HYDRA-TECH INTERNATIONAL

a division of GLBH Group Manufacturing Ltd.

Operating Manual

Portable Pump

#110, 5842 – 86th Avenue SE, Calgary, Alberta, Canada T2C 4L7
Telephone (403) 720 7740 Fax (403) 720 7758
Website: www.hydra-tech.net

Revised June 2015

Making Work Safe!

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Important Safety Information

To ensure the safe use of this equipment it is the responsibility of the owner and operator that any individual operating this equipment or working in the vicinity of this equipment is deemed to be competent, defined by the region's Safety Codes and Regulations, an example is as follows:

> Competent: in relation to a person, means adequately qualified, suitably trained and with sufficient experience to safely perform work without supervision or with only a minimal degree of supervision.

In order for the equipment to perform as designed and safely proper maintenance must be performed periodically.

Improper operation, maintenance, lubrication and repair of this equipment may result in serious injury or death.

The Portable Pump is a specially designed piece of equipment and as such should NOT be modified in any way.

Hydra-Tech International is not capable of foreseeing every possible circumstance that may involve a potential hazard. As such, the warnings within this document and labeled on the equipment are not all-inclusive. It is the owner and operator's responsibility to first ensure that any use of this equipment not specifically recommended by Hydra-Tech International, be it operation, maintenance, lubrication or repairs, be deemed safe for the equipment operator, all persons present, and prevent damages to the equipment.

Information, images, and specifications contained within this document are based on information available at the time it was written or last revised. The contents of this document may change over time and the latest version of this document should be obtained by the owner and/or operator prior to use of the equipment.

For further information or suggestions regarding the safe operation, maintenance and repair of the PCA-90 please contact Hydra-Tech International using the following contact information:

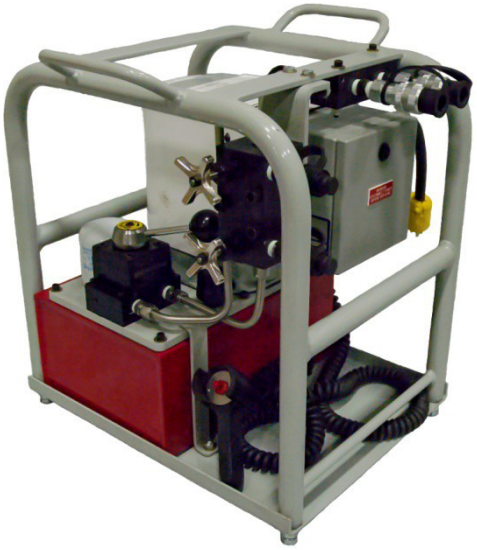
#110, 5842 – 86th Avenue SE
Calgary, Alberta, Canada T2C 4L7
Telephone (403) – 720 – 7740
Fax (403) – 720 – 7758
Website: http://www.hydra-tech.net/contactus.html

Safety is everybody's business!

- Wear proper personal protective equipment when operating hydraulic equipment.
- When the pump is running, oil is under high pressure.
- Do not use gasoline powered pumps in an explosive atmosphere.
- Operate and refuel in a well ventilated area only.
- Avoid inhaling exhaust gasses.
- Always check fluid levels prior to use.
- Always check pump for damage prior to use.
- Never attempt to connect / disconnect hoses while pump is running.

Overview

The Portable Pump is a convenient and mobile hydraulic pump that is powered by an electric motor that can be offered in both North American or European standard voltages and is easily carried to where you need to work. Portable pumps can be configured to either operate a single 10,000 psi hydraulic tool or with a splitter manifold to operate two tools.



Maintenance

The following are acceptable Fluids: Unocal 76 Unax AW-WR, Exxon Univis Extra N32, Texaco Rando HDAZ HVI36.

Alternate fluids with the following characteristics may be used:
Pour point -45°F, viscosity 150 SUS @ 100°F, viscosity 45 SUS @ 210°F, viscosity index 150, and anti-corrosion, anti-foam, anti-oxidant, anti-rust, anti-wear and demulsifier additives.

Please dispose of used fluids in a manner that is compatible with the environment and local government regulations. We recommend the used fluids be placed in a sealed container and disposed of at the local recycling facility.

Daily Maintenance Checklist

Visually inspect for the following:

- Bent or damaged components including the valve handles and hydraulic lines.
- Damaged hoses, fittings, couplers, hydraulic leaks, etc.
- Levels in hydraulic oil reservoir & air motor lubricant.
- Overall unit condition.

Do not use a damaged unit!

Operating

Before operating the Portable Pump, perform a thorough visual inspection and daily maintenance inspection to confirm the unit is in good condition to operate safely.

Ensure hydraulic hoses used with the Portable Pump are free of damage, wear, or other flaws and couplers are clean and undamaged.
Never use the Portable Pump with a jack that is not in safe operating condition.
Refer to your jack operating manual for further information.

