

Mazda RX-7

1980
Workshop Manual



mazda

1980 Mazda RX-7 Workshop Manual

FOREWORD

This workshop manual was prepared as reference material of the service personnel of authorized Mazda dealers to enable them to correctly carry out the task of rendering services and maintenance on Mazda vehicles.

In order to ensure that the customers are satisfied with Mazda products, proper servicing and maintenance must be provided. For this purpose, the service personnel must fully understand the contents for this manual and at the same time, are recommended to keep the manual in a place where reference can readily be made.

The information, photographs, drawings and specifications entered in this manual were the best available at the time of printing this manual. All alterations to this manual occurring as the result of modifications will be notified by the issuance of Service Informations or supplementary volumes. It is, therefore, requested that the manual be kept up to date by carefully maintaining a follow-up of these materials.

Toyo Kogyo reserves the right to alter the specifications and contents of this manual without any obligation and advance notice.

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Toyo Kogyo Co., Ltd.
HIROSHIMA JAPAN

SECTION INDEX	
Name	Section
Engine	1
Emission Control System	1A
Lubricating System	2
Cooling System	3
Fuel, Inlet and Exhaust System	4
Electrical System (Engine)	5
Clutch	6
Manual Transmission	7
Automatic Transmission	7A
Propeller Shaft	8
Rear Axle	9
Steering	10
Brakes	11
Wheels and Tires	12
Suspension	13
Body	14
Electrical System (Body)	15
Technical Data	T
Special Tools	S

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LICENSE NSU-WANKEL
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IMPORTANT INFORMATION

BASIC ASSUMPTIONS

This service manual assumes that you have and know how to properly use certain special tools which are necessary for the safe and efficient performance of service operations on Mazda vehicles. The manual also assumes that you are familiar generally with automobile systems and basic service and repair procedures. You should not attempt to use this manual unless these assumptions are correct and you understand the consequences described below.

SAFETY RISK

This manual contains certain **Cautions** which you should carefully read and follow in order to minimize the risk of **personal injury** to you or others and the risk of improper service methods which may damage your Mazda or render it unsafe. The fact that there are no **Cautions** with respect to any specific service method does not mean that there is no safety risk involved. **YOU SHOULD SATISFY YOURSELF IN EVERY CASE THAT NEITHER PERSONAL SAFETY OR VEHICLE SAFETY WILL BE JEOPARDIZED BY THE SERVICE METHOD OR TOOLS YOU SELECT.**

POSSIBLE LOSS OF WARRANTY

The manufacturer's warranty on Mazda vehicles and engines can be voided by improper service or repairs performed by persons other than an authorized Mazda dealer.

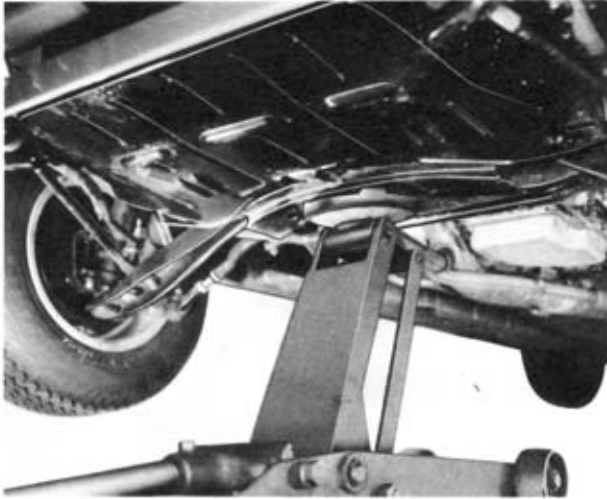
Strict compliance with the instructions in this manual is necessary to prevent loss of coverage under such warranties.

