

OPERATING MANUAL



ENTRACK 100 ton MASTER PIN PUSHER MODEL: HEPP100T-E230

INTRODUCTION:

Track Link Pin Pusher /Installer is specially designed for tracked machines, tractors, loaders, shovels, excavators, etc. It is suitable to use with Volvo, JCB, Caterpillar, Komatsu, Poclain or any other make track machines. It is safe and simple to use. Hydraulic force ensures smooth operation, thereby avoiding damage to the components of the track assembly.

SPECIFICATIONS:

Track Link Pin Pusher, model: HEPP100T-E230

Capacity	: 100ton
Stroke	: 350mm
Frame throat	: 85mm
Frame daylight	: 369mm
Total length of assembly	: 1440mm
Weight ('C' frame with Cylinder)	: 205 kg approx.

Power Pack,

Electric motor Capacity	: 2 hp, 1410rpm
Pump flow	: 1 liter per minute
Working pressure	: 700bar
Oil Tank capacity	: 35liters
Usable oil capacity	: 12liters
Approx. Weight	: 80kilogram

In-Built Hand Pump,

Max.Working pressure	: 700bar
Flow up to 30 bars	: 49 cc/stroke
Flow above 30 bars	: 2.8 cc/stroke

DESCRIPTION:

Track Link Pin Pusher with Electric power pack and in-built hand pump

Consist of the following.

1. Fabricated `C` frame – 1quantity.
2. Double acting hydraulic cylinder 100t x 350 mm stroke – 1quantity.
3. Tie rod with nuts for connecting `C` frame and cylinder – (2 + 2) quantity.
4. Tripod with chain pulley block, lifting belt for handling – 1set.

The `C` frame is fabricated construction and has a `U` cut out at front end where **aligning adapter** is fixed. **Frame** has a through bore, through which **forcing pin** and **master pin pusher** passes out. Frame has eyebolts for fixing 'Chain pulley block hook', for handling.

Double acting hydraulic cylinder is made in alloy steel and has 350 mm stroke with which **master pin** can be **pushed** or **installed** in one stroke. Cylinder has a threaded flange to which tie rods are fitted and connected to `C` frame. Tie rods and nuts are machined from alloy steel material. Tools provided are also of alloy steel heat treated for strength.

To, push **master pin** for track separation, the master link should be positioned on the upper section of track, half way between the sprocket and idler. The `C` frame is then positioned in place and aligned after which **master pin** can be pushed out hydraulically.

Select the tooling according to the model of track machine.

CAUTION:

- ✓ Always wear eye protection while operating the equipment.
- ✓ Make sure not to exceed the rated capacity and stroke of the cylinder.
- ✓ Always maintain proper fluid level in hydraulic pumptank.
- ✓ Never hold pressure on hydraulic ram, immediately release ram pressure when job is completed.
- ✓ Periodically inspect hydraulic hoses for cuts, splits or cracks.
- ✓ Always make sure hydraulic connections are secured tightly.
- ✓ Avoid dropping heavy objects on the hose, it may damage hose.
- ✓ Always provide adequate bracing loads.
- ✓ Do not disconnect hydraulic hose or fittings when system is under pressure.
- ✓ Do not remove the safety guards provided with the equipment

OPERATING INSTRUCTIONS:

Ensure that oil is filled up to the level in the power pack oil tank (**See page no 12 for recommended oil**). Connect hose to the hydraulic cylinder and power pack. Start the motor and operate directional valve handle for forward stroke, complete the forward stroke. Now operate directional valve handle to backward direction to return the stroke, complete the stroke. Performing this operation helps to remove the air tarp inside the system. Switch off the motor and continue the same process operating the handle of manual pump. Use rotary directional control valve on the manifold for manual hand pump operation.

Remedies for System Air Trap.

ENTRACK power packs are supplied without initial oil due to transportation restrictions, normally when oil is filled for the first-time air will usually find its own way in the hydraulic system. Even air that has become trapped in oil will usually get transported back to the reservoir at some point. It's common knowledge that air trapped in a system can cause erratic operation and hydraulic ram does not move. Bleeding air from a hydraulic system can speed up this process

HEMS power packs are supplied with Air bleeding caps and effective approach is to loosen this cap until the oil flows to minimize any air on start-up. Operator can do this during first time start up.

Operation: Fill recommended Hydraulic oil in the tank. (**See page no 12 for recommended oil**) Start the motor and operate directional valve handle for forward stroke. If the ram fails to move due to air trap, loosen the air bleeding cap and wait for the oil to flow out for 2-3 second. Stop the motor and tighten the cap back. Follow the same steps for manual hand pump by stopping the motor if required.



Based on the model, select an appropriate forcing pin and aligning bushes. Fit them inside the 'C' frame bore. Fit aligning adapter on 'U' cut out in the frame position according to the track size of which the master pin is to be removed. Operate Directional valve till **master pin pusher** touches the **master pin**. Once again visually ensure correct alignment of master pin to the pushing pin and continue to operate Directional valve to push master pin out. Retract ram fully and remove **master pin pusher** from front end. Now the track can be separated. You can use provided flat jack (20Ton) to separate the tracks if necessary.

Ensure, aligning bushes are within 'C' frame bore, during master pin removal. For fitment of master pin, master pin pusher should be fitted in the link assembly and master pin to be pushed in with the help of forcing pin after proper alignment

FUNCTIONAL DESCRIPTION OF HYDRAULIC CIRCUIT:

Refer Drawing No. **PPU-2-62-01M-00**

Oil tank 'T' capacity is 30 liters and has plunger pump 'P' inside, driven by 2 hp electric motor mounted on top plate, through a flexible coupling and bell housing. Filter breather 'FB' and level indicator 'OL' are fitted on tank.

System relief valve 'V1' has direct operated poppet type variable pressure relief valve with pressure adjusting hand knob for adjustment. The system pressure can be set by, this valve by rotating clockwise to increase and vice versa.

The directional valve (V2) is hand lever operated, spool type, spring centered which means that once the hand lever is shifted to one position & left, the valve spool takes its neutral position. The valve has three-lever position corresponding to Advance, Neutral & Return. Directional valve is 'G' spool type.

Above all valves are mounted on manifold block (MB). Pump delivery line is connected to MB.

Connect hydraulic hoses from the power unit to the equipment being operated. Be sure to completely connect the hydraulic couplings or damage will result to the hydraulic system. Ensure that the pressure and return hoses are connected to the correct port. Always be sure the connections are clean before assembling.

This double acting hydraulic pump is designed as a flexible unit. The unit is supplied with built in manual hand pump mounted on the reservoir, making it particularly suitable for use as an emergency stand-by power source.

BUILD-IN MANUAL HAND PUMP OPERATION:

Manual Hand Pump with rotary directional control valve is designed for double acting Hydraulic Cylinder. The pump can be effectively used as an alternative option in case electric power is not available. The pump consists of a piston, which operates in two pumping chambers. Manual pump is designed to deliver maximum oil from the main tank. We recommend the user to switch off electric motor while operating manual hand pump. Separate two way rotational directional valve is provided with the pumping unit to operate the manual hand pump. Turn the Rotational DCV valve to forward direction for forward stroke and reverse for backward direction. When handle is lifted, both the pumping chambers create vacuum and suck oil into the chambers. The oil of both plungers is available to the cylinder up to about 40 bar. Beyond this pressure the output of the bigger chamber is directly unloaded to tank via unloading valve. An inbuilt pressure relief valve is provided to prevent over load of cylinder.

