

# TRANSMISSION REMOVAL & INSTALLATION - AT

## 2001 Chevrolet Camaro

2000-01 TRANSMISSION SERVICING  
General Motors Transmission Removal & Installation - Cars  
Except Corvette, Metro & Prizm

### IDENTIFICATION

#### BODY CODE IDENTIFICATION

Body Code	Model
"C"	Park Avenue
"E"	Eldorado
"F"	Camaro & Firebird
"G"	Aurora
"H"	Bonneville & LeSabre
"J"	Cavalier, Saturn "L" Series & Sunfire
"K"	DeVille & Seville
"N"	Alero, Grand Am & Malibu
"V"	Catera
"W"	Century, Grand Prix, Impala, Intrigue, Lumina, Monte Carlo & Regal
"Z"	Saturn "S" Series

### APPLICATION

#### AUTOMATIC TRANSAXLE/TRANSMISSION APPLICATIONS

Application	Trans. Model (RPO Code)
Buick	
Century	
2000	4T65-E (M15)
2001	4T65-E (MN3, MN7 Or M15)
LeSabre	
2000	4T65-E (MN3, MN7 Or M15)
2001	4T65-E (MN3)
Park Avenue	4T65-E (MN3 Or MN7)
Regal	
2000	4T65-E (M15)
2001	4T65-E (MN3, MN7 Or M15)
Cadillac	
Catera	4L30-E (ML4)
DeVille, Eldorado & Seville	4T80-E (MH1)
Chevrolet	
Camaro & Corvette	4L60-E (M30)
Cavalier	3T40 (MD9), 4T40-E (MN4) Or 4T45-E (MN5)
Impala, Lumina & Monte Carlo	4T65-E (M15)
Malibu	4T40-E (MN4) Or 4T45-E (MN5)
Oldsmobile	
Alero	4T40-E (MN4) Or 4T45-E (MN5)
Aurora	4T65-E (MN3) Or 4T80-E (MH1)
Intrigue	
2000	4T65-E (M15)
2001	4T65-E (MN3)
Pontiac	
Bonneville	
2000	4T65-E (MN3, MN7 Or M15)

2001 .....	4T65-E (MN3 Or MN7)
Firebird .....	4L60-E (M30)
Grand Am .....	4T40-E (MN4) Or 4T45-E (MN5)
Grand Prix .....	4T65-E (M15)
Sunfire .....	3T40 (MD9), 4T40-E (MN4) Or 4T45-E (MN5)
Saturn	
"L" Series .....	(1) 4T40-E Or 4T45-E
"S" Series .....	MP6 Or MP7

(1) - RPO codes not provided by manufacturer.

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## REMOVAL & INSTALLATION

**WARNING:** Deactivate air bag system before performing any service operation. See appropriate AIR BAG RESTRAINT SYSTEMS article in ACCESSORIES & EQUIPMENT. Do not apply electrical power to any component on steering column without first deactivating air bag system. Air bag may deploy.

**CAUTION:** When battery is disconnected, vehicle computer may lose memory data. Driveability problems may exist until computer systems have completed a relearn cycle. See COMPUTER RELEARN PROCEDURES article in GENERAL INFORMATION before disconnecting battery.

### MP6 & MP7 TRANSAXLE

#### Removal

1) Disconnect battery cables. Remove air cleaner housing, duct assembly, air intake temperature sensor, and resonator. Remove air box. Remove transaxle strut from midrail bracket and transaxle bracket, and position aside. Remove battery.

2) Disconnect PCM J2 (Black 28-way) harness connector. Remove PCM attaching bolts, and position out of way. Remove battery tray. Disconnect the following: transaxle solenoid harness connector, input and output speed sensor harness connectors, transaxle fluid temperature sensor harness connector, transaxle range switch harness connector, 2 ground terminals at top 2 converter housing bolts, and ground wire from transaxle range switch.

3) Remove top 2 converter housing-to-engine bolts. Note spark plug wire-to-coil tower relationship, and remove spark plugs wires from coil towers. Disconnect ignition control module harness connector, and remove module. Wire radiator onto upper radiator support (to hold in place as frame is removed).

4) Install Engine Support Bar Assembly (SA9105E). Raise and support vehicle, and drain transaxle fluid. Remove front wheels. Remove right and left splash shields. Remove front engine splash shield. On coupe models, remove left and right lower fascia braces. On all models, remove engine strut bracket-to-frame fasteners. Remove transaxle mount-to-frame fastener.

5) Remove front exhaust pipe. Remove steering gear-to-frame fasteners, and support gear with safety wire. Remove brake pipe bracket push pin at rear of frame. Remove engine-to-transaxle stiffening brace. Remove dust cover from converter housing. Mark torque converter-to-flywheel relationship for reassembly reference, and remove bolts.

6) Remove cotter pin from lower ball joints, and discard. DO NOT use wedge-type tool to separate ball joint. Using Lower Control Arm Ball Separator (SA9132S), remove nut. Separate left side axle from transaxle using appropriate pry bar. Remove axle partially, and install Axle Seal Protector (SA9112T). Repeat for other side.

7) On DOHC engines, remove intake bracket-to-intake manifold bolt. Remove intake manifold support bracket-to-intermediate shaft support bolt. Remove 2 intermediate shaft support-to-engine block bolts, and carefully slide shaft out of transaxle.

8) On all models, use powertrain support dolly and 2 blocks of wood to support frame on dolly. Disconnect transaxle cooler lines from transaxle, and plug to prevent leakage/contamination).

9) Remove 4 frame-to-body bolts, and carefully lower frame from vehicle. Support transaxle securely with jack. Remove 2 bottom torque converter housing-to-engine bolts. Separate transaxle from engine, and lower transaxle. Lower transaxle enough to reach transaxle shifter cable, and release cable from converter housing. Lower transaxle from vehicle.

#### Installation

1) Flush transaxle oil cooler using Oil Cooler Line Flusher (SA9165T). Tap out ignition control module holes with M6 x 1.0 mm tap. To install, reverse removal procedure. Before installing cooler lines onto transaxle, lines must be flushed using oil cooler line flusher. Before installing air cleaner and duct assembly, adjust shift control cable. See ADJUSTMENTS in appropriate AUTOMATIC TRANSMISSION SERVICING article.

2) Tighten nuts and bolts to specification. See TORQUE SPECIFICATIONS. Fill transaxle with appropriate fluid. See appropriate AUTOMATIC TRANSMISSION servicing article. Using scan tool, reset adaptives following scan tool manufacturer's instructions. Check wheel alignment.

### 3T40 TRANSAXLE

#### Removal

1) Ensure ignition key is in OFF or LOCK position. Disconnect and remove battery. Disconnect intake air temperature sensor, and remove air duct hose from intake plenum. Remove air cleaner outlet duct. Remove push pin from relay center. Disconnect relay battery feed cable from upper air cleaner cover. Remove relay center. Release air cleaner push-in retainer, and remove air cleaner assembly. Remove upper radiator filler panel.

2) Support engine using Engine Support Fixture (J-28467-360). Disconnect transaxle wiring harness from transaxle and park/neutral position switch. Remove screw from front coolant pipe bracket to allow freedom of movement. Remove 3 upper transaxle-to-engine bolts and one stud. Remove 2 top bolts from transaxle mount.

