



**Hydraulic Power Unit  
Pioneer Series  
G-09, G-11, G-13**



**OPERATION,  
MAINTENANCE,  
AND REPAIR MANUAL**



**Original Instructions**

**2015**

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# EC DECLARATION OF CONFORMITY

## MANUFACTURER

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Country: United States of America

## AUTHORISED TO HOLD THE TECHNICAL FILE

*Which is established in the European Union and has access to the Technical File*

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## DESCRIPTION AND IDENTIFICATION OF THE MACHINERY

Generic name: PortaCo, Inc. Hydraulic Power Unit  
Function: Provide hydraulic flow and pressure for operation of hydraulic tools  
Model: G-09S06-52-W  
Serial number: This EC declaration of conformity is applicable to power units of the model G-09S06-52-W, increasing from serial number 152832809.  
Commercial name: Power Unit

## COMPLIANCE

*The manufacturer declares that the above mentioned machinery fulfills all relevant provisions of*  
Machinery Directive 2006/42/EC      Low Voltage Directive 2006/95/EC  
EMC Directive 2004/108/EC      Pressure Equipment Directive 97/23/EC

*In conjunction with the following harmonised standards  
and where appropriate other technical standards and specifications*

*for the risk assessment*

EN-ISO 12100:2010

*for the design and manufacture*

EN 61000-6-3:2007, EN 60204-1:2006/A1:2009, EN-IEC 61310-2:2008, EN-ISO 7010:2012

Place: Moorhead, Minnesota      Name: Patrick Cronin  
United States of America      Function: President of PortaCo, Inc.

Date: September 7, 2015

Signature:



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The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

**CALIFORNIA PROPOSITION 65**

## 1.0 INTRODUCTION

### 1.1 General Information

This manual presents installation, operation, and maintenance information for the Pioneer G-09, G-11, G-13 series PortaCo Hydraulic Power Units. Model G-09S06-52-W, G-11S07-52-W, G-13S08-52-W.

One of the following tags are attached to the hydraulic power unit to identify the model number, serial number, and other important information.

PortaCo, Inc. reserves the right to make changes at anytime without notice and without incurring any obligation.

The Pioneer Power Unit is designed to provide hydraulic flow and pressure for operation of H.T.M.A. type I, II, hydraulic tools.

The G-09S06-52-W provides 5.9 gpm (22.4 Liters) at 1800 psi (125 BAR) to operate type I hydraulic tools. The G-11S07-52-W provides 7gpm (26 Liters) at 2000 psi (148 BAR) to operate type I hydraulic tools. The G-13S08-52-W provides 8 gpm (30.3 Liters) at 2000 psi (148 BAR) to operate type II hydraulic tools.

For the G-11, and G-13 PortaCo power units produce a maximum pressure of 148 BAR (2150 PSI). The G-09 power unit produces a maximum pressure of 135 BAR (1950 PSI).

The power units are all equipped with air-to-oil coolers with suction fan mounted to the power shaft on the engine.

The fuel and hydraulic systems are self-contained with the required reservoir, filtration and level indicators.

### **CAUTION: DO NOT USE CLOSED-CENTER TOOLS WITH THIS POWER UNIT**

### 1.2 Features

The main features of the PortaCo Pioneer G-09, G-11, and G-13 pioneer series are as follows:

Standard unit is a wheeled style frame:

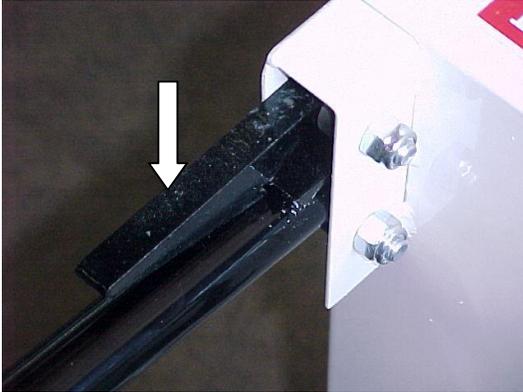
Length	67.3 cm	(26.5 in.)
Width	50.8 cm	(20 in.)
Height	69.8 cm	(27.5 in.)
Weight	64.9 kg	(143 lbs.)

Upper ambient operating  
Temperature 43 C (110° F)  
Lower ambient operating  
Temperature -28°C (-20 F)

The Pioneer series comes with either a Briggs & Stratton or a Honda Engine.

See the engine manual supplied with the power unit for recommended fuel and fuel restrictions.

The standard wheeled Pioneer series power unit is equipped with collapsible handle, which locks in place with a latch, (see fig. 1.2A) and a lifting point for a crane hook. (Fig. 1.2B)



(Fig. 1.2A)



(Fig. 1.2B)

### 1.3 Options

Consult PortaCo. For special options that may be available

### 1.4 Safety Summary

Tool operators and maintenance personnel must always comply with the safety precautions given in this manual and on the stickers and tags attached to the tool and hoses.

These safety precautions are given for your safety. Review them carefully before operating the power unit and

before performing maintenance or repairs.

Supervising personnel should develop additional precautions relating to the specific work area and local safety regulations.

### 1.5 General Safety Precautions

The PortaCo Inc. Pioneer G-09, G-11, and G-13 Series Hydraulic Power Units are designed to provide safe and dependable service if operated according to the instructions provided in this manual. Read and understand this manual and any stickers attached to the power unit before operating. Failure to do so could result in personal injury or equipment damage.

Turn power unit off and depressurize the hydraulic system before locating oil leaks. Depressurize any hoses and tools connected to the power unit before disconnecting them or inspecting them for leaks. Pressurized oil can penetrate the skin and cause severe injuries or death. Seek medical attention for any puncture wounds caused by oil.

The power unit features a 12 volt battery for starting. Improper use or care of the battery can result in serious personal injury or property damage.

**WARNING: The battery is a DANGER/POISON hazard. The battery contains Sulfuric Acid and can cause severe burns.**

**Avoid contact with skin, eyes or clothing. Keep out of reach of children. If battery acid contacts the skin, flush immediately with water.**

**If acid is swallowed, drink a large amount of water or milk. Followed by milk of magnesia, beaten egg, or vegetable oil. Seek medical help immediately.**

**If acid contacts the eye, flush with water for 15 minutes. Get prompt medical attention.**

The battery produces explosive gases, keep sparks, flame and cigarettes away. Change battery in a well-ventilated area. Always wear safety goggles when work with battery.

Do not short circuit battery, severe fumes and fire can result.

Use care when handling battery to prevent damage to casing. Battery contains toxic materials. If case is damaged, avoid contact with the contents. Neutralize acid spills with baking soda and water solution.

