SUZUKI

SQ420WD

SERVICE MANUAL

SUZUKI
Caring for Customers
99500-68D00-01E
(英)

IMPORTANT

WARNING/CAUTION/NOTE

Please read this manual and follow its instructions carefully. To emphasize special information, the words **WARNING, CAUTION** and **NOTE** have special meanings. Pay special attention to the messages highlighted by these signal words.

WARNING:
Indicates a potential hazard that could result in death or injury.

CAUTION:
Indicates a potential hazard that could result in vehicle damage.

NOTE:
Indicates special information to make maintenance easier or instructions clearer.

WARNING:
This service manual is intended for authorized SUZUKI dealers and qualified service mechanics only. Inexperienced mechanics or mechanics without the proper tools and equipment may not be able to properly perform the services described in this manual. Improper repair may result in injury to the mechanic and may render the vehicle unsafe for the driver and passengers.

WARNING:
For vehicles equipped with a Supplemental Restraint (Air Bag) System:

- **Service on and around the air bag system components or wiring must be performed only by an authorized SUZUKI dealer. Refer to "Air Bag System Components and Wiring Location View" under "General Description" in air bag system section in order to confirm whether you are performing service on or near the air bag system components or wiring. Please observe all WARNINGS and "Service Precautions" under "On-Vehicle Service" in air bag system section before performing service on or around the air bag system components or wiring. Failure to follow WARNINGS could result in unintentional activation of the system or could render the system inoperative. Either of these two conditions may result in severe injury.**
- **If the air bag system and another vehicle system both need repair, SUZUKI recommends that the air bag system be repaired first, to help avoid unintended air bag system activation.**
- **Do not modify the steering wheel, instrument panel or any other air bag system component (on or around air bag system components or wiring). Modifications can adversely affect air bag system performance and lead to injury.**
- **If the vehicle will be exposed to temperatures over 93°C (200°F) (for example, during a paint baking process), remove the air bag system components (air bag (inflator) module, sensing and diagnostic module (SDM), seat belt pretensioner (if equipped) beforehand to avoid component damage or unintended activation.**

FOREWORD

This SERVICE MANUAL is a supplement to SQ416/SQ420/SQ625 SERVICE MANUAL (SERVICE MANUAL 99500–65D00, UNIT REPAIR MANUAL 99501–65D00) and SQ416/SQ420/SQ625 WIRING DIAGRAM MANUAL (99512-65D00-015)

Applicable model: SQ420WD

It described only different servicing information of SQ420WD as compared with SQ416/SQ420/SQ625.
Therefore, whenever servicing SQ420WD, consult this service manual first.
And for any section, item or description not found in this service manual, refer to the above mentioned manuals.

When replacing parts or servicing by disassembling, it is recommended to use SUZUKI genuine parts, tools and service materials (lubricant, sealants, etc.) as specified in each description.

All information, illustrations and specifications contained in this literature are based on the latest product information available at the time of publication approval. And used as the main subject of description is the vehicle of standard specifications among others.
Therefore, note that illustrations may differ from the vehicle being actually serviced.
The right is reserved to make changes at any time without notice.

RELATED MANUALS:

Manual Name	Manual No.
SQ416/SQ420/SQ625 Service Manual (Volume 1 and 2)	**99500-65D00**
SQ416/SQ420/SQ625 Unit Repair Manual (For Manual Transmission, Automatic Transmission, Transfer and Differential.)	**99501-65D00**
SQ416/SQ420/SQ625 Wiring Diagram Manual	**99512-65D00-015**

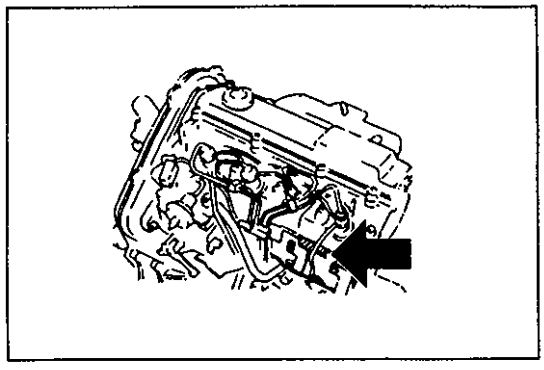
SUZUKI MOTOR CORPORATION
OVERSEAS SERVICE DEPARTMENT

SECTION 0A

GENERAL INFORMATION

NOTE:
For the descriptions (items) not found in this section, refer to the same section of the Service Manual mentioned in FOREWORD of this manual.

CONTENTS



IDENTIFICATION INFORMATION

ENGINE IDENTIFICATION NUMBER

The number is punched on the cylinder block.

SECTION 0B

MAINTENANCE AND LUBRICATION

WARNING:
For vehicles equipped with Supplemental Restraint (Air Bag) System:

- **Service on and around the air bag system components or wiring must be performed only by an authorized SUZUKI dealer. Refer to "Air Bag System Components and Wiring Location View" under "General Description" in air bag system section in order to confirm whether you are performing service on or near the air bag system components or wiring. Please observe all WARNINGS and "Service Precautions" under "On-Vehicle Service" in air bag system section before performing service on or around the air bag system components or wiring. Failure to follow WARNINGS could result in unintentional activation of the system or could render the system inoperative. Either of these two conditions may result in severe injury.**
- **Technical service work must be started at least 90 seconds after the ignition switch is turned to the "LOCK" position and the negative cable is disconnected from the battery. Otherwise, the system may be activated by reserve energy in the Sensing and Diagnostic Module (SDM).**

NOTE:
For the descriptions (items) not found in this section, refer to the same section of the Service Manual mentioned in FOREWORD of this manual.

CONTENTS

MAINTENANCE SCHEDULE

MAINTENANCE SCHEDULE UNDER NORMAL DRIVING CONDITIONS

Interval: This interval should be judged by odometer reading or months, whichever comes first.	This table includes services as scheduled up to 80,000 km (48,000 miles) mileage. Beyond 80,000 km (48,000 miles), carry out the same services at the same intervals respectively.								
	km (x 1,000)	1	10	20	30	40	50	60	70	80
	miles (x 1,000)	0.6	6	12	18	24	30	36	42	48
	Months	–	6	12	18	24	30	36	42	48
1. ENGINE										
1-1. Drive belt		I	I	I	I	I	I	I	I	I
1-2. Camshaft timing belt		Replace every 100,000 km or 60,000 miles								
1-3. Valve lash (clearance)		–	–	–	I	–	–	I	–	–
1-4. Engine oil and oil filter		Replace every 10,000 km or 6,000 miles								
1-5. Engine coolant		–	–	–	–	R	–	–	–	R
1-6. Cooling system hoses and connections		–	–	I	–	I	–	I	–	I
1-7. Exhaust pipes and mountings (except catalyst)		–	–	–	–	I	–	–	–	I&(R)
3. FUEL SYSTEM										
3-1. Air cleaner filter element		I	I	I	I	R	I	I	I	R
3-2. Fuel tank cap, fuel lines and connections		–	–	–	–	I	–	–	–	I&(R)
3-3. Fuel filter		Replace every 100,000 km or 60,000 miles								
5. ELECTRICAL SYSTEM										
5-1. Wiring harness and connections		–	–	–	–	I	–	–	–	I

NOTE:
"R": Replace or change
"I": Inspect and correct, replace or lubricate if necessary
- ***Item 1-7 (R) is applicable to exhaust mounting rubber only.***
- ***Item 3-2 (R) is applicable to fuel tank cap only.***

NOTE:
For Item 6. Chassis and Body, refer to the same section of the Service Manual mentioned in FOREWORD of this manual.

MAINTENANCE RECOMMENDED UNDER SEVERE DRIVING CONDITIONS

If the vehicle is usually used under the conditions corresponding to any severe condition code given below, it is recommended that applicable maintenance operation be performed at the particular interval as given in the chart below.

