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Parts List & Service Manual

V01-V02 Models (PURS, PUTS)

Stationary Air Compressors



ST15949-00A-07/2012

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1.1 Support

This publication contains parts lists and service information, please read it carefully before you attempt to service or carry-out adjustments on the compressor.

This manual should be used in conjunction with the User Handbook.

Note: If you need any specialist help or service, please contact your hydrovane distributor quoting the MODEL, TYPE and SERIAL NUMBER.

1.2 Product Development

Hydrovane adopt a policy of continual product Improvement. Information in this handbook, whilst fully up to date when issued, may be subject to change without notice.

1.3 Quality Standards

Hydrovane Quality Management Systems are approved to BS EN ISO 9001.

Gardner Denver Ltd
Claybrook Drive
Washford Industrial Estate
Redditch
Worcestershire B98 ODS
United Kingdom

Telephone (01527) 525522
Fax: (01527) 521140

Web: www.hydrovane.co.uk
www.hydrovane@compair.com
www.compair.com

E-mail: sales@compair.com

1.4 Model Range

This handbook relates to all V01-V02 50/60 Hz compressors, model types:

501PURS10-2216D305, 501PURS10-2235D300
501PURS10-3836D305, 501PURS10-4035D300

501PURS10-2415D400, 501PURS10-4035D400

501PUTS10-2216D305, 501PUTS10-2415D300
501PUTS10-4035D300

501PUTS10-2415D400, 501PUTS10-4035D400

502PURS10-2415D300, 502PURS10-2415D300
502PURS10-2235D300, 502PURS10-4035D300

502PURS10-2415D400, 502PURS10-4035D400

502PUTS10-2415D300, 502PUTS10-4035D300

502PUTS10-2415D400, 502PUTS10-4035D400

1.5 Product Terminology:-

5, V	Series type, Vane
01, 02	kW motor
07, 10	Delivery pressure in bars (psi)
PURS	Package Unit, Receiver and Starter
PUTS	Package Unit, Tripod and Starter
PRDS	Package Unit, Receiver, Dryer and Starter
24/40	Voltage
1/3	Single/Three phase
5, 6	50/60Hz
D, S	Direct on Line, Star Delta
200, 400	Revision number

This publication refers to compressors with serial numbers from

501-020263-1203 (400 builds/MK5)
502-026917-1203 (400 builds/MK5)

1.6 Warnings, Cautions and Notes







'WARNING' is used in the text of this handbook to identify specific hazards which can cause injury or death.

'CAUTION' is used in the text of this handbook to identify incorrect procedures which can cause damage to the compressor.

'NOTE' is used in the text of this handbook to draw attention to specific points of importance.

1.7 Key to Symbols Used

Symbols that appear in this parts book have the following meanings

	20 Nm	Torque Setting Nm.
	Silco 660	Grease Required (Specification)
	577	Loctite Required and Specification Number
	22mm	Spanner Required (mm) A/F
	6mm	Allen key Required (mm)
		Lubricate With Sump Oil

1.8 Torque Settings

Listed below are recommended torque settings.

Thread Size (mm)	Setting (Nm)
6	15
8	35
10	60
12	95
16	160
42	400

Note: Torque settings and grease must be applied when indicated.

1.9 Service Kits

Only use genuine hydrovane parts and FLUID FORCE RED 2000 or an APPROVED OIL, do not mix lubricants.

Note: Spare parts to be stored in original packaging and in a dry environment. Repaired or replacement units should be protected against corrosion and mechanical damage during storage.

Item	Part Number	Quantity	Description	Section	Page	Item
V01-V02 Maintenance Kit KM51						
1	74015	1	Air filter	4.1	8	15
2	57029	1	Separator element	4.1	10	42
3	CZ9609	1	Bonded Seal G1/4	4.1	10	38
4	CZ9611	1	Bonded Seal 0.06 WHIT	4.2	12	17
5	CZ9613	1	Bonded Seal G3/8	4.2	12	19
6	CZ9615	1	Bonded Seal 18mm ¾ WHIT	4.2	12	19
7	9703	1	'O' Ring	4.1	8	5
8	CZ9709	1	'O' Ring	4.1	8	8
9	CZ9711	1	'O' Ring	4.1	8	9
10	CZ9821	1	'O' Ring	4.1	8	14
V01-V02 Top Up Kit KT52						
1	71553	1	Oil seal	4.2	12	20
2	56391	1	Gauge	4.1	8	13
3	74014A	2	Shim, Red	4.2	12	3
4	74014B	2	Shim, Blue	4.2	12	3
5	74014C	2	Shim, Green	4.4	12	3
6	73101	1	Gasket, Separator End Cover	4.1	10	25
7	58365-02	1	Cooler Gasket	4.2	14	41
8	CZ71550	1	Gasket (rubber)	4.2	14	22
9	CZ9707	10	'O' Ring	4.2	14	43
10	CZ9718	1	'O' Ring	4.1	10	23
11	32653	1	Oil return plug assembly	4.1	10	45
12	56300	1	'O' Ring	4.2	12	11
13	56410	1	Flexible pipe	4.1	10	31
14	56422	1	Valve seat	4.1	8	22
15	56423	1	Coupling element (white)	4.3	16	4
16	56528	1	Insert	4.2	14	27
17	56565	1	Coupling element (black)	4.3	16	4
18	56624	1	Fibre washer	4.1	10	34
19	58327	2	Copper washer	4.1	10	38
20	70952	1	Coupling element (blue)	4.3	16	4
21	CZ9754	1	'O' ring	4.2	12	12
22	CZ9619	1	Bonded seal G3/4	4.2	12	12
23	58117	1	Lens	4.2	12	12
24	58426	1	Lens clip	4.2	12	12

2.1 Introduction



WARNING
READ HEALTH AND SAFETY PRECAUTIONS BEFORE YOU START ANY SERVICE WORK.

Adjustment procedures shown must only be carried out by authorised persons fully trained and competent in the maintenance of hydrovane compressors.

If you are not able to carry out the work safely, contact your hydrovane distributor.

2.2 Oil Temperature

Start the compressor and allow to run for 20 minutes in order to attain its normal working temperature.

Average running temperature, taken by thermometer in the oil filler thermal pocket should be approximately 60°C (140°F) above ambient.

2.3 Air Output (Fig. 2.1)

Screw test nozzle 56373-01 for 7 bar/102 psi or 56373-02 for a 10 bar/145 psi V01 machine into compressor outlet.

Screw test nozzle 56373-06 for 7 bar/102 psi or 56373-07 for a 10 bar/145 psi V02 machine into compressor outlet.

Close outlet valve and start compressor (continuous run).

Open outlet valve fully, pressure on gauge should not fall below 6.5 bar/94 psi for a 7 bar machine or 9.5 bar/138 psi on a 10 bar/145 psi machine.

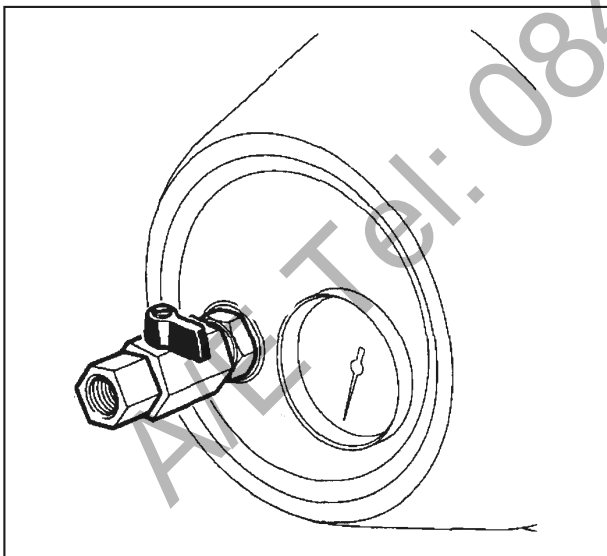


Fig 2.1 - Air Output

2.4 Leakage Check

Examine all external seals, gaskets and pipe connections for air or oil leakage, no leaks are permissible.

2.5 Minimum Pressure Valve (Fig. 2.2)

Close outlet valve and start compressor, open outlet valve fully to atmosphere.

Check the gauge pressure reading.

When set correctly the gauge should show 5 bar (73 psi). The valve (1) will operate satisfactorily between 4 bar (58 psi) and 6 bar (87 psi).

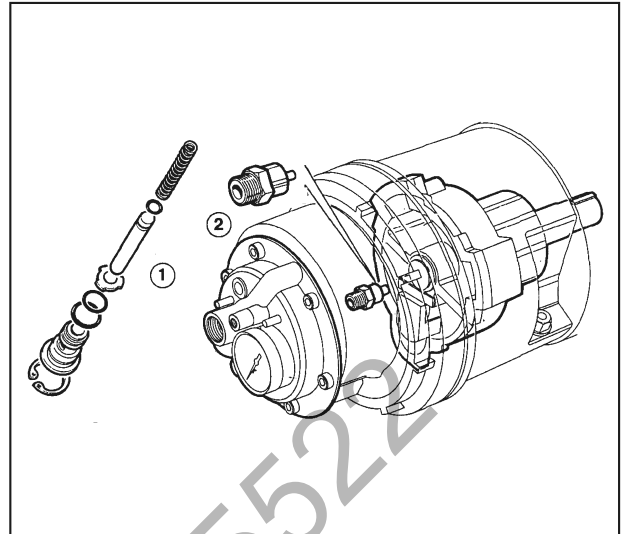


Fig 2.2 - Minimum Pressure and Safety Valve

2.6 Safety Valve (Fig. 2.2)

Safety valve (2) are preset to lift as follows:

- 07 bar (102 psi) compressor = 08 bar (116 psi).
- 10 bar (145 psi) compressor = 11 bar (160 psi).

Should the safety valve be faulty it cannot be adjusted and must be renewed as a complete unit.

2.7 Pressure Control Valve (Fig. 2.3)

Close outlet valve and start compressor (continuous run).

Gauge should read either 7.5/109 psi for a 7 bar/192 psi machine or 10.5 bar/152 psi for a 10 bar/145 psi machine.

Should gauge read differently DO NOT attempt to adjust the valve. Renew as a complete unit.

Note the pressure setting written on valve when reordering.

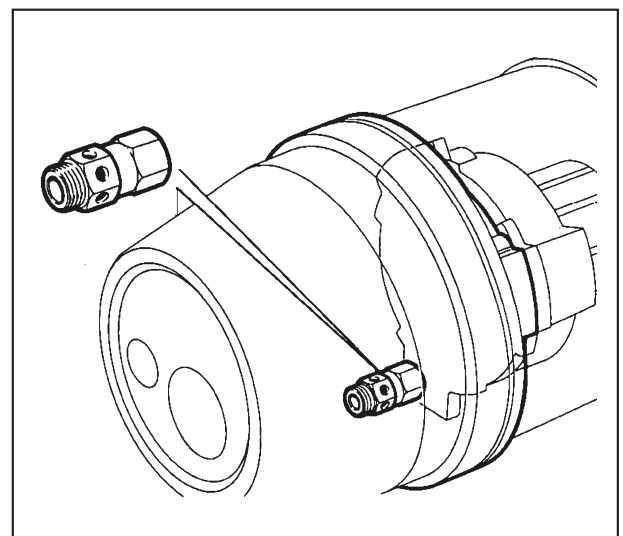


Fig 2.3 - Pressure Control Valve

2.8 Over-temperature Control Unit. (Fig 2.4)

WARNING  

THE FOLLOWING FAULT FINDING PROCEDURE SHOULD BE CARRIED OUT BY QUALIFIED AND COMPETENT PERSONS ONLY.

THIS PANEL CONTAINS POTENTIALLY LETHAL VOLTAGES. UNDER NO CIRCUMSTANCES SHOULD YOU ATTEMPT TO TOUCH ANYTHING INSIDE THE CONTROL PANEL, OR ON THE CONTROL PANEL DOOR UNLESS INSTRUCTED TO DO SO IN THE FOLLOWING PROCEDURE.

Start compressor

Open the starter panel door

Unscrew terminal 38 and remove the connecting wire.

The compressor drive motor must stop immediately

Without re-setting the starter or disconnecting the mains supply to the starter re-connect the circuit, terminal 38.

Reinstate the electrical control box cover and front panel

CAUTION

If the above sequence is not achieved then a fault may have occurred which has damaged the OTC. The compressor must not be operated until a replacement OTC has been fitted and the above procedure repeated.