Instructions to operate power pack unit

- ✓ All the piping connections are routed below the top cover of the tank. The top cover is bolted on to the tank and can be removed out for maintenance.
- ✓ Quick change coupler (Holmbury) safety instructions attached sheet.
- ✓ Oil level gauge (OL) is fitted on front face of the tank. Oil is to be filled up to the top indicator for its capacity.
- ✓ The drain plug for draining out oil is on the bottom of the tank farthest point from the manifold side.
- ✓ The pressure gauge is mounted on forward line of the system. The system pressure can be read directly whenever required.
- ✓ On a tank, the motor starter with emergency switch is provided and is wired to the motor. The electric motor is of 2hp, single phase, 230 V AC, 50Hz
- ✓ Directional control Valve (V2) is fitted on manifold block (MB) to operate the system on electric mode.
- ✓ Rotational control valve is (V3) is fitted separately to operate the system while on manual (hand pump) mode.
- ✓ 5 meter electric cable is provided with the unit. Please get qualified electrician to connect the suitable single-phase adapters.

SAFETY STANDARDS:

The American National Standards Institute (ANSI) has developed prescribed hydraulic safety standards over the years. These standards are designed to guard against and minimize injury to worker and otherwise provide for the protection of body parts, and property by prescribing minimum safety requirements to provide direct onto owners, employers, supervisors and others concerned with or responsible for, safety standards application. In addition, these serve to guide governments and other regulatory bodies in the development, promulgation, and enforcement of appropriate safety directives.

Basic standards are also prescribed by ANSI for product design safety. For example: In the construction design of a hydraulic cylinder, a cylinder must withstand 110 percent of its rated load (Dynamic load), it must withstand 150 percent of its sustaining rated load (Static load).

Equipment designed according to the ANSI standards requirements promote safety of personnel, ease of maintenance, and increased service life of equipment and tools.

GENERAL SAFETY WARNINGS:

1. Wear safety glasses.
2. Read the operating instructions included with any hydraulic components before using them.
3. Operators of any hydraulic power supply unit or operators of equipment powered by hydraulics must have knowledge of equipment operation and also must be aware of hydraulic hazards.
4. Disconnect the power supply before any maintenance work is performed on the equipment. A qualified electrician should perform all electrical related maintenance work.
5. Hydraulic fluid recommended in operating instructions supplied with hydraulic equipment must be used to permit correct component functioning.
6. Escaping hydraulic fluid under pressure can have sufficient force to penetrate the skin and cause serious personal injury. If injury occurs because of escaping hydraulic fluid, seek medical attention immediately.

THINK SAFETY:

- ❖ Carefully operate the system and check the lift with load often.
- ❖ Avoid standing in the line of force.

Anticipate possible problems and take steps to avoid them

SAFETY INSTRUCTIONS:

Some simple common sense points which apply to practically all hydraulic products.

CYLINDERS:

- ❖ Provide a solid support for the entire cylinder base area. Use cylinder base attachment for more stability.
- ❖ Do not use cylinder without saddle. This will cause plunger to “mushroom”. Saddles distribute load evenly on the plunger.
- ❖ The entire cylinder saddle must be in contact with the load. Movement of the cylinder must be parallel with the movement of the load.
- ❖ As with cylinder, never place any part of your body under the load. Load must be on cribbing before venturing under.
- ❖ Keep hydraulic equipment away from open fire and temperature above 65° C (150° F).

GENERAL:

Manufacturer’s rating of load and stroke is maximum safe limits. Good practice is to use only 80% of the rated capacity.

- ❖ Read instructions and safety warnings with your hydraulic equipment.
- ❖ Don’t override the factory settings of the relief valves. Use a pressure gauge to check system pressure.

PUMPS:

- ❖ Don’t use operating handle extenders. Hand pumps should be easy to operate when used correctly.
- ❖ Fill the hand pump/power pack to the recommended level. Fill only when connected cylinders are in fully retracted position.
- ❖ Close the release valve finger tight. Using force will damage the valve seat.
- ❖ Use recommended grade of hydraulic oil.

HOSES AND COUPLERS:

- ❖ Clean both coupler parts before connecting. Use dust caps when coupler parts are not connected.
- ❖ Keep hoses away from the area beneath loads.
- ❖ Don’t lift hydraulic equipment by the hoses.
- ❖ Detach cylinder only when fully retracted or use shut-off valves to lock-in cylinder pressure.
- ❖ Avoid sharp bends of hoses. Bending radius should be as _____ per hose manufacturer’s standard. Don’t drive over or drop heavy objects on hoses.

TROUBLE SHOOTING (Power Pack)

SL. No	TROUBLE	POSSIBLE CAUSES	REMEDIES
<u>PUMPS:</u>			
1.	Pump delivering insufficient or no oil	Wrong direction of shaft (looking from fan end)	Must be reversed immediately to prevent seizure & breakage of parts due to lack of oil
		Clogged strainer or suction pipe line	Clean strainer or suction pipeline. Remove foreign matter.
		Air leak in suction line	Check oil level in reservoir & oil. Check for leak & repair.
		Oil lead into pump casing due to seizure or wear of pump sliding parts	Check for sliding parts
		Pump not delivering oil for any of the above reasons.	Apply the above remedies.
		Relief valve setting not high enough	Correct valve setting by using pressure gauge.
		Clogged orifice of the relief valve	Overhaul & clean relief valve
2.	Pump developing unstable or no pressure	Misassemble misconnection of various valves in the circuit.	Must be corrected
		Faulty operations of various valves or excessive oil leakage in the circuit through actuators & valves, etc.	Test each component separately & repair.
		Faulty pressure gauge	Check & replace if necessary.
3.	Pump making noise	Partially clogged suction line or suction strainer	Clean & remove foreign matter.
		Misalignment of pump & prime mover.	Check & rectify
		Air leak at pump's suction piping joints or from shaft packing of pump.	Pour oil on suspended joints while listening for change in sound. If sound stops, tighten the joints.
		Air bubble or too much foam in suction oil	Check to be certain that return lines are below the oil level & well separated from suction line.
		Pump pressure too high	Re-adjust relief valve setting.
		Excessive flow velocity	Replace piping
		Seizure of pump's sliding parts	Disassemble & repair. Check for foreign matter in oil & see if the pump casing full with oil

SL. No	TROUBLE	POSSIBLE CAUSES	REMEDIES
<u>RELIEF VALVE</u>			
4.	Erratic pressure	Dirt in oil	Clean strainer & flush the system.
		Worn poppet seat in cover	Lap the puppet or replace.
		Sticking piston in the main body	Check & rectify
5.	No or low pressure	Vent connection open	Check & rectify
		Balance ports open	Check & plug
		Poppet in cover is not seating properly	Check, lap & repair.
6.	Excessive noise or chatter.	High oil velocity	Check & rectify
		Faulty or worn poppet or seat in cover	Check, lap & repair.
		Excessive tank line pressure	Check & rectify
		Long vent line or pressure setting too close to that of another valve in circuit.	Check & rectify
		Valve setting too close to the system operating pressure.	Set relief valve at least 10kg/cm ² higher than the required working pressure of the system.
<u>CYLINDER</u>			
7.	Piston packing failing too frequently	Defective seal	Check & consult hydraulic engineer for correct selection
		Piston bearing worn out	Check & replace
		Cylinder wall surface excessively worn out or badly scored	Check, smoothen & replace if necessary
		Getting damaged during assembly	Check & take care during assembly
		Packing might be facing very high pressure	Adjust relief valve correctly
		Too much contaminants in the hydraulic oil	Flush system
		Defective rod wiper	Check & replace
8	Speed slowed down	Oil by passing piston	Check & overhaul cylinder. Replace defective seals & parts
		Less delivery from pump	Check as discussed before
		Directional valve not shifting fully	Check & rectify
		Low setting or defect in relief valve	Check & correct as discussed before

