



**Muncie[®]
Power
Products**

KEEP IN VEHICLE

READ OPERATING INSTRUCTIONS
INSIDE BEFORE OPERATING PTO

FA6B

PTO INSTALLATION AND OPERATOR'S MANUAL



IMPORTANT SAFETY INFORMATION

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 3!

- 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 TAKEOFFS 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.
- IT SHALL BE THE RESPONSIBILITY OF THE INSTALLER OF A MUNCIE POWER TAKE-OFF TO DECIDE WHETHER TO INSTALL GUARDS IN THE PTO AND/OR DRIVELINE AREA BECAUSE OF POTENTIAL EXPOSURE TO DANGER. THIS IS BECAUSE MOST MUNCIE PTOS ARE INSTALLED BY EQUIPMENT DISTRIBUTORS OR MANUFACTURERS AND THEREFORE, THE RESPONSIBILITY OF THE INSTALLATION IS BEYOND THE CONTROL OF MUNCIE POWER PRODUCTS.
- 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

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THIS SYMBOL WARNS OF PERSONAL INJURY OR DEATH.

TABLE OF CONTENTS

DESCRIPTION	PAGE
Important Safety Information.....	2
<i>Section 1 – PTO Installation</i>	
FA6B PTO Installation Instructions	4
FA6B PTO Installation - A67	6
FA6B PTO Installation - I84	8
FA6B PTO Activation Installation	11
FR66 Direct Couple Hydraulic Pump Installation.....	13
<i>Section 2 – Wiring Diagrams and Auxiliary Wiring Instructions</i>	
FA6B Feature Option “H” - A67/I84.....	15
FA6B Feature Option “B” - I84	15
FA6B Installation With SPD-1001D.....	16
<i>Section 3 – Activation Kit Diagram</i>	
FA6B Shift Option “H” – A67 Activation Diagram	17
FA6B Shift Option “B” – I84 Activation Diagram.....	18
FA6B Shift Option “H” – I84 Activation Diagram	19
FA6B Shift Option D - I84 Activation	20
FA6B PTO Testing Procedure	21
<i>Section 4 – Operator’s Manual</i>	
PTO Shifting Procedures & Precautions.....	22
PTO Operation.....	22
PTO Maintenance	23
PTO Torque & Horsepower Ratings.....	23
PTO Troubleshooting Guide	24
Power Take-Off Warranty.....	25

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 contacted 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 grounds, 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 Body Builders Layout Book". You can obtain a copy of this book by going to the chassis manufacturer's website at <http://www.fleet.ford.com/truckbbas/>

INSTALLATION INSTRUCTIONS

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

1. There is a packet with the FA6B PTO which contains four (4) warning labels. Before adhering the labels, make sure the surfaces are free of dirt and grease. Place the labels supplied with the FA6B 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 or near the FA6B PTO. One label is to be placed on each side of the vehicle. See figure 1.

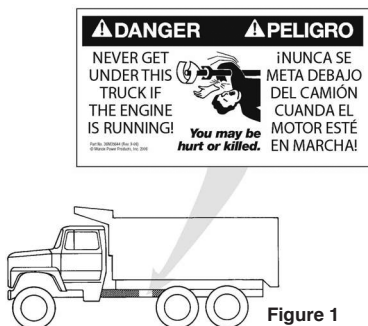


Figure 1

Note: Should the vehicle body installed on the chassis cover the frame rail, place the label on the body in a position easily visible by anyone who might go under the vehicle or near the FA6B PTO. Do NOT paint over the labels.

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 3½" x 6", is to be placed on the visor on the operator's side of the vehicle. If using dual-mode, place the fifth label next to the visor label. See figure 2 below.

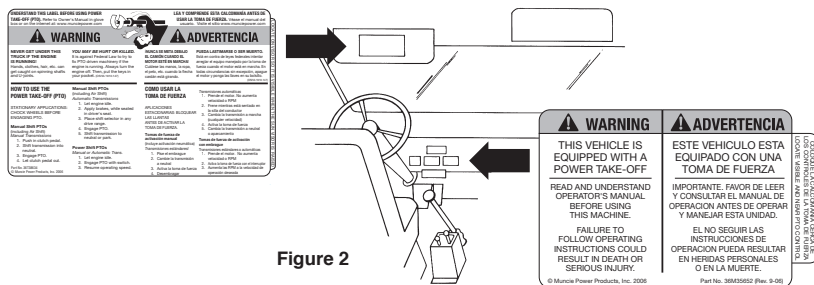


Figure 2

2. While seated in the vehicle and with the transmission in "Neutral", start the engine and listen to the sounds of both the transmission and the engine before installing the FA6B PTO. A noise in the transmission gear may be more noticeable after the FA6B PTO is installed. Next, we will begin the installation of the FA6B PTO, **STOP ENGINE!**

Allison Automatic Transmission

1000 & 2000 Series

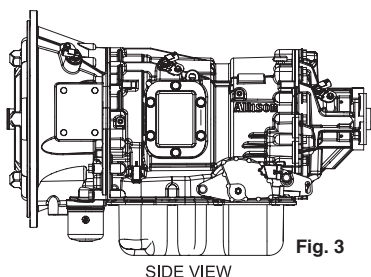


Fig. 3

3. Remove the cover plate and the cover gasket from the transmission. Discard the gasket as it will not be used again.

Note: Do NOT drain the transmission fluid, but be prepared for a small amount of oil to escape from the PTO opening (avoid contact with this oil because it may be HOT).

4. Clean the mounting pad and inspect the bolt holes in aperture for thread sealant used on OEM bolts. Clean these internal threads with a wire brush to clear out any material.

5. Check the transmission for proper PTO driver gear and location. Also, check the FA6B PTO driver gear for condition. A nick or blemish may cause excessive noise when the FA6B PTO is mounted.

6. Locate the transmission main pressure port (see figure 4). Remove the installation kit (43TK5282) components from the FA6B PTO carton. Locate the straight fitting (43T36431) and the elbow fitting (43T36445).

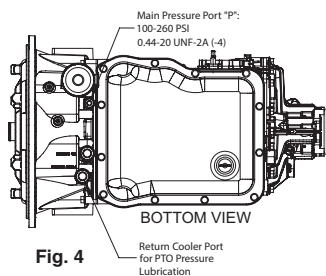


Fig. 4

7. Install the straight fitting (O-Ring end first) into the main pressure port located on the left side of the transmission. This port is the second port midway up the side of the transmission. Next, install the elbow fitting onto the other end of the straight fitting and position towards the rear of the vehicle.

8. Locate the 28" JIC-JIC swivel hose (45T36274) and install one end of the hose onto the elbow fitting installed in the previous step. Route the hose to clear any interference with the transmission or its components.

9. Locate the transmission PTO pressure lubrication port (see figure 4). Locate the tee fitting (sold separately – see note below) and plug one of the 1/8" NPT ports and insert the straight fitting (included with tee fitting) into the other end. Disconnect the cooling line from the cooler port and insert the tee fitting (O-Ring end first) into the transmission. Connect the cooling line to the end of the tee fitting.

