TECHNICAL SERVICE BULLETIN

Dodge

DART
CORONET
POLARA
MONACO

SERVICE DEPARTMENT

JANUARY 14, 1966

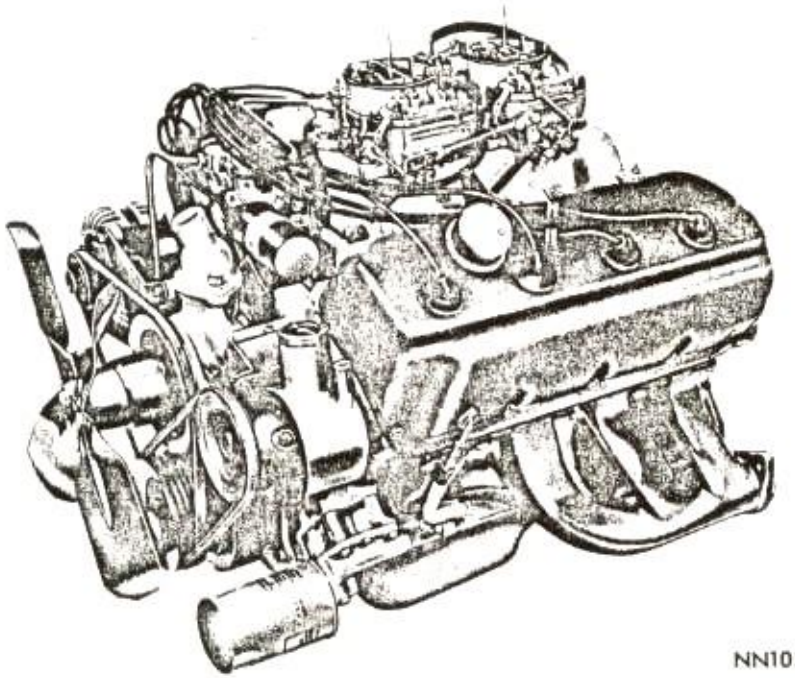
D66-18

MISCELLANEOUS

426 HEMI ENGINE

The information in this bulletin pertains to the new 1966 426 Hemi engine available in the Dodge Coronet models. The engine is a modified version of the 426 cubic inch hemispherical combustion chamber engine. It is suitable for normal street driving. Horsepower and torque ratings of the engine are as follows:

Horsepower	425 @ 5000 R.P.M.
Torque (ft./lbs.)	490 @ 4000 R.P.M.



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NOTE: ALL CALIFORNIA DEALERS

The State of California Air Pollution Control Board has ruled this vehicle exempt from Cleaner Air Package requirements. A notation to this effect should be made on applications for registration in the State of California.

R. H. Kline

R. H. KLINE
Manager-Service
DODGE DIVISION

MODELS:
ALL 1966 CORONET MODELS EQUIPPED WITH THE 426 HEMI ENGINE

OF INTEREST TO:	
DEALER	
MANAGER	
SERVICE MGR.	
PARTS MGR.	
TECHNICIANS	

GROUP 0 — LUBRICATION AND MAINTENANCE

All lubrication and maintenance procedures are the same as outlined in the 1966 Service Manual with the following exceptions:

REAR AXLE

When the vehicle is equipped with the manual transmission and the 9¾ inch rear axle, the lubricant capacity is 5½ pints.

ENGINE

Selection of Oils

Oil used in this engine **must** be of MS quality.

Oil Viscosity Recommendations

Summer (Ambient temperatures above 32°F.)—Oils of SAE 30, 40 or 20W-40 viscosity grades are recommended.

Winter (Ambient temperatures below 32°F.)—Oils of SAE 10W-30 viscosity grade are recommended.

Oil Change Frequency

Engine oil should be changed every 4,000 miles or 3 months, whichever occurs first.

Crankcase Capacity

The crankcase capacity is 5 quarts. Add one additional quart when the oil filter is replaced.

Engine Oil Filter

The full flow engine oil filter should be replaced every second oil change. Since filters vary widely in quality, it is recommended that a Chrysler Corporation Engine Oil Filter, or equivalent, be used for replacement.

TRANSMISSION — AUTOMATIC

The fluid in the TorqueFlite transmission should be changed after the first 24,000 miles or 24 months, whichever occurs first, and periodically thereafter, every 12,000 miles or 12 months, whichever occurs first. The filter should be changed and the bands adjusted at each fluid change.

When refilling the transmission, use only Automatic Transmission Fluid AQ-ATF, Suffix "A", available under Part Number 1843314.

TRANSMISSION — MANUAL

When necessary to replenish the transmission fluid, use Multi-Purpose Gear Lubricant, SAE 80 or 90 for all seasons.

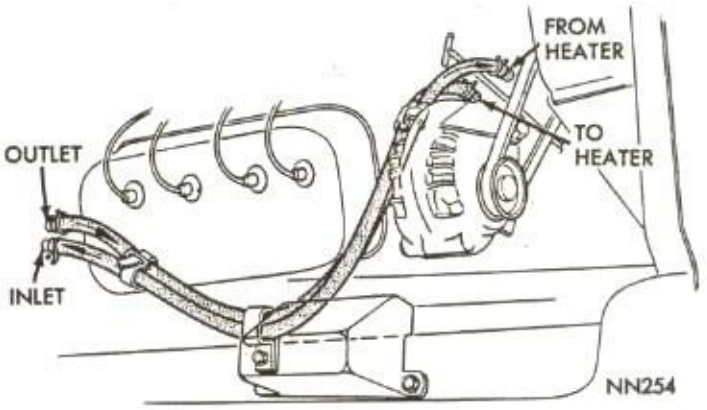

Fig. 1—Heater Hose Connections

GROUP 1 — ACCESSORIES

HEATER

Except for heater hose routing, Fig. 1, heater service procedures remain the same as those outlined for models in the 1966 Service Manuals.

GROUP 2 — FRONT SUSPENSION

Models equipped with the 426 cu. in. Hemi engine will be equipped with a new heavy-duty torsion bar having a diameter of .920 in. and a new link-type sway bar which improves front end stiffness and stability. For service procedures see the 1966 Service Manual.

GROUP 3 — REAR AXLE ASSEMBLY 9¾" RING GEAR

A special heavy duty 9¾" diameter axle assembly shown in (Fig. 1), will be used in models equipped with the 426 cubic inch Hemi Engine and 4 speed manual transmission. A 3.54 gear ratio with Sure-Grip differential will be standard. Dealer installed gear sets with optional ratios of 4.10 and 4.56 will be available. When a 4.56 ratio gear set is installed a different differential case is required due to ring gear mounting dimensions.

The rear axle is of the integral carrier-housing, hypoid gear type in which the centerline of the drive pinion is mounted below the centerline of the ring gear.

The rear axle housing is an iron casting with tubular legs pressed into and welded to the carrier to form a carrier and tube assembly. A removable stamped steel cover is bolted to the rear of the carrier to permit inspection and service of the differential without removing the complete rear axle from the vehicle.

A small metal tag is attached beneath one of the cover screws to identify the axle ratio. This tag is stamped with the number of teeth on the drive pinion

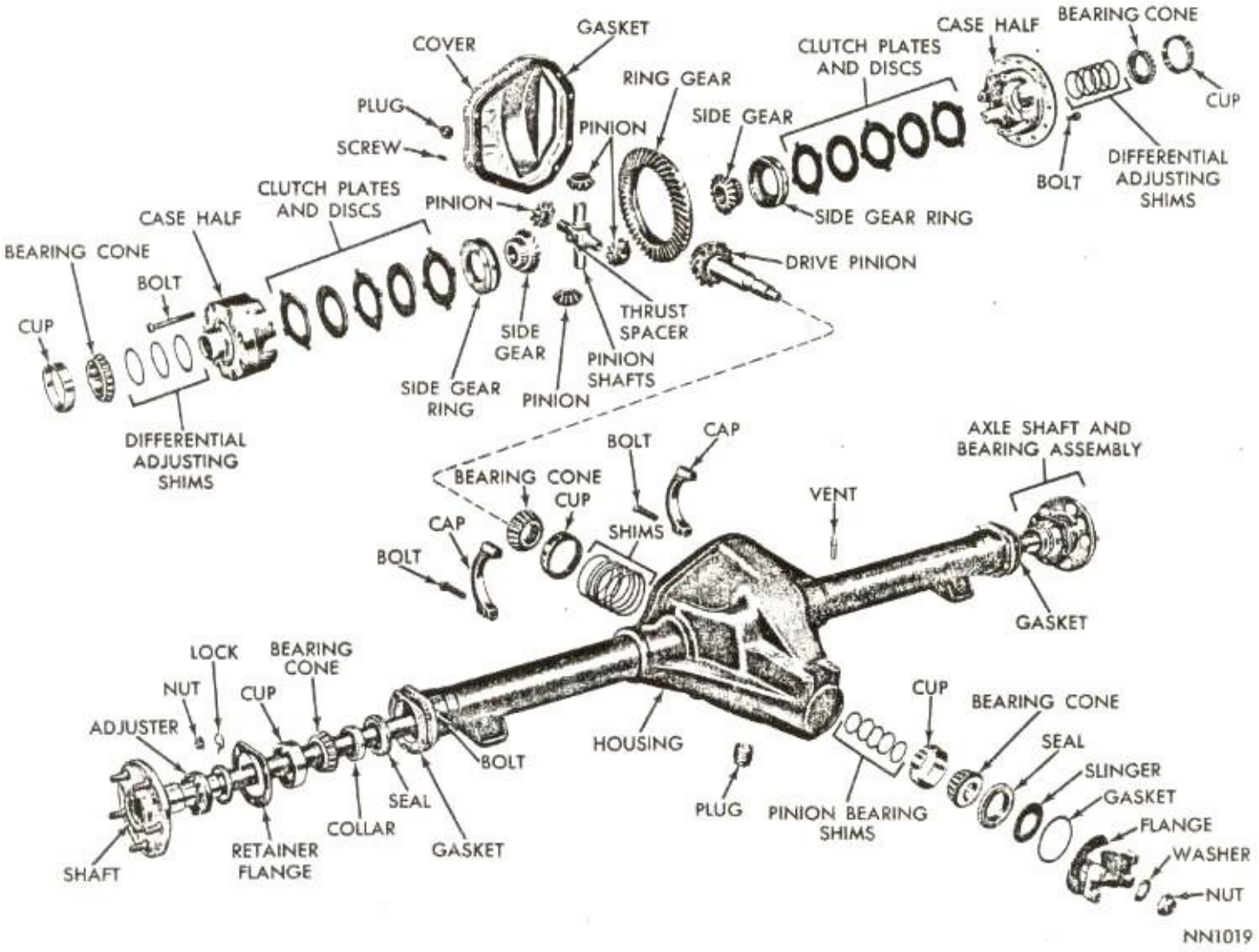

Fig. 1—9¾" Rear Axle Assembly (Disassembled)

and ring gear, and by dividing the larger number (ring gear teeth) by the smaller number (drive pinion) the axle ratio can be determined.

The drive pinion is supported by two preloaded taper roller bearings. The rear pinion bearing cone is a tight press-fit on the pinion stem. The front pinion bearing is a light-press fit to a close sliding fit on the pinion stem. The front and rear bearing cups are a press-fit against a shoulder recessed in the carrier. The drive pinion depth of mesh adjustment is controlled by locating shims, which are installed between the rear pinion bearing cup and the carrier casting.

Drive pinion bearing preload is maintained by using different thicknesses of shim packs between the drive pinion bearing shoulder and front pinion bearing cone.

The Sure-Grip differential case is used exclusively in the 9¾" axle assembly. The differential case is supported by two taper roller bearing cones which are a press-fit on the differential case hubs. Shims installed between the bearing cone and shoulder of hub of differential case, perform three functions: They eliminate the differential case side play; they adjust and maintain the backlash between the ring gear and drive pinion; and establish a means of obtaining differential bearing preload.

The rear axle shafts are mounted on taper roller bearings which are located at the outer ends of the axle housing tubes. The bearings are pressed onto the shoulder of the shaft and held in place by a collar that has a very tight interference fit. The bearings are lubricated with Automotive Multi-Purpose Grease, Grade 2. Oil seals are pressed into the outer ends of the housing tubes to prevent oil leakage from the center section of the axle into the wheel bearings and onto the brake assembly. The outer retainer clamps the bearing and cup into the housing bore and also clamps the brake support plate to the studs of the housing tube. Axle shaft end play is adjusted by means of a threaded adjuster located in the right axle shaft bearing retainer. Axle shaft end play must be maintained at .005"—.012".

Considering the precise nature and the special tools

required for proper adjustment when changing gear ratios, replacing worn or damaged components, suitable factory approved tools for disassembly and assembly must be available. The following is a list of these tools:

(a) Pinion Depth Setting Gauge DD-1244.
(b) Axle Housing Spreader Tool W-129.
(c) Differential Bearing Cone Remover DD-914C and Adapters No. 62.
(d) Rear Pinion Bearing Cone Remover DD-914C and Adapters No. 37.
(e) Rear Pinion Bearing Cone Installer DD-955.
(f) Pinion Flange Holding Tool C-3281.

If these factory approved tools are not available, remove the axle assembly and have the service performed by a reliable source.

SERVICE PROCEDURES

AXLE SHAFTS AND BEARINGS

The service procedures for the axle shafts and bearings are the same for those models equipped with the 426 Hemi engine as that shown in the 1966 Service Manual with the exception of the following:

(1) Install axle shaft oil seal using a suitable tool.

(2) Apply a thin coating of Automotive Multi-Purpose Grease grade 2, to the outside diameter of the bearing cup prior to installing in the bearing bore. **This operation is necessary as a corrosion preventive.**

(3) When setting axle shaft end play using a dial indicator mounted on the left brake support, **turn the adjuster clockwise until both wheel bearings are seated and there is zero end play in the axle shafts. Back off the adjuster counterclockwise approximately two notches to establish an end play of .005-.012 inch.**

(4) Install adjuster lock so tab of lock mates with notch in adjuster, if tab does not mate with notch, turn adjuster slightly until it does. Install nut and tighten to 30-35 foot-pounds.

(5) Recheck axle shaft end play. If end play is not found to be within tolerances of .005-.012 inch, then repeat end play adjustment procedure.

REAR AXLE ASSEMBLY

Removal

Should it become necessary to remove rear axle assembly for overhaul or repair, proceed as follows:

(1) Raise rear of vehicle until rear wheels clear floor. Support body at front of rear springs.

(2) Block brake pedal in the up position using a wooden block.

(3) Remove rear wheels.

(4) Disconnect hydraulic brake lines at wheel cylinders and cap fittings to prevent loss of brake fluid.

(5) Disconnect parking brake cables.

To maintain proper drive line balance when reassembling, make scribe marks on the propeller shaft universal joint and the pinion flange before removal.

(6) Disconnect propeller shaft at differential pinion flange and secure in an upright position to prevent damage to front universal joint.

(7) Remove shock absorbers from spring plate studs and loosen rear spring "U" bolts nuts and remove "U" bolts.

(8) Remove axle assembly from vehicle.

DIFFERENTIAL

Removal and Disassembly

(1) Position carrier and tube assembly in a suitable holding device; such as the jaws of a vise with the carrier cover facing upward. Thoroughly clean the outer area of carrier and tubes with a suitable cleaning solvent and blow dry with compressed air.

(2) Loosen and remove cover screws and remove carrier cover. Tilt assembly and drain lubricant into a container.

(3) Using a suitable cleaning solvent wash and clean differential, bearings, ring gear and pinion and interval surfaces and blow dry with compressed air.

(4) In preparing to measure drive gear back face runout (provided no side play was found) mount a dial indicator Tool C-3339 on pilot stud (Fig. 2) and load the indicator stem slightly when plunger is at right angles to back face of drive gear.

(5) Measure drive gear back face runout by rotating drive gear several complete revolutions and reading dial indicator. Mark drive gear and differential case at point of maximum runout. The marking of differential case will be very helpful later in checking differential case runout. Total indicator readings in excess of .006 inch might indicate possible loose drive gear or damaged differential case. A test for differential case runout will be described later.

(6) Check the clearance between the differential bearing cap and bearing cup by trying to insert a piece of .003 inch feeler stock between them. A .003 inch

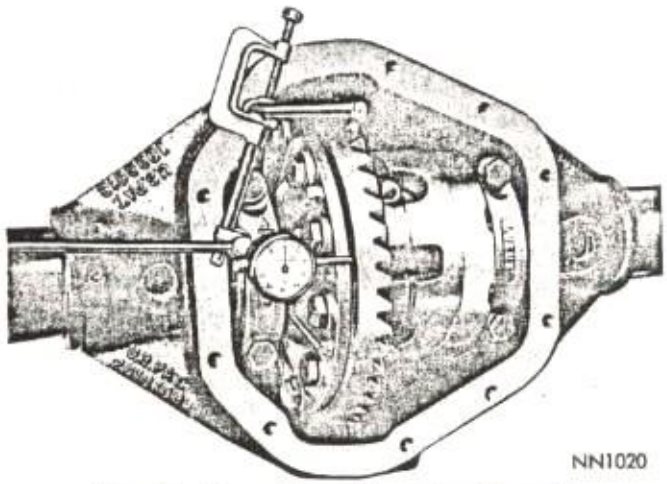

Fig. 2—Measuring Drive Gear Runout

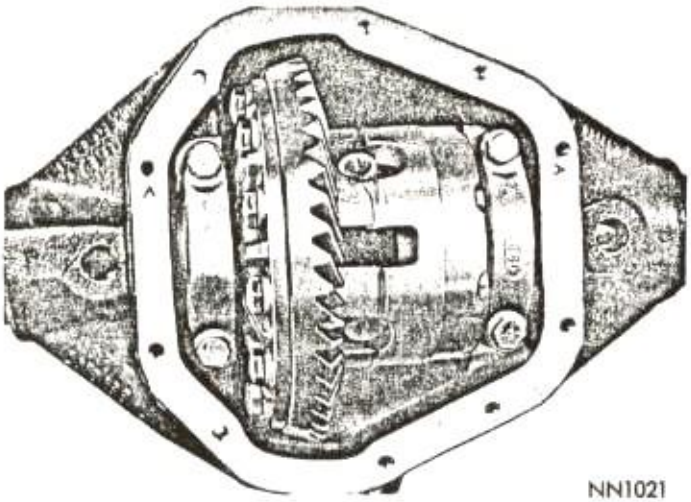
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Fig. 3—Bearing Cap Identification

feeler should not enter between the bearing cap and cup. A clearance of more than .003 inch could be caused by bearing cup having turned in carrier, causing excessive wear.

(7) Note identifying letters stamped on bearing caps and face of carrier housing seal surface (Fig. 3). Letters stamped on left side are in horizontal position while right side are in vertical position. Always match identifying letters for proper reassembly.

(8) Loosen and remove the differential bearing caps and locate spreader Tool W-129 with tool dowel pins seated in locating holes of axle housing. Turn tool screw finger tight at this time.

(9) Install pilot stud on left side of axle housing. Attach dial indicator and load indicator stem slightly against opposite side of axle housing (Fig. 4).

(10) Tighten spreader tool nut sufficiently to obtain .015 inch movement of dial indicator to permit removal of differential case and ring gear assembly.

