

TRANSMISSION REMOVAL & INSTALLATION - A/T

TRANSMISSION SERVICING Ford Motor Co. Automatic Transmission Removal

BORG-WARNER 1345 TRANSFER CASE R & I

REMOVAL ("F" SERIES)

1. Raise vehicle. Remove drain plug and drain fluid from transfer case. Replace plug. Disconnect 4WD indicator switch connector at transfer case. Remove skid plate (if equipped).
2. Disconnect front and rear drive shafts from transfer case output shaft yokes. Wire drive shaft aside. Disconnect speedometer drive gear from transfer case rear cover.
3. Remove retaining clips and shift rod from transfer case control and transfer case shift levers. Disconnect vent hose from transfer case. Remove heat shield. Support transfer case with transmission jack.
4. Remove transfer case-to-extension housing bolts. Slide transfer case off transmission output shaft. Lower transfer case from vehicle. Remove transfer case-to-extension housing gasket.

INSTALLATION ("F" SERIES)

1. Install new transfer case-to-extension housing gasket. To complete installation, reverse removal procedure. Tighten transfer case-to-extension housing bolts in sequence. See **Fig. 1**.
2. Tighten bolts to specifications. See TORQUE SPECIFICATIONS table at end of article. Fill transfer case with 3.3 qts. (3.0L) of Mercon ATF (XT-2-QDX or EAZ-19582-B).

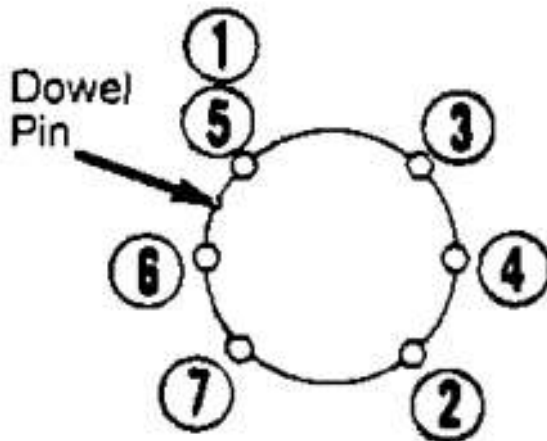


Fig. 1: Transfer Case-To-Extension Housing Tightening Sequence Borg-Warner 1345)
Courtesy of FORD MOTOR CO.

BORG-WARNER 1350 TRANSFER CASE R & I

REMOVAL (BRONCO II & RANGER)

1. Raise vehicle. Remove skid plate (if equipped). Remove drain plug and drain fluid from case. Replace plug. Disconnect 4WD indicator switch at transfer case. If equipped with electronic shift transfer case, remove wire connector from harness at rear of transfer case by squeezing locking tabs and separating connectors.
2. On all models, disconnect front drive shaft from front axle. Loosen front shaft boot clamp and slide out drive shaft and boot as an assembly. Disconnect rear drive shaft from transfer case. Disconnect speedometer drive gear from transfer case rear cover. Disconnect vent hose from control lever.
3. Loosen or remove large and small bolts (one each) retaining shifter to extension housing. Pull on control lever until bushing slides off transfer case shift lever pin. Remove heat shield from transfer case.
4. Support transfer case with jack and remove transfer case-to-transmission extension housing bolts. Slide transfer case to the rear and off of transmission output shaft. Lower transfer case from vehicle. Remove gasket between transfer case and extension housing.

INSTALLATION (BRONCO II & RANGER)

Install new transfer case-to-extension housing gasket. To complete installation, reverse removal procedure to install transfer case, noting the following:

1. When installing shift lever assembly, tighten large bolt first, then small bolt.
2. When installing vent assembly, White marking on hose should be positioned in notch in shifter with upper end of hose 3/4" above top of shifter, and positioned just below the floor pan.
3. Before installing front drive shaft into transfer case, lubricate female splines of transfer case input shaft with multipurpose grease.
4. Tighten transfer case-to-extension housing bolts in sequence. See **Fig. 2**. Tighten bolts to specifications. See TORQUE SPECIFICATIONS table at end of article. Fill transfer case with 1.5 qts. (1.4L) of Mercon ATF (XT-2-QDX or EAZ-19582-B).