Reinstate all panels

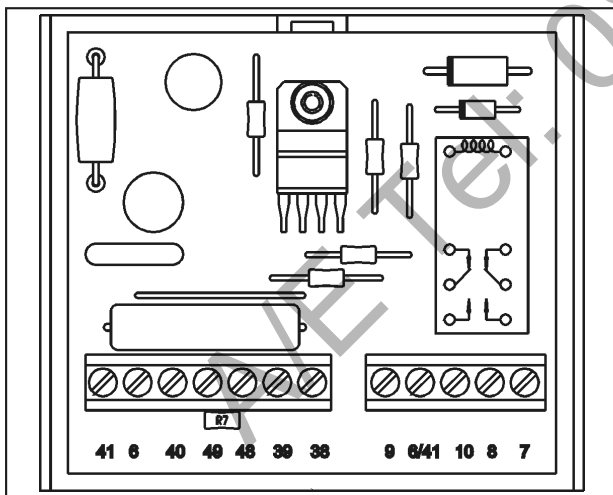


Fig 2.4 - Over-temperature Control Unit

3.1 Introduction



WARNING
READ HEALTH AND SAFETY PRECAUTIONS BEFORE YOU START ANY SERVICE WORK.

SERVICING OF THE COMPRESSOR MUST ONLY BE CARRIED-OUT BY AUTHORISED PERSONS FULLY TRAINED AND COMPETENT IN THE MAINTENANCE, MAINS ELECTRICAL SUPPLY AND STARTER CONTROL EQUIPMENT OF HYDROVANE COMPRESSORS. THEY MUST FULLY UNDERSTAND AND ADOPT CORRECT AND SAFE WORKING PRACTICES.

Routine servicing should be carried out as instructed in the User Handbook, ensure genuine parts are available for the following tasks.

3.2 Minimum Pressure Valve (Fig 3.1)

Remove separator end cover (A).

Remove circlip (B), end plug (C) and valve plate (D) will be pushed out by spring (J).

Remove piston (G), this is simplified using long nose pliers.

Renew 'O' rings (E), (F) and (H), apply a smear of silicon grease before fitting.

Check piston (G) and non return valve (D) for wear, renew if necessary.

Testing of the minimum pressure valve is shown in Section 2.5.

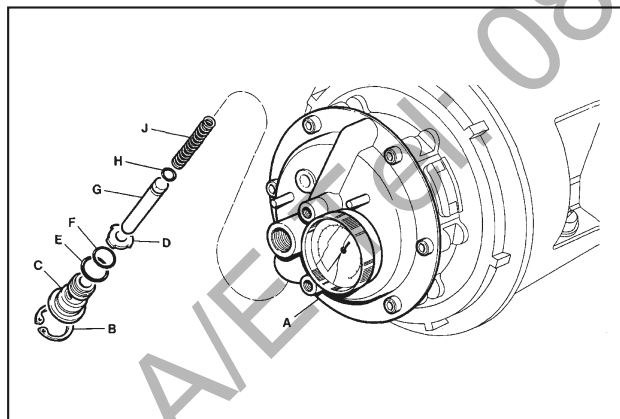


Fig 3.1 - Minimum Pressure Valve

3.3 Pressure Control, Oil Return Valve (Fig 3.2) PUTS

Drain oil.

Remove separator housing (A).

Remove pressure control valve (B) and note settings, 7 or 10 bar (100 psi or 145 psi).

Renew bonded seal (C).

Remove oil return valve (D), renew filter and 'O' ring (E) if unserviceable, renew bonded seal (F).

Renew flexible tube (G).

When fitting separator housing use two studs S73 to ensure correct alignment of tube (G) with discharge pipe on stator.

Separator feed tube (H) should be positioned $18^\circ \pm 2^\circ$ to machine axis on assembly. Setting gauge S83 will simplify this operation.

Refill compressor with FLUID FORCE RED 2000 or an APPROVED OIL when assembly is complete.

Testing of the control valve is shown in Section 2.7.

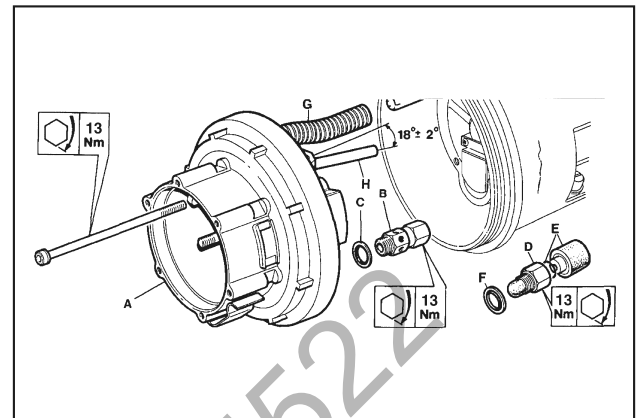


Fig 3.2 - Pressure Control and Oil Return Valve

3.4 Safety Valve (Fig 3.3) PURS

Remove safety valve (A) renew bonded seal (B), replace valve if found faulty, it cannot be dismantled or adjusted.

Testing of the safety valve is shown in Section 2.6

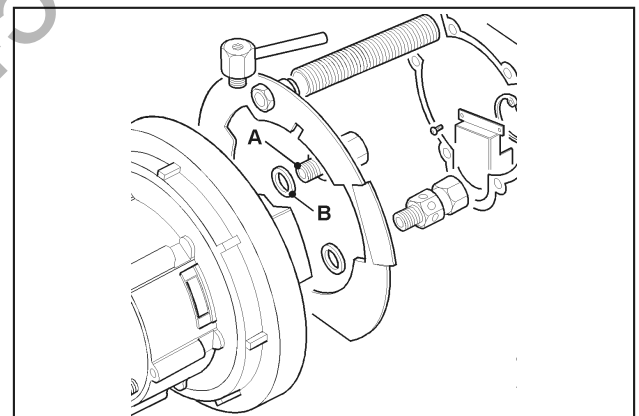


Fig 3.3 - Safety Valve

3.5 Oil Seal (Fig 3.4)

Drain compressor oil, remove compressor from motor, remove drive coupling, lantern and cooler.

Remove screws from seal housing, pull oil seal assembly out of oil chamber.

Clean seal housing and remove burrs on oil chamber, refit new seal using applicator (Service Tool S99), remove applicator, refit fixing screws.

Fit drive coupling in correct position, renew 'O' rings on cooler couplings.

Reassemble and refill compressor with FLUID FORCE RED 2000 or an APPROVED OIL when assembly is complete.

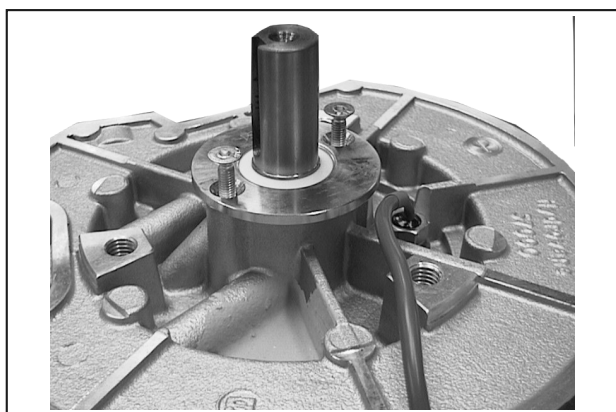


Fig 3.4 - Oil Seal

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Parts List and Service Manual

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Item	Part Number	Description	Kit	Quantity		
				All	PURS	PUTS
1	CZ56633	Outlet tap M/F 3/8"R-3/8"Rp		1		
2	57574	Intake filter cowl		1		
3a	32254S	Separator cover assembly		1		
3b	56914	Separator end cover		1		
4	CZ9413	Spring		1		
5	9703	'O' Ring	KM51	1		
6	56838	MPV Piston		1		
7	56836	Valve plate		1		
8	CZ9709	'O' Ring	KM51	1		
9	CZ9711	'O' Ring	KM51	1		
10	56837	MPV end plug		1		
11	MCI 19	Circlip		1		
12	MS705-16	Socket head screw M5 x 16mm		6		
13	56391	Pressure gauge	KT52	1		
14	CZ9821	'O' Ring	KM51	1		
15	74015	Intake filter	KM51	1		
16	70416	Intake filter support		1		
17a	34044	Intake End Cover Assembly including:-		1		
17b	73129	Intake End Cover		1		
18	56637	Bearing		1		
19	70392	Sleeve		1		
20	56659	Restrictor		1		
21	56437	Valve plate		1		
22	56422	Intake valve seat	KT52	1		

Air Intake Filter

The air filter (15) is located beneath the filter cover (2), disconnect the outlet tap (1) or the delivery pipe.

Firmly pull filter cover (2) to remove from separator casing (39).

Remove filter (15) and clean separator casing (39) and inside of cowl (2).

Note: Air filter may contain traces of oil and must be disposed of in an approved manner.

Fit a new filter, refit filter cover (2) reconnect the outlet tap (1) or the delivery pipe.

Oil Separator

Remove screws (12) and outer end cover (3), renew 'O' ring (14), unscrew oil separator (42), renew 'O' ring (43).

Oil separators cannot be cleaned, if found to be faulty or blocked it must be renewed.

Minimum Pressure Valve

Remove end cover (3), remove circlip (11), end plug (10), valve plate (7) will be pushed out by spring (4).

Remove piston (6) using long nose pliers, renew 'O' rings (9, 8 and 5), apply a smear of silicon grease before fitting.

Check piston (6) and non return valve (D) for wear, renew if necessary.

Pressure Control, Oil Return Valve

Drain compressor oil and remove outer end cover (3)

Remove screws (40) and separator housing (39).

Remove pressure control valve (28) and note settings, 7 or 10 bar (100 psi or 145 psi), renew bonded seal (38).

Remove oil return valve (45), renew filter and 'O' ring (44) if unserviceable, renew bonded seal (47).

Renew flexible tube (31).

When fitting separator housing use two studs S73 to ensure correct alignment of tube (31) with discharge pipe (35) on stator.

Separator feed tube (31) should be positioned $18^\circ \pm 2^\circ$ to machine axis on assembly. Setting gauge S83 will simplify this operation.

Refill compressor with FLUID FORCE RED 2000 or an APPROVED OIL when assembly is complete.

