Instruction Sheet
PowaPak™
Air Power Console
AU - Air Ultra
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<th>PAGE</th>
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</tbody>
</table>
SECTION 1
INTRODUCTION

1.1 Product:
This pneumatic – hydraulic pump system is designed for use with Hydratight hydraulic torque equipment; the pump system has been optimised to torque tighten or break loose any application within a minimal time frame while still maintaining a safe and reliable product.

1.2 Components:
Listed below are some of the key components and assemblies used in this system.

The key items are:

- Air motor.
- Exhaust silencer.
- Drive shaft & housing assembly.
- Hydraulic radial piston elements.
- Pneumatically activated directional control valve.
- Adjustable pressure relief valve.
- 690bar (10000psi) Pressure gauge.
- Remote pendant.
- Enclosure frame.
- Air filter - regulator and lubrication set including gauge.
- Return line filter.
- Heat exchanger.

1.3 Principle of operation:
An air driven motor produces rotation to a drive shaft; the drive shaft in turn rotates and reacts with three radial piston-pumping elements. Oil flow is dictated by the speed of the motor shaft. The first stage piston-pumping element produces high flow at low pressure; the second stage piston-pumping element produces lower flow for medium pressure and finally the third piston-pumping element produces low flow for high pressure. The flow to the torque wrench is controlled via a directional control manifold block, fitted with a solenoid valve. A handheld operators pendant controls the system operation and function.

1.4 Training:
Anyone who uses and operates this system must be suitably competent, if in doubt contact Hydratight for training information and schedules.

1.5 Safety:
Although the pump system has been designed with operator safety in mind, the system itself still requires the operator to be vigilant upon use, therefore ensure that all the following safety instructions (See Section2) have been read and understood! Contact Hydratight if in doubt.
SECTION 2
SAFETY

Read all instructions, warnings, and cautions carefully. Follow all safety precautions to avoid personal injury or property damage during system operation. Hydratight Limited cannot be held responsible for damage or injury resulting from unsafe use, lack of maintenance or incorrect product and/or system operation. Contact Hydratight Limited if in doubt as to the safety precautions and operations. Failure to comply with the following cautions and warnings could result in equipment damage and personal injury.

Eye protection must be worn when using this equipment.

Gloves must be worn when using this equipment.

Ear protection must be worn, SEE SECTION 3 “Specification”

System must be at zero pressure before disconnecting couplings. Check integrity of connections before applying any hydraulic pressure.

Do not apply hydraulic pressure to non-connected fittings.

Do not unscrew any nipples, couplings or fittings under hydraulic pressure.
SECTION 2
SAFETY

Place the pump on a secure flat surface.

Avoid sharp bends and kinks when routing the hydraulic hoses.

Never leave the system unattended when under pressure.

When the system is under hydraulic pressure **DO NOT STAND IN LINE** with the direction of the force on the fastener. This is a danger area. Keep this area clear of personnel at all times!

Ensure the hydraulic pressure gauge has a valid calibration certificate.

Do not handle pressurised hydraulic hoses.

Only use hydraulic hoses and fittings pressure rated to this system.
SECTION 2
SAFETY

Ensure that the pump motor is **not** kept under load for excessive periods of time, as this will generate excess heat. Monitor the tank reservoir temperature and do not let the oil temperature exceed 80 degrees “C”.

Any hoses, couplings, or fittings connected to this system must be clean and free from debris - contamination.

Ensure the pneumatic source is adequate for the pump system. SEE SECTION 3 “Specification” for pneumatic source requirements.

Care should be taken when adjusting the main pressure valve after the pump system has been running for a long period of time as the directional control manifold block and surrounding areas can become hot “dependant on duty cycle”. Gloves should always be worn when operating this equipment.

To help prevent pump failure, check reservoir fluid prior to operation.