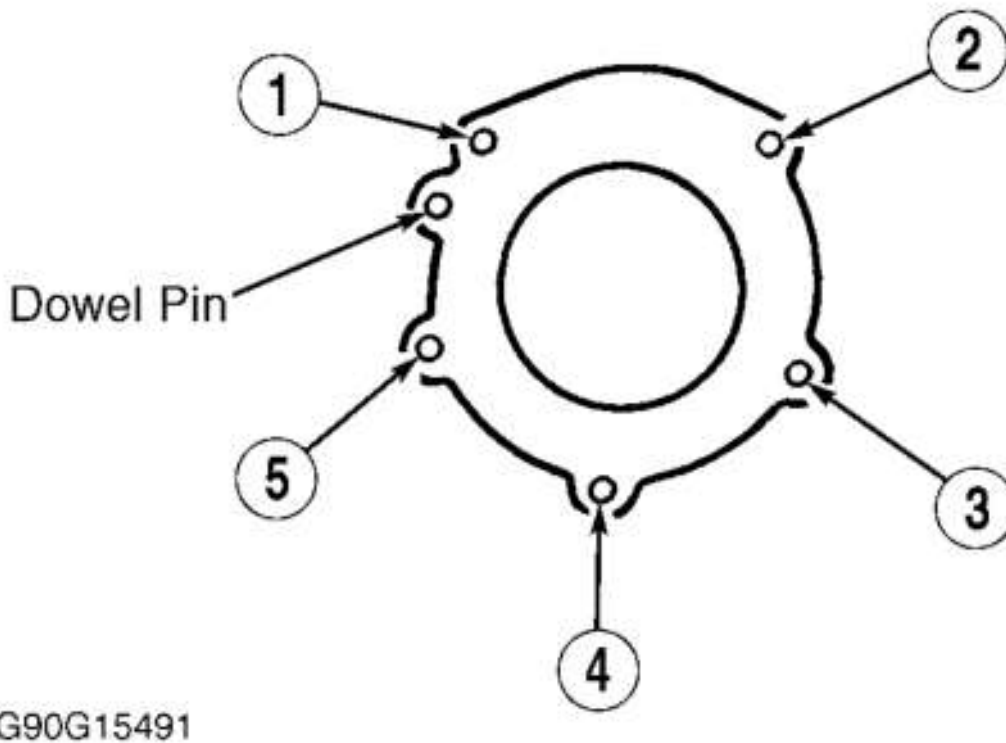


Fig. 2: Transfer Case-To-Extension Housing Tightening Sequence All Except Borg-Warner 1345 & 1356)

Courtesy of FORD MOTOR CO.

BORG-WARNER 1354 TRANSFER CASE R & I

REMOVAL (BRONCO II & RANGER)

1. Raise vehicle. Remove skid plate (if equipped). Remove damper from transfer case (if equipped). Remove drain plug and drain fluid from case. Install plug. Disconnect 4WD indicator switch at transfer case.
2. Disconnect front and rear drive shafts from transfer case output shaft yokes. Disconnect speedometer drive gear from case rear cover. Disconnect vent hose from control lever. Remove shift lever retaining nut and lever.
3. Loosen or remove large and small bolts (one each) retaining shifter to extension housing. Remove lever assembly and bushing. Support transfer case with jack and remove bolts attaching transfer case to transmission extension housing.
4. Slide transfer case rearward off transmission output shaft. Lower case from vehicle. Remove gasket from transfer case and transmission extension housing.

INSTALLATION (BRONCO II & RANGER)

1. Install new transfer case-to-extension housing gasket. To complete installation, reverse removal procedure. Tighten transfer case-to-extension housing bolts in sequence. See **Fig. 2.**

NOTE: When installing shift lever assembly, **ALWAYS** tighten large bolt first, then small bolt.

