THOROUGHCLEAN
WATER BLASTERS Over-engineered — On purpose

Congratulations on purchasing one of Australia's Toughest high pressure water blasters.
Superior Cleaning – designed to last!

OPERATORS MANUAL

for

ELECTRIC COLD WATER PORTABLE MODELS

E3R-22C

E15R-43C

E3i-22C

E15i-43C

Index:

Page:

Manufactured by:
ThoroughClean Water Blasters
12 Ashburn Road, Bundamba,
QLD 4304, Australia
Ph: +61 (0) 7 5467 2025
www.thoroughclean.com.au

Model: ……..
Serial No.: ……
Date of Purchase: ……..……..
Purchased from: ……..……..

	E3i-22C	E3R-22C	E15i-43C	E15R-43C
Build Spec	Industrial Spec	Heavy Duty Rental Spec – **Gal Frame**	Industrial Spec	Heavy Duty Rental Spec
Power Requirements	240 Volt 10 Amp 240 Volt 15 Amp	240 Volt 10 Amp 240 Volt 15 Amp	415 Volt 32 Amp	415 Volt 32 Amp
Electric Motor	2.2 kW (3 hp)	2.2 kW (3 hp)	11 kW (15 hp) DOL Start	11 kW (15 hp) DOL Start
Electric Windings	'F' wound	'F' wound	'F' wound	'F' wound
Electric Plug	10 Amp	10 Amp	32 Amp	32 Amp
Lead length	8m	8m	8m	8m
New HAWK Pump Model	HD1115	HD1115	XLT1830	XLT1830
Old HAWK pump model			HC930	HC930
Max Pressure & Flow	2200 psi, 11 lpm	2200 psi, 11 lpm	4350 psi, 18 lpm	4350 psi, 18 lpm
Set-up / de-rated pressure & flow	1100 psi, 11 lpm	1100 psi, 11 lpm	3000 psi, 18 lpm (4000 psi possible)	3000 psi, 18 lpm (4000 psi possible)
Nozzle size at set-up pressure	15060	15060	15060	15060
Pump Speed RPM	1450	1450	1450	1450
Hour Meter				●
Timed by-pass shut-down				●
Slave Oil Tank to pump				●
Low oil to pump shut-down				
Pump oil over temp shut-down				
S/steel Water Break Tank				●
Low water shut-down				●
Motor Over-load shut-down	●	●	●	●
Pneumatic Accumulator			●	●
Soft-acting By-pass Valve	●	●	● to 3600 psi	● to 3600 psi
Thermoshield Protection	●	●	●	●
Hose Reel & Hose	No Reel, 10m Hose	No Reel, 10m Hose	No Reel, 20m Hose	Yes – 30m hose
Ind. Water Filter	●	●	●	● Extra Large
Gun & 900 mm s/steel lance	●	●	●	●
Weight:	51 kg + 8kg hose	55 kg + 8kg hose	140 Kg	223 Kg
Size (L x W x H) cm	56 X 47 X 50 (Excl. gun/lance@120cm	56 X 47 X 50 (Excl. gun/lance@120cm	95 X 75 X 68	125 X 85 X 95

Read WARNINGS & SAFETY INSTRUCTIONS before operating machine

INSTALLATION

- Inspect shipment for damages during transit and unpack
- Connection to appropriate 240 or 415 Volt / 3-Phase power supply ensure all three phases are connected and of suitable capacity. (Polarity not important.)
- Ensure power outlet is appropriately earthed and fitted with an earth leakage safety device

WARNING – ELECTRICAL SHOCK HAZZARD:

- Never operate machine off a power outlet without earth leakage safety device
- Never clean the machine with high pressure water blasting – serious injury or death could result!
- Never use a machine without current electrical compliance tag
- Prior to use, visually check plug, lead, entry wires into control box/switch and motor for damage or frayed wires.
- Wear thick, try socks when operating and rubber boots
- Wear appropriate personal protection equipment (PPE) i.e. Protective head, face/eye, hand, body and footwear
- When shutting down, turn of power and unplug from socket. Do not pull on wires to unplug from wall socket

- If not already connected, connect the high pressure hose to the machine and high pressure gun to the hose.
- Connection supply hose to water supply:
  - Important: Use hose with minimum 20 mm inside diameter
  - Required pressurised water supply (not gravity) with minimum of 10 PSI and ~20% more flow that pump flow rate (litres per minute)
- Turn on the water supply (open tap fully). Water will fill the break tank if fitted
- Unroll the hose fully ensuring there are no kinks in it
- Trigger gun to expel any air in the system

LAST CHECKS & START:

- Check all hoses are connected and check all power leads for damage or hoses for water leaks
- Check oil level in the pump. The oil sight glass should be HALF full – not more! If oil need to be topped up, use SAE10W40 or SAE 15W40 or SAE30 and top up at the Slave Oil Tank if fitted, otherwise on the pump (Washmate-10)
- Ensure water supply is wide open and power switched on at socket outlet
- On the machine, switch on by turning the ON/OFF switch to the ON position or press the GREEN START button (E15R-43C). The machine will fire up, start pumping and the RED indicator light will be on (E15R-43C only)
- Pull the trigger on the gun by pointing the lance in a safe direction.
- When the trigger is released, the pump is still pumping and water is in by-pass.
- The E15R-43C is fitted with a timed-by-pass shut-down and will automatically shut down after a few minutes (usually 2-3 minutes which can be set) if the gun is not triggered again. To re-start, press the GREEN START button again.

NOTE:

During the first 10 to 12 hours of operation, manufacturing debris like SWARF / LOCTITE may come through the machine and cause blockages of the high pressure jet. Switch the machine off, trigger the gun to release stored pressure, remove nozzle and clean if this occurs.

REMEMBER: Check Oil Levels DAILY!

OPERATING/CLEANING TIPS:

1. Using a Fan Jet, first blast off heavy soil or dirt build-up. The unit comes standard with a 15 degree nozzle correctly sized for the pressure and flow for your machine. Always use the same size nozzle (NEW) to test the machine for performance
2. Apply detergent to partially cleaned surface using low pressure. (Apply detergent by spraying from bottom up to avoid streaking - using a dual-lance and detergent assembly.) Allow to soak for a few minutes.
3. Blast off dirt using high pressure and a 'bottom - up' approach.
4. Lastly, rinse off thoroughly with 'top down' approach.

SHUTTING DOWN:

- Turn power supply off by turning the ON/OFF switch to OFF or by pressing the STOP button. Disconnect from mains power socket.
- Turn off water supply
- Squeeze gun several times to release any stored pressure
- Disconnect unit from water supply
- Lay out high pressure hose straight and then reel back up onto reel.

REGULAR CHECKS:

- **Water Supply** - Low water supply can cause cavitation and/or pump running dry casing expensive pump failure. Always check to ensure supply is:
    - Uninterrupted
    - Pressure is good (10 PSI / 30 LPM)
    - There are no kinks in supply hose
    - Fittings are in good condition and not leaking
- **Worn Jets** -System will function okay, but with oversized, worn jets, the pressure will be much lower and cleaning ability reduced. Always use new jets to check operation efficiency
- **Operating Pressure** - Check operating pressure to see if it within 10% of units specified operating pressure. If pressure drops over time it may indicate general wear and tear and a service is recommended.
- **Air Leaks** - Especially in suction to pump hoses. Repair immediately if found. Check for cuts & abrasions
- **Lance & Gun assemblies** - Check for damage and leaks
- **Filters** - Check to ensure filters are clean, filter heads/tops are not cracked, seals are not worn and sealed air tight and mesh tube is unblocked
- **Motor Speed** - Check unit if motor speed is too low. If motor makes a humming sound, switch off immediately. Do not use extension cords on these units – plug straight into wall socket!
- **SAFETY** Ensure safety protective gear is used and in good state of repair. Ensure Safety MEDIC ALERT Card is handy.
- **Prolonged by-pass** - Leaving the unit in prolonged by-pass (machine is switched on but trigger is not depressed) can cause excess wear & tear due to water over-heating which damages seals. The unit has two safety mechanisms built in to prevent damage:
    - Automatic dumping of hot water when water temp rises above 63 deg C.
    - The Washmate 1, -3 and -4 units will automatically shut down after 3-5 minutes in by-pass mode. This time is factory set but depending on your unique circumstances can be set from zero to 20 minutes.
    - When unit switches off after 3-5 minutes and operator is ready to continue water blasting, just switch back ON.
- **Worn By-Pass Valves** - Soft-Acting By-Pass valves should NOT store high pressure water in hose down-stream between by-pass valve and high pressure gun.
- **Water Leaks** - Excessive hammering can cause damage. Fix leaks when they occur
- **Water Condition** - Ensure water source is clean (potable water). Not recycled water or bore water which can damage pumps.

MAINTENANCE SCHEDULE:

	ACTION REQUIRED	DAILY	50 HRS	250 HRS	500 HRS	ANNUAL
1.	Replace high pressure nozzle/jet		As required	YES	YES	YES
2	Check Water Filters – Clean or Replace if damaged	YES	YES	YES	YES	YES
3	Inspect for leaks and repair all HP Accessories like gun, hose, swivel, hose reel swivel, nozzle	YES	YES	YES	YES	YES
4	Inspect all electrical cabling for damage or wear – repair by qualified electrician	YES	YES	YES	YES	YES
5	Check High Pressure Switch & Flow Switch and replace if faulty		YES	YES	YES	YES
6	Check Oil level in Pump (sight glass half full)	YES	YES	YES	YES	YES
7	CHANGE pump oil – SAE 15W40 / SAE 30		YES	YES	YES	YES
8	Strip and Refurbish pump: - Replace Plunger Rod Oil Seals (3/pump) - Replace Brass Valves (6/pump) - Replace various seals (3/pump) - Replace Ceramic Piston Plungers if cracked or worn (3/pump)					Only if required
9	Check By-Pass valve function test - re-kit or replace if required			YES	YES	YES
10	Function test all Safety Shutdowns & By-Pass timed shut-down			YES	YES	YES
11	Have an Authorised Electrician Test & Tag electrical equipment as Specified by Law	As required by law				
12	CONTROL PANEL – Have an Authorised Electrician Fully Function Test - Repair or Replace all Electrical Components.	As required or annually				
13	Check Tyre Pressure	Weekly or as required				

MAINTENANCE TIPS:

USE THE FOLLOWING GUIDE WHEN CONSIDERING MAINTENANCE:
Always test your machine using a new high pressure nozzle - correctly sized for set-up pressure and flow.

