



Chainings Limited

Units 1 & 2 Harrow Park, Harrow Road, Hereford, HR4 0EN
Telephone: +44 (0) 1432 356318 Fax: +44 (0) 1432 360808
Email: info@chainings.com

TECHNICAL BROCHURE

FOR CP4202-0640

OIL FILTRATION UNIT

(240V 50Hz Single Phase Supply)



CONTENTS

1. INTRODUCTION
2. FILTRATION UNIT FEATURES
3. INSTALLATION & OPERATION OF UNIT
4. PROGRAMME SUMMARY
5. SPECIFICATIONS
6. DRAWINGS a) Electrical control, circuit diagram
b) Hydraulic circuit diagram
c) Piping schematic
7. PARTS LIST
8. FILTER CHANGE PROCEDURE

1. INTRODUCTION

The Filtration unit CP4202 is designed to clean a wide range of hydro-carbon fluids, some of the more general being – hydraulic, lubricating & transformer oils.

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

All features are mounted on a flat bed trolley with fixed & swivel foam filled “Puncture Proof” tyres to aid mobility.

Note: The unit is suitable for use on a wide range of mineral oils. 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 rig seals & pipe work e.g. Phosphate Esters.

- Oils with sufficient water based properties that may be reduced, because of the filter element water retention feature, e.g. Fire Resistant Fluids.

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

2. FILTRATION UNIT FEATURES

- 2.1 Trolley Assembly. Used to mount all of the unit features within the area of the trolley with no components protruding. A cowl of mild steel construction (Painted) is fixed over the trolley framework to protect the components. Access doors are incorporated into the cowl for ease of filter element change.
- 2.2 Electrical Panel; This houses all the electrical controls to & from the unit. All the components are secured in a weatherproof cabinet built to IP55 standard. The panel is provided with safety interlock, so that access cannot be gained unless electrically isolated. A lockable handle is provided for security. The following lamps & controls are mounted on the panel door;
- a) Pump, Start Button (Green)
 - b) Pump Stop Button (Red)
 - c) Power On Indicator (Green Lamp)
 - d) Pump Running Indicator (Green Lamp)
 - e) Flow Control Adjustment
 - f) High Vacuum (Amber Lamp)
 - g) High Pressure Alarm (Amber Lamp)
 - h) Filters Expired Alarm (Amber Lamp)
- 2.3 Filter Assembly; Part of the unique range of element types & sizes, the Chainings filter medium is housed in a corrosion resistant pot & sealed to provide the maximum efficiency for contamination control. Designed specifically for ease of element replacement.
- 2.4 Pump & Motor; Consisting of a 0.55Kw motor, inverter rated & driven, close coupled to a Triple Screw pump. This assembly has been selected to produce laminar circulation of fluid with the minimum revolutions of the pump's rotating parts, 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 10 Bar.

2. FILTRATION UNIT FEATURES Cont.

- 2.5 Bypass Valve; Used to initially circulate oil direct from the pressure line to return in order to remove oil held in the filter elements if the unit has been stationary for a period of time. Normally left in the closed position.
- 2.6 Pressure Gauge; A 0-25 Bar pressure gauge located in the filter circuit to provide a visual indication of the pressure generated during the cleaning cycle.
- 2.7 Pressure Switch; Located in the filter circuit & factory set to 9 Bar. Its 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 latch an electrical signal, automatically turning off the unit.
- 2.8 Vacuum Switch; This electrical switch is located on the Inlet side of the pump and is set to 345mBar. Its function is to protect the pump from elevated suction in the event that either the pump is not connected to the oil system being cleaned, or the connection to the pump is blocked or too restricted.

3. INSTALLATION & OPERATION OF THE UNIT

- 3.1 The electrical supply to the unit should be connected to a suitable Single-phase 240vac 50Hz supply. (Min. current rating 16Amps, with type 'B' overload protection).

Conductor colour codes are as follows;

Brown	=	Live	(L)
Blue	=	Neutral	(N)
Green/Yellow	=	Earth	(E)

Before operation of the unit, ensure that the elements are fitted into the Chainings filter housings. Note: Unit has been tested with ISO46 oil. During initial operation, it is advisable to fill and flush the system before using on intended application.

Use of the unit will require the connection hoses to be fitted between the unit Inlet & Outlet ports & the applied system.

Note; Ensure that the Flat-Faced Snap-On Couplings on the connection hoses are firmly assembled onto the unit couplings.

It is important to ensure that the supply to & the delivery from the unit is free from restrictions otherwise malfunction may occur.