Dispose of damaged or used batteries in a responsible manner, check with local requirements for proper disposal methods.

Disconnect the battery before maintenance of any electrical components. Remove the ground (negative) cable first and the positive cable second. Reverse procedure for connecting battery.

Always check the battery for danger or handling instructions. Most batteries have instructions similar to the graphic in figure 1.5A.



**(Fig 1.5A)**

Use care when adding fuel to the engine. Gasoline is highly flammable and explosive, and you can be burned or seriously injured when refueling. Stop the engine and keep heat, sparks and flame away. Refuel only outdoors. Wipe up spills immediately. See the engine manual supplied with the power unit for proper fueling procedure.

Always disconnect the battery and remove the spark plug from the engine when performing repairs. Never start the power unit with missing guards or removed access panels. Severe personnel injury can occur if components are ejected from the unit or if person comes in contact with moving parts.

Check the rules and regulations at your location. The rules may include employer's work safety program. Regulations may identify hazards such as working around utility supply lines or hazardous slopes.

Read and understand any manuals for additional or optional equipment, which maybe shipped with the Pioneer power unit.

## **1.6 Warning and Caution Precautions**

Warning and Caution statements have been strategically placed throughout the text, prior to operating or maintenance procedures, practices, or conditions,

considered essential to protection of personnel or equipment and property.

**WARNING: HIGHLIGHTS AN ESSENTIAL OPERATING OR MAINTENANCE PROCEDURE, PRACTICE, CONDITION STATEMENT, ETC. WHICH IF NOT STRICTLY OBSERVED, COULD RESULT IN INJURY TO, OR DEATH OF, PERSONNEL OR LONG TERM HEALTH HAZARDS.**

**CAUTION: HIGHLIGHTS AN ESSENTIAL OPERATING OR MAINTENANCE PROCEDURE, PRACTICE, CONDITION STATEMENT, ETC. WHICH IF NOT STRICTLY OBSERVED, COULD RESULT IN DAMAGE TO, OR DESTRUCTION OF, EQUIPMENT OR LOSS OF MISSION EFFECTIVENESS.**

### **1.7 Training Requirements**

Operator training should consist of information found in this manual for the hydraulic power unit. In addition the operator must receive instructions both through demonstrations and verbally with the tools or applications in which the power unit is going to be used. The new operator must start in an area without bystanders and use all controls until able to fully operate the power unit under the conditions for the work area.

## **2.0 INSTALLATION INSTRUCTIONS**

### **2.1 Unpacking Instructions**

Upon receiving your Pioneer hydraulic power unit, promptly remove it from the shipping container. Always keep top

side of container up. Inspect unit for damage which may have incurred during shipping and report it to carrier for claim.

### **2.2 Engine Preparation**

**CAUTION: READ AND UNDERSTAND ENGINE MANUAL WHICH IS PROVIDED IN ADDITION TO THE PORTACO MANUAL BEFORE STARTING THE POWER UNIT.**

**CAUTION: ALWAYS CHECK ENGINE OIL BEFORE STARTING POWER UNIT.**

Make sure engine oil is at the “FULL” mark on the dipstick.

See engine manual for recommended oil and checking procedures.

**NOTE:** clean up oil and fuel spills immediately. Do not over fill fluids.

### **2.3 Hydraulic Power Unit Preparation**

**CAUTION: CHECK OIL RESERVOIR BEFORE OPERATING THE POWER UNIT. OPERATING THE POWER UNIT WITH LOW OIL RESERVOIR CAN CAUSE PUMP DAMMAGE.**

Check hydraulic fluid level by looking at sight pipe located on top of the oil reservoir. Proper oil level is indicated when the center section of the sight pipe is dark. To add hydraulic fluid remove filter cap on top of reservoir, replace when finished. Reservoir capacity is 18.9 LTR (5.0 gal) do not overfill fluids, clean up oil spills immediately. Only hydraulic fluids meeting the

specifications located below are recommended for use with PortaCo hydraulic power units.

**Viscosity (Fluid Thickness)**

METRIC	U.S.A.
10 C 95 Centistokes	50 F 450 SSU Max
38 C 27-42 C.S.	100 F 130-200 SSU
60 C 16.5 C.S, Min.	140 F 85 SSU Min.

**Pour Point** -10 F/23 C Minimum (for cold startup)

**Viscosity Index** (ASTM D 2220) 140 Minimum

**Demulsibility** (ASTM D-1401) 30 Minutes Maximum

**Flash Point** (ASTM D-92) 340 F/171 C Minimum

**Rust Inhibition** (ASTM D-665 A & B) Pass

**Oxidation** (ASTM D943) 1000 Hours Minimum

**Pump Wear Test** (ASTM D2882) 60 mg Maximum

The following fluids work well over a wide temperature range at startup, allow moisture to settle out, and resist biological growth likely in cool operating hydraulic circuits. These fluids are recommended by PortaCo, Inc. Other fluids that meet or exceed the specifications of these fluids may also be used.

Type	Hydraulic fluid
Chevron	“Clarity” AW 15032
Exxon	“Unavis” J 32
Mobil	D.T.E. 13 M
Gulf	“Harmony” AW-HVI-150-32
Shell	“Tellus T” 32
Texaco	“Rando” HDZ 32
Union	“Unax” AW-WR-32
Amsoil	AWH 15032
Sunvis	Low Pour H/032-product code 19300

Fill the fuel reservoir to a level just below the bottom of the filter tube. Always use clean gasoline as recommended in the engine manual. Do not overfill fluids, clean up oil and fuel spills immediately.

**2.4 Testing**

All power units are tested at the factory and their flows and pressures are recorded on the test report, which is shipped with the power unit. Testing of the power unit is not required unless it is damaged during shipping.

Always perform “before startup procedures” found in section 3.3 before testing. PortaCo Hydraulic Tester, Part Number T-00016-XX-0 is recommended for all tests.

- Set the hydraulic circuit to “OFF.”
- Connect hydraulic hoses to the power unit. Connect the PortaCo Hydraulic Tester to the opposite end of the hoses. Make sure flow direction is correct.
- Start the engine and allow the hydraulic fluid to warm to about 100° F/38 C°.
- Open the tester restrictor valve (fully open.) This represents minimum load.
- Set the flow control to “ON” and set engine throttle for maximum speed.
- Check the flow rate and pressure on the tester gauges. The back pressure reading should be under 17.3 bar (250 PSI). The flow readings should match those listed in section 1.1 General Information of this manual.
- With engine throttle set at maximum speed slowly close the restrictor valve on the tester while observing the flow pressure gauges.
- As the hydraulic system relief valve begins to crack (open) and bypass fluid through the valve, the flow rate will begin to drop. At this time, the pressure in the system should be

between 145-155 BAR (2100-2250 PSI).