2. Tighten bolts to specifications. See TORQUE SPECIFICATIONS table at end of article. Fill transfer case with 1.3 qts. (1.2L) of Mercon ATF (XT-2-QDX or EAZ-19582-B).

BORG-WARNER 1356 TRANSFER CASE R & I

REMOVAL (BRONCO & "F" SERIES)

1. Raise vehicle. Remove skid plate (if equipped). Remove drain plug and drain fluid from case. Install plug. Disconnect 4WD indicator switch at transfer case. If equipped with electronic shift transfer case, remove wire connector from harness at rear of transfer case by squeezing locking tabs and separating connectors.
2. On all models, disconnect front and rear drive shafts from transfer case output shaft yokes. Disconnect speedometer drive gear from case rear cover. Disconnect vent hose from mounting bracket. On manual transfer case models, disconnect shift rod between transfer case shift lever and control lever assembly.
3. On all models, support transfer case with jack and remove bolts attaching transfer case to transmission extension housing. Slide transfer case off of transmission output shaft. Lower case from vehicle. Remove gasket between transfer case and transmission extension housing.

INSTALLATION (BRONCO & "F" SERIES)

Install new transfer case-to-extension housing gasket. To complete installation, reverse removal procedure. Tighten transfer case-to-extension housing bolts to specifications in sequence. See **Fig. 3**. See TORQUE SPECIFICATIONS table at end of article. Fill transfer case with 2.0 qts. (1.9L) of Mercon ATF (XT-2-QDX or EAZ-19582-B).

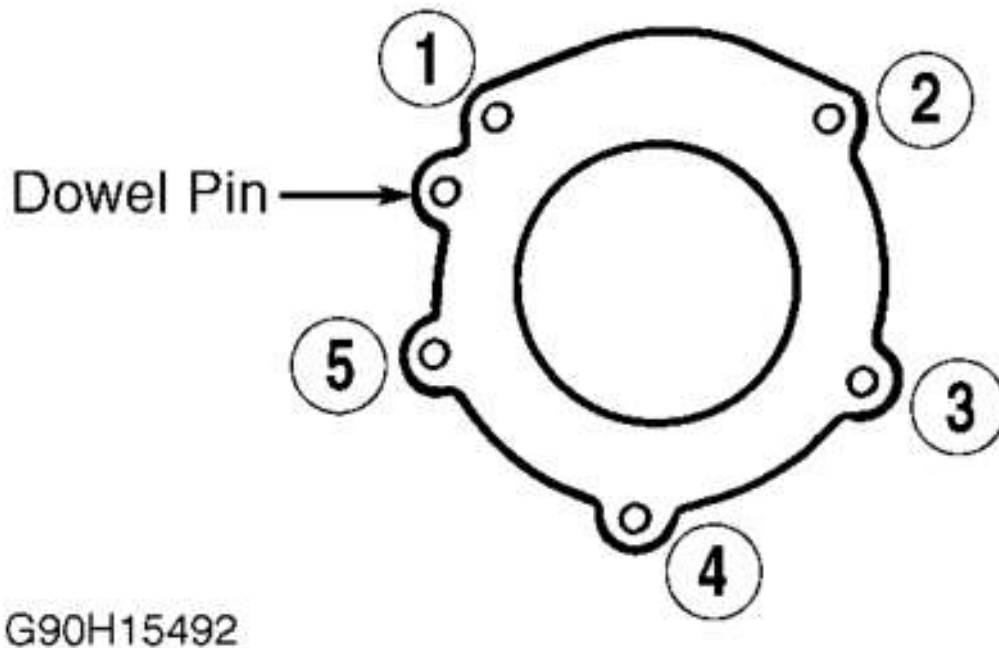


Fig. 3: Transfer Case-To-Extension Housing Tightening Sequence Borg-Warner 1356)
 Courtesy of FORD MOTOR CO.

