

Studebaker

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STUDEBAKER AUTOMATIC DRIVE FOR 1951 COMMANDER AND LAND CRUISER MODELS

Please record this article on pp. 12, 22, 25, and 29 of your Automatic Transmission Preliminary Shop Manual.

The following article lists the differences in the design and in the operating characteristics of the Studebaker Automatic Drive for 1951 Commander and Land Cruiser models as compared to prior 17A Commander models.

NOTE.--The Studebaker Automatic Drive for the 1951 Champion models is essentially the same as the Automatic Drive used in the 1950 Champion models.

Design

1. The torque converter is now 11" (279,4 mm) in diameter while the 1950 Commander converter diameter was 12" (304,8 mm). The 1951 direct drive clutch assembly is likewise reduced in diameter.
2. A shallower oil pan is used in 1951 which requires a different size oil filter shroud and retaining clip.
3. Because of the change in torque converter diameter and the shallower oil pan, the oil capacity of the transmission and converter for the 1951 models is approximately 9-1/2 quarts (7.9 Imp. Qts., 9 liters) instead of 11-1/2 quarts (9.6 Imp. Qts., 10,8 liters) which was the capacity of the 1950 model.
4. The 1951 Automatic Drive does not have the flexible air duct to direct cooling air to the converter, but is equipped with two screened openings, one on each side of the converter housing.
5. The anti-creep release switch is located on the accelerator cross shaft bracket which is mounted on the firewall. Because of its new location it is not required to serve a dual purpose as it did in 1950.

In this issue

	PAGE
STUDEBAKER AUTOMATIC DRIVE FOR 1951 COMMANDER AND LAND CRUISER MODELS . . .	1
PRECAUTIONS FOR INSTALLATION OF AUTOMATIC DRIVE ASSEMBLIES.	2
NOISE THROUGH STEERING COLUMN TUBE - H AND 10G	3
ROCKER ARM ADJUSTING SCREWS	4
KLEEN-CEAL FLOOR COVERING	4
MANZEL TOOL BOARDS.	4

6. The "stall speed" of the 1951 Automatic Drive for Commander and Land Cruiser is at 1600 - 1650 R.P.M. instead of 1450 - 1500 R.P.M. as on 1950 models. Stall speeds are at sea level with engine in good operating condition.
7. In the 1951 models a shorter and higher rate governor spring is used than was used in the 1950 models. This change was made to permit the different shift speeds described below.

Operating Characteristics

The operating characteristics of the 1951 Commander and Land Cruiser Automatic Drive are similar to those of the Automatic Drive for the 1950 models with the following exceptions:

1. On the 1951 models, when accelerating in Drive, the transmission shifts automatically from intermediate to direct drive between 19 and 70 mph (30,6 and 112,7 km./h.) depending upon the position of the accelerator pedal. (On the 1950 models, the shift occurred between 18 and 58 mph (29 and 93 km./h.)).

2. Additional power and acceleration for hill climbing or passing are obtained with the 1951 models in the same manner as with the 1950 models but at speeds up to 60 mph (96 km./h.) instead of 50 mph (80 km./h.) After depressing the accelerator pedal all the way to the floorboard to secure the additional acceleration, the transmission remains in intermediate range until the pedal pressure is momentarily relieved or until the car speed reaches approximately 70 mph (112 km./h.) whereas on 1950 models the transmission remains in intermediate until the pedal pressure is momentarily relieved or the speed reaches approximately 58 mph (93,3 km./h.).

Driving Instructions

The driving instructions for the 1951 models are similar to those of the 1950 models with the exceptions as described under operating characteristics.

Maintenance Requirements

Since the oil capacity of the Automatic Drive for the 1951 Commander and Land Cruiser models is now 9-1/2 quarts (7.9 Imp. Qts., 9 liters), the maintenance requirements are the same as for the 1950-51 Champion.

PRECAUTIONS FOR INSTALLATION OF AUTOMATIC DRIVE ASSEMBLIES

Please record this article on page 50 of the Preliminary Automatic Transmission Shop Manual.

When a dealer installs a transmission or a torque converter assembly in a car equipped with the Studebaker Automatic Drive, it is essential that the installation be made with extreme care, using the established procedures and the proper special tools where required.

In this article are listed several items connected with dealer-installed transmissions and torque converters that may result in come-backs if the installations were performed carelessly.

The first section of this article gives those conditions and symptoms which result from improper installation, together with the cause. The second section of the article outlines the details of installation which should be particularly watched when making installation of Automatic Drive units in order to avoid any of these possible conditions.