Procedure for Single Jack Operation:

1. Place the Lift Module in position to jack and lower the base to the ground.
2. Connect the Male Coupler end of the hose to the Right Side of the Manifold. (The one with the control valves). Connect the other end of the hose (female coupler) to the Lift-Module.
3. Completely close the valve on the left side.
4. Open the valve on the right side (the one with the hose attached) one full turn. (Fine-tuning can be applied once the pump is powered up or down).
5. Connect the second hose (Female Coupler) to the right side of the Left manifold block, (The one without the control valve). Connect the other end of the hose (Male Coupler) to the Lift-Module.
6. Set the directional valve on the pump to the neutral position.
7. Open air supply to the motor.
8. Inspect air motor lubricator drip rate and adjust as necessary. Approximately one drop should be dispensed every 10 seconds.
9. Turn the directional to the Up position to raise the jack and lift the load.
10. When servicing the load is complete, position the directional valve to the Down position and then supply air flow to the motor to lower the jack and the load.
11. When the jacking process is complete, move the directional valve to the neutral position.

When removing the hoses, the operator should move the directional valve back and forth between the up and down positions to relieve any pressure build up in the hydraulic circuit. Failing to do this will result in the couplers being hard to remove.

When hoses are disconnected always connect the two ends together to avoid contamination. Replace dust covers on the jacks and the pump any time the hoses are removed.

Procedure for Two Jack Operation:

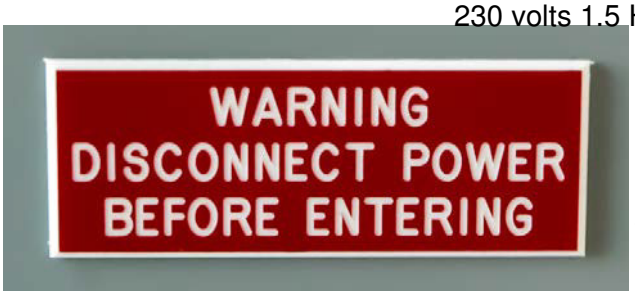
1. Connect two hoses, Male Connectors to the manifold with the control valves. (Right Side) Connect the female couplers on the other end of the hoses. One to each Lift Module.
2. Connect the remaining two hoses, (Female Coupler) to the manifold block on the left. Connect the Male coupler end of these hoses to the Lift Modules.
3. Open both control valves to approximately three quarters of a turn. This will give you equal control to begin the procedure. Fine-tuning can be done once the lift or retraction has started.
4. Set the directional valve on the pump to the neutral position.
5. Open air supply to the motor.
6. Inspect air motor lubricator drip rate and adjust as necessary. Approximately one drop should be dispensed every 10 seconds.
7. Set the directional valve to up or down according to your need.
8. Rotate the air intake valve control to activate the pump. The jacks will react. **Note:** the jacks will rise approximately twice as fast as they retract.
9. Control over each jack is determined by the valve leavers on the top of the manifold. (Open to go faster, close to go slower) Never start this operation with the vales open more than one turn.
10. Once the jacks have reached the desired level, close the air intake valve and place the directional control valve in neutral.
11. Insert the Load Holding Rings. Lower the jack until the load is resting on the Load Holding Rings. Rotate the directional control leaver between “UP” and “Down” a few times to relieve the pressure in the hoses. (You can visibly see the hoses relax).
12. Disconnect all the hoses from the Lift Module; Install the dust covers where needed and park the pump.
13. Place the directional valve in the neutral position when the jacking procedure is complete.

When removing the hoses, the operator should move the directional valve back and forth between the up and down positions to relieve any pressure build up in the hydraulic circuit. Failing to do this will result in the couplers being hard to remove.

When hoses are disconnected always connect the two ends together to avoid contamination. Replace dust covers on the jacks and the pump any time the hoses are removed.

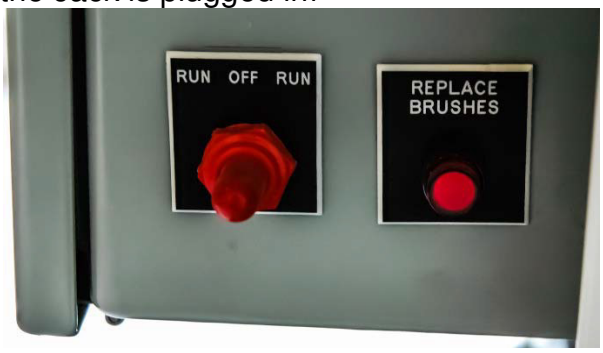
Electrically Powered Safety Precautions & General Instructions

Electrical Supply: 115 volts, 1.5 HP, 8 Amps (North American)
230 volts 1.5 HP, 8 amps (European)



1 . Do not tamper with electrical components.

