

NEW A/C COMPRESSOR ASSEMBLY/DISASSEMBLY PROCEDURES

Article Text

1992 Suzuki Swift

For Xeon

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 Tuesday, December 02, 2003 06:54PM

ARTICLE BEGINNING

TECHNICAL SERVICE BULLETIN

MODIFICATION OF AIR CONDITIONING COMPRESSOR

Model 1990-93 Suzuki Swift GA/GS/GT, Sidekick JA/KX/JLX
 Group Miscellaneous
 Bulletin No. TS 7-04 11192
 Date December, 1992

CONDITION: Change in front housing and shaft seal.

CAUSE: Factory modification.

CORRECTION: Identify compressor and follow applicable procedure.

Due to the modification of both the cylinder front head and shaft seal assembly, a part of the disassembly procedures and special tools for compressor overhaul have been changed. When servicing the late type compressor, refer to the information contained in this bulletin. See Fig. 1 for name plate identification.

Style	Name Plate Number	MODEL
Early	047200-9920	Swift
Late	047200-9921	Swift
Early	147200-1220	Swift
Late	147200-1221	Swift
Early	047200-6 020	SideKick
Late	047200-6 021	SideKick

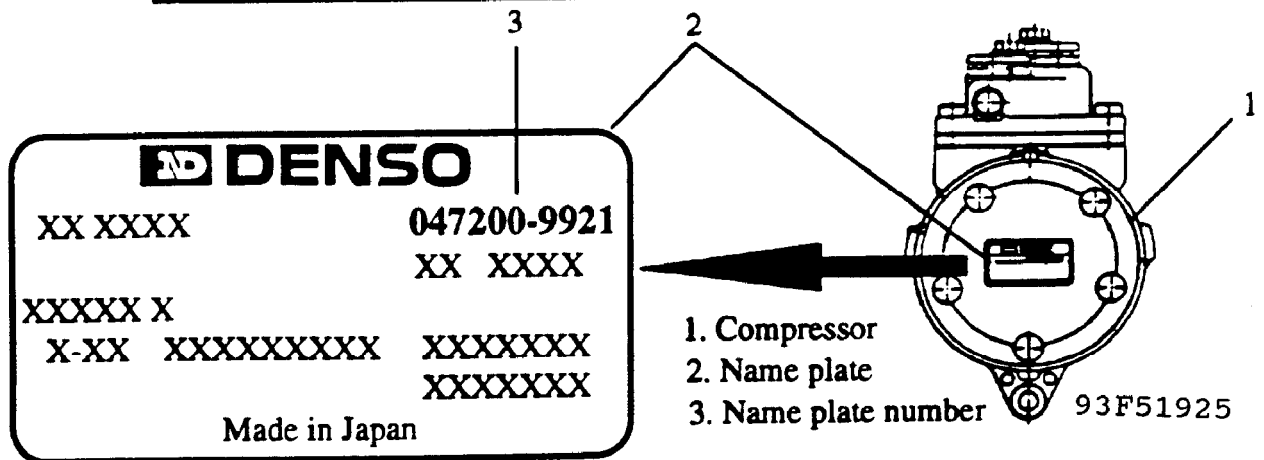


Fig. 1: Compressor Name Plate Identification

MODIFICATION PARTS

- A. Compressor and magnet clutch (see Fig. 2)
- B. Compressor (see Fig. 3)
 - 1. Shaft seal assembly
 - 1-1 Mechanical seal
 - 1-2 Lip seal
 - 2. Cylinder front head

