

Alcoa
Fastening
Systems & Rings



Instruction Manual

HK3416-0007

Modular Hydraulic

Powerig

(original instructions)

Manufacturer:

Alcoa Fastening Systems & Rings Ltd; Telford, United Kingdom



Makers of Huck®, Marson®, Recoil®
Brand Fasteners, Tools & Accessories



EG-Konformitätserklärung EC-Declaration of Conformity

Im Sinne der EG-Richtlinie 2006/42/EG über Maschinen (Anhang II A)
According to EC directive 2006/42/EC on machinery (Annex II A)

Name und Anschrift des Herstellers / Name and address of the manufacturer:

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Elektromaschinenbau GmbH
Am Bahnhof 7
D-37520 Osterode

Diese Erklärung bezieht sich auf die Maschine in dem Zustand, in dem sie in Verkehr gebracht wurde; vom Endnutzer nachträglich angebrachte Teile und/oder nachträglich vorgenommene Eingriffe bleiben unberücksichtigt. Die Erklärung verliert ihre Gültigkeit, wenn das Produkt ohne Zustimmung umgebaut oder verändert wird.
This declaration relates exclusively to the machinery in the state in which it was placed on the market, and excludes Components which are added and/or operations carried out subsequently by the final user. The declaration is no more Valid, if the product is modified without agreement.

Hiermit erklären wir, dass die nachstehend beschriebene Maschine

Herewith we declare, that the machinery described below

Produktbezeichnung / product denomination: Powerig

Serien- / Typenbezeichnung / model/type HK3416

Baujahr / Year of manufacture: 2014

allen einschlägigen Anforderungen der Maschinenrichtlinie 2006/42/EG sowie der Richtlinie 2004/108/EG über elektromagnetische Verträglichkeit entspricht.
Die Schutzziele der Richtlinie 2006/95/EG über elektrische Betriebsmittel werden eingehalten.
is complying with all essential requirements of the Machinery Directive 2006/42/EC and Directive 2004/108/EC relating to electromagnetic compatibility.
The safety objectives of the Directive 2006/95/EC relating to electrical equipment are observed.
Weitere angewandte harmonisierte Normen / Further where appropriate: Harmonised Standards used

EN ISO 12100-1 Sicherheit von Maschinen- Grundbegriffe / Safety of Machinery - Basic concepts	EN 61000-6-4 EMV – Fachgrundnorm: Störaussendung Industriebereich EMC – Generic standard: Emission for industrial environments
EN ISO 12100-2 Sicherheit von Maschinen Technische Leitsätze / Safety of Machinery – Technical principles	EN 61000-6-2 EMV – Fachgrundnorm: Störfestigkeit Industriebereiche EMC – Generic standards: Immunity For industrial environments
EN 60204-1 Elektrische Ausrüstung von Maschinen Electrical equipment of machines	DIN EN ISO 4413 Fluidtechnik - Allgemeine Regeln und sicherheitstechnische Anforderungen an Hydraulikanlagen und deren Bauteile / Hydraulic fluid power - General rules and safety requirements for systems and their components

Bevollmächtigter für die Zusammenstellung der relevanten technischen Unterlagen
The person authorised to compile the relevant technical documentation

Herr / Mr. Andreas Seyer

Osterode, d. 05.03.2014 Seyer, Andreas Geschäftsführer, General Manager


Unterschrift
Signature

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Safety Guidelines when using Huck Installation Equipment to install Huck Fasteners.

Before using equipment:

WARNING

THIS POWERIG HAS A HIGH PRESSURE HYDRAULIC SYSTEM. TO HELP AVOID PERSONAL INJURY, THE FOLLOWING MUST BE APPLIED:

- 1) Never begin work on a hydraulic or pneumatic system without carrying out a risk assessment.
- 2) Never begin work on a hydraulic system until fully trained.
- 3) Carefully review the manuals on equipment before beginning work. Ask questions about anything you do not fully understand.
- 4) Review the Material Safety Data Sheets (MSDSs) for all substances used.
- 5) Maintain a clean work area free of slipping hazards and debris.
- 6) Use all required safety equipment.
- 7) Eye protection must be worn when using or maintaining this Powerig.
- 8) Approved work overalls/clothing and safety footwear must be worn when using or maintaining this Powerig.
- 9) Never begin work on a hydraulic system until you are certain that any residual system pressures are depleted/relieved. (Some systems use accumulators that store pressure. Identify the system before working on it).
- 10) Do not operate the Powerig without covers in their proper position.
- 11) Use extreme caution when disconnecting hydraulic components. Hot fluid can result in severe burns.
- 12) Use test equipment designed for higher pressures than the system being repaired. Use of gauges, pipe work, hoses, connectors, etc., designed for lower pressures can result in bursting or equipment damage. Start with high pressure gauges and work down. (Note: A good rule is to use equipment rated at twice what is expected. Example: For a 2500 psi/172 bar system, use 5000 psi/345 bar gauge).
- 13) DO NOT USE HANDS OR FINGERS to find leaks. Fluid under high pressure can be injected into skin (hypodermic puncture), causing extreme injury and serious infection.
- 14) Clean up spills immediately. Hydraulic fluid is an oily substance which can cause slipping, falling and resulting personal injuries.
- 15) **Only** Huck Installation Equipment should be used to install Huck fasteners.
- 16) **Only** persons that have received training approved by Huck International Ltd should use Huck Installation Equipment.
- 17) The Manuals and/or Data sheets and warning stickers/labels supplied with the Installation equipment should be studied before connecting the equipment to any primary power supply, in particular the following sections:
 - Warnings and Cautions.
 - Specifications
 - Electrical and/or Air supply.
 - Principals of Operation.
 - Preparation for use.

- Regular use.
- Regular maintenance.

18) With hydraulic tooling, ensure that it is suitable for use with the Huck Powerig or Huck approved hand pump being used.

19) **Check** that the Powerig or approved hand pump "Pull" and "Return" pressures have been **adjusted to suit the tool being used**. Reference must be made to the instruction manual supplied with the equipment.

20) **Check** that the Nose Assembly is of the **correct** type suitable for installing the fastener being used.

21) Visually check **all** pneumatic and/or hydraulic hoses, electrical cables, Powerigs, hand pumps and hand tools, for any visible signs of damage and leakage. **ALL HYDRAULIC HOSES SHOULD BE RENEWED EVERY FIVE YEARS.**

22) **Do not** connect any equipment to primary power supplies or attempt to use any equipment, that shows signs of damage or leakage.

23) Ensure that **all** air and/or hydraulic hose and/or electrical plugs/connectors are correctly connected **before** switching on supply to equipment.

When operating the equipment:

24) When using fasteners in some types of structure, the fracturing of the pintail during installation **may** generate noise levels above the first action level of the Noise at Work Regulations and therefore hearing protection must be worn.

25) It is recommended that eye protection, (eg. safety glasses), should be worn by the operator.

26) **Never** look **directly** at the front or rear of the installation tool.

27) Never hold the Installation Tool around the Nose Assembly.

28) Keep hands/fingers clear of any moving parts and also apertures in Nose Assemblies.

29) Warning

Fasteners should only ever be installed in the actual workpiece to prevent possible high velocity ejection from the Nose Assembly due to tensile forces induced during pintail fracture.

30) When using two piece fasteners, (i.e.. Pin and Collar type), the conical/chamfered end of the collar **MUST** always be towards the Nose assembly, **NOT** against the work piece.

31) Keep fingers clear from the underside of the head, collars and blind side of fasteners and from within the joint being fastened, during the installation cycle.

32) Do not look directly at the head or blind side of fasteners during the installation cycle.

33) During the installation cycle, the tool will pull and straighten itself to the axis of the fastener, beware of hands being trapped against any nearby structure.

KEEP HANDS CLEAR

34) In the event of any difficulty whilst installing a fastener, releasing the tool trigger at **any time** during the installation cycle will immediately put the tool into reverse.

35) Beware of fastener pintails which are ejected, (sometimes forcibly), from the tool at the completion, or at pintail

fracture, during the installation cycle.

Tools designed to have Pintail Deflectors and or catchers must never be used without them.