BORG-WARNER 1359 TRANSFER CASE R & I

REMOVAL (BRONCO II)

1. Raise vehicle. Disconnect rear drive shaft from transfer case output shaft flange. Disconnect speedometer cable assembly from transfer case rear cover. Support transfer case with a transmission jack.
2. Remove bolts retaining transfer case to transmission extension housing. Slide transfer case off transmission output shaft and lower transfer case from vehicle. Remove gasket between transfer case and extension housing.

INSTALLATION (BRONCO II)

1. Install new transfer case-to-extension housing gasket. To complete installation, reverse removal procedure. Tighten transfer case-to-extension housing bolts in sequence. See **Fig. 2**.
2. Tighten bolts to specifications. See TORQUE SPECIFICATIONS table at end of article. Fill transfer case with 2.0 qts. (1.9L) of Mercon ATF (XT-2-QDX or EAZ-19582-B).

SPICER TC-28 TRANSFER CASE R & I

REMOVAL (AEROSTAR)

1. Raise vehicle. Remove drain plug and drain fluid from case. Install plug. If equipped with electronic shift transfer case, remove wire connector from harness at rear of transfer case by squeezing locking tabs and separating connectors.
2. Mark drive shaft location for installation reference. Disconnect front and rear drive shafts from transfer case output shaft yokes. Disconnect speedometer drive gear from case rear cover. Remove transfer case strut from engine block and transfer case.
3. Support transfer case with jack and remove bolts attaching transfer case to transmission extension housing. Slide transfer case off transmission output shaft. Lower case from vehicle. Remove gasket from transfer case and transmission extension housing.

INSTALLATION (AEROSTAR)

1. Install new transfer case-to-extension housing gasket. To complete installation, reverse removal procedure. Tighten transfer case-to-extension housing bolts in sequence. See **Fig. 2**.
2. Tighten bolts to specifications. See TORQUE SPECIFICATIONS table at end of article. Fill transfer case to fill plug opening with Mercon ATF (XT-2-QDX or EAZ-19582-B).

A4LD AUTOMATIC OVERDRIVE TRANSMISSION

REMOVAL (AEROSTAR, BRONCO II & RANGER)

1. Disconnect negative battery cable. Raise vehicle on hoist and drain transmission fluid. Remove converter access cover. Remove converter-to-flex plate attaching nuts.

CAUTION: On 2.3L models, ALWAYS turn engine in direction of normal rotation (clockwise as viewed from front of engine).

2. Scribe a mark indexing driveshaft to rear axle flange. Disconnect drive shaft from rear axle and remove shaft from transmission. Disconnect starter cable and remove starter. Disconnect neutral start switch wires and converter clutch solenoid connector.
3. Disconnect shift rod at transmission manual lever. Remove kickdown cable from transmission. Remove vacuum line from vacuum modulator. Raise transmission with jack and remove crossmember. Lower transmission jack and allow transmission to hang.
4. On Bronco II and Ranger models, place a block of wood on jack and position jack under front of engine. Raise engine and remove upper converter-to-engine bolts. On all vehicles, disconnect oil cooler lines at transmission.
5. On Aerostar models, remove upper converter-to-engine attaching bolts. On all models, disconnect speedometer cable from extension housing. Remove bolt securing filler tube to engine and remove filler tube. Secure transmission to jack with safety chain. Remove lower converter-to-engine bolts. Move transmission rearward and lower from vehicle.

NOTE: Use a block of wood and a safety stand to support engine if transmission is to be removed for a long period of time.

INSTALLATION (AEROSTAR, BRONCO II & RANGER)

To install, reverse removal procedure. Ensure converter is fully engaged with pump gear during installation. Tighten bolts to specifications. See TORQUE SPECIFICATIONS table at end of article. Fill transmission

with Mercon ATF (XT-2-QDX or EAZ-19582-B). For fluid capacity, see TRANSMISSION REFILL CAPACITIES table in AUTOMATIC TRANSMISSION SERVICING article.

