



**Muncie[®]
Power
Products**

KEEP IN VEHICLE
READ OPERATING INSTRUCTIONS
INSIDE BEFORE OPERATING PTO

FR6Q

INSTALLATION INSTRUCTIONS
AND OPERATOR'S MANUAL



⚠ WARNING!

ALWAYS READ AND UNDERSTAND THE ENTIRE MANUAL COMPLETELY BEFORE INSTALLATION OR OPERATION OF PTO AND DRIVEN EQUIPMENT INCLUDING THESE WARNINGS AND OPERATOR'S INSTRUCTIONS IN SECTION 4!

- ALWAYS DISENGAGE THE PTO WHEN THE DRIVEN EQUIPMENT IS NOT IN OPERATION
- DO NOT ATTEMPT TO INSTALL OR SERVICE ANY POWER TAKE-OFF WITH THE TRUCK ENGINE RUNNING. PUT IGNITION KEYS IN YOUR POCKET BEFORE GETTING UNDER TRUCK.
- DO NOT ALLOW TRUCK ENGINE TO BE STARTED WHILE WORKERS ARE UNDER TRUCK.
- BEFORE WORKING ON A VEHICLE PLACE TRANSMISSION IN NEUTRAL OR PARK, SET BRAKES, AND IMMOBILIZE TRUCK WHEELS WITH SUITABLE CHOCKS.
- BE SURE TO BLOCK ANY RAISED BODY OR MECHANISM BEFORE WORKING ON OR UNDER EQUIPMENT.
- INSTALLED POWER TAKE-OFFS MUST NEVER BE SHIFTED IN OR OUT OF GEAR BY ANY MEANS EXCEPT BY THE CONTROLS IN THE CAB OF THE TRUCK.
- STAY CLEAR OF SPINNING DRIVESHAFTS TO AVOID BECOMING ENTANGLED AND INJURED.
- APPLICATIONS WITH A ROTATING DRIVESHAFT ARE A POTENTIAL SAFETY HAZARD AND IT IS THE REQUIREMENT OF MUNCIE POWER PRODUCTS THAT EXPOSED DRIVESHAFTS BE GUARDED.
- OBTAIN PROPER TRAINING BEFORE OPERATING THIS MACHINERY
- DO NOT INSTALL OR OPERATE EQUIPMENT WHICH HAS NOT BEEN PROPERLY SPECIFIED FOR YOUR VEHICLE
- INSTALLERS ARE TO INSURE THAT PTO COMPONENTS DO NOT INTERFERE WITH ANY CHASSIS COMPONENTS, INCLUDING BUT NOT LIMITED TO VEHICLE CROSSMEMBERS, FRAME RAILS, DRIVESHAFTS, EXHAUSTS, CONVERTERS, FUEL LINES, ETC. WHILE VEHICLE IS STATIONARY OR MOBILE.
- ALLOW THE VEHICLE, PTO AND DRIVEN EQUIPMENT TO WARM UP WHEN OPERATING IN WEATHER WHERE TEMPERATURES ARE NEAR OR BELOW FREEZING 32° F (0° C)
- INSTALL SEPARATE CONTROLS FOR PTO AND DRIVEN EQUIPMENT.
- ALWAYS INSTALL THE SAFETY LABELS PROVIDED AND PLACE THE OPERATOR'S MANUAL IN THE VEHICLE GLOVE COMPARTMENT.

The PTO is supplied with a packet containing warning labels. If you did not receive any, or if you need extra, you may order them, no charge, by phone, email or mail. They are available through your nearest Muncie® distributor or at the number and address below:

1-800-FOR-PTOS (1-800-367-7867)
Muncie Power Products, Inc.
P.O. Box 548
Muncie, IN 47308-0548
info@munciepower.com

© Muncie Power Products, Inc. 2010

⚠ This symbol indicates a hazardous situation which, if not avoided, could result in death or serious injury.

Note: Muncie Power Products is not liable for damages, and consequential damages, related to lack of compliance with previous suggestions and guidelines.



FR6Q

INSTALLATION INSTRUCTIONS AND OPERATOR'S MANUAL

TABLE OF CONTENTS

Important Safety Information 2

SECTION 1 - PTO INSTALLATION

Preliminary PTO Installation Instructions..... 4
FR6Q Mounting and Installation Instructions5-10
Pump Selection and Installation.....11-12

SECTION 2 - WIRE HARNESES, SCHEMATICS, AND AUXILIARY WIRING INSTRUCTIONS

FR6Q Installation With SPD-2000 13
FR6Q DX Shift Code (Stationary OR Mobile Mode) harness 14
FR6Q DB Shift Code (Stationary AND Mobile Mode) harness..... 15
FR6Q GX Shift Code (Stationary Only) harness 16
FR6Q 6X Shift Code on F-250-F-550 DIESEL (Stationary OR Mobile Mode)..... 17
FR6Q FX Shift Code on F-250-F-550 GAS (Stationary OR Mobile Mode) 17
FR6Q 6B Shift Code on F-250-F-550 DIESEL (Stationary AND Mobile Mode)..... 18
FR6Q FB Shift Code on F-250-F-550 GAS (Stationary AND Mobile Mode)..... 18
FR6Q 6X Shift Code on F-650-F-750 DIESEL (Stationary OR Mobile Mode)..... 19
FR6Q FX Shift Code on F-650-F-750 GAS (Stationary OR Mobile Mode) 19
FR6Q 6B Shift Code on F-650-F-750 DIESEL (Stationary AND Mobile Mode)..... 19
FR6Q FB Shift Code on F-650-F-750 GAS (Stationary AND Mobile Mode)..... 19
FR6Q FX Shift Code on F-650-F-750 DIESEL(2021 AND Later Single Mode) 20
FR6Q FX Shift Code on F-650-F-750 GAS (2021 AND Later Single Mode) 20
FR6Q FB Shift Code on F-650-F-750 DIESEL (2021 AND Later Dual Mode)..... 21
FR6Q FB Shift Code on F-650-F-750 GAS (2021 AND Later Dual Mode)..... 21

SECTION 3 - TEST PROCEDURE

FR6Q PTO Testing Procedure 22

SECTION 4 - OPERATOR'S MANUAL

PTO Shifting Procedures & Precautions..... 23
SEIC Enabler Chart 23
PTO Operation..... 24
PTO Maintenance..... 24
PTO Torque & Horsepower Ratings 24
PTO Troubleshooting Guide 25
Power Take-off Warranty 26

SECTION - 1

PTO INSTALLATION

ALL INSTALLERS MUST READ THE FOLLOWING

PTO AND ACTIVATION KIT INSTALLATION INSTRUCTIONS

Always wear safety glasses. Read entire manual before starting installation.

IMPORTANT: Disconnect vehicle battery prior to installing electrical and electric/hydraulic activation kits.

- A. Vehicle manufacturers may have specific locations for accessing electrical power and activating hydraulics. The body builder manual or company representative for the vehicle chassis should be consulted prior to installing electrical or hydraulic systems.
- B. Route wires and activation lines away from rotating and high temperature components. Use appropriate looms and bulk head pass-thru's wherever possible to avoid rubbing through insulation or tubing and causing an electrical short or oil leak.
- C. Follow all Federal Motor Vehicle Safety Standards (FMVSS) for your vehicle.
- D. Where electrical grounds are indicated, be sure that they are good ground connections, with straight paths to the vehicle battery ground. (Many vehicle cabs are insulated from the vehicle frame and a weak ground is a very common cause for malfunctions).
- E. When installing hydraulic components, be certain to follow common installation and testing procedures. If you are not familiar with acceptable installation procedures request instructions and guidance from the hydraulic equipment supplier.
- F. Caution should be taken by installer with any PTO installation to insure components do not interfere with any chassis component during installation or when vehicle is operated.
- G. Cold weather start conditions require that the transmission be started and warmed prior to engaging PTO and using equipment. Hydraulic pumps should be run at idle and under no load conditions to allow oil to warm before activating hydraulic system.

IMPORTANT INFORMATION:

There is valuable information contained in the Ford "Super Duty F-Series Body Builders Layout Book". You can obtain a copy of this book by faxing your request to "Body Builder Coordinator" at 1-734-414-2971. Include your street address and desired vehicle and model year. It can also be found on the Ford website fordbbas.com/

INSTALLATION INSTRUCTIONS

⚠ Danger! Read entire manual before starting installation. Always wear safety glasses.

1. The Standard Installation Kits contain four (4) warning labels. The selectable Mobile & Stationary Installation Kit contains five (5) warning labels. Install them as directed below. Before adhering the labels, make sure the surfaces are free of dirt and grease. Place labels supplied with the FR6Q as follows:

TRUCK FRAME LABELS

The two (2) Truck Frame Labels, which measure approximately 4" x 8", are to be placed on the outside of the vehicle frame rail. These labels are to be easily seen by anyone who might go under the truck near the FR6Q PTO. One label is to be placed on each side of the vehicle. See Figure 1.

Note: Should the vehicle body installed on the chassis cover the frame rail, placed the label on the body in a position easily visible by anyone who might go under the vehicle or near the FR6Q PTO.

DO NOT PAINT OVER THE LABELS.



Figure 1

VISOR AND DASH LABELS

The PTO Equipped Caution Label, which measures approximately 2" x 3", is to be placed within the cab of the vehicle and in easy view of the vehicle operator. It should be located near the PTO control, when the control is installed in the vehicle dash (see figure 2). This label directs the operator to read the PTO operating instructions on the Visor Label. The Visor Label, which measures approximately 4" x 6½", is to be placed **ON** the visor on the operators side of the vehicle. See Figure 2 below.

UNDERSTAND THIS LABEL BEFORE USING POWER TAKE-OFF (PTO)

! WARNING

NEVER GET UNDER TRUCK IF ENGINE IS RUNNING!

Hands, clothes, hair, etc., can get caught on spinning shafts and U-joints.

YOU MAY BE HURT OR KILLED.

It is against Federal Law to try to fix PTO driven machinery if the engine is running. Always turn the engine off. Then, put the keys in your pocket. (OSHA 1910.147)

Part No. 36T37507 (Rev. 04)

HOW TO USE THE POWER TAKE-OFF (PTO) Clutch Shift PTOs for the Light Truck Automatic Transmissions

For Stationary Applications:

1. Place Transmission Selector in Park.
2. Set Parking Brake.
3. Chock Wheels.
4. Let Engine Idle.
5. Engage PTO Rocker Switch.
6. Green Light Should Activate.
7. Bring Engine Slowly to Operating Speed.

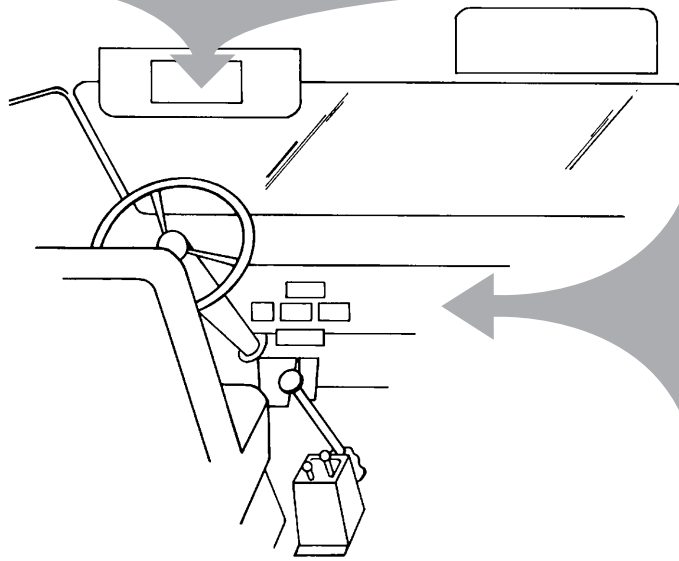
For Mobile Applications:

1. Place Transmission in Park.
2. Apply Parking Brake.
3. Place Shift Selector in Any Drive Range.
4. Release Brakes.

PTO Engagement Requires That the Vehicle System Enablers Be Met. Refer to the PTO Operator's Manual for Details.