GENERAL SERVICE INSTRUCTIONS

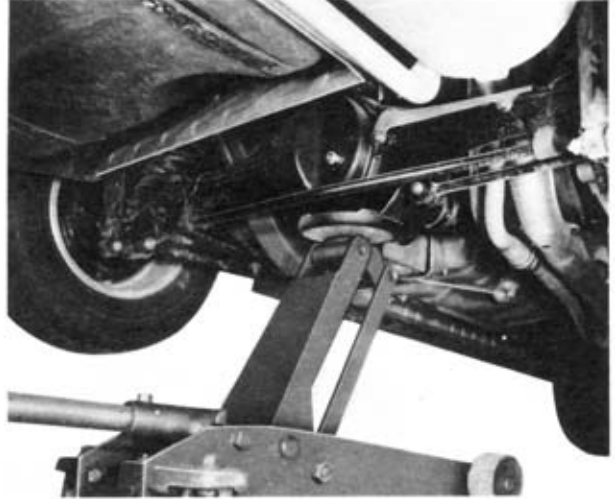
1. If a vehicle is to be jacked up only at the front or rear end, be sure to block wheels in order to ensure safety.
2. After a vehicle is jacked up, do not fail to support it with stands (rigid racks).
3. Use fender covers, seat covers and floor covers to keep vehicle clean and prevent any damage.
4. Before servicing an electrical system, always disconnect the negative cable at the battery (-) terminal.
5. Do not start to disassemble at once. Always make sure first whether the trouble is of the kind that requires disassembly.
6. If a complicated place is to be disassembled, place punch marks, match marks, etc., at place that will not affect function in order to make reassembly work easier.
7. Always replace the used gaskets, "O" rings and split pins with new ones.
8. Apply sealer or grease at the parts called for.
9. Tighten the bolts and nuts to specified torque using a torque wrench.
10. Some of the service operations require the special tool. Be sure to use the special tool where specified and follow the correct working procedure.

JACK-UP AND SUPPORT LOCATIONS

FLOOR JACK LIFT POINTS

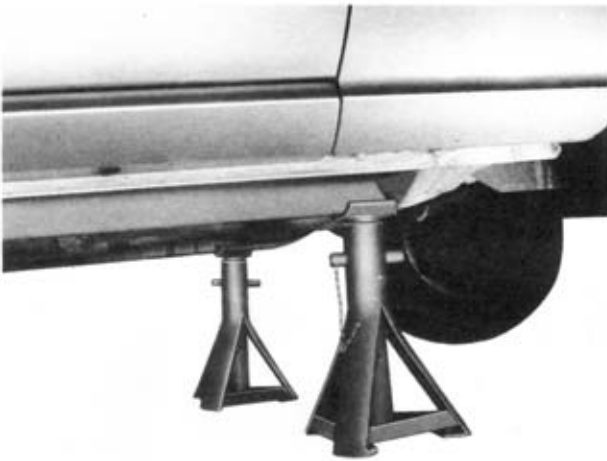


Front

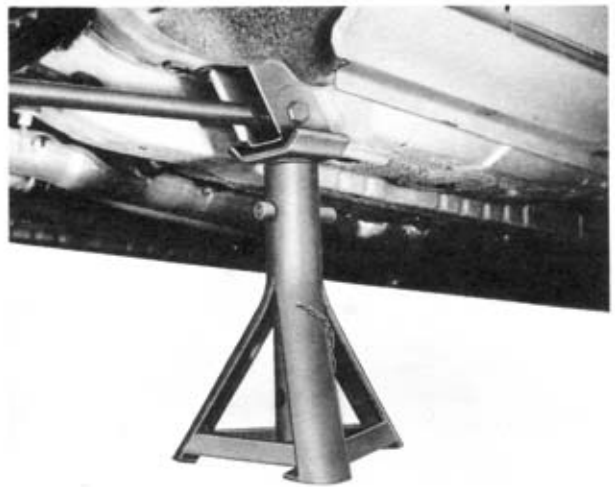


Rear

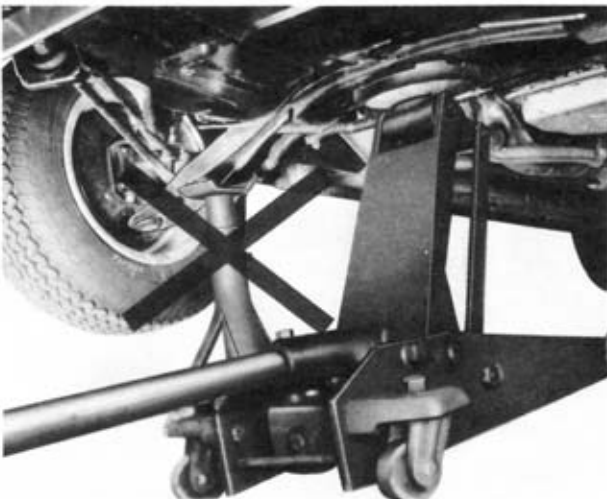
STAND LOCATIONS



Front



Rear



Wrong

Note:
After jacking-up, adjust and place safety stands to support the vehicle approximately level, and lower the vehicle onto stands.

