

# 1975 MAZDA RX-3 WORKSHOP MANUAL

## FOREWORD

This workshop manual was prepared as reference material for the service personnel of authorized Mazda dealers to enable them to correctly carry out the task of delivering 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 of this workshop 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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HIROSHIMA, JAPAN

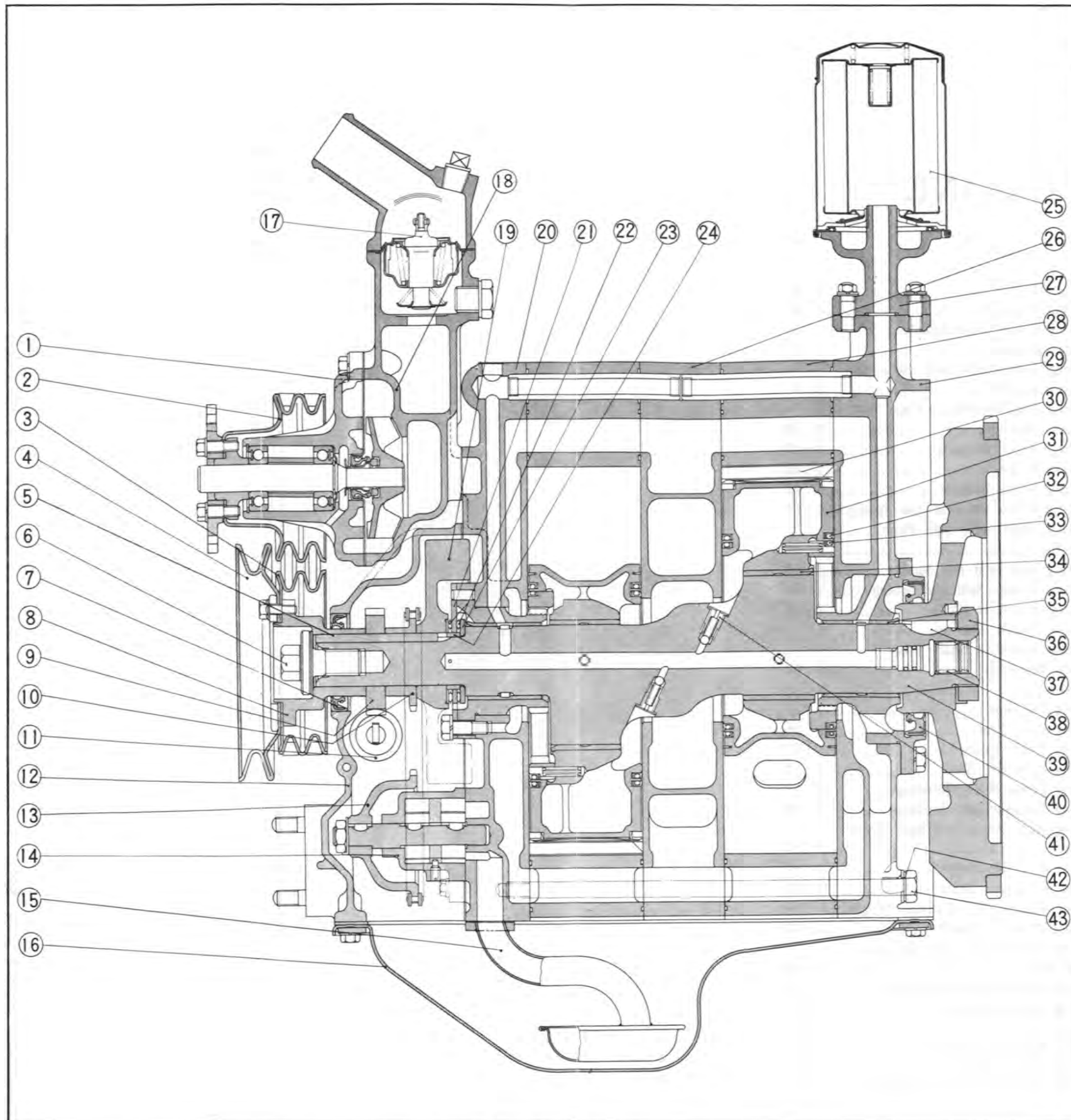
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1. Water pump body
2. Water pump pulley
3. Eccentric shaft pulley
4. Eccentric shaft pulley (for compressor)
5. Key
6. Eccentric shaft pulley bolt
7. Eccentric shaft front oil seal
8. Eccentric shaft pulley boss
9. Distributor drive gear
10. Oil pump drive sprocket
11. Driven gear (for metering oil pump)
12. Front cover
13. Oil pump driven sprocket
14. Oil pump body
15. Oil strainer
16. Oil pan
17. Thermostat
18. Water pump casing
19. Balance weight
20. Front housing
21. Bearing housing
22. Needle bearing
23. Thrust plate
24. Spacer
25. Oil filter
26. Intermediate housing
27. Oil filter cover
28. Rear rotor housing
29. Rear housing
30. Apex seal
31. Rear rotor
32. Oil seal (outer)
33. Oil seal (inner)
34. Rear rotor bearing
35. Rear main bearing
36. Flywheel lock nut
37. Key
38. Needle bearing
39. Eccentric shaft
40. Eccentric shaft rear oil seal
41. Oil jet
42. Sealing washer
43. Tension bolt

