SECTION 1D

AIR CONDITIONING COMPRESSOR SERVICE

NOTICE: Always use the correct fastener in the proper location. When you replace a fastener, use ONLY the exact part number for that application. General Motors will call out those fasteners that require a replacement after removal. General Motors will also call out the fasteners that require thread lockers or thread sealant. UNLESS OTHERWISE SPECIFIED, do not use supplemental coatings (paints, greases, or other corrosion inhibitors) on threaded fasteners or fastener joint interfaces. Generally, such coatings adversely affect the fastener torque and joint clamping force, and may damage the fastener. When you install fasteners, use the correct sequence and tightening specifications. Following these instructions can help you avoid damage to parts and systems.

NOTICE: The refrigeration system on this vehicle uses R-134a which is not compatible with refrigerant R-12. Before servicing the system, always make sure the proper servicing equipment is used or the system could become severely damaged. Always refer to the service text and manufacturer's instructions included with service equipment before proceeding.

CONTENTS

GENERAL DESCRIPTION

It is very important when servicing the compressor to keep dirt and other foreign material from getting in or on the compressor parts and system. Clean tools and a clean work area are essential for proper service. The compressor and its parts must be kept clean at all times and any parts which are to be reassembled should be cleaned with Trichloroethane, naphtha, kerosene or an equivalent solvent and air dried. Use only lint-free cloths to wipe parts.

The compressor's function is to pump refrigerant and refrigerant oil through the A/C system, and to compress high-temperature gaseous refrigerant into high-temperature/high-pressure gaseous refrigerant. It is the heart of the A/C system and is essentially (with the exception of the condenser fan) its only moving part.

The operations described here are based on bench overhaul with the compressor removed from the car. They have been prepared in order of accessibility of the components. When the compressor is removed from the vehicle for servicing, the oil remaining in the compressor should be drained and discarded and new refrigerant oil added when the overhaul is completed.

All repairs and procedures for the compressor must be performed after the A/C system refrigerant has been discharged and recovered, and the compressor has been removed from the vehicle. Refer to SECTION 1B for compressor removal procedures.

DIAGNOSIS

Compressor malfunction will generally appear in one of four ways: noise, seizure, refrigerant leakage or low discharge pressure. Resonant compressor noises are not cause for alarm; however, irregular noise or rattles may indicate broken parts or excessive wear. To check for seizure, de-energize the A/C compressor clutch and check to see if the drive plate can be rotated. If rotation is impossible, the compressor is seized. Compressor gas leaks are very often caused by a defective or worn-out shaft seal. A small amount of compressor oil leakage from the shaft seal is normal. Only when a large leak is detected should the shaft seal be replaced. Oil leakage can at times be detected visually, while gas leak checking will require a gas leak detector. Low discharge pressure may be due to a faulty internal seal or a restriction in the compressor, or leakage of refrigerant somewhere else in the system.