Before you start pulling pumps apart, do obvious checks first:

- Worn Jets
- Air Leaks
- Engine Speed (Not too low)
- Power Supply (Not too low when using long leads on 240 Volt units)
- Suction Filters (Blocked?)
- Water supply volume (Not too low)

As a guide in normal use, consider the following:

- After replacing 10 x high pressure Stainless Steel jets/nozzles, it is time to replace the seals on the pump using a Seal Kit.
- At the same time, also replace the seals on the By-Pass Valve using a By-Pass kit, or if economically viable, replace by-pass valve.
- By-Pass Valves will take 3-5 rebuilds before body wear becomes too much and replacement is needed.
- Do a whole pump changeover at 1,000 – 1,200 hours. (Con Rods, Big Ends & Crankshaft)
- Pistols, swivels & H.P. Hoses are usually uneconomical to repair. Replace as necessary.

TROUBLE SHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	REMEDY	COMMENT
MACHINE WILL NOT START	Power not plugged in and switched on	Plug into appropriate outlet and switch on at the wall, then at the machine	If Electrical
	No Fuel	Check Fuel. Re-fill fuel tank.	If Petrol or Diesel
	No Fuel	Open fuel tank ball valve or fuel solenoid tap	If Petrol or Diesel
	No or low water supply	Check water supply	If fitted with break tank and auto shut-down
	Float switch sticking	Check float switch in water tank	If fitted
	Emergency-Stop engaged	Disengage	If fitted
	Battery Isolator switch engaged	Disengage	If fitted
	Starter Isolator Switch engaged	Disengage	If fitted
	Pump oil level too low	Top up with SAE15W40 or SAE30	If fitted with low level switch
	Pump oil over temp	Allow to cool down	If fitted with oil over temp switch
	Boiler over temp	Allow to cool down	If fitted with over temp switch
	Timed by-pass shutdown	First switch off and then on again	Some electrical units
THE PUMP RUNS BUT DOES NOT PRODUCE NOISE OR PRESSURE	The pump is not primed and is running dry	Check if there is water in the suction line	
		Check if the gun is open	
		Check if nozzle is not blocked	
		Check that the valves are not blocked	
SHORT PLUNGER SEAL LIFE	Cavitation or air in the system	Check suction hose. Increase diameter size for bigger supply	
	Damaged ceramic plunger	Replace Plunger	
	Excessive pressure and/or temp in the pumped water	Check the temperature and pressure of inlet water	
SHORT BEARING LIFE	Problems with pump-motor connection	Check status of drive shaft keys, flexible coupling or pulley	
	The oil has not been changed regularly	Change oil as instructed in the maintenance schedule	
	Excessive pressure of pumped water	Check the pressure	
MACHINE RUNNING OKAY, BUT NOT REACHING SPECIFIED PRESSURE	Sucking air	Check Suction for Air Leaks	
	Valves Sticking	Remove – Clean – Replace	Check Water Quality
	Seat in Unloader Valve Worn/ By-Passing Water	Remove – Fit BPV Service Kit Or Exchange Valve	Probably Indicate Service Required
	HP Jet Wrong Size – Worn Out	Check – Replace	
	Worn Piston Plunger H.P. Seals	Check – Replace	Check Pistons for Cracks
	Pressure control valve not set right	Calibrate valve. Check seal seat	
	Low speed/rotation	Check motor revs and drive	
	Insufficient Water Supply	Check Available Water Supply. Clean Filters in Suction Line. Increase supply hose size	
FLUCTUATING PRESSURE	Valves Worn/Sticking	Remove – Clean – Replace	Check Water Quality
	Blockages/Debris in By-Pass Valve	Remove – Clean – Replace	Check Filters for damage
	Pump Sucking Air	Seal Suction	
	Jet too small	Check correct size and replace	
	Worn Piston HP Seals	Remove – Clean – Replace	Service Required

PSI LOW AFTER PERIOD OF USE	Fair Wear / Tear?	Check – Replace HP Jet	Check Recent Activity/Usage
	Suction/Delivery HP Outlet Valves Worn	Check – Replace	Therefore Check suction Filters
	Unloader Valve Worn	Replace as required	
	Piston Seals Worn	Replace as required	Check Big Ends for Piston Slap
	Piston Cracked	Replace as required	Check Big Ends for Piston Slap
	”O” Rings Failed/Leaking	Replace as required	
	”Big End” Worn	Replace as required	
	Drive Belts Loose (if belt driven)	Check / Tighten	
PUMP VERY “NOISY”	Air in Suction / Pump Cavitating	Identify Air Ingress/Seal	
	Problem with pump-motor connection	Check gearbox or coupling	
	Broken or Weak Suction Valve Spring	Check – Replace – As Set	
	Valves Clogged/Sticking	Check – Replace – As Set	
	Worn Main Crankshaft Bearings		Probably Uneconomical to Repair
	Inlet Water Temp over 75 deg Celsius	Reduce inlet Water Temp	Left in By-Pass for excessively long periods?
OIL IN PUMP EMULSIFIED/ CONTAMINATED BY WATER (water in the oil)	Piston to Crankcase Oil Seals Worn	Check and Replace	Look for Oil under Pump – Low Pump Oil
	Condensation from High Ambient Humidity	Replace oil more frequently	
	Piston Seals Worn/Cracked Piston	Check – Replace	
	Water Blasted into Pump via Breather Cap during Cleaning	Exercise Care	
WATER DRIPPING FROM UNDER PUMP (Between crankcase and manifold housing)	H.P. Piston Seals Worn or	Check and Replace Seal Pack	
	Worn Plunger	Replace Plunger	
	Worn Plunger Stop Seal	Replace Seal	
	“O” Rings in Plunger Retaining Bolt Worn	Check and Replace	
OIL DRIPPING FROM UNDER PUMP (Between crankcase and manifold housing)	Piston to Crankcase (Plunger Shaft) Oil Seals Worn	Check and Replace	Check Pump for Low Oil therefore “Big End” Damage
EXCESSIVE VIBRATION/ PULSATIONS IN HP DELIVERY LINE	Accumulator Failed	Check – Replace	
	Worn Seals (Wet end seals)	Replace if worn	
	Worn Plunger Seals	Replace if worn	
	In/Out Pump Valves Worn	Check – Replace	
	Valves full of scale/dirt	Clean or replace	
	Pistons Cracked	Check – Replace	
	Low Water Supply	Increase supply	
	Gudgeon Pin in Conrod Stretched	Check – Replace	
WATER FILTER MESH IS CRUSHED WHEN REPLACED	Incorrect replacement procedure on Grey NY126 Water Filters with Blue or Red mesh tube	First insert mesh tube tightly into the fixed black head of filter assembly and then screw on grey cover /cup tightly.	For small black filters, first insert mesh tube into cover /cup and then screw onto fixed part.

HOW TO CAUSE EXPENSIVE DAMAGE TO YOUR MACHINE

WHAT WAS DONE WRONG:	WHAT WAS THE RESULT OF THIS ACTION:
Machine was allowed to run dry (without water supply)	Cracked and burnt high pressure seals in pump. No. 1 piston cracked due to thermal shock.
Unit was run on low volume water supply and allowed to cavitate	**Mechanical damages to EVERYTHING:** - Pistol, HP hose, pump valves, pistons - Crankshaft bearing failure - Pressure gauge failure - By-pass valve excessive wear & tear - Frequent O-rings blow outs - Brass heads deformed
Over adjust by-pass valve to try and increase PSI	Dump pressure was too high. Hydraulic hammer to system every time trigger is closed. PSI was increased 5-fold normal working pressure.
In-Line filter was removed because "It kept blocking up!"	Excessive wear & tear on pistons / valves / seals / HP jets. Excessive blocking of filters caused by bore or recycled water with high salt / mineral content. Pump clogged up with debris. **Remember: Spec requirement says: "Potable water"**
Over-revved engine for more PSI	Engine & Pump premature wear & tear. (Most increased PSI pressure is lost through by-pass valve and only small increase in pressure is achieved doing this!) Lost of waster horse power!
COMMON MISTAKE: Put a smaller HP Jet onto lance for higher pressure.	When orifice is reduced, the PSI will rise and then by-pass valve will dump (thinking the pistol is shut). Most extra PSI will be dumped and only a slight increase in PSI will be achieved. Engine, By-pass valve & Pump premature wear & tear.
Using Contaminated Fuel ("Had to remove fuel filter to keep engine running!")	Excess Fuel-system clean-outs required. If excessive corrosion in carburetor or injectors is detected after the 2nd or 3rd in-line fuel filter replacement, then this should ring alarm bells.
Park machine where debris blows all over it. Reverse bulldozer over it.	Our machines are rugged and strong – but not battle tanks!
Hire units long-terms and fluid levels are not checked.	Con-rod through the crank case!
Modify 240 Volt electric unit to override thermal overload on motor.	Stop-Start capacitors melted.
Used 100m extension lead and a 5 Kva Gen-Set.	A 10% low current is equivalent to a 50% over-load. Our 3 hp 240 Volt motors require 8 Kva Gen-Set minimum!
Run trucks, fork-lifts, tracked excavation equipment over hoses and lance assemblies/pressure guns.	Needs replacing of damaged parts

Read WARNINGS & SAFETY INSTRUCTIONS before operating machine

HIGH PESSURE, HIGH VELOCITY WATER IS DANGEROUS!

