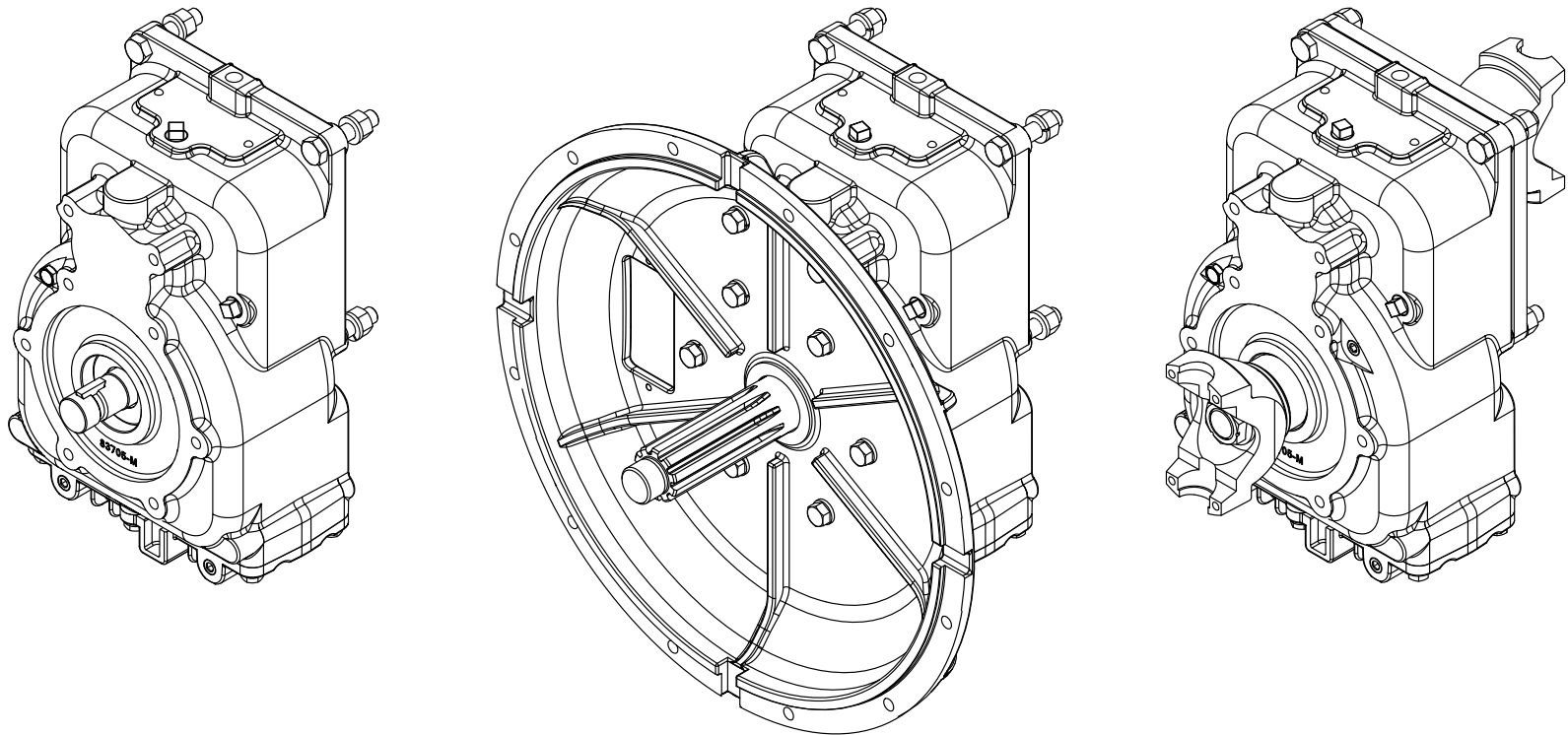


## Operation and Maintenance Instructions Model K and T Transmissions, Model TK Power Take-Off





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## Safety Precautions

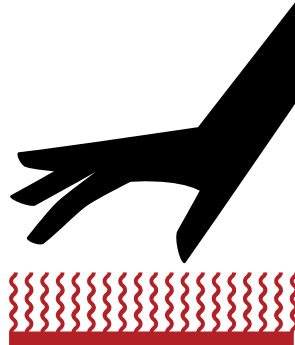
- Read and understand this document before you begin the maintenance procedure.
- Read and understand all the notices and safety precautions.
- Be aware that these instructions are only guidelines and are not meant to be definitive. Contact Waterous when you have questions.
- Do not service this equipment if you are not familiar with the tools and skills needed to safely perform required procedures.
- Do not modify the equipment.
- Waterous reserves the right to make modifications to the instructions without notice.