© Muncie Power Products, Inc., 2010

LOCATE ON VISOR SO IT IS VISIBLE WHEN THE SUN VISOR IS RAISED



! WARNING

THIS VEHICLE IS EQUIPPED WITH A POWER TAKE-OFF

READ AND UNDERSTAND OPERATOR'S MANUAL BEFORE USING THIS MACHINE.

FAILURE TO FOLLOW OPERATING INSTRUCTIONS COULD RESULT IN DEATH OR SERIOUS INJURY.

© Muncie Power Products, Inc., 2005

! ADVERTENCIA

ESTE VEHÍCULO ESTÁ EQUIPADO CON UNA TOMA DE FUERZA

LEA Y COMPRENDA EL MANUAL DEL OPERADOR ANTES DE USAR ESTA MAQUINA.

NO SEGUIR LAS INSTRUCCIONES OPERATIVAS PUEDE PRODUCIR LA MUERTE O LESIONES GRAVES.

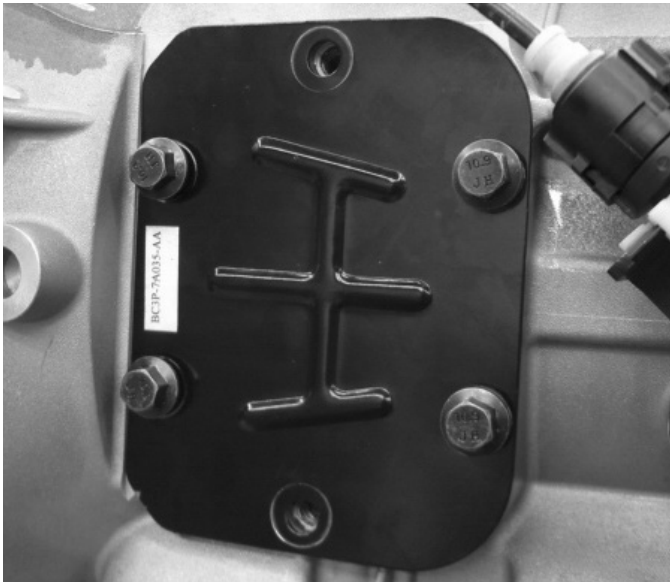
Part No. 36M35652 (Rev. 03)

LOCATE: VISIBLE AND NEAR PTO CONTROL

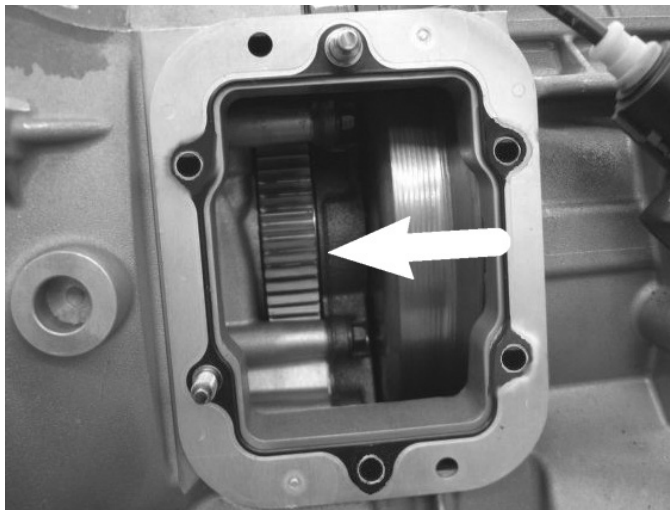
Figure 2

FR6Q MOUNTING AND INSTALLATION INSTRUCTIONS

2. While seated in the vehicle and with the transmission in "Park", start the engine and listen to the sounds of both the transmission and the engine before installing the FR6Q PTO. A noise in the transmission gear may be more noticeable after the FR6Q PTO is installed. Next, we will begin the installation of the FR6Q PTO.
3. **DANGER! STOP ENGINE! Place the keys in your pocket.**
4. Remove the cover plate and the cover gasket from the transmission (on the 4x4 chassis, the forward drive shaft may be removed in order to gain access to the PTO opening). Set the cover gasket aside for reuse when mounting the FR6Q PTO (DO NOT discard the gasket; it MUST be used to install the FR6Q PTO).



5. Clean the mounting pad and inspect the bolt holes in aperture for thread sealant used on OEM bolts. Clean these internal threads with wire brush to clear out any material.
6. Check the transmission to ensure that it has the PTO drive gear. It will be located in the forward part of the opening/ engine side of the opening. Also, check the FR6Q PTO drive gear for condition. Any imperfections may cause excessive noise when the FR6Q PTO is mounted.



7. Remove the components from the installation kit. Locate the Metric Straight x ORFS fitting (43T42793) for the main pressure port on the transmission.
 - Install the Metric Straight x ORFS fitting into the transmission main pressure port located directly below the PTO opening. Install this fitting as far as it will go while being careful to not strip the fitting or opening threads.
 - Tighten to no more than 5 ft.lb.

Straight ORSF End

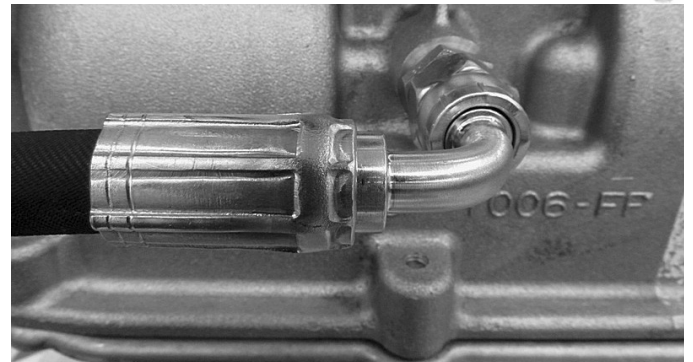


Metric - M10 x 1 End

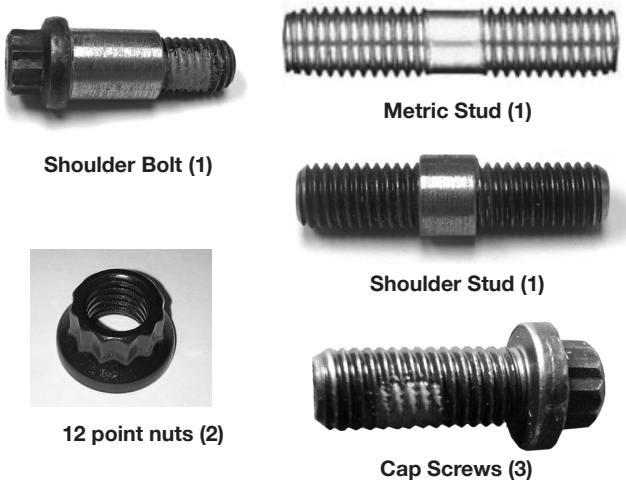


Note: The ORFS on one end and Metric - M10 x 1 on the other end. The M10 x 1 male end will be inserted into the transmission pressure port as shown.

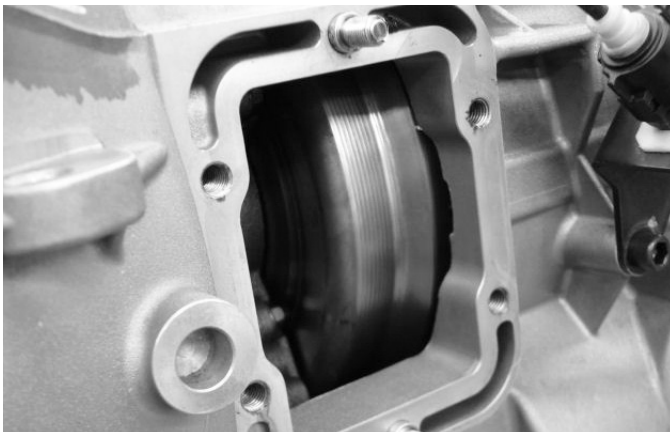
8. Locate the hose Assembly (45T42791) attach the 90° ORFS end to the ORFS end of the fitting just installed in the previous step. Route this hose assembly to stay clear of any moving components that the transmission may possess.



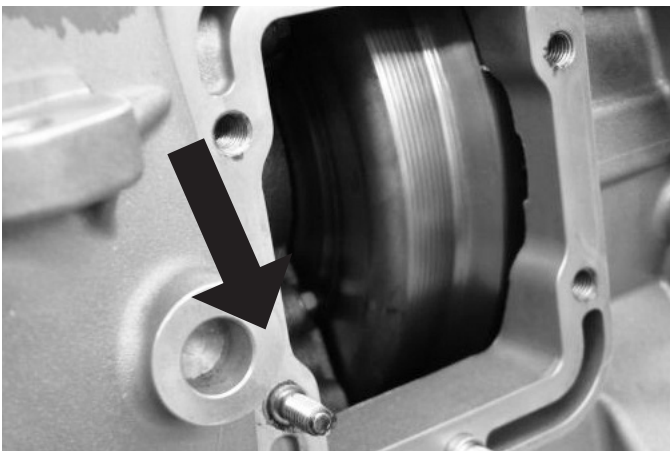
9. Locate the 12 point nuts (22T62877), Metric Stud (20T62873), Shoulder Stud (20T62874), Shoulder Bolt (19T62875) and Cap Screws (19T42075).



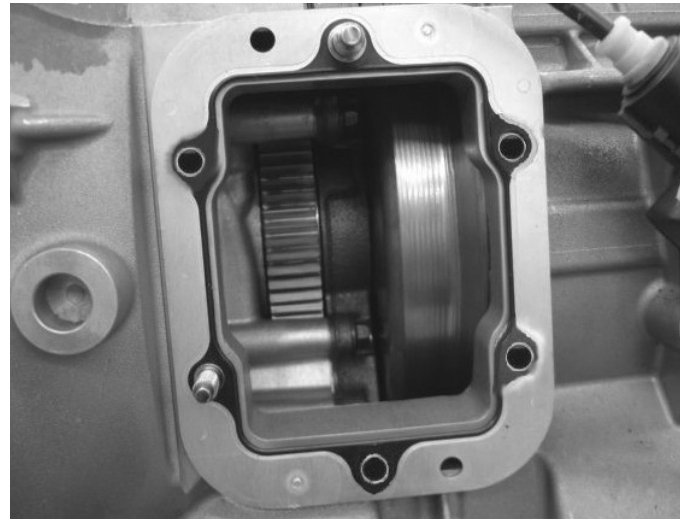
10. The shoulder stud should be placed in the 12 o'clock position, as shown below. One of the 12 point nuts will be used in this location once the PTO has been mounted.



11. The (1) metric stud should be placed in the location indicated below. The second 12 point nut will be used in this location once the PTO has been mounted.



12. Place the cover gasket (that was removed in Step 4) back onto the transmission as shown below. (Replacement gasket available P/N 13T41973)

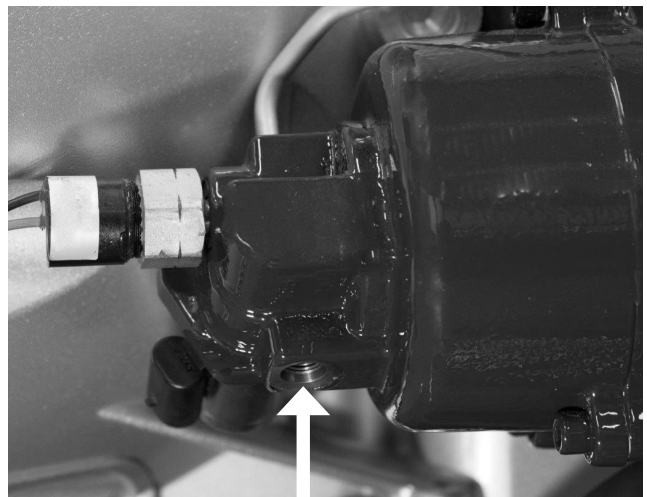


13. Hold PTO in position and install the shoulder bolt in the 6 o'clock position. Next, install the 12 point nut in the 12 o'clock position. Install the 12 point cap screws into the remaining holes. Use (1) 12 point nut and thread it onto the (1) step stud and tighten to 17 ft.lb. Torque the 12 point nut for the shoulder stud, the shoulder bolt, and the (3) cap screws to 40 ft.lb.

