POWER PACK W/OIL COOLER
P/N 32800

OPERATION AND MAINTENANCE MANUAL

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Introduction

To operate the power pack efficiently and safely you must know the power pack and have the skill to use it. If you are a new operator, you should become trained in the skills of using a power pack before trying to work with it.

It is assumed that personnel carrying out maintenance have at least a sound knowledge of workshop practice, safety procedures and general techniques associated with the repair of hydraulic equipment.

It is expected that components will be thoroughly cleaned and lubricated, where appropriate, also that any opened hose connections will be blanked to prevent entry of dirt and excessive loss of hydraulic fluid.

Serial numbers are stamped on a plate attached to the top of the unit.

It is important to quote the serial number when making repairs or ordering parts.

Safety Decals

Keep all decals clean and readable. Replace lost or damaged decals.

WARNING

Always use the fold down handles provided, when maneuvering the power pack. Power packs are heavy pieces of equipment. Always adopt safe lifting practices otherwise injury may occur.

Before Operating the Machine

- Check for Cleanliness
- Check for Damage
- Check for Leaks
- Make sure the fuel filler cap is tightly closed
- Check Hydraulic Oil Level
- Ensure the machine is positioned safely
- Ensure that all hydraulic couplings are fully serviceable.
- Ensure that any hydraulic tools you are planning to use are compatible with the model of the machine you are using.
- Check Engine Oil Level
- Check the Fuel

Never refuel with the engine running.

Operating in Low Temperatures

- Use the Correct Viscosity Engine Oil
  See Engine Manufacturer's Handbook
- Fill the Fuel Tank at the End of each Working Period
- Protect the Machine When not in Use

Hydraulic Output Control and Connectors (Fig. 1)

Hydraulic output control (1) is used to control the flow rate to the tool in use.

The hydraulic power pack must be connected by the two detachable hoses (2 & 3) to the driven machine by plugging in the male/female quick release couplings before starting the engine.

Important: Connect the electrical box on the Tornado. Move the hydraulic control all the way to the right. 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).

Fig. 1

Starting/Stopping (Figs. 2/3)

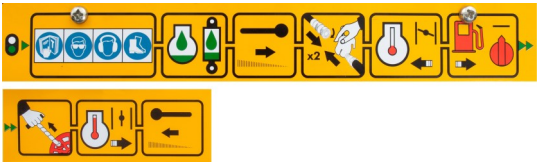

Fig. 2

Refer to the engine manual for additional information on starting the engine. Position the throttle lever at the maximum setting after the choke is open. Move the hydraulic output control all the way to the left.

Honda GX240:
The engine is fitted with an Oil Alert system which is designed to prevent engine damage caused by an insufficient amount of oil in the crankcase. The oil alert system will automatically shut down the engine before the oil in the crankcase can fall below a safe limit.

Temperature	Idling Time
below -20°C	5 minutes
-20°C to -10°C	2 minutes
-10°C to 5°C	1 minute
above 5°C	20 seconds

Fig. 3

Recoil Start Models: Do not allow the starter grip to snap back against the engine. Return it gently to prevent damage.

Stopping the engine: Move the hydraulic output control all the way to the right. Refer to the engine manual for additional information on stopping the engine.

Service Schedules

Apart from the daily jobs, the schedules are based on machine running hours. Keep a regular check of hours in use. Do not use a machine which is due for a regular service.

Rectify any defects found during regular maintenance before clearing the machine for use.

WARNING

Maintenance must be done only by suitably qualified and competent persons. Before doing any maintenance, make sure the machine is safe and correctly situated on level ground.

Daily

- **Clean machine generally.** *Clean the machine using water and/or steam. Do not allow mud to build up on tire engine. Make sure that the air inlets on the hydraulic cooler are not clogged.*

Check

- Generally for damage
- Hydraulic fluid level
- Engine oil level
- Hydraulic couplings
- Hydraulic hoses

Note: *Check tightness of nuts, bolts, screws and hose fittings after the first days operation and thereafter in accordance with Service Schedules.*

Note: *The engine oil should be replaced after the first three days operation and thereafter in accordance with the Maintenance Schedules*

Every 50 hours or 3 Months

Do the Daily jobs plus:

Clean

- Air cleaner elements.
  (See Engine Manufacturer's Handbook)
- Engine oil filter

Change

- Engine oil
- Hydraulic filter
- Hydraulic oil

Every 100 hours or 6 Months

Do the Daily and 3-monthly jobs plus:

Check:

- Tightness of nuts, bolts, screws and hose fittings
- Flow and pressure output

Change

- Main hydraulic filter
- Hydraulic fluid
- Engine oil. (See Engine Manufacturer's Handbook)

Clean

- Fuel strainer
- Spark plug

Check

- Spark plug gap

***Note**: For detailed maintenance procedure, refer to Engine Manufacturer's Handbook.*

Checking the Hydraulic Fluid Level (Fig. 4)

1. Prepare the Machine
   Position the machine on level ground. Switch off the engine and allow it to cool down.
2. Check the Hydraulic Fluid Level

a. Check the hydraulic fluid level using sight gauge A.

b. If necessary top up the hydraulic fluid through filler B.