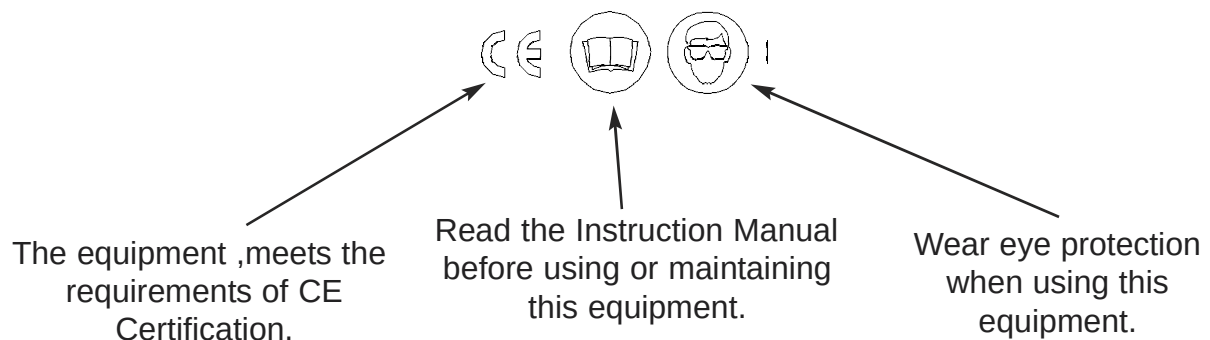
36) **Do not** continue to use any equipment which develops a fault whilst being used.

37) Avoid kinking of hoses or dragging of hoses and electrical cables over sharp objects.

38) The Powerig should only be used with the Cover secured in place.

Note

The following symbols are attached to the equipment:



Description

The electrically operated HK3416-0007 Powerig is designed to operate Huck hydraulic Installation Tools, (See Utilisation).

The maximum hydraulic Pull Pressure is 580 bar (8410 psi) and the maximum Return Pressure is 413 bar (5989 psi).

The Powerig hydraulic Directional Valves plus control circuits, are powered from a 24 Volt DC remote circuit activated by the Tool Trigger via the PLC.

Huck Installation Tools are connected to the Powerig by means of Pull & Return Hydraulic Hoses and an Electrical Control Cord fitted with the standard Huck or IP54 connectors.

The functions of the Motor/Pump and hydraulic valves are controlled by the PLC during fastener installation. The Tool Trigger is depressed to start the installation sequence. The Powerig Motor/Pump will start (if it is not already running in the idle mode), and the Tool Piston/Nose Assembly will move to start the Fastener Installation cycle. Depending on the type of Tool used and the Fastener being installed, the Tool Piston/Nose

Assembly will automatically return to their original start positions when the hydraulic Swage Pressure is detected by the Digital Pressure Switch; or the operator releases the Tool Trigger. However, the Tool Trigger must be released to re-set the programme to install the next fastener.

The Powerig Motor/Pump will continue to run in an idle condition but will stop after 10 minutes (adjustable) if the Tool Trigger is not activated within that time.

The Pump/Motor has a cooling fan which helps keep the temperature of the hydraulic oil to a minimum, especially during constant use. In the event of the hydraulic oil temperature exceeding 95°C, a Temperature Switch will be activated and stop the Motor/Pump from operating to prevent component damage.

In order to protect the hydraulic fluid from contamination particles, a 60 micron filters are incorporated in the hydraulic system.

If higher than normal electrical load (Amperage) detected, then an Amps Overload Trip will activate and the Powerig automatically stops.

Specification

Powerig Type	HK3416-0007
Ingress Protection Rating	N/A
Flow l/min.	1.61
Pull Pressure Max.bar(psi) (See Note 1)	580 (8410)
Return Pressure Max.bar(psi) (See Note 1)	413 (5989)
Electrical Power Requirement (See Note 2)	1 x 230 VAC $\pm$ 10% 50Hz 14 Amp
Motor kW	1.5
Hydraulic Pump	Radial Piston
Control Circuit	24 Volts DC
PLC Type:	Siemens LOGO
Working Area ambient Temperature Max	40° C
Reservoir Capacity Max.	3.7 litre
Idle Valve Version:	YES
Idling Time (adjustable)	Default 10 minutes
Oil Reservoir Filter (in Idle mode):	YES
Inline HAWE filter (Pull / Return):	YES, 60 microns
Noise Level Lwa	67 dB(A)
Time of Warranty max (See Note 4)	Refer to Limited Warranty page 29
Length	57 cm
Width	42 cm
Height (including Handle)	70 cm
Weight (including oil)	62 kg
Hydraulic Oil:	HLP-D46 (BP) or equivalent

Notes:

1) If the Powerig is delivered without an Installation Tool Pull Pressure is factory preset at 510 bar, (7400 psi). If the Powerig is delivered without an Installation Tool, Return Pressure is factory preset at 221 bar, (3200 psi).

2) The operating voltage is shown on the Powerig nameplate. When ordering new units, state exact single (1) phase power

supply. To operate on other voltages, please contact Alcoa Fastening Systems & Rings Ltd., Systems Engineering team.

Intended Use

The HK3416-0007 series Powerigs are designed to be used with various Huck Installation Tools to install various Huck Fasteners. The unit should be placed on a level surface and kept in a clean dry area.

CAUTION

The Powerig should not be used as a step. No person should climb on the Powerig.

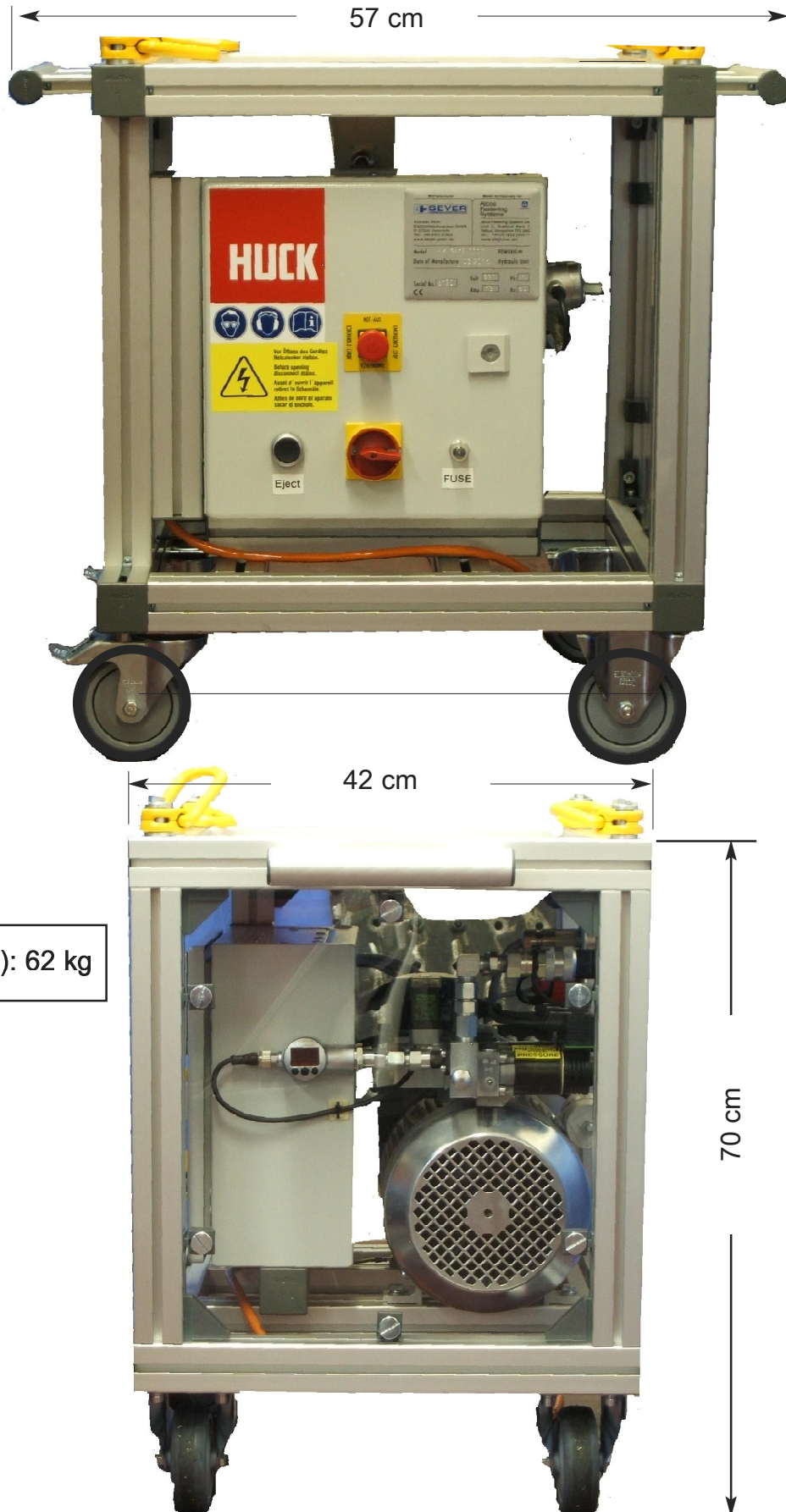
CAUTION

The Powerig should not be used in an explosive and/or highly flammable atmosphere.

