



**FINISH THOMPSON INC.**

# **TT SERIES PUMPS**

## **TTS, TTC, & STTS OPERATION & PARTS MANUAL**

108102 R6





**FINISH THOMPSON INC.**  
921 Greengarden Road • Erie, PA 16501-1591 U.S.A.

## 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 and Accessories

BTS - 40/48	HVDP HR-27/40/48	EFP/EFV/EFS-16/27/40/48/54
HVDP LR-27/40/48	PFS-27/40/48/54/60/72	PFM-27/40/48/54/60
PFP-27/40/48/54/60/72	TBS-40	PFV-27/40/48/54/60/72
TBP-27/40/48	TMS-40	TTC/TTS-27/40/48
STTS-40		Nozzles (111030)

### Models:

### EU Directives:

Machinery Safety (2006/42/EC)

### Applied Harmonized Standards:

EN ISO 12100  
EN 809

Manufacturer: Finish  
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921 Greengarden Road  
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Signed,

President

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## Introduction

This manual pertains to the TT Series drum pumps and accessories. 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.

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## 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.

### 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.

# Safety

## 1. Introduction

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

## 2. Operator Qualification and Training

The personnel in charge of the installation, the operation, and the maintenance of the pump 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 pump or accessories, please make sure to wear the proper clothing, eye protection and follow standard safety procedures when handling corrosive or personally harmful materials.

**ALWAYS** ensure the pump, hose, and motor are bonded to ground, and the tanks/containers are separately bonded to ground.

**ALWAYS** inspect the integrity of the ground wire connections prior to each use.

**NEVER** leave the pump unattended while in use.

**NEVER** run the pump dry without fluid.

**NEVER** run the pump with a closed valve (deadhead) for longer than 1 minute.

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

**NEVER** use in pressurized containers.

**ALWAYS** use a chemically compatible hose rated for the temperature of the product being pumped.

**ALWAYS** tighten and torque a stainless steel hose clamp to 25 in-lbs (2.8 N·m)

**ALWAYS** check the pump for leaks on a regular basis. If leaks are noticed, the pump must be repaired or replaced immediately.

**ALWAYS** use a stainless steel pump tube with an explosion proof electric motor or air motor and static protection kit with grounded discharge hose when pumping or mixing flammable or combustible material.

### 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 pump or accessories 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 pumps and accessories with clean water or some other neutralizing fluid compatible with pump materials when done pumping or when switching chemicals.

## 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.

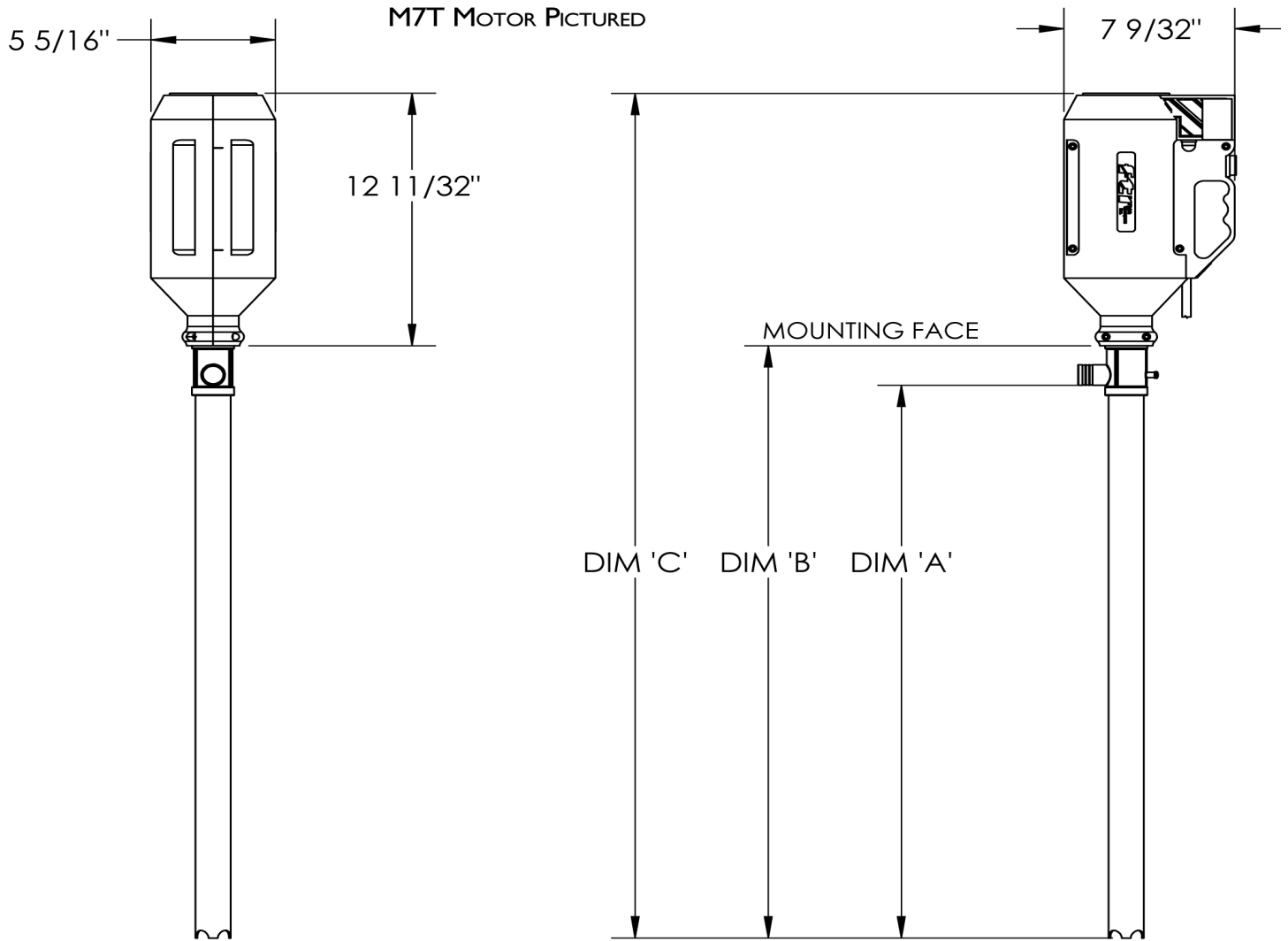
- ⚠ WARNING:** It is the responsibility of the user to operate the pump in conformance with OSHA rules for dispensing liquids. Pump containers should be grounded when using with flammable or combustible liquids to avoid static electricity.
1. Use only an explosion-proof rated electric or non-electric (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