AOD AUTOMATIC OVERDRIVE TRANSMISSION

REMOVAL (BRONCO, E150/250 & F150/250)

1. Disconnect negative battery cable. Raise vehicle and drain transmission fluid. Remove converter drain plug access cover. Remove converter-to-flex plate attaching nuts and torque converter drain plug. Drain torque converter and reinstall drain plug.
2. Scribe a mark indexing driveshaft to rear axle flange. Disconnect drive shaft from rear axle and remove shaft from transmission. Disconnect starter cable and remove starter. Disconnect neutral start switch wires at connector.
3. Remove rear mount-to-crossmember bolts and crossmember-to-frame bolts. Remove bolts securing engine rear support to extension housing. Disconnect linkage and manual rods from transmission levers.
4. Remove bellcrank bracket-to-converter housing bolts. On 4WD models, remove transfer case. See TRANSFER CASE in this article. Raise transmission with jack and remove crossmember. Lower transmission enough to remove oil cooler lines.
5. Disconnect speedometer cable from extension housing. Remove bolt securing filler tube to engine and remove filler tube. Secure transmission to jack with safety chain. Remove converter housing-to-engine bolts. Move transmission rearward and lower from vehicle.

INSTALLATION (BRONCO, E150/250 & F150/250)

1. To install, reverse removal procedure. Ensure torque converter is fully seated in transmission before and during installation procedure. Install new "O" ring on fluid filler tube end.
2. Tighten bolts to specifications. See TORQUE SPECIFICATIONS table. Fill transmission with Mercon ATF (XT-2-QDX or EAZ-19582-B). For fluid capacity, see TRANSMISSION REFILL CAPACITIES table in AUTOMATIC TRANSMISSION SERVICING article.

C-6 TRANSMISSION

REMOVAL (BRONCO & "F" SERIES)

1. Disconnect negative cable from battery. Remove upper converter housing-to-engine bolts. Raise vehicle, drain transmission pan and remove converter drain plug access cover.
2. Remove converter-to-flex plate attaching nuts and converter drain plug. Allow fluid to drain, then reinstall and tighten converter drain plug. On 2WD models, scribe a mark indexing driveshaft to rear axle flange. Disconnect drive shaft at rear axle and remove from transmission.
3. On all models, disconnect speedometer cable. Disconnect downshift and manual linkage rods from levers at transmission. Disconnect oil cooler lines from transmission. Remove vacuum line from vacuum unit. Remove retaining clip from vacuum line.
4. Disconnect starter cable from starter and remove starter. On 4WD models, remove transfer case. See TRANSFER CASE in this article. On all models, remove bolts and nuts securing rear mount to crossmember and bolts retaining crossmember to side rails.
5. Raise transmission with a transmission jack and remove both crossmembers. Secure transmission to the jack with safety chain. Remove remaining converter housing-to-engine attaching bolts. Pull

transmission rearward and lower from vehicle.

INSTALLATION (BRONCO & "F" SERIES)

1. To install, reverse removal procedure. Ensure torque converter is fully engaged in transmission before and during installation. Install new "O" ring on fluid filler tube end. Tighten bolts to specifications. See TORQUE SPECIFICATIONS table at end of article.
2. Fill transmission with Mercon ATF (XT-2-QDX or EAZ-19582-B). For fluid capacity, see TRANSMISSION REFILL CAPACITIES table in AUTOMATIC TRANSMISSION SERVICING article.

