



Operation & Maintenance Manual

Original Instructions

115 Series Vanpack 903-1360

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Read the Health and Safety Manual before operating any equipment. Failure to do so could cause serious injury or death.

Operation & Maintenance Manual for:

UNIT: 115 Series Mk2

ISSUE DATE: 5/23

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AMENDMENTS

Change	Changes	Date	Signature
1	NEW ADDITION	07/16	TWC
2	Changes to update safety information	06/17	AH
3	Received part number. Updated to code	12/20	GT
4	UPDATED LOGO	5/23	JB

1. Introduction & Contents

1.1. Contents




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1.2. Introduction

Please ensure that you read this Operation & Maintenance Manual in conjunction with the Health & Safety Manual before operation.

Within this manual, the health and safety risks are highlighted with specific symbols. These will be referenced to sections within the Health and Safety Manual which you are required to read. The sections to refer to in the manual will be labelled at the end of the highlighted statement (Ex. H&S Section 2). There are three symbols that will be used to differentiate the levels of severity. They are as follows:

-  : This is the symbol for **CAUTION**. This means that if an accident were to happen, it would cause minor to moderate injury.
-  : This is the symbol for **WARNING**. This means that if an accident were to happen, it could result in a serious injury or possible death.
-  : This is the symbol for **DANGER**. This means that if an accident were to happen, it will result in death or serious injury. This will only be shown for the most extreme cases.

It is imperative that these symbols are paid attention to as to avoid any sort of injury.

Notices

Carefully read the notices of this manual because they give important information concerning safe installation, use and maintenance; familiarise yourself with the workings of the machine to rapidly switch it off and eliminate pressure.

This manual is an integral and essential part of the product; it must be consigned to the user to ensure the training/information for personnel.

The manufacturer does not assume responsibility for damage caused to persons, property or to the machine, in the case of improper use. Carefully preserve this manual for any further consultation.

Identify the model of your machine by reading the details on the identification plate. Upon delivery, inspect the machine / accessories for any damage, which may occur during transport.

CAUTION! Always follow the recommended operating procedures. Do not misuse the equipment as this could result in injury or mechanical breakdown!

1.3. Scope of this Manual

This manual provides operation, maintenance, and safety instructions for the jetter. Where the jetter has been fitted with proprietary components, details of these are also included in this manual.

This manual is compiled to match the Scope of Supply detailed in Section 2. All specifications, descriptions and parts lists refer only to the components in the version of the unit detailed in this scope of supply.

Maintenance instructions included in this manual include:

- Routine maintenance to be carried out at specific times.
- Maintenance of the high-pressure pump.

Repairs to the pump crankcase are not considered maintenance operations as these should be undertaken only by Harben® Inc, their approved agents, or at least competent automotive engineers.

1.4. The Vanpack

Harben® drain vanpacks have been designed to the highest standards so that they will work safely and reliably for many years. It is important that you take time to read the information provided in this operation and maintenance manual so that you understand how to make the most of the vanpack in accordance with the instructions. Harben® ® vanpacks are powerful pieces of industrial equipment and should only be operated by competent users who understand that serious injury or death can occur through misuse.

The vanpack is a highly versatile mobile high-pressure water jetting unit, which offers the benefits of proven power pack and pump performance with a comprehensive range of accessories.

Developed for a wide range of water jetting applications, the vanpack has been meticulously designed for safe and efficient use.

Additional accessories can be purchased from Harben® Inc, such as floor cleaners, jetting guns and jet pumps which extend the range of work that can be carried out with the jetter. Separate details are available on request.

1.5. Composition of this Manual

This manual comprises the following further sections:

Section 2 Scope of Supply

This section defines the scope of supply of the equipment in compliance with the sales order.

Section 3 Technical Data

This section contains technical information about the unit.

Section 4 Operation

This section describes the recommended operating procedures for the unit.

Section 5 Routine Maintenance

This section details recommended routine maintenance requirements for the pump and unit.

Section 6 Fault Finding

Fault diagnosis tables for the pump, engine, and ancillaries.

Section 7 Pump and Gearbox

This section provides details of the pump and gearbox assembly.

Section 8 Circuit and Wiring Diagrams

This section includes the Hydraulic, Water and Electrical circuits including engine controller & wiring loom.

Section 9 Engine

This section provides details about the engine.

Section 10 Parts List / Spares

How to identify and order spares

Section 11 Service Documents

Service logbook and checklist.

Section 12 Warranty & Certification

Section 13 Health & Safety Manual 903-1308

This manual details health and safety considerations in general and specific to water jetting equipment.

2. Scope of Supply

2.1. Scope of Supply

Unit:	115 Series Mk2
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2.2. Pump Assembly

The General Arrangement drawing No. 003-284/3, defines the components of the Vanpack assembly as follows:

The pump is driven by an industrial gas engine.

The engine drives the pump via a 2.176:1 reduction gearbox which reduces the pump RPM down to the correct shaft speed.

Water is fed through the inlet hose reel from a mains supply into a plastic water storage tank. The tank supplies the pump with a positive head of pressure via an inline strainer that filters the water to approximately 80 microns.

The engine is controlled by the Honda control panel to adjust engine speed with the throttle.

The unit operates a 'dry shut' system with an unloader valve to control the pressure. The unit is fitted with a valve on the swing out hose reel which when shut will cause the unloader to open, diverting water back to the tank.

The unit is fitted as standard with a 300' x 3/8" hose. Other options are available.

2.3. Detailed Drawings

Detailed drawings and parts lists for the above components are provided as follows:

The pump is detailed in Section 7.

Details of other parts and assemblies are included at Section 10.

3. Technical Data

3.1. Technical Data

3.1.1. Pump Data

Pump Type	Hawk XLTl R (See Section 7)
Pump width	10" approx.
Pump length	15" approx.
Inlet	G3/4" (3/4" BSP)
Outlet	G1/2" (1/2" BSP)
Shaft diameter	28 mm
Shaft length	50 mm
Cylinder options	3
Power rating (nominal)	16.5 kW (22 HP)
Piston diameters	24 mm
Shaft speed	11655 RPM
Maximum pressure	200 bar (3000 psi)
Max Flow rate	36 lpm (10 GPM)
Crankcase lubrication	Fully immersed
Oil capacity (gal)	0.31
Weight (lb)	38
Recommended crankcase oil	SAE 10W-40

3.1.2. Main Components

Engine	903731 Honda GX690 Gas (29HP @ 3600 RPM)
Pump	067889 Hawk XLT I R
Gearbox	067848 Hawk Type B31 2.176:1

3.1.3. Ancillaries

Water tank	903729 125-gal capacity
Supply filter	042134 Hypro line strainer / 80 micro mesh
Monitoring & Control	Standard engine controller and throttle
Pressure Control and Safety	035379 Unloader valve 4000 psi max. 035401 Safety relief valve 4500 psi max. (set at 15% above working pressure)

3.1.4. Services Required

Mains water supply	Positive head capable of delivering greater than 13GPM. <i>Note: Water pH value of 5 to 9 is recommended.</i>
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3.2. Technical Description

3.2.1. Primary Components

The primary components of the Vanpack is illustrated on the drawing 003-284, which are as follows:

- A prime mover in the form of an industrial gas engine which drives a plunger high-pressure pump.
- The pump can produce high-pressure water.
- *Note: See above or section 7 for performance options.*
- A hydraulic driven hose reel with 300' of single wire braid high-pressure hose with either a nozzle or gun attachment to deliver the high-pressure water to the work application.
- Plastic polyethylene water tank, acting as a reservoir, ensures the water is settled and non-turbulent, discharging a smooth uninterrupted supply with a positive head of pressure to the inlet, maximizing the full potential of the pump.
- The pressure valve either directs high-pressure water to the hose (valve open) or diverts water through the unloader valve back to the tank (valve shut).
- The control panel which includes the engine controller, the pressure gauge, and the emergency stop button.
- A Hypro 80 micron mesh inline strainer is fitted to the suction line between the tanks and the pump inlet.