Severe condition code

- **A – Towing a trailer**
- **B – Repeated short trips**
- **C – Driving on rough and/or muddy roads**
- **D – Driving on dusty roads**
- **E – Driving in extremely cold weather and/or salted roads**
- **F – Repeated short trips in extremely cold weather**

Severe Condition Code	Maintenance	Maintenance Operation	Maintenance Interval
— — C D — —	Water pump (fan) drive belt	I	Every 12,000 miles (20,000 km) or 12 months
		R	Every 24,000 miles (40,000 km) or 24 months
A B — D E F	Engine oil and oil filter	R	Every 3,000 miles (5,000 km) or 3 months For diesel engine, replace more often.
A B C — E —	Exhaust pipes and mountings	I	Every 6,000 miles (10,000 km) or 6 months
— — — D — —	Air cleaner filter element *1	I	Every 1,500 miles (2,500 km)
		R	Every 12,000 miles (20,000 km) or 12 months
A B C D — —	Brake discs and pads (Front) Brake drums and shoes (Rear)	I	Every 6,000 miles (10,000 km) or 6 months
A B C — E —	Propeller shafts	I	Every 6,000 miles (10,000 km) or 6 months
A — C — — F	Manual transmission, transfer and differential oil	R	Every 12,000 miles (20,000 km) or 12 months
A — C — — F	Automatic transmission fluid	R	Every 12,000 miles (20,000 km) or 12 months
— — C — — —	Drive axle shaft boots	I	Every 6,000 miles (10,000 km) or 6 months
— — C — — —	Bolts and nuts on chassis (suspension)	T	Every 6,000 miles (10,000 km) or 6 months
— — — D E —	Air conditioning filter element *2 (if equipped)	I	Every 6,000 miles (10,000 km) or 6 months
		R	Every 24,000 miles (40,000 km) or 24 months

NOTE:

"I" : Inspect and correct, replace or lubricate if necessary

"R": Replace or change

"T": Tighten to the specified torque

- ****1: Inspect or replace more frequently if the vehicle is used under dusty conditions.***
- ****2: Clean more frequently if the air flow from air conditioning decreases.***

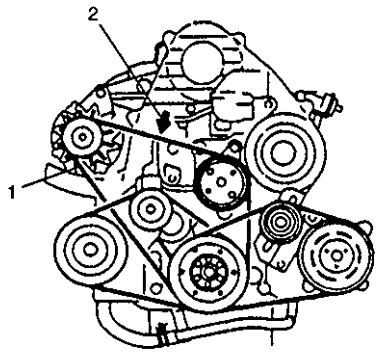
MAINTENANCE SERVICE

ENGINE

ITEM 1-1

Drive Belt Inspection and Replacement

WARNING:
All inspection and replacement are to be performed with ENGINE NOT RUNNING.



1. Fan (generator) belt
2. Checking point

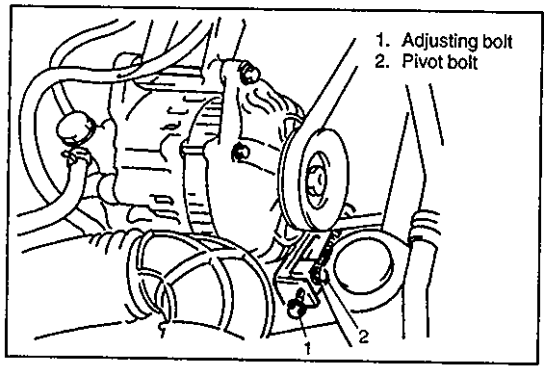
Fan belt

Inspection

1) Disconnect negative cable at battery.
2) Inspect belt for cracks, cuts, deformation, wear and cleanliness.
   If any defect exists, replace.
   Check belt for tension under thumb pressure (about 10 kg or 22 lb.).

   Belt Tension:
   15 — 17 mm (0.59 — 0.67 in.) as deflection (when inspection)
   15 — 16 mm (0.59 — 0.63 in.) as deflection (when adjustment)

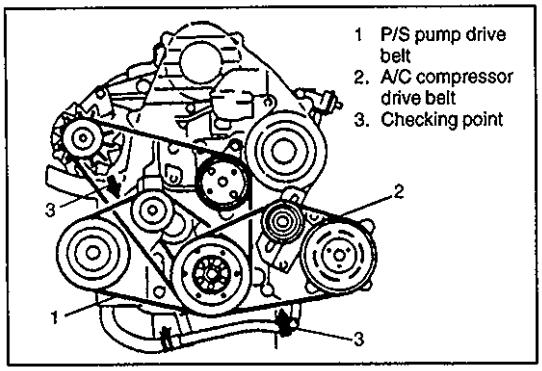
   NOTE:
   When replacing belt with a new one, adjust belt tension to 8 — 10 mm (0.31 — 0.39 in.).



3) If belt is too tight or too loose, adjust it to specification by adjusting alternator position.
4) Tighten alternator adjusting bolt and pivot bolts.
5) Connect negative cable to battery.

Replacement

Replace belt. Refer to Section 6B for replacement procedure of pump belt.



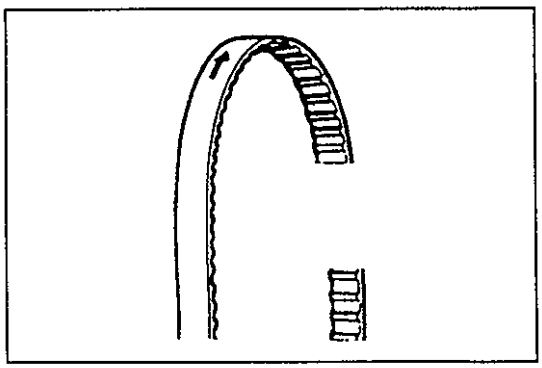
A/C Compressor and/or Power Steering Pump Drive Belt (If equipped)

Inspect belt for wear, deterioration and tension.

Belt Tension:

For A/C compressor drive belt : 8 — 10 mm (0.31 — 0.39 in.) deflection under 10 kg or 22 lb pressure

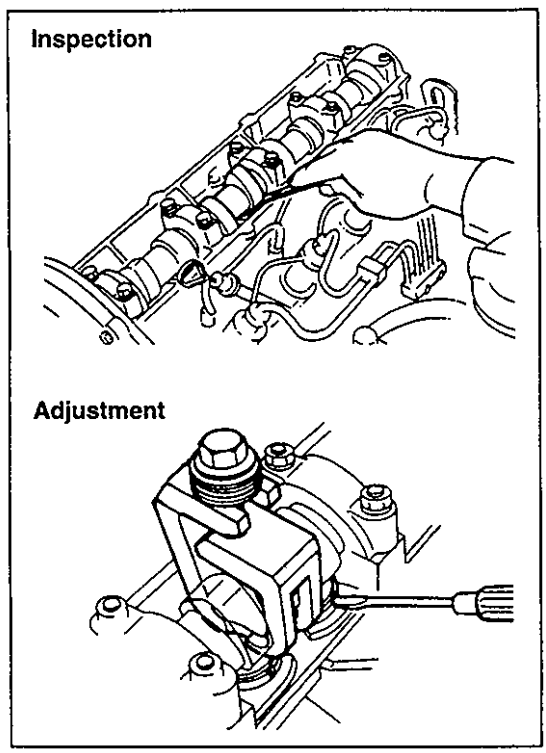
For Power steering pump drive belt : 6 — 7 mm (0.24 — 0.27 in.) deflection under (10 kg, 22 lb) pressure



ITEM 1-2

Camshaft Timing Belt Replacement

Replace timing belt referring to SECTION 6A3.



ITEM 1-3

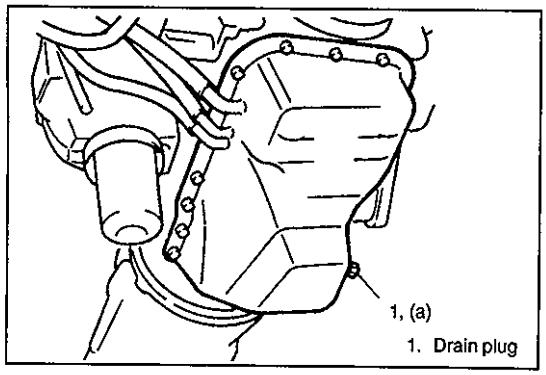
Valve Lash Inspection

Inspect intake and exhaust valve lash and adjust as necessary referring to SECTION 6A3.

ITEM 1-4

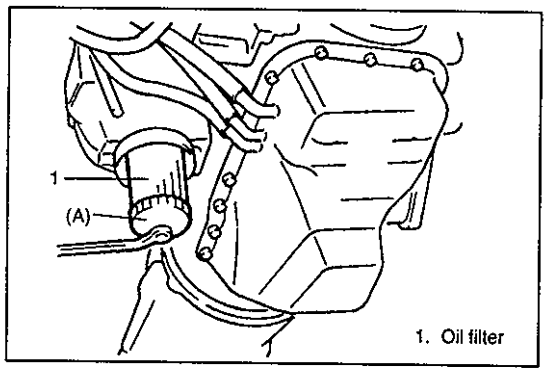
Engine Oil and Oil Filter Change

Before draining engine oil, check engine for oil leakage. If any evidence of leakage is found, make sure to correct defective part before proceeding to the following work.



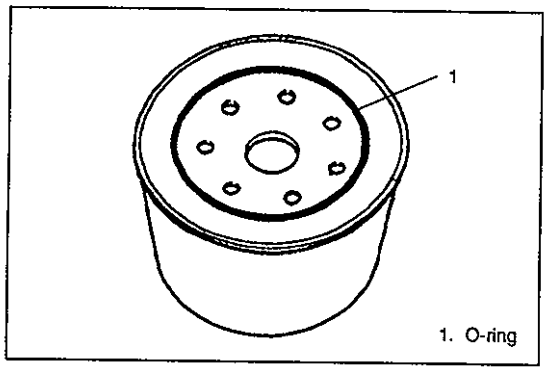
1) Drain engine oil by removing drain plug.
2) After draining oil, wipe drain plug clean. Reinstall drain plug, and tighten it securely as specified below.