Notes:

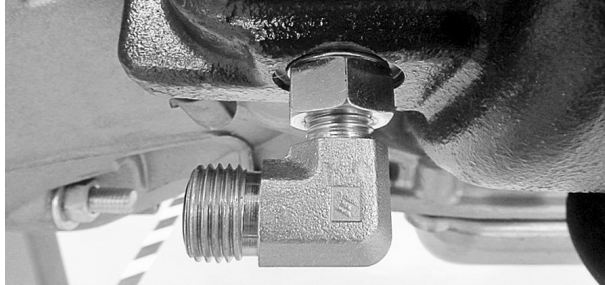
1. If the Straight Metric x ORSF fitting has not been installed as described in step 8, then do so now.
2. It is important to check the gaps between the PTO and the transmission and make sure the gear teeth are properly meshed before tightening the nuts.
3. Checking the backlash is not required when using the approved Ford furnished gasket. Never use silicone type sealant on PTO/transmission mounting surfaces, as proper backlash cannot be attained.

14. On the FR6Q locate the bottom oil port; it may have a 90° fitting currently in it. If the PTO already has a 90° fitting, remove and discard the fitting.



FR6Q Bottom Oil Port

- 15 Install the ORFS elbow into the PTO activation port. Align the elbow to allow installing the other end of the activation hose from step 8. Tighten the jam nut when in position.



- Torque no more than 5 lb.ft. Image 5

- 16.0 The location of the pressure switch on the FR6Q is in the rear cover. See image 6 for location details.

Diesel Version (D and 6 Shift Types): The pressure switch is now to be installed in the end of the cover as shown in the following image. (If installing on GAS chassis [F and G shift types] refer to “16.1 – 16.4” for remote mount of pressure switch.)

DO NOT INSTALL PRESSURE SWITCH FROM GAS KIT DIRECTLY INTO PTO COVER! GAS APPLICATIONS MUST USE REMOTE MOUNT KIT! DAMAGE TO PTO WILL OCCUR IF REMOTE MOUNT KIT IS NOT USED!

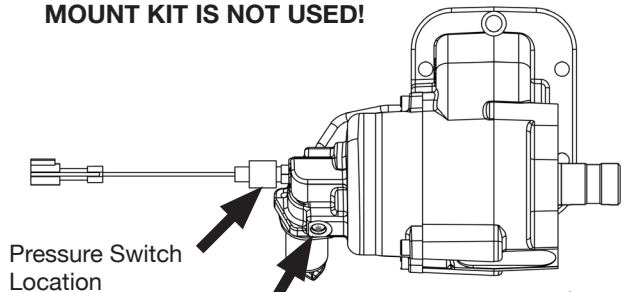


Image 6

Activation Port Location

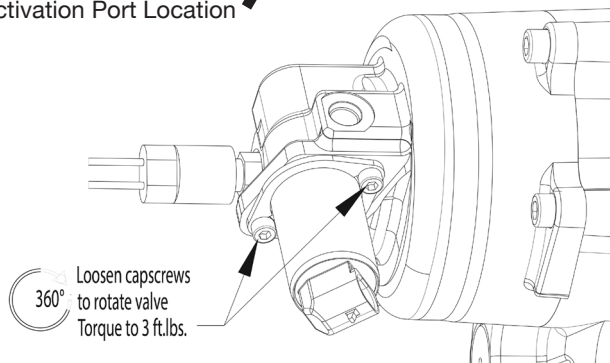


Image 7

If not installing FR6Q PTO on GAS chassis (F or G shift types), skip to “STEP 17”.

Caution must be taken when using the correct port for the pressure activation line and the pressure switch.

If installing FR6Q PTO on GAS chassis (F or G shift type) follow instructions below regarding pressure switch installation.

On the GAS engine chassis application, the PTO is shipped with a heat shield and a hose kit (43TK5527). These additional components are supplied to help provide additional heat protection for the pressure switch. This is only done for the GAS engine as the exhaust line is located much closer to the PTO.

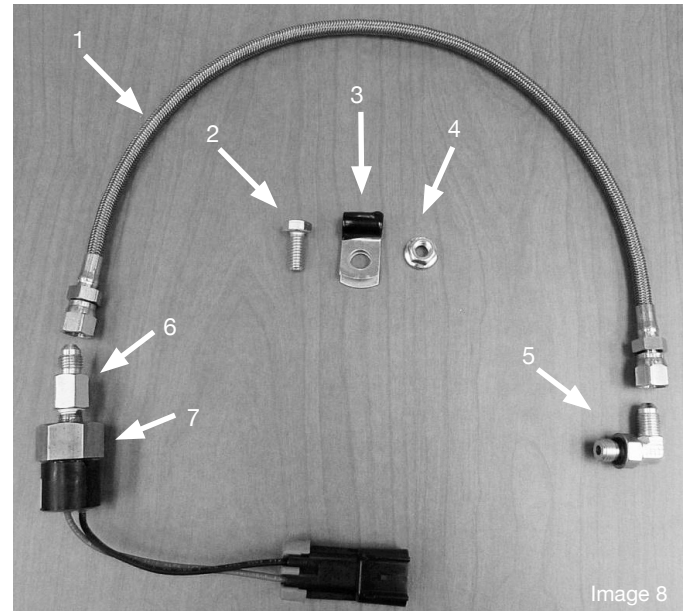


Image 8

43TK5527 kit components:

- 1) Stainless Steel Braided Hose 18" (45T43308)
- 2) 5-16 × 18³/₄" Hex Bolt (19M10001)
- 3) Loop Clamp (49T43356)
- 4) 5-16 × 18 Hex Nut (22T37605)
- 5) SAE O-Ring 90 × -4 JIC (43M68014)
- 6) Straight -4 Male JIC × 1/8" Female NPT fitting (43T43215)
- 7) Pressure Switch w/ 1/8" NPT fitting (30T60228)

- 16.1 Install the SAE O-Ring 90 × -4 JIC fitting (43M68014) in the port for the pressure switch shown in “Image 6”. Install the SAE O-Ring end of the fitting into the port. Position as shown in “Image 9”.

SAE O-Ring End -4 JIC End

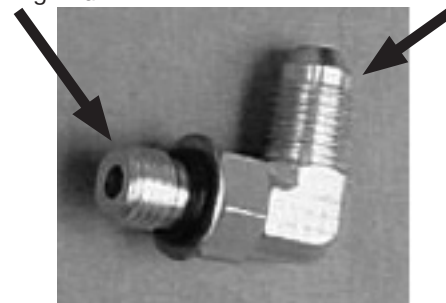


Image 9

- Torque no more than 5 lb.ft.

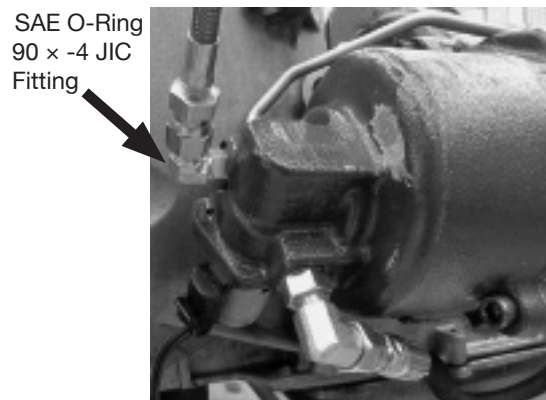


Image 10

16.2 Attach the stainless steel braided hose (45T43308) to the -4 JIC end of the 90° fitting that was just installed.

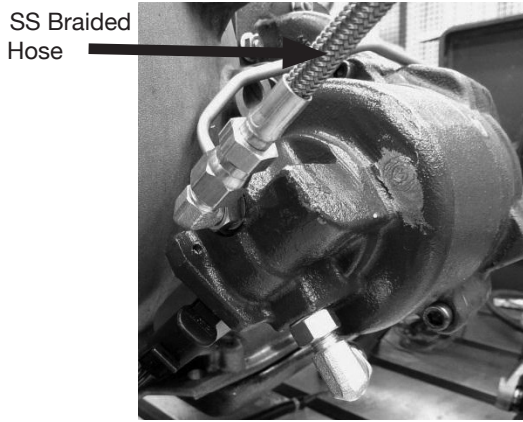


Image 11

16.3 Attach the other end of the stainless steel braided hose to the straight -4 Male JIC x 1/8" Female NPT fitting (43T43215). Then attach the pressure switch (30T60228) to the 1/8" Female NPT fitting.

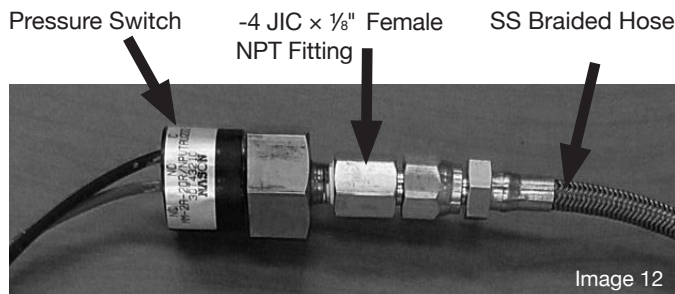


Image 12

16.4 Using the Loop Clamp (49T43356), Hex Bolt (19M10001) and Hex Nut (22T37605) attach the SS Braided Hose to an appropriate location on the truck frame. Be sure to allow slack in the hose.

17. Install the activation hose and route it away from the exhaust or obstructions.



Image 13

18. Use cable ties to route the hose away from the exhaust and away from any rotating components.

Note: Save several wire ties for routing the wire harness later.

19. Use cable ties to route the hose away from the exhaust and away from any rotating components. Route the wire harness from the vehicle front passenger compartment to the solenoid valve.

20. 49TK5533 Heat Shield Installation Instructions: Gas chassis (F and G shift types) ONLY

The 49TK5533 kit includes a heat shield (49T43320) and four band clamps (49T43365).

1. Install the PTO before installing the heat shield.
2. If replacing an existing aftermarket heat shield, remove the shield and clamps and discard.
3. Carefully unpack the heat shield and band clamps from the carton.



Figure 1

4. Open the band clamps and insert each one through two eyelets in the shield as shown, so that the clamps are on the bottom side of the shield "Figure 2". Use all four clamps.

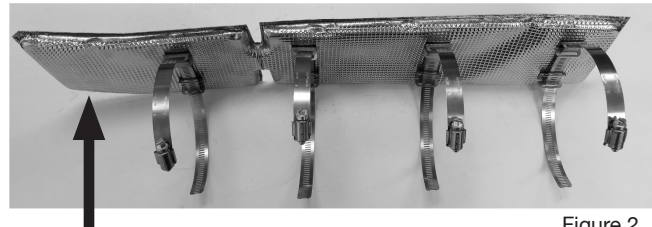


Figure 2

Short End Installs Towards The O2 Sensor.

5. Slide the shield on top of the exhaust with the top end of the shield up towards to the O2 sensor.
6. Gently bend the shield along the top of the exhaust so that it is between the exhaust and the PTO.

Note: The location of the notch is shown in "Figure 3".
7. Connect the band clamps around the exhaust pipe and tighten (30–35 lbs.in.) to hold the shield in position.