SL No'	TROUBLE	POSSIBLE CAUSES	REMEDIES
9.	Not sufficient force available or no movement at all	Defective or very low relief valve setting	Check & correct as mentioned before
		Oil by passing piston	Check & overhaul cylinder
		Pump not delivering oil	Check pump as discussed before & do necessary repair
		Defective directional valve	Check & rectify
10.	Piston packing failing too frequently	Defective seal	Check & consult hydraulic engineer for correct selection
		Piston bearing worn out	Check & replace
		Cylinder wall surface excessively worn out or badly scored	Check, smoothen & replace if necessary
		Getting damaged during assembly	Check & take care during assembly
		Packing might be facing very high pressure	Adjust relief valve correctly
		Too much contaminants in the hydraulic oil	Flush system
		Defective rod wiper	Check & replace
11.	Speed slowed down	Oil by passing piston	Check & overhaul cylinder. Replace defective seals & parts
		Less delivery from pump	Check as discussed before
		Directional valve not shifting fully	Check & rectify
		Low setting or defect in relief valve	Check & correct as discussed before
GENERAL CIRCUIT PROBLEMS			
12.	In sufficient pressure in system	Leakage of full pump delivery within circuit	Detect & rectify
13.	Excessive heating of oil in system	Pump assembly too tightly after overhaul. This reduces clearance & increases friction	Follow manufacturer instructions while trying to reassemble.
		Leakage check, valves & pumps	Repair
		Improper functioning of oil cooler or supply of cooling water cut off	Check & repair
		Automatic unloading control inoperative	Check & repair
		Restricted lines	If lines are crimped replace, if partially plugged for any reason remove obstruction
		Under size valves or piping	Check & replace

Recommended oil for use

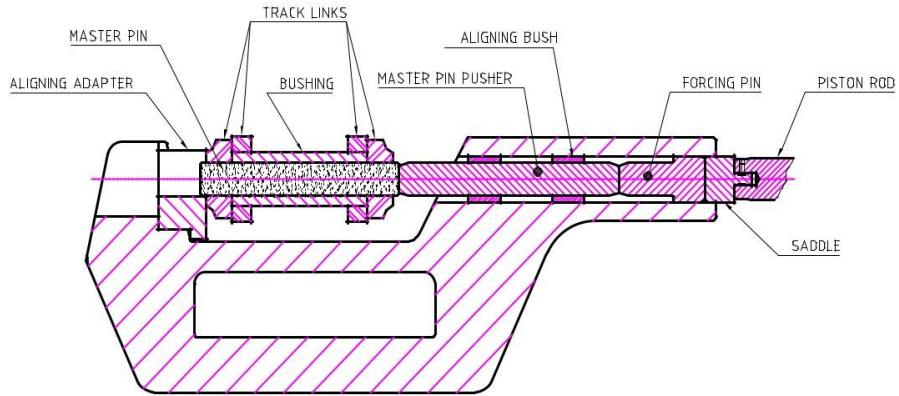
- | | |
|--|---|
| 1. Mobil | : Hydraulic Oil68 |
| 2. Shell | : AW Hydraulic68
Tellus 68
Tellus Plus 68 |
| 3. Chevron | : AW Hydraulic oil 68 |
| 4. ISOorEquivalent | : Hydraulic Oil - VG68 |
| 5. SAE 20W | |
| 6. AGMA2 | |
| 7. DIN-HLP 68 | |
| 8. Or any equivalent 68 grade Hydraulic oil available at yourregion. | |

Chart for Gauge Pressure-Hydraulic Jack Load

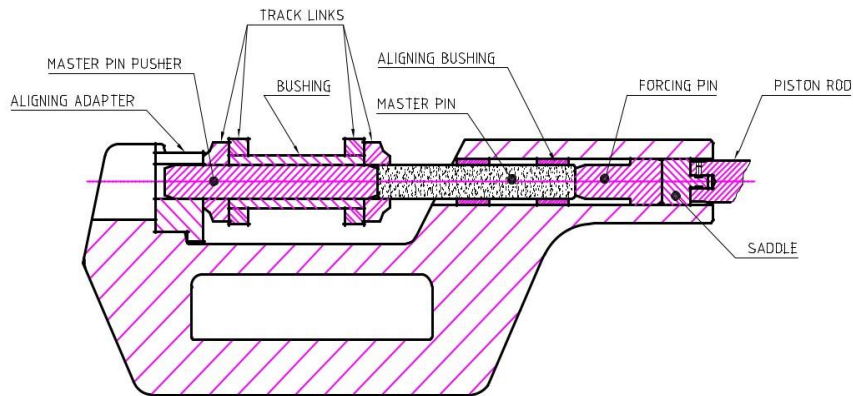
Product	:1052-PDP-100-350
Cylindereffectivearea	: 132.7cm ²
Workingpressure	: 700kg/cm ²

P(kg/cm ²)	Load (t)
50	6.6
100	13.3
150	19.9
200	26.5
250	33.2
300	39.8
350	46.4
400	53.1
450	59.7
500	66.4
509	67.5
550	73.0
600	79.6
646	85.7
700	92.9

RevNo	Revision note	Date	Signature	Checked



TOOLING SET-UP FOR TRACK LINK PIN PUSHER (MASTER PIN REMOVAL)



TOOLING SET-UP FOR TRACK LINK PIN INSTALLATION
(MASTER PIN INSTALLATION)

NOTE: CYLINDER NOT SHOWN IN DWG

DRN	SPK	20.05.14
CKD	SPK	
APD	SH	
SCALE		
NTS		

TITLE:

THIS SET-UP IS FOR
Master pin-Removal & Installation

ENTRACK

DR.No'
TPP-TS-03-00

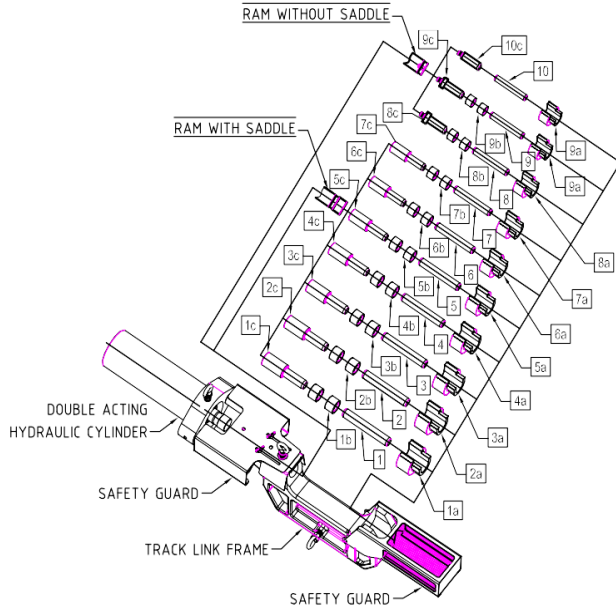
PART CODE :