SERVICE PROCEDURES

A/C Compressor Clutch

Figures 2 through 5

Remove or Disconnect

Tool Required:
J 41384—Clutch Plate Holder/Remover

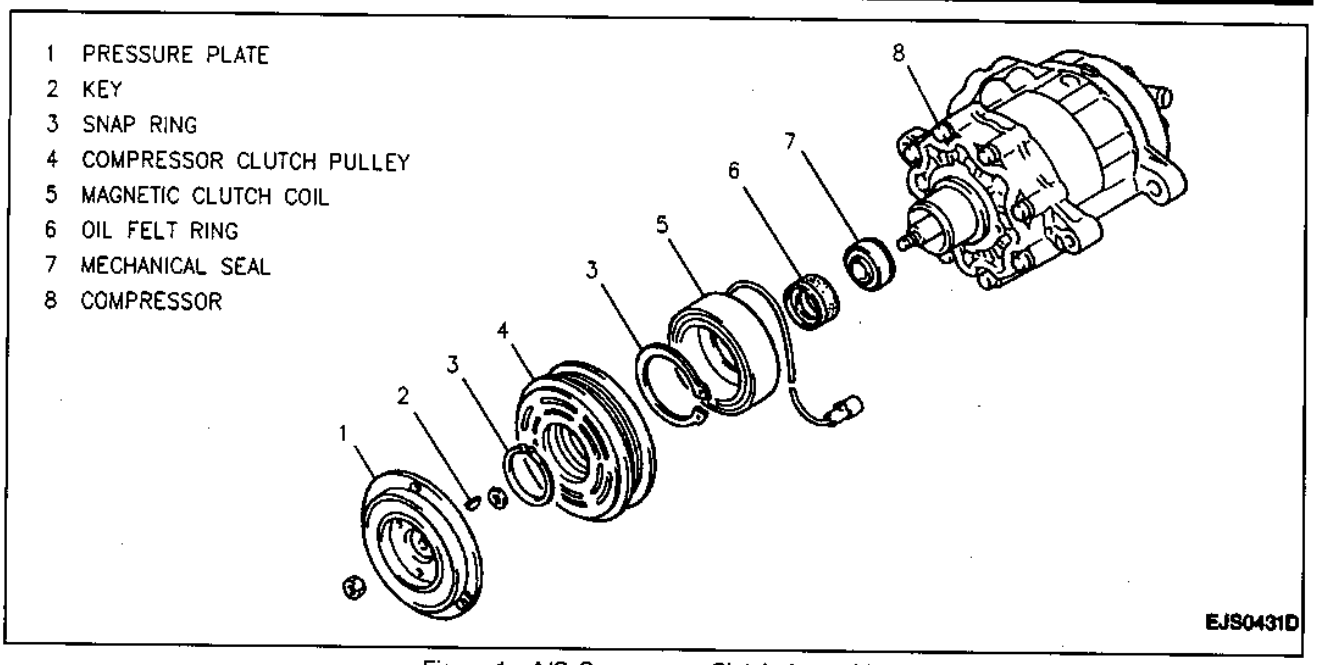


Figure 1—A/C Compressor Clutch Assembly

1. Compressor assembly from vehicle. Refer to SECTION 1B.
2. Pressure plate nut and washer from compressor drive shaft, using tool J 41384 (Figure 2).
3. Pressure plate from compressor drive shaft, using tool J 41384 (Figure 3).
4. Snap ring and shim, using appropriate snap ring pliers (Figure 4).
5. A/C compressor clutch pulley from compressor. Tap off with plastic hammer if necessary.

NOTICE: Be careful not to damage pulley when tapping it off. Use a pulley puller, like a J 8433, to assist in the removal of the clutch pulley.