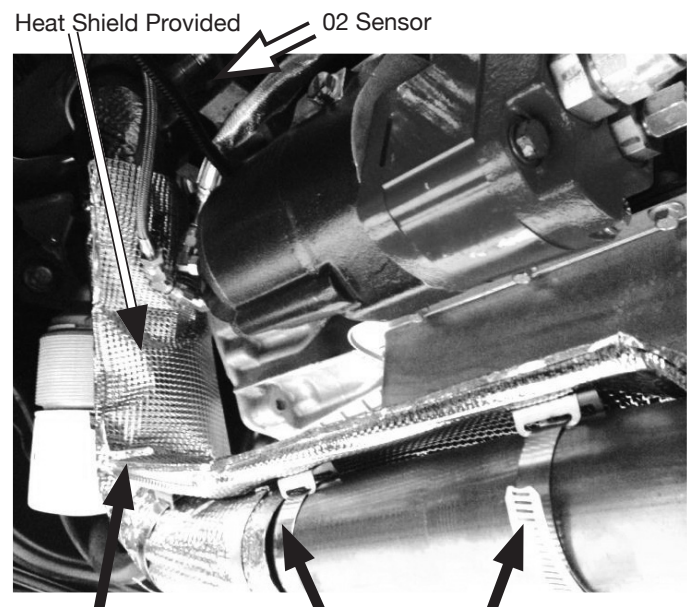


Figure 3

Position The Shield Notch At The Bend In The Pipe.

Tighten Band Clamps (4 places)

PUMP OPTIONS WITH FR6Q PTO (SKIP TO STEP 26 IF USING DRIVELINE)

Muncie FR6Q PTO Flange Options & Pumps for Ford Chassis

Ford Chassis	Muncie Pumps to use with FR6Q				
	PF4-***-16QSRL	PF4-***-16ASRL	PH1-**-02ASRL-M	PK1-**-02ASRL-M	W-**-02AJ0-G*G*-F14
4 x 4	“N” PTO Output	N/A	N/A	N/A	N/A
4 x 2	“N” PTO Output	“T” PTO Output	“Q” PTO Output	“Q” PTO Output	“Q” PTO Output

Pumps Used with FR6Q PTO in Ford 4 x 2 Applications

Direct Mount Pump: PF4-***-16*SRL Pump Flow @ 1,200 ENG. (Theoretical) Ordered Separately.

PF4-870	13.3 GPM	PF4-606	9.2 GPM	PF4-368	5.6 GPM	PF4-212	3.2 GPM
PF4-818	12.5 GPM	PF4-502	7.7 GPM	PF4-290	4.4 GPM	PF4-160	2.4 GPM
PF4-714	10.9 GPM	PF4-424	6.5 GPM	PF4-264	4.0 GPM		

Note: PF4 Pump may be used with “Q” or “A” Pump Mount options in 4x2 applications. Must use appropriate PTO mounting flange (See Chart Above).

Direct Mount Pump: PH1-**-02ASRL-M Pump Flow @ 1,200 ENG. (Theoretical) Ordered Separately.

PH1-11	12.9 GPM	PH1-08	9.7 GPM	PH1-05	6.4 GPM		
PH1-09	11.3 GPM	PH1-07	8.1 GPM	PH1-03	3.22 GPM		

Direct Mount Pump: PK1-**-02ACRL-M Pump Flow @ 1,200 ENG. (Theoretical) Ordered Separately.

PK1-17	20.5 GPM	PK1-13	15.4 GPM	PK1-06	7.6 GPM		
--------	----------	--------	----------	--------	---------	--	--

Direct Mount Pump: W-**-02AJ0-G*G*-F14 Pump Flow @ 1,200 ENG. (Theoretical) Ordered Separately. F-650/F-750 series chassis only

W21 - 32.1 GPM	W19 - 28.8 GPM	W17 - 26.1 GPM	W15 - 22.8 GPM	W13 - 19.3 GPM	W11 - 16.0 GPM	W08 - 12.9 GPM	W06 - 9.6 GPM
----------------	----------------	----------------	----------------	----------------	----------------	----------------	---------------

Note: Port codes are “GI” for W06 – W11 and “GT” for W13 – W21.

Pumps Used with FR6Q PTO in Ford 4 x 4 Applications

Direct Mount Pump: PF4-***-16QSRL Pump Flow @ 1,200 ENG. (Theoretical) Ordered Separately.

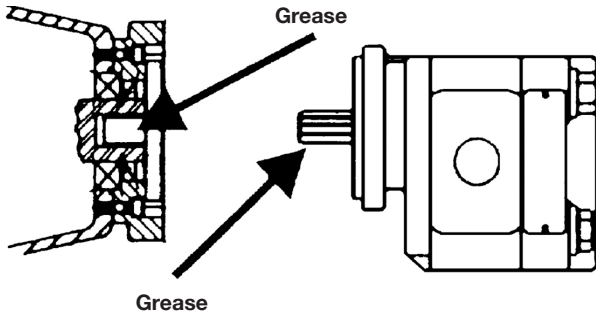
PF4-424	6.5 GPM	PF4-290	4.4 GPM	PF4-212	3.2 GPM		
PF4-368	5.6 GPM	PF4-264	4.0 GPM	PF4-160	2.4 GPM		

The Muncie Power PF Series pumps with the “Q” pump mount are of special design. This design allows for interference problems to be minimized. The Muncie Power PF4-***-16QSRL pump is the only pump to be used on the FR6Q in applications with the 4x4 Ford chassis. This pump uses thru-bolts to mount to the FR6Q PTO. (Note: The 1¼" round keyed shaft is available on the FR6Q PTO for mounting to a 4x2 chassis.)

Muncie Power PF4 pumps offer the ¾" –11T spline shaft with the “Q” or “A” pump mount, the correct PTO Output flange can be found in the chart above.

If your application requires a Muncie “H”, “K”, or “W” Series pump you will need to use one of the above options to ensure that the pump will fit. “H”, “K”, or “W” pumps should only be used in 4x2 applications. These pumps will have the SAE “A” 2-bolt mounting flange and 7/8" –13T splined shaft. This will require that your FR6Q PTO have the “Q” output type. (Example: FR6Q-F1209-D3QX)

MUNCIE PF4 SERIES PUMP INSTALLATION
(Skip to Step 26 if using a driveline)



21. Place a non-seizing compound or grease on the FR6Q PTO shaft and pump shaft. All Muncie Power direct mount PTOs are supplied with the appropriate grease.
22. The PF4 Series pump with the “Q” flange will be shipped with only 2 bolts. The other two cap screws and flat washers are shipped loose with the pump so that it can be mounted to the FR6Q PTO. It is critical that the proper mounting cap screws be used. If you did not receive cap screws, then contact Muncie Power Products, Inc. for the correct mounting hardware.

Note: Be sure to follow the instructions included with the pump for correct selection of mounting cap screws.

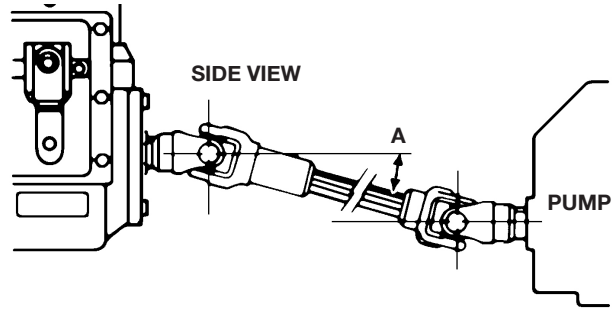


23. Before installation, place the flat washers over the shaft of the cap screws (there should be 1 or 2 washers used depending on the size of the pump being installed).
24. Place the pump into the PTO output mounting by aligning the splines as well as the pilot. Align the thru-bolt mounting holes and insert the cap screws with flat washers and torque Pump Type 1 to 33-35 ft.lbs., or Pump Type 2 to 50-53 ft.lbs. **Note:** The pump orientation is with the pump body offset pointing down.
25. If not completed already, finish installation by placing the warning labels in their correct locations as indicated by the instructions on the border of the decals. Placement examples located on pages 5-6.

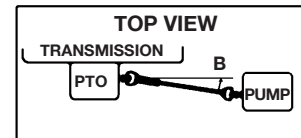
INSTALLATION OF DRIVELINE ON FR6Q PTO

26. On a 4x2 chassis, if your system contains a driveline between the FR6Q PTO and another product and you are experiencing noise in your system that was not heard before, the angularity or the phasing of your driveline may be the cause. Check the drive line angularity and reduce the total angularity to that recommended by the chart and

be sure that the PTO shaft is parallel within 1.5° to the pump shaft (or driven unit). **Note:** For Installations with angles in the top and side views, used this formula to compute the true joint angle (TJA): $TJA = \sqrt{A^2 + B^2}$.



MAX SPEED (RPM)	MAX ANGLE TJA "A"
3,500*	5°
3,000	6°
2,500	7°
2,000	8°
1,500	11°
1,000	12°



$$TJA = \sqrt{A^2 + B^2}$$

True Joint Angle (TJA)

Note:
* For speeds over 2,500 RPM, contact Muncie Power for approval.

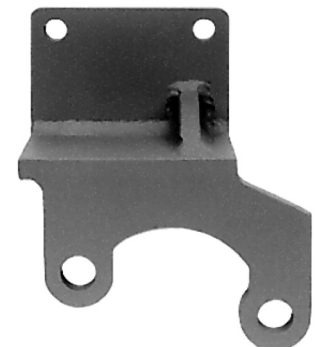
27. If not completed already, finish installation by placing the warning labels in their correct locations as indicated by the instructions on the border of the decals. Placement examples located on pages 5-6.

When mounting hydraulic pumps weighing over 30 lbs.*, exceeding 12" in length, or for tandem, or multiple section pumps and dump pumps, a rigid support bracket must be installed. It should be attached to the rear of the pump at two points, and to the transmission with two bolts to support the pump and to inhibit movement in all directions.

Note: *weight includes fittings, oil, and unsupported hose sections.

Bracket design illustrations and pump recommendations are to be used as GUIDELINES ONLY. Design shown is representative and may not be suitable for all applications. Any failure caused by unsupported weight attached to the PTO will affect warranty considerations.

TIGHTEN PTO MOUNTING BOLTS FIRST, FOLLOWED BY PUMP MOUNTING BOLTS, AND FINALLY BRACKET BOLTS.



SECTION - 2

AUXILIARY INSTRUCTIONS, WIRE SCHEMATICS

Disconnect battery prior to installing electric/hydraulic activation kits.

2012 MODEL FORD EARLY BUILD - BLUE/GRAY WIRE

Always wear safety glasses. Read entire manual before starting installation.

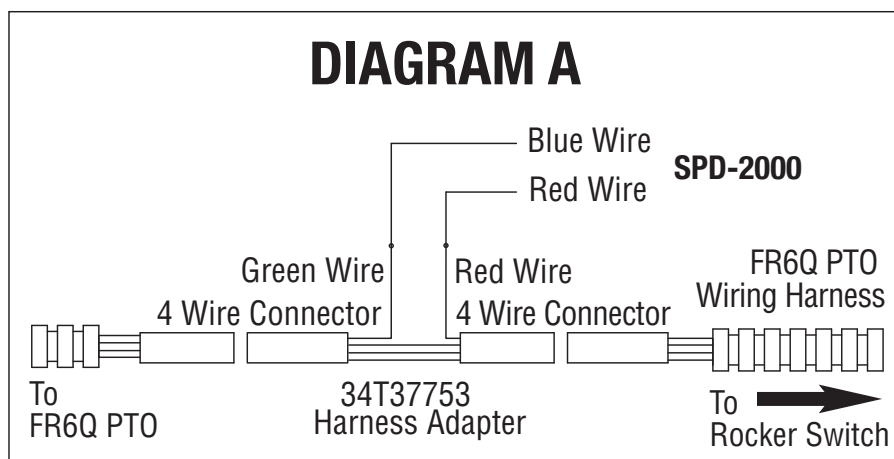
On Ford's initial production, the SEIC (Stationary Elevated Idle Control) bundle will not contain a Blue/Orange wire for the Ford PTORS2 wire, but will contain (2) Blue/Gray wires. To ensure proper installation, locate each of these wires and check the continuity ground. Turn the ignition key to "ON" (but Do Not start the engine), then shift the vehicle out of Park. The wire that changes continuity is for the "Park" indicator and the one that does not change is the wire for the PTO mobile mode. Connect the Muncie Power Yellow/Green wire to this Ford Blue/Gray wire, circuit PTORS1. Ford has made the change and current vehicles have the correct Blue/Orange wire.