3) Raise and support vehicle. Remove wheels. Remove front fender liner. Disconnect engine strut from lower engine mount. Remove right engine splash shield. Remove engine mount strut. Disconnect front and rear oxygen sensors and wiring harness from shift cable bracket. Remove wiring harness from retaining clips.

4) Remove front exhaust pipe. Disconnect wheel speed sensor wires from both front wheels, and unclip clips from frame. Remove lower steering intermediate shaft pinch bolt. Remove outer tie rod ball stud nut. Loosen jam (adjuster) nut, and pull tie rod ball stud using Universal Steering Linkage Puller (J-24319-B).

5) Remove stabilizer shaft link, if equipped. Remove lower control arm wiring harness. Remove cotter pin and nut from ball joint. Separate ball joint from knuckle using Ball Joint Separator (J-43828). Remove lower control arm, and place into vice. Drill out ball joint rivets, and remove ball joint.

6) Remove drive shaft nut. Disconnect electrical connector from wheel speed sensor, and position aside. Install Front Hub Spindle Remover (J-28733-B) onto hub, and secure with lug nuts. Support drive shaft, and disengage drive shaft splines using spindle remover. Assemble Wheel Drive Shaft Remover (J-33008-A), Axle Shaft Remover

Extension (J-29794) and Slide Hammer (J-2619-01), and disengage drive shaft from transaxle. Remove drive shaft.

7) Unclip brake line from retainers on crossmember. Remove power steering lines from steering gear, and plug openings. Remove power steering line bolt from right side of crossmember. Remove front suspension support brace. With aid of assistant, remove crossmember.

8) Remove 2 transaxle/support brace-to-transaxle bolts (at right side of transaxle output shaft). Disconnect shift cable from shift linkage and bracket. Remove flywheel inspection cover. Remove wiring harness from starter, and remove starter.

9) Mark flywheel-to-torque converter relationship for reassembly reference, and remove bolts. Remove transaxle cooler lines from transaxle case. Disconnect VSS harness connector. Disconnect transaxle output shafts from transaxle, and wire aside. Remove transaxle bracket-to-body bolts. Remove transaxle bracket-to-transaxle bolts. Remove wiring harness from body. Lower vehicle.

10) Remove transaxle-to-body bracket bolts. Lower transaxle with engine support fixture enough to remove transaxle. Raise vehicle. Remove bracket. Remove transaxle-to-engine bolts. Support transaxle with suitable jack. Separate engine and transaxle.

#### Installation

Flush transaxle cooler and lines. Apply a thin film of chassis grease onto torque converter pilot hub. To install, reverse removal procedure. Tighten nuts and bolts to specification. See TORQUE SPECIFICATIONS. Fill transaxle with appropriate. See appropriate AUTOMATIC TRANSMISSION servicing article. Road test vehicle.

### 4L30-E TRANSMISSION

#### Removal

1) Disconnect negative battery cable. Raise and support vehicle. Remove shift lever rod. Remove drive shaft coupling bolts. Using screwdriver, pry drive shaft coupling from drive flange.

2) Remove access plugs from bellhousing and oil pan area. Make reference marks on flex plate and torque converter for reassembly reference. Remove flex plate-to-torque converter bolts. Disconnect oil cooler lines from center pipes. Remove oxygen sensor harness connector.

3) Remove catalytic converters. Using Oxygen Sensor Wrench (J-39194-B), remove heated oxygen sensors. Remove transmission crossmember. Support transmission with appropriate jack. Support engine. Remove bellhousing-to-engine bolts. Lower engine/transmission assembly to access upper bellhousing-to-engine bolts, and remove.

4) Remove ventilation hose from transmission. Disconnect harness connectors to transmission control selector switch, adapter case, main, case and speed sensor. Lower transmission, and remove from vehicle.

#### Installation

Flush transmission oil cooler. Apply thread locking compound (P/N 12345382) onto bellhousing-to-engine bolt threads. To install, reverse removal procedure. Apply thread locking compound onto transmission housing-to-oil pan bolts when installing. Use NEW flywheel-to-torque converter bolts. Tighten nuts and bolts to specification. See TORQUE SPECIFICATIONS. Adjust shift cable. See ADJUSTMENTS in appropriate AUTOMATIC TRANSMISSION servicing article.

### 4T40-E & 4T45-E TRANSAXLE

#### Removal ("J" Body)

1) Disconnect battery cables, and remove battery. Disconnect

intake air temperature sensor. Disconnect air duct hose from intake plenum. Position relay center and cable aside, and remove air cleaner assembly. Remove upper radiator filler panel.

2) Install Engine Support Fixture (J-28467-B). Disconnect transaxle wiring harness from transaxle and park/neutral position switch. Remove screw from front coolant pipe bracket (to allow freedom of movement). Remove 3 upper transaxle-to-engine bolts and one stud. Remove 2 top bolts from transaxle mount.

3) Raise and support vehicle. Remove left front wheel. Remove left front fender liner. Disconnect engine strut from lower engine mount. Disconnect front and rear oxygen sensors and wiring harness from shift cable bracket and retaining clips. Remove front exhaust pipe.

4) Disconnect wheel speed sensor wires from front wheels, and unclip clips from frame. Remove lower intermediate shaft pinch bolt. Separate tie rods from steering knuckles. Separate ball joints from knuckles. Unclip brake line from retainers on suspension support frame clips. Remove power steering lines from steering gear, and plug openings.

5) Remove bolt retaining power steering line to right side of front suspension support brace. Remove front suspension support brace. Remove right engine splash shield. Disconnect ABS harness from lower control arms. Remove engine mount strut. Remove brake pipe from retainers on support frame, if necessary. Remove power steering hoses from steering gear. Lower vehicle until crossmember rest on jackstands. Remove bolts, and raise vehicle off crossmember.

6) Remove 2 engine support brace-to-transaxle bolts located at right side of transaxle output shaft. Disconnect shift cable from shift linkage. Disconnect cable from bracket. Remove flywheel inspection cover. Lower vehicle. Remove air inlet duct from throttle body. Remove top starter bolt. Raise vehicle. Remove lower starter bolt, connections, and remove starter.

7) Mark flywheel-to-torque converter relationship for reassembly reference, and remove bolts. Remove transaxle oil cooler lines by removing bracket-to-transaxle case nut. Disconnect VSS harness connector. Disconnect transaxle output shafts from transaxle, and wire aside.

8) Remove 2 transaxle bracket-to-body bolts. Remove 2 bracket-to-transaxle bolts. Remove wiring harness from body. Lower vehicle. Remove 2 transaxle-to-body bracket bolts. Lower transaxle, along with engine support fixture, enough to remove transaxle.

9) Raise vehicle. Remove 2 retaining bolts and bracket. Remove transaxle-to-engine bolts. Support transaxle with appropriate jack. Separate engine and transaxle. Remove transaxle from vehicle.

#### Installation

Flush transaxle oil cooler and lines. Place thin film of chassis grease onto torque converter pilot hub. Tighten nuts and bolts to specification. See TORQUE SPECIFICATIONS. Bleed power steering system. See appropriate article in STEERING.