- i. If the pressure is not as specified, the hydraulic circuit relief valve must be adjusted or replaced. (See section 4.2 for procedure.)
- If the flow rate drops below the specified range, the pump or control valve may be worn.
- If the flow remains constant, but pressure does not increase, the relief valve may be defective.

## 2.5 Adjustments

The engine RPM's and the hydraulic system flow and pressure relief are set at the factory and must not be readjusted. DO NOT change governor setting or tamper with governor components, which may increase the governed engine speed.

**WARNING: OPERATING THE POWER UNIT AT EXCESSIVE SPEEDS INCREASE THE DANGER OF PERSONAL INJURY.**

## 2.6 Hose Requirements

The Pioneer series are easily moved close to the job site. It is not often necessary or advisable to use long hoses. All hoses must have an oil resistant inner surface and an abrasion resistant outer surface. Each hose must have male pipe ends for most application. Longer hoses can be used when necessary, but can affect the operation of the tool due to resistance in the hose.

If small diameter or long hoses are used, or if restrictive fittings are connected to

the supply and return ports, the pressure required, to push the fluid through the system and back to the tank will be higher. This will reduce tool power.

The pressure and return hose are connected to the control block. A ½-inch male pipe hose end can be connected, to H.T.M.A. flat-nosed quick-disconnect couplings (available through PortaCo, Inc).

The left port of the control block is the pressure (oil out) fitting. A male H.T.M.A. quick-disconnect coupling (without lock ring) must be connected to this port.

Two hoses are required to complete the circuit, each hose should have a male coupler on one end and a female coupler on the opposite. See diagram on page 8 for hose routing.

**\*Important – Oil should always flow from the male coupler through the female coupler.**

The right port is the return port. A female H.T.M.A. quick-disconnect coupling should be connected to this port.

**NOTE:** The pressure increase in uncoupled hoses left in the sun may make them difficult to connect. When possible after use, connect the free ends of the operating hoses together.

## HOSE TYPES

Hydraulic hose types authorized for use by PortaCo, Inc. are as follows:

1. Labeled and certified non-conductive
2. Wire braided (conductive)

- Fabric braided (not certified or labeled non-conductive)

Hose 1: Listed above is the only hose authorized for use near electrical conductors.

Hoses 2 and 3: Listed above are conductive and must never be used near electrical conductors.

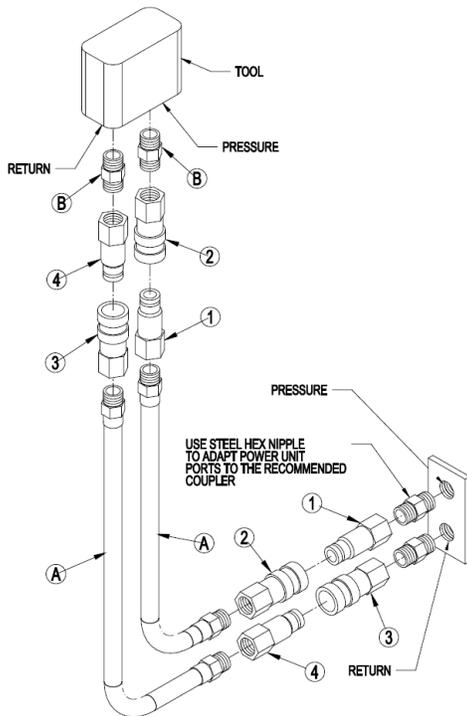
## HOSE PRESSURE RATING

The rated working pressure of the hydraulic hose must be at least 175 bar (2500 PSI.)

## HYDRAULIC HOSE RECOMMENDATIONS

Table 2.6A

FLOW PER CIRCUIT		LENGTH EACH HOSE		USE	INSIDE DIAMETER		SAE SPEC HOSE (WIRE BRAID)	SAE SPEC HOSE (FIBER BRAID)
GPM	LPM	FEET	METERS		INCH	MM		
5 to 8	19 to 30	To 50	To 15	Both	1/2	13	SAE 100R1-8	100R7-8
5 to 8	19 to 30	51-100	15 to 30	Both	5/8	16	SAE 100R2-10	SAE 100R8-10
5 to 8	19 to 30	100-300	30 to 90	Pressure Return	5/8 3/4	16 19	SAE 100R2-10 SAE 100R1-12	SAE 100R8-10 SAE 100R7-12
9 to 12	34 to 45	To 50	To 15	Both	5/8	16	SAE 100R2-10	SAE 100R8-10
9 to 12	34 to 45	51-100	15 to 30	Pressure Return	5/8 3/4	16 19	SAE 100R2-10 SAE 100R3-12	SAE 100R8-10 SAE 100R7-12
9 to 12	34 to 45	100-200	30 to 60	Pressure Return	3/4 1	19 25.4	SAE 100R2-12 SAE 100R1-16	SAE 100R8-12 SAE 100R7-16



**FOR SINGLE CIRCUIT FLOWS UP TO 10 GPM plumb** hose and tool as illustrated in fig. 1. Numbers are represented below as paragraph numbers.

- H.T.M.A. 3/8-inch Male Quick Acting Coupler with 1/2-inch NPT thread.

- H.T.M.A. 3/8-inch Female Quick Acting Coupler with 1/2-inch NPT thread.

At the tool this may be H.T.M.A. 3/8-inch Female Quick Acting Coupler with 3/8-inch NPT thread.

- H.T.M.A. 3/8-INCH Female Quick Acting Coupler with 1/2-inch NPT thread.

- H.T.M.A. 3/8-inch Male Quick Acting Coupler with 1/2-inch NPT thread.

At the tool this may be 3/8-inch Male Quick Acting Coupler with 3/8-inch NPT thread.

- Refer to Table 2.6A for hose recommendations
- Use adapters with threads that match tool port.

## 2.7 Tool Connecting Procedures.

Inspect hose for cuts, crushing, leaks, or abrasion which maybe a safety hazard or reduce fluid flows.

**WARNING: DO NOT ATTEMPT TO LOCATE HYDRAULIC LEAKS BY FEELING AROUND HOSES AND FITTING WITH HANDS. "PIN-HOLE" LEAKS CAN PENETRATE THE SKIN.**

Stop the engine before connecting the tool and, or hoses to the off power unit, and when switching hoses or tools. Turn the hydraulic on/off valve to the off position before starting the engine. Make sure all hoses are connected for correct flow direction to and from the tool being used. When routing hose in the work area, position them where personnel will not be at risk of tripping over them or where vehicles can run over the hoses. Do not lay hose over sharp projects.