DO NOT SPREAD OVER .020 INCH AS IT WILL RESULT IN PERMANENT DAMAGE TO CARRIER CASTING.

(11) Remove dial indicator and remove differential case and ring gear assembly from axle housing. A

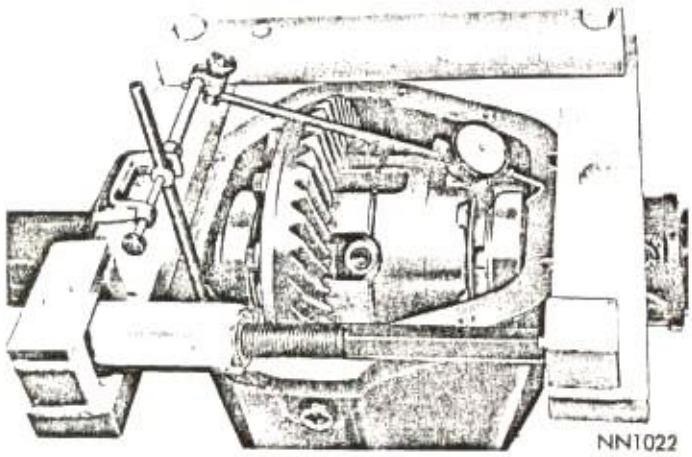
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Fig. 4—Spreading Rear Axle Housing

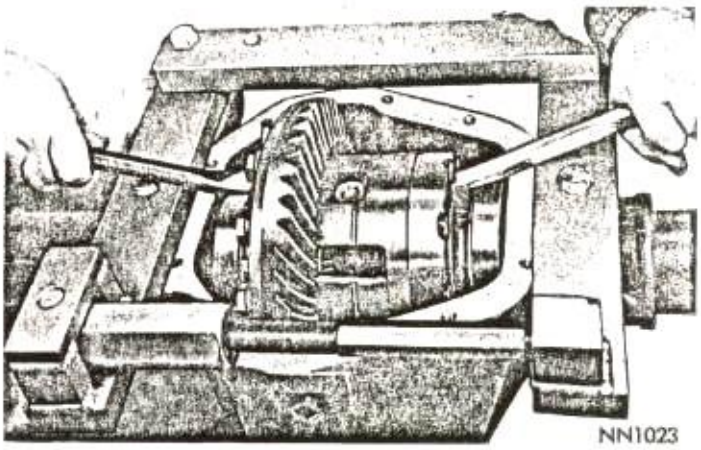
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Fig. 5—Removing Differential and Drive Gear Assembly

light prying action with a screwdriver or pinch bar will loosen assembly for easy removal (Fig. 5). Pry up differential case and ring gear as straight up as possible using leverage against differential case and carrier to prevent damage. Keep respective bearing cups with bearing cones, if they are not worn or damaged and are to be reassembled.

(12) Place the differential case between the soft jaws of a vise and remove the drive gear screws and discard. Using a fiber mallet, tap the drive gear loose from the differential case pilot and remove.

(13) If the drive gear runout exceeded .006 inch in step 5 differential case flange runout should be remeasured. Install differential case with respective bearing cups into axle housing. Loosen nut of spreader tool and remove. Install bearing caps and tighten snugly. Mount dial indicator in contact with flange face of differential case (Fig. 6) and measure runout as described in Step 5. Total allowable runout should not exceed .003 inch. It is often possible to reduce excessive runout by positioning drive gear 180 degrees from point of maximum runout when reassembling ring gear on differential case.

(14) Position carrier and tube assembly in vise with nose of carrier in the up position. Remove drive

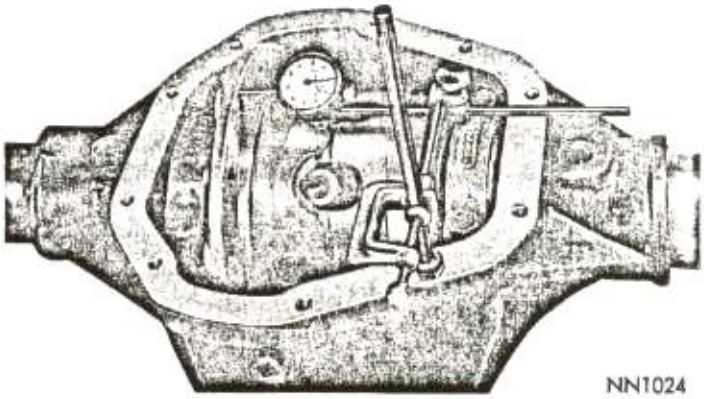
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Fig. 6—Measuring Differential Case Drive Gear Mounting Flange Face Runout

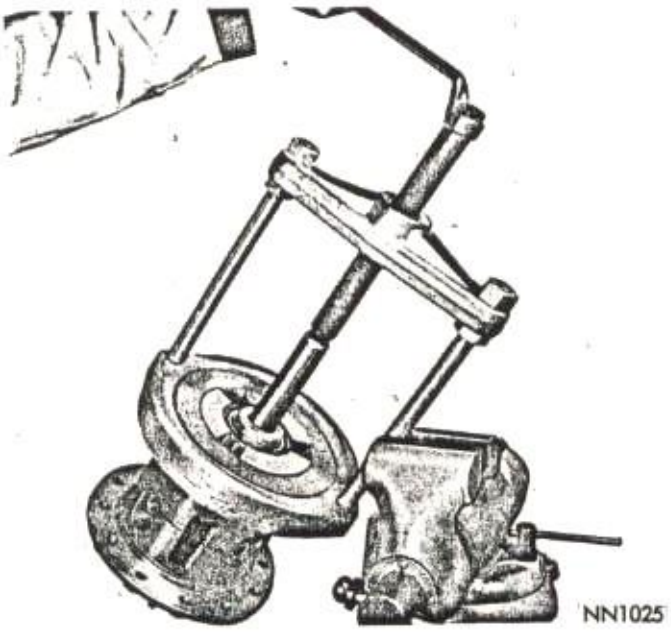

Fig. 7—Removing Differential Bearings

pinion nut and washer. Using Tool C-452 and holding Tool C-3281, remove drive pinion flange.

(15) Using Tool C-748, remove drive pinion oil seal. Remove slinger, gasket, front pinion bearing cone and preload shim pack. Record the thickness of the shims in case they should be lost.

(16) Position the carrier and tube assembly on an arbor press, then press out the drive pinion stem and rear bearing cone assembly.

(17) With the aid of a brass drift and hammer, drive out the front and rear pinion bearing cups from housing. Remove the shim from behind the rear bearing cup and record the thickness of shim.

(18) Remove rear bearing cone from drive pinion stem using Tool DD-914C and adapters No. 37.

(19) Remove differential bearing cones from differential case hubs using Tool DD-914C and adapters No. 62 (Fig. 7). Care must be taken to insure that bearing remover adapters are located so as not to pull on bearing cage.

(20) Remove the shims located behind each bearing and record thickness to aid in reassembly.

CLEANING AND INSPECTION

(1) Wash and clean all parts in a suitable cleaning solvent and with the exception of bearing cones, dry with compressed air. To clean axle housing tubes, insert a stiff wire into tube, attach a clean cloth to wire at center section and withdraw from center outward.

(2) All machined contact surfaces in the axle housing and differential bearing caps should be smooth and free of any raised edges. Front and rear pinion bearing cup bore machine surfaces should be smooth. Raised metal on shoulders of bores incurred in removal of cups should be flattened by use of a flat nosed punch.

(3) Axle shaft oil seal bores at both ends of housing should be smooth and free of rust and corrosion. This also applies to brake support plate and housing flange face surface.

(4) Axle shaft bearings should be washed and cleaned and inspected for any pitting, spalling or imperfections in surface of bearing cup. If bearings are found to be unfit for further use they **must be replaced.** See "Axle Shaft Assembly Procedure" in 1966 Service Manual.

(5) Axle shaft splines should be smooth and straight and free of excessive wear. The axle shaft oil seal journal should be smooth and free of nicks, scratches or corrosion. To remove any imperfections, polish the area with #600 crocus cloth (without reducing diameter of axle shaft oil seal journal).

(6) Differential bearings and front and rear pinion bearing cone and cup assemblies should have a smooth appearance with no broken or dented surfaces on rollers or roller contact surfaces. The bearing roller retainer cages must not be distorted or cracked. **When replacing bearings, always replace the cup and cone in a set only.**

(7) Inspect drive gear and pinion for worn or chipped teeth or damaged attaching bolt threads. If replacement is necessary, replace both the drive gear and drive pinion as they are available in matched sets only.

(8) Inspect universal joint flange for cracks, worn splines, pitted, rough or corroded oil seal contacting surface. Repair or replace universal joint flange as necessary.

(9) Inspect drive pinion bearing shim pack for broken, damaged or distorted shims. Replace, if necessary, during establishment of pinion bearing preload.

SURE-GRIP DIFFERENTIAL

The service procedures for the Sure-Grip Differential are the same as that described in the 1966 Service Manual; with the exception of the clutch plate and disc arrangement (Fig. 8).

INSTALLATION—DIFFERENTIAL CASE AND DRIVE GEAR

The contacting surfaces of the drive gear and differential case flange must be clean and free of all burrs. Dress down surfaces with a file as needed.

(1) Position drive gear on differential case pilot, aligning threaded holes of drive gear with those in differential case flange.

(2) Insert drive gear screws through case flange and into drive gear. After all cap screws are properly started, tap drive gear against differential case flange with a non-metallic mallet.

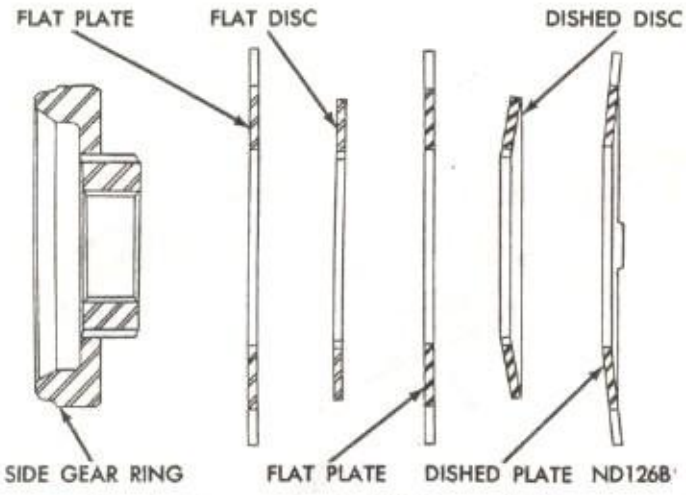

Fig. 8—Arrangement of Plates and Discs (9¾" Differential)

(3) Clamp unit between brass jaws of a vise and alternately tighten each cap screw to 100-120 foot-pounds.

(4) Position each differential bearing cone on hub of differential case (without shims), small end away from drive gear, and with a suitable tool install bearing cones (Fig. 9). An arbor press may be used in conjunction with installing tool.

CAUTION: Never exert pressure against the bearing cage, since this would damage the bearing and make it unfit for further use.

(5) Install spreader Tool W-129 in locating holes of carrier and tube assembly; followed by dial indicator and spread assembly .015-.020 inch.

(6) Remove dial indicator fixture. Position differential bearing cups on their respective cones and insert differential case in carrier. Install bearing caps in their correct positions and tighten bearing cap bolts finger tight.

Fig. 9—Installing Differential Bearing Cones

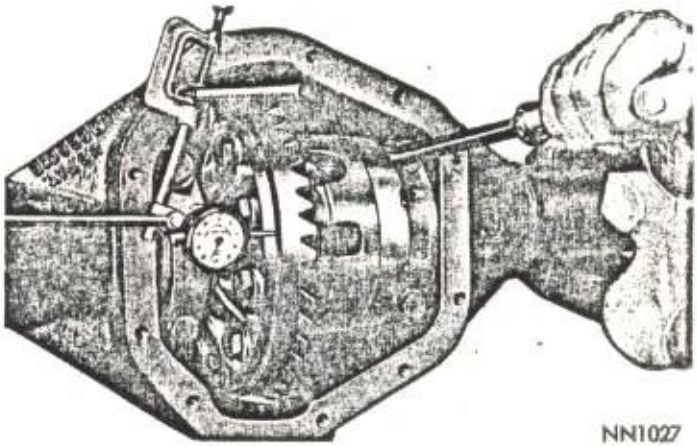

Fig. 10—Determining Shims to Obtain "O" End Clearance

(7) Remove the spreader Tool W-129 and install dial indicator fixture with indicator pointer contacting back face of drive gear.

(8) Insert a screwdriver blade between bearing cup and housing and pry case assembly as far as possible to one side of housing (Fig. 10). Set dial indicator at zero. Using screwdriver, pry case to opposite side of housing and record the reading.

This reading indicates the amount of shims needed to take up the clearance between the differential bearing cups and the case. The shim pack thickness to be placed on bearing hub between bearing cone and differential case will be calculated later in the procedure after installation of drive pinion and depth of mesh setting.

(9) Install spreader Tool W-129 and dial indicator and carefully spread carrier .015-.020 inch. Remove dial indicator, loosen bearing cap bolts and remove bearing caps. Remove differential assembly from housing. Loosen and remove spreader tool.

Note the figures etched on the head of the drive pinion and observe (Fig. 11). One figure is found on both the drive pinion and ring gear and indicates a matched gear set. Directly opposite this figure will be one with a + or — before it, or if not a + or —, the figure will be 0. This number must be positively identified before continuing with the assembly procedure. Midway between the two sets of figures described above are numbers and letters. These numbers and letters are etched for manufacturing purposes only, but as one of these numbers may be 0, it might be confused with the number needed for assembly procedure. A rule to follow would be to first examine the shaft end for a + or — number. If a + or — number is not etched on the pinion head, then the number will be 0.

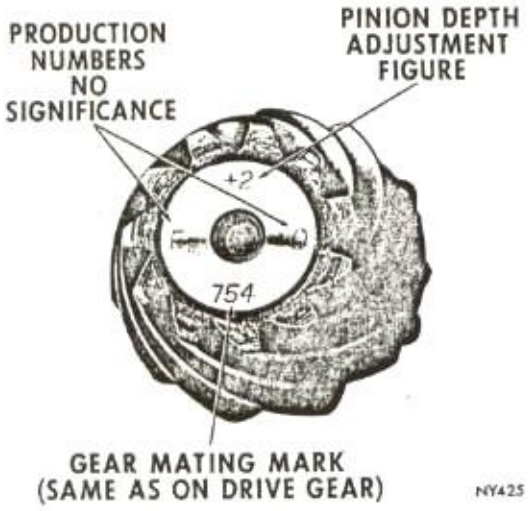

Fig. 11—Drive Pinion Markings

(10) Install rear drive pinion bearing cup and shim pack in carrier. The starting shim pack to be placed between the rear cup and carrier can be determined from the shims removed and the etched marking on the pinion. The + or — figure indicates the variation from the nominal distance between the front of the pinion and the center line of the carrier. For example, if a pinion marked +2 was originally installed with a shim pack .035 inch and the new pinion is marked —1, the shim pack should be increased .003 inch to bring the new pinion to its correct position and the new shim pack would be .038 inch. This will give an approximate setting of the pinion. A pinion depth gauge should be used for final setting of the pinion, see steps **15** through **23.** Shims are available in .003, .005 and .010 inch thickness.

(11) Install front pinion bearing cup in carrier.

(12) Lubricate rear drive pinion bearing cone with Sure-Grip Lubricant, Part Number 2585318, or equivalent, and install bearing cone on pinion stem with Tool DD-955 (Fig. 12).

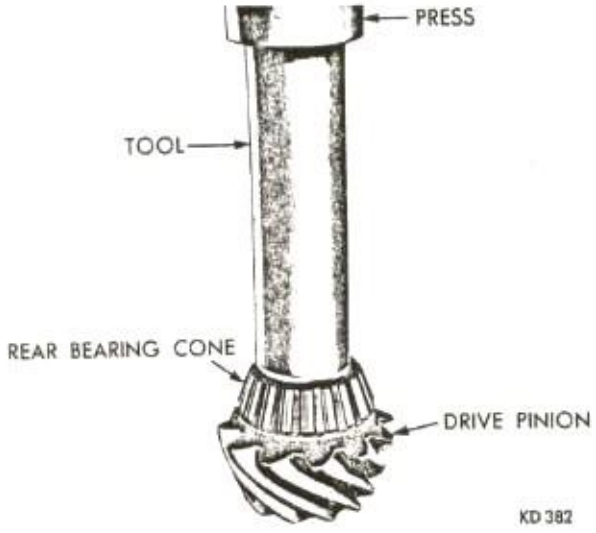

Fig. 12—Installing Rear Pinion Bearing Cone

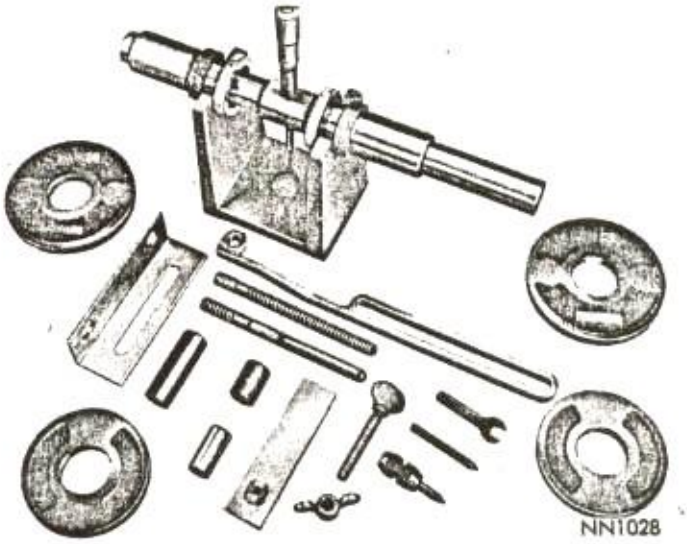

Fig. 13—Pinion Depth Gauge Tool DD1244

(13) Position drive pinion and bearing assembly in carrier and install front pinion bearing cone on pinion stem. Do not install preload shims behind front pinion bearing at this time.

(14) Install universal joint pinion flange followed by washer and nut. Tighten nut just enough to obtain 10-30 inch-pounds of preload. Rotate drive pinion while tightening to seat bearing rollers.

(15) The pinion depth gauge Tool DD-1244 (Fig. 13) is a direct reading precision micrometer, mounted in an arbor and is calibrated to show the distance from the end of the anvil to the centerline of the gauge set. To check the accuracy of the gauge, install the micrometer and arbor in the master gauge. Install the checking block and read the micrometer, it should be accurate within less than .0005 inch (Fig. 14).

(16) Select the proper adapters from the gauge set that fits the differential bearing cup bores. Install the adapters on the arbor and position in carrier housing. Install bearing caps and tighten cap bolts up snug.

