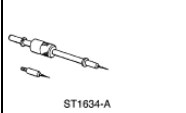



IN-VEHICLE REPAIR

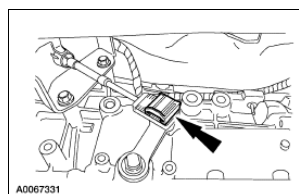
Manual Control Lever Shaft and Seal

Special Tool(s)

 <p>ST11634-A</p>	<p>Roll Pin Set 211-S060 (T78P-3504-N)</p>
 <p>ST1199-A</p>	<p>Installer, Shift Shaft Fluid Seal 307-002 (TOOL-77288)</p>

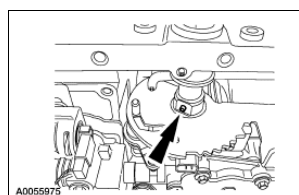
Removal

1. With the vehicle in NEUTRAL, position on a hoist. For additional information, refer to [Section 100-02](#).
2. Disconnect the shift cable end.

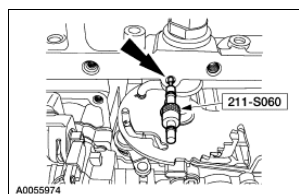


3. Remove the transmission fluid pan, gasket and filter. For additional information, refer to [Fluid Pan, Gasket and Filter](#) in this section.
4. **NOTE:** The pin should be driven up through the manual lever.

Remove and discard the manual valve detent lever shaft retaining pin.

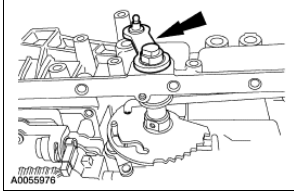


5. Using the special tool, remove the manual valve detent lever shaft retaining pin.



6. **⚠ CAUTION:** Be careful not to damage the manual control lever bore.

Remove the manual control lever shaft assembly.

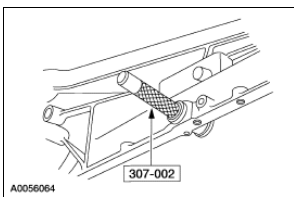


7. Using a suitable tool, remove the manual control lever seal and discard.

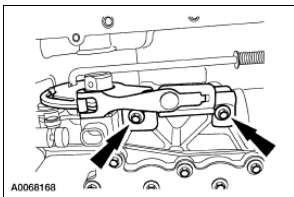
Installation

1. **NOTE:** Prior to installing the manual control lever seal, clean the bore opening with mineral spirits.

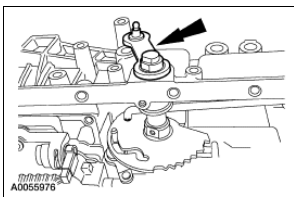
Using the special tool, install the manual control lever seal.



2. Loosen the two bolts on the transmission range sensor.

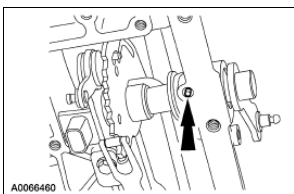


3. Install the manual control lever shaft.



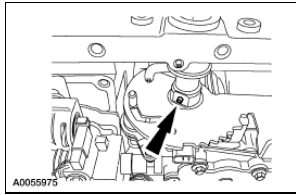
4. **NOTE:** Leave a small portion of the pin exposed.

Install the manual valve detent lever shaft retaining pin into the case.

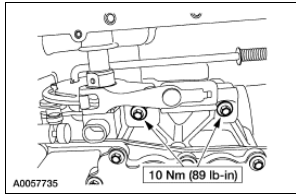


5. **NOTE:** When the retaining pin is installed correctly, 2 mm (0.08 in) of the pin will be exposed.

Install a new manual valve detent lever shaft retaining pin.

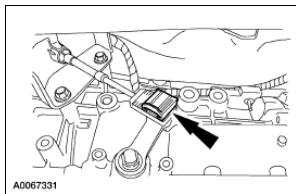


6. Tighten the bolts.



7. Install the transmission fluid pan, gasket and filter.

8. Connect the shift cable end.

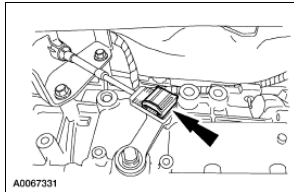


9. Adjust the shift linkage. Verify that the vehicle starts in PARK and NEUTRAL and the REVERSE lamps illuminate in REVERSE. For additional information, refer to [Section 307-05](#) .

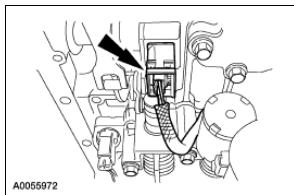
IN-VEHICLE REPAIR

Digital Transmission Range (TR) Sensor**Removal**

1. With the vehicle in NEUTRAL, position on a hoist. For additional information, refer to [Section 100-02](#).
2. Disconnect the shift cable end.

