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SPECIAL BULLETIN

THIS ISSUE OF THE SERVICE BULLETIN CONTAINS ARTICLES WHICH ARE REVISIONS OF AND ADDITIONS TO INFORMATION CONTAINED IN THE PRELIMINARY 1950 PASSENGER CAR SHOP MANUAL.

ELECTRICAL SYSTEM DISTRIBUTOR - CHAMPION

This article gives you information regarding the Champion distributor. Please make a note on page 8 of the Preliminary Shop Manual near the heading "Distributor Assembly - Commander" to this article and page of Service Bulletin No. 227.

Early production cars are equipped with the Auto-Lite Model IGC-4805 distributor which is the same as the distributor used on the 1949 models. Later production cars are equipped with the Auto-Lite Model IAT-4001 distributor. This distributor has the vacuum spark advance mounted on the distributor housing, with the diaphragm linkage extending through the housing and connected directly underneath the condenser and resting on brass supports which are fastened to the support plate.

BREAKER PLATE ASSEMBLY

Removal - Champion

To remove the breaker plate and support plate assembly, first remove spark modifier (1, Fig. 1) from the distributor. Remove the wire clip (7), the modifier retaining screw (2), turn the modifier assembly to lift the diaphragm link (8) off the pin in the breaker plate (6) and remove the modifier. Remove the retaining screws (3), terminal screw (5) and insulators and lift the assembly out of the bushing.

The individual breaker plate and support plate are not serviced separately. It is necessary to replace the assembly if either part becomes damaged or worn.

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TOE-IN SPECIFICATION - CHAMPION

In the Preliminary Shop Manual, page 27, in the second paragraph of the right-hand column, the toe-in specification is printed incorrectly.

The correct toe-in specification for the Champion is 1/16" to 1/8" (1.58 mm. to 3.17 mm.)

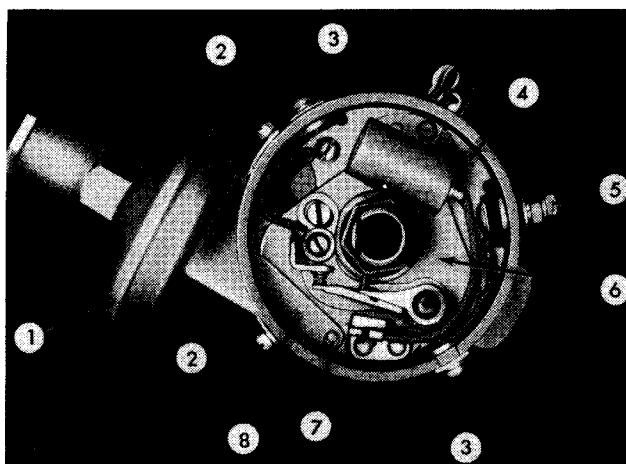


FIG. 1

- | | |
|--------------------|-------------------|
| 1. SPARK MODIFIER | 5. TERMINAL SCREW |
| 2. RETAINING SCREW | 6. BREAKER PLATE |
| 3. RETAINING SCREW | 7. CLIP |
| 4. SUPPORT PLATE | 8. DIAPHRAGM LINK |

Adjustment - Commander

The J4182 voltage regulator gage and file set is required for servicing the regulators on the 1950 Commander models.

Repair - Commander

The contact support brackets, insulators, connector straps, mounting screws, adjusting screws, and springs may be replaced if necessary. If the other units of the regulator are inoperative or require replacement, the regulator assembly must be replaced.

When replacing the spring on either the current or voltage regulator units, the new spring should first be hooked on the lower spring support and then stretched up until it can be hooked at the upper end. Stretch the spring only by means of a screw driver blade inserted between the turns of spring. Do not pry the spring into place as this is likely to bend the spring supports. After installing a new spring, readjust the unit.

