

USER MANUAL

Installation & Shifting Options



P.T.O. 2000 SERIES

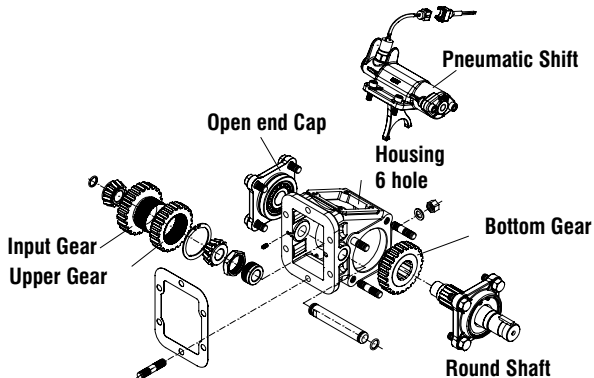


P.T.O. 1000 SERIES

BZ
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P.T.O. 1000 SERIES ROUND SHAFT



CAUTION:

TO PREVENT POSSIBLE INJURY OR DEATH: DO NOT go underneath the vehicle with the engine running.

DO NOT attempt to work on an installed Power Take-Off with the engine running.

DO NOT operate the controls of the Power Take-Off or other driven equipment from underneath the vehicle with the engine running.

DO NOT operate the controls of the Power Take-Off or other driven equipment in any position that could result in getting caught in the moving machinery.

CAUTION:

Make sure to block any moving or raised device that may injure a person working on or under the truck. A lever or its linkage may be accidentally moved causing movement of the device which could cause injury to a person near the device.

IMPORTANT:

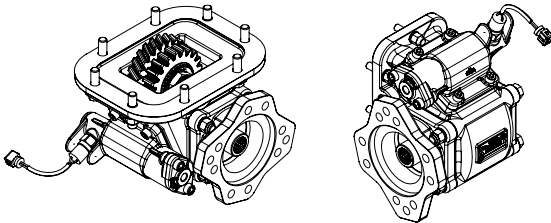
Because most of our Bezares Power Take-Offs and P.T.O. drive lines are sold through distributors, the product applications and the resulting degree of exposure to danger of the operators are beyond the knowledge and controls of PTO LTD.

Therefore, the proper installation of the P.T.O. and its associated equipment, and the decisions of whether to install guards and/or warning signs shall be the responsibility of the designers or installers.

Since it is our major objective to show you how to get additional and more profitable miles from truck, tractor and trailer components, we want to provide you with information on the installation of 6 and 8 Bolt Bezares Power Take-Offs.

We all realize that an inadequate transmission will overwork any Power Take-Off in a very short period of time. In addition, a mismatched transmission / P.T.O. combination can result in unsatisfactory performance of the equipment right from the start.

P.T.O. 1000 SERIES



P.T.O. 2000 SERIES

Before you order new trucks be sure that you're getting the right transmission/ P.T.O. combination. It is of vital importance for efficient performance to have adequate power. To help you select the proper type, size and design of P.T.O. it is advisable to discuss your specific requirements with a Bezares P.T.O. specialist. They know their products and Power Take-Offs. They can inform you about everything you need to know about power, at the right time, before you specify components.

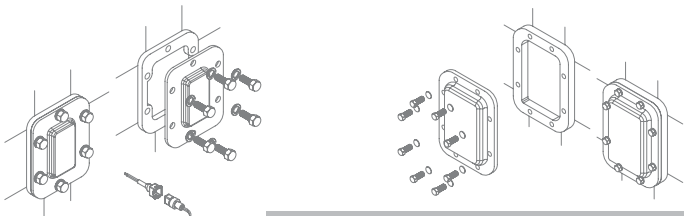
Here are some of the questions that are relevant to the Proper Selections of a Transmission mounted Power Take-Offs.

1. What is the make and model of your transmission?
2. Which P.T.O. opening will be used?
3. What accessory is to be driven?
4. How much horsepower is required to drive the accessory?
5. What is the required rotation of the P.T.O.?
6. What is the required P.T.O. output shaft speed as a percent of engine speed?
7. What is the required method of shifting the P.T.O., mechanical or pneumatic?

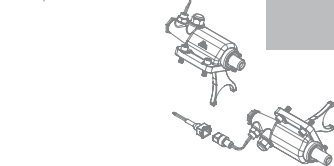
Once all of the answer to these questions have been determined, a transmission mounted P.T.O. can be selected to meet the horsepower, speed and rotation that you require.

Having made the selection of a P.T.O., you are ready to start the installation.

SAE B 6 BOLT



SAE B 8 BOLT



MECHANICAL SHIFT

Mounting P.T.O. to transmission

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(for 6 or 8 bolt Applications)

1.- Drain the oil from the transmission and the P.T.O. aperture cover plate.



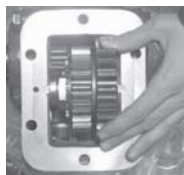
2.- Discard the cover plate and cover plate gasket then clean the aperture pad using a putty knife or wire brush.

NOTE: Stuff a rag in the aperture opening to prevent dirt from entering the transmission while you are cleaning it.



Using your hand, rock the P.T.O. driver gear in the transmission (left) and the driven gear in the P.T.O. assembly (right). Rocking the gears provides two important factors:

A.- It shows you the amount of backlash that has been designed into each unit.



B.- It is helpful in establishing the proper backlash when installing the P.T.O.

Install the proper studs (furnished with P.T.O.) in the P.T.O. aperture pad using a stud driver. Studs may have either interference fit



threads (plain) or preapplied locking/sealing compound.

Mounting P.T.O. to transmission

(for 6 or 8 bolt Applications)

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5.- Where holes are tapped through the transmission case, use studs with preapplied locking sealing compound or thread sealer to prevent leaks.

