

Max. Capacity Pulling - 100 Ton at 700 bar
Pushing - 68 Ton at 700 bar

NOTE: These instructions must be read completely before operating.

Failing to follow these instructions may result in personal injury or damage to the equipment.

Inspect the puller unit upon arrival carefully. The puller might be damaged from the carrier's un-carefully handling.

INSTRUCTIONS REQUIRED TO PREPARE PULLER INTO SERVICE

STEP 1. Carefully read and understand the Safety Precaution and Operating Instructions in the follows attached. These safety precautions and operating instructions describe general safety precautions and the method required to connect the pump, hoses, fittings, and pull the cylinder. Since this puller has been completely assembled and tested at our factory, please follow the below steps to put the puller into service.

STEP 2. Carefully remove all packing materials from the assembled puller.

STEP 3. Fill pump reservoir to proper operating level using approved Hydraulic Oil.

STEP 4. Connect the pump power cord to the proper power source and move the handle of valve 1 (Ref. Page 5) to the "DOWN" position to lower the puller ram to the lowest position. Start pump and cycle pulling ram to full extension, then to full retraction, three or more times until ram advances and retracts smoothly throughout the cylinder.

STEP 5. Allow the pump to build to full pressure with the ram first fully extended, and then fully retracted. Stop the pump and inspect each hose, fittings, and other system components for any oil leakage. If any leakage is found, correct the problem and reset it.

STEP 6. Install proper tooling on the puller and operate the puller following the instructions for " Removing or Installing the TIMKEN ' AP ' or ' Hyatt HY-roll Taper ' Bearing (or similar) as written in this.

SAFETY PRECAUTIONS

WARNING!!

ALL WARNING statements must be carefully observed to help prevent personal injury. Keep these instructions at or near the machine location. Only qualified individuals should operate this equipment.

HYDRAULIC HOSES

- ◆ Before operating the pump, tighten all the hose connections using proper tools. Do not overtighten the connections. Connections need only be tightened securely and leak-free. Overtightening may cause premature thread failure or high-pressure fitting to split at a pressure lower than their rated capacities.
- ◆ Should a hydraulic hose ever rupture, burst, or need to be disconnected, shut off the pump immediately and shift the control valve to release all pressure. Never attempt to grasp a leaking pressurized hose with your hands.
- ◆ Always keep the hose away from fire, sharp surfaces, heavy impact, and extreme heat or cold. Never kink, twist, curl or bend the hose so tightly that the oil flow within will be blocked or reduced.
- ◆ Always inspect the hose for the signs of wear as any of these conditions can damage the hose and possibly result in personal injury.
- ◆ Hose material and coupler seal must be compatible with the hydraulic fluid used. Hose also must not come in contact with corrosive materials such as creosote-impregnated objects and some paints. Never paint the couplers, hose deterioration due to corrosive materials may result in personal injury.
- ◆ Never use the hose to move attached equipment. Stress can damage the hose and cause personal injury.

ELECTRIC PUMP

- ◆ Do not exceed the hydraulic pressure rating noted on the pump nameplate or tamper with the internal high-pressure relief valve. Creating pressure beyond rated capacities can result in personal injury.
- ◆ Retract the system before replenishing the oil level to prevent overfilling the pump reservoir. An overfill can cause personal injury due to excess reservoir pressure created when cylinders are retracted.
- ◆ Always ensure the voltage and Ampere before connecting the electric hydraulic pump and electric power supply.

GENERAL OPERATION

- ◆ Do not beat or hammer on any part of this unit! Sharp or sudden impacts can cause undue stress on highly loaded parts which can result in equipment damage or possible personal injury.
- ◆ Stand to the side of the puller or back as far as the remote-control cord in case of part breakage during bearing removal or installation.
- ◆ A qualified individual should carefully inspect the unit before each use. This individual should look for any abnormal condition that may present a potentially hazardous situation. If any abnormal condition is found, do not use the equipment until it is corrected and approved for sure.
- ◆ It is the user's responsibility to wear protective equipment. At least, it is suggested that the operator and anyone else in the work area, wear safety goggles, safety shoes, and a hard hat.
- ◆ Securely wrap the workpiece to be pulled or installed with a suitable ballistic nylon protective blanket to help protect users and others from possible injury should a part break while applying pressure.

SETUP AND OPERATION

HOSE CONNECTION

IMPORTANT: Teflon tape can be used to seal hydraulic connections if only one layer of tape is used. Apply carefully, two threads back, to prevent it from being pinched by the coupler and broken off inside the system. Any loose pieces of tape could travel through the system and obstruct the flow of oil or cause the jamming of precision-fit parts.

Hose connections should be done in the following sequence:

MODEL BRBP100T (refer to figure H1 - H2) Units are supplied completely assembled. The following steps are for reference only.

1. Connect one 3 feet hose (HFHS333) from port "A" to the pressure regulator valve (BG-9623)
2. Connect the other 4 feet hose (HFHS334) from port "B" to the rod end cylinder port.
3. Operate the unit, with the cylinder in the lowest position, three or more times until it advances and retracts smoothly.

NOTE: If hoses are connected wrong, the remote control switch will operate the cylinder in reverse of what the decal indicates.

EXTERNAL PRESSURE REGULATOR

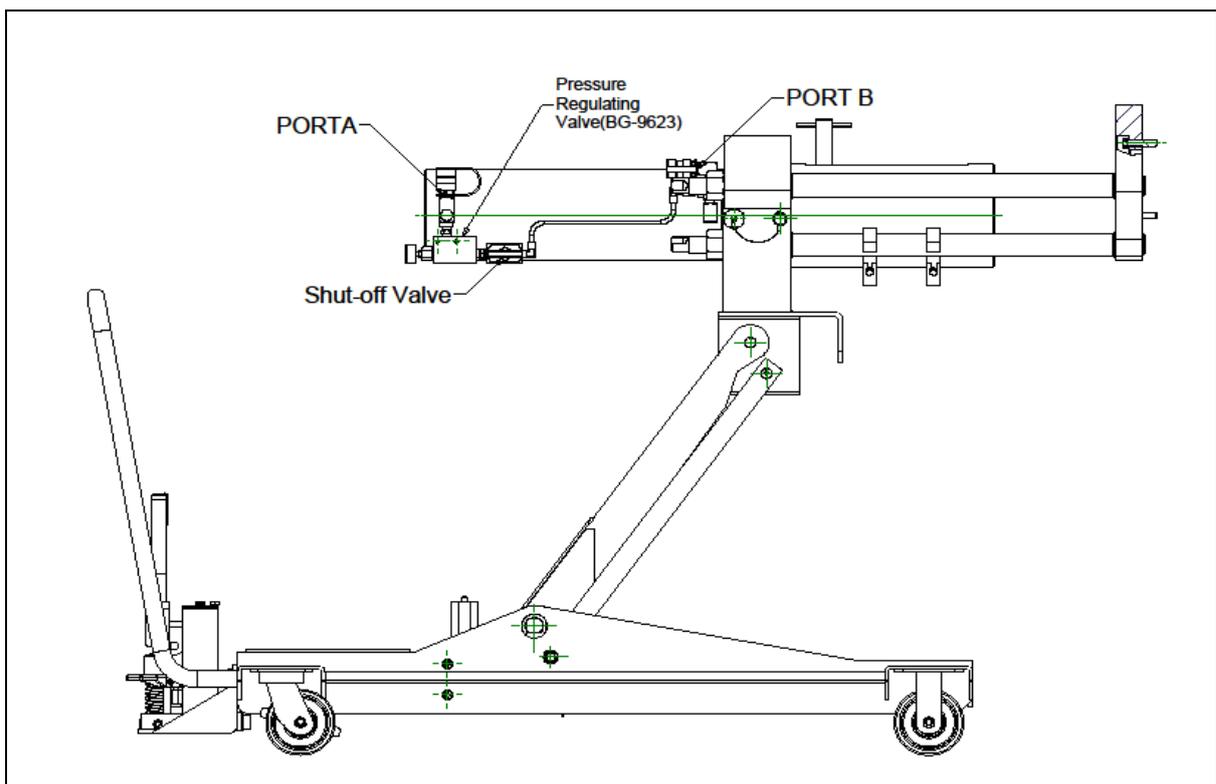
The pressure regulator valve allows the operator of the bearing puller/pusher to limit the pressure on the return stroke of the cylinder when the journal axle bearing is being installed. The pressure regulator valve has been set at 6,000 psi. The maximum force (output) of the cylinder is at 6,000 psi when the piston is being retracted in 40 Tons (with the shut-off valve open). If the maximum force of the cylinder is needed for bearing installation, the shut-off valve should be closed.