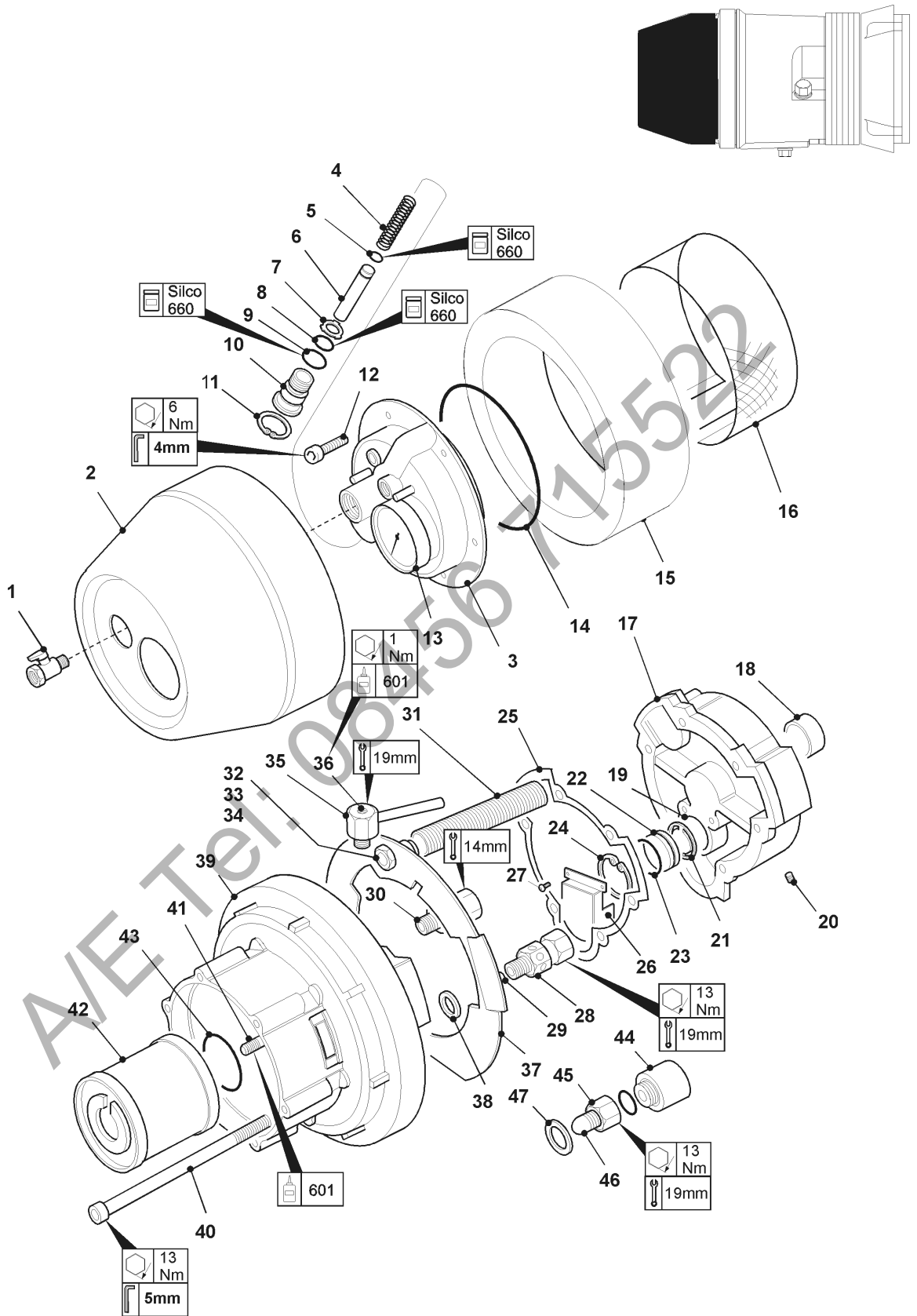


Fig 4A - Separator: Intake End Cover

Item	Part Number	Description	Kit	Quantity		
				All	PURS	PUTS
23	CZ9718	'O' Ring	KT52	1		
24	MCI-26	Circlip		1		
25	73101	Gasket	KT52	1		
26	56801	Lift plate		1		
27	56426	4.40 x 1/4" Pozipan Taptite Screw		2		
28a	57302	Pressure control valve (7 bar)				1
28b	57443	Pressure control valve (10 bar)				1
29	57531	Bush				1
30	56289	Safety valve G1/4"			1	
31	34078	Discharge tube assembly including:-		1		
32	56431	Discharge fitting Rp1/4"		1		
33	56434	Nut		1		
34	56624	Fibre washer 1/4"BSP	KT52	2		
35a	32410	Oil separator feed assembly including:-		1		
35b	56436	Separator pipe		1		
36	MG706-10	M6 x 10 Grub screw		1		
37	73100	Oil impingement cowl		1		
38	CZ9609	Bonded Seal G1/4	KT52	1		
39	73034	Separator Housing		1		
40	56299	M6 x 135 Socket head screw		6		
41	56275	M8 Separator stud		1		
42	57029	Oil separator element including:-	KM51	1		
43	CZ9799	'O' Ring		1		
44	70166	Blowdown valve filter & 'O' Ring	KM51	1		
45	58307	Oil return plug including:-		1		
46	57244	Filter		1		
47	58327	Folded copper washer 1/4"BSP	KT52	1		

Intake End Cover

Drain compressor oil, remove outer end cover (3) and separator housing (39).

Remove the intake end cover (17) and discard gasket (25), inspect the inner face of the intake end cover and its white metal bearing (18) for damage or score marks, renew if necessary.

Check orifice in restrictor (20) is completely clear, remove screws (27), lift plate (26) and circlip (24).

Examine valve seat (22) and plate (21), renew if faces or plate are worn or damaged, renew 'O' ring (23).

If discharge pipe assembly (35) has been removed it must be re-positioned at $18^{\circ} \pm 2^{\circ}$ to the machine axis on assembly, setting gauge S83 will simplify this operation.

The pipe assembly must be fitted using loctite 577 on the screw threads.

Refill compressor with FLUID FORCE RED 2000 or an APPROVED OIL when assembly is complete.

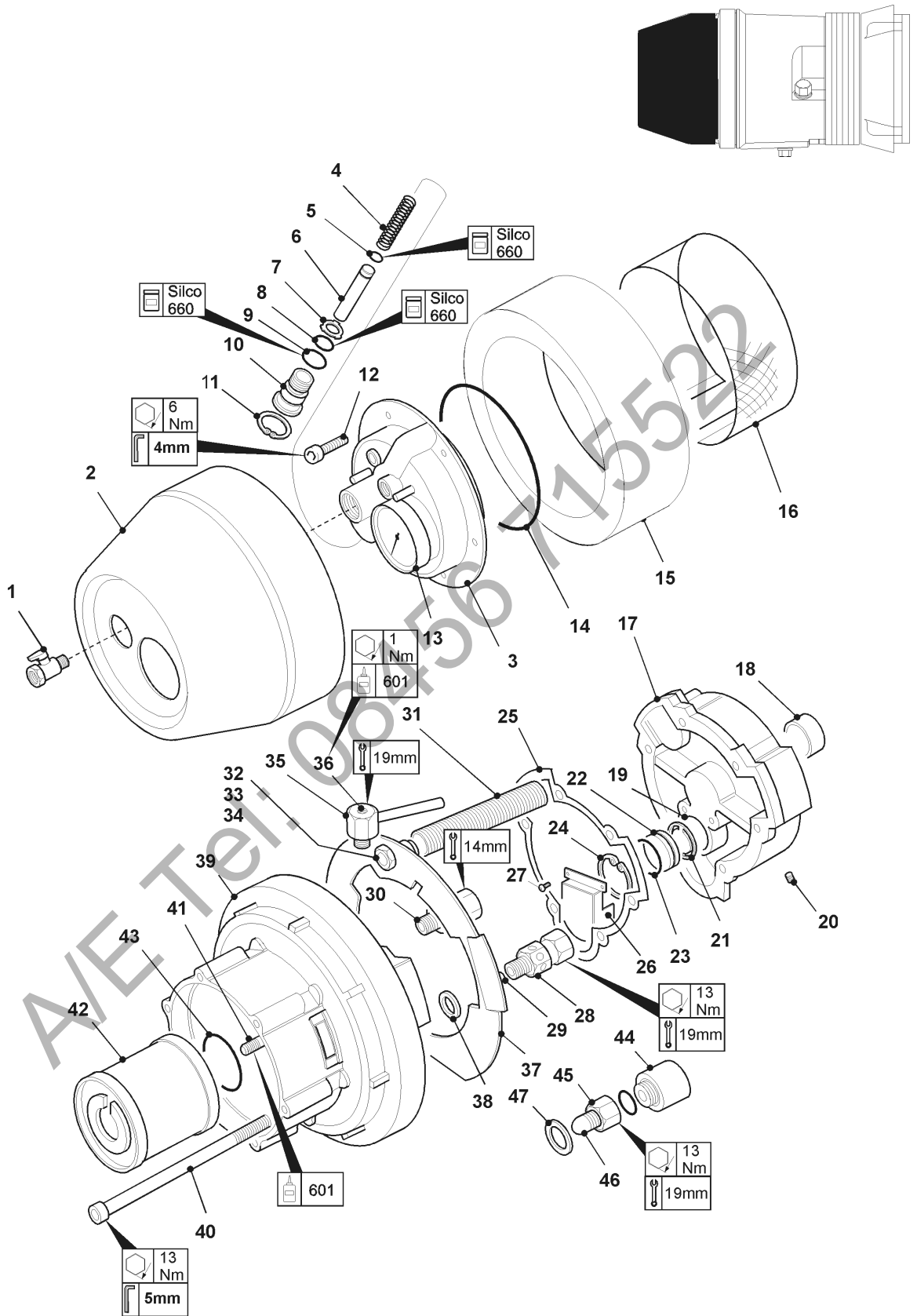


Fig 4A - Separator: Intake End Cover

Item	Part Number	Description	Kit	Quantity		
				All	PURS	PUTS
1a	56281	Rotor V01 PUTS only		1		
1b	57775	Rotor V02 PUTS only				1
2	70223	Blade		8		
3a	74014C	Shim - green 0.076mm (0.003")	KT52	A/R		
3b	74014D	Shim - amber 0.10mm (0.004")	KT52	A/R		
3c	74014A	Shim - red 0.038mm (0.0015")	KT52	A/R		
3d	74014B	Shim - blue 0.05mm (0.002")	KT52	A/R		
4	73999E	Stator assembly		1		
5	56302	Valve plate		2		
6	CZ56586	Valve support		2		
7	AGS203B	4BA Lockwasher		2		
8	FS702-3	4BA x 3/8 Socket head screw		2		
9	57416	Tension pin M6 x 14		2		
10	CZ73995	Outlet assembly		1		
11	56300	'O' Ring	KT52	1		
12	73997-03	Oil chamber including:-		1		
13	56637	Bearing		1		
14	GHC2-6	Helicoil G1/4"BSP x 3/8		1		
15	GHC3-6	Helicoil G3/8BSP x 3/8		1		
16	73917	Drain plug G1/4		1		
17	CZ9611	Bonded seal 0.60 WHIT	KM51	1		
18	CZ71127	Filler plug G3/8		1		
19	CZ9615	Bonded seal 18mm ¾ WHIT	KM51	1		
20	71553	Oil seal	KT52	1		
21	MS1606-20	M6 x 20 Countersunk screw		2		

Rotor Stator - Removal

Refer to Sections 4.3 and 4.4 to remove compressor from motor and remove drive couplings.

Stand oil chamber (12) vertically on wooden blocks.

Follow instructions in Section 4.1 for removal of outer end cover, separator housing and inner end cover.

Remove stator (4), note position and thickness of shims (3).

Remove rotor having first removed grub screw burrs on shaft to prevent damage to oil seal lips, retain blades (2) in position.

Discard 'O' Ring (11).

Rotor Stator - Examine

Inspect both end faces and bearings for wear, renew if necessary.

If blades (2) are to be re-used they must be removed from the slots and marked using a felt tipped pen (NOT SCRATCHED) so that each blade can be replaced in the same position.

Blades and slots must be perfectly clean and fitted with rounded edge outwards. Marks must correspond with slots if original blades are refitted.

Examine stator for damage. Ensure cutaway is clearly defined by two straight lines along length of bore.

Ensure stator bore and end faces are free from debris.

Rotor Stator - Refitting

Renew 'O' ring (11) on oil chamber (12).

Apply a smear of oil to shim (3c) and position on stator, locate on tension pin (9) in oil chamber.

Apply oil to bearing, fit rotor (1) complete with blades (2), check overall end clearance using a straight edge and feeler gauges between rotor and stator.

Apply a smear of oil to stator face and fit shims to give a total end clearance of between 0.076mm (0.003") and 0.01mm (0.004").

Replace intake end cover (Item 17 Page 8), separator housing (Item 39 Page 10) and cover (Item 3 Page 8), fit a new oil seal and replace drive coupling.

