



Installing a Power Take-Off (PTO) Assembly Onto Meritor's MTC-4210 Transfer Case Kit 2540

WARNING

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

When you apply some silicone gasket materials, a small amount of acid vapor is present. To prevent serious personal injury, ensure that the work area is well-ventilated. Read the manufacturer's instructions before using a silicone gasket material, then carefully follow the instructions. If a silicone gasket material gets into your eyes, follow the manufacturer's emergency procedures. Have your eyes checked by a physician as soon as possible.

Take care when you use Loctite® adhesive to avoid serious personal injury. Read the manufacturer's instructions before using this product. Follow the instructions carefully to prevent irritation to the eyes and skin.

Observe all warnings and cautions provided by the press manufacturer to avoid damage to components and serious personal injury.

Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Support the vehicle with safety stands. Do not work under a vehicle supported only by jacks. Jacks can slip and fall over. Serious personal injury and damage to components can result.

This bulletin provides instructions to install a power take-off (PTO) assembly onto Meritor's MTC-4210 transfer cases using Kit 2540. To order this kit, call ArvinMeritor's Commercial Vehicle Aftermarket at 888-725-9355.

For complete maintenance and service instructions for Meritor's MTC-4210 transfer cases, refer to Maintenance Manual MM-0146, MTC-4208, -4210 and -4213 Transfer Cases. To obtain this publication, call ArvinMeritor's Customer Service Center at 800-535-5560 or visit the Tech Library on our website at arvinmeritor.com.

Kit 2540

Part Name	Qty.	Part Number	Description
PTO Assembly	1	MDP-10-AF-100	10,000 lb-ft (13 500 N•m) torque rating
Washer	8	1229-E-1513	0.81" O.D. x 0.47" I.D. x 0.09" thickness
Capscrew	6	S-2710-2	7/16" – 14 thread x 1.25" long
Capscrew	2	S-2748-2	7/16" – 14 thread x 6.0" long
Washer	1	1229-T-1736	2.36" x 1.56 I.D. x 0.12" thickness
Locknut	1	40-X-1237	M39 x 1.5 thread
Dowel Pin	2	1246-T-1190	3/8" diameter x 1" long

PTO Operation

The PTO may be operated with the transfer case in high or low range and also while the vehicle is parked in neutral. You must follow OEM driving guidelines when shifting. Shift the transfer case between high, low and neutral when the vehicle is stationary, the transmission is in neutral and the parking brake is applied. Engage or disengage the PTO when the vehicle is stationary, the transmission is in neutral and the parking brake is applied.

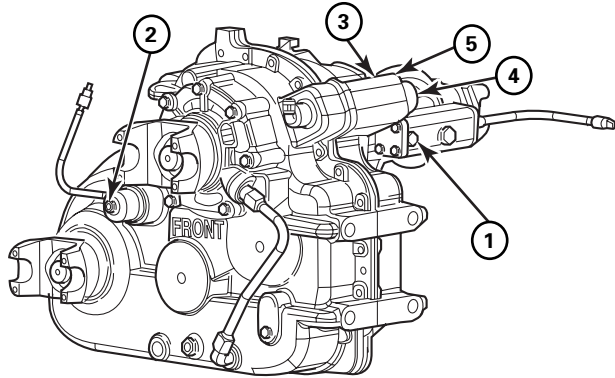
Five air control lines are required for full transfer case-with PTO-operation. Three lines are required for models not equipped with PTO operation.

Figure 1.

- PTO air control port for engagement
- High range shift port
- Low range shift port
- Neutral port
- Front axle declutch port

If the vehicle will never be driven while operating the PTO, you can use a single air line (connected to a tee) to control both the neutral and PTO air control port. This reduces the air control line requirement to four lines. The minimum shift pressure required for all ports is 65 psi (4.5 bar).

