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THE TURBOCHARGED MONZA SPYDER

A Convertible (model 967) has been added to the Corvair Monza line and both this newly announced convertible and the Monza Coupe (model 927) are now available equipped with a Turbo-Supercharger. When either of these models are equipped with the Turbo-Supercharger option, they will be designated Corvair Monza SPYDER.

This article provides detailed information necessary for servicing the turbo-charged engine used in Monza Spyder vehicles.

TURBO-SUPERCHARGER OPERATION

The supercharger on the Monza Spyder is an exhaust driven unit that forces air-fuel mixture into the intake manifold at higher-than-atmospheric pressure, thereby improving engine breathing and power output. It consists of a precision balanced rotating group with a turbine wheel at one end and a centrifugal impeller at the other, each wheel enclosed in a contoured housing (fig. 1).

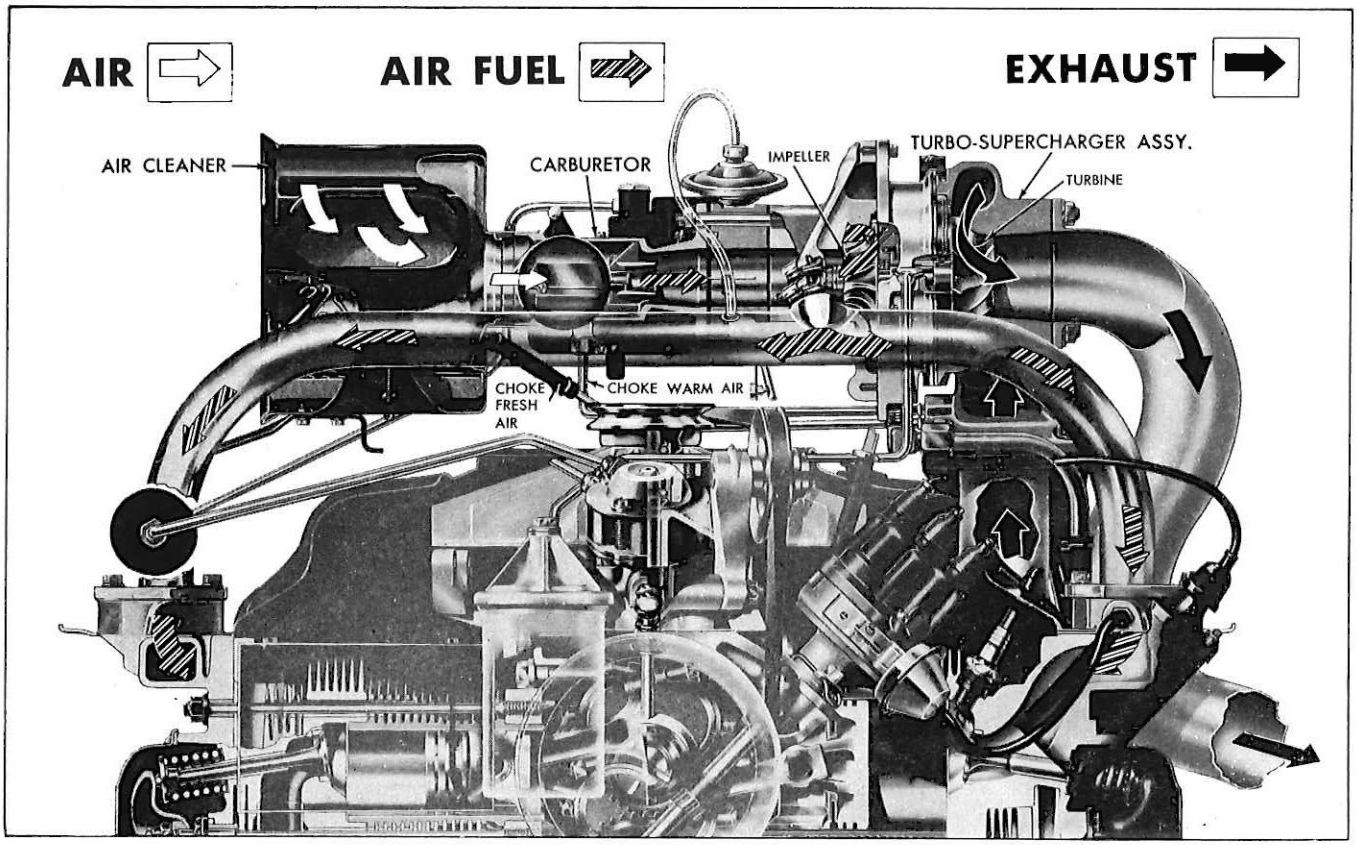


Fig. 1—Turbo-Supercharger Operation on Corvair Engine

The hot exhaust gases are directed against the turbine wheel blades, spinning the wheel, shaft and impeller wheel at a high rate of speed. The impeller, in the compressor housing, draws air-fuel mixture from the carburetor and passes it to the intake manifold under a higher-than-atmospheric pressure. This increases the amount of air-fuel mixture available to the cylinder resulting in a greater horsepower output.

Under heavy load, the supercharger speed automatically increases (due to increase in exhaust gases) providing more air-fuel mixture to meet the engine's demand.

The supercharger is provided with a semi-floating sleeve bearing which is lubricated with engine oil taken from the oil filter adapter and drained through a larger tube into the rocker arm area of the right cylinder head.

ENGINE ADAPTATIONS

The turbocharged engine (RPO 690) has external changes to provide for mounting the supercharger and internal changes to provide for its increased power. The SUPERCHARGER UNIT SHOULD, THEREFORE, NEVER BE REMOVED FROM THIS SPECIAL ENGINE TO BE INSTALLED ON ANOTHER CORVAIR ENGINE.

Internal changes include the following:

1. Heavy duty main and rod bearings.
2. Heavier connecting rod cross section.
3. New piston rings and crankshaft.
4. New cylinder heads.
   a. L.H. includes sending unit (Thermister), for head temperature gauge.
   b. R.H. includes supercharger oil drain.
   c. 8:1 compression ratio.
5. Crankcase cover vent baffle plates changed.

External changes include the following:

1. Single side draft Carter YH carburetor.
2. New fuel lines and routing.
3. New distributor assembly and timing tab.
4. Front and right side seal shield revised to bring exhaust pipes to supercharger.
5. R.H. heater duct revised for exhaust pipe clearance.
6. New exhaust pipes and muffler.
7. New front shield material (heat resistant) on right side and heat insulator material around exhaust pipes.
8. Wiring harness changed to include heat indicator and warning buzzer system.
9. Engine rear housing gasket and oil filter adapter change to provide oil feed to the supercharger.
10. Air recirculation plates—same as air conditioned Corvair vehicles.

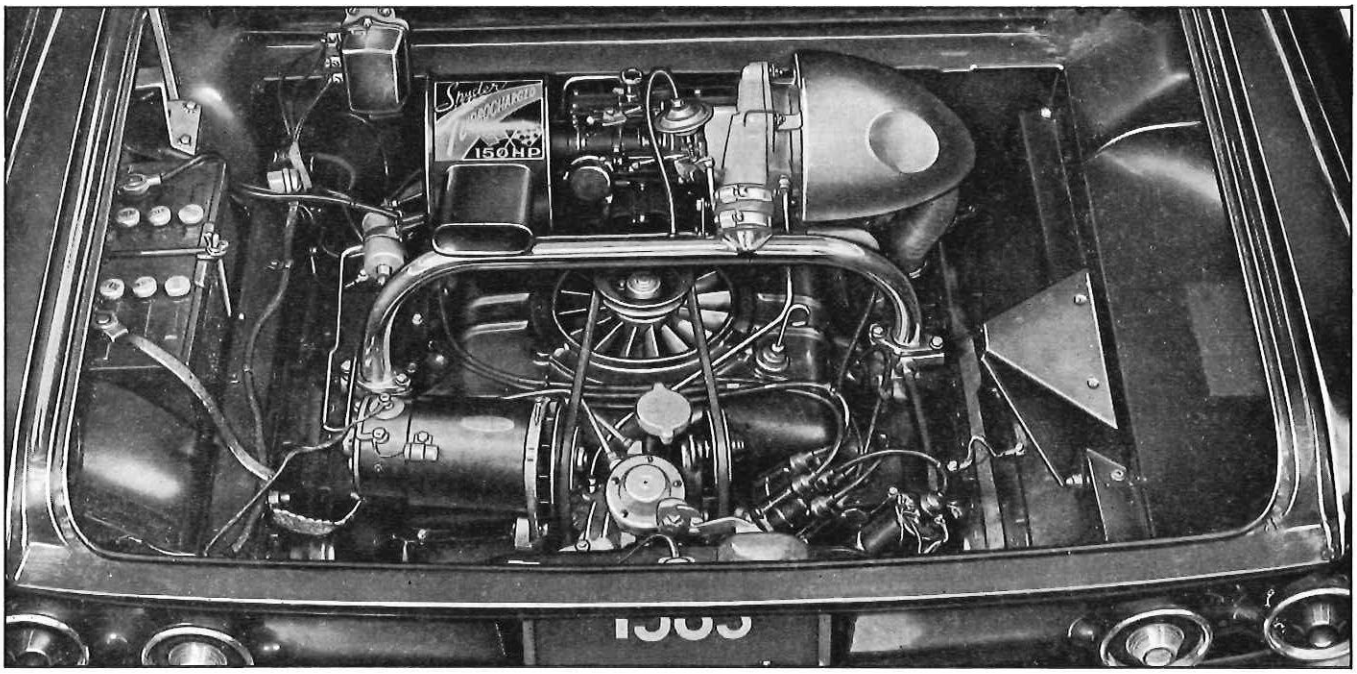


Fig. 2—Turbocharged Engine Installed

Vehicle component requirements include:

1. Heavy duty clutch assembly.
2. Four-speed transmission only.
3. 3.55:1 differential carrier.
4. New instrument cluster including:
   a. Tachometer.
   b. 120 mph speedometer.
   c. Cylinder head temperature gauge.
   d. Manifold vacuum-pressure gauge.
   e. Engine overheating warning system.

Optional Equipment available:

1. Heavy duty front and rear suspension includes:
   a. Heavier springs.
   b. Heavy duty shock absorbers.
   c. Stabilizer bar.
   d. Rebound straps at rear suspension.
2. Metallic brakes.
3. Positraction rear axle.
4. Wire wheels.

MAINTENANCE AND ADJUSTMENTS

ENGINE OIL

This engine is filled at the factory with a special break-in oil which should be drained at 1000 miles. The oil recommendations and change interval are the same as regular Corvair engine after initial oil change.

FUEL REQUIREMENT

A good quality premium fuel is required with this engine. A low grade gasoline may cause detonation and lead to engine damage.

AIR CLEANER

The polyurethane element should be cleaned, inspected and reoiled at approximately 4000 mile intervals or more often in dusty or other adverse conditions.

Removal from Vehicle

1. Remove 2 mounting bracket-to-air cleaner bolts.
2. Loosen clamp at carburetor air horn.
3. Disconnect choke clean air tube hose at air cleaner and remove cleaner assembly from vehicle.

Cleaning and Inspection (Fig. 3)

1. Remove wing nut from cleaner cover stud and remove cover.
2. Remove polyurethane element from cleaner body and remove screened support from element.
3. Check element for rips or tears and replace if necessary; check cover and body for holes or other damage and repair or replace as needed.
4. Clean the polyurethane element in kerosene or mineral spirits, then squeeze out the excess cleaner.
   CAUTION: *Do not use a hot degreaser or acetone type solvent.*
5. Dip the element in engine oil and squeeze out excess oil, then wrap the element in a clean cloth and squeeze again to remove more oil.
   CAUTION: *Always SQUEEZE the element to remove excess cleaner or oil. Wringing, swinging or shaking may rip or tear the polyurethane material.*
6. Clean the cleaner cover and body sections.
7. Install screened support in polyurethane element.
8. Place element into cleaner body and install cover and wing nut (be sure the element does not fold or bend causing a poor seal).

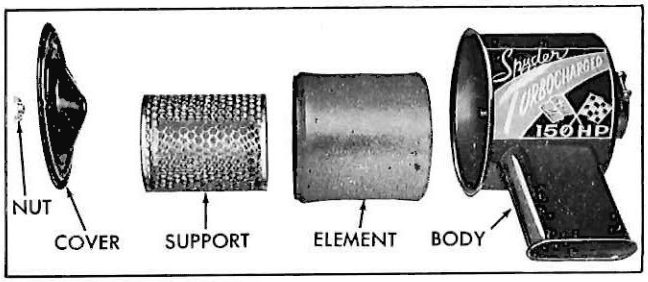


Fig. 3—Air Cleaner Assembly

Install on Vehicle

1. Using a new carburetor-to-air cleaner gasket, install air cleaner over carburetor air horn and turn to approximate installed position.
2. Install support bracket-to-cleaner body screws loosely.
3. Hold cleaner assembly against carburetor and tighten clamp screw, then tighten support bolts.
4. Connect choke clean air tube hose to air cleaner adapter.

FUEL FILTER

The fuel filter is a separate unit mounted on the air cleaner support bracket at the left of the air cleaner. It should be replaced at 10,000 mile intervals.

Replacement consists of disconnecting the inlet and outlet fuel lines, loosening clamp screw (fig. 4) and removing filter unit. Reverse to install new unit. (Arrows show flow direction.)

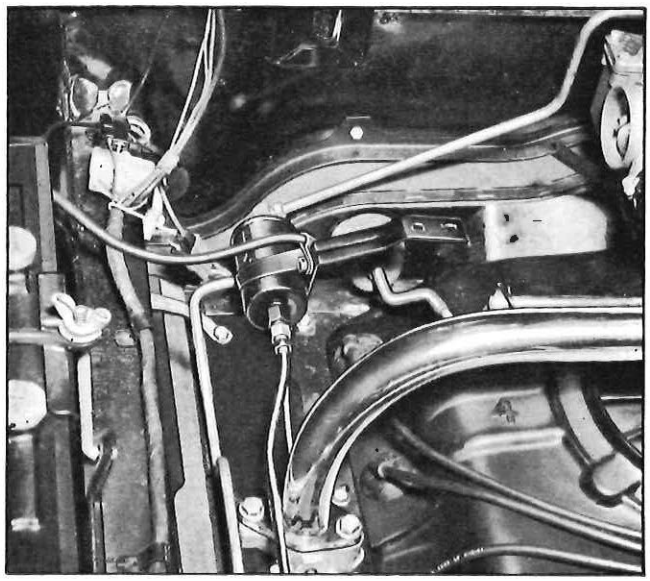


Fig. 4—Fuel Filter Installed

CARBURETOR ADJUSTMENTS ON VEHICLE

Accelerator Linkage Adjustment (Refer to Figure 5)

This adjustment must be performed with the engine at operating temperature or with air cleaner off to block choke valve open (engine stopped).

1. Disconnect accelerator rod swivel (3) from cross-shaft lever (4).
2. Check throttle lever to see that it is against idle speed screw, then check to see that linkage angle "X" is approximately 126° as shown in Figure 5. Adjust this angle by lengthening or shortening rod (1).

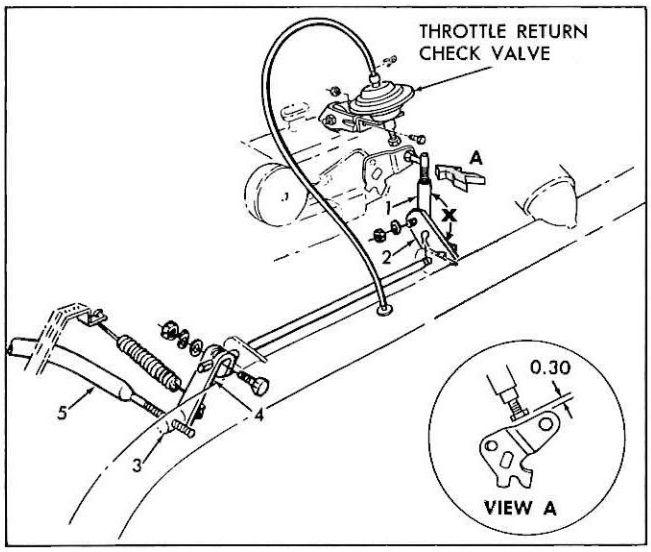


Fig. 5—Accelerator Linkage

3. Pull accelerator rod (5) rearward against bellcrank stop on transmission and rotate lever (4) to full throttle position (throttle lever on carburetor will rest against stop boss on flange).
4. Adjust swivel (3) to just enter the hole in lever (4), then connect swivel to lever and install retaining clips.

