



Hydraulic Power Pack

Operational Manual

Operational manual for HYTORC hydraulic Power Packs

Version: 1.0.2

Printed: 2017-02-06

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1. Intended use

This power pack is intended to be used with HYTORC bolting tools only. The use of single acting cylinder tools or XXI-Tools is prohibited. The use of this power pack with non-approved accessories is forbidden. The use of this power pack in non-specified ways voids all warranties.



The user shall be liable for damage and accidents resulting from non-specified use; this also includes damage and wear caused during abnormal operation.

2. Safety instructions



WARNING! Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

Save this manual for future reference.

This power pack must be grounded. Therefore on electric pumps the power cord has to be plugged into a grounded power outlet; on air pumps the grounding tab must be connected to a grounding point using a suitable cable.

Take care of the mandatory service and maintenance intervals, to make sure the power pack runs safe and flawless.

Make sure only instructed personnel works with this power pack.

Make sure that third persons you let operate this power pack receive and obey this manual.

Take care of the technical specifications of this power pack and avoid non specified operation.

Check all important parts like handles, carrying straps, power plug, cables, etc. regularly. Change and/or repair loose parts immediately.

Leakages must be removed immediately. When (re-)filling oil into the pump make sure not to spill any oil. Hydraulic oil is bio-hazardous to the environment and needs to be disposed accordingly.

Before operating the pump inspect the oil level. Do not operate the pump with insufficient oil.

Do not operate this power pack when the power cords or any other parts of this device are damaged. Repairs on the power pack must be performed by skilled personnel.

Remove the power plug before opening the power pack. Operations on the electric control (change of fuses, etc.) must be performed by skilled personnel only. Be aware that even with an unplugged power cord the interior of the power pack may have high voltage residues.

The pre-set values of the valves (safety valve, cut-off-valves, etc.) must not be changed. All changes may cause severe damages to the power pack and danger of injuries for the operator.

Avoid unintentional activation. Ensure the on/off switch is in off-switched position before applying power to the pump.

All generally acknowledged rules of technology and safety have to be obeyed.



When it is to assume that a safe operation of this power pack is no longer possible you have to disable the device immediately and make sure that it is not enabled unintentionally.

This is the case when:

- there are visible defects/damages
- the power pack does not work any more
- the power pack makes considerably different sounds than usual
- this power packs shows abnormal behavior
- this power pack has leakages

3. General information

This manual is designed to provide you with the basic knowledge required to operate your hydraulic pump. All HYTORC Power Packs operate in a pressure range from 700 to 10,000 psi (50 – 700 bar), and are fully adjustable. They have been engineered and designed for portability and high flow for increased speed. Before using your HYTORC power pack, check the following points:

- Is the reservoir filled with oil?
- Where is the closest electrical outlet at the job site?
- Is there enough air pressure (60 psi / 4 bar) and flow (125 cfm / 60 l/sec) at the motor? (Air units only)
- Is the gauge mounted and rated for 10,000 psi?
- Is the oil filler plug securely in place?

