

Genuine Metaris PTO

# INSTALLATION MANUAL

Place in Glove Box After Installation

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**Safety  
Information**

## **Safety Instructions**

**Caution:**

- **DO NOT** go underneath the vehicle with engine running. Possible injury may occur.
- **SHUT DOWN** engine before attempting removal or installation of Power Take-Off.
- **DO NOT** operate any remote controllers while engine is running and you're under the truck.
- **RESTRAIN** from operating any controllers on the P.T.O. or any driven equipment. Getting caught in moving machinery may result in injury.

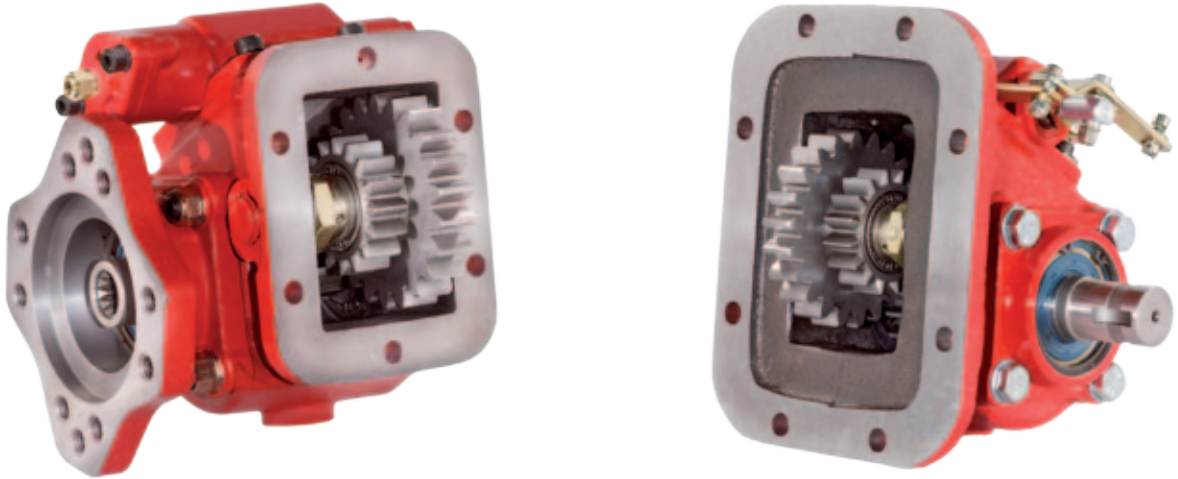
Make sure to block and secure any equipment being serviced. Injury or death may result from improper support of equipment.

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.

General

## Foreword

It is our intention to make sure that we provide you with the most current information for removal and installation of both the 6 & 8 bolt Power Take-Offs.



When ordering P.T.O.'s for new trucks it is very important to have the proper type, size and design of P.T.O. for the application being used. Proper transmission specifications and the torque requirements of the driven equipment is also a vital factor in P.T.O. optimum performance. Customer Service is here to advise and discuss your specific requirements. They can inform you on everything you will need to do the right job.

General

## Application Questions

Here are a few questions to be asked when specifying a Power Take-Off application:

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?**

After all questions are answered a P.T.O. can be selected.

Then we are ready to start the P.T.O. installation process.

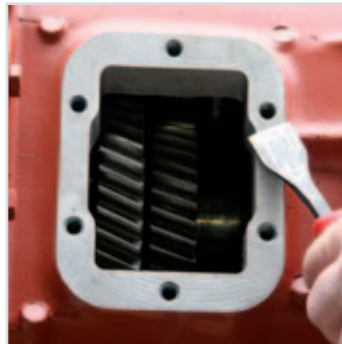
**Installation  
Instructions**

## Mounting of PTO to the Transmission

1. Drain oil from transmission. Remove 6 or 8 bolt aperture plate.



2. Keep aperture plate and bolts in safe place for future use. Clean pad around aperture hole with a gasket scraper. Note: Putting a rag in the aperture hole is recommended to prevent loose gasket material from entering the transmission.



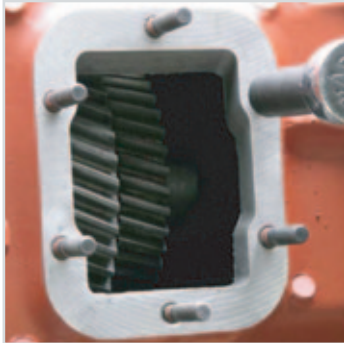
3. Rock the P.T.O driver gear in the transmission. This will show proper backlash of the transmission gears. This is only a guideline for feeling P.T.O. backlash (Later in Installation). NOTE: This should not replace checking backlash with a dial indicator measurement.



**Installation  
Instructions**

## Mounting of PTO to the Transmission Cont.

4. It's time to install the Studs for (6 Bolt Installation) or Cap Screws for (8 Bolt Installation). Studs may be put in with a stud driver. Cap Screws will come later when the P.T.O. is ready to hang. Thread / Locking compound is recommended on every stud or bolt that goes in the transmission aperture holes.



5. Tapped holes in transmission cases require thread/locker compound to keep oil from leaking by the stud or bolt threads.
6. Tighten the studs (6) should be torqued at 17-19 Ft. Lbs. (2.35-2.63 kg. meters). The cap screws (8) should be torqued at 19-21 Ft. Lbs. (2.63-2.90 kg. meters).
7. It is now time to install mounting gasket (.010", .015", .032" come with P.T.O.). Place the .015 gasket over the studs. Mount the P.T.O. (with the shifter cover taken off) on the transmission and secure with the front and rear stud. Take a preliminary reading with your dial indicator gauge. If it comes between .006 and .012 (0.15mm- 0.30mm) the backlash is set. If the backlash is more or less than .006 to .012 than a thinner or thicker gasket may be required. Do not stack more than 3 gaskets together.