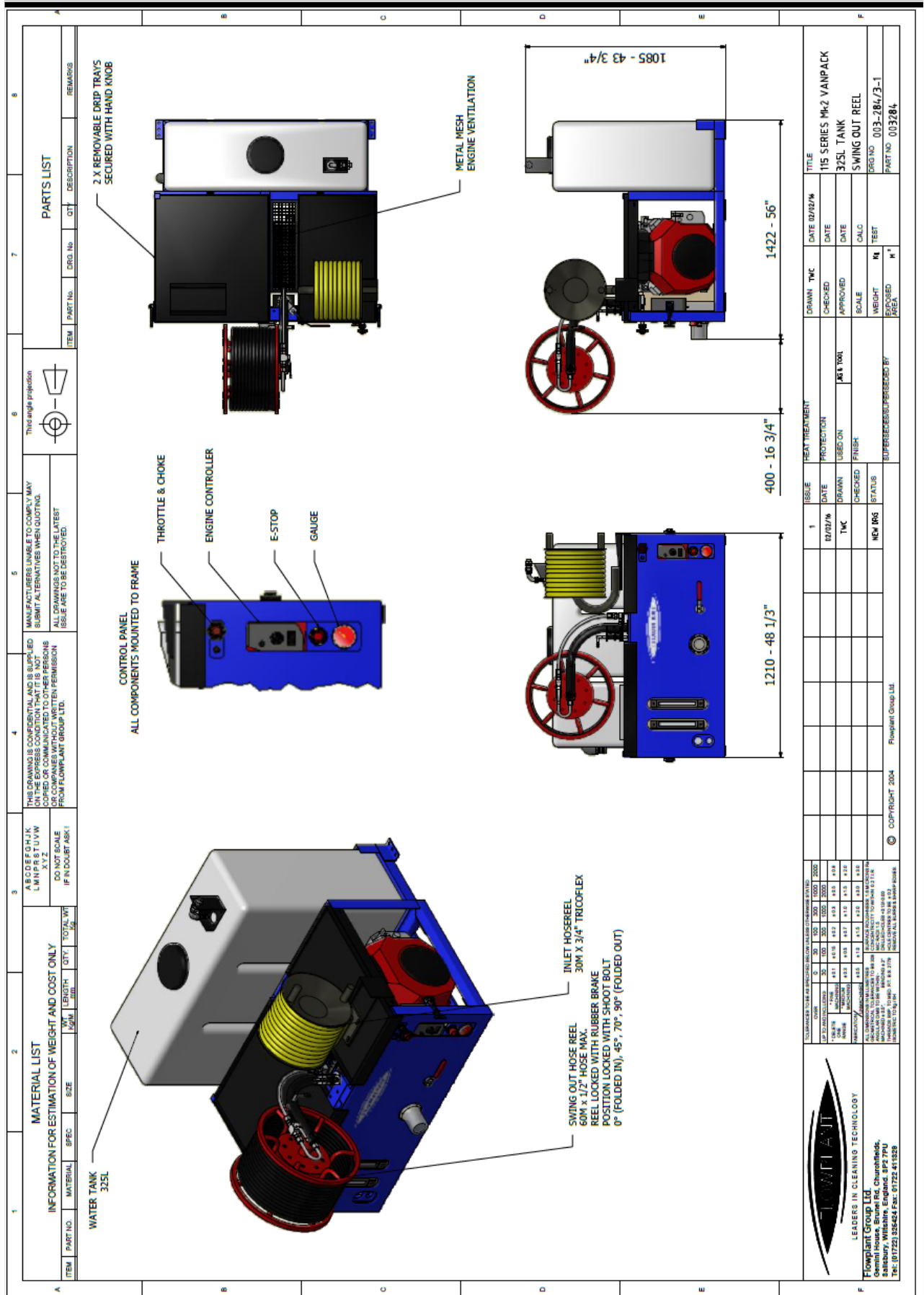
NOTICE: This is a critical component which ensures that no contaminants are drawn into the pump inlet. This filter must be inspected and cleaned daily. If it becomes blocked, it will cause the pump to cavitate.

3.2.2. Engine Monitoring

Engine oil pressure and hours run are monitored on the engine control panel.

3.3. Installation Details

Installation drawing no. 003-284/3 provides overall dimensions.



4. Operation

4.1. Operating Conditions

Operators of water jetting equipment should be fully conversant with the Water Jetting Association 'Code of Practice for the Use of High-Pressure Water Jetting Equipment', hereafter referred to as 'The Code of Practice'. A copy of The Code of Practice is available upon request.

Please ensure that you read this Operation & Maintenance Manual in conjunction with the Health & Safety Manual before operation.

4.2. Daily Checks

Carry out all daily checks. Full maintenance checks are detailed in Section 5 - Routine Maintenance.

They are:

- Pump oil level
- Gearbox oil level
- Water filter cleanliness
- Engine oil level
- Engine coolant level
- Tank water level & cleanliness
- Gas level
- Anti-freeze level

4.3. Pre-start Checks & Procedures

1. **⚠ WARNING!** In cold weather check that machine is not frozen before starting (see Antifreeze section 4.5.1). Serious injury can occur from ice bullets. **(H&S Sections 3 and 7)**
2. Only operate the machine in a well-ventilated area. **(H&S Sections 3, 8, 9, and 12)**
3. Park next to suitable clean water supply on a level ground.
4. Ensure the vehicle hand brake is applied. **(H&S Sections 3, 11, and 13)**
5. To fill water tank, connect to water supply. The water will fill the tank via the inlet hose reel when the tank is full it will flow out the overflow. **(NOTICE: To comply with water authority bylaws never fill the tank by putting a hose directly inside)**
6. Feed off the hose reel approximately 9' of high-pressure hose. **Do not fit the nozzle or gun at this point! (H&S Section 3, 6, and 16)**



Fig. 1 - E-Stop on control panel. Twist to release.

4.4. Starting the Engine and Setting the Operating Pressure

Starting procedures are provided for 'Local' operation where water to the high-pressure hose is controlled by the operator using the Control unit at the machine. This requires two people: one at the pump set and one in charge of the nozzle or gun. All initial pressure checks must be made before starting the unit.

Tank water level

Ensure you have an adequate water supply and that the water tank is at least $\frac{1}{2}$ full. The machine WILL NOT RUN if the water tank is empty. It is preferable to have a full tank of water and provide the pump with a good positive head. The unit will shut down if the water level gets too low.

NOTICE: Do Not allow unfiltered water into the pump

4.4.1. Operating Starting Procedure

1. Ensure high-pressure valve is in the dump position (See fig 3).
2. Key switch in 'OFF' position (0).
3. Key turned to position one (ON) energizes auxiliary circuits.
4. If starting from cold pull out choke (located to the left of the throttle). The key should be turned further against spring pressure to position 3 (START), to 'CRANK' the engine.
5. Release key when engine starts, and it will return to position one (ON) automatically.
6. After 5 seconds push the choke inwards.
7. Water should now be circulating through the pump and be diverted back to the tank via the unloader valve, with the engine running at slow speed. Allow the engine 5 minutes to warm up.
8. To divert water to the high-pressure hose, use the high-pressure valve on the swing arm. (see fig 3).
9. To increase the speed of the engine, rotate the throttle control counterclockwise.
10. To shut the system down, decrease the engine RPM by turning the throttle control clockwise, then move the valve to the dump position. Turn the key switch on the engine controller to the (0) position or in emergency situations press the emergency stop button on the radio control panel.



Fig. 2 – Engine Controller

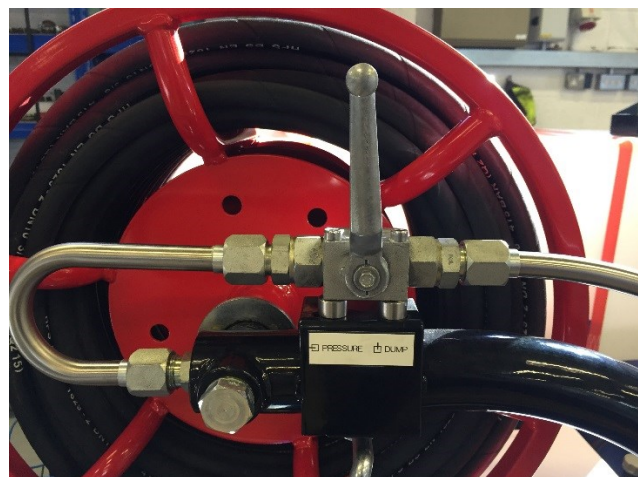


Fig. 3 – High-pressure Valve
(Shown in 'DUMP' position)


4.4.2. Checking the Operating Pressure with a Nozzle Fitted

1. Fit the correctly sized nozzle to the high-pressure hose. See Section 10
2. Ensure the nozzle is secured in a safe position, preferably within sight of the operator at the control panel.
3. Start engine. See Section 4.4.1.
4. Move the valve to the high-pressure position.
5. Observe the pressure gauge mounted on the control panel and note the pressure reading (See fig. 2).
6. Reduce the speed of the engine.
7. Move the valve to the 'dump' position.
8. Switch engine controller to position (0) to switch engine off.

Note: If the pressure is significantly lower than expected, turn the unit off and replace the nozzle with a new one.

NOTICE: Do not exceed the maximum operating pressure of 3000 psi by fitting a smaller nozzle than is recommended, as this will cause the Pressure relief valve & or Safety relief valve to dump the excess pressure. The maximum engine speed is mechanically governed to 3500 rpm.