NOTE: This applies to FR6Q-F1209-D3*X and FR6Q-F1209-D3*B PTO's with the supplied wire harnesses.

FR6Q PTO INSTALLATION WITH SPD-2000 SYSTEM PROTECTION DEVICE

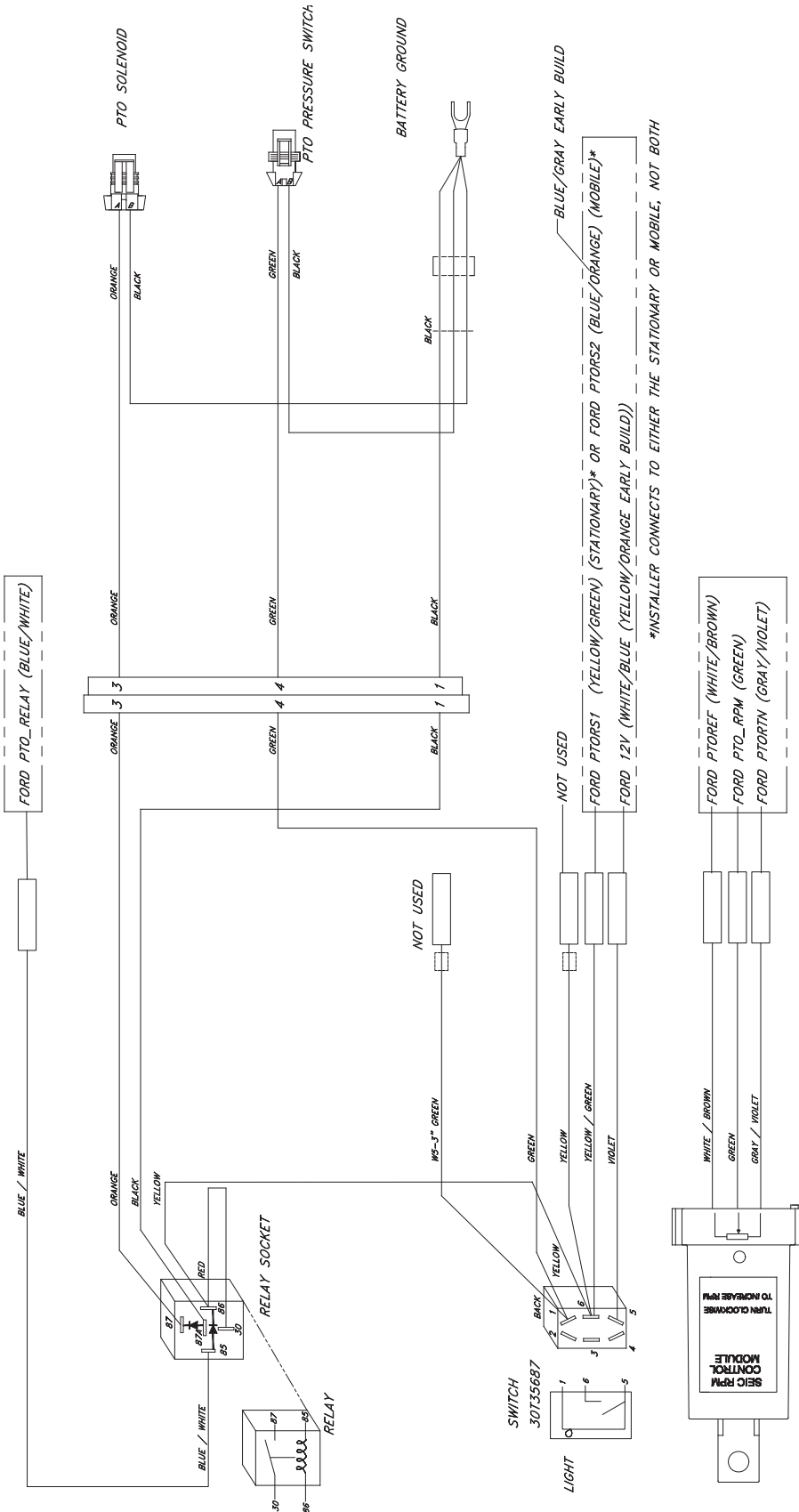
Requires purchase of 34T37753 and SPD-2000 (not included with the FR6Q PTO)

1. Complete the FR6Q PTO installation as described in Section 1.
2. Locate the 4-wire connector on the FR6Q PTO Harness and plug in the wire harness adapter 34T37753 (sold separately). The adapter is designed to assemble in only one direction.
3. Find the **Red** wire on the wire harness adapter and connect this wire to the SPD-2000 wire harness **Red** wire as shown in Diagram "A".
4. Find the **Green** wire on the wire harness adapter and connect this wire to the SPD-2000 wire harness **Blue** wire as shown in Diagram "A".



5. Locate Ford **Blue** wire (tag CTO PTOIC-1) and connect the **Orange** SPD-2000 wire.
6. Connect the **Black** SPD-2000 wire to a good/secure ground at the fuse panel or battery (not to the cab).
7. Connect the **White** wire to an overspeed light if required, (light sold separately). Ground the other terminal of the light.
8. Mount the SPD-2000 after making the calibration setting as described in the SPD-2000 installation manual. (Document IN07-04)

FR6Q-F1209-D3*X Wire Harness Schematic - (34T41671) 2016 & Earlier F-250-F-550 Super Duty Diesel Stationary F-650/750 (2012-2015 with SEIC Controls) OR Mobile Mode Application

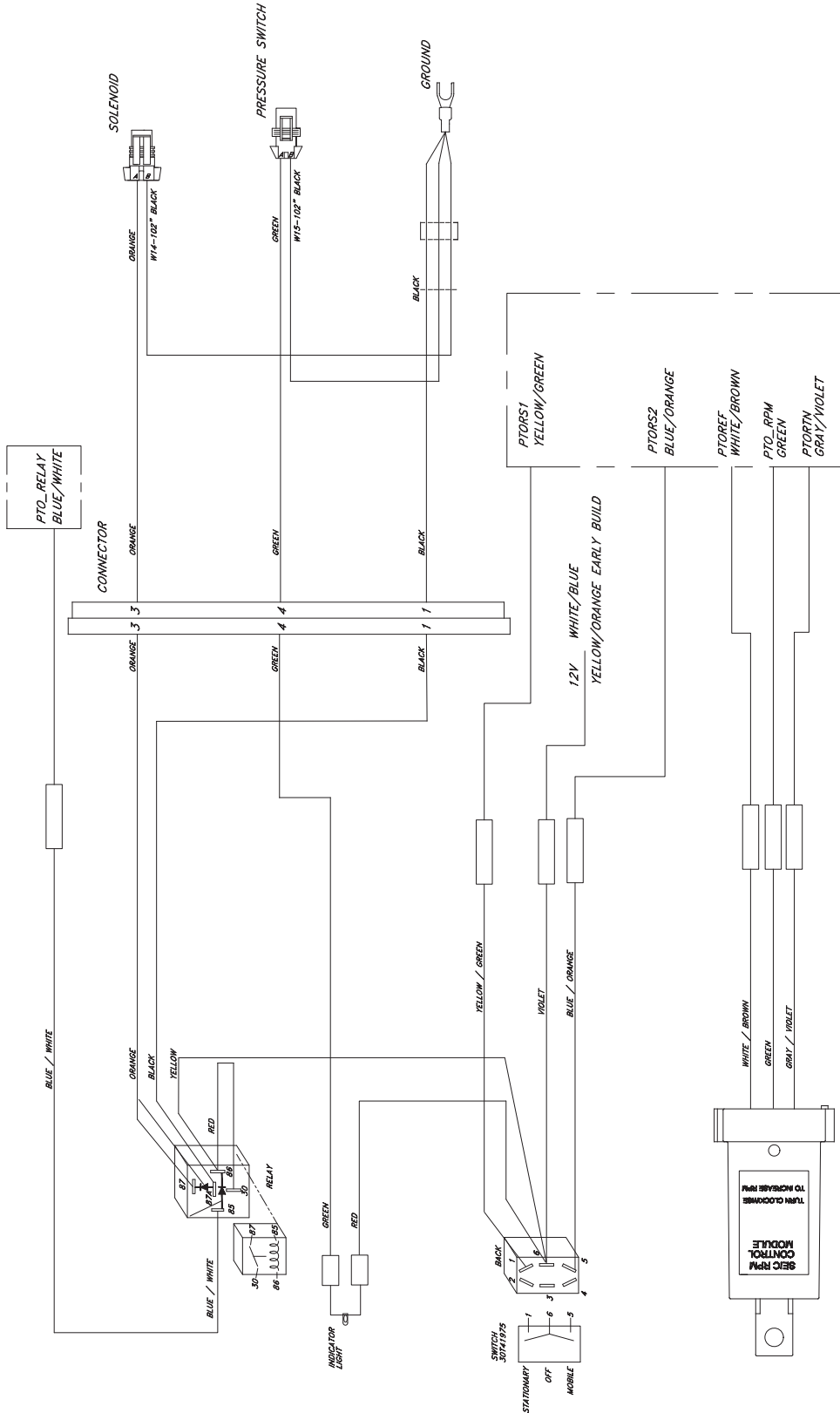


**FR6Q1209D3*X WIRE HARNESS #34T41671 Wire Color, Pin#,
Circuit # Reference (Mobile OR Stationary Mode)**

Harness Wire Color	Circuit Intent	Ford Wire Tag	PCM Pin	Circuit No.	Stationary Mode	Mobile Mode
Blue/White	Output	PTO_RELAY	C-11	OE326	Blue/White	Blue/White
Yellow/Green	Input (VPWR)	PTORS1/ PTORS2	C-06	CE912	Yellow/Green	Blue/Orange (Blue/Gray- Early Build)
White/Brown	Reference Voltage	PTOREF	C-55	LE434	White/Brown	White/Brown
Green	Input (Resistor)	PTO_RPM	C-08	CE914	Green	Green
Gray/Violet	PCM Ground	PTORTN	C-22	RE327	Gray/Violet	Gray/Violet
Violet	12 VDC Power				White/Blue (Yellow/Orange- Early Build)	White/Blue (Yellow/Orange- Early Build)

FR6Q-F1209-D3*B Wire Harness Schematic - (34T41940)