GENERAL PRESSURE CLEANER WARNINGS AND SAFETY PRECAUTIONS

- When shutting down, always turn off machine, turn off water at the source and trigger the gun pointing the lance in a safe direction to release any in-line stored pressure - before disconnecting hoses or working on machine.
- Never aim high pressure water jet at anyone, at animals or at fragile items - injury or damage could result.
- **Always be aware of overhead cables, run-off water, slippery surfaces and by-standers!**
- Never allow untrained adults or minors use of the equipment.
- Never use the machine if there are any leaks on the high pressure delivery side of the pump.
- Read and observe the manufacturer's instructions if chemicals are being used.
- The “recoil” on larger machines is positive - lean forwards and brace yourself to take it up!!!
- **NEVER HIGH PRESSURE BLAST THE FOLLOWING:** any electrical components, motors / switchgear or electrical boxes as injury or death may result.
- Never water blast any fuel caps or oil caps and water can get into breather holes and contaminate fuel or water. Never blast water directly into seals / bearings on shafts where water penetration would be detrimental.
- **NEVER WATER BLAST**: fragile items / surfaces that may be damaged by high velocity water. Always carefully test on a small area first.
- **ALWAYS WEAR PROTECTIVE GEAR (PPE)** i.e. Head, face, eye protection, wet weather gear, boots and gloves - which is particularly important where hot water or aggressive chemicals are being used or where whet sandblasting is used.
- Keep hands, feet and hair away from all moving parts.
- Never leave machine running unattended.
- **EXTREME DANGER** - never adjust engine speed (RPM) or safety by-pass valve in an attempt to increase pressure!
- Barricade off immediate work area - restrict access - erect hazard warning signs.
- Never use high pressure water cleaner without protective canvas sheaths on operator end of high pressure hose as a high pressure leak can injure operator.
- In commercial / industrial sites class 'b' units (pressures over 5,000 PSI) should have additional operators allocated as safety observer / machine minder subject to work conditions / environment. This is a responsibility of the 'site occupier' to determine.
- If two / three operators are working they should be physically separated by partitions / barriers.
- Prior to high pressure water blasting, check location’s level of emergency /first aid.
- All machines are fitted with **MEDIC ALERT** tags. If a high pressure water injury occurs which need medical attention, pull off machine and give it to the medical practitioner to read

WARNINGS & SAFETY PRECAUTIONS SPECIFIC TO THIS MACHINE:

- Ensure machine is electrically tested and tagged in accordance with local regulations.
- Use only Clean / Fresh POTABLE Water - NOT Mine recycled water.
- Always be conscious of High Velocity Water from this machine which can cause serious injury
- Run up and test all safety shutdowns regularly i.e. Monthly.
- Never operate this machine off an electric outlet unprotected by RCD/Earth leakage device.
- NEVER attempt to modify levels of performance by:
    - ・ Adjusting By-Pass Valve to increase P.S.I.
    - Use Under-sized High Pressure Nozzles.
- **EXTREME DANGER**! Use Specified and approved Personal Protection Equipment (PPE) for High Pressure Cleaners. This is a High Performance High Pressure Cleaner. At a Minimum wear:
    - Overalls /boots /thick heavy gloves /full face protection.
    - Additional equipment as instructed by site personnel or Australian regulations for high pressure water jetting

An injury by high pressure water jets can be serious!

In the event of any waterjet injury:

- Seek medical attention immediately – do not delay
- Inform the doctor of the cause of the injury
- Show the doctor the MEDIC ALERT information in this document or by pulling the safety tag off the machine and taking it with you to the doctor
- Tell the doctor what type of project/task was being performed at the time of the injury making special note of any chemicals that were used and the quality of the water

MEDIC ALERT INFORMATION:

ALWAYS ENSURE MACHINE IS FITTED WITH A REMOVEABLE MEDICAL ALERT / WARNING TAG AND TAKE THIS TO A MEDICAL PRACTITIONER WHEN A HIGH PRESSURE WATER INJURY OCCURS.

MEDIC ALERT INFORMATION:

This patient may be suffering from a water-jet injury. Evaluation and management should parallel that of a gunshot injury. The external manifestations of the injury cannot be used to predict the extent of internal damage. Initial management should include stabilization and a thorough neurovascular examination. X-rays can be used to assess subcutaneous air and foreign bodies distant from the site of injury. Injuries to the extremities can involve extensive nerve, muscle, vessel damage, as well as cause a distal compartment syndrome. Injuries to the torso can involve internal organ damage. Surgical consultation should be obtained.

Aggressive irrigation and debridement is recommended. Surgical decompression and exploration may also be necessary. Angiographic studies are recommended pre-operatively if arterial injury is suspected. Bandages with a hygroscopic solution ($MgSO_4$) and hyperbaric oxygen treatment have been used as adjunctive therapy to decrease pain, edema and subcutaneous emphysema. Unusual infections with uncommon organisms in immuno-compromised patients have been seen; the source of the water is important in deciding on initial, empiric antibiotic treatment and broad-spectrum intravenous antibiotics should be administered. Cultures should be obtained.

THOROUGHCLEAN LIMITED WARRANTY

In order to take advantage of the ThoroughClean limited warranty, you must have maintenance performed according to the schedule (contained in the relevant owners manual supplied with this product), by an authorised ThoroughClean dealer or ThoroughClean service technician.
You are free to have your ThoroughClean product serviced by any suitably qualified mechanic or electrical (depending on the requirement mechanical or electrical) and this will not affect your statutory warranties, however, failure by the owner to have the recommended servicing carried out by an authorised ThoroughClean dealer means that you cannot take advantage of the ThoroughClean limited warranty.
In order to ensure your safety, we strongly recommend that you only use an authorised ThoroughClean dealer for servicing. Only authorised ThoroughClean Dealers have access to all of the special tools, technical information, parts and training required to maintain your ThoroughClean product in peak operating condition.
ThoroughClean warrants each new ThoroughClean Pressure Cleaner to be free from defects in material and workmanship under normal domestic and Industrial use and service for the period specified below, conditional to the limitations and exclusions printed on this page. This warranty applies only to new ThoroughClean pressure cleaners distributed in Australia by us and by our authorised ThoroughClean dealers.

LIMITED WARRANTY

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if goods fail to be of acceptable quality and the failure does not amount to a major failure.

The benefits to the consumer under this warranty are in addition to other rights and remedies of the consumer under a law in relation to the goods sold under warranty.

Warranty Period/s:

- 1 year ThoroughClean Manufacturer's Warranty on Build (Defects in material and workmanship)
- 5 year ThoroughClean Manufacturer's Warranty on Galvanized Frames and Galvanized Reel (Defects against rust & welding cracks)
- 12 months ThoroughClean Warranty on Pressure Pump (Note: Maintenance is not warranty. Excludes service and consumables required at scheduled maintenance intervals)
- 2-year Manufacturer's Warranty on Electric Motors
- 3-year HONDA GX Warranty on HONDA engines. Please see www.hondapowerequipment.com.au for details
- 3-year or 2000 hours Manufacturer's Warranty on KOHLER engines (whichever comes first) (See KOHLER Owners Manual and website for details)

Responsibility of the Consumer under this Limited Warranty:

- Only clean, potable water should be used through our pressure cleaners with a flow rate at least 15% more than the pump requirements (e.g. an 18 LPM pump requires at minimum a water supply of 21 LPM to prevent pump cavitation)
- Strict adherence to the maintenance daily checks and schedule with proof of scheduled maintenance service required by an authorised agent or qualified mechanic and/or electrician.
- Maintenance Services is not covered under warranty. (Warranty excludes normal maintenance and consumables like oil, nozzles, swivels, filter mesh, HP hose, guns, by-pass valves)
- It is the consumer's responsibility to deliver the machine in question to our service premises or to the premises of our appointed agent at the consumer's expense for replacement or repair as applicable.

Claim Procedure:

- Contact ThoroughClean by phone or e-mail informing us of your pressure cleaner's problem or defect.
- Once the extent of the claim has been assessed, we retain the right to compensate the consumer for such defect, or repair (pars & labour), or replace the machine under warranty.
- All warranties will be carried out by ThoroughClean authorised staff or appointed agents at a premises to be determined by the Manufacturer.
- It is the responsibility (and cost) of ThoroughClean or our appointed agent to return the machine to be repaired or replaced under warranty to the consumer – this is valid for Australian territories only.
- Where the specific warranty component (e.g. engine) is a Manufacturer's warranty other than ThoroughClean (e.g. HONDA), the consumer can either contact ThoroughClean or the applicable Manufacturer for repairs where such warranty was registered with that Manufacturer at purchase.
- Warranty calls will only be carried out during normal working hours and only by our representatives and not via client's choice of repairer. We will not accept back charges for any work not carried out by our representatives, or accept any charges due to equipment being un-operational for any reason even during its warranty period.

THIS WARRANTY WILL NOT APPLY TO:

- Any part/component that has been subject to misuse, negligence, accidental damage, improper or inadequate maintenance or improper storage.
- Any part that has been subject to misuse, negligence, accidental damage, improper or inadequate maintenance, or improper storage.
- Repair rendered necessary or arising from the use of parts or components other than approved by the manufacturer in writing.
- Normal maintenance, replacements of service and consumable items including but no limited to nozzles, seals, oil, guns, swivels, filters, by-pass valves and HP hose.
- Deterioration of any item due to normal use, fair wear and exposure unless due to a defect in material or workmanship.
- Any work or adjustment performed by persons other than authorized ThoroughClean service staff or authorized dealers or damage resulting there from.
- Any damage that results from operating methods other than those indicated in the owner's manual, or use beyond the limitations or specifications as published in the Specification Sheets of the particular model.