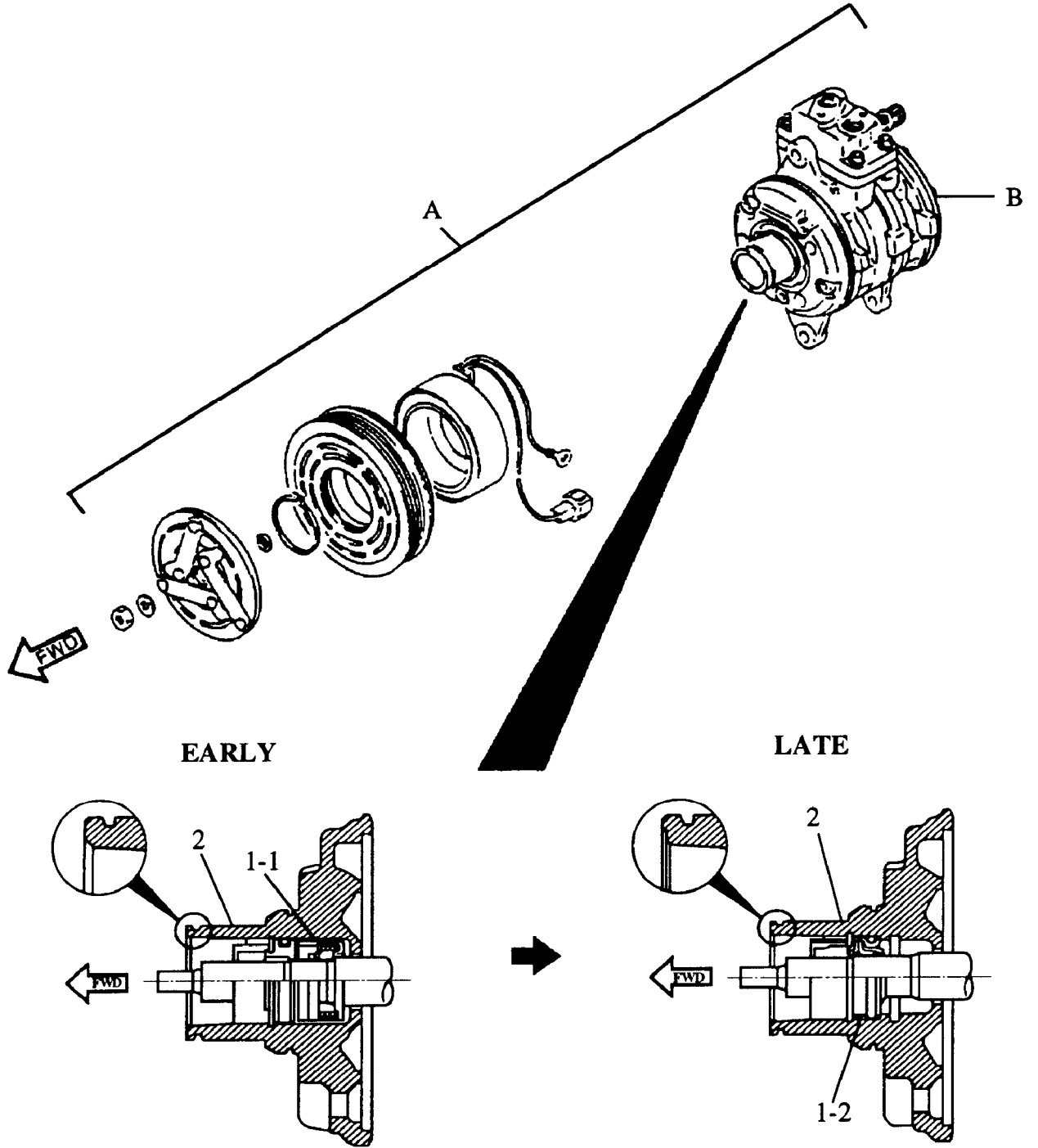


Fig. 2: Modified Compressor & Magnetic Clutch

MODIFICATION DETAIL

1. Shaft seal assembly (Fig. 3 shows early and late style seals).

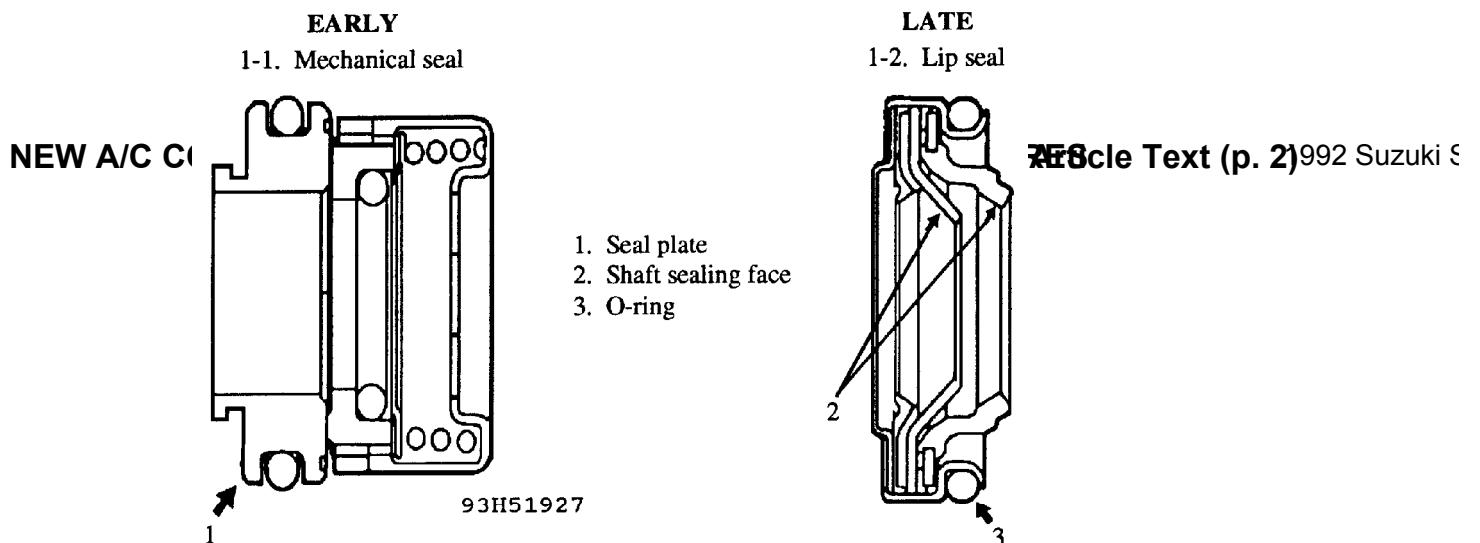


Fig. 3: Modified Shaft Seal Assembly

2. Cylinder front head (Fig. 4 shows early and late style heads).

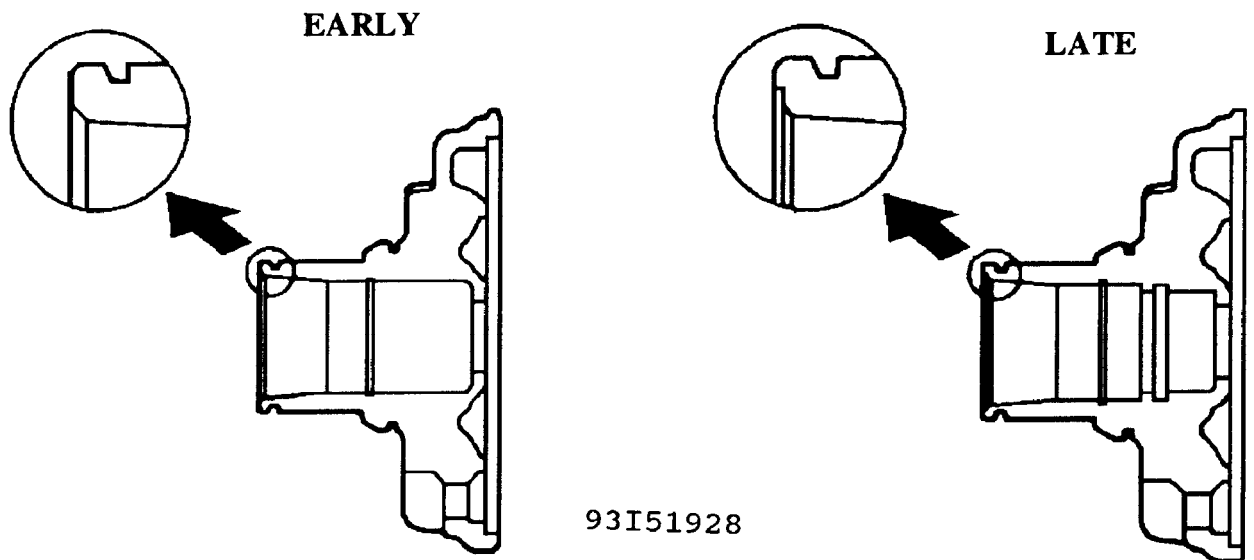


Fig. 4: Modified Cylinder Front Head

DISASSEMBLY OF COMPRESSOR (See Fig. 5)

Name Plate # 047200-9921 (Swift)
 # 147200-1221 (Swift)
 # 047200-6021 (Sidekick)

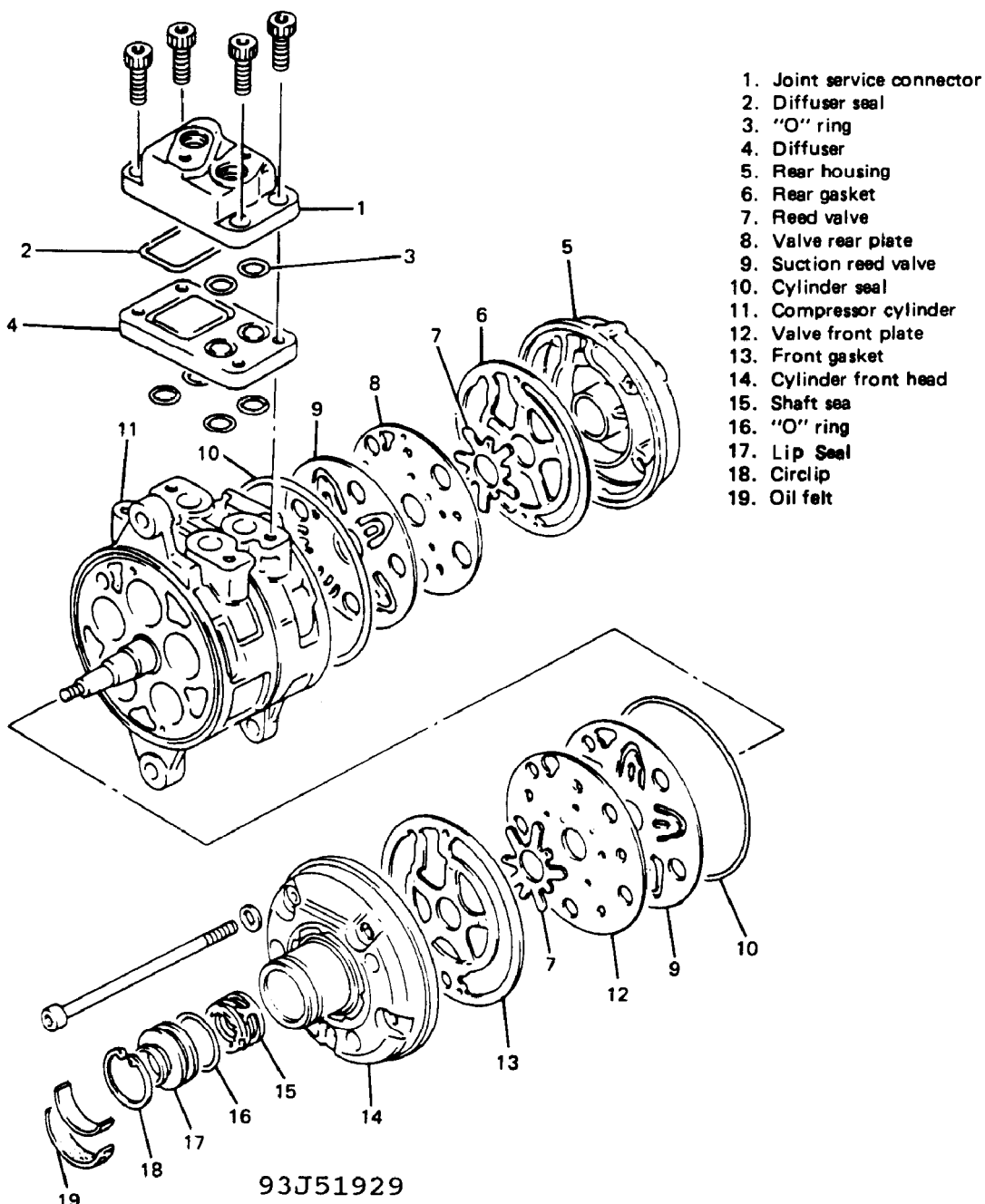


Fig. 5: Disassembly of Compressor

1. Remove oil felt. Using a screw driver, pry out oil felt.

NEW A/C COMPRESSOR ASSEMBLY/DISASSEMBLY PROCEDURE **Circle Text (p. 3)** 992 Suzuki S

2. Remove key. Using a hammer and punch, drive key from shaft.

- See Fig. 7.
 3. Remove circlip. Using snap ring pliers, remove circlip.
 See Fig. 8.
 4. Apply compressor oil to inner bore. See Fig. 9.

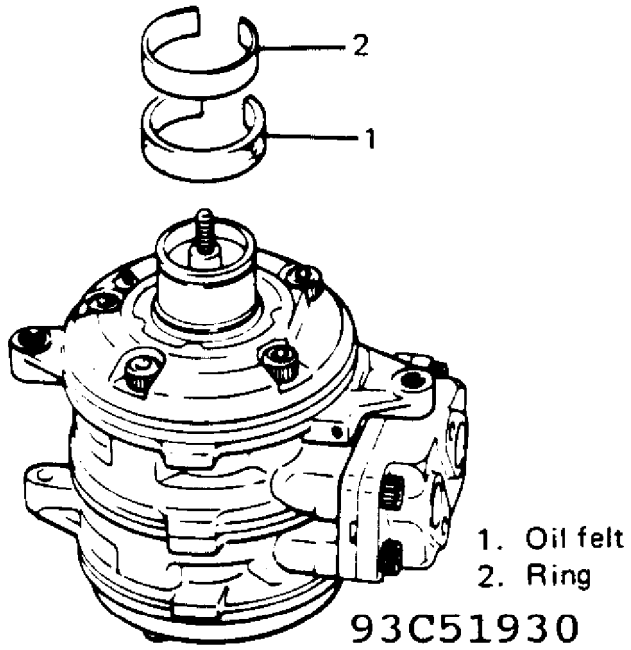


Fig. 6: Removing Oil Felt

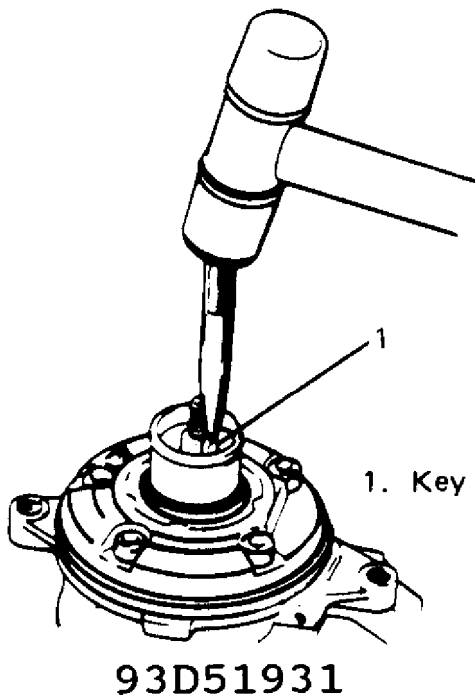


Fig. 7: Removal of Key from Shaft

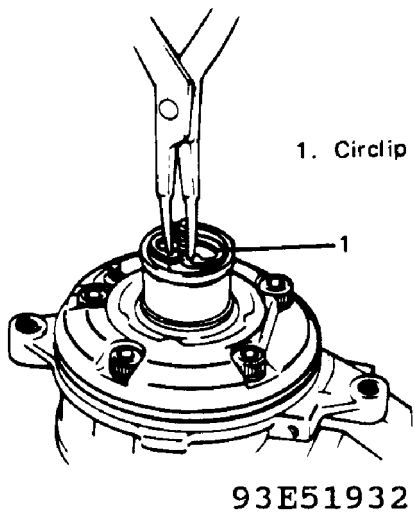
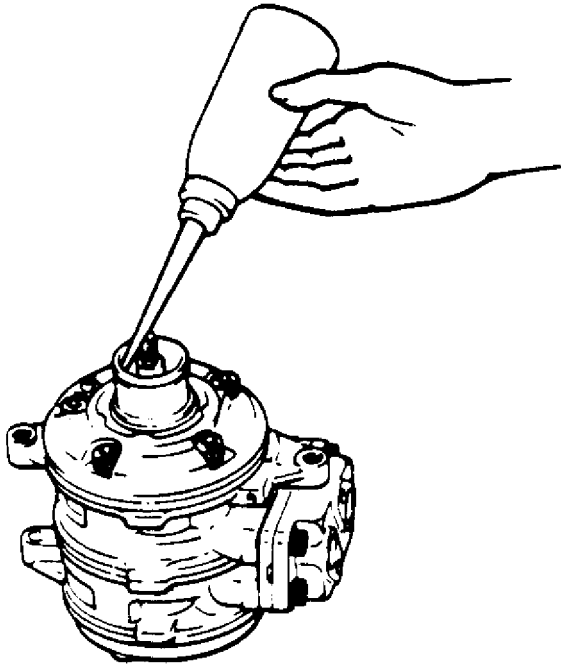