Tightening Torque
(a): 35 N·m (3.5 kg-m, 25.5 lb-ft)



3) Loosen oil filter by using oil filter wrench (special tool).

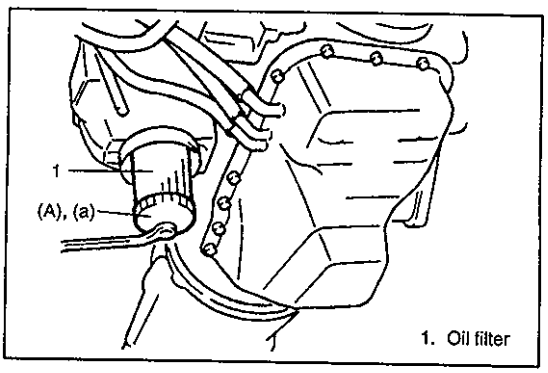
Special Tool
(A): 09915–47810



4) Apply engine oil to oil filter O-ring.

5) Screw new filter on oil filter stand by hand until filter O-ring contacts mounting surface.

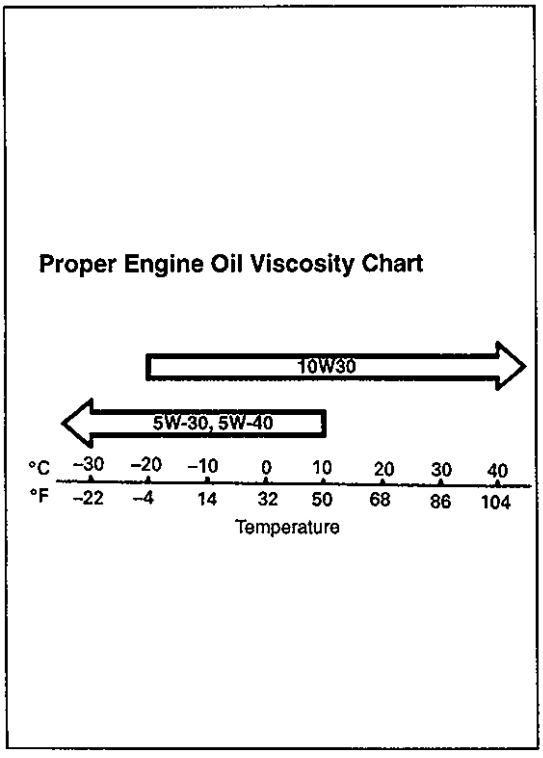
CAUTION:
To tighten oil filter properly, it is important to accurately identify the position at which filter O-ring first contacts mounting surface.



6) Tighten filter 7/6 turn from the point of contact with mounting surface using an oil filter wrench.

Special Tool
(A): 09915-47810

Tightening Torque
(a): 23 N·m (2.3 kg-m, 17 lb-ft)



7) Replenish oil until oil level is brought to FULL level mark on dipstick. (about 5.5 liters or 11.6/9.7 US/Imp pt.). Filler inlet is atop the cylinder head cover.
It is recommended to use engine oil of CD, CE or CF-4 class. Select the appropriate oil viscosity according to the chart at the left.

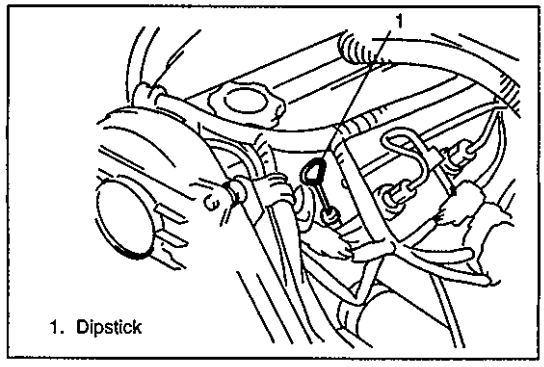
Engine oil capacity

Oil pan capacity	About 5.0 liters (10.6/8.8 US/Imp pt.)
Oil filter capacity	About 0.5 liters (1.1/0.9 US/Imp pt.)

NOTE:
Engine oil capacity is specified as above.
However, note that amount of oil required when actually changing oil may somewhat differ from the data in above table depending on various conditions (temperature, viscosity, etc.).

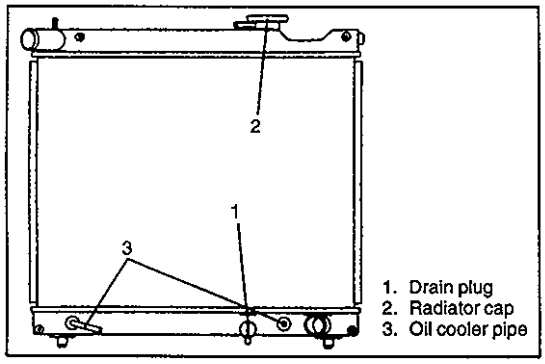
8) Start engine and run it for three minutes. Stop it and wait another three minutes before checking oil level. Add oil, as necessary, to bring oil level to FULL level mark on dipstick.

NOTE:
Steps 1) – 7) outlined above must be performed with ENGINE NOT RUNNING. For step 8), be sure to have adequate ventilation while engine is running.

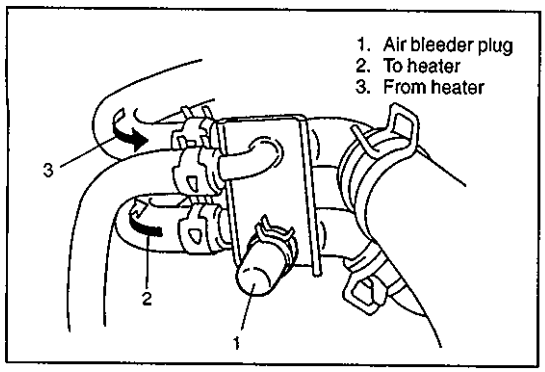


ITEM 1-5
Engine Coolant Change

WARNING:
To help avoid danger of being burned, do not remove radiator cap while engine and radiator are still hot. Scalding fluid and steam can be blown out under pressure if cap is taken off too soon.



1) Remove radiator cap when engine is cool.
2) Loosen radiator drain plug to drain coolant.
3) Remove reservoir tank, which is on the side of radiator, and drain.
4) Tighten plug securely. Also reinstall reservoir tank.

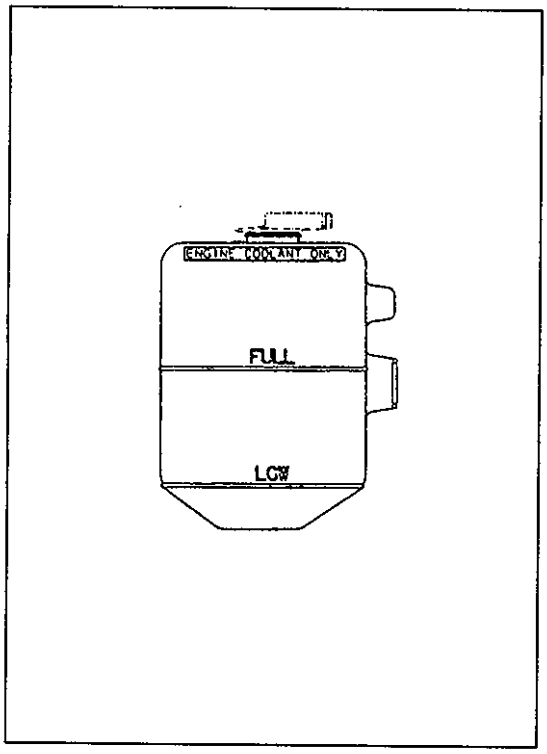


5) Fill up radiator with coolant and bleed air by removing air bleeder plugs while cool engine running.

CAUTION:
Failure to bleed air causes engine overheat.

NOTE:
Connect proper hoses to air bleeder pipe and reservoir tank to prevent coolant from spilling out.

6) After bleeding air from bleeder pipes, connect bleeder plugs and clamp them securely.
7) Add coolant as necessary until coolant level reaches the filler throat of radiator. Reinstall radiator cap.



8) Add coolant to reservoir tank so that its level aligns with Full mark. Then, reinstall cap aligning arrow marks on the tank and cap.

NOTE:
When installing reservoir tank cap, align arrow marks on the tank and cap.

CAUTION:
When changing engine coolant, use mixture of 50% water and 50% ANTIFREEZE/ANTICORROSION COOLANT for the market where ambient temperature falls lower than –16°C (3°F) in winter, and mixture of 70% water and 30% ANTIFREEZE/ANTICORROSION COOLANT for the market where ambient temperature doesn't fall lower than –16°C (3°F).
Even in a market where no freezing temperature is anticipated, mixture of 70% water and 30% ANTIFREEZE/ANTICORROSION COOLANT should be used for the purpose of corrosion protection and lubrication.