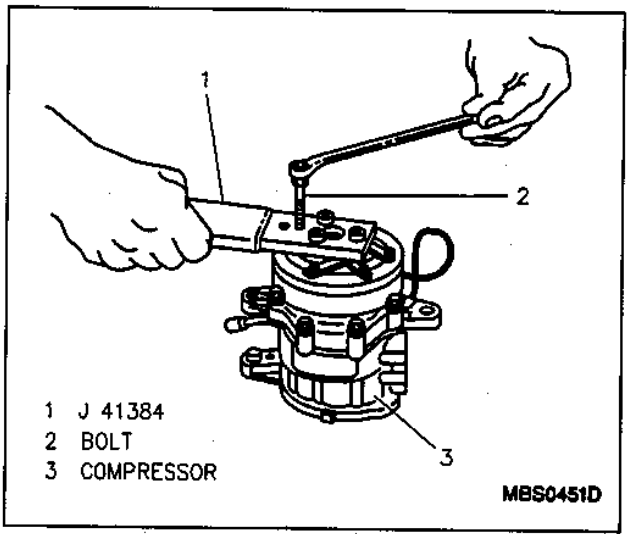


Figure 3—Removing Pressure Plate from Compressor

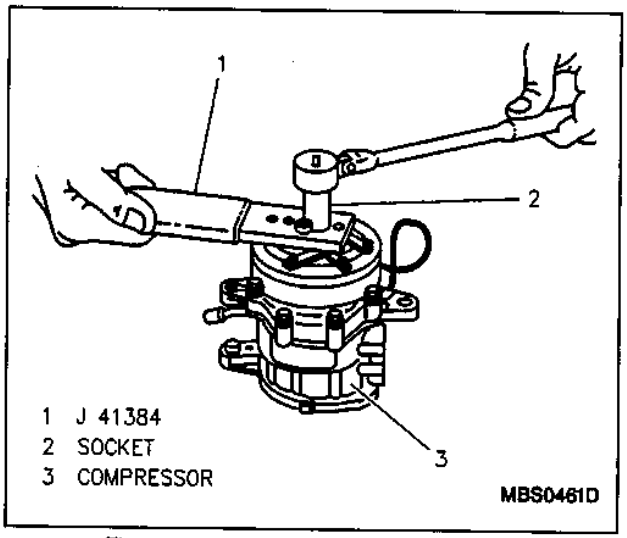


Figure 2—Removing Pressure Plate Nut

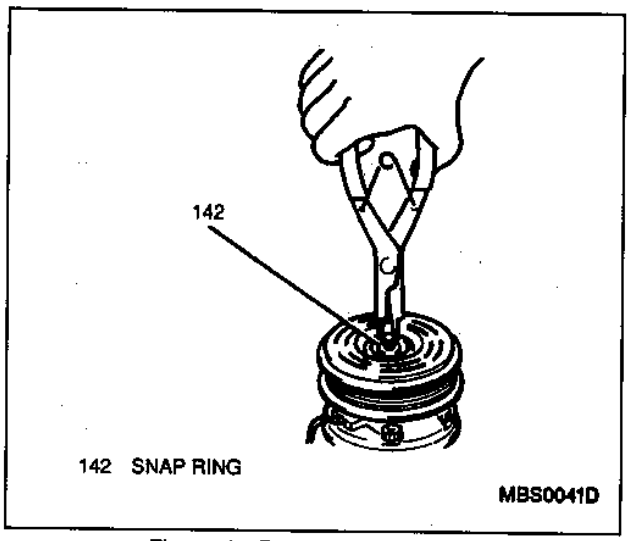


Figure 4—Removing Snap Ring

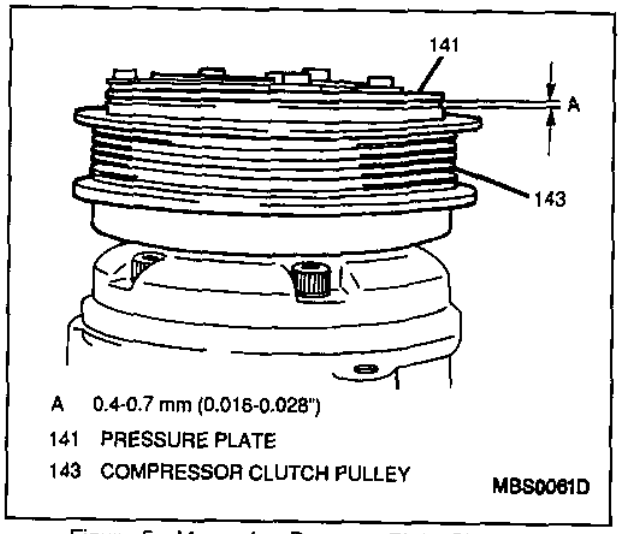


Figure 5—Measuring Pressure Plate Clearance

Install or Connect

1. A/C compressor clutch pulley to compressor; secure with snap ring and shim.
2. Pressure plate to compressor drive shaft.

Measure

- Clearance between clutch pulley and pressure plate: 0.35 to 0.65 mm (0.014 to 0.025 inch, Figure 5).