Fig. 8: Circlip Removal



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Fig. 9: Compressor Oil Application

5. Remove lip seal using special tool (A).
The following explains this removal procedure:
 - a. Fit special tool (A) into the clutch installation boss.
See Fig. 10.
 - Special tool (A): 09990-48220
 - b. Turn special tool (A) until its protrusion engages with the groove provided on lip seal. See Fig. 11.
 - c. Check that special tool (A) goes down slightly when the protrusion and groove are engaged.
 - d. Turn special tool (A) by 30°-60°.
 - e. Pull up on special tool (A) to remove lip seal. See Fig. 12.

CAUTION: DO NOT re-use lip seal once it has been removed from the compressor.

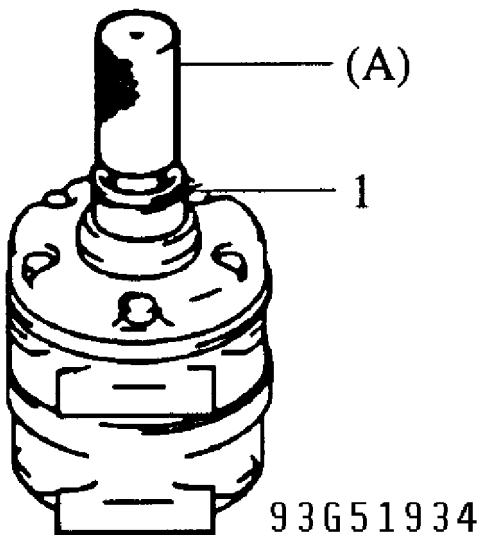
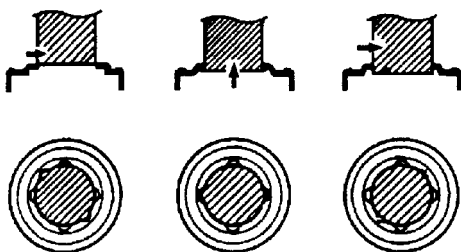


Fig. 10: Using Special Tool for Lip Seal Removal



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Fig. 11: Proper Alignment of Special Tool

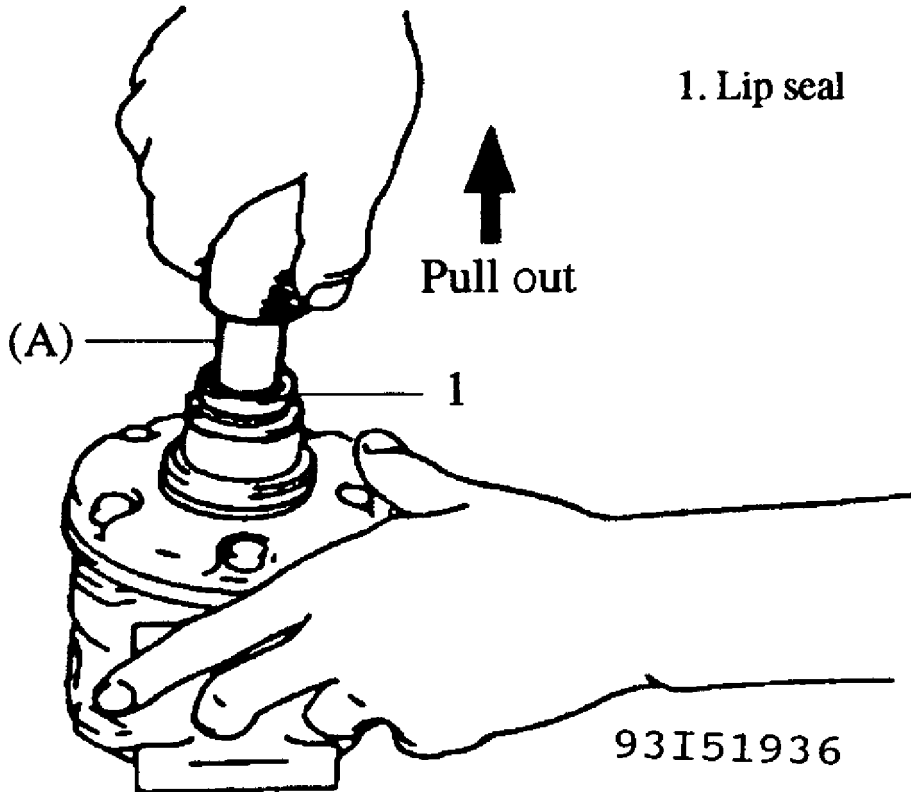


Fig. 12: Lip Seal Removal

6. Using shaft seal remover (Special tool), remove shaft seal. See Fig. 13.
7. Remove joint service connector. See Fig. 14. Remove "O" rings from service valve and discard them.

NOTE: Do not re-use five washers.

8. Drain oil into container. See Fig. 15.
9. Remove front housing. See Fig. 16. Remove front housing by prying it at its protrusion. See Fig. 17.

NOTE: Be careful not to scratch sealing surface of front housing.