ITEM 1-6

Cooling System Hoses and Connections

Inspection

1) Visually inspect cooling system hoses for any evidence of leakage and cracks. Examine them for damage, and check connection clamps for tightness.
2) Replace all hoses which show evidence of leakage, cracks or other damage. Replace all clamps which cannot maintain proper tightness.

ITEM 1-7
Exhaust Pipes and Mountings
Inspection

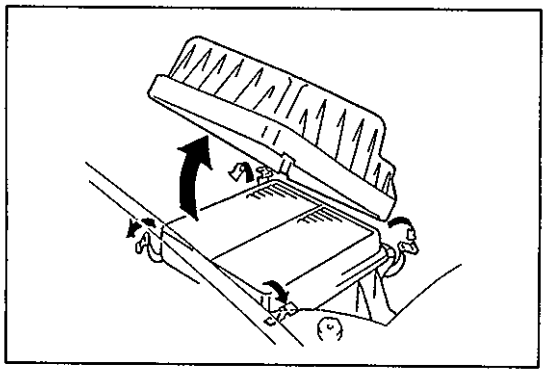
WARNING:
To avoid danger of being burned, do not touch exhaust system when it is still hot.
Any service on exhaust system should be performed when it is cool.

When carrying out periodic maintenance, or the vehicle is raised for other service, check exhaust system as follows:

- Check rubber mountings for damage, deterioration, and out of position.
- Check exhaust system for leakage, loose connections, dents, and damages.
  If bolts or nuts are loose, tighten them to specification.
  Refer to SECTION 6A3 for torque specification of bolts and nuts.
- Check nearby body areas for damaged, missing, or mispositioned parts, open seams, holes, loose connections or other defects which could permit exhaust fumes to seep into vehicle.
- Make sure that exhaust system components have enough clearance from underbody to avoid overheating and possible damage to floor or carpet.
- Any defects should be fixed at once.

Mounting replacement

Replace muffler rubber mountings with new ones periodically. Refer to Section 6K for installation.



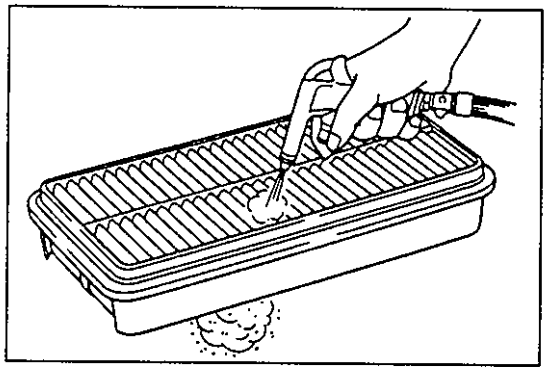
FUEL SYSTEM

ITEM 3-1

Air Cleaner Filter Element

Inspection and cleaning

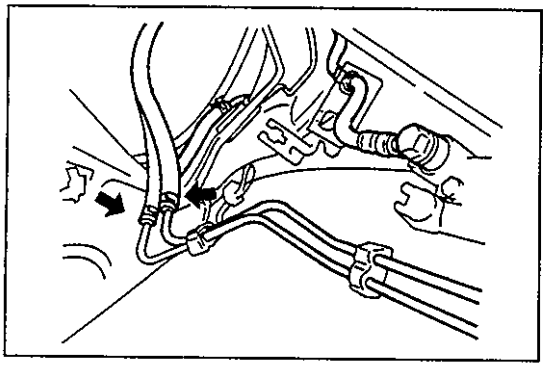
1) Remove air cleaner case clamps.
2) Take cleaner element out of air cleaner case.
3) Check air cleaner element for dirt. Replace excessively dirty element.



4) Blow off dust by compressed air from air outlet side of element.
5) Install air cleaner element into case.
6) Install air cleaner case cap and clamp it securely.

Replacement

Replace air cleaner element with new one according to above steps 1), 2) and 5), 6).

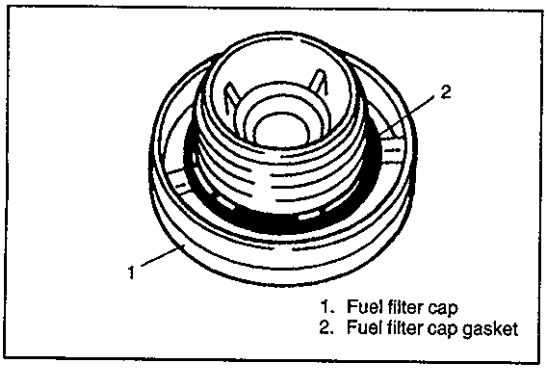


ITEM 3-2

Fuel tank Cap, Fuel Lines and Connections

Inspection

1) Visually inspect fuel lines and connections for evidence of fuel leakage, hose cracking and damage. Make sure all clamps are secure.
   Repair leaky joints, if any.
   Replace hoses that are suspected of being cracked.



1. Fuel filter cap
2. Fuel filter cap gasket

2) Visually inspect gasket of fuel tank cap. If it is damaged or deteriorated, replace it with new one.

Fuel tank cap replacement

Replace tank cap with new one periodically.

ITEM 3-3

Fuel Filter Replacement

WARNING:
This work must be performed in a well ventilated area and away from any open flames (such as gas hot water heaters).

Fuel filter is located at the left side of strut tower bar.
Replace fuel filter with new one periodically, referring to Section 6C for proper procedure.

ELECTRICAL SYSTEM

ITEM 5-1

Wiring Harness and Connections Inspection

1) Visually inspect all wires in engine compartment for evidence of breakage.
   Inspect condition of insulation (cracks). All clips and clamps should have solid connection to wires.
2) Replace any wires in a deteriorated or otherwise defective condition.

RECOMMENDED FLUIDS AND LUBRICANTS

Engine oil	CD, CE or CF–4 class (Refer to engine oil viscosity chart in item 1-4)
Engine coolant (Ethylene glycolbase coolant)	"Antifreeze/Anticorrosion coolant"
Brake fluid	Specified fluid indicated on reservoir tank cap
Manual transmission oil	Refer to Section 7A1.
Transfer oil	
Differential oil (front & rear)	Refer to Section 7E or 7F.
Automatic transmission fluid and Power steering fluid	An equivalent of DEXRON®-II or DEXRON®-III
Clutch linkage pivot points	Water resistance chassis grease (SUZUKI SUPER GREASE A 99000-25010)
Door hinges	Engine oil or water resistance chassis grease
Hood latch assembly	
Key lock cylinder	Spray lubricant

SECTION 1B

AIR CONDITIONING (OPTIONAL)

WARNING:
For vehicles equipped with Supplemental Restraint (Air Bag) System:

- **Service on and around the air bag system components or wiring must be performed only by an authorized SUZUKI dealer. Refer to "Air Bag System Components and Wiring Location View" under "General Description" in air bag system section in order to confirm whether you are performing service on or near the air bag system components or wiring. Please observe all WARNINGS and "Service Precautions" under "On-Vehicle Service" in air bag system section before performing service on or around the air bag system components or wiring. Failure to follow WARNINGS could result in unintentional activation of the system or could render the system inoperative. Either of these two conditions may result in severe injury.**
- **Technical service work must be started at least 90 seconds after the ignition switch is turned to the "LOCK" position and the negative cable is disconnected from the battery. Otherwise, the system may be activated by reserve energy in the Sensing and Diagnostic Module (SDM).**

CAUTION:
The air conditioning system of this vehicle uses refrigerant HFC-134a (R-134a).
None of refrigerant, compressor oil and component parts is interchangeable between two types of A/C: one using refrigerant CFC-12 (R-12) and the other using refrigerant HFC-134a (R-134a).
Be sure to check which refrigerant is used before any service work including inspection and maintenance. For identification between these two types, refer to the same section of the Service Manual mentioned in FOREWORD of this manual.
When replenishing or changing refrigerant and compressor oil and when replacing parts, make sure that the material or the part to be used is appropriate to the A/C installed in the vehicle being serviced. Use of incorrect one will result in leakage of refrigerant, damage in parts or other faulty condition.

