

SERVICE REPAIR

MANUAL

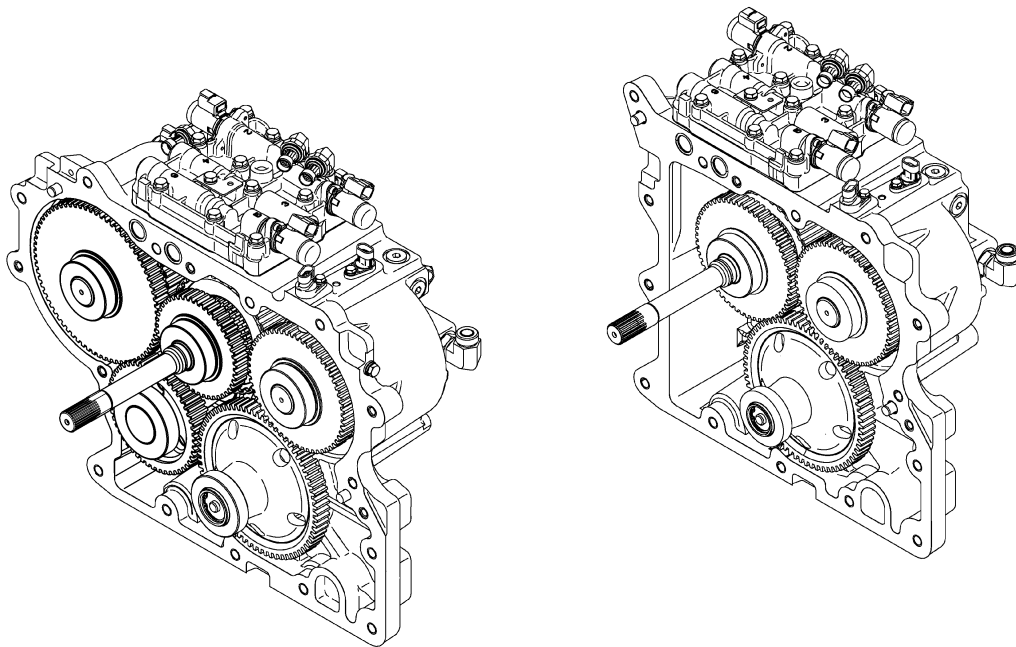
**Hyster P005 (H80FT, H90FT, H100FT, H110FT, H120FT)
Forklift Service Repair Manual**

HYSTER

POWERSHIFT TRANSMISSION

REPAIR

**S30FT, S35FT, S40FTS [E010];
H1.6FT, H1.8FT, H2.0FTS (H30FT, H35FT, H40FTS) [F001];
S2.0-3.5FT (S40-70FT, S55FTS) [F187];
H2.0-3.5FT (H40-70FT) [L177];
S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT; S80, 100FTBCS;
S120FTS; S120FTPRS) [G004]; H4.0FT5/FT6; H4.5FTS5, H4.5FT6;
H5.0-5.5FT (H80, 90, 100, 110, 120FT) [P005]**



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HYSTER

SAFETY PRECAUTIONS

MAINTENANCE AND REPAIR

- The Service Manuals are updated on a regular basis, but may not reflect recent design changes to the product. Updated technical service information may be available from your local authorized Hyster® dealer. Service Manuals provide general guidelines for maintenance and service and are intended for use by trained and experienced technicians. Failure to properly maintain equipment or to follow instructions contained in the Service Manual could result in damage to the products, personal injury, property damage or death.
- When lifting parts or assemblies, make sure all slings, chains, or cables are correctly fastened, and that the load being lifted is balanced. Make sure the crane, cables, and chains have the capacity to support the weight of the load.
- Do not lift heavy parts by hand, use a lifting mechanism.
- Wear safety glasses.
- **DISCONNECT THE BATTERY CONNECTOR** before doing any maintenance or repair on electric lift trucks. Disconnect the battery ground cable on internal combustion lift trucks.
- Always use correct blocks to prevent the unit from rolling or falling. See **HOW TO PUT THE LIFT TRUCK ON BLOCKS** in the **Operating Manual** or the **Periodic Maintenance** section.
- Keep the unit clean and the working area clean and orderly.
- Use the correct tools for the job.
- Keep the tools clean and in good condition.
- Always use **HYSTER APPROVED** parts when making repairs. Replacement parts must meet or exceed the specifications of the original equipment manufacturer.
- Make sure all nuts, bolts, snap rings, and other fastening devices are removed before using force to remove parts.
- Always fasten a **DO NOT OPERATE** tag to the controls of the unit when making repairs, or if the unit needs repairs.
- Be sure to follow the **WARNING** and **CAUTION** notes in the instructions.
- Gasoline, Liquid Petroleum Gas (LPG), Compressed Natural Gas (CNG), and Diesel fuel are flammable. Be sure to follow the necessary safety precautions when handling these fuels and when working on these fuel systems.
- Batteries generate flammable gas when they are being charged. Keep fire and sparks away from the area. Make sure the area is well ventilated.

NOTE: The following symbols and words indicate safety information in this manual:



WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury and property damage.

On the lift truck, the WARNING symbol and word are on orange background. The CAUTION symbol and word are on yellow background.

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This section is for the following models:

S30FT, S35FT, S40FTS [E010];
 H1.6FT, H1.8FT, H2.0FTS (H30FT, H35FT, H40FTS) [F001];
 S2.0-3.5FT (S40-70FT, S55FTS) [F187];
 H2.0-3.5FT (H40-70FT) [L177];
 S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT; S80, 100FTBCS;
 S120FTS; S120FTPRS) [G004];
 H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90,
 100, 110, 120FT) [P005]

"THE QUALITY KEEPERS"

HYSTER APPROVED PARTS

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Please click here, Then get the complete
manual**

JustClickHere 

NOTE:

**If there is no response to click on the link above,
please download the PDF document first, and then
click on it.**

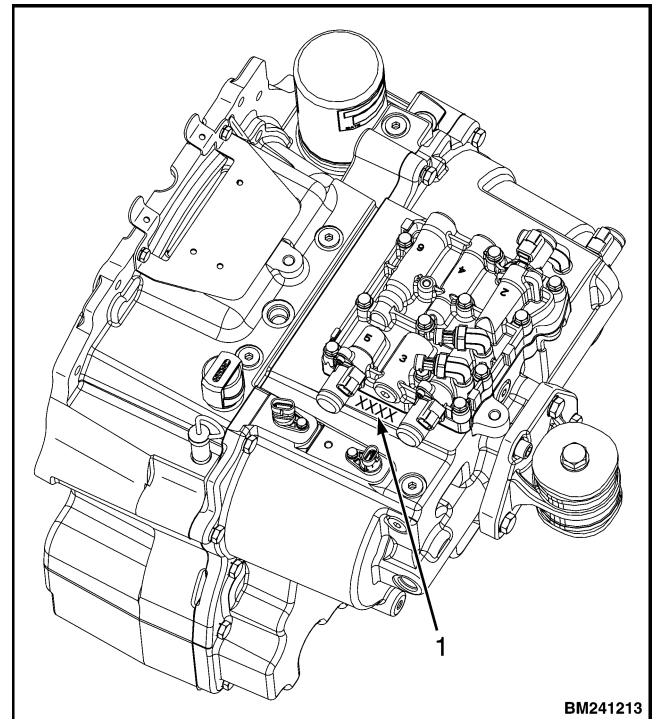
**Have any questions please write to me:
admin@servicemanualperfect.com**

General

This section has the repair procedures for the transmission.