3. Pressure plate washer and nut to compressor drive shaft by using tool J 41384.

Tighten

- Pressure plate nut to 15 to 20 N.m (10.8 to 15.2 lbs. ft.).

A/C Compressor Clutch Coil

Figures 6 and 7

Remove or Disconnect

Tool Required:
J 41384—Clutch Plate Holder/Remover

1. Compressor assembly from vehicle. Refer to SECTION 1B.
2. A/C compressor clutch. Refer to "A/C Compressor Clutch" earlier in this section.
3. Clutch coil wiring retainer from compressor housing, one screw (Figure 6).
4. Clutch coil from compressor.

Inspect

Tool Required:
J 39200 Digital Multimeter

- Pressure plate for wear and scoring. Replace if necessary.
- A/C compressor clutch pulley for wear and scoring. Replace if necessary.
- Clutch coil for resistance using tool J 39200. Replace if not within specification (Figure 7).
  -Standard resistance: 2.9 to 3.8 ohms.

Install or Connect

1. Clutch coil to compressor.
2. Clutch coil wiring retainer to compressor housing; secure with one screw.

Tighten

- Clutch coil wiring retainer bolt to 2 to 2.5 N.m (1.4 to 1.8 lbs. ft.).

3. A/C compressor clutch pulley to compressor; Refer to "A/C Compressor Clutch" earlier in this section.

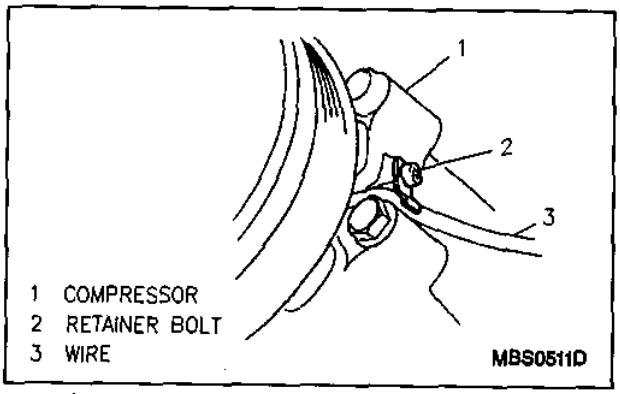


Figure 6—Clutch Coil Wiring Retainer and Bolt

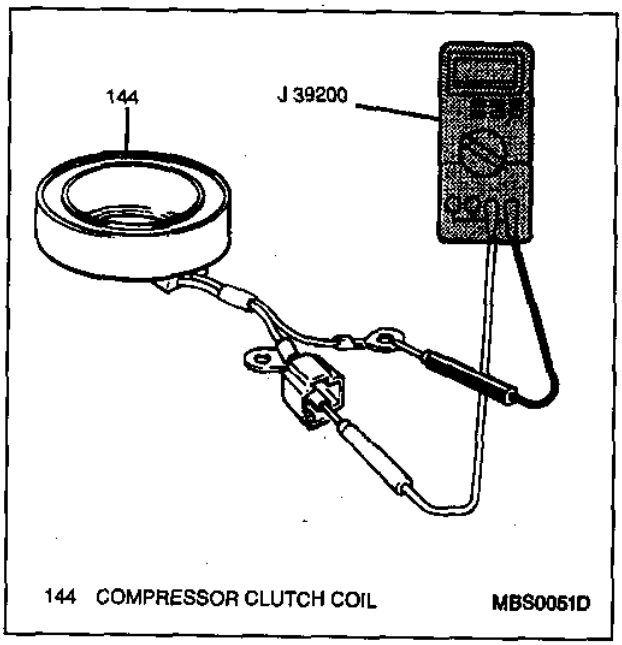


Figure 7—Inspecting A/C Compressor Clutch Coil Resistance

Compressor Shaft Seal

Figures 8 through 11

Remove or Disconnect

Tools Required:
J 41387—Compressor Shaft Seal Remover/Installer
J 36049—Shaft Seal Protector

1. A/C compressor clutch. Refer to "A/C Compressor Clutch" earlier in this section.
2. Oil felt seal and retainer from shaft. Pry off with screwdriver.
3. Key from compressor shaft.
4. Snap ring, using appropriate snap ring pliers (Figure 8).
5. Compressor shaft seal using tool J 41387. Insert tool, turn until making contact with shaft seal notches and pull shaft seal out (Figure 9).