4.4.3. Checking the Operation Using a Dry Shut Gun

1. Fit the correctly sized nozzle to the high-pressure dry-shut gun.
2.  **WARNING!** Ensure the gun is held firmly in the hand. If the operator loses control of the gun, it can hit someone and cause serious injury. **(H&S Section 3 and 15)**
3. Start engine. See Section 4.4.1.
4. Move the valve to the high-pressure position.
5. Pull the trigger of the gun.
6. Observe the pressure gauge mounted on the control panel and note the pressure reading (See fig. 3).
7. Reduce the speed of the engine.
8. Move the valve to the 'dump' position.
9. Switch engine controller to position (0) to switch engine off.

Note: If the pressure is significantly lower or higher than expected, turn the unit off and replace the nozzle with a new one.

NOTICE: The hose should NEVER be tightly wound onto the hose reel drum when the hose is not pressurised, as might occur when the hose has become trapped. A tightly wound hose can easily crush the hose reel when it is next pressurised. If you have reason to believe that the hose may have been tightly wound onto the reel when unpressurised it should be completely unwound and then rewound loosely before pressurising.

4.5. Frost Precautions

During periods when there is a risk of freezing, the following precautions should be taken:

4.5.1. To Antifreeze the Machine

The anti-freeze / run valve is located to the front of the unit. (See picture below)



1. Put the valve into the AF TANK position.
2. Ensure that the antifreeze tank is full or containing approximately 5 gallons of an anti-freeze mixture with a strength of no less than a 50/50 mix.
3. Remove the gun or any jetting nozzle from end of the hose.
4. Move the high-pressure valve to the 'PRESSURE'
5. Start the engine and run at idle speed.
6. Hold the open-ended hose away from the body pointing it to the ground and away from any bystanders.
7. Move the valve to the 'DUMP' position when the anti-freeze mixture starts to come out of the high-pressure hose.
8. Stop the engine by switching the ignition switch off.
9. Empty the water tank using the drain valve situated at the bottom left of the unit.

(Note: - ensure the tank is re- filled before starting the engine)

4.5.2. To De-Antifreeze the Machine

1. Place the anti-freeze valve into the 'MAIN TANK' Position. See picture below.



2. Re-fill the water storage tank.
3. Place the open-ended hose into the anti-freeze tank filler point.
4. Move the valve to the 'PRESSURE'
5. Start the engine.
6. Pump out the remaining anti-freeze solution from the high-pressure hose back into the container. Top up & check the strength of the anti-freeze mixture ensuring it is at least a 50/50 mix.
7. As soon as clear water comes out of the hose move the valve to the 'DUMP' position.
8. Turn engine off.
9. Revert to normal operating conditions.

NOTICE: If the pump is frozen up – it should on no account be started. Operating the machine frozen will damage the pump and damages caused by misuse will not be covered under warranty.

DO NOT ATTEMPT TO JET ANY REMAINING ANTIFREEZE SOLUTION INTO A CONTAINER

5. Routine Maintenance

Table 1 provides a basic guide to routine maintenance requirements for the various components of the vanpack.

Warning: Maintenance should only be carried out with the engine turned off and when cold.

5.1. Maintenance Procedures

Table 1 indicates recommended routine maintenance tasks cross referenced to maintenance procedures.

	GENERAL
Prior to use / Daily / after 8 hours running	<ul style="list-style-type: none"> • Check inlet water filter element (Ref Para 5.2) • Check engine oil level on dip stick (Ref section 9) • Visual check for hose damage/water leaks • Check emergency stop button operation (Fig.1)
Weekly / 24 hours	<ul style="list-style-type: none"> • Visually inspect vanpack for security checking for any loose, damaged, or missing parts • Check air filter cleanliness (Ref section 9) • Check engine fuel filter for contamination (Ref section 9)
Three monthly / 50 hours	<ul style="list-style-type: none"> • First service contact Harben® Inc. • Replace pump oil (only required for first service only)
Six Monthly / 100 hours	<ul style="list-style-type: none"> • Inspect tanks and fittings for leaks • Tighten any loose joints • Check condition of 12 volt start battery • Grease battery terminals for protection
Yearly / 200 hours	<ul style="list-style-type: none"> • Intermediate service of engine, gearbox and pump required (Contact Harben® Inc.) • Closely inspect the structural integrity of the framework for signs of stress and cracking • Carry out detailed inspection of pipes, hoses, and fittings • Check unloader valve operation
Two Yearly / 400 hours	<ul style="list-style-type: none"> • Major service of engine, gearbox and pump required (Contact Harben® Inc.) • Check wiring terminals/connections and continuity of electrical earth.

Table 1 Recommended Routine Maintenance

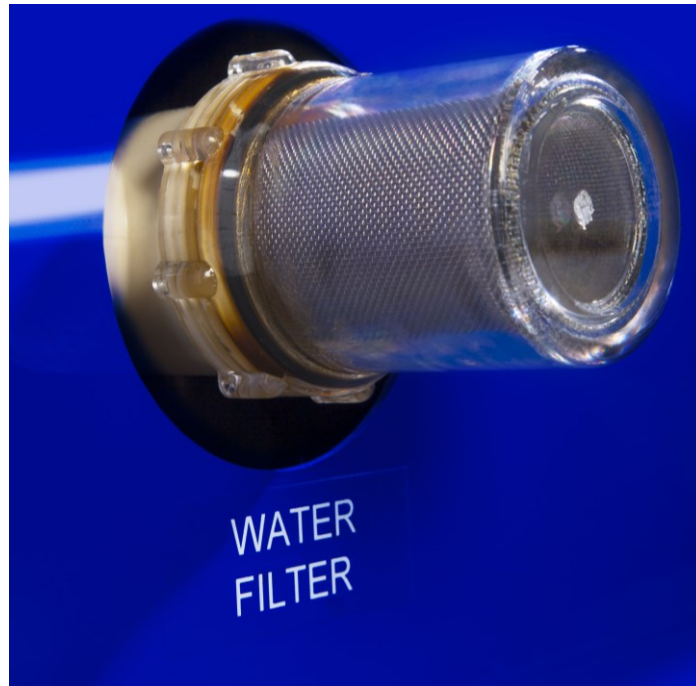
For a detailed guide to pump maintenance and overhaul procedures refer to [Section 7](#).

For routing engine maintenance please refer to the engine handbook supplied with the unit.

5.2. Daily Maintenance


The following must be completed daily with the vanpack switched **OFF**.

1. Check condition of inlet water filter & element. Clean or replace. (Harben® part no. N05105)



Unscrew the bowl to remove the mesh (Harben® part no. N06021). Take precautions so as not to lose the sealing ring (Harben® part no. N05108).



2. Visually inspect all hoses for signs of chaffing or leaks. Report any damage immediately to supervisor or manager.
3.  **WARNING!** Water at high-pressure jetting from a damaged hose or hose connector can cause serious injury. Do not attempt to repair or secure any hose while the high-pressure pump is running. **(H&S Sections 3 and 6)**

With the vanpack **running**:

4. Make further inspection for leaks. If a leak is observed, shut down immediately and report the leak to a supervisor or manager.