   NOTE: *It is better for swivel pin to be just short of lever hole than just past, or linkage may be bent.*
5. Move accelerator rod from idle to full throttle and check to see that the throttle lever on carburetor goes to full throttle and back to idle with no bind.

Idle Speed and Mixture Adjustment

1. Start engine and bring to operating temperature.
2. Stop the engine and perform following preliminary adjustments:
   a. Back idle speed screw away from throttle lever, then adjust in until the throttle valve is slightly open.
   b. Turn idle mixture screw lightly to its seat and back out ¾ turn.
   c. Attach tachometer at coil and vacuum gauge at manifold connection for distributor.
3. Make sure the fast idle linkage is off fast idle. This can be determined by removing air cleaner and looking at choke valve. It should be wide open.
4. Start engine and adjust idle speed screw to obtain speed of 850 rpm, then adjust mixture screw and speed screw (alternately as needed) to obtain the highest steady vacuum at 850 rpm.
5. Stop engine, disconnect instruments and reconnect distributor vacuum hose.

Throttle Return Check Valve Adjustment

NOTE: *This adjustment must be made after the idle speed and mixture adjustment is completed and while engine is still at operating temperature.*

1. With engine stopped, make sure choke is open and throttle is closed.
2. Start engine and run at idle speed (850 RPM).
3. Measure clearance between throttle valve lever and return check valve bolt (fig. 5 & 6) using .030" wire gauge on Tool Set J-21056.
4. If necessary to adjust, hold wrench on flat of diaphragm stem and turn self-locking holt in the required direction.

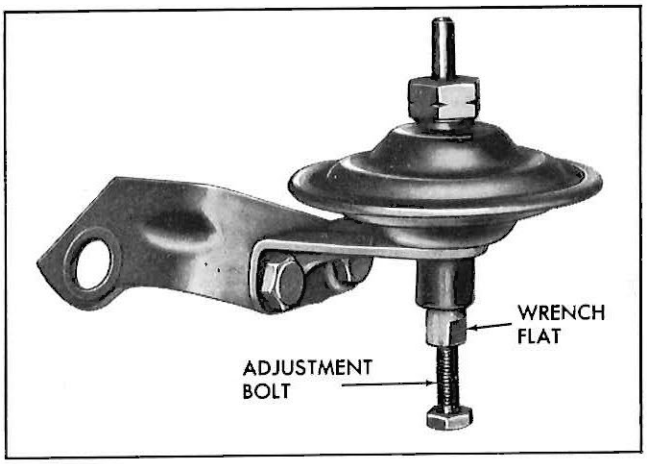


Fig. 6—Throttle Return Check Valve

Adjust Float Level and Float Drop

1. Disconnect fuel line at carburetor.
2. Remove six bowl cover screws and remove bowl cover (fig. 7).
3. Invert cover and measure the distance between cover gasket surface and float at center of float (fig. 8). This FLOAT LEVEL dimension should be 5/8" or use Tool J-21056.
4. Adjust, if necessary, by bending float arm as shown in Figure 8.
5. Invert cover to upright position allowing float to hang down.
6. Measure the distance between cover gasket surface and the float seam at free end of float (fig. 9). This FLOAT DROP dimension should be 2 3/8".
8. Adjust by bending the tang at hinge end.
9. Install new bowl cover gasket on bowl and install cover and cover screws.

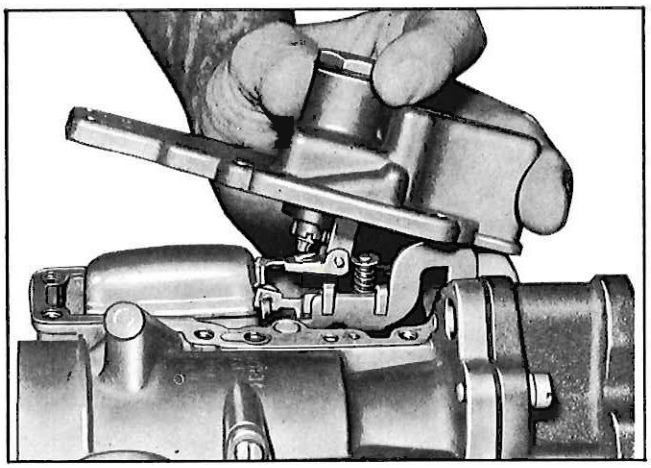


Fig. 7—Removing Bowl Cover

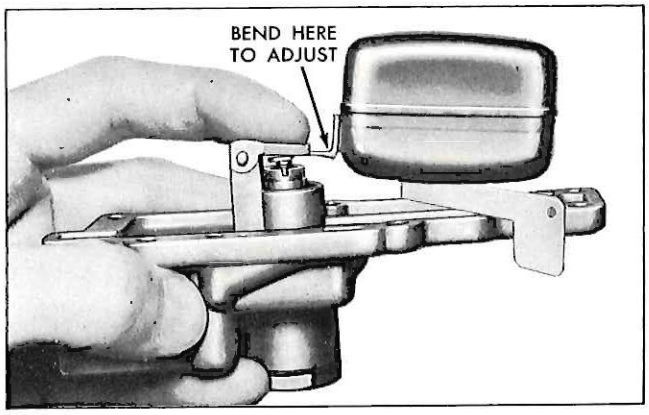


Fig. 8—Adjusting Float Level

Automatic Choke Adjustment

The automatic choke setting is one notch rich, and accomplished by loosening three choke coil housing retaining screws and rotating (by hand) the housing; then hold in position and tighten the screws.

ADJUST IGNITION TIMING

1. Connect tachometer and timing light to engine same as regular Corvair.
2. Start engine and adjust idle (if necessary) to 850 rpm (with engine at operating temperature).
3. Aim timing light at timing tab (fig. 10) above crankshaft pulley and adjust timing to 24° advance by turning distributor the same manner as on regular Corvair engine.
   CAUTION: *Under no conditions should the timing be set more than 24° advance.*
   NOTE: *It is not necessary to disconnect the spark advance hose and block the vacuum port on this engine.*
4. Stop engine and disconnect test instruments.

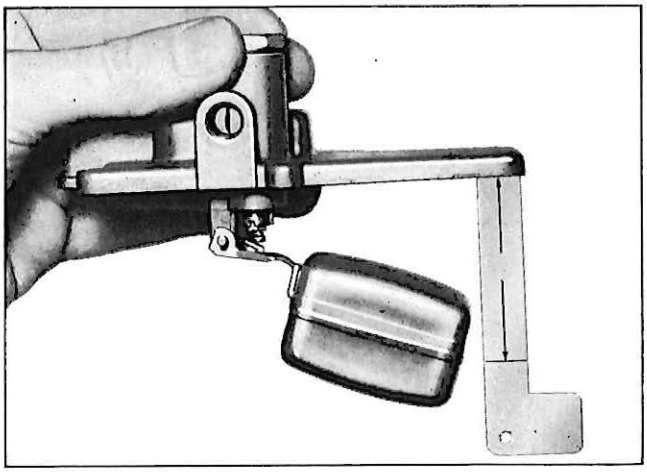


Fig. 9—Measuring Float Drop

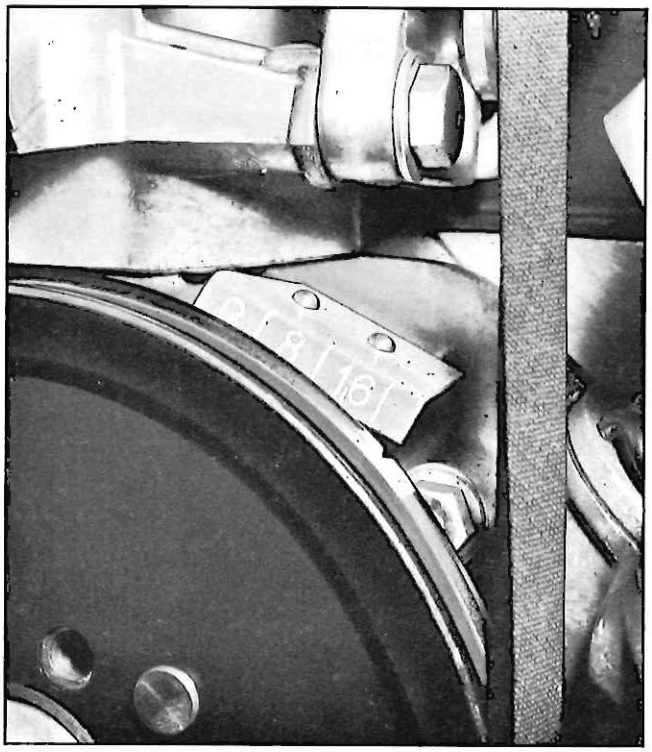


Fig. 10 Ignition Timing Setting

SUPERCHARGER

Periodic Inspection

Whenever routine service of the engine is performed, inspect the supercharger as follows:

1. Inspect the hoses and connections of the air intake system between the carburetor and the supercharger and from supercharger to intake manifold for leakage due to cracks, damaged gaskets, loose clamps or connections and for restriction due to collapsed hoses or dented tubing.
2. Inspect for exhaust leakage due to cracked exhaust manifold, loose supercharger mountings or damaged gaskets.
3. Inspect oil lines and fittings for kinks, damage or leakage.
4. Observe engine exhaust. Excessive smoke may indicate a restricted air cleaner, overrich mixtures or faulty supercharger (seal) operation.
5. Note unusual noises or vibration that would warrant further inspection of supercharger.

Major Inspection and Cleaning

Every 50,000 miles, or if trouble is suspected in supercharger, it should be inspected and serviced as follows:

1. Disconnect oil drain line at supercharger elbow: connect a hose from the elbow to a container (placed at side of engine), then start engine and run at idle speed for one minute to determine oil flow (should be approximately 1 quart per minute at idle).
2. Remove supercharger and carburetor assembly from the engine (see "Service Operations —Supercharger Removal from Vehicle," Page 12).

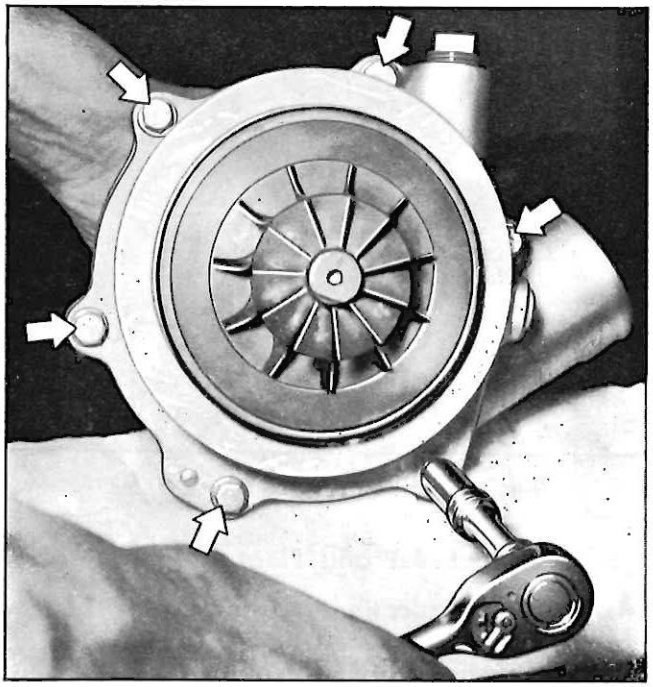


Fig. 11—Compressor Housing Retaining Bolts

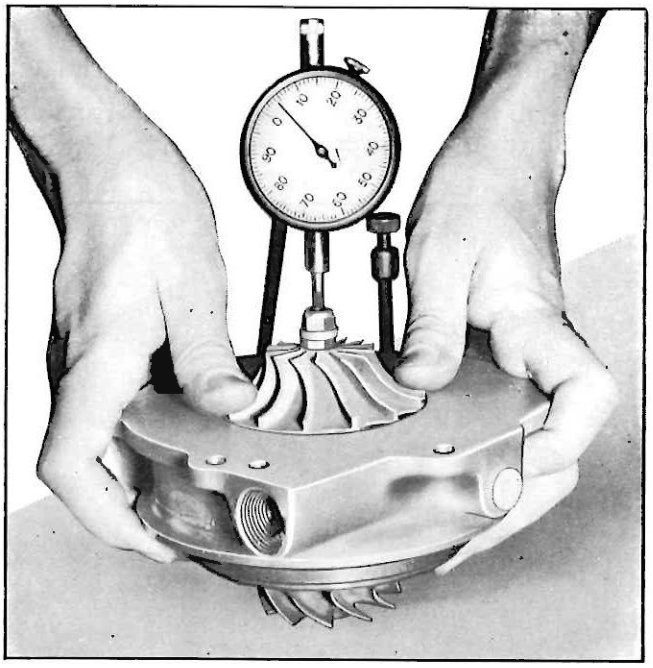


Fig. 12—Gauging Turbine Shaft End Play

3. Remove carburetor from supercharger assembly.
4. Inspect the turbine wheel for:
   a. Cracks, erosion; chipped, nicked, missing or bent blades.
   b. Carbon build-up on blades.
   c. Carbon accumulation on back face of turbine wheel.
   d. Free rotation by depressing the shield against the spring ring, then rotating the wheel. If the turbine wheel does not rotate freely, disassemble the unit and inspect for damaged parts or foreign material causing the interference.
5. Remove six retaining bolts (fig. 11) and remove compressor housing and gasket.
6. Inspect compressor housing for scoring, wiping, erosion or pit marks on the inner contour.
7. Inspect impeller wheel for damaged blades or evidence of rubbing in the housing.
8. Note any oil accumulation in housing or on impeller indicating a defective oil seal.
9. If the impeller requires cleaning, use a nylon bristle brush and a solvent such as Diesel fuel or kerosene to remove accumulated dirt. Thoroughly clean the impeller and compressor housing.
   NOTE: *Failure to remove all dirt may result in a more severe unbalance than existed prior to cleaning.*
10. Measure turbine shaft end play as follows:
    a. Attach a dial indicator to the bearing housing so that indicator point is resting on the impeller nut (fig. 12).
    b. Rest assembly squarely on hub of turbine wheel, then push down on housing and record the indicator reading. Release pressure on the housing and then repeat the operation at least once to check measure-

TROUBLE SHOOTING CHART

TROUBLE	PROBABLE CAUSE	REMEDY
Smoking engine exhaust, loss of engine power, low boost pressure.	Dirty air cleaner, undersize air cleaner.	Clean or replace air cleaner as required.
	Restricted intake manifold or piping.	Remove restriction.
	Foreign matter or dirt accumulation on impeller.	Clean impeller (see par. 2b).
	Interference or binding in rotating assembly.	Disassemble unit.
	Damaged impeller or turbine wheel.	Disassemble unit.
	Excessive oil leakage from seals.	Disassemble unit, replace seals.
Noisy rotating assembly.	Damaged bearing or other components causing rotating assembly to rub against housing.	Disassemble unit, replace defective components.
	Foreign matter or carbon accumulation obstructing rotation.	Clean and inspect unit (see par. 2), disassemble if required.
Excessive vibration.	Damaged bearing.	Disassemble unit, replace bearing.
	Damaged impeller or turbine blades.	Disassemble unit, replace defective parts.
	Restricted induction system.	Inspect and clean (see par. 2a).
Excess oil in intake manifold or exhaust stack.	Excessive oil leakage from seals.	Disassemble unit, replace seals.
Supercharger speed low, power low, clean exhaust.	Insufficient fuel supply to engine.	Clean or reset fuel pump.
	Leaking intake or exhaust manifold connections.	Tighten all connections and replace gaskets where required.
	Back pressure on supercharger exhaust too high.	Reduce restriction in exhaust stack.
	Improper accelerator linkage adjustment	Adjust linkage.
	Improper ignition timing.	Adjust timing.
Fails to return to idle.	Throttle return check valve.	Adjust or replace.
	Accelerator linkage adjustment.	Adjust linkage.
Other engine trouble.	See 1961 Corvair Shop Manual.	Pages 6A-58 to 60.

ment. (The shield spring ring acts to return the wheel and shaft opposite the pressure on housing; it is not necessary to hold the shield away from the turbine wheel.)

c. Allowable end play is .005" to .008". If end play is excessive, the supercharger should be rebuilt.