3.1 Working pressure

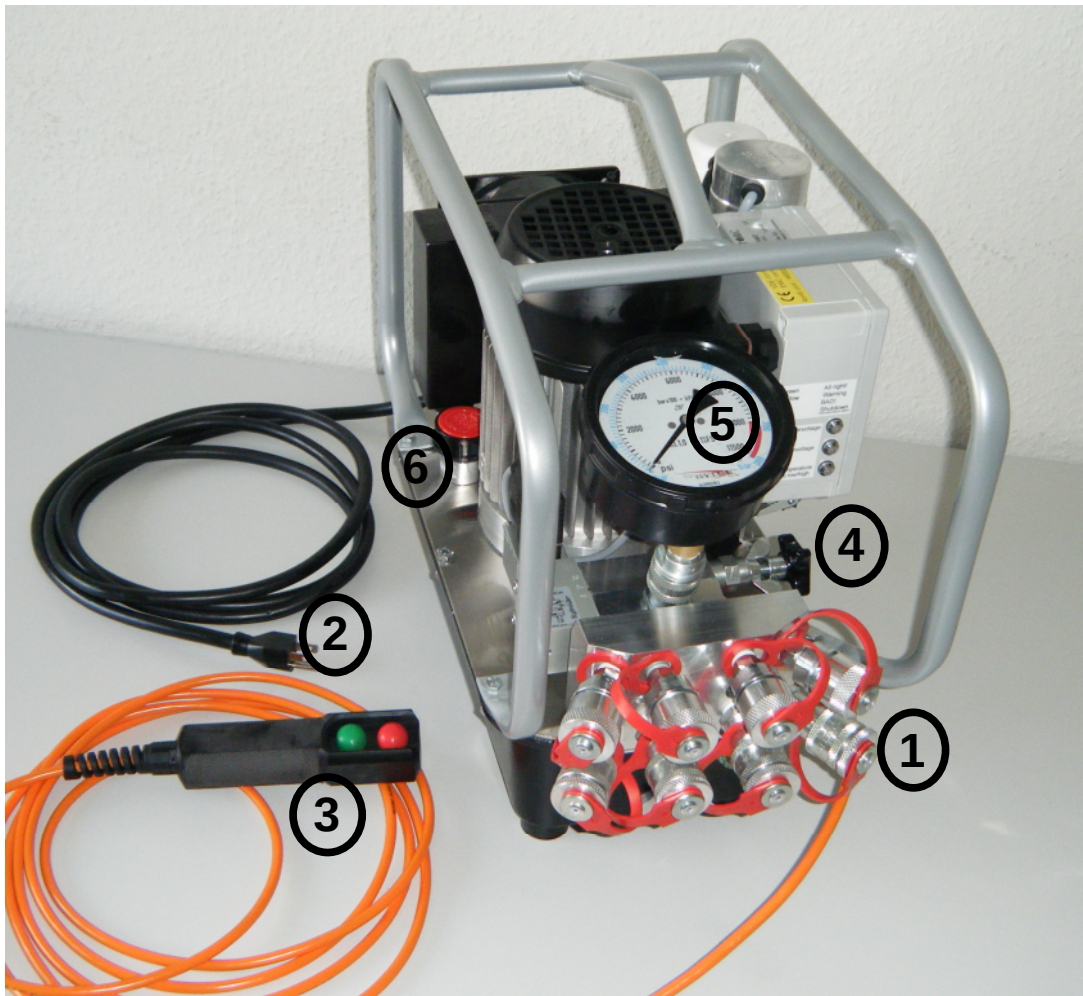
The maximum working pressure of the pump is 10,000 psi (700 bar). Make sure all hydraulic equipment and accessories are rated for 10,000 psi operating pressure.

3.2 Pump and operational controls

3.2.1 Electric pump

Operational controls (depending on pump model):

