



FINISH THOMPSON INC.

# **TM SERIES MIXER**

## **TMS OPERATION & PARTS MANUAL**





**EU Declaration of Conformity**



Finish Thompson Inc. hereby declares that the following machine(s) fully comply with the applicable health and safety requirements as specified by the EU Directives listed. The product may not be taken into service until it has been established that the drive motor for the Drum and Container Pump complies with the provisions of all relevant EU Directives. The complete product complies with the provisions of the EU Directive on machinery safety provided motors manufactured by Finish Thompson Inc. are used.

This declaration is valid provided that the devices are fully assembled and no modifications are made to these devices.

**Type of Device:**

Drum and Container Pump Tubes

BTS – 40	EPPI/EPPS 15/27/40	EFP/EFV/EFS-16/27/40/48/54
HVDP LR-27/40/48	HVDP HR-27/40/28	PFM-27/40/48/60
PFM-15/27/40/48/60/72	PFS-27/40/48/60/72	PFV-27/40/48/60/72
TBP-27/40/48	TBS-40	TTC/TTS-27/40/48
STTS-40	TMS-40	

**Models:**

**EU Directives:**

Machinery Safety (2006/42/EC)

**Applied Harmonized Standards:**

EN ISO 12100  
 EN 809

Manufacturer: Finish  
 Thompson Inc.  
 921 Greengarden Road  
 Erie, Pennsylvania 16501-1591 U.S.A

Signed,



\_\_\_\_\_  
 President

1 August 2016

Person(s) Authorized to Compile Technical File: Finish Thompson GmbH  
 Otto-Hahn-Strasse 16  
 Maintal, D-63477 DEU  
 Telephone: 49 (0)6181-90878-0

## Introduction

This manual pertains to the TM Series stainless steel drum mixer. Finish Thompson Inc. thanks you for choosing our products. We believe the use of our products will be fully satisfactory. When properly installed and operated, your Finish Thompson motor and pump will provide long, trouble-free service; therefore, please read this manual carefully before carrying out any operations on the pump/motor unit. Any use other than that described herein is considered incorrect; and, consequently, Finish Thompson Inc. shall not be held responsible for any damages to people or property. In case of doubt or enquiries, please reply to our Technical Service department directly at the following address:

Finish Thompson, Inc.  
921 Greengarden Rd.  
Erie, PA 16501 U.S.A.  
Tel. 1-814-455-4478; Fax 1-814-455-8518  
[www.finishthompson.com](http://www.finishthompson.com); [fti@finishthompson.com](mailto:fti@finishthompson.com)

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**Technical Service Hotline:** 1-800-888-3743 or email [techservice@finishthompson.com](mailto:techservice@finishthompson.com)

## Warranty, General Terms & Conditions

1. The following terms and conditions apply to the sale of machinery, components and related services and products, of Finish Thompson Inc. (hereinafter “the products”)
2. Finish Thompson Inc. (the manufacturer) warrants only that:
  - a) its products are free of defects in material, design and workmanship at the time of original purchase;
  - b) its products will function in accordance with Finish Thompson Inc. operation manuals; Finish Thompson Inc. does not guarantee that the product will meet the precise needs of the Customer, except for those purposes set out in any invitation to render documents or other documents specifically made available to Finish Thompson Inc. before entering into this agreement;
  - c) high quality materials are used in the construction of the pumps and that machining and assembly are carried out to the highest standards. Except as expressly stated above, Finish Thompson Inc. makes no warranties, express or implied, concerning the products, including all warranties of fitness for a particular purpose.