ENGINE

1-A.	ENGINE REMOVAL	1 : 1		
1-B.	ENGINE DISASSEMBLY	1 : 4		
	1-B-1. Air Pump and Drive Belt	1 : 4		
	1-B-2. Alternator	1 : 4		
	1-B-3. Inlet Manifold and Carburetor Assembly	1 : 4		
	1-B-4. Thermal Reactor and Engine Mount	1 : 5		
	1-B-5. Distributor	1 : 5		
	1-B-6. Oil Filter and Cover	1 : 5		
	1-B-7. Water Pump	1 : 5		
	1-B-8. Oil Pan and Oil Strainer	1 : 6		
	1-B-9. Eccentric Shaft Pulley	1 : 6		
	1-B-10. Front Cover	1 : 6		
	1-B-11. Oil Pump Drive and Oil Pump	1 : 6		
	1-B-12. Balance Weight and Bearing Housing	1 : 7		
	1-B-13. Clutch Cover and Flywheel (Manual transmission)	1 : 7		
	1-B-14. Drive Plate and Counter Weight (Automatic transmission)	1 : 8		
	1-B-15. Rear Housing	1 : 8		
	1-B-16. Rear Rotor Housing	1 : 9		
	1-B-17. Rear Rotor	1 : 9		
	1-B-18. Intermediate Housing and Eccentric Shaft	1 : 10		
	1-B-19. Front Rotor Housing and Front Rotor	1 : 10		
1-C.	CLEANING	1 : 11		
	1-C-1. Front, Intermediate and Rear Housings	1 : 11		
	1-C-2. Rotor Housing	1 : 11		
	1-C-3. Rotor	1 : 11		
	1-C-4. Apex Seal, Side Piece, Side Seal, Corner Seal and Springs	1 : 11		
1-D.	INSPECTION AND REPAIR	1 : 12		
	1-D-1. Front, Intermediate and Rear Housings	1 : 12		
	1-D-2. Front Stationary Gear and Main Bearing	1 : 13		
	1-D-3. Replacing Front Main Bearing	1 : 14		
	1-D-4. Rear Stationary Gear and Main Bearing	1 : 14		
	1-D-5. Replacing Rear Main Bearing	1 : 14		
	1-D-6. Rotor Housing	1 : 15		
	1-D-7. Rotor	1 : 16		
	1-D-8. Rotor Bearing	1 : 16		
	1-D-9. Replacing Rotor Bearing	1 : 17		
	1-D-10. Rotor Oil Seal and Spring	1 : 17		
	1-D-11. Apex Seal, Side Piece and Spring	1 : 18		
	1-D-12. Side Seal and Spring	1 : 19		
	1-D-13. Corner Seal and Spring	1 : 20		
	1-D-14. Eccentric Shaft	1 : 20		
	1-D-15. Needle Bearing and Thrust Plate	1 : 21		
	1-D-16. Eccentric Shaft Front and Rear Oil Seals	1 : 21		
	1-D-17. Oil Pump Drive Chain and Sprockets	1 : 21		
1-E.	ENGINE ASSEMBLY	1 : 22		
	1-E-1. Oil Seal	1 : 22		
	1-E-2. Seals (Front side of rotor)	1 : 23		
	1-E-3. Front Rotor	1 : 23		
	1-E-4. Eccentric Shaft	1 : 24		
	1-E-5. Front Rotor Housing	1 : 24		
	1-E-6. Seals (Rear side of rotor)	1 : 26		
	1-E-7. Intermediate Housing	1 : 27		
	1-E-8. Rear Rotor and Rear Rotor Housing	1 : 27		
	1-E-9. Rear Housing	1 : 27		
	1-E-10. Flywheel (Manual transmission)	1 : 28		
	1-E-11. Counter Weight and Drive Plate (Automatic transmission)	1 : 29		
	1-E-12. Bearing Housing and Balance Weight	1 : 30		
	1-E-13. Oil Pump and Oil Pump Drive	1 : 30		
	1-E-14. Adjusting Eccentric Shaft End Play	1 : 31		
	1-E-15. Front Cover	1 : 31		
	1-E-16. Oil Strainer and Oil Pan	1 : 32		
	1-E-17. Water Pump	1 : 32		
	1-E-18. Oil Filter and Cover	1 : 33		
	1-E-19. Distributor	1 : 33		
	1-E-20. Thermal Reactor and Engine Mount	1 : 33		
	1-E-21. Inlet Manifold and Carburetor Assembly	1 : 33		
	1-E-22. Alternator and Drive Belt	1 : 34		
	1-E-23. Air Pump and Drive Belt	1 : 34		
1-F.	ENGINE INSTALLATION	1 : 34		