5.3. Pump, Gearbox and Engine Lubricating Oil

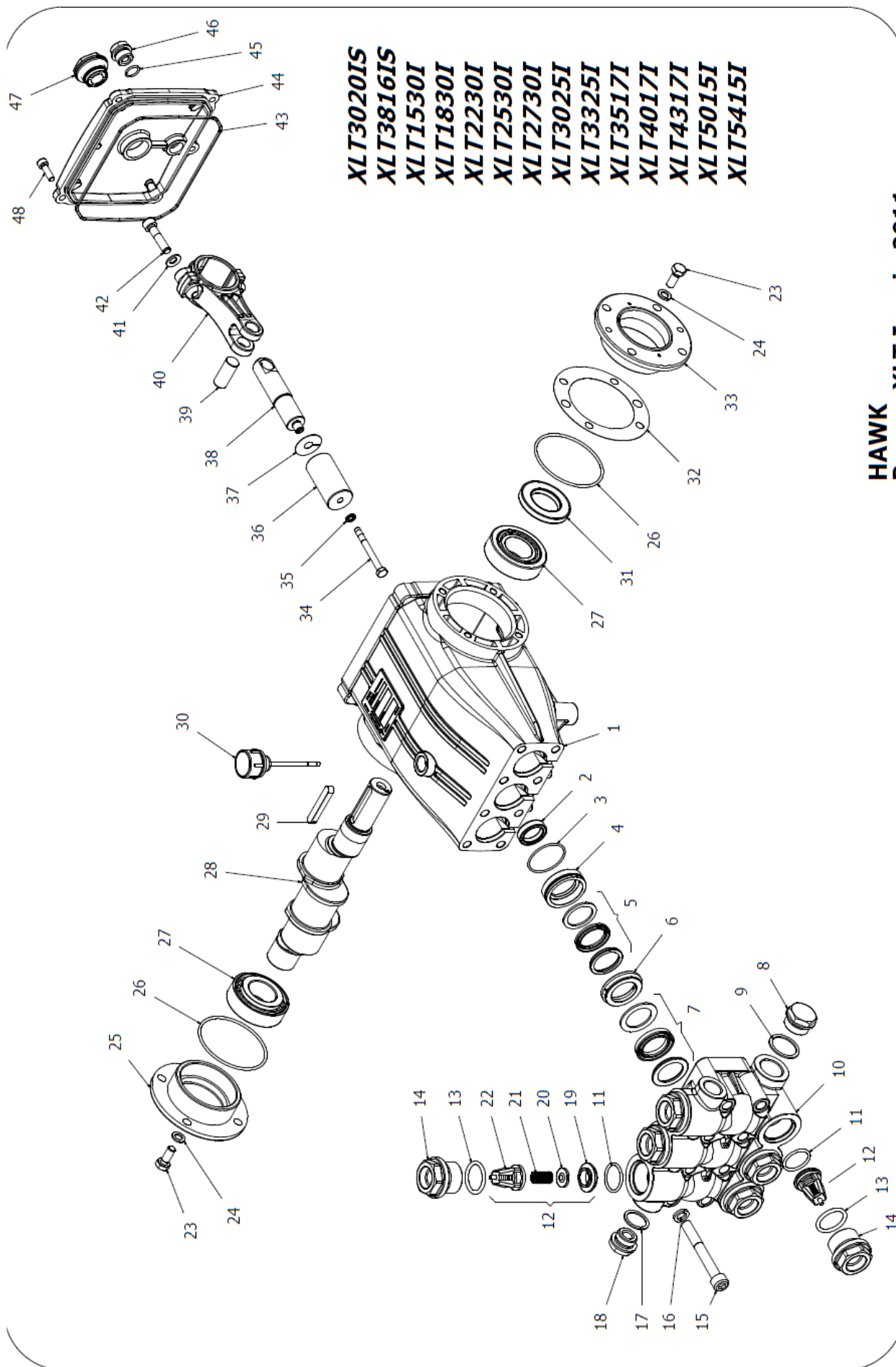
Pump	SAE 10W40	0.32 gal
Gearbox	SAE90	0.1 gal
Engine	SAE 5W30	0.32 gal

6. Fault Finding

Most of the problems experienced during jetting operations are likely to be caused by the pump or the associated hoses.

Engine problems are covered in **Section 9**.

Pump and gearbox problems are covered in **Section 7**.



Rev. 5.0 05/2015

HAWK
Pompe XLT I serie 2011
XLT I pumps 2011 series

SPARE PARTS KIT
XLT 2011

Item	Part Number & Description	Q.ty Pump	XL T3020IS	XL T3816IS	XL T1530I	XL T1830I	XL T2230I	XL T2530I	XL T2730I	XL T3025I	XL T3325I	XL T3517I	XL T4017I	XL T4317I	XL T5015I	XL T5415I
3x (3- 5- 7)	2601.26 Plunger Seals 20 mm	1			◆	◆	◆	◆	◆							
	2601.25 Plunger Seals 22 mm	1								◆	◆					
	2601.13 Plunger Seals 25 mm	1	◆									◆	◆	◆		
	2601.15 Plunger Seals 28 mm	1		◆											◆	◆
3- 4- 5- 6- 7	2601.28 Complete seal Packing 20 mm	3			◆	◆	◆	◆	◆							
	2601.27 Complete seal Packing 22 mm	3								◆	◆					
	2601.14 Complete seal Packing 25 mm	3	◆									◆	◆	◆		
	2601.16 Complete seal Packing 28 mm	3		◆											◆	◆
34- 35- 36- 37	2601.30 Plunger 20 mm	3			◆	◆	◆	◆	◆							
	2601.29 Plunger 22 mm	3								◆	◆					
	2601.17 Plunger 25 mm	3	◆									◆	◆	◆		
	2601.18 Plunger 28 mm	3		◆											◆	◆
11- 12- 13	2600.10 Complete Valve	6	◆	◆								◆	◆	◆	◆	◆
	2601.31 Complete Valve	6			◆	◆	◆	◆	◆	◆	◆					
3x (2)	2600.03 Plunger oil Seal	1	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
3- 4- 5- 6- 7- 8 9- 10- 11- 12 13- 14- 15- 16 17- 18	2601.33 Complete Manifold 20 mm	1			◆	◆	◆	◆	◆							
	2601.32 Complete Manifold 22 mm	1								◆	◆					
	2601.19 Complete Manifold 25 mm	1	◆									◆	◆	◆		
	2601.20 Complete Manifold 28 mm	1		◆											◆	◆
38- 39- 40- 41 42	3100.41 Connectin Rod-Plunger Rod Assy	3	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆

PARTS LIST
XLT 2011

Item	Part Number	Description	Q.ty/Pu mp	XLT3020IS	XLT3818IS	XLT1530I	XLT1830I	XLT2230I	XLT2530I	XLT2730I	XLT3025I	XLT3325I	XLT3517I	XLT4017I	XLT4317I	XLT5015I	XLT5415I
*1	0202.97	Crankcase	1														
*2	0001.01	Plunger oil seal	3	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
*3	0601.08	"O" Ring Ø1.78x37.82	3														
*4	1201.57	Pressure ring 20 mm	3			♦	♦	♦	♦								
	1201.59	Pressure ring 22 mm	3								♦	♦					
	1201.58	Pressure ring 25 mm	3	♦									♦	♦	♦		
	1201.56	Pressure ring 28 mm	3		♦											♦	♦
*5	0002.52	"U" seal, dia.20 mm	3			♦	♦	♦	♦								
	0002.53	"U" seal, dia.22 mm	3								♦	♦					
	0002.57	"U" seal, dia.25 mm	3	♦									♦	♦	♦		
	0002.69	"U" seal, dia.28 mm	3		♦											♦	♦
*6	0300.76	Intermed. ring 20mm	3			♦	♦	♦	♦								
	0300.78	Intermed. ring 22mm	3								♦	♦					
	0300.77	Intermed. ring 25mm	3	♦									♦	♦	♦		
	0300.75	Intermed. ring 28mm	3		♦											♦	♦
*7	0002.61	"U" seal, dia.20 mm	3			♦	♦	♦	♦								
	0002.62	"U" seal, dia.22 mm	3								♦	♦					
	0002.72	"U" seal, dia.25 mm	3	♦									♦	♦	♦		
	0002.65	"U" seal, dia.28 mm	3		♦											♦	♦
*8	1601.33	Brass plug G3/4	1	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
*9	0603.11	Copper washer 3/4	1														
*10	1602.39	Manifold housing Ø28/Ø25	1	♦	♦								♦	♦	♦	♦	♦
	1602.40	Manifold housing Ø22/Ø20	1			♦	♦	♦	♦	♦	♦						
*11	0601.66	"O" Ring Ø2.62x25.7	6	♦	♦								♦	♦	♦	♦	♦
	0605.06	"O" Ring Ø2.62x21,89	6			♦	♦	♦	♦	♦	♦						
*12	3604.50	Valve assembly	6	♦	♦								♦	♦	♦	♦	♦
	3604.76	Valve assembly	6			♦	♦	♦	♦	♦	♦						
*13	0601.67	"O" Ring Ø3.53x26.58	6	♦	♦								♦	♦	♦	♦	♦
	0601.87	"O" Ring Ø3,53x25,80-134	6			♦	♦	♦	♦	♦	♦						
*14	1601.31	Valve plug	6	♦	♦								♦	♦	♦	♦	♦
	1601.74	Valve plug	6			♦	♦	♦	♦	♦	♦						
*15	1801.40	Manifold stud bolt	8														
*16	1403.01	Lock-Washer	8	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
*17	0603.07	Copper washer 1/2	1														
*18	1601.20	Brass plug 1/2	1														
19	1503.19	Valve seat	6	♦	♦								♦	♦	♦	♦	♦
	1503.40	Valve seat	6			♦	♦	♦	♦	♦	♦						
20	1202.08	Valve plate	6														
21	0900.32	Valve spring	6														
22	0604.06	Valve cage	6														
23	1802.05	Hexagonal screw	8														
24	1400.01	Washer	8	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
25	0500.54	Closed bearing housing	1														
26	0601.00	"O" Ring Ø2.62x71.12	2														
27	0200.04	Roller bearing	2														
28	0006.39	Crankshaft Ø24	1				♦										
	0006.37	Crankshaft Ø24	1					♦					♦				
	0006.38	Crankshaft Ø24	1						♦		♦			♦		♦	
	0006.36	Crankshaft Ø24	1	♦	♦					♦		♦			♦		♦
	0006.83	Albero eccentrico Ø24	1			♦											