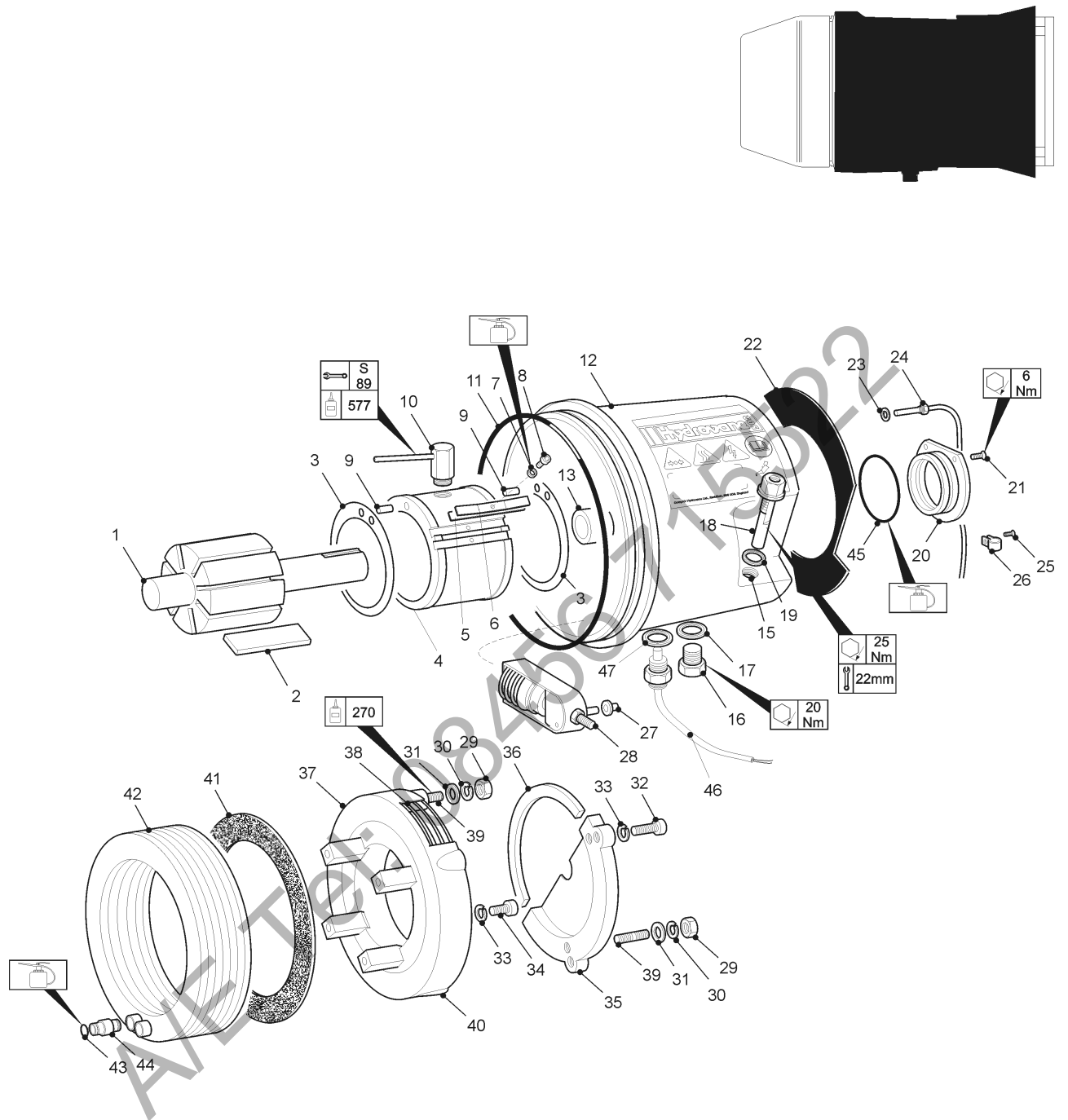


Fig 4B - Oil Chamber, Rotor Stator Unit, Lantern

Item	Part Number	Description	Kit	Quantity		
				All	PURS	PUTS
22	CZ71550	Cooler gasket	KT52	1		
23	CZ9607	Bonded seal 10mm 0.40 WHIT		1		
24a	73845	Thermoswitch M10, 300/MK4		1		
24b	72079-01	Thermister probe M10, 300/MK4		1		
25	PE567-C6	0.137 x 3/8" Pozipan screw		1		
26	PE553	Cable clip		1		
27	56528	Insert	KT52		1	
28	34953	Thermostatic valve assembly			1	
29	MN110	M10 Nut		4		
30	MWG-10	M10 Spring washer		4		
31	MW10	M10 Plain Washer		4		
32	MS708-30	M8 x 30 Cap Hd Screw V02 only		4		
33	MWG-8	M8 Spring washer		4		
34	MS708-25	M8 x 25 Cap Hd Screw		4		
35	57630	Backplate (V02 only)		1		
36	56383	Guide ring (Not 502 PUTS & PURS)		1		
37	32446	Lantern assembly including:- (V01 only)			1	
38	57563	Guard ring (V01 only)			3	
39	56393	Cooler stud		4		
40a	57387	Lantern V01 only		1		
40b	CZ57774	Lantern V02				1
40c	70485	Lantern V02			1	
41	58365-02	Cooler gasket	KT52	1		
42a	56294	Oil cooler V01 PUTS only				1
42b	57773	Oil cooler V02 PUTS only				1
43	CZ9707	'O' ring	KT52	4		
44	56386	Cooler coupling		2		
45	CZ74261	'O' ring		1		
46	75307	Thermoswitch M14, 400/MK5		1		
47	CZ9610	Bonded seal, M14		1		

Oil Relief Valve, Stator Discharge Pipe

Remove screw (8) and washer (7), remove support (6) and valve plate (5).

Check plate (5) for wear or damage, renew if necessary.

Ensure valve seating face on stator (4) is perfectly flat, use an emery stone to obtain flatness.

Remove all traces of emery dust, renew washer (7) and reassemble.

Discharge pipe (10) should be positioned $15^\circ \pm 2^\circ$ to machine axis on assembly, setting gauge S89 will simplify this operation.

Oil Cooler

Drain compressor oil, refer to Sections 4.3 and 4.4 to remove compressor from motor and remove drive media and couplings.

Remove backplate (35/36) if applicable and lantern (37/38/40).

Remove oil cooler (42) and cooler couplings (44).

Renew self adhesive gaskets (41) and (22), fit new 'O' rings (43).

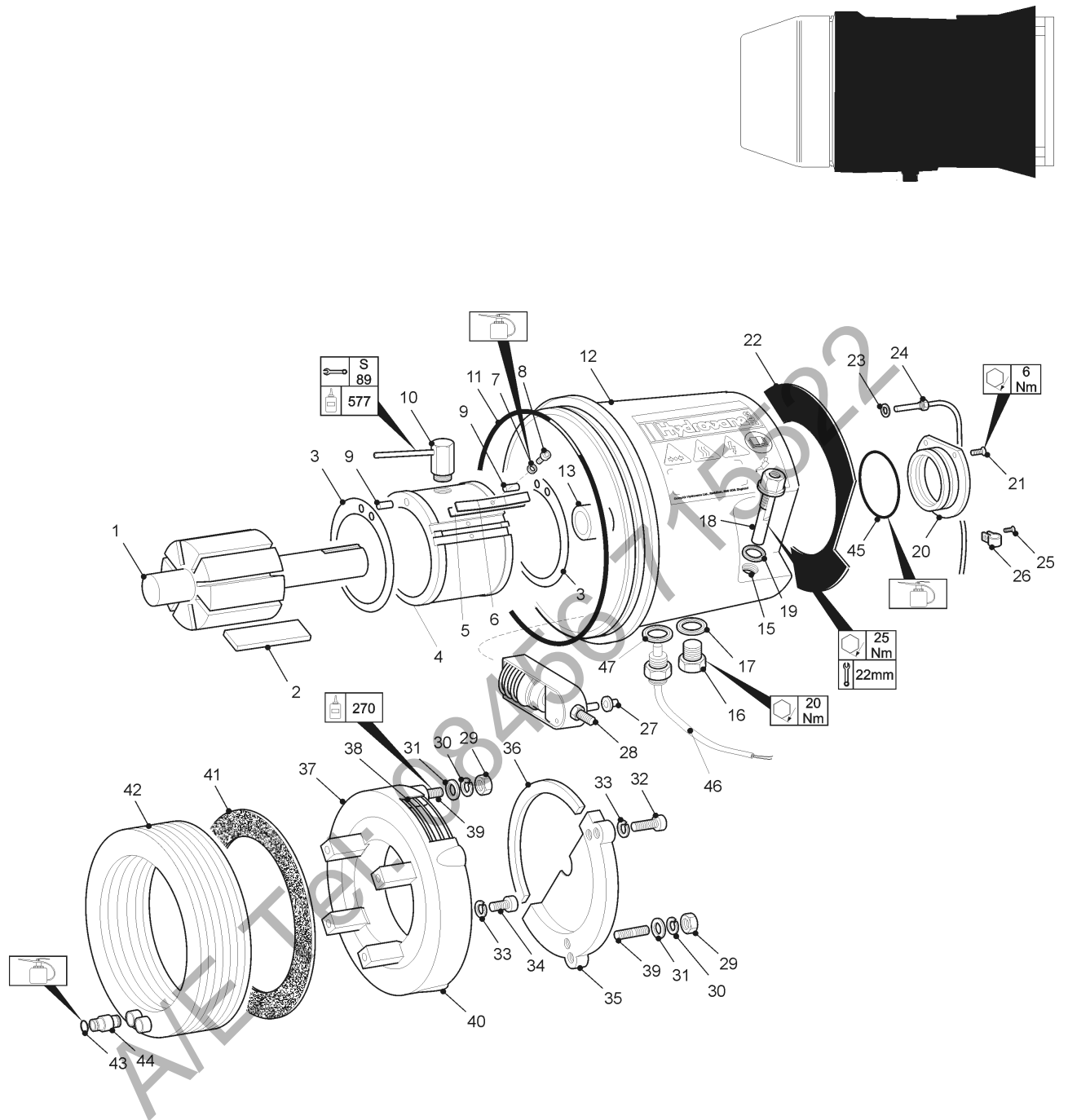


Fig 4B - Oil Chamber, Rotor Stator Unit, Lantern

Item	Part Number	Description	Kit	Quantity		
				All	PURS	PUTS
1	70061	Drive key compressor			1	
2a	70068	Coupling V01 only			1	
2b	CZ71909	Coupling V02 only			1	
3	56955	M8 x 10 Grub screw			4	
4a	56565	Coupling spider V01 only	KT52		1	
4b	70952	Coupling spider V02 only	KT52		1	
5a	57487	Impellor/Motor coupling V01 only			1	
5b	70950	Impellor/Motor coupling V02 only			1	
6	74798	Drive key motor			1	
7a	74736-32	Motor 1.1kW 220/240V 1PH 50Hz			1	
7b	74804	Motor 1.5kW 208/230V 1PH 60Hz			1	
7c	CC1160073	Motor 1.1kW 400V 3PH 50Hz			1	
7d	74737-32	Motor 2.2kW 220/240V 1PH 50Hz			1	
7e	CC1160073	Motor 2.2kW 220/400V 3PH 50Hz			1	
8	CZ74016	Safety valve			1	
9	72819	Reducing bush R1/2-G1/4			1	
10	CZ56633	Outlet Tap M/F 3/8"R-3/8"Rp			1	
11	58664	Pressure Gauge ¼ Rp			1	
12	77696	Starter bracket			1	
13a	35209-01	Starter 1.1KW 230V 50Hz 1PH P/S Control			1	
13b	35209-02	Starter 2.2KW 230V 50Hz 1PH P/S Control			1	
13c	35209-03	Starter 1.1KW 400V 50Hz 3PH P/S Control			1	
13d	35209-04	Starter 2.2KW 400V 50Hz 3PH P/S Control			1	
14	58958	Male/Female Elbow 3/8" BSPT			1	
15	CZ73938	Receiver 75 litre			1	
16	33305-P	Pipework assembly, containing:-			1	
17	56934	Male/Female Elbow ¼" BSP			1	

Compressor Removal - Re-fitting

Disconnect the thermistor/thermoswitch probe cable from either the pressure switch assembly (PURS) or the starter assembly (PUTS).

Drain the oil from the compressor and cooler into a suitable container.

Disconnect the pipework from the compressor to aftercooler, where applicable.

Support the compressor before removing 4 off nuts and washers from the motor flange (Items 29, 30, 33, page 14).

If required remove 4 off cap head screws securing the backplate (Item 32, 33, page 14), where fitted.

Remove the compressor from the motor flange and support, place on a suitable work surface.

Compressor Drive Coupling

Before dismantling the drive the compressor air end must be removed from the motor.

Remove the drive element (4) examine for wear and replace if necessary.

For improved access the lantern (Item 40 Page 14) and cooler assembly (Item 42 Page 14) can be removed if desired.

Remove the compressor coupling (2) and key (1), examine and replace if necessary.

On re-assembly ensure setting dimensions (Page 18 and 22) are achieved for the coupling.

Ensure grub screws (3) have the correct torque and locktite applied.

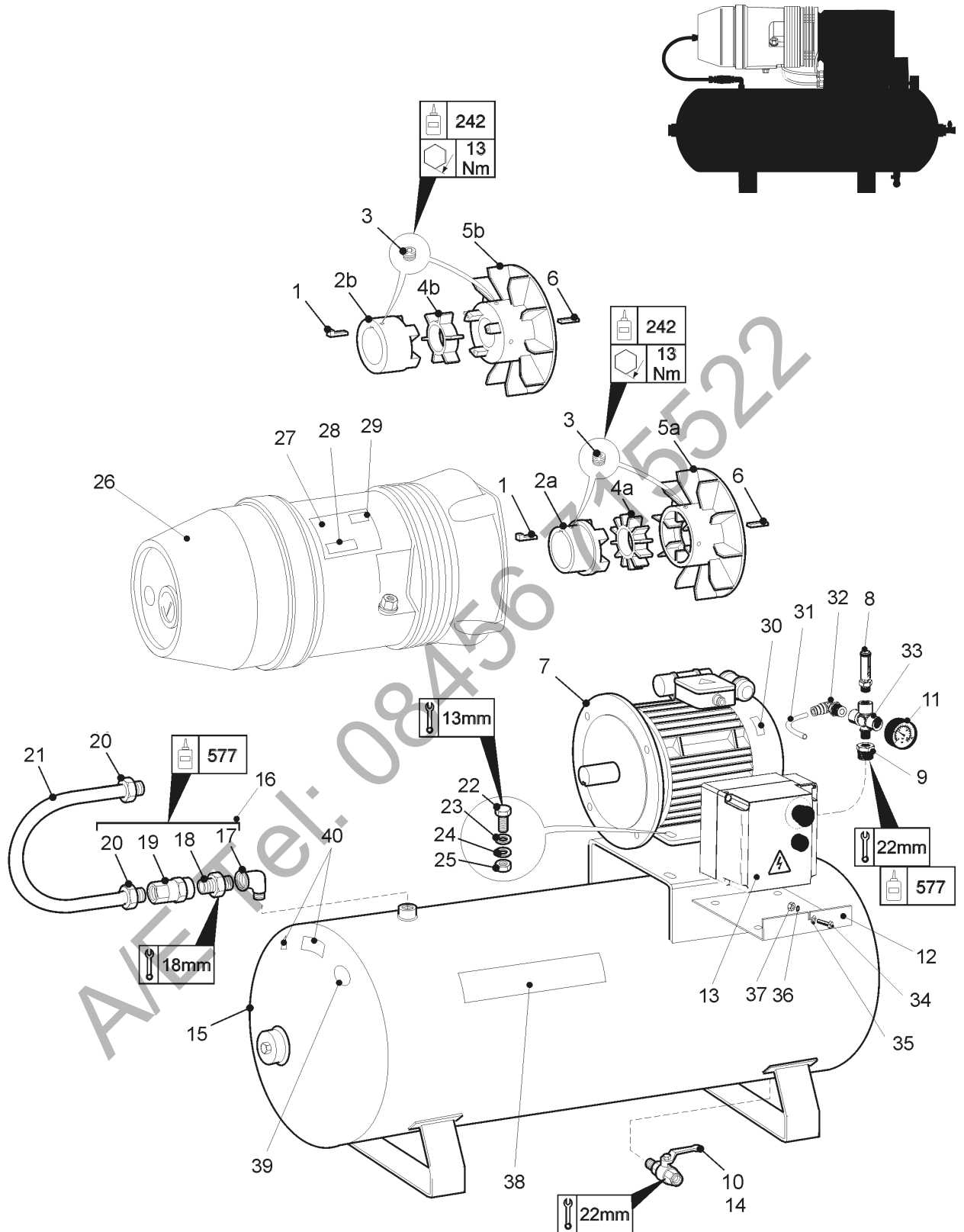


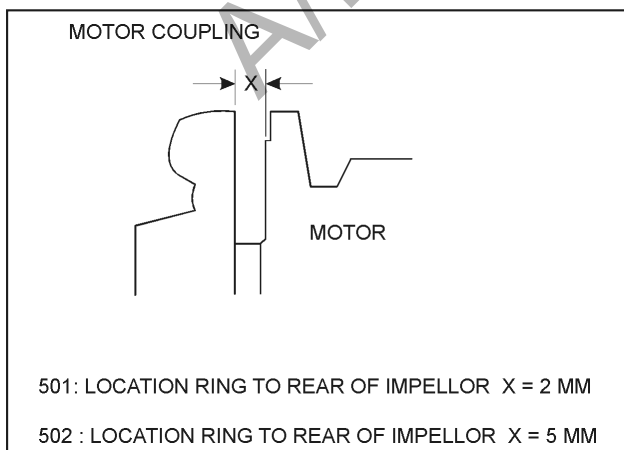
Fig 4C - Motors, Couplings, Receivers PURS