Figure 1



- 1 PTO AIR CONTROL PORT
- 2 FRONT AXLE DECLUTCH PORT
- 3 HIGH RANGE SHIFT PORT
- 4 LOW RANGE SHIFT PORT
- 5 NEUTRAL PORT

Disassembly

Remove the Transfer Case Rear Access Cover

1. Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving.
2. Remove air from the vehicle's system.
3. Place a suitable container under the transfer case to catch the hydraulic fluid that will drain when you remove the rear access cover.
4. Remove the eight mounting bolts and washers that secure the transfer case rear access cover. Remove the cover. Refer to **Figure 4**.
5. Clean the PTO mounting surface to remove all sealant.

Assembly

Install the Yoke Onto the PTO

You must install a Meritor yoke with the spline code "RAI" onto the PTO. For yoke options, refer to **Table B** and **Figure 6**.

1. Support the PTO shaft from the inside of the PTO housing. This should be done so that the shaft will not dislodge during yoke installation.


2. Use a press and an applied force of 500-1500 lbs (227-680 kg) to install a Meritor yoke (spline code RAI) onto the PTO shaft.
3. Apply a 1/8-inch (3 mm) bead of RTV silicone gasket material around the end of the yoke spline under the washer surface.
4. Install the washer and locknut supplied in the kit. Tighten the locknut to 700-900 lb-ft (949-1220 N•m). 

Table A: PTO Switch Option

Part Name	Qty.	Part Number	Description
Switch and Connector Assembly	1	3237-W-1167	2 Amp x 12 VDC, M16 x 1" thread

Install the Optional Indicator/Connector Switch

If you are installing an indicator or connector switch, you must use the switch listed in **Table A**. Refer to Maintenance Manual MM-0146 for instructions.

The indicator switch will complete the closed circuit when the PTO is engaged. The connector switch will complete the closed circuit when the PTO is disengaged.


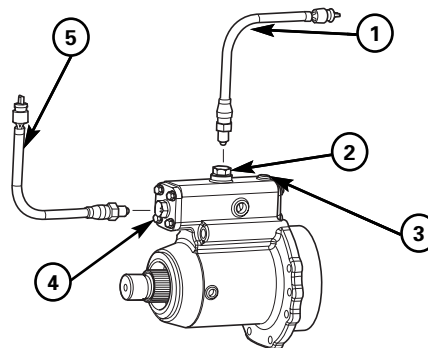

1. Determine if the indicator or connector switch will be installed.
2. Remove the screw and washer from the correct switch location.
3. Apply Loctite® 518 gasket sealant to the switch threads. Install the switch. Tighten the switch to 25-30 lb-ft (34-41 N•m). **Figure 2**. 

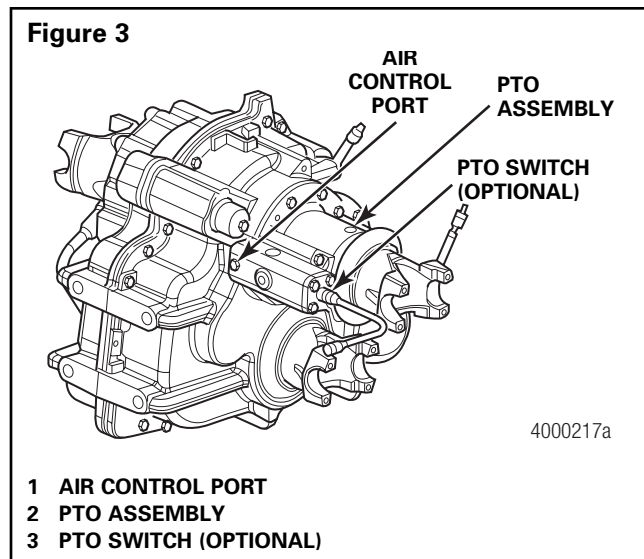
Figure 2




- 1 OPTIONAL CONNECTOR SWITCH ASSEMBLY
- 2 SPECIAL PLUG AND WASHER
- 3 AIR CONTROL PORT
- 4 SWITCH PORT SCREW AND WASHER
- 5 INDICATOR SWITCH

Install the PTO Onto the Transfer Case

1. Install two dowel pins into the transfer case PTO flange. Apply a thin coating of Loctite® 518 gasket sealant to the entire PTO flange mounting surface.
2. Slide the PTO assembly onto the output shaft spline. Align the assembly to the two dowel pins.
3. Install the washers and mounting bolts. Tighten the bolts to 60-75 lb-ft (81-102 N•m).

