Read this manual carefully before using the Filter Unit.

Great care should be exercised in the application of the Filter Unit. A competent dust extraction engineer should be consulted before using. Certain dusts are dangerous to handle, i.e. explosive, toxic, carcinogenic or statically charged in nature. The mixing of apparently inoccuous dusts within the same extraction systems can cause a serious hazard.

Explosion relief panels where fitted, should be vented to a safe area through a straight duct no more than 3 metres in length and strong enough to withstand explosion pressure.

Care should be taken during emptying of waste collection bins and final disposal to avoid possible secondary dust emission and contamination. It is recommended that respiratory protective equipment be used, for further information consult BS 4275 : 1974 'Recommendations for the selection and use and maintenance of respiratory protective equipment'.

This Dust Filter Unit must be used in accordance with COSHH Regulations. For further information refer to Health and Safety executive guidance note EN 40/89 'Occupational exposure limits 1989' and guidance note EN 44 'Dust in the workplace : general principles of protection'.

Where Filter Units discharge to atmosphere the user must refer to the 'Environmental Protection Act 1990'.

Dust Filter Units must be tested at minimum yearly intervals to ensure plant is working effectively.

Please refer to manufacturer or Health and Safety Executive if in any doubt before using.

FIRE PREVENTION

This Filter Unit contains filter media which should be prevented from catching fire.

Instruction and precautions are necessary in order to prevent the media from igniting.

For example, items such as lighted cigarettes and smouldering rags, should not be introduced into the ductwork system.

In the event of a fire the fan should immediately be switched off and all the system dampers, both extract and return air, should be closed.

INSTALLATION

The unit should be positioned on a prepared floor area of adequate strength and care taken to ensure full base seating. If high spots occur and cause unit to rock then holding down bolts should be fitted.

The seperately supplied electrical control panel should be located in a suitable place and an isolated electrical supply connected to it. The fan and shaker motors should then be connected to the control panel in accordance with the wiring diagram. Check rotation of fan adjust timers and set thermal overload to setting on rating plate of fan motor.

OPERATION

The machine is a self contained unit collector and is designed to operate on an intermittent duty and, dependant on the dust concentration, can provide up to eight hours continuous operation without the need to shut down the fan and clean the residual dust from the filter sleeves.

The cleaning operation is carried out automatically, on fully auto units, at the end of each work shift, the shaking cycle being self activated whenever the fan stop button is depressed. The sequence time included provides a two minute cycle, of which the first minute allows the fan to become stationary. This is followed by a consecutive 30 second to one minute shaking. The fan should not be operated for a further two minutes to allow the dust to settle in the collection bins. It is vital during the shaking cycle that the filter media is not subjected to any pressure differential, as would occur with the fan operating and the control system is therefore interlocked to ensure that this cannot occur.

To encourage dust settlement in the collector bin (or drawer), it is essential that the bin is correctly sealed at all times, when the fan is in operation, as air leakes at the peripheral seal may cause the fine dust to remain in suspension. In the interest of good housekeeping, the bin should not be allowed to overfill.

Under no circumstances should the fan be operated with the ductwork system, collection bin or with the access door removed. This would drastically reduce the extraction at the exhaust points, but more importantly, would most likely cause the fan motor to seriously overload and burn out within a short time.

To ensure optimum efficiency during the work shift period, the operating precautions may be summarised as follows:

1. Ensure that the bin (or drawer) is correctly located and sealed and the access doors are closed at all times during fan operation.

2. Do not allow the bin to overfill, but empty on a routine basis, i.e. daily or according to the amount of dust collected during a set period.

3. Do not allow the fan to run continuously for periods exceeding eight hours. If the dust concentration is excessive, the maximum operating period between shaking cycles can be reduced conveniently by providing an intermediate shut down during the lunch or tea break.

4. Do not shut down the fan by means of the isolator switch, otherwise the shaking cycle will not occur. The clean push button should be used at all times and a further interval of two minutes allowed before isolating the plant, thus allowing the shaking cycle to finish.

MAINTENANCE

For trouble free operation and maximum service life, it is recommended that the following items be checked at six monthly intervals.

1. Shaking mechanism is operating freely, the mechanism should be lubricated regularly. Check bearing for excessive play and this will negate effect of cleaning cycle.

2. Conditions of sleeves. Ensure filter element is free of dust build up.

   Any quantity of dust within the clean air chamber will suggest that deterioration of the media has occured or that sleeves have been incorrectly fitted.

3. Condition of the bin sealing mechanism.

4. Condition of door seals and if applicable drawer seals.

TROUBLE SHOOTING

If the exhaust conditions appear to deteriorate, check the following.

1. Fan motor running with correct rotation.

2. Bin is located and sealed and access doors are closed.

3. Blast gates in the duct systems, if applicable, have not been tampered with.

4. Fan is being shut down by means of clean button and not isolator.

5. Shakers are operating freely during shaking cycle.

6. Maximum periods between shaking not exceeding normal limit.

7. Leakage or damage to duct system.

8. Filter media passed its effective life and needs replacing.

9. The air discharge is not obstructed.

DUST CARRY OVER

If dust carry over occurs, evidenced by dust discharge from fan outlet, check the following:

1. Filter media is intact and not damaged.

2. Shaker sequence is operating only when fan is stationary.

ANTI STATIC FILTER MEDIA

I M P O R T A N T

When a unit is fitted with epitropic filter media or if earthing braids are used, it is vital that an external earth connection is made.

During shop assembly the filter sleeves are linked to a earthing bolt on the side of the filter casing. It is essential that this bolt is connected to a suitable earthing point, such as a steel stanchion, using copper wire.

DO NOT link the earth bolt to the earthing terminal of the units electrical supply.

CEGELEC
INDUSTRIAL CONTROLS

FAN SHAKER
DIRECT-ON-LINE 3-PHASE
AC MOTOR STARTERS

WARNING

COMMISSIONING AND MAINTENANCE TO BE CARRIED OUT BY QUALIFIED PERSONNEL ONLY.