**WARNING: PRESSURIZED FLUID ESCAPING FROM A DAMAGED HOSE CAN PENETRATE THE SKIN AND BE INJECTED IN THE BODY CAUSING INJURY OR DEATH.**

**CAUTION: DO NOT PULL ON HOSES TO DRAG POWER UNIT.**

## 2.8 Work Area Safety Precautions

- Never operate the power unit in a closed space. Inhalation of engine exhaust can be fatal.

- Keep clear of hot exhaust.
- Do not use PortaCo hydraulic power units in potentially explosive atmospheres such as near wastewater drains or landfill sites.
- Do not operate if flammable gases or vapors are present.
- Keep the power unit at least 1meter (3.3 ft) away from buildings, obstructions, and flammable objects. Do not aim engine exhaust at materials that could catch fire.
- Allow the engine to cool before storing the power unit in an enclosed space.
- PortaCo hydraulic power units must not be located below overhead gantries, power lines, or walkways where there might be a risk of falling objects.
- Provide ambient light intensity of 200 Lux for working indoors or outdoors particularly if working at night.
- Always wear appropriate safety equipment such as goggles, ear protection, and foot protections.
- Operate only tools which fit into the specifications prescribed in section 1.1 of this manual.
- Do not stand on power unit.

### 3.0 OPERATING INSTRUCTIONS

#### 3.1 Description of Power Unit

The PortaCo Pioneer series Hydraulic Power Unit has been designed for the purpose of supplying hydraulic fluid under pressure to power hydraulic hand tools. The standard engine is a Honda 9 hp, 11 hp, or 13 hp, depending on the model of power unit purchased. See section 1.2 features of this manual for specifications. See the technical manuals supplied by the engine manufacture included with this power unit for detailed technical specifications.

PortaCo Hydraulic Power Units have been designed for use indoors and outdoors. PortaCo power units should not be operated under wet conditions, or at ambient operating temperatures, outside the recommended temperature range of -28° C to 43° C. (-20° F to 110° F).

#### **CAUTION: DO NOT USE CLOSED-CENTER TOOLS WITH THIS POWER UNIT.**

During operation, the engine may bog, run at lower rpm, when under load. As the tool being used is loaded, meets with increase resistance, the pressure required to operate the tool increases. The increased pressure adds load to the pump which loads the engine, there by reducing the RPMS. As a result, the flow will drop as pressure increases. The hydraulic system has a pressure limiter set at 148 BAR (2150 PSI) which diverts the flow back to the tank until the pressure drops below 148 BAR (2150 PSI.)

Tools with higher flow and, or pressure requirements will not operate at their full

potential if used with the PortaCo Hydraulic Power Unit. Tools with lower flow and or pressure requirements may be damaged if used with this power unit.

The engine throttle and the hydraulic system relief value are preset at the factory and must not be altered for any reason without consulting PortaCo Inc. Any alterations approved by PortaCo Inc., can only be preformed by personnel qualified to maintain hydraulic systems.

Tools which are commonly used with PortaCo's Pioneer series Hydraulic power unit are as follows:

- Impact Wrenches
- Impact Drills
- Picks
- Handheld grinders
- Breakers
- Tampers
- Hand Held Saws
- Hand Held Pruners

Do not use the Pioneer series power unit with close-center tools, tools which do not allow the oil to return to the power unit when not activated. Do not use in jacking operations. Do not use to activate cylinders without an inline open-center control system. Do not operate without a return oil hose.

If there are any doubts weather your tool can be used with the Pioneer series unit please contact the service department at PortaCo Inc. (218-236-0223) for advice. PortaCo Inc. accepts NO responsibility for machines that are used for any purpose other than the intended purpose as specified in the operating instructions or approved directly by PortaCo Inc.

### 3.2 Controls and Graphics

**WARNING: FAILURE TO FOLLOW THE PROCEDURES LISTED IN THE ENGINE'S OWNER'S MANUAL COULD RESULT IN PERSONAL INJURY OR EQUIPMENT DAMAGE.**

Refer to the engine owner's manual for explanation of controls and symbols located on the engine.

The following decals are placed on the power unit to aid in its operation and maintenance. The operator should locate and understand them before using this power unit.

A caution fan decal advises operators of an area, which contains a potential hazard if guards are not properly in position. (Fig. 3.2A)



(Fig. 3.2A)

The hydraulic oil reservoir is marked with a hydraulic oil decal (Fig. 3.2B) and there is a hydraulic oil drain decal indicating the tank's drain plug (Fig. 3.2C)



(Fig. 3.2B)



(Fig 3.2C)

The hydraulic work ports are labeled respectively as to their function with a decal (Fig. 3.2D). The left port is pressure and is equipped with a male quick coupler. The right port is return and is equipped with a female quick coupler.



(Fig. 3.2D)

The hydraulic circuit on the pioneer series power unit is controlled with a rotary on-off knob. The rotation

directions for the on and off positions are indicated by the decal on the knob (Fig. 3.2E).



(Fig. 3.2 E)

A PortaCo serial number decal is attached to the power unit on the back side of the fuel tank. The serial number tag displays PortaCo's address and phone number in addition to the units model number, serial number, and other technical specifications (Fig 3.2F).



(Fig. 3.2F)

The hydraulic fluid reservoir decal (Fig 3.2 G) is located on the hydraulic tank next to the filter. The hydraulic fluid reservoir decal tells when fluid should be added by looking in the sight tube when the engine is at idle.



(Fig. 3.2 G)

The caution do not touch hot surface decal is located on the top of the hood next to the engine (Fig 3.2 H).



(FIG. 3.2 H)

### 3.3 Before Start Up

Check engine oil level, and engine air filter. Refer to the engine manual for proper procedures when checking, filling, cleaning, or replace any engine components and fluids.

Check the hydraulic oil reservoir level. Add oils as required to raise level to full mark. Use only hydraulic fluids recommended in section 2.3 of this manual. Drain reservoir and change the filter every 300 hrs. or yearly which ever is more frequent. Hydraulic reservoir holds 18.9 liters (5 gallons) and is drained by removing a plug under the tank. See section 4.3 for procedures.

Check that the fuel level is at an adequate level before starting engine.

Before using the Pioneer power unit, inspect the oil cooler grill for blocking or contamination. The power units must be free of leaves, dirt, oil, and other contaminants, which may inhibit cooling or create a fire hazard. Use compressed air or a pressure washer to keep unit clean.