C: Shaft seal remover
(Special tool)
09990-38210

1. Push
2. Turn
3. Draw

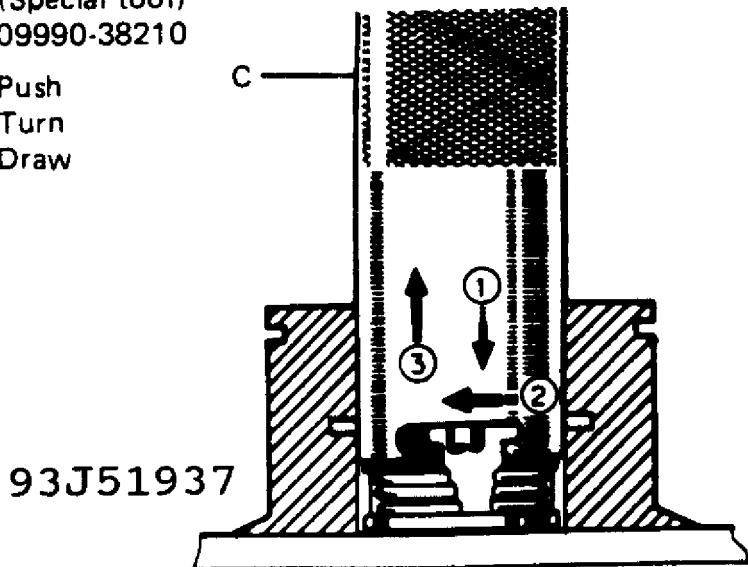


Fig. 13: Shaft Seal Removal

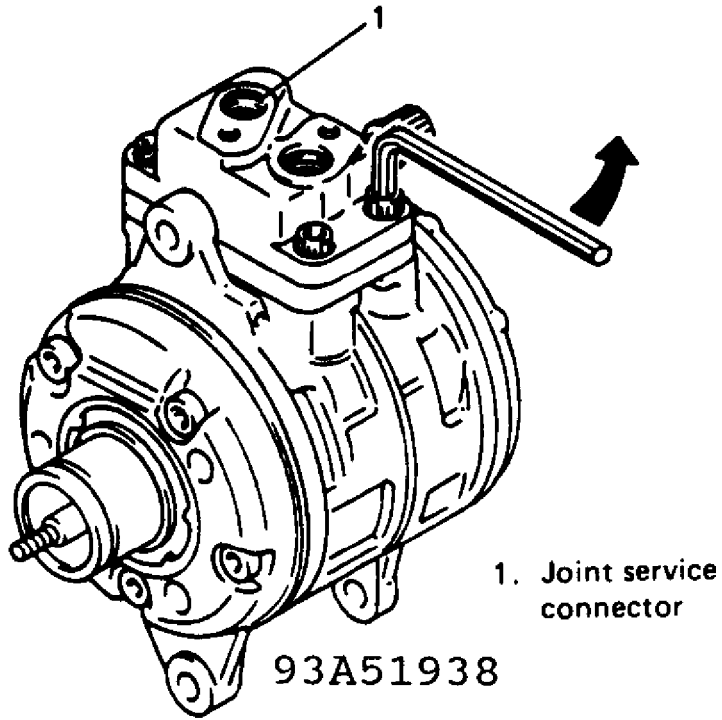


Fig. 14: Joint Service Connector Removal

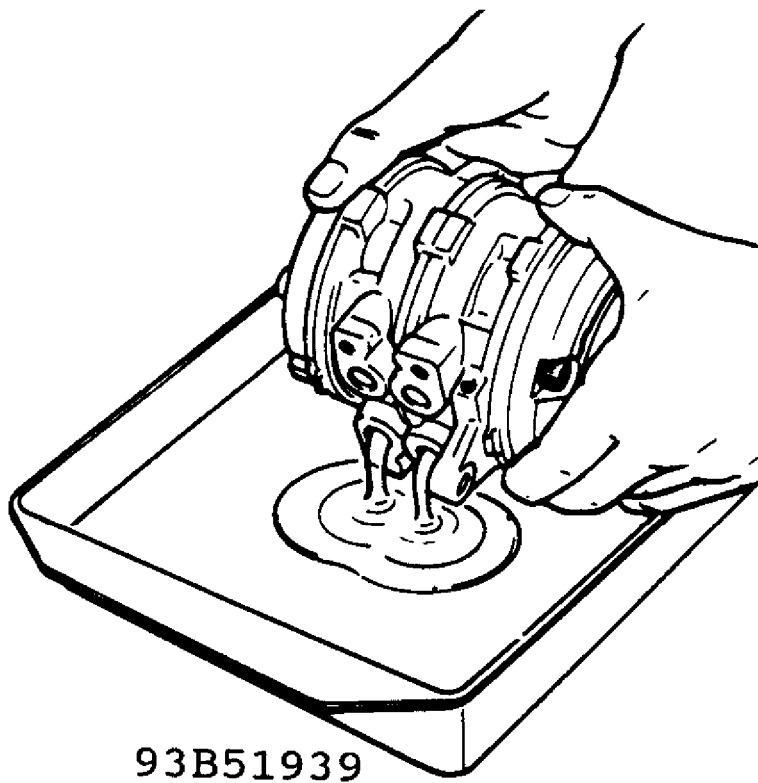


Fig. 15: Location of Oil Drain Holes

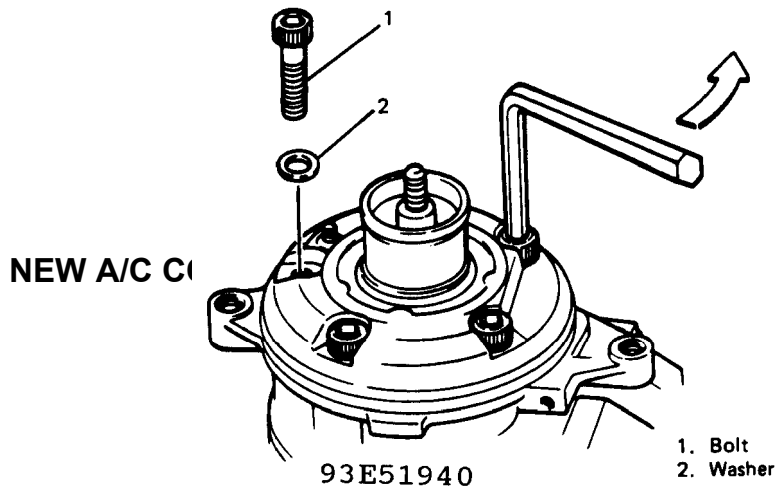
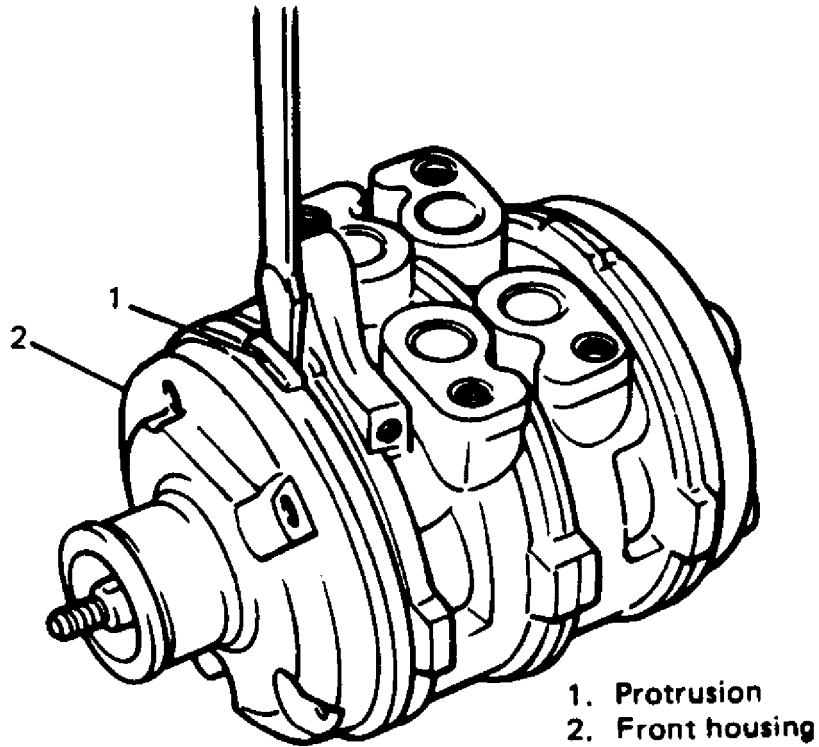


Fig. 16: Front Housing Removal



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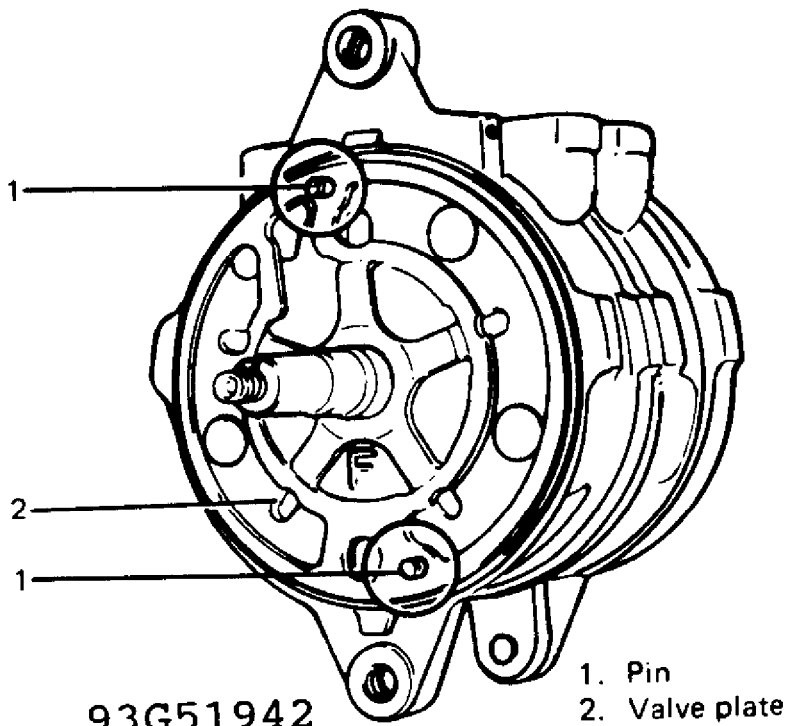
- 1. Protrusion
- 2. Front housing

Fig. 17: Protrusion Pry Location

- 10. Remove front valve plate. Remove two pins from cylinder block. See Fig. 18.
- 11. Remove rear housing by prying it at its protrusion. See Fig. 19.

NOTE: Be careful not to scratch sealing surface of rear housing.

- 12. Remove rear valve plate. Remove two pins from rear housing. See Fig. 20.
- 13. Remove front and rear "O" rings from cylinder block and discard them. See Fig. 21.