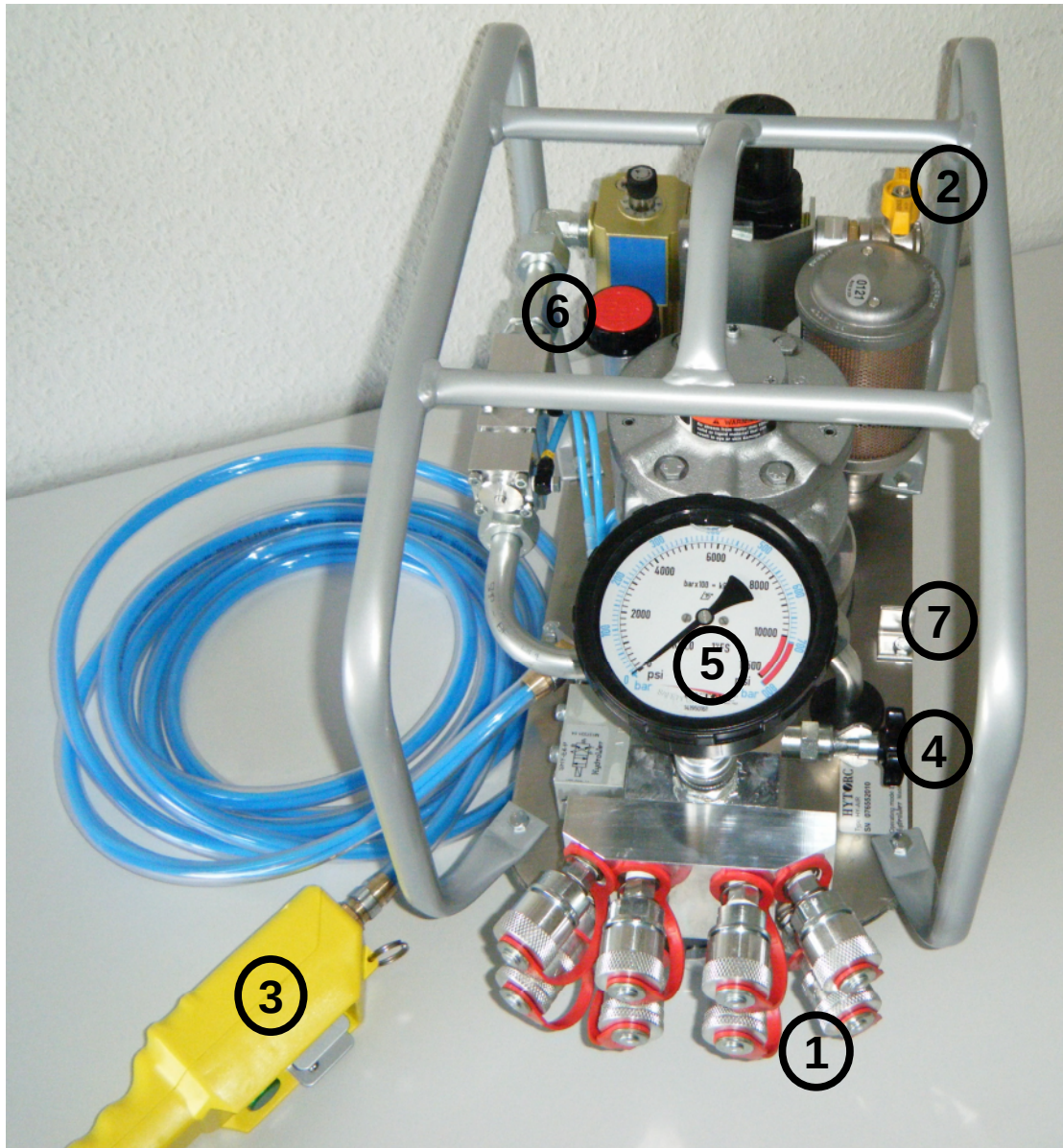
1. Hydraulic couplers (4-port manifold on pump in picture) **(1)**
2. Plug for main power cord **(2)**
3. Remote control **(3)**
4. Pressure regulator **(4)**
5. Analog gauge **(5)**
6. Plug for oil filler **(6)**



3.2.2 Pneumatic pump

Operational controls (depending on pump model):

1. Hydraulic couplers (4-port manifold on pump in picture) **(1)**
2. Air flow on/off lever **(2)**
3. Remote control **(3)**
4. Pressure regulator **(4)**
5. Analog gauge **(5)**
6. Plug for oil filler **(6)**
7. Grounding tab **(7)**



3.3 Remote Control

The pumps can be equipped with different remote control models. However, the mode of operation for any remote control is:

Electric pump

push advance button (A)

→ pump is **ON** and tool advances

release advance button (A)

→ pump is **ON** and tool retracts

push stop button (B)

→ pump is **OFF**

push and hold auto button (C)

→ tool advances and retracts automatically until (C) is released

display (E)

→ indicates the current pressure

Pneumatic pump

switch on toggle switch (D)

→ pump is **ON**

push advance button (A)

→ tool advances, if pump is **ON**

release advance button (A)

→ tool retracts, if pump is **ON**

switch off toggle switch (D)