- 3.2; Operation; Once electrical power is present (Indicated by a **Green** 'Power On' light on the electrical cabinet), the unit may be operated by pressing the **Green** 'Pump Start' button. Given the correct conditions (See Section 4, Program 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.

NOTE; This product is fully tested to specification before it leaves the factory. 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

Manual Operation

Turn Mains Isolation Switch to the 'ON' position.

'Green' Power Lamp 'ON'

If either; High Pressure or filters Expired lamps are on, refer to table below.

Press 'Green' Start button.

'Green' Power Lamp remains on.

'Green' Pump Running Lamp on.

The unit will continue to circulate fluid until manually stopped by pressing 'Red' Stop button or automatically by the following alarm conditions;

Alarm	Reason	Action
"High Vacuum" Amber Lamp Lit	Supply of oil to filtration unit blocked	Check that Connection hose has been properly fitted and any Isolating valves in the supply line are opened
"High Pressure" Amber Lamp Lit	Filters blocked	Replace filter elements
"Filters Expired" Amber Lamp Lit	Filter element life expectancy expired	Turn unit off at isolator Replace Filter Elements. Turn Key clockwise and Press "Pump On" to reset Hours Counter.

Note; To cancel "High Pressure" or "High Vacuum alarms, the Mains Isolator must be turned to the 'Off' position then back 'On' again, to recommence operation of the unit.