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- 1. Pin
- 2. Valve plate

Fig. 18: Front Valve Plate Removal

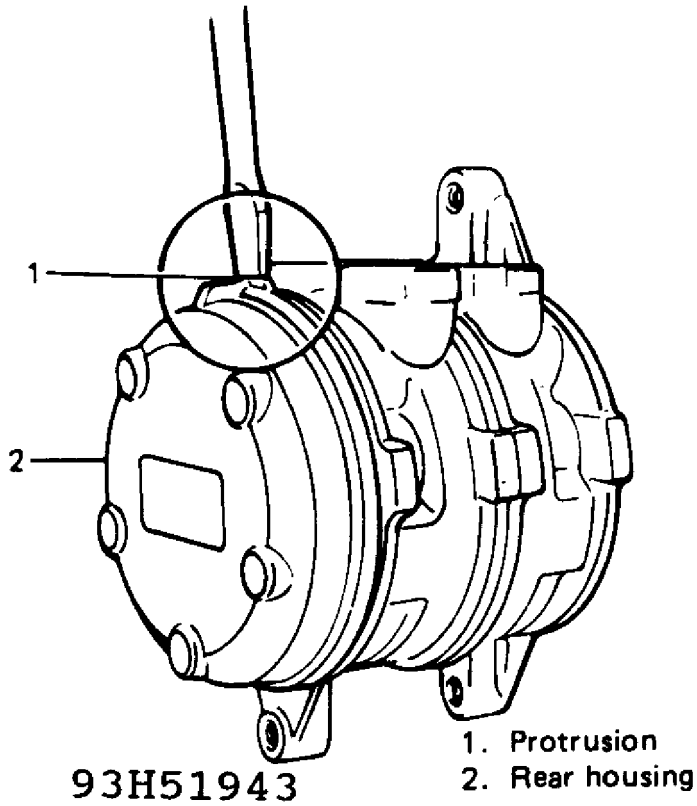


Fig. 19: Rear Housing Pry Location

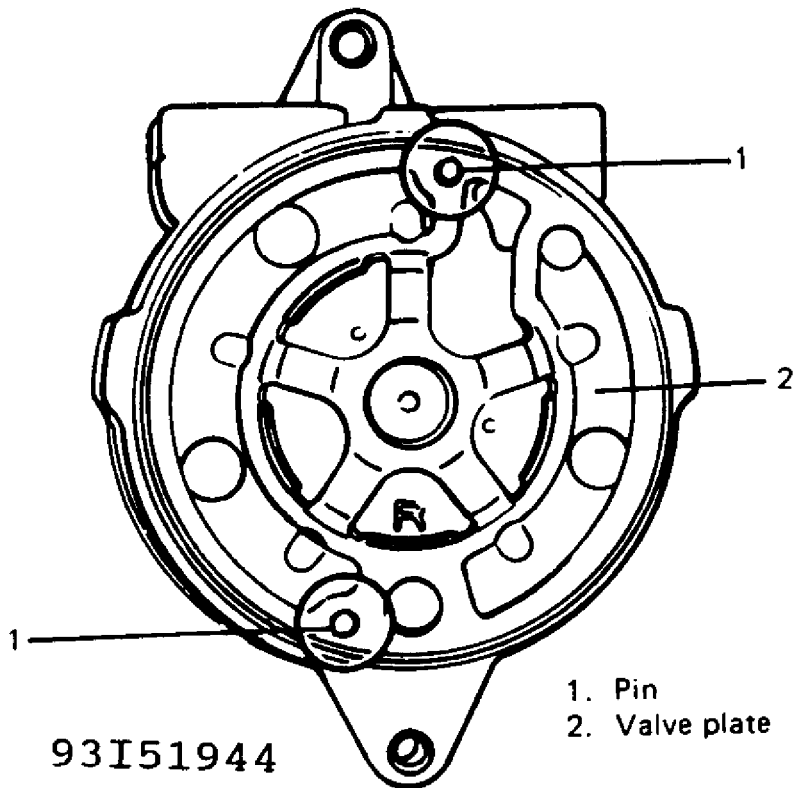
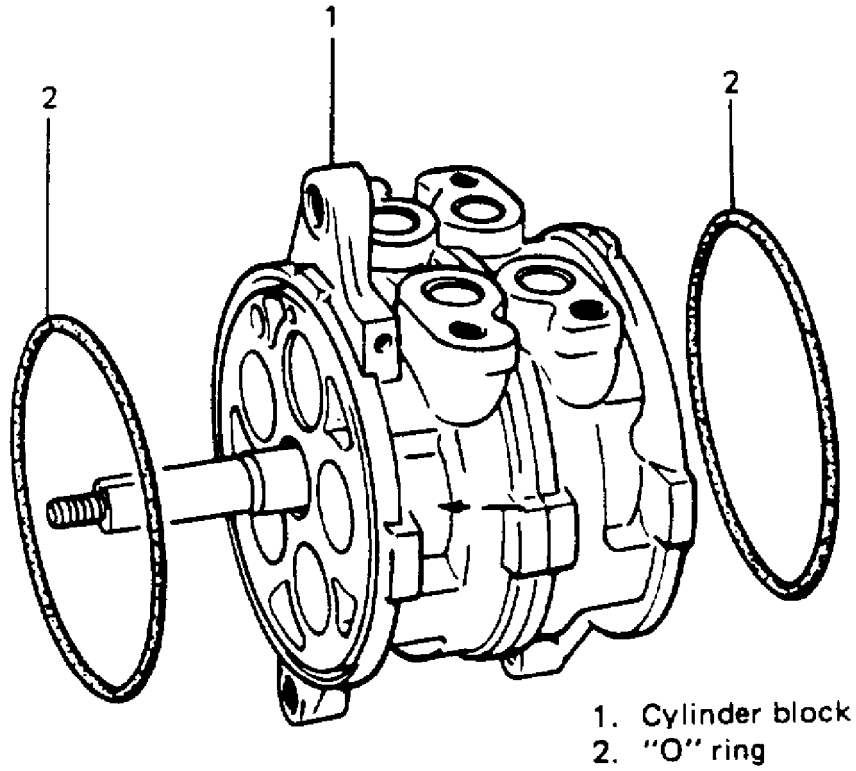


Fig. 20: Rear Valve Plate Removal

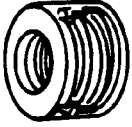


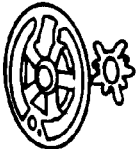
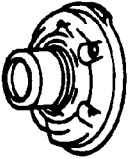
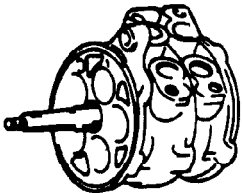



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Fig. 21: Removal of O-Rings

CHECKING COMPONENTS

Clean all parts with cleaning solvent and apply compressor oil to them. See Fig. 2.

PART NAME	CHECK POINT	REMEDY
Shaft seal 	1. Check lapping surface of carbon disc for cracks and scratches. 2. Check rubber seal for cracks and hardening. 3. Check spring action	Replace Replace Replace
Lip Seal 	1. Check sealing surfaces for scratches and corrosion.	Replace
Valve plate 	1. Check both surfaces for scratches and corrosion.	Replace or polish with fine oil stone.
Reed valve 	1. Check reed for cracks, scratches, deformation and corrosion.	Replace
Front housing 	1. Check sealing surface for cracks scratches and deformation.	Replace
Piston cylinder block 	1. Check cylinder bore for scratches and corrosion. 2. Check radial bearings for poor contact, worn-out needle, scoring or pit. 3. Check shaft for excessive axial play. 4. Check piston for excessive axial play.	Replace Replace Replace Replace
Rear housing 	1. Check sealing surface for cracks, scratches and deformation.	Replace

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Fig. 22: Component Checking

ASSEMBLY OF COMPRESSOR

NOTE: * Do not re-use gasket shaft seal, O-rings, or washers.
 Use overhaul gasket kit.

* Before starting assembly, make sure all parts as well as work-bench are clean.

1. Install rear valve plate on rear cylinder.
 - a. Install two pins in rear cylinder.
 - b. Lubricate new O-ring with compressor oil and install it in rear cylinder.
 - c. Install suction reed valve, rear valve plate, and discharge reed valve to rear cylinder top. For installation locations, refer to Fig. 23.

NOTE: * Front and rear reed valves (suction and discharge) are the same.

* Rear valve plate is marked "R".

- d. Lubricate gasket with compressor oil and install it to valve plate. See Fig. 24.

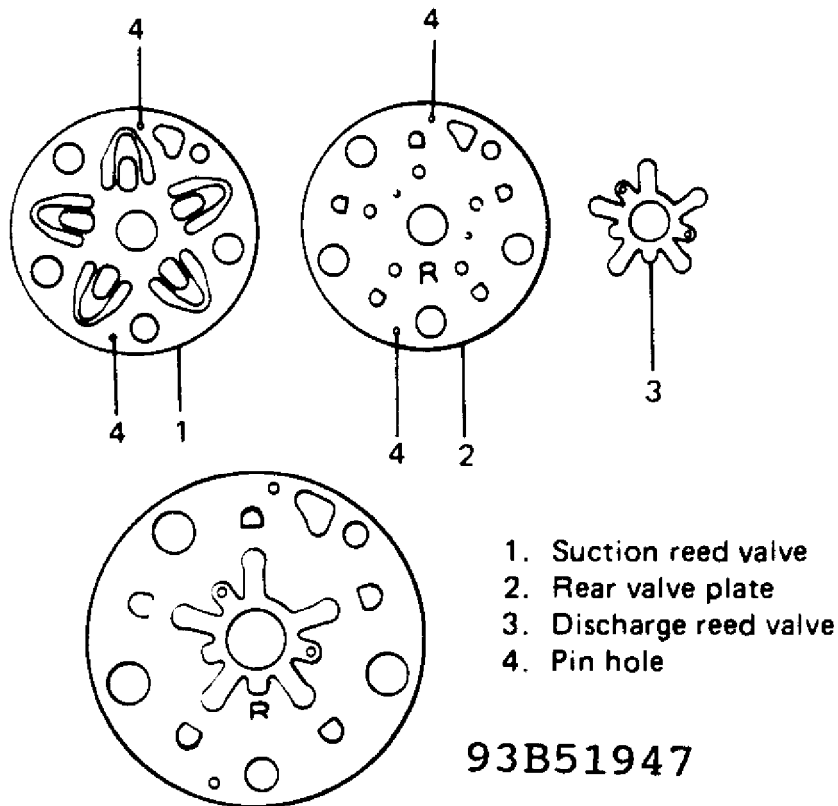


Fig. 23: Rear Valve Installation Points

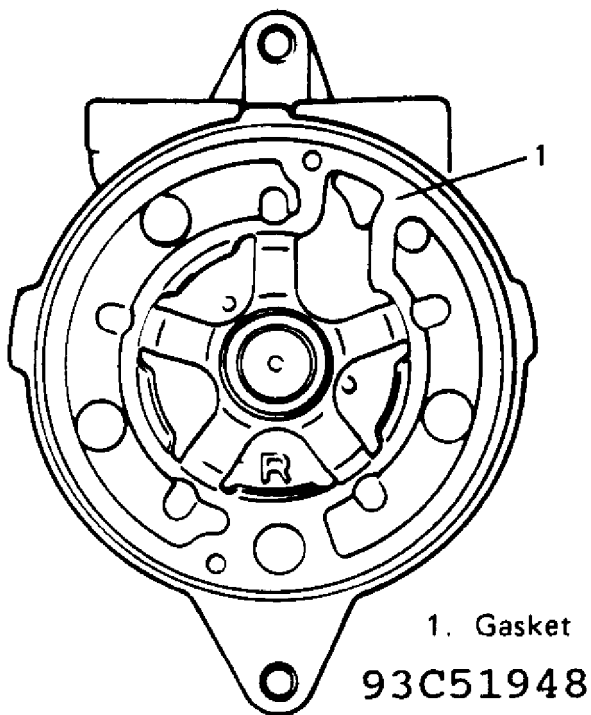


Fig. 24: Proper Gasket Placement on Rear Valve Plate

NOTE: Front and rear gaskets are not the same, so do not interchange them. See Fig. 25.

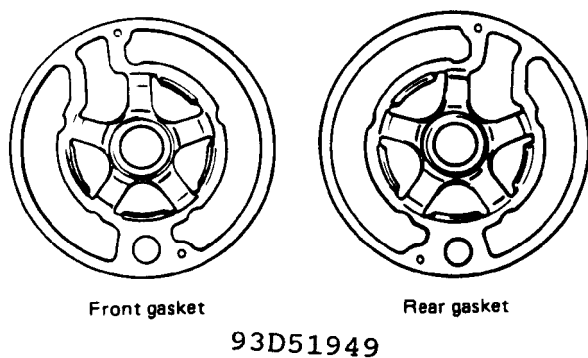


Fig. 25: Front & Rear Gasket Comparison

NOTE: Assemble gaskets so that their protruded surfaces face upward.