FOLLOW ALL SAFETY INSTRUCTIONS

ALL COVERS MUST BE REPLACED BEFORE THE EQUIPMENT IS ENERGIZED
WHEN IN USE HAZARDOUS VOLTAGES MAY BE PRESENT ON THIS UNIT WHICH CAN CAUSE ELECTRICAL SHOCK AND BURNS

HOT AND IONISED ARC GASES CAN ESCAPE

ARC CHAMBERS MUST BE FITTED

DO NOT OPERATE ANY DEVICE MANUALLY WHEN THE SYSTEM IS ENERGIZED

FAILURE TO OBSERVE THESE WARNINGS CAN RESULT IN DEATH, SEVERE PERSONAL INJURY AND/OR DAMAGE TO PROPERTY

TYPES PFS04KA & PFS04KB PFS05KA & PFS05KB
PFS07KA & PFS07KB PFS11KA & PFS11KB
PFS15KA & PFS15KB PFS18KA & PFS18KB

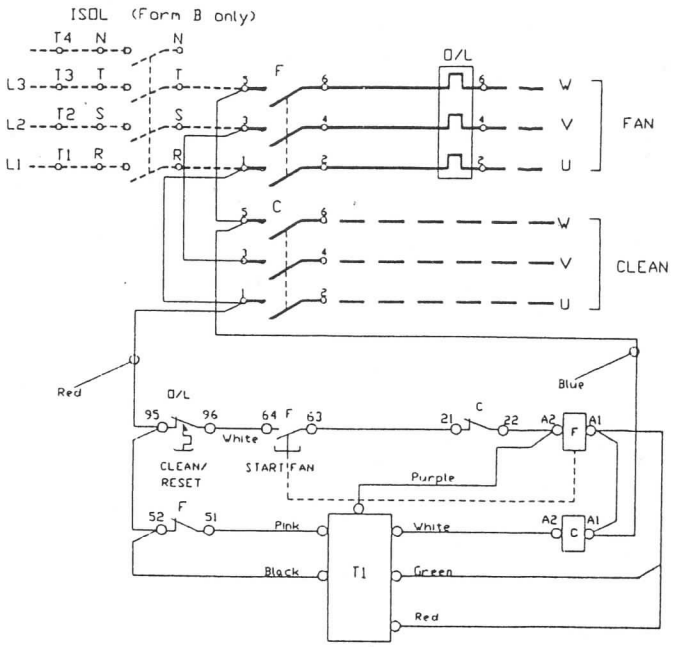

Figure 1 Circuit Diagram

WARNING **YOU MUST ISOLATE THE SUPPLY BEFORE CARRYING OUT WORK ON THE STARTER**

INSTALLATION

Check that the voltage and frequency marked on the contactor coils match the control supply.
Mount the starter rigidly on a vertical surface which is reasonably free from vibration.
The enclosure is designed to give environmental protection to IP65. To achieve this, use all four fixing screw holes. The rims of the holes are designed to seal against the screw heads.
Fit overload relay type M22K (04-11) or M36K (15-18) to suit motor full-load current.
Ensure that the relay is firmly attached to the contactor F before tightening the contactor terminal screws.
Make connections to OL relay terminals 95 and 96 as appropriate.

CONTROL VARIATIONS

Remote Start/Stop Pushbuttons

Remove the White link O/L96 to F64 and connect as shown in Figure 2

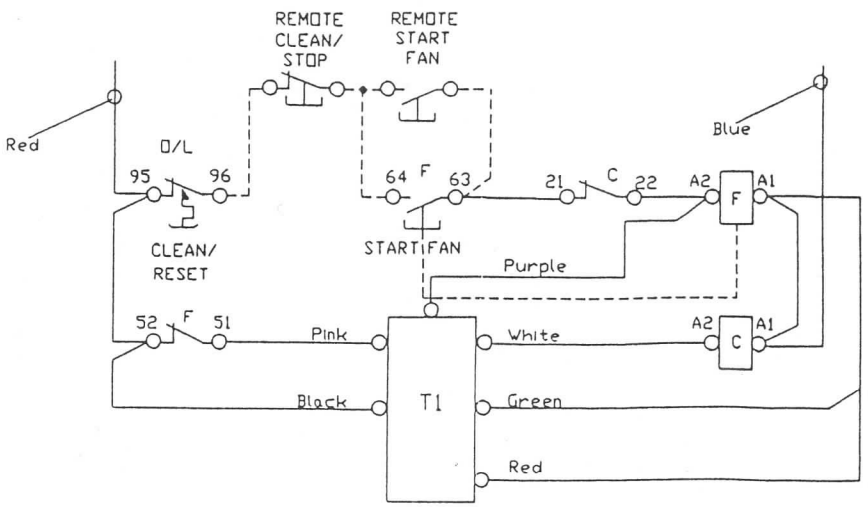

Figure 2.

Pilot Switch-control

Remove the Black link F63 to C21 and connect as shown in Figure 3.

Note:

1. Start pushbuttons if fitted should be removed and the holes blanked off
2. The overload relay must be in Hand Reset (H) mode
3. If the Clean/Reset button is pressed while the motor is running, the motor will restart when the clean cycle is complete.

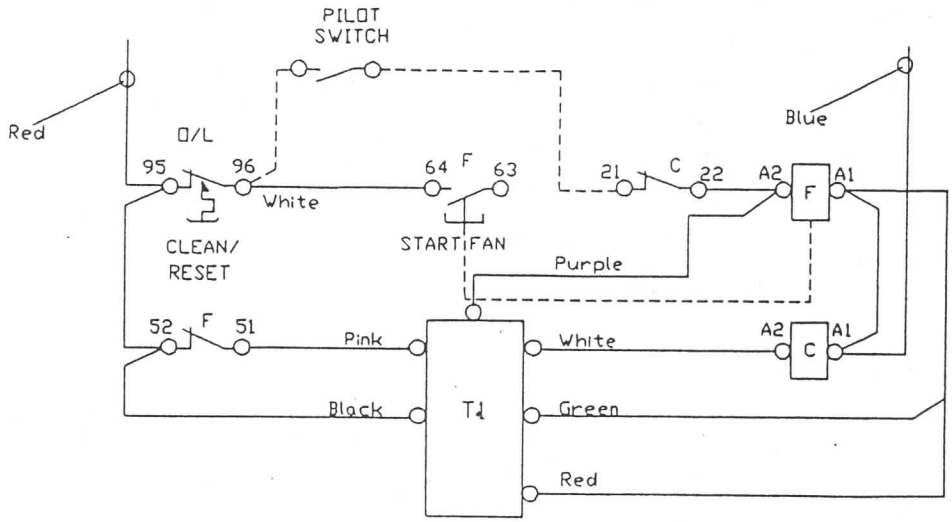

Figure 3

Pilot Switch-control with Hand/Off/Auto Switch

Remove the Black link F63 to C21 and connect as shown in Figure 4.