Item	Part Number	Description	Kit	Quantity		
				All	PURS	PUTS
18	57690	Straight Adaptor R3/8-R1/4			1	
19	57687	Non-return valve Rp3/8			1	
20	70666	Stud coupling 3/8BSPT-10mm			2	
21	70949	Delivery pipe			1	
22	MS108-30	M8 x 30 Hex head bolt			4	
23	MW8	M8 Plain washer			4	
24	MWG8	M8 Spring washer			4	
25	MN108	M8 Hex nut			4	
26a	50110-201	1.1kW Compressor			1	
26b	50210-201	2.2 kW Compressor			1	
27	75985	Compressor label			1	
28	73839	Serial number label			1	
29a	75986	HV01 Model label			1	
29b	75987	HV02 Model label			1	
30	75991	Rotation arrow label			1	
31	ST214671	Nylon tube, 6mm x 300mm black			1	
32	73283	Push in elbow, R1/4"-6mm			1	
33	77710	Pipe cross fitting, R1/4-Rp1/4			1	
34	MS704-25	M4 x 25 Hex hd screw			2	
35	MW4	M4 Plain washer			2	
36	MWG4	M4 Spring washer			2	
37	Mn104	M4 Hex nut			2	
38	74441	Hydrovane logo			1	
39	75990	CE Logo			1	
40	74593	PURS Label			1	

Motor Drive Coupling

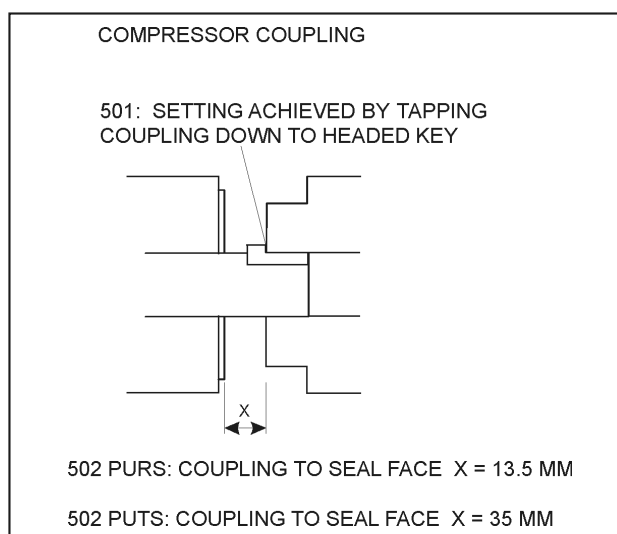
Drain compressor oil, remove compressor from motor.

Remove fan coupling (5) and key (6), examine and replace if necessary.



On-reassembly ensure setting dimensions for couplings are achieved.

Ensure grub screws (3) have the correct torque and locktite applied.



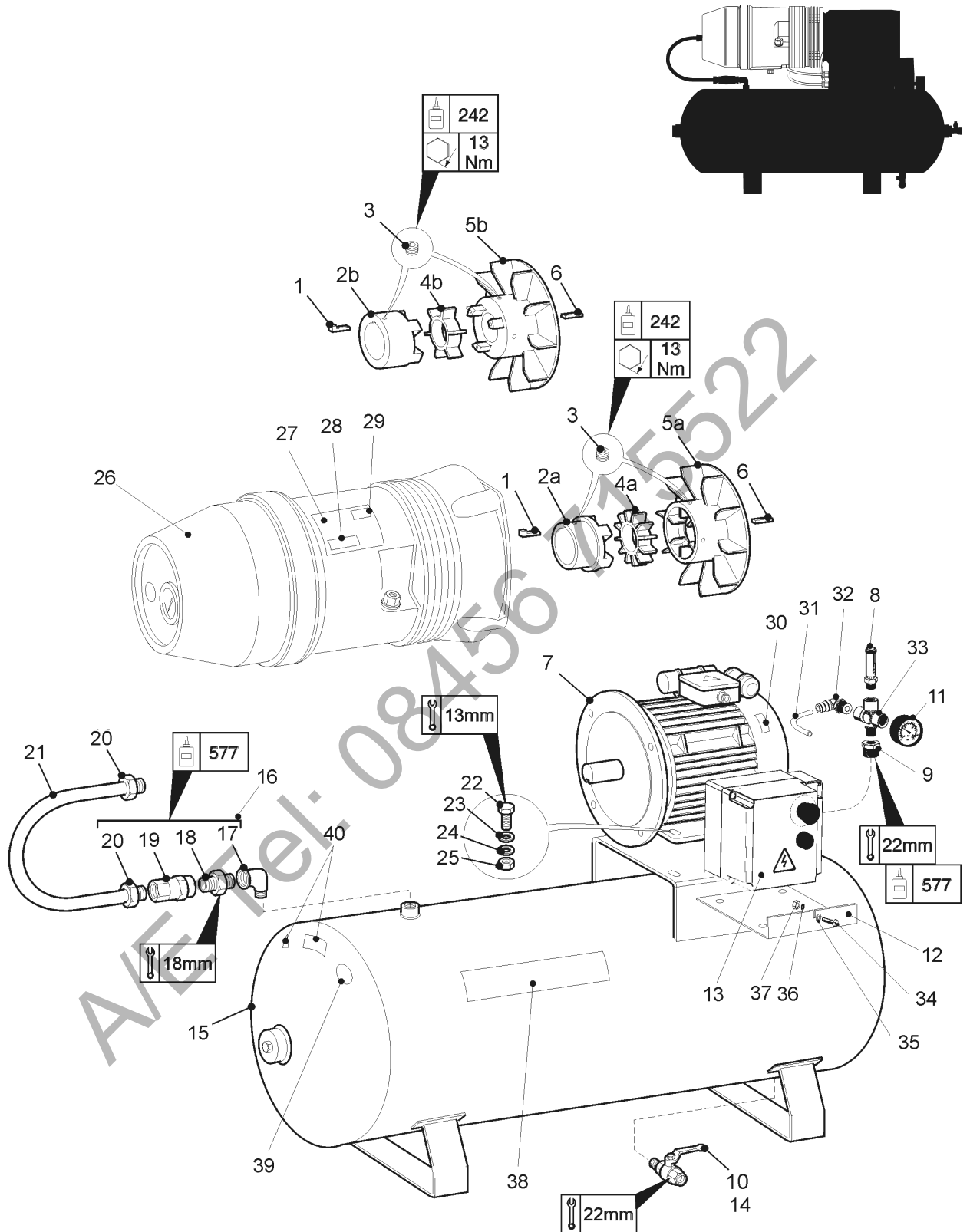


Fig 4C Motors, Couplings, Receivers PURS

Item	Part Number	Description	Kit	Quantity		
				All	PURS	PUTS
1	70061	Drive key, compressor				1
2a	70068	Drive coupling V01 only				1
2b	CZ71909	Drive coupling V02 only				1
3a	56565	Coupling spider V01 only	KT52			1
3b	70952	Coupling spider V02 only	KT52			1
4	56955	M8 x 10 Grub-screw				4
5a	57487	Impellor/Motor coupling V01 only				1
5b	70950	Impellor/Motor coupling V02 only				1
6	74798	Drive key motor				
7a	74736-32	Motor 1.1kW 220/240V 1PH 50Hz				1
7b	74738-10	Motor 1.1kW 400V 3PH 50Hz				1
7c	74737-32	Motor 2.2kW 220/240V 1PH 50Hz				1
7d	CC1160073	Motor 2.2kW 220/400V 3PH 50Hz				1
8	MS108-30	M8 x 25 Hex head bolt				4
9	MW8	M8 Plain washer				4
10	MWG8	M8 Spring Washer				4
11	MN108	M8 Hex nut				4
12	3061-A	No 8 x 3/8" Self Tapping Screw, 300/MK4				2
13a	35145	Starter 1.1kW 230V 50Hz 1PH 300 Builds/MK4				1
13c	35143	Starter 1.1kW 400V 50Hz 3PH 300 Builds/MK4				1
13e	35139	Starter 2.2kW 230V 50Hz 1PH 300 Builds/MK4				1
13g	35146	Starter 2.2kW 400V 50Hz 3PH 300 Builds/MK4				1
14	77375	Starter Bracket, 300/MK4				1
15	MS504-16	M4 x 16 Pan Hd Screw, 300 Builds/MK4				2
16	MW4	M4 Plain washer, 300 Builds/MK4				2
17	MN104	M4 Hex nut, 300 Builds MK4				2

Compressor Removal - Re-fitting

Disconnect the thermistor/thermoswitch probe cable from either the pressure switch assembly (PURS) or the starter assembly (PUTS).

Drain the oil from the compressor and cooler into a suitable container.

Disconnect the pipework from the compressor to aftercooler, where applicable.

Support the compressor before removing 4 off nuts and washers from the motor flange (Items 29, 30, 33, page 14).

If required remove 4 off cap head screws securing the backplate (Item 32, 33, page 14), where fitted.

Remove the compressor from the motor flange and support, place on a suitable work surface.

Compressor Drive Coupling

Before dismantling the drive the compressor air end must be removed from the motor.

Remove the drive element (3) examine for wear and replace if necessary.

For improved access the lantern and cooler assembly can be removed if desired.

Remove the compressor coupling (2) and key (1), examine and replace necessary.

On re-assembly ensure setting dimensions (page 19) are achieved for the coupling.

Ensure grub screws (4) have the correct torque and locktite applied.

