

Your Ultimate Source for OEM Repair Manuals

FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

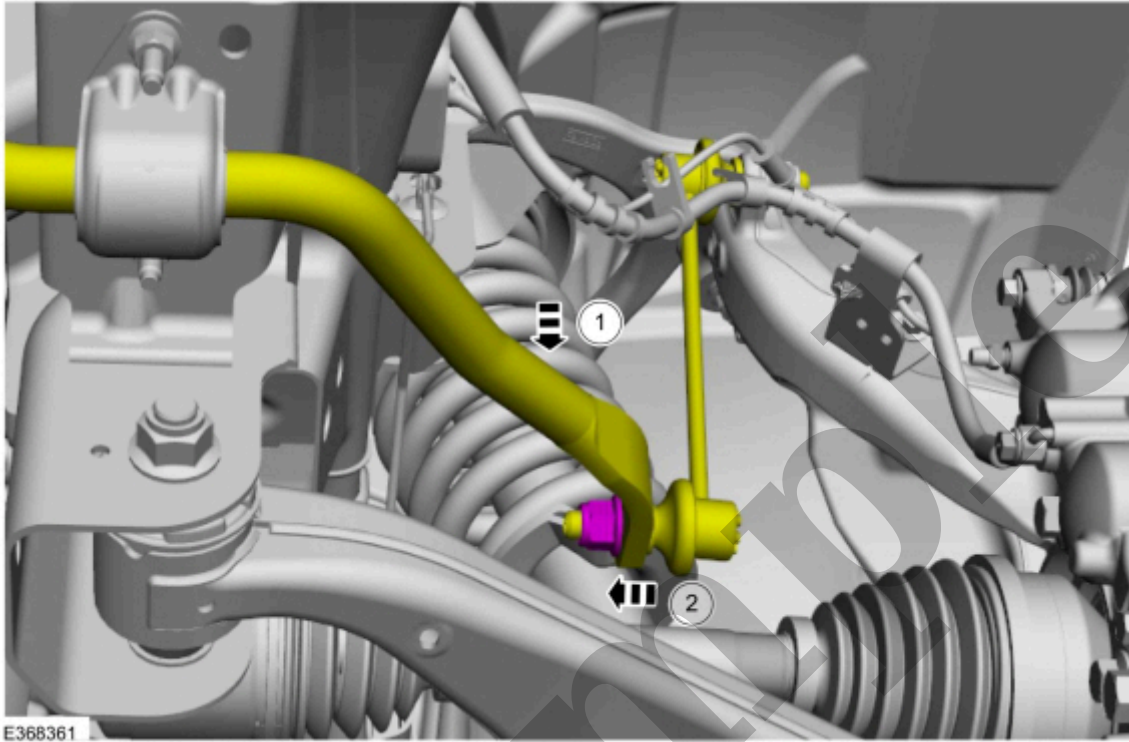
2012 FORD Ranger Double Cab OEM Service and Repair Workshop Manual

[Go to manual page](#)

Refer to: [Front Halfshaft LH - Electric](#)(205-04 Front Drive Halfshafts, Removal and Installation).

6. 1. Position back the stabilizer bar.
2. Position back the stabilizer bar link assembly and install the nut.

Torque : 111 lb.ft (150 Nm)



[Click here to learn about symbols, color coding, and icons used in this manual.](#)

7. 1. Remove the oil level plug.
2. With the vehicle on a level hoist, fill the rear electric drive assembly with oil until the transmission fluid is even with the bottom of the fluid leveling plug hole.

Refer to: Specifications (302-01 Front Electric Drive Assembly, Specifications).