Note:

1. The overload relay must be in Hand Reset (H) mode.
2. If the Clean/Reset pushbutton is pressed while the motor is running in Auto, the motor will re-start when the clean cycle is completed.

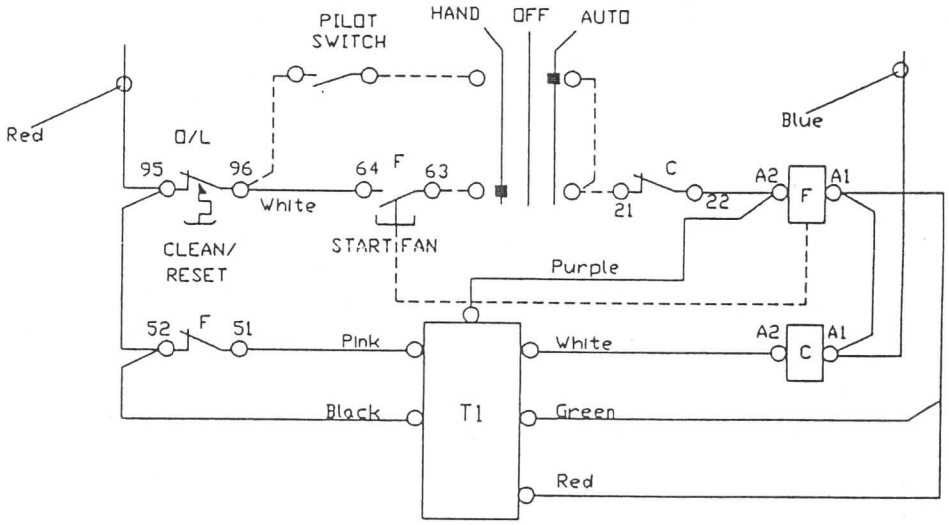

Figure 4

OTHER COIL SUPPLY ARRANGEMENTS

Line-Neutral Remove the Blue wire.
Connect supply Neutral to coil terminal C/A1.
In Form B starters, bring supply neutral through isolator contact N(B) - N(T).

Separate Coil Supply Remove the Red and Blue wires.
Connect Earthed side of supply to C/A1.
Connect Live side of supply to OL/95.
i.e. In Form B starters, use isolator contact N(T) - N(B) to isolate the Live side of the coil supply.

TIMER OPERATION

The timer is pre-set to give a fixed run down time of 60 seconds, followed by a variable clean time of between 30 seconds and 60 seconds set by means of an adjustable potentiometer on the top of the unit.

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Kidsgrove, Stoke-on-Trent, Staffordshire
ST7 1TW England

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Fax: (0782) 776329

TYPES: PYDFS04KA, PYDFS05KA, PYDFS07KA, PYDFS011K
PYDFS04KB, PYDFS05KB, PYDFS07KB, PYDFS011KB

WARNING

COMMISSIONING AND MAINTENANCE TO BE CARRIED OUT BY QUALIFIED PERSONNEL ONLY.

FOLLOW ALL SAFETY INSTRUCTIONS

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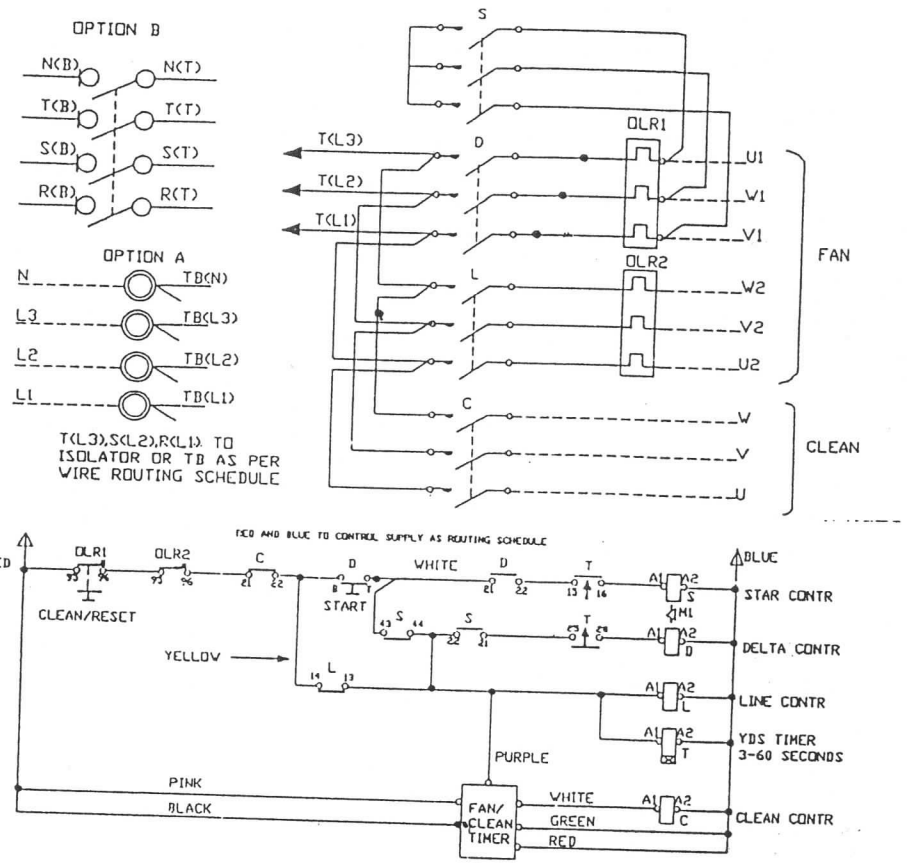

Figure 1 Circuit Diagram

WARNING BEFORE CARRYING OUT WORK ON THE STARTER YOU MUST ISOLATE THE SUPPLY

INSTALLATION

Check that the voltage and frequency marked on the contactor coils match the control supply.
Mount the starter rigidly on a vertical surface which is reasonably free from vibration.
The enclosure is designed to give environmental protection to IP65. To achieve this, use all four fixing screw holes. The rims of the holes are designed to seal against the screw heads.
Fit overload relay type M22K to suit motor full-load current. (See Below)
Ensure that the relays are firmly attached to the contactors before tightening the contactor terminal screws.
Make connections to OL relay terminals 95 and 96 as appropriate.
Connect Motors to FAN U1, W1, V1 & W2, V2, U2 and CLEAN U, V, W.
To reverse the direction of motor rotation, interchange any two of the three supply connections.
Adjust YDS and shaker timers to required settings.

