

PTO - Power Take-Offs SFP2K8 Series

INSTALLATION MANUAL



WARNING

- READ AND UNDERSTAND ENTIRE MANUAL BEFORE INSTALLATION OR OPERATION OF PTO AND DRIVEN EQUIPMENT.
- ALWAYS DISENGAGE THE PTO WHEN THE DRIVEN EQUIPMENT IS NOT IN OPERATION.
- DO NOT ATTEMPT TO INSTALL OR SERVICE AND POWER TAKE-OFF WITH THE TRUCK ENGINE RUNNING. PUT THE IGNITION KEYS IN YOUR POCKET BEFORE GETTING UNDER THE TRUCK.
- DO NOT ALLOW TRUCK ENGINE TO BE STARTED WHILE WORKERS ARE UNDER THE TRUCK.
- IMMOBILIZE TRUCK WHEELS WITH SUITABLE CHOCKS BEFORE WORKING UNDER TRUCK.
- BE SURE TO BLOCK ANY RAISED BODY OR MECHANISM BEFORE WORKING ON OR UNDER THE 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.
- IT SHALL BE THE RESPONSIBILITY OF THE INSTALLER OF A SFP POWER DISTRIBUTORS OR MANUFACTURERS AND THEREFORE, THE RESPONSIBILITY OF THE INSTALLATION IS BEYOND THE CONTROL OF SFP PRODUCTS.
- OBTAIN PROPER TRAINING BEFORE OPERATING THIS MACHINERY.
- DO NOT INSTALL OR OPERATE EQUIPMENT WHICH HAS NOT BEEN PROPERLY SPECIFIED FOR YOUR EQUIPMENT.
- 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.

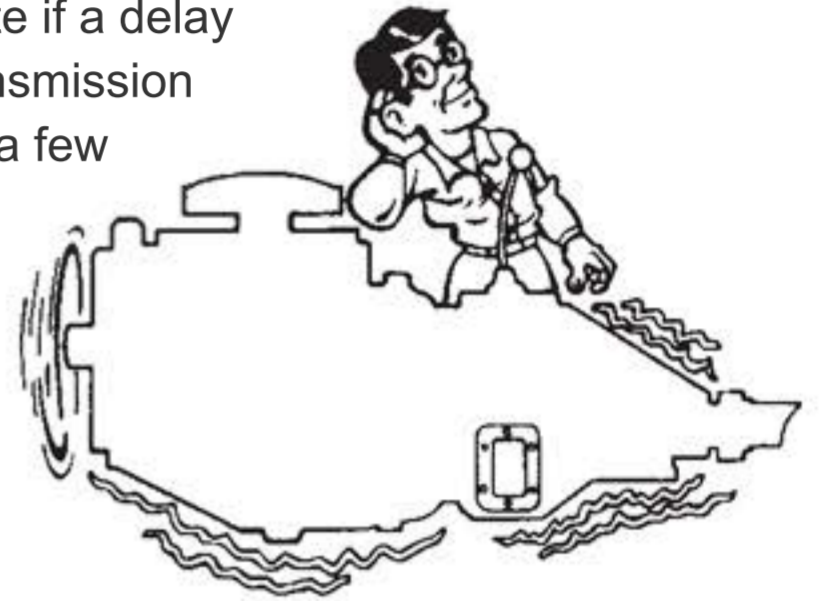
PTO Installation Instructions

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

1. There is a packet with the PTO which contains 3 WARNING LABELS. Before adhering the labels, make sure the surfaces are free of dirt and grease. Place the labels supplied onto vehicle.

2. Manual Transmissions: While driving the truck into the work bay note if a delay is required between depressing the clutch and shifting the main transmission gear selection. If the gear does not come to a complete stop within a few seconds, the clutch linkage on the truck must be adjusted before installing the PTO. Run transmission in neutral. Determine sound of transmission before the PTO is installed. A transmission noise may be more noticeable after PTO is installed.

Stop engine.