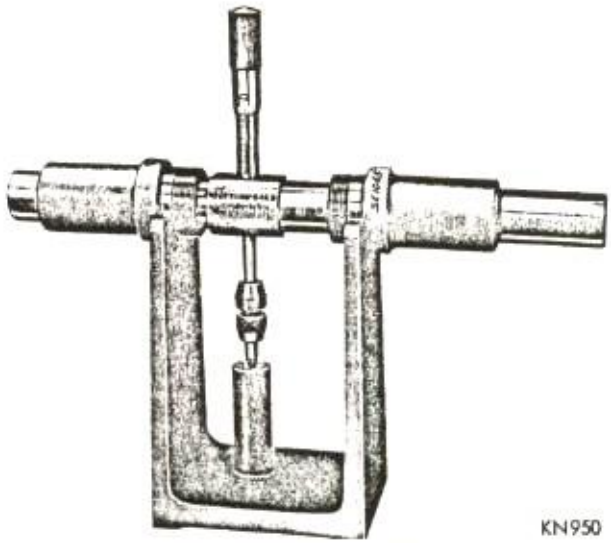

Fig. 14—Checking Gauge in Master Gauge Assembly

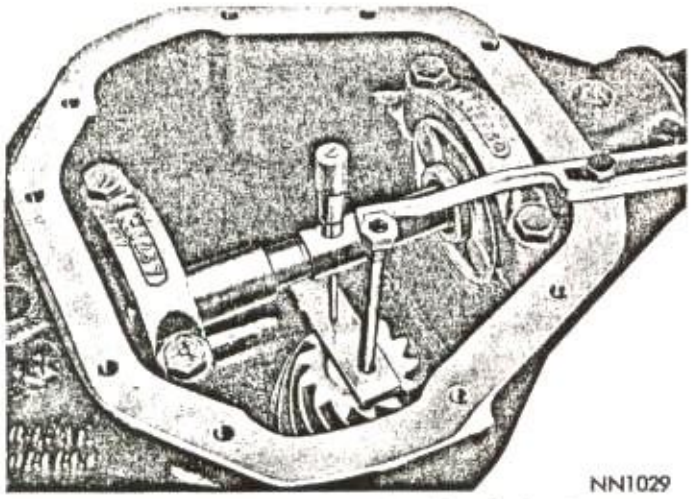

Fig. 15—Determining Pinion Depth Setting

(17) Install the step plate clamp assembly on the carrier housing. Position step plate over pinion and tighten step plate screw against step plate. Make sure the four step plate feet are squarely positioned on the pinion.

(18) Adjust the micrometer so it is directly over and at a 90 degree angle to the step plate. Screw the micrometer down until the anvil contacts the top of the step plate (Fig. 15). Read the micrometer and make a note of the reading. The step plate measures .400 inch thick, therefore, add the .400 inch step plate thickness to the micrometer reading.

(19) Figure 16 shows the nominal pinion setting dimensions for 0 (zero) marked pinion. Pinions with a + or — marking require a different pinion setting. For example, if a pinion marked +2 is being installed in an axle, subtract the +2 from the pinion setting dimensions 3.125 which will be corrected dimension of 3.123.

(20) If pinion setting is within —.001 inch to +.003 inch, the pinion position can be assumed to be correct. If the setting is outside these limits, it should be corrected by adding or removing the proper thickness shim behind the rear pinion bearing cup.

(21) Remove the drive pinion depth gauge and drive pinion.

(22) If shim adjustment is necessary, remove drive pinion rear bearing cup and add or remove shims as determined in preceding Step 18. Measure each shim separately with a micrometer.

(23) Reinstall drive pinion rear bearing cup and shims and recheck pinion depth measurement, described previously.

PINION BEARING PRELOAD

(1) Remove universal joint flange, washer, nut and front pinion bearing cone.

(2) Install the original front pinion bearing shim pack followed by the bearing cone. Do not install oil seal at this time.

(3) Install universal joint flange, washer and nut. Tighten nut 200 to 220 foot-pounds. Rotate pinion several complete revolutions to seat bearing rollers.

(4) Using an inch-pound torque wrench C-685, measure pinion bearing preload by rotating pinion with handle of wrench floating (Fig. 17). Take reading while handle is moving through several complete revolutions. Accurate reading can be made only with nose of axle in upright position. Correct preload is 10-20 inch-pounds. **Add** shims to decrease preload and subtract shims to increase preload. Shims are available in the following thicknesses: .003, .005, .010, and .030 inch.

(5) After the correct bearing preload has been established, the pinion depth setting should be rechecked.

(6) Remove universal joint flange nut and washer.

(7) Install oil slinger and gasket. Using a suitable tool install drive pinion oil seal.

(8) Install universal joint flange, washer and nut. Tighten nut 200 to 220 foot-pounds, holding flange with Tool C-3281.

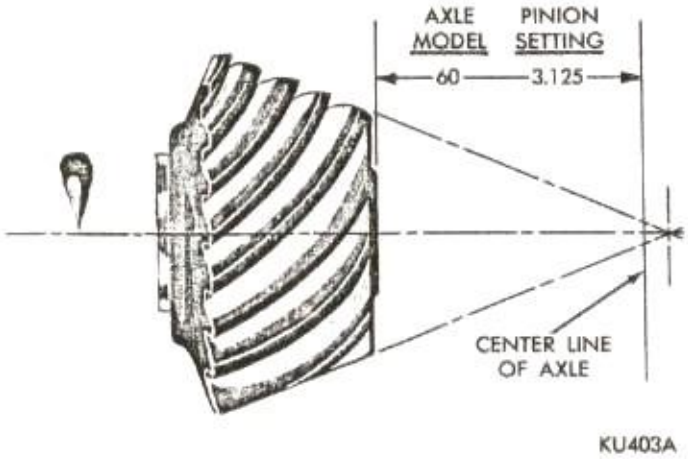

Fig. 16—Pinion Setting Dimensions

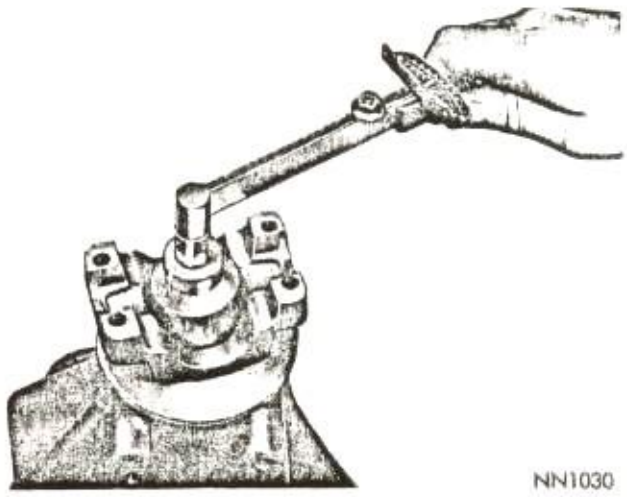

Fig. 17—Checking Pinion Bearing Preload

DIFFERENTIAL BEARING PRELOAD AND DRIVE GEAR AND PINION BACKLASH

(1) With drive pinion and bearings installed and bearing preload set, install differential case and ring gear assembly with their respective bearing cups. Install bearing caps in their positions, align identification marks and tighten cap bolts finger tight.

Refer to the measurement taken previously in step 8. This reading taken before the drive pinion was installed represents the total clearance between the differential bearing cups and the carrier casting. Perform the following steps to determine the thicknesses of shims required behind each bearing cone to take up the clearance and establish the correct bearing preload and backlash.

(2) Install a dial indicator and position the contact point against back face of ring gear. Move the differential and ring gear assembly tight against the drive pinion, set the dial indicator on 0. Move the differential and ring gear assembly in the opposite direction as far away from pinion as possible and note the reading on dial indicator.

This reading represents the thickness of shim pack necessary to take up the clearance between the bearing cup and the case on the ring gear side of the differential assembly. Subtract this reading from the previously recorded total reading to obtain the amount of shims necessary to take up the clearance between the bearing cup and the case at the pinion side of the differential.

(3) Remove differential and ring gear assembly from carrier.

(4) Remove differential bearing cones. Install the correct thickness shim pack as determined in step 2 between bearing cone and differential case hub shoulder. Add an additional .015 inch shims to the drive gear side of differential and install the differential bearing cones. This additional .015 inch shim pack provides the correct bearing preload and backlash.

(5) Position spreader Tool W129 in locating holes of carrier and tighten screw finger tight. Install dial indicator and spread carrier .015 to .020 inch. Do not exceed this limit to permit placing of differential and ring gear assembly in carrier.

(6) Install the bearing caps in their respective positions as indicated by identification marks on caps and carrier. Remove the spreader tool. Coat the bearing cap bolt threads with sealing compound and install and tighten bolts snugly.

(7) Tap the drive gear lightly with a rawhide hammer to properly seat the differential bearing and cups. **Care must be taken in this operation to prevent nicking the teeth of ring gear or drive pinion as they are meshed together.** Tighten the bearing cap bolts to 70-90 foot-pounds.

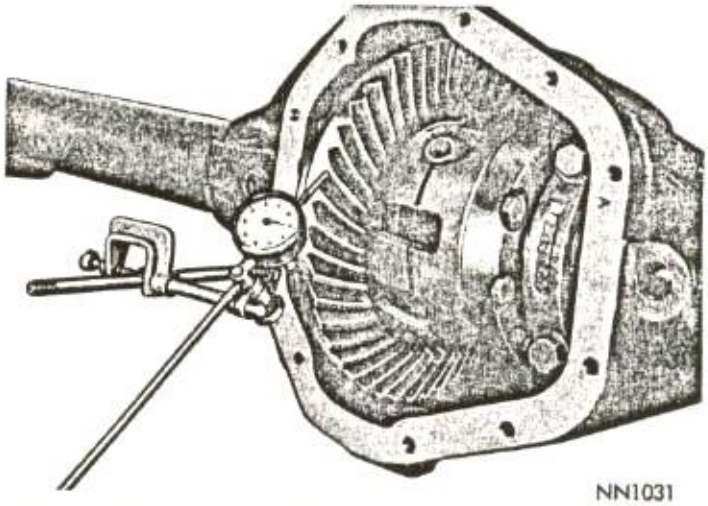

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Fig. 18—Checking Backlash Between Drive Gear and Pinion

(8) Attach a dial indicator to carrier and with indicator contact point contacting ring gear tooth (Fig. 18) measure the backlash between the ring gear and drive pinion.

(9) Check backlash at four equally spaced points around circumference of ring gear. Backlash must be held between .004-.009 inch and cannot vary more than .002 inch between the four positions checked.

If backlash does not fall within these specifications, change shim pack thickness on both differential bearing hubs to maintain proper bearing preload and backlash.

GEAR TOOTH CONTACT PATTERN

The gear tooth contact pattern will disclose whether the correct rear pinion bearing mounting shim has been installed and the drive gear backlash set properly.

(1) Apply a thin film of red lead on drive and coast side of drive gear teeth.

(2) Using a pinch bar apply a load against the back of drive gear. As this load is being applied to the drive gear, rotate the drive pinion several revolutions in both directions. This action will leave a distinct contact pattern on both the drive and coast side of the drive gear teeth. Compare the patterns on the drive teeth with those in (Fig. 19) to determine if all adjustments have been properly made.

Correct Adjustment — Proper Tooth Contact

With all the adjustments properly made, correct tooth contact (Fig. 19) will result. Notice that the correct contact pattern is well centered on both drive and coast sides of the teeth. When tooth contact patterns are obtained by hand, they are apt to be rather

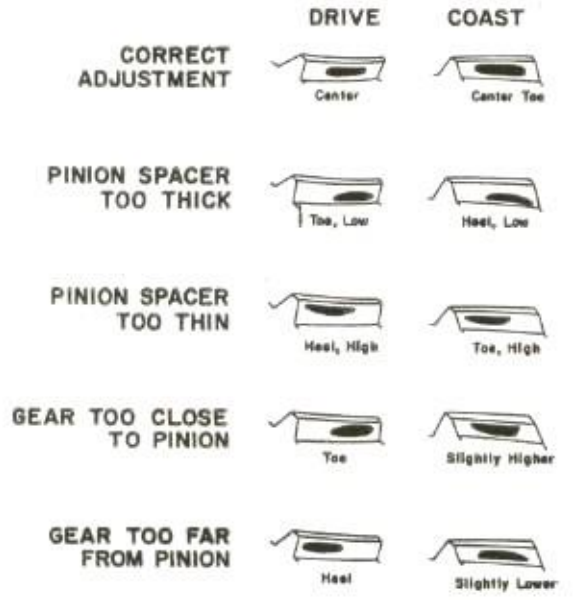

Fig. 19—Gear Tooth Contact Pattern

small. Under the actual operating load, however, the contact area increases.

If improper tooth contact is evident, the pinion must be readjusted by either increasing or decreasing the thickness of the rear pinion bearing mounting shim. Backlash between the drive gear and pinion must be maintained within the specified limits until correct tooth contact pattern is obtained.

Heavy Face Contact

If the tooth pattern is across the length of the tooth face, narrow and near the top, the teeth will wear thin and roll over or score, resulting in excessive gear lash and noise. This condition is corrected by installing a thicker shim behind the rear pinion bearing cup.

Heavy Flank Contact

If the tooth pattern is across the length of the tooth and is narrow and low on the flank, the pinion teeth will score and also result in noise. This condition is corrected by installing a thinner shim behind the rear pinion bearing cup.

Heavy Toe Contact

If the tooth pattern is heavy on the toe of the tooth, the edges of the teeth may chip resulting in excessive damage of the entire assembly. This condition is corrected by moving the drive gear away from the pinion. This will increase the backlash making it again necessary to insert a thinner shim behind the rear pinion bearing cup.

Heavy Heel Contact

If the tooth pattern is heavy on the heel of the teeth, the edges of the teeth may chip resulting in excessive damage to the entire assembly. This condition is corrected by moving the drive gear toward the pinion. This would result in decreasing the backlash making it again necessary to insert a thinner shim behind the rear pinion bearing cup.

REAR AXLE ASSEMBLY

Installation

(1) Making sure the gasket surfaces of both the cover and carrier housing are clean, install a new gasket followed by the cover and tighten the cover bolts to 15-25 foot-pounds. Beneath one of the cover bolts, install the ratio identification tag.

(2) For correct procedure when installing axle shafts and bearings and setting axle shaft end play, see "Axle Shafts and Bearings".

(3) With body supported at front of rear springs, position rear axle assembly spring pads over the spring center bolts.

(4) Install spring "U" bolts and tighten nuts to 45 foot-pounds and install shock absorbers on spring plate studs.

(5) Connect parking brake cables.

(6) Connect hydraulic brake lines at wheel cylinders and bleed and adjust brakes.

(7) Install rear universal joint of propeller shaft in same position as removed (match scribe marks on propeller shaft universal joint and pinion flange). Tighten universal joint clamps to 170-200 inch pounds.

(8) Install rear wheels and tighten nuts to 65 foot-pounds in the proper tightening sequence.

LUBRICATION

Refill axle housing and carrier assembly with 5½ pints of lubricant. Sure-Grip differentials, use only the special multi-purpose gear lubricant intended for use in limited-slip differentials. Such a lubricant is available under Part Number 2585318, Special Sure-Grip Lubricant.

"SHOULD THE REAR AXLE BECOME SUBMERGED IN WATER, THE LUBRICANT MUST BE CHANGED IMMEDIATELY TO AVOID THE POSSIBILITY OF EARLY AXLE FAILURE RESULTING FROM CONTAMINATION OF THE LUBRICANT BY WATER DRAWN INTO THE VENT HOLE."

SPECIFICATIONS

TYPE	Semi-Floating Hypoid
Ring Gear Diameter	9.750"
PINION BEARINGS	
Type	Taper Roller
Number Used	2
Adjustment	Select Shims
Pinion bearing drag Torque (seal removed)	10-20 inch-pounds
DIFFERENTIAL	Sure-Grip
Bearings (Type)	Taper Roller
Number Used	2
Pre-Load Adjustment	Select Shims
RING GEAR AND PINION	Hypoid
Serviced in	Matched Sets
Pinion depth of mesh adjustment	Select Shims
Pinion and Ring Gear Backlash	.004-.009" at point of minimum backlash
Runout-differential case and ring gear backface	.006" maximum
WHEEL BEARINGS	
Type	Taper Roller
Adjustment	Threaded Adjusting Nut
End Play	.005-.012"
Lubrication	Automotive Multi Purpose Grease NLGI grade 2
LUBRICATION	
Capacity	5½ Pts.

Type ..... Sure-Grip differentials, use only the special multi-purpose gear lubricant intended for use in limited-slip differentials. Such a lubricant is available under Part No. 2585318, Special Sure-Grip Lubricant.

TIGHTENING REFERENCE

	Pounds	
	Foot	Inch
Differential Bearing Cap Bolts	70-90	
Differential Case Half Retaining Bolts	35-45	
Ring Gear To Differential Case Bolts	100-120	
Drive Pinion Flange Nut	200-220	
Carrier Cover Bolts	15-25	
Axle Shaft Retainer Nuts	30-35	
Propeller Shaft Bolts (Rear)		170-200
Spring Clip (U Bolt) Nuts	45	
Wheel Stud Nuts	65	
Shock Absorber Stud Nuts	50	

REAR AXLE RATIOS

APPLICATION	426 Cu. In. Hemi Engine	Ring Gear Diameter
Manual Transmission	3.54	9¾
Optional	*4.1-4.56	9¾
Automatic Transmission	3.23	8¾
Optional	*3.23 through 6.17	8¾

*Matched gear sets available for installation in service.

GROUP 5 — BRAKES

The Specifications and Service Procedures covering the 11 inch brake are the same as those covered in the 1966 Service Manual.

GROUP 6 — CLUTCH

The clutch is an 11-inch, Semi-Centrifugal, single dry disc type of the same basic design, and service procedures are the same as outlined in the 1966 Service Manual with the following exceptions:

This clutch uses three centrifugal rollers instead of six rollers as in the 10½ inch clutch. Roller wear plates are provided between the rollers and clutch and rollers and pressure plate. The cover wear plates are riveted to the cover. Rollers on the pressure plate side are wedged between the rollers and pressure plate.

The clutch cover and release levers are of heavier gauge steel to compensate for the heavier loads imposed on the clutch. A larger release bearing is used.

SPECIFICATIONS

CLUTCH	
Make	Borg and Beck
Model	1740
CLUTCH DISC	
Facing Type	Moulded Woven Asbestos
Outside Diameter	11"
Thickness	.135"
Disc Springs	5
Disc Spring Color	No Paint
CLUTCH COVER	
Pressure Springs	12
Spring Color	9 White 3 No Paint
Pedal Free Play	5/32"

GROUP 7 — COOLING

The Specifications and Service Procedures are the same as those covered in the 1966 Service Manual.

GROUP 8 — ELECTRICAL SYSTEM

Procedures are the same as outlined in the 1966 Service Manual with the following exceptions:

Engine wiring diagram in back of this bulletin.

STARTER

Removal

(1) Disconnect battery cable harness at battery positive post, oil sending switch, neutral safety switch, and starter relay. Remove wiring from harness clip at the rear top of transmission and at the transmission mounting bolt at rear of block.

(2) Remove starter heat shield to manifold brace.

(3) Remove the upper bolt and the lower nut from starter.

(4) Through the opening in fender shield, remove the upper bolt on starter.

(5) Moving the starter and heat shield forward with battery cable attached to starter solenoid, the starter can be removed through an opening forward of the steering center link.

Installation

(1) Make sure the starter and flywheel housing mounting surfaces are free of dirt and oil to insure a good electrical contact, then, enter starter and heat shield through the opening forward of the steering center link.

