The environmental solution
to protect
oil & fuel systems

CHAININGS Filtration

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TECHNICAL BROCHURE

FOR CP4201-0612

EGGBOROUGH 2

CONTENTS

1. INTRODUCTION

The unit model CP4201 is specifically designed to clean heavily contaminated oil used in applications such as coal mill gearboxes. The unit can also be used on systems employing high viscous hydra-carbon oils where finite cleanliness is required.

The unique Chainings 203mm filter medium is fitted to the unit which remove water, acids, ethylene glycol and all other aqueous contaminants together with solids above 1 micron.

Note: The unit is suitable for use on a wide range of mineral oils and a certain amount of synthetic oils may also be cleaned after consultation with the manufacturer. However, there are types of fluid that cannot be cleaned using the unit which include the following;

- Oils with properties that may corrode unit seals and pipework e.g. Phosphate Esters.
- Oils with sufficient water based properties that may be reduced as a result of the filter element retention, e.g. Fire Resistant Fluids.

It is advisable to contact the manufacturer before cleaning fluids where the characteristics are not known.

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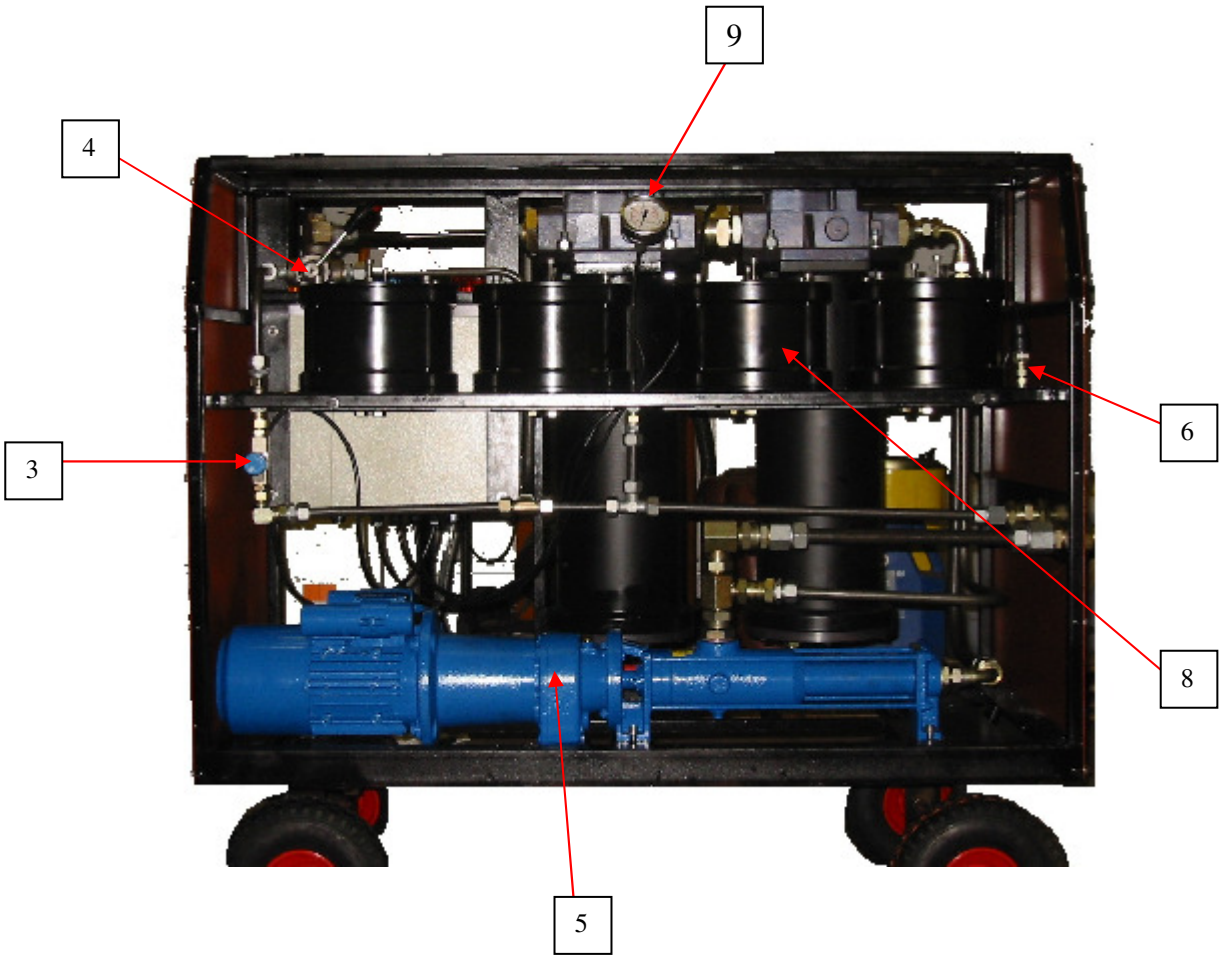
2. UNIT FEATURES