CAUTION

The hydraulic output pressure valves (pull & return) on this Powerig have been set and sealed by the manufacturer and should only be changed in accordance with the instructions shown in this manual.

Any new pressures set must always be checked and tested.



Weight (Incl. Oil): 62 kg

FIG. 1
HK3416-0007 Dimensions

Disposal

Fluids should be disposed of by processing through authorised methods and in accordance with current legislation.

The Waste Electrical & Electronic Equipment Regulations 2006



This symbol indicates that this product must be disposed of according to the WEEE Directive and our national law. Products of this nature should be forwarded to a designated collection point e.g. on an authorised one-for-one basis when you buy a similar new product or to an authorised collection site for recycling waste electrical and electronic equipment (EEE). Improper handling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your co-operation in the correct disposal of these products will contribute to the effective usage of natural resources.

For more information with respect to the management of waste equipment for recycling please contact our Customer Services desk at Alcoa Fastening Systems & Rings Ltd, Telford Shropshire TF3 3BQ. The Producer Identification Number for Alcoa Fastening Systems Ltd, Telford is: WEE/AF0044SY

Servicing Powerig

Only a qualified mechanic or electrician should service any hydraulic or pneumatic components, install electrical supply cable, or service the electrical control box or electrical components.

Alcoa Fastening Systems & Rings Account Managers and Systems Engineers are located in your area to offer assistance you require in solving your installation problems.

Utilisation

Bobtail Tool Series	Fastener Diameter	Fastener Grade	Max Pull Pressure bar/psi	Swage Pressure Installation Nose Assy. bar/psi	Swage Pressure Collar Cutter bar/psi	Max. Return Pressure bar/psi
2480	3/16" (4.8 mm)	8.8	136/1972	125/1813	TBA	125/1813
2503	5/16" (7.9 mm)	8.8	242/3509	TBA	TBA	175/2538
2620 Seri.	1/2" (12.7 mm)	10.9	510/7400	190/2755	150/2175	221/3200
BTT25	12 mm	10.9	389/5640	289/4200	235/3408	289/4200
BTT25	14 mm	10.9	389/5640	340/4930	290/4205	289/4200
BTT35	16 mm	10.9	380/5510	357/5177	270/3915	350/5075
BTT57	20 mm	10.9	455/6598	300/4350	250/3625	448/6500
BTT20SF	16 mm	10.9	525/7612	500/7250	250/3625	345/5002

Notes:

- 1)** The above pressure values are *only intended as a guide*. The actual values required may vary according to the system set up, (e.g. Hose Set length, Collar surface finish).
- 2)** Where TBA (to be advised) is shown under Swage Pressure, please contact Alcoa Fastening Systems & Rings - Systems Engineering for advise.

Huck Tool Series/Model	Pull Pressure Max. bar/psi	Return Pressure Max. bar/psi
2400, 2480, 2582, 2583	579/8400	221/3200
2502, 2503	579/8400	165/2400
2580 Series	393/5700	221/3200
2600 Series	393/5700	193/2800
2581, 2620, 2624, 2628, 2630 Series	510/7400	221/3200
506, 507, 585, 586, 5901, 516, 520, 524, 528, 532, 536	393/5700	165/2400
6042, 7042, 8042	510/7400	221/3200

Pressures - definitions

Pull Pressure:

This is the *maximum* hydraulic pressure which can be applied to the Tool Piston during the "Pull" stroke (pulling on the Fastener Pin), enabling the complete Fastener installation. It is set and adjusted with the Pressure Limiting Valves (30).

Swage Pressure:

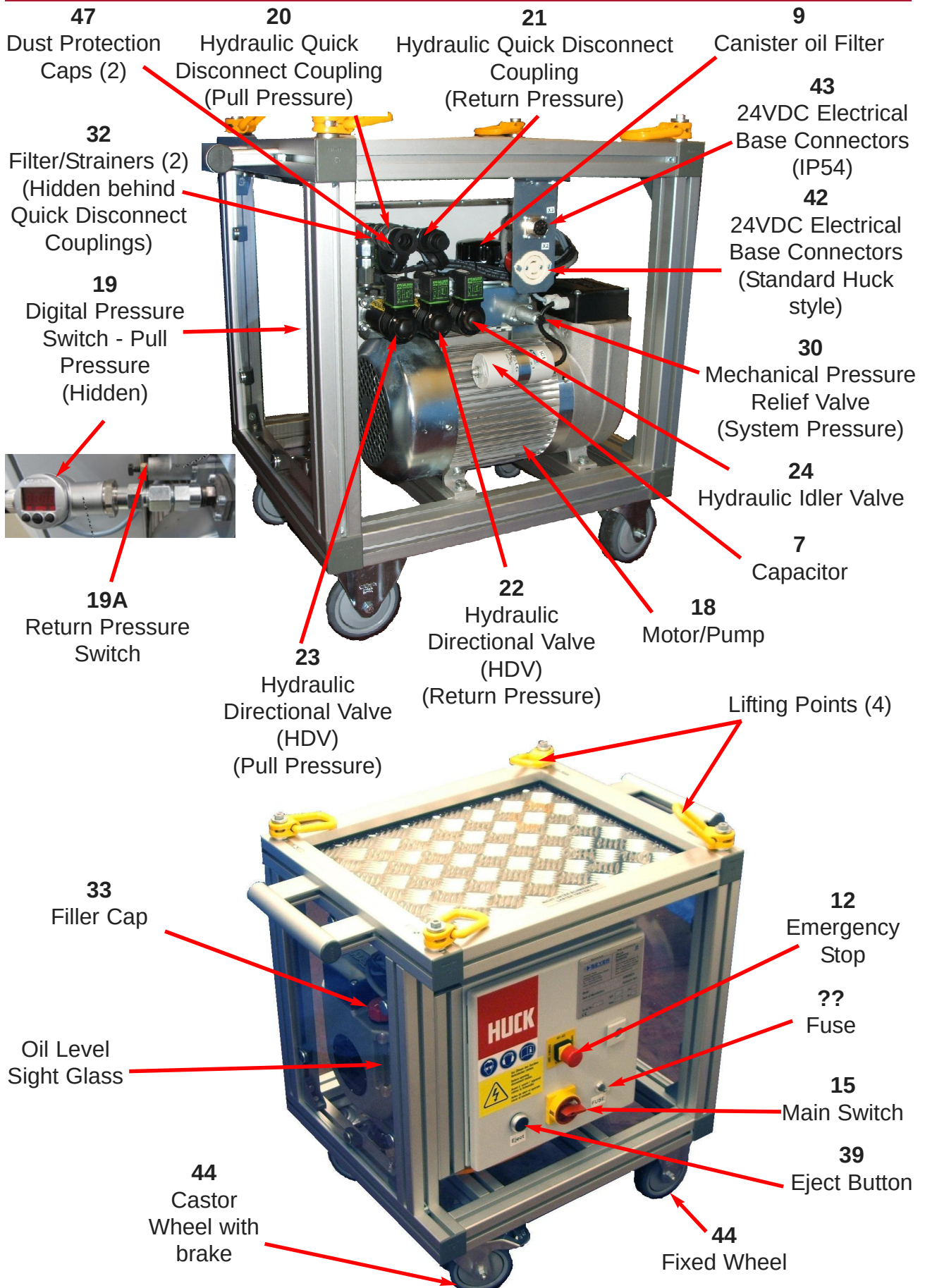
Sometimes called Cut-Off Pressure, this is the hydraulic pressure which is applied to the Tool Piston during the "Pull" stroke (pulling on the Fastener Pin). This pressure is set using the Digital Pressure Switch (19). It is adjusted to ensure complete swaging of the Collar and/or

pintail fracture when the value of the set Swage Pressure is reached, at which point, the Tool Piston will automatically return to it's starting position. **This pressure will normally be set lower than the Pull Pressure.**