Fig. 1-1 Engine cross section (1)

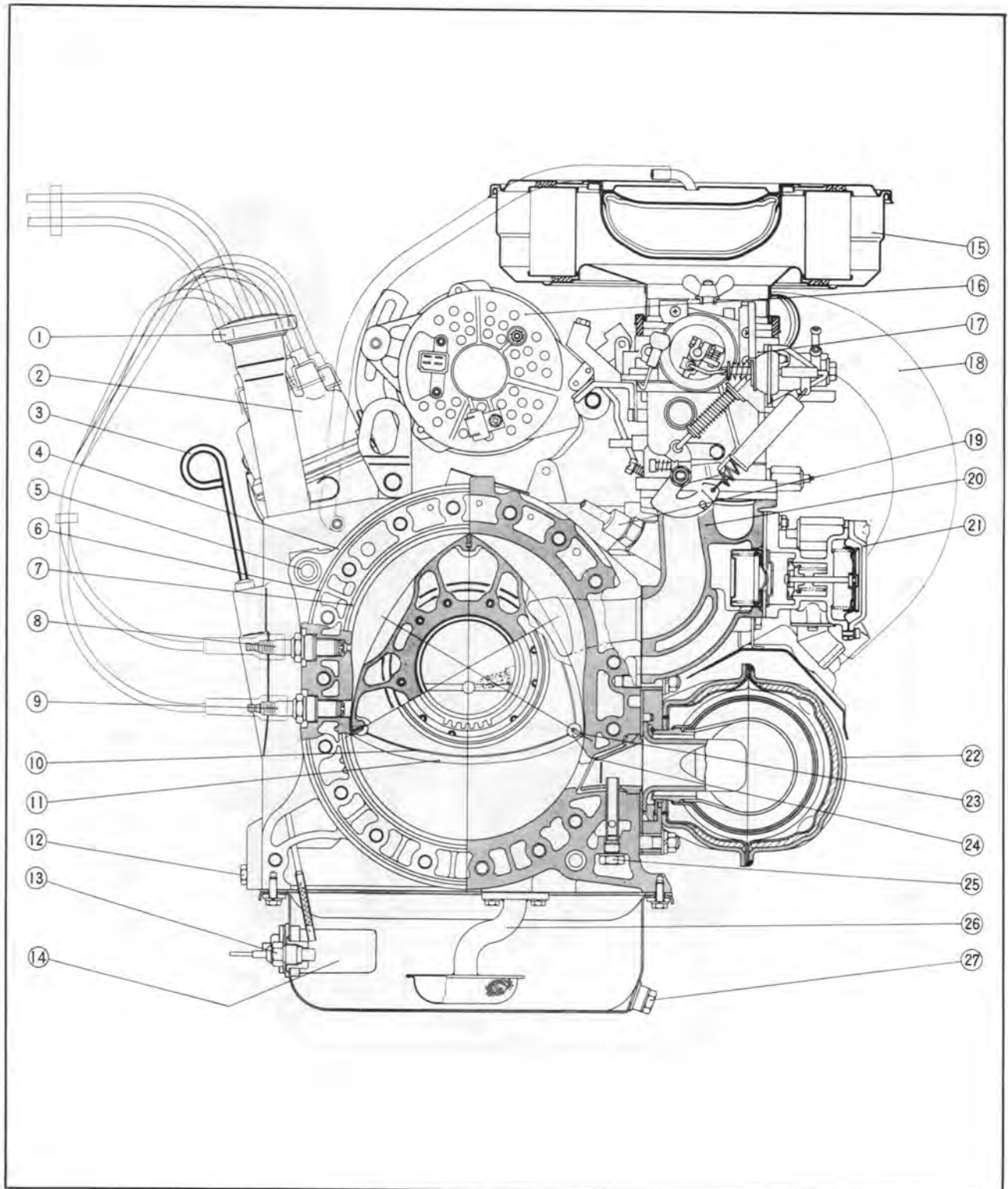


Fig. 1-2 Engine cross section (2)

- |                           |                        |                            |
|---------------------------|------------------------|----------------------------|
| 1. Oil filler cap         | 10. Side seal          | 19. PCV valve              |
| 2. Distributor            | 11. Rotor              | 20. Intake manifold        |
| 3. Dipstick gauge         | 12. Coolant drain plug | 21. Air control valve      |
| 4. Rotor housing          | 13. Oil thermo unit    | 22. Thermal reactor        |
| 5. Tubular dowel          | 14. Oil level sensor   | 23. Apex seal (side piece) |
| 6. Sealing rubber (outer) | 15. Air cleaner        | 24. Corner seal            |
| 7. Sealing rubber (inner) | 16. Alternator         | 25. Air injection nozzle   |
| 8. Trailing spark plug    | 17. Carburetor         | 26. Oil strainer           |
| 9. Leading spark plug     | 18. Hot air hose       | 27. Oil drain plug         |