Where such conditions as these are found to be the result of the dealer installation of a

transmission or a torque converter assembly and the assembly is returned to us for claims credit, full credit cannot be allowed since the failure resulted from improper installation rather than from defective material or manufacture.

1. **CONDITION:** Front pump excessively worn.

SYMPTOM: Low front pump pressure and noisy operation.

CAUSE: Improper engagement of front pump drive fingers in front pump drive gear.

2. **CONDITION:** Damaged front pump drive fingers on the converter assembly.

SYMPTOM: Overheating, noisy front pump, or inoperative transmission.

CAUSE: Improper engagement of the drive fingers in the front pump drive gear.

3. **CONDITION:** Damaged hub splines in the internal units of the torque converter.

SYMPTOM: Overheating and failure of direct drive clutch to disengage properly.

CAUSE: Improper entry of the transmission into the torque converter and misalignment of the converter to the converter drive plate (latter on 17A only).

Misalignment - Front Pump to Drive Fingers

The most common type of damage is to the transmission front pump and to the front pump drive fingers of the torque converter assembly due to improper engagement of the drive fingers in the front pump drive gear. If the drive fingers are not properly aligned to the drive gear with the Spline Aligning Tool J-4283 before attempting installation of the transmission into the torque converter, the drive fingers may butt against the front pump drive gear instead of entering into it as the transmission is put into place. If the transmission assembly is then drawn into place by tightening the attaching nuts and cap screws, the drive fingers will be damaged and excessive pressure placed against the front pump drive gear. Operation under these conditions will cause the front pump drive gear to cut into the front pump housing and further damage the drive fingers.

If the car is operated for some time in this condition, the front pump housing will be cut away until the front pump is no longer able to deliver pressure at which time the transmission

ceases to operate.

INSTALLATION PRECAUTIONS: To avoid this type of damage, carefully align the transmission and the torque converter assemblies with Spline Aligning Tool J-4283 before the transmission assembly is installed. Care must also be taken to see that the transmission is fully entered into the torque converter assembly before the attaching nuts and cap screws are put in place.

The front pump drive fingers engage the front pump drive gears in the last 1/4" of travel as the transmission assembly enters the torque converter assembly. When the units are properly aligned before the transmission is inserted in the torque converter and the transmission enters smoothly until it comes within 1/8" to 1/4" of the converter housing but refuses to fit snugly against the housing, this is an indication that the front pump drive fingers are not entering the front pump drive gear. When this occurs, turn the converter a small amount in either direction while applying light pressure to the rear of the transmission. This will usually result in proper seating of the transmission.

If the above does not give satisfactory seating of the transmission assembly, it will be necessary to remove the transmission assembly and realign both the transmission and the torque converter assemblies with Spline Aligning Tool J-4283 before installing the assembled units.

If the transmission stops at a distance greater than 1/4" from the converter housing, the splines on the transmission and in the converter are not properly aligned. Under this condition, turn the companion flange (at rear of the transmission) a little in either direction and at the same time apply light pressure to the rear of the transmission. This will usually allow the transmission to go into place.

Alignment Marks Not Observed-17A

Another possible cause of failure due to faulty or careless installation is the misalignment of the aligning marks (O) on the torque converter assembly and the torque converter drive plate of 1950 (17A) Commander models. The purpose of these aligning marks is to insure that the six crankshaft-to-drive plate bolts fit between the six stiffening ribs on the front face of the converter assembly. If they do not fit as designated by the marks, tightening of the converter-to-drive plate stud

nuts will force the crankshaft-to-drive plate bolts into the ribs, damaging the ribs and preventing the converter from aligning uniformly with the engine and the transmission assembly. Failure to align the converter and converter drive plate properly results in immediate damage to the converter and, if the car is operated in this condition it will also cause serious damage to the transmission. Therefore, we strongly urge that care be taken to align the converter and the converter drive plate when making a converter installation.

INSTALLATION PRECAUTIONS: We recommend that you make a careful check of alignment each time a transmission or torque converter assembly is removed and reinstalled in a car, as follows:

1. *Examine the alignment of the torque converter to the drive plate.* This check can be made with the converter in the car by removing the two bolts holding the converter inspection plate to the engine backing plate and housing cover plate and sliding the plate out. The converter should be rotated until an "O" can be observed stamped on the converter drive plate. One of the two O-marks stamped on the converter assembly should be aligned with the O-mark on the converter drive plate.
2. *Examine the front pump drive fingers of the torque converter assembly.* These fingers can be seen only when the transmission assembly is out of the car. The fingers should be straight and should not be cut or grooved. If they are bent or worn excessively, the converter should be replaced.