Note: Tee or tap into the Return Cooler Port for the PTO pressure lubrication:

GM C3500 cab chassis* - use 43TK4497 for lubrication line installation*

SAE 8 – 1000 Series (#3 housing) use 43TK5191 tee fitting*

SAE 12 – 1000/2000 Series (#2 housing) use 43TK5157 tee fitting*

*Fitting kits sold separately

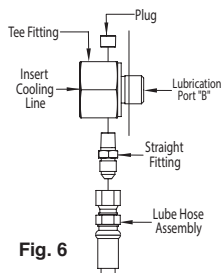


Fig. 6

10. Locate the 28" JIC-JIC swivel hose (45T36274) and install one end of the hose onto the straight fitting installed in the previous step. Route the hose to clear any interference with the transmission or its components.

11. Locate the stud kit (20TK5283) provided with the PTO. The kit should include: (5) 12 pt. metric capscrews – 19T37727, (1) step stud – 20T39529 and (1) whiz-lock nut – 22T37605.



12 pt. Metric Capscrew - 5

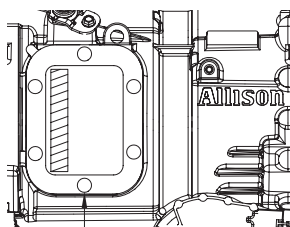


Step Stud - 1



Whiz-lock Nut - 1

Fig. 7



0 Step Stud
20T39529
1 Location

Fig. 8

12. Install the (1) step stud into the bottom-center hole location as shown. Place the PTO gasket(s), supplied with the FA6B PTO, over the alignment stud and flush against the transmission.

The FA6B-A67 uses (1) 13M35092 (0.020") gasket only.
The FA6B-I84 uses (2) 13M35092 (0.020") gaskets only.

13. Place the PTO onto the transmission opening while making sure the gasket is still flush against the transmission. Install the (5) metric capscrews into the remaining hole locations and torque to 30 ft.lb. Install the whiz-lock nut onto the step stud and torque to 17 ft.lb.

Note: Checking the backlash is not required when using the supplied gasket. Never use silicone type sealant on the PTO/transmission mounting surface, as proper backlash cannot be attained.

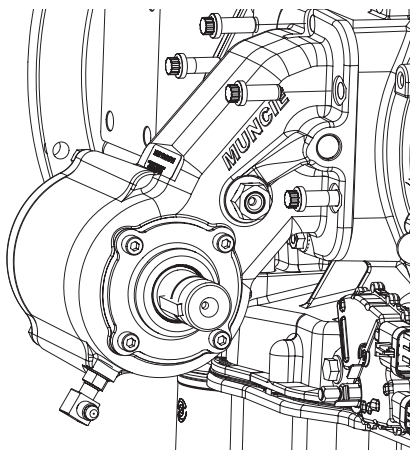


Fig. 9

Proceed to step 14 on page 10 to continue installation for the FA6B PTO and the Allison transmission

Aisin Automatic Transmission

Models 450-43LE, A443 & A445 5-Speed

A-465 & A460: 6-Speed

For Model A467, RAM AS69RC, go to page 10

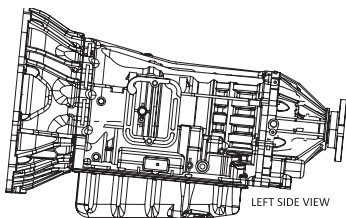


Fig. 10

3. Remove the cover plate and the cover gasket from the transmission. Discard the gasket as it will not be used again.

Note: Do **NOT** drain the transmission fluid, but be prepared for a small amount of oil to escape from the PTO opening (avoid contact with this oil because it may be **HOT**).

4. Clean the mounting pad and inspect the bolt holes in aperture for thread sealant used on OEM bolts. Clean these internal threads with a wire brush to clear out any material.

5. Check the transmission for proper PTO driver gear and location. Also, check the FA6B PTO driver gear for condition. A nick or blemish may cause excessive noise when the FA6B PTO is mounted.

6. Locate the transmission main pressure port (see figure 11). Remove the installation kit 48TK5472 components from the FA6B PTO carton. Locate the straight fitting (43T39222) and the elbow fitting (43T36445).

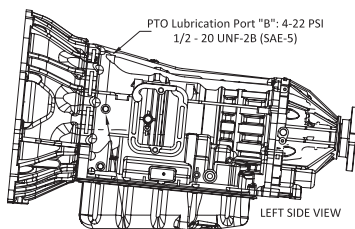


Fig. 11

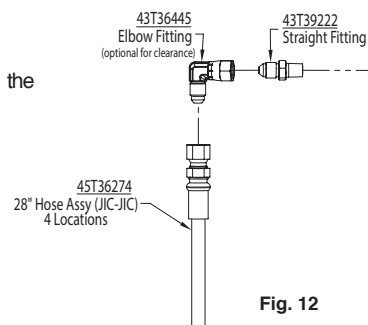


Fig. 12

7. Install the straight fitting (O-Ring end first) into main pressure port located on left side of the transmission. This port is the second port midway up the side of the transmission. Next, install the elbow fitting onto the end of the straight fitting and position towards the rear of the vehicle.

8. Locate the 28" JIC-JIC swivel hose (45T36274) and install one end of the hose onto the elbow fitting installed in the previous step. Route the hose to clear any interference with the transmission or its components.

9. Locate the transmission PTO lubrication port (see figure 11). Locate the straight fitting (43T39222) and insert (o-ring end first) into the lubrication port "B".

10. Locate the 28" JIC-JIC swivel hose (45T36274) and install one end of the hose onto the straight fitting installed in the previous step. Route the hose to clear any interference with the transmission or its components.

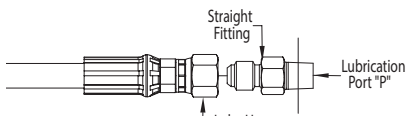


Fig. 13

11. Locate the stud kit (20TK5169) provided with the PTO. The kit should include: (4) metric studs – 20T37990, (4) spirallock nuts – 22T39282, (2) step stud – 20T41354 and (2) whiz-lock nuts – 22T37605.

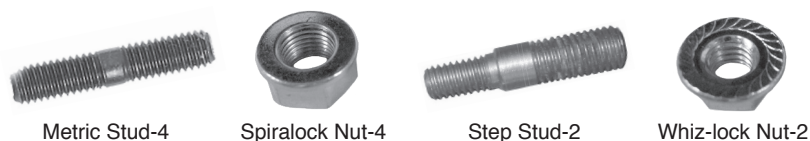


Fig. 14

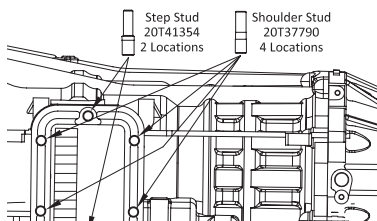


Fig. 15

13. Place the PTO onto the transmission opening while making sure the gasket is still flush against the transmission. Install the (2) whiz-lock nuts onto the (2) step studs and torque to 17 ft.lb. Install the (4) spirallock nuts onto the (4) studs and torque to 40 ft.lb.

Note: Checking the backlash is not required when using the supplied gasket. Never use silicone type sealant on the PTO/transmission mounting surface, as proper backlash cannot be attained.