SHEET 1 OFF 1

ALT

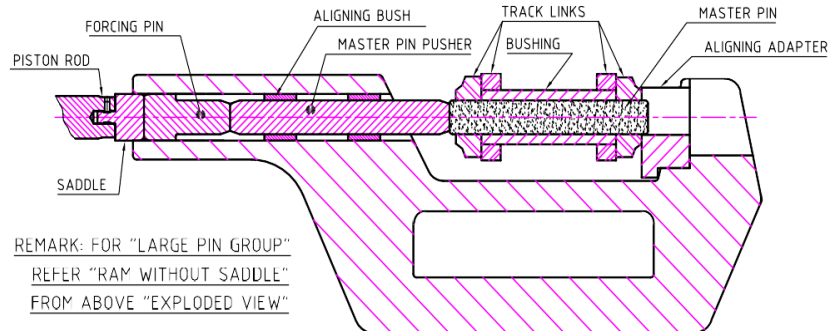


RevNo	Revision note	Date	Signature	Checked



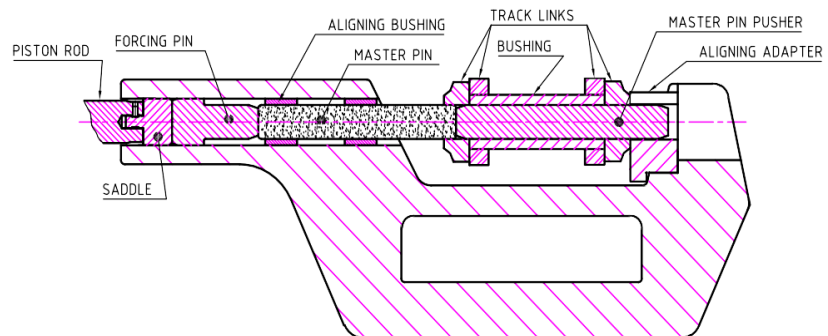
TRACK PIN DIAMETER	DESCRIPTION	ITEMS
45.9 TO 60.2	LARGE PIN GROUP	3 SETS (8c,9c,10c)(8b,9b)(8,9,10)(8a,9a,9a)
33.2 TO 45.9	MEDIUM PIN GROUP	4 SETS (4c,5c,6c,7c)(4b,5b,6b,7b)(4,5,6,7)(4a,5a,6a,7a)
19.3 TO 33.2	SMALL PIN GROUP	3 SETS (1c,2c,3c)(1b,2b,3b)(1,2,3)(1a,2a,3a)
mm		
BASIC PIN GROUPS		

58.6 TO 60.2	10c (SADDLE)	-	10	9a
52.3 TO 58.6	9c (SADDLE)	9b	9	9a
45.9 TO 52.3	8c (SADDLE)	8b	8	8a
42.8 TO 45.9	7c	7b	7	7a
39.6 TO 42.8	6c	6b	6	6a
36.4 TO 39.6	5c	5b	5	5a
33.2 TO 36.4	4c	4b	4	4a
30.1 TO 33.2	3c	3b	3	3a
23.7 TO 30.1	2c	2b	2	2a
19.3 TO 23.7	1c	1b	1	1a
mm	ITEM	ITEM	ITEM	ITEM
TRACK PIN DIAMETER	FORCING PIN	ALIGNING BUSHES	MASTER PIN PUSHER	ALIGNING ADAPTER
FORCING PINS, ALIGNING BUSHES, MASTER PIN PUSHERS, ALIGNING ADAPTERS FOR PIN PUSHING				



REMARK: FOR "LARGE PIN GROUP"
REFER "RAM WITHOUT SADDLE"
FROM ABOVE "EXPLODED VIEW"

TOOLING SET-UP FOR TRACK LINK PIN PUSHER (MASTER PIN REMOVAL)

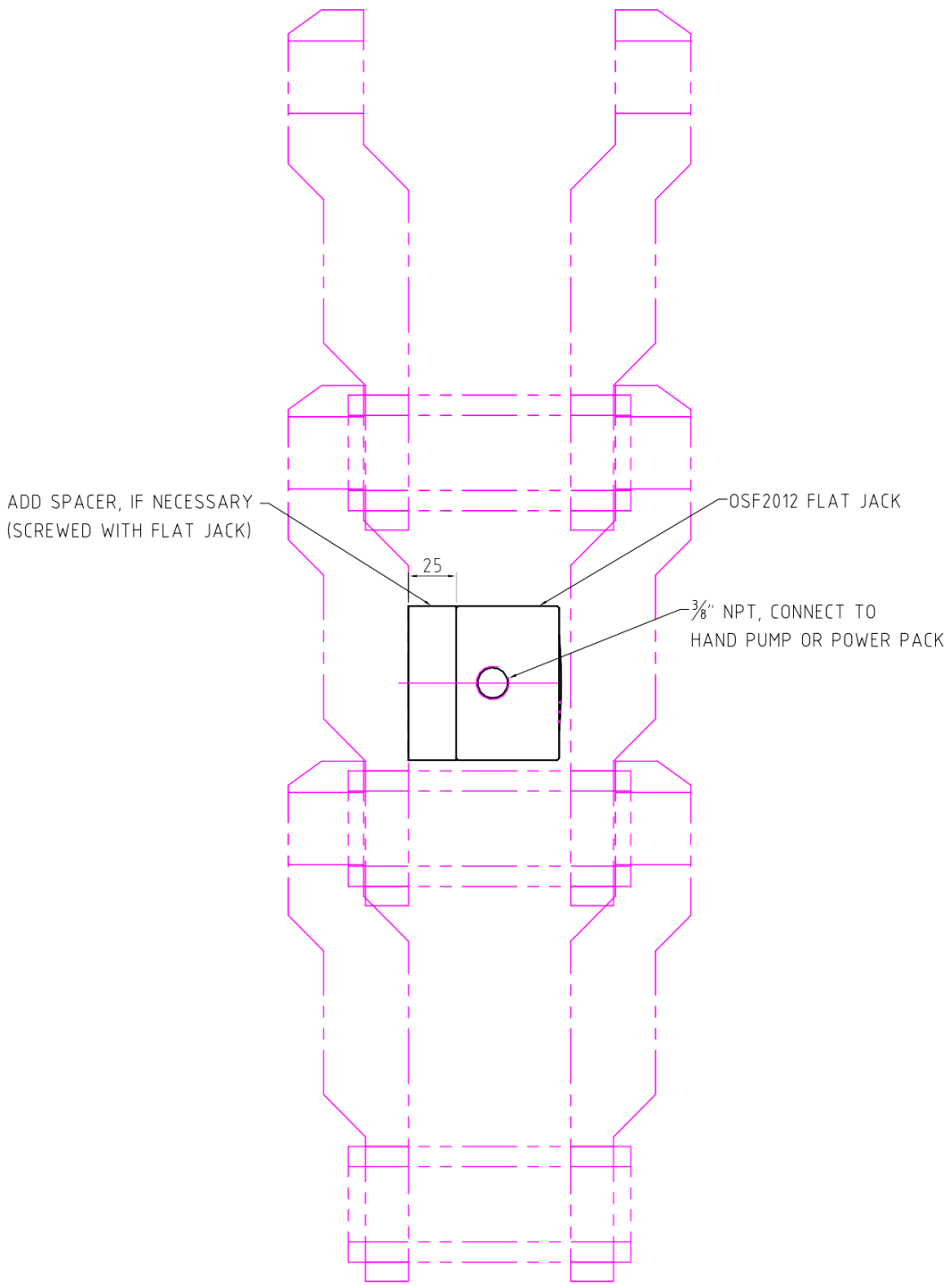


TOOLING SET-UP FOR TRACK LINK PIN INSTALLATION (MASTER PIN INSTALLATION)