Lifting of this product must be done via M10 Eyebolt in centre of Pump. **Under no circumstances should this product be carried – moved or transported by crane via the frame. Lifting by slings via the frame is also prohibited.**
## SECTION 3
### SPECIFICATION

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air Motor</strong></td>
<td>3.0kW (4hp)</td>
</tr>
<tr>
<td><strong>Hydraulic Pump Output (Stage1)</strong></td>
<td>7.5lpm (1.6gpm) &gt; 80bar (1160psi)</td>
</tr>
<tr>
<td>(Stage2)</td>
<td>3.8lpm (0.8gpm) &gt; 290bar (4205psi)</td>
</tr>
<tr>
<td>(Stage3)</td>
<td>1.0lpm (0.2gpm) &gt; 690bar (10000psi)</td>
</tr>
<tr>
<td><strong>Max Pressure Output “Port A”</strong></td>
<td>690bar (10000psi)</td>
</tr>
<tr>
<td><strong>Max Pressure Output “Port B”</strong></td>
<td>110bar (1595psi)</td>
</tr>
<tr>
<td><strong>Pneumatic Source Input Requirements</strong></td>
<td>5bar (72psi) @ 1700lpm (374gpm)</td>
</tr>
<tr>
<td><strong>Hydraulic Oil Classification</strong></td>
<td>ISO VG15 to 68 &amp; Biodegradable “SEE SECTIONS 6 &amp; 9.1” Pressure Fluids</td>
</tr>
<tr>
<td><strong>Ambient Start-up Temperature</strong></td>
<td>-20°C (-4°F) to 40°C (104°F)</td>
</tr>
<tr>
<td><strong>Max Ambient Temperature</strong></td>
<td>64 °C (147°F)</td>
</tr>
<tr>
<td><strong>Maximum Oil Reservoir Capacity</strong></td>
<td>10.0 Litres (2.2Gallons UK)</td>
</tr>
<tr>
<td><strong>Oil Reservoir Minimum Fill Capacity</strong></td>
<td>7.0 Litres (1.5Gallons UK)</td>
</tr>
<tr>
<td><strong>Overall Height</strong></td>
<td>466.0MM (18.34In)</td>
</tr>
<tr>
<td><strong>Diameter</strong></td>
<td>Ø375.0MM (Ø14.76In)</td>
</tr>
<tr>
<td><strong>Complete Pump System Weight</strong></td>
<td>37KG (81.5 lbs) <em>(aluminium system without oil)</em></td>
</tr>
<tr>
<td></td>
<td>44KG (97.0 lbs) <em>(aluminium system with oil)</em></td>
</tr>
<tr>
<td></td>
<td>39KG (86.0 lbs) <em>(stainless system without oil)</em></td>
</tr>
<tr>
<td></td>
<td>46KG (101.4 lbs) <em>(stainless system with oil)</em></td>
</tr>
<tr>
<td><strong>Hand Held Control Pendent Length</strong></td>
<td>6.0M (19.6ft) “Standard” <em>(Other Lengths Available)</em></td>
</tr>
<tr>
<td><strong>Noise Level</strong></td>
<td>82db – 86db (standard cycle) operator protection levels should be calculated using this and background noise levels. Operator exposure times calculated accordingly.</td>
</tr>
</tbody>
</table>
SECTION 4
PRE START-UP CHECKS

4.1 Oil Reservoir:
Check oil level in reservoir. If required, fill the oil reservoir via the filler point until oil is seen in the sight “bubble” glass. Do not remove the oil filler catcher when filling. Fill the reservoir with clean mineral oil or appropriate equivalent oil; see “SECTIONS 6 & 9.1 PRESSURE FLUIDS” for suitable oils. Replace the filler cap when completed. In operation do not let the oil level fall below the sight “bubble” glass level.

4.2 Pneumatic Supply:
Check the correct pneumatic supply has been sourced and matches that of the pump system requirements. See “SECTION 3 SPECIFICATION”. After connecting to air source, check and if required set the input air pressure via the regulator. Pull cap and adjust regulator “clockwise” to increase air pressure. Snap cap down when finished.

MAX AIR PRESSURE INPUT 10.0bar (145psi)

4.3 Pneumatic Connection:
If the power pack is located some distance from the supply compressor, ensure the supply hose – piping is kept as short as possible to avoid pressure drops, ensure the bore size of the hose – piping is adequate for the volumetric pump requirement. See “SECTION 3 SPECIFICATION”.

AIR INLET ½”BSP
4.4 Air Lubrication:
Check and fill if required the air lubrication bowl, note minimum and maximum oil fill level markings on bowl. Use ISOVG10 – 32, set the drip frequency for a minimum of two drips per minute. In cold conditions the drip rate should be increased to help avoid the air motor freezing up. Do not run the system without lubrication.