XLT 2011

PARTS LIST

Item	Part Number	Description	Q.ty/Pu mp	XL T3020IS	XL T3816IS	XL T1530I	XL T1830I	XL T2230I	XL T2530I	XL T2730I	XL T3025I	XL T3325I	XL T3517I	XL T4017I	XL T4317I	XL T5015I	XL T5415I
29	0206.05	Crankshaft key	1														
30	1600.16	Oil dip stick	1														
31	0001.00	Crankshaft seal	1														
32	0301.00	Shim	1	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
33	0500.38	Bearing housing	1														
*34	1802.23	Plunger bolt	3														
*35	1400.10	Copper spacer	3														
*36	1200.32	Plunger 20 mm	3			◆	◆	◆	◆	◆							
	1200.34	Plunger 22 mm	3								◆	◆					
	1200.33	Plunger 25 mm	3	◆									◆	◆	◆		
	1200.30	Plunger 28 mm	3		◆											◆	◆
*37	1400.57	Copper spacer	3														
*38	0003.32	Plunger rod	3														
*39	1502.07	Connecting rod pin	3														
*40	0100.10	Connecting rod	3														
*41	1401.03	Spring washer	6														
42	1801.01	Connecting rod screw	6	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
43	0601.85	"O" Ring Ø2,62x152,07	1														
44	0203.63	Crankcase cover	1														
45	0601.14	"O" Ring Ø1,78x14,00	1														
46	1601.17	Brass plug 3/8	1														
47	0700.05	Sight glass, G3/4	1														
48	1801.41	Cover screw	5														

		Part available in kit only
*		Part available in kit also

RIDUTTORI PER MOTORI A SCOPPIO GEARBOX FOR PETROL ENGINES

B5



B10-B18-B24-B31



RIDUTTORI PER MOTORI A SCOPPIO

GEARBOX FOR PETROL ENGINES

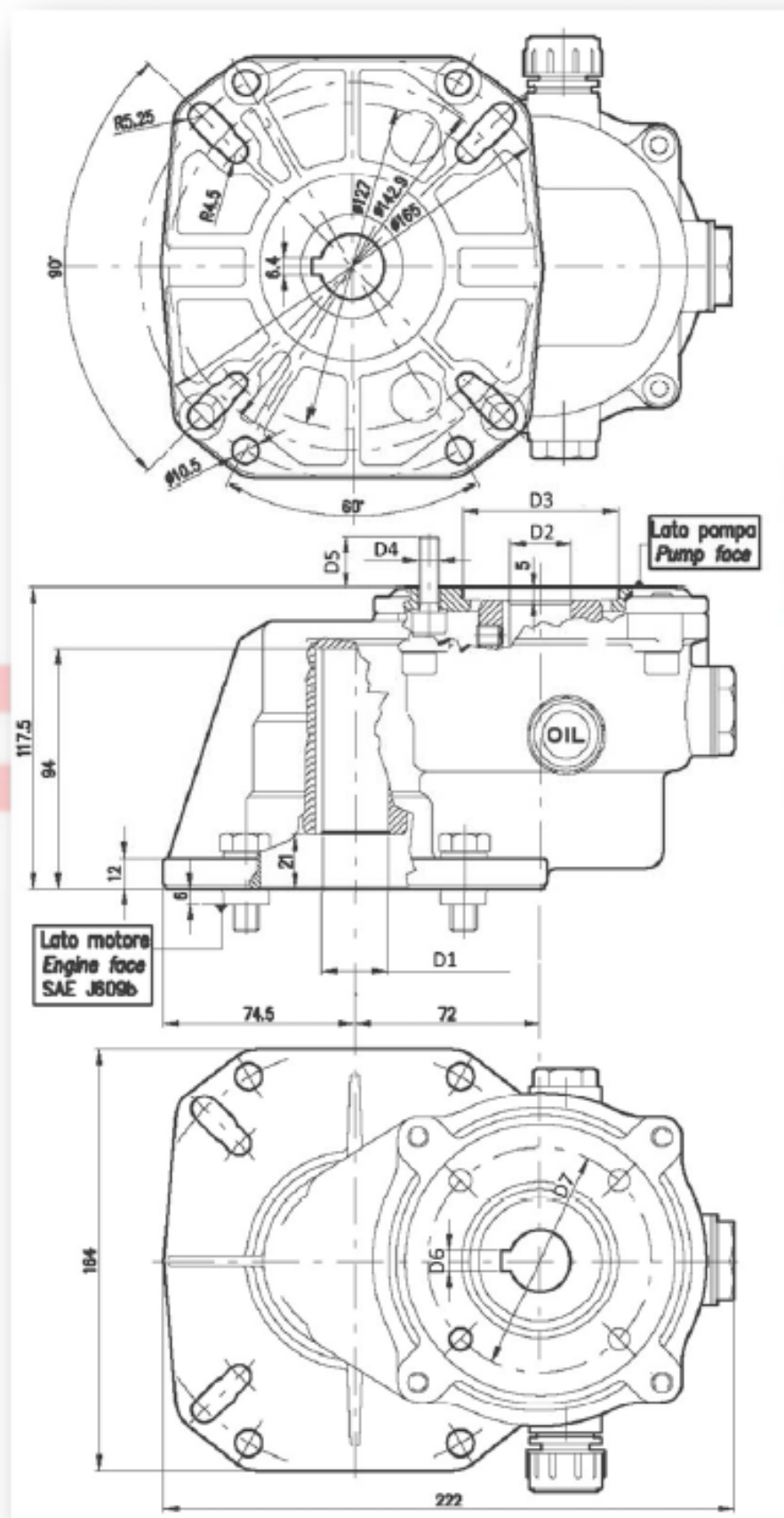
Part. No	Input speed RPM	RR ratio n1/n2	Output speed RPM	Max power kW (hp)	Weight kg	Lubrication oil type	Oil capacity L (oz)	Engine flange		For pump series
								type	type	
B5	244507	3400	2.3	1450	4,8 (6,5)	2,1	0,15 (4,5)	SAE J609a		D
	244511	3400	2.3	1450	4,8 (6,5)	2,1	0,15 (4,5)	SAE J609a		
B10	244516	3100	2,176	1425	7 (10)	3,95	0,35 (10)	SAE J609b		NST-HD-NHD
B18	244509	3100	2,176	1425	13 (18)	3,95	0,35 (10)	SAE J609b		NMT-NPM
	244505	3100	2,176	1425	13 (18)	3,95	0,35 (10)	SAE J609b		NLT-LT-XLT
B24	244513	3100	2,176	1425	17,7 (24)	3,95	0,35 (10)	SAE J609b		NLTI-XLTI-PXI-XXT
	244514	3100	2,176	1425	17,7 (24)	3,95	0,35 (10)	SAE J609b		NLTI-XLTI-PXI-XXT
B31	244515	3100	2,176	1425	23 (31)	3,95	0,35 (10)	SAE J609b		NLTI-XLTI-PXI-XXT

DIMENSIONI

DIMENSIONS

Part. No	D1	D2	D3	D4	D5	D6	D7	For pump series
	inch	mm	mm	mm	mm	mm	mm	
B5	3/4"	18	60	M6	17	6	75	D
	3/4"	24	90	M6	13	8	75	
B10	1"	24	90	M6	13	8	75	NST-HD-NHD
B18	1"	24	61	M8	20	8	87	NMT-NPM
	1"	25	60	M8	20	8	89	NLT-LT-XLT
B24	1" 1/8	24	61	M8	20	8	89	NLTI-XLTI-PXI-XXT
	1"	24	61	M8	20	8	89	NLTI-XLTI-PXI-XXT
B31	1" 1/8	24	61	M8	20	8	89	NLTI-XLTI-PXI-XXT