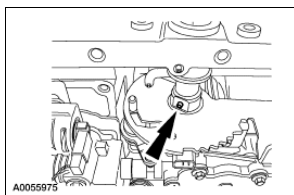


3. Remove the transmission fluid pan, gasket and filter. For additional information, refer to [Fluid Pan, Gasket and Filter](#) in this section.
4. Disconnect the transmission range sensor electrical connector.

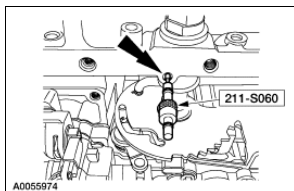


5. **NOTE:** The pin should be driven up through the manual valve.

Remove and discard the manual valve detent lever shaft retaining pin and discard.

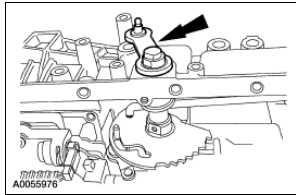


6. Using the special tool, remove the manual valve detent lever shaft retaining pin.

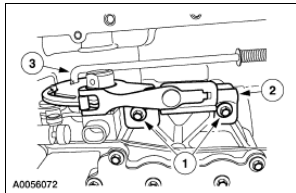


7. **⚠ CAUTION:** Be careful not to damage the manual control lever bore.

Remove the manual control lever shaft assembly.

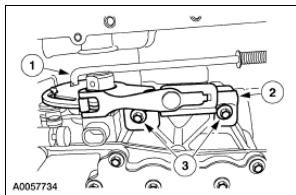


8. Remove the transmission range sensor and detent lever assembly.
 1. Remove the bolts.
 2. Remove the transmission range sensor and detent lever assembly.
 3. Disconnect the park rod from the detent lever assembly.

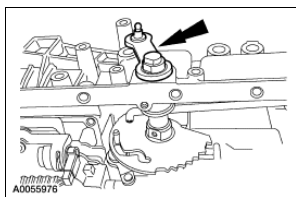


Installation

1. Install the transmission range sensor and detent lever assembly.
 1. Connect the park rod to the detent lever assembly.
 2. Install the transmission range sensor and the detent lever assembly.
 3. Loosely install the bolts.

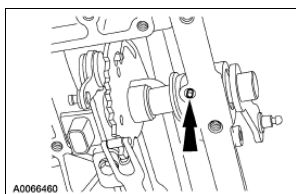


2. Install the manual control lever shaft.



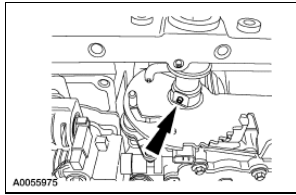
3. **NOTE:** Leave a small portion of the pin exposed.

Install the manual valve detent lever shaft retaining pin into the case.

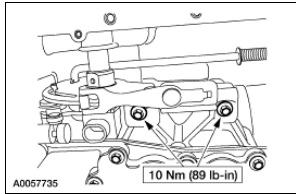


4. **NOTE:** When the retaining pin is installed correctly, 2 mm (0.08 in) of the pin will be exposed.

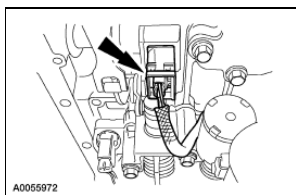
Install a new manual valve detent lever shaft retaining pin.



5. Tighten the bolts.

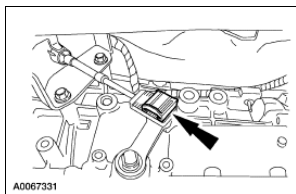


6. Connect the transmission range sensor electrical connector.



7. Install the transmission fluid pan, gasket and filter.

8. Connect the shift cable end.

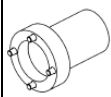


9. Adjust the shift linkage. Verify that the vehicle starts in PARK and NEUTRAL and the REVERSE lamps illuminate in REVERSE. For additional information, refer to [Section 307-05](#).

IN-VEHICLE REPAIR

Park System

Special Tool(s)

 <p>ST2720-A</p>	<p>Nut Driver, Output Shaft 307-458</p>
---	---

Removal**All vehicles**

1. With the vehicle in NEUTRAL, position on a hoist. For additional information, refer to [Section 100-02](#).

4x4 vehicles

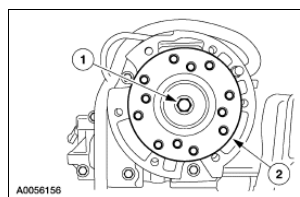
2. Remove the transfer case. For additional information, refer to [Section 308-07B](#).

4x2 vehicles

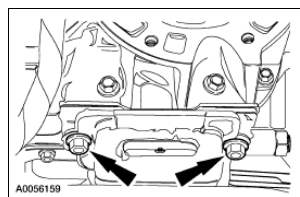
3. Remove the rear driveshaft. For additional information, refer to [Section 205-01](#).