#### Removal ("N" Body)

1) Disconnect battery cables, and remove battery. Remove battery tray. Install Engine Support Fixture (J-28467-B). Remove front transaxle mount. Remove splash shields. Disconnect intake air temperature and mass air flow sensor electrical connectors. Remove air cleaner and duct assembly from throttle body.

2) Remove wiring harness from upper transaxle mount bracket. Install jackstand and block of wood to support transaxle. Remove through-bolt from transaxle mount. Unthread rear upper mount bolt, and leave in place. Remove remaining 3 mount bolts, and remove upper transaxle mount from vehicle.

3) Set park brake, and block wheels. Disconnect shifter cable

terminal from transaxle manual shift lever pin. Pull locking tab upward, and remove cable from transaxle cable bracket. Remove front seats. Fold up center console. To remove center console, remove rear cupholder, console trim plate and retaining screws. Pull shifter cable locking clip fully upward, and disconnect cable terminal from shift lever pin. Remove shifter cable and grommet.

4) Secure radiator and condenser onto upper radiator support. Remove ground cables from engine block. Disconnect park/neutral position switch connector. Disconnect caliper and wheel cylinder brake pipes from Brake Pressure Modulator Valve (BPMV), and plug. Disconnect master cylinder brake pipes from BMPV, and plug. Raise and support vehicle. Remove transaxle oil pan, and drain transaxle fluid. Remove front wheels. Disconnect ABS harness from wheel speed sensor and frame.

5) Remove wiring harness from lower control arm. Remove stabilizer shaft link. Using Ball Joint Separator (J-43828), disconnect lower ball joints from steering knuckles. Drill out rivets to remove ball joints.

6) Disconnect Connector Position Assurance (CPA) lock from Electronic Brake Control Module (EBCM) connector. Push lock tab down, and then move sliding connector cover to open position. Disconnect EBCM harness connector from EBCM. Remove BPMV retaining nut, and remove EBCM/BPMV assembly from vehicle. Remove BPMV bracket.

7) Remove outer tie rod ball stud nut, and loosen jam (adjuster) nut. Using Universal Steering Linkage Puller (J-24319-B), pull ball stud from steering knuckle. Remove intermediate shaft lower pinch bolt, and disconnect intermediate shaft from steering gear. Remove power steering lines from steering gear, and remove from retainer.

8) Support engine with jackstand and block of wood. Remove lower mount through-bolt. Remove lower mount bracket. Remove front and rear transaxle mount bracket bolts. Remove brake lines from retainers on crossmember. Lower vehicle until crossmember rests on jackstands. Remove crossmember bolts, and raise vehicle off crossmember.

9) Remove lower radiator and condenser support. Remove front transaxle mount bracket. Remove front ABS wheel speed sensor connectors, and unroute harness. Remove vehicle speed sensor.

10) Remove transaxle torque converter cover. Remove lower closeout panel, and disconnect wire harness from starter. Remove flywheel inspection shield. Remove starter. Mark flywheel-to-torque converter relationship for reassembly reference, and remove bolts.

11) Remove drive shaft nut. Using Hub Spindle Remover (J-42129), separate front wheel drive axle from hub. Using Slide Hammer (J-2619-01), Axle Shaft Remover Extension (J-29794) and Axle Shaft Remover (J-33008-A), remove drive shaft from transaxle.

12) Remove front transaxle mount. Attach transaxle case onto support stand. Remove transaxle-to-engine mount bolts, and carefully lower support stand.

#### Installation

1) To install, reverse removal procedure. Tighten nuts and bolts to specification. See TORQUE SPECIFICATIONS. Apply thin film of chassis grease to torque converter pilot hub. Adjust shifter cable. See ADJUSTMENTS in appropriate AUTOMATIC TRANSMISSION servicing article.

2) Perform automated bleed procedure and diagnostic system check. See appropriate ANTI-LOCK article in BRAKES. Bleed power steering system. See appropriate article in STEERING. Refill transaxle with appropriate fluid. See appropriate AUTOMATIC TRANSMISSION servicing article.

## 4T65-E TRANSAXLE

Removal ("C" & "H" Bodies)

1) Using Steering Column Anti-Rotation Pin (J-42640), lock steering column to avoid SIR coil assembly damage. Disconnect negative battery cable. Remove intake air temperature sensor electrical connector, and remove air cleaner and duct assembly. Using flat-blade screwdriver, remove shift cable from shift lever. Remove shift cable and bracket from transaxle case.

2) Disconnect transaxle harness connector. Remove wiring harness from retainer on transaxle. Remove ground cable bolt from transaxle. Install Universal Engine Support Fixture (J-28467-B). Remove upper engine-to-transaxle case bolts.

3) Raise and support vehicle. Remove front wheels. Remove inner wheelhouse extensions. Remove front air deflector. Remove intermediate shaft lower pinch bolt, and disconnect from steering gear.

4) Remove stabilizer shaft links. Rotate stabilizer shaft downward, and remove steering gear heat shield. Remove steering gear mounting bolts. Remove power steering line retainers from frame, and secure steering gear to exhaust manifold. Loosen mounting nuts to allow room for Brake Pressure Modulator Valve (BPMV) removal.

5) Remove brake line retainers from frame. Install jackstand under left side of transaxle to support powertrain. Remove left mount from mount bracket. Slowly lower powertrain, and remove left transaxle mount.

6) Remove fasteners retaining steering gear to left side of vehicle. Remove engine splash shield. Remove ball joint retaining nuts. Using Ball Joint Separator (J-43828), separate ball joints from knuckles.

7) Remove brackets securing power steering lines onto engine frame. Remove brackets securing transaxle oil cooler lines to engine frame. Remove fasteners securing steering gear to right side of vehicle. Support steering gear with wire.

8) Remove front and rear transaxle mount-to-frame fasteners. Using Universal Engine Support Table (J-39580), support engine frame near frame insulators. Remove engine frame-to-vehicle fasteners. Lower engine frame from vehicle. Separate engine frame insulators from engine frame.

9) Lower vehicle. Remove 3 attaching nuts from air pump, and position pump aside. Remove nut from top of transaxle mount. Raise and support vehicle. Remove bolts securing front transaxle bracket to transaxle. Lower vehicle, and remove front transaxle bracket from vehicle. Remove transaxle fluid indicator.

NOTE: Do not loosen tie rod end jam (adjuster) nut.

10) Raise and support vehicle. Using Universal Steering Linkage Puller (J-24319), disconnect outer tie rod end from steering knuckle. Remove drive shaft nut. Remove stabilizer shaft link. Disconnect electrical connector from wheel speed sensor.

11) Install Hub Spindle Remover (J-42129) onto wheel hub, and secure with lug nuts. Fully support drive shaft until fully removed from vehicle. Using hub spindle remover, disengage drive shaft from hub and bearing assembly. Using Slide Hammer (J-2619-01), Extension (J-29794) and Wheel Drive Shaft Remover (J-33008-A), disengage drive shaft from transaxle. Repeat for other drive shaft.

