



POWER PACK

OPERATION & MAINTENANCE



FOR THE TORNADO CABLE/MICRODUCT BLOWING MACHINES AND THE POWERED DUCT ROD PUSHER

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1. SAFETY INSTRUCTIONS

This power pack should be used only by personnel who have been given the appropriate training and who are competent to use it.

These instructions are to be made available to operators of this equipment at all times. Failure to observe these safety instructions could result in serious personal injury and/or property damage.

WORK AREA AND GENERAL SAFETY

1. Read and understand the operation and maintenance manual supplied with this equipment. Keep it in a convenient place for future reference.
2. Keep children and untrained personnel away from this equipment while in operation.
3. Keep all guards and safety devices in place. Do not operate this equipment with guards removed or damaged.
4. Keep hands, feet and loose clothing away from moving parts, especially at cable entry points.
5. Always stop the machine and isolate hydraulic and electrical services to carry out lubrication and servicing.
6. Check machine before starting for worn or damaged parts. Check for signs of loose nuts and bolts etc.
7. If machine is left unattended, insure that unauthorized use is prevented.
8. Never leave the machine unattended while in use.
9. Consider the use of safety barriers, especially when used in public places, observe all statutory requirements for working environments.
10. Beware of pinch points involved with rotating components.
11. Beware of hot surfaces, machine uses hydraulics.
12. When operating machine always wear eye protection, hard hat, safety shoes and leather gloves, machine operates with hydraulic oil at 2030 psi.
13. Some component and assembly parts are in excess of 55 lbs. (25kg) . When lifting care must be taken, insure sufficient man power/lifting gear is available, to prevent personal injury and damage to the machine. Beware of exposed electrical contacts. Do not touch, or allow metal objects to come into contact.
14. Beware of exposed electrical contacts. Do not touch. Or allow metal objects to come into contact. Waste hydraulic oils are to be disposed of via an environmentally acceptable method.
15. Wear hearing protection when noise level are above acceptable limits. To reduce noise, position Power Pack away from user.

16. Machine may cause additional fire hazard if involved in an existing fire due to hydraulic oils.
17. The machine must be operated on firm ground.
18. Only use the machine for its intended purpose.
19. Do not tamper with pressure relief valves or pressure reducing valves.
20. To prevent damage to the hydraulic hoses and the emergency stop cable never leave them on the ground when not in use.

GENERAL HYDRAULICS SAFETY INSTRUCTIONS

Escaping fluids under pressure can penetrate the skin and cause serious personal injury. Observe the following precautions to avoid hydraulic hazards:

1. Insure all hydraulic connections are securely tightened before operating the machine.
2. Check for leaks with a piece of cardboard. **Caution: Do not use your hands! Oil may be hot**
3. Do not exceed working pressure of hydraulic hoses.
4. Visually inspect hoses regularly and replace if damaged.

2. GENERAL DESCRIPTION

The Hydraulic Power Pack sits on a tubular steel frame with 2 wheels for easy transportation.

The gas driven air-cooled engine drives a fixed displacement gear pump fitted with an integral pressure relief valve. The hydraulic circuit has an oil tank fitted with a suction filter and a replaceable return line filter to protect the pump and motor. The tank is also fitted with a filler/breather and sight level gauge.

The hydraulic power pack is connected to the remote equipment via detachable dual hoses fitted with male/female quick release couplers.

3. SPECIFICATIONS

DIMENSIONS

LENGTH: 30"
HEIGHT: 38"
WIDTH: 21"
DRY WEIGHT: 110 lbs.

<u>Model</u>	<u>Engine</u>	<u>Flow</u>		<u>Pressure</u>	
No.	type	l/min	US gal/min	bar	psi
32481	Honda	15	4	115	1670

Honda Engine Type: GXV 160 (5HP)

Approximate operating time is 45 minutes with a full tank of gas at maximum R.P.M.