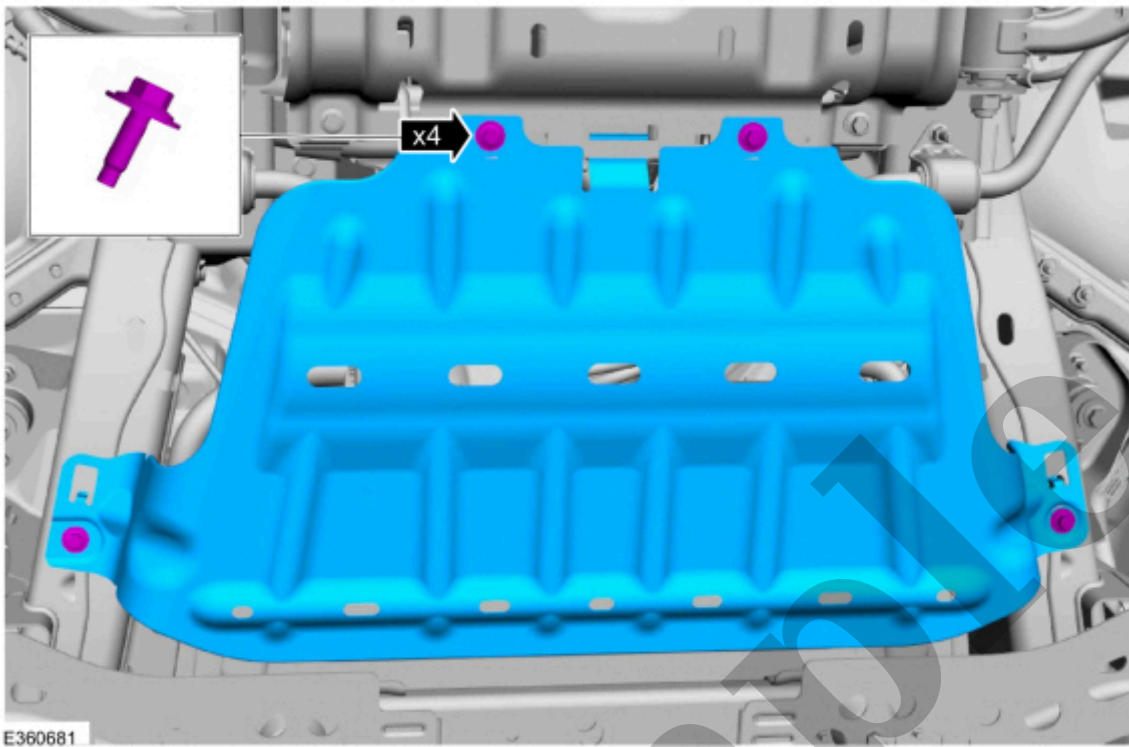
Use the General Equipment: Universal Fluid Dispenser

3. Install the oil level plug.

Torque : 30 lb.ft (40 Nm)

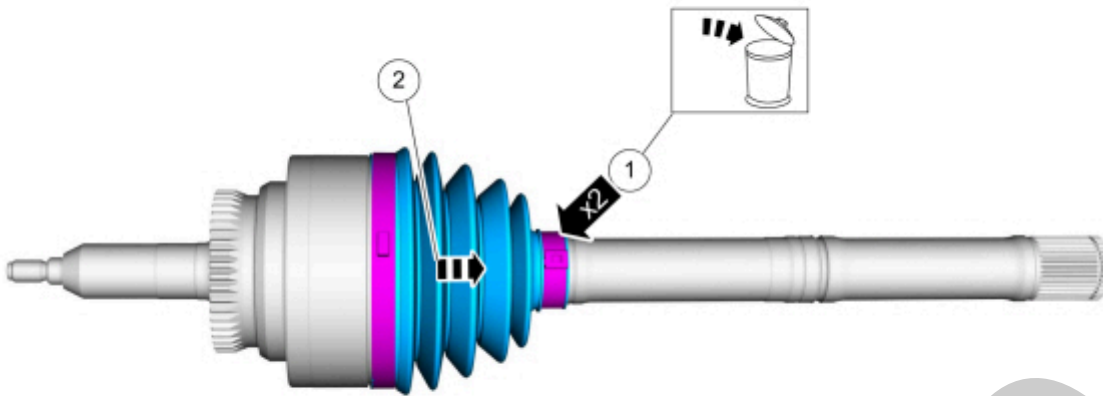
9. Install the front deflector and the bolts.