12) Disconnect transaxle oil cooler hoses from transaxle. Remove fluid filler tube and seal. Remove torque converter cover. Mark flywheel-to-converter relationship for reassembly reference, and remove bolts.

13) Support transaxle using appropriate jack. Disconnect vehicle speed sensor electrical connector. Remove torque strut bracket. Remove engine-to-transaxle case bolt (accessible through right wheel opening). Remove remaining transaxle-to-engine bolt.

Remove transaxle from vehicle. Remove left and rear transaxle brackets from transaxle.

NOTE: One transaxle-to-engine bolt is installed from engine side. It may be necessary to use a 3-foot extension through access hole located in right fenderwell.

#### Installation

To install, reverse removal procedure. Tighten nuts and bolts to specification. See TORQUE SPECIFICATIONS. Adjust shift cable, and refill transaxle with appropriate fluid. See appropriate AUTOMATIC TRANSMISSION servicing article. Check front end alignment.

#### Removal ("G" Body)

1) Ensure wheels are in straight-ahead position. Using Steering Column Anti-Rotation Pin (J-42640), lock steering column to avoid SIR coil assembly damage. Disconnect negative battery cable. Disconnect intake air temperature sensor and mass air flow sensor electrical connectors. Remove air cleaner and duct assembly.

2) Using flat-blade screwdriver, remove shift cable from shift lever. Remove shift cable, with bracket, from transaxle case. Set aside. Remove fasteners from air pipe. Remove ground cable bolt from transaxle. Disconnect transaxle harness connector. Remove wiring harness from retainer located on transaxle.

3) Remove windshield wiper arms. Remove air inlet grille panel fasteners. Disconnect washer hose connector. Remove air inlet grille. Install Universal Engine Support Fixture (J-28467-B).

4) Remove upper engine-to-transaxle case bolts. Raise and support vehicle. Remove front wheels. Remove inner wheel house extensions. Remove front air deflector.

5) Remove intermediate shaft lower pinch bolt, and disconnect shaft from steering gear. Remove stabilizer bar links. Remove steering gear heat shield. Remove steering gear mounting bolts. Remove power steering line retainers from frame. Secure steering gear to exhaust manifold.

6) Remove Brake Pressure Modulator Valve (BPMV) from bracket. Remove brake line retainers from frame. Install jackstand under left side of transaxle to support powertrain. Remove transaxle mount-to-mount bracket stud nut. Remove necessary fasteners to lower powertrain. Lower powertrain enough to remove left transaxle mount from vehicle.

7) Using Ball Joint Separator (J-43828), remove ball joints from steering knuckle. Remove control arm from frame, and remove ball joints from control arms. Remove ABS control module from bracket on left front. Disconnect air pumps, and leave on frame (reposition splash shields to gain access). Remove brackets securing power steering lines to frame.

8) Remove front transaxle mount-to-frame bolts. Remove rear transaxle mount-to-frame bolts. Remove steering gear-to-frame bolts. Using mechanics wire, secure steering gear to vehicle body. Using Universal Engine Support Table (J-39580), support engine frame near frame insulators. Remove engine frame-to-vehicle fasteners, and lower frame from vehicle.

NOTE: Do not loosen tie rod end jam (adjuster) nut.

9) Using Universal Steering Linkage Puller (J-24319-B), disconnect outer tie rod from steering knuckle. Remove drive shaft nut. Support drive shaft. Using Hub Spindle Remover (J-42129), disengage drive shaft from hub/bearing assembly. Using Slide Hammer And Adapter (J-2619-01), Extension (J-29794) and Wheel Drive Shaft Remover (J-33008-A), remove drive shaft from vehicle.

10) Remove transaxle oil cooler hoses from transaxle, and

plug openings. Remove transaxle fluid indicator. Remove fluid filler tube and seal. Remove torque converter cover. Mark flywheel-to-torque converter relationship for reassembly reference, and remove bolts.

11) Support transaxle using appropriate transaxle jack. Disconnect vehicle speed sensor electrical connector. Remove transaxle brace. Remove engine-to-transaxle case bolt (accessible through right wheel opening). Remove remaining transaxle-to-engine bolt. Remove transaxle from vehicle.

#### Installation

To install, reverse removal procedure. Tighten all fasteners to specification. See TORQUE SPECIFICATIONS. Flush transaxle oil cooler. Adjust shift cable, and fill transaxle with appropriate fluid. See appropriate AUTOMATIC TRANSMISSION servicing article. Check front end alignment. Road test vehicle.

#### Removal ("W" Body)

1) Disconnect negative battery cable. Disconnect air intake temperature sensor electrical connector. On models equipped with 3.1L engine, remove MAF sensor, and remove air cleaner and duct assembly. On models equipped with 3.8L engine, remove inner fender brace, duct assemblies, air cleaner housing cover, and PCM housing. On all models, install Engine Support Fixture (J-28467-A). Remove engine mount struts. Disconnect wiring harness connectors from transaxle, and remove wiring harness grounds.

2) Remove shift cable from wiring harness/strap, shift lever and bracket. Remove front floor console. Pull carpet back to expose shift cable. Remove shift cable from retaining clips/retainers in passenger compartment. Remove shift cable retainer from console shift control, and remove cable. Remove shift cable through hole in cowl, and remove from park/neutral position switch. Remove shift cable bracket and cable from transaxle. Remove park/neutral position switch.

3) Remove transaxle fluid filler tube indicator. Raise and support vehicle. Disconnect heated oxygen sensor wiring harness connector and retainers. Support exhaust system. Remove catalytic converter bolts and gasket. Remove exhaust manifold pipe stud nuts, and remove catalytic converter and exhaust manifold pipe gasket. Remove fluid filler tube.

4) Lower vehicle. Remove steering gear-to-frame retaining bolts. Remove upper transaxle bolts and stud. Ensure front wheels are in straight-ahead position, and ignition switch is in LOCK position (to avoid damage to clockspring). Raise and support vehicle. Remove front wheels. Remove engine splash shields.

5) Remove tie rod end nut, and loosen jam (adjuster) nut. Using Universal Steering Linkage Puller (J-24319-B), remove tie rods from steering knuckles.

6) Remove intermediate shaft lower pinch bolt, and separate shaft from steering gear. Support rear of frame using jackstands. Remove frame bolts from rear of frame, and carefully lower rear of frame. Remove power steering lines from steering gear. Remove Magnasteer(R) Variable Assist electrical connector from steering gear, if equipped. Remove power steering gear through left wheel opening.

7) Remove power steering cooler line clamps from frame. Remove engine mount lower nuts. Disconnect wheel speed sensor, and remove harness. Remove stabilizer shaft link. Using Ball Joint/Stud Separator (J-41820), remove lower control arm ball stud from steering knuckle.

8) Remove torque converter covers. Remove front lower air deflector panel. Remove starter solenoid BAT terminal nut, and remove positive battery cable from starter motor. Remove starter "S" terminal nut, and remove starter solenoid wire from starter. Remove starter and shims, if equipped.

9) Remove torque converter bolts. Drain transaxle fluid.