When installing the contact support brackets be sure the insulators and connector strap are installed correctly. Fig. 3 illustrates the

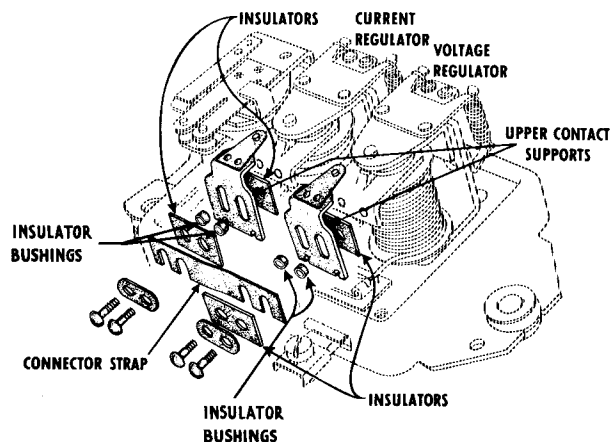


FIG. 3

correct relationship of the parts. It should be noted that the connector strap is insulated from the voltage regulator contact mounting screws while it is connected to the current regulator contact mounting screws. New bushings (Fig. 3) should always be used when installing a contact support bracket since the old bushing may be distorted or damaged.

Cleaning the Contact Points

The flat point is made of tungsten and is located in the contact support bracket. To clean effectively, the bracket must be removed. Use a riffler or spoon file as shown in Fig. 4. To file the current regulator point where the bracket cannot be taken completely off the unit because of the wire soldered to it, swing the bracket to a convenient position being careful not to break the soldered connection.

The rounded point is made of steel with a coating of iridium and platinum alloy. Use a thin fine-cut ignition file and do not file any more than is absolutely necessary. If filed excessively, the coating will be removed exposing the bare steel point which will burn rapidly.

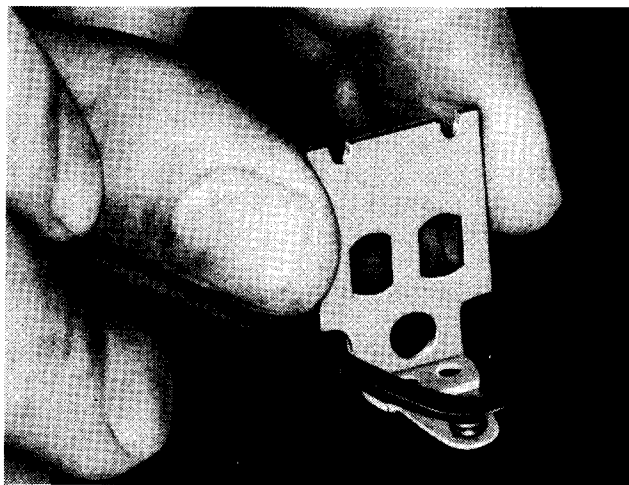


FIG. 4

OIL PAN

This article contains revised service procedures for the installation and removal of the Champion and Commander oil pans. On pages 11 and 12 of the Preliminary Shop Manual, please mark out the entire section under the heading "Oil Pan." In the margin beside the heading "Oil Pan" on page 11, make a cross-reference notation to this article and page number in Service Bulletin No. 227.

Removal - Champion

Raise the car and support it with stationary jacks. Drain the oil and remove the oil level gage.

ENGINE

Disconnect the center tie rod from the auxiliary steering arm, turn the left wheel to the right and swing the center tie rod to the rear. Remove the lower right clutch housing bolt. Remove the front splash pans to gain access to the front oil pan screws. Remove the oil pan screws and remove the pan.

Installation - Champion

For proper installation of the oil pan side gaskets, the filler block must be removed. Remove the front support-to-crossmember bracket bolts. Place a hydraulic jack under the center of the vibration damper and lift the engine so that there is approximately 1" clearance

between the support and the bracket. Then remove the four screws which hold the front support and filler block to the engine plate and remove the engine support and filler block. If the filler block adheres to the gasket, use a thin spatula and carefully separate the gasket and filler block.