Hydraulic Oil Type: Shell Tellus T-32

Hydraulic Oil Tank Capacity: 6 US gallons

For Engine Details refer to manufacturers manual.

4. OPERATING PROCEDURE

It is imperative that all persons using, operating or maintaining this power pack be fully trained and competent to do so, and have read the entire operating manual.

General Machine Products Co., Inc. and CBS Products Ltd cannot be held responsible for misuse of this equipment.

The power pack is designed to work with an open center control valve. Therefore it is imperative that the hoses are connected to a system having the facility prior to starting the engine.

Connecting Hoses

The hydraulic power pack must be connected by the two detachable hoses to the driven machine by plugging in the male/female quick release couplings before starting the engine.

IMPORTANT: Do not try to start the engine on the Power Pack until the hoses between the Power Pack and the remote equipment have been connected. Do not disconnect the hydraulic hoses when the power pack is running (if the engine continues to run serious overheating will occur as the oil continues to pass through the relief valve).

Hydraulic Oil Level

Check hydraulic oil level and top off with the appropriate grade of hydraulic oil (refer to 3.0 specification for details) or equivalent if necessary, each time the power pack is used.

Starting the Engine

Refer to the engine manufacturer manual before starting the engine.

NOTE: The engine manufacturer recommends the addition of a gas stabilizer to unleaded gas if the unit is to be stored for an extended period. This prevents the build up of gum and varnish in the gas, keeps the carburetor and gas system clean and improves engine performance.

5. MAINTENANCE AND SERVICING

To insure reliable service from your power pack, we recommend the unit be completely serviced every 6 months.

Hydraulic Circuit

The circuit should be drained off and replaced with the appropriate grade of hydraulic oil (refer to 3.0 specification for details) or equivalent until it is almost to the top of the sight glass when the power pack is on level ground. The circuit is fitted with two filters, only one of these requires replacing. Replace the Return Line Filter when the filter gauge is in the red (indicating higher return pressure - i.e., clogged filter). The gauge is found on the side of the filter housing.



Return Line Filter Replacement



1. Unscrew the return line filter top cap with a 24mm box wrench or socket and remove.



2. Remove old filter and replace with the new one.



3. Replace the top cap making sure not to cross the thread. Check for leaks after tightening.

Gas Engine

Refer to manufacturer's manual.

6. TROUBLESHOOTING GUIDE

Engine Will Not Start

- Check gas level
- Check throttle in "on" position
- Check emergency stop button is "reset" on either the Tornado or the Powered Duct rod Pusher
- Insure hoses are connected from power pack to blower (if they are not connected or have a faulty coupling, engine will not turn over).
- Contaminated gas

Difficult to Start Engine

- Check above points
- Insure gas has additional additive
- Engine may be flooded
- Check hydraulic valve on blower unit is switched "off"
- Check spark plug

Engine is Running Erratic

- Insure additive is mixed with gas
- Damage to throttle

8. SPARES

For spare parts always quote the machine type and serial number and contact:



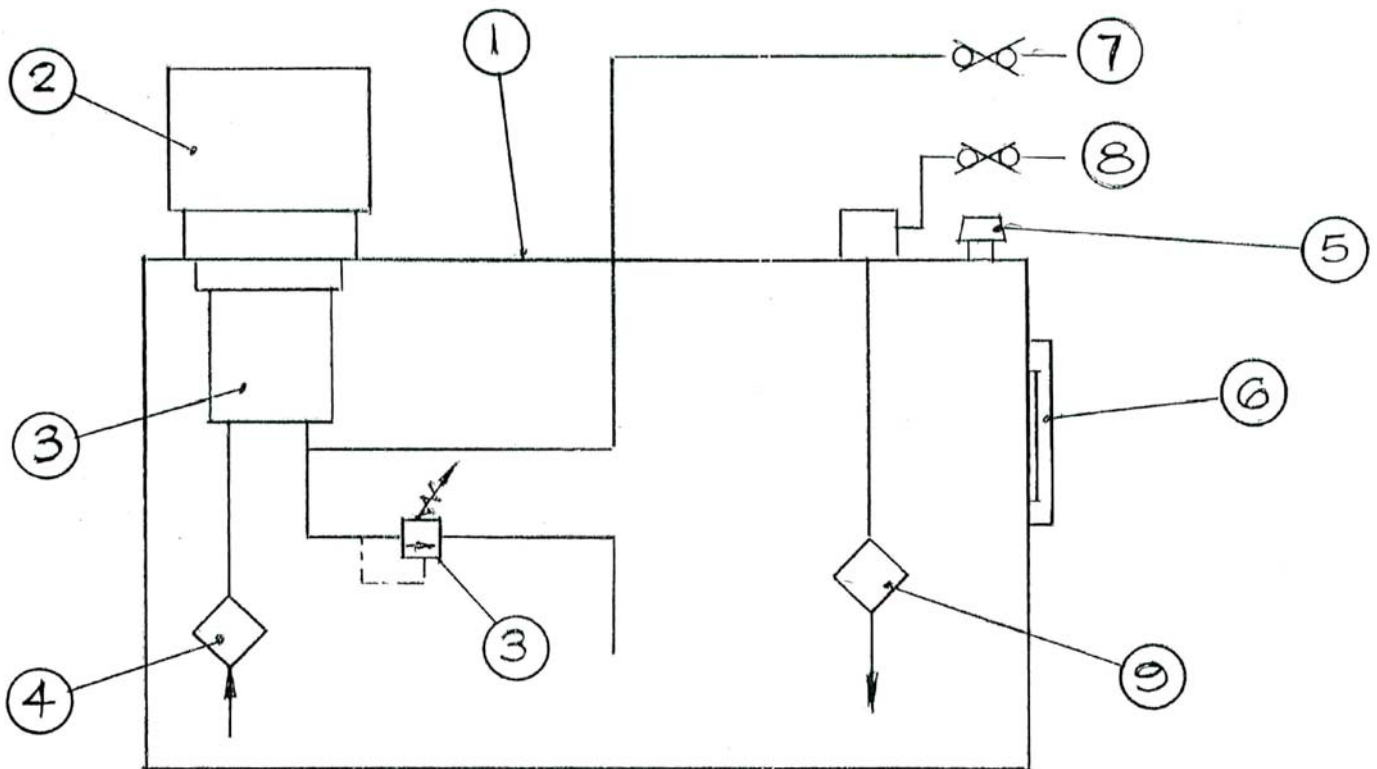
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TEL: +1 215 357 5500
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E-MAIL: info@GMPtools.com
Website: www.GMPtools.com

Please give as much information as possible to insure correct identification and supply of spare parts.

RECOMMENDED SPARES LIST

PART No	Description	Qty required
89154	Filler Breather	1
89156	Wheel (pneumatic)	2
89157	Oil Level Gauge	1
89159	Suction Filter	1
89163	Return Line Filter	1



Ref PART

- 1 Hydraulic Tank
- 2 Gas Engine
- 3 Hyd. Pump & Relief Valve
- 4 Suction Filter
- 5 Filler/Breather
- 6 Oil Level Gauge
- 7 Quick Release Coupling—High Pressure
- 8 Quick Release Coupling—Low Pressure
- 9 Return Line Filter

GMP Limited Warranty

1a. General Machine Products Co., Inc. ("GMP") warrants to the purchaser and/or end user:

(1) that a new product sold and manufactured by GMP will be free from original defects in material and workmanship for one year from the date the product was delivered to the purchaser and/or end user, or for the lifetime of the Modular Plug Presser;

(2) that a new product sold and not manufactured by GMP will be covered exclusively by the manufacturer's warranty. However, if that warranty coverage shall provide less coverage than the GMP Warranty for its manufactured products, then the warranty set forth in Paragraph 1(a)(1) above shall apply instead;

(3) that a reconditioned used GMP product sold by GMP, or a non-owned product repaired by GMP, or a new part sold by GMP, will be free from original defects in material and workmanship for ninety days from the date the product was delivered to the purchaser and/or end user.