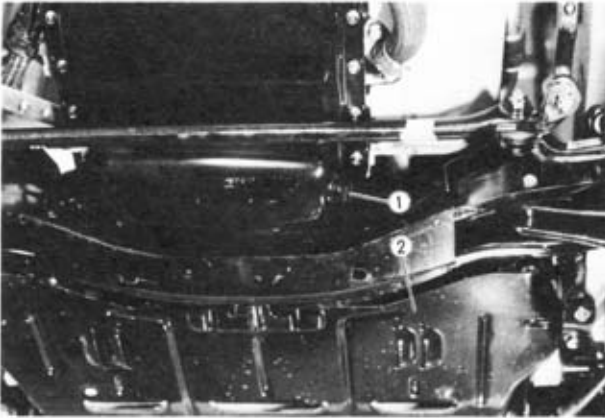


Fig. 1-1

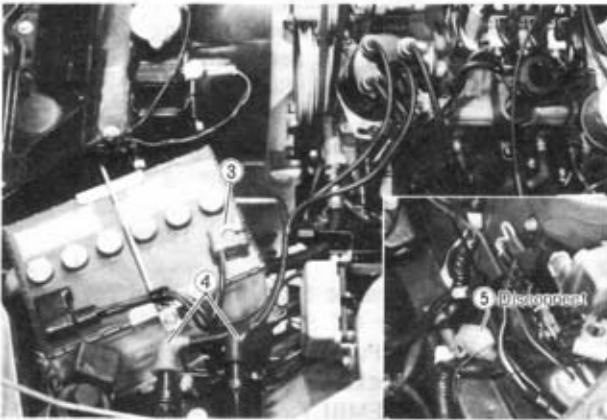


Fig. 1-2

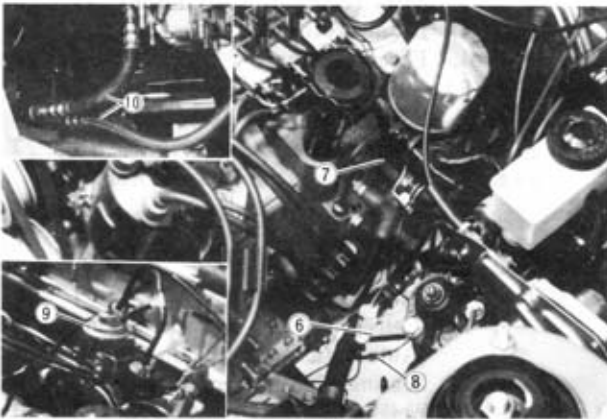


Fig. 1-3

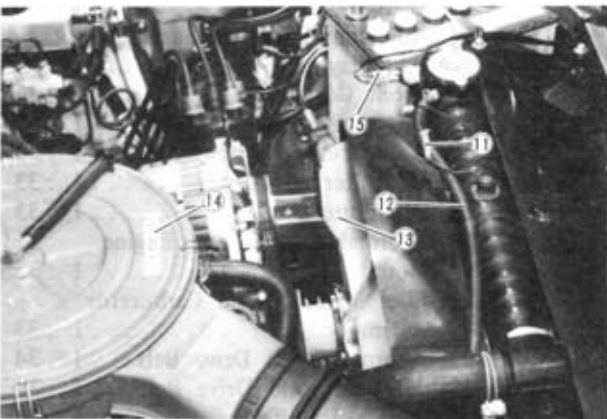


Fig. 1-4

1-A. ENGINE REMOVAL

The procedures for removing the engine from the vehicle are as follows:

Apply the parking brake and block the wheels.