→ pump is **OFF**

push and hold auto button (C)

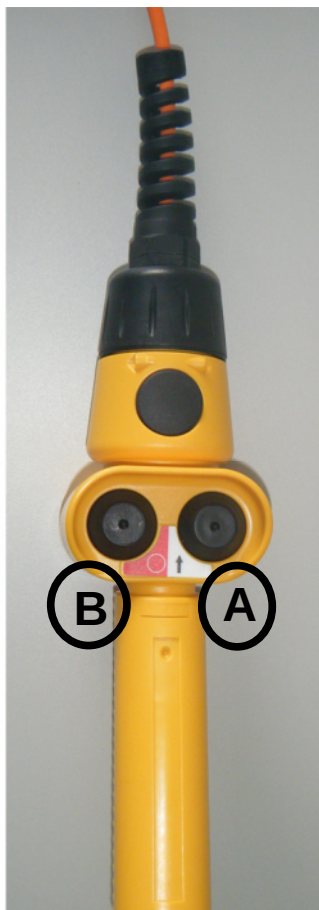
→ tool advances and retracts automatically until (C) is released

Manual Pump

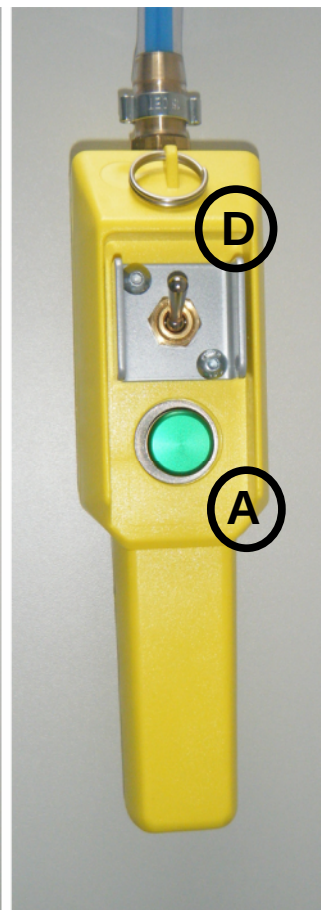


electric

FB4R



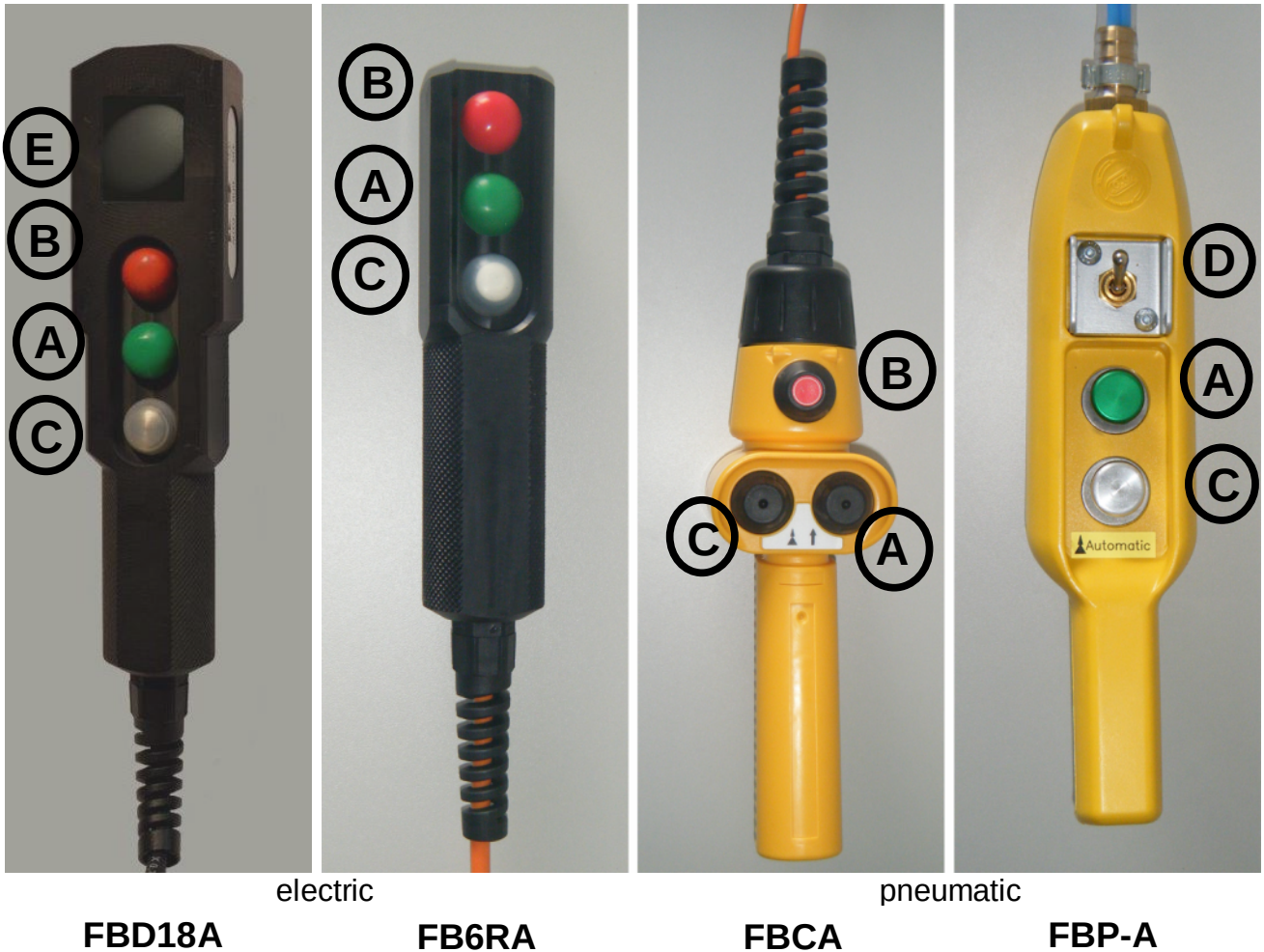
FBC



pneumatic

FBP

Automatic-Pump



4. Instructions before use

READ CAREFULLY: Most malfunctions in new equipment are the result of improper operation and/or set-up assembly.

PREPARATION: Remove HYTORC Power Pack from shipping container.