Adjusting the Pressure Regulator Valve (refer to the Parts List).

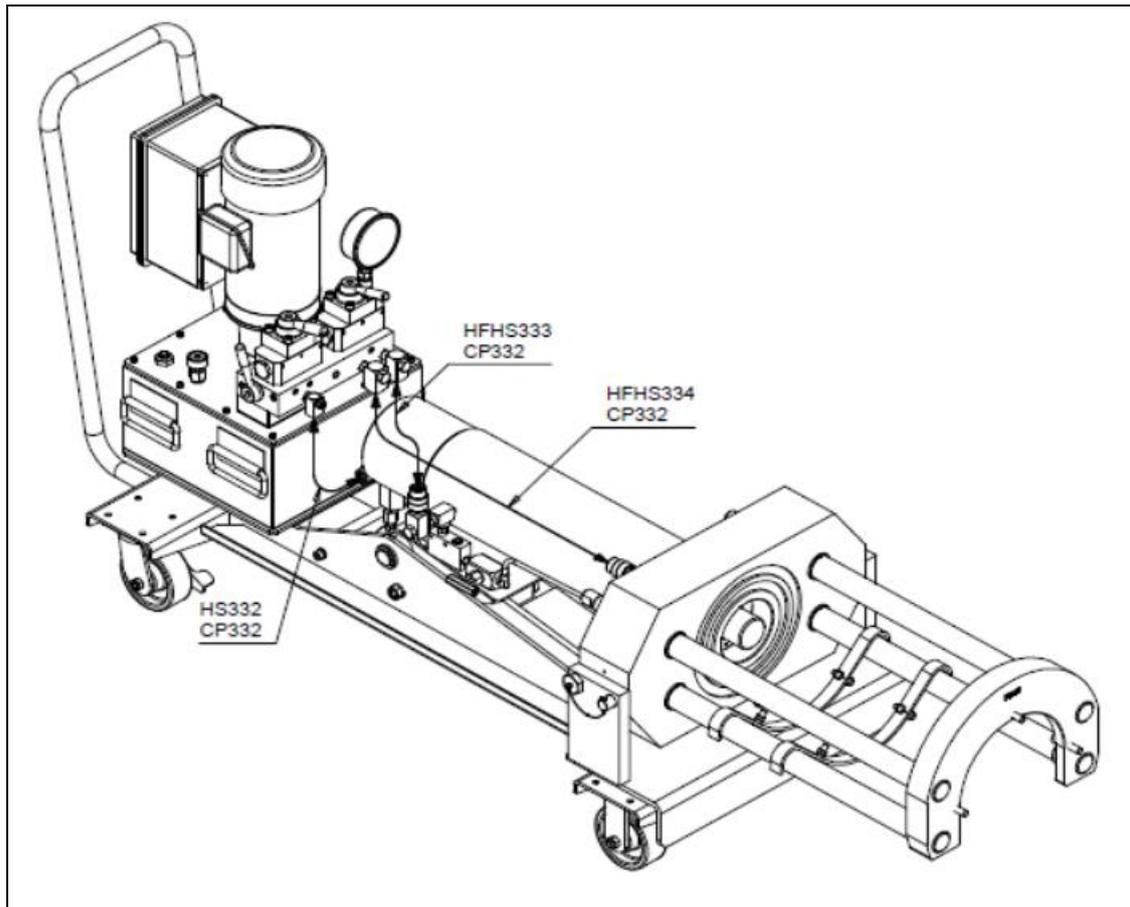
NOTE: For easy adjustment of the pressure regulator valve, always adjust the pressure by INCREASING it to a desired pressure setting. The pressure range for this unit is 1,000 psi to 10,000 psi.

1. Loosen the locknut on the pressure regulator valve. Turn the adjusting screw a few turns counterclockwise to decrease the pressure setting to a lower than desired pressure.
2. Open the shut-off valve.
3. Place the 4-way control valve in the return position.
4. Start the pump and build pressure on the return side of the regulator valve. Slowly turn the adjusting screw in a clockwise direction to gradually increase the pressure setting. When the desired pressure setting is reached, lock the adjusting screw into position by tightening the locknut.