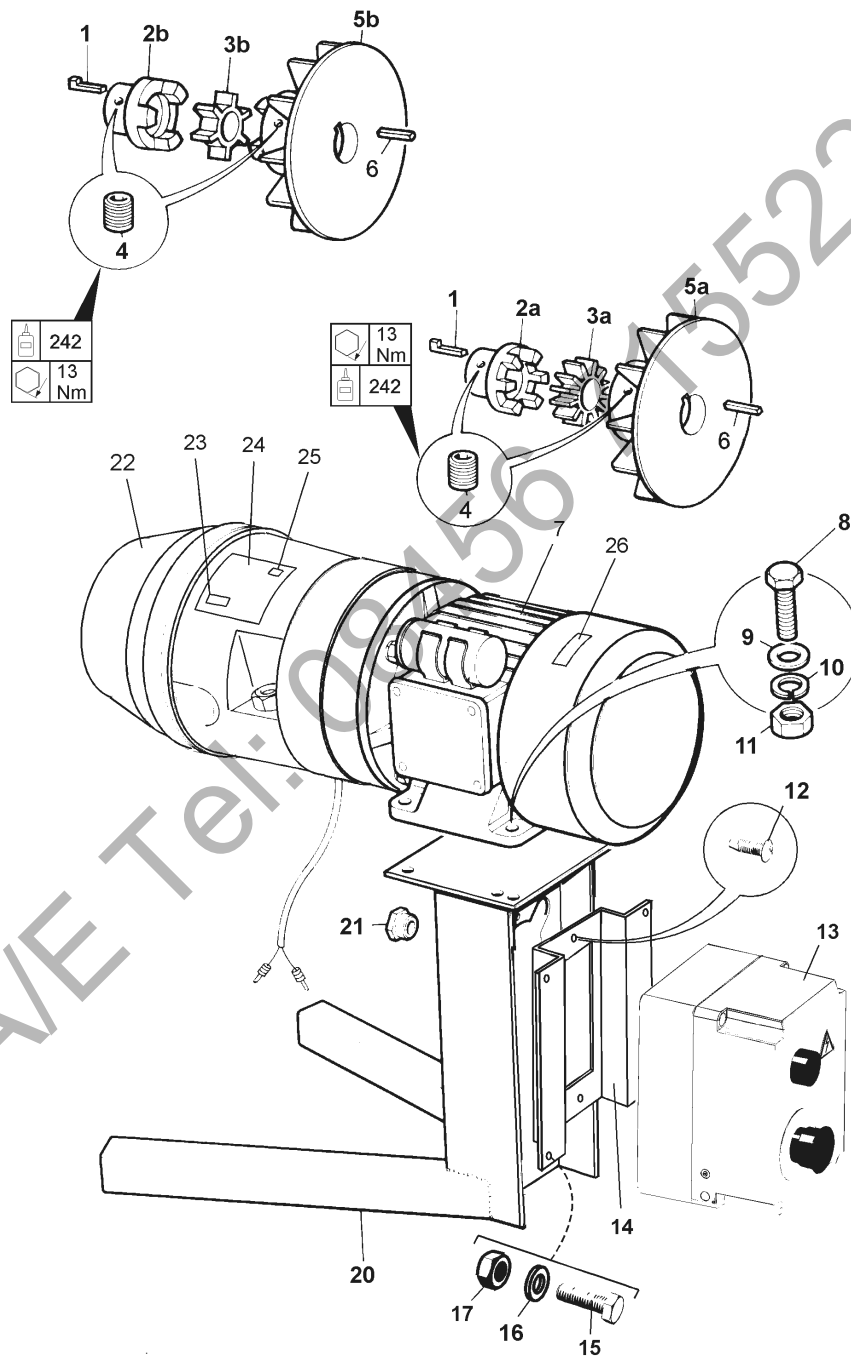
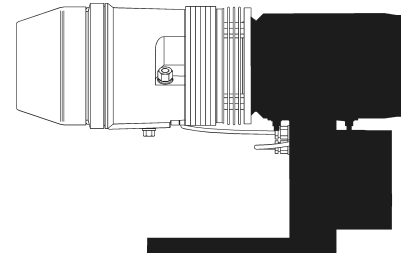


Fig 4D - Motors, Couplings, Tripod PUTS MK4

Item	Part Number	Description	Kit	Quantity		
				All	PURS	PUTS
18a	35208-01	Starter 1.1kW 230V 50Hz 1PH 400 Builds/MK5				1
18b	35208-03	Starter 1.1kW 400V 50Hz 3PH 400 Builds/MK5				1
18c	35208-02	Starter 2.2kW 230V 50Hz 1PH 400 Builds/MK5				1
18d	35208-04	Starter 2.2kW 400V 50Hz 3PH 400 Builds/MK5				1
19	MS2104-20	M4 x 20 Pozi panhead screw, 400 Builds/MK5				4
20a	56572	Tripod, 300 Builds/MK4				1
20b	77828	Tripod, 400 Builds/MK5				1
21	72112	Cable Gland M16 Conduit				1
22a	50110-300	1.1kW Compressor, 300 Builds/MK4				1
22b	50210-300	2.2KW Compressor, 300 Builds/MK4				1
22c	50110-400	1.1kW Compressor, 400 Builds/MK5				1
22d	50210-400	2.2KW Compressor, 400 Builds/MK5				1
23	73839	Serial number label				1
24	75985	Compressor label				1
25a	75986	HV01 Model label				1
25b	75987	HV02 Model label				1
26	75991	Rotation arrow label				1

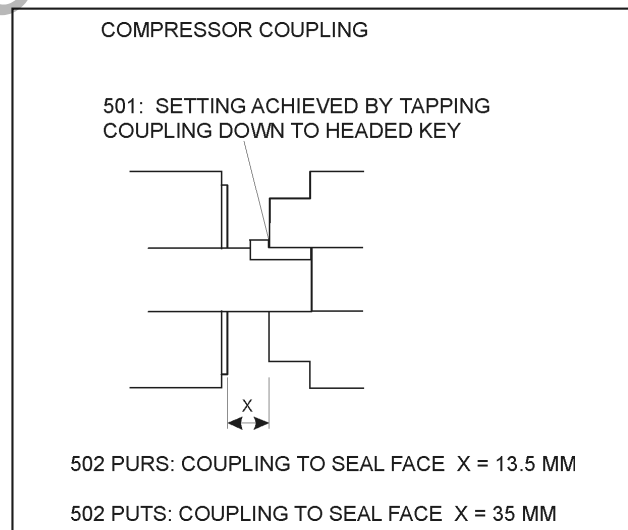
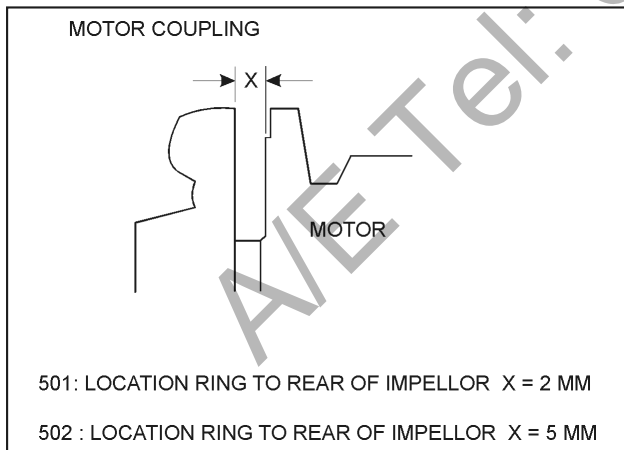
Motor Drive Coupling

Drain compressor oil, remove compressor from motor.

Remove fan coupling (5) and key (6), examine and replace if necessary.

On-reassembly ensure setting dimensions for couplings are achieved.

Ensure grub screws (4) have the correct torque and locktite applied.



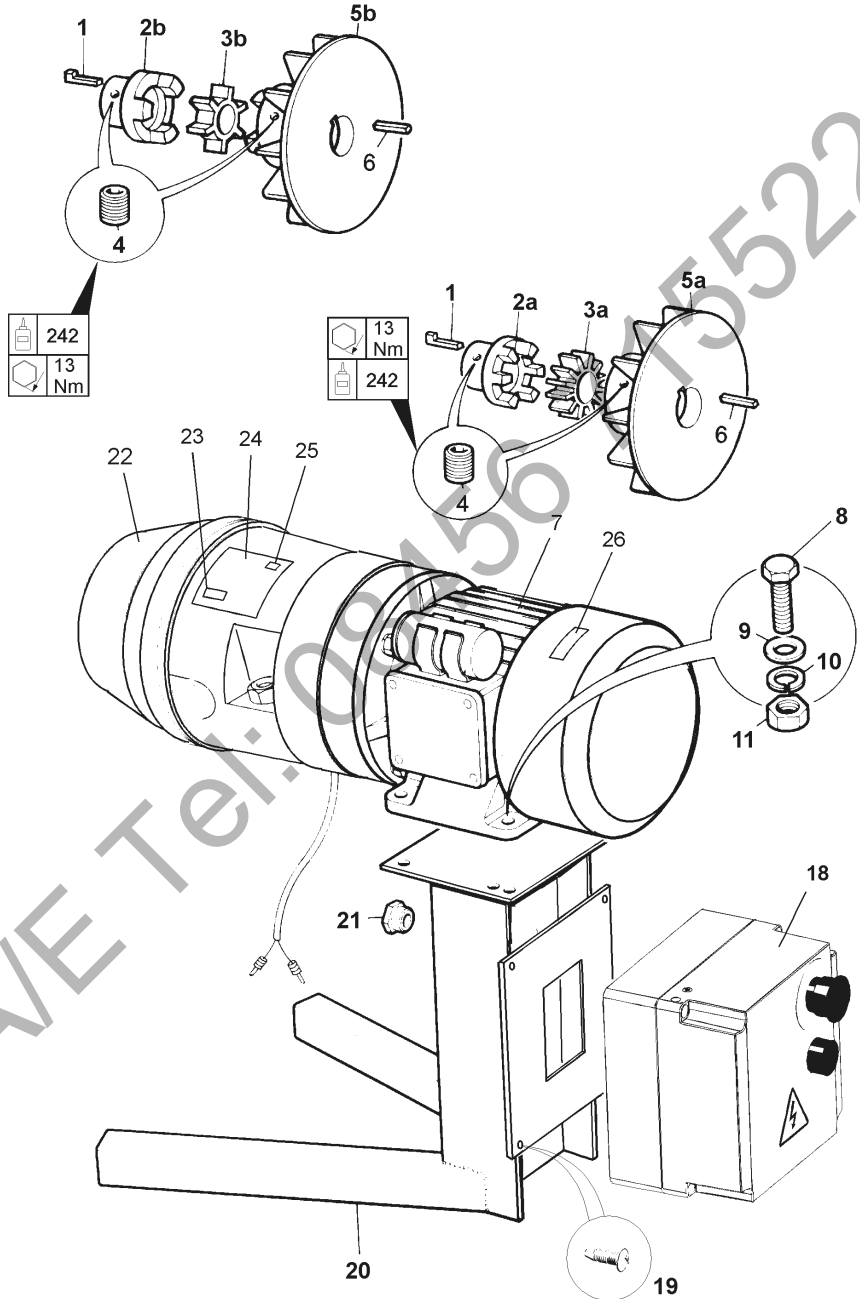


Fig 4E - Motors, Couplings, Tripod PUTS MK5

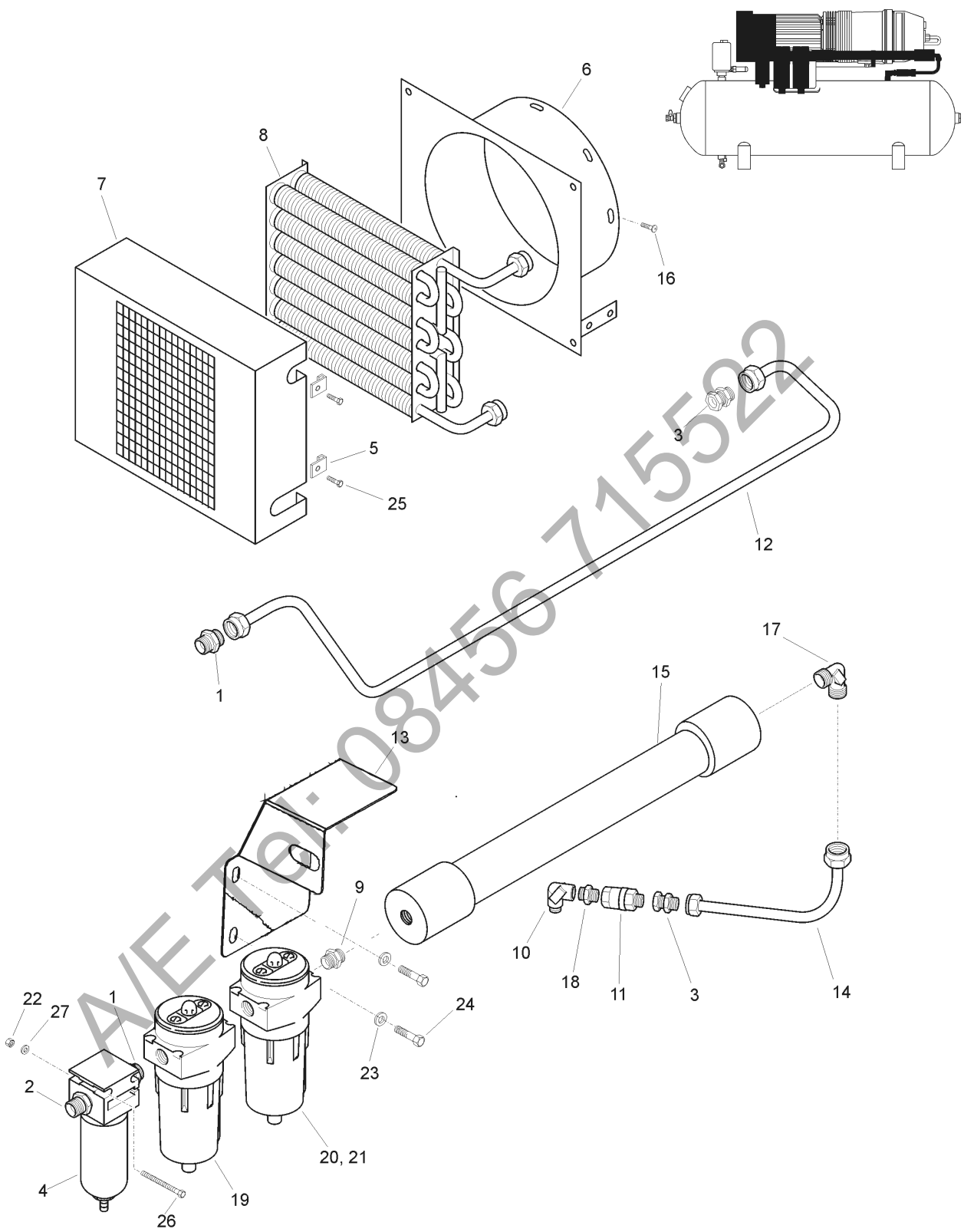
Item	Part Number	Description	Kit	Quantity		
				All	PURS	PUTS
	35219	V01-V02 ACA Kit Assembly			1	
1	73619	Male Adaptor R1/2"-R1/4"			2	
2	1397	Stud coupling 1/2" BSPT-12mm			1	
3	1892	Stud coupling 3/8" BSPT-12mm			2	
4	3534	Assembled drain filter			1	
5	54474	M5 Spire fastener			3	
6	59067	Support cowl			1	
7	59068	Cowl (Aftercooler)			1	
8	59069	Aftercooler			1	
9	70793	Male Equal Adaptor 1/4" BSPT			1	
10	56934	Equal Elbow M/F 1/4" BSP			2	
11	57687	Non Return Valve 3/8" Rp			1	
12	72376	Pipe-Air end to aftercooler			1	
13	77726	Support bracket			1	
14	74842	Pipe dryer/Receiver			1	
15a	74841	Dryer, V01			1	
15b	74840	Dryer, V02			1	
16	PE567-C6	Pozi-pan screw 6G x 3/8"			4	
17	73554	Stud elbow R1/4"-12mm			1	
18	57690	Male Adaptor R1/4"-R3/8			1	
19a	A51112374	Filter GP 9 L/S			1	
19b	A51128374	Element			1	
20a	A51112474	Filter HE 9 L/S			1	
20b	A51128474	Element			1	
21	70793	Male Equal Adaptor 1/4" BSPT			1	
22	MN105	M5 Hex nut			2	
23	MN106	M6 Hexagon nut			1	
24	MS106-12	M6 x 12 Hex head screw			2	
25	MS2105-10	M5 x 10 Pozi panhead screw			3	
26	MS705-45	M5 x 45 Skt head screw			2	
27	MW5	M5 Plain washer			2	