SERIAL NUMBER

The transmission serial number is located on the right side of the transmission control valve directly below the floor plate. See Figure 1.



1. TRANSMISSION SERIAL NUMBER

Figure 1. Transmission Serial Number Location

Charge Pump Repair

LIFT TRUCKS MANUFACTURED BEFORE JULY, 2013

Remove

NOTE: The charge pump can be removed from the transmission while it is still in the lift truck but, for the sake of clarity, the following procedures are shown with the transmission removed from the lift truck.

Remove four mounting capscrews, washers, transmission charge pump, and gasket from torque converter housing. Discard gasket. See Figure 2.

Inspect

Inspect the splines on shaft of transmission charge pump for damage or worn areas that could affect operation of the pump. If the splines are damaged, replace the transmission charge pump.

Install

Install new gasket, transmission charge pump, four washers, and mounting capscrews on torque converter housing. Tighten capscrews to 19 N•m (168 lbf in).

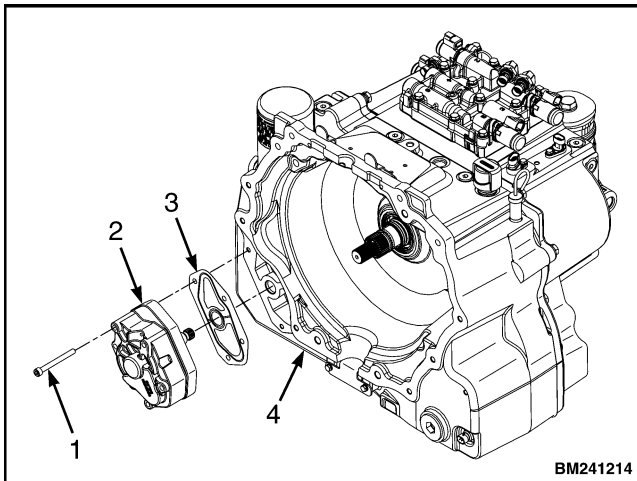


Figure 2. Transmission Charge Pump

Legend for Figure 2

NOTE: THE TRANSMISSION IS SHOWN REMOVED FROM LIFT TRUCK FOR CLARITY.

1. CAPSCREW
2. CHARGE PUMP
3. GASKET
4. TORQUE CONVERTER HOUSING

LIFT TRUCKS MANUFACTURED AFTER JULY, 2013

Remove

NOTE: The charge pump can be removed from the transmission while it is still in the lift truck but, for the sake of clarity, the following procedures are shown with the transmission removed from the lift truck.

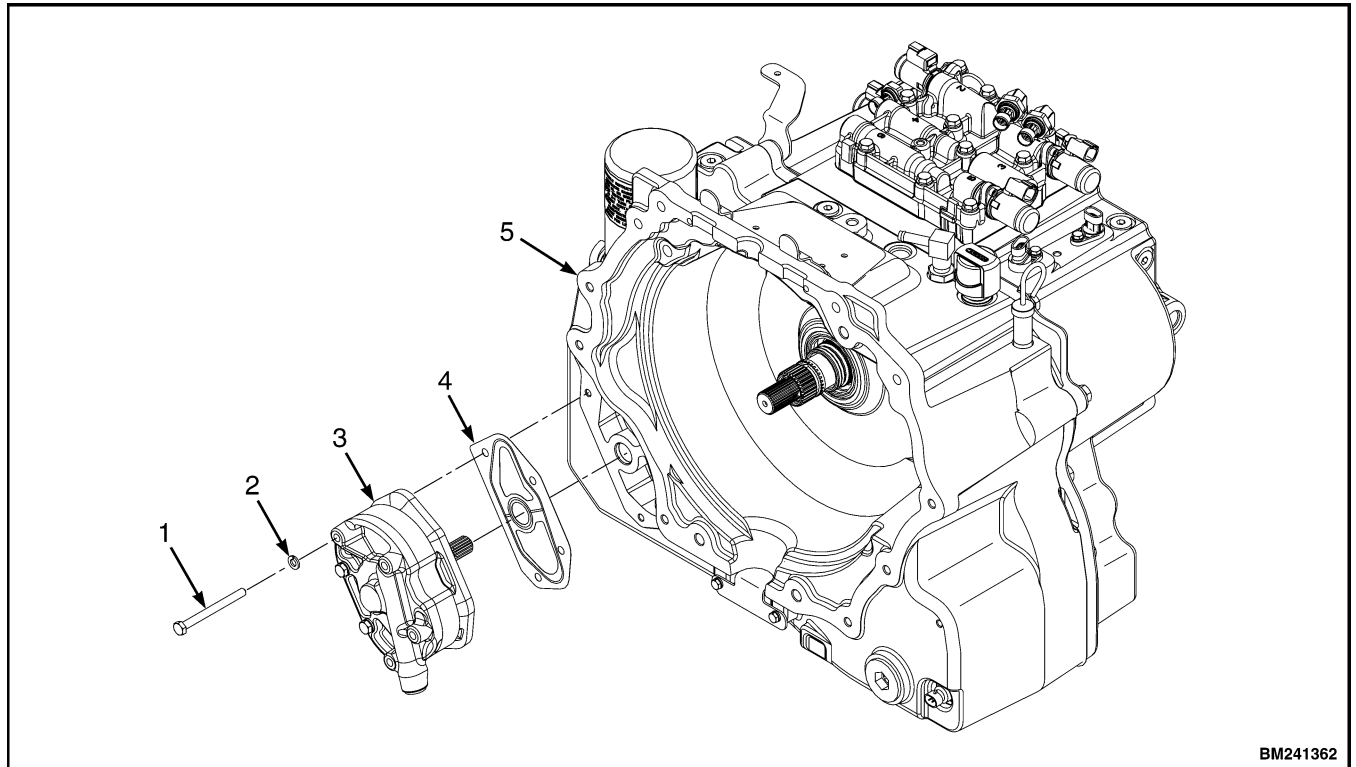
Remove four mounting capscrews, washers, transmission charge pump, and gasket from torque converter housing. Discard gasket. See Figure 3.

Inspect

Inspect the splines on shaft of transmission charge pump for damage or worn areas that could affect operation of the pump. If the splines are damaged, replace the transmission charge pump.

Install

Install new gasket, transmission charge pump, four washers, and mounting capscrews on torque converter housing. Tighten capscrews in star pattern to 6 N•m (53 lbf in) on first pass. On second pass, tighten capscrews in star pattern to 19 N•m (168 lbf in). See Figure 3.



NOTE: THE TRANSMISSION IS SHOWN REMOVED FROM LIFT TRUCK FOR CLARITY.

- | | |
|----------------|-----------------------------|
| 1. CAPSCREW | 4. GASKET |
| 2. WASHER | 5. TORQUE CONVERTER HOUSING |
| 3. CHARGE PUMP | |

Figure 3. Transmission Charge Pump

Torque Converter Replace

REMOVE



WARNING

Make sure the engine and transmission are held in position so that they will not fall and cause an injury and damage to the equipment.