This warranty shall not be applicable in circumstances other than defects in material, design, and workmanship. In particular warranty shall not cover the following:

- d) Periodic checks, maintenance, repair and replacement of parts due to normal wear and tear;
- e) Damage to the product resulting from:
  - i. Tampering with, abuse or misuse, including but not limited to failure to use the product for its normal purposes as stated at the time of purchase or in accordance with Finish Thompson, Inc. instructions for use and maintenance of the product, or the installation or improper ventilation or use of the product in a manner inconsistent with the technical or safety standard in force;
  - ii. Repairs performed by non-authorized service workshop, or opening of the unit by non-authorized personnel, or use of non genuine Finish Thompson Inc. parts;
  - iii. Accidents, force majeure or any cause beyond the control of Finish Thompson Inc., including but not limited to lightning, water, fire, earthquake, and public disturbances, etc.
3. The warranty shall cover the replacement or repair of any part, which is documented to be faulty due to construction or assembling, with new or repaired parts free of charge delivered by Finish Thompson, Inc. Parts subjected to normal wear and tear shall not be covered by the warranty. Finish Thompson, Inc. shall decide as to whether the defective or faulty part shall be replaced or repaired. Transportation charges are prepaid to Finish Thompson.
4. The warranty of the products shall be valid for a period of **12 months** from the date of delivery, under the condition that notice of the alleged defect to the products or parts thereof be given to Finish Thompson, Inc. within the term of 8 days from the discovery.
5. Repair or replacement under the terms of this warranty shall not give a right to an extension to, or a new commencement of, the period of warranty. Repair or replacement under the terms of this warranty may be fulfilled with functionally equivalent re-conditioned units. Finish Thompson Inc. qualified personnel shall be solely entitled to carry out repair or replacement of faulty parts after careful examination of the motor. Faulty parts or components when replaced by Finish Thompson Inc. will become the property of Finish Thompson Inc. If this warranty does not apply, the purchaser shall bear all cost for labor, material and transportation.
6. Finish Thompson Inc. will not be liable on any claim, whether in contract, tort, or otherwise, for any indirect, special, incidental, or consequential damages, caused to the customer or to third parties, including loss of profits, process down time, transportation costs, costs associated with replacement or substitution products, labor costs, installation or removal costs. In any and all events, manufacturer’s liability shall not exceed the purchase price of the product and/or accessories.
7. **Return Policy.** Should you have any problems with this product, please contact the distributor in your area. The distributor will determine if a return to the factory is necessary and will contact the factory for a Return Authorization Number. Otherwise, contact our Technical Service Hotline (1-800-888-3743) or e-mail [techservice@finishthompson.com](mailto:techservice@finishthompson.com) if you have any questions regarding product operation or repair.

### Warranty Registration

Thank you for your purchase of this quality Finish Thompson product. Be sure to take a minute to register your pump at [Finishthompson.com/warranty](http://Finishthompson.com/warranty). Simply provide the model number, serial number and a few other pieces of information.

Order Online: [www.PumpCatalog.com](http://www.PumpCatalog.com)

## Safety

### 1. Introduction

This manual contains all the information needed for the correct installation, use and maintenance of your new Finish Thompson mixer. It should be read and understood by all the personnel involved in installation, operating and servicing of the mixer before it is started.

### 2. Operator Qualification and Training

The personnel in charge of the installation, the operation, and the maintenance of the mixer must be qualified and able to perform the operations described in this manual. Finish Thompson, Inc. shall not be held responsible for the training level of personnel and for the fact that they are not fully aware of the contents of this manual.

### 3. Safety Instructions

#### FOR YOUR OWN SAFETY

**BEFORE** using or servicing your mixer, please make sure to wear the proper clothing, eye protection and follow standard safety procedures when handling corrosive or personally harmful materials.

#### GENERAL DANGER

**ALWAYS** use a stainless steel mixer with an explosion proof electric motor or air motor and static protection kit when mixing flammable or combustible material.

**ALWAYS** use and store the mixer and motor in an upright position.

#### DANGER: POWER SUPPLY

Refer to instructions in the appropriate motor Operation & Installation Manual.

### 4. Noise Level

Refer to specifications in the appropriate motor Operation & Installation Manual.