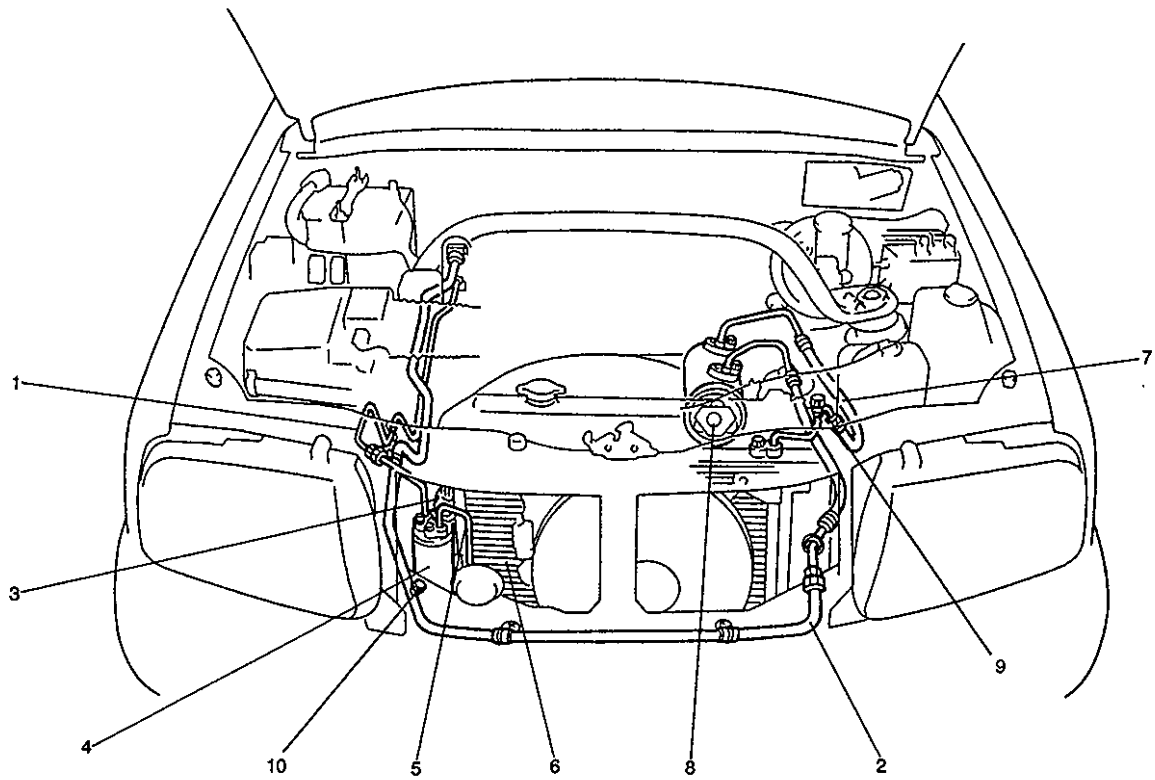
NOTE:
For the descriptions (items) not found in this section, refer to the same section of the Service Manual mentioned in FOREWORD of this manual.

CONTENTS

GENERAL DESCRIPTION

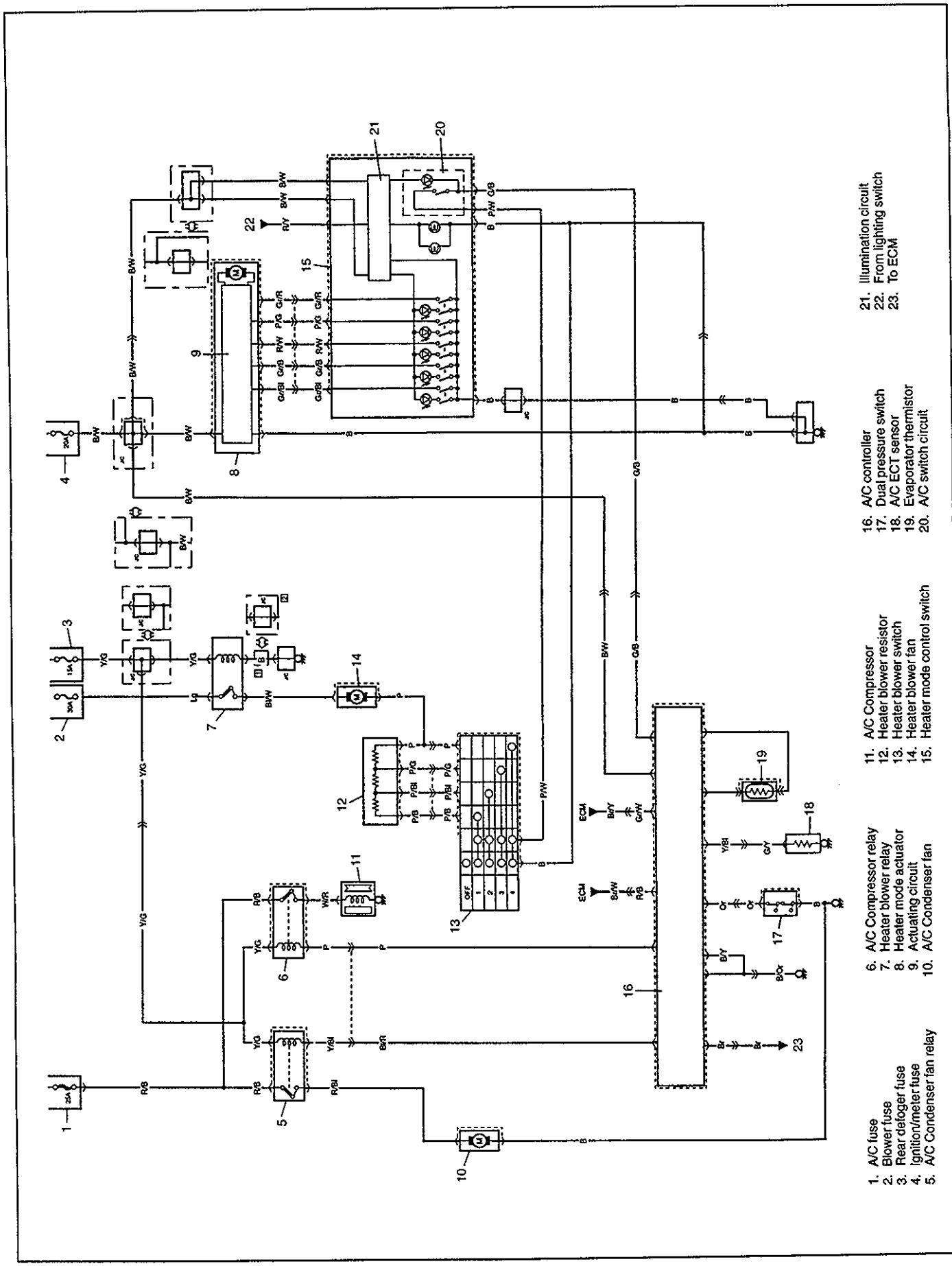
COMPONENT LOCATION IN ENGINE ROOM

RF LH steering vehicle

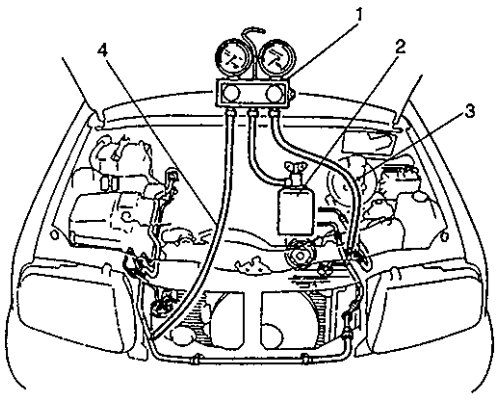


1. Receiver/Dryer outlet pipe
2. Compressor suction hose/pipe
3. Dual pressure switch
4. Receiver/Dryer
5. Condenser outlet pipe
6. Condenser
7. Compressor delivery hose
8. Compressor
9. High pressure service valve
10. Low pressure service valve

WIRING CIRCUIT



LH Steering vehicle shown



1. Manifold gauge set
2. Refrigerant container
3. High pressure side (Delivery side hose)
4. Low pressure side (Suction side hose)

ON-VEHICLE SERVICE

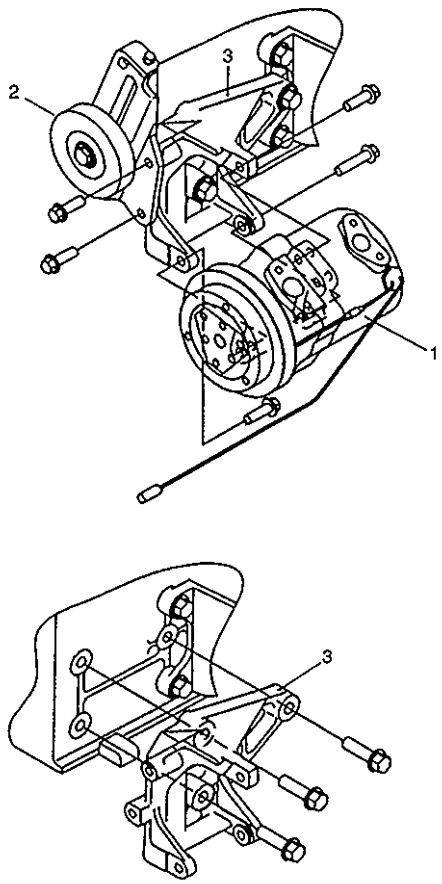
COMPRESSION SYSTEM

COMPRESSOR

INSPECTION

1) Install manifold gauge set as illustrated.
2) Close Hi and Lo hand valves.
3) Run engine at fast idle.
4) Check compressor for following:
   a. High pressure gauge reading is not low and low pressure gauge reading is not higher than normal.
   b. Metallic sound.
   c. Leakage from shaft seal.