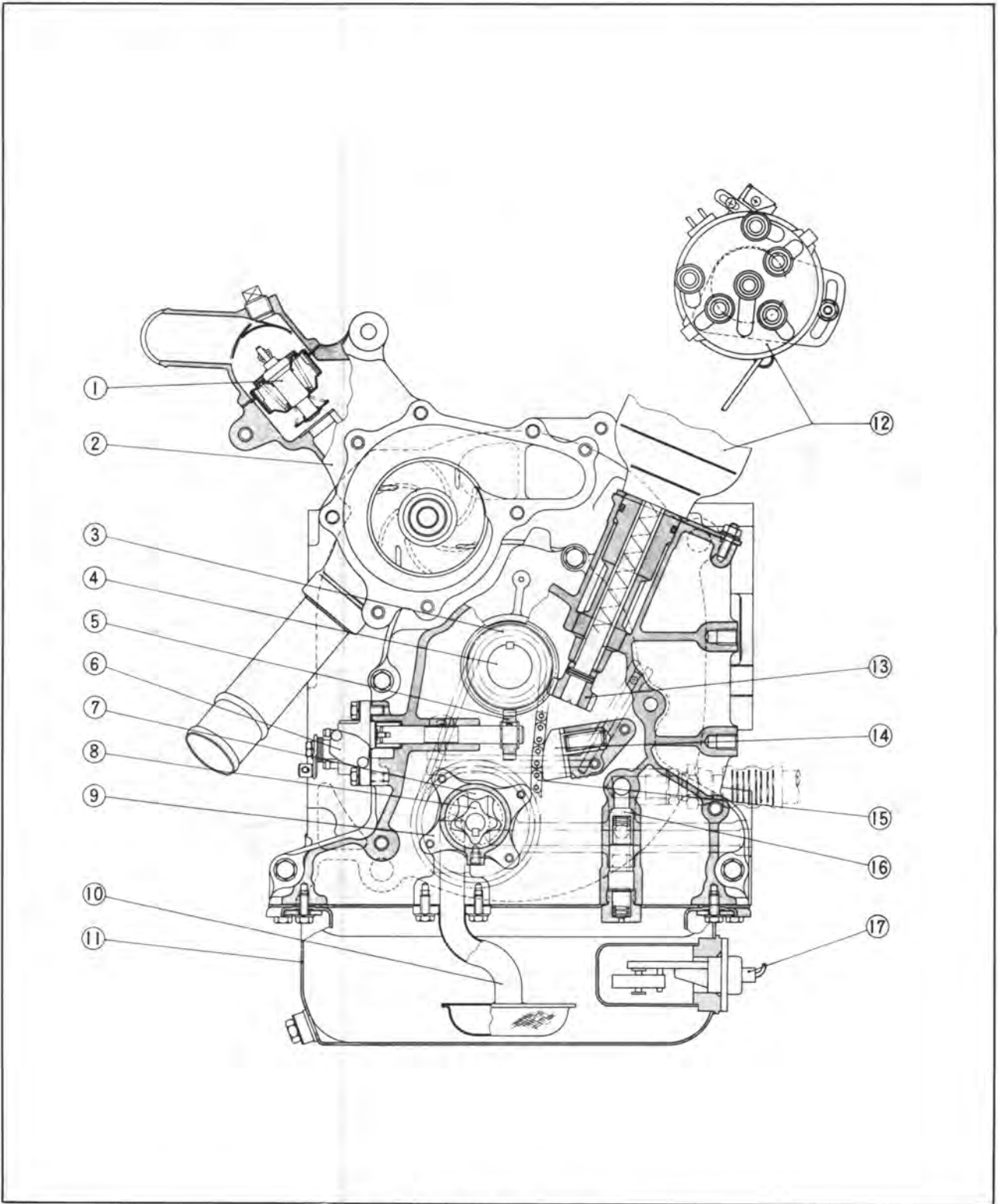


Fig. 1-3 Engine cross section (3)

- |                             |                        |                             |
|-----------------------------|------------------------|-----------------------------|
| 1. Thermostat               | 7. Oil pump outer gear | 13. Distributor driven gear |
| 2. Water pump casing        | 8. Oil pump inner gear | 14. Oil pump chain adjuster |
| 3. Distributor drive gear   | 9. Oil pump body       | 15. Oil pump chain          |
| 4. Eccentric shaft          | 10. Oil strainer       | 16. Pressure control valve  |
| 5. Metering pump drive gear | 11. Oil pan            | 17. Oil level sensor        |
| 6. Metering pump            | 12. Distributor        |                             |

### 1-A. ENGINE DISASSEMBLY

Engine disassembly should be done in the following order after removing the engine from the vehicle.

#### Note:

Henceforth, on this occasion when the '74 year-type of rotary engine is being introduced, we have adopted the method of supporting the front housing by using the **engine hanger** (49 1114 005) for the purpose of facilitating the working procedure. The **engine hanger** can be used for any type of engine now in service.



Fig. 1-4 Engine work stand

1. Remove the oil hose support bracket from the front housing.
2. Mount the engine on the **engine work stand** (49 0839 000) with the **engine hanger** (49 1114 005).
3. Remove the engine mounting bracket from the front cover.
4. Disconnect the vacuum hoses, air hoses and wires, then remove the valves.
5. Remove the air pump attaching bolts and bar, and remove the air pump and V-belt.
- Remove the alternator attaching bolts, and remove the alternator and V-belt.
6. Disconnect the metering oil pump connecting rod and oil tubes from the carburetor.
7. Remove the intake manifold attaching nuts, and remove the carburetor and intake manifold assembly.