2. Install rear housing to rear cylinder.
Protrusion of housing should come at the top. See Fig. 26.

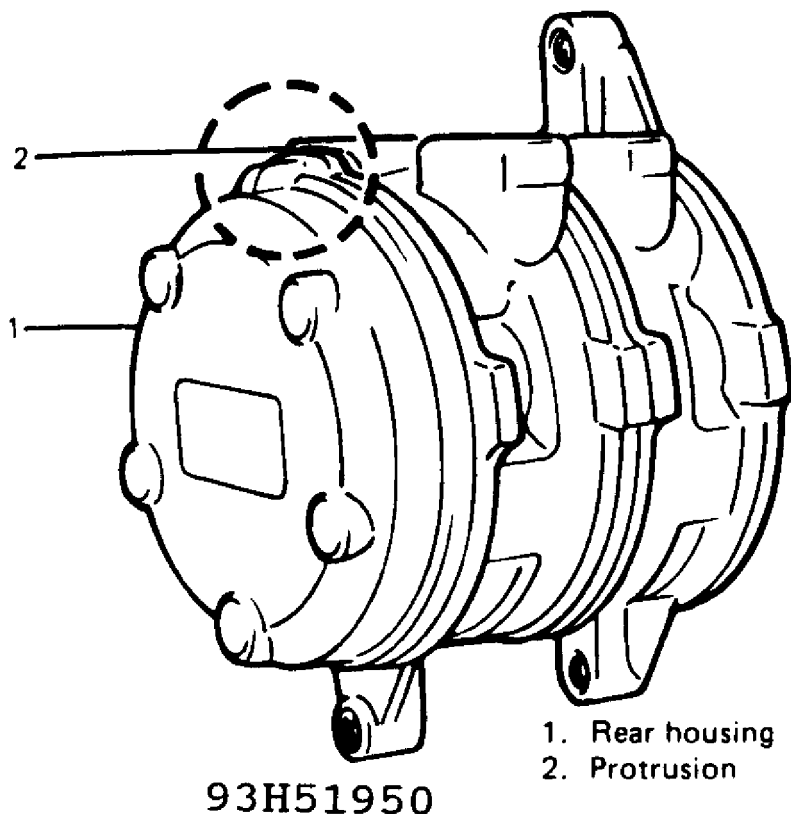


Fig. 26: Proper Placement of Rear Housing

3. Install front valve plate on front cylinder.
 - a. Install two pins in front cylinder.
 - b. Lubricate new O-ring with compressor oil. Install it in front cylinder.
 - c. Install suction reed valve, front valve plate, and discharge reed valve onto front cylinder top.
For installation locations, refer to Fig. 27.

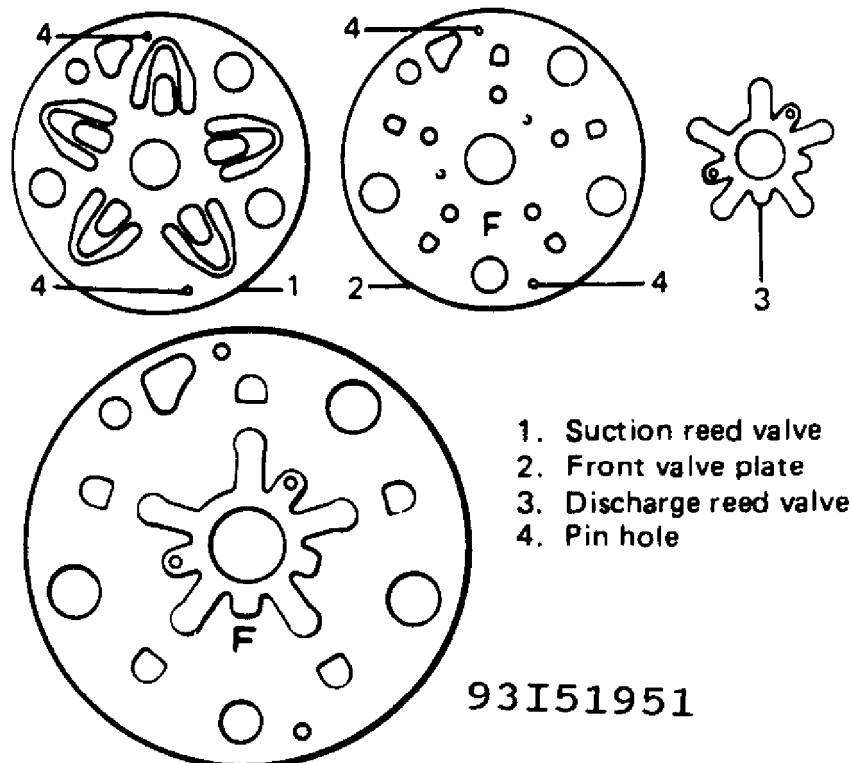


Fig. 27: Front Valve Plate Installation Points

- NOTE: * Front and rear reed valves (suction and discharge) are the same.
* Front valve plate is marked "F".

- d. Lubricate gasket with compressor oil and install it to valve plate. See Fig. 28.

NOTE: * Front and rear gaskets aren't the same, so do not inter-

on rear valve plate as shown in Fig. 25.)
 * Assemble gaskets so that their protruded surfaces face upward.

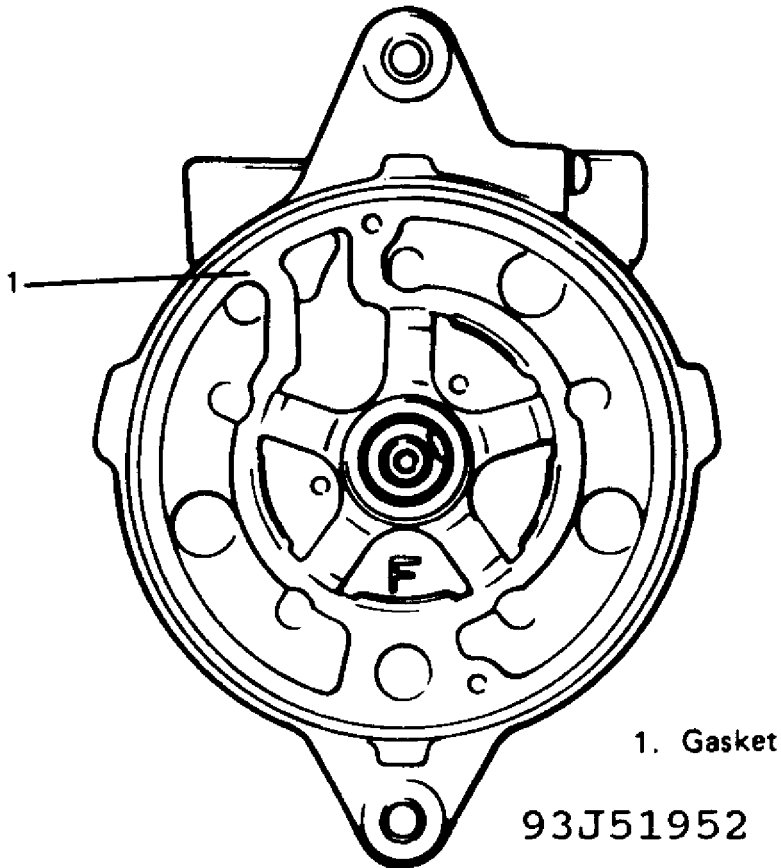


Fig. 28: Proper Gasket Placement on Front Valve Plate

4. Install front housing front cylinder and tighten five through bolts. See Fig. 29.
 - a. Using a torque wrench and hexagon wrench, gradually tighten five through bolts.

Tightening torque: 25-27 Nm (2.5-2.7 kg.m/18.1-19.5 lb. ft.)

NOTE: Protrusion of housing should come at the top.

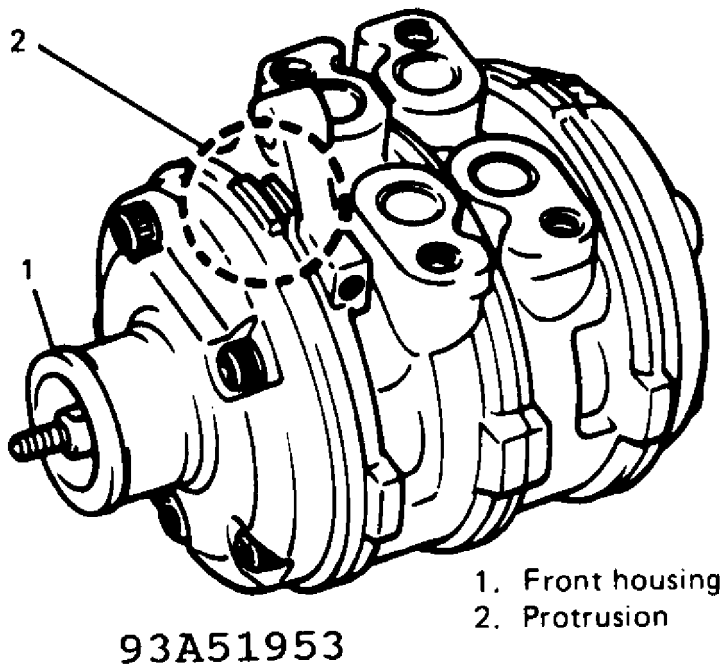


Fig. 29: Proper Placement of Front Housing

5. Install shaft seal.
 - a. Lubricate shaft seal with compressor oil and fit it to shaft seal remover using Special tool. See Fig. 30.

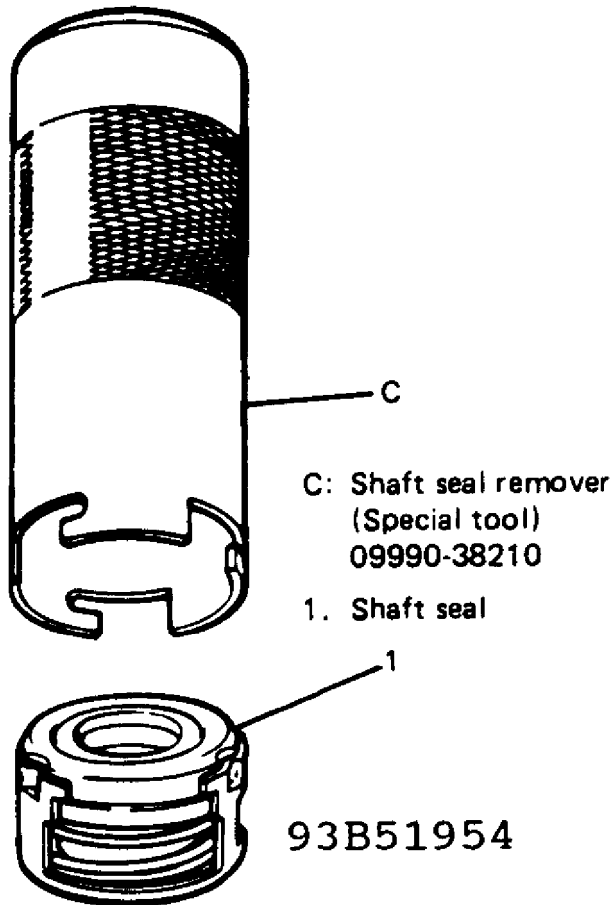


Fig. 30: Using Shaft Seal Remover

- b. Apply oil to bore.
Insert shaft seal remover, and turn it to the left while lightly pressing. Then pull up shaft seal remover.
See Fig. 31.