Clean the oil pan and the oil pan mounting flanges of the block. Wash the flanges with alcohol to remove all traces of oil. Then apply Perfect Seal to the flanges and place the side gaskets in position. Position the filler block and support on the engine plate and install a screw in one of the upper holes, but do not tighten. Using a hardwood stick, pry upward against the filler block and install a screw in the opposite upper holes. Prying the filler block upward compresses the ends of the gaskets and facilitates alignment of the filler block. Install the two remaining screws until the screws just engage the lock washers. With all of the gaskets in position, install the oil pan. After tightening the oil pan screws securely, tighten the four support-to-filler block screws.

Lower the engine, align the holes of the support and the crossmember bracket and install the retaining bolts. Remove the jack. Install the front splash pans.

Swing the center tie rod into position and install the tie rod end in the auxiliary steering arm. Install the lower right clutch housing bolt.

Removal - Commander

Raise the car and support it with stationary jacks. Drain the oil and remove the oil level gage. Remove the front stabilizer shaft as outlined in the Front Suspension and Steering section. Turn the front wheels to the right moving the end of the bell crank to the left from underneath the oil pan.

Remove the engine front support-to-crossmember bracket bolts. Place a small hydraulic jack at the oil pan mounting flange as far forward as possible. Then raise the engine so that the front engine support is $1\frac{1}{4}$ " from the top of crossmember bracket and insert a block of wood to maintain this position. Do not place the jack directly under the center of the oil pan.

Remove the jack. Then remove the oil pan screws and oil pan. To facilitate removal of the oil pan, turn the crankshaft so that No.1 piston is midway of its travel in the bore, which will put the crankshaft counterweight at No.1 in a horizontal position.

Installation - Commander

Thoroughly clean the oil pan and the oil pan mounting flanges of the block. Washing the mounting flanges with alcohol will remove all traces of oil film and permit the Perfect Seal to adhere to the flange and hold the gasket in position on the flanges. Position the oil pan on the block and install the oil pan screws.

Raise the engine just enough to remove the block of wood from between the engine front support and crossmember bracket. Lower the engine, align the holes of the support and the crossmember bracket and install the support bolts.

Install the front stabilizer shaft as outlined in the Front Suspension and Steering section.

OIL PUMP

The following article is additional information to that given under the heading "Engine" on page 11 of the Preliminary Shop Manual. Please make a cross-reference notation beside that heading to this article and page number of the Service Bulletin No. 227.

Removal - Commander

Set the engine so that No.1 piston is on upper dead center and the "UDC 1-6" mark of the vibration damper is directly under the pointer.

Disconnect the oil pressure pipe at the pump. Remove the pump cover screws. Then using a hardwood stick about 3 ft. long, inserted between the exhaust manifold and engine block, tilt the engine down to the right and at the same time the pump can be guided out of the block and removed from below the lower flange of the frame side rail.

Installation - Commander

Tilt the engine as during the pump removal and guide the pump into the block. Before pump drive gear and camshaft gear have meshed, turn the pump drive shaft with the keyway of the drive shaft facing the rear of the car. Then engage the gears. When full engagement has been obtained, the keyway will point almost straight downward.

Since the tongue at the inner end of the pump drive shaft drives the distributor, correct installation of the oil pump to the camshaft is necessary to obtain correct ignition timing.

Install the pump cover and screws and connect the oil pressure pipe.

FRONT SUSPENSION AND STEERING

FRONT SPRING AND SPACER -
ALL MODELS

This article contains additional information regarding the types of coil springs used in the 1950 models. Please make a cross-reference notation in the margin of page 16 of the Preliminary Shop Manual beside the heading "Front Spring" referring to this article and page number of Service Bulletin No. 227.

The coil springs are classified in two groups, the low limit and the high limit springs. The low limit spring is identified by one grind mark at the base of the spring, while a high limit spring is identified by two grind marks. Matched springs, which may be of either group, are used in production, but the parts depots carry only the low limit springs. Therefore, if using a combination of high limit spring and low limit springs, it may be necessary to install a steel spacer under the low limit spring to obtain an equal height at both sides of the front end. The spacer is approximately 3/16" (4,76 mm.) thick and will raise the car approximately 5/16" (7,94 mm.). It should be installed between the lower spring pad and the spring seat of the lower control arm.