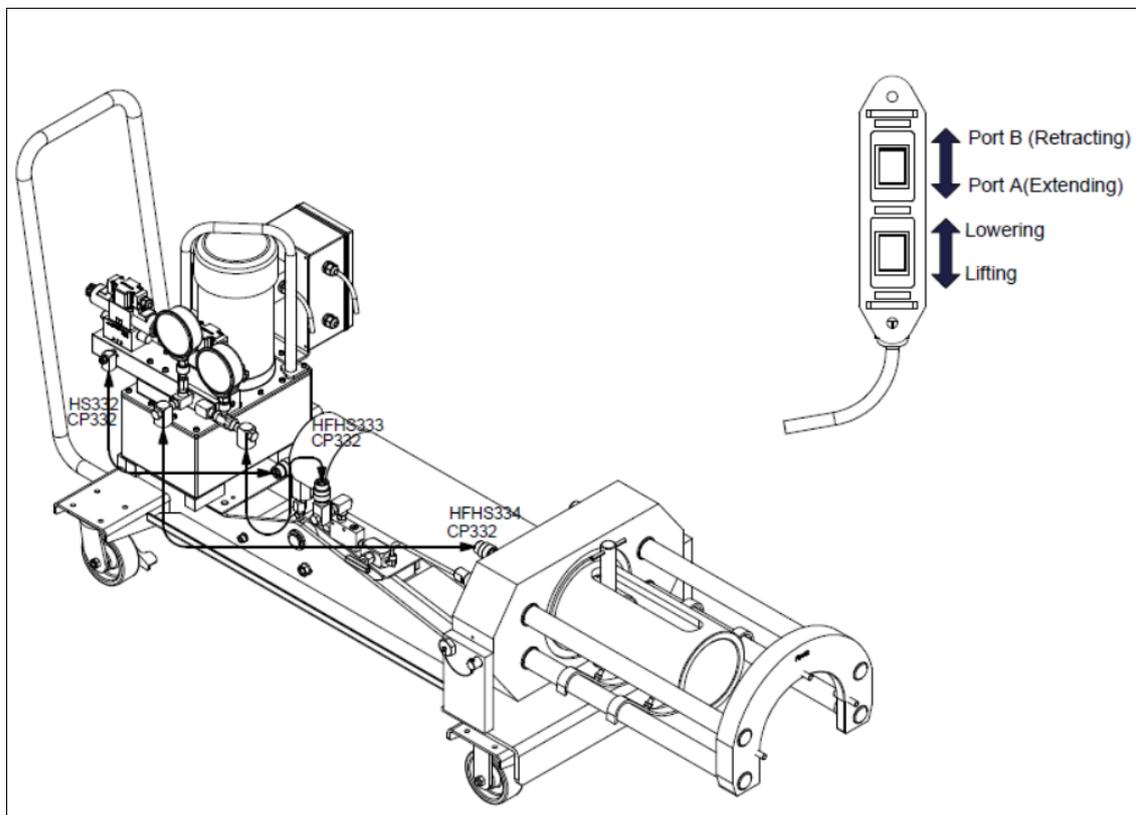
HYDRAULIC HOSE CONNECTION AND PRESSURE REGULATOR



HYDRAULIC HOSE CONNECTION AND PRESSURE REGULATOR



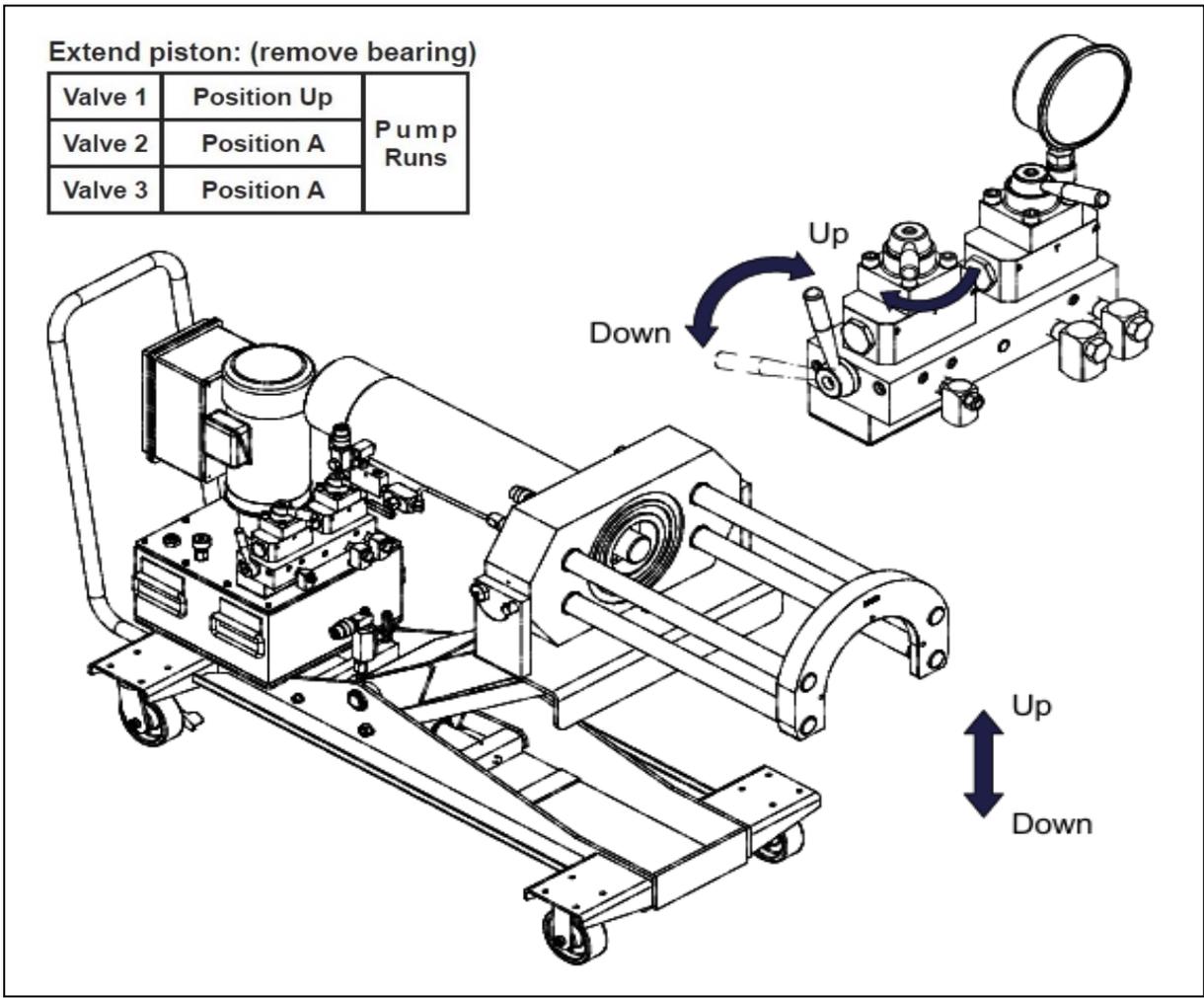
Manual Control Valves



Solenoid Valve

Operating Instructions - Control Panel

★ Lifting and Lowering the Push/Pull Section

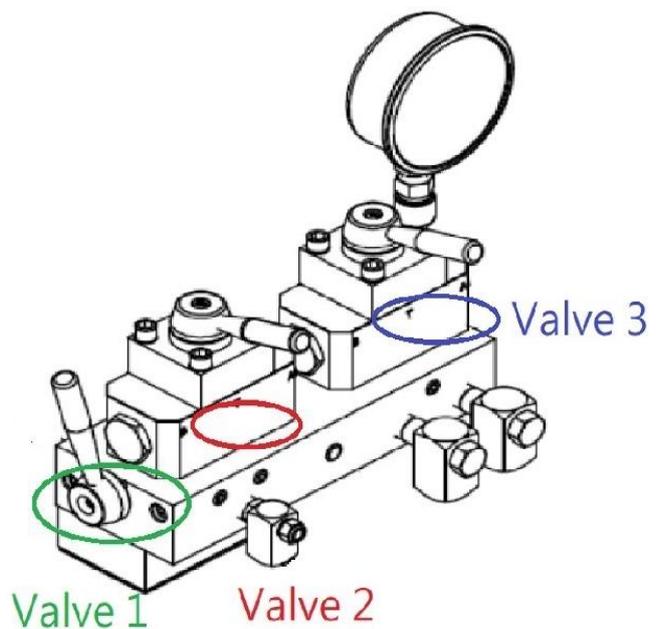


Raise Puller:

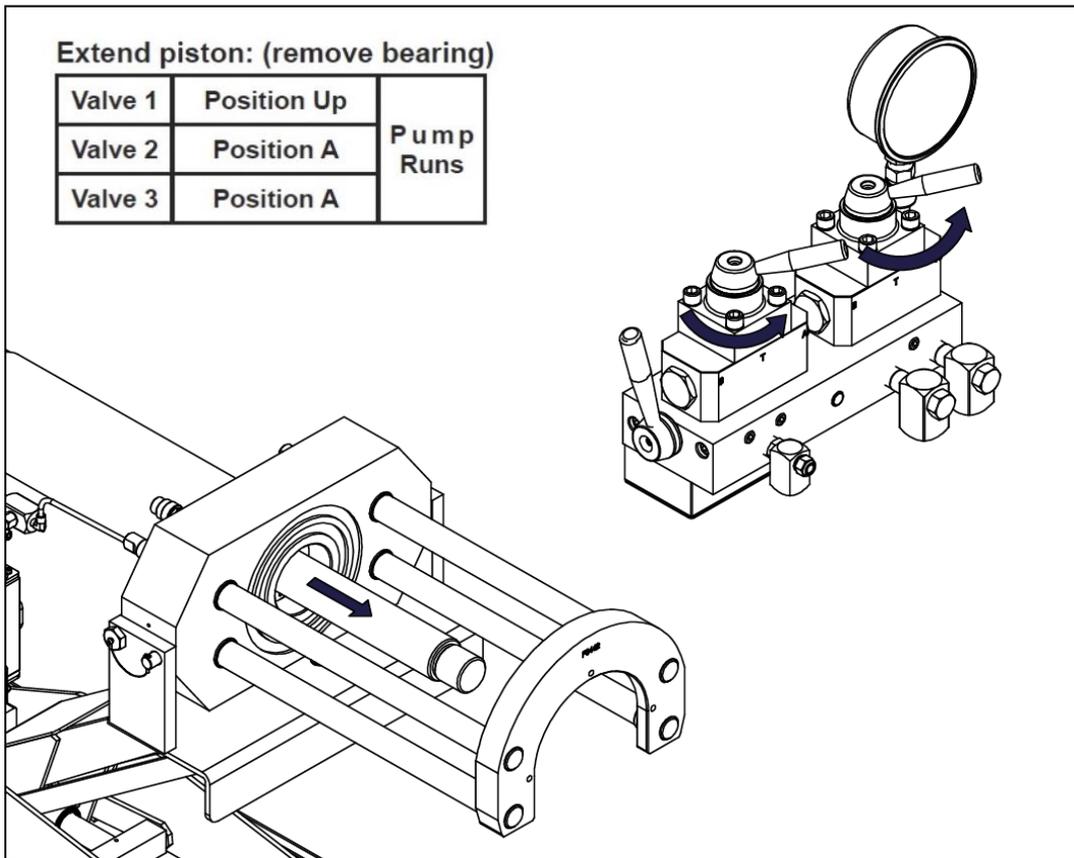
Valve 1	Position Up	Pump Runs
Valve 2	Position B	
Valve 3	Position T	

Lower Puller:

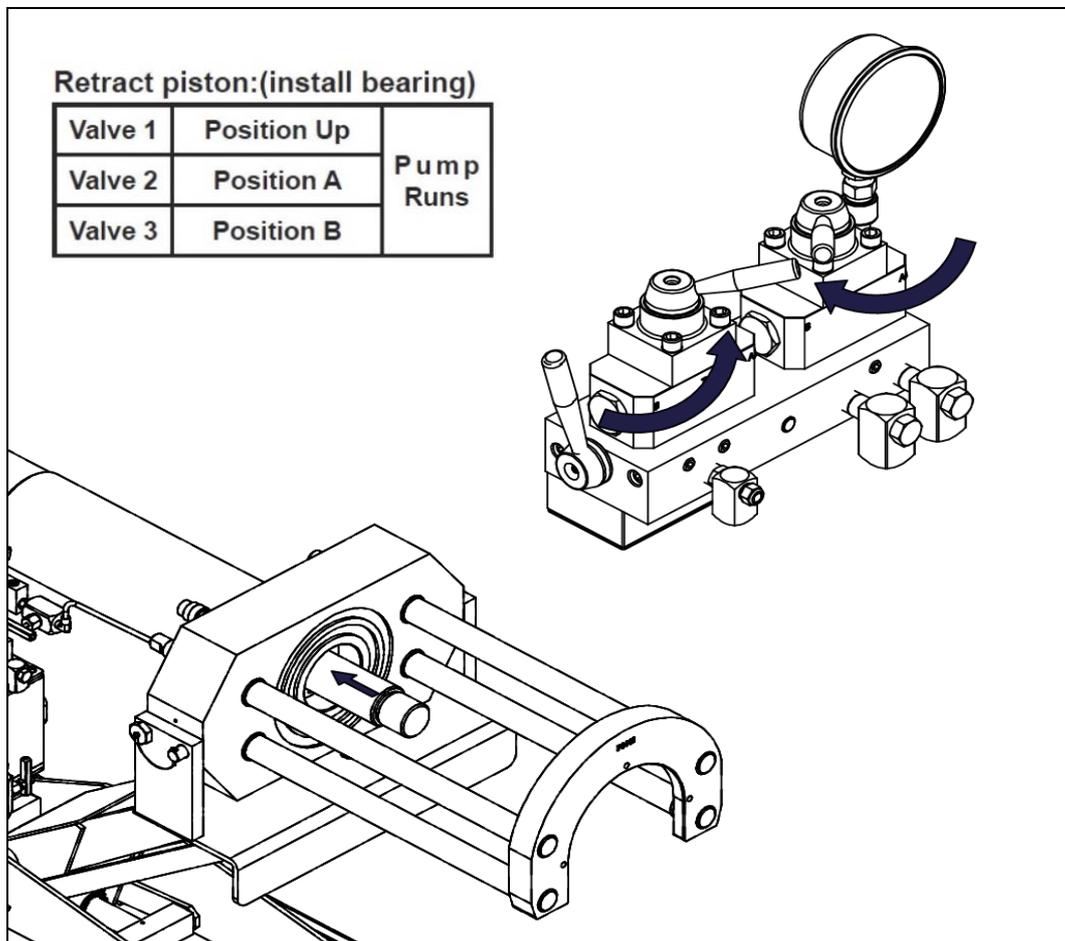
Valve 1	Position Down	Pump does not run
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★ **Extending Piston Rod**



★ **Retracting Piston Rod**



Operating Instructions

REMOVING OR INSTALLING THE TIMKEN " AP " OR " HYATT HY-ROLL TAPER " BEARING (OR SIMILAR)

Always follow the bearing manufacturer's installation or removal procedures. These guideline instructions are for typical applications only.

