TECUMSEH®

SERVICE BULLETIN 304

PEERLESS

ISSUED: June 1996

SUBJECT: Peerless Transaxles and Transmissions Shifting Problems

MODELS OR TYPES AFFECTED: All In-Line Shift Models 700, 800, 900, or MST Series

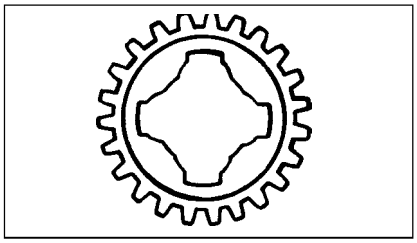
Shifting force or effort should be the same with the engine running or not running. If not equal, check the following area's: clutch adjustment, brake adjustment, belt release and belt guide positioning.

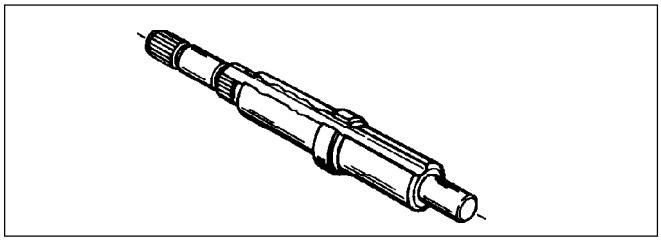
The transaxle and transmission models listed above are in-line shift mechanical gear drive models that use shift keys to engage a desired gear to lock and rotate with the shaft. This type of unit requires the transaxle or transmission to be in a no load condition (de-clutched) when gear selection occurs. Declutching allows the unit to have the input and brake forces removed from the gears and shift keys, which allows the unit to turn freely. Improper shifting (shifting while on an incline, shifting while towing any type of load, or shifting without de-clutching) forces the shift keys to engage into a gear that is in a loaded condition. Improper shifting is considered abuse because it leads to premature wear and failure of the shift keys and drive gears. Tecumseh's limited warranty covers only transaxle or transmission failures that are the result of a defect in the material or workmanship of the unit, not failures caused by abuse or wear.

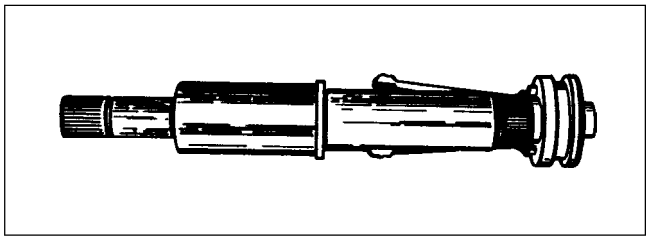
Some Original Equipment Manufacturers (OEMS) use these transaxles and transmissions in lawn tractors that do not use a foot operated clutch. These lawn tractors combine the clutch release mechanism with the hand operated gear shift lever. When the gear shift lever is moved through the shift gate from the gear engagement position toward the neutral position, the attached clutch linkage moves the idler pulley to release all input drive belt tension from the transaxle input pulley. With the drive belt released from the transaxle input pulley (de-clutched), the transaxle is free to turn under a no load condition while another gear selection can be made.

Improper shifting on this type of OEM equipment: such as, shifting while on an incline or shifting the unit while towing any type of load, is considered abuse, The result of which is premature shift key and gear wear, not a defect in the material or workmanship of the Peerless unit and is not covered under Tecumseh's limited warranty.

The following illustrations show gear, shaft and key damage caused by improper shift and / or linkage out of adjustment. These examples show evidence of wear or damage that is not considered a defect.







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SERVICE BULLETIN 304 (Cont.)

PEERLESS

TECUMSEH®

Use the following procedure to determine if a hard shifting condition is caused by the shifter/clutch linkage or an internal problem in transaxle or transmission.

On level ground, start the engine and allow the engine to run. Using the OEM supplied linkage, de-clutch the foot operated clutch and shift the gear shifter, or on units equipped with a hand operated gear/clutch shift lever, shift the transaxle or transmission. If shifting is difficult, try shifting the unit with the engine shut off.

If the unit shifts freely through each gear with the engine shut off, the cause of the shifting problem is external to the unit. DO NOT REMOVE THE TRANSAXLE. Check the clutch, shifter, and brake linkage for the proper adjustment. Use the guidelines provided by the OEM to check for the correct linkage positioning.

Hard shifting with the engine shut off can be caused by:

1. Bent or binding shift lever or linkage
2. Shift linkage out of adjustment
3. Missing belt guides or improper clearance between belt and belt guides preventing proper belt release from the pulley. (Consult OEM's specifications).
4. Corrosion in the transaxle or transmission
5. Damaged shift keys, gears, or shifter brake shaft

NOTE: DO NOT REMOVE TRANSAXLE UNTIL YOU HAVE CHECKED ITEMS IL, 2 AND 3.

If the cause is internal, remove the unit from the tractor, disassemble, and determine the cause of the failure.