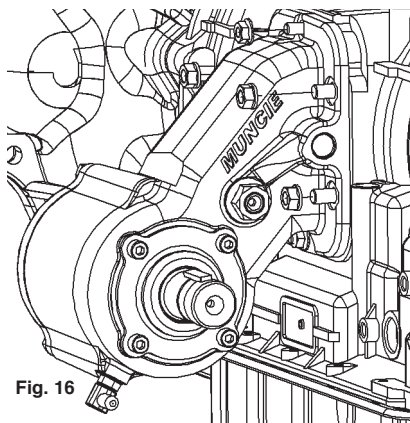
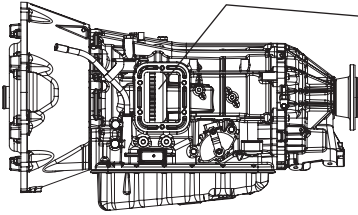


Fig. 16

Proceed to step 14 on page 12 after the Ram Truck installation to continue installation for the FA6B PTO and the Aisin transmission.

Aisin Automatic Transmission

RAM Truck - AS69RC & A467 6-Speed



3. Remove the cover plate and the cover gasket from the transmission. Discard the gasket as it will not be used again.

Note: Do **NOT** drain the transmission fluid, but be prepared for a small amount of oil to escape from the PTO opening (avoid contact with this oil because it may be **HOT**).

Fig. 17

4. Clean the mounting pad and inspect the bolt holes in aperture for thread sealant used on OEM bolts. Clean these internal threads with a wire brush to clear out any material.

5. Check the transmission for proper PTO driver gear and location. Also, check the FA6B PTO driver gear for condition. A nick or blemish may cause excessive noise when the FA6B PTO is mounted.

6. Locate the transmission main pressure port (see figure 18). Remove the installation kit 48TK5472 components from the FA6B PTO carton. Locate the straight fitting (43T39222) and the elbow fitting (43T36445).

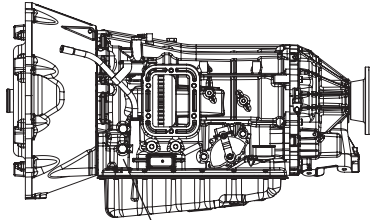


Fig. 18

Main Pressure Port "P"

the

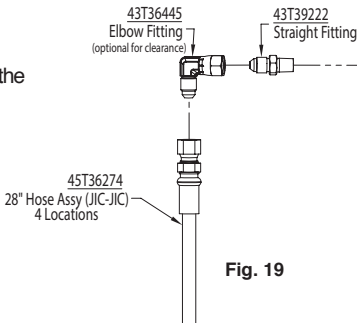


Fig. 19

7. Install the straight fitting (O-Ring end first) into main pressure port located at the lower side of the transmission. Next, install the elbow fitting onto the end of the straight fitting and position towards the rear of the vehicle.

8. Locate the 28" JIC-JIC swivel hose (45T36274) and install one end of the hose onto the elbow fitting installed in the previous step. Route the hose to clear any interference with the transmission or its components.

9. Locate the transmission PTO lubrication port (see figure 20). Locate the straight fitting (43T39222) and insert (o-ring end first) into the lubrication port "B".

10. Locate the 28" JIC-JIC swivel hose (45T36274) and install one end of the hose onto the straight fitting installed in the previous step. Route the hose to clear any interference with the transmission or its components.

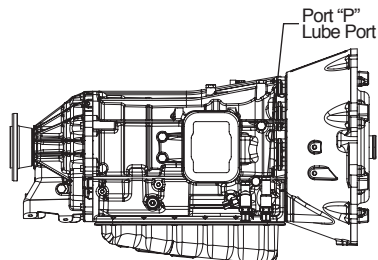


Fig. 20

11. Locate the stud kit (20TK5169) provided with the PTO. The kit should include: (4) metric studs – 20T37990, (4) spirallock nuts – 22T39282, (2) step stud – 20T41354 and (2) whiz-lock nuts – 22T37605.



Fig. 14

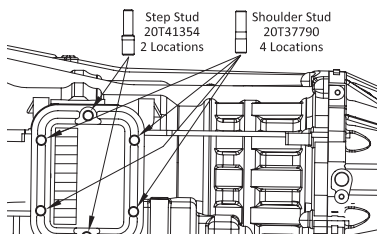


Fig. 15

13. Place the PTO onto the transmission opening while making sure the gasket is still flush against the transmission. Install the (2) whiz-lock nuts onto the (2) step studs and torque to 17 ft.lb. Install the (4) spirallock nuts onto the (4) studs and torque to 40 ft.lb.

Note: Checking the backlash is not required when using the supplied gasket. Never use silicone type sealant on the PTO/transmission mounting surface, as proper backlash cannot be attained.

12. Install the (2) step studs into the top-center hole and the bottom-center hole locations as shown. Next, install the (4) shoulder studs into the remaining hole locations. Place the PTO gasket (supplied with the FA6B PTO) over the alignment studs and flush against the transmission.

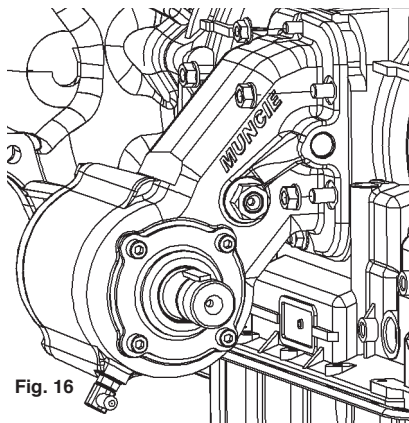


Fig. 16

Proceed to step 14 on page 12 after the Ram Truck installation to continue installation for the FA6B PTO and the Aisin transmission.

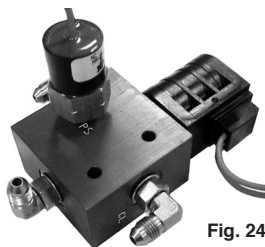


Fig. 24

16. Remove the protective cap plug from the port located on the bottom of the PTO housing and install the special orifice fitting (43T42012).

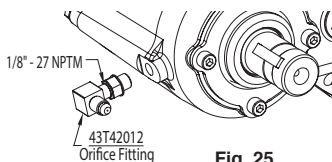


Fig. 25

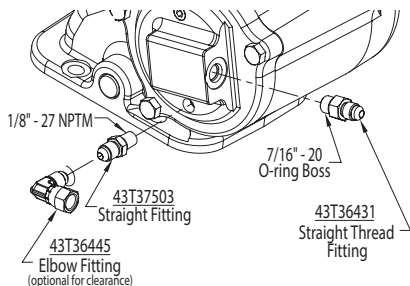


Fig. 26

17. Remove the protective cap plug from the pressure port located on the rear cover of the FA6B PTO housing and install a straight thread fitting (43T36431).

18. Remove the protective cap plug from the EXH port located on the rear cover of the FA6B PTO housing and install the straight fitting (43T37305).

Note: Elbow fitting (43T36445) can be used to help avoid clearance issues. Reference figure 3 below for steps 19-22

19. Connect the main pressure hose (see step 8) to the elbow fitting (43M68014) at the "IN" port on the solenoid block.

20. Connect the lubrication hose (see step 10) to the elbow fitting (43T42012) installed in step 16 above.

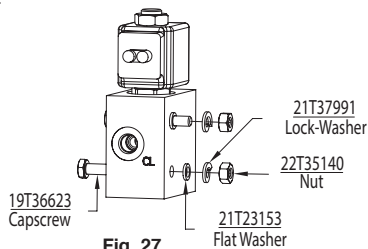
21. Locate the 28" JIC-JIC swivel hose (45T36274) and install one end of the hose onto the straight fitting (43T36431) installed in step 17. Connect the other end to the elbow fitting (43M68014) at the "CL" port on the solenoid block.