Remove transaxle oil cooler hose from transaxle. Remove front wheel drive shaft nut. Using Axle Shaft Remover (J-33008-A), Axle Shaft Remover Extension (J-29794) and Slide Hammer (J-2619-01), remove drive axle from transaxle. Secure drive axles onto steering knuckles and struts.

10) Disconnect wheel speed sensor wiring harness connectors. Use transaxle table to support transaxle and frame. Remove lower transaxle bolt and stud. Remove frame-to-body bolts, and discard. With transaxle supported, remove frame from vehicle. Lower transaxle, and remove from vehicle.

#### Installation

1) To install, reverse removal procedure using NEW frame-to-body bolts and NEW exhaust system gaskets. Tighten nuts and bolts to specification. See TORQUE SPECIFICATIONS.

2) Adjust shift cable, and fill transaxle with appropriate fluid. See appropriate AUTOMATIC TRANSMISSION servicing article. Check wheel alignment. Perform ABS diagnostic system check. See appropriate ANTI-LOCK article in BRAKES.

### 4T80-E TRANSAXLE

#### Removal ("E" Body)

1) Disconnect negative battery cable. Remove upper headlight filler panel and diagonal brace. Disconnect mass air flow/intake air temperature sensor electrical connector, and remove air cleaner and duct assembly. Disconnect shift control cable from shift lever and bracket.

2) Remove engine mount strut. Remove oil cooler lines at cooler, and oil sending line at transaxle. Remove heater by-pass pipe. Remove power steering return hose at auxiliary cooler, and plug. Remove both heater tube retainers from upper case side cover studs. Disconnect electrical connector from coolant temperature sensor.

3) Remove ground wire from stud located near rear transaxle-to-engine brace. Remove upper nuts from rear engine-to-transaxle brace. Disconnect transaxle vent hose at transaxle. Carefully pull wiring harness up from beneath vehicle, and set aside. Reposition engine harness at top of transaxle to access upper transaxle bolts. Remove upper transaxle bolts.

4) Install Universal Engine Support Fixture (J-28467-B). Raise left side of powertrain (transaxle side) 1.00" (25.4 mm) above powertrain resting position with adjusting screws. Raise and support vehicle.

5) Disconnect automatic level sensor link from ball stud on lower control arm, if equipped. Using Steering Linkage and Tie Rod Puller (J-24319-B), disconnect outer tie rod end from steering knuckle. Remove drive shaft nut.

6) Remove stabilizer bar link. Disconnect wheel speed sensor electrical connector, and reposition away from ball joint. Remove road sensing suspension position sensor from lower control arm. Using Ball Stud Separator (J-36226), disconnect lower ball joint from steering knuckle.

7) Install Hub Spindle Remover (J-42129) onto wheel hub, and secure with lug nuts. Support drive shaft until fully removed from vehicle. Using hub spindle remover, disengage drive shaft from hub/bearing assembly. Using Slide Hammer And Adapter (J-2619-01), Extension (J-29794) and Wheel Drive Shaft Remover (J-33008-A), remove drive shaft from vehicle.

8) Remove front wheel splash shields. Remove engine splash shield. Disconnect vehicle speed sensor connector. Disconnect both front suspension sensor rods from lower control arm, and position aside. Remove ABS modulator from bracket and support.

9) Remove heat shield, and remove engine-to-transaxle brace.

Remove torque converter cover. Remove front engine-to-transaxle pencil brace. Remove 3 ground connections at front of transaxle. Disconnect transaxle main harness.

10) Mark flywheel-to-torque converter relationship for reassembly reference, and remove bolts. Remove powertrain mount nuts from frame. Remove steering gear stub shaft clamp bolt (rotate intermediate shaft so clamp bolt is accessible from left wheel opening). Remove intermediate shaft lower pinch bolt, and separate shaft from gear.

11) Remove electrical harness and connectors from front of frame. Support rear of frame with adjustable jackstand. Remove 4 rear frame bolts. Lower jackstand enough to gain access to steering gear heat shield and return line fitting, and remove heat shield and line. Plug pressure line and steering gear. Remove power steering electrical connector.

12) Raise jackstand, and reinstall one rear frame bolt on each side (finger tight) to support frame. Remove jackstand. Remove support frame. Remove 6 frame mount bolts. Remove lower frame and/or raise vehicle with steering gear attached.

13) Remove left transaxle mount and bracket from transaxle. Separate engine from transaxle. Lower transaxle down and leftward at slight angle, so transaxle case will clear end of starter. Lower transaxle.

#### Installation

1) Perform oil cooler flushing procedure using Transmission Oil Cooler Flusher (J-35944-A). Install oil cooler return line onto transaxle. To complete installation, reverse removal procedure. Tighten nuts and bolts to specification. See TORQUE SPECIFICATIONS.

2) Adjust shift cable, and fill transaxle with appropriate fluid. See appropriate AUTOMATIC TRANSMISSION servicing article. Check coolant level. Bleed power steering system. See appropriate article in STEERING. Check wheel alignment.

3) Reset transmission adapt, following scan tool manufacturer's instructions. Reset transmission oil life indicator by turning ignition on, and pressing and holding OFF and REAR DEFOG buttons until TRANS FLUID LIFE RESET appears on driver information center.

#### Removal ("G" Body)

1) Disconnect negative battery cable. Disconnect mass air flow/intake air temperature sensor electrical connector. Remove air cleaner and duct assembly. Disconnect shift cable from shift lever and bracket, and position aside.

2) Remove upper transaxle oil cooler line at transaxle. Remove lower transaxle oil cooler line at radiator. Remove both heater tube retainers from upper case side cover studs. Remove electrical connector from engine coolant temperature sensor. Remove ground wire from stud located near rear transaxle-to-engine brace. Remove upper nuts from rear engine-to-transaxle brace.

3) Raise and support vehicle. Disconnect left front wheel speed sensor, and remove harness from retainer. Disconnect vehicle speed sensor at transaxle. Disconnect steering gear electrical connector from steering gear. Lower vehicle.

4) Disconnect transaxle vent hose from transaxle. Carefully pull wire harness up from beneath vehicle, and position aside. Reposition engine harness at top of transaxle, and remove upper transaxle bolts.

5) Remove bolt bracing power steering return hose to cylinder head. Install Engine Lift Bracket (J-42504) onto cylinder head. Remove windshield wiper arms. Disconnect washer hose connector. Install Universal Engine Support Fixture (J-28467-B).

6) Raise and support vehicle. Remove front wheels. Remove

stabilizer bar link. Using Ball Joint Separator (J-43828), separate ball joints from steering knuckles. Remove ABS module from bracket. Remove splash shield from front left wheel well. Disconnect air pumps, leaving them on frame. Remove air deflector.

7) Remove brackets securing power steering lines to frame. Remove fasteners securing front and rear transmission mounts to frame. Remove fasteners securing steering gear to frame. Using mechanics wire, secure steering gear onto vehicle body.

8) Using Universal Engine Support Table (J-39580), support engine frame near frame insulator. Remove engine frame fasteners. Lower frame from vehicle.