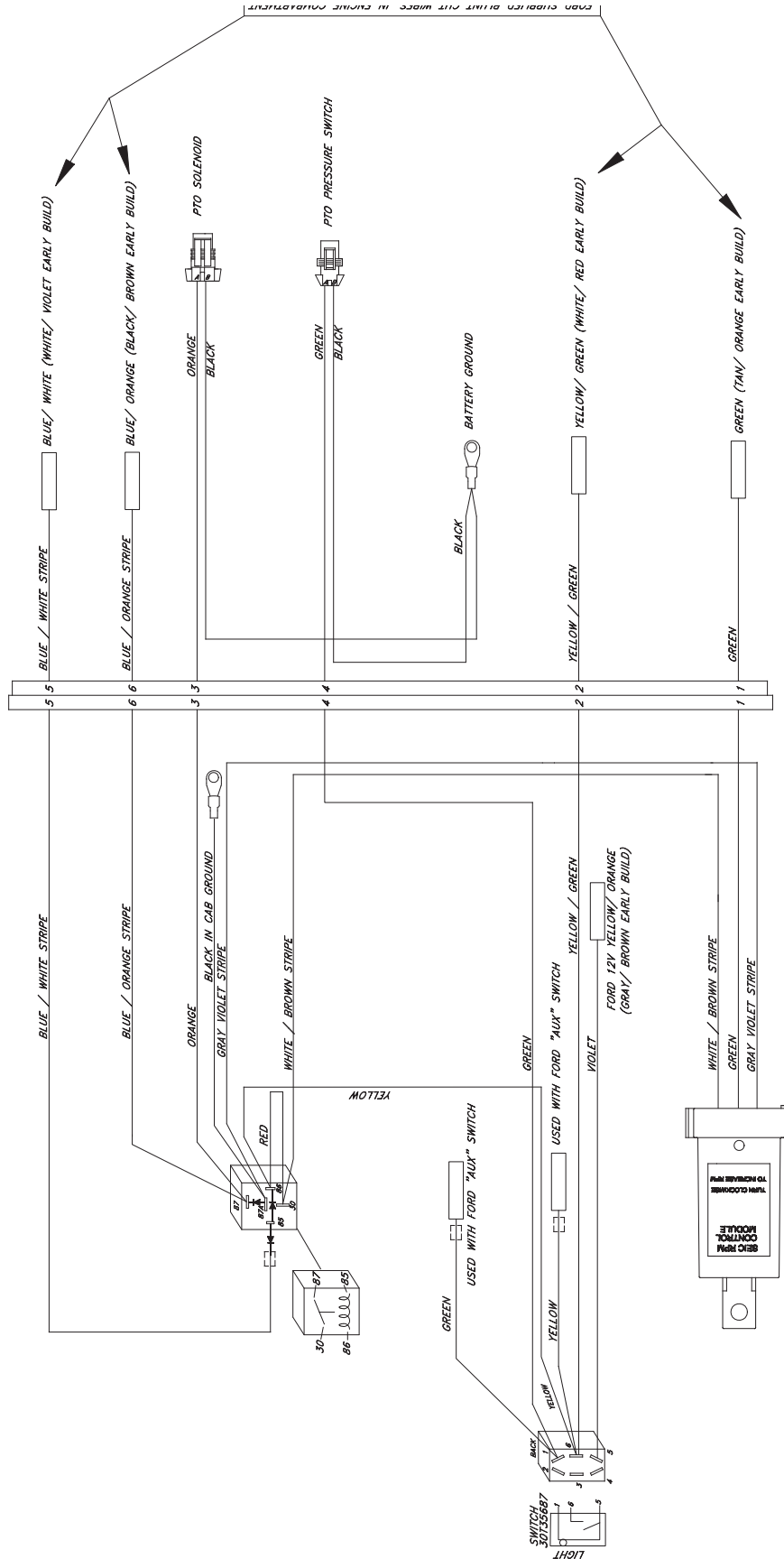
2016 & Earlier F-250-F-550 Super Duty Diesel Both Stationary AND Mobile Mode Application



FR6Q1209D3*B WIRE HARNESS #34T41940 Wire Color, Pin#, Circuit # Reference (Mobile AND Stationary Mode)

Harness Wire Color	Circuit Intent	Ford Wire Tag	PCM Pin	Circuit No.	Ford Wire Color
Blue/White	Output	PTO_RELAY	C-11	CE326	Blue/White
Yellow/Green	Input (VPWR)	PTORS1	C-06	CE912	Yellow/Green
Blue/Orange	Input (VPWR)	PTORS2	C-06	CE933	Blue/Orange
White/Brown	Reference Voltage	PTOREF	C-55	LE434	White/Brown
Green	Input (Resistor)	PTO_RPM	C-08	CE914	Green
Gray/Violet	PCM Ground	PTORTN	C-22	RE927	Gray/Violet
Violet	12 VDC Power				White/Blue (Yellow/Orange-Early Build)

FR6Q-F1209-G3*X Wire Harness Schematic - (34T43359) 2011-2015 Model Year F-650 Medium Duty 6.8L Gas Stationary Only



FR6Q1209G3*X WIRE HARNESS #34T42747 Wire Color, Pin#, Circuit # Reference (Stationary Only Mode)

Harness Wire Color	Circuit Intent	Ford Wire Tag	PCM Pin	Circuit No.	Ford Wire Color
Blue/White	Output	PTO RELAY	C-11	CE326	Blue/White (White/Violet Early Build)
Blue/Orange	Input (VPWR)	PTO REQ 2	C-06	CE933	Blue/Orange (Black/Brown Early Build)
Yellow/Green	Input (VPWR)	PTO REQ 1	C-22	CE912	Yellow/Green (White/Red Early Build)
Green	Input (Resistor)	PTO RPM	C-08	CE914	Green (Tan/Orange Early Build)
Violet	12 VDC Power				Yellow/Orange (Gray/Brown Early Build)

2017-2019 FORD F-250-F-550 CHASSIS (FORD BULLETIN Q256) 2016 & Later F-650-F-750 CHASSIS (Ford Bulletin Q236 (2016), Q248 (2017))

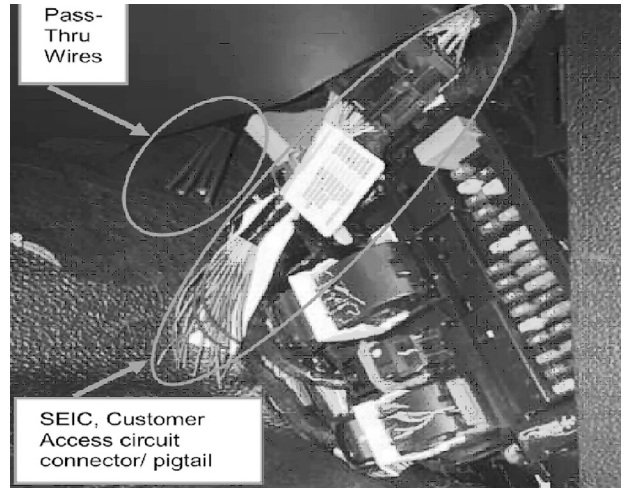
- A. **IMPORTANT:** Disconnect battery prior to installing electric/hydraulic activation kits.
- B. Find the wiring harness provided with your FR6Q PTO. Separate the harness at the 4-wire connector.
- C. The engine compartment section has the connection to the PTO activation solenoid and pressure switch. Make the connection to both components.
- D. Feed the 4-wire connector (white) through to the inside of cab. Use a pass-thru or drill a 5/8" hole and grommet provided in your kit. Connection to the Ford wiring is located in the cab. Locate blunt-cut body builder wires provided by Ford as described in this supplement.
- E. Follow the diagrams for your vehicle engine type and operation mode.

2017-2019 F-250-F-550 Chassis (Passenger Side)

Changes to the vehicle SEIC wiring were made in the 2017 model year beginning Sept. 2016. This supplement adapts the Muncie wiring harnesses to these vehicles. Locate the 2017 2019 FORD wires bundled together at the **PASSENGER SIDE behind the kick panel at the passenger's feet.**

The Muncie harness passes through to within the cab. Locate the butt splice connectors and make the connections to the Ford connector/blunt-cut pigtail wires as shown in charts for the harness you were provided

Harness is wired for "stationary mode" from the factory. To change harness to "mobile mode", cut the yellow/green wire coming from Pin 7 on the Muncie side of the 22-pin connector, and connect to the butt splice on the yellow/green wire coming out of Pin 11.



2017-2019 F-250-F-550 DIESEL Engine – Single Mode

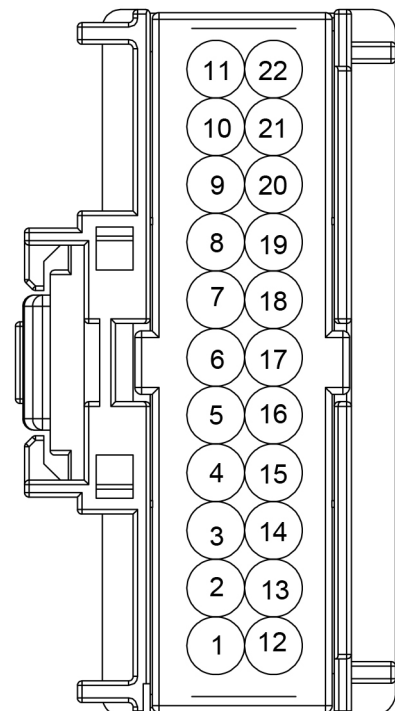
Wire Harness 34T43730 (FR6Q-F1209-63*X) Uses 22-Pin Connector

Muncie Harness Color	Ford Wire Color	Pin #
White/Brown	White/Brown	10
Green	Green	9
Yellow/Green	STATIONARY – Yellow/Green	7
	MOBILE – Blue/Orange	11
Gray/Violet	Gray/Violet	6
Blue/White	Blue/White	4
Yellow/Gray	Green/Orange	2

2017-2019 F-250-F-550 GAS Engine – Single Mode

Wire Harness 34T43735 (FR6Q-F1209-F3*X) Uses 22-Pin Connector

Muncie Harness Color	Ford Wire Color	Pin #
Yellow/Green	Yellow/Green	18
Green	Green	9
Yellow/Blue	STATIONARY – Yellow/Green	7
	MOBILE – Blue/Orange	11
Yellow/Violet	Yellow/Violet	16
Blue/White	Blue/White	4
Yellow/Gray	Green/Orange	2



2017-2019 F-250-F-550 DIESEL Engine – Dual Mode

Switchable Dual Mode – Stationary AND Mobile

Wire Harness 34T43740 (FR6Q-F1209-63*B) Uses 22-Pin Connector

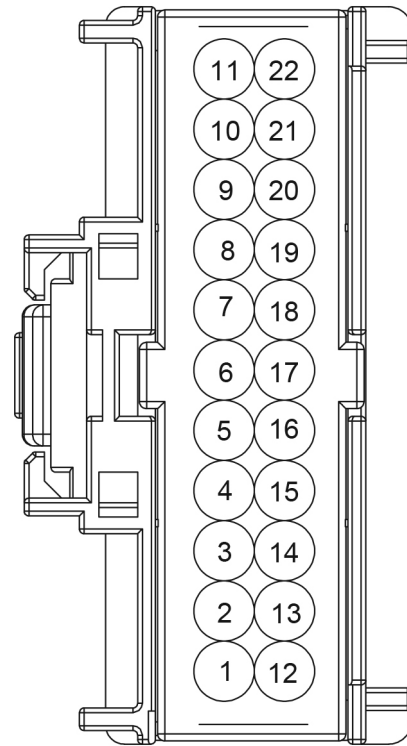
Muncie Harness Color	Ford Wire Color	Pin #
Blue/Orange	Blue/Orange	11
White/Brown	White/Brown	10
Green	Green	9
Yellow/Green	Yellow/Green	7
Gray/Violet	Gray/Violet	6
Blue/White	Blue/White	4
Yellow/Gray	Green/Orange	2

2017-2019 F-250-F-550 GAS Engine – Dual Mode

Switchable Dual Mode – Stationary AND Mobile

Wire Harness 34T43745 (FR6Q-F1209-F3*B) Uses 22-Pin Connector

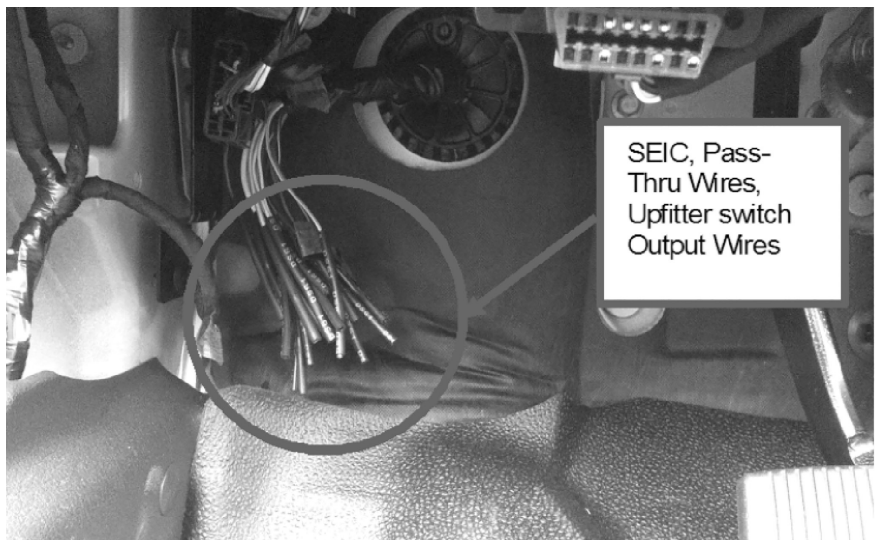
Muncie Harness Color	Ford Wire Color	Pin #
Blue/Orange	Blue/Orange	11
Green	Green	9
Yellow/Blue	Yellow/Green	7
Yellow/Green	Yellow/Green	18
Yellow/Violet	Yellow/Violet	16
Blue/White	Blue/White	4
Yellow/Gray	Green/Orange	2



2016-2019 F-650-F-750 CHASSIS Driver's Side

Changes to the 2016 & later model year Medium Duty F-650 & F-750 chassis took effect at the beginning of 2016. This instruction adapts the Muncie Power wiring harness to these chassis. The F-650-F-750 Series chassis have the wire connections located at the left hand side of the driver's foot well, behind the data link connector.