**Note: A .010" gasket will change backlash about 0.006". If spacer blocks are required, a gasket must be placed on each side of the spacer block.**



**Installation  
Instructions**

## Mounting of PTO to the Transmission Cont.

When the backlash is correct fasten the rest of the P.T.O. with the nuts or cap screws provided with the P.T.O. Tighten with a crosshatch pattern so the gaskets compress evenly. Torque the 6 bolt nuts to 30-35 Ft. Lbs. (4.14 – 4.84 kg. Meters) and the 8 bolt Cap screws to 45-50 Ft. Lbs. ( 6.22-6.91 kg Meters). After the P.T.O. is secure check the backlash once again with a dial indicator gauge to insure the best mesh possible has been established.



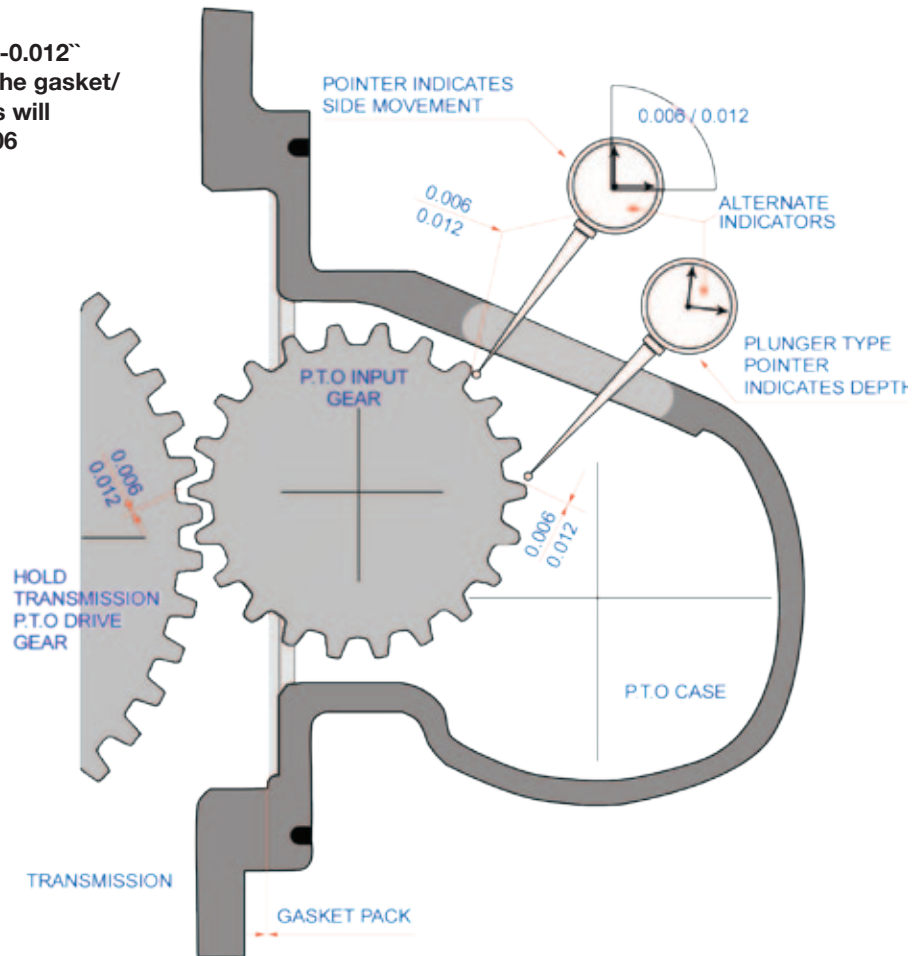
8. Re-attach the shifter housing to the P.T.O. with the 4 Allen head bolts. Then fill the transmission with oil.



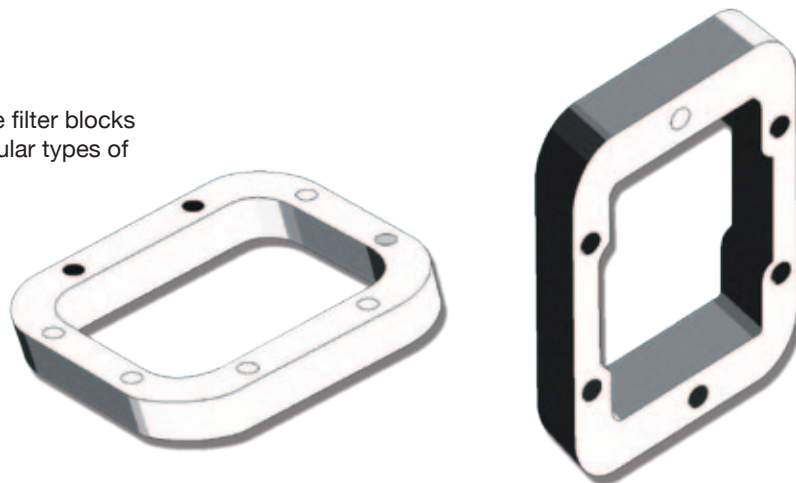
Installation  
Instructions

## Checking Backlash

**Note:**  
Establish backlash at 0.006"-0.012"  
(0.15mm-0.30mm) by using the gasket/  
shims supplied. .010 gaskets will  
change backlash approx. .006



It may be necessary to use filter blocks to mount a P.T.O. to particular types of transmission.



**Shifting  
Information**

## **Shift Instructions**

### **CAUTION**

The vehicle has been equipped with a 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 the 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. failure.



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