B10-B18-B24-B31



ASSEMBLY INSTRUCTIONS B10-B18-B24-B31

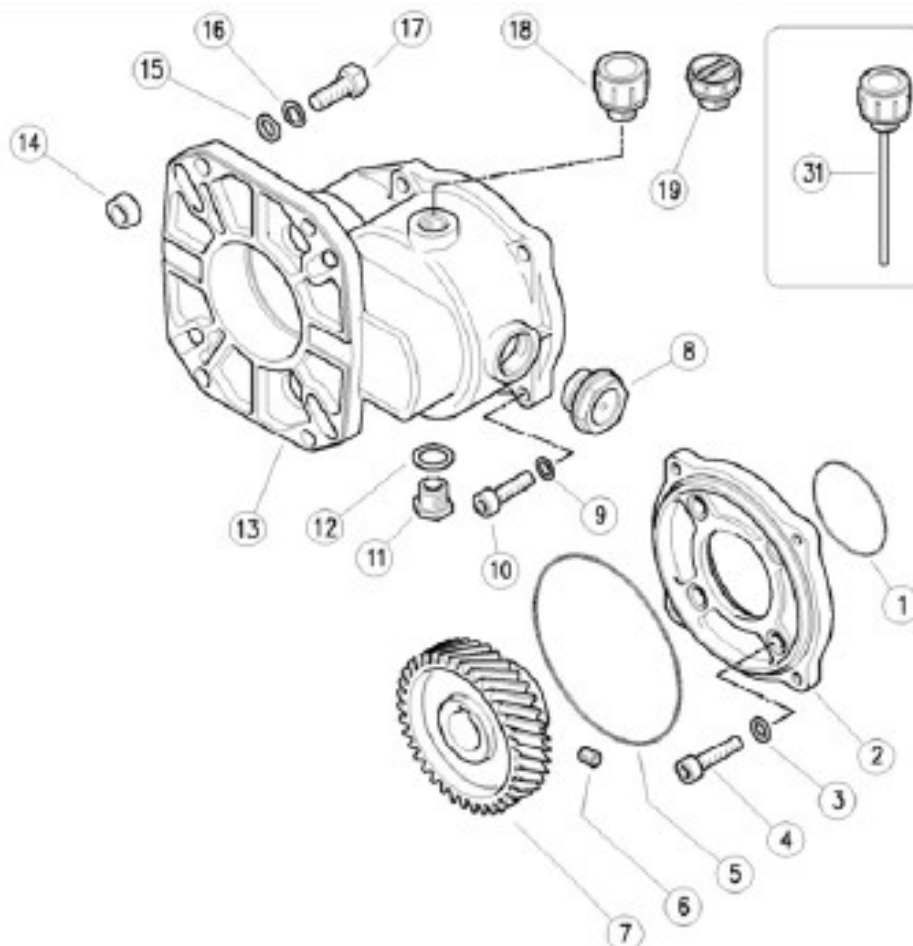
ASSEMBLY OF THE GEARBOX ON PUMPS:

- *Having the pump shaft on vertical position loosen the four bolts which keep the bearing cover to the pump housing leaving it in its position.*
- *After having set the O Ring (1) in its seating , fix the flange (2) with the bolts (4) with the pertinent seal washers (3), setting on the threaded part LOCTITE 242 and fix it with 10 Nm (88 in.lbs. MAX).*
- *Make sure that the key is correctly set on the keyway, assemble the toothed crown (7) on the pump shaft pushing it on the suitable shoulder and clamp it with the screw (6) with a torque of 20 Nm (177 in.lbs.) MAX (use LOCTITE 242).*
- *Complete the assembly of the body with the oil level pilot light (8) and the discharge plug (11) with pertinent gasket.*
- *Insert the O Ring (5) on the flange already fixed to the pump , and proceed to the assembly of the body on that same flange using the bolts (10) and pertinent elastic washers (9) with a torque of 25Nm (221in.lbs.)MAX.*
- *At this stage it is possible to proceed to the filling of the housing with oil (type gear-differential SAE 90) up to the level shown at the center of the pilot light, locking it with the vented plug (18). In case the unit gearbox-pump is not immediately coupled to the engine, and should it be transported, it is advised to use temporarily the plug (19) and gasket, which are supplied for this utilization.*

ASSEMBLY THE UNIT GEARBOX-PUMP ON ENGINE:

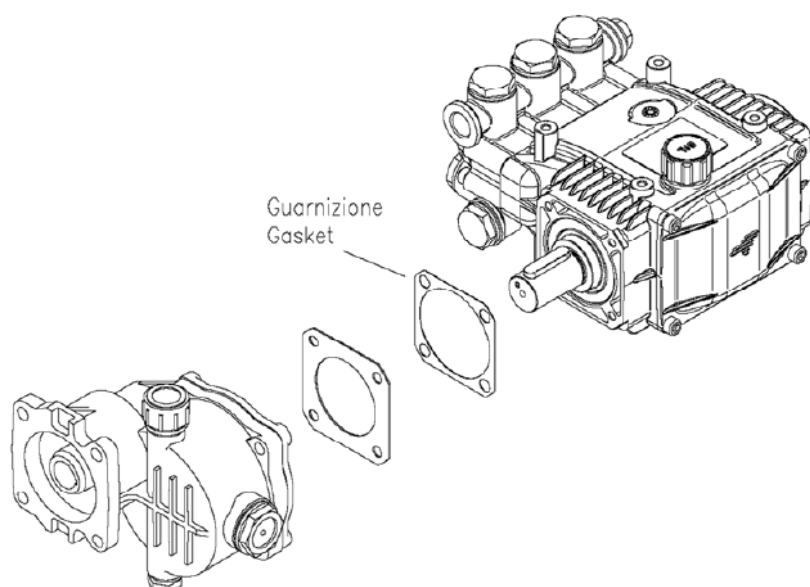
- *Check that the key of the Engine shaft is correctly set on the keyway then apply on the same shaft a good lubricating ant scruff (type LOCTITE 8150) to facilitate the possible disassembly.*
- *Proceed to the coupling of the gearbox to the engine utilizing for the fixing the bolts and the washers supplied.*
- *Torque to apply on screws for assembly MAX*
Screw 3/8" torque 40Nm (354in.lbs.);
Screw 5/16" torque 25Nm (221in.lbs.);
Screw M10 torque 40Nm (354in.lbs.);
Screw M8 torque 40 Nm (221in.lbs.).

If the engine has a short shaft, lock the feather key axially. For instance : screw + washer or set screw, etc.


2445.16 – 2445.09 – 2445.05 – 2445.13 – 2445.14 – 2445.15

Pos. Item	Codice Part Number	Descrizione	Description	Q.tà Q.ty	2445.16	2445.09	2445.05	2445.13	2445.14	2445.15
1	0601.93	Anello OR	O-Ring	1	◆	◆		◆	◆	◆
	0601.92	Anello OR	O-Ring	1			◆			
2	0500.67	Flangia	Flange	1				◆	◆	◆
	0500.92	Flangia	Flange	1			◆			
	0500.93	Flangia	Flange	1		◆				
	0500.94	Flangia	Flange	1	◆					
3	1408.11	Rosetta tenuta Ø8	Seal washer	1		◆	◆	◆	◆	◆
	1408.10	Rosetta tenuta Ø6	Seal washer	1	◆					
4	1801.21	Vite M8x25	Screw	4		◆	◆	◆	◆	◆
	1801.05	Vite M6x25	Screw	4	◆					
5	0601.94	Anello OR	O-Ring	1			◆			◆
6	1803.05	Vite M8x10	Set screw	1	◆	◆	◆	◆	◆	◆
7	1207.55	Corona Z37 Ø24	Gear Dia. 24	1	◆	◆		◆	◆	◆
	1207.57	Corona Z37 Ø25	Gear Dia. 25	1			◆			
8	0700.05	Spia livello olio	Oil sight glass	1						
9	1401.03	Rosetta elastica Ø8,4	Lock-Washer	4						
10	1801.21	Vite M8x25	Screw	4						
11	1601.17	Tappo G3/8	Plug	1						
12	0603.02	Guarnizione 3/8	Gasket	1						
13	0202.91	Carter	Gear housing	1	◆	◆	◆	◆	◆	◆
14	1400.52	Rosetta piana Ø10	Washer	4						
15	1400.51	Rosetta piana Ø8,4	Washer	4						
16	1401.03	Rosetta elastica Ø8,4	Lock-Washer	4						
17	1802.20	Vite 5/16" x1"	Hexagonal screw	4						
18	1600.10	Tappo carico olio	Oil plug	1						
19	1600.11	Tappo	Plug	1						

Gear box 2445.11 and NST series assembling
Assemblaggio Riduttore 2445.11 e Pompe serie NST

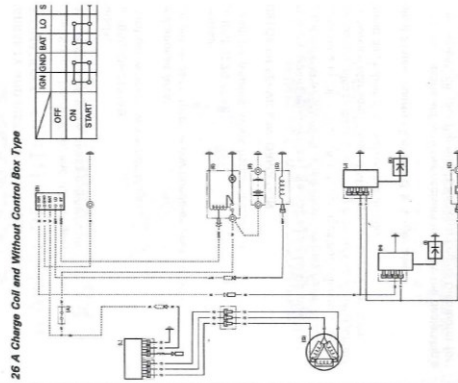
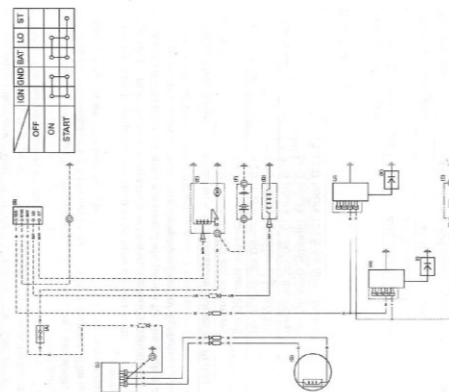