Check that the battery terminals are clean and free from any objects, which could cause the battery to short out which, could lead to fire or explosion. Replace worn or damaged straps.

Check that fasteners and fittings are tight, and tighten any fittings, which may develop a leak or fasteners that may become loose immediately. Hydraulic hoses and couplers should be inspected for wear, cracking, or fatigue prior to starting the engine.

**WARNING: NEVER INSPECT PRESSUREIZED HOSES, COUPLERS, OR FITTINGS WITH HANDS OR AT CLOSE DISTANCES. PRESSURIZE FLUID CAN PUNCTURE THE SKIN AND INJECT OIL INTO THE BODY RESULTING IN DEATH.**

Do not use hoses, couples, or fittings which are damaged, replace immediately.

See section 2.8 of this manual for additional safety procedures.

### 3.4 Positioning the Power Unit

The Pioneer power unit can be pushed around the work sight and be positioned close to the work being done. To lock the handle in position lift handle until latches automatically catch on stops at each end of handle. (Fig. 1.2A) To lower the handle lift up on both latches at the same time and let the handle drop down.

The Pioneer unit can also be position by using a crane. The power unit has a lifting point so it can be loaded easily or positioned at the work sight with a crane. (Fig 1.2B)

Place the PortaCo hydraulic Power Unit on a level surface with no greater than a 20 degree slope to prevent fuel spillage and power unit movement.

**WARNING: PLACING THE PORTACO HYDRAULIC POWER UNIT ON EXCESSIVE SLOPES OR UNSTABLE GROUND COULD CAUSE THE UNIT TO ROLL OR TIP DAMAGING THE POWER UNIT OR ENDANGERING WORKERS.**

Locate hydraulic power unit in well lit area with a minimum ambient light intensity of 200 lux weather indoors or outdoors, particularly at night. Keep the power unit at least 1 meter (3.3ft) away from buildings, obstructions, and flammable objects. Do not aim engine exhaust at materials that could catch fire.

To reduce operator exposure to noise, place the power unit as far away from workers as the hoses will allow while maintaining enough length to safely operate the tool being used. Point the hydraulic power unit exhaust away from the work area. Avoid placing the power unit in small enclosed areas or along walls which can amplify the noise levels.

When placed on a hard surface, such as concrete or asphalt, place a rubber mat under the power unit to prevent the metal foot from vibrating on the surface.

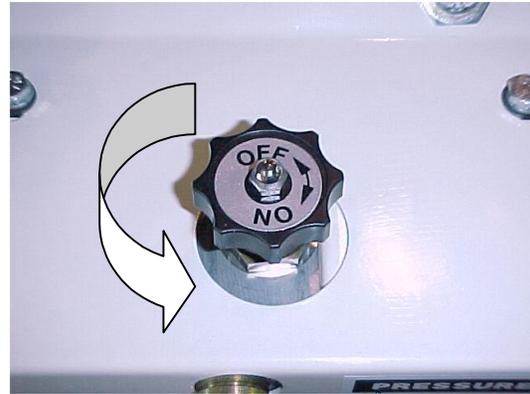
Always wear adequate hearing protection when using the hydraulic power unit.

### 3.5 Start Up

- (A) Observe all safety precautions found through out this manual and the included engine manual.
- (B) Connect the hoses to the tool and then to the power unit.

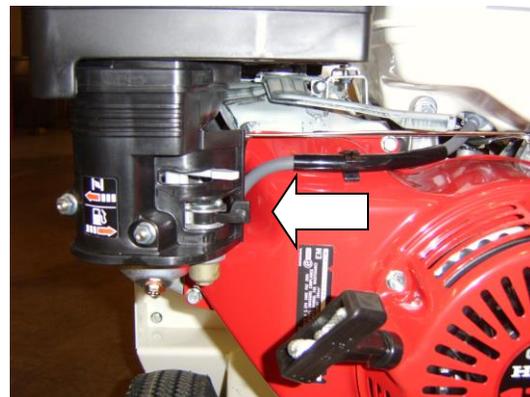
**NOTE:** Clean ends of couplers before connecting to prevent system contamination.

- (C) For Pioneer series power units turn the control valve fully counterclockwise (OFF). (See Fig. 3.5A)



(Fig. 3.5A)

- (D) To start engine slide throttle knob left slightly (Fig 3.5 B), then turn the ignition key to start the engine (Fig 3.5 C). Allow the engine to run at low speed until the engine and hydraulic circuits are warm. Use short starting cycles (15 secs. per min.) to prolong starter life. Extended cranking can damage starter motor.



(Fig. 3.5 B)



(Fig. 3.5 C)

(E) Rotate the hydraulic control valve to the “ON” position or on some models select the flow required.

**\*Important – Make sure the control value is in the OFF position before connecting or disconnecting hoses to the tool.**

**Tools used with the Pioneer power unit must be designed for operation with open-center systems.**

### 3.6 Shutdown

#### A. NORMAL SHUTDOWN

- 1) Observe all safety precautions
- 2) Rotate hydraulic control valves to the “OFF” position.
- 3) Slide the throttle lever to the idle position.
- 4) Allow engine to idle for 2 to 3 minutes; then turn ignition “OFF”, rotate counter clockwise.
- 5) Disconnect the hoses from the power unit pressure hose first. Then disconnect hoses from the tool. When possible after use, connect the free ends of the operating hoses together. The pressure increase in uncoupled hoses left in the sun may make

them difficult to connect.

- 6) Allow the hydraulic power unit to cool down before enclosing in a small area for transportation or storage.

#### B. EMERGENCY SHUTDOWN

In the event of an emergency, immediately set the ignition switch to “OFF”.

### 3.7. Cold Weather Operation

Hydraulic fluids are thicker in cold weather; therefore, run the engine at low idle long enough to bring the fluid temperature up to minimum of 10°C/50° F or until the hydraulic tank feels warm.

In cold weather, a cover over the cooler will allow faster warm-up.

### 3.8 Storage Preparation

To prepare the engine for transportation or storage refer to the engine owner's manual. Remove the ground cable from the battery.

To prepare the hydraulic system for storage fill the hydraulic oil reservoir to the full mark, and check that the fill cap and filter are tight. When removing from storage during a 3 month or longer period, drain the water from the hydraulic oil reservoir, if any condensation has occurred, and replace the hydraulic oil filter. (See section 4) This will remove any water which may have condensed in the hydraulic oil reservoir during storage.

Store the PortaCo Pioneer hydraulic power unit on a smooth level surface. The power unit should be stored in a

cool, dry environment which is not subjected to rapid temperature changes.