The wiring harness provided has the Ford type connector attached, but it will need to be removed for connection to the F-650 or F-750 chassis. You can cut the harness to make the connections shown on the next page and fit under the left side of the dash.



2016-2019 F-650-F-750
DIESEL Engine – Single Mode
 Wire Harness 34T43730
 (FR6Q-F1209-63*X)
Remove 22-Pin Connector
Connect Wires to SEIC Pass-Thru Wires

Muncie Harness Color	Ford Wire Color
Blue/White	Blue/White
White/Brown	White/Brown
Yellow/Green	STATIONARY – Yellow/Green MOBILE – Blue/Red
Green	Green
Gray/Violet	Gray/Violet
Yellow/Gray	Yellow/Gray

2016-2019 F-650-F-750
GAS Engine – Single Mode
 Wire Harness 34T43735
 (FR6Q-F1209-F3*X)
Remove 22-Pin Connector
Connect Wires to SEIC Pass-Thru Wires

Muncie Harness Color	Ford Wire Color
Yellow/Green	Yellow/Green
Green	Green
Yellow/Blue	STATIONARY – Yellow/Blue MOBILE – Blue/Red
Yellow/Violet	Yellow/Violet
Blue/White	Blue/White
Yellow/Gray	Yellow/Gray

2016-2019 F-650-F-750
DIESEL Engine – Dual Mode
 Wire Harness 34T43740
 (FR6Q-F1209-63*B)
Remove 22-Pin Connector
Connect Wires to SEIC Pass-Thru Wires

Muncie Harness Color	Ford Wire Color
Blue/Orange	Blue/Red
White/Brown	White/Brown
Green	Green
Yellow/Green	Yellow/Green
Gray/Violet	Gray/Violet
Blue/White	Blue/White
Yellow/Gray	Yellow/Gray

2016-2019 F-650-F-750
GAS Engine – Dual Mode
 Wire Harness 34T43745
 (FR6Q-F1209-F3*B)
Remove 22-Pin Connector
Connect Wires to SEIC Pass-Thru Wires

Muncie Harness Color	Ford Wire Color
Blue/Orange	Blue/Orange
Yellow/Green	Yellow/Green
Green	Green
Yellow/Blue	Yellow/Blue
Yellow/Violet	Yellow/Violet
Blue/White	Blue/White
Yellow/Gray	Green/Orange

Install the Muncie Power switch and indicator light into the Muncie Power switch bracket. Note: Ford Auxiliary switches cannot be used for the “Stationary AND Mobile” installations.

With wiring connected test the vehicle. With the truck in park and the PTO switch in the “Off” position, start the engine. Listen for a few seconds for any unnatural noises. Always stay clear of rotating components. Should an unnatural noise occur, SHUT OFF the engine and remove the ignition keys. Remove the PTO and examine both the PTO gear and the transmission gear for any defects.

When satisfied with the PTO installation, check the transmission oil level and fill to proper level per the instructions found in the vehicles owner’s manual. Adding a PTO will require adding transmission fluid. Run engine for 5 to 10 minutes and check for leaks. Always stay clear of rotating components and never go under the truck with the engine running.

Shut OFF engine and remove the ignition keys. Inspect the cap screws to make sure they are properly tightened. Mounting bolts and nuts should be checked on a regular basis.

2021 & Later F-650-F-750 CHASSIS

On 2021 and later F-650 and F-750 Series chassis, the wiring connections were moved under the hood. This instruction adapts the Muncie Power wiring harness to these chassis. The F-650-F-750 Series chassis have blunt cut wire connections located under the hood on the drivers side. It will be necessary to remove the 22-pin connector from the Muncie Power harness and make the connections outlined in the appropriate table listed below and on the following page.



2021 & Later F-650-F-750 DIESEL Engine – Single Mode

Wire Harness 34T43730 (FR6Q-F1209-63*X)

SEIC Connector Under Hood!

Muncie Harness Color	Ford 2021 Model Year Wire Color	Ford 2022 Model Year Wire Color	Pin #	Wire Tag
Blue/White	Blue/Gray	Blue/White	11	PTORLY
White/Brown	White/Brown	White/Brown	13	PTOVREF
Yellow/Green	STATIONARY – Yellow/Green MOBILE – Blue/Green	STATIONARY – Yellow/Green MOBILE – Blue/Orange	4 5	PTOREQ1 PTOREQ2
Green	Green	Green	7	PTORPM
Gray/Violet	Gray/Violet	Gray/Violet	3	PTORTN
Yellow/Gray	Gray	Gray	9	VPWR3

2021 & Later F-650-F-750 GAS Engine – Single Mode

Wire Harness 34T43735 (FR6Q-F1209-F3*X)

SEIC Connector Under Hood!

Muncie Harness Color	Ford Wire Color	Pin #	Wire Tag
Yellow/Green	Yellow/Green	13	PTOVREF
Green	Green	7	PTORPM
Yellow/Blue	STATIONARY – Yellow/Green MOBILE – Blue/Red	4 5	PTOREQ1 PTOREQ2
Yellow/Violet	Yellow/Violet	3	SIGRTN_C
Blue/White	Blue/White	11	PTORLY
Yellow/Gray	Gray	9	VPWR3

2021 & Later F-650-F-750 DIESEL Engine – Dual Mode

Wire Harness 34T43740 (FR6Q-F1209-63*B)

SEIC Connector Under Hood!

Muncie Harness Color	Ford 2021 Model Year Wire Color	Ford 2022 Model Year Wire Color	Pin #	Wire Tag
Blue/White	Blue/Gray	Blue/White	11	PTORLY
White/Brown	White/Brown	White/Brown	13	PTOVREF
Yellow/Green	Yellow/Green	Yellow/Green	4	PTOREQ1
Blue/Orange	Blue/Green	Blue/Orange	5	PTOREQ2
Green	Green	Green	7	PTORPM
Gray/Violet	Gray/Violet	Gray/Violet	3	PTORTN
Yellow/Gray	Gray	Gray	9	VPWR3

2021 & Later F-650-F-750 GAS Engine – Dual Mode

Wire Harness 34T43745 (FR6Q-F1209-F3*B)

SEIC Connector Under Hood!

Muncie Harness Color	Ford Wire Color	Pin #	Wire Tag
Blue/Orange	Blue/Orange	5	PTOREQ2
Yellow/Green	Yellow/Green	13	PTOVREF
Green	Green	7	PTORPM
Yellow/Blue	Yellow/Green	4	PTOREQ1
Yellow/Violet	Yellow/Violet	3	SIGRTN_C
Blue/White	Blue/White	11	PTORLY
Yellow/Gray	Gray	9	VPWR3

Install the Muncie Power switch and indicator light into the Muncie Power switch bracket. Note: Ford Auxiliary switches cannot be used for the “Stationary AND Mobile” installations.

With wiring connected test the vehicle. With the truck in park and the PTO switch in the “Off” position, start the engine. Listen for a few seconds for any unnatural noises. Always stay clear of rotating components. Should an unnatural noise occur, SHUT OFF the engine and remove the ignition keys. Remove the PTO and examine both the PTO gear and the transmission gear for any defects.

When satisfied with the PTO installation, check the transmission oil level and fill to proper level per the instructions found in the vehicles owners manual. Adding a PTO will require adding transmission fluid. Run engine for 5 to 10 minutes and check for leaks. Always stay clear of rotating components and never go under the truck with the engine running.

Shut OFF engine and remove the ignition keys. Inspect the cap screws to make sure they are properly tightened. Mounting bolts/nuts should be checked on a regular basis.

SECTION 3

TEST PROCEDURES

(Test can only be done after completing installation instructions in Section 1.)

1. Start the engine and engage the FR6Q PTO by turning the rocker switch to the “ON” position. Be sure that all Ford SEIC enablers are met. See Section 4. If the FR6Q PTO fails to operate or will not develop enough torque to operate the equipment, check the pressure as follows.
2. Stop the engine and place the ignition keys in your pocket.
3. Install a 400 PSI pressure gauge at the piston port of the FR6Q PTO as shown in figure 1 below.

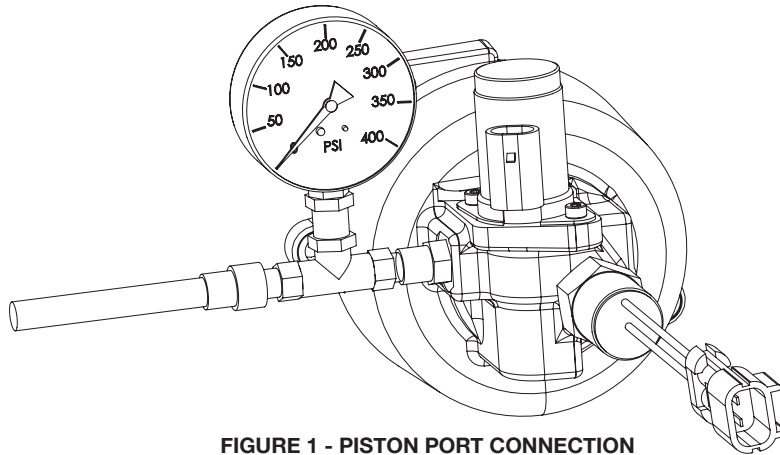


FIGURE 1 - PISTON PORT CONNECTION

4. Remove the pressure switch from the FR6Q end cover and place a second 400 PSI pressure gauge in the pressure switch port as shown in figure 2 below.

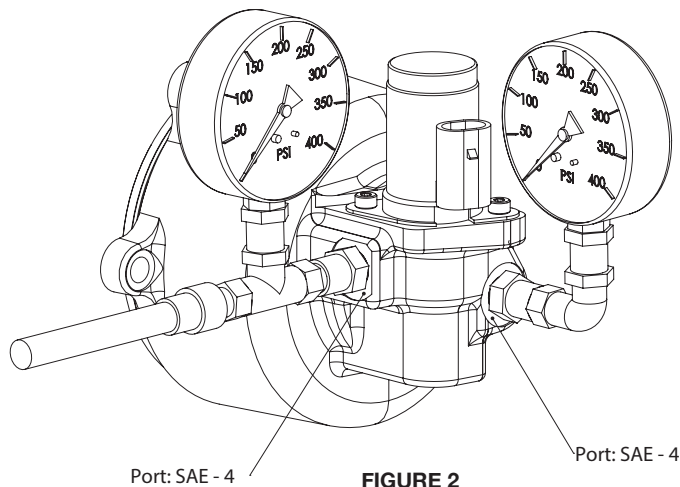


FIGURE 2

5. Start the engine (staying clear of any rotating components). Engage the FR6Q PTO by turning the rocker switch to the “ON” position. Increase the engine speed to 1,300 RPM.
6. If either gauge registers less than 130 PSI or if there is more than 50 PSI difference between the 2 gauges at any engine speed, check for obstructions in the hose or remove the solenoid and check for contamination.
7. If the gauge on the piston port registers 50 PSI or less, you may be connected to the wrong port on the transmission. Recheck the transmission information for the main pressure port location.

