

SIX CYLINDER ENGINE

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SERVICE OPERATIONS ON CAR

ENGINE INSULATORS - REMOVE AND REPLACE

FRONT INSULATORS

1. Rotate harmonic balancer until timing mark is at bottom (Fig. 6-2).
2. Bolt J 22773 Engine Support Bracket to front of harmonic balancer.

3. With suitable equipment, raise engine at J 22773 until insulator clears brackets.

CAUTION: Safety bracket must be bolted to engine lifting tool whenever in use to prevent engine from moving while in the raised position (Fig. 6-3).

4. Raise engine approximately 1" above front insulators.
5. Remove insulator by removing two insulator-to-block bolts. On manual trans 4 bbl. Overhead Cam engine, remove two bolts and two spacers.

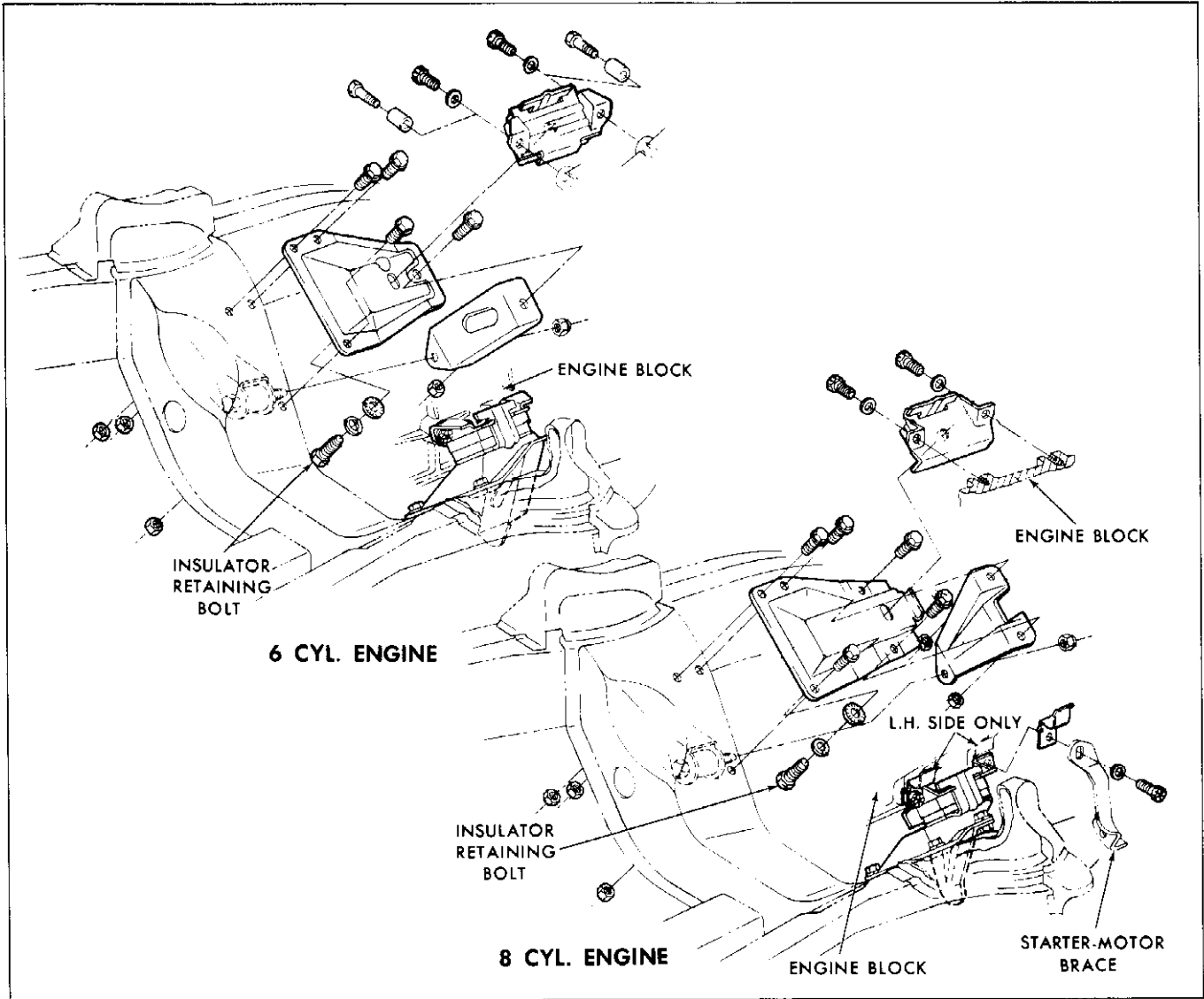


Fig. 6-2 Engine Insulators - 6 Cyl. and 8 Cyl.