The following instructions cover a typical application involving the use of a POWERRAM Bearing Puller / Pusher and illustrate the necessary steps to remove and install roller bearings with this unit. The adapters and accessories which will be required to remove and install these bearings will be determined by the manufacturer when furnished with the following information concerning the particular bearing to be serviced: Bearing manufacturer's name, bearing manufacturer's general arrangement drawing number, size of bearing to be serviced, railroad name and location, and part number of the adapters which are in your possession if you presently own a puller/pusher.

NOTE: We highly recommend securely wrapping the workpiece to be pulled or installed with a suitable ballistic nylon protective blanket to help protect the users and others from possible injury should a part break while applying pressure.

BEARING REMOVAL OPERATION

➤ TO REMOVE A BEARING FROM AN AXLE (WHEN ONLY A FEW ARE TO BE REMOVED)

Refer to the bearing manufacturer's service manual for steps to be taken before the actual removal of the bearing. Select the proper Pulling Shoe and attach it to the Pulling Frame Legs if this has not already been done (Figure 1).

Attach the Guide Tube Adapter to the end of the axle with the Cap Screws provided (Figure 2).

Insert the Guide Tube Adapter into the threaded hole in the Guide Tube. The Guide Tube The adapter is retained by a spring-loaded ball and is not threaded (Figure 3).

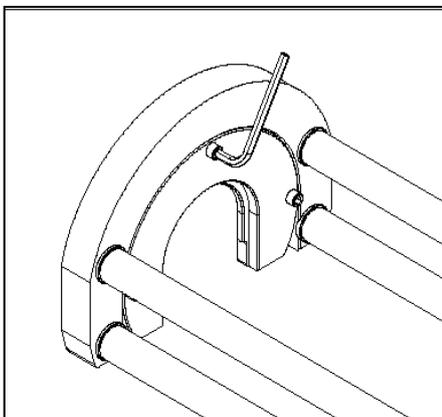


Figure 1

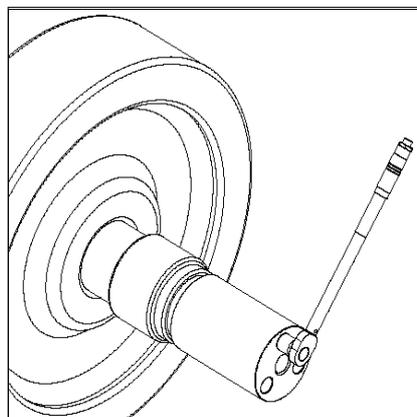


Figure 2

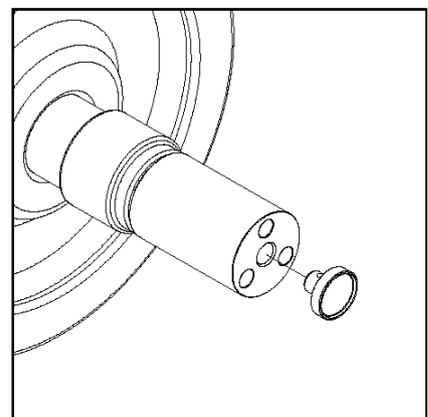


Figure 3

Roll the bearing puller/pusher into position. Remove the Puller Frame Stop Pins and tilt the Pulling Frame so that it is positioned directly above the Bearing Assembly. Place the Forcing Plug Adapter in the Piston Rod Coupling (Figure 4).

Lower the Pulling Frame so that the Pulling Shoe fits behind the bearing backing ring and replaces the Pulling Frame Stop Pins. **Note: The Bearing Puller / Pusher must be in alignment with the axle. It may be necessary to adjust the Pulling Frame for height to assure correct vertical alignment of the Bearing Puller / Pusher.** After adjusting Pulling Frame for height, hold the Pulling Shoe in position behind the bearing backing ring until initial pressure has been applied to the bearing assembly (Figure 5).

If the Pulling Shoe is engaging the bearing backing ring properly and the entire setup is properly aligned (Figure 6), **stand to the side of the puller and back as far as the remote control cord will allow** and continue to apply pressure, extending the Piston Rod until the bearing assembly has been removed from the axle and is resting on the Guide Tube.

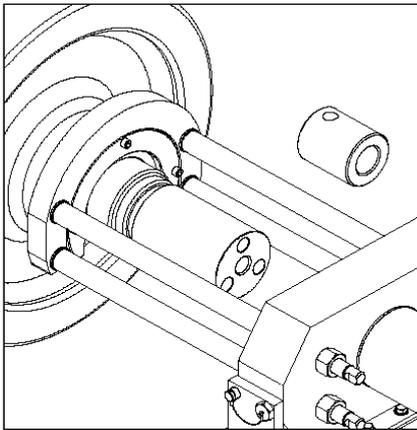


Figure 4

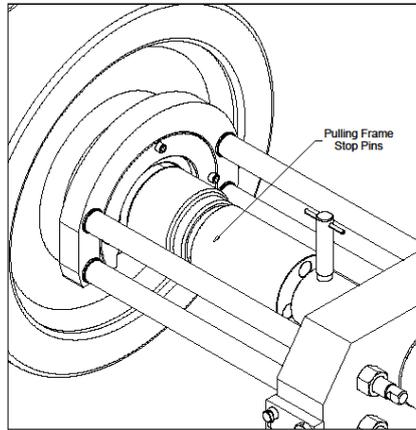


Figure 5

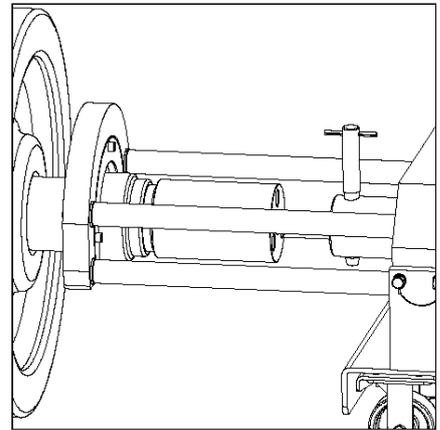


Figure 6

When the bearing assembly is removed from the Guide Tube, a cardboard tube, similar to the shipping tube which originally accompanied the bearing assembly should be used to hold the internal bearing parts in place. Particular attention should be given to keeping the seal wear rings in place in the enclosure seals.

➤ **TO REMOVE A BEARING ASSEMBLY FROM AN AXLE (WHEN NUMEROUS BEARING ASSEMBLIES OF THE SAME SIZE ARE TO BE REMOVED).**

Upon determining the bearing size, select the proper Pulling Shoe Instep Adapter and attach it to the Pulling Shoe (Figure 7). Attached the Guide Tube to the Piston Rod Coupling by threading the Installing Adaptor into the Guide Tube (Figure 8) and attaching this assembly to the Piston Rod Coupling with the Connector Pin (Figure 9). The Guide Tube must be tightened against the Piston Rod Coupling so that the pressure required to remove the bearing assembly will not shear or bend the Connector Pin.