SELECTION OF OVERLOAD RELAYS (Type M22K)

One overload relay (OLR1) is connected in the delta motor circuit, and the current in the relay under running (delta) conditions is 57.5 per cent $\left(\frac{1}{\sqrt{3}}\right)$ of the line current.
The relay must be selected and adjusted to suit: (Motor Full-load Current) x 0.58.
OLR2 is connected in the Line circuit and should be set at the value of line current.

Example:

11kW motor, 415V 50Hz
Typical full-load current 21.0A

OLR1:- Relay current under running conditions is: 21.0 x 0.58 + 12.2A
Select M22K relay with range 10-15A.
Set relay to 12.2A

OLR2:- Relay current under running conditions is: 21.0A
Select M22K relay with range 15-22A.
Set relay to 21.0A

CONTROL VARIATIONS

On versions without integral START pushbutton (i.e. Forms AB,BB,AC & BC), the Yellow wire D/B to L14, and White wire D/T to D/21, are not fitted.

Remote Start/Stop Pushbuttons

Remove the Black wire C22 to D(B) and connect as shown in Figure 2

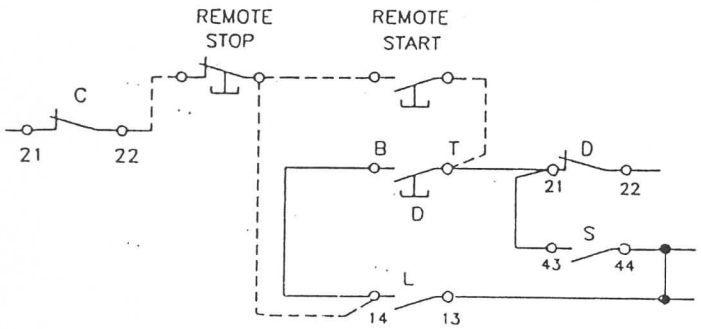

Figure 2.

Note:
If a local start pushbutton is not required, it may be removed and the hole blanked off. Local Stop remains operative.

Pilot Switch-control

Remove Black wire C22 to D(B), White wire (DT to D21), and the Yell wires, and connect as shown in Figure 3.

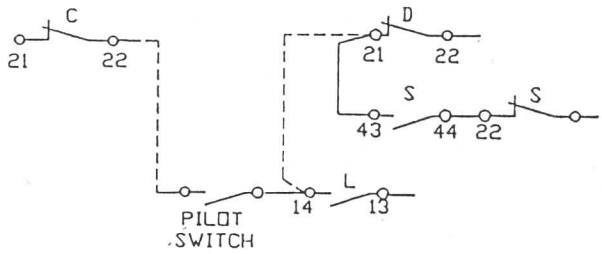

Figure 3.

Note:
1. Start pushbuttons, if fitted, should be removed and the holes blank off
2. The overload relay must be in Hand Reset (H) mode
3. If the Clean/Reset button is pressed while the motor is running, th motor will restart when the clean cycle is complete.

Pilot Switch-control with Hand/Off/Auto Switch

Remove White wire DT to D21, and the Yellow wire.
Connect the pilot switch and selector switch as shown in Figure 4.

Note:

1. The overload relay must be in Hand Reset (H) mode
2. If the Stop/Reset pushbutton is pressed while the motor is running in Auto, the motor will re-start when the button is released

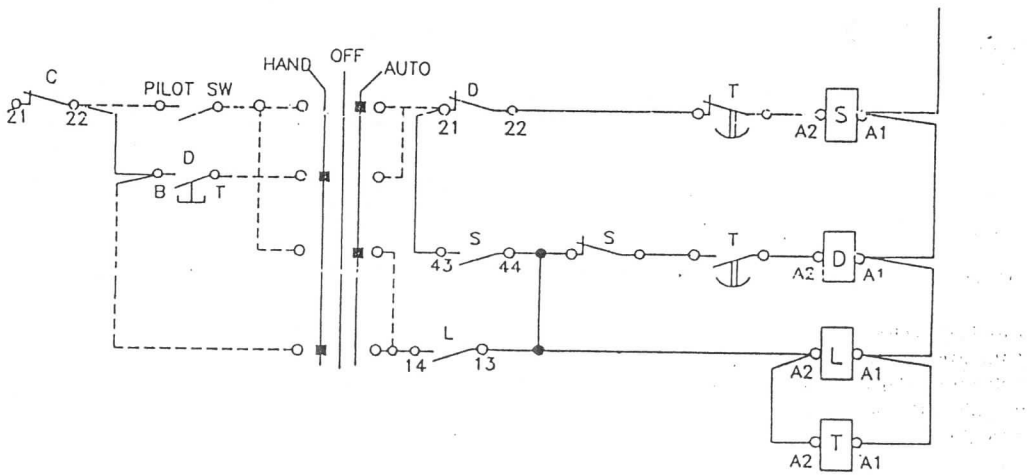

Figure 4.

OTHER COIL SUPPLY ARRANGEMENTS

Line-Neutral — The Blue wire should be connected to S/A1-TB(N) or S/A1-IS/N(T).
Connect supply neutral to terminal TB(N) or IS/N(B).

Separate Coil Supply — The Red wire should be connected from OL1/95 to TB(N) or IS/N(T).
Make sure that no Blue wire is present.
Connect Earthed side of supply to coil terminal S/A1.
Connect Live side of supply to TB(N) or IS/N(B).
i.e. In form B starters, use isolator contact N(B) - N(T) to isolate the Live side of coil supply.

TIMER OPERATION

The timer is pre-set to give a fixed run down time of 60 seconds, followe by a variable clean time of between 30 seconds and 60 seconds set by means of an adjustable potentiometer on the top of the unit.