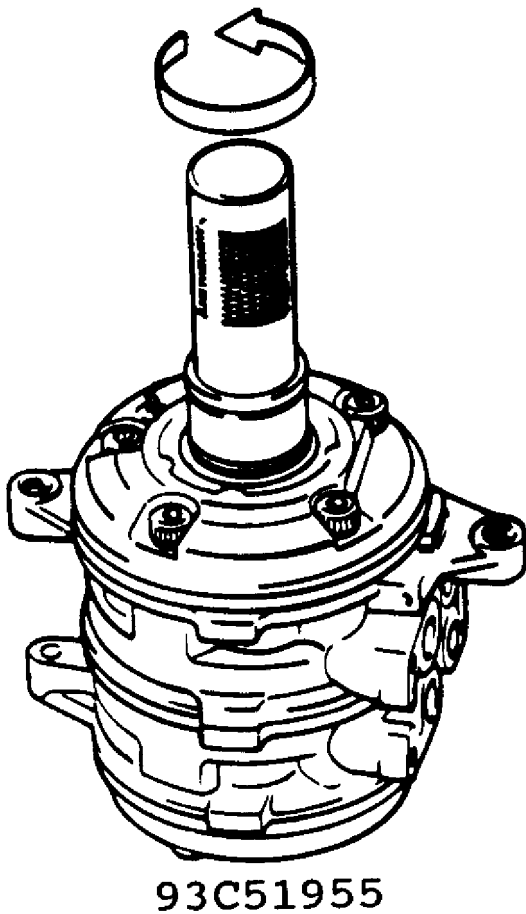


Fig. 31: Shaft Seal Installation

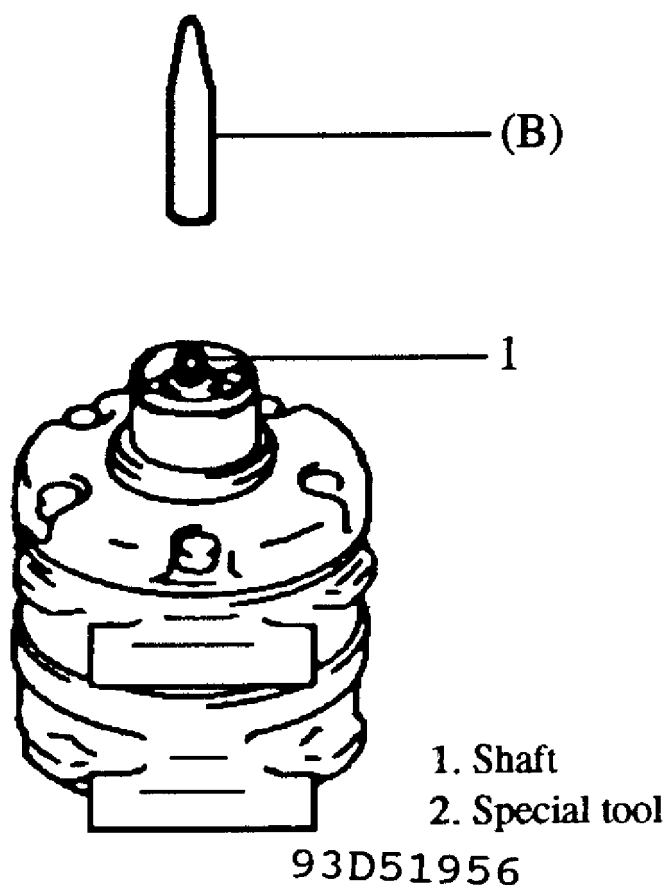


Fig. 32: Installing Special Tool on Shaft

- Apply oil to lip seal O-ring and install it over the special tool (B). When fitting the lip seal over the special tool, care should be taken so as not to confuse its designated direction. Fig. 33 shows the designated direction.

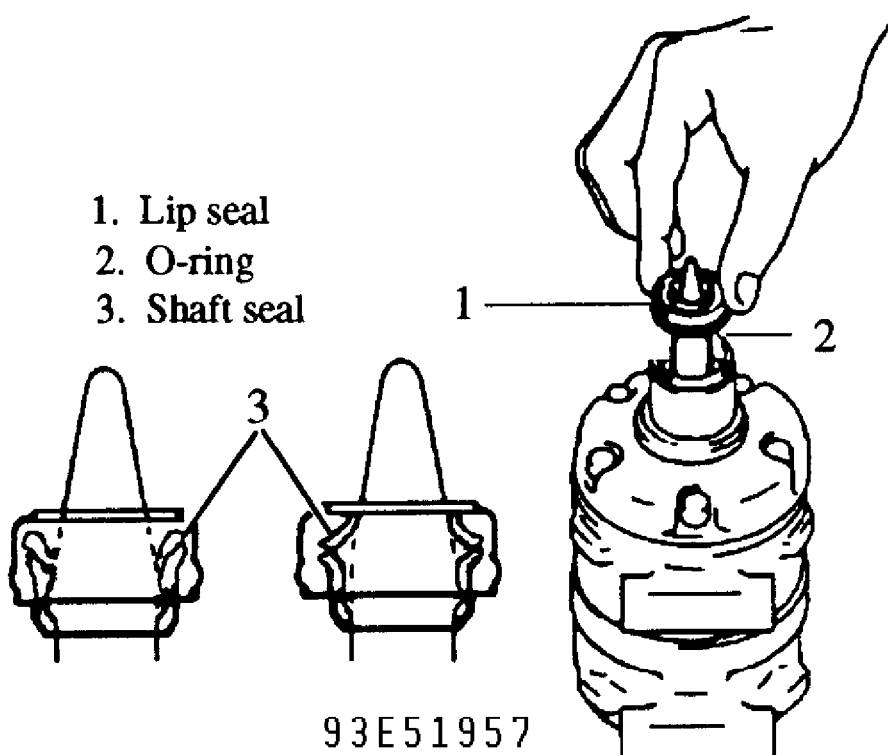
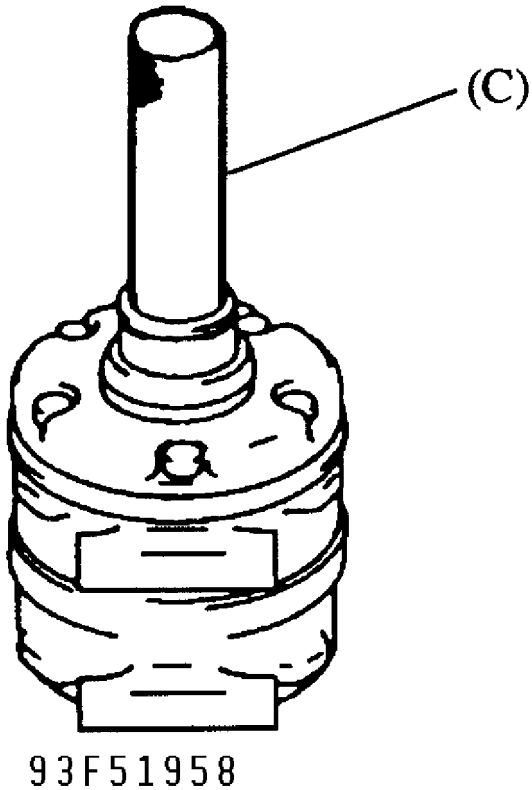


Fig. 33: Lip Seal Installation

- Position special tool (C) on lip seal. See Fig. 34.

Special tool (C): 09990-58220



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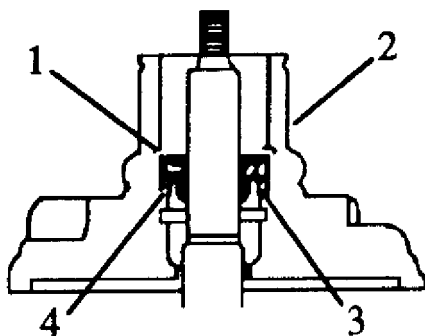
Fig. 34: Special Tool Placement on Lip Seal

9. Press special tool (C) slowly by hand until lip seal contacts the stopper of the front housing. See Fig. 35.

NOTE: With lip seal pressed in completely, its upper face must be positioned lower than the circlip fitting groove. Be sure to visually check its position.

CAUTION: Do not use a press machine, hammer, etc. to push on special tool (C).