HORSEPOWER AND TORQUE FOR SIX CYLINDER ENGINE

Engine	Carburetor	Compression Ratio	Horsepower	Torque
230	1-bbl	9.0	165 @ 4700	216 @ 2600
230	4-bbl	10.5	215 @ 5200	240 @ 3800

6. Install new insulator reversing procedure number four and tighten bolts to 65 lb. ft.

7. Lower front of engine into position and install insulator-to-engine bracket bolts and tighten to 50 lb. ft.

REAR INSULATORS

1. Remove crossmember-to-mount bolts.
2. Raise transmission with suitable lifting equipment to release weight from mount.
3. Remove insulator-to-transmission housing bolts.
4. Replace insulator and install insulator-to-transmission housing bolts and tighten to 30 lb. ft.

OIL PAN

REMOVE AND REPLACE

REMOVE

1. Disconnect battery cable.
2. Inspect all hoses and wiring for proper routing to prevent binding when engine is raised 2".

NOTE: Before raising vehicle prop hood open at least 3" to ensure adequate clearance between timing belt cover and inner hood panel.

3. Raise vehicle and drain crankcase.
4. Remove starter assembly.
5. Remove right and left engine insulator-to-bracket bolts.
6. Support engine using engine tool J 22773.
7. Remove insulator-to-engine bracket bolts.
8. Remove oil pan bolts.
9. Raise engine approximately 2" at J 22773 or until oil pan clears the flywheel housing and remove oil pan.

NOTE: Safety bracket must engage in cross-member reinforcement bar (Fig. 6-3).

INSTALL

1. Install new gasket on oil pan.
2. Install oil pan and tighten retaining bolts to 12 lb. ft.
3. Lower engine, remove engine support bracket and install engine insulator-to-bracket bolts and tighten to 50 lb. ft.
4. Install starter assembly.
5. Lower vehicle.
6. Replace air cleaner assembly.
7. Refill crankcase.
8. Connect battery cable.

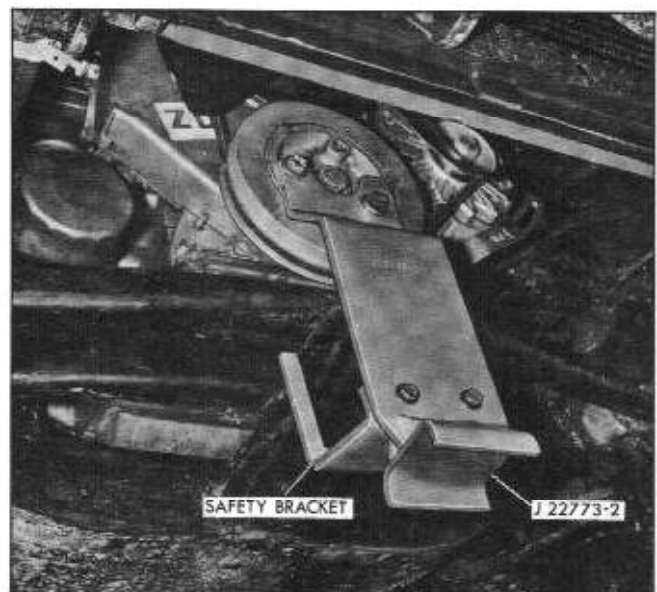


Fig. 6-3 J 22773 Installed

V-8 ENGINE

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SERVICE OPERATIONS ON CAR

ENGINE INSULATORS - REMOVE AND REPLACE

FRONT INSULATORS

1. Raise hood and disconnect battery ground strap.
2. Remove insulator-to-engine bracket bolts.
3. Raise engine just clear of insulators.
4. Remove insulator-to-engine bolts and remove insulators (Fig. 6-2).
5. Position new insulators against engine and install attaching bolts and washers. Tighten to 70 lb. ft. torque.
6. Lower engine.
7. Install engine bracket-to-insulator bolts with lock washers and tighten to 50 lb. ft. torque.

REAR INSULATORS

1. Remove two crossmember-to-insulator bolts.
2. Raise transmission at the rear to provide clearance for removing insulator-to-transmission mounting bolts.
3. Remove two insulator-to-transmission bolts and remove insulator.
4. Install new insulator with two insulator-to-transmission housing bolts and washers and tighten to 30 lb. ft. torque.
5. Lower rear of transmission and position insulator.
6. Install two crossmember-to-insulator bolts with washers and tighten to 30 lb. ft. torque.

CYLINDER HEAD OR GASKET - REMOVE AND REPLACE

REMOVE

1. Remove intake manifold, push rod cover, and rocker arm cover following procedure in 1967 Pontiac Service Manual.
2. Loosen all rocker retaining nuts and move rocker arms off push rods.

3. Remove push rods and place in a support stand so that they may be replaced in exactly the same order in which they were removed.

