

## GROUP 11 EXHAUST SYSTEM

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### TORQUE REFERENCE

	Foot-Pounds
Ball Joint Screw.....	20
Exhaust Manifold Nuts.....	30
Exhaust Pipe Flange Nut.....	40
Exhaust Pipe Support Clamp Bolts.....	10
Converter Housing Bracket Screw.....	15
Heat Control Counterweight Clamp Bolt.....	50 inch-pounds

Long life aluminized exhaust components are used on all models. The exhaust system is suspended by loop type hangers through the propeller shaft tunnel.

Ball joints which allow more accurate alignment of the exhaust system are located ahead of the mufflers, (Fig. 1, 2, 3, 4, 5, and 6).

### SERVICE PROCEDURES

#### 1. INTAKE MANIFOLD (Fig. 7)

Refer to the "Engine" Group 9 for removal and installation of the intake manifold.

#### 2. EXHAUST MANIFOLD

##### Removal

- (1) Disconnect the spark plug cables from the spark plugs.
- (2) Remove the alternator from the right cylinder head.
- (3) Disconnect the exhaust pipes at the exhaust manifold flanges.
- (4) Remove the nuts that hold the exhaust manifolds to the cylinder heads.
- (5) Slide the manifolds off the studs and away from the cylinder heads.
- (6) Clean the exhaust manifolds in solvent. Blow

dry with compressed air.

- (7) Inspect the manifolds for cracks and distortion.

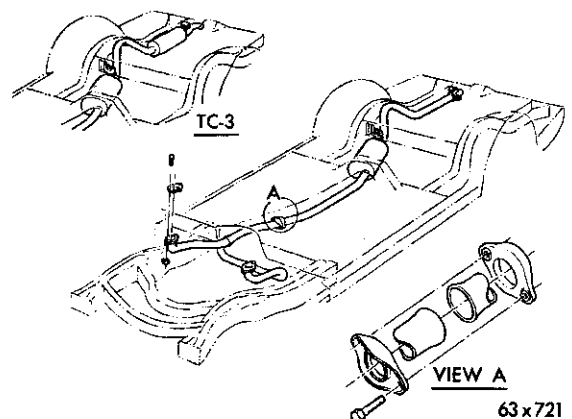


Fig. 1—Exhaust System (TC-1, TC-2 and TC-3)