NOTE: CYLINDER NOT SHOWN IN DWG

DRN	SPK	25.11.14	TITLE: THIS SET-UP IS FOR Master pin- Removal & Installation	ENTRACK	
CKD	SPK				
APD	SH				
SCALE					
NTS			DR.No: HEPP-TS-06-00	ALT	
				PART CODE :	△
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RevNo	Revision note	Date	Signature	Checked

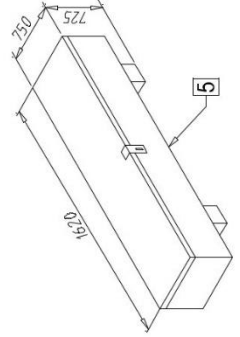


DRN	SPK	05.07.14
CKD	SPK	
APD	SH	
SCALE		
NTS		

TITLE:
**FLAT JACK SET-UP FOR
Bushing Removal**

ENTRACK	
DR.No: HEPP-TS-04-00	ALT
PART CODE:	
SHEET 1 OFF 1	

Rev No	Revision note	Date	Signature	Checked



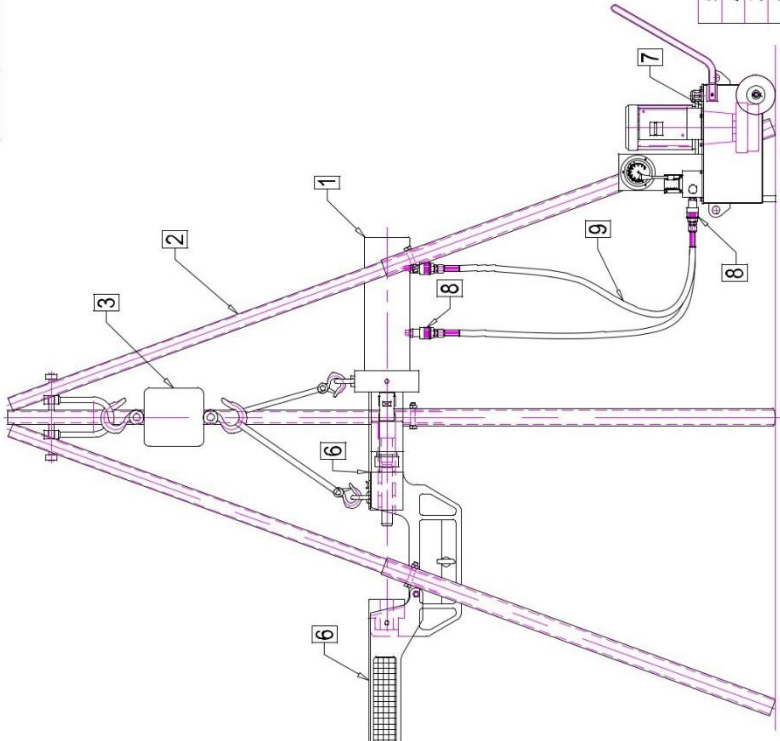
SPECIFICATIONS :

- 1. CAPACITY : 100 ton
- 2. STROKE : 350 mm
- 3. WORKING PRESSURE : 700 kg/cm²
- 4. EFFECTIVE AREA : 132.7 cm²
- 5. OIL CAPACITY : 464.5 cc
- 6. APPROX. WEIGHT : 205 kg (FRAME & CYLINDER ASSEMBLY)

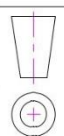
POWER PACK

2 hp, SINGLE PHASE / THREE PHASE

WORKING PRESSURE : 700 kg/cm²
 FLOW UP TO 30 bar : 1 liter/min
 OIL TANK CAPACITY : 20 liters
 USABLE OIL VOLUME : 12 liters
 APPROX WEIGHT : 80 kg



9	FH2086FS-4B70	Rubber-Hose pipe, 3/8 id x 3/8 BSP FSN, 4 Mtr-Long, Work.pr. 700 Bar, Full Spring guard.	2
8	QCS378MADH	Quick Change Coupler, 3/8 NPT, M/F Fasten, with All. Dust Cap, Adaptor & handle	4
7	OPU002053-2W / OPU002061-2W	2 hp SINGLE PHASE POWER PACK / 2 hp THREE PHASE POWER PACK	1
6	TPP1001220	TPP-100-12-20-00 SAFETY GUARDS	1 SET
5	SPM45-34LYC	SPM-045-01-34-00 CARRYING CASE	1
4	TPP100-06ACC	TPP-100-06-04-00 ACCESSORIES	1 SET
3	TPP100-06CBA	TPP-100-06-03-01 CHAIN BLOCK ASSEMBLY	1
2	SPM045-20TRI	SPM-045-01-20-00 TRIPOD ASSEMBLY	1
1	TPP100-06TPP	TPP-100-06-02-04 TRACK LINK PIN-PUSHER/INSTALLER ASSEMBLY, 100t x 350s/tr	1
ITEM	PART CODE	DESCRIPTION	QTY.

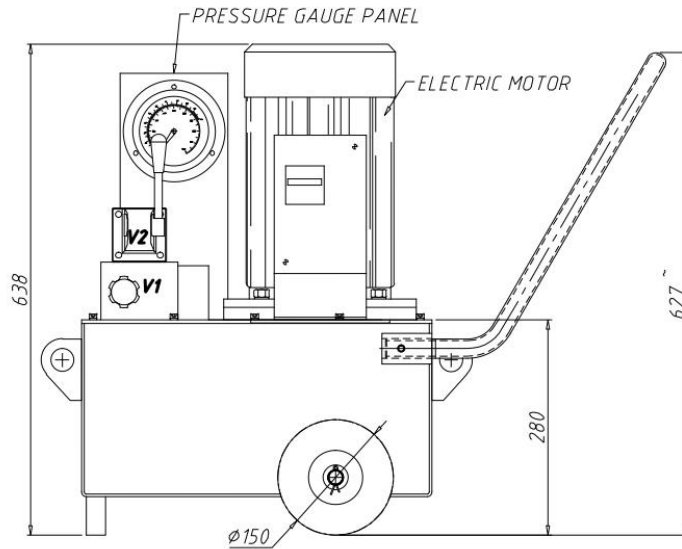
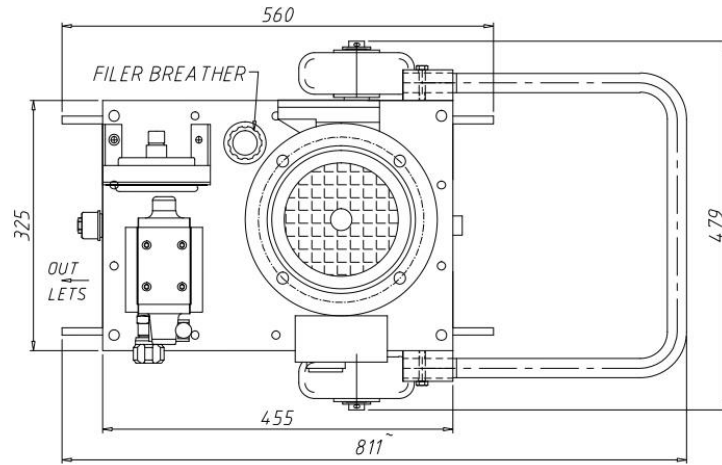
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END	SPK		
APD	SH		
SCALE			
NTS			