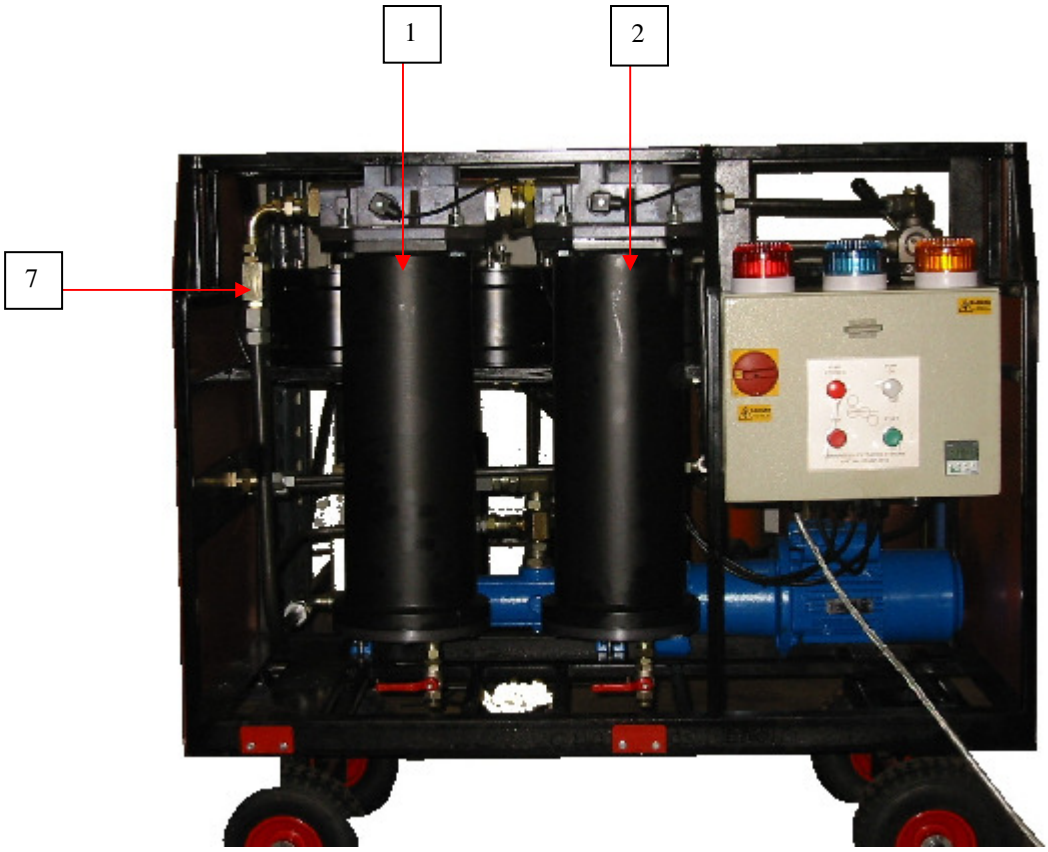
2.1	Frame	Used to mount all the unit features within the area of the frame with no components protruding.. An all over cowl is fitted to protect all the unit components with lid access for filter element change.
2.2	Electrical Panel	This houses all the electrical components to and from the unit. All the components are secured in a weather proof cabinet built to IP55 standard. The panel is provided with a safety interlock where access inside cannot be gained unless electrically isolated. A lockable handle is provided for security. The following lamps and controls are mounted on the panel door; a) Pump Start Button (Green) b) Pump Stop Button (Red) c) Pump On indication (White Lamp) d) Pump Stopped indication (Red Lamp) Also located on the door is a Programmable Hours counter (Normally set to 500 Hours) which will record the time that the unit is in operation and once the number of programmed hours has been achieved (i.e. Filter element life time limit), will automatically turn the unit off. Mounted on the underside of the cabinet is a Hours Counter Reset Key Switch which, when operated, will restore the Hours Counter back to the set number of Hours. Mounted on top of the cabinet, are the following; 250 Micron Strainer Blocked Beacon (Red) 90 Micron Strainer Blocked Beacon (Blue) Chainings Filter Blocked Beacon (Amber)
2.3	Filter Assembly	Part of the unique range of element types and sizes, the Chainings filter medium is housed in a corrosion resistant pot and sealed to provide the maximum efficiency for contamination control. Designed specifically for ease of element replacement.
2.4	Pump and Motor	Consisting of a 0.55Kw motor and Reduction Gearbox close coupled to a Single Screw pump. This assembly has been selected to produce a laminar circulation of fluid with the minimum revolutions of the pump's rotating parts so as to aid the efficiency of the filters in removal of fluid contamination. The pump is fitted with a mechanical relief valve set to discharge fluid back to the pump's suction feed should the generated pressure exceed 9.5 Bar.
2.5	Strainer Assy	Two Strainer assemblies mounted upstream of the Chainings filters. Their purpose is to capture coarse contamination prior to the oil circulating through the Chainings filters. Mounted in series the primary strainer is fitted with a 250 Micron re-cleanable element whilst the secondary has a re-cleanable 90 Micron element.