This spacer is used in production only on the Land Cruiser models and is installed at the top end of the spring but in service it may be installed at the bottom of the spring.

STEERING BELL CRANK ASSEMBLY

This article revises the second paragraph on page 25 of the Preliminary Shop Manual under the heading "Steering Bell Crank Assembly". Please mark out that paragraph in your Manual and make a marginal cross-reference notation to this article and page number in Service Bulletin No. 227.

Removal and Disassembly - Commander

The bell crank shaft and upper thrust washer is serviced as an assembly. The thrust washer is pressed on the shaft and then machined to correct tolerances. Therefore, do not press the thrust washer off the shaft. If either the washer or the shaft is to be replaced, the washer and shaft must be replaced as an assembly.

GASOLINE SYSTEM

CARBURETOR - COMMANDER

The following article provides additional information for the Gasoline Section of the Preliminary Shop Manual. On page 28 of that Manual, beside the heading "Gasoline Section", make a marginal notation to this article and

STEERING WHEEL

This article contains steering wheel removal and installation procedures. In the margin of page 23 of the Preliminary Shop Manual, beside the heading "Steering Gear", please make a cross-reference notation to this article and page number of Service Bulletin No. 227.

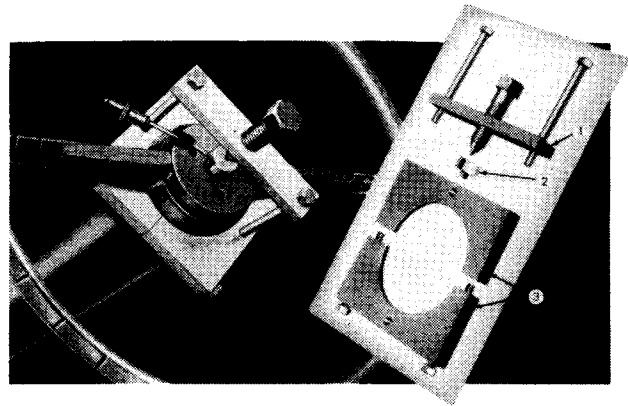


FIG. 5

1. CROSS BAR AND SCREW 2. ADAPTER
3. ADAPTER PLATES

Removal - Commander

Remove the horn ring or cross bar, horn contact cap and pad. Remove the steering wheel retaining nut. Install the two halves of the adapter plate (3, Fig. 5) of the Wheel Puller J-4146 at the base of the steering wheel. Place the adapter (2) in the end of the steering post being sure the horn wire is in the slot provided in the adapter. Install the puller cross bar and screw (1) and pull the steering wheel from the post.

Installation - Commander

Turn the steering post until the cam lever shaft is on the center of the high spot of the cam. Then place the steering wheel on the steering post with the spoke of the wheel in a horizontal position. Install the wheel retaining nut and tighten to 23 - 27 foot pounds of torque. Install the rubber pad, contact cap, and horn ring.

page number of Service Bulletin No. 227.

Two types of carburetors are used on the Commander models, the Stromberg Model BXOV-26 and the Carter Model WE 627S. The BXOV-26 carburetor is the same as used on the 1949 Commander models and the servicing procedures

remain the same. WE 627S is similar to WE-715S carburetor which is used on Champion models except for jet sizes. Disassembly and reassembly procedures are the same as for WE-715S, except that the adjustment specifications are different.

FLOAT LEVEL - The float level setting is 7/16" (11,11 mm.). Hold the bowl cover upside down allowing weight of float to seat needle valve, measure the distance between the boss on bowl cover and the far edge of float seam. To obtain correct level setting, bend the lip of the float as necessary.