1. Drain the lubricant from the engine.
After draining, clean and reinstall the drain plug.
2. Remove the engine under cover.

3. Open the bonnet and disconnect the battery negative cable.
Remove the bonnet referring to Par. 14-A.
4. Disconnect the hightension cords at the ignition coils.
5. Disconnect the couplers of pick-up coil wiring and condenser lead.

6. Disconnect the coupler of the oil level sensor lead.
7. Disconnect the coupler from the water temperature gauge unit.
8. Disconnect the coupler from the oil thermo sensor (except for California).
9. Disconnect the vacuum sensing tube for vacuum switch (Automatic transmission and Calif. with manual transmission) and evaporative hose.
10. Disconnect the oil hoses from the oil cooler.

11. Disconnect the coupler from coolant level sensor lead.
12. Disconnect the coolant reservoir hose.
13. Remove the cooling fan and fan drive assembly.
14. Remove the air cleaner assembly.
15. Disconnect the connectors from the No. 2 water temperature switch (Except for California and Canada).

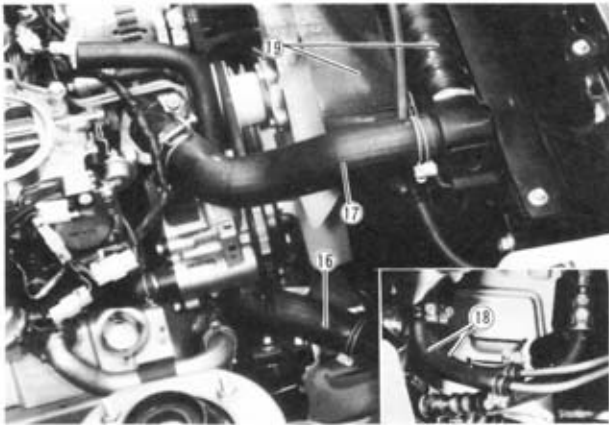


Fig. 1-5

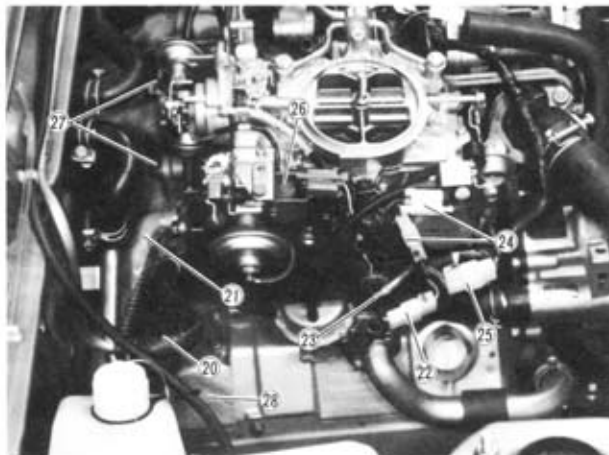


Fig. 1-6

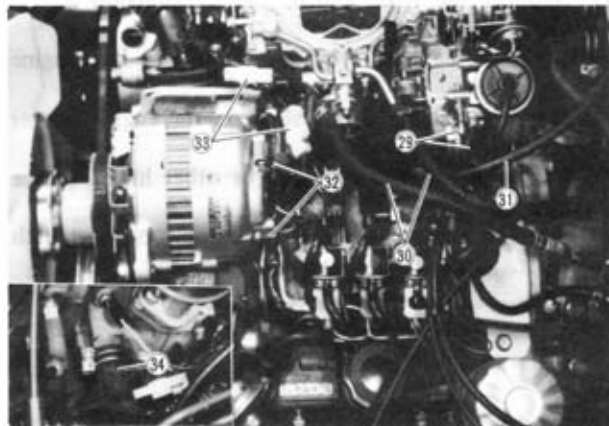


Fig. 1-7



Fig. 1-8

16. Drain the cooling system by disconnecting the radiator lower hose from the radiator.
17. Disconnect the radiator upper hose from the radiator.
18. Disconnect the oil pipes from the radiator (automatic transmission only).
19. Remove the radiator and radiator shroud assembly.