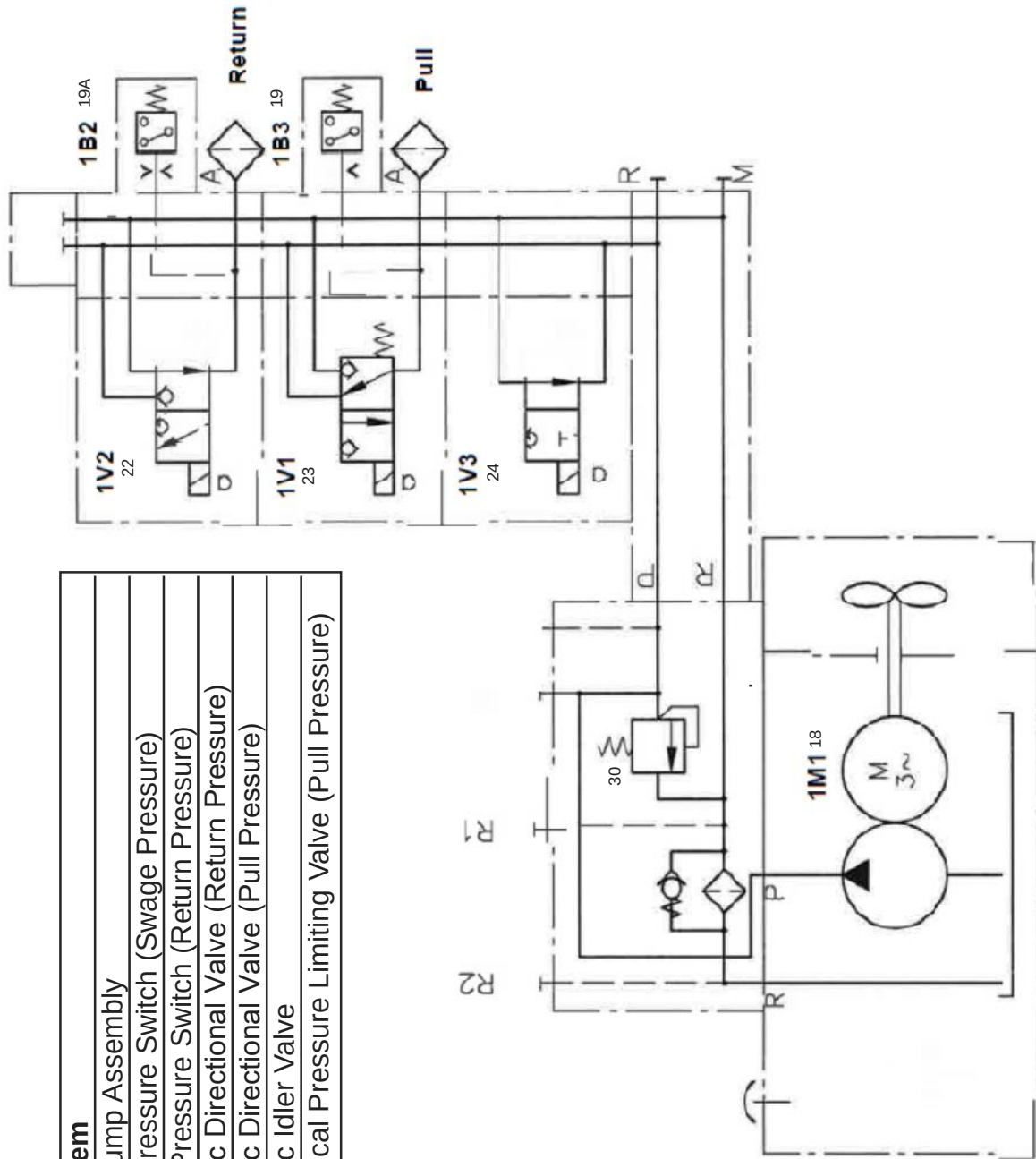
Return Pressure:

This is the hydraulic pressure applied to the Tool Piston during the Tool Piston return stroke, enabling the Tool/Nose Assembly to eject from the installed Fastener.

This pressure is set and adjusted with the Return Pressure Switch (19A) and to function correctly, it **must** be set at a lower value than the Mechanical Pressure Relief Valve 30.