NOISE THROUGH STEERING COLUMN TUBE - H AND 10G

Please record this article on the Service Bulletin reference page at the end of the Steering section of your 1951 Shop Manual.

On some of the early production 1951 Champion and Commander models it was found that the felt insulator at the base of the steering column tube could get out of place, permitting cold air and engine fumes to get inside the body.

To correct such a condition, tape over the large access hole at the top of the tube between the dash and the instrument board with Mystic cloth masking tape or its equivalent.

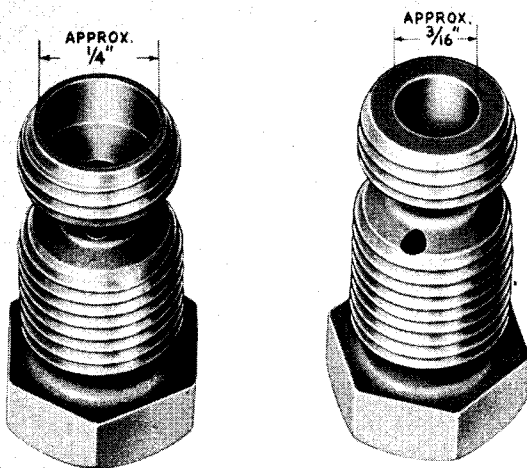


FIG. 1

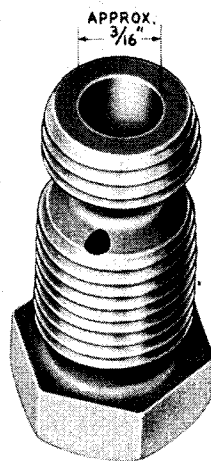


FIG. 2

ROCKER ARM ADJUSTING SCREWS

Please record this article on the Service Bulletin reference page at the end of the Engine section of your 1951 Shop Manual.

If you encounter cases of repeated excessive valve clearance developing in a Commander V-8 engine, it may be caused by excessive wear in the push rod socket of the rocker arm adjusting screws. This condition would result from screws not being properly heat treated.

Premature wear may be found in the rocker arm adjusting screw of the type shown in Fig. 1. It has not been found in the type of screw shown in Fig. 2. When you have the condition of repeated excessive valve clearance occurring examine the rocker arm adjusting screws and replace all of the type shown in Fig. 1.

Order rocker arm adjusting screws, Part No. 529400, from your Parts Depot in the usual manner. Any of these screws you receive from your Parts Depot, regardless of type, will have the proper heat treatment.

NOTE.--The illustration shown above was inadvertently printed on page 3 of Service Bulletin No. 247. The picture is used with the above article and has no significance in connection with the articles in Service Bulletin No. 247.

SERVICE EQUIPMENT

SEALER AND COVERING FOR CONCRETE FLOORS

Mailed with this issue of the Service Bulletin is a folder describing McGuire's "Kleen-Ceal" products for the cleaning, sealing, and protection of concrete floors.

The cover coating is supplied in black, white, clear and six colors: light gray, medium gray, russet brown, tile red, mahogany, and tile green.

Quick drying cleaners containing no acids or alkalis are available to remove grease and oil preparatory to applying the finish.

An order blank showing prices is furnished with the folder. Orders for materials should be mailed directly to McGuire Paint Mfg. Co., 1620 West Monroe Street, Chicago 12, Ill.

NOTE.--Export dealers may order from The Studebaker Corporation, Export Division.

TOOL BOARDS FOR SERVICE DEPARTMENTS

A copy of the Manzel tool board catalog piece for Studebaker dealers is being mailed you with this issue of the Service Bulletin.

These tool boards, made of sturdy expanded steel mesh over formed tubular frames, are not only practical as places to store tools but also perform a merchandising function when topped by the attractive gold and blue "Authorized Studebaker Service Tools" sign.

Brass checks are also available for use on these boards for purposes of keeping track of tools removed from the boards.

Two sizes of board with a strong dolly on Dipsy-Doodle casters make many structural combinations possible. One of the most attractive features of these tool boards is the fact that clips and hooks of various sizes can be fastened in any location on the board desired, giving nearly limitless dimensional capacity for hanging tools of all sizes and shapes.

An order blank is incorporated on the second sheet of the folder and all orders for the tool boards, clips, hooks, signs, checks, or dollies should be mailed directly to Manzel in Buffalo, N. Y.