ENTRACK	
TITLE: TRACK LINK PIN-PUSHER / INSTALLER 100 Ton x 350 STROKE WITH 2 hp, SINGLE / THREE PHASE POWER PACK & COMPLETE ACCESSORIES	
DR.Nb° TPP-100-06-M-00	ALT
PART CODE: TPP100-06M	△
SHEET 1 OFF 1	

Cylinder Seal Kit Details

09	HSWR115/25/50	WEARSTRIP	3
08	HSPB213006	PISTONSEAL	1
07	HSWS105506307	WIPERRING	1
06	HSBR106805503	B-RING	1
05	HSRS105506811	RODSEAL	1
04	HSBR1055049.4015	B-RING	2
03	HSOR4235/0440	PISTONO-RING	1
02	HSBR1135129.4015	BACKUPRING	1
01	HSOR4235/1266	ENDCOVERO RING	1
.TEM	PART CODE	DESCRIPTION	QTY

RevNo	Revision note	Date	Signature	Checked



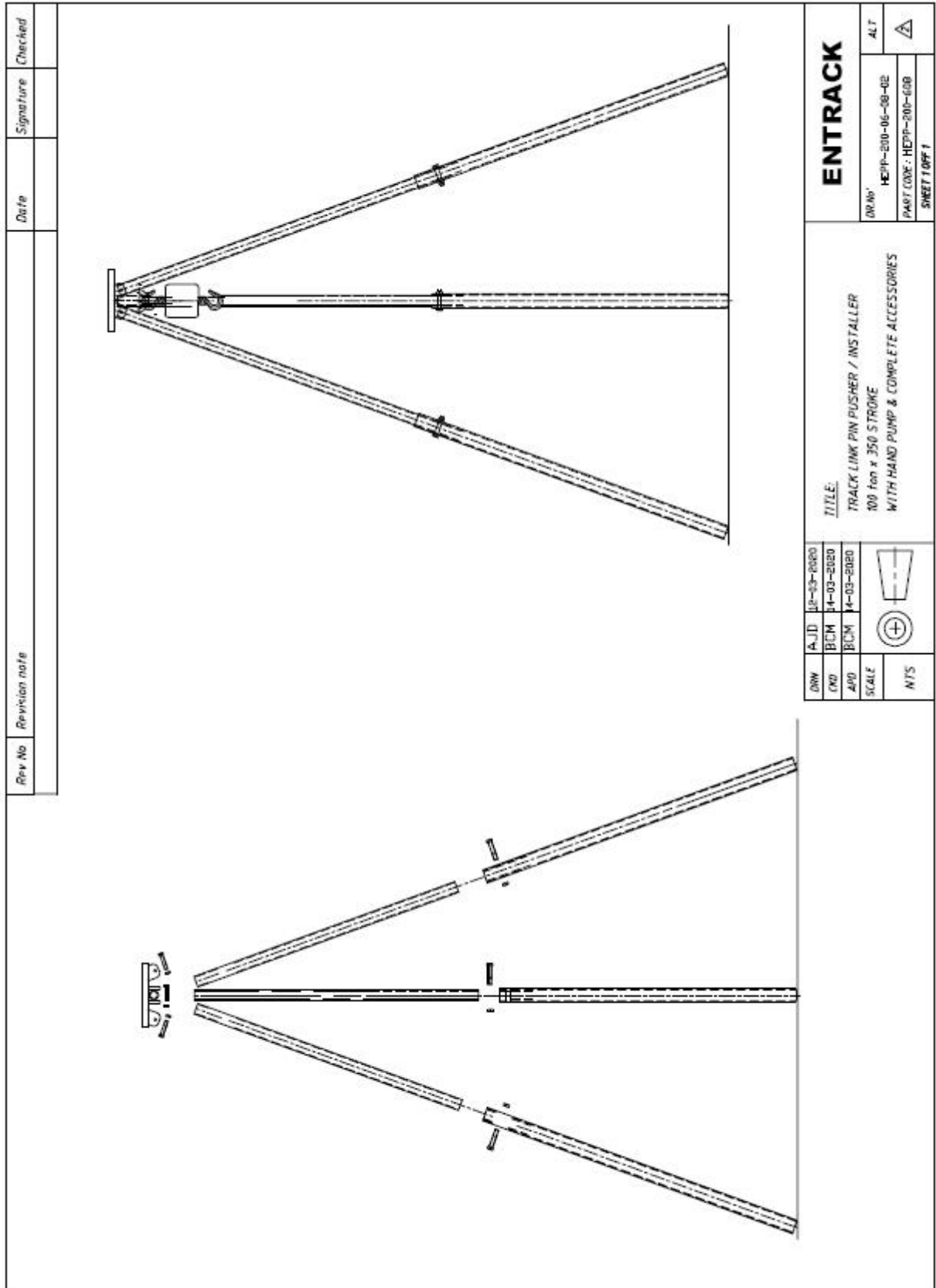
N SINGLE PHASE 110VAC, 25A, 50Hz
ENSURE MCB KNOB OFF
ONCE POWER SUPPLY FAILS

SPECIFICATIONS

- ELECTRIC MOTOR : 2 hp, 1ph, 1440rpm, 110VAC, 50Hz
- PUMP FLOW : 1 Liters/min
- WORKING PRESSURE : 700 bar
- TEST PRESSUSRE : 700 bar
- OIL TANK CAPACITY : 20 Litres
- USABLE OIL VOLUME : 12 Litres
- APPROX. WEIGHT : 80 kg

▲ WORKING PRESSURE IS ADJUSTABLE, SET PRESSURE AS PER
THE RATED PRESSURE OF THE JACK BEING USED WITH THE POWER PACK.
GOOD PRACTICE IS TO USE EQUIPMENT AT 80% OF RATED PRESSURE/LOAD

DRN	RPM	17.11.14	PRODUCT:	ENTRACK
CKD			PPU-2-62	
APD			TITLE:	DR No' PPU-2-62-01M-00
SCALE			POWER PACK ASSEMBLY	PART CODE :
NTS				SHEET 1 OFF 1
				ALT



Rev No	Revision note	Date	Signature	Checked

DRW	AJD	14-03-2020	ENTRACK	
CHK	BCM	14-03-2020		
APP	BCM	14-03-2020	OR No: HEPP-200-06-08-02	
SCALE	NTS		PART CODE: HEPP-200-600	
TITLE:			SHEET 1 OF 1	
TRACK LINK PIN PUSHER / INSTALLER			ALT	
100 ton x 350 STROKE			▲	
WITH HAND PUMP & COMPLETE ACCESSORIES				

TRIPOD ASSEMBLY

PRODUCT DESCRIPTION & CAPABILITIES:

This Tripod is built from heavy duty steel pipes, and is specifically designed for Track pin press lifting and holding applications. Telescoping painted legs allow for height adjustments in 5" increments per leg. The unique legs also adjust to any angle to meet the most demanding situations. The steel head contains three heavy duty rigging plates.