## 4.0 MAINTENANCE INSTRUCTIONS

### 4.1 Routine Servicing and Inspections Schedule

Maintenance Schedule (Performed at every indicated month or operating interval, whichever comes first.)

Item	Action	Each use or 5 hrs.	First month or 20 hrs.	Every 3 months or 50 hrs.	Every 6 months or 100 hrs.	Every year or 300 hrs.
Engine Oil	Check	O				
	Change		O		O	
Air Cleaner	Check	O				
	Change			O (1)	O *(1)	
	Replace					O**
Spark Plug	Check				O	
	Replace					O
Sediment cup	Clean				O	
Spark arrester	Clean				O	
Idle speed	Adjust					O(2)
Fuel tank and filter	Check					O (2)
Fuel tube	Check	Every 2 years (2)				
Valve clearance	Check					O (2)
Combustion chamber	Clean	After every 500 hours (2)				

#### NOTE:

- (1): Service more frequently when used in dusty areas
- (2): These items should be serviced by your Honda servicing dealer, unless you have the proper tools and are mechanically proficient. Refer to the Honda shop manual for service procedures.
- (3): For commercial use, log hours of operation to determine proper maintenance intervals.
- \* Internal vent carburetor with dual element type only.  
Cyclone type every 6 months or 150 hours
- \*\*Replace paper element type only  
Cyclone type every 2 years or 600 hours

**CAUTION: USE ONLY GENUINE PORTACO INC PARTS OR EQUIVALENT. THE USE OF REPLACEMENT PARTS WHICH ARE NOT OF EQUIVALENT QUALITY MAY DAMAGE THE HYDRAULIC POWER UNIT.**

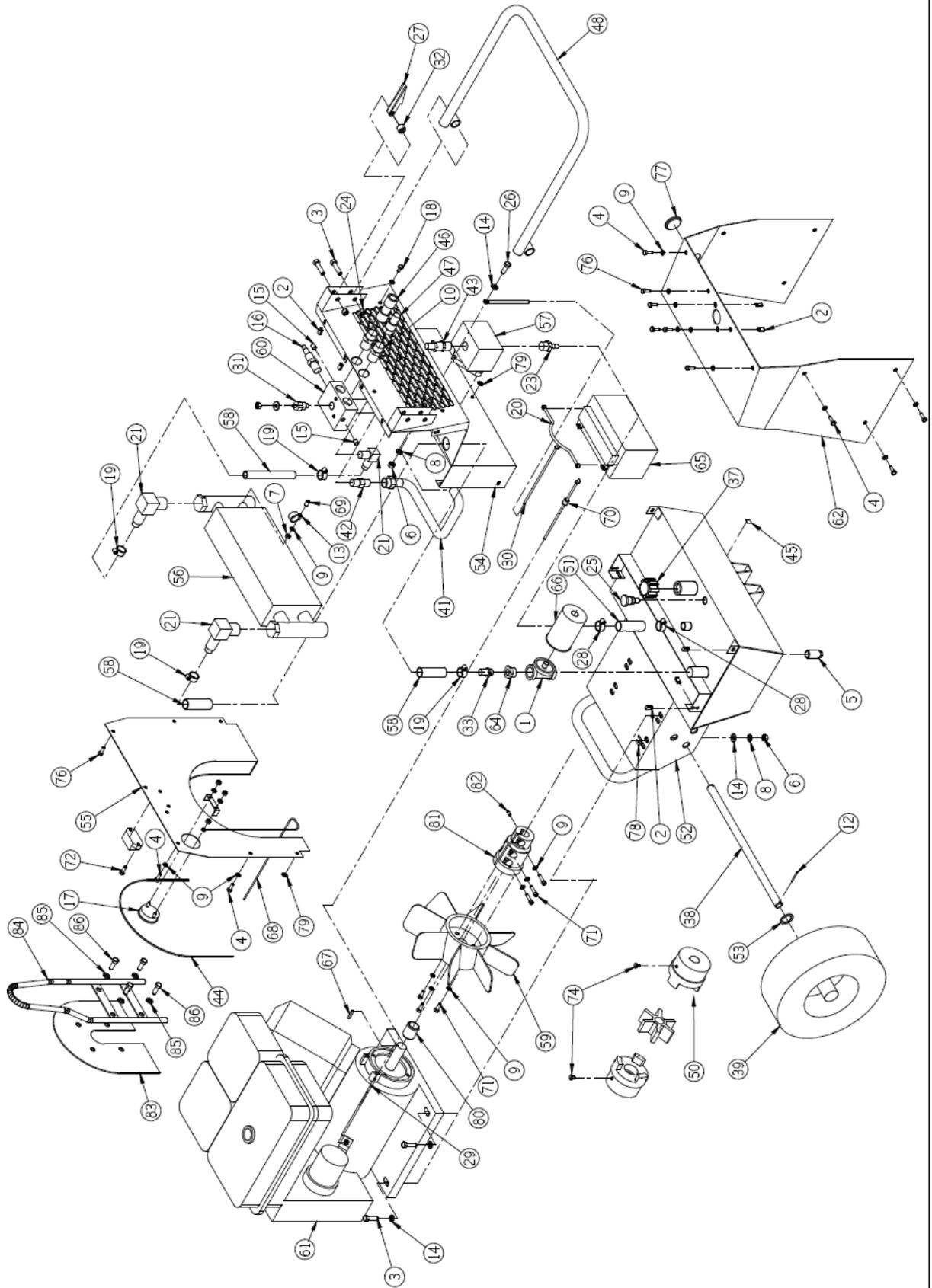
**WARNING: UNAUTHORIZED MODIFICATIONS TO THE POWER UNIT MAY IMPAIR THE FUNCTION AND/OR SAFETY AND IMPAIR MACHINE LIFE. USE ONLY APPROVED SERVICE PARTS OR ACCESSORIES.**