CAUTION

Be careful that you DO NOT damage parts of the torque converter or transmission when the transmission is separated from the engine. Keep the transmission and engine in alignment until they are completely separated so parts of the transmission are not damaged. Use a crane or lifting device to separate the transmission from the engine.

1. Remove engine and transmission as a unit from lift truck as described in one of the following sections:

See **Frame** 100 SRM 1243 for lift truck models:

- S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004)
- H4.0FT5/FT6; H4.5FTS5, H4.5FT6, H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005)

See **Frame** 100 SRM 1120 for lift truck models:

- S30FT, S35FT, S40FTS (E010)
- H1.6FT, H1.8FT, H2.0FTS (H30FT, H35FT, H40FTS) (F001)
- S2.0-3.5FT (S40-70FT, S55FTS) (F187)
- H2.0-3.5FT (H40-70FT) (L177)



CAUTION

Use care when disconnecting the wiring harness connectors from electrical connectors on the transmission and control valve. The connectors on the transmission and control valve are easily damaged.

NOTE: When disconnecting wiring harness connectors during disassembly, tag each connector to aid in connecting the wiring harness during reassembly.

2. Put engine and transmission on solid blocks on a work surface.

Disconnect transmission wiring harness connectors from control valve and transmission.

Remove transmission wiring harness from transmission. See Figure 4.



WARNING

Make sure that the engine/transmission assembly is stable before attempting to rotate the engine.

Use a flashlight to see the bolts as they are rotated into view through the access hole. DO NOT use your fingers to check for alignment of the bolts with the access hole.

3. Move each bolt into view through access hole of flywheel housing by rotating crankshaft. Remove four capscrews that attach flywheel to torque converter. See Figure 5.
4. Remove access cover from torque converter housing. Install a lifting eye bolt into rear access cover bolt hole, and connect a lifting device to eye bolt. Remove ten capscrews that hold torque converter housing to flywheel housing on engine. Carefully separate transmission from engine.

NOTE: The torque converter cannot be repaired and must be replaced as a unit, if damaged.

5. Carefully remove torque converter from stator support.

See Figure 6 for lift trucks manufactured before July, 2013

See Figure 7 for lift trucks manufactured after July, 2013

6. Remove plug, suction screen spring, and suction screen from torque converter housing, and drain oil from transmission.