Fig. 1-5 Removing intake manifold ass'y

Then remove the gasket and two rubber rings.

8. Remove the thermal reactor attaching nuts and

remove it with gaskets.

9. Remove the distributor securing nut and pull it out from the front cover.



Fig. 1-6 Removing distributor

10. Remove the eccentric shaft pulley (for compressor) from the pulley boss.
11. Remove the water pump attaching bolts, and remove the pump and gasket.



Fig. 1-7 Removing water pump

12. Invert the engine on the work stand.
13. Remove the bolts attaching the oil pan, and remove the oil pan and gasket.



Fig. 1-8 Removing oil pan

14. Remove the bolts attaching the oil strainer, and remove the oil strainer and gasket.

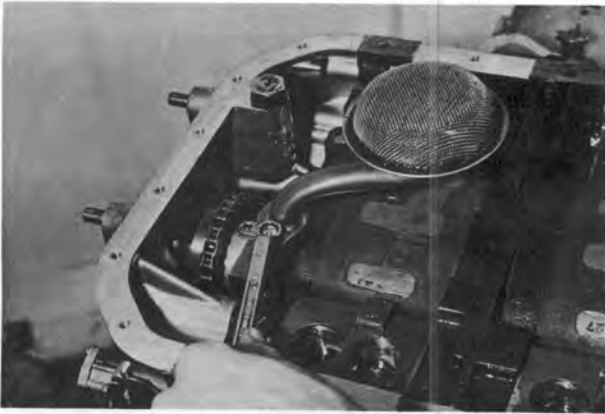


Fig. 1-9 Removing oil strainer

15. Apply identification marks onto the front rotor housing and rear rotor housing, which are common parts, so that they will be as they were when re-assembling the engine.