2. UNIT FEATURES Cont.

2.5	Gauge	A 0-16 Bar pressure gauge located in the filter circuit to provide a visual indication of the pressure generated during the cleaning cycle.
2.6	Press. Switch	Located in the filter circuit and factory set to 9 Bar. It's function is to protect the filters from excess pressure due to filter element blockage. Should the pressure rise to the defined setting, the pressure switch will relay an electrical signal to automatically turn the unit off.
2.7	Divertor Valve	Located downstream of the Strainer Assemblies to provide the option of circulating the oil through the Chainings filters or direct to return.
2.8	Bypass Valve	Fitted in parallel with the Chainings Filters and normally left in the closed position. It's function is to allow a proportion of oil to circulate around the filters to displace residue oil in the elements if the unit has not been operating for some time.



2. UNIT FEATURES Cont.



1. 250 Micron Strainer
2. 90 Micron Strainer
3. Filter Bypass Valve
4. Divertor Valve
5. Pump/Motor/ gearbox assy
6. Pressure Switch
7. Relief Valve
8. Chainings Filter Assy.
9. Pressure Gauge

3. INSTALLATION AND OPERATION OF THE UNIT

3.1 Installation

The unit is simple to install and once positioned in a favourable area, the inlet and outlet ports may be connected to the customer's system reservoir using the connection hoses supplied.
Ensure that elements are fitted into the Chainings filter housings. It is more important to ensure that the supply to and the delivery from the unit is free from restrictions otherwise unit malfunction may occur.