See Figure 6 for lift trucks manufactured before July, 2013

See Figure 7 for lift trucks manufactured after July, 2013

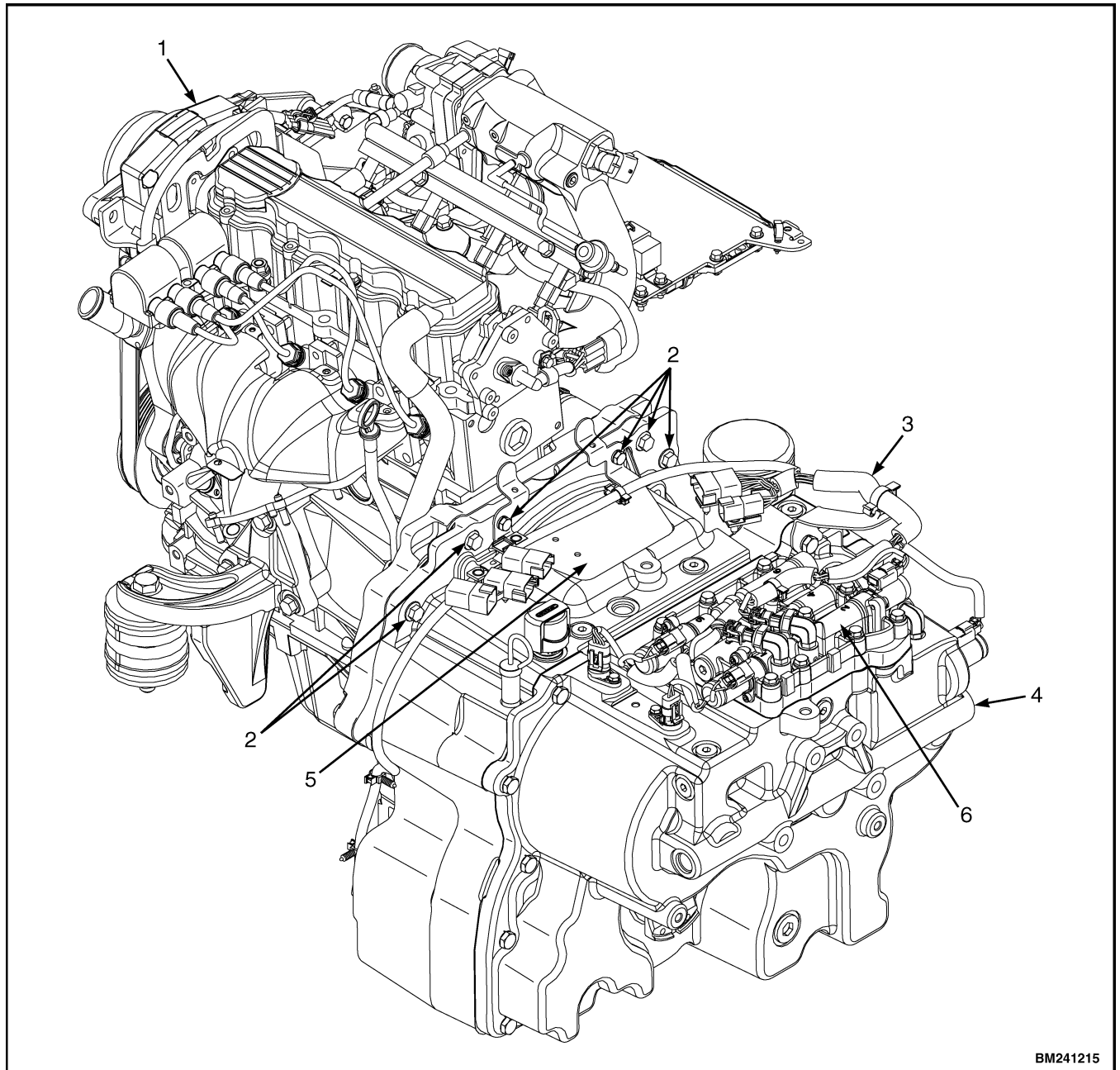


Figure 4. Engine-Transmission Combination

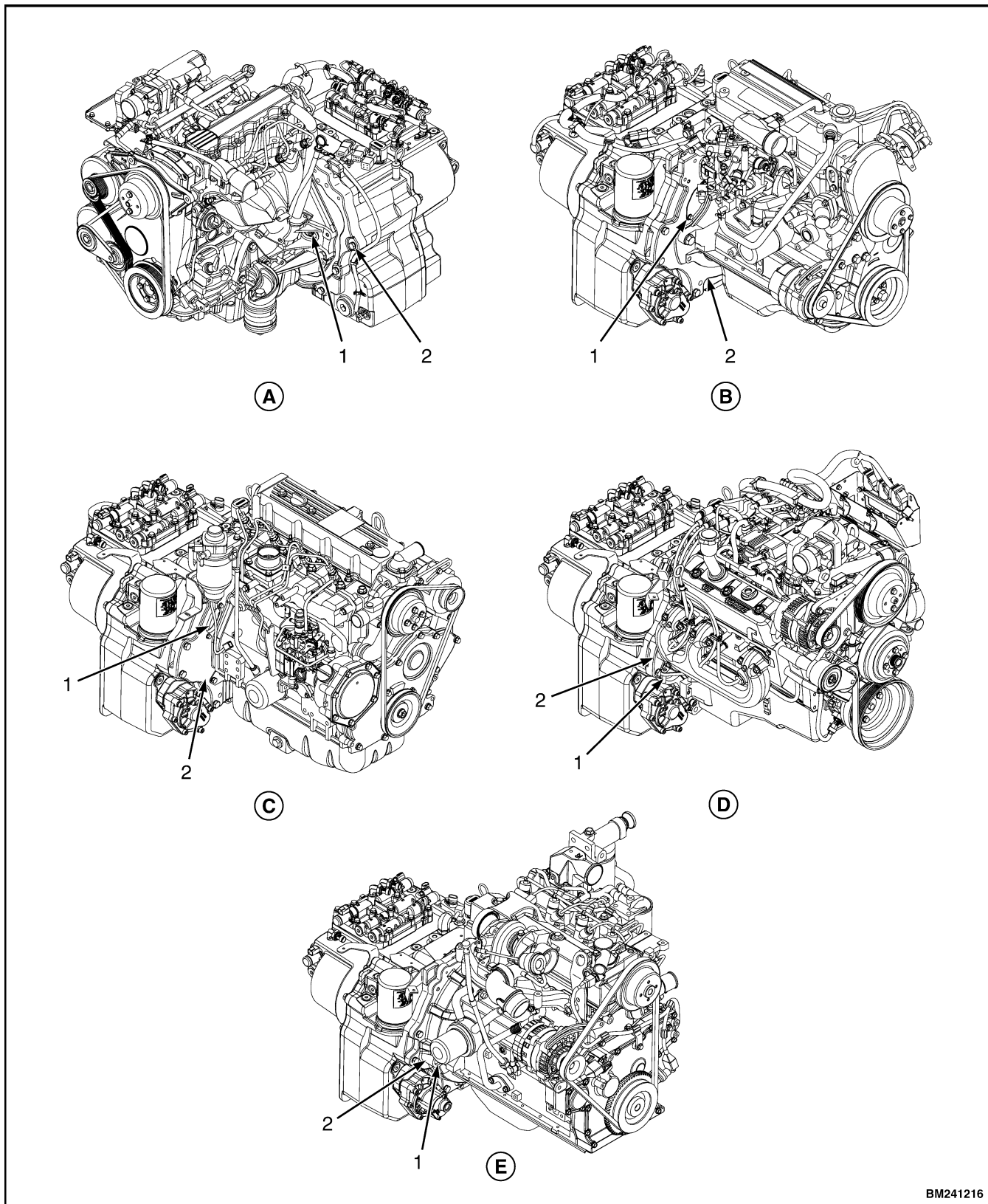


Figure 5. Torque Converter Bolt Access

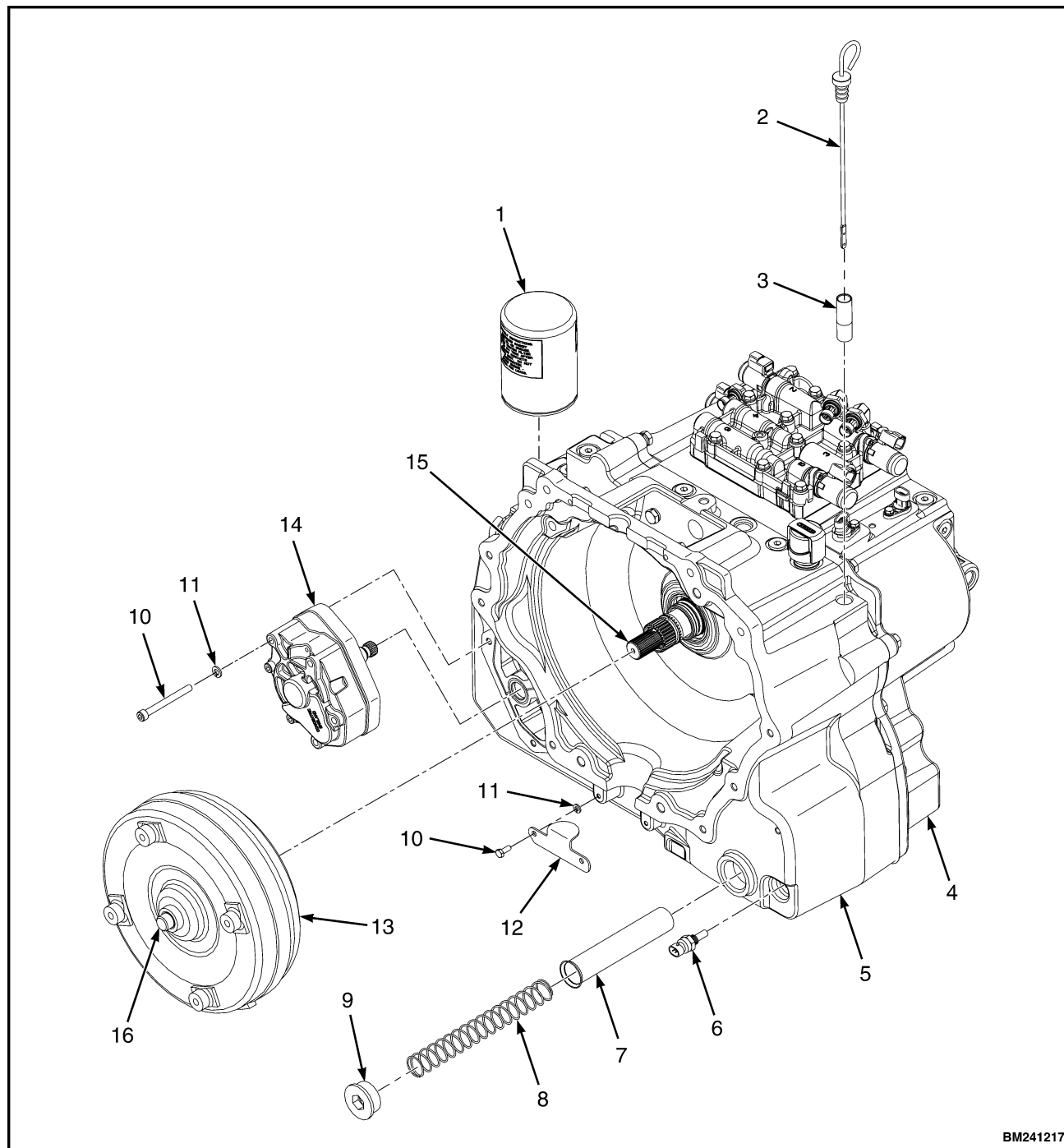
Legend for Figure 5

- A.** GM 2.4L ENGINE
- B.** MAZDA ENGINE
- C.** YANMAR ENGINE

- D.** GM 4.3L ENGINE
- E.** CUMMINS 3.3L DIESEL ENGINE

- 1.** ACCESS HOLE

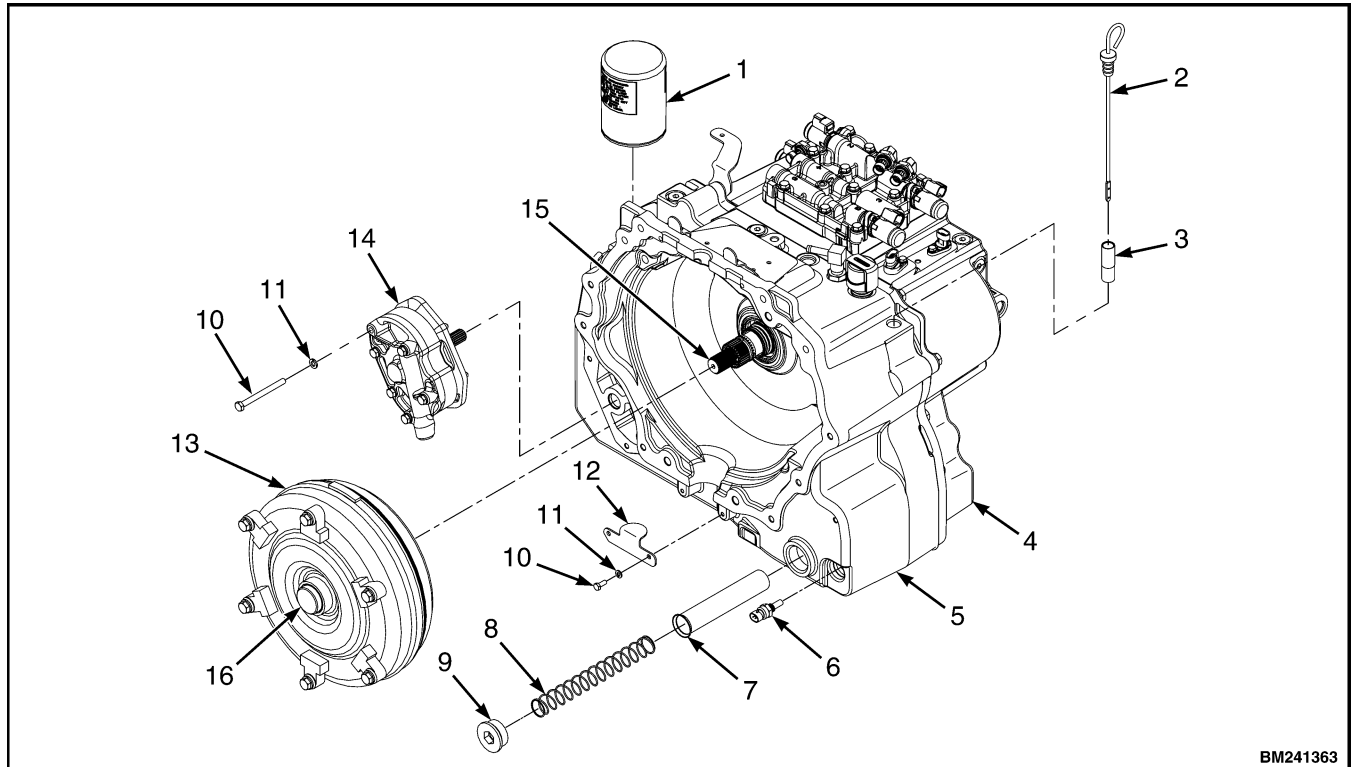
- 2.** FLYWHEEL HOUSING



BM241217

- | | |
|--|------------------------------|
| 1. TRANSMISSION OIL FILTER | 9. PLUG |
| 2. DIPSTICK | 10. CAPSCREW |
| 3. DIPSTICK TUBE | 11. WASHER |
| 4. TRANSMISSION HOUSING | 12. SMALL ACCESS COVER |
| 5. TORQUE CONVERTER HOUSING | 13. TORQUE CONVERTER |
| 6. TRANSMISSION OIL TEMPERATURE SENSOR | 14. TRANSMISSION CHARGE PUMP |
| 7. SUCTION SCREEN | 15. STATOR SUPPORT |
| 8. SUCTION SCREEN SPRING | 16. PILOT HUB |

Figure 6. Torque Converter Removal, Lift Trucks Manufactured Before July, 2013



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- | | |
|--|------------------------------|
| 1. TRANSMISSION OIL FILTER | 9. PLUG |
| 2. DIPSTICK | 10. CAPSCREW |
| 3. DIPSTICK TUBE | 11. WASHER |
| 4. TRANSMISSION HOUSING | 12. SMALL ACCESS COVER |
| 5. TORQUE CONVERTER HOUSING | 13. TORQUE CONVERTER |
| 6. TRANSMISSION OIL TEMPERATURE SENSOR | 14. TRANSMISSION CHARGE PUMP |
| 7. SUCTION SCREEN | 15. STATOR SUPPORT |
| 8. SUCTION SCREEN SPRING | 16. PILOT HUB |