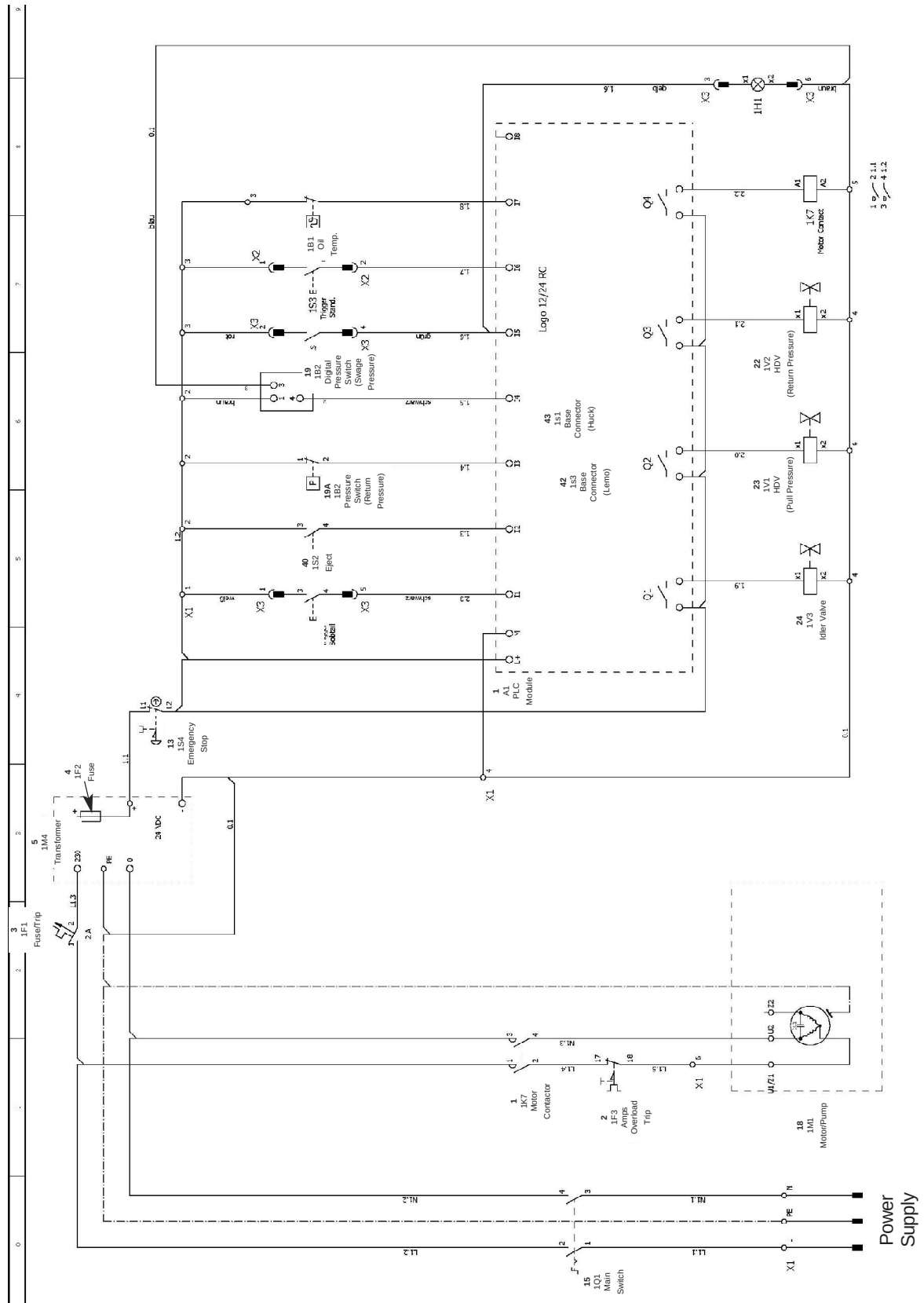


**HK3416-0007 Main Components
FIG. 2**



Ref. N0.	Part Number	Item
18 (1M1)	HKE-9010	Motor/Pump Assembly
19 (1B3)	HMP-0010	Digital Pressure Switch (Swage Pressure)
19A (1B2)	HMP-0010	Return Pressure Switch (Return Pressure)
22 (1V2)	HCH-17	Hydraulic Directional Valve (Return Pressure)
23 (1V1)	HCH-18	Hydraulic Directional Valve (Pull Pressure)
24 (1V3)	HKH-9026	Hydraulic Idler Valve
30	HKH-9020	Mechanical Pressure Limiting Valve (Pull Pressure)

HK3416-0007 Hydraulic Schematic
FIG. 2



HK3416-0007 Electrical Schematic
FIG. 4

Preparation for First Time Use (Refer to FIG. 2 & 5)

1. Using the Oil Level Sight Glass, check that there is sufficient Oil in the Reservoir to enable the Powerig to operate.
2. If necessary, remove the Filler Cap **33** on top of the Motor/Pump , and fill Powerig Oil Reservoir (refer to page 22) with recommended hydraulic fluid, (refer to page 5, Specification).

CAUTION

For filling the reservoir, only use clean fluid and clean funnel with a filter.

3. Reinstall Filler Cap.
4. Connect electrical power supply cable to correct single (1) phase electrical supply, as specified on the Powerig name plate.
5. Turn Main Switch **15** to the on position and pull out Emergency Stop Button **12** to the reset position.

Checking & Adjusting the Pull Pressure - MPLV (Mechanical Pressure Limiting Valve) **30**

Note:

Before proceeding, adjust the DPS (Digital Pressure Switch) **19** to 600 bar (8700 psi). Refer to page 16.

WARNING

TO AVOID THE RISK OF PERSONAL INJURY, DO NOT CONNECT ANY HYDRAULIC HOSES TO THE POWERIG AT THIS TIME.

Checking Pull Pressure (FIG.5)
(refer to **Utilisation** for correct setting)

6. Connect the electrical plug of a remote trigger or Installation Tool to the Powerig Electrical Connector **43**. Alternatively, if a Bobtail Tool with a multi-pin connector is being used, then connect this to Powerig Electrical Connector **42**.

7. Operate the remote/Tool Trigger momentarily and note the Pull Pressure reading on the DPS **19**. If an IT or ST type Bobtail Tool is being used, then push and hold a Bobtail Pin into the Nose Assembly Puller to enable the Tool Trigger to function.

CAUTION

Complete this test as quickly as possible to prevent overload of hydraulic components.

8. Refer to FIG. 5 and adjust the Pull Pressure to suit the Installation Tool being used. Refer to **Utilisation** (Page 8) and/or the Installation Tool Instruction Manual for correct Pull Pressure setting. Only make small adjustments (1/4 turn) at one time. **Do not** remove any pre-installed washers or locknut from the adjusting screw.

9. Once the Pull Pressure has been set, tighten the Lock Nut on the Adjustment Screw to ensure setting is retained. Check the pressure one more time to ensure it had not changed whilst tightening the Lock Nut.

10. Reduce the DPS **19** Swage Pressure to a value less than the Pull Pressure.

Checking & Adjusting the Return Pressure - Return Pressure Switch **19A**

Note:

Before proceeding, adjust the DPS (Digital Pressure Switch) **19A** to 600 bar (8700 psi). Refer to page 16. Refer to **Utilisation** (Page 8) and/or the Installation Tool Instruction Manual for correct Return Pressure setting.

11. Connect a suitable pressure gauge (0-700 bar/0-10,000 psi) to Powerig Hydraulic Connector **21** (Return Pressure).

12. Connect the Pull Pressure hose of the Tool to the Powerig Hydraulic Connector **20** (Pull Pressure) and Return Pressure hose of the Tool to the pressure gauge.

13. Connect the electrical plug of the Tool (or a remote trigger), to the Powerig Electrical Connector **42** or **43**

14 Using the Trigger, cycle the Tool until the Tool Piston stops moving. Release the Trigger and allow the Tool Piston to return to it's original position. At

this point the Return Pressure will rise; note the maximum Return Pressure reading on the gauge just before the Motor/Pump stops returns to the idle condition.

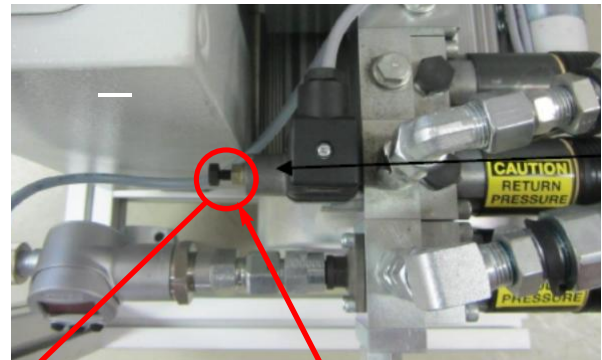
15. Refer to FIG. 5 and adjust the Return Pressure to suit the Installation Tool being used. Refer to the Installation Tool Instruction Manual for correct Return

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Adjusting Valves

CAUTION
Do not remove pre-installed adjusting screw, spacer/ washer or lock nut from the pressure limiting valve (30)
Consult Alcoa fastening Systems & Rings before adjusting pressures.



19A
Return Pressure Switch)
(Return Pressure)

Adjustment Screw
Clockwise to increase Pull Pressure

Lock Nut

Anti-clockwise to decrease Pull Pressure

FIG. 5
Valves controlling Hydraulic Pressures

Continued on next page...

Pressure setting.

Only make small adjustments (1/4 turn) at one time before re-checking pressure. Once the Return Pressure has been set, use the Lock Nut on the Adjustment Screw to ensure setting is retained. Check the pressure one more time to ensure it had not changed whilst tightening the Lock Nut.

Note:

The Return Pressure must always be set at a lower value than the Pull Pressure, otherwise the Powerig and Tool will not function correctly. The Return Pressure should always be set at least 6,9 bar (100 psi) **lower** than the Pull Pressure.

Setting the Swage Pressure

Refer to **Utilisation** (Page 8) for correct setting.

The Swage Pressure is controlled by the Digital Pressure Switch **19**. This unit is programmable and is capable of performing many different functions. For use in the HK3416-0007 Powerig, it is set up in the Hysteresis switching function SP1 and the display is set to show the last pressure measured, (not necessarily the set Swage Pressure value).

Normal Display



Note:

To ensure correct function, the pressure must be set at a lower value than the Mechanical Pressure Relief Valve **30**.

Adjust the Swage Pressure value as follows:

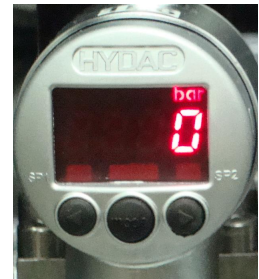
16. Press the centre button briefly and the display will change as shown. This indicates the Swage Pressure already set.



17. Immediately use the up & down arrow keys to adjust to the value required.



18. Wait for at least 3 seconds for the original display to show. The Swage Pressure is now set.



Notes:

a) During the setting process, if none of the buttons are pressed for a period of 3 seconds or more, then the display will reset to the normal condition.

b) After activation, the display will show the last pressure measured. After 3 seconds, the display will reset to the normal condition.