(2) Position starter on flywheel housing and install upper attaching bolt.

(3) Install washer and nut and oil cooler tube bracket (if so equipped).

(4) Install starter heat shield brace.

(5) Connect battery harness to oil sending switch, neutral safety switch (if so equipped) and starter relay. Install harness into holding clips then connect battery positive cable.

DISTRIBUTOR — (Prestolite)

Service procedures for the Prestolite built distributors are the same as those outlined for the Chrysler built distributors in the 1966 Service Manual with the following exceptions:

Dual Contacts

The Prestolite distributors are equipped with dual contacts. When adjusting the contact setting, block one set of contacts with a clean insulator and adjust the opposite set of contacts on the dwell meter to specifications. **Loosen the stationary contact lock screw just enough, so that the stationary contact can be moved with a slight drag; otherwise it will be difficult to set the contacts accurately.**

When the one set of contacts has been adjusted for the correct clearance, tighten the stationary contact lock screw.

Block the adjusted set of contacts with an insulator and adjust the remaining set of contacts in the same manner as the first set. Remove insulator and recheck tightness of the stationary contact lock screw.

If the contacts have been properly adjusted, the dwell should be as specified for two contact sets.

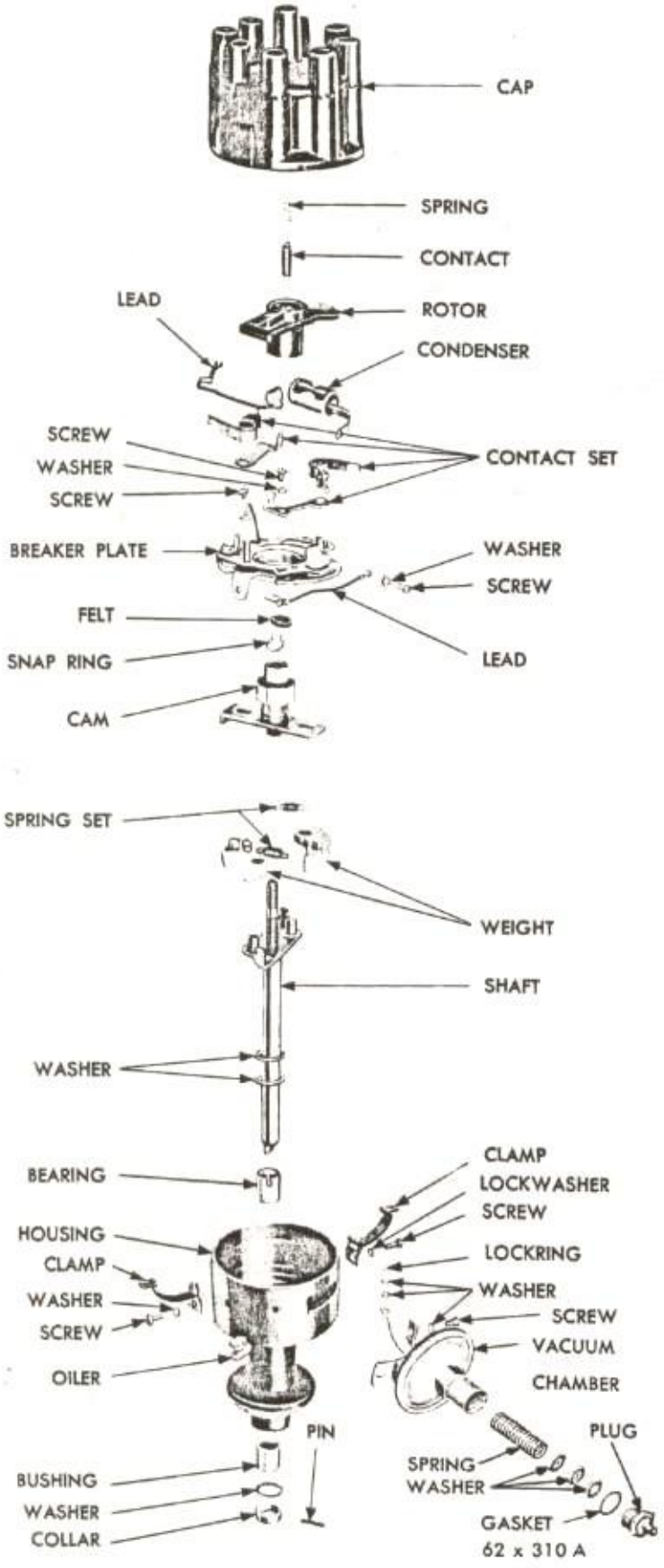

Fig. 1—Distributor—Disassembled View (Prestolite)

Distributor Bushing Replacement

(1) With distributor shaft removed from housing, place the housing in an arbor press and press out the upper and lower bushings from the bottom of the housing using Driver Tool C-3041.

(2) Soak the new bushings in light engine oil for 15 minutes.

(3) Position the new upper bushing with the hole in the bushing **UP** and in line with the oil hole in the housing, then press the bushing into the housing with Tool C-3041 and adapter until it is .094 inch below the top of the housing bore. Invert the housing and install the other bushing flush with the face of the distributor base.

(4) Insert a $\frac{3}{32}$ inch rod through the housing oiler hole to see if the hole in the bushing indexes with the oiler hole in the housing. If the rod cannot be inserted through the housing and the bushing, drill a $\frac{1}{8}$" hole through the upper bushing by drilling through the oil wick hole. Remove burrs caused by the drilling operation.

(5) Install the burnishing tool part of Tool set C-3041 and force the burnisher through both the bushings. The correct bushing inside the diameter is .4995 to .5000 inch.

SPARK PLUGS

Removal

(1) On left bank, disconnect brake lines at master cylinder, remove cotter pin and clevis pin from linkage in back of booster.

(2) Remove the 4 nuts attaching booster to mounting bracket and remove booster and master cylinder assembly.

(3) Grasp spark plug covers and pull straight out.

(4) Remove spark plugs and plug tubes with spark plug socket and six-inch extension.

Installation

(1) Slide spark plug tube seals over tubes with a six-inch extension on a spark plug socket, insert spark plug, slide spark plug tube over assembly, insert assembly into valve cover and cylinder head.

Do not drop plug as this would change gap setting.

(2) Tighten spark plugs to 25 foot-pounds.

(3) Connect power brake booster and bleed brakes.

SPECIFICATIONS

Starting Motor Model	2642445
Make	Chrysler Built
Voltage	12
No. of Fields	4 (3 Series, 1 Shunt)
No. of Poles	4
Spring Tension	32 to 36 Ounces
Drive	Overrunning clutch
End Play	.010"-.045"
Cranking Amperage Draw	180 to 200 Amperes*
Free-Running Test	
Voltage	11
Amperage Draw Maximum	90
Speed RPM	1925 to 2400
Lock-Resistance Test	
Voltage	4
Amperage Draw	400 to 450
Solenoid Switch	
Pull-In Coil	14.4 to 16.0 Amps. @ 6.0 Volts
Hold-In Coil	11.5 to 12.6 Amps. @ 6.0 Volts

*Engine should be at operating temperature.

IGNITION

VEHICLE MODEL APPLICATION	HEMI-426 ENGINE	
Engine Displacement	426 Cu. In. (A-102)	
Distributor Part No.—Prestolite	2642482—(IBS-4006P)	
Advance—Centrifugal (Distributor Degrees at Distributor RPM)	0° @ 425 to 575 0° to 3½° @ 575 3.75° to 5.75° @ 740 7.5° to 9.5° @ 1400	
Advance—Vacuum (Distributor Degrees at Inches of Mercury)	0° @ 6" to 9" 4.5° to 7.5° @ 12" 8.25° to 11° @ 15"	
Contact Gap	.014" to .019"	
Dwell Angle	Individual Contacts 27° to 32° Total Dwell 37° to 42°	
Contact Arm Spring Tension	17 to 21.5 oz.	
Condenser Capacity	.25 to .285 mfd.	
Shaft Side Play (New or Rebuilt)	.000" to .003"*	
Shaft End Play (After Assembly)	.003" to .010"	
Rotation	Counter-Clockwise	
Timing	12½** BTC	
Spark Plug Type	N-10Y Champion	
Size	14MM—¾" Reach	
Gap	.035"	
Firing Order	1-8-4-3-6-5-7-2	
Coil	Chrysler-Prestolite	Chrysler-Essex
Identification Number	2444242	2444241
Primary Resistance @ 70-80°F.	1.65 to 1.79 Ohms	1.41 to 1.55 Ohms
Secondary Resistance @ 70-80°F.	9400 to 11700 Ohms	9200 to 10600 Ohms
Ballast Resistor—Part No.—Chrysler Built	2095501	
Resistance @ 70-80°F.	0.5 to 0.6 Ohms	
Current Draw (Coil and Ballast Resistor in Circuit)		
Engine Stopped	3.0 amperes	
Engine Idling	1.9 amperes	

*Service wear tolerance should not exceed .006 inch.

**Set at Idle Speed.

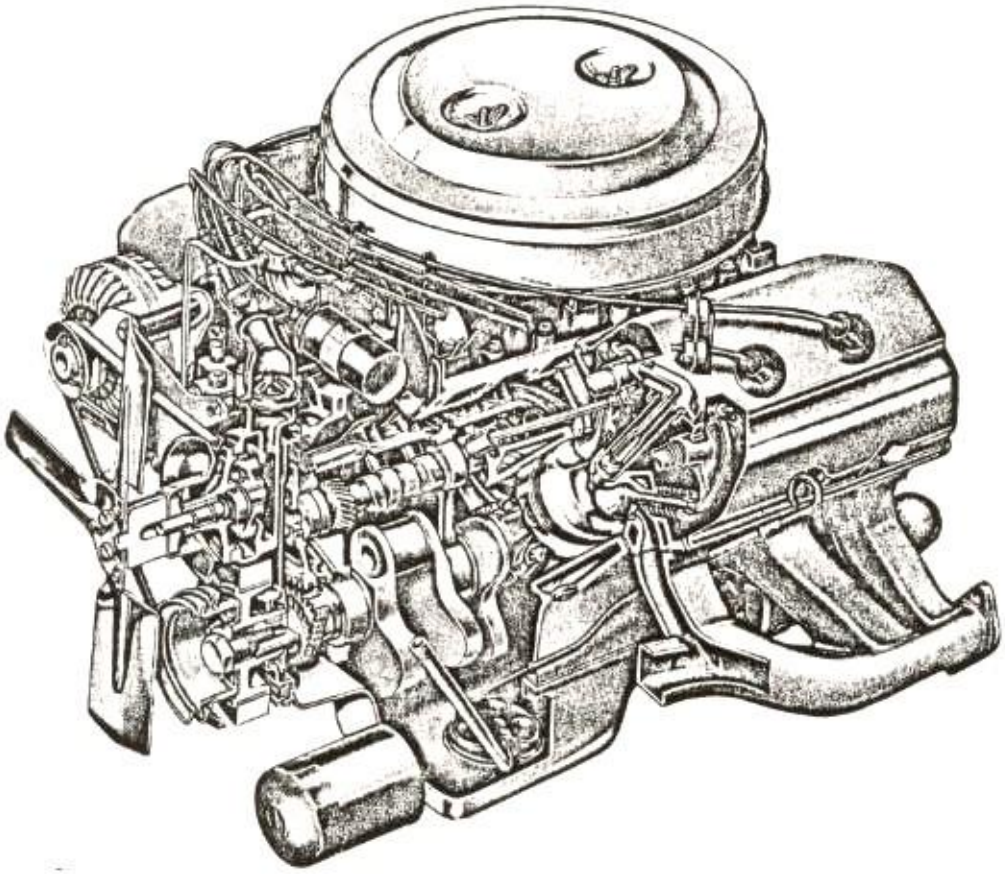

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Fig. 1—Hemi-426 Engine—Cross Section

GROUP 9 — ENGINE

The new hemi-head engine (Fig. 1) has twin, four-barrel carburetors, nonsilenced low-restriction air cleaner; and low-restriction intake manifold and exhaust headers.

ENGINE ASSEMBLY

Removal

Procedures are the same as outlined in the 1966 Service Manual with the following exceptions:

CAUTION: Do not use carburetor flange studs on intake manifold to remove engine.

(1) Remove carburetors to prevent damage.

(2) Remove clutch torque shaft, (Units so equipped).

(3) Install lifting straps to engine, attach the front strap to the top two bolts of the water pump distribution housing and rear strap to the top two clutch housing attaching bolts.

(4) Attach hydro-crane lifting hooks to the lifting straps and carefully remove the engine assembly from the chassis and install engine in an engine stand.

Installation

(1) Attach hydro-crane lifting hooks to the lifting straps, remove engine from engine stand and lower the engine into the chassis until the front engine mounts line up the the "K" member support.

(2) Install engine support fixture C-3487. Be sure support ends are up against the underside of the oil pan flange.

(3) Remove hydro-crane lifting hooks and lifting straps and proceed with balance of engine installation as shown in the 1966 Service Manual.

CYLINDER HEADS

Each chrome alloy cast iron cylinder head is held

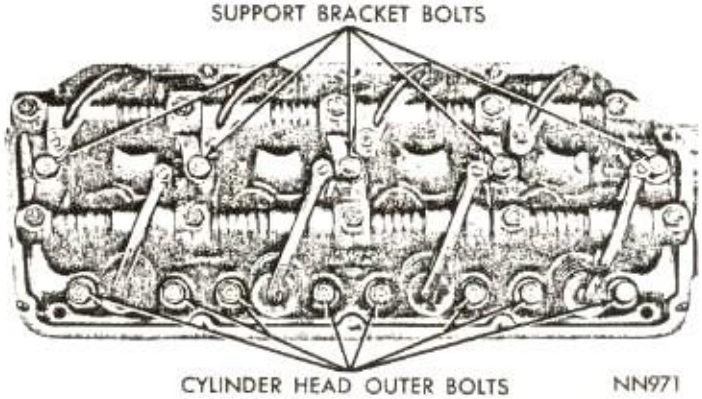

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Fig. 2—Cylinder Head Attaching Bolts

in place by 13 bolts (Fig. 2) and 4 studs, nuts and washers (Fig. 3). The stud nuts are tightened from inside of the tappet chamber. Aluminum spark plug tubes (shown in cross section in Figure 4) serve as spark plug gaskets. The tubes project through the cylinder head cover and are sealed against oil leaks.

Cylinder Head Cover Removal

(1) Drain cooling system and disconnect battery ground cable at battery.

(2) Remove air cleaner, distributor cap with spark plug cable and coil secondary cable as an assembly.

(3) On left bank, disconnect brake lines at master cylinder, remove cotter pin and clevis pin from linkage in back of booster.

(4) Remove the 4 nuts attaching booster to mounting bracket and remove booster and master cylinder assembly.

(5) Grasp secondary cables at spark plug covers and pull covers straight out.

(6) Remove spark plugs.

(7) Remove cylinder head covers and gaskets.

Rocker Arms and Shafts Removal

(1) With cylinder head cover removed, remove the **five** bolts, (¾ inch hexagon) that attach the rocker arm support brackets to the cylinder head and block (Fig. 2).

(2) Remove rocker arm assemblies.

(3) Remove push rods and place them in their proper slots in holder tool C-3068.

Cylinder Head Removal

(1) With cylinder head cover and rocker arm assembly removed, remove alternator, disconnect accelerator cable and transmission throttle rod from upper bellcrank.

(2) Disconnect fuel line at tee fitting.

(3) Disconnect intake manifold heat tubes located at rear of manifold. Remove air tube between automatic choke and exhaust manifold.

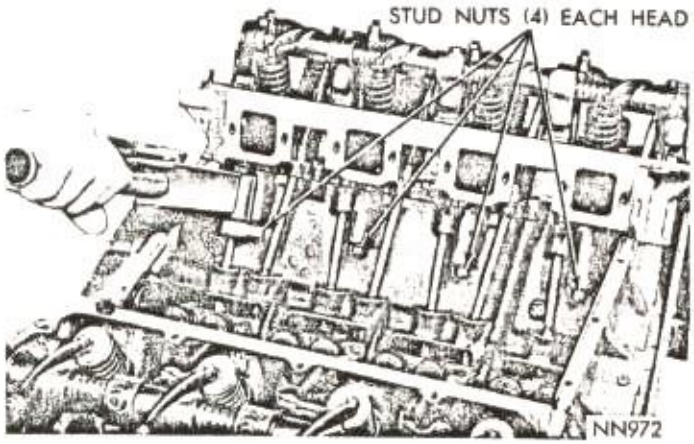

Fig. 3—Removing or Installing Cylinder Head Stud Nuts

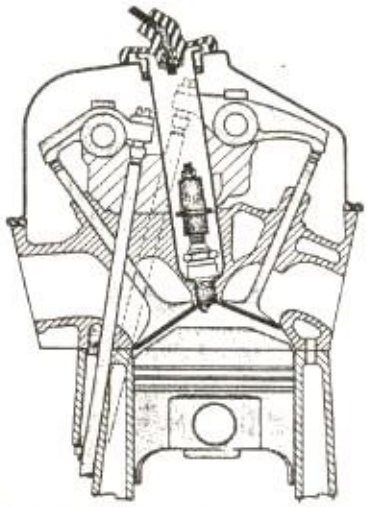

Fig. 4—Hemi-426 Engine Combustion Chamber—Cross Section

(4) Remove the intake manifold attaching screws. **One attaching screw is reached through the hole at rear of manifold. Use special Adapter Tool C-4021 (Fig. 5).**

(5) Remove intake manifold with ignition coil, both carburetors, fuel lines, fuel filters, throttle linkage and upper bellcrank as an assembly.

(6) Disconnect exhaust headers from cylinder heads and tie out of way.

(7) Remove the lower **eight** cylinder head bolts (Fig. 2).

(8) Remove the **four** stud nuts, (9/16 inch hexagon) from cylinder head studs inside of tappet chamber (Fig. 3).

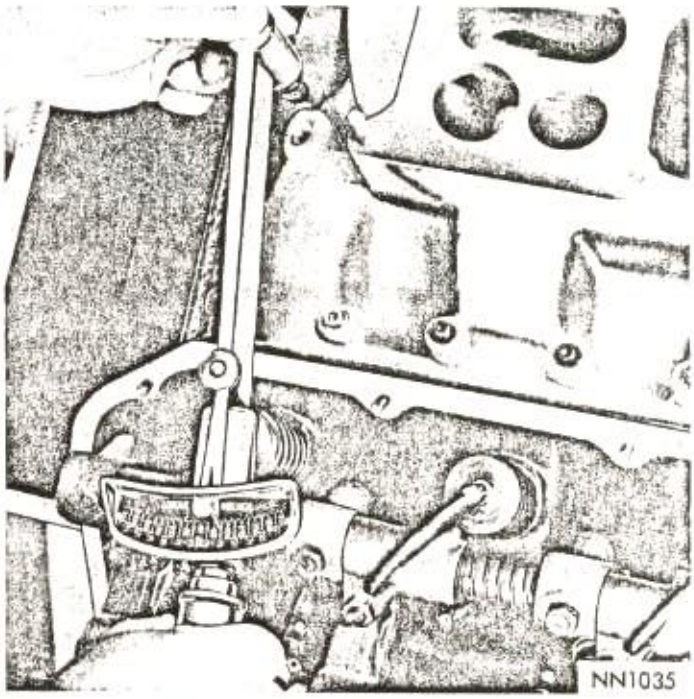

Fig. 5—Removing or Installing Manifold Attaching Screws

(9) Remove cylinder heads and place in holding fixture tool C-3626. **To protect studs do not set cylinder head down on studs at any time.**

Cylinder Head Installation

(1) Clean gasket surfaces of cylinder block, cylinder head and remove all burrs from edges of cylinder head.