Vehicles equipped with a fixed yoke

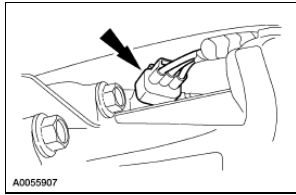
4. Remove the output shaft flange.
 1. Remove and discard the output shaft flange bolt.
 2. Remove the output shaft flange.

**All vehicles**

5. Using a suitable transmission jack, support the transmission.
6. Remove the bolts, and raise the transmission upward, off the rear mount.

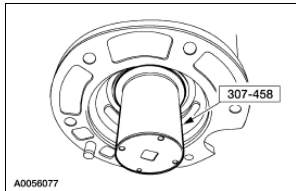


7. Disconnect the output shaft speed (OSS) sensor electrical connector.



4x4 vehicles

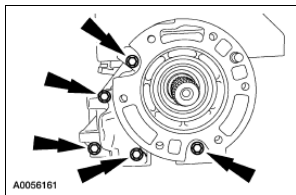
8. Using the special tool, remove the output shaft retaining nut.



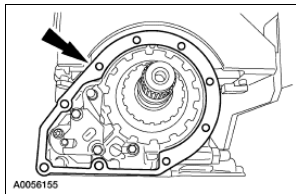
All vehicles

NOTE: The 4x4 extension housing is shown, the 4x2 is similar.

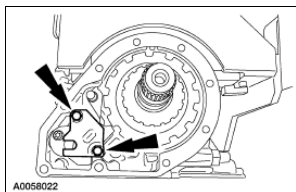
9. Remove the nine bolts and the extension housing.



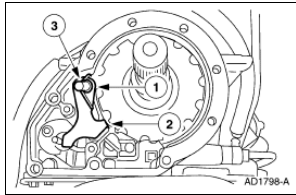
10. Remove and discard the extension housing gasket.



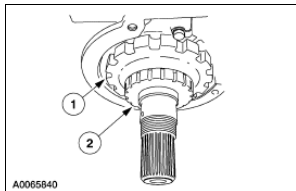
11. Remove the parking rod guide plate bolts and plate.



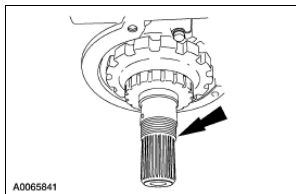
12. Remove the park pawl components.
 1. Remove the park pawl return spring.
 2. Remove the park pawl.
 3. Remove the park pawl shaft.



13. Inspect the output shaft and park gear for damage.
 1. Inspect the park gear for damage.
 2. Inspect the output shaft speed (OSS) gear for damage.

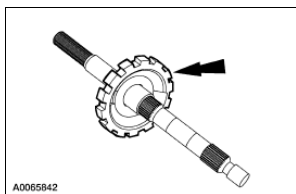


14. If damage is found to either the OSS or park gears, remove the park gear and output shaft as an assembly.

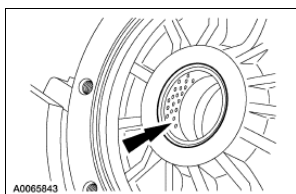


15. **NOTE:** The park gear and OSS gear may be present on the output shaft.

Remove the park and OSS gear from the output shaft.



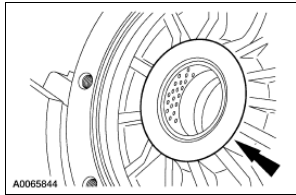
16. Inspect the Teflon® seals in the rear of the case. If the seals are worn or damaged, install new scarf cut seals.



Installation

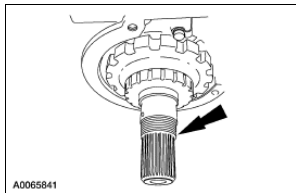
All vehicles

1. Using petroleum jelly to hold the bearing or bushing in place, install the output shaft bearing for slip yoke models and the bushing for fixed yoke models.

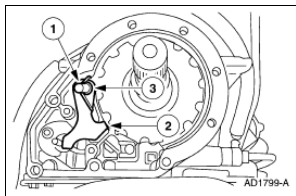


2. **⚠ CAUTION: Be careful when installing the output shaft not to damage the seals.**

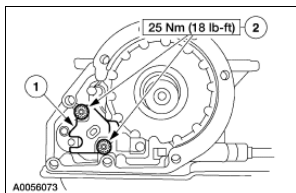
If the output shaft was removed, install the output shaft and park gear assembly.



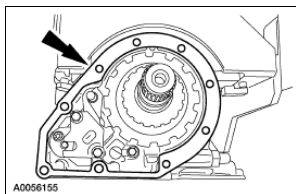
3. Install the park pawl shaft.
1. Install the park pawl shaft.
 2. Install the park pawl.
 3. Install the park pawl return spring.



4. Install the parking rod guide plate.
1. Install the parking rod guide plate.
 2. Install the bolts.



5. Install a new extension housing gasket.



6. Install the extension housing and the nine bolts.