INSPECTION: Visually inspect all components for shipping damage. If any damage is found, notify carrier immediately.



The pumps are delivered without oil in the tank. Check the hydraulic oil level to prevent possible pump burnout. Open the filler plug located on the reservoir plate.



Look at oil fill level on the oil sight gauge. The oil level is correct when the top gauge is half full. Please note that during operation the oil level should not drop below the red mark of the lower oil sight gauge. Add HYTORC oil as necessary.

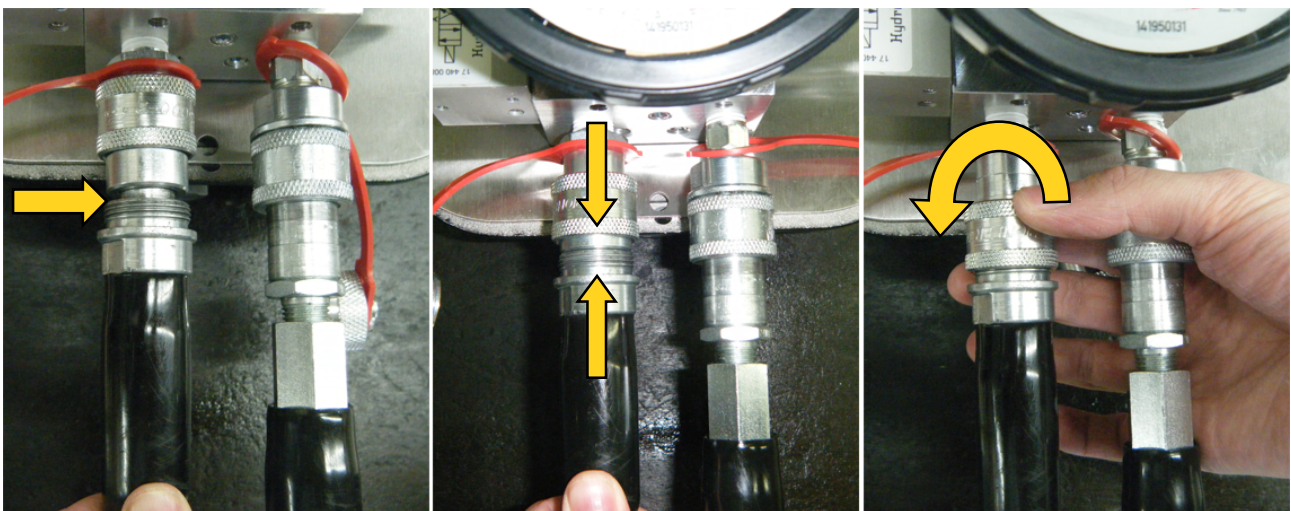
CAUTION:

Only use clean hydraulic oil on the basis of mineral oil. Use grade 32 to 46 oil. Different grades and manufacturers may be mixed.

4.1 Hydraulic connections

When using hydraulic hoses for a tool and pump, make sure the hoses are proper rated. Never disconnect or connect hydraulic hoses or fittings without first unloading the coupling. If the system includes a gauge, double check the gauge to ensure pressure has been released (there might be residual pressure). Push and release the **STOP** button on the remote control to release the pressure from the system.

Connect the twin-line hose as shown below. To connect the twin-line hose, make sure male couplers are connected to female couplers. Hold the hoses as shown in the middle picture below. Ensure the connectors are fully engaged and tightened to the final thread. Loose or improperly threaded couplers will prevent the tool from operating and can be potentially dangerous if pressurized.



Do not use pliers to tighten the couplers. Severe over-tightening can cause thread failure. Knurled sleeve on couplers need to be hand tight only.

To loosen the couplers, turn it counter clock-wise. It is normal for a small amount of oil to drip from the couplers when disconnected.

CAUTION: Loose or improperly threaded couplers can be potentially dangerous if pressurized. However, severe over tightening can cause premature thread failure. Fittings need to be only tightened secure and leak free. Never grab, touch, or in any way come in contact with a hydraulic pressure leak. Escaping oil could penetrate the skin and cause injury.

Do not subject the hose to potential hazards such as sharp surfaces, extreme heat or heavy objects. Do not allow the hose to kink and twist. Inspect the hose for wear before it is used.

4.2 Electrical connections

Ensure proper power availability to prevent motor failure or dangerous electrical overloading. Compare the nameplate of the pump for required amperage, voltage and frequency.

Do not use a power or extension cord that is damaged or has exposed wiring.

Do not use electric pump if the electrical plug is damaged.

Do not use a two prong ungrounded extension cord as the pump's motor must be grounded.

Minimize the length of extension cords and be sure they are of adequate wire size. Extension cord should be #10 AWG (4 mm²) gauge.