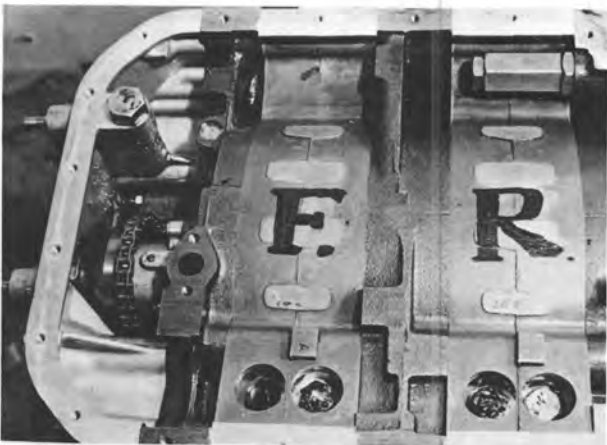


Fig. 1-10 Putting identification marks

16. Turn the engine on the work stand so that the top of the engine is up.

17. Attach the ring gear brake (49 1881 060) to the flywheel or drive plate.

18. Remove the eccentric shaft pulley bolt and remove the pulley.

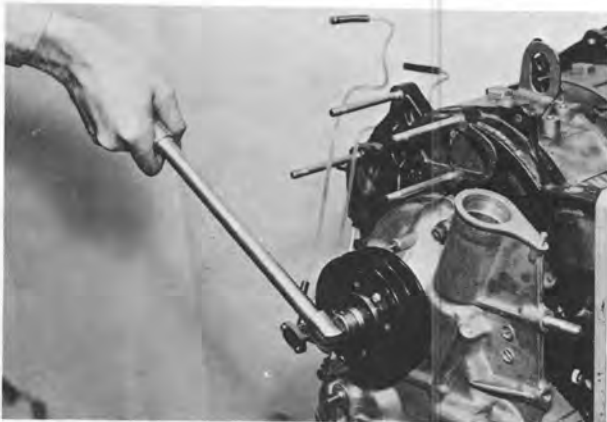


Fig. 1-11 Removing eccentric shaft pulley

19. Turn the engine on the work stand so that the front end of the engine is up.

20. Remove the front cover attaching bolts, and remove the front cover and gasket.



Fig. 1-12 Removing front cover

21. Remove the "O" ring from the oil passage on the front housing.

22. Slide the distributor drive gear off the shaft.

23. Remove the nuts attaching the chain adjuster and remove the chain adjuster.



Fig. 1-13 Removing chain adjuster

24. Straighten the tab of the lock washer and remove the nut and lock washer from the oil pump driven sprocket.

25. Slide the oil pump drive sprocket and driven sprocket together with the drive chain off the eccentric shaft and oil pump shaft simultaneously.



Fig. 1-14 Removing chain and sprockets



26. Remove the keys on the eccentric shaft and oil pump shaft.

27. Slide the balance weight, thrust washer and needle bearing off the shaft.

28. Remove the bolts attaching the bearing housing, and slide the bearing housing, needle bearing, spacer and thrust plate off the shaft.

29. Turn the engine on the work stand so that the top of the engine is up.

30. To remove the flywheel in case of engine mounted with manual transmission, proceed as follows:

1) Remove the clutch pressure plate assembly attaching bolts, and remove the pressure plate assembly and clutch disk.

