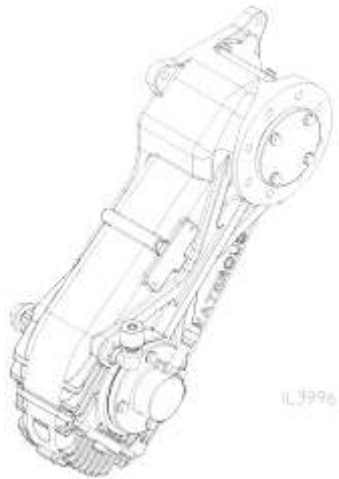



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PA Model Transmissions	TPA Model Power Take-off's

## Introduction - PA

The PA pump transmission is designed to drive Waterous mid-ship pumps off the ten bolt, power take-offs (PTO) available on the left side of the Allison MD and HD automatic transmissions. The largest capacity pump that can be driven with the PA transmission depends on the maximum torque limits of the PTOs. The manufacturers of the PTOs should be consulted for the fire truck heavy duty power and speed ratings when selecting a pump/transmission combination to be used. Several different speed increasing ratios are available with the PA transmission to accommodate various PTO drive applications.

## Description

The PA transmission body is made entirely of light weight cast aluminum alloy. The shafts, sprockets and chain are steel. Power is transferred from the drive shaft to the driven shaft via a high strength, involute form chain. This design provides the smoothest and quietest transfer of power. Deep groove, anti-friction ball bearings are used on the two shafts to provide smooth, long lasting service. The drive shaft has a 1-1/2 inch SAE 10 spline. A two-piece driven shaft is used when the PA is connected to a CM, CMU, CS or CSU pump. The two-piece impeller shaft is separable between the pump and pump transmission, allowing for easy removal of the transmission for major service. A one-piece driven shaft is used when the PA is connected to CGG or CXV pump.