CEGELEC Industrial Controls Ltd,
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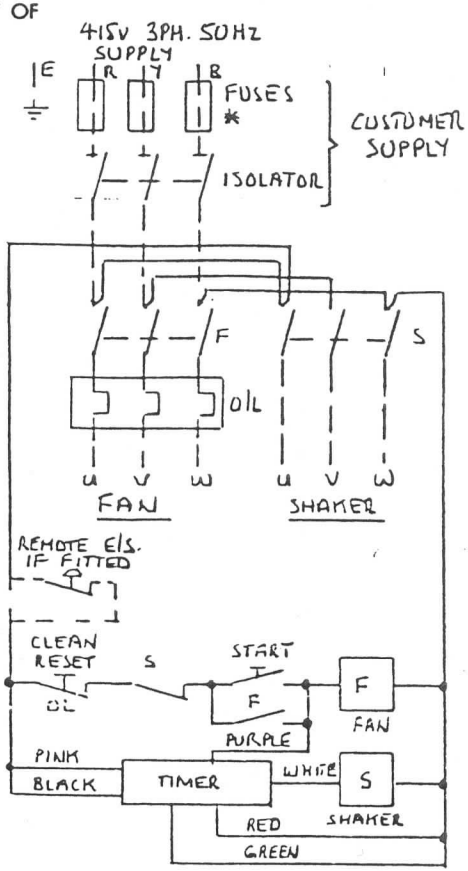
Telex: 36293/4 CEGKID G
Fax: (0782) 776329

PART OF

DO NOT SCALE

SHEET OF

DRG. No.



EQUIPMENT

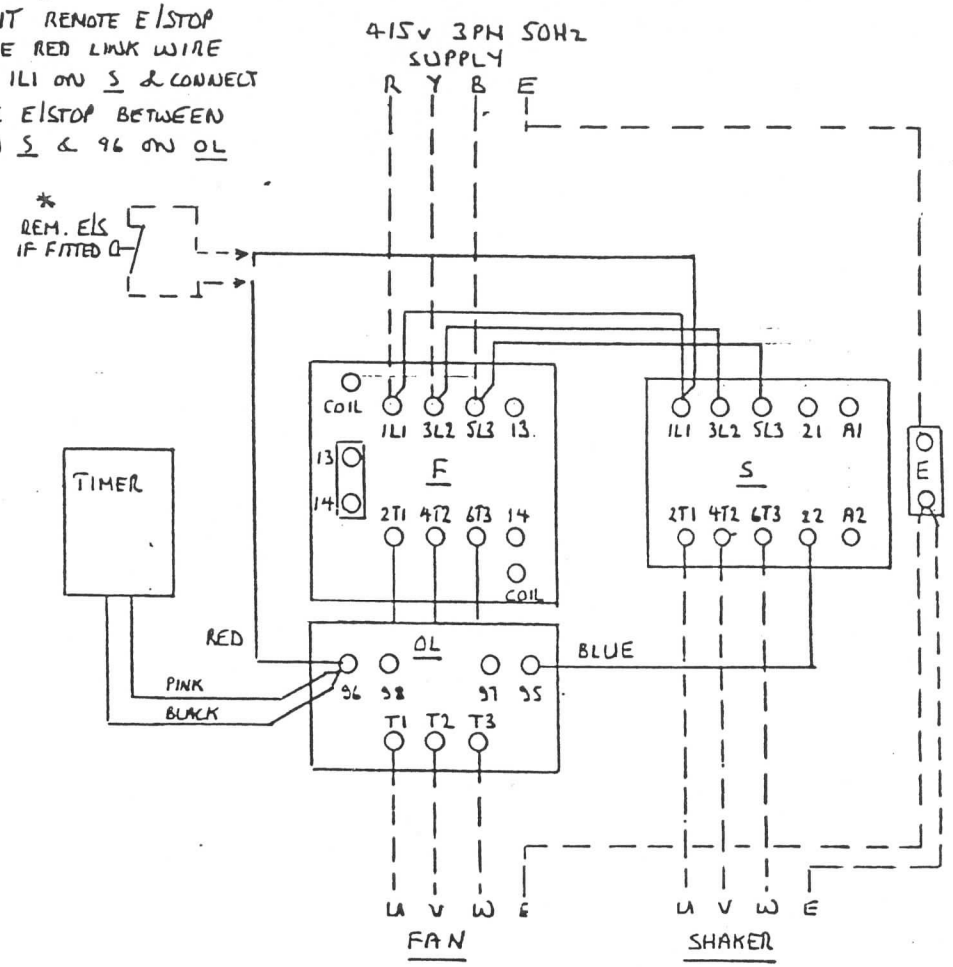
F - LS1710 415v COIL

S - LS0701 415v COIL

TIMER - S379 415v

* FUSES TO SUIT HP OF FAN.

* TO FIT REMOTE E/STOP REMOVE RED LINK WIRE FROM 1L1 ON S & CONNECT REMOTE E/STOP BETWEEN 1L1 ON S & 96 ON OL



ISSUE	DESCRIPTION	APPD.	DATE
3			

DEREK NORTH SYSTEMS. DN

BRIERLEY HILL 0384 480530

TITLE: 3 PH. D.O.L. FAN-SHAKER PANEL

DRAWN	TRACED	CHECKED	APPROVED	DATE
				26/3/92

DRAWING No. DFS 3

PART OF

DO NOT SCALE

SHEET OF

415V 3PH 50Hz SUPPLY

E R Y B

FUSES * — CUSTOMER SUPPLY

ISOLATOR

M D S SH

OL 1 OL 2

U1 V1 W1 U2 V2 W2 — FAN

U V W — SHAKER

REMOTE E/S IF FITTED

CLEAN RESET

SH

START

OL1 ** OL2

M D S

FAN MAIN

FAN STAR

FAN DELTA

SHAKER

PURPLE

PINK

BLACK

TIMER

WHITE

RED

GREEN

FUSES * TO SUIT FAN MOTOR

OL1 ** ON START UP IF OL1 TRIPS RESET INTERNALLY AFTER ISOLATING BEFORE OPENING BOX.