(2) Inspect all surfaces with a straightedge if there is any reason to suspect leakage.

(3) Coat new gasket with MOPAR Sealer Number 1057794 or equivalent. With the raised bead toward cylinder block, install gasket and cylinder head.

(4) Install the cylinder head stud nuts inside of tappet chamber and the eight short outer cylinder head bolts. **Do not tighten at this time.**

Rocker Arms and Shaft Installation

(1) Install push rods through push rod holes in head. The short rods in upper holes (intake) and long rods in lower holes (exhaust).

If the rocker arm assembly had been disassembled for cleaning, inspection or replacement, refer to Figure 6 for proper reassembly noting oil holes in number two and four brackets.

(2) Position the rocker shaft support brackets on the cylinder head and install the **five long** cylinder head bolts into rocker shaft support brackets and cylinder head, lining up all push rods to their respective rocker arms.

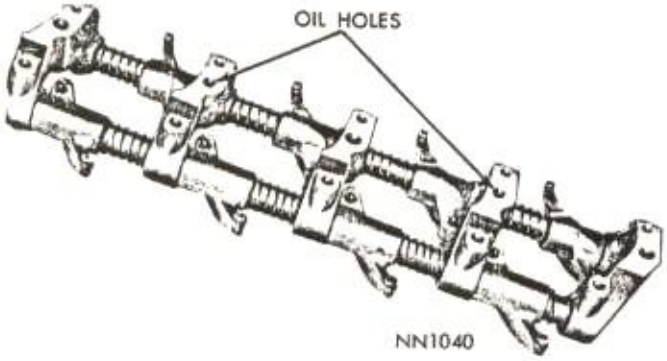

Fig. 6—Rocker Shafts Assembly (Bottom View)

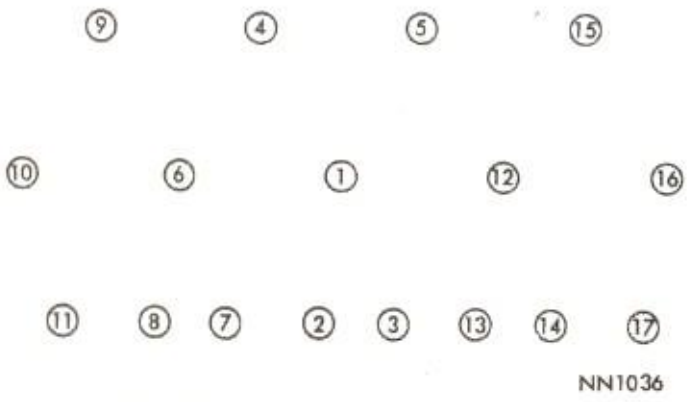

Fig. 7—Cylinder Head Tightening Sequence

(3) Starting at the center, tighten all head bolts and stud nuts to 50 foot-pounds in sequence shown in Figure 7 then repeat the procedure, tightening to 75 foot-pounds in the same sequence.

(4) Adjust tappets. See "Tappet Adjustment Procedure".

(5) Install exhaust headers with new gaskets and tighten to 30 foot-pounds.

(6) Place new cylinder head cover gaskets in position and install cylinder head covers. Tighten nuts to 10 foot-pounds.

(7) Adjust spark plug gaps to .035 inch. Slide spark plug tube seals over tubes. With a six inch extension on a spark plug socket insert spark plug, slide spark plug tube over assembly, insert assembly in cover and cylinder head, being careful not to drop plug as this would change gap setting. Tighten spark plugs to 25 foot-pounds.

(8) Install new intake manifold gaskets and intake manifold. Refer to Figure 8 and tighten screws marked "A" to 48 inch-pounds, screws marked "B" to 72 inch-pounds, and screws marked "C" to 48 inch-pounds. Repeat the tightening procedure in the sequence shown until all screws maintain their specified torque.

(9) Connect fuel line, automatic choke, intake manifold heat tubes, transmission throttle rod to upper bell crank, accelerator cable and adjust as necessary.

(10) Install crankcase ventilation hose, distributor cap with spark plug cables, and coil wire and cable.

(11) Install alternator, battery ground cable and heater hoses if removed.

(12) Connect power brake booster, if so equipped and bleed brakes.

(13) Fill the cooling system. Start engine and check for leaks.

(14) Adjust ignition timing and carburetors to specifications. Road test vehicle.

Valve Installation

(1) Coat valve stems with engine oil and insert them in cylinder head.

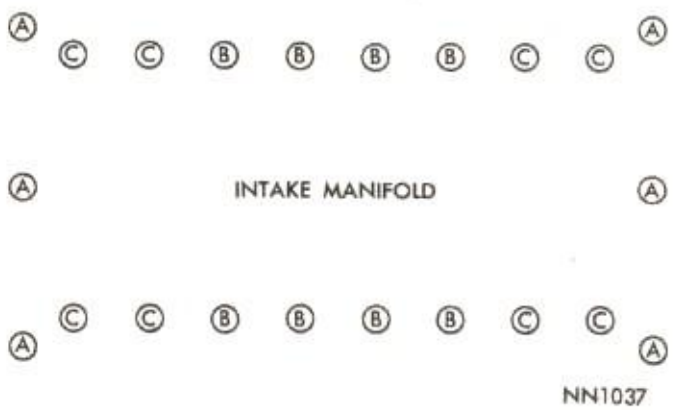

Fig. 8—Intake Manifold Tightening Sequence

(2) If valves and/or seats are reground, check valve stem height with Tool C-4014 for intake valves and Tool C-4015 for exhaust valves. If valve is too long, grind off the tip until length is within limits.

(3) Install new seals on intake valve stems and over valve guides, install valve springs and retainers. Install springs so that closed coils are against the cylinder head.

(4) Compress valve springs with Tool C-3422A, install locks and release tool. **If valves and/or seats are reground, measure the installed height of springs. Make sure measurement is taken from bottom of spring seat in cylinder head to the bottom surface of spring retainer** (if spacers are installed, measure from the top of spacer). **If height is greater than $1^{5}\%_{4}$ inch, install a $\frac{1}{16}$ inch spacer in head counterbore to bring spring height back to the normal $1^{53}\%_{4}$ to $1^{57}\%_{4}$ inches.**

TAPPET ADJUSTMENT

When adjusting tappets on the 426 cu. in. engine (cold setting) it is very important that the setting is made with each tappet at the lowest point of the cam on the base circle.

The procedure used on standard engines cannot be used because of the overlap and duration with the special camshaft.

The following procedure will assure proper position of the camshaft when making adjustment. An indicator light can be used in the ignition primary circuit to more clearly define the various positions of the crankshaft:

	Intake	Exhaust
A. Adjust ignition timing to TDC, Chalk mark TDC and 180° opposite TDC on the front crankshaft damper.	(.028")	(.032")
B. Set crankshaft so No. 1 cylinder is at TDC (Compression Stroke Points Opening) Adjust	2 and 7	4 and 8
C. Rotate crankshaft 180° in normal running direction until points open for No. 4 cylinder. Adjust	1 and 8	3 and 6
D. Rotate crankshaft an additional 180° until points open for No. 6 cylinder Adjust	3 and 4	5 and 7
E. Rotate crankshaft an additional 180° until points open for No. 7 cylinder Adjust	5 and 6	1 and 2
F. Reset ignition timing to operating specifications and install valve covers.		

VALVE TIMING

(1) Rotate crankshaft until the #6 exhaust valve is closing and the #6 intake valve is opening. Install a dial indicator so that indicator pointer contacts valve spring retainer on #1 intake valve parallel to the axis of the valve stem.

(First valve on top rocker shaft on right bank as viewed from front of engine).

(2) Turn #1 intake adjusting screw in one complete turn to remove lash. Zero the indicator.

(3) Rotate crankshaft clockwise (normal running direction) until valve has lifted .087 inch.

CAUTION: Do not turn crankshaft any further clockwise as the valve spring might bottom and result in serious damage.

The timing of the crankshaft pulley should now read from 10 degrees before top dead center to 2 degrees after top dead center. Readjust lash.

(4) If reading is not within specified limits:

(a) Check accuracy of DC mark on crankshaft pulley.

(b) Check sprocket index marks.

(c) Inspect timing chain for wear.

PISTON PINS

(1) The piston pin should be a tight thumb press fit in connecting rod and in piston at normal room temperature, 70°F. If proper fit cannot be obtained with standard pins, hone or ream piston and connecting rod, and install oversize piston pin. Piston pins are supplied in standard and the following oversizes: .003 and .008 inch.

(2) Assemble pistons and rods for the left hand cylinder bank (1-3-5-7) with piston boss marked "Front" and indent on piston head on the same side as the larger chamfer on large end of connecting rod. Assemble pistons and rods to be used in the right cylinder bank (2-4-6-8) with "Front" and indent opposite the large chamfer in the connecting rod.

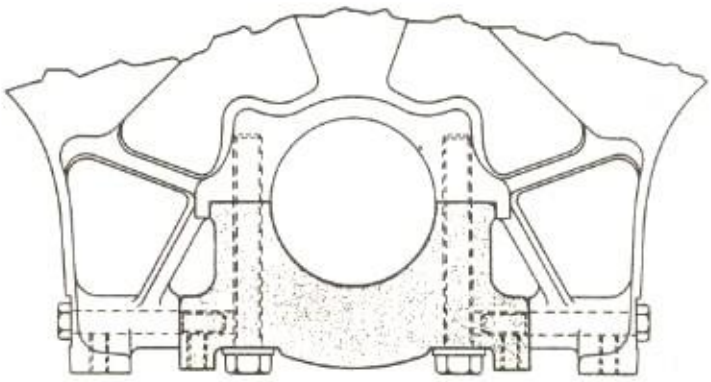

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Fig. 9—Main Bearing Cap with Horizontal Tie-Bolts

CRANKSHAFT MAIN BEARINGS

The number 2, 3 and 4 main bearing caps have two horizontal tie-bolts which anchor the bearing caps to the sides of the cylinder block (Fig. 9). Torque the cap bolts to 100 foot-pounds, then tighten the horizontal tie-bolts to 45 foot-pounds.

SPECIFICATIONS

ENGINE	
Type	Hemispherical 90°V
Number of Cylinders	8
Bore	4.25"
Stroke	3.750"
Piston Displacement	426 Cu. In.
Compression Ratio	10.25 to 1
Compression Pressure with engine warm, spark plugs removed—wide open throttle	150-205 psi.
Maximum Variation between Cylinders (any one engine)	30 psi.
Firing Order	1-8-4-3-6-5-7-2
Basic Timing	12½° B.T.C.
with C.A.P.	N.A.
CYLINDER NUMBERING (front to rear)	
Left Bank	1-3-5-7
Right Bank	2-4-6-8
CYLINDER BLOCK	
Cylinder Bore (standard) "A" Size	4.24975"
"B" Size	4.25025"
"C" Size	4.25075"
"D" Size	4.25125"
"E" Size	4.25175"
Cylinder Bore Out-of-Round (Max. allowable before reconditioning)	.005"
Cylinder Bore Taper (Max. allowable before reconditioning)	.010"
Reconditioning Working Limits (for taper and out-of-round)	.001"
Maximum Allowable Oversize (cylinder bore)	.040"
Tappet Bore Diameter	.9050"-.9058"
Distributor Lower Drive Shaft Bushings (press fit in block)	.0015"-.0040" (Interference)
Ream to	.4865"-.4880"
Shaft to Bushing Clearance	.0007"-.0027"
PISTONS	
Type Material	Forged Aluminum (Tin Plated)
Land Clearance (diametrical)	.0427"-.0477"
Clearance at Top of Skirt	.0025"-.0035"
Weight (Std. through .040" oversize)	841-845 gms.
Piston Length (overall)	4.060
Ring Groove Depth	
No. 1	.220"
No. 2	.220"
No. 3	.186"
Pistons for Service	Std., .005", .020", .040" Oversize
PISTON PINS	
Type	Full Floating
Diameter	1.0310"-1.0312"
Length	3.395"-3.405"
Weight	204 gms.
Clearance in Piston (Tight Thumb Push @ 70°F.)	.0001"-.0006"
End Play	.006"-.012"
Clearance in Rod	.0002"-.0007"
Pins for Service	Std. .003", .008" Oversize
PISTON RINGS	
Number of Rings per Piston	3
Compression	2
Oil	1
Oil Ring Type	3-piece Chrome-Plated Rails with Stainless Steel Expander-Spacer

SPECIFICATIONS (Continued)

PISTON RINGS (Continued)	
Ring Width	
Compression	.0775"-.0780"
Oil (Steel Rails)	.025"
Ring Gap	
Compression	.013"-.025"
Oil (Steel Rails)	.015"-.055"
Ring Side Clearance	
Compression	.0015"-.0030"
Oil (Steel Rails)	.0002"-.005"
Service Rings	
Ring Gap	
Compression	.013"-.025"
Oil (Steel Rails)	.015"-.062"
Ring Side Clearance	
Compression	.0010"-.003"
Oil (Steel Rails)	.0002"-.005"
CONNECTING RODS	
Length (center to center)	6.859"-6.863"
Large End Weight	770 gms. ± 2 gms.
Small End Weight	314 gms. ± 2 gms.
Side Clearance (two rods)	.009"-.017"
Piston Pin Bushing Bore Diameter	1.0314"-1.0317"
CONNECTING ROD BUSHING	
Type	Steel Backed Bronze
CONNECTING ROD BEARINGS	
Type	Steel Backed Grid Type
Diameter and Width	2.376" x .927"
Clearance Desired	.0015"-.0025"
Maximum Allowable	.0025"
Bearings for Service	Std. .0005", .001", .002", .003", .010", .011", .012"
CRANKSHAFT	
Type	Fully Counter-Balanced
Bearings	Steel Backed Grid
Thrust Taken By	No. 3 Main Bearing
End Play	.002"-.007"
Maximum Allowable	.010"
Clearance Desired	.0015"-.0025"
Clearance Allowed	.0025"
Finish at Rear Oil Seal Surface	Diagonal Knurling
MAIN BEARING JOURNALS	
Diameter	2.7495"-2.7505"
Maximum Allowable Out-of-Round	.0003"
Maximum Allowable Taper	.0005"
Bearings for Service Available in Standard and the following undersizes	.001", .002", .003", .010", .011", .012"
CONNECTING ROD JOURNALS	
Diameter	2.374"-2.375"
Maximum Allowable Out-of-Round	.0003"
Maximum Allowable Taper	.0005"
CAMSHAFT	
Drive	Roller Chain
Bearings	Steel Backed Babbitt
Number	5
Clearance Desired	.001"-.003"
Maximum Allowable before reconditioning	.005"
Thrust Taken By	Cylinder Block
CAMSHAFT JOURNALS	
Diameter	
No. 1	1.998"-1.999"
No. 2	1.982"-1.983"

SPECIFICATIONS (Continued)

CAMSHAFT JOURNALS (Continued)	
No. 3	1.967"-1.968"
No. 4	1.951"-1.952"
No. 5	1.748"-1.749"
CAMSHAFT BEARINGS	
Diameter	
No. 1	2.000"-2.001"
No. 2	1.984"-1.985"
No. 3	1.969"-1.970"
No. 4	1.953"-1.954"
No. 5	1.750"-1.751"
VALVE TIMING	
Intake Opens (BTC)	30°
Intake Closes (ABC)	66°
Exhaust Opens (BBC)	74°
Exhaust Closes (ATC)	22°
Valve Overlap	52°
Intake Valve Duration	276°
Exhaust Valve Duration	276°
TIMING CHAIN	
Type	Double Roller
Pitch	⅜"
Width	.860"
TAPPETS	
Type	Mechanical
Body Diameter	.9035"-.9040"
Clearance in Block	.0005"-.0018"
Service Tappets Available	Std., .001", .008", .030"
Operating Clearance	
Intake	.028" Cold
Exhaust	.032" Cold
CYLINDER HEAD	
Valve Seat Runout (Maximum)	.002"
Intake Valve Seat Angle	45°
Seat Width (Finish)	.060"-.085"
Exhaust Valve Seat Angle	45°
Seat Width (Finish)	.050"
Cylinder Head Gasket (thickness compressed)	.025"
Combustion Chamber Volumes (with valves and plugs)	171.7-173.7 c.c.
VALVE GUIDES	
Type	Cast in Head
Guide Bore Diameter	.3115"-.3125" Std.
VALVES—(Intake)	
Head Diameter	2.250"
Length (to center of valve face)	5.316"-5.331"
Stem Diameter (Standard)	.3085"-.3095"
Stem to Guide Clearance	.002"-.004"
Maximum Allowable	.017"*
Face Angle	45°
Valve for Service	Std., .005", .015", .030" Oversize Stem Diam.
Lift (Zero Lash)	.467"
VALVES—(Exhaust)	
Head Diameter	1.940"
Length to (center of valve face)	4.7543"-4.7693"
Stem Diameter (Standard)	.3075"-.3085"
Stem to Guide Clearance	.003"-.005"
Maximum Allowable	.017"*
Face Angle	45°
Valve for Service	Std., .005", .015", .030" Oversize Stem Diam.
Lift (Zero Lash)	.473"

*With Tools C-3973 and C-3339 using wobble method.

SPECIFICATIONS (Continued)

VALVE SPRINGS

Number	32
Free Length	
Outer	2.47"
Inner	2.20"
Load when Compressed to (valve closed)	
Outer (less surge damper)	102-108 @ 1-55/64"
Inner	47-53 @ 1-41/64"
Load when Compressed to (valve open)	
Outer (less surge damper)	179-189 @ 1-13/32"
Inner	86-96 @ 1-11/64"
Surge Damper	Outer only
Valve Springs I.D.—Outer	1.08"-1.010"
Maximum Allowable Out of Plumb	1/16"
Valve Spring Installed Height (spring seat to retainer)	1-53/64"-1-57/64"

Use 1/16" spacer to reduce spring height when over specifications.

ROCKER SHAFT ASSEMBLY

Rocker Shaft Clearance in Rocker Arm	.0007"-.0012"
Rocker Shaft Clearance in Bracket	.0009"-.0026"

ENGINE LUBRICATION

Pump Type	Rotary Full Pressure
Capacity (qts.)	5**
Pump Drive	Camshaft
Minimum Pump Pressure @ 500 rpm.	15 psi.
Operating Pressure at 1000 rpm.	45-65 lbs.
Pressure Drop Resulting from Clogged Filter	7-9 lbs.
Oil Filter Type	Full-Flow

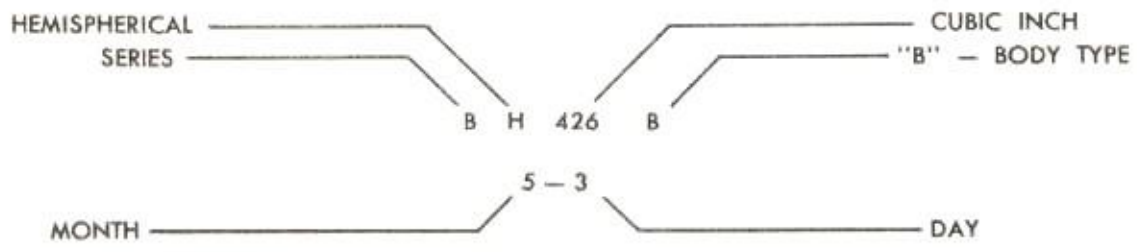
**When filter element is replaced, add 1 quart.