11. Measure turbine shaft radial play as follows:
    a. With the assembly on the support ring (Tool J-21004), position the dial indicator so its point is resting on a flat of the impeller nut (fig. 13) and needle set at zero.
    b. Push the impeller from side to side against indicator point and record readings, then repeat at least once to check your reading.
    c. Recheck at 90° position to give cross reading.
    d. The maximum allowable radial play is .022". If radial play is excessive, rebuild the supercharger.
    e. Remove dial indicator.
12. If the unit is in satisfactory condition, install compressor housing (using a new gasket and torque the six bolts to 80 inch lbs.
13. Install carburetor to supercharger, then install the assembly onto the vehicle (as outlined in "Service Operations — Supercharger Installation to Vehicle," Page 19).

SERVICE OPERATIONS

CARBURETOR

There are two methods to remove the carburetor from the vehicle.

Removal (with Supercharger as an assembly)

This method is outlined under "Supercharger —Removal from Vehicle." When this method is used, caution is necessary to prevent damage to turbine wheel, during disassembly of carburetor from supercharger.

Removal (Separately from Supercharger)

1. Remove air cleaner and disconnect throttle return check vacuum tube at valve.
2. Disconnect choke heat tube, fuel line and accelerator linkage at carburetor.
3. Remove upper mounting nut and throttle return check valve assembly.
4. Remove carburetor mounting nuts and remove carburetor from vehicle.

NOTE: *It will be necessary to use a short or curved open-end wrench to remove the front nut.*

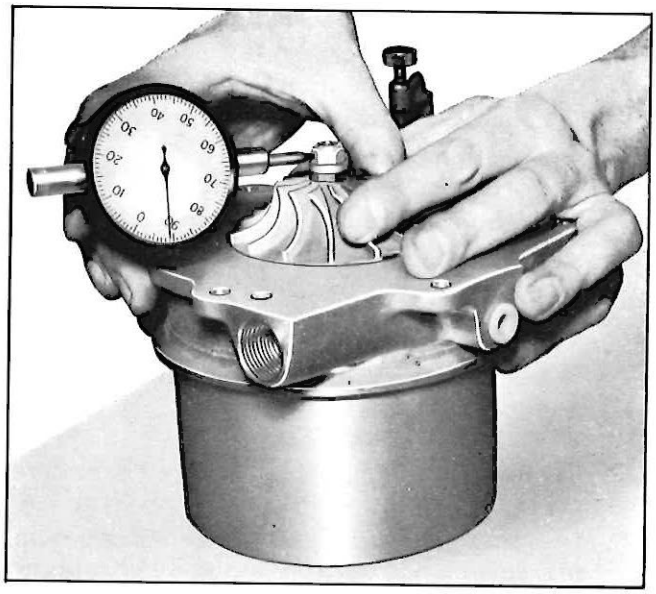


Fig. 13—Gauging Turbine Shaft Radial Play

Disassembly (Fig. 14)

1. Remove inlet filter screen nut and screen.
2. Remove six screws and float bowl cover.
3. Remove float hinge pin, float and float needle and seat.
4. Remove float bowl cover gasket, tip carburetor and remove pump discharge needle.
5. Loosen pump lever screw from throttle shaft and slide lever off shaft and link.
6. Depress small spring on pump with a screwdriver and remove spring seat and spring.
7. Lift metering rod arm and metering rod from pump rod and metering jet.
8. Raise pump arm enough to remove the link, then remove pump arm.
9. Remove 4 screws and remove diaphragm pump assembly.
10. Remove fuel splash deflector plate and metering jet.
11. Remove choke link clip and choke link.
12. Remove choke housing cover screws, cover, gasket and baffle plate, then slide choke lever out of housing.
13. Remove three throttle flange-to-carburetor body screws and remove flange and gasket from body section.
14. Remove idle speed screw and spring from flange. For normal cleaning and inspection, the carburetor is disassembled as far as is necessary. The choke valve, choke piston or throttle valve should be removed only if valve is damaged or shaft and piston are binding. If either condition exists, complete the disassembly as follows:
15. File staked ends of throttle plate screws, level with throttle shaft (to avoid damaging throt-

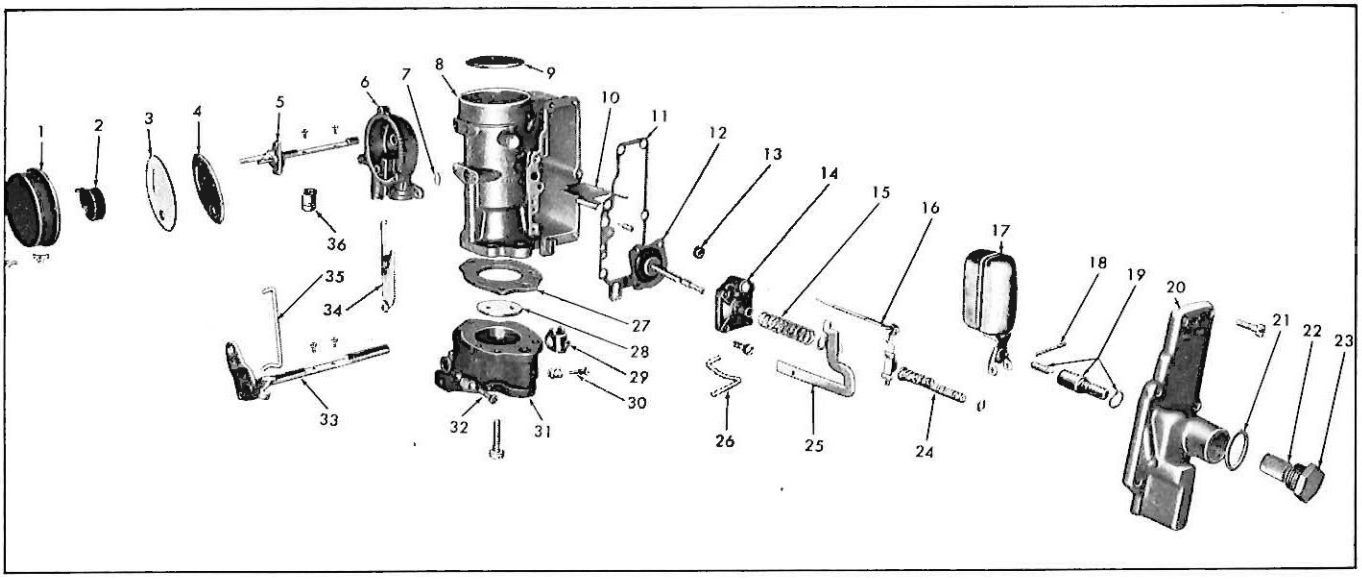


Fig. 14—Carburetor (Exploded View)

1. Choke Coil Housing
2. Choke Coil
3. Gasket
4. Baffle Plate
5. Choke Shaft
6. Choke Housing
7. Vacuum Possage "O" Ring Seal
8. Carburetor Body
9. Choke Plate
10. Bowl Splash Baffle
11. Bowl Cover Gasket
12. Diaphragm Pump Assembly
13. Main Jet
14. Pump Housing
15. Pump Lower Spring
16. Metering Rod and Arm Assembly
17. Float
18. Hinge Pin
19. Needle and Seat Assembly
20. Bowl Cover
21. Gasket
22. Inlet Screen
23. Screen Nut
24. Upper Pump Spring
25. Pump Actuating Link
26. Connector Link
27. Gasket
28. Throttle Plate
29. Throttle Lever Pump Arm
30. Idle Mixture Screw
31. Throttle Body
32. Idle Speed (Air) Screw
33. Throttle Shaft
34. Fast Idle Link
35. Fast Idle Connector Link
36. Choke Piston

tle shaft threads), then remove the screws and throttle valve and slide shaft from flange.

16. File staked ends of choke valve screws, level with choke shaft, then remove screws and choke plate.
17. Remove choke shaft and choke piston by rotating the shaft until the piston comes out of the bore, then slide shaft assembly from carburetor.
18. Remove three choke housing screws, remove housing and discard vacuum passage "O" ring seal.

Cleaning and Inspection

The most frequent causes of carburetor malfunction are gum, dirt, carbon and water. Carefully clean and inspect all parts and castings during carburetor overhaul.

1. Wash all parts, except choke coil housing and pump, in carburetor cleaning solution.
2. Choke coil housing should be cleaned in gasoline.
3. Inspect links and operating lever holes for wear.
4. Inspect throttle and choke plates for gouges or other damage and their shafts for binding or excessive wear.
5. Inspect float for dents or leaks.
6. Inspect choke piston for free operation in its cylinder. Remove welch plug from cylinder only if piston sticks and it is necessary to clean the cylinder. Clean the cylinder with fine sandpaper if necessary.
7. Inspect float needle and seat for burrs or ridges. If present, replace both the needle and seat; never replace separately or try to file burrs or ridges.
8. Inspect metering rod and jet. Replace if bent, burred or distorted.
9. Inspect all mating surfaces of castings and flanges for burrs, gouges or surface irregularities. Use a square edge to check throttle flange for warpage. All surfaces must be smooth and square to prevent leaks.
10. Inspect accelerator pump diaphragm for damage. Replace diaphragm and rod assembly if necessary.

Assembly

1. If throttle shaft was removed:
   a. Slide shaft in throttle flange.
   b. Position throttle plate on flat of shaft with numbered side to shaft, then install new screws loosely.
   c. Center throttle plate on shaft and in the bore and tighten the screws. Peen the screws securely.

2. If choke shaft was removed:
   a. Use a new vacuum passage "O" ring seal, position the choke housing on air horn and install three attaching screws just snug.
   b. Slide choke shaft into air horn part way, then install piston to shaft and position the shaft by rotating while installing piston into its cylinder.
   c. Tighten choke housing attaching screws.
   d. Position choke plate on flat of shaft with identification numbers on air cleaner side.
   e. Install new choke plate attaching screws loosely, center the plate on shaft and in bore and tighten the screws. Peen the screws securely (using pliers).
3. Install throttle flange gasket and flange onto carburetor body with three retaining screws.
4. Install pump diaphragm assembly in diaphragm housing, then install diaphragm spring (lower) and spring retainer.
5. Install metering rod jet (no gasket with this jet).
6. Install diaphragm housing screws in housing and thread them 2 or 3 threads into diaphragm (to hold diaphragm in alignment), then install the assemby in carburetor bowl and tighten screws (fig. 15).
7. Install splash shield between metering rod jet and pump housing.
8. Install metering rod onto the metering rod arm, hook the spring and install retainer clip (fig. 14).
9. Install pump and metering rod linkage as follows: (Refer to fig. 16.)

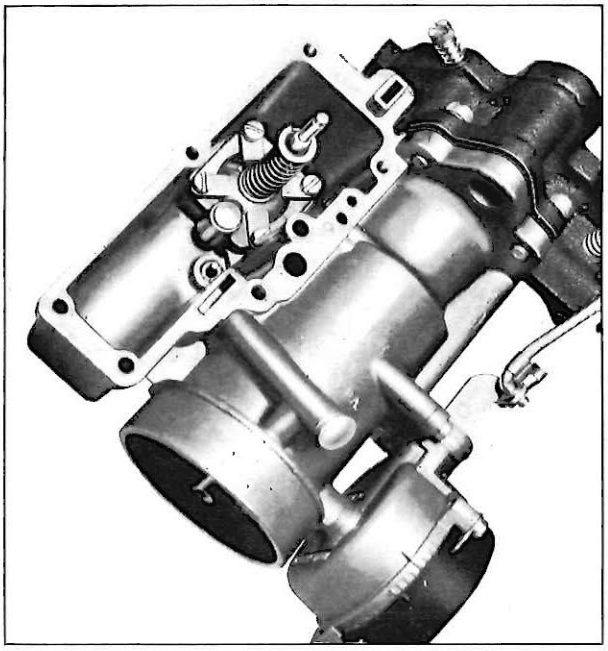


Fig. 15—Pump Diaphragm and Metering Jet Installation

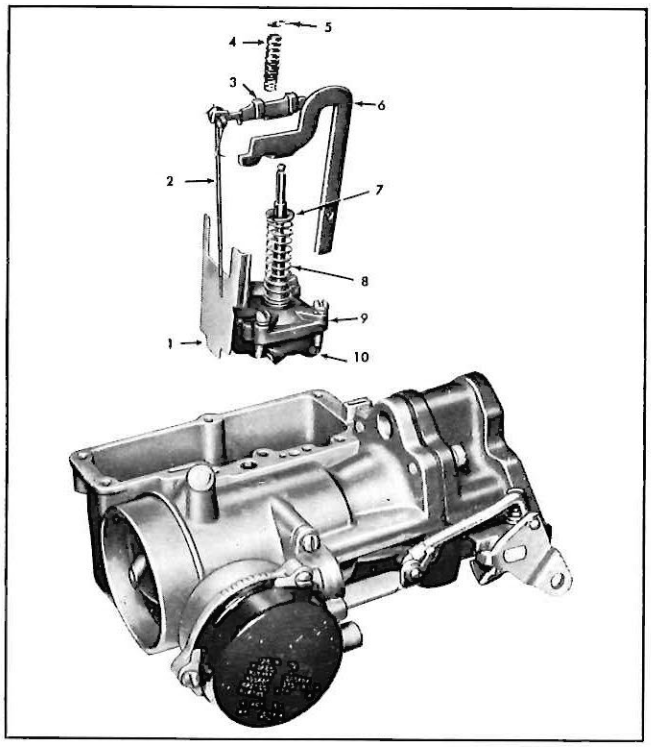


Fig. 16—Pump and Metering Rod Assembly

1. Shield, Splash
2. Metering Rod
3. Metering Rod Arm
4. Upper Springs
5. Upper Springs Seat
6. Pump Link
7. Lower Spring Seat
8. Lower Spring
9. Pump Housing
10. Diaphragm Assembly

   a. Pump lifter link in guide opening, insert throttle lever connector link onto pump lifter link (connector must be installed before lifter link is completely in position) then place lifter arm down over pump rod.
   b. Metering rod in jet and arm over pump rod and lifter arm.

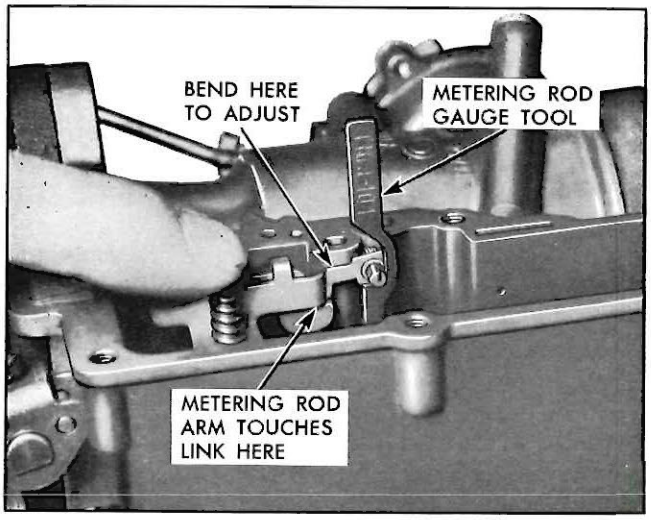


Fig. 17—Adjust Metering Rod Arm

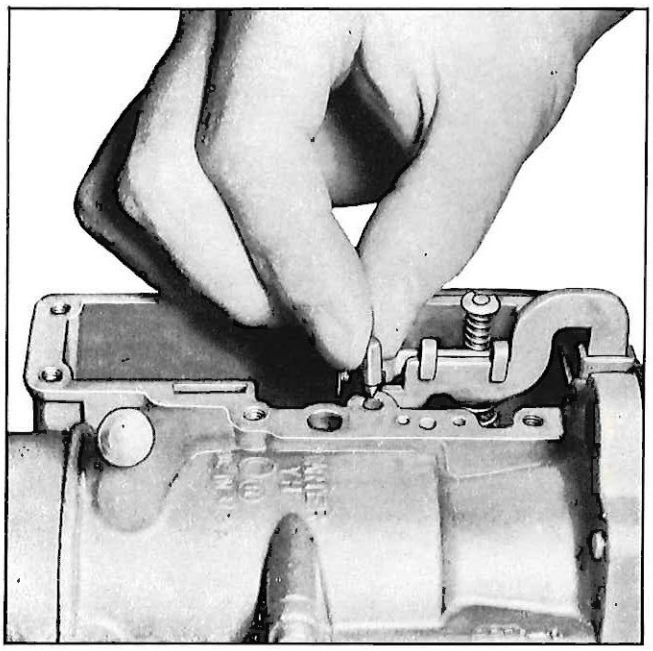


Fig. 18—Install Pump Discharge Needle

c. Upper spring over pump rod, compress with screwdriver and install retainer.
d. Install throttle shaft pump lever over throttle shaft and pump link, then tighten retaining screw.