WARRANTY CONTACT INFORMATION:

Tel +61 (0) 7 5467 2025
Fax +61 (07) 5467 2026
service@thoroughclean.com.au
12 Ashburn Road, Bundamba, Queensland
4304, Australia

SERVICE & PART ORDERING

For service and ordering parts, please call 1300 378 872 or 07 5467 2025

Or your nearest ThoroughClean Distributor

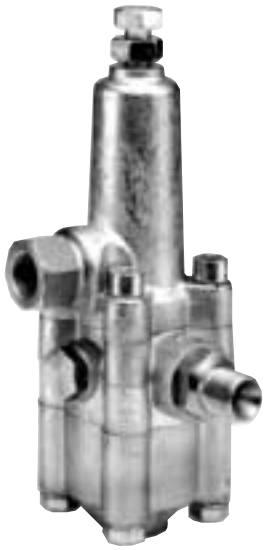
We have very knowledgeable, experienced staff to assist you with help and advice.

TERMS & CONDITIONS OF SALE:

1. Work for special build machines will not commence unless a 30% deposit has been made and/or official purchase order has been received.
2. The final configuration and optional extras are to be agreed to before manufacturing commences. An extra cost for changing a model will apply after manufacturing has started (if this change leads to extra manufacturing cost or more expensive/extra components) and be charged as a variation cost.
3. Ownership/title of all equipment remains the property of ThoroughClean until paid for in full. Warranty will only be available after this time.
4. Warranty is not service. Any calls placed to service equipment will be chargeable to the client. Earlier replacement of consumable parts than what is required by the maintenance schedule will be at the cost of the client (excluding of course any repairs/replacement of parts required under warranty). Please see the LIMITED WARRANTY information elsewhere in this document.
5. All Rental Spec and Mine Spec model frames will have a hot dip galvanized finish unless elsewhere agreed to in a proposal offered to the client. Industrial Spec frames will have a painted finish or galvanized finish – the latter usually at extra cost.
6. Any additional spares, service kits, nozzle kits, etc are excluded, unless otherwise mentioned in the proposal to the client.
7. Any extra installation and fitting expenses and all electrical or plumbing work required during installation will be at the cost of the client. It is the responsibility of the client to provide adequate pressured water supply of potable quality 15% more than the required flow of the pressure pump specification, and suitable power supply outlet for electrical units where applicable.
8. No responsibility will be taken for late delivery day due to unforeseen circumstances. Please regard building times for special builds and machines out of stock as estimates only.
9. Sale of this unit/s is on an FOB Bundamba, QLD basis unless otherwise agreed to in writing in this proposal and it is the responsibility of the client to insure goods in transit.
10. Our price quoted is valid for 30 days only unless stated otherwise elsewhere in the quote.
11. Where deposits have been paid on special builds, such deposits will in part or in full become non-refundable once building has started. Should a customer decide to cancel an order - all labour and a re-stocking and administration fee for components will be charged to the customer and the balance (if any) repaid to the customer. Any special non-restockable components will be invoiced to the customer.
12. All prices quoted are excluding GST and freight unless otherwise stated.
13. All prices quoted does not include installation (where applicable) or training unless otherwise stated.
14. Installation and training service of $90/h available in Brisbane Metro only. Other sites subject to additional travel cost.
15. IN NO EVENT SHALL THOROUGHCLEAN BE LIABLE FOR ANY INJURY, EXPENSES, PROFITS, LOSS OR DAMAGE, DIRECT, INCIDENTAL, OR CONSEQUENTIAL, OR ANY OTHER PECUNIARY LOSS ARISING OUT OF THE USE OR INABILITY TO USE ANY PRODUCT DESCRIBED IN THIS DOCUMENT.

K7 UNLOADER VALVE

K7.0 2.1 - 2.9 GPM @ 0 - 3000 PSI
K7.1 2.9 - 4.2 GPM @ 0 - 3000 PSI
K7.2 4.2 - 6.6 GPM @ 0 - 3000 PSI
K7.3 6.6 - 10.8 GPM @ 0 - 3000 PSI



Features all stainless and brass internal parts.
New design reduces sensitivity to entrapped air.
No external moving parts or springs.
Unique barb and flow balance design provides gradual pressure build-up when system is closed.
Eliminates high pressure in all lines while unit is in bypass mode.
Bypass restrictor eliminates pressure peaks during bypass.
Unique balanced piston design permits precise pressure adjustments.
Minimum 5% bypass required for operation.
Simple design for easy maintenance and service.
Adjusting knob is optional.

General Pump recommends using a safety relief device in conjunction with this unloader valve when installed on a positive displacement pump. General Pump is not liable and assumes no responsibility for this valve when used in a customer's high pressure system.

SPECIFICATIONS

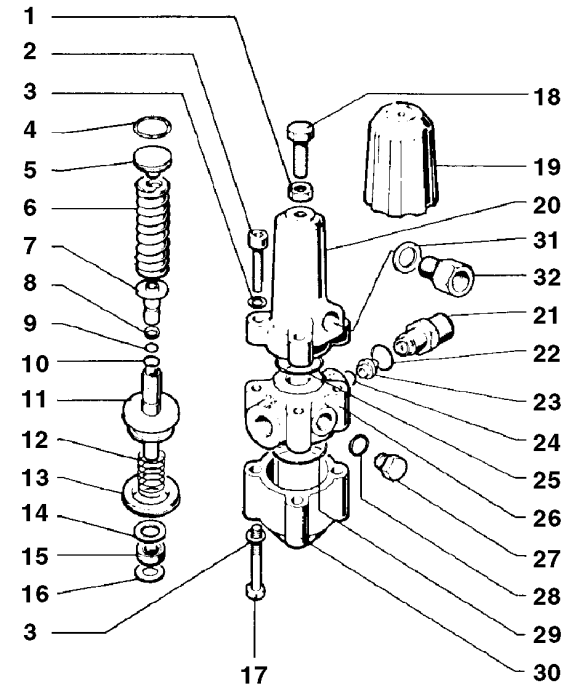
Part Number		ZK7.0	ZK7.1	ZK7.2	ZK7.3
Maximum Volume		2.1-2.9 GPM	2.9-4.2 GPM	4.2-6.6 GPM	6.6-10.8 GPM
Maximum Discharge Pressure		0-3000 PSI	0-3000 PSI	0-3000 PSI	0-3000 PSI
Max. Temperature		165°F	165°F	165°F	165°F
Port Sizes:	Inlet	3/8-19 BSPP - F	3/8-19 BSPP - F	3/8-19 BSPP - F	3/8-19 BSPP - F
	Bypass	3/8-19 BSPP - F	3/8-19 BSPP - F	3/8-19 BSPP - F	3/8-19 BSPP - F
	Outlet	3/8-19 BSPP - M	3/8-19 BSPP - M	3/8-19 BSPP - M	3/8-19 BSPP - M
Dimensions		7.50 x 3.75 x 3.50 in.	7.50 x 3.75 x 3.50 in.	7.50 x 3.75 x 3.50 in.	7.50 x 3.75 x 3.50 in.
Weight		4.5 lb.	4.5 lb.	4.5 lb.	4.5 lb.

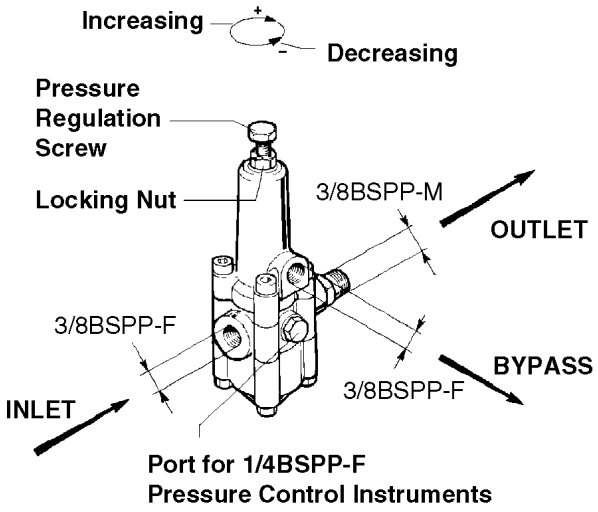
GENERAL PUMP

PARTS LIST

K7 Unloader Valve

NO.	PART NO.	DESCRIPTION	KIT NO.	QTY.
1.	92.2368.00	Nut		1
2.	99.3084.00	Screw		4
3.	96.7014.00	Washer		8
4.	90.3849.00	O-Ring	70	1
5.	36.3095.70	Spring Plate		1
6.	94.7466.00	Spring		1
7.	36.3094.66	Seat Valve	70	1
8.	90.5052.00	Anti-Extrusion Ring	70	1
9.	90.3820.00	O-Ring	70	1
10.	90.3582.00	O-Ring	70	1
11.	36.3097.02	Piston Assembly	70	1
12.	94.7464.00	Spring	70	1
13.	90.2766.00	Packing	70	1
14.	96.7215.00	Washer		1
15.	90.2565.00	Packing	70	1
16.	90.5063.00	Anti-Extrusion Ring	70	1
17.	99.3127.00	Screw		4
18.	99.3663.00	Screw		1
19.	36.3098.02	**Optional** Adjust. Knob		1
20.	36.3090.41	Upper Body		1
21.		Nipple		1
	10.0078.70	**K7.0**, 3/8 BSPP, Ø3.0 mm		
	10.0078.70	**K7.1**, 3/8 BSPP, Ø3.0 mm		
	10.0160.70	**K7.2**, 3/8 BSPP, Ø3.25 mm		
	10.0161.70	**K7.3**, 3/8 BSPP, Ø3.5 mm		
22.	90.3833.00	O-Ring	70	1
23.		Nozzle		1
	10.0076.66	**K7.0**, Ø2.2 mm		
	10.0077.66	**K7.1**, Ø2.5 mm		
	10.0162.66	**K7.2**, Ø2.75 mm		
	10.0163.66	**K7.3**, Ø3.0 mm		
24.	90.3823.00	O-Ring	70	1
25.	90.3863.00	O-Ring	70	1
26.	36.3091.41	Central Body		1
27.	98.2041.00	Cap Screw		2
28.	90.3585.00	O-Ring	70	2
29.	90.3871.00	O-Ring	70	1
30.	36.3092.41	Lower Body		1
31.	96.7380.00	Washer		1
32.		Nipple		1
	36.3117.70	**K7.0**, 3/8 BSPP		
	36.3116.70	**K7.1**, 3/8 BSPP		
	36.3118.70	**K7.2**, 3/8 BSPP		
	36.3119.70	**K7.3**, 3/8 BSPP		
Repair Kit 70				
Includes No.'s:		4, 7, 8, 9, 10, 11, 12, 13, 15, 16, 22, 24, 25, 28, 29		