20. Disconnect the vacuum hose for power brake assist.
21. Disconnect the heat exchanger pipe from the rear end of the inlet manifold.
22. Disconnect the coupler from the power valve solenoid (Except for Canada with manual transmission).
23. Disconnect the coasting richer connector (manual transmission).
24. Disconnect the couplers from the choke heater lead and anti-afterburn valve solenoid.
25. Disconnect the idle switch coupler (manual transmission).
26. Disconnect the coupler from the choke return solenoid valve (Except for Calif. and Canada).
27. Remove the bolts attaching the transmission to rear end of the engine.
28. Remove the thermal reactor rear cover.
29. Disconnect the accelerator cable, choke cable and hot start assist cable.
30. Disconnect the fuel main and return hoses.
31. Disconnect the sub-zero start assist fluid hose (Except for Calif.).
32. Disconnect the coupler and "B" terminal from the rear end of the alternator.
33. Disconnect the couplers from the No. 1 water temperature switch and air vent solenoid valve.
34. Disconnect the heater hose from the left side of the engine.

Jack up the vehicle and support it with stands.

35. Disconnect the wirings and remove the starting motor.
36. Remove the bolts attaching the transmission to rear end of the engine.

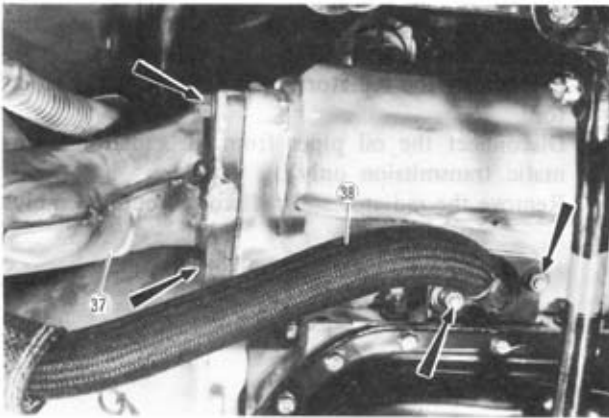


Fig. 1-9

- 37. Disconnect the air duct from the thermal reactor.
- 38. Remove the air pipe from the lower side of the thermal reactor.

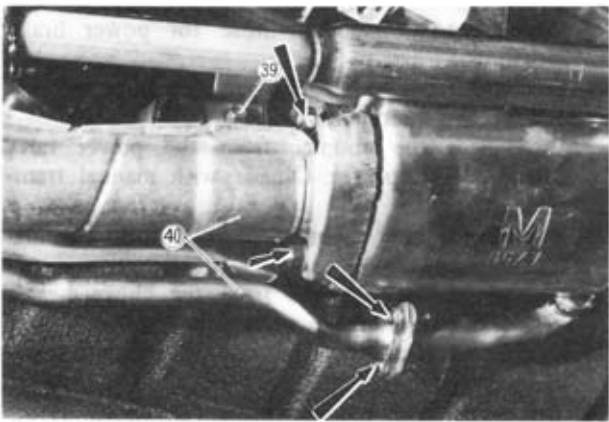


Fig. 1-10

- 39. Disconnect the air duct hanger.
- 40. Disconnect the air duct and heat exchanger pipe from the pre-silencer.

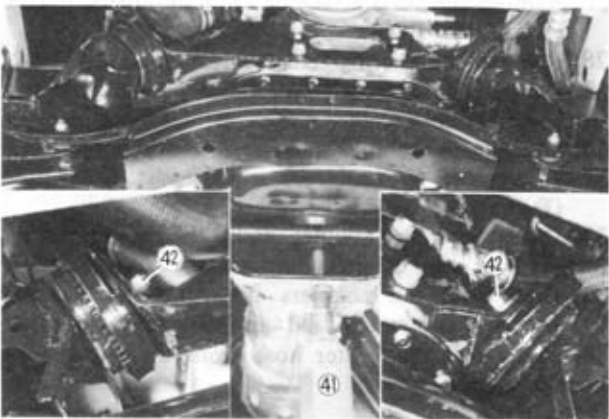


Fig. 1-11

- 41. Support the front end of the transmission with a suitable jack.
- 42. Remove the nuts from the right and left engine mountings.
- 43. Install a suitable lifting sling on the engine hanger brackets. Attach the sling to a hoist or other lifting device and take up all slack.
- 44. Pull the engine forward until it clears the clutch shaft. Then, lift the engine from the vehicle.