## WARNING

### Hot Surface

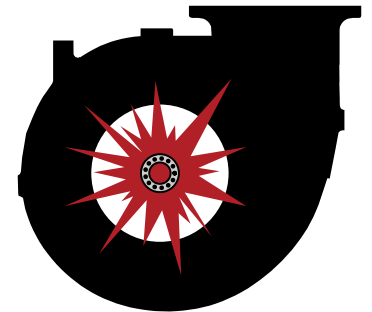
- Hot surface can burn you.
- Do not touch the surface during operation—allow it to cool after operating.



## NOTICE

### Premature Failure

- Premature component failure occurs when operating beyond system specifications.
- Do not operate the system beyond specifications.



Use this document to service your Waterous equipment. Please understand the following conditions:

- The instructions may refer to options or equipment that you may not have purchased with your system.
- The illustrations in this document are intended to convey concepts. Do not use the illustrations to determine physical attributes, placement, or proportion.
- Understand that your configuration may require additional steps that are not illustrated or described in the instruction.
- This equipment is intended to be maintained by a person or persons with the basic knowledge of servicing similar equipment. Contact Waterous with questions.

This document is divided into the following sections:

#### SAFETY

This section describes general precautions and alert symbols that are in this document.

#### INTRODUCTION

This section is an overview of the document.

#### OPERATION

This section describes transmission operation.

#### MAINTENANCE

This section describes service and maintenance procedures.

## Using this Document

Use the guidelines below when viewing this document.

### Viewing the Document Electronically

- View this document in landscape orientation.
- Use the table of contents to navigate directly to that section.
- Text **with this appearance** is linked to a reference.

### Printing the Document

- The document is viewed the best when printed in color.
- The *print on both sides* and *flip on long edge* features can provide the best results.
- Use a 3-ring binder to store the document.

## Operating the Transmission

The transmission is operated by the apparatus as a part of the pump system.

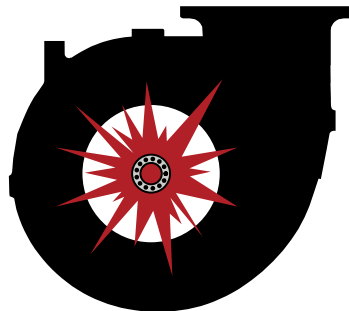
### Operating Limits

- The transmission operating limits are determined by multiple factors. Refer to the *Power and Speed Rating for Transmissions* document to determine the limitations for your application. Contact Waterous for more information.
- Operating the transmission beyond specified limits causes accelerated wear on components such as seals, bearings, and other parts—this can cause premature component failure.
- Do not exceed the temperature limits for the lubrication you use in the transmission. Exceeding the maximum temperature rating for a prolonged period will break down the lubricant and deteriorate the seals.

## NOTICE

### Premature Failure

- Premature component failure occurs when operating beyond system specifications.
- Do not operate the system beyond specifications.



## Maintenance Schedule

Perform the following procedure at the recommended interval. Environmental conditions determine the maintenance interval. Inspect the components frequently, and create a maintenance schedule suitable to your application and environmental conditions. Contact Waterous for more information.

Operation	Interval	Comment
Check the oil level	Monthly	Make sure that the oil is at an appropriate level, and free of contaminants.
Change the gear oil	12 Months or 100 operating hr—whichever comes first	Lubrication: Gear lube spec—75W-90 full synthetic. Capacity: Vertical mounting: 1.6 quarts (1.5 L) Inverted mounting: 1.2 quarts (1.1 L) Horizontal mounting: 1.5 quarts (1.4 L) <i><b>Note:</b> All values are approximate and vary by application. Fill to the bottom of the oil-level opening.</i>

## Preparing to Service the Equipment

- Read and understand the instructions before you service the equipment.
- Gather the necessary tools.
- Gather the cleaning cloths, brushes, and fluids.
- Understand that your configuration may require additional steps that are not illustrated or described in the instruction.
- This equipment is intended to be maintained by a person or persons with the basic knowledge of servicing similar equipment. Contact Waterous with questions.