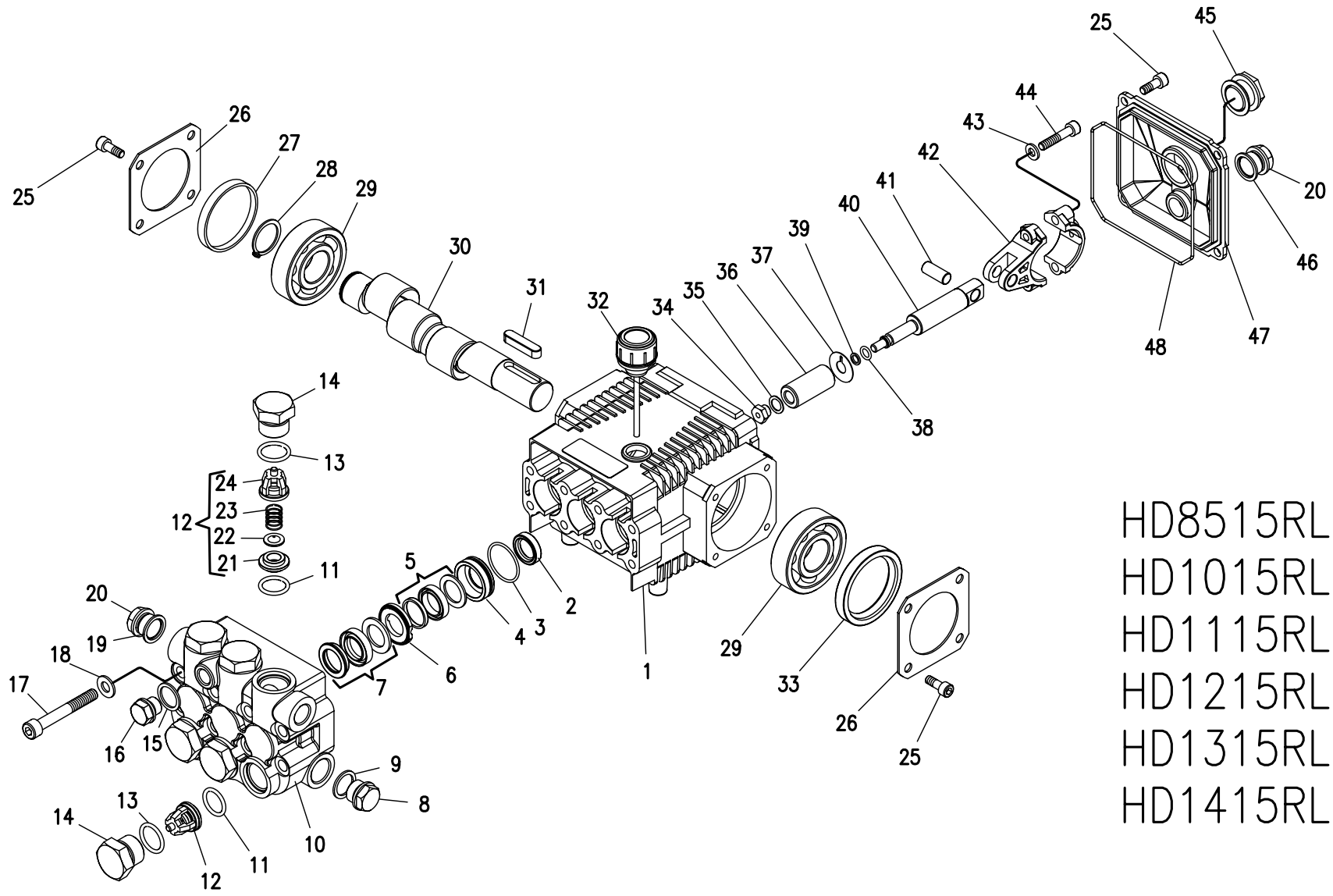


INSTALLATION

Select an unloader appropriate for the pressure and flow of your system (see specification chart). This unloading valve is a flow-through design and should be mounted on the discharge line of the pump in any position (horizontal or vertical) which allows easy access to the adjusting bolt. A pressure gauge should be installed on either side of the port of the unloader to accurately read pressure during adjustment. **Minumum 5% bypass is required for proper operation.**

WARRANTY

General Pump accessories are warranted by the manufacturer to be free from defects in material and workmanship Period of warranty shall be 90 days from date product is received by original buyer. Liability of manufacturer under the foregoing warranty is limited to **repair or replacement** at the option of manufacturer of that product which according to the manufacturer's investigation was deemed defective at time of shipment. Damage resulting from neglect, abuse, tampering or misapplication voids this warranty. This warranty is in lieu of all other warranties, expressed or implied, including any warranty of merchantability and/or any and all other obligations or liabilities on the part of the manufacturer.



HD8515RL
HD1015RL
HD1115RL
HD1215RL
HD1315RL
HD1415RL

HAWK pumps

HD series

Caratteristiche Tecniche

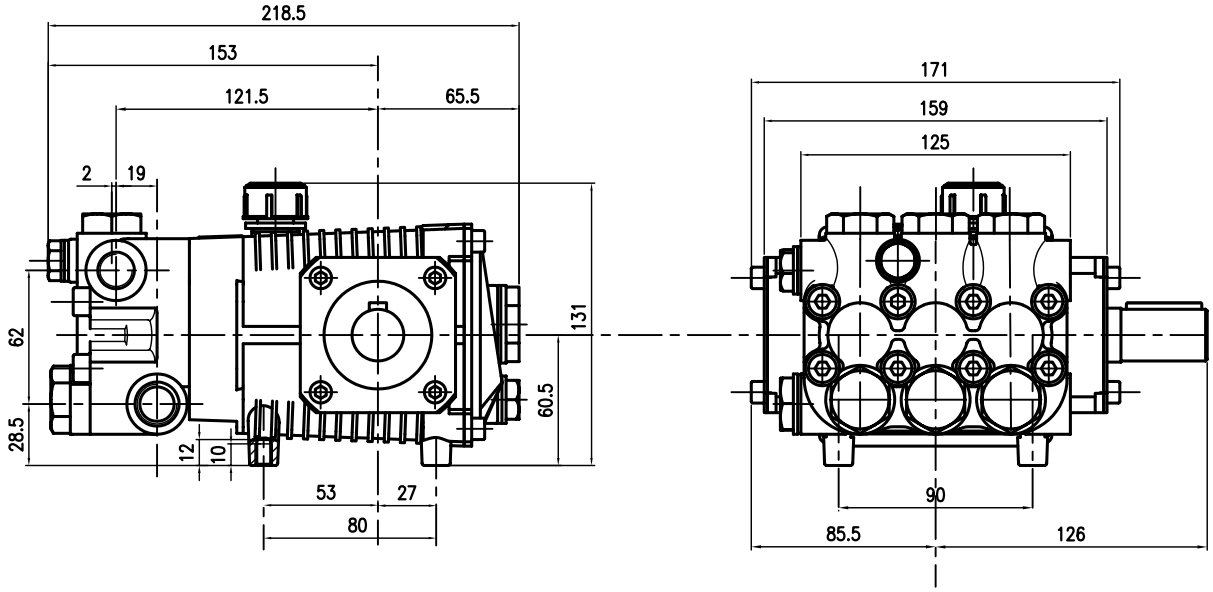
HAWK HD SERIES

Technical Characteristics

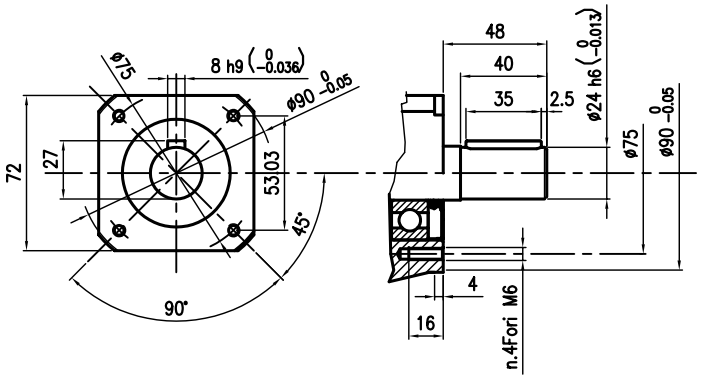
Pump Pompe Pumpen Pompa	Pressure Pression Druck Pressione		Volume Débit Leistung Portata		RPM tours/min u.p.m. giri/min	Required HP Puissance HP Leistung HP Potenza HP	Inlet port Entrée Eingang Aspirazione	Outlet Sortie Ausgang Mandata
	bar	PSI	l/min	GPM				
HD8515	150	2200	8.5	2.2	1450	3.2	G 1/2	G 3/8
HD1015	150	2200	10.0	2.6	1450	3.8	G 1/2	G 3/8
HD1115	150	2200	11.0	2.9	1450	4.4	G 1/2	G 3/8
HD1215	150	2200	12.0	3.1	1450	4.6	G 1/2	G 3/8
HD1315	150	2200	13.0	3.4	1450	4.9	G 1/2	G 3/8
HD1415	150	2200	14.0	3.7	1450	5.4	G 1/2	G 3/8