Testing Fastener Installation

CAUTION

Read the safety guidelines on pages 1, 2 & 3 before proceeding

19. Prepare a sample joint with the Fastener. If using a Lockbolt, place the Collar onto the Pin.

20. Locate the Nose Assembly onto the Pintail/Boobtail of the fastener Pin. The Nose Assembly should be in line with the axis of the fastener Pin.

21. Press and hold the tool Trigger. The Motor/Pump will start and the Nose Assembly Anvil will be forced forward to complete the Collar swaging/Blind Fastener forming. Release Trigger.

Note:

If using the Digital Pressure Switch **19** to control the Collar swaging, when the set Swage Pressure is reached, the Tool /Nose Assembly will eject from the installed Fastener and automatically return to the starting position. Release Trigger.

22. The installed fastener should be visually checked using an Inspection Gauge if available.

Preparation for regular use

Before each Powerig operation, perform the following:

- 1.** Inspect hoses, electrical cords and connections frequently for signs of damage or ageing. Replace if necessary.
- 2.** Regularly check hydraulic fluid level.
- 3.** Connect the Pull and Return Hydraulic Connectors of the Tool or Hose Set to the Powerig Hydraulic Connectors **20** & **21**. Connect the Electrical Plug of the Tool/ Hose Set to the electrical base connections **42** or **43**.
- 4.** Check that all electrical and hydraulic connectors of the Tool and Hose Sets are properly attached.
- 5.** Turn Main Switch **15** to the on position and pull out Emergency Stop Button **12** to the reset position.
- 6.** Depress and release the Tool Trigger several times to cycle the Tool and circulate the oil through the Powerig valves, hoses and Tool.

CAUTION

Do not attempt to operate the Tool without the Tool hoses attached to the Powerig. When using HPT tools, release trigger immediately at the end of the pull stroke.

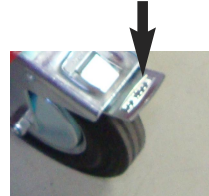
- 8.** Powerig is ready for use.

CAUTION

When the Powerig is placed in it's final working position, ensure that both castor swivel wheels are locked to prevent accidental movement of the Powerig during use.

The wheel locks are designed to be foot operated - never operate wheel locks by hand.