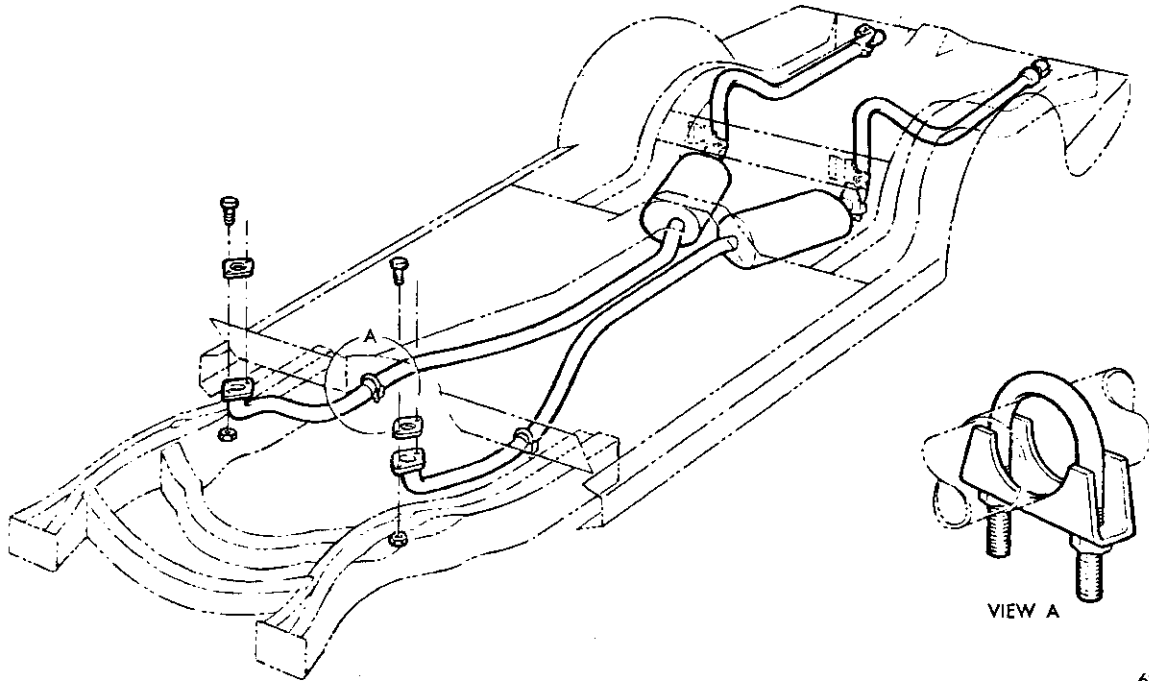


Fig. 2—Exhaust System (C-300J—High Performance)

62 x 141

**Installation**

- (1) Place the exhaust manifolds on the studs on the cylinder heads and install the nuts. Tighten to 30 foot-pounds torque.
- (2) Connect the exhaust pipes at the exhaust manifolds. Tighten the nuts to 40 foot-pounds torque.
- (3) Install the alternator on the right cylinder head and adjust the belt tension.
- (4) Connect the spark plug cables to the spark plugs.

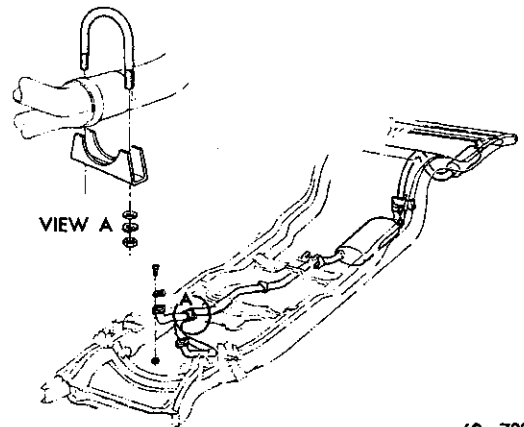
- (3) If the valve shaft is frozen in the manifold, apply manifold heat control valve solvent, MoPar Part No. 1879318, and allow to stand several minutes. Loosen by rotating the shaft back and forth until the shaft turns easily.

**Assembly**

- (1) Position the valve shaft in the extreme counter-clockwise position.

**3. MANIFOLD HEAT CONTROL VALVE**

Inspect the operation of the heat control valve (Fig. 8) every 1,000 miles and apply manifold heat control valve solvent MoPar Part No. 1879318 to both ends of the valve shaft. With engine idling, accelerate the engine and release quickly. The counterweight should respond by moving clockwise approximately 1/2 inch and return to its normal position.



**Disassembly (Fig. 8)**

- (1) Loosen the counterweight clamp bolt and remove the counterweight, lock and stop from the end of the shaft, exposing the thermostatic coil.
- (2) Unhook the coil from the pin and remove by sliding out of the valve shaft slot.

63 x 720

Fig. 3—Exhaust System (TY-1)