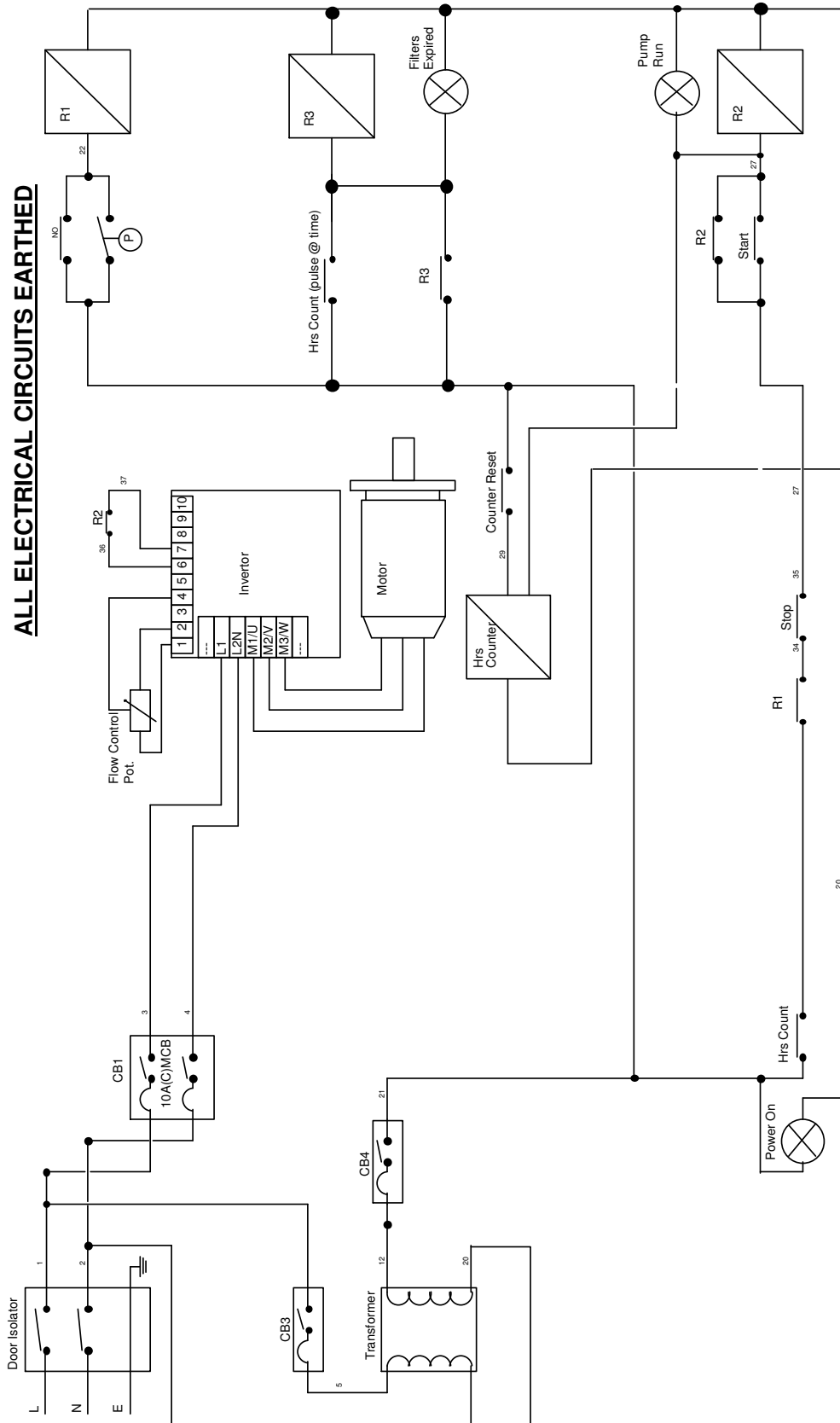
5. SPECIFICATIONS

1.	TYPE OF FILTRATION UNIT	CP4202
2.	TYPE OF FILTER HOUSING	CHO2010H
3.	SIZE OF FILTER ELEMENT	OCH2010 *
4.	POWER SUPPLY TO CABINET	240vac 50Hz 1Ph
5.	CONTROL SUPPLY	24vAc (Except supply to motor)
6.	PUMP/MOTOR SPEC.	Motor; 0.55Kw M2BA80MB6 Pump; AFI20R56G19W197 Min Rpm 104 Max Rpm 1044
7.	MINIMUM FREQUENCY SETTING	10Hz
8.	FREQUENCY SETTING @ 70 Deg C	50Hz
9.	MINIMUM FLOW RATE	1.6Lpm
10.	MAXIMUM FLOW RATE	15.0Lpm
11.	RESERVOIR CAPACITY	N/A
12.	OIL CAPACITY BETWEEN HIGH & LOW LEVELS	N/A
13.	HEATER SPECIFICATION	N/A
14.	HEATER THERMOSTAT SETTING	N/A
15.	INLET PORT SIZE	¾" BSP (Male Flat Face)
16.	OUTLET PORT SIZE	¾" BSP (Female Flat Face)
17.	WEIGHT	250Kgs
18.	SIZE	135-75-100cm
19.	MIN & MAX OPERATING TEMP (AMBIENT)	10 – 30 Deg C
20.	MIN & MAX OPERATING TEMP (OIL)	10 – 80 Deg C
21.	OIL VISCOSITY RANGE	20 – 300 CSt
22.	MAXIMUM PRESSURE TO THE UNIT	0.5 Bar
23.	MAXIMUM SUCTION LIFT	5 Metres
24.	VACUUM SWITCH SETTING	N/A
25.	MIN OPERATING PRESSURE	2Bar
26.	MAX OPERATING PRESSURE	Pressure switch setting 10 Bar