Dimensioni d' ingombro

Overall dimensions



HD8515–HD1015–HD1115–HD1215–HD1315–HD1415



Lubrificazione: Olio SAE 20/40W
Capacità 0.4 Litri

Lubrication: SAE 20/40W Oil
Capacity 0.4 Litri

Pos. Item	*Codice* Part Number	Description	*Descrizione*	*Q.tà/Pompa* Q.ty/Pump	HD8515RL	HD1015RL	HD1115RL	HD1215RL	HD1315RL	HD1415RL
1	0202.92	Crankcase	*Carter*	1						
***2**	0001.05	Plunger oil seal	*Anello radiale*	3						
***3**	0601.81	"O" Ring Ø1.78x28,30	*"O" Ring Ø1.78x28,30*	3						
***4**	1201.41	Pressure ring 18mm	*Pressore Ø18*	3						
***5**	0002.51	"U" seal, dia.18mm	*Anello tenuta "U" Ø18*	3						
***6**	0300.63	Intermed. ring 18mm	*Diffusore Interm. Ø18*	3						
***7**	0002.50	"U" seal, dia.18mm	*Anello tenuta "U" Ø18*	3						
***8**	1601.20	Brass plug G1/2	*Tappo G1/2*	1						
***9**	0603.07	Copper washer 1/2	*Guarnizione rame G1/2*	1						
***10**	1602.28	Manifold housing	*Testata*	1						
***11**	0601.55	"O" Ring Ø1.78x15.54	*"O" Ring Ø1.78x15.54*	6						
***12**	3604.73	Valve assembly	*Valvola premontata*	6						
***13**	0601.22	"O" Ring Ø2.62x18.77	*"O" Ring Ø2.62x18.77*	6						
***14**	1601.47	Valve plug	*Tappo valvola*	6						
***15**	0603.08	Copper washer 1/4	*Guarnizione rame G1/4*	1	■	■	■	■	■	■
***16**	1601.21	Brass plug G1/4	*Tappo G1/4*	1						
17	1801.18	Manifold stud bolt	*Vite M8x60*	8						
18	1400.01	Washer	*Rosetta Ø8.5*	8						
***19**	0603.06	Copper washer 3/8	*Guarnizione rame G3/8*	1						
***20**	1601.17	Brass plug G3/8	*Tappo G3/8*	2						
21	1503.28	Valve seat	*Sede valvola*	6						
22	1202.00	Valve plate	*Piattello valvola*	6						
23	0900.30	Valve spring	*Molla valvola*	6						
24	0604.10	Valve cage	*Gabbia valvola*	6						
25	1801.12	Screw	*Vite M6x16*	12						
26	0203.18	Bearing cover	*Coperchio cuscinetto*	2						
27	0205.02	Bearing seal	*Cappellotto cuscinetto*	1						
28	1500.03	Snap ring	*Anello Ø25*	1						
29	0213.00	Ball bearing	*Cuscinetto a sfere*	2						
30	0006.05	Crankshaft	*Albero eccentrico*	1						■
	0006.06	Crankshaft	*Albero eccentrico*	1	■					
	0006.08	Crankshaft	*Albero eccentrico*	1		■				
	0006.10	Crankshaft	*Albero eccentrico*	1			■			
	0006.11	Crankshaft	*Albero eccentrico*	1				■		
	0006.12	Crankshaft	*Albero eccentrico*	1					■	
31	0206.04	Crankshaft key	*Chiavetta*	1						
32	1600.12	Oil dip stick	*Tappo livello olio*	1						
33	0001.10	Crankshaft seal	*Anello radiale*	1						
***34**	0302.11	Plunger nut	*Dado pistone*	3						
***35**	1400.06	Copper spacer	*Rosetta Ø 9,2/13,5x0,5*	3						
***36**	1200.22	Plunger 18mm	*Pistone Ø18*	3						
***37**	1400.27	Copper spacer	*Rosetta rame*	3						
***38**	0601.30	"O" Ring Ø1.78x5.28	*"O" Ring Ø1.78x5.28*	3						
***39**	0009.13	Teflon ring	*Anello antiestrusione*	3						
***40**	0003.20	Plunger rod	*Asta pistone*	3	■	■	■	■	■	■
***41**	1502.04	Connecting rod pin	*Spinotto*	3						
***42**	0100.08	Connecting rod	*Biella completa*	3						
***43**	1401.02	Spring washer	*Rosetta elastica Ø6*	6						
***44**	1801.32	Connecting rod screw	*Vite M6x30*	6						
45	0700.05	Sight glass	*Spia livello olio G3/4*	1						
46	0603.02	Gasket	*Guarnizione G3/8*	1						
47	0203.52	Crankcase cover	*Coperchio*	1						
48	0601.04	"O" Ring Ø2.62x107.62	*"O" Ring Ø2.62x107.62*	1						

		Part available in kit only / ***Particolare disponibile solo in kit***
*		**Part available in kit also** / ***Particolare disponibile anche in kit***

SPARE PARTS KIT — *KIT RICAMBI*

Posizioni *Item*	Part Number & Description	*Codice e Descrizione*	*Q.tà/Pompa* Q.ty/Pump	HD8515RL	HD1015RL	HD1115RL	HD1215RL	HD1315RL	HD1415RL
3- 5- 7	2600.44 Plunger Seals 18 mm	*2600.44* *Guarnizioni pistone Ø18*	1	■	■	■	■	■	■
3- 4- 5- 6- 7	2600.43 Complete seal Packing 18 mm	*2600.43* *Pacco completo* *Guarnizioni pistone Ø18*	3						
34- 36- 37- 38 39	2614.05 Plunger 18 mm	*2614.05* *Pistone Ø18*	3						
11- 12- 13	2600.28 Complete Valve	*2600.28* *Valvola completa*	1						
2	2608.26 Plunger oil Seals	*2608.26* *Anelli tenuta olio Asta*	1						
3- 4- 5- 6- 7- 8- 9 10- 11- 12- 13 14- 15- 16- 19 20	2612.39 Complete Manifold	*2612.39* *Testata completa*	1						
38- 39- 40- 41 42- 43- 44	3100.20 Conn.rod-plun.rod assy (HD)	*3100.20* *Premontato biella-asta HD*	3						

Caratteristiche Tecniche

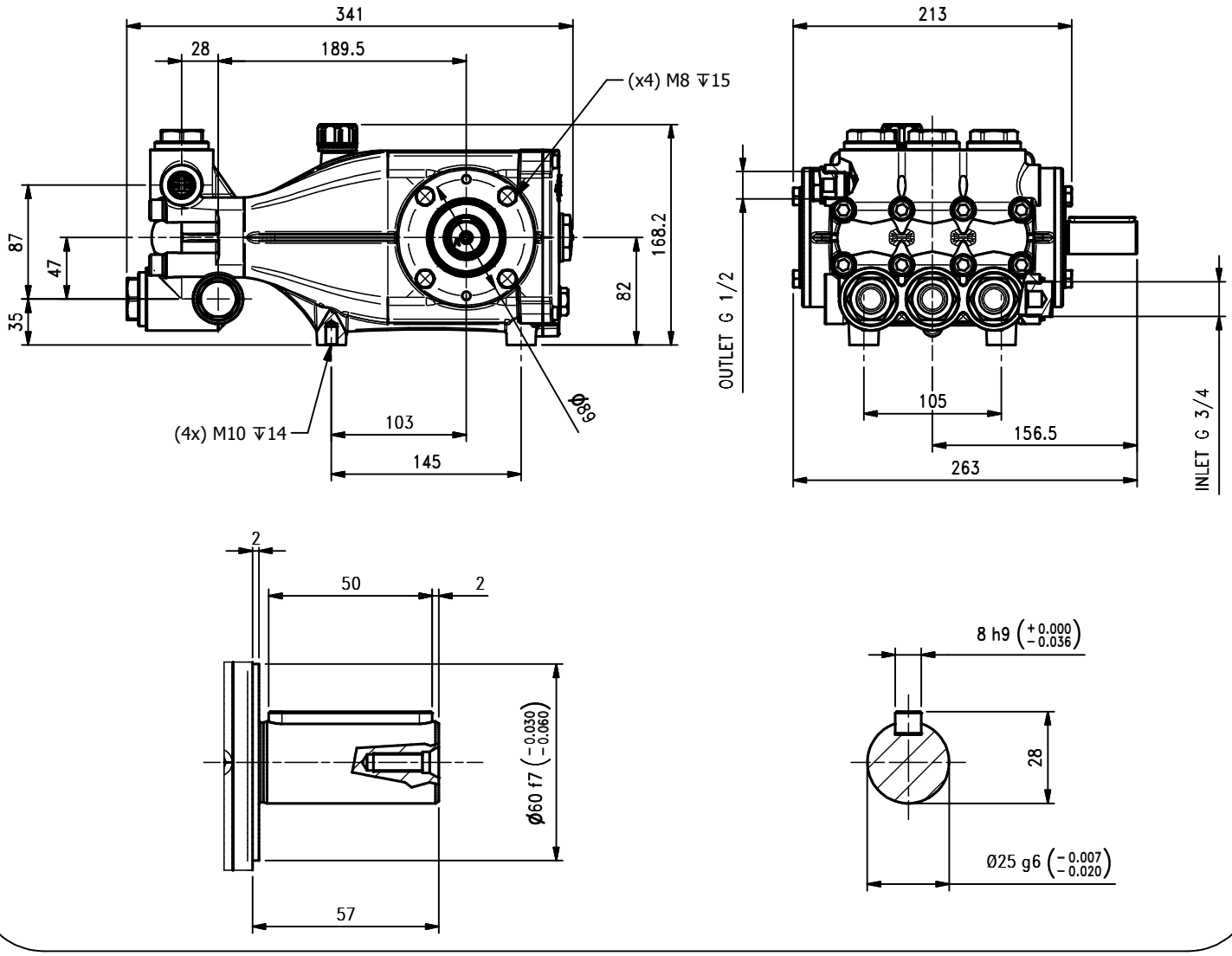
XLT 2011
(vers. Ø25)