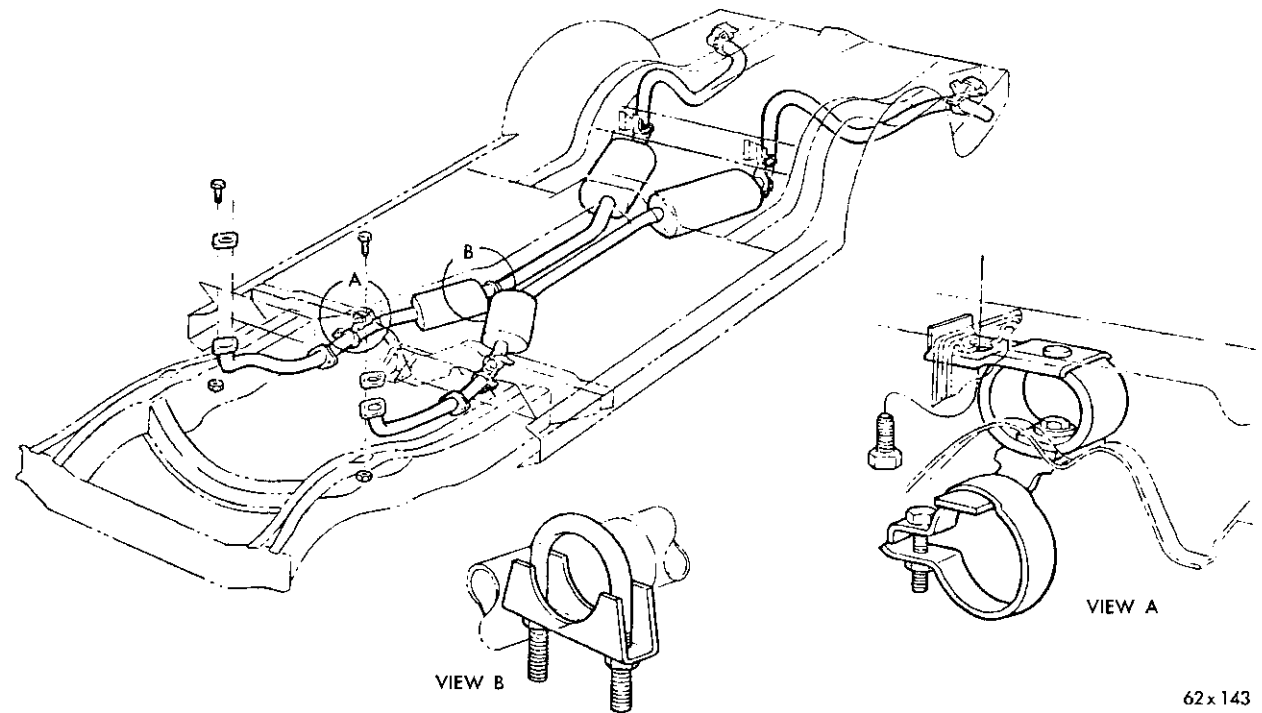


Fig. 4—Exhaust System (TC-3) Town and Country

(2) Place the new coil in position in the shaft slot, with the outer end (tongue) of the coil in the lower left hand position, as shown in Figure 9. Press the inner end of the coil into the slot of the shaft and seat firmly.

(3) Move the outer end (tongue) counter-clockwise and hook under the pin, as shown in Figure 10.

(4) Place the counterweight assembly over the shaft (with the weight in the upward position) and insert the

lock in the shaft slot, as shown in Figure 10. **If the composition on the stop is worn, replace with a new stop.** Center the counterweight on the shaft and turn the assembly clockwise until the stop passes the pin. Press the counterweight on the shaft until seated and tighten the clamp bolt 50 inch-pounds with torque wrench Tool C-3380. Test the valve for proper operation.

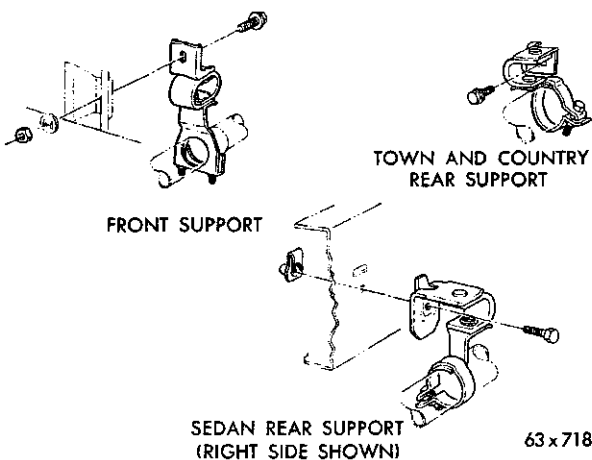


Fig. 5—Exhaust System Supports (TC-1, TC-2 and TC-3)

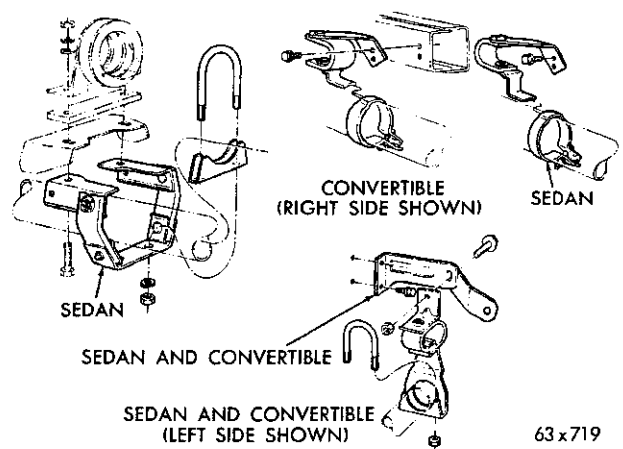


Fig. 6—Exhaust System Supports (TY-1)