4. Install the PTO air control line and fitting. Follow the vehicle manufacturer's instructions.
5. Install the neutral air control line and fitting to the transfer case. Follow the vehicle manufacturer's instructions to connect the air connections to the solenoid valves. **Figure 3.**



Adjust the Oil Level

1. After you install the PTO, drive the vehicle for 15 minutes at moderate speeds.
2. Return the vehicle to the shop.
3. Clean the area around the fill plug. Remove the fill plug from the transfer case.
4. Add the specified oil until the oil level is even with the bottom of the fill plug hole.
5. Install and tighten the fill plug to 35-50 lb-ft (47-68 N•m). 

Test the PTO Installation

CAUTION

The PTO clutch must be engaged to operate the drive. Always engage and disengage the PTO with the vehicle stationary and in neutral. Do not apply a load to the PTO drive until the drive has been engaged. Damage to components can result.

1. Connect a regulated air pressure line to the air control port. **Figure 3.**
2. Apply 90 psi (6.2 bar) of air pressure.
3. Check for leaks in the PTO air control line.
4. Cycle the air control pressure. Follow the procedures below to verify that the PTO clutch engages correctly.

PTO Without an Optional Indicator Switch

1. Remove the switch port screw and washer. **Figure 1.**
2. Measure the PTO push rod travel to verify that the travel is 0.75-inch (19 mm) and that the clutch is fully engaged.
 - **If the push rod travel is not at 0.75-inch (19 mm) and the PTO clutch is not fully engaged:** Disengage the clutch by releasing the air pressure. Rotate the clutch output shaft by hand and retest.
 - **If the clutch still is not fully engaged:** Remove the PTO assembly. Check the transfer case output shaft splines and the PTO clutch collar splines. Replace worn or damaged parts. Repeat the assembly procedures.

PTO with an Optional Indicator Switch

1. Refer to Install the Optional Indicator/Connector Switch in this bulletin for instructions.
2. Verify that the indicator switch closes when the PTO completes a shift to engage the drive. **Figure 2.**
 - **If the indicator switch does not close to fully engage the drive:** Perform Step 2 in PTO Without an Optional Indicator Switch.