REMOVAL ("E" SERIES)

1. Disconnect negative battery cable. Remove engine compartment cover and disconnect neutral start switch at plug connector. Remove flex hose from air cleaner heat tube (V8 models only). On all models, remove upper converter-to-engine attaching bolts. Remove fluid filler tube-to-engine bolt.
2. Raise vehicle, drain transmission pan and remove converter drain plug access cover. Remove converter-to-flex plate attaching nuts and converter drain plug. Drain fluid and replace drain plug.
3. Scribe a mark indexing driveshaft to rear axle flange. Disconnect drive shaft. Remove filler tube. Disconnect starter cable and remove starter. Position an engine support bar to side rail and engine oil pan flanges. Disconnect oil cooler lines and vacuum lines from transmission.
4. Remove speedometer drive gear from extension housing. Remove manual and downshift linkage rods or cable controls from transmission control levers. Support transmission with transmission jack and secure with safety chain.
5. Remove bolts and nuts securing rear mount to crossmember and bolts retaining crossmember to side rails. Remove 2 support inserts and raise transmission with jack. Remove transmission crossmember. Remove remaining converter-to-engine bolts. Lower transmission out of vehicle.

INSTALLATION ("E" SERIES)

1. To install, reverse removal procedure. Ensure converter is fully engaged with pump gear during installation. Always use a new "O" ring on fluid filler tube end. Tighten bolts to specifications. See TORQUE SPECIFICATIONS table at end of article.
2. Fill transmission with Mercon ATF (XT-2-QDX or EAZ-19582-B). For fluid capacity, see TRANSMISSION REFILL CAPACITIES table in AUTOMATIC TRANSMISSION SERVICING article.

E4OD ELECTRONIC 4-SPEED

E4OD ELECTRONIC 4-SPEED

Application	E4OD Use
E150/250	(1) All Models
F150/250	(1) All Models
"F" Series Super Duty	All Models
(1) Except 4.9L over 8500 lbs. GVW.	

REMOVAL

1. Disconnect negative battery cable. Remove transmission dipstick. Place transmission in Neutral. Raise vehicle on hoist.
2. On 4WD models, remove front drive shaft. On all models, remove rear drive shaft. On Super Duty models, remove transmission-mounted parking brake. On all models, disconnect shift linkage.
3. On 4WD models, remove transfer case shift lever linkage. On all models, disconnect manual lever position sensor connector by squeezing connector tabs and pulling on connector. Remove solenoid body connector heat shield. Remove solenoid body connector by pushing on center tab and pulling on wiring harness.
4. On 4WD models, remove 4WD switch connector from transfer case. DO NOT overextend connector tabs. Pry wiring harness locators from extension housing bracket and left side of crossmember.
5. On all models, disconnect speedometer cable. Remove torque converter lower cover and rear engine cover bolts. Remove starter. Rotate crankshaft with 15/16" socket for access to torque converter nuts. Remove torque converter-to-flexplate nuts.
6. Remove transmission filler tube. Place transmission jack under transmission. Secure transmission to jack with a safety strap. Loosen rear transmission mount nuts. Remove retaining bolts and crossmember. Disconnect cooling lines from transmission case. Cap lines and plug fittings.
7. On 4WD models, remove transfer case vent hose from detent bracket. Remove transfer case from transmission. See TRANSFER CASE in this article. On all models, remove converter housing-to-engine bolts. Pull transmission rearward and lower transmission.

INSTALLATION

1. Before installing transmission, inspect wiring harness for damage and check connector condition. Repair or replace as required. Ensure torque converter is fully seated in transmission before and during installation procedure. Install new "O" ring on fluid filler tube end. Reverse removal procedure to complete installation.

NOTE: Check torque converter seating by placing a straightedge across the converter housing. There must be a gap between the converter pilot face and straightedge.