### 5. Modifications and Spare Parts

Any changes concerning the service of the mixer as originally purchased can be executed only after written approval from Finish Thompson Inc. It is recommended to use only genuine Finish Thompson Inc. spare parts and approved accessories. The use of non-original spare parts or non-approved accessories will void warranty and removes any responsibility on the manufacturer's behalf for any damage caused to people or things.

### 6. Cleaning

It is highly recommended to flush mixer with clean water or some other neutralizing fluid compatible with mixer materials when done mixing or when switching chemicals.

#### WARNING

Surface just below the motor can get hot and cause burns. Use protective gloves or allow metal surfaces to cool before handling.

### IMPORTANT SAFETY INFORMATION FOR PUMPING FLAMMABLE OR HAZARDOUS SUBSTANCES

Read these instructions before operating the pump and motor equipment. The manufacturer will not be responsible for any damage to property or to persons caused by improper use of the equipment.

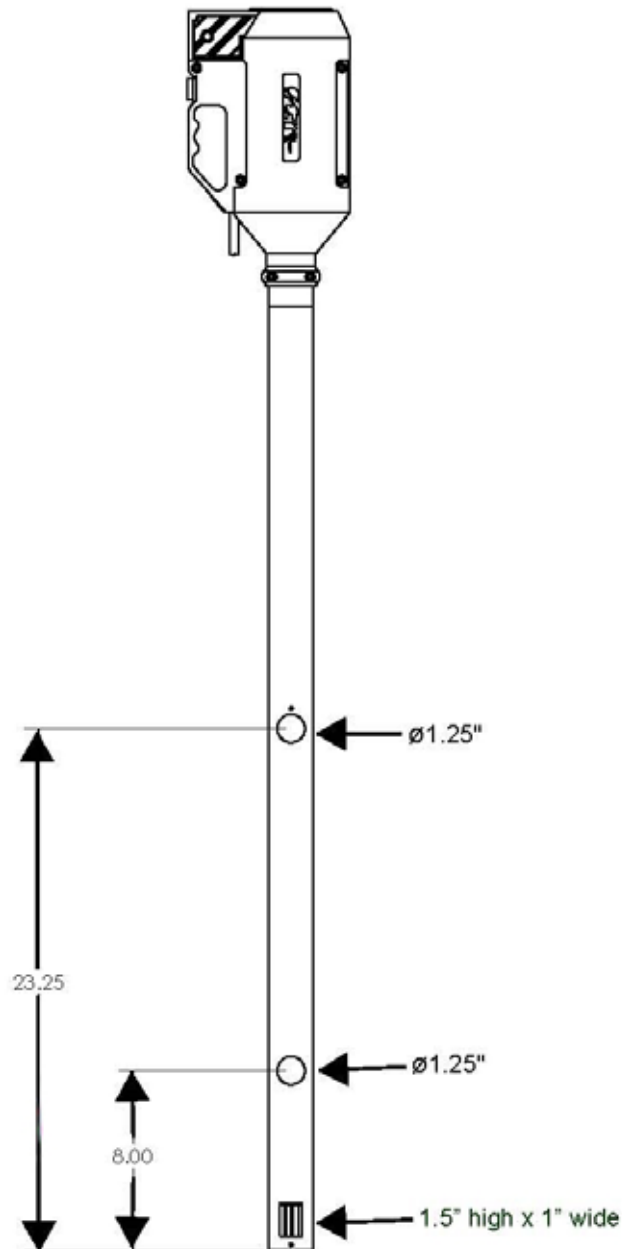
- ⚠ WARNING:** It is the responsibility of the user to operate the pump in conformance with OSHA rules for dispensing liquids. Pump containers should be grounded when using with flammable or combustible liquids to avoid static electricity.
- 1. Use only an explosion-proof rated electric or non-electric (air) motors on stainless steel pump tubes with a Static Protection Kit when transferring flammable or combustible liquids.
- ⚠ WARNING:** Never use an open, splash-proof, TEFC, battery-operated or non-explosion-proof rated motor or a plastic pump tube when transferring flammable or combustible liquids.
- 2. When operating a drum pump (especially when pumping flammable, combustible or hazardous liquids) follow all electrical and safety codes.