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Filling, and Topping up
Initial fill will be quicker if the bowl is removed (see above) by screwing ¼ turn anticlockwise. Top up and replace bowl. For final top up, the screw can be removed, and oil poured in gently until full, then the screw can be replaced. Note: The screw indicated above can be removed and the unit topped up whilst the pump air pressure is on, if necessary.

4.5 Air Filtration:
The Air Filter Regulator unit is fitted with an automatic drain, so should not need checking at regular intervals to empty contents. It may be prudent however to fit a plastic pipe to the base of the unit and lead it away to a safe area for dispersing captured fluid.

NOTE! The bowl will disperse its contents under pressure if emptied while connected to air source.
SECTION 4
PRE START-UP CHECKS

4.6 Hydraulic Connection:

The pump system is fitted with 690bar (10000psi) capacity connections. Ensure connections and hose assembly are fitted correctly. All connections should be clean and free from any debris.

![Image of hydraulic connections]

**PARKER COUPLINGS**

**RETRACT RETURN LINE**
110bar (1595psi)
PORT “B”

**ADVANCE PRESSURE LINE**
0-690bar (0-10000psi)
PORT “A”

**CEJN COUPLINGS**

**RETRACT RETURN LINE**
110bar (1595psi)
PORT “B”

**ADVANCE PRESSURE LINE**
0-690bar (0-10000psi)
PORT “A”
4.7 Pendant Operation:
Before operation, ensure you have read and fully understand the function of the hand held operator’s pendent.

NOTE! The pendant below supersedes and replaces earlier designs before MAY 2008. Replacement pendant part No 030AU0027816

Pump Start (Air Motor ON), when switched to the “ON” position “as shown” the pump system will be in the retract mode until the tool advance trigger is pressed.

**MOTOR ON / OFF**

RED actuator is located against face (MOTOR OFF)

![Diagram of the pendant in the OFF position]

RED actuator is located against inside face (MOTOR ON)

![Diagram of the pendant in the ON position]
ADVANCE / RETRACT

Push and hold down the valve direction button, this will direct the hydraulic flow to the advance position.

Releasing the valve direction button will direct the hydraulic flow to the retract position.
Dissipate System Pressure

Ensure the RED actuator is located against face (MOTOR OFF)

Push and hold down the valve actuation button until the main (hydraulic) pressure gauge displays **ZERO** pressure, release once achieved.
SECTION 5
OPERATION

5.1 Setting Main Relief Valve:
To ensure the relief valve has been set correctly, the following procedure should be carried out: NOTE! This should not be carried out while the wrench is connected to fastener.

- Determine what pressure or “torque value if torque overlay is being used” the main system relief is to be set to.
- Wind the main system relief “anti-clockwise” until it becomes loose.
- Switch the pump system on via the actuator on the operators’ pendant; press and hold down the “ADVANCE” button on the operators’ pendant. With the button held down, slowly wind the main system relief valve “clockwise” until the desired value is achieved on the high pressure gauge; release the “ADVANCE” button.
- Press and hold the “ADVANCE” button again to check the setting is correct, adjust if required.
- Wind the locking nut “clockwise” against washers to ensure the valve does not move in operation. DO NOT OVER TIGHTEN!

The system is now ready for operation.
5.2 **Application:**

Apply appropriate tooling to the application, by pressing and releasing the “ADVANCE” button the application can be completed. See relevant operation manual for correct usage of tooling. Upon the application being completed switch the air motor “OFF” via the operator’s pendant then press the “ADVANCE” button; this will release any hydraulic pressure in the system.

Ensure the high pressure gauge is showing zero pressure.
SECTION 6
PRESSURE FLUIDS

6.1 Pressure Fluids General Information:
It’s very important that the correct specification of pressure fluid has been selected to suit the operational environment where the pump system is to be operated.