Warning

Use teflon tape on all threaded components, the use of pipe sealants will damage the membrane dryer and void the warranty

Filter Elements

Change the filter elements (19b & 20b) every 12 months.



435A009

Fig 4F - Aftercooler; Dryer, Filters

Item	Part Number	Description	Kit	Quantity		
				All	PURS	PUTS
	35209-01	Starter 1.1kW 230V 1PH 50Hz			A/R	
	35209-02	Starter 2.2kW 230V 1PH 50Hz			A/R	
	35209-03	Starter 1.1kW 400V 3PH 50Hz			A/R	
	35209-04	Starter 2.2kW 400V 3PH 50Hz			A/R	
	77693	Circuit Diagram			1	
1	52014	Lightning Flash Label			1	
2	53287	Pressure Switch			1	
3	72134	Emergency Stop Push Button			1	
4	72135	Start Push Button (Green)			1	
5	73213	Stud Connector Push In G1/4"-6mm			1	
6	76156	Terminal End Block			4	
7	76158	Cage Clamp Terminal 2.5mm			4	
8	76159	Cage Clamp Terminal End Plate 2.5mm			1	
9	77383	Chassis Plate (150x130)			1	
10	77387	Enclosure (175x175)			1	
11	77392	Emergency Display Disc			1	
12	CC1086673	Mini Contactor 12A			1	
12a	CC1102993	Contactor 18A			1	
13a	CC1086674	Mini Contactor Overload 4.0 AMPS (35209-03)			1	
13b	CC1086675	Mini Contactor Overload 6.0 AMPS (35209-04)			1	
13c	CC1086676	Mini Contactor Overload 9.0 AMPS (35209-01)			1	
13e	CC1086677	Mini Contactor Overload 15.0 AMPS (35209-02)			1	
13f	CC1102996	Contactor Overload 17-23 AMPS			1	
14	77691	Transformer Dual Voltage 25VA			1	
15	77699	Minature Relay Base			1	
16	77700	Minature Relay 24VAC Coil			1	
17	-	DIN Rail 60mm			1	
A	-	Temperature Switch			1	
B	-	Motor Cable			1	
C	-	Mains Cable			1	

Starter (Stop/Start Pressure Switch Control)

35209-01 fitted to 501PURS10-2415D400 (MK5) units, replaced 74004 on earlier 300 builds/MK4 units.

35209-02 fitted to 502PURS10-2415D400 (MK5) units, replaced 74005 on earlier 300 builds/MK4 units .

35209-02 fitted to 501PURS10-2216D405 (MK5) units, replaced 74123 on earlier 305 builds/MK4 units .

35209-03 fitted to 501PURS10-4035D400 (MK5) units, replaced 74121 on earlier 300 builds/MK4 units.

35209-04 fitted to 502PURS10-4035D400 (MK5) units, replaced 74122 on earlier 300 builds/MK4 units .

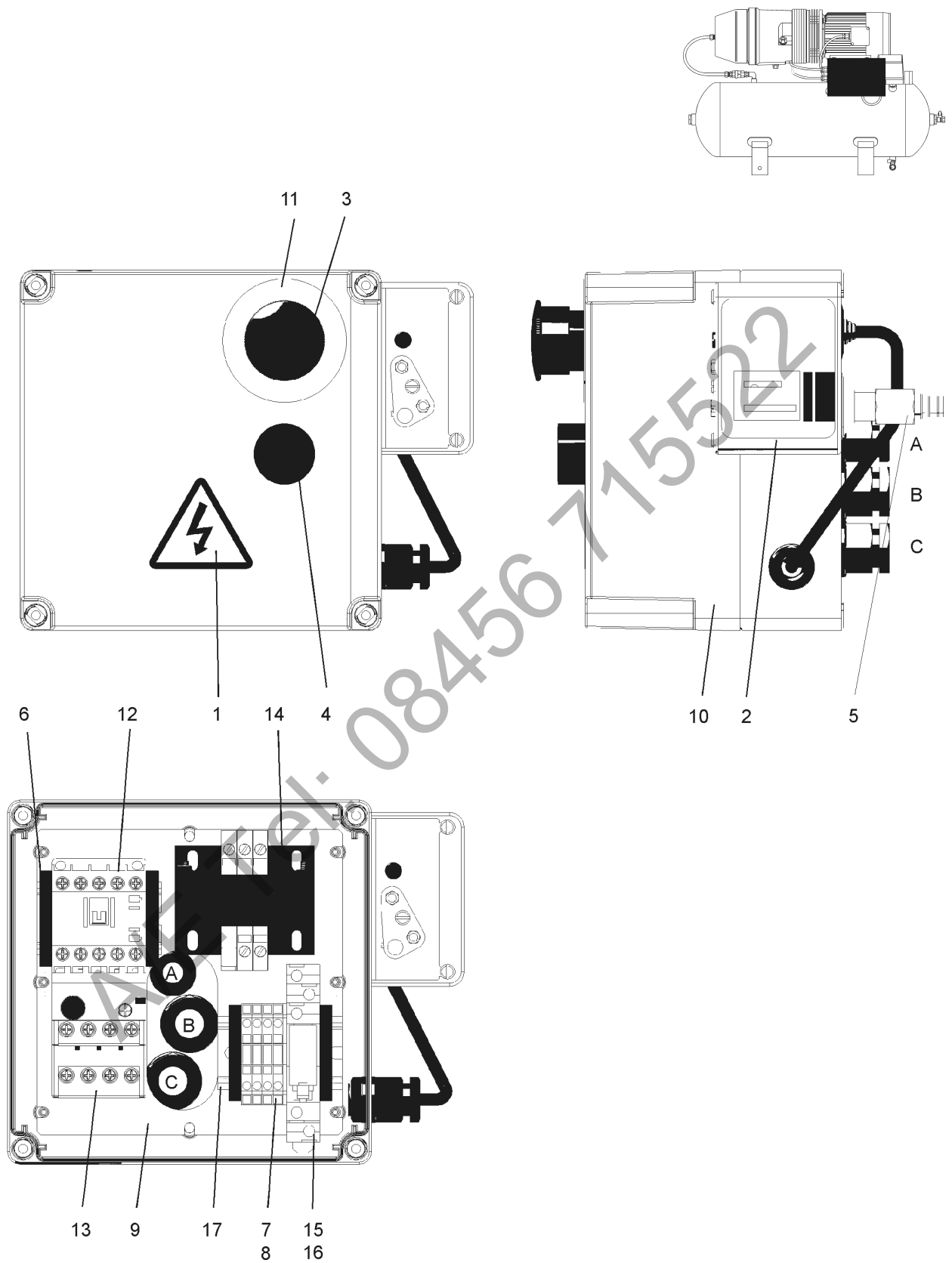


Fig 5A - 1.1/2.2kW 230/400V 1/3 PH 50Hz Starter PURS

Item	Part Number	Description	Kit	Quantity		
				All	PURS	PUTS
	35143	Starter 1.1kW 400V 3PH 50Hz				A/R
	35144	Starter 1.1kW 220V 3PH 50Hz				A/R
	77673	Circuit Diagram				1
	35145	Starter 1.1kW 220V 1PH 50Hz				A/R
	77391	Circuit Diagram				1
	35146	Starter 2.2kW 400V 3PH 50Hz				A/R
	35147	Starter 2.2kW 220V 3PH 50Hz				A/R
	77673	Circuit Diagram				1
1	77380	Enclosure				1
2	77392	Emergency Display Disc				1
3	72135	Push Button (Green)				1
4	72134	Emergency Stop				1
5	50935	Lightning Flash Label				1
6a	72014	Contact (35143/46)				1
6b	72015	Contact (35144/45/47)				1
7a	73792	Overload 2.4-4.0 AMP (35143)				1
7b	73793	Overload 6.0-9.0 AMP (35144)				1
7c	73791	Overload 9.0-12.0 AMP (35145/47)				1
7d	73790	Overload 4.0-6.0 AMP (35146)				1
8a	71895-01	Overtemperature Control Board 400V (35143/46)				1
8b	71895-02	Overtemperature Control Board 220V (35144/45/47)				1
9	77381	Chassis Plate				1
A	72105	Motor Cable Assembly (35143/44/46/47)				1
A	72106	Motor Cable Assembly (35145)				1
B	73216	Mains Cable Assembly (35143/44/46/47)				1
B	56627	Mains Cable Assembly (35145)				1

Starter (Continuous Run)

35143 fitted to 501PUTS10-4035D300 (MK4) units, replaced 33732-01 on earlier 300 builds/MK4 units.

35145 fitted to 501PUTS10-2415D300 (MK4) units, replaced 33734-01 on earlier 300 builds/MK4 units.

35146 fitted to 502PUTS10-4035D300 (MK4) units, replaced 33732-03 on earlier 300 builds/MK4 units.

See page 26 for 400 builds/MK5 units.

