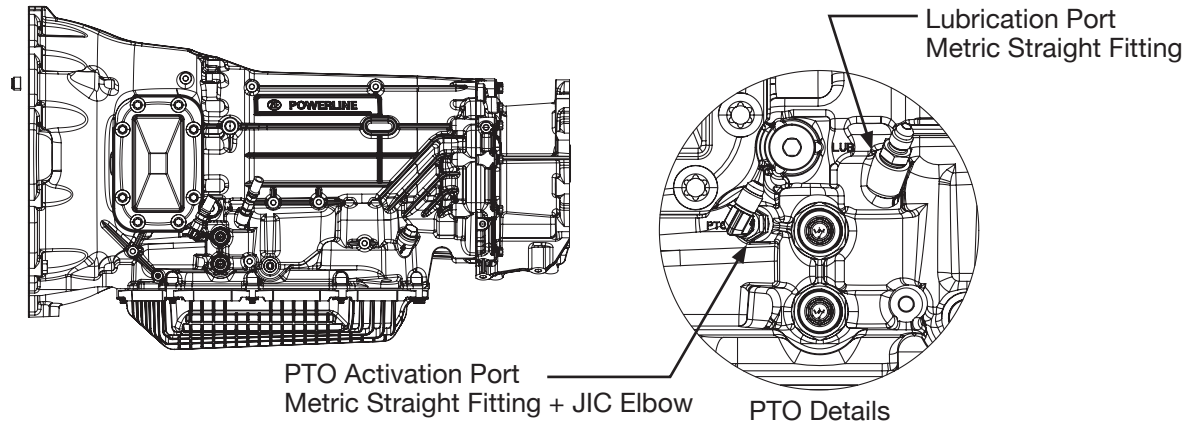# Z21 CLUTCH SHIFT PTO ACTIVATION
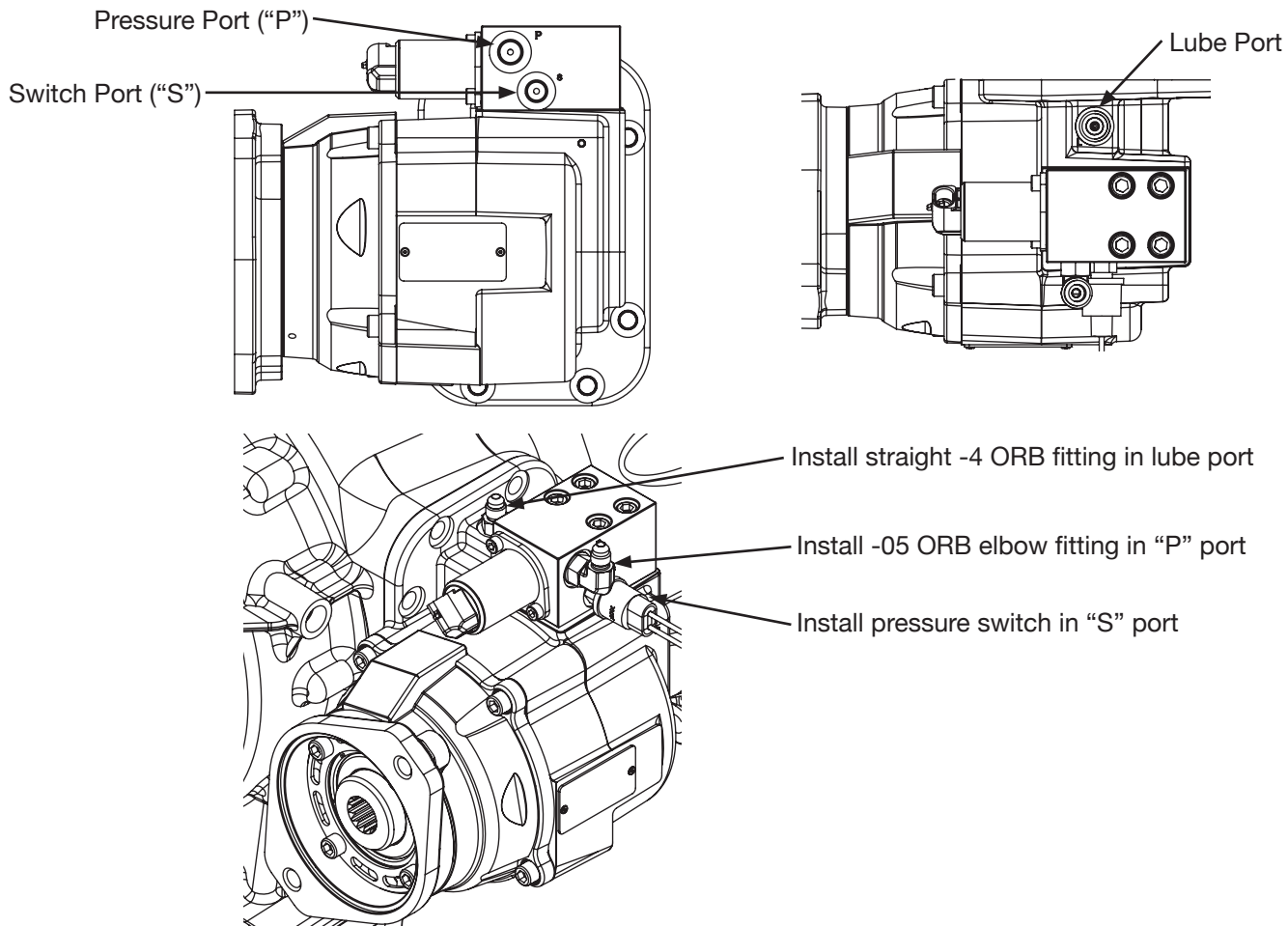## ZF PowerLine Transmission