   If any of the above checks indicated a defect, repair compressor.



1. A/C compressor
2. Tension pulley
3. Bracket

REMOVAL

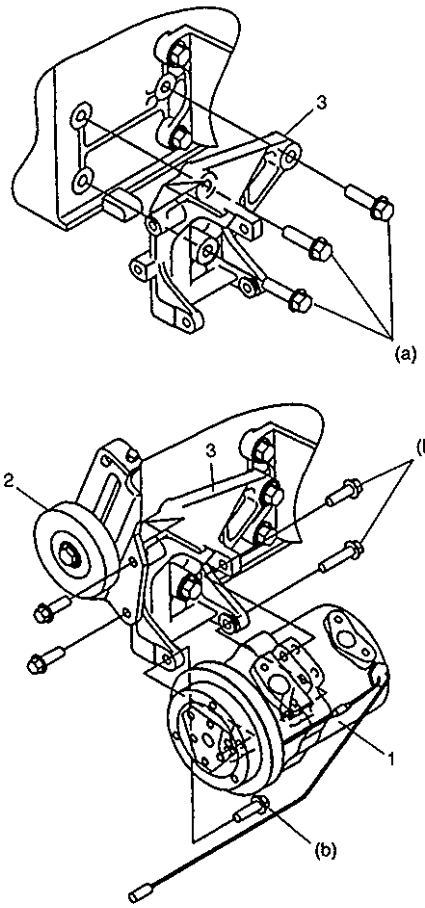
1) Run engine at idle with A/C ON for 10 minutes.
2) Disconnect negative cable at battery.
3) Recover refrigerant from refrigeration system using recovery and recycling equipment.

   NOTE:
   The amount of compressor at removed must be measured and the same amount must be poured when installing the compressor.

4) Disconnect thermal protector lead wire.
5) Disconnect suction and discharge hoses from compressor.

   NOTE:
   Cap open fitting immediately to keep moisture out of system.

6) Remove compressor drive belt by loosening tension pulley bolt.
7) Remove compressor with clutch assy from its mount.
8) Remove compressor bracket.
9) Drain oil from compressor, and measure its amount.



1. A/C compressor
2. Tension pulley
3. Bracket

INSTALLATION

1) Pour new compressor oil. The amount must be the same with the amount measured in REMOVAL.

NOTE:
Compressor assembly supplied from factory is filled up with following amount of oil.

Amount of oil in compressor: 120 cm^3 (120 cc, 7.5 in^3)

2) Install compressor bracket to cylinder block.

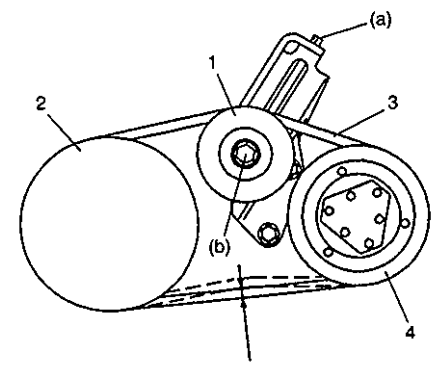
Tightening Torque
(a): 50 N·m (5.0 kg-m, 36.5 lb-ft)

3) Install compressor to its bracket.

Tightening Torque
(b): 23 N·m (2.3 kg-m, 17.0 lb-ft)

4) Connect suction and discharge hoses to compressor.
5) Install compressor drive belt. Refer to "Inspection" under "Drive belt" later in this section for installation and belt tension.
6) Connect thermal protector lead wire.
7) Evacuate and charge system according to previously described procedure.

CAUTION:
Be sure to use HFC-134a (R-134a) compressor oil.



1. Tension pulley
2. Crank pulley
3. A/C compressor drive belt
4. A/C compressor
(a) Adjust bolt
(b) Tension pulley nut

DRIVE BELT

INSPECTION

- Check that belt is free from any damage and properly fitted in pulley groove.
- Check belt tension by measuring how much it deflects when pushed at intermediate point between pulleys with about 10 kg (22 lb) force.

Deflection of drive belt: 8 – 10 mm (0.31 – 0.39 in.)

1) To adjust drive belt tension, loosen tension pulley bolts and turn tension pulley adjustment bolt.
2) Adjust belt tension to above specification.
Then tighten tension pulley bolts to specified torque.

Tightening Torque for tension pulley nut:
50 N·m (5.0 kg-m, 36.5 lb-ft)

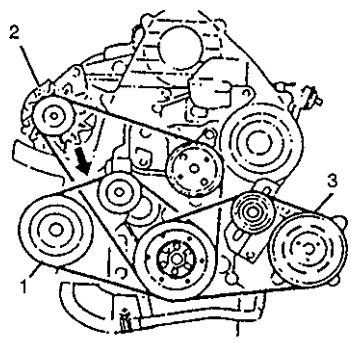
SECTION 3B1

POWER STEERING (P/S) SYSTEM

WARNING:
For vehicles equipped with Supplemental Restraint (Air Bag) System:
- **Service on and around the air bag system components or wiring must be performed only by an authorized SUZUKI dealer. Refer to "Air Bag System Components and Wiring Location View" under "General Description" in air bag system section in order to confirm whether you are performing service on or near the air bag system components or wiring. Please observe all WARNINGS and "Service Precautions" under "On-Vehicle Service" in air bag system section before performing service on or around the air bag system components or wiring. Failure to follow WARNINGS could result in unintentional activation of the system or could render the system inoperative. Either of these two conditions may result in severe injury.**
- **Technical service work must be started at least 90 seconds after the ignition switch is turned to the "LOCK" position and the negative cable is disconnected from the battery. Otherwise, the system may be activated by reserve energy in the Sensing and Diagnostic Module (SDM).**

NOTE:
- **For the descriptions (items) not found in this section, refer to the same section of the Service Manual mentioned in FOREWORD of this manual.**
- **Some parts in the Power Steering Gear Box cannot be disassembled or adjusted. For detailed information, refer to the description of POWER STEERING GEAR BOX COMPONENTS under REMOVE AND INSTALL POWER STEERING GEAR BOX.**
- **All steering gear fasteners are important attaching parts in that they could affect the performance of vital parts and systems, and/or could result in major repair expense. They must be replaced with one of the same part number or with an equivalent part if replacement becomes necessary. Do not use a replacement part of lesser quality or substitute design. Torque values must be used as specified during reassembly to assure proper retention of these parts.**

CONTENTS



1. P/S pump
2. Generator
3. A/C compresser

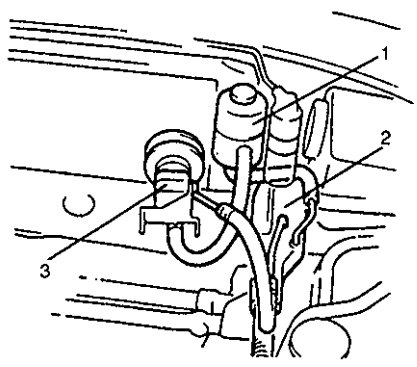
DIAGNOSIS

STEERING BELT CHECK AND ADJUSTMENT

- Check that belt is free from any damage and properly fitted in pulley groove.
- Check belt tension by measuring how much it deflects when pushed at intermediate point between pulleys with about 10 kg (22 lb) force.

Deflection of P/S belt: 6 – 7 mm (0.24 – 0.28 in.)

- Loosen adjuster bolt, and adjust belt deflection by sliding adjuster.



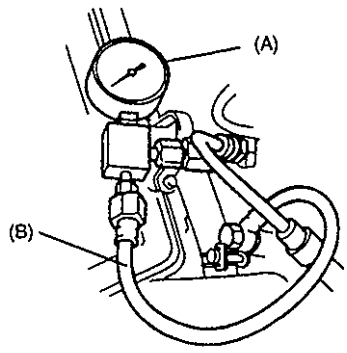
1. Oil tank
2. Gear box
3. P/S pump

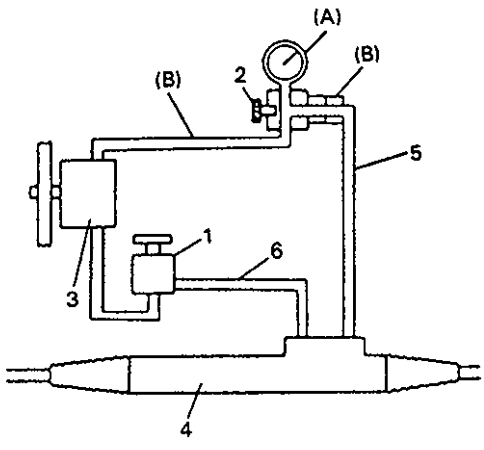
FLUID LEAKAGE CHECK

Start engine and turn steering wheel fully to the right and left so that maximum hydraulic pressure is provided. Then visually check gear box, P/S pump and oil tank themselves and each joint of their connecting pipes for leakage.