10. Adjust metering rod as follows:
    a. Hold throttle valve tightly closed.
    b. Remove metering rod from carburetor and place gauge tool J-21056 in metering jet (fig. 17).
    c. Push down on pump diaphragm rod until the metering rod arm just touches the lifter link (at point A, Figure 17).
    d. With the gauge (tool J-21056) in the jet, the metering rod arm pin should just contact the top surface of gauge tool.
    e. If necessary, adjust by bending metering rod arm at point shown in Figure 17.
11. Install new float needle valve seat and needle valve in bowl cover, then install float and float hinge pin with the hinge pin shoulder to outboard side of carburetor bowl.
12. Check and adjust (if necessary) float level and drop (described under Maintenance and Adjustments, Page 5).
13. Install pump discharge needle (fig. 18) then install a new cover gasket on bowl and install bowl cover and six screws.
14. Install fast idle link into choke housing and hook unloader projection over tang on fast idle cam assembly (fig. 19).
15. Install choke link connector link to throttle lever keyed hole then to choke link with clip.
16. Adjust fast idle as follows:
    a. Hold choke valve tightly closed and close throttle valve as far as it will go. (This places fast idle link on high step of cam.)
    b. Hold the throttle valve in this position, a .030" gauge (Tool J-21056) should just go between throttle valve and bore at side opposite idle port.
    c. If necessary, adjust by bending fast idle connector link at curvature.
    NOTE: *Always perform fast idle adjustment before unloader adjustment.*
17. Check unloader adjustment as follows:
    a. Open throttle to wide open position while holding tension in opposite direction on choke valve.
    b. Measure the distance between choke valve edge and bore opposite the vent tube side. This unloader measurement should be 7/16".
    c. If necessary, adjust by bending unloader tang on fast idle cam.
18. Install choke baffle plate, gasket, choke coil housing, housing retainer clips and screws onto choke housing with screws just snug.
19. Adjust coil housing to 1 notch rich, then tighten housing retainer screws.

Installation to Vehicle with Supercharger as a Unit

This method outlined under Supercharger Installation to Vehicle.

Separately, with Supercharger Installed

1. Install carburetor over mounting studs on supercharger; install lower front nut and washer first, then install throttle return check valve, the other two nuts and washers and tighten.

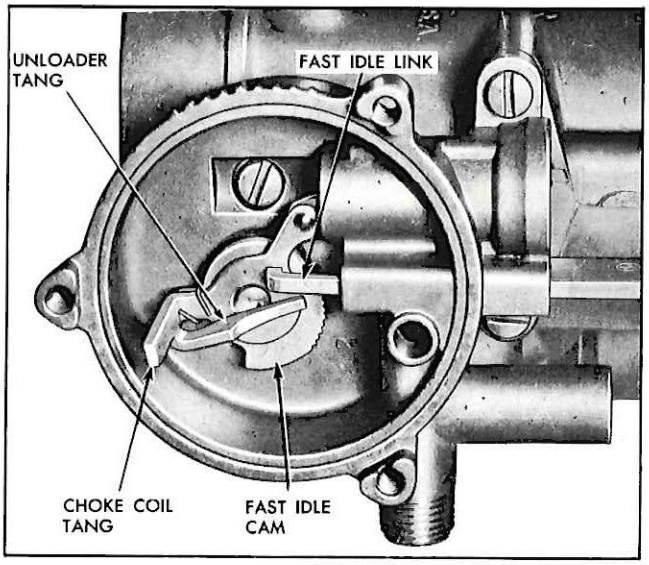


Fig. 19—Choke Housing and Fast Idle Linkage

2. Connect choke heat tube and fuel line at carburetor.
3. Install air cleaner and connect clean air tube at air cleaner.
4. Connect accelerator linkage at carburetor.
5. Start the engine and adjust idle speed and mixture and throttle return check valve clearance (see Page 4).

SUPERCHARGER ASSEMBLY

NOTE: *Always cover supercharger openings when working on other parts of engine requiring supercharger openings to be exposed or when unit is stored.*

Removal from Vehicle

1. Remove spare tire.
2. Remove air cleaner assembly, then disconnect fuel line and choke heat tube at carburetor.
3. Remove supercharger heat shield, then disconnect oil feed line and drain line at supercharger housing (fig. 20).
4. Disconnect accelerator linkage at carburetor.
5. Loosen the turbine housing "V" clamp nut, then support the supercharger and carburetor; remove the clamp and lift the assembly out of the vehicle carefully to avoid damage to the turbine wheel or spillage of gas from carburetor bowl into engine.

   NOTE: *A holding fixture is provided as a special tool for the purpose of avoiding possible damage to the uncovered turbine wheel vanes and for convenience during supercharger overhaul.*
6. Remove carburetor attaching nuts and remove carburetor from supercharger assembly.
7. Remove 7 turbine housing inlet and outlet flanges bolts and remove the housing if inspection (see Page 6) shows need.

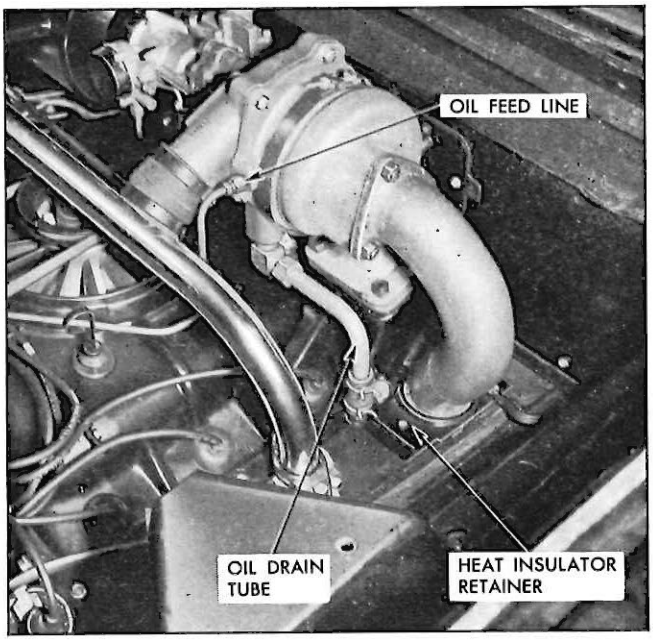


Fig. 20—Supercharger Oil Lines

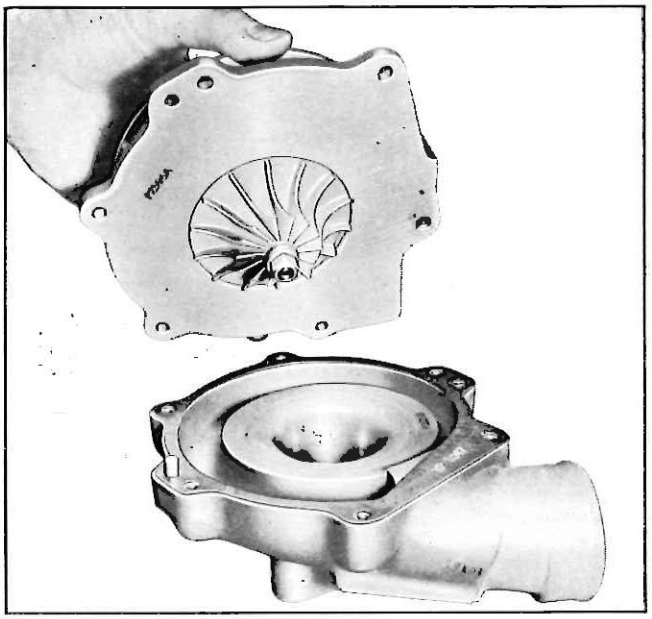


Fig. 21—Removing Compressor Housing

Disassembly

NOTE: *Disassemble the supercharger in a clean, dust-free location, using clean tools and equipment. Avoid contact with dust or grit that could score the highly machined parts and result in premature failure of the unit.*

1. Remove the six bolts that secure the compressor housing to the bearing housing, then remove the compressor housing and gasket (fig. 21).

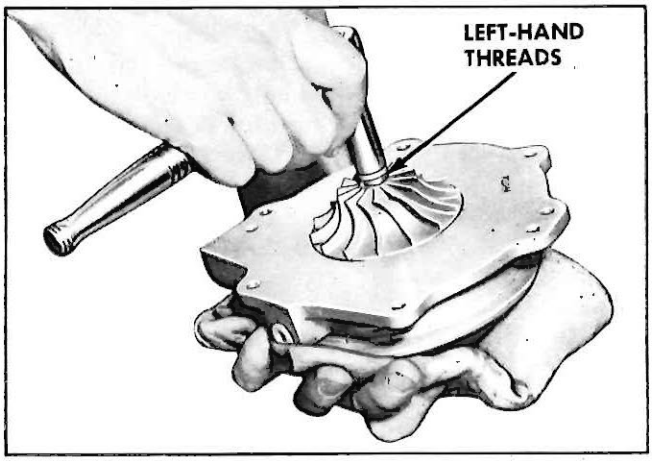


Fig. 22—Removing Impeller Nut

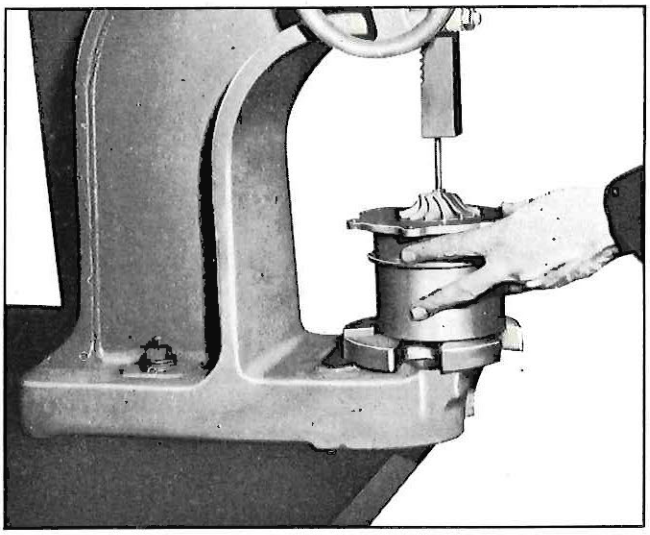


Fig. 23—Pressing Turbine Shaft from Impeller

2. Hold the turbine wheel blades with a cloth and remove the self-locking nut (LEFT HAND THREADS) from the impeller end of the turbine shaft by turning clockwise (fig. 22), then remove the impeller washer.
3. Support the supercharger iu a press (using parallel blocks or support ring Tool J-21004, Figure 23) with the impeller wheel upward.
4. Place a folded cloth on the bed of the press (between parallel bars or inside the support ring) to avoid damage to the turbine wheel as it drops out of the housing.

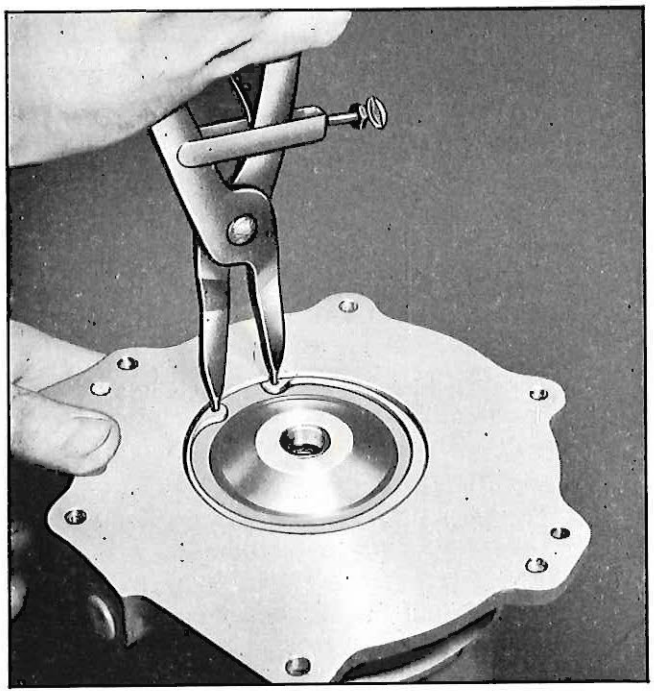


Fig. 24—Oil Seal Retainer Ring Removal

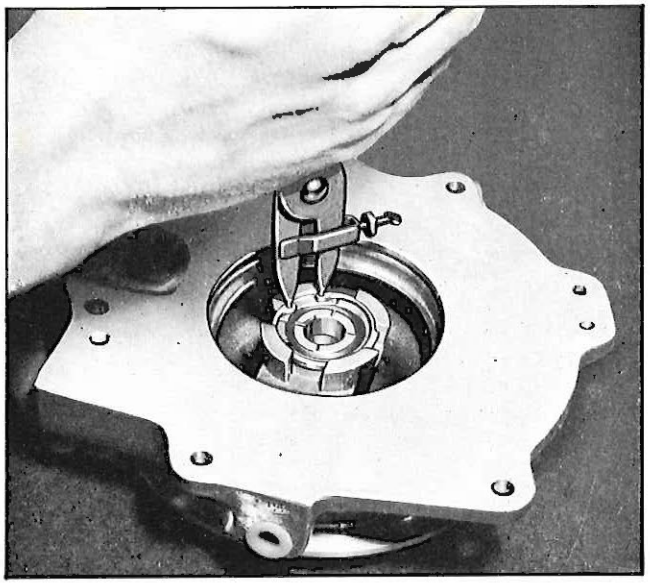


Fig. 25—Removing Bearing Retainer Ring

5. Place a 1/4" diameter brass rod on the end of the turbine shaft (fig. 23) and press turbine shaft from impeller wheel.
6. Remove impeller wheel, shim or shims, shaft sleeve, turbine wheel and shaft assembly, turbine shield and shield spring ring.
7. Remove the oil seal retaining ring from bearing housing with snap ring pliers (fig. 24).
8. Turn the bearing housing over and, using a 1/2 inch diameter rod, push oil seal, "O" ring and mating ring out of the bearing housing.
9. Remove the bearing retaining ring (fig. 25), then remove the bearing and shim.

Cleaning and Inspection

1. Wash the supercharger parts with Diesel oil or kerosene, allowing to soak, if required, to remove carbon deposits. A small nylon bristle brush may be used to remove heavy deposits.

   CAUTION: *Never use caustic solutions or other cleaner that may attack metal, or a wire brush that could score highly finished parts.*

2. Inspect the turbine housing for:
   a. Wiping, scoring or pit marks in the inner contour.
   b. Cracks along dividing tongue.
   c. Damaged threads in tapped holes or on studs.
3. Inspect compressor housing for:
   a. Wiping, scoring, eroding or pit marks in the inner contour and scroll.
   b. Damage on gasket surface.