Technical Characteristics

Pump Pompa	Pressure Pressione		Volume Portata				RPM giri/min		Power Potenza			
			l/min		GPM				HP		kW	
	bar	PSI	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
XLT3020S	200	2900	30	36	7.9	9.5	1000	1200	15.6	18.7	11.5	13.8
XLT3816S	160	2320	38	46	10	12	1000	1200	15.9	19.0	11.7	14.0
XLT1830	300	4350	18	22	4.8	5.8	1450	1740	13.7	16.4	10.1	12.1
XLT2230	300	4350	22	26	5.8	7	1450	1740	16.6	19.9	12.2	14.6
XLT2520	200	2900	25	30	6.6	7.9	1450	1740	12.8	15.4	9.4	11.3
XLT2530	300	4350	25	30	6.6	7.9	1450	1740	19.2	23.0	14.1	16.2
XLT2730	300	4350	27	32	7.1	8.5	1450	1740	20.5	24.6	15.1	18.1
XLT3020	200	2900	30	36	7.9	9.5	1450	1740	15.5	18.6	11.4	13.7
XLT3025	250	3625	30	36	7.9	9.5	1450	1740	19.3	23.2	14.2	17.0
XLT3325	250	3625	33	40	8.7	10.4	1450	1740	21.4	25.7	15.7	18.8
XLT3517	170	2465	35	42	9.2	11	1450	1740	15.2	18.2	11.2	13.4
XLT4014	140	2030	40	48	10.6	12.7	1450	1740	14.0	16.8	10.3	12.4
XLT4017	170	2465	40	48	10.6	12.7	1450	1740	17.0	20.4	12.5	15.0
XLT4317	170	2465	43	52	11.4	13.7	1450	1740	19.1	22.9	14.1	16.9
XLT5015	150	2175	50	60	13.2	15.8	1450	1740	18.8	22.6	13.8	16.6
XLT5415	150	2175	54	65	14.3	17.2	1450	1740	21.2	25.4	15.6	18.7

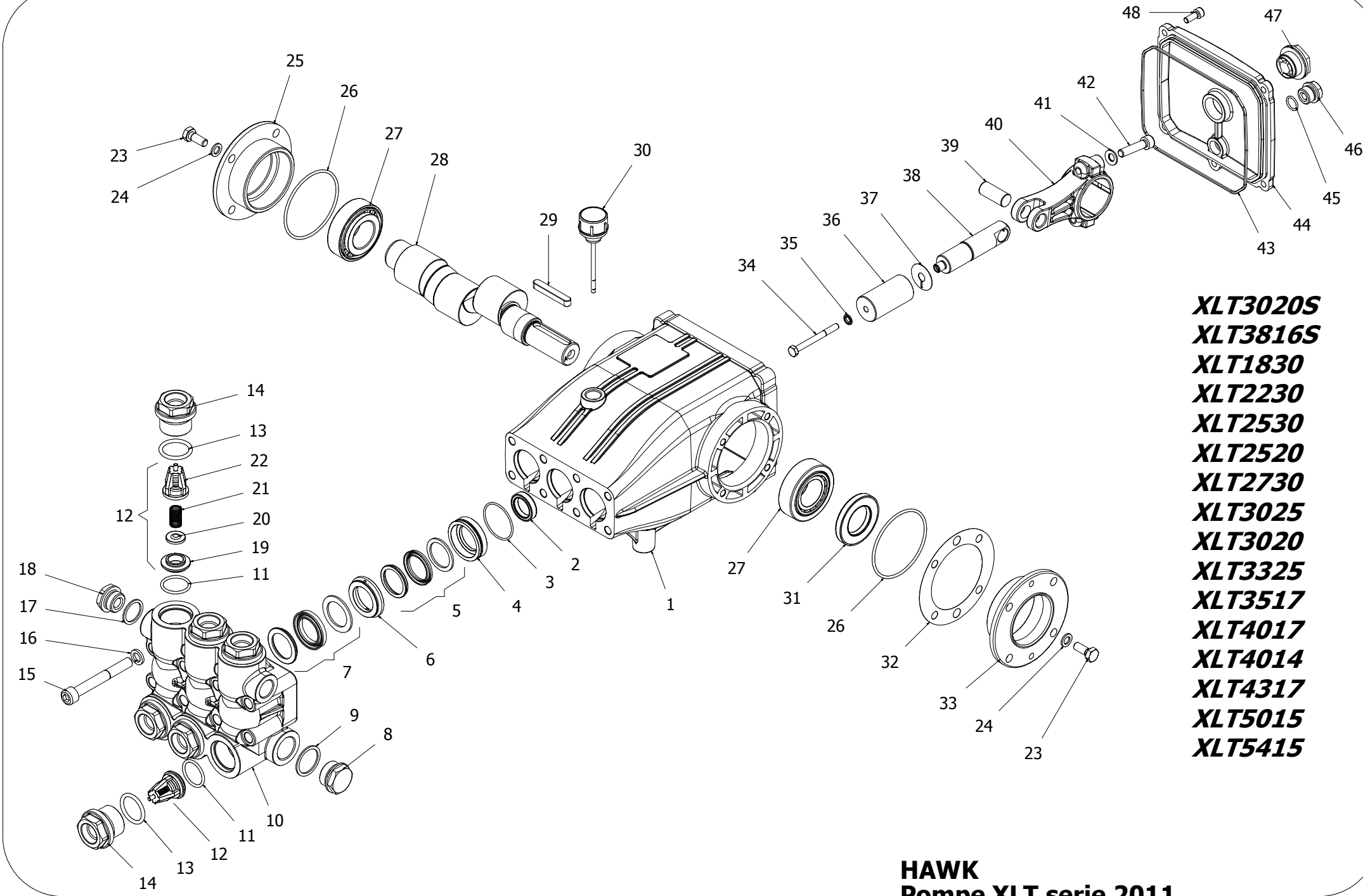
Dimensioni d'ingombro

Overall dimensions



Lubrificazione: Olio SAE 10W40
Capacità: 1.2 Litri
Peso pompa: 17.2 Kg

Lubrication: SAE 10W40 Oil
Capacity: 1.2 Litres
Weight: 17.2 Kg



XLT3020S
XLT3816S
XLT1830
XLT2230
XLT2530
XLT2520
XLT2730
XLT3025
XLT3020
XLT3325
XLT3517
XLT4017
XLT4014
XLT4317
XLT5015
XLT5415

HAWK
Pompe XLT serie 2011
XLT pumps 2011 series

SPARE PARTS KIT

XLT 2011

Item	Part Number & Description	Q.ty Pump	XLT3020S	XLT3816S	XLT1830	XLT2230	XLT2530	XLT2520	XLT2730	XLT3025	XLT3020	XLT3325	XLT3517	XLT4017	XLT4014	XLT4317	XLT5015	XLT5415
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			◆	◆	◆	◆	◆	◆	◆	◆						
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/Pump	XLT3020S	XLT3816S	XLT1830	XLT2230	XLT2530	XLT2520	XLT2730	XLT3025	XLT3020	XLT3325	XLT3517	XLT4017	XLT4014	XLT4317	XLT5015	XLT5415
***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	◆	◆									◆	◆	◆	◆	◆	◆
	0601.18	"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	0006.35	Crankshaft Ø25	1			◆													
	0006.33	Crankshaft Ø25	1				◆							◆					
	0006.34	Crankshaft Ø25	1					◆	◆		◆	◆			◆	◆		◆	
	0006.26	Crankshaft Ø25	1	◆	◆					◆			◆				◆		◆