- **For re-ordering Filter Elements quote OCH2010-Pack of 4 elements.**

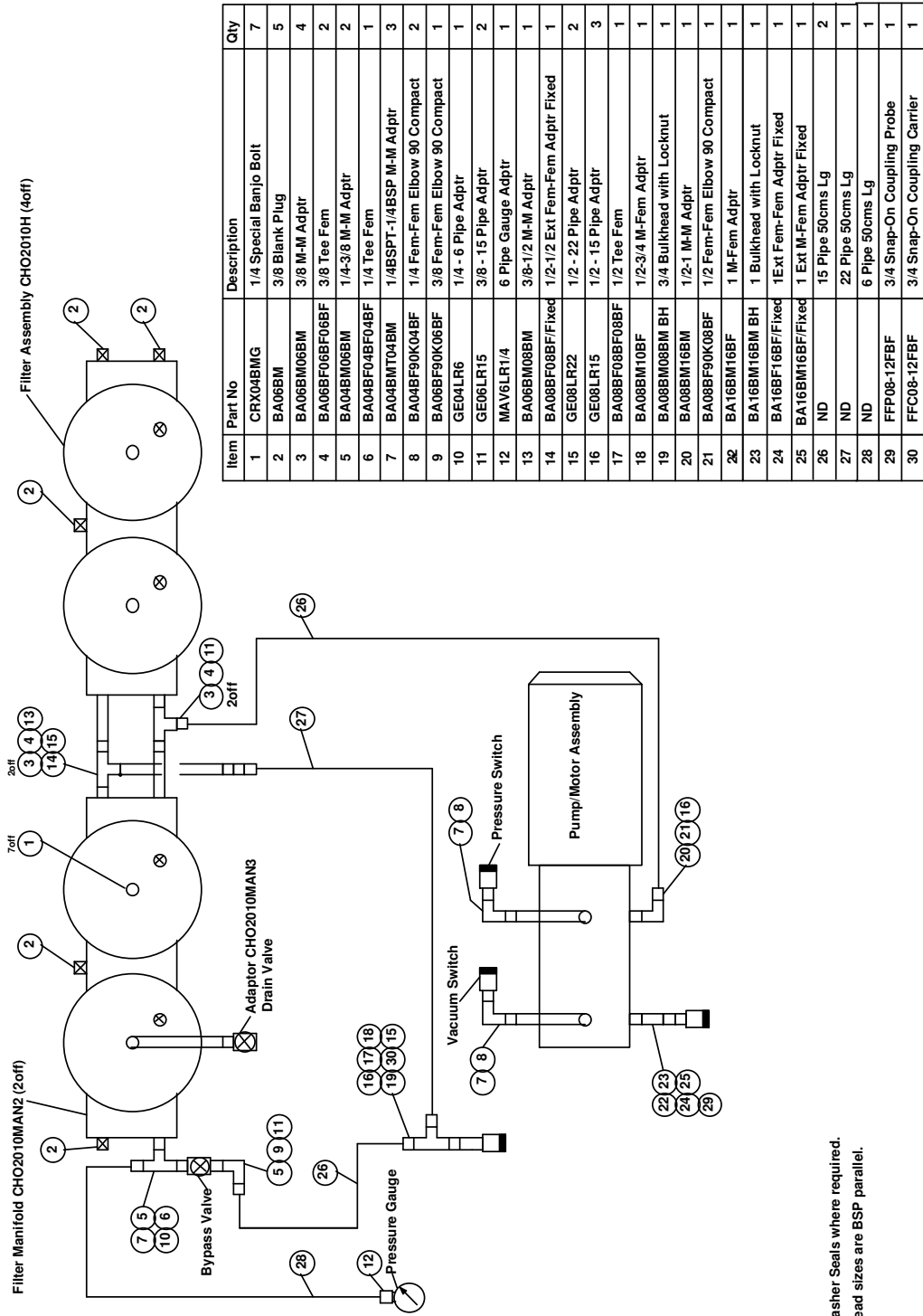
6. DRAWINGS

ELECTRICAL CIRCUIT DIAGRAM CP4202-0640-01



6a, **DRAWINGS Cont.**

Piping Diagram CP4202-0640-03



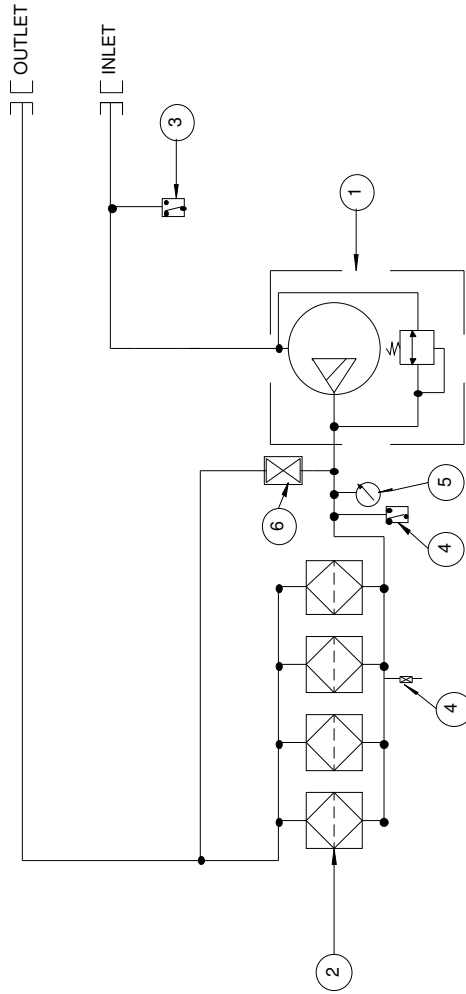
Item	Part No	Description	Qty
1	CRX04BMG	1/4 Special Banjo Bolt	7
2	BA06BM	3/8 Blank Plug	5
3	BA06BM06BM	3/8 M-M Adptr	4
4	BA06BF06BF06BF	3/8 Tee Fem	2
5	BA04BM06BM	1/4-3/8 M-M Adptr	2
6	BA04BF04BF04BF	1/4 Tee Fem	1
7	BA04BMT04BM	1/4BSP T-1/4BSP M-M Adptr	3
8	BA04BF90K04BF	1/4 Fem-Fem Elbow 90 Compact	2
9	BA06BF90K06BF	3/8 Fem-Fem Elbow 90 Compact	1
10	GE04LR6	1/4 - 6 Pipe Adptr	1
11	GE06LR15	3/8 - 15 Pipe Adptr	2
12	MAV6LR1/4	6 Pipe Gauge Adptr	1
13	BA06BM06BM	3/8-1/2 M-M Adptr	1
14	BA08BF08BF/Fixed	1/2-1/2 Ext Fem-Fem Adptr Fixed	1
15	GE08LR22	1/2 - 22 Pipe Adptr	2
16	GE08LR15	1/2 - 15 Pipe Adptr	3
17	BA08BF08BF08BF	1/2 Tee Fem	1
18	BA08BM10BF	1/2-3/4 M-Fem Adptr	1
19	BA08BM08BM BH	3/4 Bulkhead with Locknut	1
20	BA08BM16BM	1/2-1 M-M Adptr	1
21	BA08BF90K08BF	1/2 Fem-Fem Elbow 90 Compact	1
22	BA16BM16BF	1 M-Fem Adptr	1
23	BA16BM16BM BH	1 Bulkhead with Locknut	1
24	BA16BF16BF/Fixed	1Ext Fem-Fem Adptr Fixed	1
25	BA16BM16BF/Fixed	1 Ext M-Fem Adptr Fixed	1
26	ND	15 Pipe 50cms Lg	2
27	ND	22 Pipe 50cms Lg	1
28	ND	6 Pipe 50cms Lg	1
29	FFP08-12FBF	3/4 Snap-On Coupling Probe	1
30	FFC08-12FBF	3/4 Snap-On Coupling Carrier	1