PURPOSE:

This Tripod is to be used as part of a work positioning, personnel riding, personal fall arrest, material handling, or rescue and evacuation system. The tripod is a support structure or anchorage for these systems.

LIMITATIONS:

The following application limitations must be considered before using this product. Failure to observe product limitations could result in serious injury or death.

INSTALLATION:

The tripod must be properly installed in accordance with the requirements stated in **Drg No: HEPP-200-06-08-02** of this manual. The tripod is shipped with the legs set at full retraction. Erect as follows, 1) Lay the tripod on the working surface; 2) Adjust legs to required working height; 3) Tilt the tripod into an upright position; 4) Ensure footing is solid under each leg and can support the intended loads. Level the tripod by adjusting the leg height; 6) Position the chain pulley block directly under the U hook near the top of the tripod

CAPACITY:

The maximum working load for this product is 1 Ton.

ANSI and OSHA require a regular inspection program for all safety & fall arrest equipment as well as properly documented results of the inspections. Follow the inspection procedures contained in this manual and use the inspection form to document the results.

INSPECTION:

- ✓ Before using the Tripod: Check all the structural parts for damage, dents, cracked welds, bent or crushed tubes.
- ✓ Check all hardware (pins, screws, nuts, bolts, pulleys, rollers and brackets) for damaged threads, bent, damaged or missing fasteners and loose fasteners.
- ✓ Inspect all equipment for missing, damaged or otherwise illegible warning labels.
- ✓ Any damaged, missing or illegible labels must be replaced before using the tripod.
- ✓ Any chain pulley blocks, work positioning or slings used with your Tripod must be installed, inspected, maintained and operated according to the manufacturer's instructions.
- ✓ Check each leg to see that it can be telescoped in and out freely. Inspect legs for straightness.
- ✓ Check the feet on each leg for any damage.

WEEKLY INSPECTION:

Perform a complete visual inspection as outlined in "Before using the Tripod." Clean equipment as required; thoroughly inspect all welds, labels, fasteners, brackets and parts.

Record all findings on a copy of the "inspection log". If any problems are found with the equipment DO NOT USE until it has been repaired.

ANNUAL INSPECTION:

- ✓ Clean tripod thoroughly using a damp cloth and a mild soap solution.
- ✓ Perform a complete visual inspection as described in "Before using the Tripod" above.
- ✓ More frequent inspections by a competent person may be required based on the nature and severity of workplace conditions affecting the equipment and the modes of use and exposure time of the equipment.
- ✓ If any problems are found do not use the tripod until it has been repaired.

OPERATING SAFETY:

1. Read, understand and follow the Product Manual as well as all printed warnings that may be located on the product itself before using, maintaining or inspecting the equipment.
2. Train all operators before allowing them to use the product. An untrained operator exposes themselves, bystanders and workers to possible serious injury or death.
3. Visually inspect the product and all auxiliary components and equipment before using. Correct any problems before using the equipment.
4. Securely anchor the product before using.
5. Use only certified anchor and connector components in your system.
6. Do not exceed the capacity & capabilities of the system at any time.
7. Do not use the equipment around physical or environmental hazards. This list includes but is not limited to:
 8. Corrosion that may affect the structural integrity of the lifeline or other components.
 9. Chemicals which can degrade components in a manner which cannot be visually identified.
 10. Toxic gases: Rescuers or workers can be killed in toxic environments.
 11. Heat or elevated temperatures.
 12. Sharp edges: Workers or the rescue equipment can be injured by or damaged by sharp edges or components.
 13. Electrical hazards: Stay away from power lines or components carrying electrical power.
 14. Overload: Do not overload the system at any time during operation.

POWER PACK UNIT OPERATION

PRE-OPERATION PROCEDURES

1. Make sure the power unit hydraulic flow and pressure are appropriate for the equipment being powered. Flow and/or pressure in excess of the maximum rated flow of the equipment will damage the equipment.

CONNECTING HYDRAULIC HOSES

1. Wipe all hose couplers with a clean lint free cloth before making connections. Do not connect pressure to the returnport.
2. Connect the hoses from the power unit to the couplers on the equipment being operated. It is a good practice to connect return hose first and disconnect it last to minimize or avoid trapped pressure within the pump motor.

Note: If uncoupled hoses are left in the sun, pressure increase inside the hoses might make them difficult to connect. Whenever possible, connect the free ends of the hoses together. Make sure the hydraulic hoses are connected to ensure that the flow is in the proper direction.

POWER UNIT OPERATION OVERVIEW

1. Observe all safety precautions.
2. Fill hydraulic reservoir to sight glass with specified hydraulic fluid. Use only biodegradable oil in any environmentally sensitive area.
3. Connect hydraulic hoses from the power unit to the equipment being operated. Be sure to completely connect the hydraulic couplings or damage will result to the hydraulic system. Insure that the pressure and return hoses are connected to the correct port. Always be sure the connections are clean before assembling.
4. Ensure that any equipment being powered by the power unit is turned off so it will not start unexpectedly.
5. Start the engine and allow it to warm up for a few minutes before engaging the hydraulicsystem.
6. To stop the power unit you must first de-energize the hydraulic system (turn hydraulic control valve counter-clockwise).
7. Always recheck the level of the hydraulic fluid. Filling the hydraulic hoses during initial start-up will cause the hydraulic fluid level to drops lightly.

HYDRAULIC POWER UNIT SAFETY PRECAUTIONS

Hydraulic Power Unit operators and maintenance personnel must always comply with the safety precautions given in this manual and on the stickers and tags attached to the power unit. These safety precautions are given for your safety. Review them carefully before operating the pump and before performing general maintenance or repairs. Supervising personnel should develop additional precautions relating to the specific work area and local safety regulations. If so, place the added precautions in the space provided in this manual.

ENTRACK hydraulic power units will provide safe and dependable service if operated in accordance with the instructions given in this manual. Read and understand this manual and any stickers and tags attached to the power unit and hoses before operation. Failure to do so could result in personal injury or equipment damage.