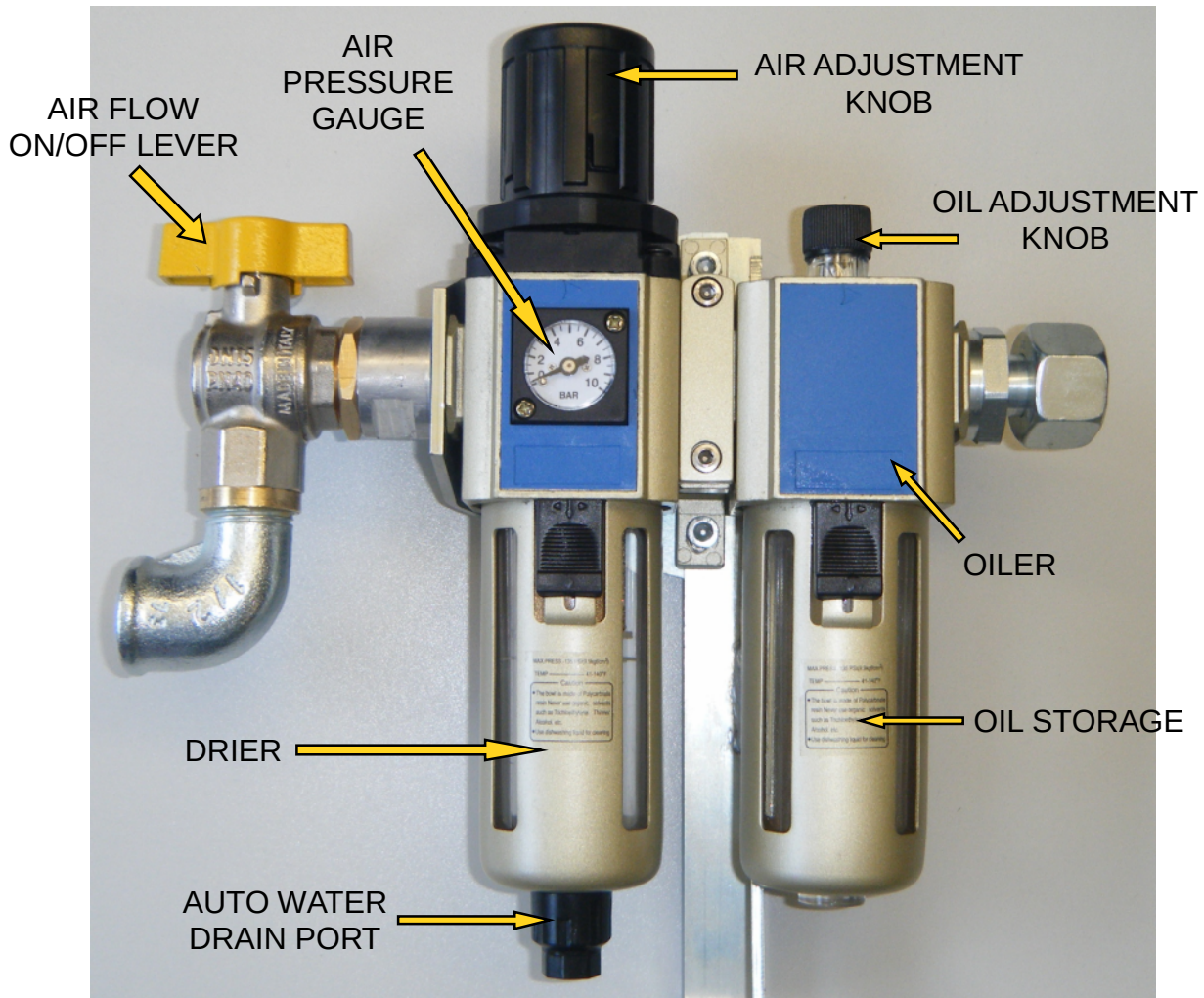


WARNING: Electric installations may spark. Do not operate in an explosive atmosphere or in the presence of conductive liquids. Use an air motor pump or special ATEX-certified electric pumps instead.

4.3 Air connections

Ensure that you have sufficient air flow (125 cfm @ 60 psi / 60 l/sec. @ 4 bar) to operate your pneumatic pump. Improper air flow may damage the pump motor. For best results use airhoses larger than 3/4" I.D. diameter.

Air units are equipped with a Filter Regulator Lubricator (FRL) unit. Below you can see the parts of this unit:



1. Adjust flow to 2 to 4 drops per 60 - 90 seconds.
2. Fill half way with hydraulic oil.

5. Operation

5.1 General

Before starting the pump, plug the power cord into an outlet (for electric pumps) or connect the coupler for main air supply (for pneumatic pumps).