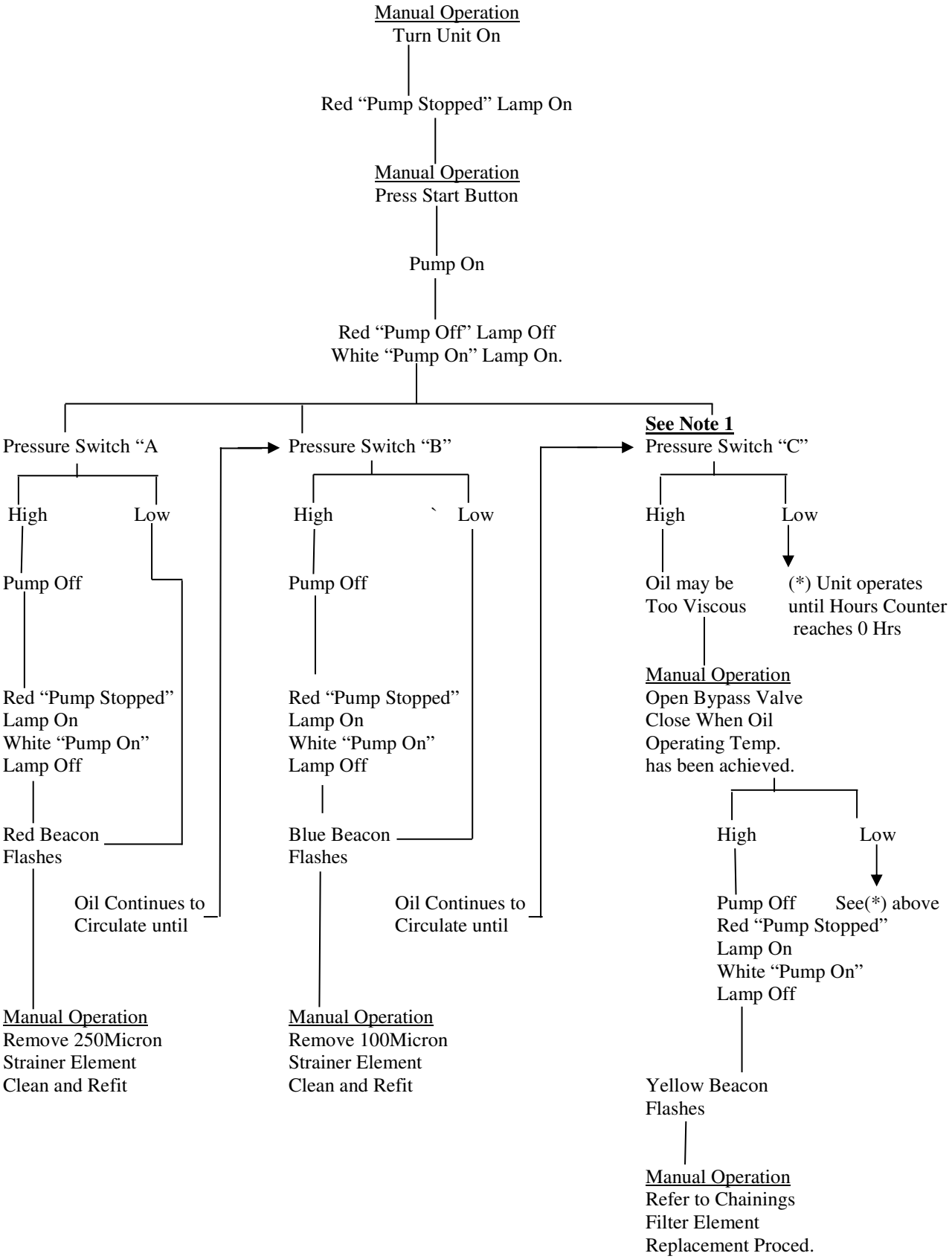
The electrical supply from the panel should be connected to a suitable Single phase 110V AC 50Hz supply.

3.2 Operation

Once correctly installed and electrical power is present, the unit may be operated by pressing the **Green** 'Pump Start' button.
Given the right conditions (see Section 4, Programme Summary) the unit will circulate the fluid to be cleaned.
Operation of the unit can be stopped at any time by pressing the **Red** 'Pump Stop' button.
IMPORTANT NOTE:
DO NOT LET THE FEED TO THE PUMP RUN DRY.

NOTE: This product is fully tested to specification before it leaves the manufacturers premises. Should any queries or problems arise, then the manufacturer should be contacted immediately. Adjustments made to the product without the prior knowledge of the manufacturer may invalidate any warranty claims.

4. PROGRAMME SUMMARY



Note1: Only in operation when 3-way valve is selected to posn.2 (see Hydraulic Cct)