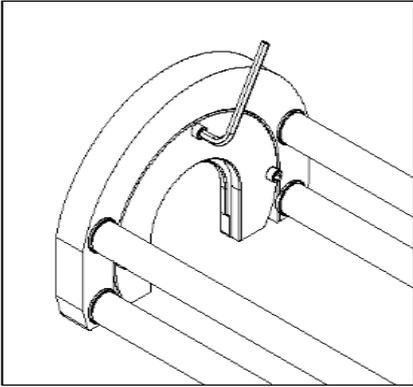


Figure 7

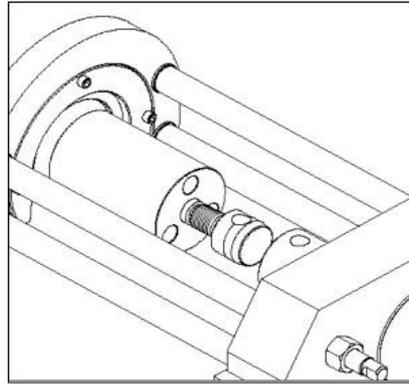


Figure 8

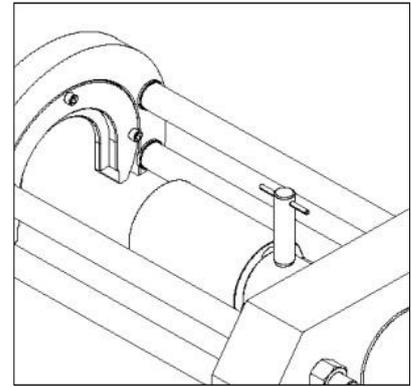


Figure 9

Threaded two Guide Pins into the axle to align the Guide Tube with the axle for the pulling operation (Figure 10).

NOTE: Guide Pins are not supplied or cataloged by the manufacturer. Guide Pins are strictly a user part and must be determined by the user.

Roll the bearing puller/pusher into position. Remove the Puller Frame Stop Pins and tilt the Pulling Frame so that it is positioned directly above the Bearing Assembly (Figure 11).

Lower the pulling Frame so that the Pulling Shoe fits behind the bearing backing ring and the Guide Pins are in alignment with the holes in the Guide Tube. Replace the Pulling Frame Stop Pins. The Bearing Puller / Pusher must be in alignment with the axle.

It may be necessary to adjust Pulling Frame for height and hold the Pulling Shoe in position behind the bearing backing ring until initial pressure has been applied to the bearing assembly (Figure 12).

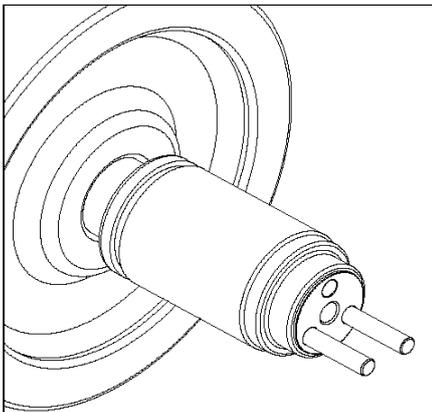


Figure 10

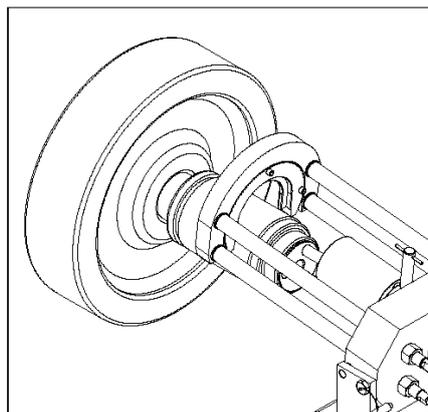


Figure 11

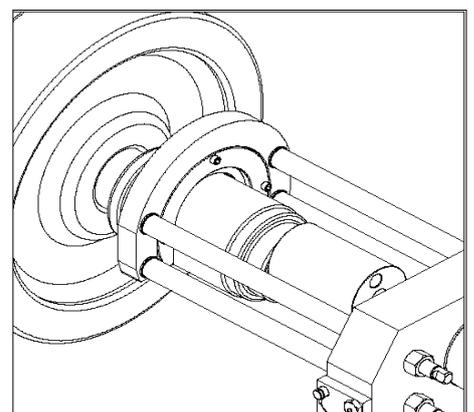


Figure 12

If the Pulling Shoe is engaging the bearing backing ring properly and the entire setup is properly aligned (Figure13), **stand to the side of the puller and back as far as the remote control cord will allow** and continue to apply pressure, extending the Piston Rod until the bearing assembly has been removed from the axle and is resting on the Guide

Tube (Figure 14). When the bearing assembly is removed from the Guide Tube, a cardboard tube, similar to the shipping tube which originally accompanied the bearing assembly, should be used to hold the internal bearing parts in place. Particular attention should be given to keeping the seal wear rings in place in the enclosure seals.

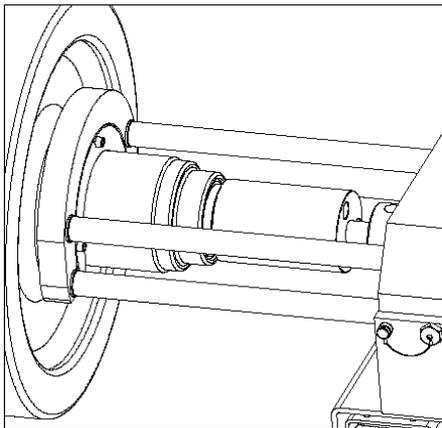


Figure 13

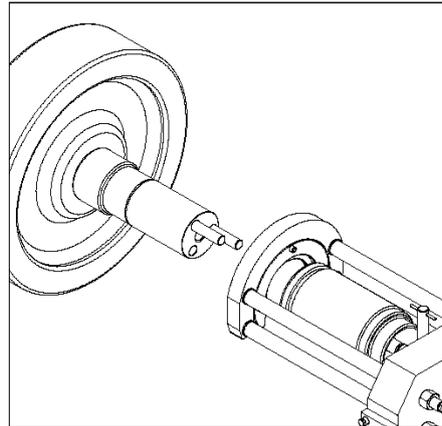


Figure 14

BEARING ASSEMBLY INSTALLATION OPERATION

The axle should be checked for size and condition before bearing assemblies are reinstalled. (Check the bearing manufacturer's service manual for steps and procedures to be taken in checking the axle.) Any undesirable conditions such as upset ends, high spots, or blemished should be corrected.

➤ TO INSTALL A BEARING ASSEMBLY ON AN AXLE

Attach the Guide Tube to the end of the axle with the cap screws provided (Figure 15). If a large number of bearing assemblies are to be installed, at least two Guide Tubes should be used to facilitate more efficient production. Threading the Installing Adapter into the Guide Tube (Figure 16).

Coat the bearing seats of the axle with castor oil, heavy mineral oil, a Molykote, and oil mixture, or as directed by the bearing manufacturer (Figure 17).

NOTE: DO NOT USE WHITE LEAD. Lead compounds act as an oxidation catalyst in lubricating greases.