22. Locate the remaining 28" JIC-JIC swivel hose (45T36274) and install one end of the hose into the elbow fitting (43T37385) installed in step 18. Connect the other end to the elbow fitting (43M68014) at the "EXH" port on the solenoid block.

23. Once all of the connections have been made above, find a suitable location forward of the PTO housing to mount the activation solenoid.

24. Locate the activation solenoid mounting components in the installation kit provided with the FA6B PTO. The mounting hardware should include: (2) capscrews, (2) washers, (2) lock-washers and (2) nuts.

Note: The activation solenoid block assembly must be spaced off any flat surface using washers to prevent damage to the solenoid.



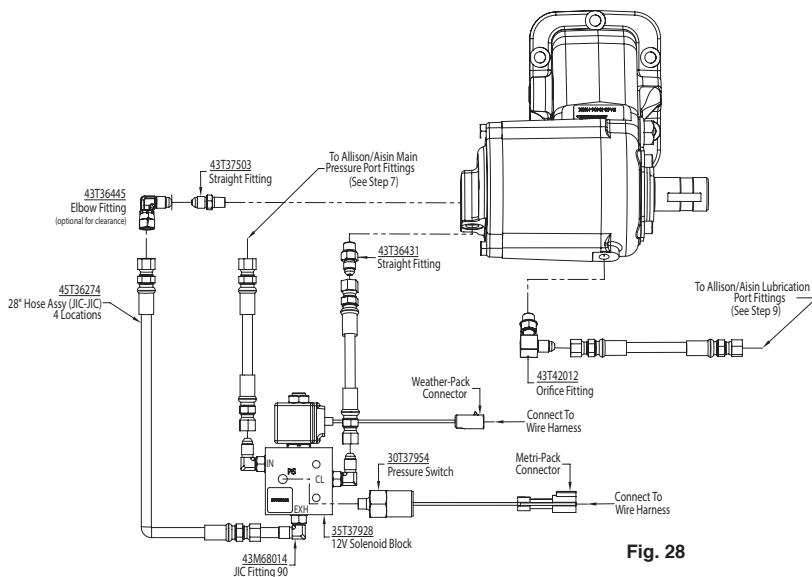


Fig. 28

25. Route the wire harness from the vehicle front passenger compartment to the solenoid valve.

26. Make the connections to the pressure switch and to the solenoid valve. See figure 3 for visual.

Note: The solenoid connector is a weather-pack type and the pressure switch is a metri-pack type connector.

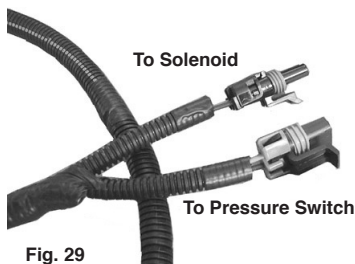


Fig. 29



Fig. 30

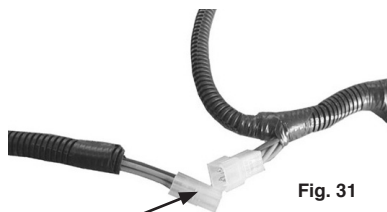


Fig. 31

Feed this side through Grommet and through wall in engine compartment.

27. The wire harness separates at a 4-wire connector. The connector is designed to fit through a $\frac{5}{8}$ " grommet provided. Separate the harness and feed the harness end through the grommet in the passenger barrier. (The Ram Truck installation does not have this connector. see page 22 for wiring connections)

28. Located at the 4-wire connector is a ground lead. Route this lead directly to the battery or battery terminal and ground this terminal.

29. When routing the wire harness, be sure to tie the harness away from heat sources (exhaust, manifold, etc.) and away from rotating components (driveshaft's, belts, etc.).
30. Remove the access panel located below the steering wheel.
31. Locate the 4-wire connector (which was fed through the passenger barrier) and connect this connector to the interior half of the PTO harness.

32. Start the truck engine (with the transmission and PTO in neutral) for a few seconds and listen for unnatural noises. Stay clear of rotating components. A PTO will not always make these unnatural noises; should an unnatural noise occur, the shut off the engine and remove the PTO. Examine the PTO and engine for defects.

Caution: Keep the PTO/transmission running time as short as possible.

33. Check the transmission oil level and fill to the proper level (if required) according to the instructions outlined in the vehicle operator's manual. Run engine for 5-10 minutes to check for any leaks. Stay clear of rotating components.

34. Shut off engine. Inspect the capscrews to make sure they are properly tightened. All mounting bolts should be checked on a regular basis (for tightness).

35. If your system contains a driveline between the FA6B PTO and another product and if are experiencing noise in your system that was not heard before, the angularity or phasing of your driveline may be the cause. Check the driveline angularity and reduce the total angularity recommended by the chart and be sure that the PTO shaft is parallel within 1.5° to the pump shaft (or driven unit).

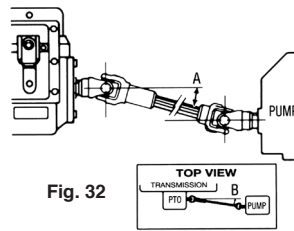


Fig. 32

Max Speed (RPM)	Max TJA "A"
3,500	5°
3,000	5°
2,500	7°
2,000	8°
1,500	11°
1,000	12°

Note: For installations with angles in the top and side views, use this formula to compute the true joint angle (TJA): $TJA = \sqrt{A^2 + B^2}$

FA6B PTO WITH DIRECT COUPLE HYDRAULIC PUMP INSTALLATION

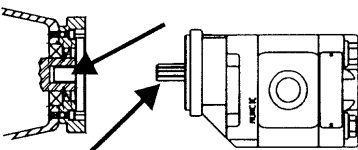


Fig. 33

seizing compound or grease on the FA6B PTO shaft and pump shaft. Muncie supplied pumps are pre-lubricated and do not require lubrication at installation.

The Muncie PF series hydraulic pumps installed on the 4x4 are of special design. This design allows for interference problems to be minimized.

Before bolting the pump to the FA6B PTO, place a non-

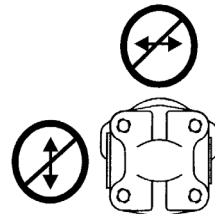


Fig. 34

The use of a bracket will be necessary when mounting hydraulic pumps weighing over 30 lbs. (including oil), exceeding 10" in length, or has tandem or multiple sections. These pumps should be mounted using a bracket attached to the rear of the pump and to the transmission to support the pump and to inhibit movement in all directions.

A bracket attached to two or more transmission bolts is preferred. The bracket design should assure that there is no stress or force exerted on the pump or FA6B PTO shaft during the installation of the bracket.