6.- Tighten studs securely and torque to 17-19 Ft. lbs. (2.35-2.63 kg meters) for 6 bolt and 19-21 Ft. Lbs. (2.63-2.90 kg. meters) for 8 bolt.

7.- Place the correct number of gasket over studs. Do not use paste between gaskets because you may want to add or subtract gasket to obtain proper backlash.

- When mounting a P.T.O. use gaskets between all mounting surfaces.
- Do not stack more than 3 gaskets together.
- Usually one thick gaskets 0.020" (0.50 mm) will be required.
- Remember the lubricant in the P.T.O. Therefore. At least one gaskets must always be used on either side of filler blocks, adapter assemblies or adapter plates. More gaskets may be required when establishing proper backlash.

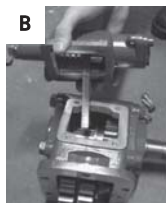
8.- Secure P.T.O. to the transmission .

Gaskets are used as a guard against leaks under cap screw head.

NOTE: If holes in the P.T.O. aperture are not drilled through, discard the gaskets and replace them with lock washers.



9.- Fasten the P.T.O. to the transmission torquing 6 bolt to 30-35 Ft. Lbs. (4.14-4.84 kg. Meters) and 8 bolt to 45-50 Ft. Lbs. (6.22-6.91 kg. Meters).



CAUTION

Overtightening of studs may damage stud and / or transmission threads.

TO CHECK FOR PROPER BACKLASH ON P.T.O.'S WITH SHIFT COVER.

- 1. Remove the P.T.O. shift housing and/or inspection plate.
- 2. Mount the dial indicator so that it registers movement of the input gear (driven gear) of the P.T.O.

NOTE: See drawing for proper location of dial indicator contact point.
(Two common methods of dial indicators shown.)

- 3. Hold the P.T.O. driver gear in transmission with a screwdriver or bar and rock the P.T.O. input gear (driven gear) back and forth with your hand.

Note the total movement on the dial indicator.

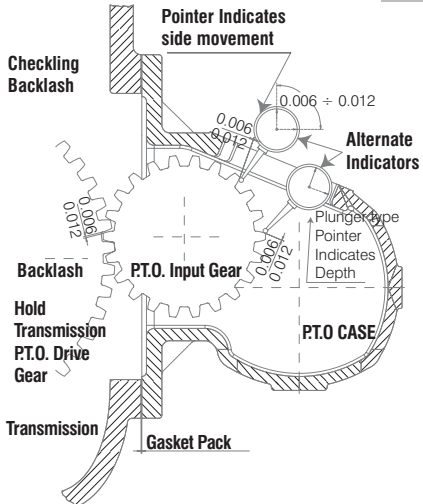


Checking Backlash

- 4. Establish backlash at 0.006" - 0.012" (0.15 mm-0.30mm) by adding or subtracting gaskets.

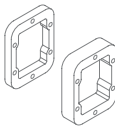
General rule - A Bezares 0.010" gaskets will change backlash approx. 0.006". A 0.020" gaskets changes backlash approx. 0.012".

-5. Replace the shift housing and/or inspection plate and retorque (4) four capscrews to 16-20 Ft. Lbs. (2.21-2.76 kg meters).



Filler Blocks

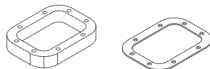
P.T.O. 1000 SERIES



SPACER 6 BOLT

Filer blocks may be required where it is necessary to use a spacer to mount the power take-off to a particular transmission.

P.T.O. 2000 SERIES



SPACER 8 BOLT

CAUTION:

This vehicle is equipped with a **Power Take-off**. Shut engine off before working on Power Take-Off or getting below vehicle. Consult operating instructions before using.

POWER TAKE-OFF OPERATION VEHICLE STATIONARY.**-1. Mechanical Transmission.**

- A.- A power take-off is, and should be, operated as an integral part of the main transmission.
- B.- Before shifting the power take-off into or out of gear, disengage the clutch and wait for transmission or P.T.O. gears to stop rotating.

-2. Automatic transmission with manual shift P.T.O. (Includes air shift).

On automatic transmissions, the gears in the transmission turn when the transmission is in neutral, therefore, gear clashing will occur if the power take-off is shifted into gear at this time.

With converter driven gear:

- A.- Shift transmission lever into any of drive positions. (This will stop transmission gear from turning).
- B.- Shift power take-off into gear.
- C.- Shift transmission into neutral. (This will start transmission gears turning.)
- D.- Shift P.T.O. into gear before starting engine.

This procedure should eliminate gear clash.

-3. Automatic transmission with power shift P.T.O's

Engage P.T.O. with engine at idle speed. Power shift P.T.O.'s: engine must be at idle when P.T.O. is engaged. See transmission manufacturer's instructions for special procedures.

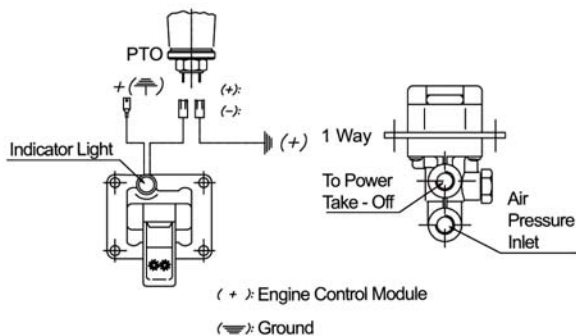
IMPORTANT:

Failures to follow proper shifting or operating sequences will result in premature P.T.O. failure with possible damage to other equipment.

Pneumatic Control

BZ-101 Connection

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Electric Over Air Shift

For PTO's 1000/2000