Test the Transfer Case with the PTO Assembly Installed



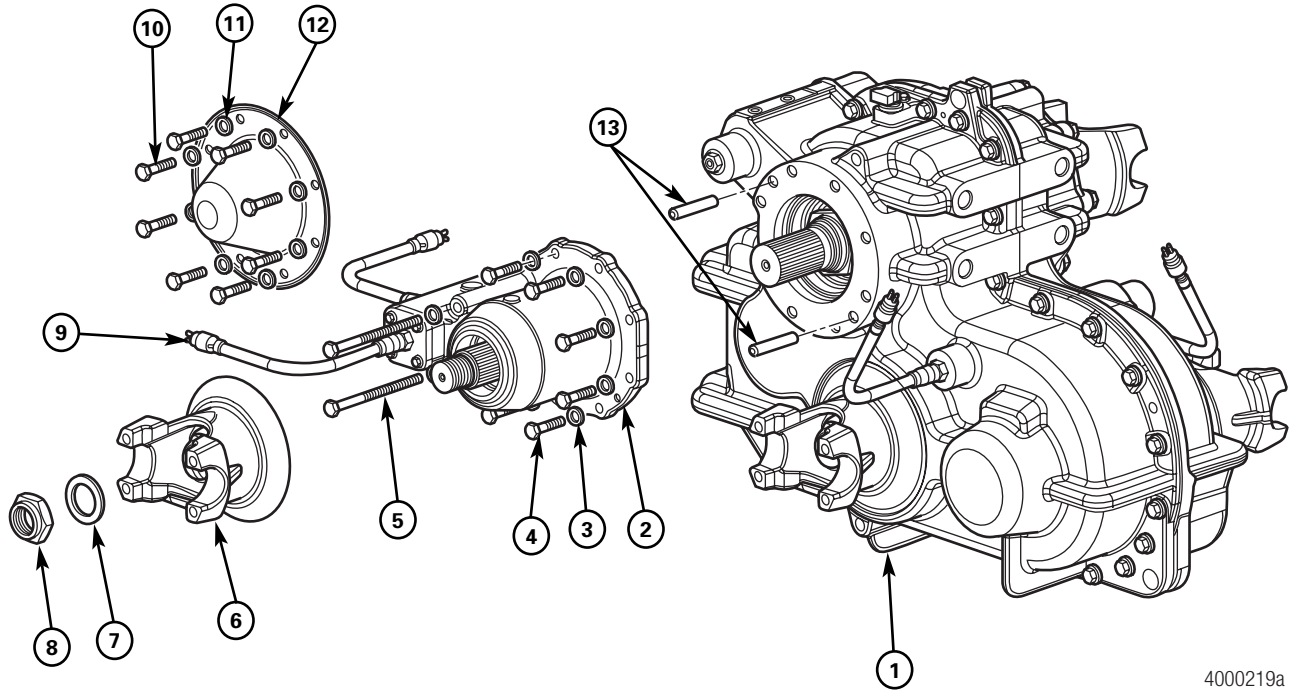
CAUTION

The air pressure must not exceed 10 psi (0.69 bar).
Damage to components can result.

1. Remove the breather. Connect a regulated air pressure line to the air transfer case breather port.
2. Check that the air pressure line fittings are installed correctly.
3. With the correct fitting installed into the breather port, apply 8-10 psi (0.55-0.69 bar) of air pressure.
4. Turn the air supply OFF. Check the pressure.
 - **If the pressure decreases by more than 2 psi (0.14 bar) in 10 minutes:** Check for external leaks at the fittings. Correct any leaks. Recheck the pressure.
5. Reinstall the breather.

Figure 4

MTC-4210 TRANSFER CASE AND KIT 2540 COMPONENTS

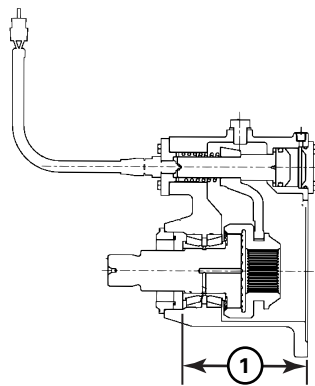


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Item	Description	Item	Description
1	Transfer Case	8*	Locknut, Yoke Mounting
2*	PTO Assembly	9	Switch and Connector Assembly
3*	Washer, 0.47-inch (12 mm) Inside Diameter	10	Bolt, Rear Access Cover
4*	Capscrew, 1.25-inch (32 mm) Long	11	Washer, Rear Access Cover
5*	Capscrew, 5.75-inch (146 mm) Long	12	Cover, Rear Access
6	Yoke	13*	Dowel Pin
7*	Washer, Yoke Mounting		

* Kit 2540 component

Figure 5



1 6.055" (153.8 MM)

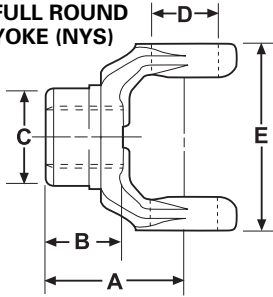
Table B: PTO Yoke or Flange Options and Dimensions