Note:

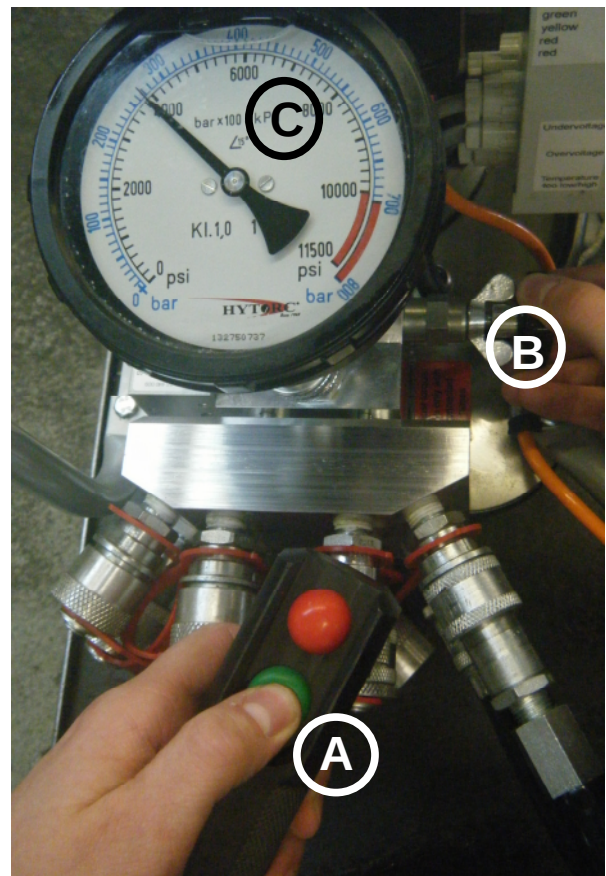
All electric pumps have been designed with an auto shut off system. The pump will shut off after about 30 seconds of non-cycling. This will prevent overheating and unnecessary wear which will prolong the life of your pump.

5.2 Setting the pressure on the pump

Once the system is fully connected and the proper power supply is available, it is time to adjust the required pump pressure. To set the pressure on the pump, follow this procedure:

1. Connect up the tool and place it loose on the floor.
2. Turn the lock nut on the pressure regulator **(B)** counterclockwise until it turns freely and easily.
3. Turn the pump "on". Using the pump's remote control pendant, push down the advance button **(A)** and hold it.
4. To adjust the pressure, turn the pressure regulator **(B)** clockwise. The actual pressure is visible on the gauge **(C)** at any time.
5. If the pressure rises above the required value, release the advance button **(A)** and back off your pressure slightly by turning counterclockwise on the pressure regulator **(B)**.
6. Then re-depress the advance button **(A)** on your remote and slowly bring pressure up to the required value.
7. When the pressure is correct, turn the pump "off" and tighten the lock nut.
8. Once your required pressure is set and locked, cycle the pump once more to ensure that your pressure setting did not change as you turned down the lock nut.

Note: The pressure is **ALWAYS** to be set from bottom to top.



6. Additional equipment

On selected types of power packs you will notice additional equipment like the „LED Lights for System Monitoring“. This chapter includes descriptions for each additional equipment.

6.1 LED lights for system monitoring

The HY-115 pump is now equipped with (3) three-colored LEDs integrated into the electric control box for system monitoring.

Upper LED: Low voltage

- green when voltage above 95V = o.k.
- yellow when voltage between 95V and 80V
- red when voltage below 80V
- motor switches off when below 77V for more than 5 seconds

Middle LED: High voltage

While not running

- generally green when voltage below 138V
- when above 138V all LEDs will flash red

While running

- green when voltage below 128V
- all three LEDs blink red when voltage above or equal to 128V, motor switches off after 5 seconds

Lower LED: Temperature

Oil temperature

- green when temperature between +32°F (0°C) and +194°F (90°C) = o.k.
- yellow when temperature below +32°F (0°C) (solenoid valve locked) or above +194°F (90°C)
- red when oil temperature above +212°F (100°C) (motor switches off)

Motor temperature

- green when coil temperature below +356°F (180°C) = o.k.
- red when coil temperature above +356°F (180°C) (motor switches off)



APPENDIX