TO FIT REMOTE E/STOP REMOVE RED LINK WIRE IL1 ON SH TO 96 ON OL1 & CONNECT REMOTE E/STOP BETWEEN IL1 ON SH & 96 ON OL1

REM. E/STOP

415V 3PH 50Hz SUPPLY

E R Y B

COIL 55 56 67 68 IL1 3L2 5L3 13 14 2T1 4T2 6T3 COM — M

COIL 13 14 IL1 3L2 5L3 11 12 2T1 4T2 6T3 COIL — D

COIL IL1 3L2 5L3 11 12 2T1 4T2 6T3 COIL — S

COIL IL1 3L2 5L3 21 A1 2T1 4T2 6T3 22 A2 — SH

OL2 96 98 97 95 — T1 T2 T3

OL1 96 98 97 95 — T1 T2 T3

BLACK

RED

PINK

BLACK

TIMER

E U1 V1 W1 U2 V2 W2 — FAN

E U V W — SHAKER

EQUIPMENT

M - LS410 415V COIL
D - LS401 415V COIL
S - LS401 415V COIL
SH - LS0701 415V COIL
TIMER - S379 415V

DRG. No.

OVERLOAD SETTINGS

9KW — OL1 — 18.5A — OL2 — 10.7A

11KW — OL1 — 21A — OL2 — 12.2A

ISSUE	DESCRIPTION	APPD.	DATE

DEREK NORTH SYSTEMS

BRIERLEY HILL 480530

TITLE: 3 PH. S.D. FAN SHAKER PANEL

DRAWN	TRACED	CHECKED	APPROVED	DATE
				30/3/92

DRAWING No. SFS 3

ELECTRICAL INSTALLATION

Electrical installation should be carried out by qualified personnel only.

The Filter Unit is despatched with fan and shaker motors wired to side mounted terminal enclosure/s.

A controller is supplied separately for on site wiring by client. See wiring diagram.

All wiring should be in accordance with the regulations of the institute of electrical engineers.

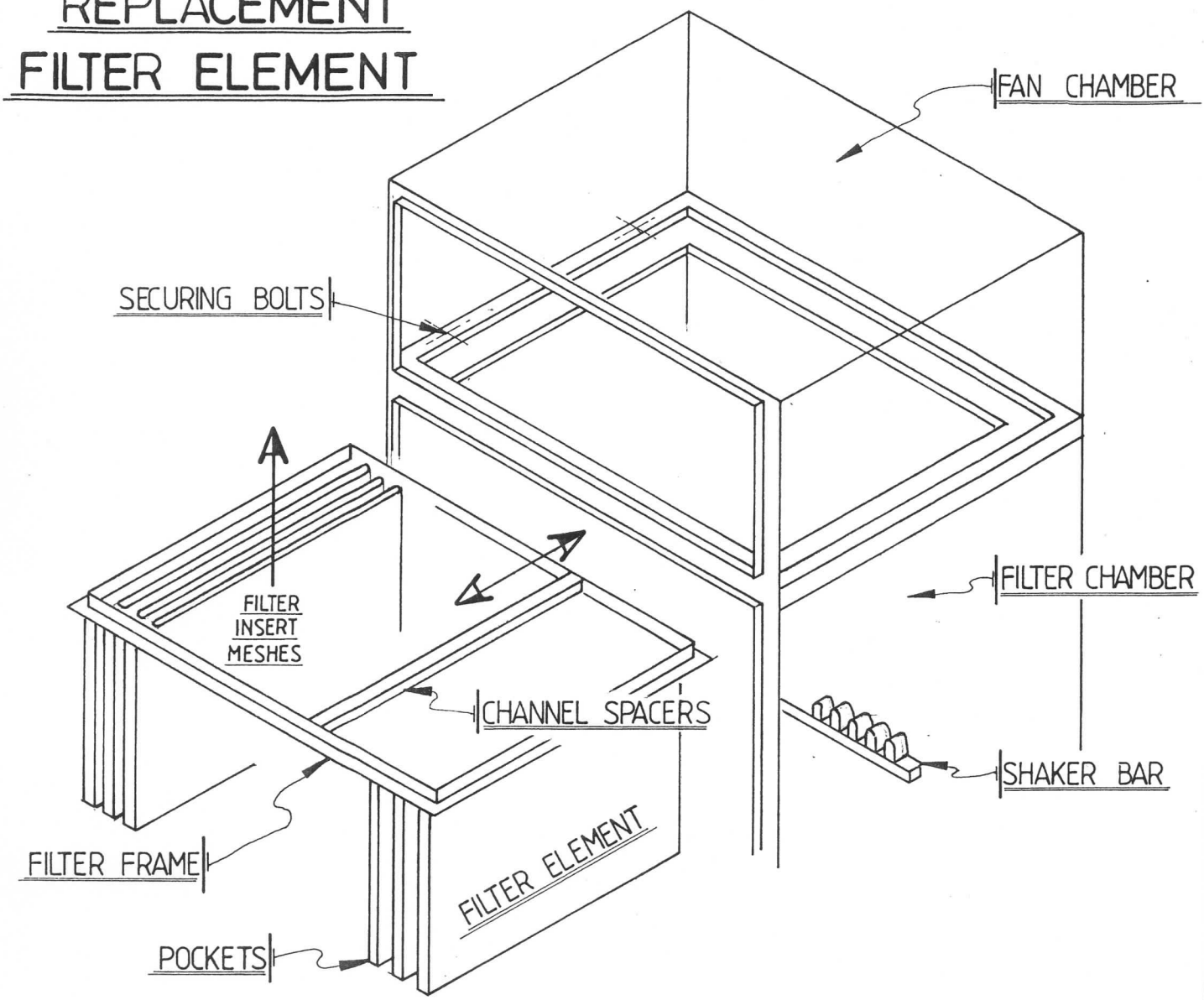
Great care should be excercised with regard to selection of cable size and fittings in accordance to load carrying capacity and type of environment of the installation.

A fused isolated supply is required fitted with motor rated H.R.C. fuses (not supplied with unit) to the tables below. Check ratings on fan motor.