  - a) In the United States: the United States Occupational Safety and Health Act (OSHA), most recent National Electrical Code (NEC), National Fire Protection, Inc. (NFPA) Code 30 (Flammable and Combustible Code), NFPA 77 (Static Electricity), NFPA 251 (Standard Method of fire Test of Building Construction), NFPA 704 (Identification of the Fire Hazards of Materials), and other NFPA codes, local codes and ordinances.
  - b) Outside the United States: the ATEX equipment directive 2014/34/EU where applicable, the ATEX workplace 99/92/EC directive where applicable, in addition the precautions of the U.S. codes listed herein and all other local codes and ordinances.
- 3. Pumping hazardous, flammable, or combustible liquids should only be done in buildings, rooms, or areas suited for this purpose. (See NFPA 30, NFPA 78, NFPA 80, NFPA 251, NFPA 704, other suitable NFPA codes, OSHA, ATEX workplace 99/92/EC directive insurance companies, and other local codes and ordinances.)
- 4. When filling cans, drums, etc. with combustible or flammable liquids, both container pumping from and container pumping to, should be bonded and grounded to dissipate possible accumulations of static electricity, and minimize sparks caused by static electricity (refer to NFPA 77 and CLC/TR 60079-32-1 for specific details).
- ⚠ WARNING:** Avoid splashing. Splash filling can create static electricity and is extremely hazardous. Reduce motor speed to prevent splashing.
- ⚠ WARNING:** Fluid velocity must be 3 feet/.9 meter/second maximum (7 gpm/26.5 lpm in 1" hose and 4 gpm/15 lpm in ¾" hose) to reduce risk of static electricity. Reduce motor speed to reduce the fluid velocity.
- 5. Before using, confirm that the pump and any accessories (hose, nozzle, flow meter, etc.) materials of construction are suitable for the material to be pumped and that the maximum temperature is not exceeded.