## **4.2 Assembly View and Parts List**

### **G-09/G11/G13 SERIES**

<b>ITEM</b>	<b>P/N</b>	<b>DESCRIPTION</b>	<b>QTY</b>
1	1013-OOP	FILTER	1
2	1041-OOP	NUT JAM	17
3	1042-OOP	BOLT 3/8	8
4	1044-OOP	BOLT 1/4	21
5	1048-OOP	PLUG MAGNET	1
6	1061-OOP	NUT 3/8	6
7	1062-OOP	NUT 1/4	11
8	1063-OOP	WASHER LOCK 3/8	6
9	1064-OOP	WASHER LOCK 1/4	34
10	1068-OOP	FITTING	2
12	1080-OOP	PIN COTTER 1/8	2
13	1085-OOP	CLAMP	2
14	1093-OOP	WASHER FLAT 3/8	6
15	1132-OOP	FITTING	2
16	1146-OOP	VALVE RELIEF	1
17	1285-OOP	GAUGE HOUR METER	1
18	2057-OOP	BOLT 1/4	2
19	1416-OOP	CLAMP HOSE	4
20	1423-OOP	STRAP	1
21	1444-OOP	FITTING	3
22	1457-OOP	TIE 8"	8
23	1505-OOP	FITTING	1
24	1631-OOP	NUT 3/8	4
25	1768-OOD	GAUGE SIGHT	1
26	1078-OOP	BOLT 3/8	2
27	1895-OOD	LATCH HANDLE	2
28	1926-OOP	CLAMP HOSE	2
29	1930-OOP	CABLE POS. RED	1
30	1931-OOP	CABLE NEG. BLACK	1
31	1940-OOP	VALVE	1
32	1960-OOD	SPACER HANDLE	2
33	2531-OOP	FITTING	1
37	2187-OOP	CAP	1
38	2368-OOD	AXLE	1
39	2443-OOP	WHEEL	2
40	2466-OOD	CONTAINER	1
41	4366-OOP	HOSE PRESSURE	1
42	2476-OOP	FITTING	1
43	2490-OOP	FITTING	1
44	2498-OOP	TRIM	1
45	2651-OOP	BUMPER HOOD	1

46	2701-OOP	COUPLER HYD	1
47	2702-OOP	COUPLER HYD	1
48	2780-OOP	HANDLE	1
49	2781-OOD	GRAPHIC SET	1
50	2782-OOD	COUPLER PUMP DRIVE	1
51	2783-OOP	HOSE SUCTION	1
52	2784-OOW	TANK HYDRAULIC	1
53	2785-OOD	SPACER AXLE	2
54	2786-OOW	GRILL	1
55	2787-OOP	GUARD FAN	1
56	2788-OOP	COOLER HYDRAULIC	1
57	2789-OOP	PUMP 9HP & 11 HP HONDA	1
	2414-OOP	PUMP 13 HP HONDA	
58	2790-OOP	HOSE HYDRAULIC RETURN	2
59	2791-OOP	FAN	1
60	2792-OOD	MANIFOLD HYDRAULIC	1
61	2793-OOP	ENGINE HONDA 9 HP	1
	2886-OOP	ENGINE HONDA 11 HP	
	2890-OOP	ENGINE HONDA 13 HP	
62	2794-OOW	HOOD	1
64	2796-OOP	FITTING BUSHING	1
65	1929-OOP	BATTERY	1
66	1083-OOP	ELEMENT HYDRAULIC FILTER	1
67		KEY ENGINE/FAN	1
68		WIRE HOUR METER	1
69	2445-OOD	SPACER	2
70	3496-OOP	GROMMET	1
71	1733-OOP	BOLT	6
72	2304-OOP	BOLT	2
73	1099-OOP	WASHER FLAT ¼	2
74	2752-OOP	SET SCREW	2
76	1221-OOP	BOLT ¼	3
77	3012-OOP	CAP / PLUG	1
78	1544-OOP	SHIM	AS REQUIRED
79	1656-OOP	WASHER FLAT 3/16	5
80	6087-OOD	BUSHING, SPACER	1
81	5443-OOD	COUPLER, PUMP DRIVE	1
82	2289-OOP	SET SCREW	1
83	3612-OOD	FAN GUARD	1
84	3613-OOW	LIFTING EYE	1
85	1175-OOP	WASHER, 5/16 LOCK	4
86	4988-OOP	BOLT, 5/16-24 X ¾	4



### 4.3 HYDRAULIC FLUID AND ENGINE MAINTENANCE

**WARNING: SHUT OFF ENGINE BEFORE DOING ANY MAINTENANCE. TO PREVENT ACCIDENTAL START-UP, TURN THE IGNITION SWITCH OFF AND DISCONNECT THE NEGATIVE CABLE FROM THE BATTERY TERMINAL.**

#### Engine Lubrication Servicing

Check the engine oil level and change oil and filter as required in the maintenance table section 4.1 of this manual.

The oil level should be between the “full” and “add” marks of the dipstick. Also illustrated in the engine manual. To add oil to the engine, remove the filler cap. Engine oil capacity is 1.8 liters (1.9 quarts) when changing oil filter.

The following oils are recommended by the engine manufacturer:

Temperature Range	Oil
5° C (40° F) and above	SAE 30
- 18° C- (0° F) - 5° C (40° F)	5W-30 10W-30
5° C (40° F) and below	Synthetic 5W-20 5W-30

When draining oil place a suitable container under the drain plug and remove plug. Drain engine completely and replace plug.

#### Engine Fuel Servicing

Replace the fuel filter every 100 hrs. or yearly. Remove the filter cartridge and replace it. Slightly lubricate the filter seal before installation.

NOTE: See engine manual for additional service requirements.

NOTE: Dispose of all consumable items (filters, oils...etc.) in a manner that is compatible with the environment. PortaCo, Inc. suggests you take such items in a sealed container to your local service station for reclamation. **DO NOT** throw these items in the trash or pour them on the ground.

#### Hydraulic Fluid Servicing

##### Removing Condensation

Once a week (Less often in hot dry weather) take a small sample from the bottom of the hydraulic tank by removing the ½” N.P.T. drain plug. If clear water appears, drain the tank until clean oil starts to show. Always drain tank into a suitable container. If fluid is milky, allow unit to settle for 48 hours before draining.

NOTE: Water in the fluid reduces lubrication and causes premature wear. 1% water in a 140 BAR (2000 PSI) system can cause a 25% increases in wear rate.

#### Replace Filter and Fluid

**CAUTION: ALWAYS FOLLOW ANY HANDLING PRECAUTIONS PUBLISHED BY THE MANUFACTURES OF THE LUBRICANTS OR HYDRAULIC FLUIDS USED.**

- Remove the drain plug on the underside of the hydraulic tank and drain oil into a suitable container.

Let reservoir completely drain and reinstall the plug.

- Place the drain pan under the hydraulic oil filter and remove filter. (Fig. 4.3C)
- Apply a film of clean oil to the gasket surface of a new hydraulic oil filter. PortaCo Inc. number 1083-OOP (LHA# SPE-15-10).
- Install new filter element and tighten one-half turn after initial gasket contact.
- Fill hydraulic oil reservoir with a fluid recommended in section 3.2 of this manual. Fill tank until oil level is just below filler tube. Reservoir capacity is 18.9 liters (5.0 gal.)
- Dispose of oil and filters in a responsible manor, see previous note.

