	
Disk brake piston tool			ABX10
Disk parking tool			ABX102, 103, 104
Disk parking tool handle			ABX101
Seal pick tool			ABO-100
Tray (335 × 230 × 45)			



#### Usage

- A tool set that is exclusively designed for disassembling, attaching, and adjusting the disk brake on vehicles.

#### Application

- The disk brake device that is used on vehicles ranging from light weight class vehicles to small trucks (up to 2 tons)

- The tool set fits within the tool station (P.354-355) alongside the ATBX12.

## 1 Removing Wheel

① Removing Wheel cap and Wheel Nuts

### ●WHEEL CAP WRENCH



P.217

### ●CENTER CAP WRENCH FOR ALUMINUM WHEEL



P.217

### ●IMPACT WRENCH



P.166

### ●WHEEL NUT SOCKET FOR IMPACT WRENCH



P.218

### ●CROSS RIM WRENCH



P.119

## ② Removing hub cap.



### ●HUB CAP PLIERS

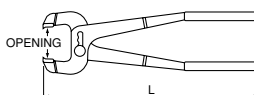


### HUB CAP PLIERS

No.	Max. Opening	L	kg	1	
HP-350S	95	350	750	10	

#### Purpose

- Removing Hub Cap.
- Can operate by one touch without damaging hub caps.
- Easily taking off caps.
- Free size for wide application.



### ●HUB CAP PLIERS



### HUB CAP PLIERS

No.	Max. Opening	L	kg	1	
HP-45130	130	490	1.35	1	

#### Purpose

- Removing Hub Cap.
- For taking off hub grease cap easily without damaging it.
- Adjustable jaw opening, for small cars to middle size trucks.