Veuillez 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 TTS	MODEL TTC	MODEL STTS
Outer Tube Diameter	1-1/2" (3.8 cm)	1-5/8" (4.1 cm)	1-1/2" (3.8 cm)
Discharge Thread	1" hose barb	1" hose barb	1" hose barb
Max. Specific Gravity	1.8	1.8	1.8
Max. Viscosity	2000 cP	2000 cP	2000 cP
Min./ Max. Fluid Temperature	-20°F Min. to 150°F Max.	34°F Min. to 150°F Max.	-10°F Min. to 150°F Max.
	(-29°C Min. to 66°C Max.)	(1.1°C Min. to 66°C Max.)	(-23°C Min. to 66°C Max.)
Wetted Materials	316 Stainless Steel, PTFE	CPVC, Alloy 625, PTFE	316 Stainless Steel, PTFE



MODEL	DIM A (in)	DIM B (in)	DIM C (in)	DIM A (mm)	DIM B (mm)	DIM C (mm)
TTS/TTC-27	27-1/16	29	41-3/8	687.3	736.6	1050.9
TTS/TTC-40	40-1/16	42	54-3/8	1017.5	1066.8	1381.1
TTS/TTC-48	48-1/16	50	62-3/8	1220.3	1270	1584.3
STTS-40	40	44-1/5	56-7/8	1016.0	1122.7	1444.6

# Installation, Operation, & Maintenance Instructions

## Installation

1. Remove the drum pump and motor from the packaging and inspect for shipping damage. Turn the pump coupling the mating motor coupling to verify there is no binding.
2. Adjust the drum pump coupling so that the empty slots in the insert are at 3 and 9 o'clock with the drum pump discharge at 12 o'clock.
4. Install the motor according to instructions in the appropriate motor manual.
5. Attach discharge hose and secure with hose clamp. Torque Finish Thompson hose clamps to 25 in-lbs (2.8 N-m).
6. Install into the container.

## Operation

1. Make sure the motor (electric or air) is properly installed on the pump tube and is in the off position. See motor instruction manual for installation instructions.
2. Insert the pump tube into the fluid to be dispensed and the hose into the container to be filled prior to starting the pump. Bung adapters are available to provide a tighter fit between the pump 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. Make sure the pump's discharge hose is properly secured before operating the motor.
4. Begin pumping by turning the motor on and verifying that there are no leaks. If leaks are noticed immediately turn the motor off and check all discharge hose connections.

NEVER allow the pump to run dry.