ACCELERATING PUMP TRAVEL - The accelerating pump plunger travel should be 5/16" (7,94 mm.). Back off idle speed adjusting screw to permit a fully closed throttle. Set the throttle in the fully closed position and measure from the top of the lower end of the connector link to the top of the bowl cover. Then set throttle in wide-open position and repeat measurement. The difference between measurements should be 5/16" (7,94 mm.). Adjust by bending throttle connector rod at the lower end with Bending Tool J-1137. Rod must be disconnected from the throttle arm when making the adjustment.

METERING ROD ADJUSTMENT - Metering rod adjustment is the same as for WE 715S carburetor. Insert Metering Rod Gage T-109-102 in place of metering rod, seating tapered end of gage in metering rod jet. With throttle valve fully closed, press down lightly on vacuum piston link. There should be less than .005" (0,13 mm.) clearance between metering rod pin and shoulder in notch of gage. Gage must not contact the pin.

After adjusting top finger, check clearance between bottom of pump operating lever pin and bottom finger of piston link, using 3/16" gage (Float Gage J-818-3). Adjust by bending lower finger with Adjusting Tool T-109-105.

ANTI-PERCOLATOR ADJUSTMENT - With a .030" wire (Gage No. J-1633) inserted between the throttle valve and bore of the carburetor on the side opposite the idle port, the clearance between the rocker arm lip and the pump arm should be .010" (0,254 mm.). If adjustment is necessary, bend the lower end of the choke connector rod using Bending Tool J-1137.

CHOKE UNLOADER ADJUSTMENT - This adjustment must be made after the fast idle adjustment. Hold the throttle valve in a wide-open position and close the choke valve as far as possible without forcing. There should be 17/64" (6,75 mm.) clearance between the lower edge of the choke valve and the inner wall of the air horn. A 17/64" drill may be used to check the clearance. Adjust by bending the upper finger on the choke trip lever up or down as required with Unloader Adjusting Tool T-109-187 until the correct clearance is obtained.

CLIMATIC CONTROL - The climatic control housing should be set at the center index mark on the control body.

IDLE ADJUSTMENT - Adjust the idle mixture by turning the idle adjustment screw. The correct adjustment should be between 1/2 and 1-1/2 turns. The idle speed should be set at a speed equivalent to 8 to 10 miles (12,9 to 16,1 KM) per hour in high gear (500 to 550 rpm.)

Installation - Commander

When installing the WE-627 carburetor the slotted type manifold-to-carburetor gasket must be used, to prevent blocking of the vacuum ports in the throttle body.

FUEL AND VACUUM PUMP - COMMANDER

This article contains additional information under the heading "Fuel Pump" on page 28 of the Preliminary Shop Manual. Please make a marginal cross-reference beside that heading to this article and page number in Service Bulletin No. 227.

The construction and servicing procedures of the fuel and vacuum pump used on the 1950 Commander models are the same as for the 1949 models with the following exceptions: The fuel section cover has the inlet and outlet valve located directly above the diaphragm. The valves are the same type as those used in the vacuum section of the pump and are held in the cover by means of a single retainer. The retainer screw used in the fuel cover has a flat head while a round head retainer screw is used in the vacuum section. It is imperative that the screws are not interchanged. If the round screw is used in the fuel section, the screw may strike the end of the diaphragm pull rod and may prevent the diaphragm from making its full upward stroke.

The vacuum diaphragm oil seal can be removed and replaced, using AC Tool PT9.

When installing the vacuum diaphragm, extreme care should be taken not to scuff the leather oil seal. Place the pump on the bench with the vacuum section up. Push the vacuum diaphragm pull rod straight through the seal until the round part of the pull rod is well down in the seal. Tilt the diaphragm so that the end of the pull rod is away from the rocker arm links. Raise the links by pushing down on the rocker arm until the links can be heard contacting the pull rod, then straighten pull rod and at the same time hooking the links.