Fig. 1-12

- 45. Install the hanger (49 1114 005) to the engine stand (49 0107 680A) and mount the engine on the engine stand.
- 46. Remove the valve and piping assemblies from the engine.
- 47. Remove the EGR valve.

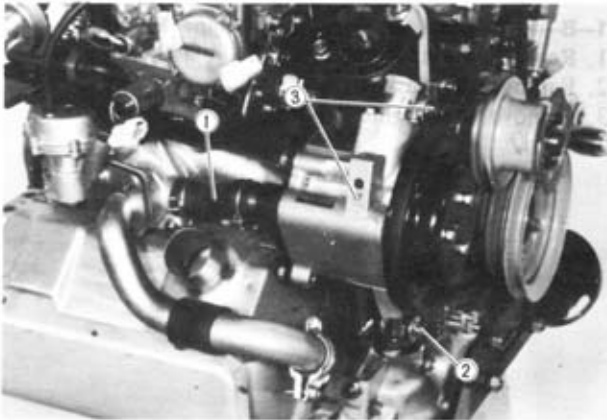


Fig. 1-13

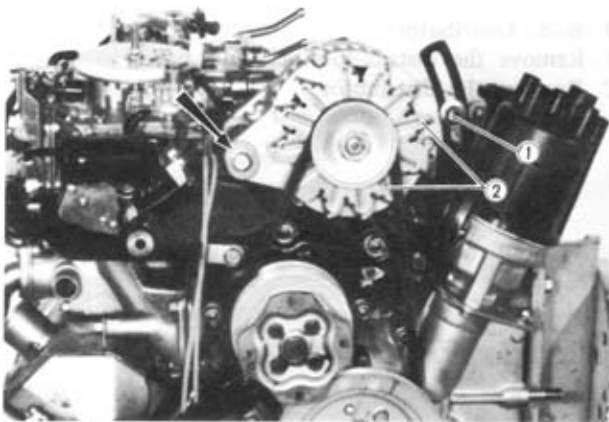


Fig. 1-14

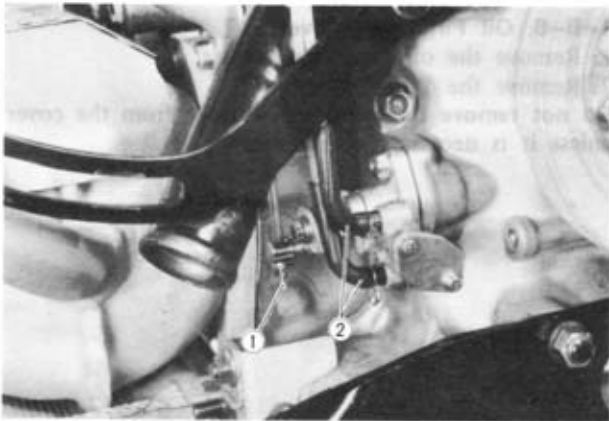


Fig. 1-15

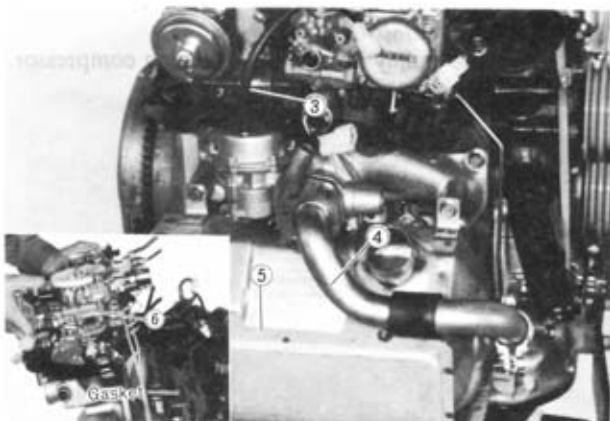


Fig. 1-16

1-B. ENGINE DISASSEMBLY

Remove the following component parts in sequences.