## Tools Required

- Typical automotive mechanics hand tools
- A container suitable to collect drained fluids.

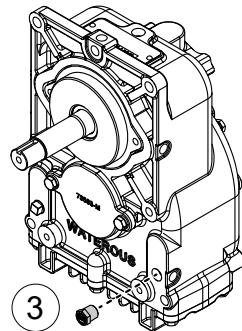
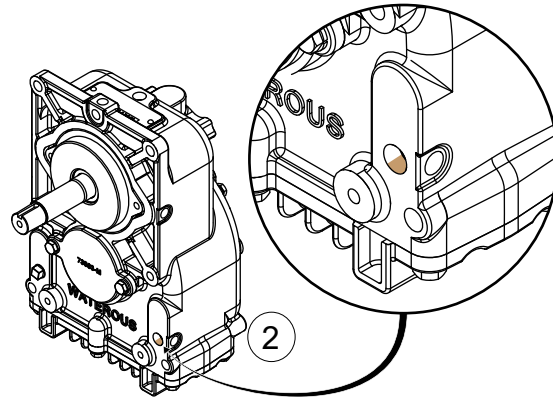
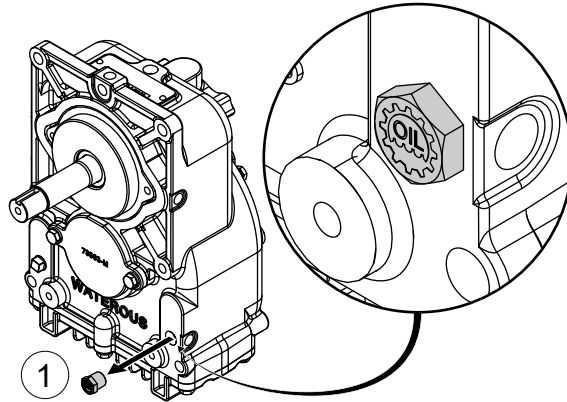
## Preparing the Apparatus

- Park the apparatus on a level surface, in a well-lit area.
- Engage the parking brake.
- Shut off the engine and remove the key from the ignition switch.
- Allow the apparatus to cool before servicing.

## Best Practices

- Remove any dirt, sand, grease, or oil from the enclosure before you begin maintenance. Surface debris can transfer into the equipment and prematurely wear internal parts.
- Discard or recycle drained fluids collected in accordance with your local regulation.

## Checking the Transmission Oil



Use the illustrations and instructions to check transmission-oil level. The illustrations may not represent your specific transmission orientation. Refer to the SPL for your application to locate the oil-level plug for your orientation.

Refer to the **"Maintenance Schedule" on page 7** for a suggested interval. Your application may require more frequent intervals.

**Note:** Make sure that you park the apparatus so that the transmission is level before you check the oil level.

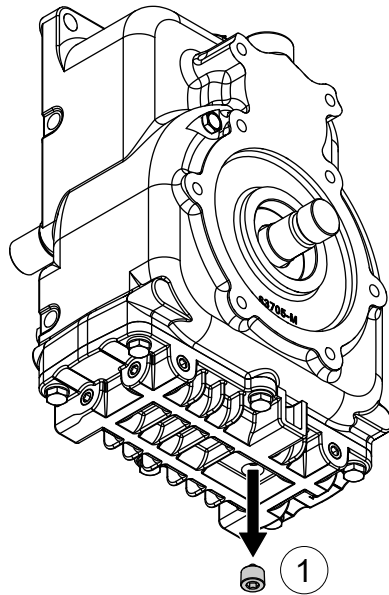
- 1 Remove and set aside the oil-level plug.
- 2 Make sure that the oil is at the level of the oil-level opening, if not perform the following:
  - If the oil level is too low, add oil to the transmission. Refer to: **"Adding Transmission Oil" on page 10**.
  - If the oil level is too high, allow the oil to drain. Cleanup any oil that drains onto the case.

**Note:** If the oil level is too high, check for water contamination. Make sure that water from the pump isn't leaking into the transmission. Contact Waterous for more information.