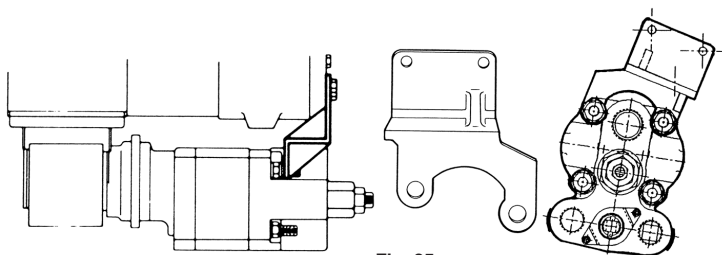


Fig. 35

If vertical supports are greater than 20° off of perpendicular with the transmission main shaft then a reinforced "Z" bracket must be used. Reinforce horizontal members to prohibit flexing at bend or weld. Attach the bracket at the pump bolt closest to the center of gravity of the pump.

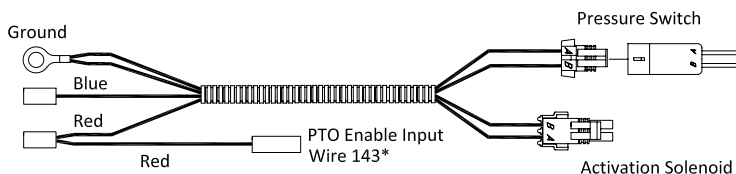
Note: When making hydraulic connections to the pump, it is important to route the hydraulic lines away from the front and rear vehicle drive shafts. It is important to route hydraulic lines away from exhaust manifold and pipes.

36. Complete installation by placing warning labels as indicated on borders of the decals. Placement examples are illustrated on page 5.

SECTION 2 – WIRING DIAGRAMS & AUXILIARY WIRING INSTRUCTIONS

FA6B A67/I84 “H” Shift Option Harness

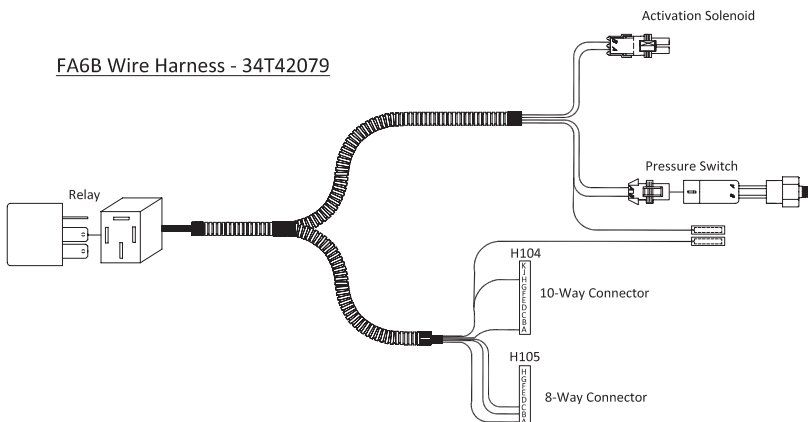
FA6B Wire Harness - 34T35872



*Allison TCM (Pin 43) - Clutchshift PTO's require a connection to the Allison "PTO Enable Input" circuits. Check the vehicle dealer or body builder's information for this location.

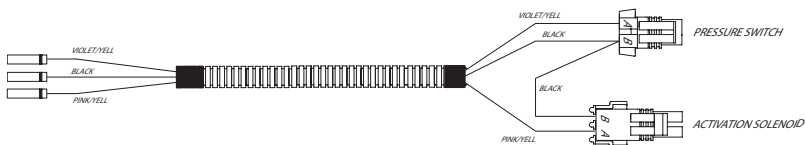
FA6B I84 “B” Shift Option Harness

FA6B Wire Harness - 34T42079



FA6B I84 “D” Shift Option Harness

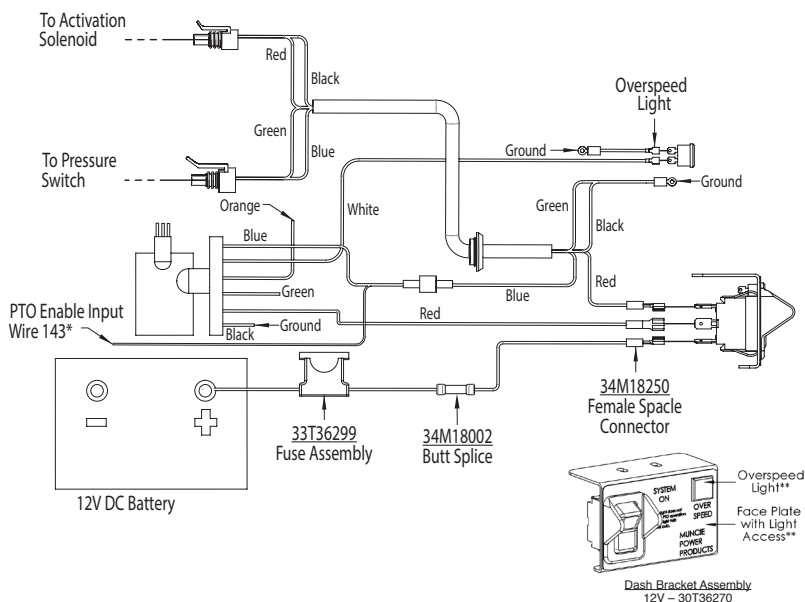
FA6B Wire Harness - 34T43149



FA6B PTO INSTALLATION WITH SPD-1001A SYSTEM PROTECTION DEVICE

Requires purchase of SPD-1001D (not included with the FA6B PTO)

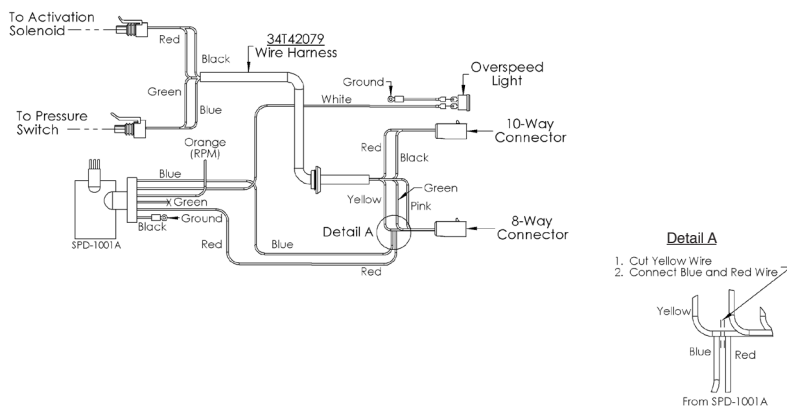
A67/I84 Wire Harness - "H" Option



*Allison TCM (Pin 43) - Clutchshift PTO's require a connection to the Allison "PTO Enable Input" circuits. Check the vehicle dealer or body builder's information for this location.

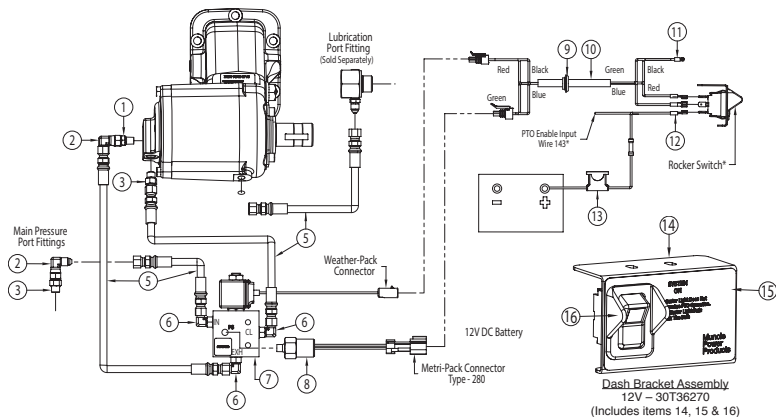
** Overspeed Option - Face plate with light access and overspeed light are not included in 30T36270 (12V bracket assembly) and are to be ordered separately in kit 36TK4971.