Direct On Line	220v		380v		415v	
Motor Rating	F.L. Amps	Motor Fuses	F.L. Amps	Motor Fuses	F.L. Amps	Motor Fuses
0.55 kw	2.6	10amp	1.5	6amp	1.4	6amp
0.75 kw	3.3	10amp	1.9	10amp	1.8	6amp
1.50 kw	5.7	20amp	3.3	16amp	3.0	16amp
2.20 kw	8.1	20M25	4.7	20amp	4.4	16amp
3.00 kw	10.7	20M32	6.2	20amp	5.7	20amp
4.00 kw	14.0	32M35	8.1	20M25	7.5	20M25
5.50 kw	18.5	32M50	10.7	32M35	9.9	20M32
7.50 kw	26.0	32M63	15.0	32M40	14.0	32M35

Star Delta	380v		415v	
Motor Rating	F.L. Amps	Motor Fuses	F.L. Amps	Motor Fuses
9.0 kw	18.5	32amp	17.0	32amp
11.0 kw	21.0	32amp	19.5	32amp
15.0 kw	28.0	32M40	26.0	32M35
18.5 kw	34.0	32M50	32.0	32M40

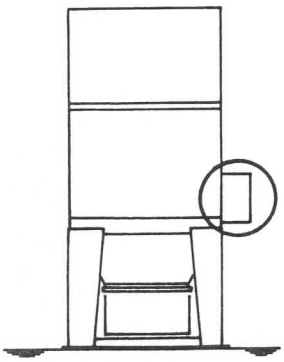
REPLACEMENT FILTER ELEMENT



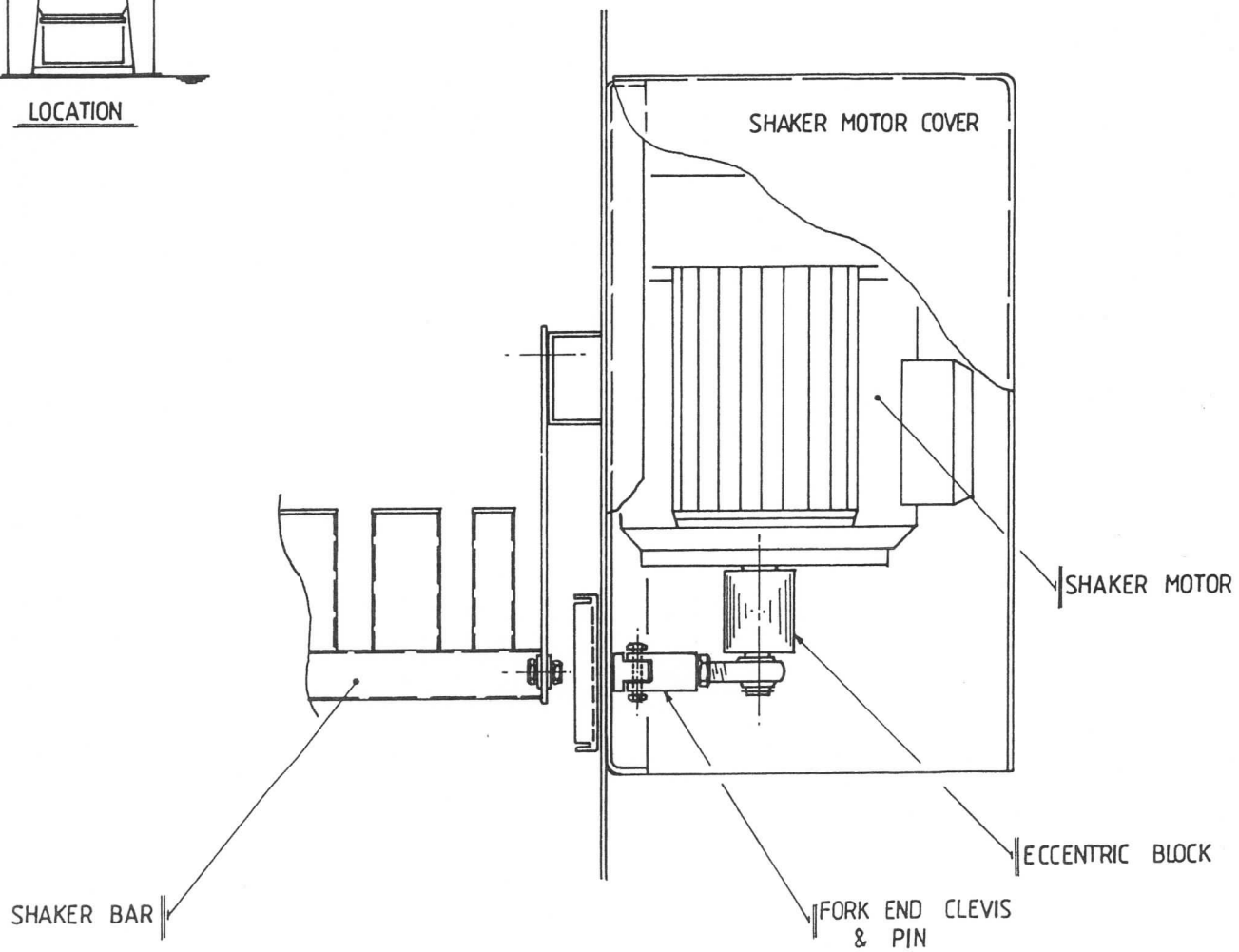
PROCEDURE

1. Loosen securing bolts located in Fan Chamber on either side, until top bolts are level with top of nuts.
2. Pull filter assembly completely out of filter chamber.
3. Remove filter insert meshes by pulling them carefully upward.
4. Remove filter element carefully.
5. Fit new filter element by threading each pocket between channel spaces in filter frame.
6. Slide filter insert meshes in to individual pockets.
7. Ensure top of element laps over top of toes of filter frame.
8. Locate filter assembly into angle runners on inside of filter chamber.
9. Push assembly into unit. Ensuring bottom of pockets thread between hoops on shaker bar. Push in firmly until it hits stop at rear.
10. Tighten securing bolts in fan chamber, ensuring filter frame seats on gasket.