2 . Do not open motor control box while the Jack is plugged in!



3. When cleaning the equipment take care to keep electrical components dry.

4. Check the brush indicator light prior to use, if the light is off the brushes are still functioning properly.

5. Visually inspect the attached power cord for damages prior to plugging in the Jack.

1. Ensure you are using an adequate power cord, refer to the table below.

2. If using a portable welder, ensure that the lifting equipment is unplugged prior to use. This prevents grounding through the motor on the jack.

Current At Full Load (Amps)	Cord Size AWG (mm²) 3.2 Volt Drop			
	Length of Cord			
	0-25 feet (0-8 m)	25-50 feet (8-15 m)	50-100 feet (15-30 m)	100-150 feet (30-45 m)
6	18 (.82)	16 (1.33)	14 (2.09)	12 (3.32)
8	18 (.82)	16 (1.33)	12 (3.32)	10 (5.37)
10	18 (.82)	14 (2.09)	12 (3.32)	10 (5.37)
12	16 (1.33)	14 (2.09)	10 (5.37)	8 (8.37)
14	16 (1.33)	12 (3.32)	10 (5.37)	8 (8.37)
16	16 (1.33)	12 (3.32)	10 (5.37)	8 (8.37)
18	14 (2.09)	12 (3.32)	8 (8.37)	8 (8.37)
20	14 (2.09)	12 (3.32)	8 (8.37)	6 (13.30)
22	14 (2.09)	10 (5.37)	8 (8.37)	6 (13.30)
24	14 (2.09)	10 (5.37)	8 (8.37)	6 (13.30)
26	12 (3.32)	10 (5.37)	8 (8.37)	6 (13.30)
28	12 (3.32)	10 (5.37)	6 (13.30)	4 (21.29)
30	12 (3.32)	10 (5.37)	6 (13.30)	4 (21.29)

Recommended Hydraulic Fluids & Lubricating Fluids

(For ambient temperatures from -20°F / -29°C to 12QOF)

Power Team AW46
Exxon Univis Extra
Texaco Rando HDAZ

Notes:

Alternate fluids may be used if they have the following characteristics:

- Pour point -45°F / -43°C, viscosity 150 SUS@ lOOOf
- Viscosity 45 SUS @ 210°F / 99°C
- Viscosity index 150, and anti-corrosion, anti-foam, anti-oxidant, anti-rust, anti-wear and demulsifier additives

Service Centres

Please contact Hydra-Tech International for current information on the closest service center to you. Contact information for Hydra-Tech International follows:

#110, 5842 – 86th Avenue SE, Calgary, Alberta, Canada
T2C 4L7
Telephone (403) – 720 – 7740 Fax (403) – 720 – 7758
Website: www.hydra-tech.net

STANDARD WARRANTY

1. **WARRANTY POLICY**. Subject to those terms and conditions contained herein, Seller warrants that all Seller products conform in all material respects to the description identified in the quotation, proposal or offer made by Seller to Buyer for the sale of its products (collectively, "**Quotation**") and will be free from defects in material and workmanship for two (2) years from the date of shipment to Buyer (except for spare parts which Seller warrants for one (1) year from the date of shipment to Buyer). Products manufactured by manufacturers other than Seller and/or its affiliates ("**Other Manufacturer's Products**") supplied by Seller to Buyer are not warranted by Seller. Other Manufacturer's Products may be warranted separately by their respective manufacturers and Seller shall, to the extent possible, assign to Buyer whatever rights Seller may obtain under any such warranties.

   THE FOREGOING REPRESENTS THE SOLE AND EXCLUSIVE WARRANTY GIVEN BY SELLER TO BUYER AND IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW (INCLUDING BY STATUTE) OR OTHERWISE, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

2. **WARRANTY REMEDIES**. Buyer's sole and exclusive remedy for Seller's breach of the foregoing warranties during the warranty period shall be, at Seller's sole discretion, the repair and/or replacement of any defective products (or component parts thereof) pursuant to the terms of and conditioned upon Buyer's compliance with the procedure identified in Section 5 hereof.

3. **LIMITATION OF DAMAGES. SELLER SHALL HAVE NO LIABILITY TO BUYER OR ANY END USER OF PRODUCTS OR SERVICES WITH RESPECT TO THE SALE OF PRODUCTS OR PROVISION OF SERVICES UNDER THE QUOTATION FOR LOST PROFITS OR FOR SPECIAL, CONSEQUENTIAL, EXEMPLARY, OR INCIDENTAL DAMAGES OF ANY KIND WHETHER ARISING IN CONTRACT, TORT, PRODUCT LIABILITY, STRICT LIABILITY OR OTHERWISE, EVEN IF SELLER WAS ADVISED OF THE POSSIBILITY OF SUCH LOST PROFITS OR DAMAGES. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER FOR ANY DAMAGES WHATSOEVER IN EXCESS OF THE TOTAL PRICE PAID BY BUYER FOR PRODUCTS AND/OR SERVICES REFERENCED IN THE QUOTATION.**