NOTES:
 Assemble Bonded Washer Seals where required.
 Unless Stated, all thread sizes are BSP parallel.

6. DRAWINGS Cont.

HYDRAULIC CIRCUIT DIAGRAM CP4202-0640-02

Ref	Part No.	Description	Qty
1	AFI20R66G19W197	Pump/Motor Assy	1
2	CHO2010H	Chainings Filter Assy	4
3	3821.229	Vacuum Switch	1
4	4920-H22	Pressure Switch	1
5	83600101	Pressure Gauge 0-10 Bar	1
6	201012	Manual Bypass Valve	1
7	N/A	Filler Drain stopcock	1
8			



7. PARTS LIST

REF.	PART No.	DESCRIPTION	QTY
1	CP4202-0640-01	RIG FRAME ASSY	1
2	CP4202-0640-12	ELECTRICAL CABINET	1
3	CP4202-0640-15	RIG COWL ASSY	1
4	CP4202-0640-01	ELECTRICAL CIRCUIT	1
5	CP4202-0640-02	HYDRAULIC CIRCUIT	1
6	CP4202-0640-03	PIPING DIAGRAM	1

8. FILTER CHANGE PROCEDURE

Removal of used element;

1. Ensure that the unit is turned off and electrically isolated
2. Open the "Drain" valve underneath the Chainings filters and gradually loosen the "Bleed Plugs" fitted to the Filter Lid of each Chainings Filter Assembly to decay any residual pressure.

WARNING: Care should be taken to avoid the risk of oil contacting the operator, in case of undue pressure being released.

3. Loosen & remove the M8 clamping screws, spring washers & plain washers, securing the lid to the filter housing.
4. Unlock the nuts fitted to the underside of the two M8 bolts located on the Filter Lid & screw the bolts downward to assist removal of the lid.
5. Once the Filter Lid has been removed, pull the Filter Element upwards & away from the Filter Housing.
6. Dispose of the Filter Element in accordance with any legislative procedures that may be applicable.

Installation of new element;

1. Ensure that the Filter Housing is clean & free from contaminates & that the 'Inlet' & 'Outlet' ports are not blocked.
2. Ensure that the 'O' Ring on the Centre Tube is correctly positioned & Not damaged.
3. Install the replacement Filter Elements & 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 fitted & Not damaged.
5. Apply a film of clean oil around the 'O' Ring on the Filter Lid & ensure that the ends of the two bolts for extraction purposes, are not protruding through the bottom of the Filter Lid.
6. Line up the holes in the Filter Lid with the tappings in the Filter Housing & press down to locate the lid.
7. Replace the clamping screws, spring washers & plain washers & Torque tighten each screw in a diagonal fashion, to 20Nm.
8. Hand tighten the two bolts on the Filter Lid & 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. Tighten the "Bleed Plugs" on each filter assembly lid.
10. Close the "Drain" Valve

WARNING: ALWAYS USE GENUINE Chainings FILTER ELEMENTS.