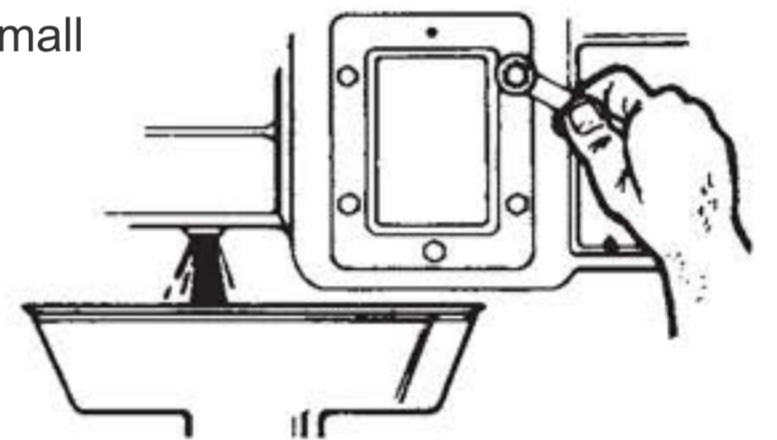


3. For manual shift transmissions, drain transmission fluid. For Allison automatic transmissions, do not drain transmission fluid, but be prepared for a small amount of oil to escape from opening.

Remove cover plate. Place a shop towel in the opening to prevent dirt from getting in the transmission.

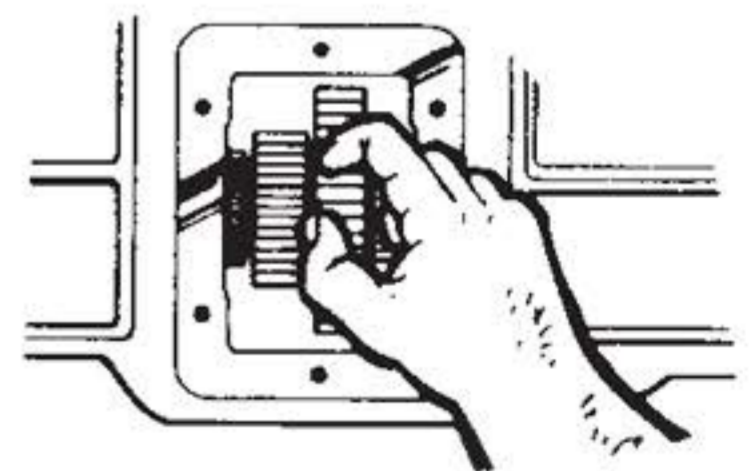
Examine cover plate. If there is a magnet attached to the inside, reinstall this cover on the other opening.

Clean mounting pad. Inspect bolt holes in aperture for thread sealant used on OEM bolts. Clean these internal threads with wire brush to clear the material. Remove shop towel.



4. Check transmission for proper PTO driver gear and location. Do not place anything in or near PTO opening while the engine is running. Stop engine and remove keys before proceeding to next operation.

Check PTO driver gear for condition. A nick or blemish may cause excessive noise when PTO is mounted.



5. Rock transmission gears by hand to get “feel” for gear backlash manufactured into transmission gear set.

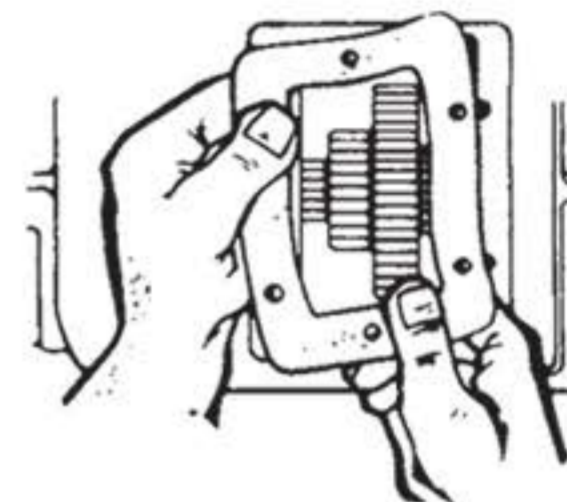
6. Open the PTO carton and find the mounting kit (studs and cap screws) enclosed with your PTO. Visual inspection of the PTO will indicate which mounting holes in the PTO will not accept cap screws. Install the enclosed studs in the transmission housing holes that correspond to those PTO holes which will not accept cap screws.

7. Install the studs until the barrel of the stud is even with the transmission pad. This typically requires a torque limit of 30-35 lbs.-ft. (6 bolt pad) or 45-50 lbs.-ft. (8 bolt pad). If more torque is required to install the stud to the barrel or to the depth shown in the below table then remove the lock patch from the stud and the transmission mounting holes and use a liquid loctite in its place (#242).