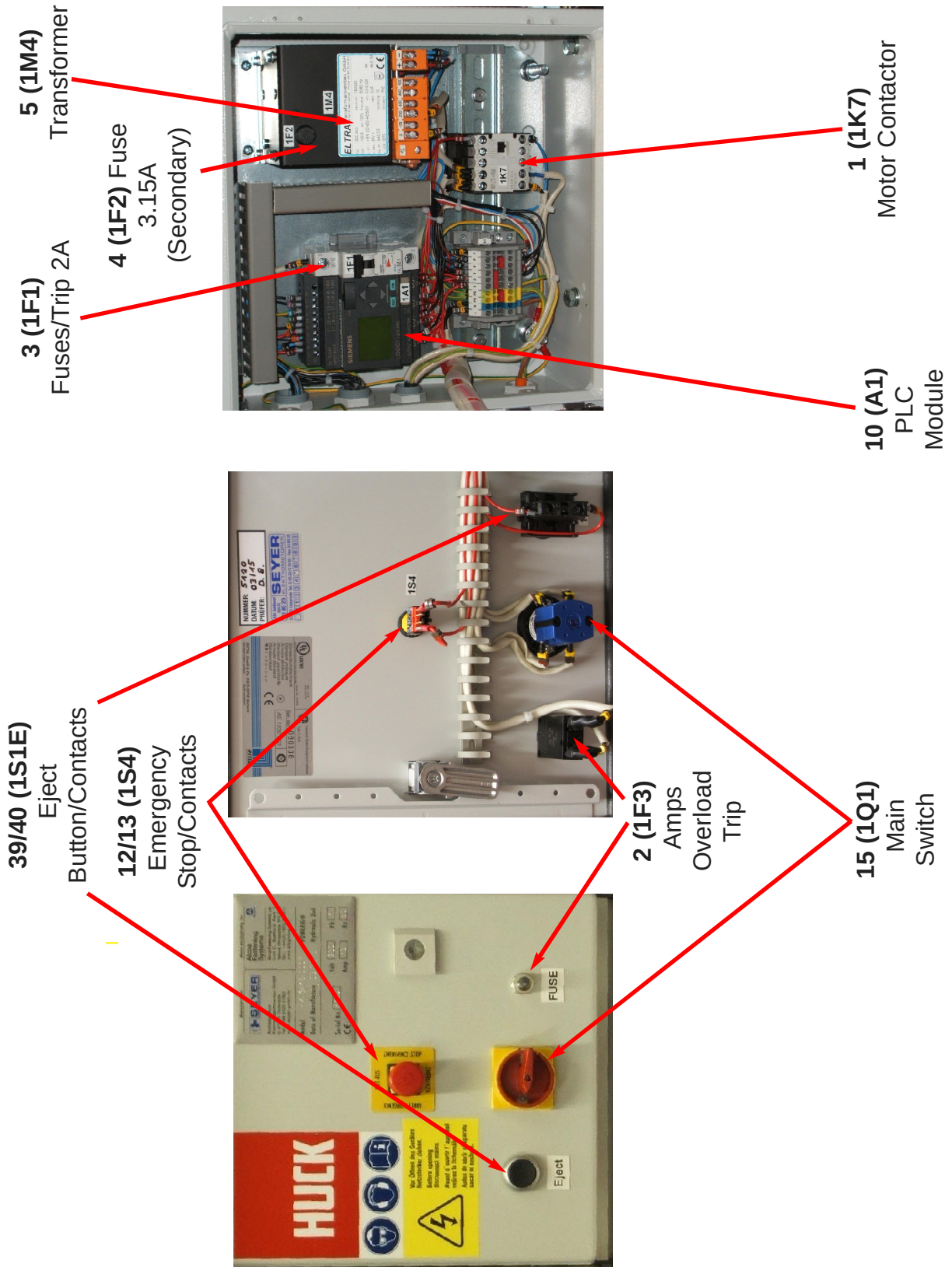
Push down fully to lock Wheel



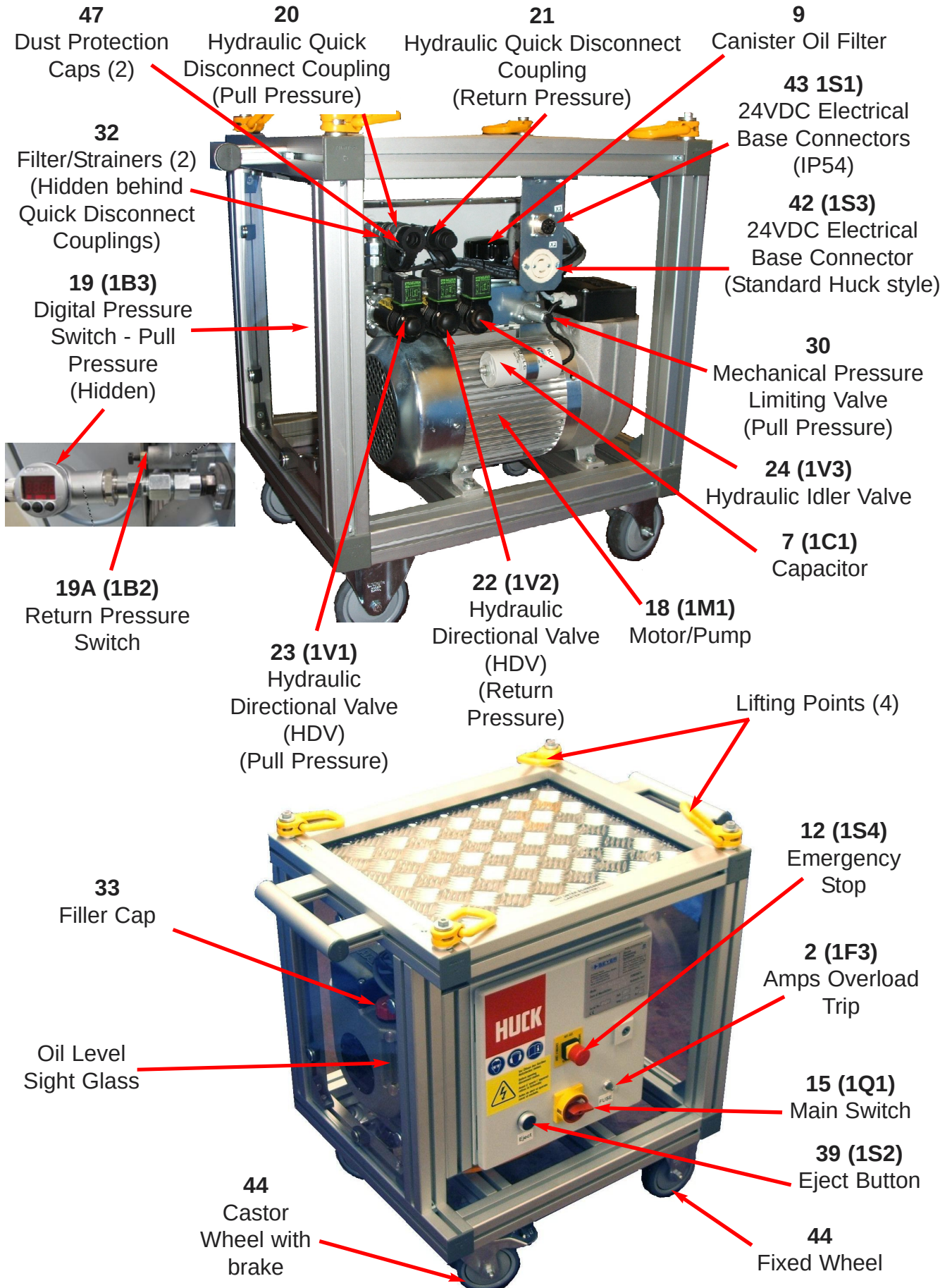
Wheel in **unlocked** position



Wheel in **locked** position.



HK3416-0007 Electrical Control Box
FIG. 6

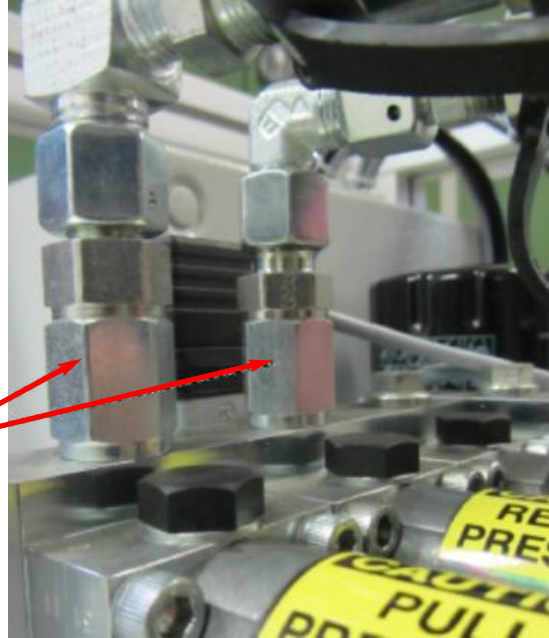


HK3416-0007 Electrical/Hydraulic Components

FIG. 7

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32
Filter/Strainer
(60 micron)



HK3416-0007 Parts List

Ref. No.	Qty.	Scheme. Ref. No.	Description	Supplier Part No.	Supplier	Huck Part No.
1	1	1K7	Motor Contactor	DIL EM10-G (24Vdc)	Eatn	HCE-43
2	1	1F3	Amps Overload Trip (10 Amp)	57254	Traub	HKE-9012
3	1	1F1	Fuse/Trip (Control Circuit)	FAZ S1/2	Eaton	HCE-42-P
4	1	1F2	Fuse 3.15 Amp (Secondary)	3.15T	Seyer.	HKE-9025
5	1	1M4	Transformer 220-500V (3 Amp)	GDC24/3	Eltra/Seyer	HKE-9048
6	-		Reserved for SureSet Powerigs	-	-	-
7	1	1C1	Capacitor 40 µF	400 450 MKP	Traub	HKE-9019
8	-		Reserved for SureSet Powerigs	-	-	-
9	1	-	Canister Oil Filter	W77/2	Hawe	HKH-9019
10	1	A1	PLC Module (Siemens LOGO 12/24RC)	1375	Seyer	KA-0006
11	-		Reserved for SureSet version	-	-	-
12	1	1S4	Button - Emergency Stop Switch	Q25PV	Eaton	HKE-9007
13	1	1S4	Contacts - Emergency Stop Switch	E01	Eaton	HKE-9008
14	-	-	Reserved for other Powerigs	-	-	-
15	1	1Q1	Main Switch	TM-2-8292/E/SVB	Eaton	HKE-9006
16	-		Reserved for SureSet version	-	-	-
17	-		Reserved for SureSet version	-	-	-
18	1	1M1	Motor /Pump 1.5 kW See Note	065	Seyer	HKE-9010
19	1	1B3	Digital Pressure Switch (Swage Pressure)	EDS 3446	Hydac	HMP-0010
19A	1	1B2	Pressure Switch (Return Pressure)	DG33	Hawe	HKH-9021

HK3416-0007 Parts List continued

Ref. No.	Qty.	Scheme.	Description Ref. No.	Supplier Part No.	Supplier	Huck Part No.
20	1	-	Hyd. QD Coupling (Pull Pressure)	TC 372	Parker	Available as pair only
21	1	-	Hyd. QD Coupling (Return Pressure)	TC 371		110440
21A	-	-	Reserved for other Powerigs	-	-	-
21B	-	-	Reserved for other Powerigs	-	-	-
22	1	1V2	HDV (Return Pressure)	GZ 3-1	Hawe	HCH-17
23	1	1V1	HDV (Pull Pressure)	G3-1	Hawe	HCH-18
24	1	1V3	Idle Valve	GS 2-1	Hawe	HKH-9026
25	-	-	Oil Filter Condition Gauge (optional)	-	-	HKH-9045
26	-	-	Reserved for SureSet version	-	-	-
27	-	-	Reserved for SureSet version	-	-	-
28	-	-	Reserved for SureSet version	-	-	-
29	-	-	Reserved for other Powerigs	-	-	-
30	1	-	Mechanical Pressure Limiting Valve (Pull Pressure)	113	Seyer	HKH-9020
30A	-	-	Reserved for other Powerigs	-	-	-
30B	1	-	Reserved for other Powerigs	-	-	-
31	-	-	Reserved for SureSet version	-	-	-
32	2	-	Filter/Stainer (60 micron)	123	Seyer	HFE-1/4F
33	1	-	Filler Cap	083	Seyer	KA-0005
34	-	-	Reserved for other Powerigs	-	-	-
35	-	-	Reserved for other Powerigs	-	-	-
36	-	-	Reserved for SureSet version	-	-	-
37	-	-	Reserved for SureSet version	-	-	-
38	-	-	Reserved for other Powerigs	-	Seyer	KA0010
39	1	1S2	Button - Eject	M22D-S	Eaton	HKE-9029
40	1	1S2	Contacts-Button Eject	K10	Eaton	KA-0007

HK3416-0007 Parts List continued

Ref. No.	Qty.	Scheme.	Description Ref. No.	Supplier Part No.	Supplier	Huck Part No.
41	-	-	Reserved for other Powerigs	-	-	-
42	1	1S3	Electrical Base Connector (Standard Huck style)		Seyer	110685
43	1	1S1	Electrical Base Connector (IP54)	110685	AFSR	110687UK(IP54)
44	2	-	Castor Wheel with Brake (100 mm)	-	Blickle - Only available as a set HMP-0052	HMP-0052
45	1	-	Fixed Wheel (100 mm)	-		
46	1	-	Reserved for other Powerigs	-		
47	2	-	Dust protection cap	7002	Seyer	HKH-9031

Note: When ordering this part, state exact operating voltage shown on Powerig Machine Plate

Preventive Maintenance

1. Before carrying out any maintenance, turn the Main Switch **15** to the off position and disconnect the supply cable plug from the electrical supply.