CAUTION:
Never keep steering wheel turned fully for longer than 10 seconds.

HYDRAULIC PRESSURE IN P/S CIRCUIT CHECK





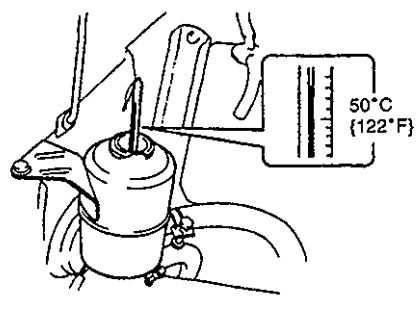
1. Oil tank
2. Gauge valve (open)
3. P/S pump
4. P/S gear box
5. High pressure side
6. Low pressure side

1) After cleaning joint of high pressure hose and P/S pump thoroughly, disconnect hose from pump and install special tool (oil pressure gauge, attachment and hose).
Tighten each flare nut to specified torque.

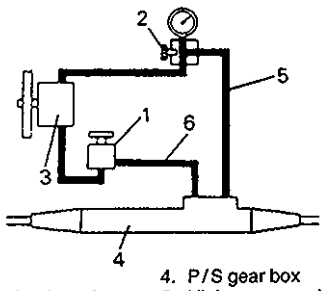
CAUTION:
Take care not to cause damage to A/C condenser during service operation, if equipped.

Special Tool
(A): 09915-77410 (Oil pressure gauge)
(B): 09915-77420

2) Check each connection for fluid leakage and bleed air.
(Refer to AIR BLEEDING PROCEDURE.)



3) With engine idling, turn steering wheel and warm up engine till temperature of fluid in tank rises to 50 – 60°C (122 – 140°F).

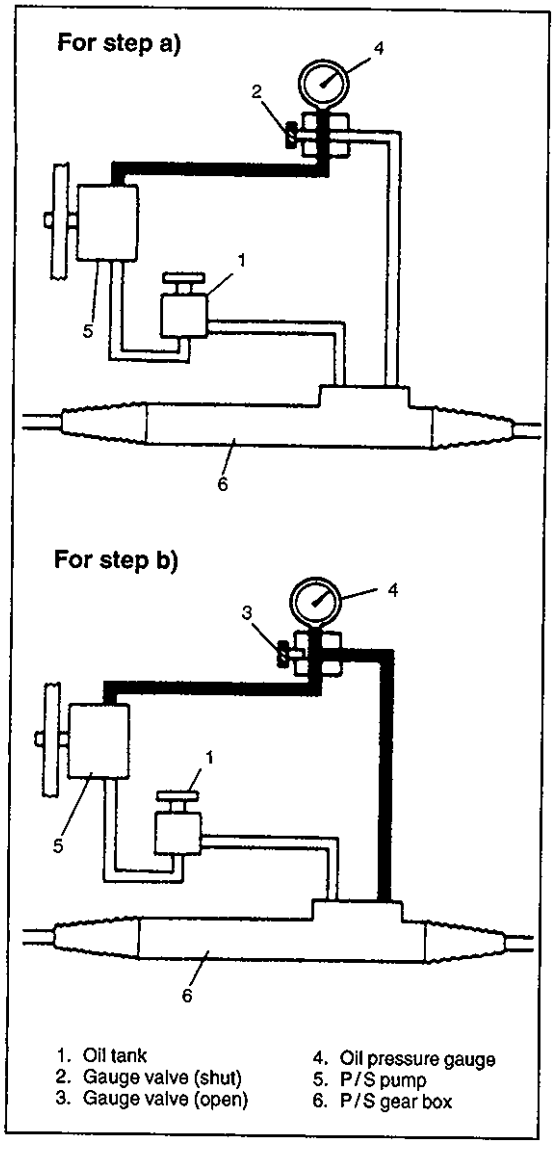


1. Oil tank
2. Gauge valve (open)
3. P/S pump
4. P/S gear box
5. High pressure side
6. Low pressure side

4) Check line pressure by measuring hydraulic pressure with engine idling and hands off steering wheel.

Line pressure: Lower than 1000 kPa (10 kg/cm^2, 142 psi)

When line pressure is higher than specified values, check control valve and piping for clogging.



1. Oil tank
2. Gauge valve (shut)
3. Gauge valve (open)
4. Oil pressure gauge
5. P/S pump
6. P/S gear box

5) Check relief pressure
   a) Increase engine speed to about 1,500 r/min (rpm). Close gauge valve gradually while watching pressure increase indicated by gauge and take reading of relief pressure (maximum hydraulic pressure).

      Relief pressure:
      7000 – 8000 kPa (70 – 80 kg/cm², 995 – 1138 psi)

   - When it is higher than specified values, possible cause is malfunction of relief valve.
   - When it is lower than specified values, possible cause is either failure of P/S pump or settling of relief valve spring.

   CAUTION:
   Be sure not to close gauge valve for longer than 10 seconds.

   b) Next, open gauge valve fully and increase engine speed to about 1,500 r/min (rpm). Then turn steering wheel to the left or right fully and take reading of relief pressure.

      Relief pressure:
      7000 – 8000 kPa (70 – 80 kg/cm², 995 – 1138 psi)

   - When it is higher than specified values, possible cause is malfunction of relief valve.
   - When it is lower than specified values, possible cause is failure in steering gear box. Replace gear box.

   CAUTION:
   Be sure not to hold steering wheel at fully turned position for longer than 10 seconds.

AIR BLEEDING PROCEDURE

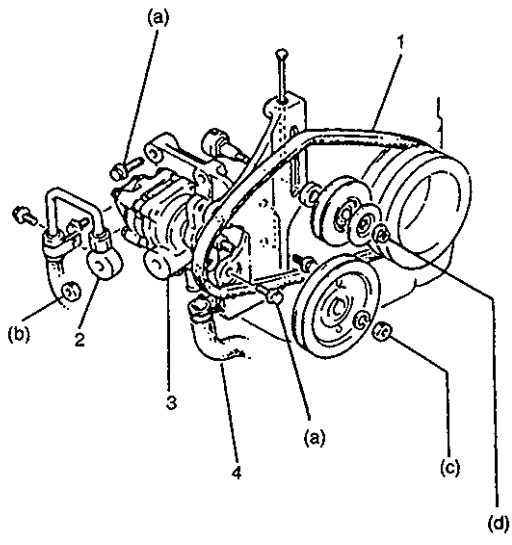
1) Jack up the front end of vehicle and apply safety stands.
2) Fill oil tank with fluid up to specified level.

   NOTE:
   Before starting engine, place transmission gear shift lever in "Neutral" (shift selector lever to "P" range for A/T model), and set parking brake.

3) After running engine at idling speed for 3 to 5 seconds, stop it and add fluid to satisfy specification.
4) With engine stopped, turn steering wheel to the right and left as far as it stops, repeat it a few times and fill fluid to specified level.
5) With engine running at idling speed, repeat stop-to-stop turn of steering wheel till all foams in oil tank are gone.

   NOTE:
   Make sure to bleed air completely. If air remains in fluid, P/S pump may make humming noise or steering wheel may feel heavy.

6) Finally check to make sure that fluid is filled to specified level.



1. Power steering belt
2. High pressure hose
3. Power steering pump
4. Low pressure hose

Tightening Torque
(a): 43 N·m (4.3 kg-m, 31.5 lb-ft)
(b): 20 N·m (2.0 kg-m, 14.5 lb-ft)
(c): 50 N·m (5.0 kg-m, 36.5 lb-ft)
(d): 34 N·m (3.4 kg-m, 24.5 lb-ft)