- Operator must start in a work area without bystanders. The operator must be familiar with all prohibited work areas such as excessive slopes, dangerous terrain conditions, and confined spaces.
- Establish a training program for all operators to ensure safe operations.
- Do not operate the power unit unless thoroughly trained or under the supervision of an instructor.
- Always wear safety equipment such as goggles, head protection, hearing protection, and safety shoes at all times when operating the power unit.
- Do not inspect or clean the hydraulic pump or hydraulic tool while the hydraulic power source is engaged. Disconnect both hydraulic hoses before attempting to clean or inspect the pump or hydraulic tool. Accidental engagement of the power unit can cause serious injury..
- Do not operate this power unit without first reading and understanding the Operating Instructions.
- Replacement hoses must have a minimum working pressure rating of 10,000 psi/700 bar.
- The hydraulic circuit control valve must be in the “Neutral” position when coupling or uncoupling the hydraulic hoses. Wipe all couplers clean before connecting. Failure to do so may result in damage to the quick couplers and cause overheating.
- Be sure all hose connections (Couplers) are tight

- Do not operate the power unit at oil temperatures above 140° F/60° C. Operation at higher oil temperatures can cause operator discomfort and may cause damage to the equipment.
- To avoid personal injury or equipment damage, all power unit repair, maintenance and service must only be performed by authorized and properly trained personnel.
- Do not exceed the rated limits of the power unit or use the power unit for applications beyond its design capacity.
- Always keep critical power unit markings, such as labels and warning stickers legible.
- Check fastener tightness often and before each daily use.
- NEVER put your hands or any other body part into the area near the cooling fan and belts while the power unit is running.
- Only lift the power unit by the lifting bracket and be sure the lifting equipment is suitable for the rated weight of the power unit. Do not lift with hydraulic hoses attached.
- Do not touch the electric motor– these surfaces are hot and will burn you. Keep any flammable material away from these surfaces.
- When moving power units mounted on trailers always insure that the towing vehicle is suitable for the weight of the power unit. Always insure that the safety chains are securely fastened to the tow vehicle and the trailer lights are operating properly.
- **DO NOT OPERATE THIS POWER UNIT NEAR FLAMMABLE LIQUIDS OR FLAMMABLE VAPORS OR GASES**

SAFETY INSTRUCTIONS & INSTALLATION CHECK LIST FOR ELECTRICAL MOTOR

CAUTION:

All operations must be carried out by appropriately trained personnel. For full installation and maintenance instructions refer this book thoroughly or consult the supplier, if in doubt.

LIFTING:

1. Use all lifting facilities provided – Both lifting points if fitted or single lifting point if fitted.
Do not use any other part of the motor for lifting,
Note: Maximum hand lift is 20Kg below shoulder, but above ground level.
2. Vertical lifting: Prevent uncontrolled rotation of the motor.
3. Do not lift other equipments with motor lifting points only.

STORAGE :

1. Ensure motors are stored in a place with an ambient range of – 20⁰ C to +45⁰ C.
2. Store motors under shade and not in open.
3. Ensure that the stored motor does not receive any harmful vibration.
4. Ensure heaters are fitted.
5. Ensure all plugs originally provided are in place
6. Ensure no water drips on motor logging under the motor.

PERIODIC REQUIREMENTS	Every 1 Week	Rotate shaft
	Every 3 Months	Check insulation Resistance. If less than 10 M.Ohm, dry out.

INSTALLATION - ELECTRICAL:

1. Ensure power supply system is grounded and proper earthing is supplied.
2. Check insulation resistance of all windings with 500V dc megger.
3. Ensure the equipment is fused and isolated correctly.
4. Ensure all the covers are fitted and interior of terminal box is free of cable residues.
5. Seal unused cable entries.

CONNECTIONS:

1. Check connection diagram and ensure correct terminal arrangement.
2. Ensure all the connections are tight and clean.
3. Ensure air clearance between live and live to earth > 10mm
4. Check driven equipment is free and the rotation is uncoupled.
5. Ensure rating of fuse, setting of protecting device are correct.

RUNNING ON LOAD:

1. Ensure rated voltage at the motor terminal during startup and check starting time within designed limit.
2. Ensure full load currents are balance in all phases. (Max. Unbalance 8% corresponding to 1% unbalance of voltage) and the value is within Nameplate Data, in case of pulsating load we recommend the maximum current to be within Name plate value.
3. No abnormal vibration, in case of any changes in vibration check the alignment.
4. Check max. air inlet temperature= Ambient temperature mentioned on name plate.
5. No abnormal heating up. Total permissible temperature including ambient for class B rated motors are approximately as follows: By Thermometer- At Eyebolt- 90°, At Bearing cover: 80°
C on slippery surface: 90°. Check the temperature after 4-5 hours of operation, when it is stabilized.

MAINTENANCE:

While carrying out maintenance:

1. Ensure that the motor is isolated.
2. Refer to supplier, if in doubt.

SPARE PARTS:

While ordering spare parts always quote machine number and reference number which will be found on the name plate. Please use only genuine spares.

HAZARDOUS AREAS:

If motor is marked with “Ex” symbol, special conditions apply. Refer appropriate installation manual and relevant standards. All operations are to be carried out by appropriately trained personnel.

OPERATING & MAINTENANCE TIPS

This motor has been designed, manufactured and tested to a high standard of excellence. The motor conforms to relevant standards as mentioned on the name plate. The motor is sound in design and robust in construction and will give satisfactory service with correct installation and normal routine maintenance.

STARTING:

Squirrel cage motors are suitable for DOL, Star/Delta or Auto Transformer Starting. Slipring motors should be started by stator/rotor starter with suitable external resistance in rotor circuit which should be cut off gradually when motor picks up speed.

PREVENTIVE MAINTENANCE:

Motor should be kept clean and free from oil, dust and moisture. Care should be taken to see that ventilation passages are not blocked. The earthing conductor should be regularly inspected and checked for continuity. The insulation resistance of stator and rotor windings should be checked regularly between respective terminals and the frame. In case of slipring motors, carbon dust should be blown out regularly from sliprings and brushes. The pressure on brushes and wear out should be checked.

BEARINGS:

The bearings marked ‘ZZ’ or ‘2RS’ are sealed for life and require no lubrication.

For greased bearings:

1. Check re-lubrication interval on name plate. The regreasing interval should be shortened for high ambient temperature, presence of corrosive vapors or extreme level of contamination.
2. For replenishing fresh grease in the bearing: Quantity of grease to be filled in bearing (in gms) = Bearing bore dia. Fill 1/3rd of bearing cover cavities with grease.

Recommended grease is lithium-based grade. **Mixing of different grease should be avoided.** While removing the bearings from the shaft, use properly designed draw- off tackle or puller to hold the bearing preferable at inner race. While pulling out bearing, rotate the bearing to avoid damages if the bearing is intended to be used again. Bearing should be re-fitted after heating up to approximately 90°.

Safety Pressure Relief Valve



Relief Valves are used to limit the amount of pressure in a hydraulic jack. These valves have an adjustable relief. Most, but not all jacks used in ENTRACK Track pin press have the relief valve set at 300 bar. They are constructed with a ball, poppet or spool opposed by a spring and installed into a cavity or ported body. A poppet is a disc or cone shaped object that sits within an oppositely machined seat, and when forced closed by spring pressure, provides very low leakage. A spool is a cylindrical, machined steel rod with metering grooves or notches that is also opposed by spring pressure. A spool valve leaks more than a poppet valve, but the spool provides superior metering characteristics.

Safety Pressure Relief valve in return port prevents damage, in case of accidental over pressurization due to blockage in return line.

A relief valve works by providing an excessively pressurized fluid an open path to tank with the goal of reducing work port pressure. As fluid pressure begins to rise, force from that pressure is applied to the bottom of the spool or poppet, similar to what occurs to the piston of a cylinder. The relief valve opens modestly at first, bleeding as little fluid is as required to maintain pressure as is required downstream. If downstream pressure continues to rise, so too does the force upon the poppet or spool, pushing it further against the spring until the point spring force is equaled by hydraulic force.

DO NOT attempt to adjust or service the rod end relief valve on a double-acting cylinder or ram. If oil leakage is detected from this relief valve, discontinue use of the cylinder or ram immediately call hydraulic technician. If improperly adjusted, the cylinder or ram could develop excessive pressure and cause the cylinder, hose or couplers to burst which could cause serious injury or death.