I84 Wire Harness - "B" Option



SECTION 3 – ACTIVATION KIT INSTALLATION

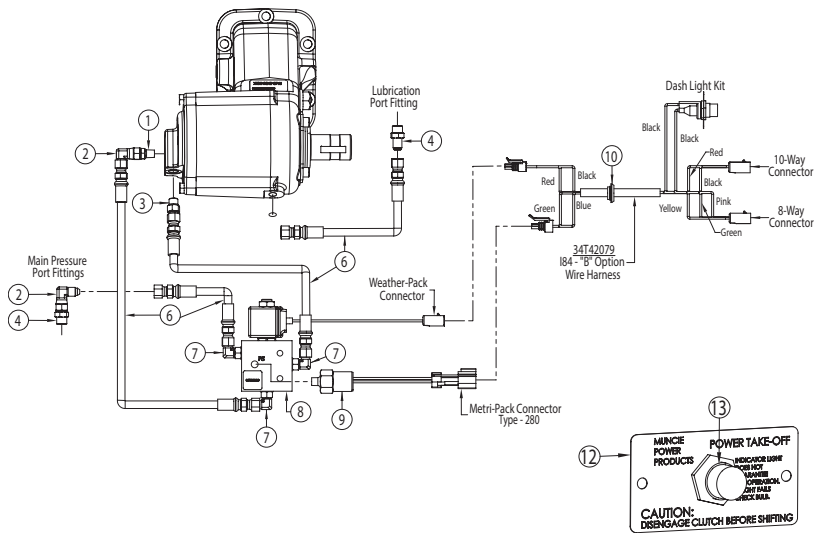
FA6B - A67 "H" Activation Kit – 43TK5282



*Green light in the rocker switch is to turn "ON" when the PTO is engaged and turn "OFF" when the PTO is disengaged.

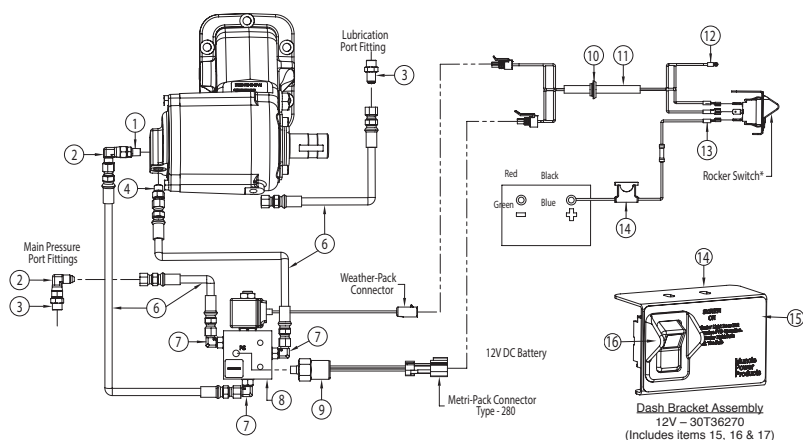
ITEM	QTY	PART NO	DESCRIPTION
1	1	43T37503	Straight Fitting
2	2	43T36445	Elbow Fitting
3	2	43T36431	Straight Fitting
4	1	43T42012	Orifice Fitting
5	4	45T36274	28" Hose Assembly (JIC-JIC)
6	3	43M68014	JIC Fitting 90
7	1	35T37928	12V Solenoid Block
8	1	30T60228	Pressure Switch
9	1	37T35674	Grommet
10	1	34T35872	Wire Harness - A67 "H" Option
11	1	34M18009	Ring Terminal
12	3	34M18250	Female Spade Connector
13	1	33T36299	Fuse Assembly
14	1	36MA1005	Switch Bracket
15	1	36T36271	Face Plate (without light access)
16	1	30T35687	Rocker Switch
N.S.	1	36MK1007	Dash Bracket Bolt Kit
N.S.	2	19T36623	Capscrew (Solenoid Block)
N.S.	2	21T23153	Flat Washer (Solenoid Block)
N.S.	2	21T37991	Lock Washer (Solenoid Block)
N.S.	2	22T35140	Nut (Solenoid Block)

FA6B – I84 “B” Activation Kit – 43TK5281



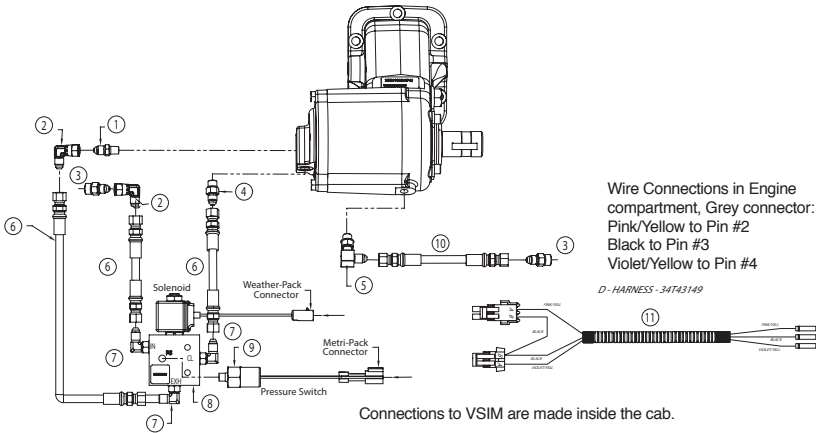
ITEM	QTY	PART NO	DESCRIPTION
1	1	43T37503	Straight Fitting
2	2	43T36445	Elbow Fitting
3	1	43T36431	Straight Thread Fitting
4	2	43T39222	Straight Fitting
5	1	43T42012	Orifice Fitting
6	4	45T36274	28" Hose Assembly (JIC-JIC)
7	3	43M68014	JIC Fitting 90
8	1	35T37928	12V Solenoid Block
9	1	30T60228	Pressure Switch
10	1	37T35674	Grommet
11	1	34T42079	Wire Harness - A67 "H" OptionI
12	1	36MT6818	Female Spade Connector
13	1	32MT2001	Fuse Assembly
N.S.	2	19T36623	Switch Bracket
N.S.	2	21T23153	Face Plate (without light access)
N.S.	2	21T37991	Rocker Switch
N.S.	2	22T35140	Nut (Solenoid Black)