4. **INAPPLICABILITY OF, AND VOIDING OF THE WARRANTY**. This Standard Warranty does not cover defects in Seller products which are not defects in material and workmanship and may be attributed to other causes including but not limited to failure to operate and/or maintain Seller products in accordance with the applicable Seller installation and/or operator's manuals, owner's manuals, maintenance manuals, manufacturer's recommendations, and any other manuals, guidelines or recommendations of Seller concerning the maintenance and operation of Seller products that may be communicated to Buyer from time to time, side-pulling of load, shock loading, excessive jogging, eccentric loading, overloading, accidental occurrence, improper repair, improper handling or storage of products, chemical exposure and/or abnormal operating conditions not identified to and expressly and specifically accepted by Seller in writing prior to Seller's issuance of a Quotation, or any other cause that in Seller's sole discretion is not attributable to defects in material and workmanship. Failure of products to meet published performance specifications due to abnormal operating conditions beyond Seller's knowledge or control shall not be considered defects in either workmanship and/or material.

Modification of Seller products and/or incorporation of Other Manufacturer's Products into Seller products by individuals and/or organizations other than Seller shall void this Standard Warranty.

Buyer's failure to pay in full when due for the products and services provided for in a Quotation shall void this Standard Warranty.

5. **WARRANTY PROCEDURE**. To obtain warranty remedies pursuant to this Standard Warranty, Buyer must strictly adhere to the following procedure. Buyer's failure to comply with the terms of this procedure shall void this Standard Warranty.

(a) Buyer shall, within seventy-two (72) hours of any claimed non-conformance or defect in Seller products, notify Seller's Warranty Administrator in writing of the alleged non-conformance or defect.

(b) Seller shall, within a reasonable time, advise Buyer of its intention to initially accept or deny the warranty claim pursuant to the terms of this Standard Warranty. If Seller elects to initially accept the warranty claim, it shall advise Buyer of its intention to replace, repair, or otherwise further inspect the allegedly nonconforming or defective products (or component parts thereof) ("**Initial Acceptance**").

(i) **Replacement of allegedly nonconforming or defective products**. Should Seller provide Initial Acceptance of Buyer's warranty claim and elect to replace the allegedly nonconforming or defective products (or component parts thereof), or should Seller elect to provide Initial Acceptance of Buyer's warranty claim through notification to Buyer that Seller elects to inspect the allegedly nonconforming or defective products (or component parts thereof) and then subsequently elect to replace the allegedly nonconforming or defective products (or component parts thereof), Seller shall within a reasonable time, ship new, comparable, replacement products to Buyer F.C.A. Seller's plant, warehouse or dock, as defined by Incoterms 2010, via the lowest cost method available.

(ii) **Repair of allegedly nonconforming or defective products**. Should Seller provide Initial Acceptance of Buyer's warranty claim and elect to repair and/or permit the repair of the allegedly nonconforming or defective products (or component parts thereof) by approved third parties, or should Seller elect to provide Initial Acceptance of Buyer's warranty claim through notification to Buyer that Seller elects to inspect the allegedly nonconforming or defective products (or component parts thereof) and then subsequently elects to repair the allegedly nonconforming or defective products, Seller shall, unless otherwise agreed in writing by the Warranty Administrator, pay only those direct labor costs incurred to effectuate the repair and the cost of Seller replacement products consumed during said repair provided that the costs for all products and/or services are approved in advance in writing by Seller's Warranty Administrator.

(iii) **Inspection of allegedly nonconforming or defective products**. Should Seller provide Initial Acceptance of Buyer's warranty claim through notification to Buyer that Seller elects to inspect the allegedly nonconforming or defective products (or component parts thereof) and then subsequently determine that the alleged nonconformity or defect is not covered under this Standard Warranty, Seller shall bill Buyer, and Buyer shall pay Seller any and all costs associated

(iv) with the performance of inspection of allegedly nonconforming or defective products.

WAIVER. BUYER HEREBY WAIVES ANY CLAIM THAT THE EXCLUSIONS OR LIMITATIONS IDENTIFIED HEREIN DEPRIVE IT OF AN ADEQUATE REMEDY. BUYER SHALL BE ENTITLED TO NO OTHER REMEDY OTHER THAN THOSE IDENTIFIED IN SECTION 2 HEREOF WITH RESPECT TO THE PROVISION OF PRODUCTS AND/OR SERVICES BY SELLER REGARDLESS OF THE FORM OF CLAIM OR CAUSE OF ACTION, WHETHER BASED IN CONTRACT, TORT INCLUDING NEGLIGENCE, STRICT LIABILITY OR OTHERWISE.