### INFORMATIONS IMPORTANTES SUR LA SÉCURITÉ DURANT LE POMPAGE DE SUBSTANCES INFLAMMABLES OU DANGEREUSES

Veillez lire attentivement ces instructions avant d'utiliser la pompe et l'équipement du moteur. Le fabricant ne sera pas tenu responsable des dommages matériels ou corporels causés par une utilisation inappropriée de l'équipement.

- ⚠ AVERTISSEMENT:** Il est de la responsabilité de l'utilisateur de faire fonctionner la pompe conformément aux règles OSHA (Santé et Sécurité au Travail) relatives à la distribution de liquides. Les conteneurs de pompes doivent être électriquement mis à la terre lors de l'utilisation de liquides inflammables ou combustibles afin d'éviter toute électricité statique.
- 1. Lors du transfert de liquides inflammables ou combustibles, utilisez uniquement des moteurs électriques ou non électriques (pneumatiques) antidéflagrants sur des tubes de pompe en acier inoxydable dotés d'un dispositif de protection antistatique.
- ⚠ AVERTISSEMENT:** N'utilisez jamais de moteur ouvert, à l'épreuve des éclaboussures, TEFC, alimenté par piles ou non antidéflagrant, ni un tube de pompe en plastique lors du transfert de liquides inflammables ou combustibles.
- 2. Lors de l'utilisation d'une pompe à tambour (en particulier lors du pompage de liquides inflammables, combustibles ou dangereux), respectez tous les codes électriques et les codes de sécurité.
  - a) Aux États-Unis : Loi américaine sur la sécurité et la santé au travail (OSHA); le code national de l'électricité (NEC) le plus récent; le code 30 de la NFPA (code d'inflammabilité et de produits combustibles); le code NFPA 77 (électricité statique); le code NFPA 251 (Méthode standard de test d'incendie de la construction de bâtiments); le code NFPA 704 (Identification des risques d'incendie des matériaux) et autres codes et règlements de la NFPA.
  - b) En dehors des États-Unis : La directive sur les équipements ATEX 2014/34 / EU, le cas échéant, la directive ATEX sur le lieu de travail 99/92 / EC, le cas échéant, ainsi que les précautions des codes des États-Unis énumérés dans la présente et de tous les autres codes, lois et règlements locaux.
- 3. Le pompage de liquides dangereux, inflammables ou combustibles ne doit être effectué que dans des bâtiments, des pièces ou des zones adaptées à cet usage. (Voir NFPA 30, NFPA 78, NFPA 80, NFPA 251, NFPA 704, autres codes NFPA appropriés, OSHA, les directives des compagnies d'assurance ATEX 99/92 / CE, et autres codes, lois et règlements locaux.)
- 4. Lors du remplissage de bidons, fûts, etc. avec des liquides combustibles ou inflammables, les conteneurs d'où le liquide est pompé et le conteneur recevant le liquide doivent être reliés et mis à la terre pour éviter toute accumulation éventuelle d'électricité statique et minimiser ainsi les étincelles causées par l'électricité statique (voir NFPA 77). et CLC / TR 60079-32-1 pour des détails spécifiques).
- ⚠ AVERTISSEMENT:** Évitez les éclaboussures. Les éclaboussures peuvent créer de l'électricité statique et sont extrêmement dangereuses. Réduisez la vitesse du moteur pour éviter les éclaboussures.
- ⚠ AVERTISSEMENT:** La vitesse du fluide doit être au maximum de 3 pieds / 0,9 mètre / seconde (7 gpm / 26,5 lpm dans un tuyau de 1"; et 4 gpm / 15 lpm dans un tuyau de ¾") afin de réduire le risque d'électricité statique. Réduisez la vitesse du moteur afin de réduire ainsi la vitesse du fluide.
- 5. Avant utilisation, assurez-vous que les matériaux de la pompe et des accessoires (tuyau, ajutage, débitmètre, etc.) sont compatibles avec le fluide et que la température maximale n'est pas dépassée.

PUMP SPECIFICATIONS	
	MODEL TMS
Outer Tube Diameter	2" (5.1 cm)
Max. Viscosity	1000 cP
Min./ Max. Fluid Temperature	-20°F Min. to 200°F Max.
	(-29°C Min. to 93°C Max.)
Wetted Materials	316 Stainless Steel, PTFE





# Installation & Maintenance Instructions

## Installation

1. Remove the mixer and motor from the packaging and inspect for shipping damage.
2. Turn the shaft coupling and the motor coupling to verify there is no binding.
3. Adjust the mixer coupling so that the empty slots in the insert are at 3 and 9 o'clock.
4. Install the motor according to instructions in the appropriate motor manual.
5. Install into the container.

## Operation

1. Make sure the motor (electric or air) is properly installed on the mixer tube and is in the off position. See motor instruction manual for installation instructions.
2. Insert the mixer tube into the fluid to be mixed prior to starting the motor. Bung adapters are available to provide a tighter fit between the mixer tube and bung opening of a standard drum. Check drum pump accessories at [www.finishthompson.com](http://www.finishthompson.com) or contact your local Finish Thompson distributor for bung adapter info.
3. Begin mixing by turning the motor on.
4. The mixer is provided with an adjustable sleeve on the mixing tube. This can be used to cover the top set of holes should the liquid level drop below them or you wish to modify the mixing action by covering one or the other set of holes.
5. If using a variable speed motor, you can also vary the speed of the motor to provide better mixing action. Some viscous liquids may require a slower motor speed to provide better mixing action.
6. You can also rotate the mixer in the drum to direct the discharge from the two turbine holes in different directions for better mixing action.

Contact our Technical Service Department with additional questions at 1-800-888-3743.