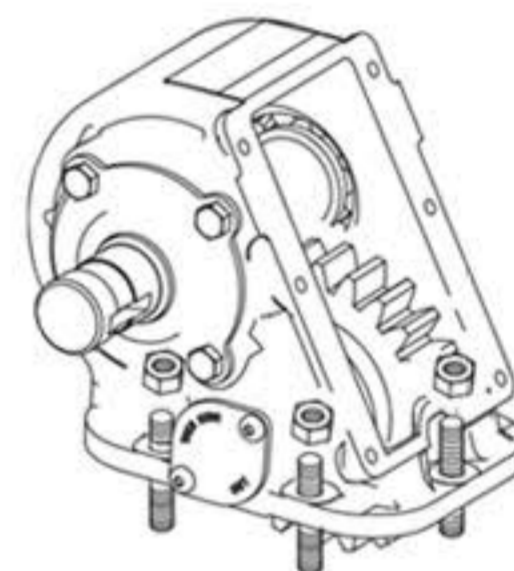
The studs should be engaged to the minimum depth as shown below:

Stud Dia. No.	Threads	Approx. Depth
3/8"	7 - 8	1/2"
7/16"	8 - 9	5/8"
10mm	9 - 10	1/2"

8. Remove the shifter cover or the inspection cover plate from the PTO by removing the hex head cap screws on the cover plate. With PTOs which do **NOT** have an inspection cover plate, hold the output shaft and rock input gear to get the "feel" of backlash built into the PTO. This "feel" will be helpful when fitting PTO to transmission. (Step 11)

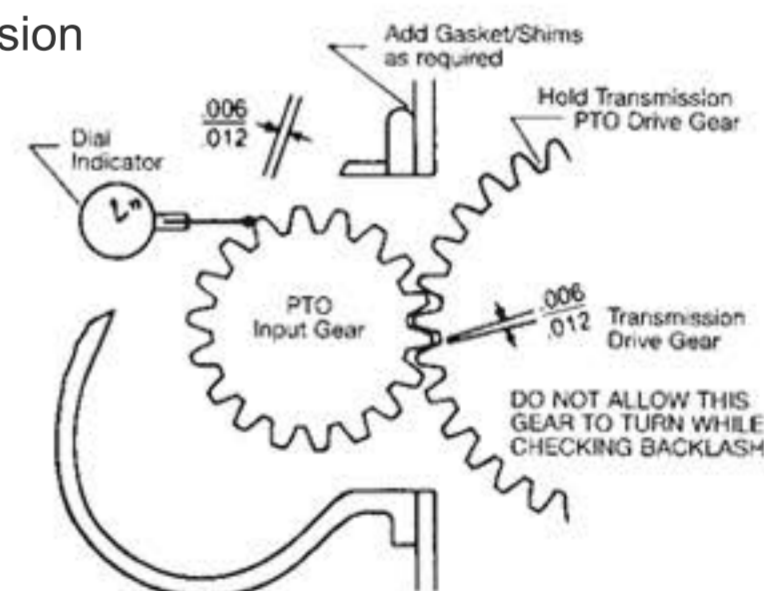


9. Place mounting gasket/shim from your kit over the studs already installed on the transmission. A thin coating of approved transmission oil is recommended on gasket/shims to help seal and to hold them in place during installation.



10. Position the PTO on the studs and start the nuts provided onto the studs. Do Not Tighten Yet. Check for gaps between the PTO and transmission and make sure gear teeth are properly meshed and then tighten the top and bottom nuts or cap screws.

11. Check the backlash on the input gear (gear that meshes with transmission gear) by feeling through the inspection hole or shift cover opening previously uncovered in step 9. The amount of rotational movement of the PTO gear should be only .006" to .012". As a reference, the thin gasket/shim in your installation kit is .010" thick. The thin gasket/shim (.010" thick) will change the backlash approx. .006". The amount of movement of the input gear would only be about the same distance as this gasket/shim thickness. At least one gasket/shim must be used. Do not stack more than (4) gasket/shims together.

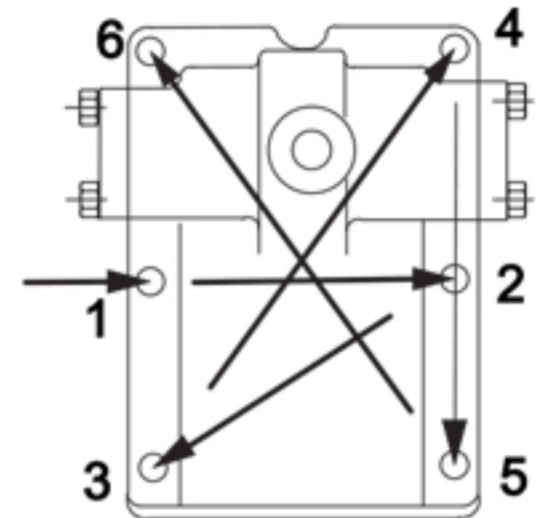


Use of a dial indicator can greatly improve the quality of the installation. Mount the indicator so that the plunger aligns with a tooth on the PTO input gear. Hold the transmission gear with screw driver or bar and rock the PTO gear back and forth with your hand. The total movement on the dial indicator should be between .006" - .012". Check the backlash at different points around drive gear to find the worst condition. **NOTE:** Never use silicone type sealant on PTO/transmission mounting surface as proper backlash cannot be attained.