The operational behaviours of a hydraulic system depend upon the quality of the hydraulic fluids. The selection of the hydraulic fluid is determined by the operating conditions of the system such as:

- Temperature (SEE SECTION 9.1: APPENDIX A Viscosity Classification)
- Nomenclature (some pressure fluids may be unacceptable because of undesired reactions with metals, seals, etc.)
- Kind of operation (i.e. ecologically compatible pressure fluid)
- Associated fields (use of readily available fluids)

6.2 Filtration:
Failure of a hydraulic system can be caused by contamination of fine wear particles or larger. i.e. swarf, ingress, etc. It is important that the cleanliness of the hydraulic fluid is maintained, and continuously checked, as this has a direct impact on the repeatable accuracy of the system, and correct operation of the control valves.

It is important to be aware that fresh fluid from the “barrel” does not always fulfil the standards of cleanliness.

Do not remove the oil filter when filling system.

6.3 Service Intervals Of Pressure Fluids:
The hydraulic fluid being used should be changed frequently to maintain optimum system operation, the following guideline is based on standard operation utilising hydraulic torque wrenches.

- 250hrs (mineral oil)
- Systems that see continual use i.e. Continued use over a three shift “24hr” work pattern should have the pressure fluid changed out 150hrs (mineral oils only).
- At least annually
- Hydraulic fluid discolouration, possible contamination.
6.4 Draining Of Pressure Fluids:
The hydraulic reservoir should be fully drained when renewing oil, or for shipping purposes. Remove the oil filler cap; ensure you have suitable capacity oil capture equipment; the minimum fill capacity is 7.0litres (1.5gallons UK). Remove the reservoir draining plug and let oil drain, re-fit draining plug. If draining for the purpose of shipping, label unit with the comments “SHIPPED WITH NO OIL”. If renewing the oil, fill with appropriate hydraulic oil “SEE SECTION 9.1: APPENDIX A Viscosity Classification” re-fit filler oil cap. Also “SEE SECTION 6.6 Change Of Pressure Fluids”

6.5 Fluid Disposal:
Ensure all fluids are disposed of in accordance with local environmental health and safety practices, if in doubt contact your local authority for guidance.

6.6 Change Of Pressure Fluids:
Mixing different kinds of pressure fluids can cause reactions such as “sludging” – “gumming” etc. Therefore the complete hydraulic system should be filled with a same type of pressure fluid. Once the system has been filled, circulate the hydraulic fluid by connecting a hydraulic twin line hose to the pump connections, connect the other end of the twin line hose together, the system should be run for a five to ten minute period to circulate the oil thoroughly.

6.7 Viscosity Classification:
Guides for selections are:

- (ISO VG15) Systems intended for continuous operation (for use in the open, operation in cool climate). Min temperature during start up not lower than -20° C
- (ISO VG22, VG32) General application (for use in the open, operation in warm climate).
- (ISO VG46, VG68) Systems in hot climate, at ambient temperature up to 40° C or closed rooms Max temperature during start up not higher than +50° C
SECTION 7
GENERAL MAINTENANCE GUIDE

7.1 Hydraulic connections:
All hydraulic connections should be checked for leaks, damage, etc, any connections found to be leaking or faulty are to be replaced immediately. The system should be pressure tested prior to use.

7.2 Hydraulic Oil Filtration:
The hydraulic oil filter on this system is built into the return line “back to tank”; this filter should be inspected for contaminants when an oil change is carried out SEE SECTION 6 “PRESSURE FLUIDS”. The filter element is not reusable therefore a new element should be fitted each time.

7.3 Oil levels:
Oil levels should be checked frequently, also the quality of oil i.e. contamination from use etc. The system should also be checked for leakage of oils, any leak paths found should be stopped at source, parts changed etc. Any oils used to top up the system must that of the same type currently in use. SEE SECTION 6 “PRESSURE FLUIDS”.

7.4 Exhaust Silencer - Filter
The exhaust silencer filter element can be changed out if found to be damaged or oil – water contaminated, a contaminated filter element can effect the efficiency of the system.

Remove the plastic cap, the filter element can then be unscrewed “anti-clockwise”, the filter is not reusable therefore a new element should be fitted.

NOTE! As a result of expanding air from the motor, the filter element will condensate and disperse water droplets onto the tank lid, this does not affect the efficiency of the unit, however, it should be cleaned off periodically.
SECTION 7
GENERAL MAINTENANCE GUIDE

7.5 Storage:
The complete system should be stored in a dry “safe from damage” environment.

7.5 Serial No:
Each pump system has a unique serial number; the number is located on the tank lid. Please use this number if contacting Hydratight.