FA6B – I84 “H” Activation Kit – 43TK5287



ITEM	QTY	PART NO	DESCRIPTION
1	1	43T37503	Straight Fitting
2	2	43T36445	Elbow Fitting
3	2	43T36431	Straight Fitting
4	1	43T42012	Orifice Fitting
5	4	45T36274	28" Hose Assembly (JIC-JIC)
6	3	43M68014	JIC Fitting 90
7	1	35T37928	12V Solenoid Block
8	1	30T60228	Pressure Switch
9	1	37T35674	Grommet
10	1	34T35872	Wire Harness - A67 "H" Option
11	1	34M18009	Ring Terminal
12	3	34M18250	Female Spade Connector
13	1	33T36299	Fuse Assembly
14	1	36MA1005	Switch Bracket
15	1	36T36271	Face Plate (without light access)
16	1	30T35687	Rocker Switch
17	1	30T35687	Rocker Switch (12V)
N.S.	1	36MK1007	Dash Bracket Bolt Kit
N.S.	2	19T36623	Capscrew (Solenoid Block)
N.S.	2	21T23153	Flat Washer (Solenoid Block)
N.S.	2	21T37991	Lock Washer (Solenoid Block)
N.S.	2	22T35140	Nut (Solenoid Block)

FA6B-I84 "D" Activation Kit – 48TK5474



ITEM	QTY	PART NO	DESCRIPTION
1	3	43T37503	JIC Adapter
2	2	43T36445	Elbow Fitting
3	2	43T39222	Fitting
4	1	43T36431	Fitting
5	1	43T42012	Orifice Elbow
6	3	45T36274	Hose Assembly 28 Inch
7	3	43M68014	Lube Fitting
8	1	35T37928	Valve (12VDC) Block
9	1	30T60228	Pressure Switch
10	1	45T3880	Hose Assembly 36 Inch
11	1	34T43149	2013 Dodge Harness
N.S.	1	13195	184 "D" Shift Instr
N.S.	2	19T36623	Capscrew
N.S.	2	21T36448	Washer
N.S.	2	21T37991	Lock Washer
N.S.	2	22T35140	Hex Nut, .25-20UNC
N.S.	1	34T36362	Crimp Connector
N.S.	1	36MK3841	Safety Labels
N.S.	1	52MK1000	Gskt./Inst.Pack
N.S.	1	20TK5169	Stud Kit

ELECTRICAL CONNECTIONS

The electrical connections for the 2013 and later chassis is different than the previous model years. The PTOs, both the CS6 and the FA6B for 2013, require the shift code "D" to insure the correct wiring harness and these instructions. (For models prior to 2013 follow the instructions for the "B" shift code found in kit 48TK5082.)

The 2013 chassis is provided with a PTO switch on the dash panel located with the other auxiliary switches.



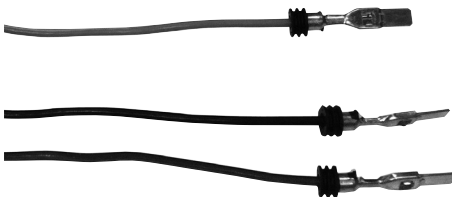
Using the Ram Truck provided switch allows for PTO operation with throttle advance options. The throttle advance is programmed through the Electronic Vehicle Information Center (EVIC) located in the center display. The 2013 & later vehicle is equipped with an electronic control system called the VSIM. The VSIM can be programmed for a single set speed.

Connections to the wiring are made with the Muncie wiring harness PN 34T43149. Connection to our harness is made by using the Ram Truck provided wire leads found in the kit located in the glove box. Three wire leads are used from their kit. These have terminals and seals attached for use in the light gray connector. The gray connector is found in the engine compartment as shown in the photo. Remove the half of the connector with the blanking seals installed. The terminal locations are marked on this connector, remove the blanking seals installed in pin locations 2, 3, & 4 and push the following wire leads into this connector.

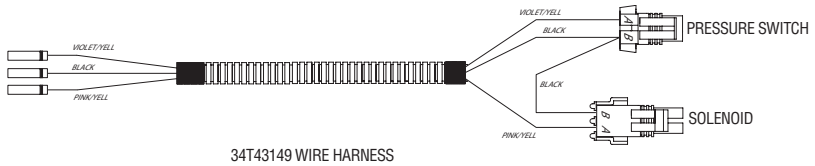
Pin #2 Pink/Tan
Pin #3 Black/Brown
Pin #4 Violet/Yellow
Pin #1 is not used.

Strip the insulation on these leads ½" for connection to the butt splice.

Using the Muncie wire harness, connect the wire leads to the appropriate butt splice.



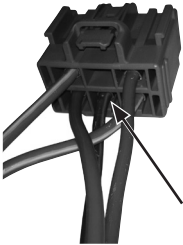
Pin#2 Pink/Tan to Muncie Pink/Yellow
Pin#3 Black/Brown to Muncie Black
Pin#4 Violet/Yellow to Muncie Violet/Yellow



Crimp the butt splice and heat with gun to complete the heat shrink.

The Muncie harness has the plug for the PTO solenoid and the PTO pressure switch. The wires are connected as shown.

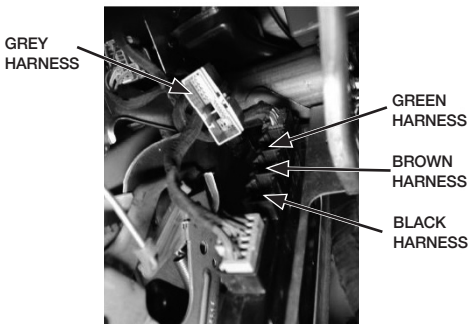
On the inside of the cab locate the gray connector shown here. It is located behind the VSIM module which is a black plastic module next to the park brake bracket. The gray connector is tie wrapped in place.



From the Ram Truck wire and harness kit use the 6 terminal gray connector with wires already located in the cavities. Pin# 5 has a Violet/Yellow wire which is to be connected to the Ram Truck VSIM control.

The VSIM comes with 3 harnesses Green, Brown, and Black. The 16 pin brown harness has an Orange/Brown wire located in Pin#8. This wire is to be connected to the Violet/Yellow wire from the gray connector.

Make sure that the brown connector and gray connector are firmly connected to their respective receptacles.



Firmly plug in the connectors for the solenoid and pressure switch found on the Muncie wiring harness.

1. Install the activation kit shown on the previous page.
2. With the ignition switch on (but the engine NOT running), turn on the FA6B PTO rocker switch and listen for the solenoid valve. You should be able to hear the valve snap open. If not, check your ground to make sure there is a good connection (this should be a bare metal contact to the battery ground).
3. Start the engine and engage the FA6B PTO by turning the rocker switch to the "ON" position. If the FA6B PTO fails to operate or will not develop enough torque to operate the equipment, check the pressure as follows.
 - a) Stop engine and place the ignition keys in your pocket.
 - b) Install a 400 PSI pressure gauge at the piston port of the FA6B PTO as shown in figure 1 below.

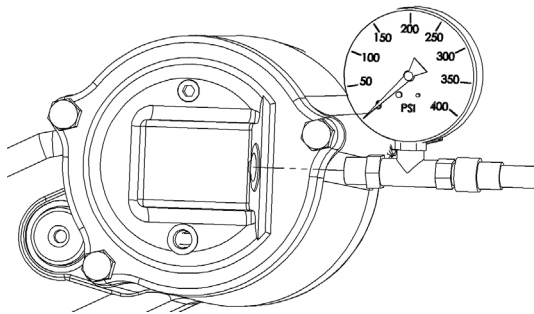


Figure 1 – Piston Port Connection

- c) Install a second 400 PSI pressure gauge in the "IN" port at the solenoid valve. See figure 2 below.