## Cleaning (STTS only)

The STTS model is designed to come apart easily to aid in cleaning.

1. Remove the union nut (item 5) and, grabbing the bearing housing, pull the shaft assembly from the intake tube (item 10). The shaft assembly and intake tube internals can now be cleaned and flushed.
2. Always inspect the union nut gasket (item 7) for cuts or damage.
3. Reverse the process to reassemble this model.

## Maintenance

### Disassembly

1. Loosen the setscrew and remove the half coupling (item 2) from the end of the pump shaft.
2. Carefully hold the intake tube (the bearing housing on the STTS model after the cleaning disassembly step) so as not to crush the tube, use a 3/8" punch and hammer to drive the bottom of the shaft toward the top. This will drive the bearing assembly up out of the TTS/TTC head or STTS bearing housing.
3. When the bearing is completely out, use a pair of needle nose pliers and carefully straighten the four slightly bent "feet" at the bottom of the intake tube on the TTS model. This will allow you to use the pliers to remove the bottom bearing (item 13).



4. Then use a 1/8" punch to drive out the roll pin that holds the bearing onto the top of the pump shaft. Remove the bearing from the pump shaft, and remove shaft assembly down through the bottom of the intake tube. On STTS models, pull the shaft assembly down out of the bearing housing.
5. Remove the seal assembly from the pump head on the TTS/TTC or the bearing housing on the STTS and discard it.