8. Circuit Diagrams

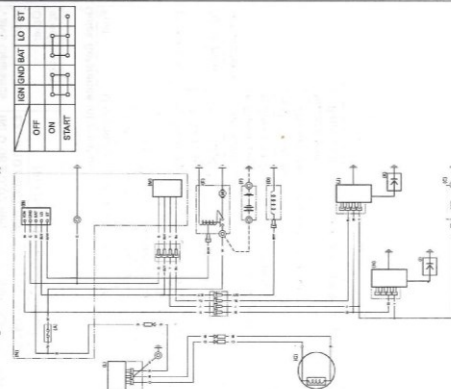
8.1. Wiring Diagram for Honda GX690 Engine

Wiring Diagrams

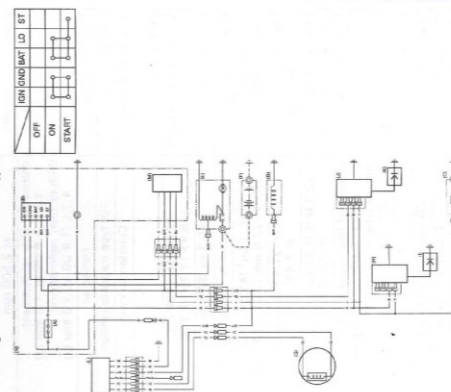
(A)	MAIN FUSE
(B)	ENGINE SWITCH
(C)	FUEL CUT SOLENOID
(D)	STARTER MOTOR
(E)	BATTERY
(F)	CHARGE COIL
(G)	LEFT IGNITION COIL
(H)	RIGHT IGNITION COIL
(I)	LEFT SPARK PLUG
(J)	RIGHT SPARK PLUG
(K)	REGULATOR RECTIFIER
(L)	REGULATOR RECTIFIER
(M)	REGULATOR RECTIFIER
(N)	CONTROL BOX



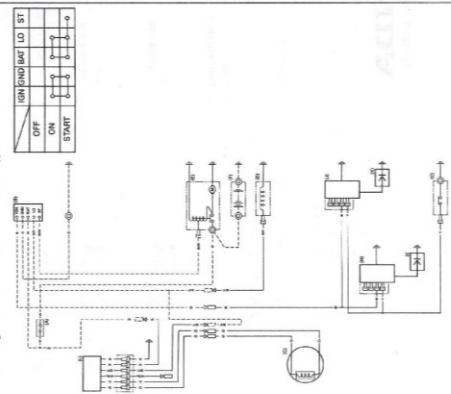
2.7 A Charge Coil and With Control Box Type



17 A Charge Coil and With Control Box Type



17 A Charge Coil and Without Control Box Type



9. Engine

A copy of the Engine Manufacturer's Operators Handbook is supplied with this equipment.

10. Parts List / Spares

10.1. Introduction

This section includes advice on obtaining spare parts.

To identify consumable items and service kits you require you should use the information in this section. To identify components for the pump or engine etc. refer to the relevant parts in this manual.

10.2. Ordering Spare Parts

Order spare parts from:



Harben® Inc.

2010 Ronald Reagan Blvd.

Cumming, GA 30041

Tel. (770) 889-9535 - Fax. (770) 887-9411

email: sales@Harben®.com

www.Harben®.com

10.3. Routine Maintenance / Consumable Items

See **Section 5**

10.4. Consumable Components

See **Section 5**

10.5. Parts List

Part Number	Description	Quantity
900294	1/2" NPTF FIXED TEE	1
903224	1 1/4" BULKHEAD	2
013224	ADAPTOR BHEAD 1/2" BSPM x1/2"BSPM 415BAR C/W LNUT	1
015295	SEAL BONDED M20 SELF CENTRALISING 400-233-4490-41	1
0230115	1/2" NPT ROTART JOINT	1
0231585	#10 JIC BULKHEAD	2
0231613	ADAPTOR 1 1/4" NPTM - 3/4" BSPM	1
0231617	ADAPTOR 1/2" BSPF SWIV - #10 JIC M	1
033010	SEAL BONDED 1/2" BSP 400-825-4490-41 448 BAR SELF CENTRALISING	7
033013	SEAL BONDED 3/8" BSP 400-823-4490-41 492 BAR SELF CENTRALISING	2
033014	SEAL BONDED DOWTY 3/4"	1
035379	VALVE UNLOADER/SAFETY RELIEF VB85/VS85 280BAR 80LPM	1
035401	VALVE SAFETY RELIEF (SRV) VS 310 HAWK 310 BAR @ 40LPM	1
042134	FILTER	1
0421927	EXHAUST FLOOR TUBE	1
0422319	SUPPORT TANK FILL POINTS	1
0422913	BRACKET CONTROL BOX 115 SERIES VP	1
0422953	INLET REEL BRACKET - 115 SERIES MK2	1
0422954	ENGINE GRILLE - 115 SERIES MK2	1
0422956	BRACKET 3 WAY VALVE ASSY 115 SERIES MK2	1
0422984	UNLOADER BRACKET 115 SERIES MK2	1
043057	1/2" DIFFUSER	2
043133	LABEL UNIT SPECIFICATION	1
043201	1 1/4" STR BARB	5
044502	FRAME 115 SERIES Mk2	1
048106	INLET HOSEREEL PERPENDICULAR WALL MOUNT - RAPID REEL	1
0511009	CABLE END - CHOKE - HONDA GX690 CABLE HOLDER	1
055024	1/2" NYLOBRAID	200 FT
055063	1 1/4" HOSE	15FT
058253	FRONT PANEL GRP MOULDED 115 SERIES	1
061635	LABEL WARNING! MACHINE OPERATION	1
061781	LABEL WARNING DAMAGE CAUSED BY FREEZING	1
061851	LABEL 'BRITISH INDUSTRY'	1
061867	LABEL 115 SERIES Set	1
061869	LABEL 115 SERIES ANTIFREEZE	1
061870	LABEL 115 GAS WARNING LABEL	1
067848	GEARBOX 2.176:1 23 KW HAWK 2445.15	1
067889	PUMP ASSY HAWK XLT3325I 250BAR 33LPM 1450RPM SEE IMPORTANT NOTE	1
071412	FLOAT SWITCH	1
0781070	SPACER ALUMINIUM - 40mm OD x 11mm ID x 10 THK	4
079210	EXHAUST ELBOW 300 SERIES VP LONG	1
079210	EXHAUST SHORT ELBOW	1
079236	EXHAUST LONG LEG ELBOW 1 1/2" OD 115 SERIES	1

079236	EXHAUST LONG ELBOW 1 1/2" OD	1
085345	ANTIFREEZE TANK	1
085356	FUEL TANK	1
118125	DRIP TRAY LEFT HAND SIDE - 115 SERIES MK2	1
118126	DRIP TRAY RIGHT HAND SIDE - 115 SERIES MK2	1
118127	FILLER CAP COVER - 115 SERIES MK2	1
25114	HOSE CLIP	1
7002036	SWING OUT HOSEREEL ASSEMBLY	1
900231	1 1/4" LOCKRING	2
900274	#10 JIC ELBOW BARB	11
900290	ADAPTOR ELBOW #10 JIC M/F SWIV	1
900295	ADAPTOR 1/2" BSPM - #10 JIC	4
900322	1 1/4" BALL VALVE 3 WAY T-PORT	1
900323	1 1/4" M - 1/2" F REDUCER	1
900324	1 1/4" F/F SOCKET STRAIGHT	2
900325	ADAPTOR M20 - #10 JIC M/M	1
900326	ADAPTOR 1/4" NPTM - 1/2" BSPM MS 415 BAR	1
900327	ADAPTOR 3/8" BSPM - #10 JIC M	1
900328	EXHAUST CLAMP 1 1/2"	2
900329	FASTENER EXHAUST CLAMP 1.5/8	2
900330	#10 JIC CAP	1
900331	ADAPTOR 1/2" NPT - 1/2" BSP M/M	1
900332	ADAPTOR 1/2" NPT - 3/8" BSP M/M	1
903058	ADAPTOR 1/2" NPT - #10 JIC M/M	6
903093	GAUGE PRESSURE	1
903111	1 1/4" ELB M/F	1
903151	HOSE CLIP 5/16"	4
903172	1 1/4" TEE	2
903175	1 1/4" HOSE CLAMP	9
903178	1/2" HOSE CLAMP	12
903197	1/2" NPT F STR BARB	1
903225	1 1/4" NIPPLE	4
903238	1 1/4" BALL VALVE 2-WAY	2
903389	1 1/4" ELB BARB	4
903729	TANK 125-GAL LOAF TYPE	1
903730	STRAP ASSEMBLY RATCHET TYPE. 25MM WIDE NYLON	2
903731	ENGINE HONDA V TWIN GX690 22 HP @ 3600RPM GAS C/W MUFFLER	1
903732	THROTTLE TWIST WITH CABLE 40"	1
903733	CHOKE + CABLE	1
903734	BATTERY 12V 36AH TYPE 153	1
903735	LEAD BATTERY 750mm NEGATIVE 12V	1
903736	LEAD BATTERY 940mm POSITIVE 12V	1
903737	LABEL "E-STOP" SELF ADHESIVE	1
903738	E STOP TWIST TO RELEASE including NC ACTUATOR 78-3724 78-3732	1
903739	BATTERY RETAINING BRACKET	1
903740	HAND KNOB 1/4" UNC	5