2) Straighten the tab of the lock washer and remove the flywheel nut using the **special wrench** (49 0820 035).

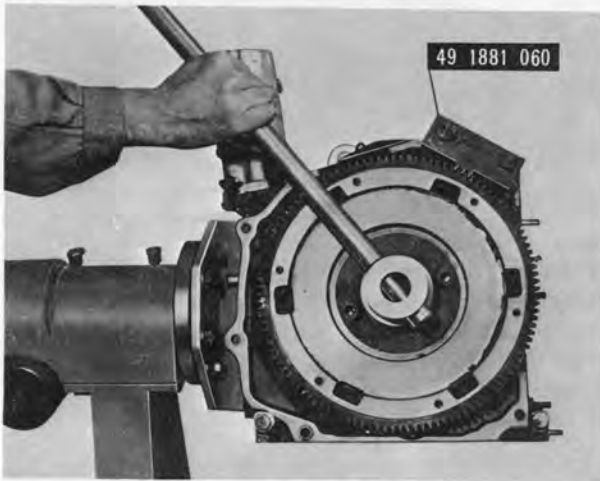


Fig. 1-15 Removing flywheel nut

3) Remove the flywheel by using the **flywheel puller** (49 0823 300A), turning the handle of the puller and lightly hitting the head of the puller.



Fig. 1-16 Removing flywheel

31. To remove the counter weight in case of engine mounted with automatic transmission, proceed as follows.

1) Remove the drive plate, and then remove the **ring gear brake** (49 1881 060).

2) Attach the **counter weight brake** (49 1881 055). Then straighten the tab of the lock washer and remove

the counter weight nut using the **special wrench** (49 0820 035).

3) Remove the counter weight by using the **counter weight puller** (49 0839 305A), turning the handle of the puller and lightly hitting the head of the puller.

32. Remove the key on the eccentric shaft and turn the engine on the work stand so that the rear of the engine is up.

33. Loosen the tension bolts in the sequence shown in Fig. 1-17, and remove the tension bolts.



Fig. 1-17 Tension bolts loosening order

**Note:**

Do not loosen the tension bolts at one time. Perform the removal in two or three procedures.

34. Lift the rear housing off the shaft.



Fig. 1-18 Removing rear housing

35. Remove any seals stuck to the rotor sliding surface of the rear housing and place them back into their respective original positions.

36. Remove the all corner seals, corner seal springs, side seals, side seal springs and side pieces from the rear side of the rotor, and place them in the **seal case** (49 0813 250), in accordance with the numbers near each respective groove on the face of the rotor. These marks are made in order to prevent each seal from