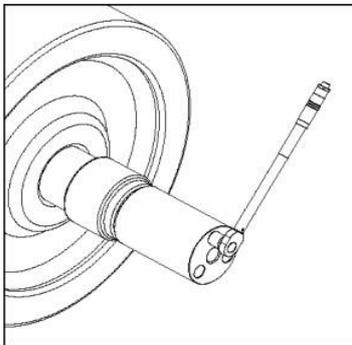


Figure 15

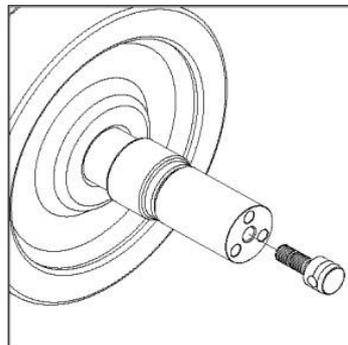


Figure 16

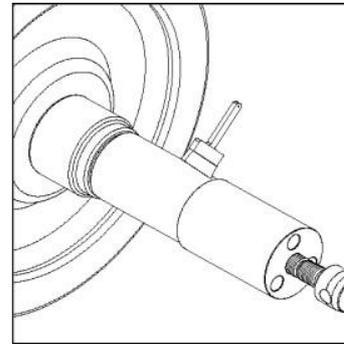


Figure 17

Slip the bearing assembly on the Guide Tube. The seal wear ring should be held in place to prevent it from riding out of the enclosure seal when the cardboard tube is ejected. A small lift is recommended for handling the large bearing assembly sizes (Figure 18). Place the Installing Tube Adapter Ring in position against the outer seal wear ring. The Installing Tube Adapter Ring must be properly positioned on the Guide Tube to receive the installing Tube (Figure 19).

NOTE: BE CERTAIN THAT INSTALLING THE TUBE ADAPTER RING IS NOT REVERSED!

If the Pulling Shoe Insert Adapter has not been removed from the Pulling Shoe, remove it now. Bearing assembly installation cannot be accomplished with the Pulling Shoe Insert Adapter attached to the Pulling Shoe (Figure 20).

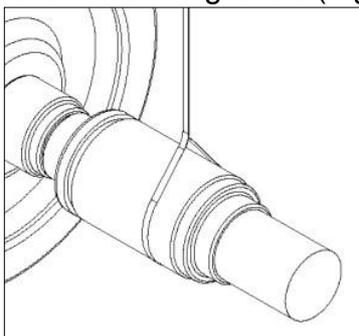


Figure 18

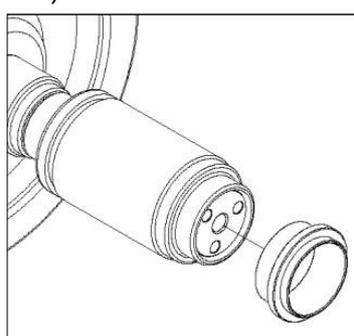


Figure 19

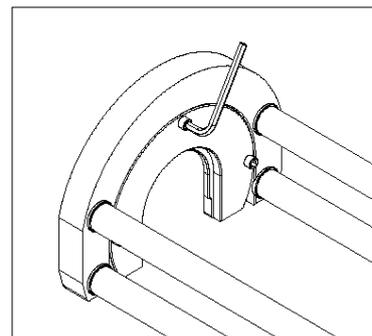


Figure 20

Place the Installing Tube Cradles between the lower arm of the Pulling Frame (Figure 21). Place the Installing Tube on the Installing Tube Cradles (Figure 22).

NOTE: THE INSTALLING TUBE MUST BE INSTALLED CORRECTLY!

The tube end with the undercut will be visible if installed correctly.

Regulate the Installing Tube Cradle Adjusting screws to properly align the Installing Tube with the recess in the Hydraulic Ram Mounting Plate so that they will engage correctly (Figure 23). Normally this adjustment need only be made once and is not necessary each time a bearing assembly of the same size is to be installed.

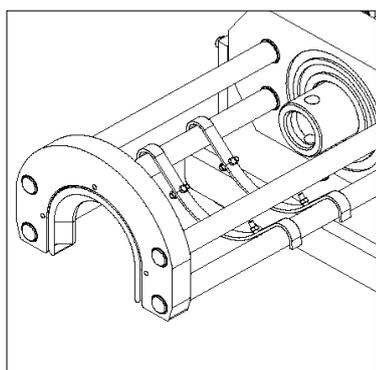


Figure 21

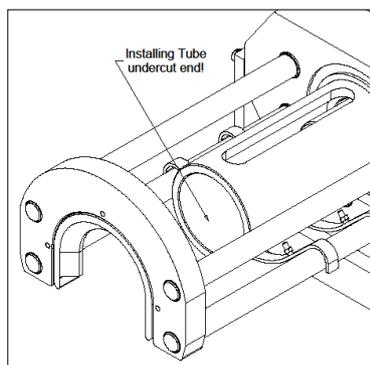


Figure 22

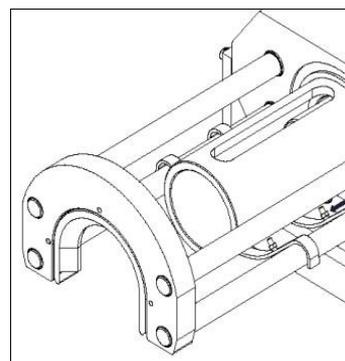


Figure 23

Extend the Piston Rod completely and roll the Bearing Puller / Pusher into position, adjusting the Pulling Frame for height, if necessary. Engage the Installing Tube with the Installing Tube Adapter Ring and the Threaded Installing Adapter with the Piston Rod Coupling. The holes in the Threaded Installing Adapter and the Piston Rod Coupling must be properly aligned. Insert the Connector Pin (Figure 24).

Note: It may be necessary to adjust the Threaded Installing Adapter a few turns so that the Connector Pin, when inserted almost touches the end of the guide slot in the Installing Tube.

Begin to retract the Piston Rod and, if everything is properly engaged and aligned (Figure 25), **stand to the side of the puller and back as far as the remote control cord will allow** and continue to retract the Piston Rod to press the bearing assembly onto the axle.

Allow the pressure registered on the Pressure Gauge to build up the bearing manufacturer's suggested seating tonnage to insure that the bearing parts are properly seated and that the backing ring is firmly seated against the axle fillet. After the bearing assembly has been pressed on the axle, remove the Bearing Puller/Pusher and rotate the bearing assembly to insure proper bearing operation.