9) Using Universal Steering Linkage Puller (J-24319-B), disconnect tie rod from steering knuckle, but DO NOT loosen jam (adjuster) nut. Remove drive shaft nut. Secure Hub Spindle Remover (J-42129) onto wheel hub with lug nuts. Support drive shaft. Using hub spindle remover, disengage drive shaft from hub/bearing. Using Slide Hammer And Adapter (J-2619-01), Extension (J-29794) and Hub Spindle Remover (J-33008-A), disengage drive shaft from transaxle. Remove drive shafts from vehicle.

10) Remove exhaust heat shield from right side of transaxle brace. Remove right side transaxle-to-engine brace bolts. Remove rear upper transaxle-to-engine bolt. Remove front engine-to-transaxle pencil brace. Remove 3 ground connections at front of transaxle. Disconnect transaxle main harness.

11) Remove engine oil pan-to-transaxle bracket. Mark flywheel-to-torque converter relationship, and remove bolts. Remove left transaxle bracket from case side cover. Support transaxle with transaxle jack. Remove front lower transaxle bolt. Separate engine and transaxle. Lower transaxle, using caution not to damage starter.

#### Installation

To install, reverse removal procedure. Tighten all fasteners to specification. See TORQUE SPECIFICATIONS. Adjust shift cable, and fill transaxle with appropriate fluid. See appropriate AUTOMATIC TRANSMISSION servicing article. Check front end alignment. Road test vehicle.

#### Removal ("K" Body)

1) Disconnect negative battery cable. Remove upper headlight filler panel. Remove air cleaner upper plenum and intake tube. Remove surge tank inlet and outlet pipes, and plug. Disconnect shift control cable and bracket at transaxle.

2) Remove upper transaxle-to-engine mounting bolts. Install Universal Engine Support Fixture (J-28467-B). Raise and support vehicle. Remove front wheels. Remove lower splash shield. Remove front suspension position sensor links from lower control arms, and position aside. Remove stabilizer bar links, and allow stabilizer bar to rest loosely on engine frame. Remove stabilizer bar insulator brackets from frame.

3) Remove drive axle nuts, and separate drive axles from hubs. Remove tie rod cotter pins and nuts, and separate tie rods from steering knuckles. Remove tie rods from knuckles. Remove lower control arm ball joints from steering knuckles. Remove drive axles from transaxle.

4) Remove Brake Pressure Modulator Valve (BPMV) and bracket from engine frame, and support with safety wire. Remove rear transaxle mount bracket nut and bolts. Remove rear transaxle mount bolt and nuts from left frame rail.

5) Remove engine-to-frame mount nuts. Remove steering rack bolts from engine frame. Remove brake line and power steering line fasteners from engine frame. Remove rear (after catalytic converter) oxygen sensor heat shield, and disconnect sensor. Disconnect one center exhaust hanger to allow easy movement of exhaust in rearward

direction.

6) Lower vehicle, and support engine frame. Remove 6 engine frame mount bolts. Raise vehicle slowly away from engine frame. Remove engine frame, and support table from under vehicle. Remove steering rack heat shield from rack. Disconnect power steering lines from rack.

7) Remove right rear engine-to-transaxle bracket bolt, nuts and bracket. Remove steering rack from vehicle. Remove right front engine-to-transaxle brace bolt, nut, brace and heat shield. Remove right front engine-to-transaxle bracket.

8) Remove oil pan-to-transaxle bracket. Remove torque converter cover brace and cover. Mark flywheel-to-torque converter relationship for reassembly reference, and remove bolts. Disconnect all transaxle electrical connectors.

9) Remove engine-to-transaxle heat shield and bracket. Support transaxle with appropriate jack. Separate transaxle from engine, and lower transaxle from vehicle.

#### Installation

1) Install rear transaxle mount bracket onto stud before transaxle is fully positioned into vehicle. Loosely attach rear transaxle mount onto left frame rail. To complete installation, reverse removal procedure. Tighten nuts and bolts to specification. See TORQUE SPECIFICATIONS.

2) Adjust shift cable, and fill transaxle with appropriate fluid. See appropriate AUTOMATIC TRANSMISSION servicing article. Check coolant level.

3) Bleed power steering system. See appropriate article in STEERING. Check wheel alignment. Reset transmission adapt, following scan tool manufacturer's instructions.

## 4L60-E TRANSMISSION

#### Removal ("F" Body)

1) Disconnect negative battery cable. Disconnect intake air temperature sensor electrical connector. On models equipped with 5.7L engine, remove MAF electrical connector. On all models, remove air intake duct. Remove transmission fluid level indicator.

2) Raise and support vehicle. Remove exhaust manifold bolts and gaskets. Remove Connector Position Assurance (CPA) lock, and disconnect and remove oxygen sensor. Remove catalytic converter from bracket, and remove from muffler.

3) Unsnap shift lever cable from transmission. Mark relationship of drive shaft-to-pinion gear yoke for reassembly reference. Place adjustable stand under shaft, near support bearing for support. Remove support bearing. Remove propeller shaft, and tape bearing caps, if loose.

4) Support rear axle with jackstands. Remove center support bearing bolts from torque arm, if equipped with 2-piece drive shaft. Remove torque arm and brackets. Lower vehicle. On models equipped with 5.7L engine, go to step 7). On models equipped with 3.8L engine, go to next step.

5) Remove drive belt. Remove generator electrical connector and positive battery cable. Remove canister purge solenoid. Remove generator. Remove ignition control module. Install Universal Engine Support Fixture (J-28467-B). Raise and support vehicle. Remove through-bolt nuts from engine mounts. Remove transmission oil cooler pipe bracket. Lower vehicle.

6) Disconnect A/C compressor electrical connector. Remove negative battery cable from engine block. Raise and support vehicle. Remove A/C compressor, leaving lines attached. Raise engine, remove through-bolts, and remove engine mounts.

7) Raise and support vehicle. Remove left-side catalytic converter. Remove starter shield, starter electrical connections, and

the remove starter. Remove transmission braces. Remove torque converter cover(s). Mark flywheel-to-torque converter relationship for reassembly reference, and remove bolts. Remove transmission oil cooler line from radiator.

8) On all models, support transmission using transmission jack, and remove transmission support. Remove cooler line from transmission and retaining clip on either engine mount (3.8L models) or generator bracket/oil pan (5.7L models).

9) Remove 20-way connector and harness from transmission. Disconnect vehicle speed sensor electrical connector. With transmission supported, remove transmission mount nut. Remove transmission support from rail. Lower transmission tail section slightly, and remove bolt/nuts and fluid fill tube. Separate transmission from engine. Attach Converter Holding Strap (J-21366) onto transmission, and lower transmission from vehicle.

#### Installation

1) To, Install, reverse removal procedure. Prior to mating torque converter to flexplate, rotate torque converter by hand to ensure free rotation. Align index marks made during removal. Tighten torque converter-to-flexplate bolts finger tight, and then tighten to specification. Tighten all bolts and nuts to specification. See TORQUE SPECIFICATIONS.

2) Adjust shift linkage, and fill transmission with appropriate fluid. See appropriate AUTOMATIC TRANSMISSION servicing article.