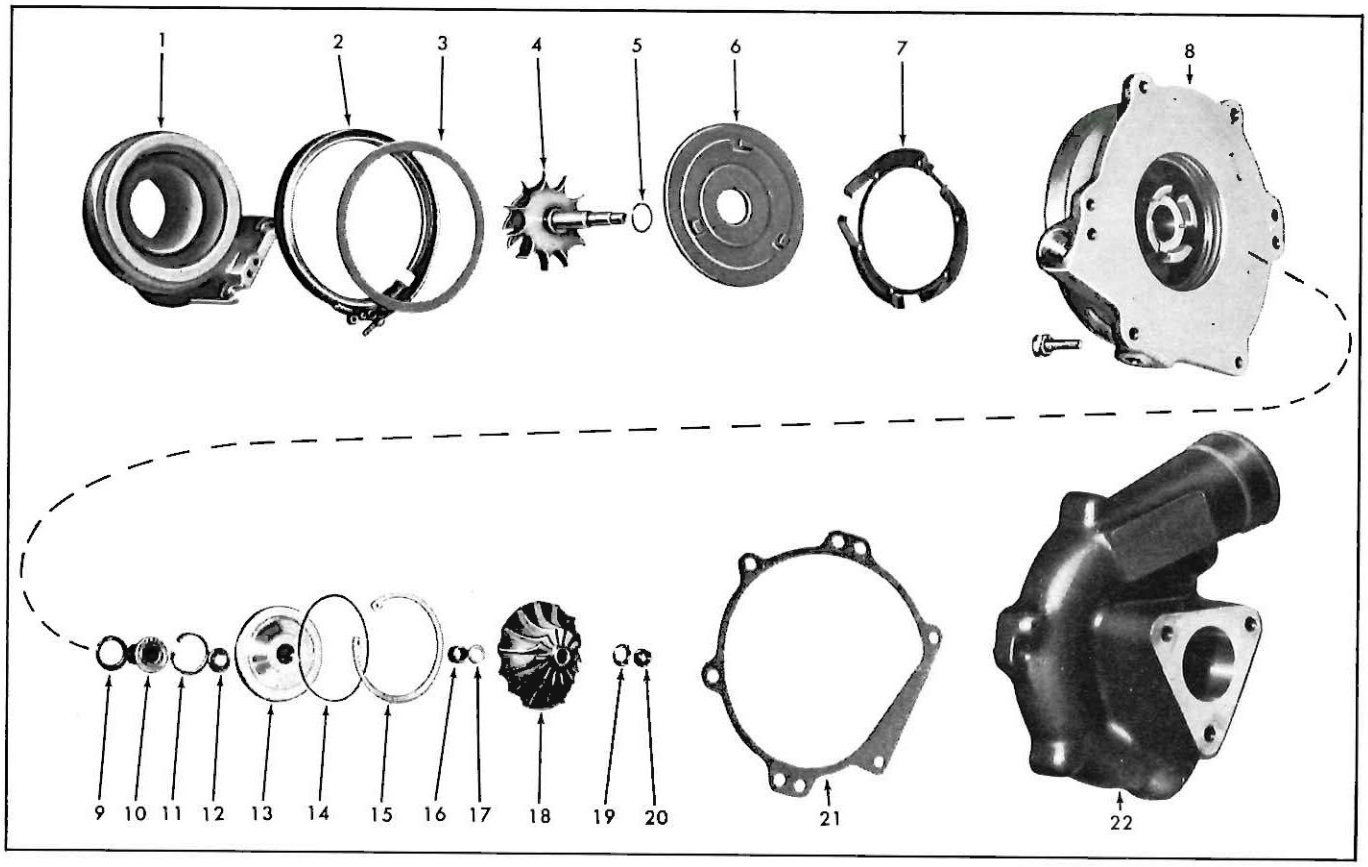


Fig. 26—Turbo-Supercharger (Exploded View)

1. Turbine Housing
2. Charger Housing Clamp
3. Gasket
4. Turbine Wheel and Shaft
5. Turbine Shaft Oil Seal Ring
6. Shield Plate
7. Spring Ring
8. Bearing Housing
9. Bearing Shim
10. Bearing
11. Bearing Retaining Ring
12. Mating Ring (Washer)
13. Oil Seal Assembly
14. "O" Ring Seal
15. Seal Retaining Ring
16. Shaft Sleeve
17. Impeller Shim
18. Impeller
19. Impeller Special Washer
20. Impeller Nut
21. Compressor Housing Gasket
22. Compressor Housing

4. Inspect turbine wheel and shaft assembly for:
   a. Nicked, bent, broken or missing blades.
   b. Cracks at edge of blades.
   c. Scoring on back face or back hub.
   d. Excessive side wear or carbon build-up in shaft seal ring groove.
   e. Shaft discoloration due to overheating (normal color is light tan).
5. Inspect impeller for:
   a. Nicked, broken or missing blades.
   b. Evidence of rubbing on blades or back face.
   c. Fit of impeller on turbine shaft (must be press fit).
6. Inspect bearing housing for:
   a. Scoring, heavy wear on the bearing bore.
   b. Cracked or damaged bearing flange face.
   c. Damaged "O" ring seats or snap ring grooves.
   d. Thread damage in oil inlet or outlets.
   e. A secure bearing roll pin.
7. Inspect the bearing for:
   a. Scuffing, pit marks, scratches.
   b. Imbedded foreign material.
   c. Damage to thrust surfaces.
   d. Damage on external diameter or shim surface.
8. Inspect turbine shield for flatness, scoring, eroding or pitting and spring ring for damage, warpage or loss of tension.
9. Check mating ring for scuffing, discoloration or carbon build-up on sealing or thrust surfaces.
10. Inspect the oil seal assembly:
    a. For chipping, scoring or uneven and excessive wear on the carbon face seal insert.
    b. For damage to "O" ring seal groove.
    c. To see that the carbon seal is free floating and has satisfactory spring tension.
11. Inspect the housing "V" clamps for cracks, stripped threads, distortion or other damage.

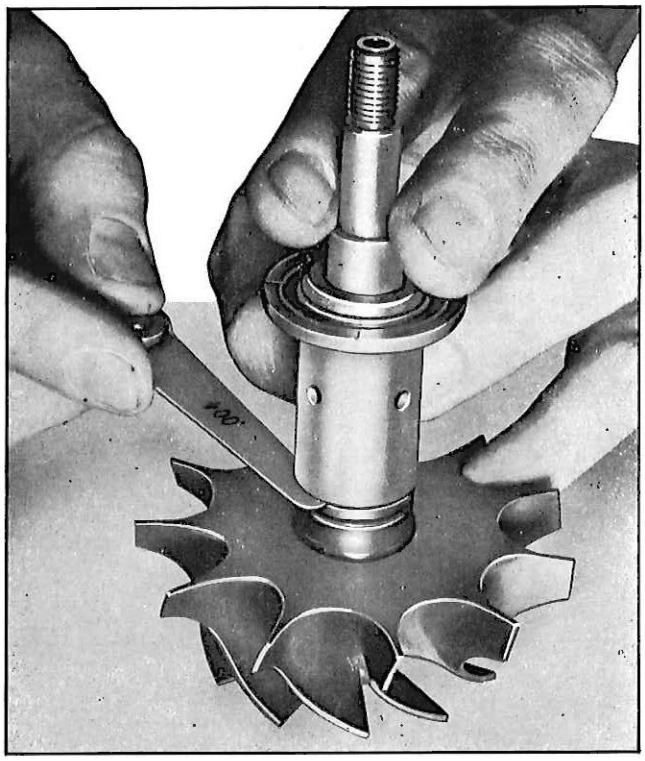


Fig. 27—Measuring Bearing-to-Shaft End Play

Assembly (Fig. 26)

NOTE: *Replace all gaskets, the "O" ring seal and unserviceable parts.*

NOTE: *It is important to have cleaned all parts and work in a clean area using clean tools.*

1. Support the bearing housing on support ring (Tool J-21004) with flat surface (impeller side) upward.
2. Install a new roll pin in the bearing housing (if required) so the slot is aligned radially inward.
3. Determine shaft-to-bearing end play as follows:
   a. Place bearing, mating ring and sleeve on turbine shaft.
   b. Hold the mating ring against the shoulder on the turbine shaft, then hold the bearing up against the mating ring and measure the clearance between the bearing and lower shoulder of the shaft using a feeler gauge (fig. 27).
   c. Write this clearance down on paper for later reference (when determining impeller end clearance).
4. Determine bearing-to-housing end play and select the proper shim.
   a. Install the bearing into the housing (line up roll pin and hole in flange) then install retaining snap ring.
   b. Position a dial indicator with point resting on the bearing (fig. 28) and set indicator needle at zero.
   c. Push the bearing upward against the retaining ring and then down to bottom in the housing and record the variation (repeat at least once to be sure of reading).
   d. Remove the retaining snap ring and bearing and select the shim that will reduce the end play to .001"-.002". (i.e. indicator shows end play was .015"; use one .014" shim to reduce to .001-.002.)

      NOTE: *Shim available sizes are .008, .009, .010, .011, .012 and .014.*

   e. The adjusted end play of bearing-to-housing (.001-.002) plus the shaft-to-bearing end play (paragraph 3c) is the total shaft end play, for example:

shaft-to-bearing end play	.004
plus bearing-to-housing end play	.001
total shaft end play	.005

4. Install selected shim, bearing and bearing retainer ring (bevel side up).
5. Position mating ring centered on the bearing flange face.
6. Lubricate "O" ring seal with silicone grease and install in groove of oil seal assembly.

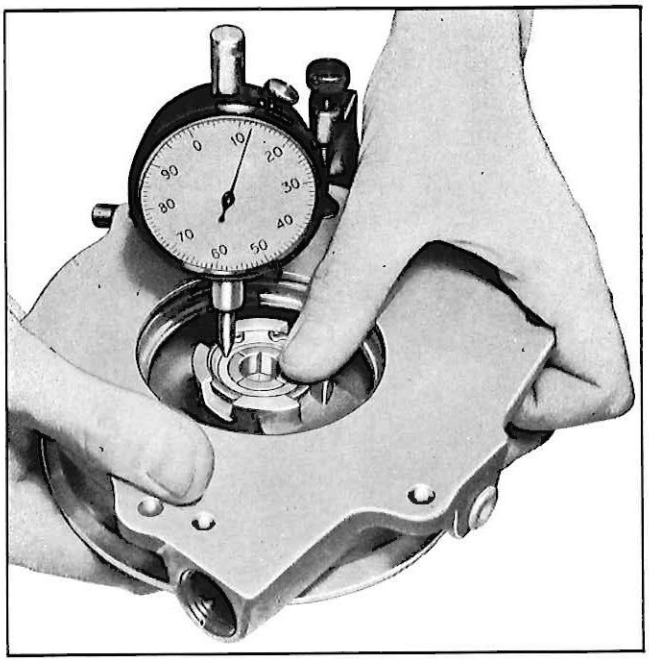


Fig. 28—Gauging Bearing-to-Housing End Play

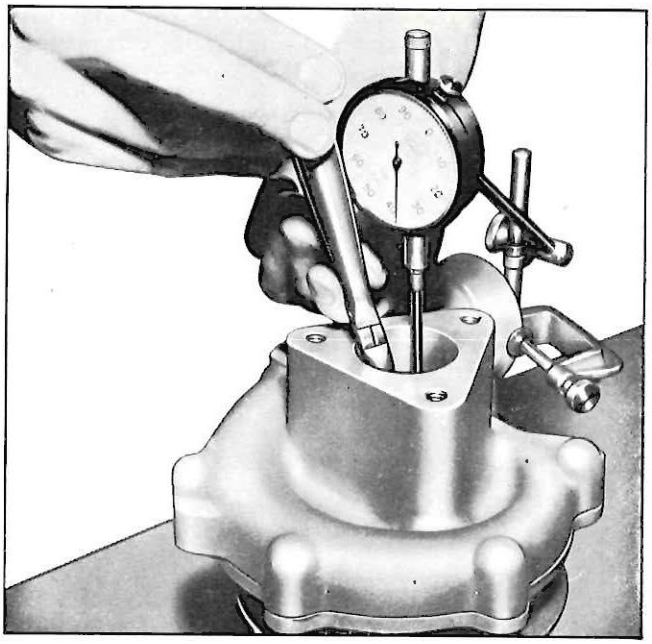


Fig. 29—Gauging Impeller-to-Housing Clearance

7. Install oil seal assembly into the housing by pressing by hand as far as it will go, then install the retaining ring (bevel side up) to hold it in place.

8. Determine the impeller shim requirements (for impeller-to-housing clearance) as follows:
   a. Place the shaft sleeve in center of oil seal assembly, then place the impeller over the seal so its center hub rests on the shaft sleeve.

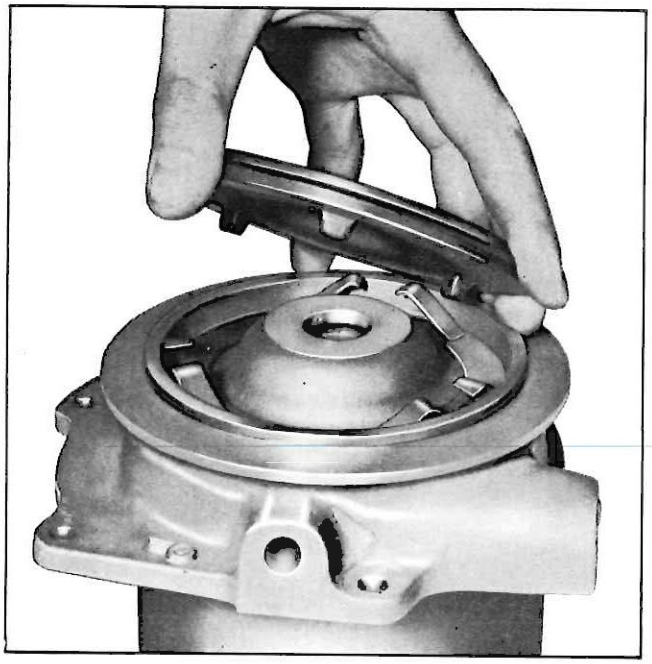


Fig. 30—Heat Shield Spring Ring Installation

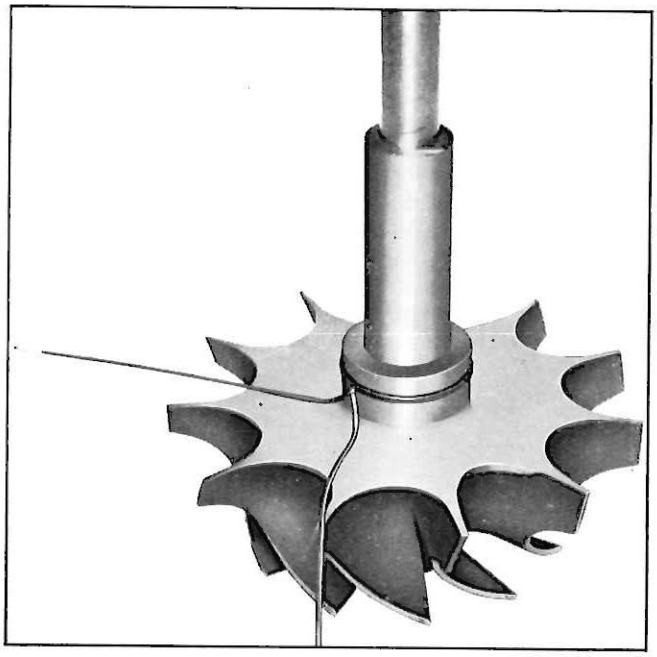


Fig. 31—Ring Compressed, Using Tag Wire

b. Install gasket and compressor housing in place on bearing housing and install every other bolt (3). Torque the bolts to 80 inch lbs.

c. Position a dial indicator as shown in Figure 29 with indicator point resting on impeller hub and set at zero.

d. Use long-nose pliers to hold hub of the impeller and lift straight up on the impeller as far as it will go and note indicator reading. (Repeat impeller lift at least once to check your reading.)

e. Subtract the total shaft end play (paragraph 4e) from the indicator reading just recorded to obtain impeller-to-housing clearance and select shims as follows:

Impeller movement indicated reading	.037
Less total shaft end play	.005
Indicated clearance	.032

f. Select shim to reduce impeller clearance to .015-.020 from valve determined in Step e as follows:

Measured in Step e	.032	.032
Less clearance needed	.015	.020
Shim thickness must be between	.017 Max.	.012 Min.