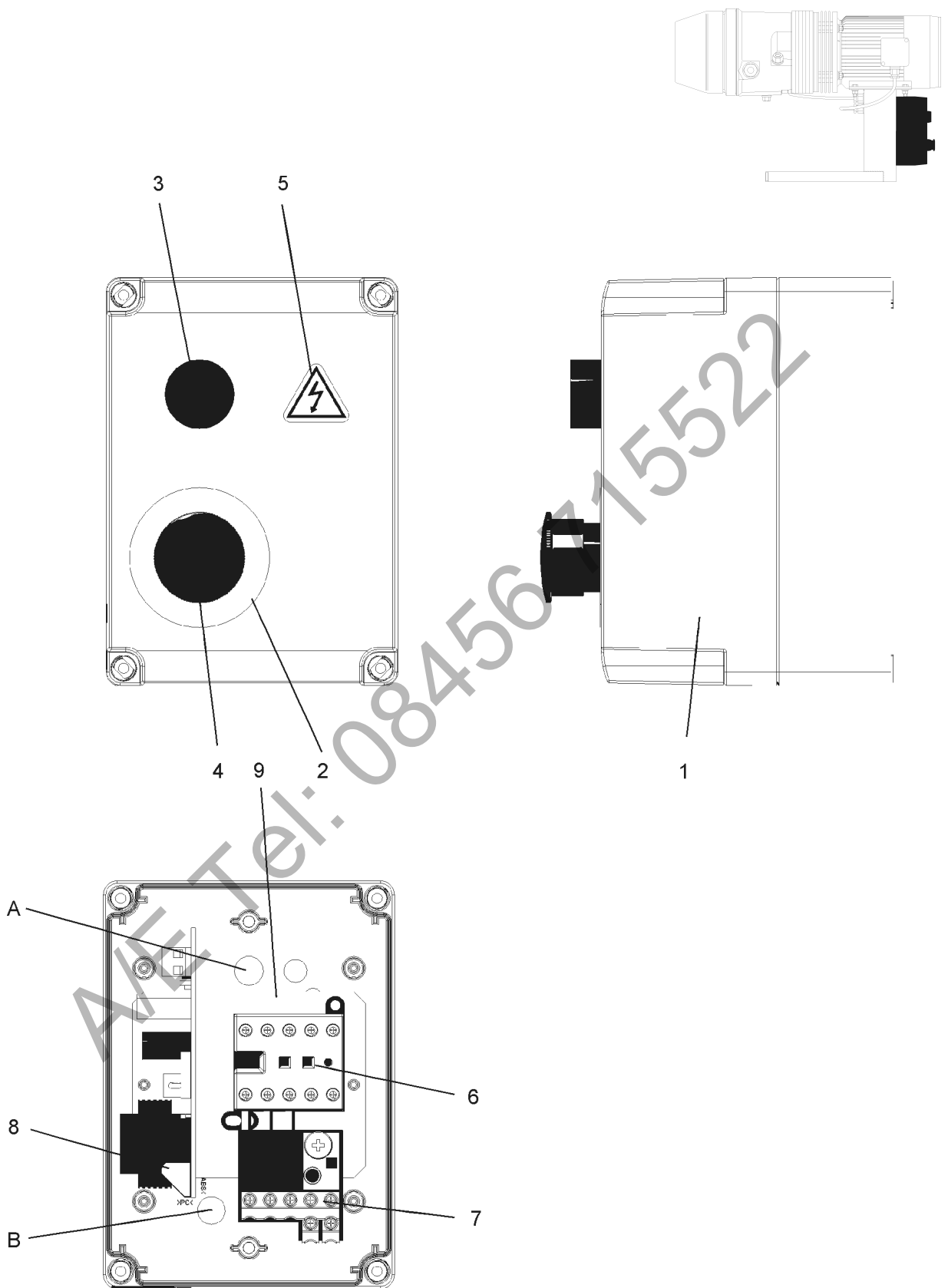


Fig 5B - 1.1/2.2kW 220/400V 1/3 PH Starter PUTS

Item	Part Number	Description	Kit	Quantity		
				All	PURS	PUTS
	35139	Starter 2.2kW 220/240V 1PH 50Hz				A/R
	77388	Circuit Diagram				1
1	72135	Push Button (Green)				1
2	72134	Emergency Stop				1
3	77392	Emergency Display Disc				1
4	72093	Overtemperature Control Board				1
5	-	DIN Rail 60mm				1
6	77383	Chassis Plate (150x130)				1
7	52014	Lightning Flash Label				1
8	72151	Contactora 16 AMP 24VAC				1
9	77387	Enclosure (175x175)				1
10	75675	Overload 19 AMP				1
11	73145	Transformer 25VAC 24V				1
12	59800	Cable Gland M20				1
13	56758	Locknut M20				1
A	58712	Mains Cable				1
B	72144	Motor Cable				1

Starter (Continuous Run)

35139 fitted to 502PUTS10-2415D300 (MK4) units, replaced 33736-01 on earlier 300 builds/MK4 units

See page 26 for 400 builds/MK5 units, 35139 now replaced with 35208-02.

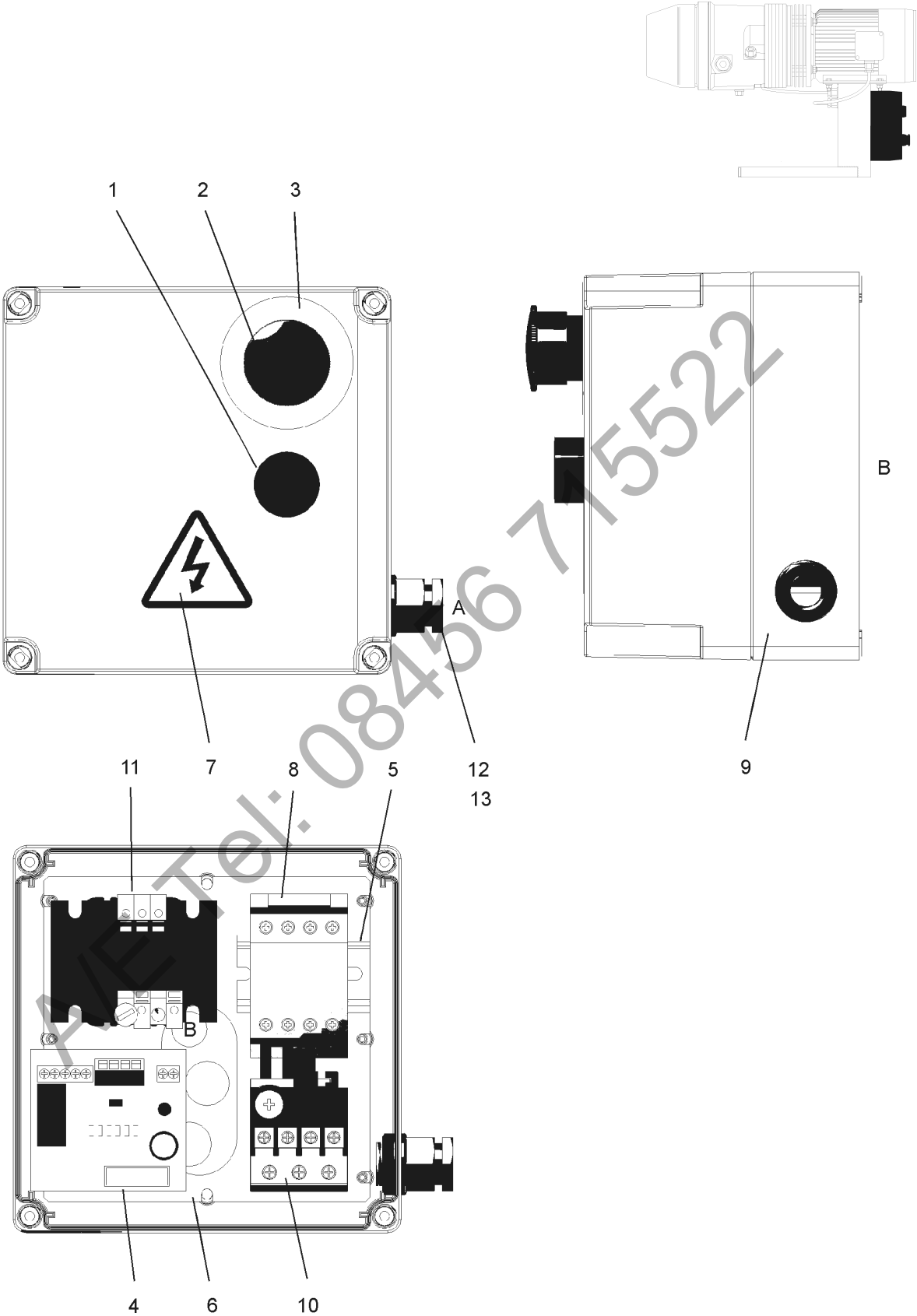


Fig 5C - 2.2kW 220V 1PH Starter PUTS

Item	Part Number	Description	Kit	Quantity		
				All	PURS	PUTS
	35208-01	Starter 1.1kW 230V 1PH 50Hz				A/R
	35208-02	Starter 2.2kW 230V 1PH 50Hz				A/R
	35208-03	Starter 1.1kW 400V 3PH 50Hz				A/R
	35208-04	Starter 2.2kW 400V 3PH 50Hz				A/R
	77693	Circuit Diagram				1
1	52014	Warning label				1
2	72134	Emergency Stop Push Button				1
3	72135	Start Push Button (Green)				1
4	76156	Terminal End Block				4
5	76158	Cage Clamp Terminal 2.5mm				2
6	76159	Cage Clamp Terminal End Plate 2.5mm				1
7	77383	Chassis Plate (150x130)				1
8	77386	Blind Grommet				1
9	77387	Enclosure				1
10	77392	Emergency Display Disc				1
11	CC1086673	Mini Contactor 12A				1
12	CC1102993	Contactor 18A				1
12a	CC1086674	Mini Contactor Overload 4.0 AMPS (35208-03)				1
12b	CC1086675	Mini Contactor Overload 6.0 AMPS (35208-04)				1
12c	CC1086676	Mini Contactor Overload 9.0 AMPS (35208-01)				1
12d	CC1086677	Mini Contactor Overload 15.0 AMPS (35208-02)				1
12e	CC1102996	Contactor Overload 17-23 AMPS (3823-00)				1
13	77691	Transformer Dual Voltage 25VA				1
14	-	DIN Rail 60mm				1
A	-	Temperature Switch				1
B	-	Motor Cable				1
C	-	Mains Cable				1

Starter (Continuous Run)

35208-01 fitted to 501PUTS10-2415D400 (MK5) units, replaced 35145 on earlier 300 builds/MK4 units.

35208-02 fitted to 502PUTS10-2415D400 (MK5) units, replaced 35139 on earlier 300 builds/MK4 units.

35208-03 fitted to 501PUTS10-4035D400 (MK5) units, replaced 35143 on earlier 300 builds/MK4 units.

35208-04 fitted to 502PUTS10-4035D400 (MK5) units., replaced 35146 on earlier 300 builds/MK4 units.

See page 28 and 30 for 300 builds/MK4 units.

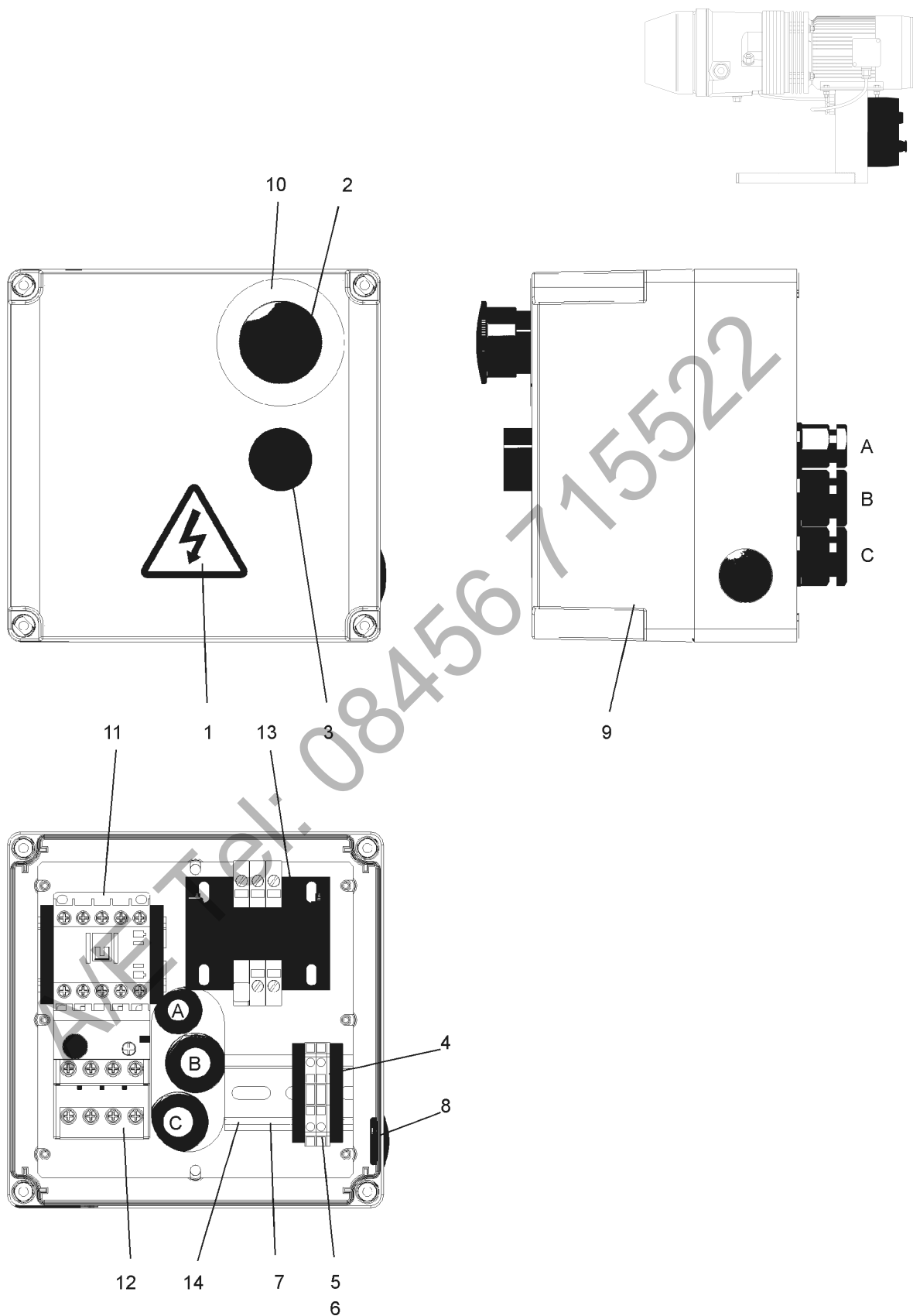


Fig 5D - 1.1/2.2kW 230/400V 1/3 PH 50Hz Starter PUTS