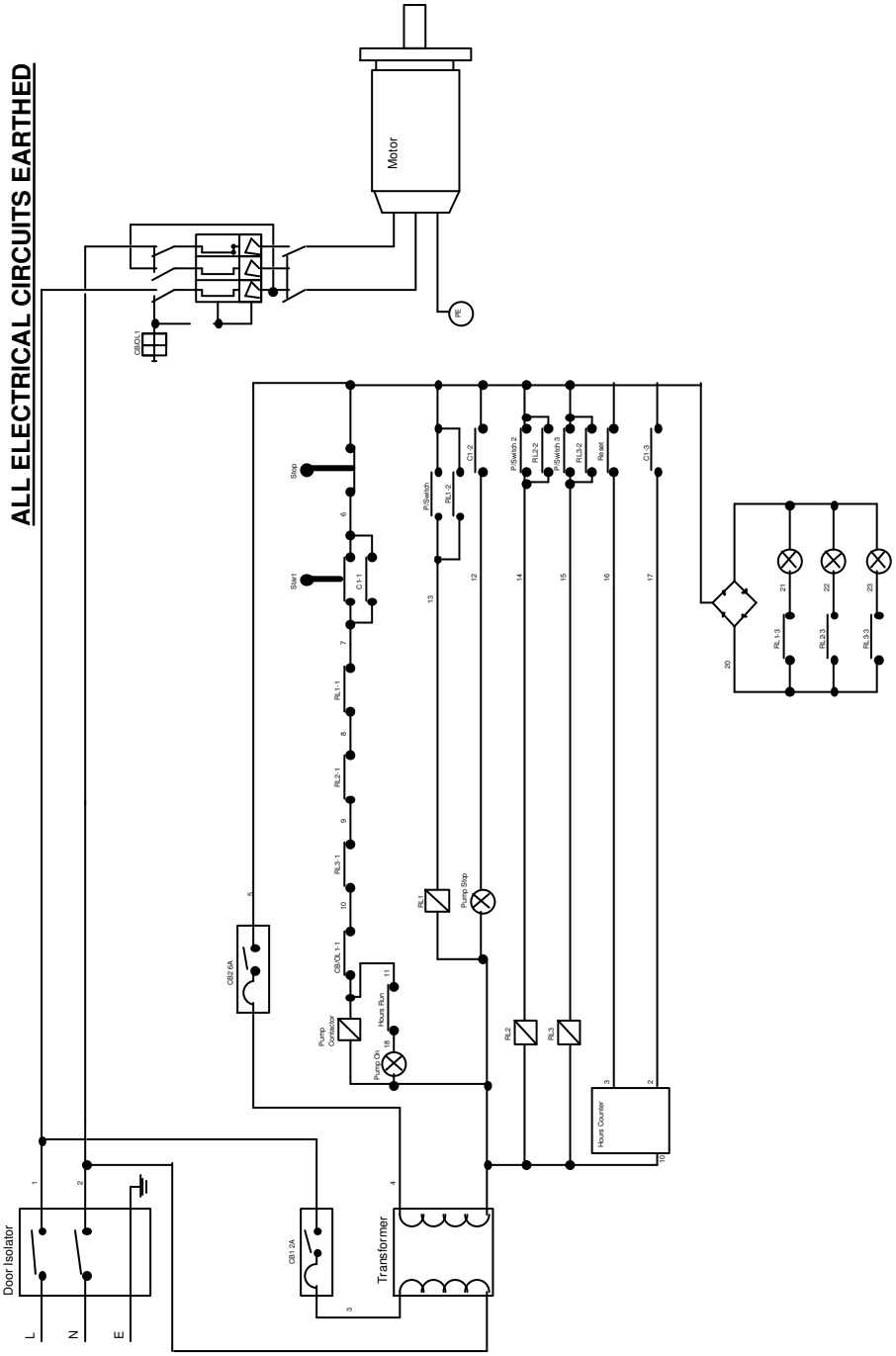
Note: To cancel any flashing beacon, the Mains Isolation must be turned to the "OFF" position before recommencing operation of unit.

When the Hours Counter reads 0 Hrs, the Filter element life expectancy has expired and the unit will automatically stop. To restart, the filter elements are to be replaced. Turn Key on Reset Switch clockwise and press Green "Start" button to reset Hours Counter to preset time. Turn Key back.

5. UNIT SPECIFICATIONS

1.	Type of Unit	CP4201	
2.	Type of Filter Housing	CHO2010H (4off)	
3.	Type of Filter Element	OCH2010	
4.	Filter Element Life Expectancy	500 Hours (Unless prematurely blocked)	
5.	Power Supply to Unit	110Volts 50Hz Single Phase	
6.	Power supply from Cabinet	24Volts DC (Except supply to Motor)	
7.	Pump/Motor Specification	Motor; SRCC80M04K 0.55Kw/7.8Amps (Clockwise Fan End) Gearbox; SK01F-AL-IEC80-140/18 Pump; ANBP5.2E21.P01	
8.	Oil Flow rate (Variable)	Nominal 6Lpm	
12.	Min. and Max. Operating Temp	10 – 30 Deg. C (Ambient)	
13.	Min. and Max. Operating Temp	5 – 80 Deg. C	
14.	Oil Viscosity range	10 – 500 Centistokes.	
15.	Maximum Product operating press.	a) Pressure Switch setting	9.0Bar
		b) Safety Relief Valve setting	9.5Bar
16.	Product Outlet Hose Connection	1” BSP	
17.	Size of Outlet Hose	1” BSP	
18.	Length of Inlet Connection Hose	3Metres	
19.	Length of Outlet Connection Hose	3Metres	
20.	Length of Power supply Cable	10Metres	
21.	Overall Product Dimensions	Length – 1100mm Width – 500mm Height – 1250mm	
22.	Product Weight	Approx. 250Kgs	
23.	Product protection	“All Over” Cowl manufactured from Mild Steel (Painted) Access hatches provided for Filter and Strainer element change.	