Figure 7. Torque Converter Removal, Lift Trucks Manufactured After July, 2013

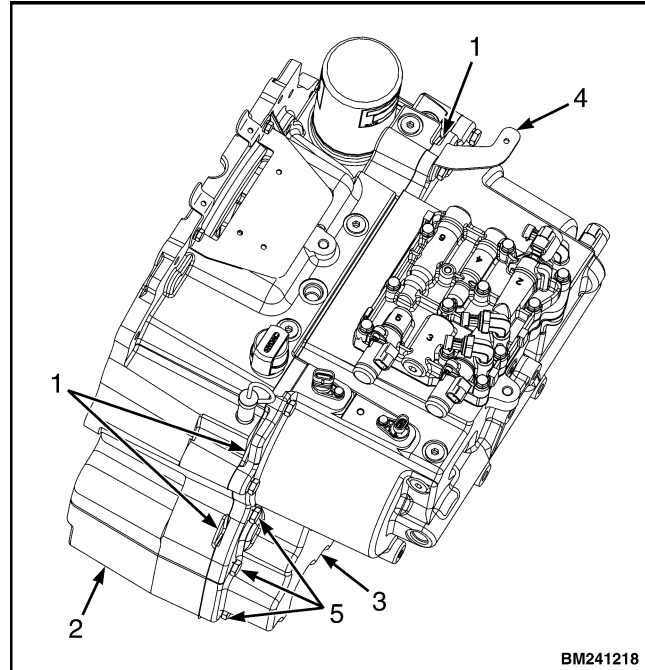
- | | |
|---|--|
| 7. Remove transmission charge pump. See Charge Pump Repair. | See Figure 6 for lift trucks manufactured before July, 2013 |
| 8. Remove transmission oil filter from torque converter housing. | See Figure 7 for lift trucks manufactured after July, 2013 |
| See Figure 6 for lift trucks manufactured before July, 2013 | 11. Remove transmission oil temperature sensor from torque converter housing. |
| See Figure 7 for lift trucks manufactured after July, 2013 | See Figure 6 for lift trucks manufactured before July, 2013 |
| 9. If damaged, remove two cap screws and small access cover from the torque converter housing. | See Figure 7 for lift trucks manufactured after July, 2013 |
| 10. Remove dipstick and dipstick tube from torque converter housing. | |

Torque Converter Replace

1300 SRM 1529

NOTE: Perform Step 12 through Step 16 only if repair of the of the transmission chain drive is required. If the transmission clutch packs are in need of further repair, see Clutch Packs Repair.

12. Remove two long capscrews and washers from inner face of torque converter housing. See Figure 9.
13. Remove 15 capscrews from transmission housing. See Figure 8.
14. Remove two mounting capscrews and harness bracket from front of torque converter housing. See Figure 8.
15. Using a small pry bar in the designated pry points, remove the torque converter housing from the transmission housing. See Figure 8.
16. Remove and discard O-rings and gasket. See Figure 9.