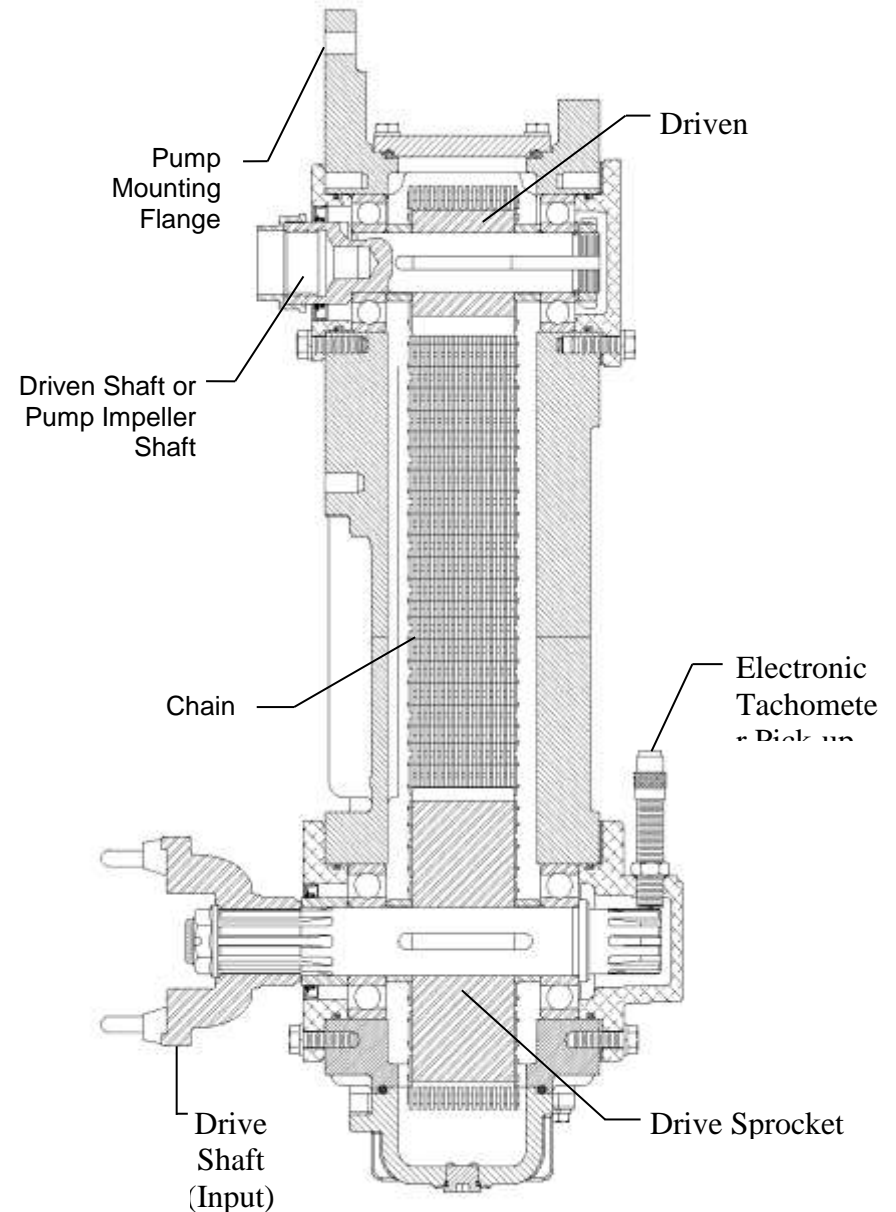
## Lubrication

The bearings and drive chain are lubricated by a splash and passive lubrication system. Lubrication is accomplished when spray from the chain collects in a reservoir in the top of the case. The lubricant flows out of the reservoir onto the inside surface of the chain. This ensures all pivoting components of the chain receive lubrication.

## Electronic Tachometer

An electronic tachometer connection protrudes from the tachometer housing at a 45° angle. This tachometer pick-up senses the drive shaft speed.

## PA Series



IL3998

## Introduction - TPA

The TPA pump transmission is designed to drive Waterous mid-ship pumps off the ten bolt, power take-offs (PTO) available on the left side of the Allison MD and HD automatic transmissions. The largest capacity pump that can be driven with the TPA transmission depends on the maximum torque limits of the PTOs. The manufacturers of the PTOs should be consulted for the fire truck heavy duty power and speed ratings when selecting a pump/transmission combination to be used. Several different speed increasing ratios are available with the TPA transmission to accommodate various PTO drive applications.

## Description

The TPA transmission body is made entirely of light weight cast aluminum alloy. The shafts, sprockets and chain are steel. Power is transferred from the drive shaft to the driven shaft via a high strength, involute form chain. This design provides the smoothest and quietest transfer of power. Deep groove, anti-friction ball bearings are used on the two shafts to provide smooth, long lasting service. The drive shaft has a 1-1/2 inch SAE 10 spline. The driven shaft has a 1-3/8 inch SAE 10 spline.