1. Circlip installation groove
2. Cylinder front head
3. Stopper
4. Lip seal



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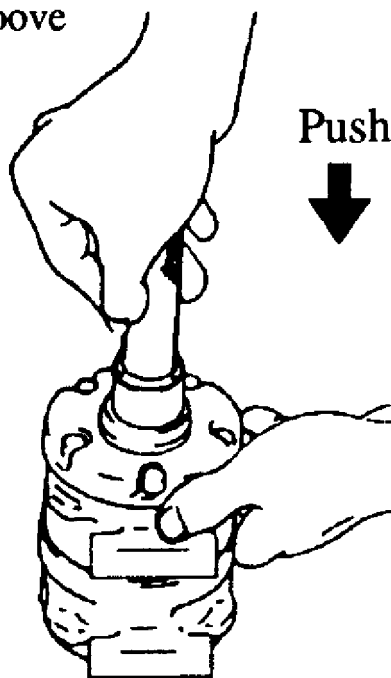
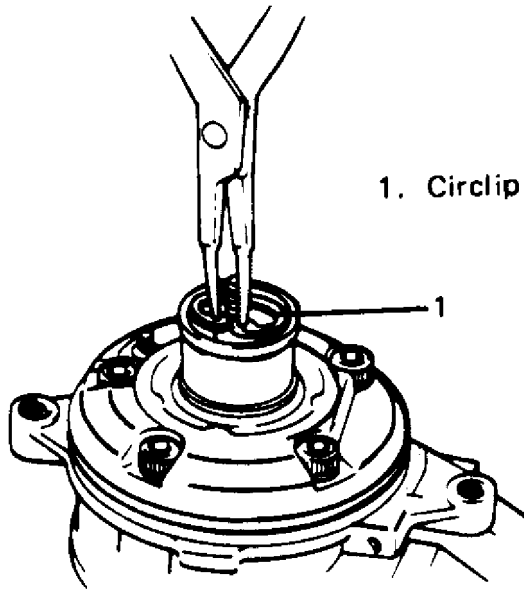


Fig. 35: Placement of Lip Seal on Stopper

10. Install circlip. See Fig. 36.

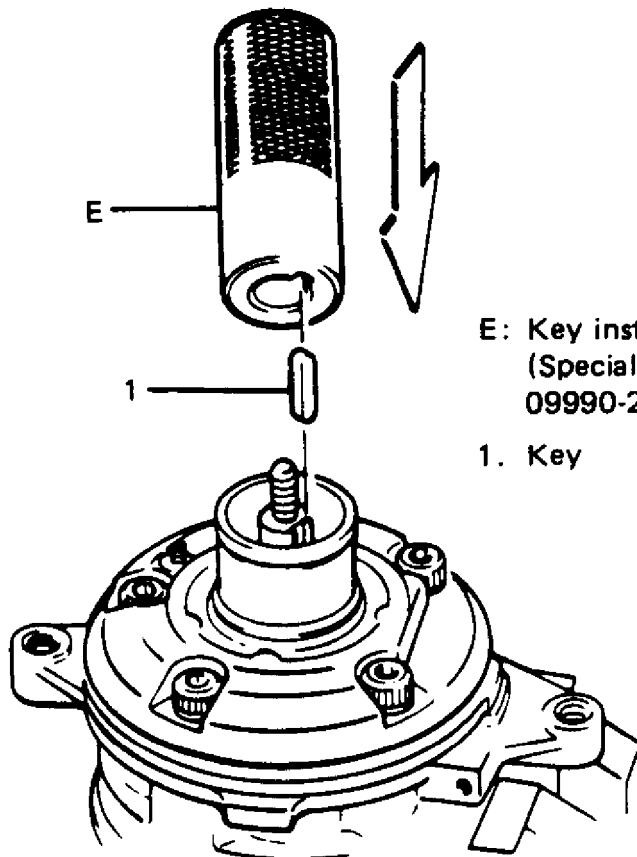


1. Circlip

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Fig. 36: Circlip Installation

11. Install key in shaft groove.
 - a. Using a plastic hammer and key installing tool (Special tool) tap key lightly. See Fig. 37.



E: Key installing tool
(Special tool)
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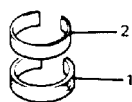
1. Key

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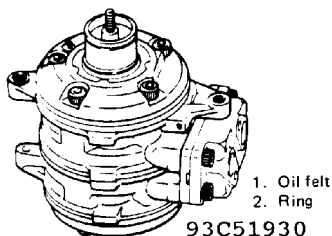
Fig. 37: Installation of Key in Shaft Groove

12. Install oil felt.
 - a. Put new oil felt to inside of bore. See Fig. 38.

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1. Oil felt
2. Ring

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Fig. 38: Oil Felt Installation

13. Pour compressor oil into compressor. See Fig. 39.

Additional oil after compressor overhauling	40 cc (2.4 cu. in.)
Oil capacity of air conditioner system	80 ± 20 cc (4.9 ± 0.1 cu. in.)

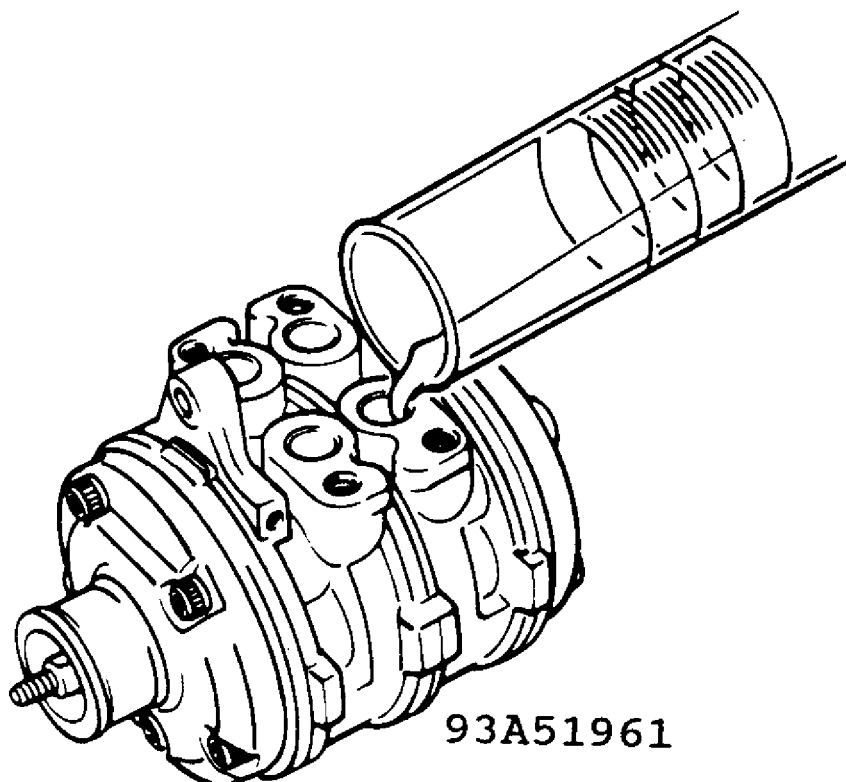
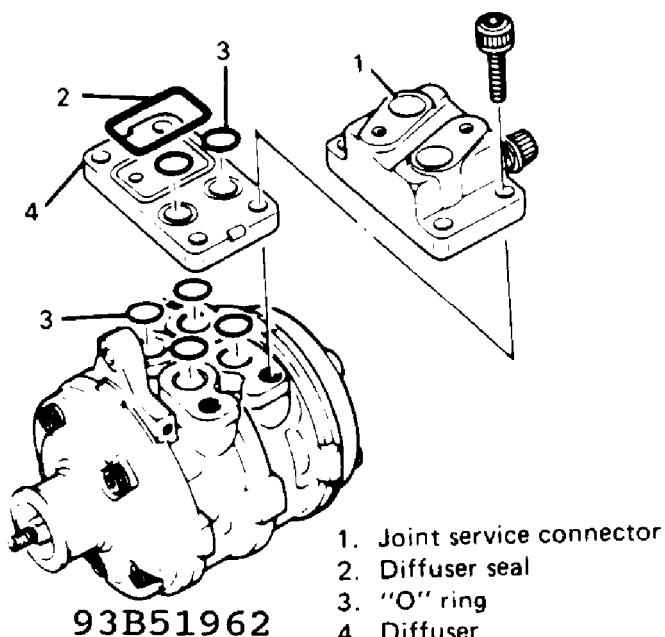


Fig. 39: Oil Filling Hole

NOTE: Compressor assembly supplied from factory is filled with 80 cc. of oil. Therefore, when replacing only compressor assembly with new one, drain 40 cc. oil from it. The rest (40 cc.) of oil remain in other parts than compressor.

- 14. Install service valves. See Fig. 40.
 - a. Lubricate new O-rings with compressor oil and install them in service connector.
 - b. Install service connector to compressor.

Tightening torque: 25-27 Nm (2.5-2.7 kg.m/18.1-19.5 lb.ft)



- 1. Joint service connector
- 2. Diffuser seal
- 3. "O" ring
- 4. Diffuser

Fig. 40: Service Valve Installation

NOTE: Suction port has larger internal opening than discharge port.

15. Check shaft rotating torque.

Starting torque: Less than 30 kg-cm (2.2 lb-ft)

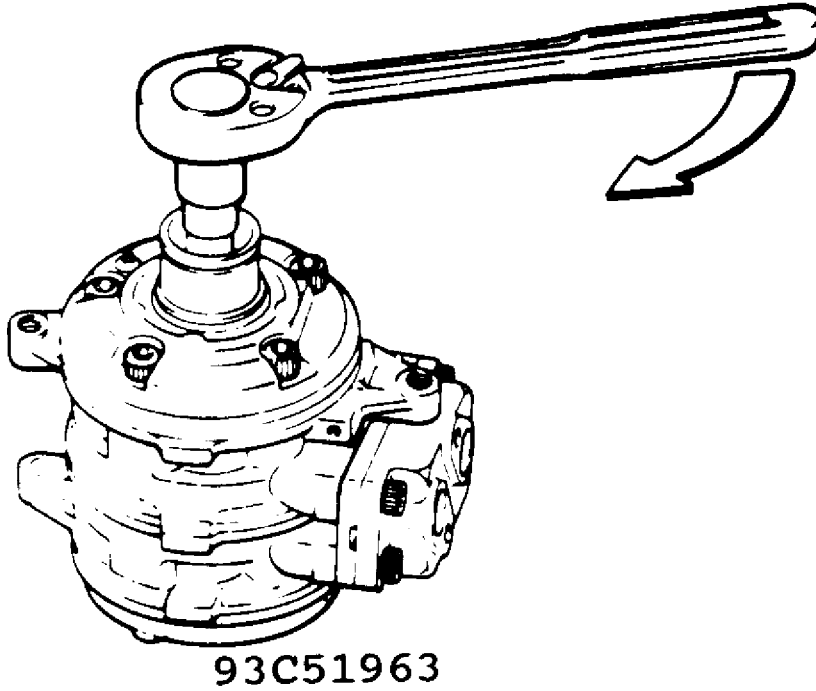


Fig. 41: Shaft Rotation Torque Check

PARTS INFORMATION TABLE

Ref. #	Part Name	Early Part Number	Late Part Number	Supply of Spare Parts
A	Compressor and magnetic clutch	95200-60B10 -64B10	95200-60B11 -64B11	Both early and late
B	Compressor	95230-60B10 -64B10	95230-60B11 -64B11	
1	Shaft seal assembly	95260-82000	95260-82001	
2	Cylinder front head	95231-82000	95231-82001	

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