7.6 General:
The complete system should be cleaned down to remove any debris and oil contaminates which accumulate upon use. This can be carried out with dry wipers. Any parts found to be missing or damaged should be reported immediately.

7.7 Shipping:
If the unit is to be shipped, the oil should be drained from the reservoir, the system should be despatched in an upright position, and maintained in this position throughout its journey.

7.8 Fluids & Components Disposal: Ensure all fluids and components are disposed of in accordance with local environmental health and safety practices, if in doubt contact your local authority for guidance.

If the pump system requires repair work or replacement parts, contact Hydratight for local service centres and supply of parts.
## SECTION 8
### FAULT FINDING

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump will not run</td>
<td>Inadequate air supply</td>
<td>Increase pressure – volume of air SEE SECTION 3</td>
</tr>
<tr>
<td></td>
<td>Air system of the pump contaminated</td>
<td>Check – clean all parts on the air inlet side of the pump</td>
</tr>
<tr>
<td></td>
<td>Air motor seized</td>
<td>Repair – change vanes in air motor and or check that motor is not seized due to long periods of standing in-betwenn use and thus causing the vanes not to rotate</td>
</tr>
<tr>
<td>Pump runs slowly</td>
<td>Inadequate air supply</td>
<td>Increase pressure – volume of air SEE SECTION 3</td>
</tr>
<tr>
<td></td>
<td>Inadequate air lubrication</td>
<td>Check oil level and drip frequency setting on the lubricator SEE SECTION 4</td>
</tr>
<tr>
<td></td>
<td>Low oil level</td>
<td>Check oil and top up SEE SECTION 6</td>
</tr>
<tr>
<td></td>
<td>Return line filter contaminated - blocked</td>
<td>Check – replace accordingly</td>
</tr>
<tr>
<td>Unit builds pressure slowly</td>
<td>Inadequate air supply</td>
<td>Increase pressure – volume of air SEE SECTION 3</td>
</tr>
<tr>
<td></td>
<td>Oil contamination</td>
<td>Flush thoroughly and replace oil SEE SECTIONS 6.4 &amp; 6.6 for draining &amp; changing pressure fluids</td>
</tr>
<tr>
<td></td>
<td>Pressure relief valve malfunctioning</td>
<td>Manually open pressure relief valve “anti-clockwise” until loose. Switch the pump on, press on hold the advance button, and at the same time slowly close the pressure relief valve “clockwise” until 690bar has been achieved. If pressure is not achieved then replace valve</td>
</tr>
<tr>
<td></td>
<td>Manifold seals yielded – main relief valve damaged due to pump being used above specified temperature rating</td>
<td>Pump to be returned to Hydratight for complete overhaul</td>
</tr>
<tr>
<td>Pressure gauge fluctuating</td>
<td>Oil contamination</td>
<td>Flush thoroughly and replace oil SEE SECTIONS 6.4 &amp; 6.6 for draining &amp; changing pressure fluids</td>
</tr>
<tr>
<td></td>
<td>Pressure relief valve malfunctioning</td>
<td>Manually open pressure relief valve “anti-clockwise” until loose. Switch the pump on, press on hold the advance button, and at the same time slowly close the pressure relief valve “clockwise” until 690bar – 10000psi has been achieved. If pressure is not achieved then replace valve</td>
</tr>
<tr>
<td></td>
<td>Faulty gauge</td>
<td>Check with master gauge – replace accordingly</td>
</tr>
</tbody>
</table>
SECTION 9
APPENDICES

9.1 Temperature / Viscosity Curve:

Temperature / viscosity curve

Reference Temperature
ISO 3448, DIN 51519
SECTION 9
APPENDICES

9.2 Hydraulic – Pneumatic Schematic (Standard Pump)
9.3 Sub-Sea Conversion

This section covers a sub-sea conversion of a standard “topside” configured pump. This will enable the pump to operate in conjunction with a remotely operated three port hydraulic valve. This conversion is based on modifying the pneumatic circuit of the pump via the pendant, additional pneumatic components are required and the kit can be supplied as described below under part number PAPKSSCK.

Once fitted, this conversion enables the pump operator to select between “topside” or “sub-sea” functionality via a switch position air valve.