Part Number	Yoke or Flange Description	Dimensions Inches (Millimeters)					
		A	B	C	D	E	F
		Center to End	Spline Length	Hub Diameter	Bearing Diameter	Across Ears	Spline Size
17NYS32-100A1	Full Round	5.16 (131)	2.32 (59)	3.00 (76)	1.94 (49)	6.00 (152)	2.00 x 39 (51 x 991)
148TYS32-4A3	Easy Service™	4.75 (121)	2.32 (59)	3.00 (76)	1.37 (35)	4.18 (106)	2.00 x 39 (51 x 991)
155TYS32-6A3	Easy Service™	4.75 (121)	2.32 (59)	3.00 (76)	1.37 (35)	4.95 (126)	2.00 x 39 (51 x 991)
17TYS32-68A1	Half Round	5.47 (139)	2.32 (59)	3.00 (76)	1.94 (49)	6.20 (157)	2.00 x 39 (51 x 991)
2WCS32-73A	4-Bolt Flange	3.25 (83)	2.32 (59)	3.00 (76)	—	5.75 (146)	2.00 x 39 (51 x 991)
3WCS32-73A	8-Bolt Flange	3.375 (86)	2.32 (59)	3.00 (76)	—	6.87 (175)	2.00 x 39 (51 x 991)

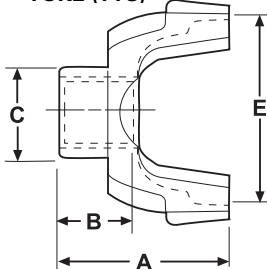
Figure 6

Refer to Table E for yoke dimensions.

**PART NUMBER
17NYS32100AI
FULL ROUND
YOKE (NYS)**

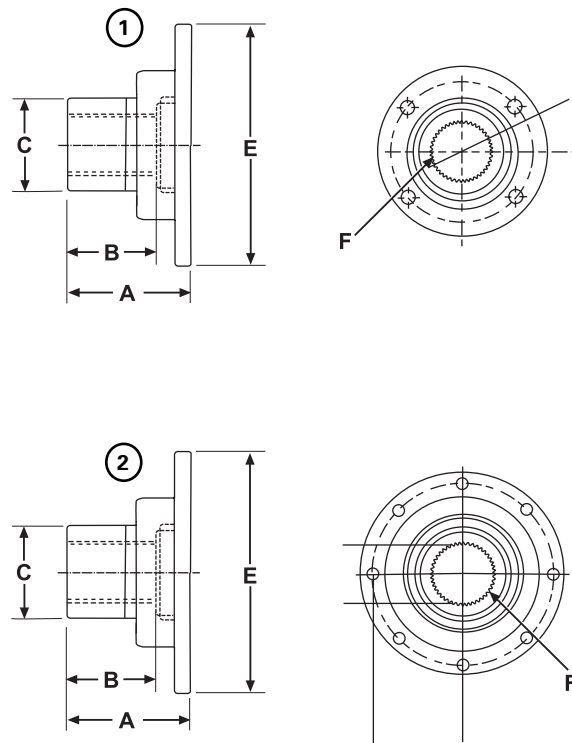


**PART NUMBER
17TYS3268AI
EASY SERVICE
YOKE (TYS)**



- 1 Refer to Table B for yoke or flange dimensions.
- 2 PART NO. 17NYS32100AI FULL ROUND YOKE (NYS)
- 3 PART NO. 17TYS3268AI, 148TYS32-4A3, 155TYS32-6A3 EASY SERVICE™ AND HALF ROUND YOKES (TYS)