OIL PUMP — INSPECTION LIMITS FOR REPLACEMENT

Oil Pump Cover	.0015 inch or more
Outer Rotor Length	.943 inch or less
Outer Rotor Diameter	2.469 inch or less
Inner Rotor Length	.942 inch or less
Clearance Over Rotors—Outer	.004 inch or more
Inner	.005 inch or more
Outer Rotor Clearance	.012 inch or more
Tip Clearance Between Rotors	.010 inch or more

FOR IDENTIFICATION ENGINES WILL BE STAMPED ON CYLINDER BLOCK BOSS AS SHOWN BELOW

EXAMPLE



OVERSIZE AND UNDERSIZE ENGINE COMPONENT MARKINGS

Condition	Identification	Location of Identification
.001" U/S Crankshaft	Maltese Cross M-2-3 etc. (indicating No. 2 & 3 main bearing journal) and/or R-1-4 etc. (indicating No. 1 & 4 connecting rod journals)	Top pad—Front of engine Crankshaft counterweight
.010" U/S Crankshaft	Maltese Cross and X M-10 (indicates .010" U/S all main journals) and/or R-10 (indicates .010" U/S all rod journals)	Top pad—Front of engine Crankshaft counterweight
.020" O/S Cylinder Bores	A	Top pad—Front of engine
.008" O/S Tappets	◇	Top pad—Front of engine
.005" O/S Valve Stems	O.S.	Single bolt boss on end of the head

TIGHTENING REFERENCE

Location	Thread Size	Ft. Lbs.
Alternator Attaching Bolt	3/8-16	30
Alternator Adjusting Strap Bolt	5/16-18	15
Alternator Bracket Bolt	3/8-16	30
Camshaft Sprocket Cap Screw (3)	3/8-16	40
Carburetor to Manifold Nut	5/16-24	7
Chain Case Cover Bolt, Upper	5/16-18	15-18
Lower	3/8-16	15-18
Connecting Rod Nut	7/16-20	75*
Crankshaft Bolt (Vibration Damper)	3/4-16	135
Crankshaft Rear Bearing Seal Retainer Bolt	3/8-16	30
Cylinder Head Bolt	7/16-14	70-75
Cylinder Head Stud Nut	7/16-20	70-75
Cylinder Head Cover	1/4-28	40 In. Lbs.
Distributor Clamp Bolt	5/16-18	200 In. Lbs.
Exhaust Manifold Bolt	3/8-16	35
Fan Attaching Bolt (4)	5/16-18	15
Flywheel Cap Screw	7/16-20	70
Clutch Cover to Flywheel	3/8-16	30
Flywheel Pan Screws	5/16-18	200 In. Lbs.
Flywheel Housing to Block Bolts	3/8-16	30
	7/16-14	50
Fuel Pump Attaching Bolt	3/8-16	30
Intake Manifold	1/4-20	See Figure 8
Main Bearing Cap Bolt	1/2-13	100
Main Bearing Cap Tie Bolt	3/8-16	45
Oil Pan Bolt	5/16-18	15
Oil Pan Drain Plug	5/8-18	20
Oil Pump Attaching Bolt	3/8-16	30
Oil Pump Cover Bolt	5/16-18	10
Oil Filter Adapter	3/4-16	30
Rocker Shaft Bracket Bolt	3/8-16	30
Spark Plug	14MM	25
Starter Mounting Bolt	7/16-14	50
Torque Converter to Flex Plate Bolt	7/16-20	65
Water Pump to Housing Bolt	3/8-16	30
Water Pump to Cylinder Block Bolt	3/8-16	30

*Note: Use Petrolatum Graphite on Clean Threads

GROUP 11 — EXHAUST SYSTEM

The dual exhaust system (Fig. 1), which uses mufflers with aluminized and stainless steel components, and is standard on this model, is similar to the dual system shown in the 1966 Service Manual with the following exceptions.

The exhaust pipes (Fig. 1) are an "H" type arrangement with a short crossover pipe connecting the two exhaust pipes near the center. Ball joint connections are provided between the two exhaust headers and the exhaust pipes which allow accurate alignment of the pipes.

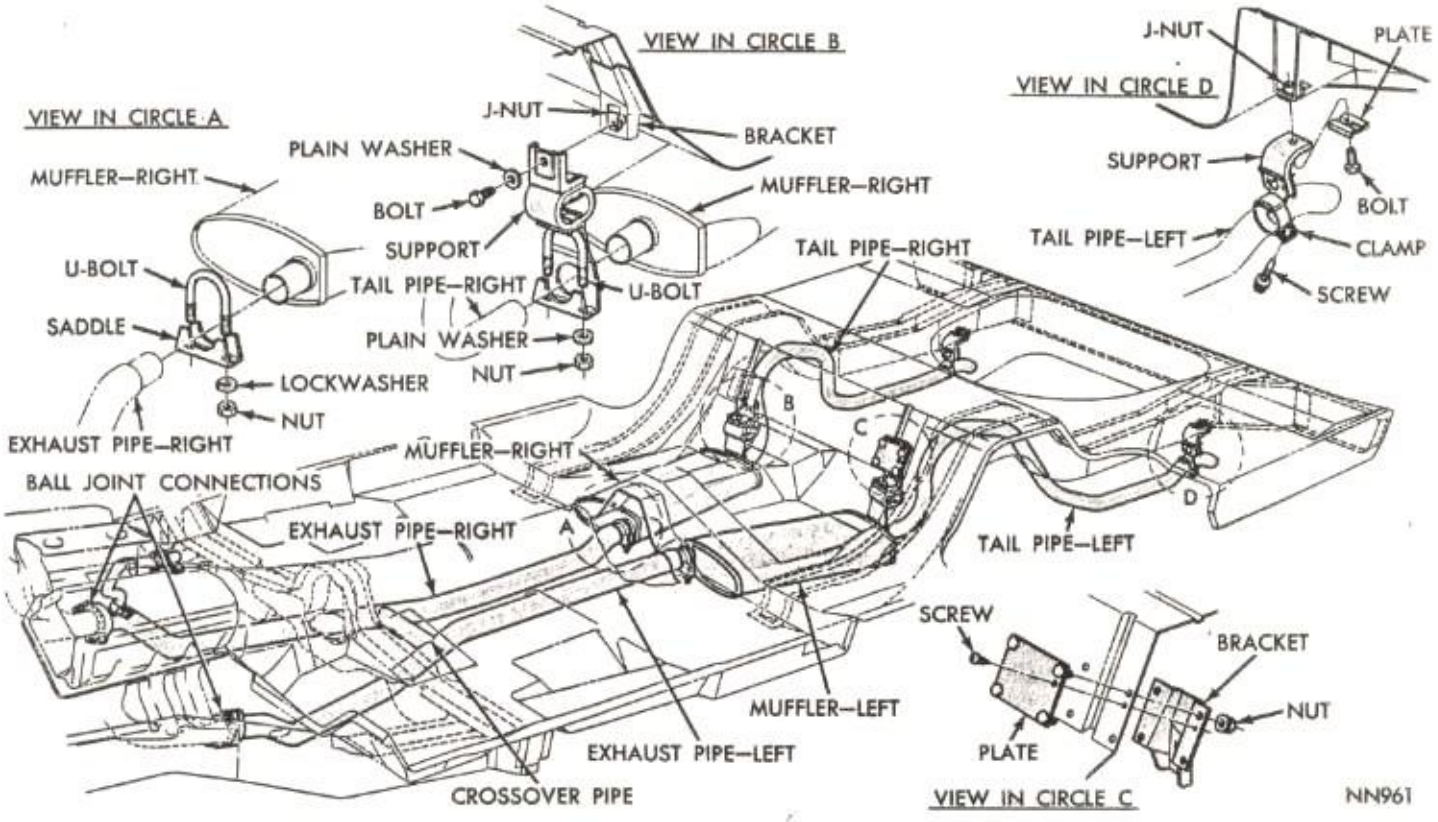


Fig. 1—Exhaust System—Dual "Hemi-426"

The heat tube arrangement (Fig. 2) is incorporated in the exhaust system to divert hot exhaust gases to a heat chamber in the intake manifold at the base of the rear carburetor.

Included in this arrangement is a thermostatic manifold heat control valve located at the rear end of the right hand exhaust header (Fig. 2). Two aluminized steel tubes provide for the passage of the exhaust gases through the intake manifold heat chamber during the warm-up period. The inlet tube is attached to the top surface of the header by two studs and nuts (Fig. 2). The upper end of the tube is bolted to the rear face of the intake manifold. The outlet tube is also bolted to the face of the intake manifold with its lower end attached by a clamp and bolt to a short pipe connection on the exhaust pipe just to the rear of the ball joint connection.

SERVICE DIAGNOSIS

Service diagnosis is the same as outlined in the 1966 Service Manual, with the following additions.

Condition	Possible Cause	Correction
EXCESSIVE EXHAUST NOISE	(a) Leaks at heat tube pipe connections.	(a) Replace gaskets as required. Tighten bolts and nuts and clamp bolt nut to specifications.
LEAKING EXHAUST GASES	(a) Loose heat tube connections.	(a) Replace gaskets as required. Tighten stud nuts or bolts to specifications.
	(b) Burned or rusted out heat tubes.	(b) Replace heat tubes as required.

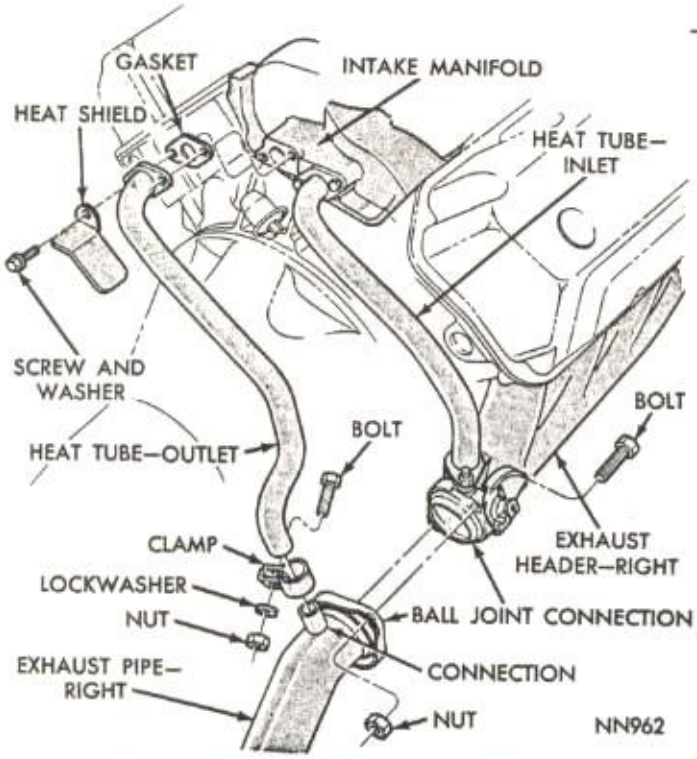


Fig. 2—Intake Manifold Heat Tube Arrangement

EXHAUST PIPES, MUFFLERS, TAIL PIPES

Removal

(1) Raise vehicle on hoist and apply penetrating oil to bolts and nuts to loosen rust and corrosion.

(2) Remove exhaust pipe ball joint bolts and nuts at exhaust header flanges. On **right hand exhaust pipe,** also, remove heat tube clamp bolt and nut and remove clamp and heat pipe from exhaust pipe connection (Fig. 2).

(3) Remove exhaust pipe U-bolts, washers and saddles and disconnect exhaust pipe from muffler.

(4) Remove muffler support U-bolt nut and washers and disconnect muffler from tail pipe.

(5) Remove tail pipe clamp screw and slip tail pipe from clamp.

Installation

(1) Assemble exhaust pipes, mufflers and tail pipes loosely to permit proper alignment (Fig. 1).

(2) Assemble exhaust pipes to exhaust headers, **but do not tighten ball joint bolt nuts at this time.**

(3) Adjust muffler and tail pipe supports to provide proper underbody clearance and clearance with adjacent parts. **Do not fully tighten attaching bolts and nuts at this time.**

(4) Tighten front muffler slip joint U-bolt nuts to 150 inch-pounds.

(5) Tighten muffler and tail pipe support attaching bolts to 200 inch-pounds, at same time maintaining proper clearance with adjacent parts.

(6) Tighten tail pipe clamp screw to 95 inch-pounds.

(7) Tighten exhaust pipe ball joint bolt nuts to 20 foot-pounds.

(8) Install outlet heat tube on right hand exhaust pipe connection and secure with clamp, bolts, washer and nut. Tighten nut to 100 inch-pounds.

HEAT TUBES

Removal — Inlet Tube

(1) To remove inlet tube, remove two stud nuts at exhaust header (Fig. 2).

(2) Remove screws attaching upper end of inlet tube to rear face of intake manifold.

(3) Remove tube and gaskets and discard gaskets.

Installation — Inlet Tube

(1) Clean gasket surfaces of exhaust header and intake manifold of all old gasket particles.

(2) Place new gaskets in position and install inlet tube.

(3) Secure upper end of tube with screws and washers. Tighten to 200 inch-pounds.

(4) Secure lower end of tube with stud nuts and washers. Tighten to 200 inch-pounds.

Removal — Outlet Tube

(1) To remove outlet tube, remove nut, washer and bolt from tube clamp at exhaust pipe (Fig. 2). Remove clamp from tube.

(2) Remove two screws attaching heat shield and outlet tube to rear face of intake manifold.

(3) Remove tube and gasket at upper end.

Installation — Outlet Tube

(1) Install tube and clamp on exhaust pipe connection.

(2) Install clamp bolt, washer and nut and tighten nut to 100 inch-pounds.

(3) Install new gasket and tube at upper end of outlet tube.

(4) Install heat shield and outer screw and washer on outlet tube flange. Install inner screw and washer. Tighten screws to 200 inch-pounds.

HEADER HEAT CONTROL VALVE

Servicing

Servicing the Header Heat Control Valve is basically the same as on other models but with the following exceptions.

Operation of the heat control valve (Fig. 3) should be inspected periodically. With the engine idling, accelerate momentarily to wide open throttle. The counterweight should respond by moving **clockwise** approximately ½ inch and return to its original position. If no movement is observed, the shaft is binding due to accumulation of deposits or the thermostat is weak or broken.

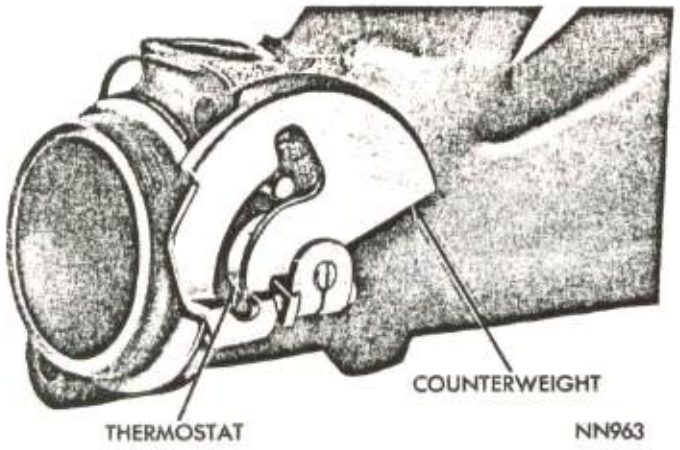


Fig. 3—Heat Control Valve Assembly

Cleaning and Inspection

If the fabric bumper on the counterweight is worn, it may be replaced by sliding it off the tab and sliding on a new one.

Installation

(1) Be sure shaft retainers (Figs. 4 and 5) are in place in grooves on valve shaft and stop pins. Then, turn shaft in the extreme counterclockwise position.

(2) Install a new thermostat in slot in shaft (Fig. 5) with outer end of thermostat in lower left hand position. Press inner end of thermostat into shaft and seat firmly.

(3) Wrap outer end of thermostat counterclockwise and engage under stop pin.

(4) Install counterweight on outer end of valve shaft with lock engaged in valve shaft slot and bumper on right hand side of stop pin (Fig. 6).