## Maintenance

### Disassembly

1. Loosen the set screw and remove the coupling half (item 2) from the top of the mixer shaft.
2. Gently hold the mixer tube (item 7) so as not to crush it, and use a 3/8" punch and hammer to drive the mixer shaft up from the bottom until the bearing assembly (item 3) is exposed.
3. Use a 1/8" punch to remove the roll pin and slide the bearing assembly off the top of the shaft.
4. Remove the bottom bearing setscrew (item 13) and remove the bottom bearing (item 12).
5. Slide the shaft assembly down through the mixer tube and remove it out the bottom.
6. Remove the center bearing set screw (item 13) and remove the center bearing (item 10).
7. Remove and discard the seal assembly (item 4). Never re-use the seal assembly.



## Inspection

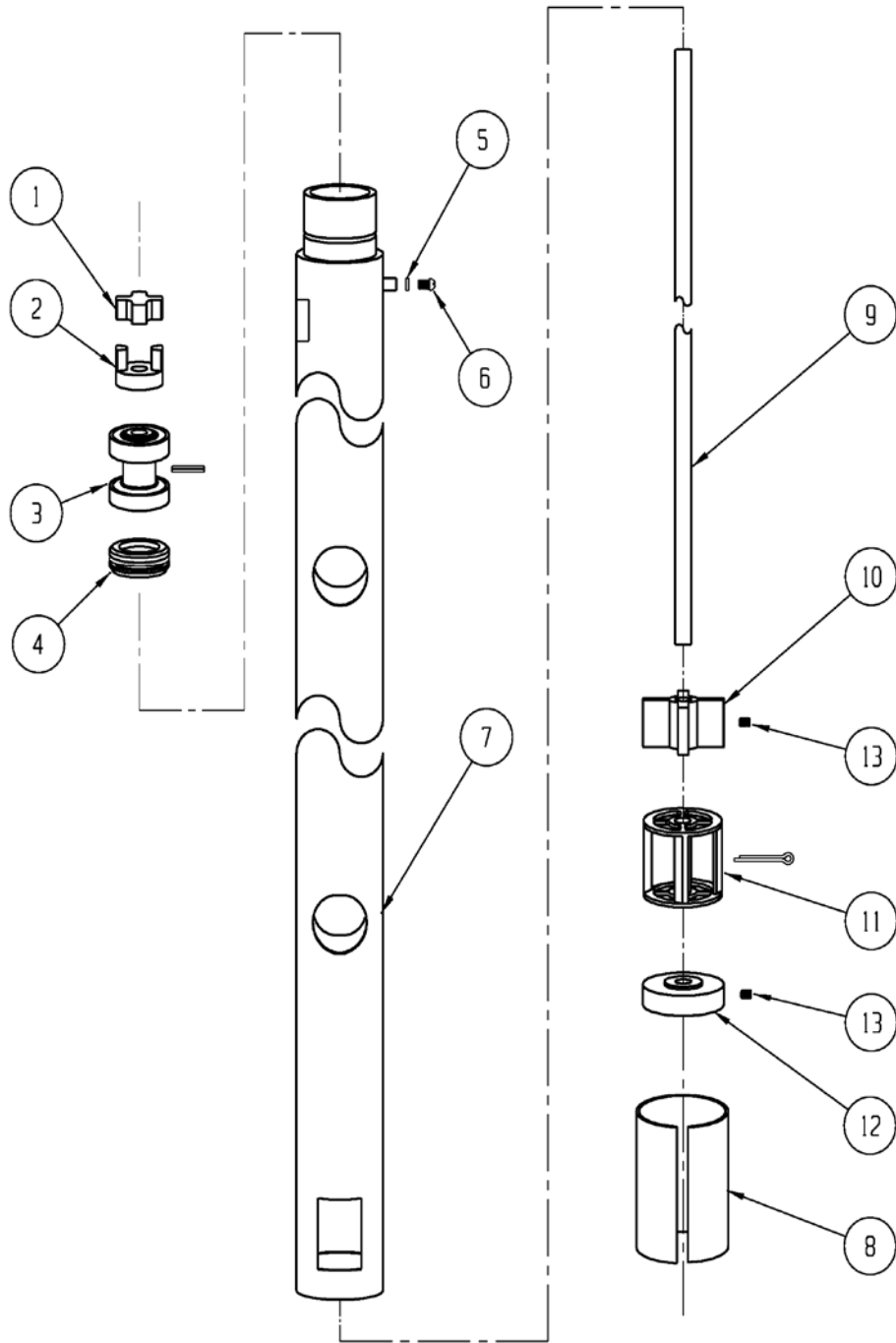
1. Measure the inside diameter of the shaft hole on the bottom bearing (item 12) and the center bearing (item 10). If it is more than .425 it should be replaced.
2. Visually inspect the turbine assembly (item 11) for wear and replace if needed.
3. Inspect the shaft for wear in the center and bottom bearing areas, and inspect the shaft condition in the seal (item 4) area.
4. Inspect the bearing assembly for rust, corrosion, or tightness and replace if needed.