Torque : 30 lb.ft (40 Nm)



[Click here to learn about symbols, color coding, and icons used in this manual.](#)

Copyright © Ford Motor Company

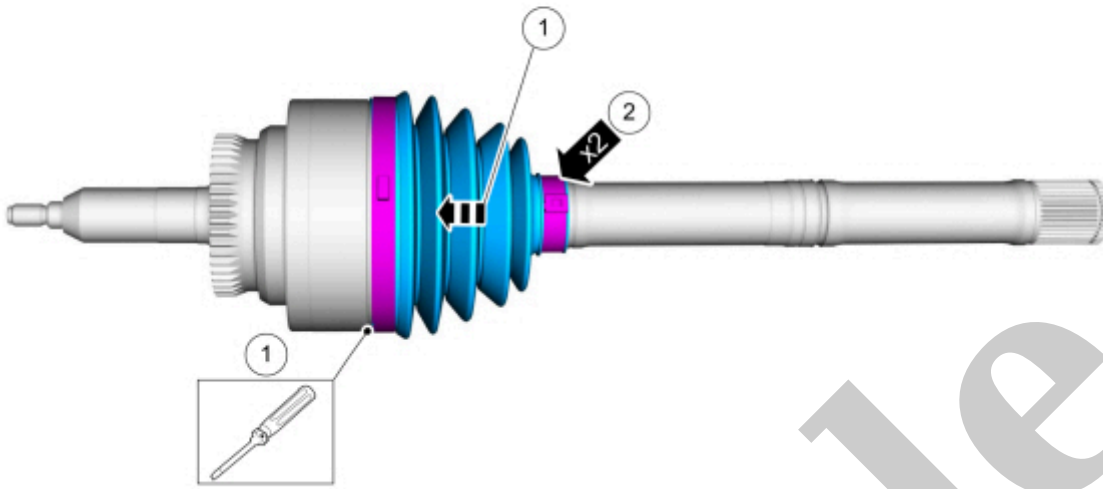


E193764

[Click here to learn about symbols, color coding, and icons used in this manual.](#)

Installation

1. Clean and inspect the CV (constant velocity) joint cage.
2. Inspect the outer CV (constant velocity) joint housing for damage.
3. Install the grease sachet evenly in the CV (constant velocity) joint boot and housing.