1 **Locate PTO activation and lube ports on transmission.** Both ports are located next to the driver's side PTO opening. Thread type for both ports is M10. Install straight adapter into each port, then install JIC elbow on PTO port fitting.
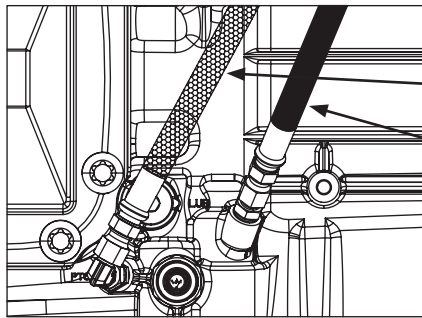
Lubrication Port
Metric Straight Fitting

PTO Activation Port
Metric Straight Fitting + JIC Elbow

PTO Details

2 **Install fittings and pressure switch in PTO —** Torque both fittings and pressure switch 10-12 ft.lbs.

Pressure Port ("P")

Switch Port ("S")

Lube Port

Install straight -4 ORB fitting in lube port

Install -05 ORB elbow fitting in "P" port
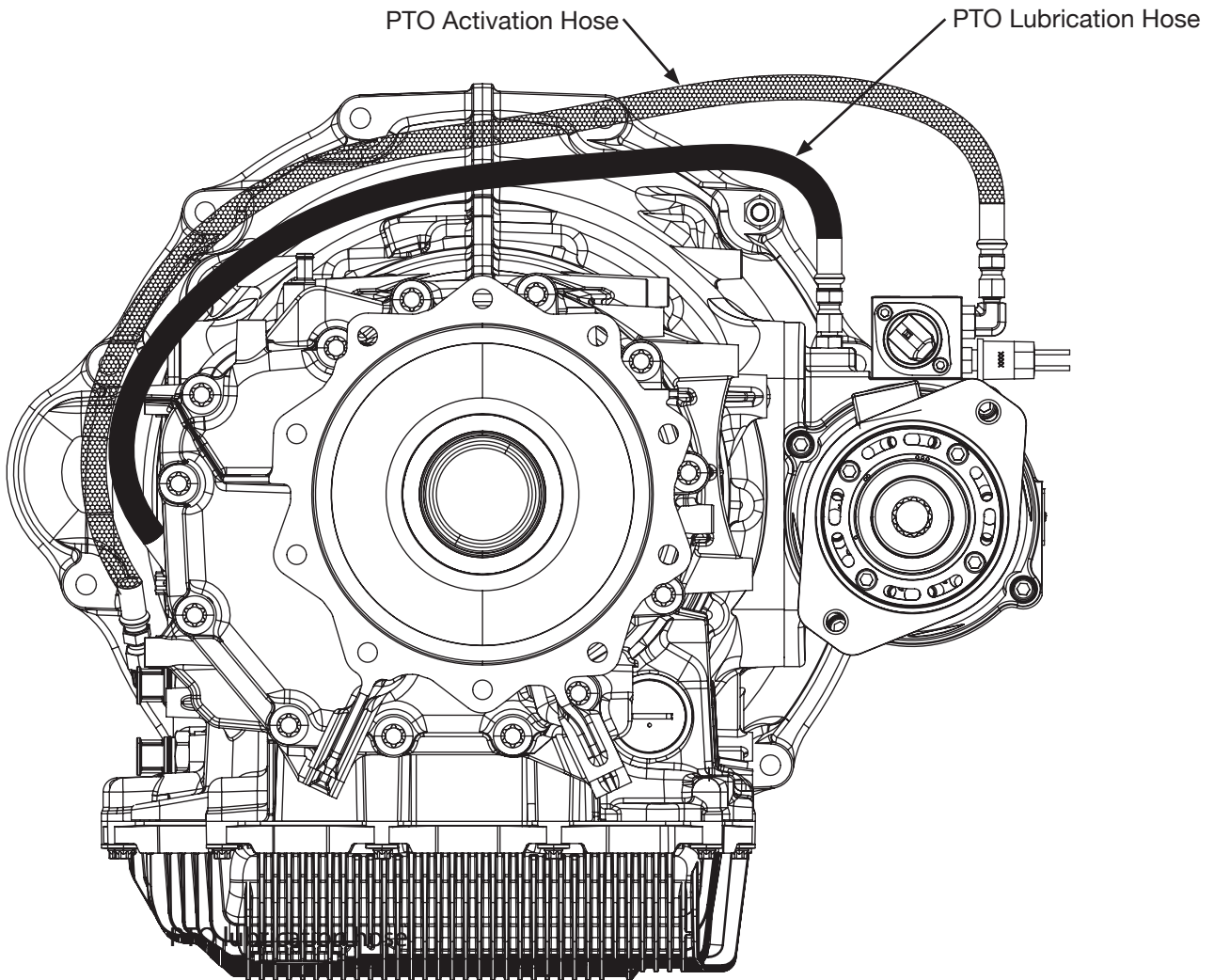
Install pressure switch in "S" port

(3) **Install hydraulic hoses as shown below**

Transmission Port Plumbing

PTO Activation Hose

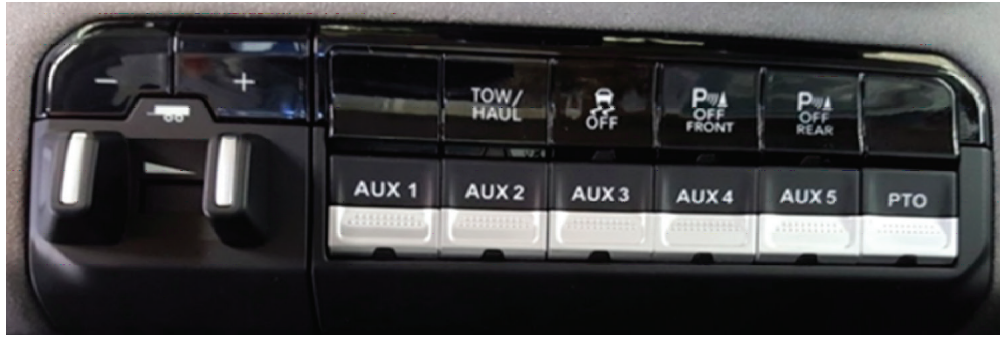PTO Lubrication Hose

PTO Activation Hose

PTO Lubrication Hose

Pump Support Bracket Requirement - Pumps over 20 lbs including the pump, fittings, fluid, etc., will require a transmission mounted support bracket! This requirement is as per the transmission manufacturer. Pump support bracket guidelines and recommendations can be found in PTO Operator's Manual IN17-04.