## TORQUE SPECIFICATIONS

### TORQUE SPECIFICATIONS (3T40)

Application	Ft. Lbs. (N.m)
Catalytic Converter Flange Bolt .....	22 (30)
Crossmember Bolt .....	81 (110)
Drive Axle Nut .....	148 (200)
Engine Mount Strut Bolt .....	(1) 74 (100)
Exhaust Pipe-To-Exhaust Manifold Nut .....	33 (45)
Intermediate Shaft Lower Pinch Bolt .....	30 (40)
Lower Control Arm	
Ball Joint-To-Knuckle Nut .....	48 (65)
Front Mounting Bolt .....	79 (107)
Rear Mounting Bolt .....	125 (170)
Power Steering Line-To-Steering Gear .....	20 (27)
Stabilizer Bar Link Nut .....	13 (17)
Starter Bolt .....	37 (50)
Suspension Support Brace Bolt .....	53 (72)
Tie Rod	
Ball Stud Nut (NEW) .....	33 (45)
Jam (Adjuster) Nut .....	55 (75)
Torque Converter-To-Flywheel Bolt .....	46 (62)
Transaxle	
Bracket-To-Body Bolt .....	66 (90)
Transaxle-To-Engine Bolt & Stud .....	66 (90)
Wheel Lug Nut .....	103 (140)
	INCH Lbs. (N.m)
Cooler Pipe .....	71 (8)

(1) - Tighten an additional 90 degrees.

TORQUE SPECIFICATIONS (4L30-E)

Application	Ft. Lbs. (N.m)
Crossmember Bolt/Nut	
To Body .....	33 (45)
To Transmission Mount .....	15 (20)
Drive Shaft Coupling Bolt .....	70 (95)
Exhaust Manifold Flange Nut .....	18 (24)
Flywheel-To-Torque Converter Bolt (NEW) .....	22 (30)
Heated Oxygen Sensor .....	31 (42)
Muffler Pipe Flange Bolt .....	30 (40)
Transaxle Housing Bolt	
To Engine Oil Pan .....	30 (40)
To Engine Block .....	44 (60)

TORQUE SPECIFICATIONS (4L60-E)

Application	Ft. Lbs. (N.m)
A/C Compressor Bolt	
Front .....	37 (50)
Rear .....	22 (30)
Center Support Bearing Bolt .....	37 (50)
Cooler Line-To-Radiator .....	20 (27)
Drive Shaft Bolt .....	16 (22)
Drive Shaft Support Bearing .....	37 (50)
Engine	
Mount Bolt .....	43 (58)
Through-Bolt .....	59 (80)
Exhaust Manifold Bolt .....	35 (47)
Exhaust Pipe Clamp Bolt .....	35 (47)
Generator	
Lower Bolt .....	37 (50)
Side Bolt .....	22 (30)
Oxygen Sensor .....	31 (42)
Starter Bolt/Stud	
3.8L (Bolt) .....	35 (47)
3.8L (Stud) .....	33 (45)
5.7L (Bolt) .....	37 (50)
Torque Arm	
Bolt .....	96 (130)
Bracket Nut .....	33 (45)
Inner Bracket Bolt .....	37 (50)
Nut .....	97 (132)
Torque Converter Bolt	
3.8L .....	46 (62)
5.7L .....	44 (60)
Transmission	
Bolt (5.7L) .....	37 (50)
Brace Nut .....	59 (80)
Mount Nut (3.8L) .....	42 (57)
Mount Nut (5.7L) .....	77 (105)
Mounting Bolt/Nut .....	70 (95)
Support Bolt .....	66 (90)
Transmission Right Brace-To-Engine Block Bolt .....	37 (50)
Transmission Left Brace-To-Engine Block Bolt .....	21 (28)

TORQUE SPECIFICATIONS (4T40-E & 4T45-E)

Application	Ft. Lbs. (N.m)
Axle Shaft Nut ("N" Body) .....	284 (385)
Ball Joint-To-Knuckle Nut	
"J" Body .....	(1) 44 (60)
"N" Body .....	48 (65)
Caliper & Wheel Cylinder Brake Pipe-To-BPMV	
Fitting ("N" Body) .....	18 (24)
Catalytic Converter Flange Bolt ("J" Body) .....	22 (30)
Crossmember Bolt	
"J" Body .....	81 (110)
"N" Body	
Front Bolt .....	81 (110)
Rear Bolt .....	(1) 181 (245)
To Body Bolt .....	60 (82)
Engine Mount Strut Bolt ("J" Body) .....	(2) 74 (100)
Exhaust Pipe-To-Exhaust Manifold Nut ("J" Body) .....	33 (45)
Flywheel-To-Torque Converter Bolt ("J" & "N"	
Bodies) .....	46 (62)
Intermediate Shaft Lower Pinch Bolt	
"J" Body .....	30 (40)
"N" Body .....	16 (22)
Master Cylinder Brake Pipe-To-BPMV Fitting ("N"	
Body) .....	18 (24)
Power Steering Hose-To-Steering Gear ("J" & "N"	
Bodies) .....	20 (27)
Stabilizer Bar Link Nut ("N" Body) .....	13 (17)
Starter Bolt ("J" & "N" Bodies) .....	37 (50)
Suspension Support Brace ("J" Body) .....	53 (72)
Tie Rod Nut	
"J" Body .....	33 (45)
"N" Body	
Ball Stud Nut (Prevailing Torque) .....	(1) 15 (20)
Jam (Adjuster) Nut .....	55 (75)
Transaxle-To-Body Bracket Bolt ("J" Body) .....	66 (90)
Transaxle-To-Engine Bolt & Stud ("J" & "N" Bodies) .....	66 (90)
Transaxle-To-Front Mount Bolt ("N" Body) .....	96 (130)
Transaxle-To-Lower Mount Bracket Bolt ("N" Body) .....	89 (120)
Transaxle-To-Mount Through-Bolt ("N" Body) .....	55 (75)
Transaxle-To-Rear Mount Through-Bolt ("N" Body) .....	89 (120)
Wheel Lug Nut (All Models) .....	103 (140)

INCH Lbs. (N.m)

BPMV Retaining Nut ("N" Body) .....	89 (10)
Cooler Pipe-To-Transaxle ("J" Body) .....	71 (8)

(1) - Tighten an additional 180 degrees.

(2) - Tighten an additional 90 degrees.