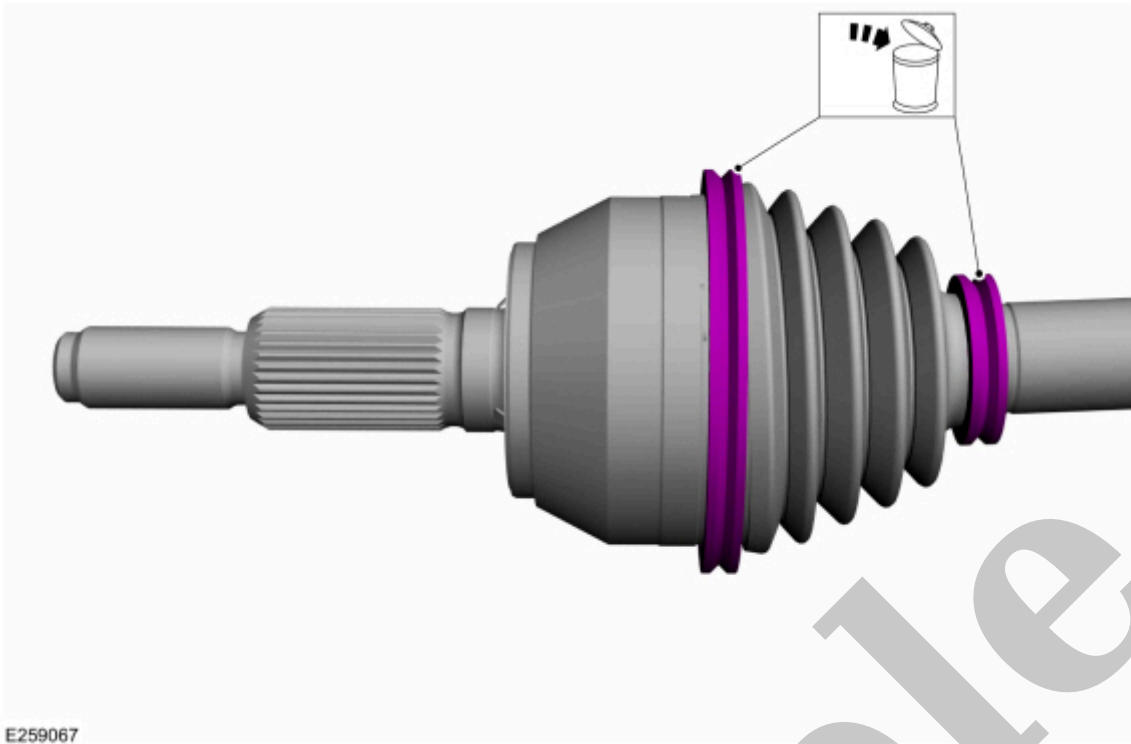
E193765

[Click here to learn about symbols, color coding, and icons used in this manual.](#)

3. Install the inner CV (constant velocity) joint boot.

Refer to: [Inner Constant Velocity \(CV\) Joint Boot - Vehicles Without: Integrated Wheel End \(IWE\)\(205-04 Front Drive Halfshafts, Removal and Installation\).](#)

Copyright © Ford Motor Company



E259067

[Click here to learn about symbols, color coding, and icons used in this manual.](#)

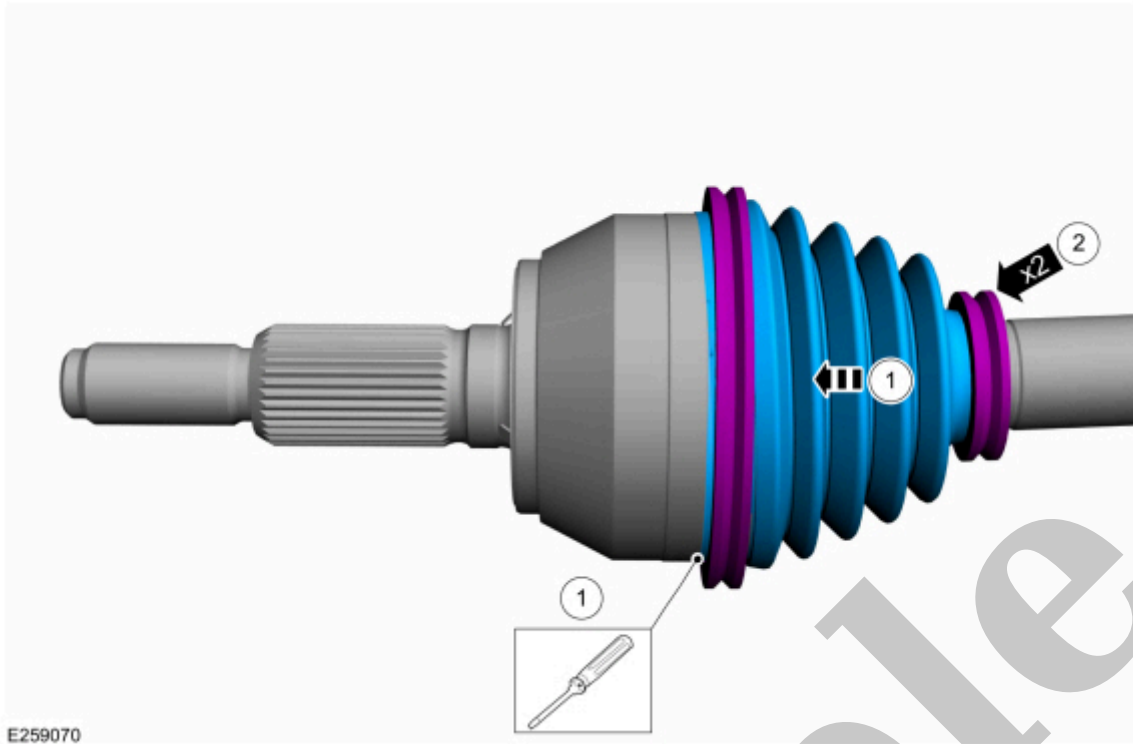
3. Remove the CV (constant velocity) joint boot.