SECTION 4

OPERATOR'S MANUAL

PTO SHIFTING PROCEDURE & PRECAUTIONS

PTO's should not be engaged (turned "ON") under heavy load and/or at engine speeds over 1,000 RPM. If your operators are careless or negligent in this respect, you can safeguard your equipment with one or more Muncie Power protective systems. (See Section 2)

CAUTION: Do NOT operate hydraulic pumps or systems without the hydraulic system completely installed.

▲ WARNING! STATIONARY OPERATION REQUIREMENTS:

- DO NOT GO UNDER THE VEHICLE WITH THE ENGINE RUNNING
- Parking brake must always be set
- Vehicle's wheels must always be chocked
- Transmission must always be in park

Important: An operator must always be in the driver's seat whenever the engine is running and the transmission is in gear, in order to prevent or stop any unexpected movement of the vehicle which may cause injuries to the operator or others in the vicinity.

FORD SEIC Enabler/Disable Conditions

Vehicle Conditions to Enable SEIC (All are required)	Vehicle Conditions to Disable SEIC (Any one required)	Diesel		Gas F-650 Stationary
		Stationary	Mobile	
Parking brake applied	Parking Brake disengaged	Yes	No	Yes
Foot off of service brake	Depressing service brake	Yes	No	Yes ³
Vehicle in PARK (automatic trans.)	Vehicle taken out of park	Yes ³	No	Yes
Foot off of accelerator pedal	Accelerator pedal depressed	Yes	No	Yes
Vehicle speed is 0 mph (stationary)	Vehicle speed is not 0 MPH (stationary)	Yes	No	Yes
Engine at a stable base idle speed		Yes	No	Yes ²
Transmission oil Temp. above 20° F	Transmission Oil Temperature (TOT) Limit exceeds 240° F.	Yes	No	Yes ³
Engine Coolant Temp. (ECT) 120° F min. ¹	Engine Coolant Temperature Limit (ECT)	No	No	Yes ³
	Catalyst Temperature Limit	No	No	Yes ³

1. Engine coolant Temp (ECT) is changed to 20° F min. in Ford Job 2 programming.
2. (Applies to gas engine only) If a SEIC disabling condition occurs, the engine must be allowed to reach a stable base idle before the system can be re-initiated. This could take up to 15 seconds. If an attempt is made to re-initiate SEIC before the engine has reached a stable base idle SEIC will not engage. The operator will have to turn SEIC off and then back on once the vehicle has reached a stable base idle.
3. A "change-of-state" at both the "PTO_REQUEST" and "PTO_ENGAGE" circuits is required to re-invoke SEIC. When a disabler is seen by the PCM, the "PTO_OK" circuit changes from "ground-source" to "open-circuit". After approximately 3 seconds SEIC drops out, returning the engine speed to base idle. For vehicle-stationary operation, the automatic transmission torque converter unlocks as engine speed drops below 900 RPM. To re-initiate SEIC the operator must turn off the aftermarket PTO switch (removing drops command voltage to both the "PTO_REQUEST" and "PTO_ENGAGE" circuits) and turn it back on again.

PTO OPERATION VEHICLE STATIONARY

1. The PTO drive gear is engine driven and will rotate whenever the engine is running.
2. See warning above. Set parking brake and, with foot off of service brake, and with the vehicle engine operating at idle, engage PTO by pushing the rocker switch to the engage position.
3. Connection of the FR6Q PTO is through the Ford SEIC control. The Muncie Power harness will allow the throttle settings to range from 900 RPM (default) to 3,000 RPM. The Maximum allowable operating engine speed is 2,500 RPM. Connection to Ford 6.7L diesel computer through the PTO activation circuit will automatically increase engine to a pre-set RPM.
4. The PTO activation system is wired through the vehicle ignition. If you leave the PTO engaged and turn off the vehicle, the PTO activation will not automatically turn on when the enablers are met and the engine is re-started. You will need to go through the activation process again once the engine is restarted.

Note: Consult your Muncie Power Products product literature or call your nearest Muncie Power Center for information on the SPD-2000 System Protection Device. The SPD-2000 is adjustable for maximum engine speed and can also prevent engagement of your PTO at unsafe engine speeds. The Ford instrument panel includes a temperature gauge, which monitors transmission temperature. A temperature rise occurring immediately after PTO installation should prompt to have the installation checked for the proper PTO gasket and correct transmission oil level. Allow the system to cool. Temperature increases can indicate possible system problems, application misuse, or potential failure. Have the vehicle cooling system checked by a qualified technician. The PTO may need to be inspected by an approved Muncie Power service center.

PTO OPERATION:

Mobile Vehicle

1. Vehicle must be wired for mobile operation.
2. With the vehicle engine operating at idle and the parking brake set, engage the PTO by pushing the rocker switch to the “engage” position.
3. Release the parking brake, shift the transmission into a drive or reverse selection.
4. The Torqshift® transmission is designed to allow PTO operation in all gears including over-drive.

Switchable: Stationary/Mobile

1. When switching between modes, a 1-2 second pause in the center “OFF” position is required for the SEIC to recognize the change.

PTO MAINTENANCE

The power take-off, being an integral part of the transmission, should be serviced at the same intervals as the transmission. Changing transmission fluid should follow the interval

recommended by the vehicle manufacturer for severe service. Transmission oil level is important. Checking for PTO leaks and checking the transmission oil level should be done on a regular basis.

The power take-off is also part of a system. The PTO system may include the activation control parts, a driveshaft, or hydraulic pump. This PTO system requires periodic checks and service. Typically the interval for maintenance checks of the PTO system depends on the application of the system. Every time the chassis is lubricated or a mechanic is under the vehicle the PTO system should be checked and/or serviced. For severe duty PTO system applications, it is recommended that the system be checked for service every 100 hours of use (this guideline can be adjusted based on past service history once you have it established). Service should include checking and lubricating direct mount pump shaft connections. PTO gears can be checked for wear by removing the PTO. If pitting, galling, cracking, or deformation of the gears or splines has occurred, then the PTO needs to be rebuilt or replaced.

At regular maintenance intervals; check adjustments and lubricate moving parts, tighten/repair connections and mounting hardware. Pumps that are mounted directly to the PTO output require the application of an anti-seize or a high temperature and/or high pressure grease (Muncie Power PTOs are initially supplied with required grease). The purpose of this grease is to help make PTO easier to service and to reduce the effects of fretting corrosion on the mating PTO and pump shafts. PTO applications under severe duty cycles and/or high torque requirements may require servicing this shaft connection by periodically re-greasing shafts. Fretting corrosion cannot be stopped by applying grease; the grease is only a deterrent.

PTO TORQUE & HORSEPOWER RATINGS

Intermittent service refers to an On-Off operation under load. If maximum horsepower and/or torque is used for an extended period of time, (5 minutes or more), it is considered “Continuous Service” and the horsepower rating of the PTO should be reduced by multiplying the value below by 0.70.

PTO Series	Stationary Mobile	
	FR6Q	
Speed Ratio	09	
Intermittent HP @ 1,000 RPM*	38	22.8
Intermittent KW @ 1,000 RPM*	28	17
Torque ft.lbs.*	200	120
Torque N-M	271	163
Maximum PTO Speed	2,500	

Note: *Torque & HP limitations are mandated by Ford to limit transmission loading.

FR6Q - PTO TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	REMEDY	PREVENTION
PTO DOES NOT ENGAGE	FORD required wiring installation not followed.	Inspect and reconnect PTO activation wire connection on the PTO harness.	Refer to wiring diagram found in Section 2.
	Contaminated hydraulic activation lines.	Remove contaminants from piston area.	Change transmission oil filter.
	Transmission Hydraulic Pressure not high enough.	Hydraulic line connected to the wrong port.	Review installation diagrams found in Section 2.
	Burned or extremely worn clutch pack.	Replace worn components.	Follow proper shifting procedures.
	Rocker switch incorrectly connected.	Remove connection at rocker switch, check pins and re-install per instructions in Section 4.	Make sure green wire in connector is at top when installed.
PTO DOES NOT DISENGAGE	Faulty hydraulic solenoid valve.	Repair or replace.	Sometimes a result of contamination or a dirty valve.
	Burned or extremely worn clutch pack.	Repair or replace components.	Follow proper engagement procedures. See Section 3.
PTO ENGAGES LOW/NO OUTPUT SPEED OR PUMP FLOW	FORD required wiring installation not followed.	Inspect and reconnect PTO activation wire connection on the PTO harness.	Refer to wiring diagram found in Section 2.

POWER TAKE-OFF WARRANTY

THE MUNCIE POWER TAKE-OFF IS WARRANTED TO BE FREE OF DEFECTS IN MATERIAL OR WORKMANSHIP AND TO MEET MUNCIE'S STANDARD WRITTEN SPECIFICATIONS AT THE TIME OF SALE. MUNCIE'S OBLIGATION AND LIABILITY UNDER THIS WARRANTY IS EXPRESSLY LIMITED TO REPAIRING OR REPLACING, AT MUNCIE'S OPTION, WITHIN ONE YEAR AFTER DATE OF ORIGINAL INSTALLATION ANY DEFECTIVE PART OR PARTS OR ANY PRODUCT NOT MEETING THE SPECIFICATIONS.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. MUNCIE MAKES NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE. MUNCIE'S OBLIGATION UNDER THIS WARRANTY SHALL NOT INCLUDE ANY TRANSPORTATION CHARGES OR COSTS OF INSTALLATION OR ANY LIABILITY FOR DIRECT, INDIRECT SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OR DELAY. THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE, AND MUNCIE'S LIABILITY WITH RESPECT TO ANY CONTRACT OR SALE OR ANYTHING DONE IN CONNECTION THEREWITH, WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY, OR OTHERWISE, SHALL NOT, EXCEPT AS EXPRESSLY PROVIDED HEREIN, EXCEED THE PRICE OF THE PRODUCT OR PART ON WHICH SUCH LIABILITY IS BASED.

IF REQUESTED BY MUNCIE, PRODUCTS OR PARTS FOR WHICH A WARRANTY CLAIM IS MADE ARE TO BE RETURNED TRANSPORTATION PREPAID TO A MUNCIE SERVICE CENTER. ANY INSTALLATION OR USE NOT IN ACCORDANCE WITH CATALOGUE OR PACKAGE INSTRUCTIONS, OTHER IMPROPER USE, OPERATION BEYOND CAPACITY, SUBSTITUTION OF PARTS NOT APPROVED BY MUNCIE, USE WITH EQUIPMENT OTHER THAN THE EQUIPMENT ON WHICH THE POWER TAKE-OFF IS FIRST INSTALLED, OR ALTERATION OR REPAIR MADE TO THE POWER TAKE-OFF OTHER THAN AT A MUNCIE SERVICE CENTER SHALL VOID THIS WARRANTY. NO EMPLOYEE OR REPRESENTATIVE OF MUNCIE IS AUTHORIZED TO CHANGE THIS WARRANTY IN ANY WAY OR TO GRANT ANY OTHER WARRANTY.

NOTES



**Muncie[®]
Power
Products**

A Member of the Interpump Group

IN16-06 (Rev. 02-24)

201 East Jackson Street, Muncie, Indiana 47305

800-367-7867 • Fax: 765-284-6991 • info@munciepower.com

Specifications are subject to change without notice. Visit www.munciepower.com
for warranties and literature. All rights reserved. © Muncie Power Products, Inc. (2017)