Please note that this differs from the typical pump weight limit of 40 lbs.

PTO Wiring

PTO Prep trucks will have an auxiliary switch bank that includes a dedicated PTO activation switch.
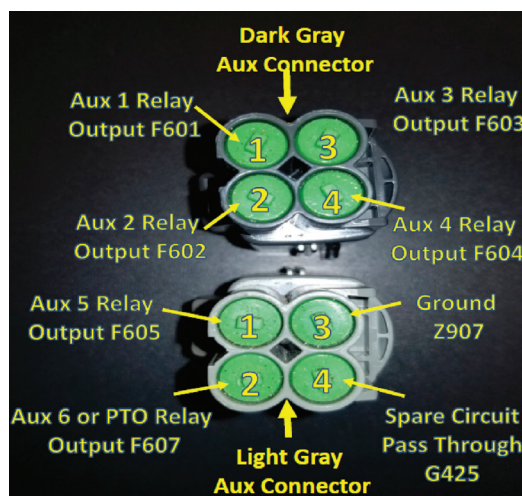

Connections to the RAM factory auxiliary switch controlled outputs are located in two 4-way connectors mounted on the side of the RAM Auxiliary Power Distribution Center (PDC) located under hood on the drivers side against the bulkhead. The PTO relay output is also located in the Auxiliary PDC.
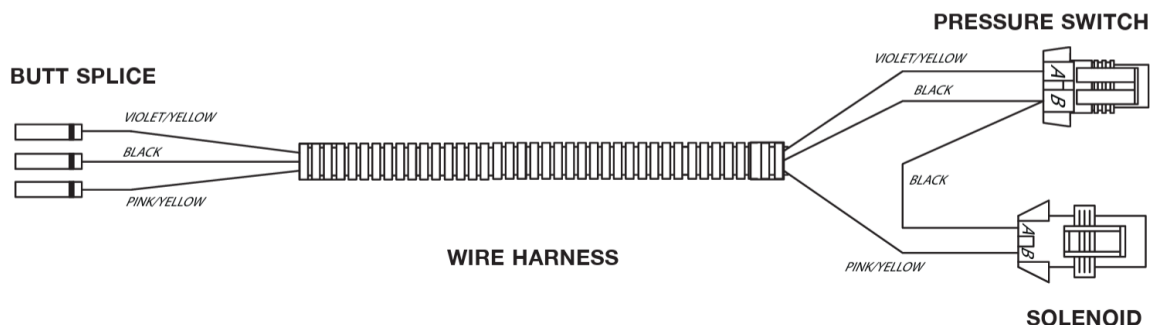

Light gray connector

Connections to the truck-side wiring are made with the Muncie wiring harness P/N 34T43408 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. 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 Power wire harness, connect the wire leads to the appropriate butt splice.

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

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

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

PTO Programming

The PTO programming menu is contained within the RAM Electronic Vehicle Information Center (EVIC). The EVIC is located between the Speedometer and Tachometer. It is controlled using the buttons on the left hand side of the steering wheel. PTO functions can be accessed in **Vehicle Settings** or **Commercial Settings**, depending on the truck type. The factory PIN is 0000. Default PTO mode is set to stationary single mode with driver adjustable PTO speed. The following bullet points are taken from the RAM Body Builder information. Additional information can also be found on the RAM body builder site.

• For Remote or Mobile Mode, change to the required mode. Note that each mode has its own set of PTO Parameters

• If you require a single set speed in Standard mode or Remote Mode, scroll through the PTO/Standard menu/PTO Parameters to Single Set RPM and set your speed.

• If you require a single set speed in Standard mode or Remote mode, scroll through the PTO/Remote menu/PTO Parameters to RPM Preset 1 and set your speed.

• If you require this speed or other settings to be 'locked' so that only approved people can reset the settings. Change the 4 digit PIN code by entering the PIN setup menu. Now only people who have the PIN code can change the settings.

• Once you have the correct modes programmed, you can proceed to the quick start menu in the next section to show the correct wires to connect.

• **Note: These settings must be made with the vehicle in the run position but with the engine off.**

• **Note: Ensure that the settings are saved on the menu screen after entry. You can double check by exiting and re-entering the menu to confirm.**