NOTE: *Shim available in .010" and .015".*

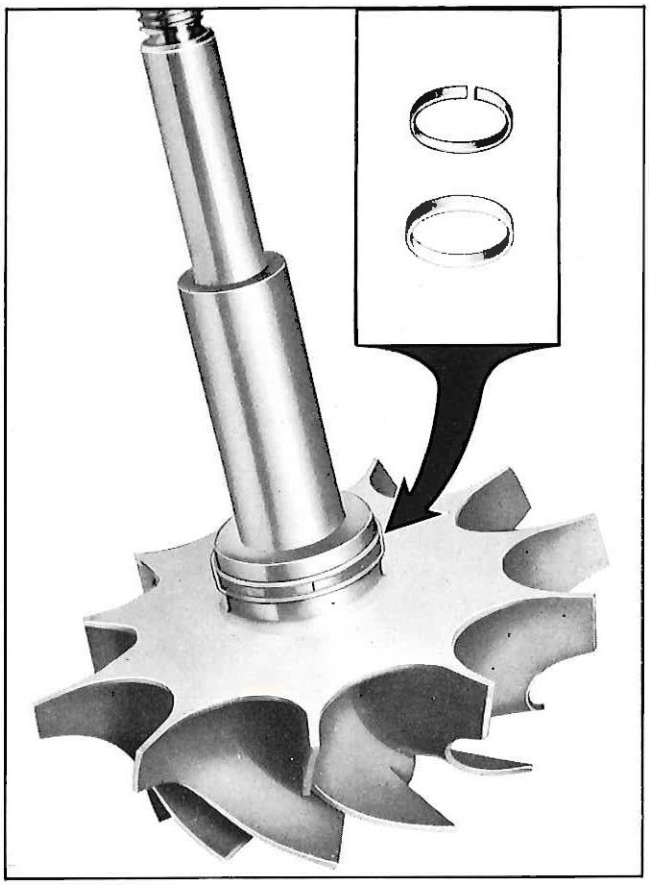


Fig. 32—Compressing Ring, Using Plastic Installer Ring

9. Remove the compressor housing, gasket, impeller and shaft sleeve from bearing housing.

10. Turn the bearing housing over (on ring support tool) and install spring ring. Position the turbine shield to install with three projections spaced over flat areas of the spring ring (fig. 30).

11. Lubricate the turbine shaft seal ring groove with oil and install ring into groove. Compress the ring into the groove using tag wire (fig. 31) or a plastic compression ring (fig. 32). If tag wire is used, make one twist with pliers and bend the wire to form it along the curvature of shaft and wheel back face as shown in Figure 31. (Remember direction of twist for removal.)

12. Lubricate the shaft (bearing area) and carefully install through the bearing (fig. 33). The plastic ring is left on the shaft after installation since it will burn away. If wire was used, remove the wire by a reverse twist and slide it out from between shield and wheel.

    CAUTION: *Hold wheel so it will not slide out past ring.*

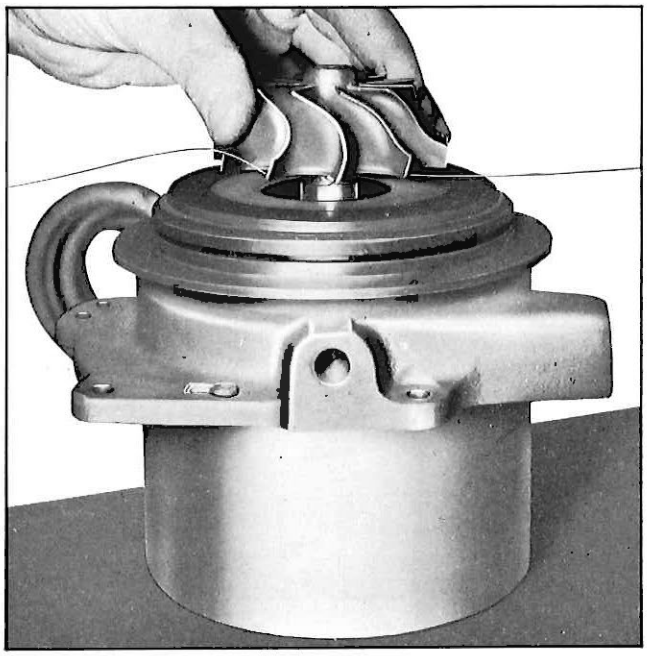


Fig. 33—Installation of Turbine Wheel and Shaft

13. Hold turbine wheel tightly against the shield (so ring seal will not fall out of seal area), turn the assembly over and place in a press so turbine wheel hub rests on press plate.

14. Install the shaft sleeve (fig. 34), impeller shim (determined in Step 8f) and start the impeller on the turbine shaft.

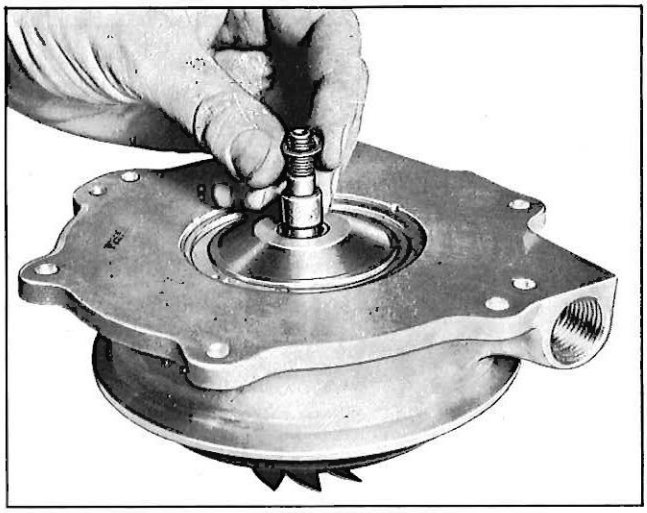


Fig. 34—Shaft Sleeve and Shim Installation

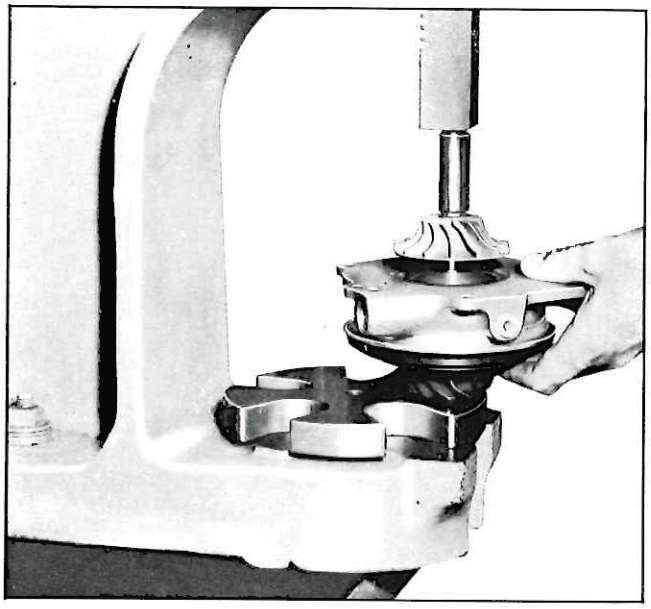


Fig. 35—Impeller Installation

15. Press the impeller onto the shaft, using a hollow spacer such as Tool J-6880 until it bottoms in place (fig. 35).

    NOTE: *As an alternate method of assembly, the impeller may be heated to a temperature of* not more than 300° F. *and installed onto the turbine shaft by hand, without the need for a press.*

16. Remove assembly from press and position the special impeller washer (fig. 36) with dished side upward and install (LEFT HAND THREADS) the self-locking nut on the turbine shaft. Use a folded cloth to hold the turbine wheel and torque the nut to 80 inch lbs.

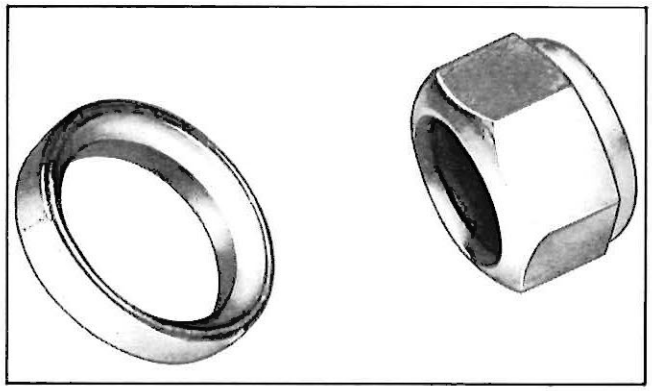


Fig. 36—Special Washer and Nut

17. Place the gasket and compressor housing on bearing housing, secure with six bolts and torque to 80 inch lbs.

18. Remove the holding tool from the oil drain opening, then (with assembly in approximate installed position) add oil into oil inlet until it flows from drain opening; install holding tool and install carburetor for installation on vehicle.

    NOTE: *If the supercharger is not going to be installed immediately, cover all openings to prevent damage or entrance of foreign matter.*

19. If inspection shows turbine housing damage, remove housing for replacement as follows:
    a. Remove 4 nuts from turbine inlet flange and 3 nuts from outlet flange.

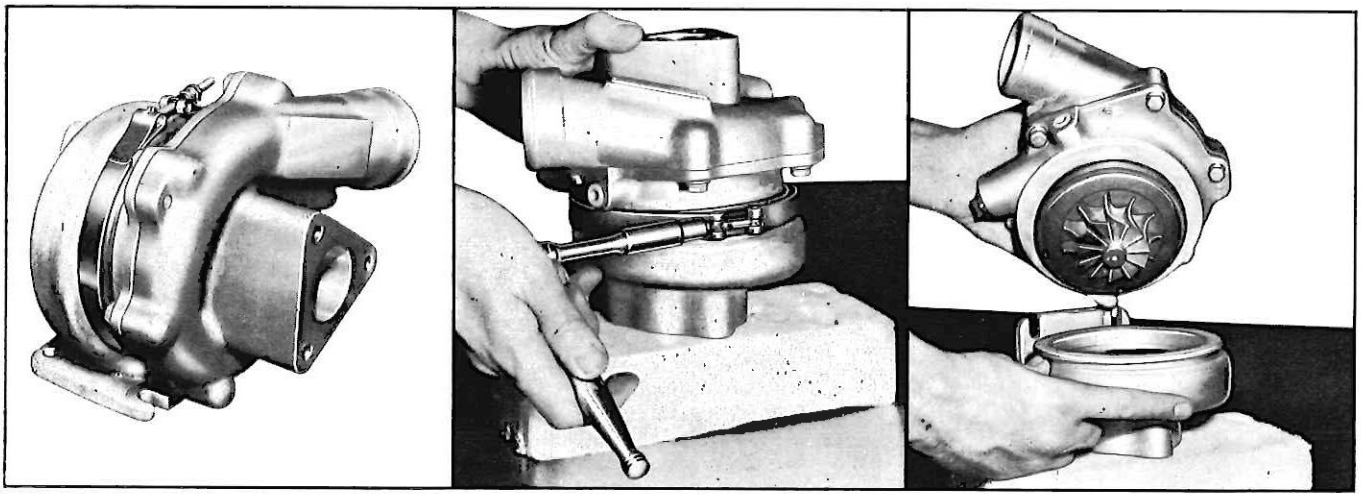


Fig. 37—Removal of the Turbine Housing for Installation of Replacement Supercharger

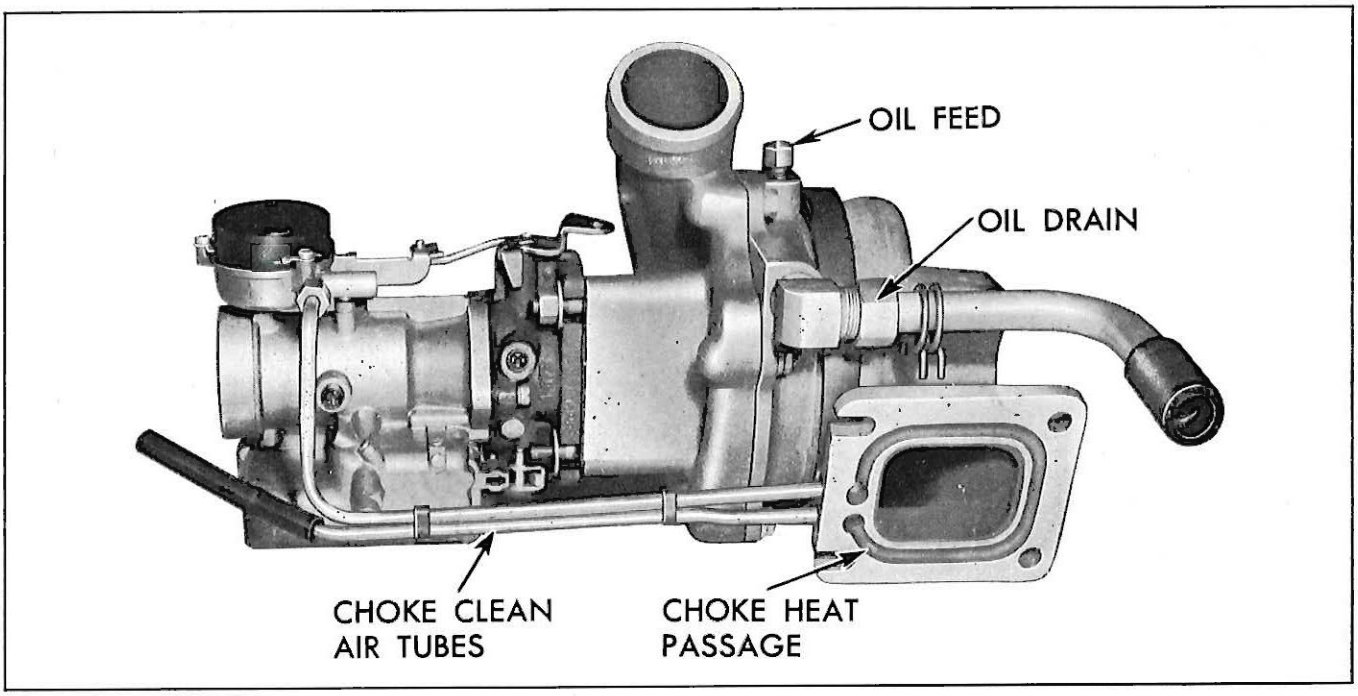


Fig. 38—Carburetor Fittings and Passages

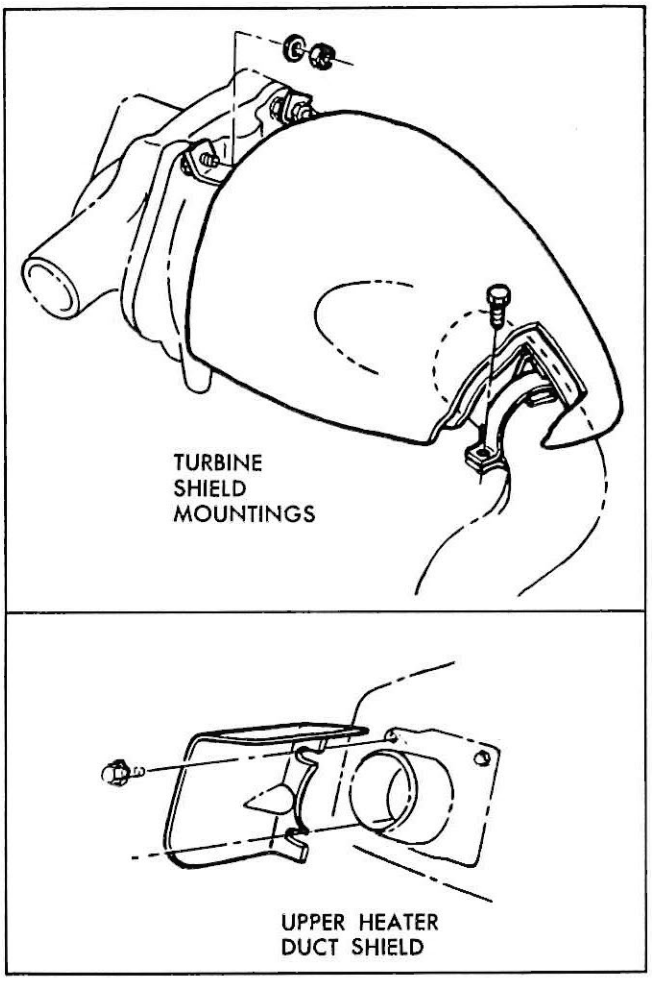


Fig. 39—Turbine Exhaust Heat Shields

b. Loosen muffler mounting strap so turbine outlet pipe can be wobbled.

c. Slide turbine outlet pipe flange from turbine by wobbling as needed, then lift turbine housing from inlet pipe flange.

d. Remove 2 choke heat tubes from inlet flange on housing and install them in new housing flange.

20. Install turbine housing as follows:

a. Place new inlet flange gasket over studs on inlet pipe flange.

b. Place new outlet flange on turbine housing outlet flange studs.

c. Hold outlet pipe outboard on vehicle and install turbine housing over inlet flange studs and gasket.

d. Slide outlet pipe over turbine outlet flange studs and gasket.

e. Install seven stud nuts (4 on inlet, 3 on exhaust) and torque to 80 in. lbs.

f. Tighten muffler mounting strap.