Sub-Sea Conversion Kit REF: 030AM0027823 (PAPKSSCK) contains the following items: -

<table>
<thead>
<tr>
<th>Description</th>
<th>Old Part Number</th>
<th>New Part Number</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Finger” valve (push fit)</td>
<td>PAPKSSV1</td>
<td>002MF0027826</td>
<td>1</td>
</tr>
<tr>
<td>“OR” valve (push fit)</td>
<td>PAPKSSV1</td>
<td>002MG0027827</td>
<td>1</td>
</tr>
<tr>
<td>“OR” valve (push fit)</td>
<td>PAPKSE</td>
<td>002CG0027822</td>
<td>2</td>
</tr>
<tr>
<td>M/F/F Tee (push fit)</td>
<td>PAPKTEE</td>
<td>002CH0027825</td>
<td>1</td>
</tr>
<tr>
<td>4mm Tube RED</td>
<td>PAPKSST1</td>
<td>D1801D0020XX</td>
<td>1</td>
</tr>
<tr>
<td>4mm Tub GREEN</td>
<td>PAPKSST2</td>
<td>D1080F0020XX</td>
<td>1</td>
</tr>
<tr>
<td>M4 St St cap head 25mm Long</td>
<td>BSHCM04-025-SS</td>
<td>001AC0001087</td>
<td>2</td>
</tr>
<tr>
<td>M4 Nylock Nut</td>
<td>BNLNSSM04</td>
<td>001NJ0027219</td>
<td>2</td>
</tr>
<tr>
<td>Valve Operation Label</td>
<td>PAPKSSVOL</td>
<td>030BA0027828</td>
<td>1</td>
</tr>
</tbody>
</table>
This conversion is based on the pendant design (POST MAY 2008) shown below with the pneumatic layout.
Conversion Procedure

Drill frame cross support and fit “OR” valve with M4 x 25mm screws & nyloc nuts

Attach label to top face of motor air valve

Fit (2 off) “push in” right angled elbows into “OR” valve as shown

Fit “push in” right angle tee into “OR” valve. Connect existing pendant GREEN hose into tee as shown

Connect new GREEN hose from air supply in to right angle tee as shown
1. Fit “push in” OR valve into banjo as shown.

2. Connect existing pendant RED hose into the “OR” valve lower port as shown.

3. Connect new RED hose from “OR” valve outlet into “finger” valve port as shown.
Completed Conversion
Operation Modes

Topside: -

In this mode the operation of the pump is that of a standard hydraulic wrench operation as stipulated in SECTION 4.7 “Pendant Operation”

Sub Sea: -

In this mode the air motor ON – OFF via the actuator on the pendant functions as the standard operation, however when the advance button is pressed it actuates the pneumatic “OR” valve which in turn locks the hydraulic system onto the advance line; producing constant flow to the three position sub sea valve. From here the hydraulic flow will be controlled via the diver “sub sea”.

Mode Selector

Use the “finger” valve selector to change the mode from “topside” to “sub sea” operation. (Shown above in “topside” mode)
SECTION 9
APPENDICES

9.4 Hydraulic – Pneumatic Schematic (Sub-Sea Conversion)
SECTION 9
APPENDICES

9.5 General Assembly
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9.6 Main Build Assembly
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9.7 Oil Pickup Assembly
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9.8 Frame Assembly
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9.9 Tool Valve Assembly
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9.10 Service Kits

Service Kit Standard (D3004B0100RC)
Contains the following:

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank gasket</td>
<td>030AX0027831</td>
<td>1</td>
</tr>
<tr>
<td>Bubble sight glass</td>
<td>030BD0027749</td>
<td>1</td>
</tr>
<tr>
<td>Drain plug</td>
<td>002GA0027750</td>
<td>1</td>
</tr>
<tr>
<td>Bonded seal 900bar</td>
<td>002JA0026980</td>
<td>5</td>
</tr>
<tr>
<td>Return line filter Element</td>
<td>030AS0027739</td>
<td>1</td>
</tr>
<tr>
<td>Air Regulator Filter Element</td>
<td>030AN0027792</td>
<td>1</td>
</tr>
<tr>
<td>Air Regulator Gauge</td>
<td>030AE0027006</td>
<td>1</td>
</tr>
<tr>
<td>Filler Cap Assembly</td>
<td>030AZ0027744</td>
<td>1</td>
</tr>
<tr>
<td>Exhaust Silencer</td>
<td>030AW0027722</td>
<td>1</td>
</tr>
</tbody>
</table>