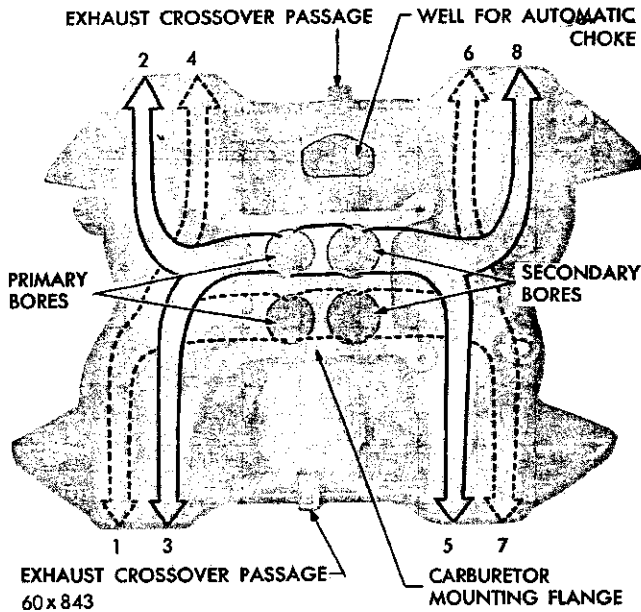


Fig. 7—Intake Manifold

**4. MANIFOLD HEAT CONTROL VALVE REPLACEMENT**

**Removal**

- (1) Remove the alternator.
- (2) Remove the exhaust pipe from the manifold.
- (3) Remove the exhaust manifold from the engine.
- (4) Remove the counterweight, thermostatic spring, shaft, clips and anti-rattle spring.
- (5) Cut the valve plate off of the shaft.
- (6) Remove the shaft and bushings from the manifold.

**Installation**

- (1) Install the new bushings in the exhaust manifold.

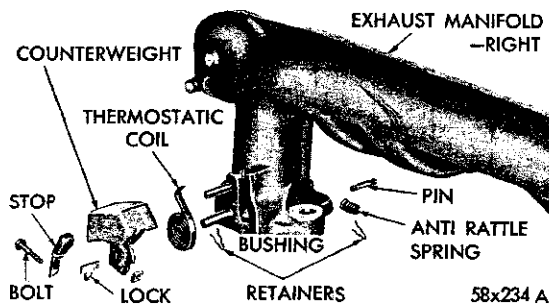


Fig. 8—Manifold Heat Control Valve

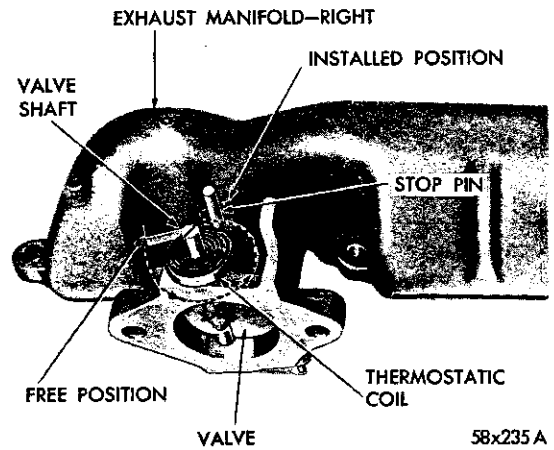


Fig. 9—Positioning the Coil

(2) Position the shaft into both bushings and check the shaft for freedom of turning. Should the shaft fail to turn freely, it will be necessary to burnish the bushings.

(3) Pull the shaft out far enough to position the valve plate on the shaft, then slide shaft into position in both bushings.

(4) Align the hole in the valve plate with the hole in the shaft and insert a drift into both holes to maintain correct positioning of the valve plate as it is being welded to the shaft.

(5) Remove the drift from the valve plate and shaft.

(6) Install the new anti-rattle spring, shaft clips, thermostatic spring and counterweight assembly on the shaft.

(7) Install the manifold on the engine assembly.

(8) Using a new gasket, connect the exhaust pipe to the manifold.