Installation to Vehicle

1. Position gasket around turbine wheel shield and CAREFULLY hold supercharger and

carburetor assembly in place against turbine housing on vehicle and install turbine housing ("V" type) clamp around flanges so the clamp nut and stud will be to the top of the assembly with nut installed from rear of vehicle.

2. Rotate the assembly as necessary to align manifold tube hose and oil lines, then torque the clamp nut to 30-40 inch lbs.
3. Connect manifold cross tube hose, oil drain and oil feed lines at supercharger bearing housing.
4. Connect accelerator linkage at carburetor and check adjustment (see Page 4).
5. Connect fuel line and choke heat tube at carhuretor.
6. Install air cleaner and connect choke clean air tube at cleaner.

INSTALLATION OF A REPLACEMENT SUPERCHARGER UNIT (Figs. 37 and 38)

When installing a replacement unit, remove the supercharger "V" clamp and separate the turbine housing from the rest of supercharger; install choke heat tubes, then install the turbine housing section separately as outlined above.

Transfer oil line fittings to supercharger housing; install carburetor to supercharger, then install this assembly as outlined above.

ENGINE REMOVAL AND REPLACEMENT

The engine can be removed or replaced the same as the regular engines after the supercharger —carburetor assembly and air cleaner has been removed for front dust seal retainer and heater duct accessibility. Disconnect the manifold pressure

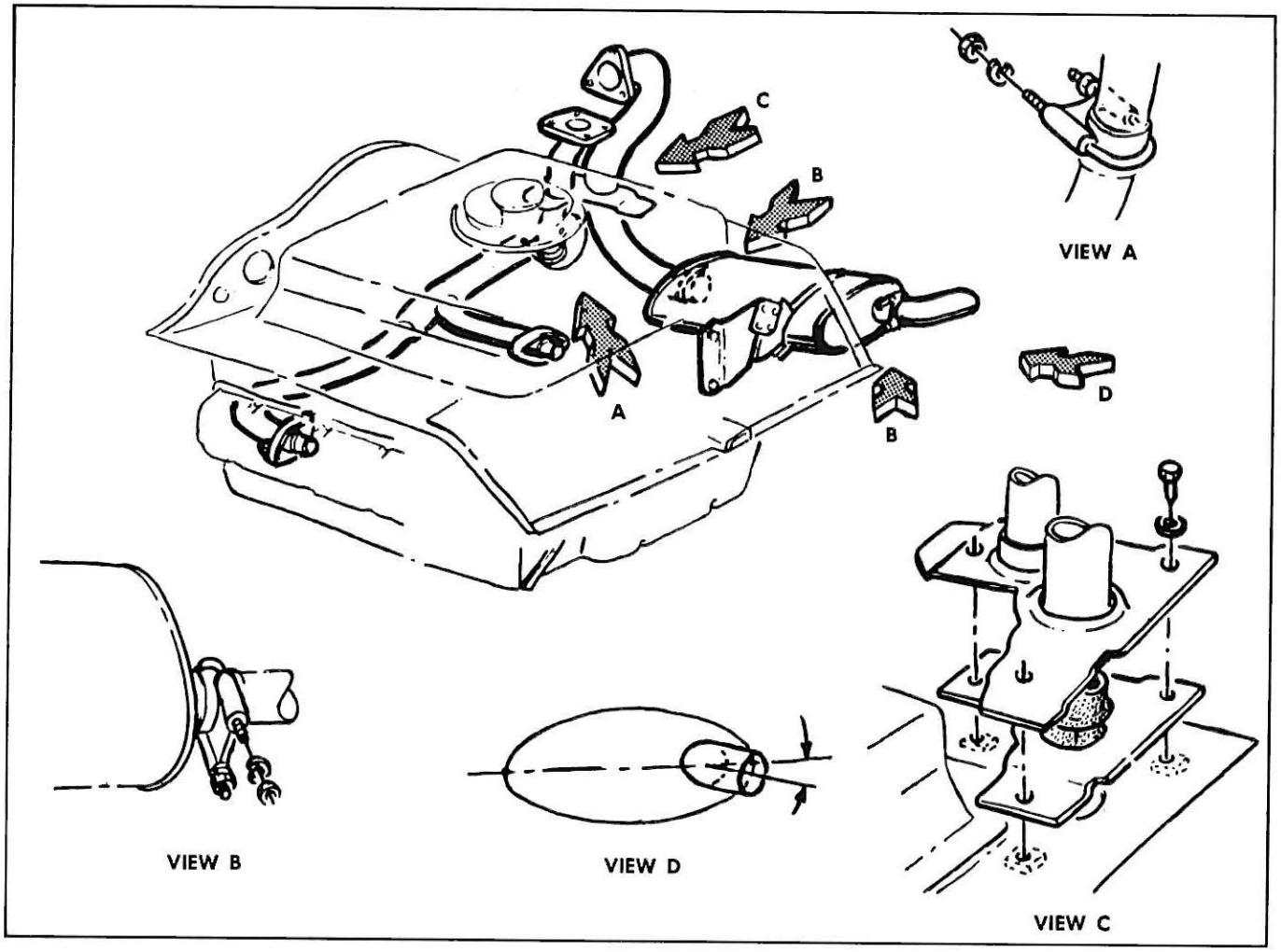


Fig. 40—Exhaust System Components

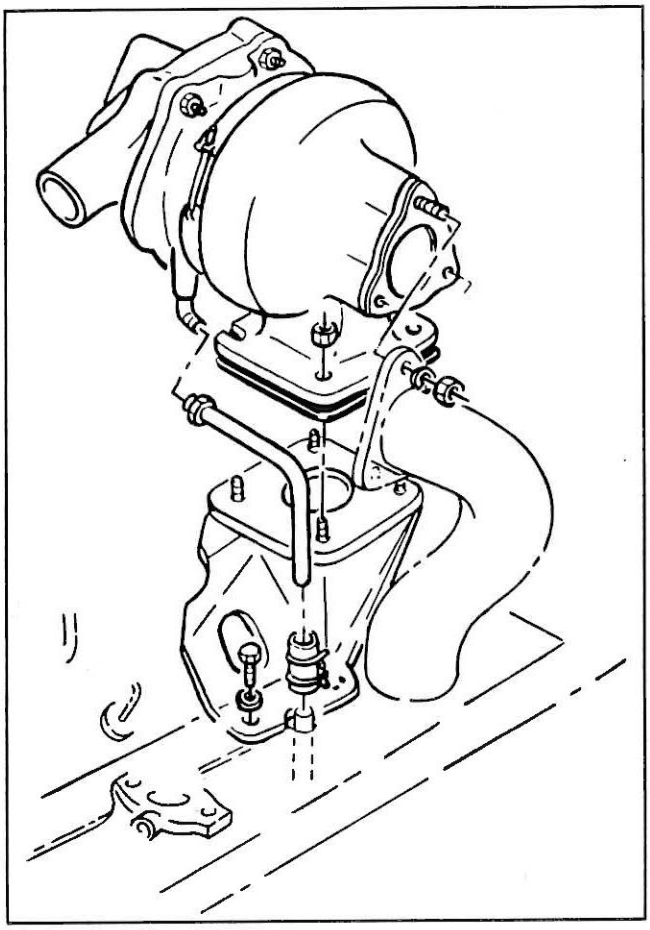


Fig. 41—Turbine Housing Flanges and Gaskets

tube at manifold and thread it through front shield as engine is lowered or raised. Disconnect electrical wiring at connectors, battery and coil as usual and use same jack adapter plate.

EXHAUST SYSTEM

The exhaust system consists of exhaust pipe, turbine inlet pipe, turbine outlet pipe, engine shield insulator, muffler, tail pipe and turbine heat shield (figs. 39-40-41).

Charger Exhaust Heat Shield, Remove and Install (Fig. 39)

1. Remove spare tire.
2. Remove two bolts at compressor housing and loosen clamp bolt at outlet pipe under shield.
3. Lift large end of shield away from turbine and slide shield attaching leg from clamp on outlet pipe.
4. Reverse removal procedure to install.

Muffler Replacement (Fig. 40)

The muffler is replaced in the same manner as on the regular Corvair engine except that the tail pipe is a separate part and must be removed from the muffler and reinstalled on new muffler if it is reusable.

Exhaust Pipe, Replace (Fig. 40)

1. Raise vehicle and support it on stands.
2. Remove 2 bolts at each manifold flange and slide flange plates off studs.
3. Remove clamp at turbine inlet pipe connection. (This clamp may have to be cut in order to remove it.)
4. The exhaust pipe may now be wobbled for removal from turbine inlet pipe. (If new exhaust pipe is to be installed, cutting the pipe near the "Y" weld may facilitate removal.)
5. Position new pipe (or reusable one) in approximate installed position and wiggle it to work the pipe over the turbine inlet connection.

   NOTE: *Be sure flange plate on left side is near the manifold since there is not enough clearance to slide it across the pipe under the transaxle.*
6. Slide flange plates over manifold studs and install nuts.
7. Install new clamp at turbine inlet connection.
8. Remove stands and lower vehicle.

Turbine Outlet Pipe, Replace

1. Raise vehicle enough to work under rear end and support on stands.
2. Remove muffler and tail pipe as an assembly.
3. Remove spare tire and turbine exhaust shield.
4. Remove three nuts and washers from turbine flange studs (fig. 41).
5. The pipe now may be pulled off the turbine flange studs and twisted as needed for removal upward through insulator in engine side shield.
6. Reverse removal procedure for installation using a new turbine outlet flange gasket and a new clamp at muffler.

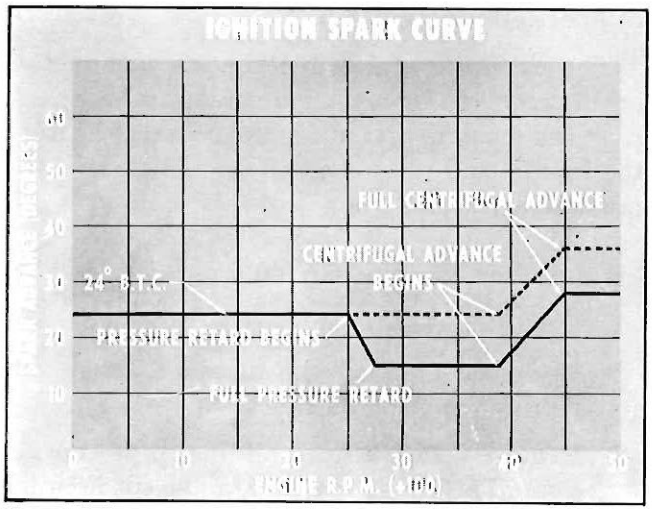


Fig. 42—Distributor Spark Curve

Turbine Inlet Pipe, Replace

1. Raise vehicle enough for work clearance and support on stands.
2. Remove engine exhaust pipe assembly.
3. Loosen muffler support band so turbine outlet pipe may be jiggled while removing supercharger assembly.
4. Remove spare tire and turbine exhaust shield.
5. Disconnect supercharger oil feed and drain lines at charger.
6. Remove air cleaner and disconnect charger to induction tube hose.
7. Disconnect accelerator linkage and gas line at carburetor.
8. Remove 3 nuts and washers on turbine outlet flange and 4 on inlet flange.
9. Swing outlet pipe of supercharger flange and lift supercharger and carburetor (as an assembly) out of vehicle.
10. Remove 2 bolts and washers from turbine support and remove turbine inlet pipe and support as an assembly up out of insulator on engine side shield.
11. Remove support from inlet pipe flange.
12. Reverse removal steps to install, using new gaskets at turbine inlet and outlet flanges and a new clamp at exhaust pipe connection to turbine inlet pipe.

DISTRIBUTOR

The distributor used on turbo-supercharged engines is different in that a pressure retard unit replaces the ordinary advance unit. This unit retards the spark during the time the manifold is pressurized, partially opposing centrifugal advance at high engine rpm. The curve is as shown in Figure 42.

Service operations are the same as on regular distributor.

ENGINE SHROUDING

UPPER SHROUD removal requires removal of supercharger, turbine inlet and exhaust piping, supercharger oil lines, and diffuser tube as previously outlined. Shroud may then be removed in the same manner as on regular Corvair engine.

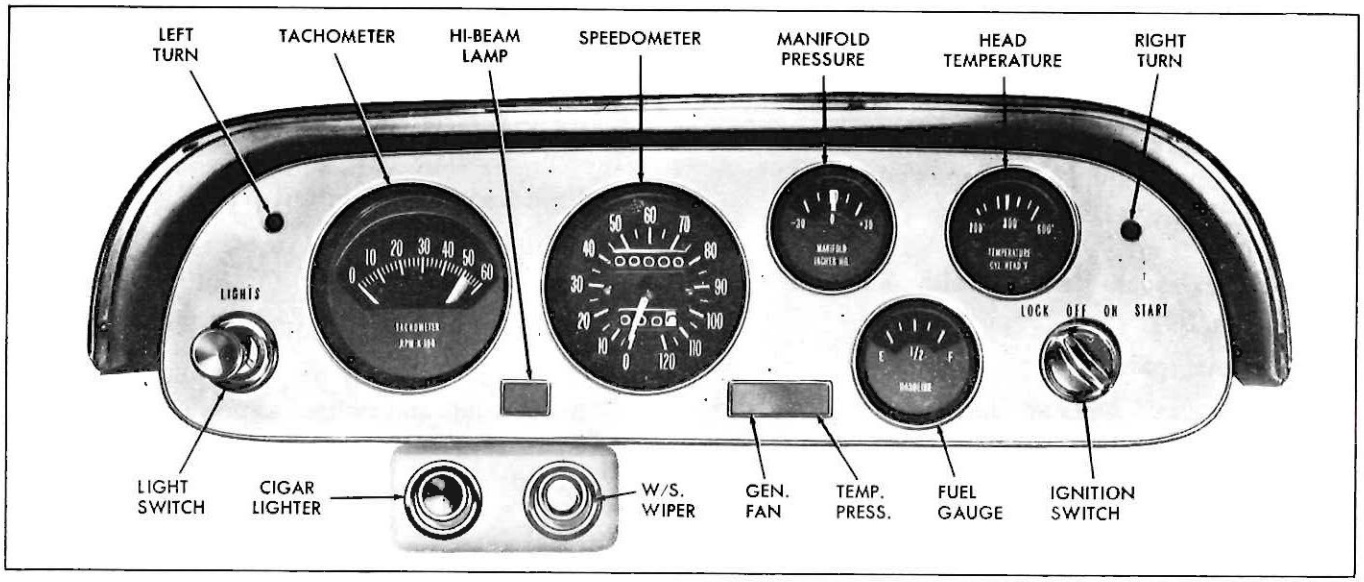


Fig. 43—Instrument Cluster Used on Monza Spyder

LOWER SHROUDS may be removed as outlined in Corvair Shop Manual.

LEFT SIDE SHIELD is removed as outlined in Corvair Shop Manual after removal of fuel filter and disconnection of manifold pressure line.

RIGHT SIDE SHIELD is removed as outlined in the Corvair Shop Manual after removing exhaust insulator plate screws and sliding the plate upward ½" to 1" for clearance.

FRONT SHIELD AND SEAL RETAINER removal requires the removal of supercharger assembly (including carburetor and air cleaner) and the fuel filter, then disconnecting accelerator linkage, fuel tank line at pump before proceeding as outlined in Corvair Shop Manual. The right half of the front shield seal is special insulator material and a firewall heat shield is provided above that section. This shield is removable with 4 sheet metal screws if added clearance is needed. When installing front seal, be sure it seats all along as it is an insulator as well as a seal.

AIR RECIRCULATING PLATES—The same as used on air conditioned vehicles—remove in winter—installed in summer.

INSTRUMENT CLUSTER (Fig. 43)

Removal (with Main Harness Attached)

1. Disconnect battery ground cable at battery.
2. Disconnect connectors from:
   a. Stop light switch (2).
   b. Windshield wiper switch on bezel.
   c. Cigaret lighter on bezel.
3. Disconnect speedometer cable at speedometer head and manifold pressure tube at gauge.
4. Remove odometer set knob and mounting nut at steering jacket support.
5. Disconnect connectors at warning buzzer and main harness connector.
6. Remove eleven instrument cluster-to-dash panel attaching screws (2 are from front side of panel).
7. Remove 4 steering column support bolts and lower steering column enough to remove cluster and seal assembly from dash (approximately 1½").
8. Reverse removal steps to install.