E259068

[Click here to learn about symbols, color coding, and icons used in this manual.](#)

Installation

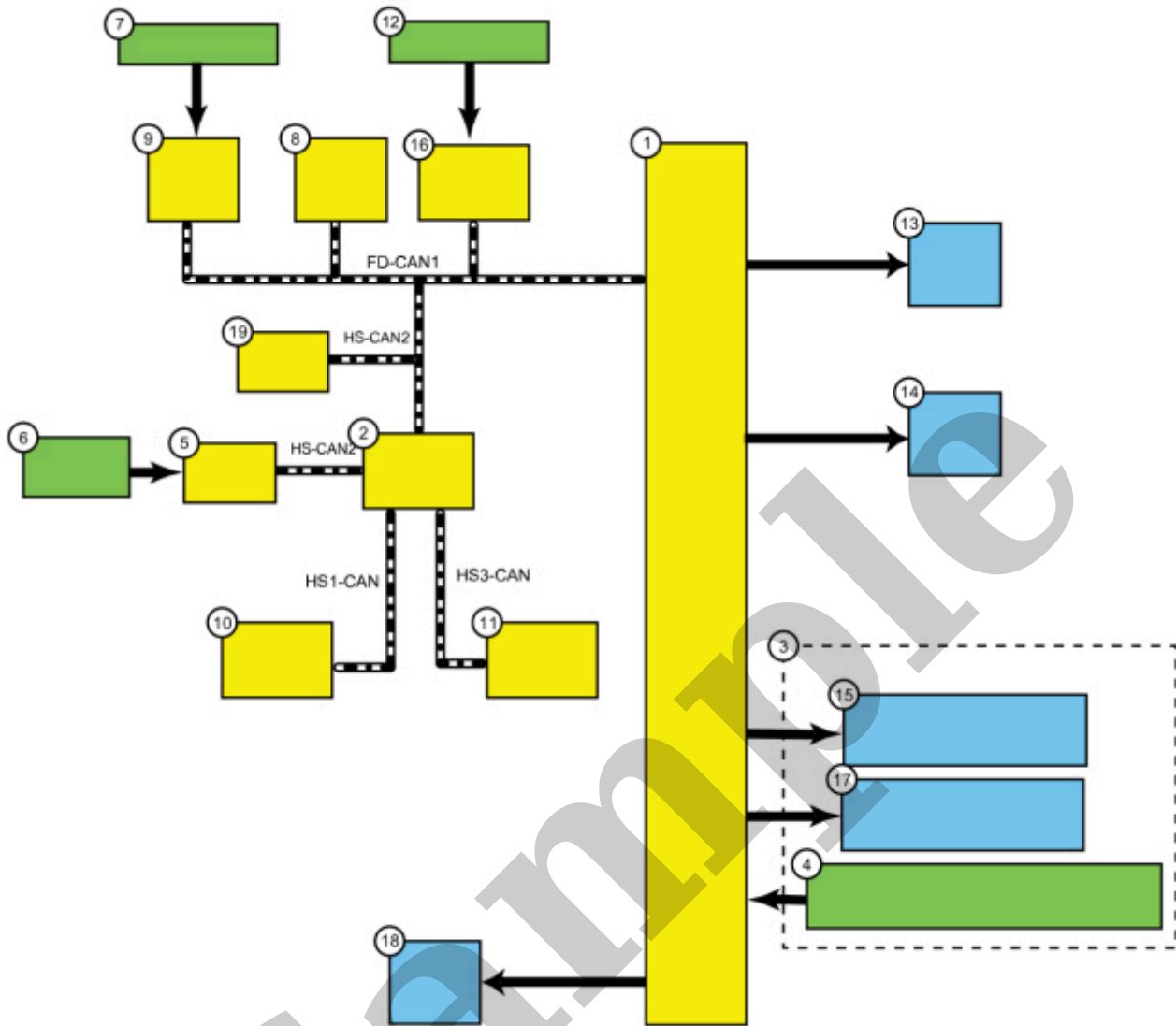


[Click here to learn about symbols, color coding, and icons used in this manual.](#)

3. Install the inner CV (constant velocity) joint boot.

Refer to: [Inner Constant Velocity \(CV\) Joint Boot - Vehicles Without: Integrated Wheel End \(IWE\)\(205-04 Front Drive Halfshafts, Removal and Installation\).](#)

Copyright © Ford Motor Company



E341809

Item	Description
1	TCCM (transfer case control module)
2	GWM (gateway module A)
3	Transfer Case Assembly
4	Shift Motor Plate Position Sensors
5	ATCM (all terrain control module)

NOTE

2WD (two-wheel drive) vehicles cannot be towed with any wheels on the ground as vehicle or transmission damage may occur.