- 3 Securely install the oil-level plug.

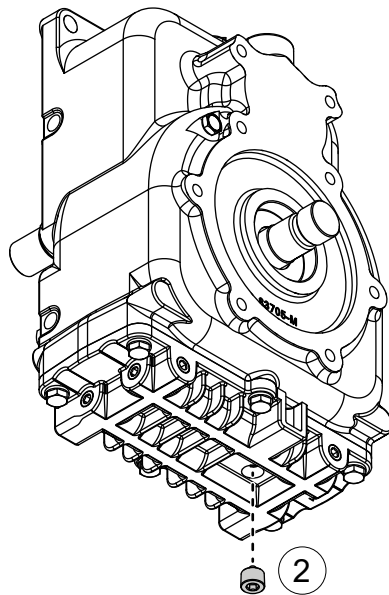


## Draining the Transmission Oil

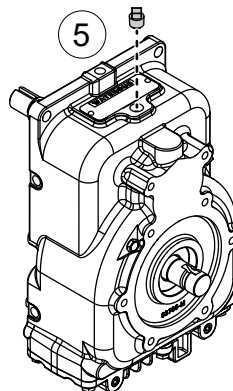
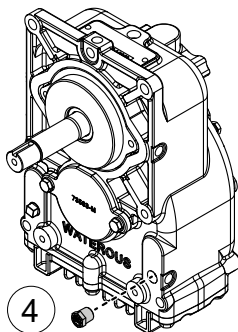
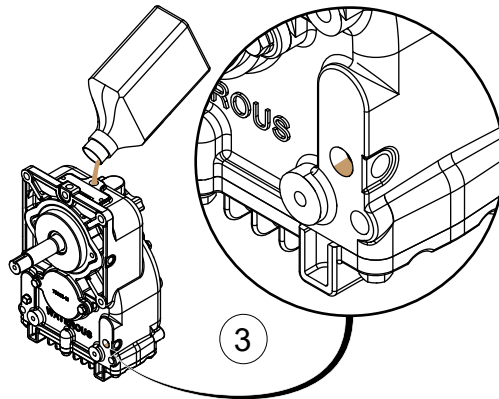
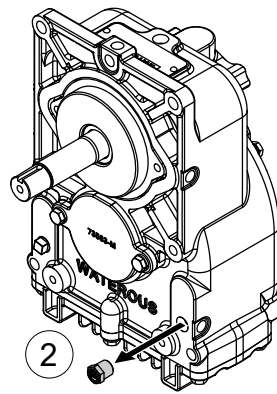
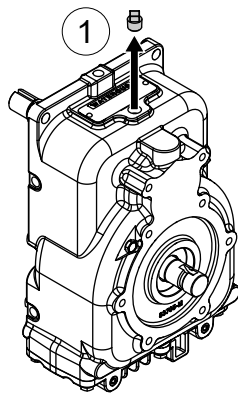


Use the illustrations and instructions to drain the oil from the transmission. The illustrations may not represent your specific transmission orientation. Refer to the service parts list (SPL) for your application to locate the oil-drain plug for your orientation.

- 1 Perform the following to drain the oil:
  - Place a suitable container under the transmission to collect the drained oil.
  - Locate, remove, and set aside the magnetic drain plug.
  - Allow the oil to drain.
- 2 Locate the magnetic drain plug. Remove any debris that collected on the plug, and securely install it.



## Adding Transmission Oil



Use the illustrations and instructions to add oil to the transmission. The illustrations may not represent your specific transmission orientation. Refer to the SPL for your application to locate the oil-fill and oil level plug for your orientation.

Refer to the **"Maintenance Schedule" on page 7** to determine the type of lubricant, and the amount, for your application. Contact Waterous for more information.

- 1 Remove and set aside the oil-fill plug.
- 2 Remove and set aside the oil-level plug.
- 3 Add lubricant to the transmission until it reaches the bottom of the oil-level opening.  
**Note:** After pouring some oil into the case, allow it to settle before adding more to avoid over filling.
- 4 Securely install the oil-level plug.
- 5 Securely install the oil-fill plug.

# WATEROUS

Waterous Company  
125 Hardman Avenue South  
South Saint Paul, MN 55075  
(651) 450-5000  
[www.waterousco.com](http://www.waterousco.com)