- 12.** Torque all the mounting cap screws or nuts to 40-45 lb-ft (6-bolt pad) or 50-55 lb-ft (8-bolt pad) unless noted in a separate stud kit instruction. Failure to properly tighten capscrews or nuts can lead to leaks. PTO and/or transmission damage can occur. **Improper installation, tightening, or leaks are not the responsibility of SFP. Recheck the backlash.**

The PTO gear should not move more than .012" or less than .006" when all mounting nuts or bolts have been torqued.

- 13.** Replace shifter cover or inspection cover plate and gasket on the PTO. Shifter cover gasket can be found in the instruction envelope. It is required to use a gasket under the shift cover. Torque cap screws to 14-18 lb.-ft. Double check to make sure the shifter fork is in the groove on gear or shift collar before tightening cap screws.

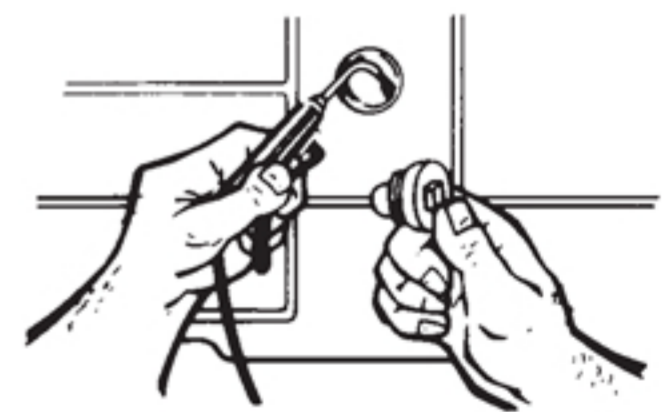


- 14.** Start the truck engine (with transmission and PTO in neutral) for a few seconds and listen for unnatural noises. Stay clear of rotating components. A whine noise indicates the PTO is mounted too tight. Stop engine and add a gasket/shim. A clatter noise indicates a loose mount. Stop engine and remove a gasket/shim. Add sealant (Loctite gasket eliminator™) if no gasket is used.

- A PTO will not always make these noises.
- Do Not adjust backlash by noise alone, always visually check backlash.
- Sometimes filling the transmission with lube is the only way to reduce the noise.
- A tight mounted PTO will cause under cutting of gears and result in pre mature PTO failure, including gear or housing breakage.
- If OK, repeat test with PTO engaged.

Caution: Keep PTO/transmission running time as short as possible until transmission is refilled with lube. Do not drive the truck without transmission lube.

- 15.** Refill transmission with manufacturer's approved fluid and run engine for 5 to 10 minutes to check for leaks. **Stay clear of rotating components. Stop Engine! Inspect the cap screws, nuts, and studs to make sure they are properly tightened. After completing installation, installers need to check for leaks and proper mounting torque of PTO fasteners.**



Shift Instructions

Shifting Information

CAUTION

The vehicle has been equipped with Power Take-Off device. Before working on the P.T.O. or working under the vehicle shut the engine off and make sure the vehicle is blocked to prevent injury or death.

Power Take-Off Operation with the vehicle stopped.

Mechanical Transmission:

Before shifting the P.T.O. into or out of gear, depress the clutch and wait for the transmission and P.T.O. gears to stop turning.

Automatic Transmission with Air or Manual PTO Shift:

With Automatic Transmissions, the gears inside the transmission remain turning when the transmission is shifted to neutral. If the P.T.O. is shifted at this time gear clashing will occur.

With Converter Driven Gear:

1. Shift the transmission into any drive position NOTE this will stop the transmission gears from turning.
2. Shift the P.T.O. into position.
3. Shift the transmission into neutral to restart the transmission gears turning.
4. With the engine stopped th P.T.O. can be shifted into gear then restart the engine this will avoid gear clashing.


Automatic Transmission with Power Shift PTO:


Engage the P.T.O. with the engine at idle speed.

Important

Failure to follow proper shift operation may result in premature P.T.O. faliure.




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