2. Tighten bolts to specifications. See **TORQUE SPECIFICATIONS** table. Fill transmission with Mercon ATF (XT-2-QDX or EAZ-19582-B). For fluid capacity, see TRANSMISSION REFILL CAPACITIES table in AUTOMATIC TRANSMISSION SERVICING article.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS - TRANSFER CASE

TORQUE SPECIFICATIONS (TRANSFER CASE)

Application	Ft. Lbs. (N.m)
Borg-Warner 1345	
Control Lever-To-Transfer Case Bolt	
Large Bolt	71-90 (96-122)
Small Bolt	31-42 (42-57)
Drain Plug	10-14 (14-19)
Extension Housing-To- Transfer Case Bolt ⁽¹⁾	25-43 (34-58)

Front Drive Shaft-to-Yoke Bolt/Nut	10-15 (14-21)
Rear Driveshaft-To-Yolk Nut	10-15 (14-21)
Skid Plate Bolt	15-20 (21-27)
Borg-Warner 1356	
Drain Plug	10-14 (14-19)
Extension Housing-To- Transfer Case Bolt ⁽²⁾	25-43 (34-58)
Front Drive Shaft-to-Yoke Bolt/Nut	10-15 (14-21)
Rear Driveshaft-To-Yolk Nut	
Bronco	20-25 (27-34)
"F" Series	10-15 (14-21)
Skid Plate Bolt	15-20 (21-27)
All Others	
Control Lever-To-Transfer Case Bolt	
Bronco II & Ranger	
Large Bolt	70-90 (95-122)
Small Bolt	31-42 (42-57)
Drain Plug	14-22 (19-30)
Rear Driveshaft-To-Transfer Case Output Flange Bolt	61-87 (83-118)
Extension Housing-To-Transfer Case Bolt ⁽³⁾	25-35 (34-47)
Front Drive Shaft-to-Yoke Bolt/Nut	12-16 (16-22)
Skid Plate Bolt	15-20 (21-27)
Transfer Case Strut (Aerostar)	
Strut-To-Engine Bolt	45-60 (61-81)
Strut-To-Transfer Case Nut	55-65 (75-88)
(1) Tighten in sequence. See Fig. 1 .	
(2) Tighten in sequence. See Fig. 3 .	
(3) Tighten in sequence. See Fig. 2 .	

TORQUE SPECIFICATIONS - AUTOMATIC TRANSMISSION

TORQUE SPECIFICATIONS (TRANSMISSIONS)

Application	Ft. Lbs. (N.m)
A4LD Automatic Overdrive	
Converter Access Bolt	12-16 (16-22)
Converter-To-Flex Plate Nut	20-34 (27-46)
Converter Housing-To-Engine Bolts	28-38 (38-52)
Crossmember Bolt	60-80 (81-109)
Drive Shaft "U" Bolt Nut	70-95 (95-129)
Fill Tube Bolt	28-38 (38-52)
Rear Mount-To-Crossmember	20-30 (27-41)
Starter Bolt	15-20 (21-27)
AOD Automatic Overdrive	
Converter Access Bolt	12-16 (16-22)

Converter-To-Flex Plate Nut	20-30 (27-41)
Converter Housing-To-Engine Bolts	40-50 (54-68)
Crossmember Bolt	52-74 (71-100)
Fill Tube Bolt	28-38 (38-52)
Rear Mount-To-Crossmember	20-30 (27-41)
Starter Bolt	15-20 (21-27)
C-6	
Converter Access Bolt	12-16 (16-22)
Converter Drain Plug	18-28 (24-38)
Converter-To-Flex Plate Nut	20-30 (27-41)
Converter Housing-To-Engine Bolts	
Diesel Engine	67-87 (91-118)
Gasoline Engine	55-67 (75-91)
Crossmember Bolt	43-57 (58-77)
Rear Mount-To-Crossmember	60-80 (81-109)
Starter Bolt	
Diesel Engine	50-65 (68-88)
Gasoline Engine	40-50 (54-68)
E4OD Electronic 4-Speed	
Converter Access Bolt	12-16 (16-22)
Converter-To-Flex Plate Nut	20-30 (27-41)
Converter Housing-To-Engine Bolts	40-50 (54-68)
Crossmember Bolt	55-75 (75-102)
Fill Tube Bolt	28-38 (38-52)
Rear Mount-To-Crossmember	20-30 (27-41)
Starter Bolt	15-20 (21-27)
Transmission Cooling Line Fitting	18-23 (24-31)