NOTE

Failing to put the transfer case into the NEUTRAL position damages vehicle components.

Vehicles equipped with a 4WD (four-wheel drive) system have neutral flat tow software in the TCCM (transfer case control module). Following the neutral flat tow activation procedure commands the transfer case shift motor into a neutral position. Locking the transfer case in neutral prevents damage to the transmission while towing a 4WD (four-wheel drive) vehicle on all 4 wheels (such as when being towed behind a motorhome).

Four Wheel Drive System Operation – Electronic Shift on the Fly (ESOF)

Principles of Operation

The ELD (electronic locking differential) system allows the operator to lock the rear differential side gears. When the ELD (electronic locking differential) is engaged both rear wheels turn at the same speed, providing added traction on slippery and/or off road surfaces. The operator can engage the ELD (electronic locking differential) per the charts below:

ELD (electronic locking differential) Engagement/Disengagement Speeds and Availability — 4WD Vehicles

Drive Modes (4WD Modes)	Maximum Engagement Speeds	Automatic Disengagement Speeds	Automatic Re-Engagement Speeds
Normal (2H/4A/4H)	30 km/h (20 mph) *	41 km/h (25 mph)	30 km/h (20 mph) *
Eco (2H/4A/4H)			
Sport (2H/4A/4H)			
Slippery (2H/4A/4H)			
Tow/Haul (2H/4A/4H)			
Deep Snow/Sand (4H/4L) **	No Speed Limit	No Speed Limit	No Speed Limit

The differential locks when a PWM (pulse width modulation) controlled magnetic field coil located inside the differential energizes. This locks the differential side gears and creates the locked differential.

The ELD (electronic locking differential) system also informs the customer when there is too much wheel slip to safely engage the ELD (electronic locking differential) by displaying TO ENGAGE LOCKING DIFFERENTIAL RELEASE ACCELERATOR PEDAL message in IPC (instrument panel cluster) message center. When the ELD (electronic locking differential) is engaged, the TCCM (transfer case control module) sends PWM (pulse width modulation) voltage to the ELD (electronic locking differential) field coil located in the differential. This voltage is initially 98% duty cycle, and then tapers off after 30 seconds. In order for the TCCM (transfer case control module) to activate the ELD (electronic locking differential), certain conditions must be met.

- ELD (electronic locking differential) MSS (mode select switch) set to On.
- Wheel speed information via HS-CAN (high-speed controller area network) communication from ABS (anti-lock brake system) module
- Operating range (voltage 11.5-16 volts)
- DTC (diagnostic trouble code) setting range (voltage 10-15 volts)
- Ignition in the ON position
- TP (throttle position)

(2H) OPERATION

When the ATCM (all terrain control module) is in 2WD (two-wheel drive) (2H), power is delivered to the rear wheels only. This mode is appropriate for normal on-road driving on dry pavement and provides the best fuel economy. Torque is passed through the transfer case to the rear drive shaft at a 1:1 ratio. In 2WD (two-wheel drive) (2H):

- The ATCM (all terrain control module) sends a 2WD (two-wheel drive) (2H) mode status to the TCCM (transfer case control module) via a GWM (gateway module A).
- The IWE (integrated wheel end) are disengaged.
- The TCCM (transfer case control module) outputs a 0% duty cycle to the synchronization clutch field coil (4WD_CLTCH_OUT # = 0.00%).
- The shift motor is in the full CCW position. Refer to TRANSFER CASE SHIFT MOTOR STATUS in this section for further information.
- (2H) will momentarily be displayed in the message center at key up and after a 4WD (four-wheel drive) (4H) to 2WD (two-wheel drive) (2H) shift.

NOTE