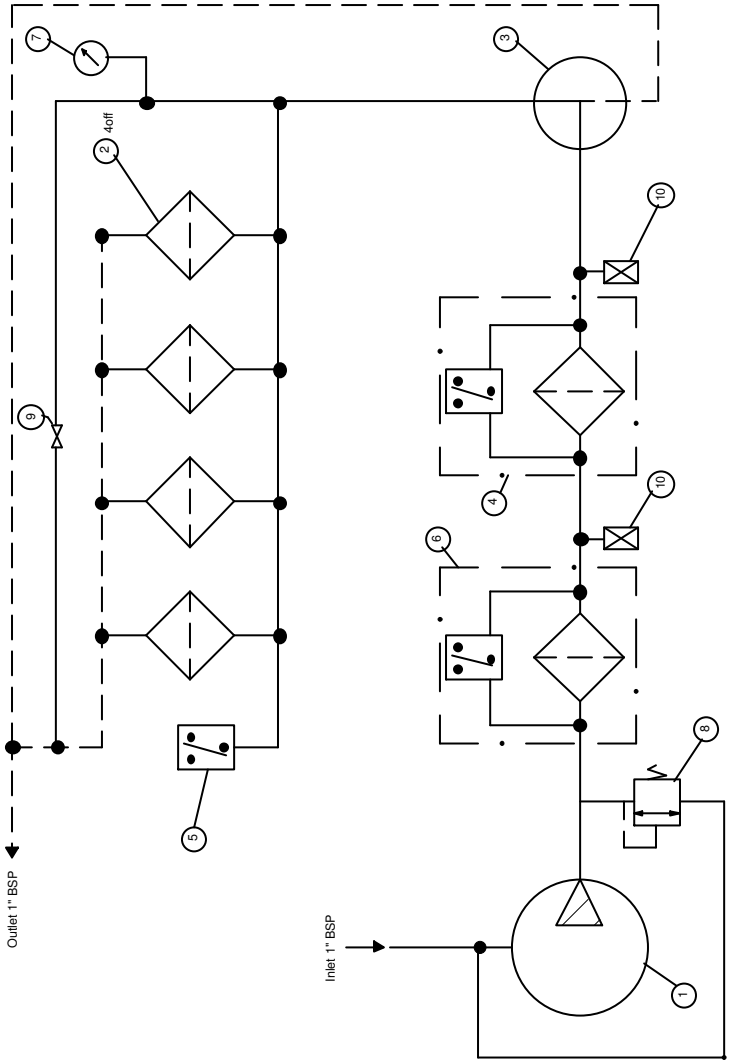
6. DRAWINGS



ELECTRICAL CIRCUIT DIAGRAM CP4201-0612-01

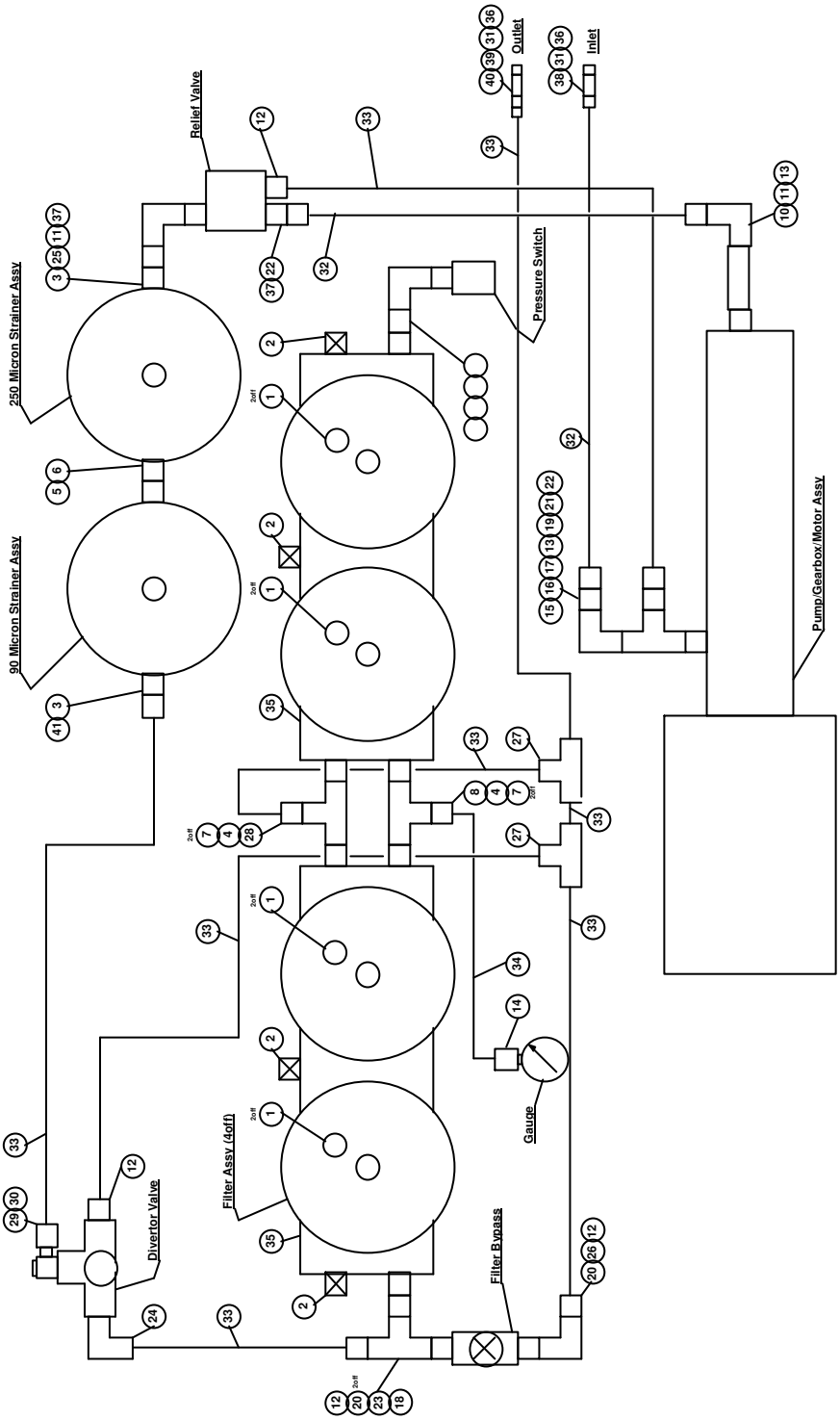
6. DRAWINGS Cont.