1. PRY POINTS
2. TORQUE CONVERTER HOUSING
3. TRANSMISSION HOUSING
4. HARNESS BRACKET
5. CAPSCREW

Figure 8. Pry Point Location

INSTALL

NOTE: Perform Step 1 through Step 4 only if repair of the transmission chain drive was performed.

1. Install new O-rings and gasket to torque converter housing and transmission housing. See Figure 9.
2. Install harness bracket and two mounting capscrews to front of torque converter housing. See Figure 8.
3. Using fifteen capscrews, install transmission housing to torque converter housing. Tighten capscrews to 38 N•m (28 lbf ft).
4. Install two washers and long capscrews into face of torque converter housing. Tighten capscrews to 38 N•m (28 lbf ft). See Figure 9.
5. If removed, install small access cover and two capscrews on torque converter housing. Tighten capscrews to 7.9 N•m (69 lbf in).

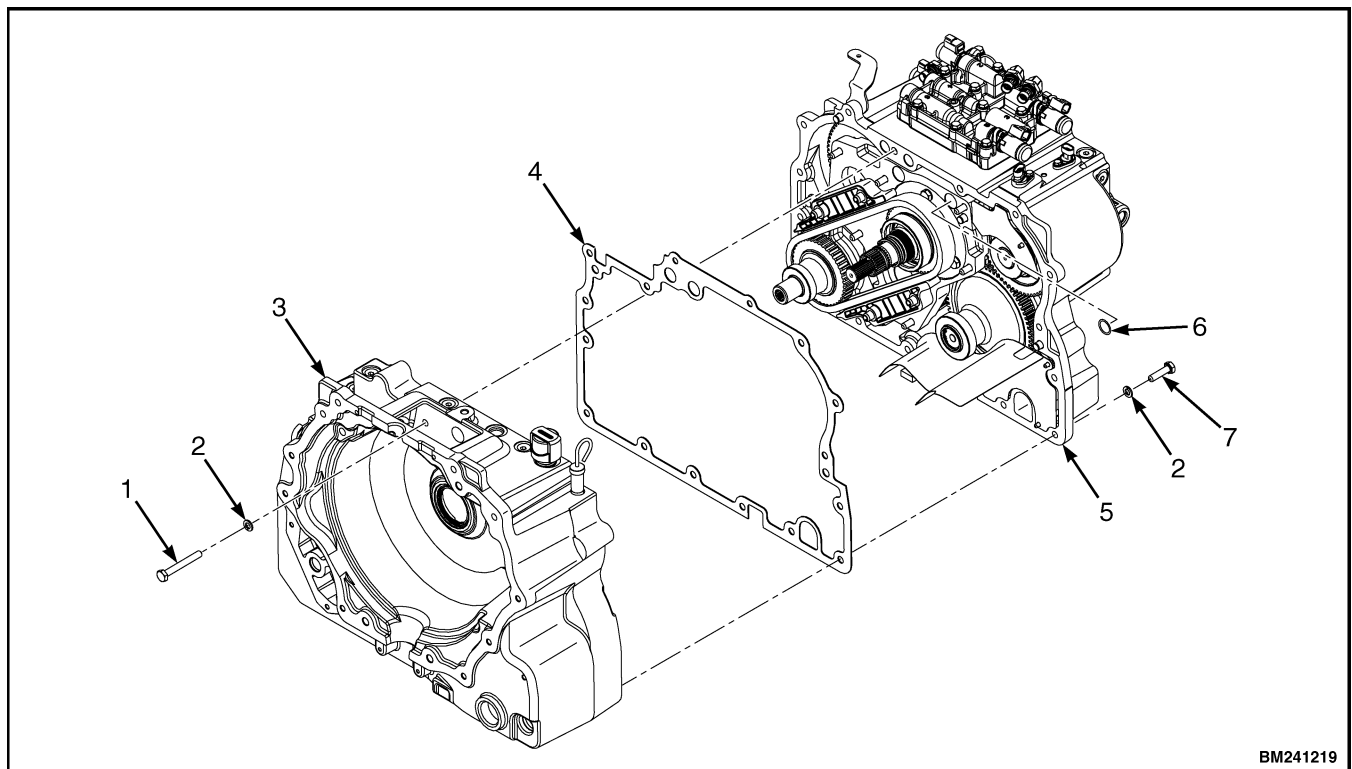
See Figure 10 for lift trucks manufactured before July, 2013

See Figure 11 for lift trucks manufactured after July, 2013

6. Install a new transmission oil filter on torque converter housing.
7. Install the transmission charge pump. See Charge Pump Repair.
8. Install suction screen, suction screen spring, and plug into torque converter housing.

See Figure 10 for lift trucks manufactured before July, 2013

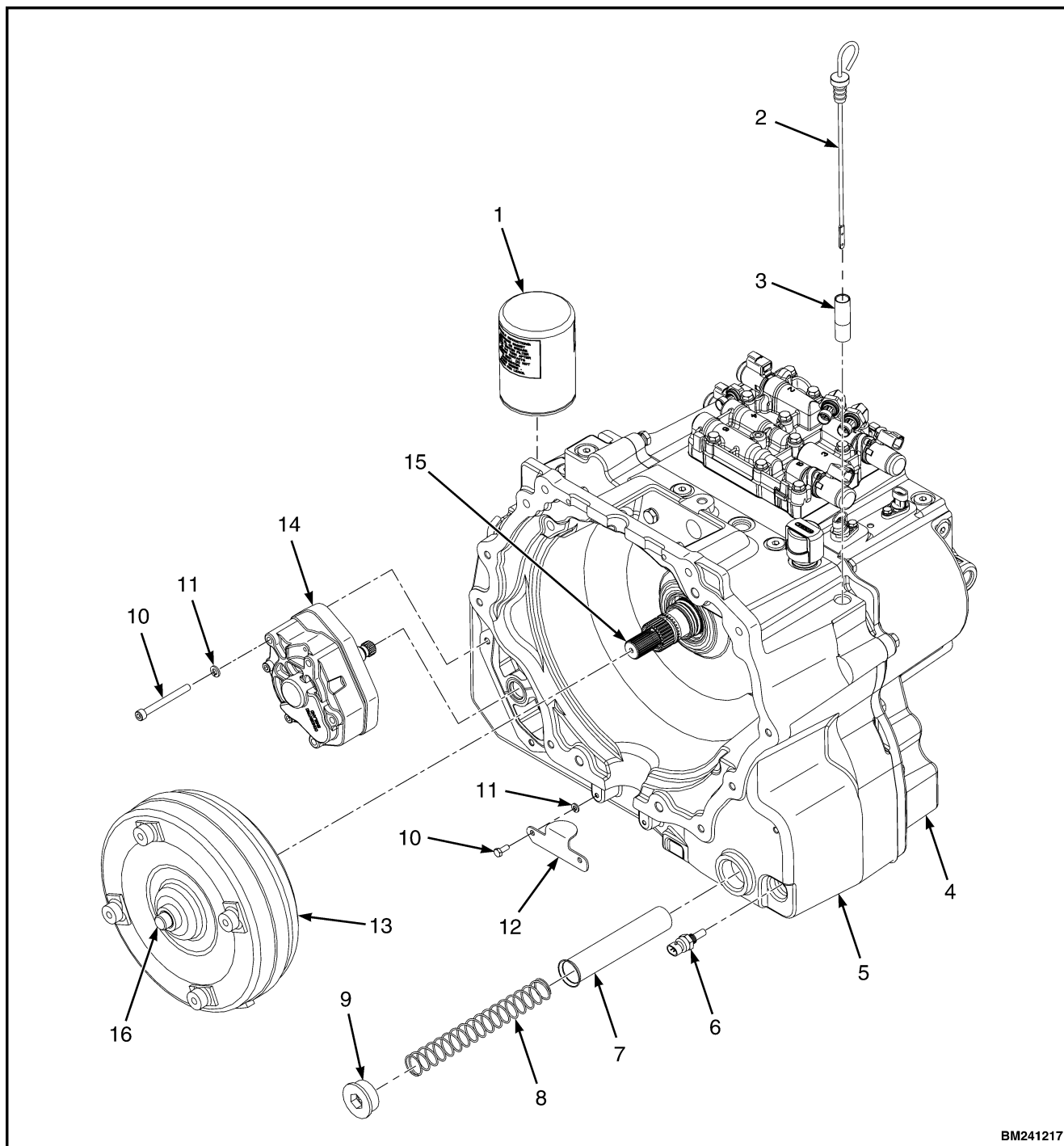
See Figure 11 for lift trucks manufactured after July, 2013