## Reassembly

1. Insert the center bearing (item 10) up through the bottom of the tube and match up the setscrew hole in the tube and the center bearing. Install the setscrew.
2. Insert the shaft assembly up through the bottom, and through the center bearing until the shaft sticks out above the mixer tube top.
3. Warm up the seal assembly (item 4) prior to installation by using a heat lamp or socking them in hot water. This will aid in the ease of proper seal installation. Make sure there are no metal burrs on the pump shaft in the bearing hole location or the coupling half setscrew location that could “cut” the seal during installation.
4. Lubricate the end of the shaft with Vaseline to aid in the seal installation. Carefully install the seal down over the shaft with the two “slots” facing up toward the bearing assembly. The raised lip in the center of the seal (that faces the bottom of the pump) must go on straight and not buckle on one side.
5. After the seal is on the shaft correctly, install the bearing assembly (item 3) onto the shaft. Use the bearing assembly to push the seal further down the shaft until the hole in the center of the bearing assembly matches up to the hole in the shaft. Install the roll pin through the bearing assembly and shaft.
6. Line up the bearing assembly with the top of the pump head and press the bearing in. Use a block of wood and a mallet if needed.
7. Insert the bottom bearing (item 12) into the bottom of the tube and install the setscrew (item 13) to hold it in place.
8. Install the coupling half and tighten the setscrew into the dimple in the shaft. Spin the shaft coupling half to verify there is no binding.

**Note:** Repair instructions can be downloaded from our web site at [www.finishthompson.com](http://www.finishthompson.com) or contact Technical Service at 1-800-888-3743.

# TMS SPARE PARTS EXPLODED VIEW



**SPARE PARTS LIST**

ITEM	QTY	DESCRIPTION	PART NUMBER
1	1	<b>COUPLING INSERT</b>	
			J100014
2	1	<b>COUPLING HALF</b>	
			J100013
3*	1	<b>BEARING ASSEMBLY</b>	
		W/ ROLL PIN	A101672
4*	1	<b>SEAL ASSEMBLY</b>	
		TFE	A100284
5	1	<b>LOCK WASHER</b>	
		#8 BRASS	J100823
6	1	<b>SCREW</b>	
		#8-32 X 1/4 BRASS PAN HEAD M/S	J100822
7	1	<b>TUBE ASSEMBLY</b>	
		40" - 316 STAINLESS STEEL	A101192-1
8	1	<b>SLEEVE</b>	
		316 STAINLESS STEEL	M100070
9*	1	<b>SHAFT</b>	
		316 STAINLESS STEEL	M100970-1
10	1	<b>CENTER BEARING</b>	
		PTFE	M100073
11	1	<b>TURBINE ASSEMBLY</b>	
		WITH STAINLESS STEEL PIN	A100070
12*	1	<b>BOTTOM BEARING</b>	
		PTFE	M100071
13*	2	<b>SET SCREW</b>	
		#8-32 X 3/8 STAINLESS STEEL	J100072

\*Recommended Spare Parts



**FINISH THOMPSON INC.**

Service 1-800-888-3743  
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Order Online: [www.PumpCatalog.com](http://www.PumpCatalog.com)