Items also considered for service are listed below and should be ordered separately. *(Not part of standard kit)*

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
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</thead>
<tbody>
<tr>
<td>Tool Valve Assembly</td>
<td>030DJ0036329</td>
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<tr>
<td># Coupling Kit CEJN</td>
<td>002NM0026571</td>
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<tr>
<td># Coupling Kit Parker</td>
<td>002NM0026576</td>
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<tr>
<td>Pendant Assembly</td>
<td>030AU0027814</td>
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<tr>
<td>Gauge 700bar</td>
<td>030AE0027723</td>
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</table>

# Order coupling system as appropriate.

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
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</thead>
<tbody>
<tr>
<td>Finger Valve for sub sea operation</td>
<td>002MF0027826</td>
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NOTE! The sub sea conversion must be in place before ordering the finger valve.
9.11 Warranty:

Hydratight warrants to the original purchaser only that the product manufactured by it will be free of defects in design, materials and workmanship for three years from the date on which the product is delivered to the original purchaser. EXCEPT AS STATED IN THIS WARRANTY, HYDRATIGHT DOES NOT MAKE AND DISCLAIMS ALL EXPRESS OR IMPLIED WARRANTIES INCLUDING, BUT NOT LIMITED TO, THE MERCHANTABILITY OF THE PRODUCT, ITS FITNESS FOR A PARTICULAR PURPOSE, ITS DESIGN, CONDITION OR WORKMANSHIP.

Hydratight’s obligation under this warranty is limited to replacing or restoring (at Hydratight’s election) any product that is returned intact to it, or to one of its authorised service stations with transportation costs prepaid, within that warranty period, and that is disclosed, to Hydratight’s satisfaction, to be defective after its examination.

The original purchaser is responsible for maintaining and replacing field serviceable items such as oil and air filters and fluids. The warranty shall not apply to any product that has been repaired or altered outside of the Hydratight factory or authorised service stations, or has been subject to misuse or abuse, negligence or accident, or has been installed or used not in accordance with instructions furnished with the product by Hydratight.

HYDRATIGHT WILL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER AS A RESULT OF A BREACH OF ITS WARRANTY, INCLUDING WITHOUT LIMITATION: INCONVENIENCE, TRANSPORTATION COSTS, LOSS OF PROFITS, PROPERTY DAMAGE OR LOST PRODUCTION, WHETHER SUFFERED BY THE ORIGINAL PURCHASER OR ANY THIRD PARTY.

Hydratight’s maximum liability under any circumstances will be the purchase price of the product paid by the original purchaser. Hydratight neither assumes nor authorises any person to assume for it any or greater liability in connection with the sale of it products.

Any provision in this limited warranty, including any provision limiting or excluding legal remedies or warranties of merchantability or fitness for purpose, is not applicable where expressly prohibited by local law, but only to the extent so prohibited.

Any action for breach of this warranty, regardless of the legal theory of the action, must be brought within one year after the date breach. Documentation of the date of delivery to the original purchaser and serial number is required with all requests for warranty. Contact Customer Service for a “Return Refurb” form and shipping instructions. Product returned without this will not be accepted.
SECTION 10
CONTACTS

Global Joint Integrity Management Solutions

With offices in the UK, France, Germany, Netherlands, Qatar, Saudi Arabia, Singapore, Australia, USA, Trinidad and Brazil; manufacturing facilities in four locations; and sales representation in more than 50 countries, we can justifiably claim to be a global business, offering international standards through local operations.

<table>
<thead>
<tr>
<th>WORLDWIDE OFFICES / <a href="http://WWW.HYDRATIGHT.COM">WWW.HYDRATIGHT.COM</a></th>
</tr>
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<tbody>
<tr>
<td>UK - WALSALL</td>
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<tr>
<td>UK - MORPETH</td>
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<td>UK - ABERDEEN</td>
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Hydratight is an Integration of Hedley Purvis and Hydratight Sweeney.