To install the fuel diaphragm, push the diaphragm pull rod through the retainer spring and oil seal. The flat section of pull rod must be at right angles to the rocker arm. Raise the pump to eye level and, facing the mounting flange, push the diaphragm and compress the spring. Then looking through the mounting flange hook the pull rod to the fuel link. The fuel link is the short center link.

PROPELLER SHAFTS

PROPELLER SHAFTS AND SUPPORT

This article is new information regarding service of the propeller shafts and supports. On the Index page of the Preliminary Shop Manual, just above the entry "Springs and Shock Absorbers", please write in as follows: Propeller Shafts and Supports, Service Bulletin No. 227, page 7.

Removal - All Models

To remove the rear propeller shaft, first straighten the ears of the lock plate (3, Fig. 6 and remove the grease washer nut (4) from the front shaft. Then mark the universal joint flange and rear axle companion flange so that at installation the original position and balance will be maintained. Remove the U-bolts which hold the rear joint bearing cups and cross to the rear axle flange. Shift the rear shaft forward, separating the rear joint. Then remove the bearing cups and bearings or tape them in place on the joint cross. Slide the shaft rearward, slipping the end of the shaft out of the splines of the front shaft.

Remove the retaining nut from the slip yoke by first removing the washer retainer and grease washer from within the nut.

Remove the lock plate and spacer from the projecting end of the front shaft. Remove the support-to-crossmember stud nuts, lock washers and plain washers and slide the bearing and support assembly off the front shaft and support cushions. Remove the dust shield from

the shaft. Mark the front propeller shaft universal joint flange and transmission companion flange. Remove the U-bolts which hold the joint bearing cup and cross to the transmission companion flange. Shift the shaft rearward, separating the joint, and remove the bearing cups and bearings or tape them securely in place on the cross.

To remove the support bearing from the support, use suitable tube which will fit the outer race of the bearing and with an arbor press remove the bearing.