1. LONG CAPSCREW
2. WASHER
3. TORQUE CONVERTER HOUSING
4. GASKET

5. TRANSMISSION HOUSING
6. O-RING
7. CAPSCREW

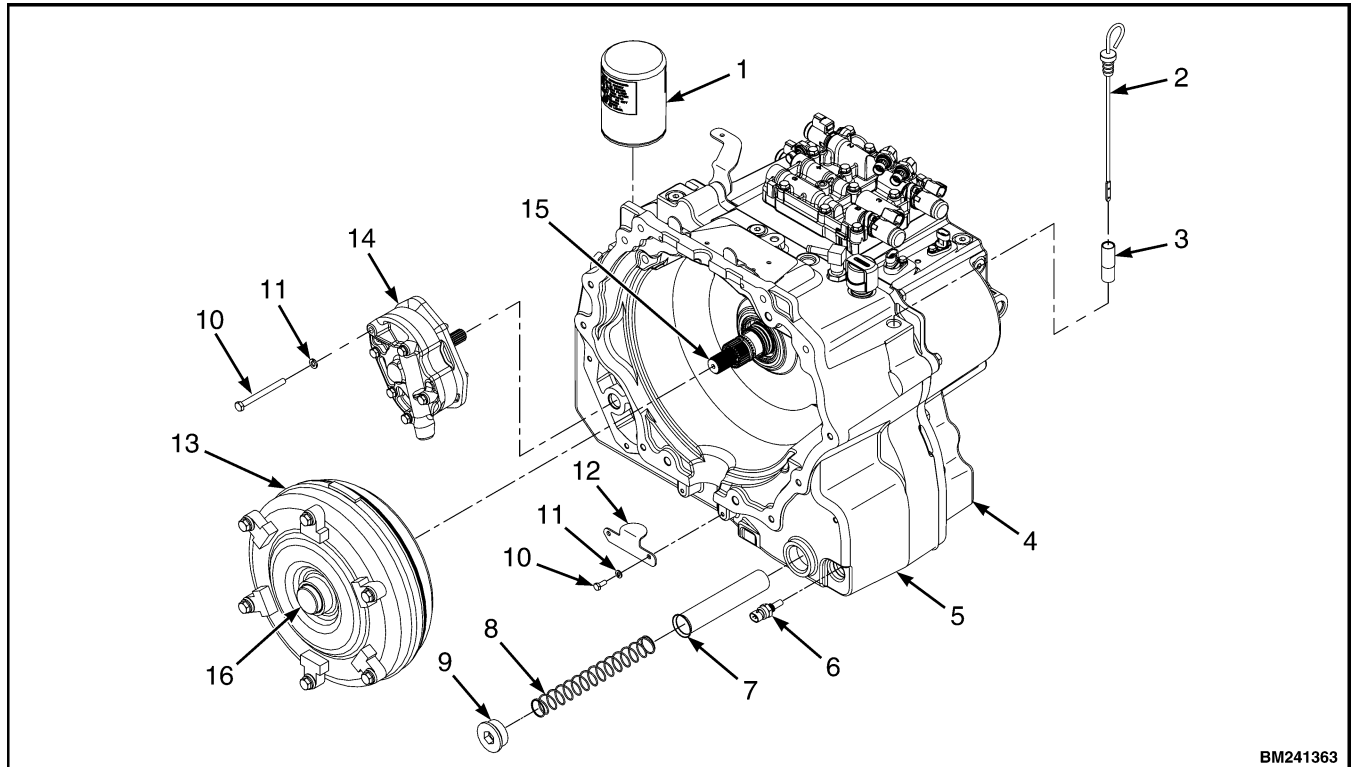
Figure 9. Torque Converter Housing



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- | | |
|--|------------------------------|
| 1. TRANSMISSION OIL FILTER | 9. PLUG |
| 2. DIPSTICK | 10. CAPSCREW |
| 3. DIPSTICK TUBE | 11. WASHER |
| 4. TRANSMISSION HOUSING | 12. SMALL ACCESS COVER |
| 5. TORQUE CONVERTER HOUSING | 13. TORQUE CONVERTER |
| 6. TRANSMISSION OIL TEMPERATURE SENSOR | 14. TRANSMISSION CHARGE PUMP |
| 7. SUCTION SCREEN | 15. STATOR SUPPORT |
| 8. SUCTION SCREEN SPRING | 16. PILOT HUB |

Figure 10. Torque Converter Installation, Lift Trucks Manufactured Before July, 2013



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- | | |
|--|------------------------------|
| 1. TRANSMISSION OIL FILTER | 9. PLUG |
| 2. DIPSTICK | 10. CAPSCREW |
| 3. DIPSTICK TUBE | 11. WASHER |
| 4. TRANSMISSION HOUSING | 12. SMALL ACCESS COVER |
| 5. TORQUE CONVERTER HOUSING | 13. TORQUE CONVERTER |
| 6. TRANSMISSION OIL TEMPERATURE SENSOR | 14. TRANSMISSION CHARGE PUMP |
| 7. SUCTION SCREEN | 15. STATOR SUPPORT |
| 8. SUCTION SCREEN SPRING | 16. PILOT HUB |

Figure 11. Torque Converter Installation, Lift Trucks Manufactured After July, 2013

- 9.** Install torque converter onto stator support. Make sure splines are aligned and converter engages fully.

See Figure 10 for lift trucks manufactured before July, 2013

See Figure 11 for lift trucks manufactured after July, 2013

- 10.** Lubricate the pilot hub on the torque converter with antiseize compound.

See Figure 10 for lift trucks manufactured before July, 2013

See Figure 11 for lift trucks manufactured after July, 2013

- 11.** Install transmission oil temperature sensor on torque converter housing.

See Figure 10 for lift trucks manufactured before July, 2013

See Figure 11 for lift trucks manufactured after July, 2013

NOTE: Apply adhesive to entire surface of hole, 20.0 mm (0.79 in.) deep. Also apply adhesive to lower 20.0 mm (0.79 in.) of dipstick tube.