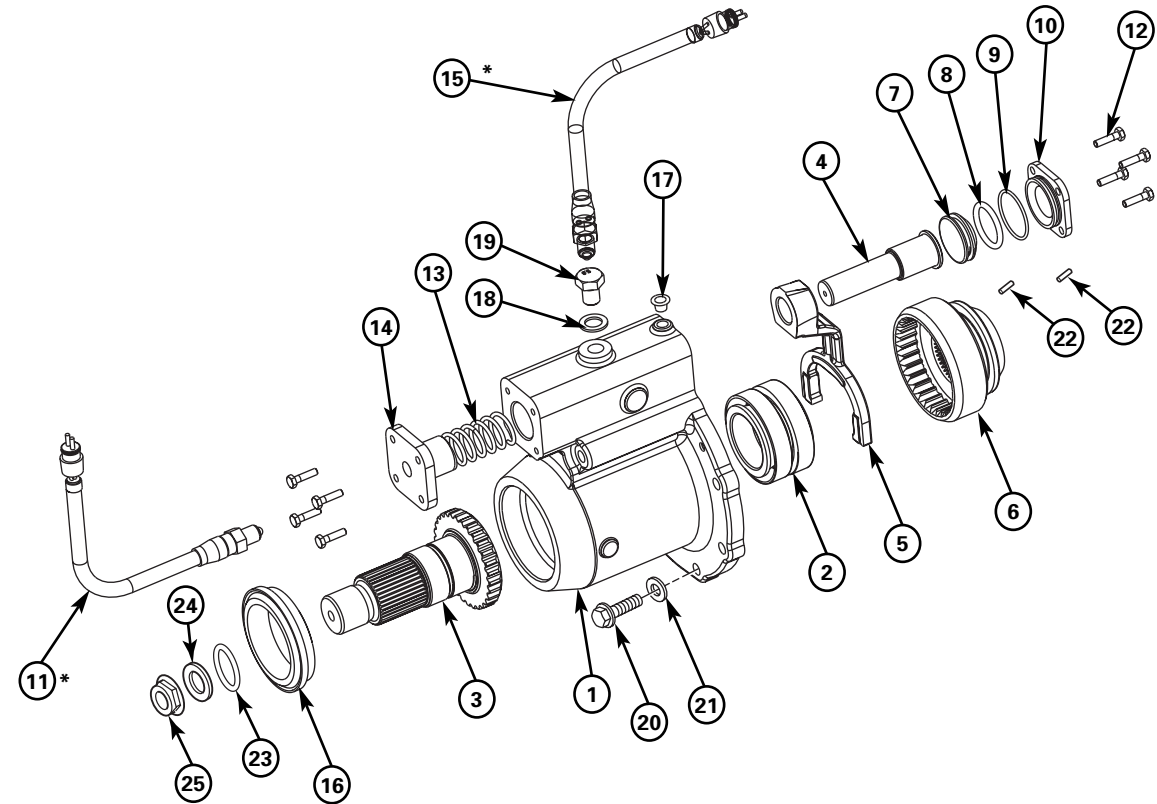
Figure 7



- 1 PART NO. 2WCS32-13A2 4-BOLT FLANGE
- 2 PART NO. 3WCS32-73A 8-BOLT FLANGE

NOTE: PTO yoke must be ordered separate from Kit 2540.

Figure 8
PTO MDP-10-AF-100



Item	Description	Qty.	Part Number	Item	Description	Qty.	Part Number
1	Bearing Cage	1	3226-A-1379	14	Cap	1	2205-P-1134
2	Bearing Assembly	1	Kit 2593	15*	Declutch Switch Assembly	1	3237-W-1167
3	PTO Shaft	1	3297-B-1432	16	Oil Seal Assembly	1	A-1205-P-2590
4	Push Rod	1	2244-N-1184	17	Shipping Protector	1	3280-G-8821
5	Shift Fork	1	3296-A-1301	18	Flat Washer	2	1229-U-1503
6	Differential Lockout Collar	1	3107-D-1018	19	Special Screw	2	41-X-1022
7	Shifter Piston	1	2230-T-1190	20	Capscrew, 1.25-inch (32 mm) Long	6	S-2710-2
8	O-Ring, 1.46-inch (37 mm) Diameter	1	5-X-1198	20	Capscrew, 5.75-inch (146 mm) Long	2	S-2748-1
9	O-Ring, 1.80-inch (46 mm) Diameter	1	5-X-1267	21	Washer	8	1229-E-1513
10	Cover Plate	1	2205-N-1132	22	Dowel Pins	2	1246-T-1190
11*	Switch Assembly (Standard)	1	3237-W-1167	23	Shipping Protector	1	3280-G-8821
12	Capscrew	8	S-248-2	24	Washer	1	1229-T-1736
13	Shifter Spring	1	2258-N-1262	25	Locknut	1	40-X-1237

*Optional

NOTE: PTO yoke must be ordered separate from Kit 2540.

NOTE: Refer to Technical Bulletin TP-0504, Assembling a Declutch, Power Take-Off (PTO) Assembly Using Bearing Kit 2593, for assembly instructions.

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Printed in the USA

TP-01137
Revised 12-04
16579/24240