**CAUTION: ALWAYS FOLLOW ANY HANDLING PRECAUTIONS PUBLISHED BY THE MANUFACTURERS OF THE LUBRICANTS OR HYDRAULIC FLUIDS USED.**



**(Fig. 4.3C)**

- Start engine and allow to run at idle for 3 minutes
- Shut engine off, check oil level and add fluid if required. Do not overfill or fluid may be forced out of

hydraulic fill cap when operating unit. To maximize life of the PortaCo Inc. Hydraulic Power Unit all maintenance must be preformed in accordance with the manual and the engine manual provided.

**CAUTION: ALWAYS CLEAN UP ANY FLUID SPILLS IMMEDIATELY.**

## 4.4 Trouble Shooting

**In the event of an accident or power unit breakdown, turn the engine ignition key to the “OFF” position. If a hydraulic oil supply hose ruptures or the tool malfunctions, release the trigger on the tool and turn the engine ignition switch to the “OFF” position immediately.**

<b>Problem</b>	<b>Cause</b>	<b>Remedy</b>
Engine will not start	Engine Switch “OFF”	Turn engine switch “ON.”
	Engine oil low	Add engine oil if required
	Fuel valve “OFF”	Turn fuel valve “ON”
	Fuel level low	Add fuel
	Fuel not reaching carburetor	Refer to engine manual for proper procedure
	No spark at spark plug	Refer to engine manual for proper procedure
	None of the above	Take the engine to an authorized dealer that represents the manufacturer of the engine your power unit is equipped with.
Engine runs but hydraulic circuit will not drive tools.	ON-OFF valve “OFF”	Turn valve “ON”
	Tool not connected to power unit	Turn valve “OFF,” connect tool, turn valve “ON”
	Hydraulic fluid reservoir low	Check and fill as required
	Damaged couplers or hoses	Check that couplers and hoses are in good condition, replace as required
	Tool hoses incorrectly connected to circuit	Check that hoses connect “pressure” from power unit to pressure inlet of tool, and “Return” at power unit connects to return outlet of tool.
	Relief valve stuck open.	Clear blockage (see section 4.2) replace if required.
Engine runs but hydraulic circuit will not drive tool	Tool is defective	Repair as necessary
Tool runs too hot	Relief value set too low	Adjust cracking pressure to 123.2 bar (1800 psi)
	Hoses too small	Size hose as require in section 2.6
	Cooler blocked	Clean hydraulic oil cooler
	Tool Doesn’t meet system specifications	See section 1.1 for system specifications
	Closed-center tool in use	Use only open-center tools

#### 4.5 Technical Specifications

	MODEL NUMBER		
	G-09S06-52-W	G-11S07-52-W	G-13S08-52-W
<b>Maximum flow</b>	22.4 Liters/5.9 GPM	26 Liters/7.0 GPM	30.3 Liters/8.0 GPM
<b>Working pressure</b>	125 BAR/1800 PSI	148 BAR/2000 PSI	148 BAR/2000 PSI
<b>Maximum pressure</b>	135 BAR /1950 PSI	148 BAR/2150 PSI	148 BAR/2150 PSI
<b>Length</b>	67.3 cm/26.5 in.	67.3 cm/26.5 in.	67.3 cm/26.5 in.
<b>Width</b>	50.8 cm/20 in.	50.8 cm/20 in.	50.8 cm/20 in.
<b>Height</b>	69.8 cm/27.5 in.	69.8 cm/27.5 in.	69.8 cm/27.5 in.
<b>Weight</b>	64.9 kg/143 lbs.	70.7 kg/156 lbs.	70.7 kg/156 lbs.
<b>Sound level @ idle</b>	80 dB		
<b>Sound level @ max speed.</b>	92 dB		
<b>Fuel tank capacity</b>	5.3 L / 1.40 US gal	6.1 L / 1.61 US gal	6.1 L / 1.61 US gal

See engine manual provided with power unit for more engine specifications.

#### Lube Data

**Engine Lube (see engine manual, supplied with power unit, for addition specifications:**

Capacity: 1.1 L (1.2 US qt)      Type: SAE 30.....40 F & above  
 5W-30.....0 -40 F  
 SYNTHETIC  
 5W-20/5W-30.....40 F & Below

#### Hydraulic System:

Capacity: 17 qts reservoir      Type: viscosity grade 32  
 20 qts total system with filter

#### Service Replacements Parts

Description	Part Number	Source
Filter Hydraulic Oil	1083-OOP	PortaCo Inc.
10 micron twist on	SPE-15-10	LHA

## Hydraulic Fluid Requirements

### Viscosity (Fluid Thickness)

#### METRIC

#### U.S.A.

10 C 95 Centistokes    50 F 450 SSU Max

38 C 27-42 C.S.                    100 F 130-200 SSU

60 C 16.5 C.S., Min.    140 F 85 SSU Min.

**Pour Point** – 10 F/-23 C Minimum (for cold startup)

**Viscosity Index** (ASTM D 2220) 140 Minimum

**Demulsibility** (ASTM D-1401) 30 Minutes Maximum

**Flash Point** (ASTM D-92) 340 F/171 C Minimum

**Rust Inhibition** (ASTM D-665 A & B) Pass

**Oxidation** (ASTM D943) 1000 Hours Minimum

**Pump West Test** (ASTM D2882) 60 mg Maximum

### Recommend Hydraulic Fluids

Type	Hydraulic fluid
Chevron	“Clarity” AW ISO 32
Exxon	“Unavis” J 32
Mobil	D.T.E. 13 M
Gulf	“Harmony” AW-HVI-150-32
Shell	“Tellus T” 32
Texaco	“Rando” HDZ 32
Union	“Unax” AW-WR-32
Amsoil	AWH ISO 32
Sunvis	Low Pour H/032-product code 193000

Hose Requirements; (2) 3/8-inch diameter hose 5-8 meter (15 to 25 feet) long with 175 Bar (2500 psi) minimum rated working pressure.

Coupler recommendation: ½ inch FLAT FACE HTMA couplers rated at 2500 psi working pressure. Threads are to match fittings used of on hoses or fittings used as adapters.

Operate PortaCo Hydraulic Power Unit in well-ventilated areas only. **DO NOT** operate hydraulic power unit in combustible atmospheres. Remove flammable materials from work area. Operate only within temperature range of –20°C to 40°C (-4°F to 104°F)

### Bolt Tightening Torque

Bolt Size	Torque
#10-32	38 in. lbs.
¼-20	76 in. lbs.
5/16-18	13 ft. lbs.
3/8-16	23 ft. lbs.