1b. The above warranties are contingent upon and subject to the condition that: (1) the end user substantiates the date it purchased and received delivery of the product or part, and (2) the product or part shall have been installed, maintained and used in accordance with GMP's or the manufacturer's written instructions.

2. The end user shall determine the suitability of GMP's product or part for intended use, and the end user assumes all risk and liability whatsoever in connection therewith except to the extent set forth in this Limited Warranty.

3a. GMP reserves the right to request that the product or part be returned to us for examination and cannot be responsible for user charges incurred in the replacement of any product. GMP's agreement to repair or replace is also subject to its inspection of the product and verification of the defect.

3b. Subject to immediate written notification of a defect or malfunction, GMP will repair or replace that product or part, at GMP's option, returned freight prepaid to Trevoise, PA.

3c. To obtain repair or replacement service under the Limited Warranty, the purchaser must contact the factory for a Return Material Authorization (RMA). Once obtained, send the RMA along with the defective part or product, transportation prepaid to:

General Machine Products Co., Inc. Tel: 215.357.5500
3111 Old Lincoln Highway Fax: 215.357.6216
Trevoise, PA 19053-4996 USA

3d. The field labor and material charges incurred by an authorized GMP dealer or an end user to disassemble, inspect, repair and reassemble our product or part at their respective prime locations will not be reimbursed unless GMP has first reviewed and approved those charges.

3e. Incidental repair charges incurred by an authorized dealer or an end user for items such as labor, transportation, tolls, lodging and meals at a location remote from its prime facility, or to demount our product or part from its remote location and forward to its prime facility, are not the responsibility of GMP, and are not covered by this Warranty.

3f. Incidental repair charges incurred by an authorized GMP dealer or end user to remove construction hardware, modify a vehicle or otherwise gain access to GMP's product or part, is a condition beyond GMP's control, and is not covered by this Warranty.



4a. GMP products or parts which become part of a total assembly which has been designated and/or manufactured by others, are not covered by this Warranty unless GMP reviews the total assembly and expressly extends its warranty.

4b. Design, material and workmanship furnished by others to install or operate a GMP product or part are not covered by this Warranty with respect to GMP's products or parts which are used in that particular assembly.

4c. Hydraulic, pneumatic, electrical or mechanical control equipment which is not manufactured by GMP and which becomes a part of a GMP assembly, is not covered by this Warranty.

4d. This warranty does not cover a GMP product or part which others have subjected to abuse, improper installation, improper operation, alteration or negligence in storage or handling.

5a. THE ABOVE WARRANTIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR PURPOSE OR OTHER WARRANTIES OR GUARANTEES OF ANY KIND OR DESCRIPTION, EXPRESS OR IMPLIED.

5c. GMP'S SOLE LIABILITY AND THE PURCHASER'S SOLE REMEDY FOR A FAILURE OF A PRODUCT OR PART UNDER THIS LIMITED WARRANTY, AND FOR ANY AND ALL CLAIMS ARISING OUT OF THE PURCHASE AND USE OF THE PRODUCT OR PART SHALL BE LIMITED TO THE REPAIR OR REPLACEMENT OF THE PRODUCT OR PART THAT DOES NOT CONFORM TO THIS WARRANTY.

6. GMP reserves the right, without notice, to make changes in equipment design or components as progress in engineering or manufacturing methods may warrant.

7. This Warranty shall be construed in accordance with the laws of the State of Pennsylvania, of The United States of America.

8. This Limited Warranty may not be modified, in whole or in part, except by writing signed by an authorized officer of GMP.



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