ON-VEHICLE SERVICE

POWER STEERING PUMP

Removal

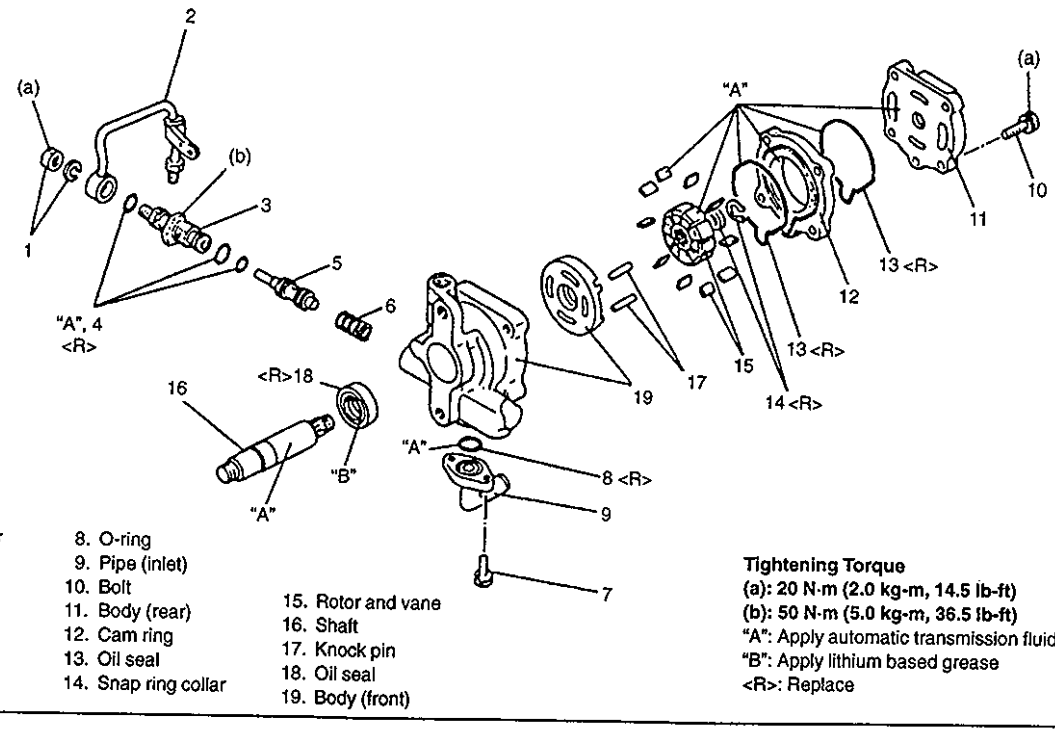
1) Remove power steering belt.
2) Disconnect high pressure hose and low pressure hose.

CAUTION:
- **Before disconnecting high pressure hose and low pressure hose, clean them completely.**
- **After power steering pump removal, plug ports to prevent dust and other foreign objects from entering.**

3) Disconnect pressure switch lead harness.
4) Loosen oil pump fixing bolts (3 points).

Installation

1) Install in reverse order of removal.
2) After installation, fill with automatic transmission fluid (DEXRON®-II, DEXRON®-IIE and DEXRON®-III), and Bleed air from system (Refer to AIR BLEEDING PROCEDURE)

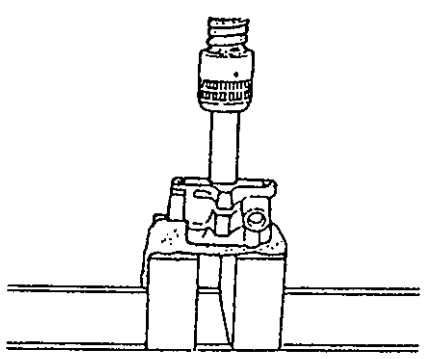


1. Nut and washer
2. Pipe (Outlet)
3. Connector bolt
4. O-ring
5. Control valve
6. Spring
7. Bolt (2 pieces)
8. O-ring
9. Pipe (inlet)
10. Bolt
11. Body (rear)
12. Cam ring
13. Oil seal
14. Snap ring collar
15. Rotor and vane
16. Shaft
17. Knock pin
18. Oil seal
19. Body (front)

Tightening Torque
(a): 20 N·m (2.0 kg-m, 14.5 lb-ft)
(b): 50 N·m (5.0 kg-m, 36.5 lb-ft)
"A": Apply automatic transmission fluid
"B": Apply lithium based grease
<R>: Replace

DISASSEMBLY

Disassemble in order shown in figure.



ASSEMBLY

Assemble in reverse order of disassembly, using caution as follows.

Oil seal

CAUTION:
Place body on top of a soft cloth as shown.

Apply ATF to new oil seal, and press in oil seal to body by using a suitable pipe.

Rotor and vane

CAUTION:
- **Verify vane direction (rounded side faces cam ring).**
- **Verify that vane spins smoothly.**
- **Apply ATF onto vane.**

Cam ring and knock pin

CAUTION:
- **Verify direction of cam ring, align ports, and install onto knock pins.**
- **Apply ATF onto new O-ring, then install.**

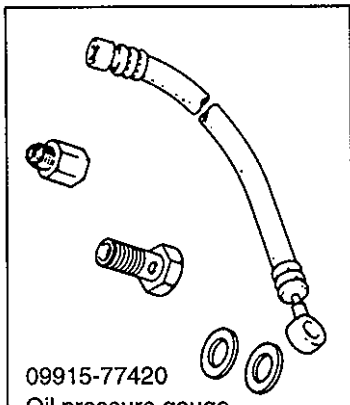
TIGHTENING TORQUE SPECIFICATIONS

Fastening parts	Tightening torque		
	N·m	kg-m	lb-ft
Pump bracket bolt	43	4.3	31.0
Pump pulley nut	50	5.0	36.5
Tensioner pulley nut	34	3.4	25.0
Outlet pipe nut	20	2.0	14.5
Outlet pipe connector bolt	50	5.0	36.5
Pump body bolts	20	2.0	14.5

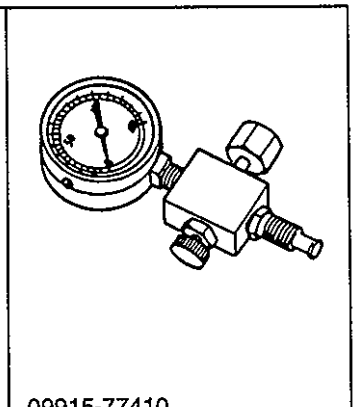
REQUIRED SERVICE MATERIALS

MATERIALS	RECOMMENDED SUZUKI PRODUCT	USE
Power steering fluid	An equivalent of DEXRON®-II, DEXRON®-IIE or DEXRON®-III,	• To fill oil tank • Parts lubrication when installing

SPECIAL TOOLS



09915-77420
Oil pressure gauge attachment and hose set



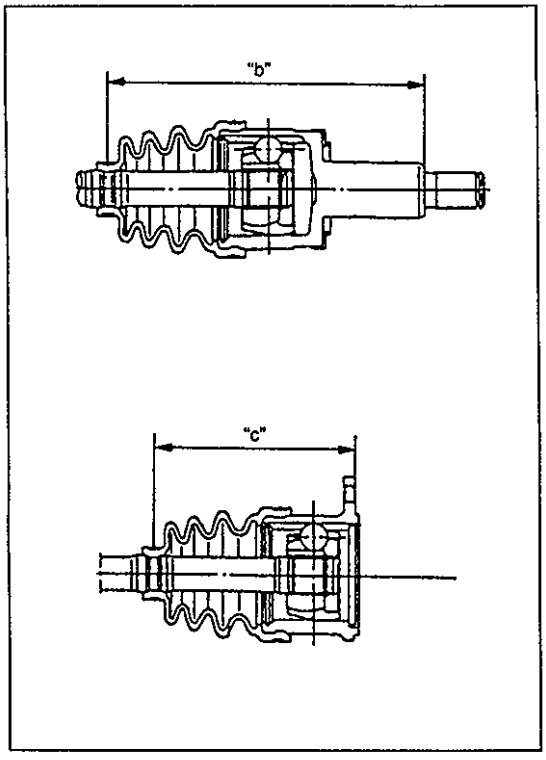
09915-77410
Oil pressure gauge

SECTION 4A2

FRONT DRIVE SHAFT/SHAFT BEARING, OIL SEAL

NOTE:
For the descriptions (items) not found in this section, refer to the same section of the Service Manual mentioned in FOREWORD of this manual.

CONTENTS



ON-VEHICLE SERVICE

DRIVE SHAFT

ASSEMBLY

Use the procedure described in the same section of Service Manual mentioned in FOREWORD of this manual but note the following point.

- Fitting boot to outer race, adjust so that measurements "b" and "c" become as indicated in figure.

Length "b": 196.8 – 206.8 mm (7.75 – 8.14 in.) (For M/T)
: 203.2 – 213.2 mm (8.00 – 8.40 in.) (For A/T)
"c": 127.5 – 137.5 mm (5.02 – 5.41 in.) (For M/T)
: 125.5 – 135.5 mm (4.94 – 5.33 in.) (For A/T)

Before fixing boot band, insert screwdriver into boot on joint side and allow air to enter boot so that air pressure in boot becomes the same as atmospheric pressure.

SECTION 6

ENGINE
(RF ENGINE)

WARNING:
For vehicles equipped with Supplemental Restraint (Air Bag) System:

- **Service on and around the air bag system components or wiring must be performed only by an authorized SUZUKI dealer. Refer to "Air Bag System Components and Wiring Location View" under "General Description" in air bag system section in order to confirm whether you are performing service on or near the air bag system components or wiring. Please observe all WARNINGS and "Service Precautions" under "On-Vehicle Service" in air bag system section before performing service on or around the air bag system components or wiring. Failure to follow WARNINGS could result in unintentional activation of the system or could render the system inoperative. Either of these two conditions may result in severe injury.**
- **Technical service work must be started at least 90 seconds after the ignition switch is turned to the "LOCK" position and the negative cable is disconnected from the battery. Otherwise, the system may be activated by reserve energy in the Sensing and Diagnostic Module (SDM).**

CONTENTS