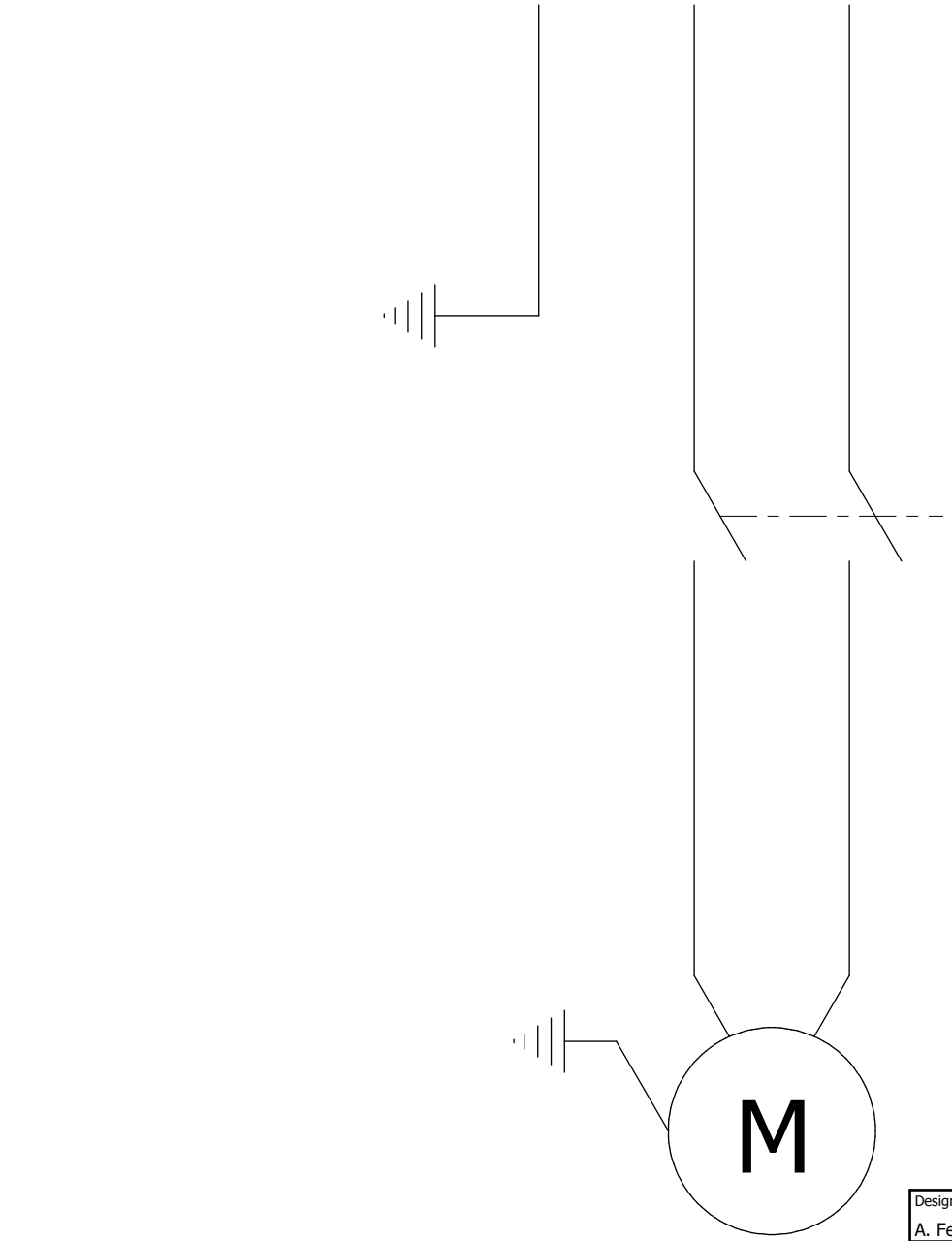
PARTS LIST

XLT 2011

Item	Part Number	Description	Q.ty/Pump	XLT3020S	XLT3816S	XLT1830	XLT2230	XLT2530	XLT2520	XLT2730	XLT3025	XLT3020	XLT3325	XLT3517	XLT4017	XLT4014	XLT4317	XLT5015	XLT5415
29	0206.05	Crankshaft key	1																
30	1600.16	Oil dip stick	1																
31	0001.00	Cranckshaft seal	1																
32	0301.00	Shim	1	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
33	0500.53	Bearing housing	1																
***34**	1802.23	Plunger bolt	3																
***35**	1408.13	Bonded seal	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	0203.60	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**



Designed by	Checked by	Approved by	Date		Date	
A. Ferero					3/11/2011	

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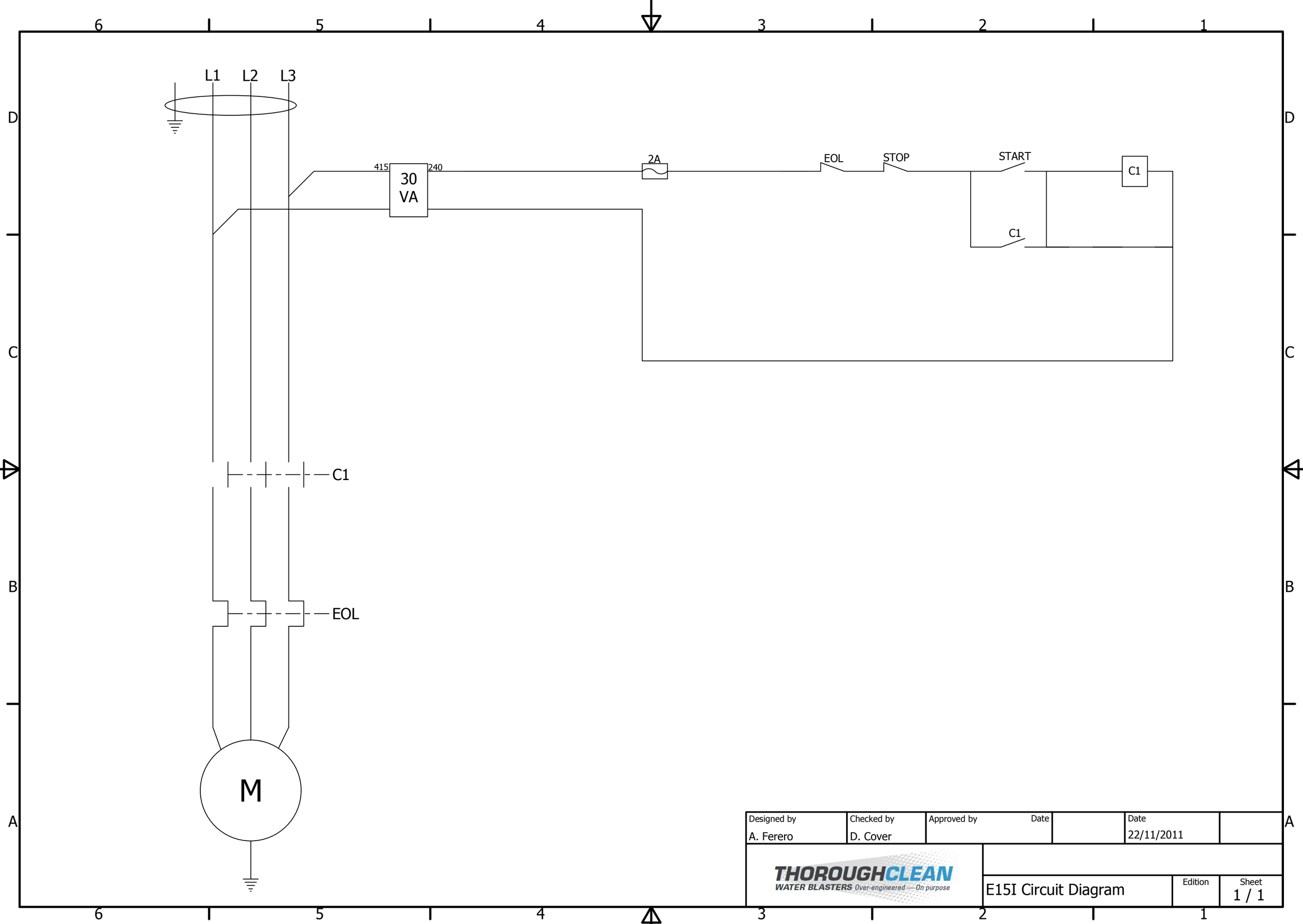
WATER BLASTERS Over engineered On purpose

E3R-22C Circuit Diagram

Edition	Sheet
	1 / 1



Designed by	Checked by	Approved by	Date		Date	
A. Ferero	D. Cover				22/11/2011	

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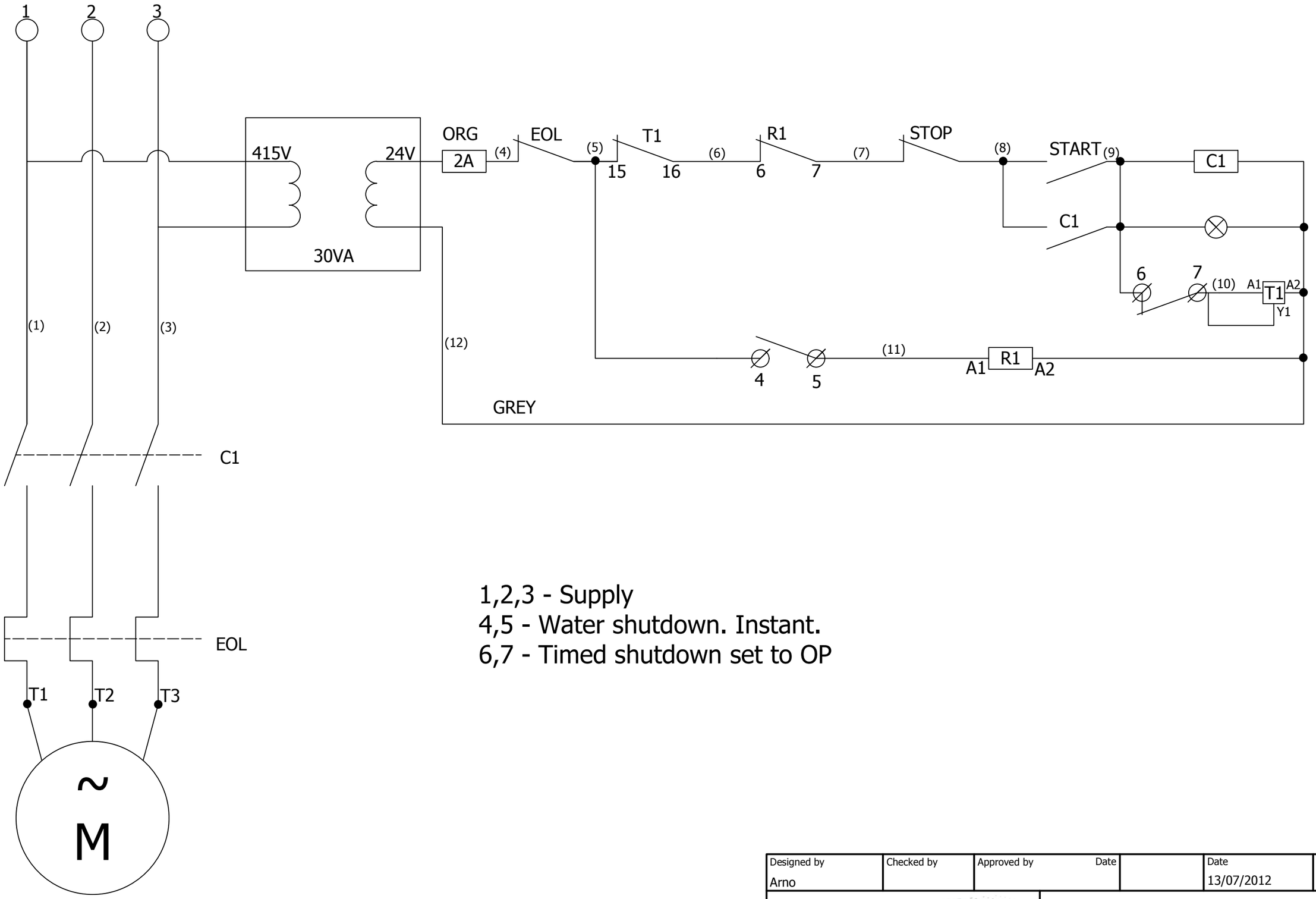
WATER BLASTERS Over-engineered — On purpose

E15I Circuit Diagram	Edition	Sheet
		1 / 1



1,2,3 - Supply
4,5 - Water shutdown. Instant.
6,7 - Timed shutdown set to OP

Designed by	Checked by	Approved by	Date		Date	
Arno					13/07/2012	

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E15R Circuit Diagram (EOL)	Edition	Sheet
		1 / 1