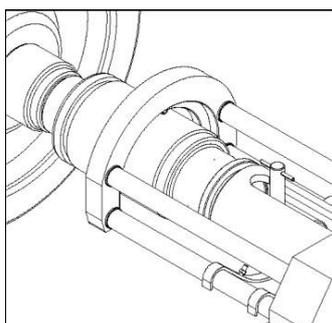


Figure 24

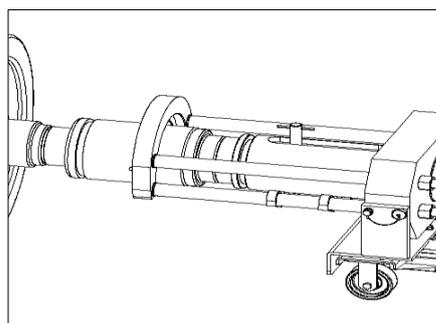
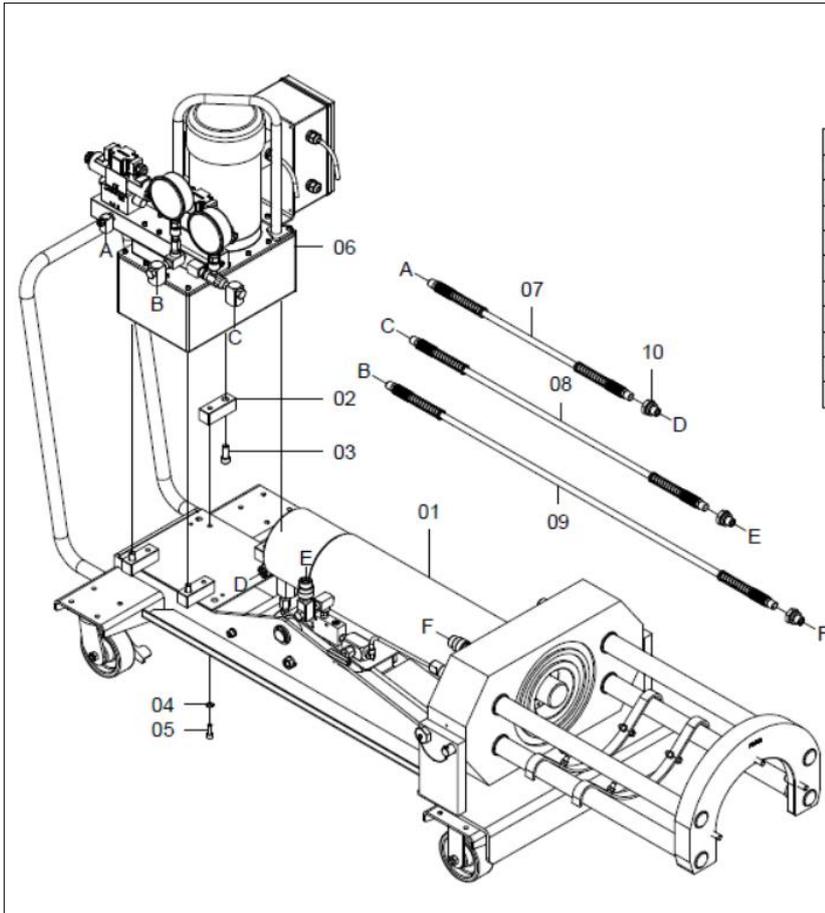


Figure 25

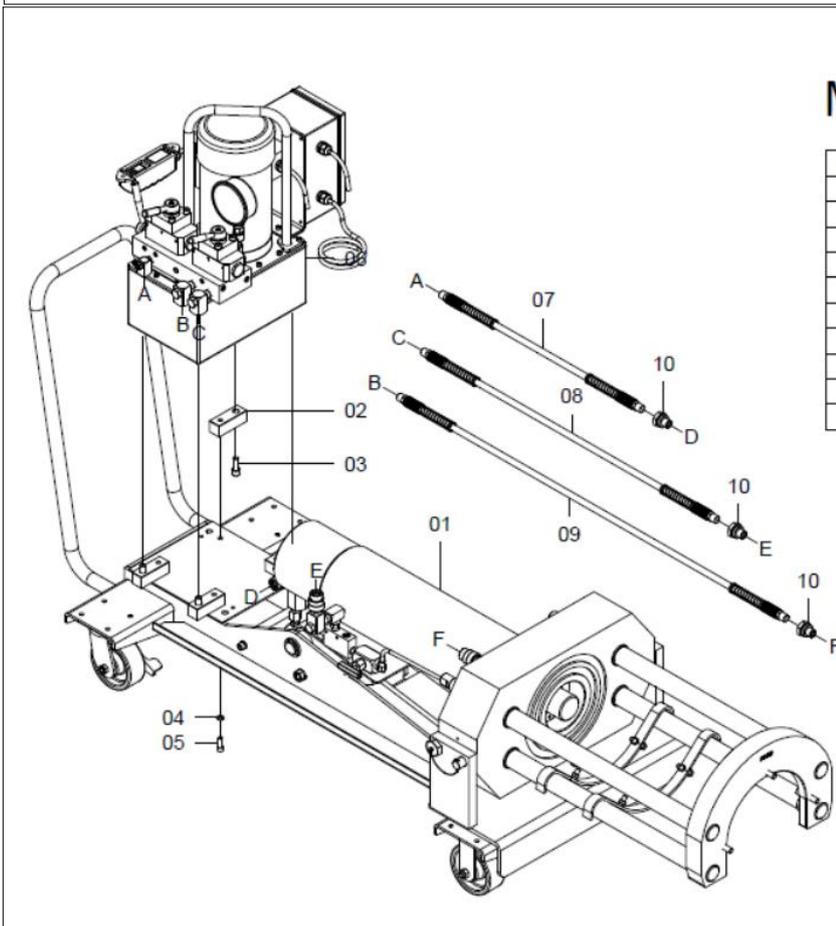
PART LISTS



MODEL:BRBP100TEVS

REF NO.	PARTS NO.	DESCRIPTION	QTY
01	BRBP100T	100 Ton Roller Bearing Puller	1
02	C1300	Rear Base Foot	4
03	H0464	Cap Screw	4
04	J0053	Spring Washer	4
05	H0086	Cap Screw	4
06	EP211-S75	Electric Pump	1
07	HS332	Hose	1
08	HFHS333	3 Feet Hihg Flow Hose	1
09	HFHS334	4 Feet Hihg Flow Hose	1
10	CP332	Quick Coupler	3

JR/BRBP100S11



MODEL:BRBP100TEVH

REF NO.	PARTS NO.	DESCRIPTION	QTY
01	BRBP100T	100 Ton Roller Bearing Puller	1
02	C1300	Rear Base Foot	4
03	H0464	Cap Screw	4
04	J0053	Spring Washer	4
05	H0086	Cap Screw	4
06	EP211-N18	Electric Pump	1
07	HS332	Hose	1
08	HFHS333	3 Feet Hihg Flow Hose	1
09	HFHS334	4 Feet Hihg Flow Hose	1
10	CP332	Quick Coupler	3

JR/BRBP100S11

PART LISTS

ROLLER BEARING PULLER/INSTALLER MODEL:BRBP100TE-4DS

REF NO.	PARTS NO.	DESCRIPTION	QTY
01	BRBP100T-CD	100 Ton Roller Bearing Puller	1
02	EP420DS	Electric Pump	1
03	ADF303	Adaptor	2
04	ADG303	Tee	1
05	ADF302	Adaptor	1
06	CP211	Quick Coupler	2
07	CP212	Quick Coupler	2
08	M0136	Gauge	2
09	BG-9705	High Flow Swivel Connector	2
10	ADL303	Elbow	1
11	ADG323	Gauge Adaptor	1
12	HB350-CD	Hand Pump	1
13	J0131	Washer	4
14	H0095	Screw	4
15	H0107	Nut	2
16	J0133	Washer	4
17	H0501	Screw	4
18	HS333	Hose	1
19	HFHS334	4 Feet High Flow Hose	2
20	CP332	Quick Coupler	3

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