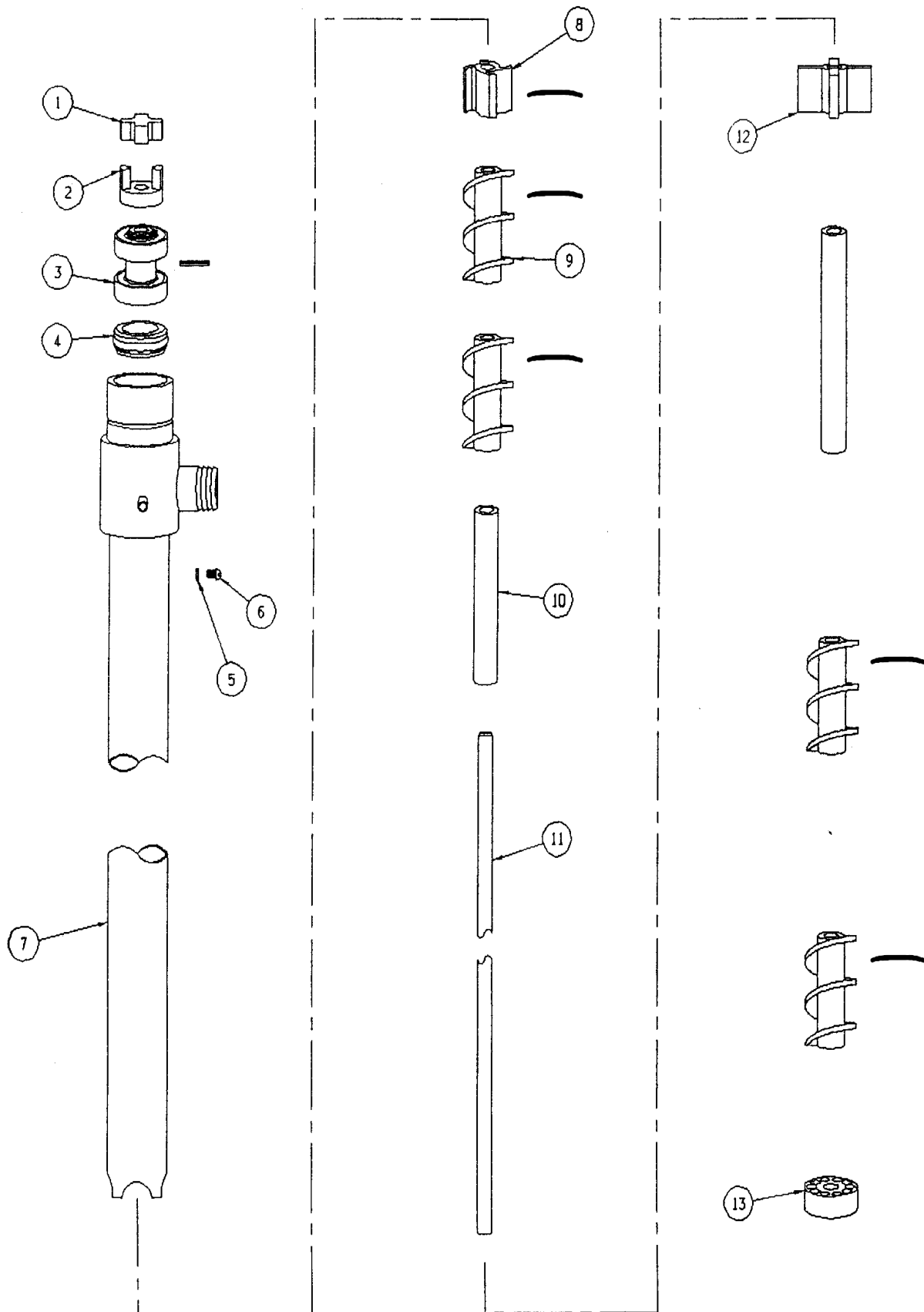
## Inspection

1. Inspect the shaft locating hole in the center of the bottom bearing (item 13 on the TTS/TTC and 16 on the STTS). If the inside diameter is .400 or larger than replace it.
2. Visually check the all the compressors (item 9 on TTS/TTC and item 12 on STTS) for damage. If they need replaced, you must remove the pin first.
3. Visually inspect the center bearings (item 12 on TTS/TTC or item 15 on STTS), the spacers (item 10 on TTS/TTC or item 13 on STTS), and the impellers (item 8 on TTS/TTC or item 11 on STTS). Replace as needed.
4. Never reuse the seal assembly (item 4). Always install a new seal during reassembly.
5. Inspect the bearing assembly (item 3), and replace if needed.
6. Inspect the pump shaft for wear in the seal area, the center bearing area, and the bottom bearing area. Replace if needed.

## Reassembly

1. With the center bearings, compressors, spacers, and impellers in place on the shaft, insert the shaft up through the bottom of the TTS/TTC intake tube (up through the bottom of the bearing housing on the STTS).
2. Warm up the seal assembly (item 4) prior to installation by using a heat lamp or soaking 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.
3. 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.
4. 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.
5. Turn pump intake tube (bearing housing on the STTS) upside down and press on the shaft end to slide the bearing assembly into the pump head (bearing housing on the STTS). Use a block of wood and a mallet if needed to drive the assembly into the pump head.
6. Install the coupling (item 2) on the end of the shaft and tighten the set screw into the dimple on the shaft.
7. On STTS models insert the shaft assembly into the intake tube from the top, making sure to install the union nut gasket (item 7) and tighten the union nut (item 5).
8. Reinstall the bottom bearing (item 13 on TTS/TTC and item 16 on STTS), and gently bend the four "feet" in slightly to keep the bottom bearing in place on the TTS and STTS models.
9. Turn the pump coupling to insure there is no binding.

# TTC/TTS SPARE PARTS EXPLODED VIEW



## TTS/TTC 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>	
		PTFE	A100284
5	1	<b>LOCK WASHER</b>	
		#8 BRASS (TTS ONLY)	J100823
6	1	<b>SCREW</b>	
		#8-32 X 1/4 BRASS PAN HEAD M/S (TTS ONLY)	J100822
7	1	<b>INTAKE TUBE ASSEMBLY</b>	
		27" 316 STAINLESS STEEL (TTS)	A100927-1
		40" 316 STAINLESS STEEL (TTS)	A100927-4
		48" 316 STAINLESS STEEL (TTS)	A100927-3
		27" CPVC (TTC)	A100926-1
		40" CPVC (TTC)	A100926-4
		48" CPVC (TTC)	A100926-3
8	1	<b>IMPELLER ASSEMBLY</b>	
		PTFE WITH STAINLESS STEEL PIN (TTS)	A100030
		PTFE WITH ALLOY 625 PIN (TTC)	A100039
9*	4	<b>COMPRESSOR</b>	
		PTFE WITH STAINLESS STEEL PIN (TTS)	A100044
		PTFE WITH ALLOY 625 PIN (TTC)	A100325
10	2	<b>SPACER SET</b>	
		FEP (TTS/TTC-40)	A100043-1
		FEP (TTS/TTC-48)	A100043-2
11	1	<b>SHAFT</b>	
		27" 316 STAINLESS STEEL (TTS)	M100972-1
		40" 316 STAINLESS STEEL (TTS)	M100972-7
		48" 316 STAINLESS STEEL (TTS)	M100972-3
		27" ALLOY 625 (TTC)	M100972-4
		40" ALLOY 625 (TTC)	M100972-8
12*	1	<b>CENTER BEARING</b>	
		PTFE	M100039
13*	1	<b>BOTTOM BEARING</b>	
		PTFE	M100047

\*Recommended Spare Parts



***FINISH THOMPSON INC.***