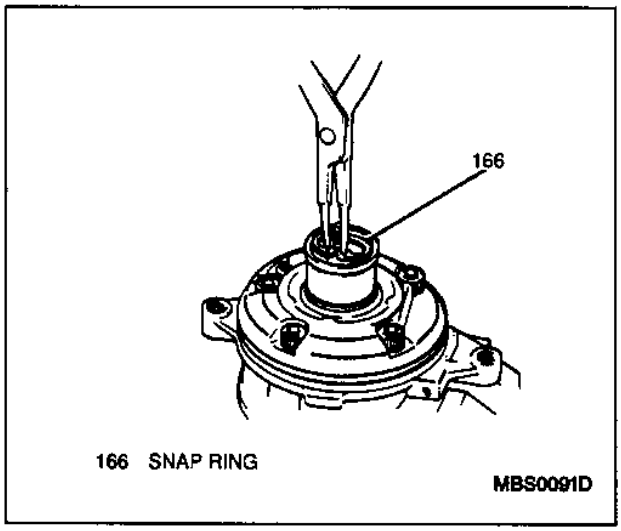


Figure 8—Removing Snap Ring

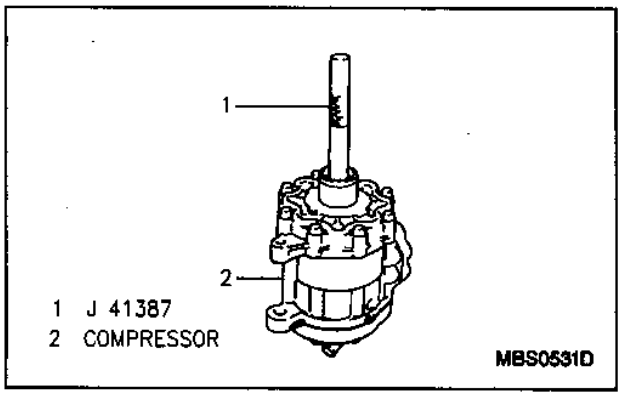


Figure 9—Installing J 41387

Install or Connect

Important

- Do not reuse shaft seal. Before beginning reassemble procedures, make sure that all parts are clean and that the work area is clean.

1. Slide in J 36049 into compressor shaft (Figure 10).
2. Lubricate seal with PAG compressor oil.
3. Attatch J 41387 to a new compressor shaft seal, use tool to slide shaft seal into compressor (Figure 11).

NOTICE: Do not use a press, hammer or other similar tool to press tool J 41387 with shaft seal into place. Damage to the compressor or compressor shaft seal may occur.

4. New snap ring using snap ring pliers.
5. Key into shaft groove.
6. New oil felt and retainer inside the bore.
7. A/C compressor clutch. Refer to "A/C Compressor Clutch" earlier in this section.