#### TORQUE SPECIFICATIONS (4T65-E)

Application	Ft. Lbs. (N.m)
AIR Pipe Fastener ("G" Body) .....	17 (23)
AIR Pump-To-Transaxle Bracket ("C" & "H" Bodies) .....	37 (50)
Axle Shaft Nut	
"C", "G" & "H" Bodies .....	118 (160)
"W" Body .....	159 (215)
Ball Joint-To-Knuckle Nut ("C" & "H" Bodies) .....	48 (65)
Catalytic Converter Bolt ("W" Body) .....	33 (45)
Cooler Hose	

"W" Body		
Clip Bolt .....	18	(24)
Fitting .....	17	(23)
Engine Frame Insulator Fastener ("C", "G" & "H" Bodies) .....	141	(191)
Engine Mount Lower Nut		
"W" Body		
3.1L .....	32	(43)
3.8L .....	58	(78)
Engine Mount Strut Nut/Bolt ("W" Body) .....	35	(47)
Exhaust Manifold Pipe Nut ("W" Body) .....	26	(35)
Flywheel-To-Torque Converter Bolt (All Models) .....	46	(62)
Frame-To-Body Bolt ("W" Body) .....	133	(180)
Intermediate Shaft Lower Pinch Bolt (All Models) .....	33	(45)
Lower Control Arm		
"G" Body		
Ball Stud-To-Knuckle Nut .....	48	(65)
Mounting Bolt/Nut .....	117	(158)
"W" Body		
Ball Stud-To-Knuckle Nut .....	41	(55)
Mounting Bolt/Nut .....	83	(113)
Powertrain Mount Stud Nut ("C" & "H" Bodies) .....	52	(70)
Shift Cable Bracket Nut ("G" Body) .....	18	(24)
Stabilizer Bar Link Nut		
"C", "G" & "H" Bodies .....	13	(17)
"W" Body .....	17	(23)
Starter Bolt ("W" Body) .....	32	(43)
Steering Gear Mounting Bolt		
"C", "G" & "H" Bodies .....	70	(95)
"W" Body .....	59	(80)
Strut Tower Bolt		
"C" & "H" Bodies .....	44	(60)
"G" Body .....	33	(45)
Tie Rod-To-Knuckle Nut		
"C", "G" & "H" Bodies .....	55	(75)
"W" Body .....	(1)	22 (30)
Adjuster (Jam) Nut ("W" Body) .....	50	(68)
Torque Strut Bracket Bolt		
"C" & "H" Bodies		
To Engine .....	48	(65)
To Transaxle .....	27	(36)
Transaxle Bracket		
"C" & "H" Bodies		
Front-To-Transaxle Bolt .....	43	(58)
"G" Body		
Left Bracket Bolt .....	81	(110)
Rear Bracket Bolt .....	46	(63)
Transaxle-To-Engine Bolt ("C", "G" & "H" Bodies) .....	55	(75)
Transaxle Bolt & Stud ("W" Body) .....	55	(75)
Transaxle Brace Bolt		
To Engine		
"G" Body .....	48	(65)
"W" Body .....	46	(63)
To Transaxle		
"G" Body .....	27	(36)
"W" Body .....	32	(43)
Transaxle Mount		
"C" & "H" Bodies		
Front-To-Frame Bolt .....	52	(70)
Left/Rear-To-Frame Bolt .....	52	(70)
Right-To-Frame Bolt .....	37	(50)
Top Mount Nut Bolt .....	59	(80)
"G" Body		

Front/Right Mount Fastener .....	48 (65)
Rear Mount-To-Left Frame Rail .....	52 (70)
Wheel Lug Nut (All Models) .....	103 (140)

(1) - Tighten an additional 115 degrees.

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TORQUE SPECIFICATIONS (4T80-E)

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Application	Ft. Lbs. (N.m)
Axle Shaft Nut (All Models) .....	118 (160)
Ball Joint-To-Steering Knuckle Nut ("G" Body) .....	48 (65)
Cooler Pipe-To-Transaxle Fitting ("E" & "K" Bodies) .....	16 (22)
Cross-Vehicle Brace Nut ("E" Body) .....	15 (20)
Engine & Transaxle Mounting ("K" Body)	
Mount Nut .....	37 (50)
Mount-To-Transaxle Bracket Fastener .....	37 (50)
Mount-To-Transaxle Bolt .....	55 (75)
Mount-To-Transaxle Bracket Bolt .....	81 (110)
Mount-To-Transaxle Bracket Nut .....	37 (50)
Mount-To-Transaxle Heat Shield & Brace Fastener .....	37 (50)
Engine Frame Fastener ("G" & "K" Bodies) .....	141 (191)
Engine Mount Strut ("E" Body)	
Strut-To-Engine Bolt .....	58 (78)
Strut-To-Radiator Tie Bar Bolt .....	18 (24)
Engine Mount-To-Frame Nut ("E" Body) .....	35 (47)
Engine-To-Transmission Brace Bolt ("E" & "G" Bodies) .....	35 (47)
Flywheel-To-Torque Converter Bolt (All Models) .....	44 (60)
Intermediate Shaft Lower Pinch Bolt	
"E" Body .....	35 (47)
"K" Body .....	37 (50)
Power Steering Hose-To-Steering Gear ("E" & "K" Bodies) .....	20 (27)
Power Steering Return Brace Bolt ("G" Body) .....	37 (50)
Stabilizer Bar Link Nut	
"E" Body .....	41 (55)
"G" Body .....	13 (17)
"K" Body .....	48 (65)
Steering Gear Fastener	
"G" Body .....	48 (65)
"K" Body .....	77 (105)
Strut Tower Bolt/Nut	
"E" Body .....	15 (20)
"G" Body .....	33 (45)
"K" Body .....	44 (60)
Tie Rod-To-Knuckle Nut	
"E" & "G" Bodies .....	55 (75)
"K" Body .....	(1) 74 (100)
Transaxle-To-Engine Bolt ("E" & "G" Bodies) .....	55 (75)
Transaxle Mounting Bracket-To-Transaxle	
"E" Body .....	35 (47)
"G" Body .....	55 (75)
"K" Body .....	81 (110)
Transaxle Mount	
"E" Body	
Mount-To-Frame Nut .....	35 (47)
Mount-To-Transmission Fastener .....	35 (47)
"G" Body .....	48 (65)
"K" Body .....	37 (50)
Wheel Lug Nut (All Models) .....	103 (140)

Wiper Arm Pivot Shaft Nut ..... 24 (32)

INCH Lbs. (N.m)

Lower Control Arm Ball Joint Nut ("K" Body) ..... (2) 84 (9)

(1) - Tighten an additional 1/3 turn (2 flats).

(2) - Tighten an additional 120 degrees.

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TORQUE SPECIFICATIONS (MP6 & MP7)

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Application	Ft. Lbs. (N.m)
Clamp Support-To Engine Stiffening Bracket .....	23 (31)
Clamp Support-To Front Exhaust Pipe .....	44 (60)
Engine Strut Bracket-To-Frame Fastener .....	37 (50)
Engine-To-Transaxle Stiffening Brace Bolt .....	40 (54)
Front Exhaust Pipe-To-Catalytic Converter Nut .....	18 (24)
Front Exhaust Pipe-To-Manifold Nut .....	23 (31)
Frame-To-Body Fastener .....	155 (210)
Intermediate Axle Shaft Support Bracket-To-Engine Block ....	40 (54)
Lower Ball Joint-To-Steering Knuckle Nut .....	55 (75)
Steering Gear-To-Frame Fastener .....	37 (50)
Torque Converter-To-Flexplate Bolt .....	52 (70)
Transaxle-To-Engine Bolt .....	96 (130)
Transaxle-To-Engine Stud .....	74 (100)
Transaxle Bracket-To-Case Bolt .....	40 (54)
Transaxle Drain Plug .....	22 (30)
Transaxle Strut-To-Midrail Bolt .....	52 (70)
Transaxle Strut-To-Transaxle Bracket Bolt .....	52 (70)
Transaxle Strut Frame Bracket-To-Frame Nut .....	37 (50)
Wheel Lug Nut .....	103 (140)

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