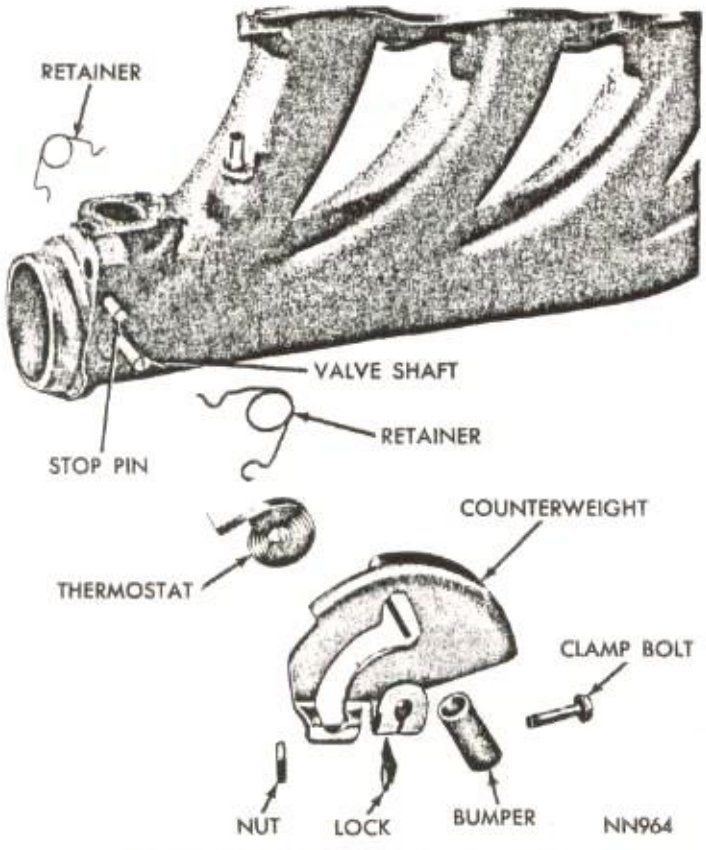


Fig. 4—Heat Control Valve Assembly

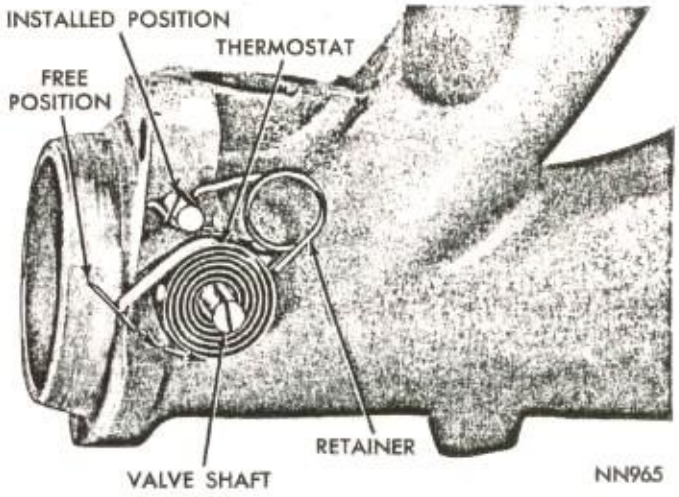


Fig. 5—Installing Thermostat

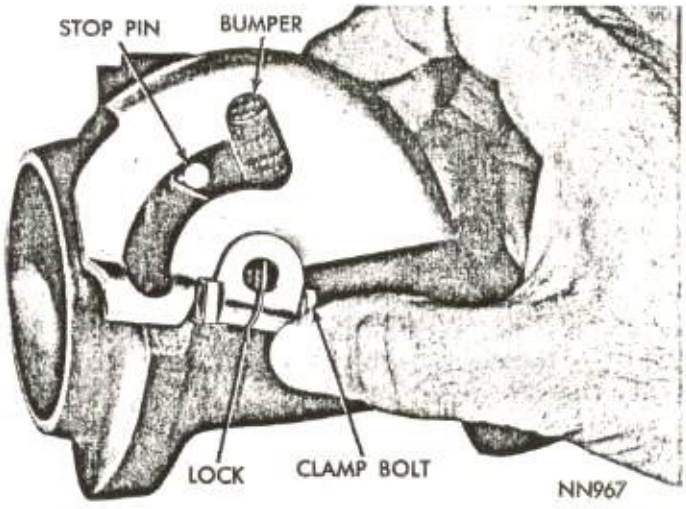


Fig. 6—Installing Counterweight

GROUP 14 — FUEL SYSTEM

CARBURETOR

The service procedures covering the carburetor are the same as outlined in the 1966 Service Manual, with the following exceptions:

CHOKE PISTON INDEX

The choke piston should be indexed to improve warm-up performance. The ignition system should be in good working order and the timing checked to insure satisfactory performance. The manifold heat con-

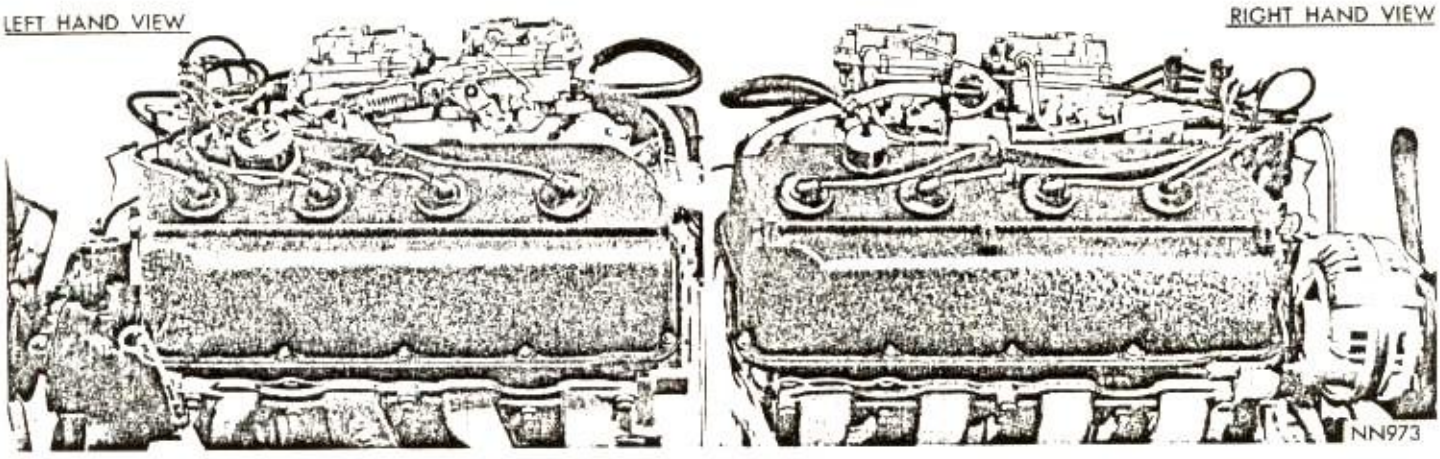


Fig. 1—Twin 4 Barrel Carburetor Assemblies

trol valve should also be inspected carefully for proper functioning as this operation is extremely important for satisfactory warm-up performance.

With the above items checked and working properly and fully-warmed-up engine performance good, proceed as follows:

(1) Remove choke housing retainer ring, heat tube cap and choke coil housing, baffle plate and gasket.

(2) Remove throttle return spring so throttle can be set one quarter turn open.

(3) Let choke blade go wide open.

(4) Insert an .026 inch wire gauge* into choke piston slot so that hook on the end goes into slot in cylinder (Fig. 2).

(5) Push on choke piston lever thermostat tang trapping the wire gauge between piston and cylinder slots with linkage hanging free.

(6) Adjust the link connecting the choke shaft to the choke piston lever by bending the link at an angle to give ⅛ drill opening between choke valve and wall of air horn.

(7) Reassemble choke, setting the coil one notch rich and install the throttle return spring.

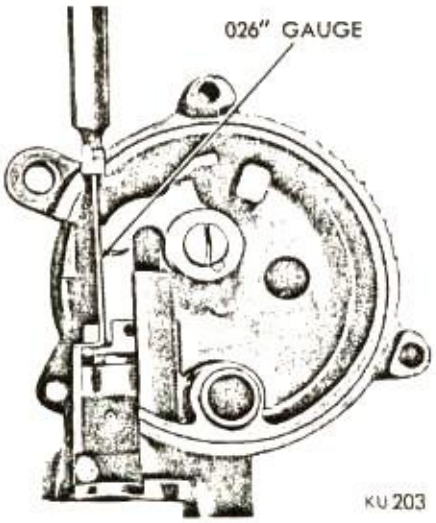


Fig. 2—Choke Piston Indexing

*This gauge can be made by bending a piece of .026 x 2 (inches long) wire bent at a right angle (⅛") as shown. If this size wire is not readily available, .026 inch step-up wire used in BBD Carburetors can be bent to shape and used for this purpose.

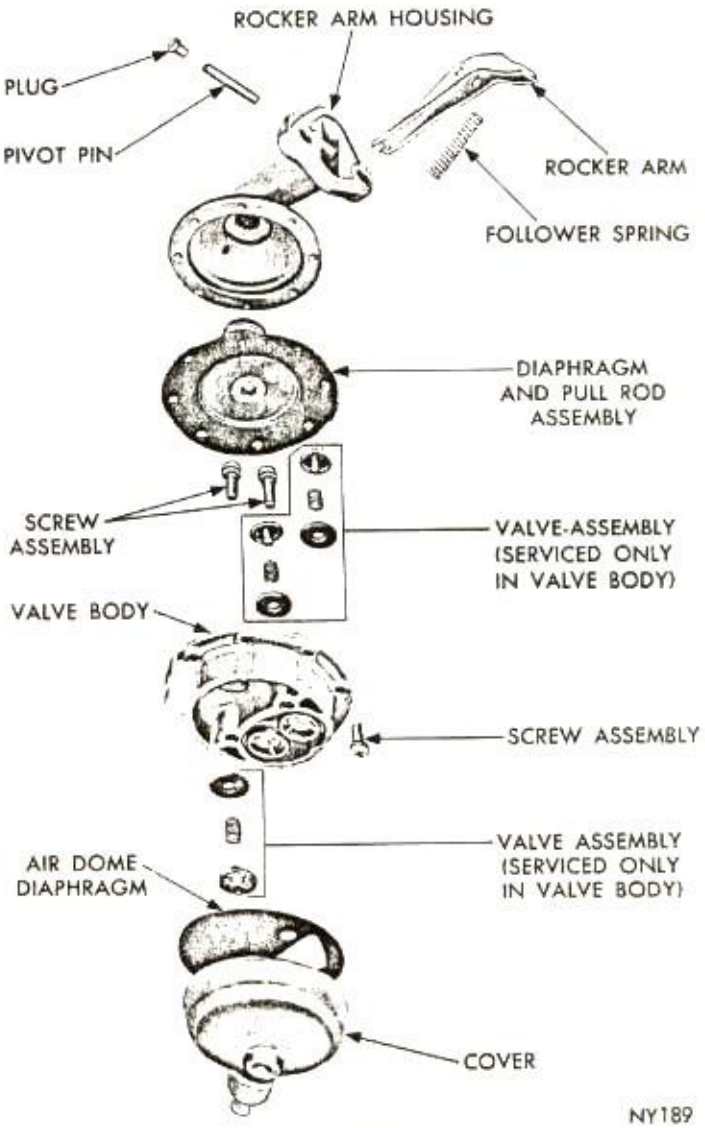


Fig. 1—Fuel Pump M4024S (Exploded View)

FUEL PUMP

The service procedures covering the fuel pump are as follows:

SERVICING THE FUEL PUMP (Fig. 1)

If the fuel pump fails to supply fuel properly to the carburetor, the following tests should be made before removing the fuel pump from the vehicle.

TESTING FUEL PUMP (On Car)

If leakage is not apparent, test pump for pressure, as follows:

Pressure Test

(1) Insert a "T" fitting in the fuel line at front carburetor (Fig. 2).

(2) Connect a 6 inch piece of hose between the "T" fitting and gauge Tool C-3411. (The hose should not exceed 6 inches. A longer hose may collect fuel and the additional weight would be added to the pressure of pump and result in an inaccurate reading).

(3) Vent pump for a few seconds by disconnecting the inlet hose (this relieves any air trapped in the fuel chamber). If this is not done, the pump will not operate at full capacity and a low pressure reading will result.

(4) Connect a tachometer, then start the engine and run at 750 rpm. The reading should be from 6½ to 8 psi. The pressure should remain constant or return to zero very, very slowly when the engine is stopped. An instant drop to zero indicates a leaky outlet valve, or carburetor needle valve. If the pressure is too low, a weak main spring or improper assembly of the diaphragm may be the cause. If the pressure is too high, the main spring is too strong.

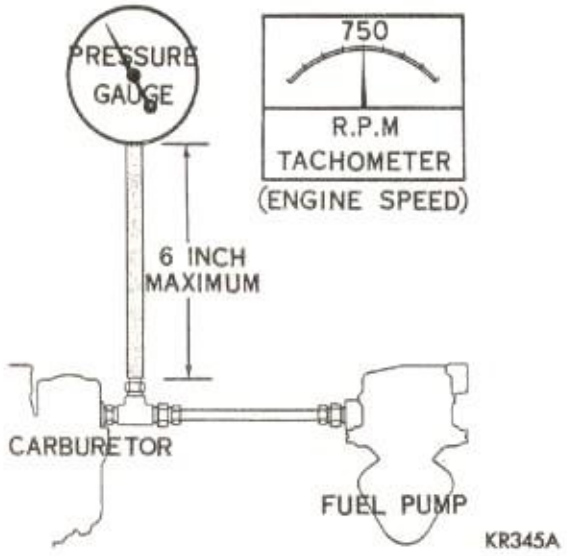


Fig. 2—Testing the Fuel Pump

Volume Test

The fuel pump should supply 1 quart of fuel in 1 minute or less at 750 r.p.m.

Inlet Valve Vacuum Test

To test the inlet valve, connect a vacuum gauge on pump inlet fitting leaving inlet line disconnected.

(1) Start the engine or turn over with the starting motor. The vacuum reading should be at least 10″ h.g. vacuum at 750 r.p.m.

(2) If blowback is present, the gage will oscillate which denotes that the inlet valves are not seating properly and should be cleaned, or a new valve body installed.

If the fuel pump does not perform to the above test requirements, the fuel pump should be removed from the vehicle and reconditioned as follows:

DISASSEMBLING THE FUEL PUMP

Before disassembling the fuel pump, mark the housings in such a manner that the "Inlet" will be facing the inlet fuel line when reassembled. This is important!

To disassemble the fuel pump for cleaning or overhaul, refer to (Fig. 1), then proceed as follows:

(1) Remove the pivot pin plug, using Tool T109-43.

(2) Disengage the rocker arm follower spring from the rocker arm and the rocker arm housing.

(3) Turn the pump on its side (pivot pin hole down) and tap gently to remove the pivot pin.

(4) Disengage the rocker arm from the diaphragm pull rod, sliding rocker arm out of the housing.

(5) Remove the screws attaching the valve body to the rocker arm housing. Separate the valve body and rocker arm housing and lift out the diaphragm and pull rod assembly.

(6) Remove the screws that attach the valve body to the valve housing cover. Separate cover and valve body and remove the outlet air dome diaphragm.

CLEANING THE FUEL PUMP PARTS

Clean all fuel pump parts (except diaphragm) in a suitable solvent, then blow dry with compressed air. Check the condition of the valve seats and parts for gum deposits. If gum deposits are found, remove with denatured alcohol. If the valves are badly worn or damaged, install a complete new valve body assembly. **The valves are not serviced individually.** Inspect the diaphragm for cracks, torn screw holes or ruptures. Check the rubber oil seal on the end of the pull rod for deterioration. Inspect the outlet air dome diaphragm for cracks or deterioration. Inspect the rocker arm for scoring or galling on the push rod bearing surface.

REASSEMBLING THE FUEL PUMP

To reassemble the fuel pump, refer to (Fig. 1), then

proceed as follows:

(1) Place the airdome diaphragm in position on the valve body or filter housing (depending on pump), with inlet passage hole over passage.

(2) Align the scribe marks on the cover (or filter housing, depending on pump) and the valve body, then install attaching screws. Tighten securely.

(3) Slide the diaphragm pull rod up into the rocker arm housing. Place the valve body in position on the diaphragm with the scribe marks aligned. (Be sure the holes in the diaphragm, rocker arm housing and valve bodies are aligned.) Compress the unit together and install the attaching screws, but do not tighten. **NEVER USE SHELLAC OR ANY OTHER ADHESIVE ON THE DIAPHRAGM.**

(4) Slide the rocker arm into the housing and engage the diaphragm pull rod. Align the pivot pin holes in the arm with those in the housing, then install pivot pin. Install new plug and drive in securely.

(5) Install the rocker arm follower spring over the tab on the rocker arm and over the dimple in the housing.

(6) Place the pump in a vise (with protector jaws) and push on the rocker arm until full travel is reached. Hold in this position, while tightening the attaching screws. (This will prevent tearing of the diaphragm when the pump is in operation and the pump arm in its full stroke.)

(7) Test the fuel pump as described previously.

THROTTLE LINKAGE ADJUSTMENT

This procedure covers the adjustment of the throttle linkage for vehicles equipped with the High Performance Package hemi-engines with two in-line four-barrel carburetors (Fig. 1).

Vehicle With Automatic Transmission

(1) Assemble the throttle linkage parts in place, except the following:

(a) The transmission intermediate rod ball socket (1) to the upper bellcrank ball end.

(b) The slotted transmission linkage rod adjuster link (2) to the rear carburetor lever stud (3).

(c) The connector rod assembly (4) between the carburetors.

(2) Apply a thin film of Automotive Multi-Purpose Grease, NLGI grade 2 to the following points:

(a) The accelerator shaft where it turns in the bracket and roller (19).

(b) The pivot points of both upper and lower transmission linkage bellcranks (6 and 7).

(3) Block choke valve in full open position. Open throttle slightly to release fast idle cam, then return carburetor to curb idle.

(4) With a $\frac{3}{16}$" diameter rod (8) placed in the holes provided in the upper engine mounted bellcrank and lever (15), adjust the length of the intermediate transmission rod (9) by means of the threaded adjust-

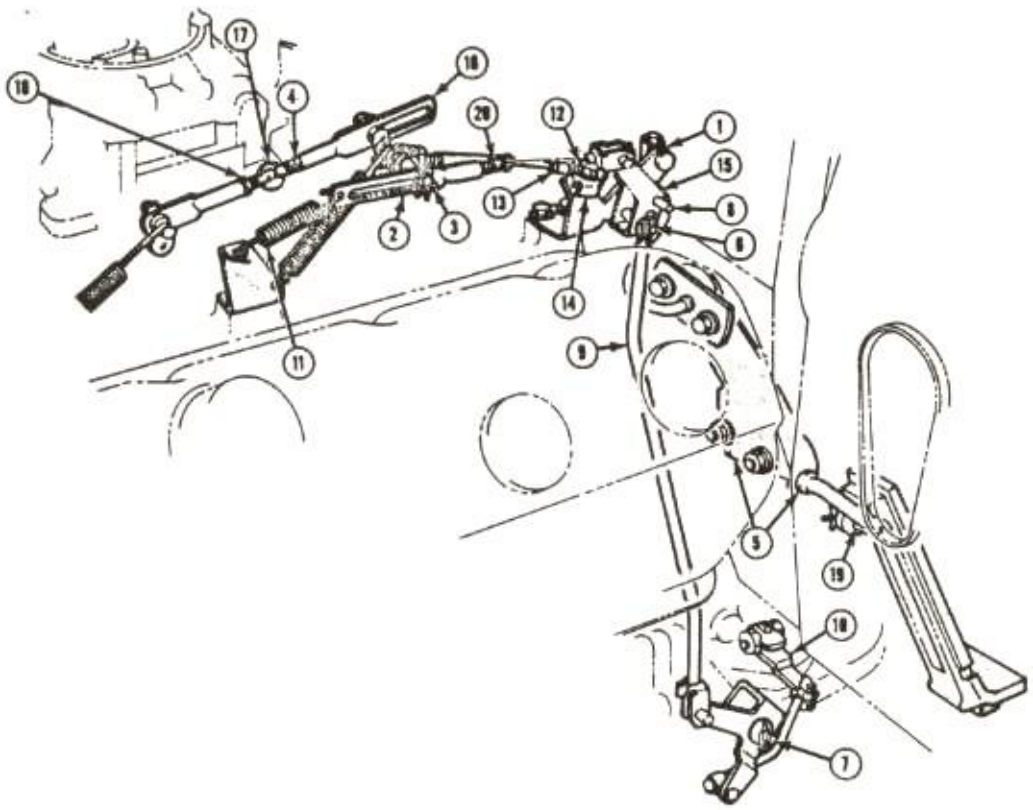


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Fig. 1—Throttle Linkage Adjustment

ment at the upper end. (The ball socket must line up with the ball end with the rod held upward against the transmission stop (10).

(5) Assemble ball socket to ball end and remove 3/16" rod (8) from upper bellcrank and lever (15).

(6) Hold the transmission lever forward against its stop (10) while adjusting the length of the transmission linkage rod and slotted adjuster link (2) to the outboard side of the outboard lever stud (3) on the rear carburetor.

Adjust the length of the rod by pushing rearward on the rod with a slight effort and turning the threaded adjuster link (2). The rear end of the slot should contact the carburetor lever stud without exerting any forward force on the stud when the slotted adjuster link is in its normal operating position.

(7) Assemble slotted adjuster link (2) to carburetor lever stud and install washer and retainer pin. Assemble transmission linkage return spring (11) in place.

To check transmission linkage freedom of operation, move slotted adjuster link (2) to the full rearward position, then allow it to return slowly, making sure it returns to the full forward position against the stud.