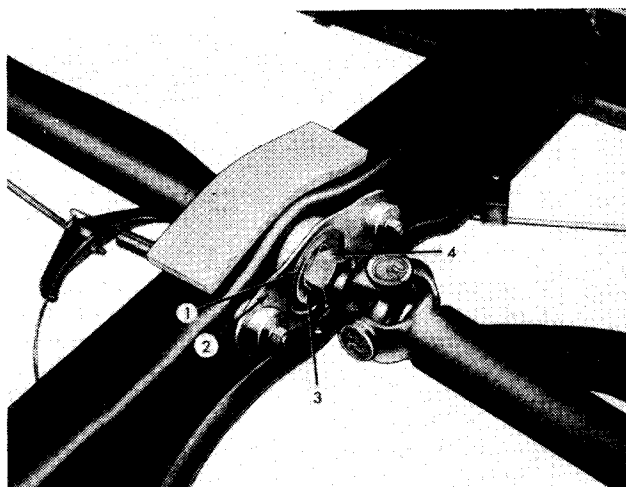


FIG. 6

- | | |
|------------|----------------------|
| 1. BEARING | 3. LOCK PLATE |
| 2. SUPPORT | 4. GREASE WASHER NUT |

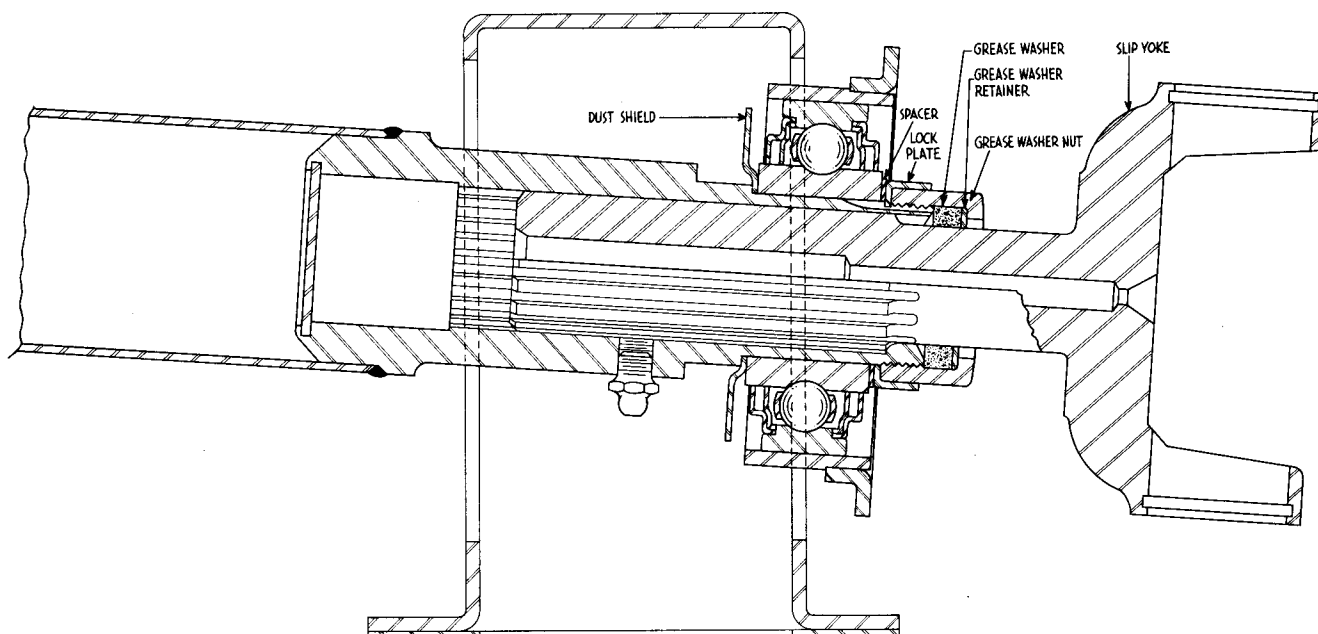


FIG. 7

Installation - All Models

If the bearing has been removed, press the bearing into the support so that the bearing is centered within the support. Insert the splined end of the front shaft in the crossmember. Install the joint bearing cups and bearings or, if taped, remove the tape. Align the marks of the joint and companion flanges and position the cups in the recess of the companion flange. Then install the U-bolts and nuts and tighten to 20 - 22 foot pounds of torque.

Install the dust shield with the concave side of the shield against the shoulder of the shaft. Install the support bearing and support assembly on the shaft and support cushions. Install the support-to-crossmember stud nuts, plain washer, and lock washers. Place the

spacer and lock plate on the end of the shaft which projects through the support bearing.

Place the grease washer nut on the splined end of the slip yoke and install the grease washer and retainer.

Align the front shaft flange with the flange of the slip yoke, engage the splines and slide the slip yoke into the front shaft. Install the grease washer nut, tighten securely and bend the ears of lock plate.

Install the bearings and cups on the cross or if taped remove the tape. Align the marks of the rear joint flange and the rear axle companion flange and push the cups into the recess of the flange. Install the U-bolts and nuts and tighten to 20 - 22 foot pounds of torque.

SPRINGS AND SHOCK ABSORBERS**SHOCK ABSORBERS**

This article gives revised adjustment procedures and specifications of the Commander shock absorbers. Cross out the article under the heading "Shock Absorber Adjustment - Commander" on page 38 of the Preliminary Shop Manual and make a marginal cross-reference to this article and page number of Service Bulletin No. 227.

The same type of shock absorber is used on both the front and rear of the Commander models.

Adjustment - Commander

To adjust the shock absorbers, increase the resistance by turning the pointer clockwise and decrease it by turning the pointer counter-clockwise. Not more than a 1/32" (0,794 mm.) adjustment should be made between car tests.

REMOVE HOLD-DOWN BRACKETS

There is a hold-down bracket on each side of the car fastened to the underside of the front frame crossmember directly above the inner opening of the front suspension lower control arm yoke. These brackets are used to tie down the cars in shipment.

Remove these brackets as a part of your preparation of the car for retail delivery so that they will not cause interference when performing any necessary front end service.