REPLACEMENT SHAKER LINKAGE



LOCATION



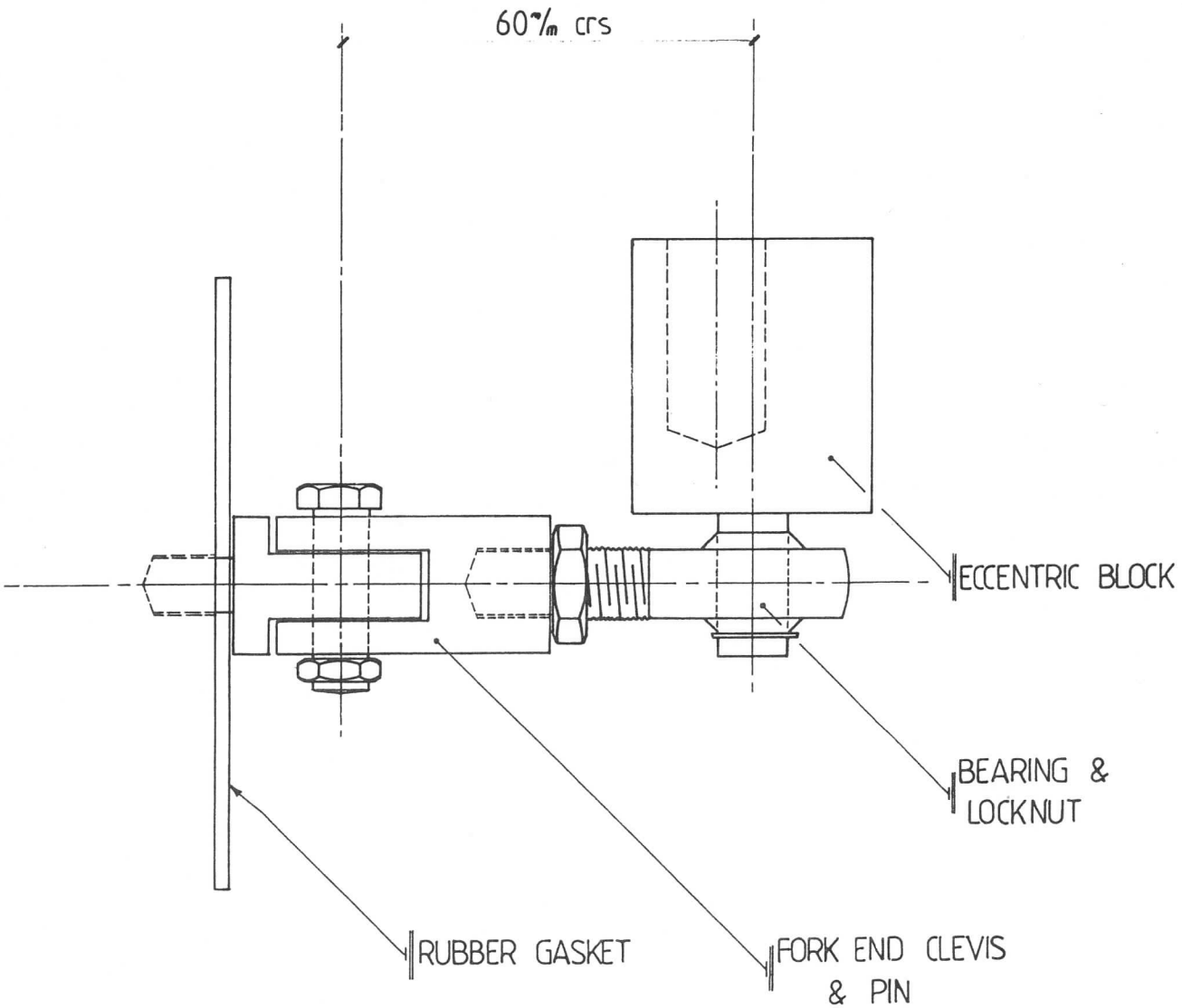
STEP 1 REMOVE CIRCLIP FROM ECCENTRIC BLOCK

STEP 2 REMOVE PIN FROM FORK END CLEVIS.

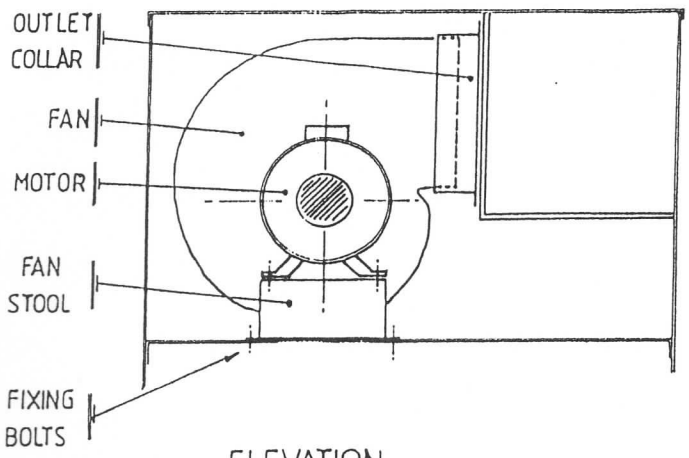
STEP 3 REMOVE FORK END CLEVIS, AND BEARING ON ECCENTRIC BLOCK.

STEP 4 RE-FIT NEW PARTS IN REVERSE ORDER.

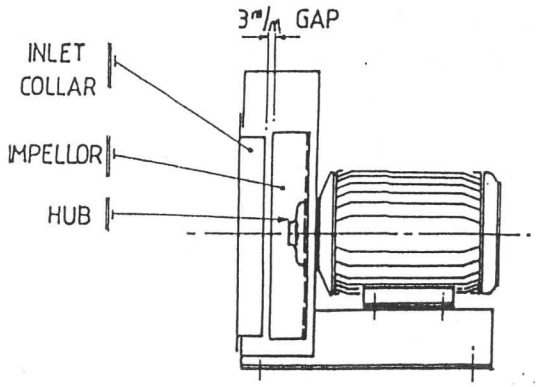
SHAKER LINKAGE
General Arrangement



REPLACEMENT FAN IMPELLOR DETAILS



— ELEVATION —



— SECTION ON FAN —

1. *Isolate Electrical Supply.*
2. *Open Fan/Silencer compartment door.*
3. *Disconnect electrical wiring from fan motor.*
4. *Remove 4 fixing bolts from fan stool and slide fan to left, disengage fan outlet from fan oulet collar, and break mastic seal.*
5. *Remove fan from unit..*
6. *Remove any debris from Fan/Silencer compartment of filter.*
7. *Remove fan inlet collar from fan case by removing eight M6 bolts and breaking mastic seal.*
8. *Remove old impellor, by loosening two grub screws on impellor hub and pulling it off the motor shaft.*
9. *Clean all debris from inside fan case.*
10. *Fit new impellor to motor shaft ensuring alignment of the key and keyway do not tighten grub screw yet.*
11. *Refit inlet collar and adjust the position of the impellor on the motor shaft to ensure 3mm. gap between end of collar and impellor.*
12. *Tighten grub srews in impellor hub ensuring firm location on to the motor shaft and key.*
13. *Refit fan into unit, tighten base fixing bolts and re-mastic fan outlet joint.*
14. *Reconnect electrical wiring.*
15. *Close fan chamber door.*