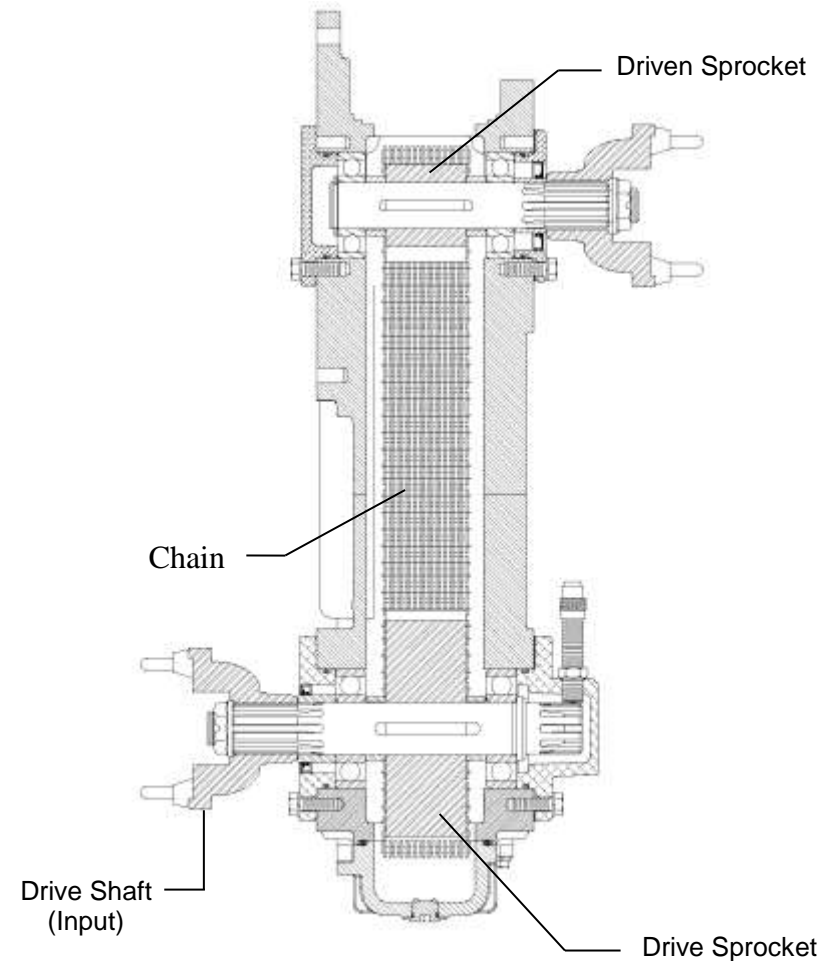
## Lubrication

The bearings and drive chain are lubricated by a splash and passive lubrication system. Lubrication is accomplished when spray from the chain collects in a reservoir in the top of the case. The lubricant flows out of the reservoir onto the inside surface of the chain. This ensures all pivoting components of the chain receive lubrication.

## Electronic Tachometer

An electronic tachometer connection protrudes from the tachometer housing at a 45° angle. This tachometer pick-up senses the drive shaft speed.

## TPA Series



IL 3999

## Operating Instructions

Since the PA and TPA transmissions are designed to be driven by a PTO, refer to the instruction manual supplied with the PTO or to the apparatus manufacturer's manual for specific information.

### Electronic Tachometer Frequency Reading

The pulse generator in the PA and TPA chain drive transmissions have 10 teeth. The frequency (Hz) reading from the tachometer sensor should be multiplied by 6 to obtain revolutions per minute (rpm).

$$\text{Hz} \times 6 = \text{RPM}$$

### Maintenance

1. Check fluid level monthly by seeing if fluid is visible using the sight plug or by removing fluid level plug. The fluid should be level with bottom of hole.

#### CAUTION

##### Low or excessive fluid may cause transmission damage.

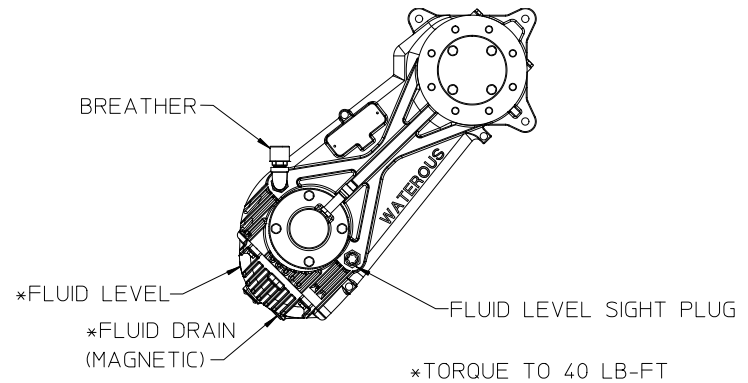
If fluid level is low, locate source of leak and repair. If fluid level is high, loosen fluid level plug until fluid drops to proper level. If excessive water drains out, change fluid and determine source of water leakage, and repair.

2. Change fluid and clean the breather once a year or after each 100 hours of operation, whichever comes first. Fluid can be added thru the fluid level hole or by removing the breather and adding fluid thru this opening. Any type of automatic transmission fluid (ATF) can be used. For ambient temperatures over 90°F, SAE 20 oil 300 SSU @ 100°F with service classification SA, SB or SC should be used.

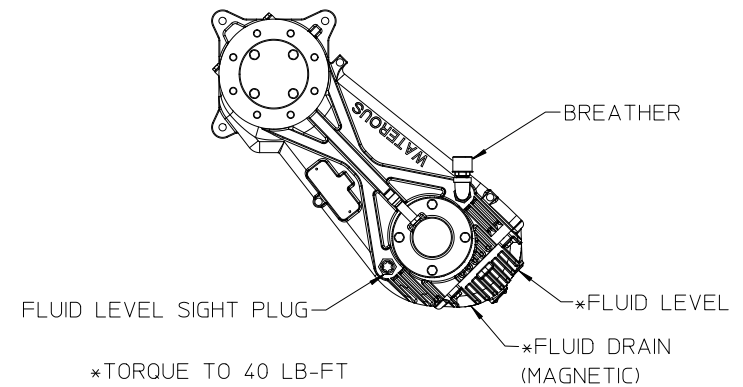
Amount required if system is drained and refilled:

Vertical Mounting: 1 Quarts (Approximately)

Horizontal Mounting: 3/4 Quarts (Approximately)



VERTICAL MOUNTING



HORIZONTAL MOUNTING

IL4000