4. Remove exhaust pipe-to-manifold attaching nuts.

5. Remove compressor attaching bolts, if equipped with A/C, and move compressor to one side when removing right head.

6. Remove battery ground strap and engine ground strap on left head.

7. Remove cylinder head bolts (dowel pins hold head in place) and remove head with exhaust manifold attached.

NOTE: When removing the right head on V-8's equipped with A/C, it is necessary to remove the right insulator-to-frame bolt and raise engine approximately 2" to gain access to the right rear valve cover bolt and the right rear cylinder head bolt. Care must be taken to avoid the fan contacting the fan shroud.

8. If left head is being removed, it will be necessary to raise head off dowel pins, move it forward and maneuver the head in order to clear the power steering and power brake components if car is so equipped.

9. Remove cylinder head gasket.

REPLACE

NOTE: Right and left cylinder heads are the same. New heads are complete with rocker arm studs (exc. heads with screwed in studs) and all plugs.

When installing new head, transfer all serviceable parts to new head, using new seals on intake and exhaust manifold valve stems, and new exhaust manifold gasket. Install new intake manifold gasket retainers. Clamp straight edge into position (as shown in figure 6-100 of the 1967 Pontiac Service Manual) and check rocker arm position with valve train gage J 8928.

1. Remove straight edge from cylinder head and thoroughly clean gasket surfaces of head and block. Place new gasket on block, and replace cylinder head.

NOTE: When replacing right cylinder head on V-8 equipped with A/C, it will be necessary to insert the right rear bolt into the head before replacing the head on the block.

HORSEPOWER AND TORQUE**FOR V-8 ENGINE**

Engine	Carburetor	Compression Ratio	Horsepower	Torque
326	2-bbl	9.2	250 @ 4600	333 @ 2800
326	4-bbl	10.5	285 @ 5000	359 @ 3200
400	Q'Jet	10.75	325 @ 4800	410 @ 3400
400 Ram-Air	Q'Jet	10.75	325 @ 5200	410 @ 3600

2. Start all bolts.

NOTE: Bolts are three different lengths. When inserted in proper holes all bolts will project an equal distance from head. Do not use sealer of any kind on threads.

3. Tighten bolts evenly to 95 lb. ft. torque.

4. Install push rods in same location from which they were removed and with the same end up against rocker arms.

5. Reposition rocker arms and tighten rocker arm ball retaining nuts to 20 lb. ft. torque.

6. Install rocker arm cover and tighten screws.

7. Install push rod cover and tighten screws.

8. Replace battery ground strap and engine ground strap on left head or engine ground strap and automatic transmission oil level indicator tube bracket on right head. Also install the engine oil level indicator on right side.

9. Install intake manifold using new gaskets.

10. Install exhaust pipe-to-manifold attaching nuts.

11. Replace right side insulator-to-bracket bolt on A/C equipped V-8's.

ENGINE - REMOVE AND INSTALL**REMOVE**

1. Disconnect battery cables.

2. Drain cooling system.

3. Remove hood assembly.

4. Disconnect engine wiring harness and engine-to-ground straps.

5. Remove air cleaner.

6. Disconnect radiator hoses.

7. If equipped with A/C remove pump and compressor and move to one side. **DO NOT DISCONNECT HOSES.**

8. Remove fan and fan shroud.

9. Disconnect throttle linkage.

10. If equipped with A/C remove windshield wiper motor.

11. Disconnect gas and vacuum lines.

12. Raise vehicle and drain crankcase.

13. Disconnect exhaust pipes from manifold.

14. Remove starter motor.

15. If equipped with automatic transmission remove flywheel cover and converter bolts.

16. If equipped with manual transmission disconnect clutch cross shaft.

17. Remove lower bell housing bolts (automatic transmission).

18. Remove engine insulator-to-bracket bolts.

19. Lower vehicle.

20. Using jack, support transmission.

21. Remove two remaining bell housing bolts (automatic transmission).

22. Using suitable lifting equipment remove engine.

INSTALL

1. Install engine lifting equipment to engine and lower engine into chassis.

2. With engine supported by lifting equipment, install two upper bell housing bolts (automatic transmission).

CAUTION: Do not lower engine completely while jack is supporting transmission.

3. Remove transmission support jack.

4. Lower engine and remove lifting equipment.

5. Raise vehicle.

6. Install remaining bell housing bolts (automatic transmission).

7. Replace two front motor mount-to-frame bolts.

8. For remaining installation procedures, reverse steps 1 through 16.

OIL PAN AND/OR OIL PAN GASKET - REMOVE AND REPLACE

REMOVE

1. Remove engine and clutch assembly from vehicle.
2. Place engine in suitable stand.

3. Remove oil pan.

REPLACE

1. Install new gasket on oil pan using gasket retainer.

2. Install new oil pan gasket in rear main bearing.

3. Install oil pan into position and torque bolts to 12 lb. ft.

4. Remove engine from stand.

5. Install engine in vehicle.