903741	HOOD LATCH RUBBER	2
903742	HINGE	2
903743	SIGHT GAUGE FOR FUEL TANK 115	1
903744	BREATHING PORT FOR FUEL TANK 115	1
903745	FILLER CAP FOR FUEL TANK 115	1
903746	CARBON CANNISTER 115	1
903747	FUEL HOSE 1/2"	3FT
903748	STICKY BACKED SADDLE CLIP	2
903749	SADDLE TYPE CABLE TIE MOUNT	4
903750	HOSE ASSY 1/4" NPT F/F - ELB/STR 23" 4000PSI WP	1
903751	HOSE ASSY #10 JIC STR/ELB 90DEG F/F 26"	1
903752	HOSE ASSY #10 JIC ELB/ELB F/F 26" 4000 PSI WP	1
903753	FUEL HOSE 1/4"	4FT
903754	FUEL HOSE 5/16"	6FT
903755	EXHAUST LAGGING GW304 FORTAGLAS WEBBING 76 X 3MM 35050.76 ARCO REF	6FT
903756	WIRE COPPER EXHAUST LAG FASTENING	6 FT
903757	HOSE 3/8" 300ft NPT M/F ENDS	1
903758	EXHAUST TUBING FLEXIBLE 1 1/2" ID	2FT
A180430	ROD STRAP RETAINER WATER TANK	4
N05114	SIGHT GLASS 10"	1

11. Service Documents

11.1. Service Checklist

SERVICE CHECK LIST																			
Serial Number -										Sht 1 of 2									
Unit Number -										Engineer -									
Date -										ESR -									
Hours Run -																			
I - Intermediate service					Y - Yearly service					R - Customer request									
Engine					Hydraulics					Water tank									
	I	Y	R			I	Y	R			I	Y	R						
1				34					63										
2				35					64										
3				36					65										
4				37					66										
5				38					67										
6				39					68										
7				40					69										
8				41					OMO Foot pedal										
9				42															
10				Electrics/Controls					70										
11									71										
12				43					72										
13				44					Pressure Hose										
14				45															
15				46					73										
Gearbox				47					74										
	I	Y	R	48					75										
16				Vanpack frame					76										
17									77										
18				49					78										
				50					Hot Wash										
Pump				51															
	I	Y	R	Trailer					79										
20									80										
21				52					81										
22				53					82										
23				54					83										
24				55					84										
25				56					85										
26				57					86										
27				58					87										
28				Gun & Lance					Remote Control										
29																			
30				59					88										
30				60					89										
31				61					Other										
32				62															
33									90										
I	Intermediate Service								91										
Y	Yearly Service								92										
R	At Request of Customer								93										
NA - Not applicable, A - Adjusted, √ - Satisfactory, R - Repair required, O - Observation																			
Note - If 'Adjusted' or 'Repair required' please describe issue on sht 2																			

11.2. Service Logbook

Harben Unit Log Book		
Serial Number -		
Unit Number -		
Date of Manufacture -		
<i>Sht 1 of 2</i>		
Date	Official Harben Stamp and Signature	
Engineer		
Type of Service	Please state if other Service provider used	
Date	Official Harben Stamp and Signature	
Engineer		
Type of Service	Please state if other Service provider used	
Date	Official Harben Stamp and Signature	
Engineer		
Type of Service	Please state if other Service provider used	
Date	Official Harben Stamp and Signature	
Engineer		
Type of Service	Please state if other Service provider used	
Date	Official Harben Stamp and Signature	
Engineer		
Type of Service	Please state if other Service provider used	
Date	Official Harben Stamp and Signature	
Engineer		
Type of Service	Please state if other Service provider used	
Date	Official Harben Stamp and Signature	
Engineer		
Type of Service	Please state if other Service provider used	
Date	Official Harben Stamp and Signature	
Engineer		
Type of Service	Please state if other Service provider used	
Type of service - Itermediate, Yearly		FLOW 0322 Iss 1

12. Warranty

12.1. Warranty of New Products:

Equipment manufactured and supplied by Harben is warranted to be free from defects in materials and workmanship for a period one year or 2000 operating hours, whichever occurs soonest, from the date of shipping from our factory.

Our standard warranty covers both the parts and labor necessary to correct any such defects when repairs are carried out by us or by one of our authorized service centers.

To obtain warranty service, you should notify the Harben service department in writing within the warranty period, and they will direct you to your nearest service center. If the defect is covered by the warranty, we will repair or replace, at our option, the defective equipment, without charge for labor or materials.

Our warranty is limited to the original retail purchaser and is not transferable. We assume no responsibility for damage due to accident, neglect, abuse, tampering or misuse, or damage from repairs or alterations by others. This warranty does not cover damage to the equipment resulting from the use of non-genuine spare parts.

Provision of this warranty shall not apply to any Harben® product which has been:

- Used for a purpose for which it is not designed for; or
- Applied to a use which has not been approved by Harben® Inc.; or
- Subject to misuse, negligence, lack of maintenance or accident; or
- Repaired or altered in any way so as, in the judgement of Harben® Inc.; to adversely affect its performance and reliability; or
- Normal wear and tear

12.2. Warranty of Major Components

Engines – Please see the engine manual that came with your machine.

Pumps – Please see the pump manual that came with your machine.

Gearbox – Please see the gearbox manual that came with your machine.

Poly Tanks – All poly tanks are warranted for three years for material and workmanship.

In Order to Make A Claim:

1. You must be the original purchaser of the machine in which the part(s) were originally installed.
2. You must notify us or our authorized service agent that you wish to make a warranty claim. When requested you must return the faulty part(s) clearly labelled and carriage paid along with the unit/pump serial number and any other information that we may reasonable request.
3. All components must have been installed and maintained in accordance with good industry practice and any specific recommendations we made, including those in our maintenance schedule that is supplied with your machine.
4. We will replace, at the customers cost, any part(s) returned for warranty inspection. When our inspection has been completed, we will advise if the parts(s) are covered by our warranty policy and if they are we will credit your account for the cost of the new part(s), minus taxes and shipping charges.
5. Our warranty does not cover travel charges, down time, or consequential losses.
6. No part(s) will be considered for replacement under warranty if it is subject to any of the following reasons for exclusion.
 - Used for a purpose for which it is not designed
 - Applied to a use which has not been approved by Harben
 - Subject to misuse, negligence, lack of maintenance or accident
 - Repaired or altered in any way which, in our judgement, may adversely affect its performance and reliability
 - Considered as fair wear and tear

12.3. Limitations of Warranty:

The new product and spare parts warranty is limited to defects in material or workmanship of the product. It does not cover loss of time, inconvenience, property damage or any consequential damages. Repair or replacement of the product is your exclusive remedy.

Our liability under this clause shall be in lieu and to this exclusion of any warranty or conditions implied or expressed by law as to the quality or fitness for purpose of any goods supplied hereunder PROVIDED THAT nothing in this clause shall operate so as to exclude liability for death or personal injury arising from the negligence of the company or its employees.

Our obligations as aforesaid shall constitute the full extent of our liability in respect of any loss or damage sustained by the purchaser whether caused by any breach of this contract or by our negligence or otherwise and we shall not be liable to make good or pay for loss of use of the goods, loss of revenue, loss of profit or goodwill or any direct or consequential losses howsoever caused and the purchaser undertakes to indemnify us against any such claims against us by third parties.

All products manufactured, supplied, or installed for use at work are tested before they leave our factory and are supplied with adequate instructions for their proper use. Further copies of these instructions are available from us upon request.