- 12.** Install dipstick tube and dipstick into torque converter housing.

See Figure 10 for lift trucks manufactured before July, 2013

See Figure 11 for lift trucks manufactured after July, 2013

Torque Converter Replace

1300 SRM 1529

13. If removed, install a lifting eye bolt into rear access cover bolt hole, and connect a lifting device to eye bolt.

Align torque converter housing with flywheel housing. Make sure pilot hub on torque converter engages flywheel.

**CAUTION**

Be careful that you **DO NOT** damage parts of the torque converter or transmission when the transmission is joined to the engine. Keep the transmission and engine in alignment until they are completely joined so parts of the transmission are not damaged. Use a crane or lifting device to join the transmission to the engine.

14. Install transmission on engine. Install ten capscrews that connect torque converter housing to flywheel housing. Tighten capscrews to 38 N•m (28 lbf ft). See Figure 12.

**CAUTION**

Use care when connecting the wiring harness connectors to electrical connectors on the transmission and control valve. The connectors on the transmission and control valve are easily damaged.

15. Install transmission wiring harness on transmission. Connect transmission wiring harness connectors to control valve and transmission. See Figure 12.

NOTE: Coat the bolt threads that hold the torque converter to flywheel with Loctite™ 242.

16. Rotate engine crankshaft to position the flywheel mounting holes in line with torque converter mounting holes. Install capscrews that hold torque converter to flywheel through access hole of flywheel housing. See Figure 13. Tighten capscrews to 56 N•m (41 lbf ft).

Remove lifting eye bolt, and install access cover on torque converter housing.

**WARNING**

Make sure the engine and transmission are held in position so that they will not fall and cause an injury and damage to the equipment.

17. Install engine and transmission as a unit into lift truck as described in one of the following sections:

See **Frame** 100 SRM 1243 for lift truck models:

- S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004)
- H4.0FT5/FT6; H4.5FTS5, H4.5FT6, H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005)

See **Frame** 100 SRM 1120 for lift truck models:

- S30FT, S35FT, S40FTS (E010)
- H1.6FT, H1.8FT, H2.0FTS (H30FT, H35FT, H40FTS) (F001)
- S2.0-3.5FT (S40-70FT, S55FTS) (F187)
- H2.0-3.5FT (H40-70FT) (L177)

18. Fill transmission to correct level using transmission fluid and procedure indicated in following sections:

See **Periodic Maintenance** 8000 SRM 1150 for lift truck models:

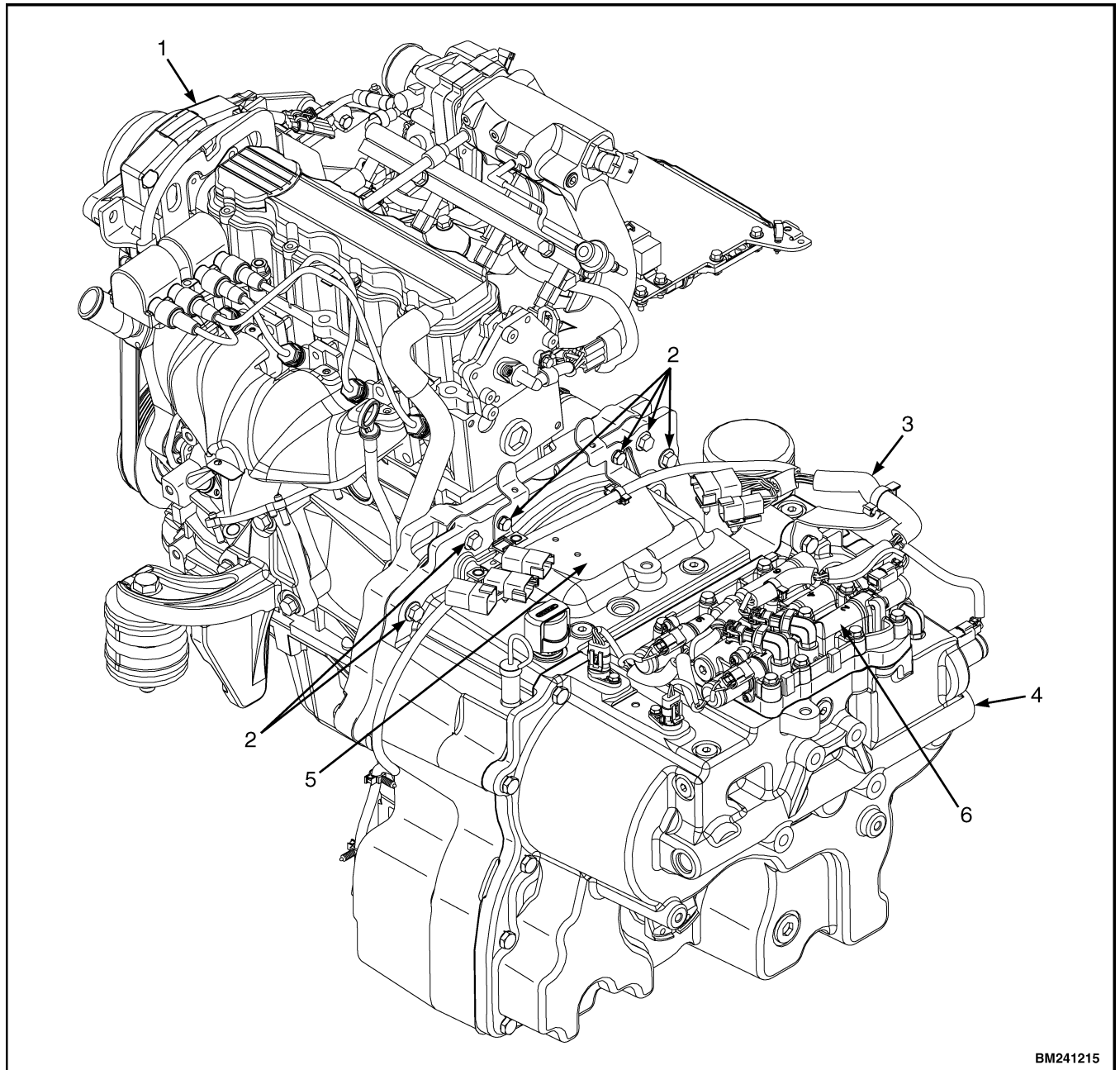
- S2.0-3.5FT (S40-70FT, S55FTS) (F187)
- H2.0-3.5FT (H40-70FT) (L177)

See **Periodic Maintenance** 8000 SRM 1207 for lift truck models:

- S30FT, S35FT, S40FTS (E010)
- H1.6FT, H1.8FT, H2.0FTS (H30FT, H35FT, H40FTS) (F001)

See **Periodic Maintenance** 8000 SRM 1248 for lift truck models:

- S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004)
- H4.0FT5/FT6; H4.5FTS5, H4.5FT6, H5.0-5.5FT (H80, 90, 100, 110, 120FT) (P005)



BM241215

- | | |
|--------------------------------|------------------|
| 1. GM 2.4L ENGINE | 4. TRANSMISSION |
| 2. CAPSCREW | 5. ACCESS COVER |
| 3. TRANSMISSION WIRING HARNESS | 6. CONTROL VALVE |

Figure 12. Engine-Transmission Combination