Ref	Part No.	Description	Qty
1	**ANBP62-E21P01143PP5846**	Pump/Motor Assy	1
2	CHO2010H	Chainings Filter Assy	4
3	DV3-1/2	Divertor Valve	1
4	LMP4502BAG1M90NN6	90 Micron Strainer	1
5	SMMF9R4GASP8	Pressure Switch	1
6	LMP4502BAG1M250NN6	250 Micron Strainer	1
7	MGR63G10	Pressure Gauge 0-20 Bar	1
8	CP40/12	Relief Valve	1
9	201013	Manual Bypass Valve	1
10	108003E	1/2" Drain Valve (Red)	2
11			



HYDRAULIC CIRCUIT DIAGRAM CP4201-0612-02

6. DRAWINGS Cont.



PIPING DIAGRAM CP4201-0612-03

6. DRAWINGS Cont.

Parts List for Piping Diagram CP4201-0612-03

REF.	DESCRIPTION	PART NO.	QTY	
1	¼ BANJO BOLT (SPECIAL)	CRX04BMG	8	
2	3/8 BSPT BLANK MALE	BA06BMT	4	
3	2 M-FEM (FIXED) ADPTR	BA32BM32BF (FIXED)	2	
4	3/8 TEE FEM	BA06BF06BF06BF	2	
5	2 M-FEM ADPTR	BA32BM32BF	1	
6	2 M-M ADPTR	BA32BM32BM	1	
7	3/8 M – M ADPTR	BA06BM06BM	4	
8	3/8 – 6 ADPTR	T-GE6-LR3/8	1	
9	¼ GAUGE ADPTR	BA04BM04BF GAUGE	1	
10	1 – ¾ M-M ADPTR	BA16BM12BM	1	
11	¾ F-F 90 ADPTR SWEPT	BA12BF90S12BF	2	
12	½ - 15 STR ADPTR	T-GE15-LR1/2	4	
13	3/4 - 22 STR ADPTR	T-GE22-LR3/4	2	
14	GAUGE ADAPTOR (Pipe – 6)	MAVL6	1	
15	1 M-M ADPTR	BA16BM16BM	1	
16	1M-1M-3/4FEM TEE	BA16BF16BF12BM	1	
17	¾ FEM-FEM ADPTR	BA12BF12BF	1	
18	½ M –FEM ADPTR	BA08BM08BF	1	
19	1 M-M 90 ADPTR COMPACT	BA16BM90K16BM	1	
20	½ M –M ADPTR	BA08BM08BM	3	
21	1-3/4 M-FEM ADPTR	BA16BM12BF	1	
22	¾ FEM – 22 PIPE ADPTR	T-GAI22-LR3/4	2	
23	1/2 TEE FEM	BA08BF08BF08BF	1	
24	15-90 TAPER 3/8BSPT	WEI15LR3/8	1	
25	¾ M-M ADPTR	BA12BM12BM	1	
26	½ FEM-FEM 90 ADPTR COMPACT	BA08BF90K08BF	1	
27	15 TEE	T15L	2	
28	3/8M-15 ADPTR	T-GE15-LR3/8	1	
29	½ BANJO ASSY	CA08BMG08BMG/RX08	1	
30	1/2FEM-15 ADPTR	T-GAI15-LR1/2	1	
31	1 BULKHEAD/LOCKNUT	BA16BM16BM BULK	2	
32	22 STEEL PIPE ASSY 1000mm Lg.	-	2	
33	15 STEEL PIPE ASSY 1000mm Lg.	-	8	
34	6 STEEL PIPE ASSY 500mm Lg.	-	1	
35	MANIFOLD DETAIL	CP2010MAN2	2	
36	1FEM BLANK CAP	BA16BF	2	
37	¾ BSP – ½ BSP M – M ADPTR	BA12BM08BM	2	
38	1FEM-22 ADPTR	T-GAI22-LR1	1	
39	1FEM-3/4M ADPTR	BA16BF12BM	1	
40	3/4FEM-15 ADPTR	T-GAI15-LR3/4	1	
41	3/4M-15 ADPTR	T-GE15-LR3/4	1	
42	3/8M-1/4FEM ADPTR	BA06BM04BF	1	
43	¼ M-M ADPTR	BA04BM04BM	1	
44	¼ M-FEM 90 ADPTR	BA04BM90K04BF	1	