ENGINE WARNING SYSTEM

The instrument cluster used on the Monza Spyder has in addition to the standard Corvair warning lights, a cylinder head temperature gauge and an engine overheat warning buzzer.

The gauge indicates cylinder head temperature anytime the ignition switch is "ON." Should the engine overheat, the "TEMP-PRESS" light and the buzzer will operate.

NOTE: *If oil pressure is low, only the "TEMP-PRESS" light operates. If the engine temperature is too high, both the light and the buzzer operate. THIS IS THE POSITIVE WARNING SYSTEM. If the gauge needle travels past range, or the light and/or buzzer operate, follow the instructions in the Corvair Owner's Guide.*

Figure 45 shows the engine warning system circuit. The Silicon Rectifier located between the light circuit and the buzzer circuit allows the light current to flow to ground through the closed engine temperature switch, but prevents the oil pressure switch from completing the buzzer circuit.

WIRING DIFFERENCES

Tachometer leads are attached at coil in engine compartment as shown in Figure 44. The ballast resistor is part of the ignition circuit. Temperature indicator lamp, gauge and warning buzzer are connected as shown in wiring diagram (fig. 45). The Thermister unit (fig. 46) is installed on left cylinder head, the temp pickup in the right head and the warning buzzer and diode are located under dash panel (the diode in wire harness).

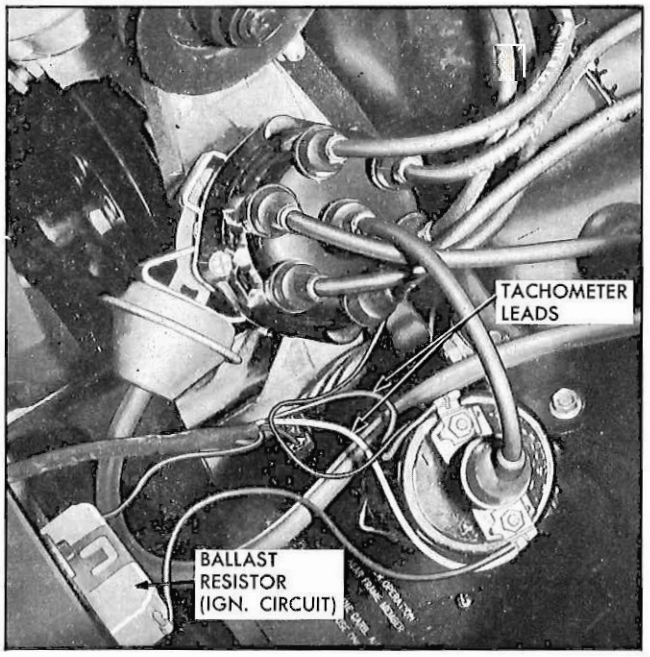
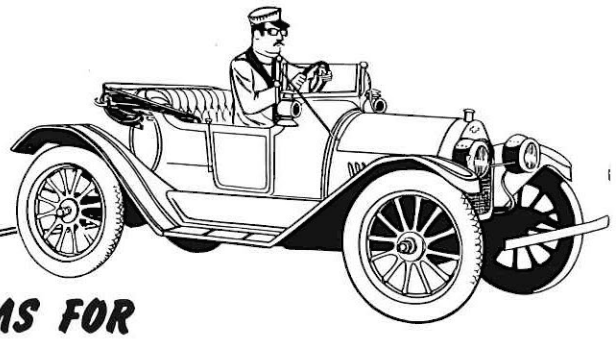
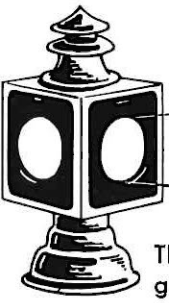


Fig. 44—Ignition and Electric Tachometer Wiring

ANNOUNCING



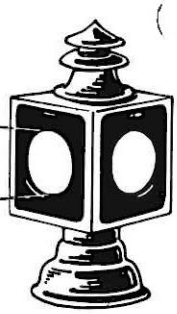
TWO NEW CHEVROLET PROGRAMS FOR RECOGNITION OF DEALER SERVICE MANAGERS AND QUALIFIED CHEVROLET TECHNICIANS



"ONLY THE BEST" CLUB

The importance of the Service Manager to the dealership has grown along with his increased responsibilities. In order to provide incentives and recognition for outstanding Service Managers, Chevrolet has organized the **"Only The Best" Club.** Membership in this exclusive club is restricted to ***only the best*** Service Managers, and they must earn the honor. To belong, a Service Manager must achieve a specific number of points in connection with his job activities. This requires him to think in terms of ***only the best*** technicians, ***only the best*** service training and ***only the best*** service selling. In other words, to belong to the **"Only The Best" Club,** he must do a top-notch job for his service department and his dealership. A new lapel pin has been designed for the **"Only The Best" Club** and plans are being developed for other suitable awards.

"CHEVROLET CERTIFIED TECHNICIANS PROGRAM"



Every Chevrolet mechanic will now be referred to as a Technician, a title more in keeping with his complex job and his advanced skill.

Special enrollment cards for the **"Chevrolet Certified Technicians Program"** will be sent to dealerships during the month of April. Each Body or Mechanical Technician who has worked on Chevrolets for one year or more will be eligible to enroll and be issued an identification card. This card will bear his name, social security number, dealership code number, and his years of experience as a Chevrolet Technician. Special cards will be given to Technicians who have twenty-five years or more of service.

The second phase of the **"Chevrolet Certified Technicians Program"** consists of on annual examination which will be held at convenient locations and supervised by Chevrolet Zone Service personnel. Questions used in the annual examination will be based on information covered in the monthly service meeting programs conducted by the Service Manager in your dealership. A significant change has been made in the type of written questions provided for the monthly service meetings and participation in the monthly meetings will help the Technician in preparing for the annual examination.

Technicians who qualify by successfully passing the annual examination will receive a new identification card on which will be indicated the completion of one more year's experience as a "Certified Technician." Further plans are now being developed so that a specially designed plaque will also be awarded at that time.

A Certified Service Technician, proud of his trade, trained in the latest techniques, and working with "Only the Best" Service Manager, is a combination that is unbeatable. We at Chevrolet are proud of the retail service team. We feel that it will be a distinct honor for you to be a part of these new programs.

MONZA SPYDER TURBOCHARGED ENGINE SPECIFICATIONS

GENERAL DATA:		
Horsepower @ rpm		150 @ 4400
Torque @ rpm		210 @ 3200-3400
Type		Opposed Valve-In-Head
Number of Cylinders		6
Bore		3 7/16
Stroke		2.60
Displacement (cu. in.)		145
Cylinder Numbers (Front to Rear)	Left Bank	1-3-5
	Right Bank	2-4-6
Firing Order		1-5-4-3-2-6
Compression Ratio		8:1
Distributor	Breaker Arm Tension	19-23 oz.
	Point Gap	.019 New—.016 Used
	Cam Angle	31°-34° (33° prefer'd)
	Advance	See Curve Fig. 42
Ignition timing* at Engine Idle		24° BTDC @ 850 R.P.M.
Spark Plugs	Normal	AC-44FF
	Competition	AC-42FF
	Gap	.035"
	Torque	20-25 Ft. Lbs.
Choke Setting		1 Notch Rich

PISTONS		
Clearance Limits	Top Land	.022-.031
	Skirt	.0011-.0015
Ring Groove Depth	Compression	.179-.187
	Oil	.180-.188

PISTON RINGS:		
Compression	Width	.077-.078
	Gap	.010-.020
Oil Ring	Width	.1860-.1865
	Gap	.010-.020
Expanders		Yes

*Caution—Never advance the initial spark setting more than recommended or preignition, with subsequent engine damage, may occur.

PISTON PINS:		
Fit	In Rod	Press Fit
	Clearance In Piston	.00015-.00025
Offset in Piston		To Major Thrust Side

CONNECTING RODS:		
Bearing	Clearance	.0007-.0027
	End Play	.005-.010

CRANKSHAFT:			
End Play			.002-.006
End Thrust Taken by			No. 1 Main
Main Bearing	Journal Diameter	No. 1	.995-.997
		No. 2	.797-.807
		No. 3	.797-.807
		No. 4	.797-.807
	Clearance	1 and 2	.0012-.0027
		3 and 4	.0007-.0022

CAMSHAFT:		
Lobe Lift†	Intake	.252
	Exhaust	.252

VALVE SYSTEMS:		
Lifters Type		Hydraulic
Rocker Arm Ratio		1.5:1
Valve Lash	Intake (Hot)	Zero
	Exhaust (Hot)	Zero
Intake	Face Angle	45°
	Seat Angle	45°
	Stem to Guide Clearance	New—.001-.0027 Used—.001-.004
	Lift§	.378
Exhaust	Face Angle	45°
	Seat Angle	45°
	Stem to Guide Clearance	New—.0015-.0082 Used—.002-.005
	Lift§	.378
Recommended Valve Seat Width	Intake	3/32
	Exhaust	1/16

†Measured at Push Rod. §Measured at Valve Stem.

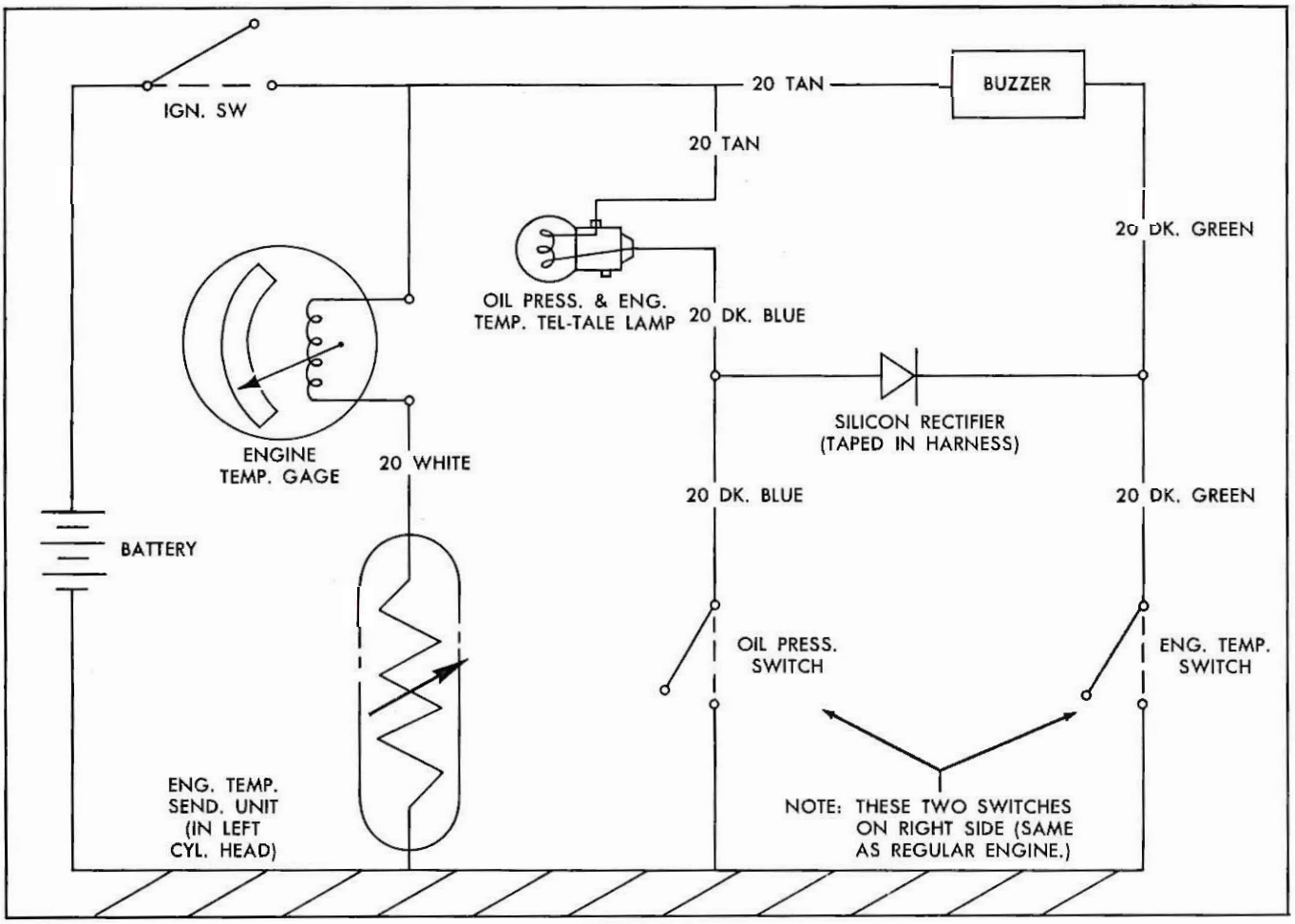


Fig. 45—Oil Pressure and Engine Temperature Tell-tale Lamp, Temperature Gauge and Warning Buzzer Wiring

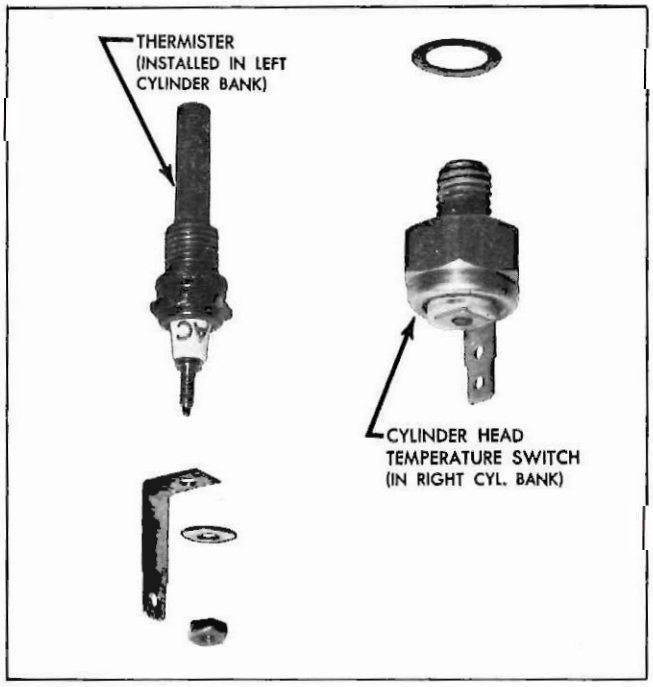


Fig. 46—Cylinder Head Temperature Sensing Units

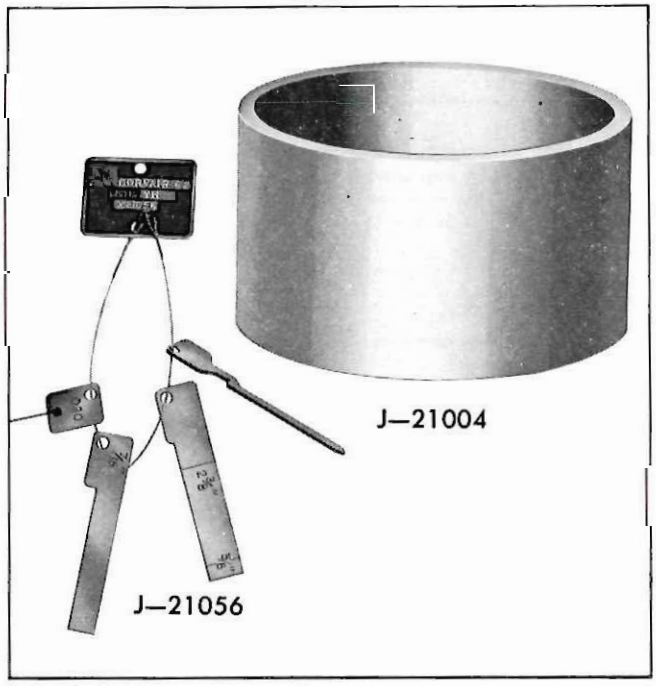


Fig. 47—Supercharger and "YH" Carburetor Tools
J-21056—Chain Gauge. J-21004—Supercharger Support