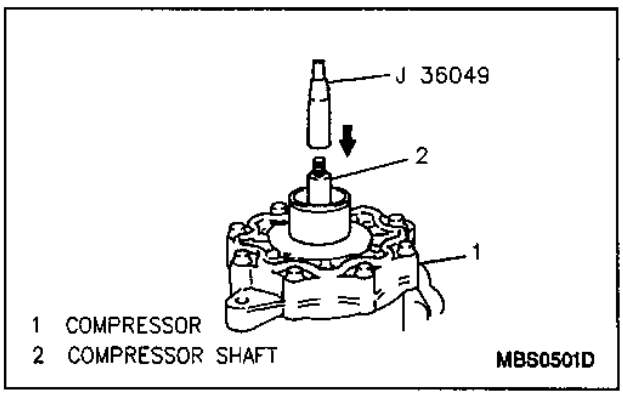


Figure 10—Installing J 36049

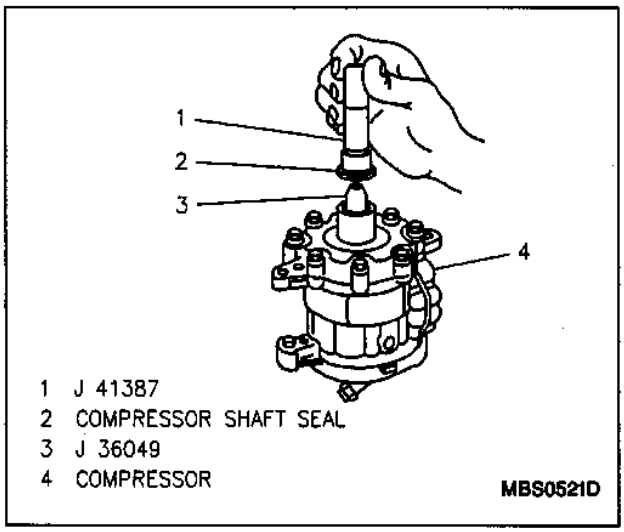


Figure 11—Installing Compressor Shaft Seal

SPECIFICATIONS

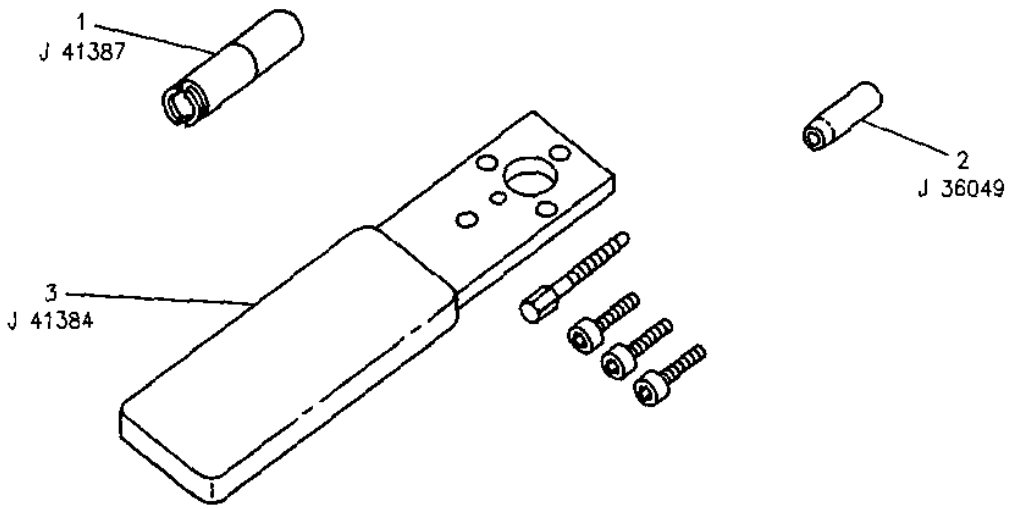
COMPRESSOR SPECIFICATIONS

Pressure Plate-to-Clutch Drive	0.35 to 0.65 mm (0.014 to 0.025 inch)
Compressor Oil Capacity	90 cc (5.5 cu. in.)
Compressor Oil Type	Polyalkaline Glycol (PAG) Oil
Clutch Coil Resistance	2.9 to 3.8 Omhs

FASTENER TORQUES

Pressure Plate Nut	15 to 20 N·m (10.8 to 15.2 lbs. ft.)
Clutch coil wiring retainer bolt	2 to 2.5 N·m (1.4 to 1.8 lbs. ft.)

SPECIAL TOOLS



1 COMPRESSOR SHAFT SEAL PROTECTOR
2 SEAL REMOVER/INSTALLER
3 CLUTCH PLATE HOLDER/REMOVER

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