(8) With the cable clamp nut (12) loose, adjust the position of the cable housing ferrule (13) in the clamp (14) so that all slack is removed from the cable with the rear carburetor at curb idle. (To remove slack from the cable, move the ferrule (13) in the clamp (14) in the direction away from the carburetor lever.)

(9) Back off ferrule (13) 1/4". This provides 1/4" free play between the front edge of the accelerator shaft lever and the dash bracket. Tighten clamp (14) to 45 inch-pounds.

(10) Route cable so it does not interfere with the carburetor rod (20) or upper bellcrank (15) throughout full throttle linkage travel.

(11) Attach the carburetor rod assembly (4) between the carburetors with the slotted rod end (16) attached to the outboard side of the inboard lever on the rear carburetor. With the rear carburetor at wide open throttle, adjust the length of the connector rod (4) so that the front carburetor is also at wide open throttle. To lengthen this rod (4), turn the adjusting stud (17) clockwise as viewed from the front of the engine. Tighten the lock nut (18).

(12) Remove choke valve blocking fixture.

Vehicles With Manual Transmissions

(1) Assemble the throttle linkage parts in place except the connector rod (4) assembly between the carburetors.

(2) Apply a thin film of Automotive Multi-Purpose Grease, NLGI grade 2, to the accelerator shaft where it turns in the bracket (5), and where it turns in the roller (19).

(3) Block choke valve in full open position. Open throttle slightly to release fast idle cam, then return carburetor to curb idle.

(4) With the cable clamp nut (12) loose, adjust the position of the cable housing ferrule (13) in the clamp (14) so that all slack is removed from the cable with the rear carburetor at curb idle. To remove slack from the cable, move the ferrule (13) in the clamp (14) in the direction away from the carburetor lever.

(5) Back off ferrule (13) 1/4". This provides 1/4" free play between the front edge of the accelerator shaft lever and the dash bracket. Tighten clamp (14) to 45 inch-pounds.

(6) Attach the carburetor rod (4) assembly between the carburetors with the slotted rod end (16) attached to the outboard side of the inboard lever on the rear carburetor. With the rear carburetor at wide open throttle, adjust the length of the connector rod (4) so that the front carburetor is also at wide open throttle. To lengthen this rod (4), turn the adjusting stud (17) clockwise as viewed from the front of the engine. Tighten the lock nut (18).

(7) Remove choke valve blocking fixture.

CARBURETOR SPECIFICATIONS

TYPE—CARTER AFB 4 BARREL DOWNDRAFT

	Front	Rear
Transmission Type	Manual and Automatic	Manual and Automatic
Engine Displacement (Cu. In.)	426 Hemi	426 Hemi
Model	AFB-4139S	AFB-4140S
THROTTLE BORE		
Primary	1 3/16"	1 3/16"
Secondary	1 11/16"	1 11/16"
MAIN VENTURI		
Primary	1 3/16"	1 3/16"
Secondary	1 5/16"	1 5/16"

SPECIFICATIONS (Continued)

	L*	R*	L*	R*
MAIN JET				
Primary	.089"	.089"	.089"	.089"
Secondary	.1065"	.089"	.080"	.082"
LOW SPEED JET				
Primary	.035"		.035"	
STEP-UP ROD (2 Stage)				
Standard	16-136		16-440	
1 Size Lean	—		—	
2 Sizes Lean	—		—	
ADJUSTMENTS				
Float Setting	5/16"		7/32"	
Float Drop	3/4"		3/4"	
Choke Unloader	—		1/4"	
Fast Idle Cam Position (drill size)	—		#50	
Vacuum Kick Adjustment	—		1/8	
Accelerator Pump (top of plunger to air horn)	3/16"		3/16"	
Idle Speed (r.p.m.)	750		750	
Idle Mixture (both screws open)	1-2 turns		1-2 turns	
Fast Idle Speed (r.p.m.)	—		1500**	
Secondary Throttle Lever Adjustment	17/64"		17/64"	
Second Throttle Lockout Adjustment	.020"		.020"	
CHOKE				
Control	—		Coil Spring	
Type	—		Integral	
Setting	—		1 Notch Rich	

†After approx. 500 miles (if necessary)
*When viewed from the drivers seat
**Speed set on the second highest step of the fast idle cam.

FUEL PUMP

SPECIFICATIONS

Fuel Pump	V-8
Engine Displacement (Cu. In.)	426 Hemi
Make	Carter
Model	M-4024S
Type	Diaphragm
Number of Valves	3
Driven By	Camshaft
Pump Pressure (pounds)	6½ to 8

GROUP 16 — PROPELLER SHAFT AND UNIVERSAL JOINTS

Models equipped with the 426 cu. in. Hemi engine will be equipped with a special selected propeller shaft having minimum runout and close balance. The universal joints are the cross and roller type and slightly larger which increases their capacity. The service procedure is the same as that shown in the 1966 Service Manual.

GROUP 17 — SHOCK ABSORBERS AND REAR SPRINGS

Models equipped with the 426 cu. in. Hemi engine will be equipped with new high-rate rear springs which have a tendency to reduce rear axle torque steer during rapid acceleration, thus, improving directional stability. The shock absorbers used on these models are a high control type. The service procedures are the same as shown in the 1966 Service Manual.

GROUP 19 — STEERING

Service procedures for reconditioning either the power or manual steering gears remain unchanged from those outlined in the 1966 Service Manual. However, removal and installation procedures differ considerably due to the configuration of the engine and exhaust system, as follows:

MANUAL STEERING GEAR

Removal

(1) Disconnect steering column shaft from steering gear wormshaft as outlined in the 1966 Service Manual.

(2) Remove the steering gear control arm as outlined in the 1966 Service Manual.

(3) From under the car, remove left engine insulator mounting nut at engine side.

(4) Raise left side of engine approximately 1½ inches.

(5) Remove steering gear mounting bolts and move gear forward and down through opening in crossmember.

Installation

(1) From under car, position steering gear up through crossmember opening and rearward onto mounting bracket. Install mounting bolts and tighten to 55 foot-pounds.

(2) Install steering gear control arm and nut and tighten to 120 foot-pounds.

(3) Lower engine and install engine insulator stud nut.

(4) Install steering column shaft to worm shaft as outlined in the 1966 Service Manual.

POWER STEERING GEAR

Removal

(1) Remove battery and battery tray.

(2) Disconnect pressure and return hoses and disconnect steering column from worm shaft as outlined in the 1966 Service Manual.

(3) From under car, remove steering gear control arm as outlined in the 1966 Service Manual.

(4) Remove engine insulator stud nut at engine side and raise left side of engine up approximately 1½ inches.

(5) Remove steering gear mounting bolts.

(6) From topside of engine compartment, rotate steering gear forward between cylinder head and shock absorber tower and remove gear through opening left by removing battery tray.

Installation

(1) Position steering gear on mounting bracket by rotating between cylinder head and shock absorber tower. Insert mounting bolts and nuts finger tight to retain gear to bracket.

(2) From under car, tighten mounting bolts to 55 foot-pounds and install steering gear control arm. Tighten control arm nut to 120 foot-pounds.

(3) Lower engine and install insulator stud nut.

(4) From topside of engine compartment install pressure and return hoses. Connect steering column shaft as outlined in the 1966 Service Manual.

(5) Install battery tray and battery and replenish reservoir fluid supply as necessary.

GROUP 21 — TRANSMISSION

TORQUEFLITE TRANSMISSION

An auxiliary oil cooler for cooling transmission fluid is mounted in front of the radiator core. It is connected in series with the cooler located in the radiator lower tank (Fig. 1).

The service procedures for the A-727-B transmission in this high performance vehicle are the same as those outlined in the 1966 Service Manual with the following exceptions:

(1) The front clutch pack clearance is .092 to .151 inch, measured between the pressure plate and snap ring. Downward pressure on the pressure plate must be maintained when making this measurement.

(2) The front clutch has 12 return springs.

(3) The large diameter outer spring is not used in the kickdown servo.

(4) The accumulator spring is eliminated.

Service parts are the same as listed for the A-727-B transmission in the 1966 Parts Catalog with the following exceptions:

Part No.	Description
2538993	Oil Pump Housing and Bushing Assembly
2585224	Oil Pump Inner Rotor
2466197	Oil Pump Vent Baffle
2801220	Front Clutch Retainer
2400725	Front Clutch Disc (5 required)
2464651	Front Clutch Piston
2538047	Rear Clutch Retainer
2538461	Kickdown Band Assembly
2801217	Kickdown Servo Lever
2801257	Governor Inner Weight
1823726	Governor Outer Weight
1949859	Governor Spring
2400843	Output to Input Shaft Thrust Washer (Brass)
2801404	Auxiliary Oil Cooler Assembly

4-SPEED MANUAL TRANSMISSION

The service procedures for the A-833 four speed transmission are the same as those outlined in the

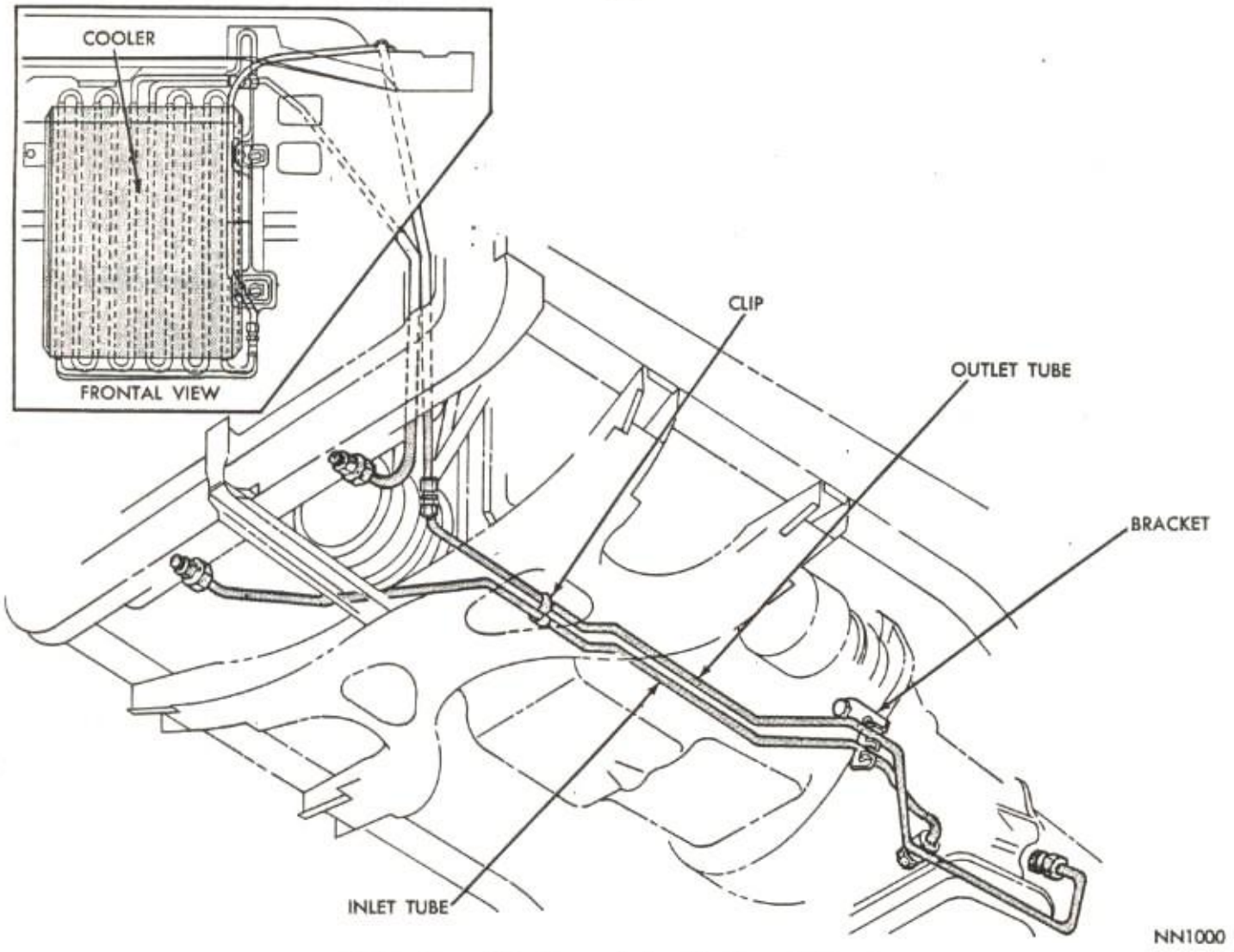


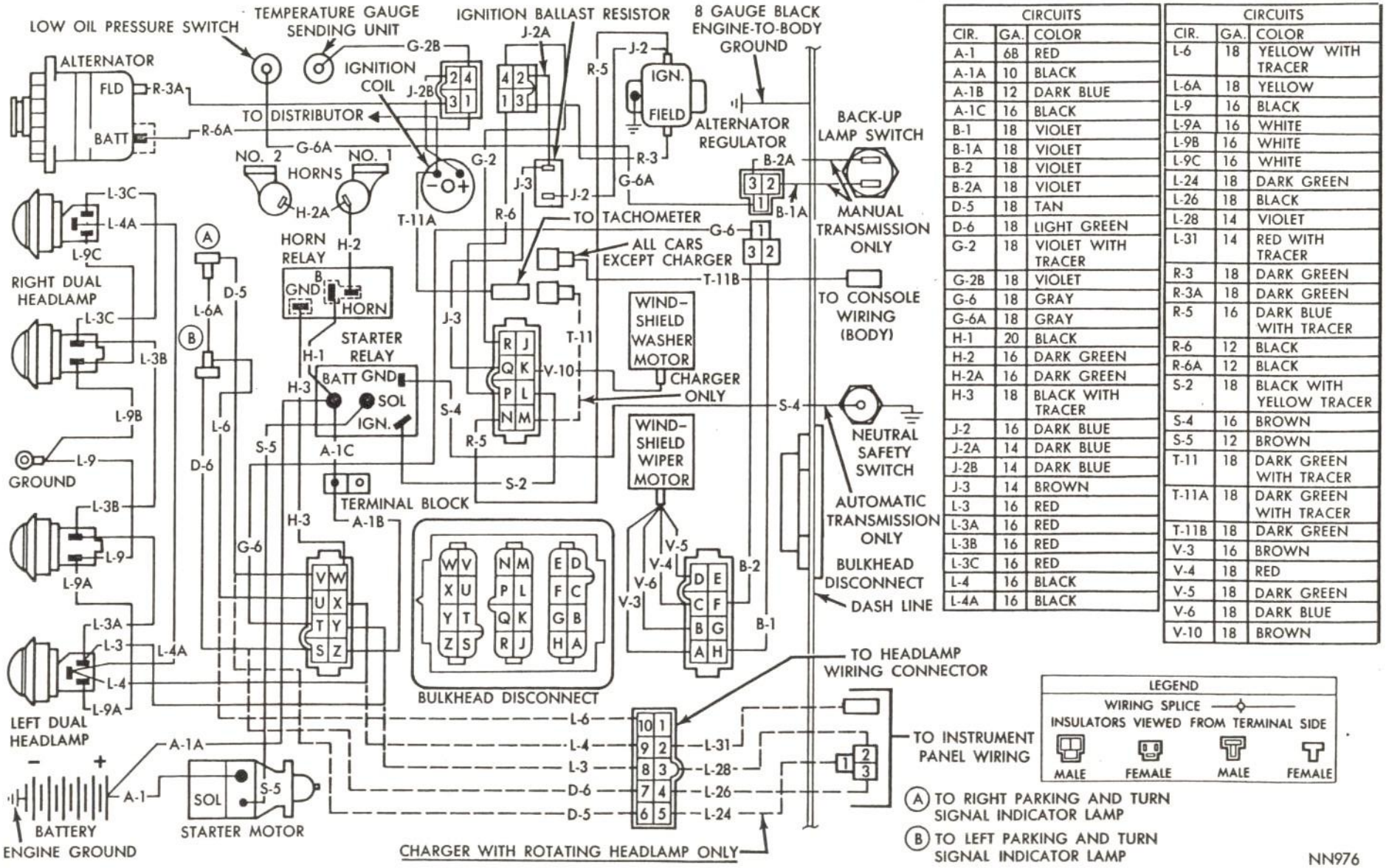
Fig. 1—TorqueFlite Transmission Auxiliary Oil Cooler

1966 Service Manual. Service parts are the same as listed in the 1966 Parts Catalog with the following exceptions:

Part No.	Description
2801109	Countershaft Gear
2801107	First Speed Gear
2801105	Second Speed Gear
2538202	Third Speed Gear
2538196	Drive Pinion
2538197	Drive Pinion Bearing Retainer
2464492	Drive Pinion Oil Seal
2538961	Synchronizer Stop Ring (Service Only)

GROUP 22 — WHEELS-BEARINGS AND TIRES

Models equipped with the 426 cu. in. Hemi engine will be equipped with Blue Streak Special four-ply nylon 7.75 x 14 tires mounted on 5.5K wheels. The special tires can be identified by a narrow blue stripe on the outer sidewall. Blue Streak Special 7.75 x 14 tires may be inflated to 36 PSI front and rear for optimum stability and high speed performance. The service procedures are the same as those shown in the 1966 Service Manual.



CIRCUITS		
CIR.	GA.	COLOR
A-1	6B	RED
A-1A	10	BLACK
A-1B	12	DARK BLUE
A-1C	16	BLACK
B-1	18	VIOLET
B-1A	18	VIOLET
B-2	18	VIOLET
B-2A	18	VIOLET
D-5	18	TAN
D-6	18	LIGHT GREEN
G-2	18	VIOLET WITH TRACER
G-2B	18	VIOLET
G-6	18	GRAY
G-6A	18	GRAY
H-1	20	BLACK
H-2	16	DARK GREEN
H-2A	16	DARK GREEN
H-3	18	BLACK WITH TRACER
J-2	16	DARK BLUE
J-2A	14	DARK BLUE
J-2B	14	DARK BLUE
J-3	14	BROWN
L-3	16	RED
L-3A	16	RED
L-3B	16	RED
L-3C	16	RED
L-4	16	BLACK
L-4A	16	BLACK

CIRCUITS		
CIR.	GA.	COLOR
L-6	18	YELLOW WITH TRACER
L-6A	18	YELLOW
L-9	16	BLACK
L-9A	16	WHITE
L-9B	16	WHITE
L-9C	16	WHITE
L-24	18	DARK GREEN
L-26	18	BLACK
L-28	14	VIOLET
L-31	14	RED WITH TRACER
R-3	18	DARK GREEN
R-3A	18	DARK GREEN
R-5	16	DARK BLUE WITH TRACER
R-6	12	BLACK
R-6A	12	BLACK
S-2	18	BLACK WITH YELLOW TRACER
S-4	16	BROWN
S-5	12	BROWN
T-11	18	DARK GREEN WITH TRACER
T-11A	18	DARK GREEN WITH TRACER
T-11B	18	DARK GREEN
V-3	16	BROWN
V-4	18	RED
V-5	18	DARK GREEN
V-6	18	DARK BLUE
V-10	18	BROWN

Fig. 1—Engine Compartment Wiring—Hemi-426 Engine (Coronet & Charger)