***Note:** Use only the recommended hydraulic fluid.*

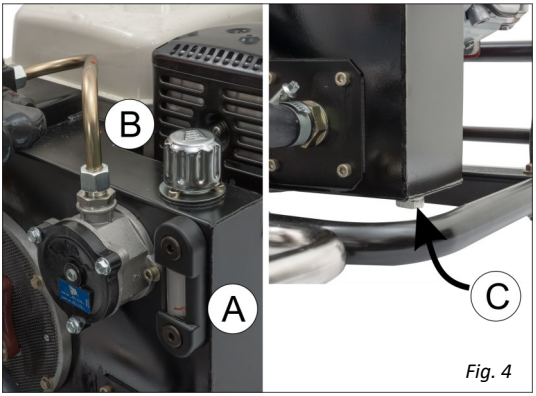

Fig. 4

Changing the Hydraulic Fluid (Fig. 4)

***Note:** The illustration shown is for a typical machine.*

1. Position the machine on level ground. Switch off the engine and allow it to cool down.
2. Drain the Hydraulic Fluid
   a. Place a container of a suitable size below the tank drain plug C to catch the fluid.
   b. Remove drain plug C and filler cap B and allow fluid to drain out.

3. Replace the Hydraulic Fluid.
   a. Clean and refit drain plug C.
   b. Pour fluid through filler until it reaches the required level on sight gauge A.
   c. Refit filler cap B.

Note: *Use only the recommended hydraulic fluid.*

Changing the Main Hydraulic Filter (Figs. 5/6)

WARNING

Hot oil and engine components can burn you. Make sure the engine is cool before doing this job. There may be limited fluid spillage when the filter is removed. Clean any spillage immediately and dispose of materials in accordance with current regulations.

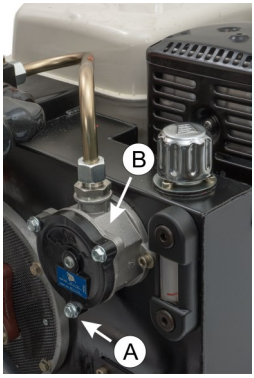

Fig. 5

1. Position the machine on level ground. Switch off the engine and allow it to cool down.
2. Place a container of suitable size beneath the filter to catch any spilt fluid.
3. Remove the three bolts A securing the lid to hydraulic filter housing B, and remove the lid.
4. Lift out and dispose of the used filter.
5. Push the new element C firmly into place in the filter housing B.
6. Refit the lid on the filter housing B, ensuring that spring clip D locates between spigots E. Secure with the three bolts A.
7. Check the hydraulic fluid level, see Checking the Hydraulic Fluid Level.

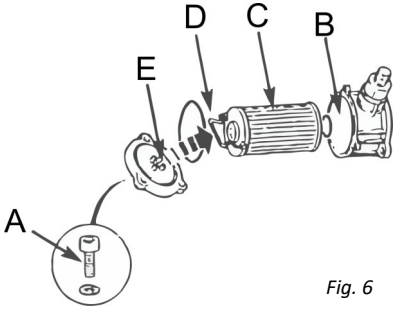

Fig. 6

Cleaning the Cooler

The oil cooler fins may be cleaned using low pressure compressed air. Do not attempt to clean using a wire brush as this could damage the fins.

Gaining Access to Machine Components (Fig. 7)

To facilitate easier maintenance, the tubular frame is fitted with hinge bolts. The frame may be moved to afford ready access to the machine components in the following manner:

1. Remove and retain securing clips (A).
2. Lift the tubular frame out of the way of the machine components by rotating it on bolts (B).

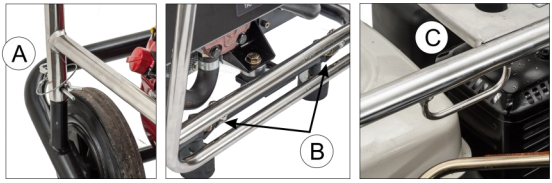

Fig. 7

Note: *It is important that after maintenance, the tubular frame is restored to its operating position and that the clips A are securely fitted.*

Note: *When the machine is to be lifted using the balanced lifting point C, it is important to ensure that the clips A are in place and securely fitted.*

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
- Ensure 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
- Ensure gas has additional additive
- Engine may be flooded
- Check hydraulic valve on blower unit is switched “off”
- Check spark plug

Engine is Running Erratic

- Ensure additive is mixed with gas
- Damage to throttle

SPARES

For spare parts always provide the part number and serial number.

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

SPECIFICATIONS

Flow: 0-5 GPM (0-20 LPM)

Pressure: 2000 psi (138 bar)

Honda Engine Type: GX 240 8 HP

Hydraulic Oil Type: Shell Tellus T-32 1.5 gal (7.0 L)

For Engine Details refer to engine manufacturers' manual.