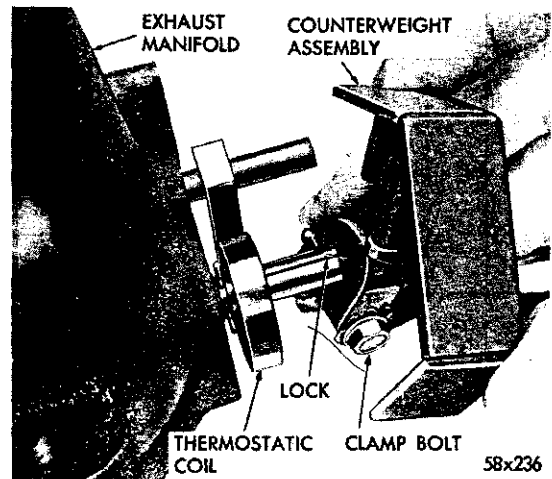


Fig. 10—Installing the Counterweight

- (9) Install the alternator.
- (10) Start the engine and test the operation of the manifold heat control valve assembly.

**Servicing**

Test the manifold heat control valve for proper operation during lubrication and engine tune-up and apply Manifold Heat Control Valve Solvent MoPar Part No. 1879318 to both ends of valve shaft. See "Lubrication" Group 0.

**5. EXHAUST PIPES, MUFFLERS, TAIL PIPES**

**Removal**

- (1) Raise the vehicle on a hoist and lubricate the clamp nuts and bolts with penetrating oil to loosen the rust and dirt.
- (2) Remove the clamps from the exhaust pipes, mufflers and tail pipes.
- (3) Disconnect the exhaust pipe at the exhaust manifolds and remove the exhaust pipe.
- (4) Remove the muffler, extension pipe and the tail

pipe assembly.

**NOTE:** If only the muffler is to be replaced, cut the extension at the muffler with a hack saw. It is unnecessary to remove the exhaust pipe. The replacement muffler is installed using a clamp at the front of the muffler.

**Installation**

- (1) Connect the exhaust pipes to the exhaust manifolds. Tighten the nuts to 40 foot-pounds torque.
- (2) Adjust the hanger heights for proper alignment.
- (3) Tighten all slip joints to 10 foot-pounds torque. Work from the rear to the front of vehicle.
- (4) Tighten all support clamps to 10 foot-pounds torque when installing the mufflers.
- (5) Tighten the ball joint flange bolts to 20 foot-pounds torque. The inner surfaces of the flanges should be parallel to each other and perpendicular to the pipe axis.
- (6) Adjust the converter housing bracket, so that it is flat against the converter housing and in the proper contact with the pipe tab. Tighten screws to 15 foot-pounds torque.

**SERVICE DIAGNOSIS**

Condition	Possible Cause	Correction
<b>6. Excessive Exhaust Noise</b>	(a) Leaks at the pipe joints.	(a) Tighten the clamps at the leaking joints.
	(b) Burned or blown out muffler.	(b) Replace the muffler assembly.
	(c) Burned or rusted out exhaust pipe.	(c) Replace the exhaust pipe.
	(d) Exhaust pipe leaking at the manifold flange.	(d) Install a new gasket and tighten the exhaust pipe flange nuts 40 foot-pounds torque.
	(e) Exhaust manifold cracked or broken.	(e) Replace the manifold.
	(f) Leak between the manifold and cylinder block.	(f) Tighten the manifold to cylinder block nuts 30 foot-pounds torque.
<b>7. Leaking Exhaust Gases</b>	(a) Leaks at the pipe joints.	(a) Tighten the clamps at the leaking joints.
	(b) Damaged or improperly installed gaskets.	(b) Replace gaskets as necessary.
	(c) Restriction in muffler or tail pipe.	(c) Remove the restriction, if possible or replace as necessary.
<b>8. Engine Hard to Warm Up or Will Not Return to Normal Idle</b>	(a) Heat control valve frozen in the open position.	(a) Free up the manifold heat control valve using solvent number 1879318.
<b>9. Noise in Manifold</b>	(a) Thermostatic spring broken.	(a) Replace the spring.
	(b) Weak or broken anti-rattle spring.	(b) Replace the spring.
<b>10. Manifold Heat Control Valve Rattle</b>	(a) Thermostatic spring broken.	(a) Replace the thermostatic spring.
	(b) Broken or weak anti rattle spring.	(b) Replace the spring.