2. Regularly inspect the hydraulic fluid. If contamination particles larger than 10 μ are present, then replace fluid. Good practice is to replace the hydraulic fluid every 12 Months to avoid ageing effects.

Note:

The introduction of foreign material into the hydraulic system can result in poor performance and repair downtime. Observe the following practices:

3. When filling or adding oil, always use a clean funnel with a 10 μ filter. Make sure that correct fluid is used.

4. Always make sure that hose couplings are free from dirt before attachment of Tools.

5. All hydraulic hoses should be renewed every five years.

Notes:

A) Mixing different manufacturers/kinds of oil can cause a chemical reaction relating to resin or sludge. Contact the manufacturer for advice to avoid any problems. In any case, all traces of the original oil must be removed by rinsing (washing out) all hydraulic components. If filling/draining the Powerig, ensure that hydraulic fluids are not accidentally switched.

B) Hydraulic fluids should be disposed of according to the environmental guidelines/legislation applicable in the country where the unit is being maintained and/or used. Please also consult the guidelines of your individual oil manufacturer.

Adding Hydraulic Fluid.....

1. Ensure that equipment is readily available to deal with any spillage of hydraulic fluid.

2. *Before* removing the filler cap, use a clean wipe to remove any accumulated dirt from the filler cap and surrounding area. Remove the exposed filler cap.

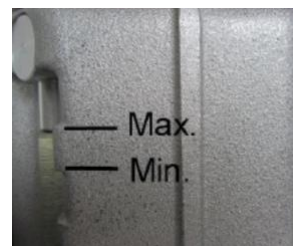
4. Locate a clean funnel into the filling port and place an absorbant wipe around the funnel spout to soak up any excess fluid. Switch on the Powerig but do not activate any Installation Tools.



5. *Before* adding any hydraulic fluid, check that it is the correct type and grade. (Refer to page 5, Specification).

6. Slowly add the new hydraulic fluid, pausing regularly to allow fluid in the funnel to flow into the oil reservoir and also preventing accidental spillage.

7. Continue to add fluid up to the Max line on the Oil Level Sight Glass.



8. Remove the funnel and replace the filler cap. Ensure filler cap is tightened. g.

9. Clean any fluid spillage with absorbant wipes.

Draining Hydraulic Fluid.....

1. Ensure that equipment is readily available to deal with any spillage of hydraulic fluid.
2. Place the Powerig onto an oil tray or draining sink sufficient to retain 3.7 ltrs of fluid.
3. Remove the Filler Cap on top of the Motor/Pump.
4. Lift the Powerig at one end to allow the hydraulic fluid to flow out of the Filler Cap.
6. Replace the Filler Cap and fully tighten.
7. Clean any fluid spillage with absorbant wipes.

Other Preventative Maintenance

1. Before carrying out any maintenance, turn the Main Switch **15** to the off position and disconnect the supply cable plug from the electrical supply.
2. Electrical components are only allowed to be repaired and/or replaced by a qualified electrician.
3. Hydraulic components are only allowed to be repaired and/or replaced by a qualified mechanic.

CAUTION

BEFORE CARRYING OUT ANY MAINTENANCE, TURN THE MAIN POWER SWITCH TO THE OFF POSITION AND DISCONNECT THE SUPPLY CABLE PLUG FROM THE ELECTRICAL SUPPLY.

Preventative Maintenance Schedule:

Frequency	Task
Weekly	Examine Pintail Deflector/Collection Bottle of Tool. Re-new if damaged.
Weekly	Dis-assembly Nose Assembly, clean and inspect. Re-new any parts which are badly worn or damaged. Pay particular attention to any Jaws/Pullers and Springs.
Monthly	Check Hydraulic Oil Level. Inspect hydraulic oil. If any contaminants are larger the 10 µ, then replace Oil and all Filters.
3 Monthly	Check system for any Oil leaks and damage to Hydraulic Hoses and Re-new if necessary.
3 Monthly	Change all Filters
6 Monthly	Inspect hydraulic oil. If any contaminants are larger the 10 mu, then replace Oil and all Filters.
12 Months	Change Oil and all Filters.
5 Years	Re-new Hydraulic Hose.
100,000 Fastener Installations	If using 2480 series Tools, re-new Wiper Seal (Part Number 505843).

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Tooling Warranty: Alcoa Fastening systems warrants that tooling and other items (excluding fasteners, and hereinafter referred as "other items") manufactured by Alcoa Fastening systems shall be free from defects in workmanship and materials for a period of:

A) A maximum of 12 calendar Months from the date of original purchase.

Warranty on "non standard or custom manufactured products": With regard to non-standard products or custom manufactured products to customer's specifications, Alcoa Fastening Systems warrants for a period of 12 calendar Months (or cycles as specified above), from the date of purchase that such products shall meet Buyer's specifications, be free of defects in workmanship and materials. Such warranty shall not be effective with respect to non-standard or custom products manufactured using buyer-supplied moulds, material, tooling and fixtures that are not in good condition or repair and suitable for their intended purpose.

There are no warranties which extend beyond the description on the face hereof. Alcoa Fastening Systems makes no other warranties and expressly disclaims any other warranties, including implied warranties as to merchantability or as to the fitness of the tooling, other items, nonstandard or custom manufactured products for any particular purpose and Alcoa Fastening Systems shall not be liable for any loss or damage, directly or indirectly, arising from the use of such tooling, other items, nonstandard or custom manufactured products or breach of warranty or for any claim for incidental or consequential damages.

Alcoa Fastening Systems sole liability and Buyer's exclusive remedy for any breach of warranty shall be limited, at Alcoa Fastening Systems option, to replacement or repair, at FOB Alcoa Fastening Systems plant, of Alcoa Fastening Systems manufactured tooling, other items, nonstandard or custom products found to be defective in specifications, workmanship and materials not otherwise the direct or indirect cause of Buyer supplied moulds, material, tooling or fixtures. Buyer shall give Alcoa Fastening Systems written notice of claims for defects within the twelve (12) calendar Months warranty period for tooling, other items, nonstandard or custom products described above and Alcoa Fastening Systems shall inspect products for which such claim is made.

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Alcoa Fastening Systems makes no warranty with respect to the tooling, part(s) or other items manufactured by third parties. Alcoa Fastening Systems expressly disclaims any warranty

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The only warranties made with respect to such tool, part(s) or other items thereof are those made by the manufacturer thereof and Alcoa Fastening Systems agrees to cooperate with Buyer in enforcing such warranties when such action is necessary.

Alcoa Fastening Systems shall not be liable for any loss or damage resulting from delays or nonfulfillment of orders owing to strikes, fires, accidents, transportation companies or for any reason or reasons beyond the control of the Alcoa Fastening Systems or its suppliers.

Huck Installation Equipment

Alcoa Fastening Systems reserves the right to make changes in specifications and design and to discontinue models without notice.

Huck Installation Equipment should be serviced by trained service technicians only.

Always give the Serial Number of the equipment when corresponding or ordering service parts.

Complete repair facilities are maintained by Alcoa Fastening Systems. Please contact one of the offices listed below.

Eastern

One Corporate Drive Kingston, New York 12401-0250 Telephone (845) 331-7300 FAX (845) 334-7333

Outside USA and Canada

Contact your nearest Alcoa Fastening Systems office, see back cover.

In addition to the above repair facilities, there are Authorized Tool Service Centers (ATSC's) -located throughout the 'United States. These service centers offer repair services, spare parts, Service Parts Kits, Service Tools Kits and Nose Assemblies. Please contact your Alcoa Fastening Systems Representative or the nearest Alcoa Fastening Systems office listed on the back cover for the ATSC in your area.

Alcoa Fastening Systems & Rings



About Alcoa Fastening Systems & Rings, a business unit of Alcoa, is a leading worldwide designer and manufacturer of fastening systems and rings, including specialty fasteners, fluid fittings, assembly components, installation systems, and seamless rings for aerospace and

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