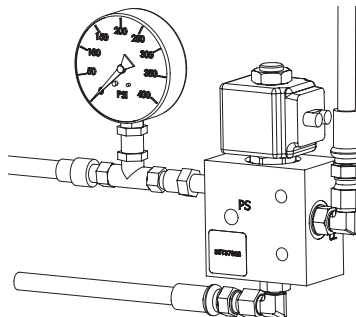


Figure 2 – Pressure Port Connection

- d) Start the engine (staying clear of any rotating components). Engage the FA6B PTO by turning the rocker switch to the "ON" position. Increase the engine speed to 1,300 RPM.
 - e) 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.
 - f) 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 FOR RAM TRUCK 2013 & LATER GO TO NEXT PAGE.

PTO's should not be engaged (turned "ON") under heavy load and/or at engine speeds over 1,200 RPM. If your operators are careless or negligent in this respect, you can safeguard your equipment with one or more Muncie protective systems.

CAUTION: Do **NOT** operate hydraulic pumps 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 neutral or 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.

PTO OPERATION VEHICLE STATIONARY

1. See warning above. Set parking brake and with foot off of service brake, with the vehicle engine operating at idle, engage PTO by pushing the rocker switch to the engage position. Release the switch once the PTO is engaged.
2. Using a throttle advance device, slowly raise the engine speed up to 1,200 RPM minimum. The maximum allowable operating speed is an engine speed of 2,500 RPM.
3. The PTO activation system is wired through the vehicle ignition. If you should leave the PTO engaged when you turn off the vehicle the PTO activation will automatically turn on when the enablers are met and when the engine is restarted. You will need to go through the activation process again once the engine is restarted.

Note: Consult your Muncie product literature or call your nearest Muncie Power Center for information on the SPD-1001D System Protection Device. The SPD-1001D is adjustable for maximum engine speed and can also prevent engagement of your PTO at unsafe engine speeds.

PTO OPERATION VEHICLE MOBILE

1. With the vehicle engine operating at idle and the parking brake set, engage the PTO by pushing the rocker switch to the "engage" position. Release the switch once the PTO is engaged. The rocker switch will rest in the center "ON" position.
2. With the parking brake applied, shift the transmission into a drive or reverse selection. The PTO will stop spinning, until the brake is released and the vehicle has started moving. Stopping the vehicle will cause the PTO to stop because it is torque converter dependent. Once the transmission selector is shifted to "park" or "neutral", the PTO will start to spin again.

PTO ACTIVATION FOR 2013 & LATER RAM TRUCK (CODE LBV)

ACTIVATION PARAMETERS:

The PTO function can be programmed through the Electronic Vehicle Information Center (EVIC) located between the Speedometer and Tachometer on the instrument display. You will be able to access the PTO functions by scrolling to the commercial settings and then to PTO.

The PTO modes are Standard, Mobile, and Remote.

STANDARD (Stationary Operation)(EVIC programmed for "Standard" Mode)

To operate PTO mode the following enablers must be met.

- Be in "Park"
- Service brakes released and functional
- Vehicle running
- No transmission, engine, accelerator, brake switch faults
- PTO must be correctly installed using the vehicle provided circuits
- PTO switch activated

PTO OPERATION STATIONARY

Once PTO is activated by the in cab PTO switch, the throttle can be advanced by pressing the RES ACCEL cruise control button. If you need a single set speed, it can be programmed through the EVIC display in the dash. The PTO drive gear is torque converter driven. With the PTO engaged the torque converter will activate converter lock-up at engine speeds above 1200 RPM. Below these speeds of the PTO output shaft will be dependent on the torque converter and the PTO may not perform to your specifications.

MOBILE (EVIC programmed for "Mobile" mode)

To operate PTO mode the above enablers must be met. Mobile mode can be activated by the menu available on the Electronic Information Center screen the center of the cluster. When this feature is selected Stationary and Remote PTO features are not available. The PTO can only be activated with the transmission in "Park". Activate the PTO switch and then transmission can be shifted into forward or reverse gear.

PTO OPERATON MOBILE

For PTO operation with the vehicle moving the PTO must be engaged with the vehicle in "Park". After engagement the vehicle may be placed in a forward or reverse gear and have PTO operation. There is no torque converter lock-up in this option and the PTO will stop operation when the vehicle is stopped and in a drive selection. The PTO will still function in "Neutral or Park", but will not have elevated idle speed. To return to normal vehicle operation, simply turn the PTO switch OFF.

REMOTE (for remote switch operation of PTO)(EVIC programmed for "Remote" mode)

Remote mode allows the use of an aftermarket auxiliary switch to actuate the PTO. Presumably this will be from a location other than the cab of the truck, or some automated/relay driven method to turn on the PTO is required.

Remote PTO can be calibrated for one to three selectable engine speeds.

Remote mode also is the only method that accommodates multiple PTO speeds. Up to three different PTO speeds can be programmed. These speeds are programmed via the Electronic Vehicle Information Center (EVIC) screen in the center of the cluster (see page 2). The circuits that enable these multiple speeds are contained in the Vehicle System Interface Module (VSIM). The VSIM module is located under the dash on the driver's side. The connecting wires are contained in the upfitter wiring kit and VSIM wiring kit. Click here for VSIM section.

Remote PTO feature has a higher priority than Idle Up. If the Remote PTO feature is active the Idle Up switches are ineffective. The Idle Up or Stationary PTO feature cannot be activated until the Remote PTO relinquishes control.

To operate the PTO in this mode the vehicle must meet the following conditions:

- Be in "park" position (vehicles equipped with automatic transmission)
- Upfitter provider (on/off) switch has been activated
- Parking brake applied (vehicles equipped with manual transmission)
- Clutch not depressed (clutch interlock switch)
- Vehicle must be running
- No transmission, engine, accelerator, brake or clutch switch faults present
- PTO must be correctly installed using the vehicle provided circuits

REMOTE SWITCH INSTALLATION

Additional information on this chassis and PTO options is available from Ram Truck website: <http://www.rambodybuilder.com/2013/cc/cmo.pdf> (best used with Internet Explorer)

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. Within the first week of use, recheck installation of PTO. Check for leaks and loose mounting hardware.

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 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	Speed Ratio	Intermittent HP @ 1 000 RPM	Intermittent KW @ 1 000 RPM	Torque Ft. Lbs.	Torque Nm	Max Speed
FA6B-A67	06	25	19	131	177	2,500
FA6B-I84	06	15	11	86	116	2,500
FA6B-I84 AS69RC	06	24	16	124	172	2,500

PROBLEM	POSSIBLE CAUSE	IREMEDY	IPREVENTION
PTO DOES NOT ENGAGE	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
	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	Use proper shift procedures
PTO DOES NOT DISENGAGE	Faulty hydraulic solenoid valve	Repair or replace	Sometime a result of contamination or dirty valve
	Burned or extremely worn clutch pack	Repair or replace components	Follow proper engagement procedures. See section 3
	Incorrect plumbing	Hydraulic lines connected to wrong ports on solenoid valve	Refer to plumbing diagram in section 2
PTO ENGAGES LOW/NO OUTPUT SPEED OR PUMP FLOW	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.



**Muncie®
Power
Products**

Member of the Interpump Group
IN13-02 (Rev. 03-17)

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