1-B-1. Air Pump and Drive Belt

1. Disconnect the air outlet hose.
2. Remove the air pump strap bolt.
3. Disengage the air pump drive belt and remove the air pump.

1-B-2. Alternator

1. Remove the alternator strap bolt.
2. Disengage the alternator drive belt and remove the alternator.

1-B-3. Inlet Manifold and Carburetor Assembly

1. Disconnect the connecting rod at the metering oil pump.
2. Disconnect the oil hoses at the metering oil pump outlets.

3. Disconnect the vacuum sensing tube.
4. Disconnect the air outlet pipe.
5. Remove the thermal reactor cover.
6. Remove the inlet manifold and carburetor assembly.

Remove the gasket and 'O' rings.

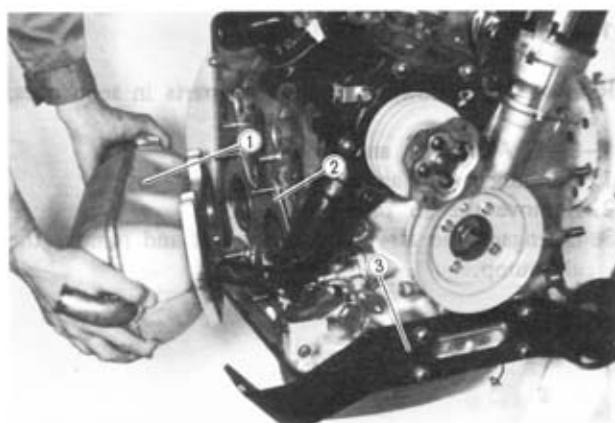


Fig. 1-17

1-B-4. Thermal Reactor and Engine Mount

1. Remove the thermal reactor.
2. Remove the gasket.
3. Remove the engine mount.

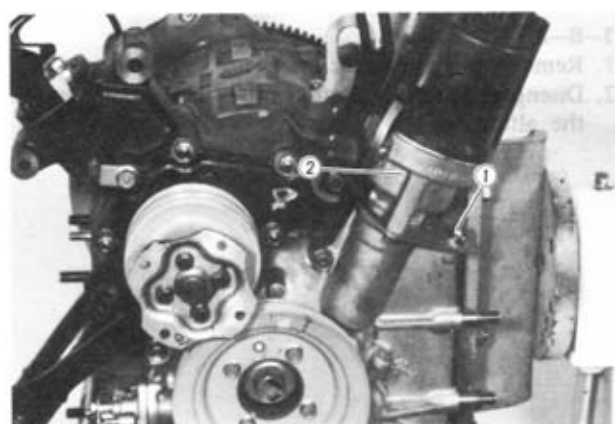


Fig. 1-18

1-B-5. Distributor

1. Remove the distributor lock nut.
2. Remove the distributor.

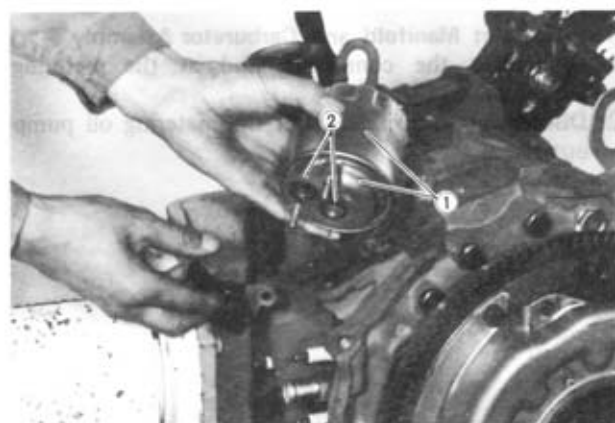


Fig. 1-19

1-B-6. Oil Filter and Cover

1. Remove the oil filter and cover.
 2. Remove the "O" rings.
- Do not remove** the oil filter cartridge from the cover unless it is necessary to replace.



Fig. 1-20

1-B-7. Water Pump

1. Remove the pulley for air conditioning compressor.
2. Remove the water pump.