7. PARTS LIST

REF.	PART No.	DESCRIPTION	QTY
1	**CP4201-0612-01**	**RIG FRAME ASSY**	**1**
3	**CP4201-0612-12**	**ELECTRICAL CABINET**	**1**
4	**CP4201-0612-15**	**RIG COWL ASSY**	**1**
5	**CP4201-0612-01**	**ELECTRICAL CIRCUIT**	**1**
6	**CP4201-0612-02**	**HYDRAULIC CIRCUIT**	**1**
7	**CP4201-0612-03**	**PIPING DIAGRAM**	**1**

8. FILTER CHANGE PROCEDURE

Removal of used element:

1. Ensure the unit is not in operation and electrically isolated.
2. Disconnect the Inlet and Outlet hoses from the unit via the Snap-On assemblies.
3. Remove the ¾" BSP Blank from the return circuit.
4. Ensure that the Pressure gauge reads 0 Bar before loosening each Filter Lid Blanking plug.
   WARNING: Care should be taken to avoid the risk of oil contacting the operator in the event of undue pressure being released.
5. Loosen and remove the M8 clamping screws, spring washers and plain washers securing the lid to the Filter Housing.
6. Unlock the nuts fitted to the underside of the two M8 bolts located on the Filter Lid and screw the bolts downwards to assist with the removal of the Lid.
7. Once the Filter Lid has been removed, pull the filter element upwards and away from the Filter Housing.
8. Depose the filter element in accordance with any legistrative procedures that may be applicable.

Installation of new element:

1. Ensure that the Filter Housing is clean and free of contaminates and that the "Inlet" and "Outlet" ports are not blocked.
2. Ensure that the "O" Ring on the Centre Tube is correctly positioned and not damaged.
3. Install the replacement Filter Element and ensure that it is seated firmly at the bottom of the Filter Assembly.
4. Ensure that the "O" Ring on the Filter Lid is correctly positioned and not damaged.
5. Apply a film of clean oil around the "O" Ring on the Filter Lid and ensure that the ends of the two bolts used for extraction purposes, are not protruding through the bottom of the Filter Lid.
6. Line the holes in the Filter Lid up with the tappings in the Filter Housing and press down to locate the Lid.
7. Replace the Clamping screws, Spring washers and Plain washers and Torque tighten each screw in a diagonal fashion, to 20Nm.
8. Hand tighten the two bolts on the Filter Lid and lock to the lid with the nuts fitted to the underside of each bolt. **Note: The filter element has been designed to compress as the lid is being tightened down.**
9. Refit the ¾" BSP Blank.
10. Reconnect the Inlet and Outlet Hoses.
11. Re-tighten all four filter lid blanking caps.
12. Restart the unit by pressing the "Green" Pump Start button.

WARNING: ALWAYS USE GENUINE CHAININGS FILTER ELEMENTS