AIR COMPRESSOR MANUAL

INSTALLATION, OPERATION
AND
MAINTENANCE GUIDE

1. DESCRIPTION

The compressor is a reciprocating air pump mounted on and driven by an electric induction motor.

Mounted on a sturdy frame all components are protected from accidental damage.
A separate lockable electric isolation switch is included for wall mounting by the installer.

The motor is controlled by a factory set pressure switch and has its own internal thermal overload and integral red stop switch.

SPECIFICATION

Air Displacement 7 CFM
Power Single Phase 240V 7AMPS

2. SAFETY

Users should employ safe working practices when working with or adjacent to this equipment. Attention is drawn to Health and Safety at Work Acts, IEE regulations and any other current or future legislation.

DO NOT OPERATE THIS EQUIPMENT UNTIL THE INSTRUCTIONS HAVE BEEN READ AND FULLY UNDERSTOOD.

3. INSTALLATION

The unit can be mounted by means of 150 mm or 100 mm extended leg "U" bolts on to the main riser, by anchor bolts to a suitable wall or on the ground.

Care should be taken to site it in a cool, clean and dry position to enhance performance and reliability.

Ensure that fixings are robust enough to hold the compressor securely during operation.

4. CONNECTIONS

Once the unit is securely mounted it can be connected as follows: -

Pipework

Screw the ½" BSP male fitting on the end of the nylon hose into the manual air isolation valve of the sprinkler control station.

The nylon tube can be removed by pushing the loose locking ring and tube of the fitting "IN" then, holding the locking ring in with fore finger and thumb, pull out the nylon tube.

The tube should then be cut to length to ensure no loops that could be snagged.

Refit the tube by entering the end into the fitting and pushing firmly home.

Ensure that the tube slides the full distance into the fitting.

5. POWER

Mount the isolator provided as close as possible to the unit. Provide a 240V 13 amp fused supply to the isolator and connect with 13amp cable provided. See wiring diagram.

Note: Earth bonding must be provided. All works should comply with the IEE regulations.

6. COMMISSIONING

Once all connections are made, ensure the manual isolating valve to the sprinkler station is shut and the red rocker switch on the compressor housing is pushed down to the 'ON' position. Switch the electrical isolator to 'ON'. The compressor will start and almost immediately stop.

When the dry pipe valve is primed and set, open the manual air isolator valve (ensure the bypass valve is shut) and the compressor will start and raise the system pressure to 2 BAR, (if the sprinkler system has a volume of 2.5 mtr^3, the maximum time this will take under LPS TB21 is 55 minutes) and will then stop. Should the air pressure in the system drop to 1.0 BAR the compressor will start and re-inflate the system to 2 BAR.

Note: The pressure switch is factory set to stop the compressor at 2 BAR and restart at 1 BAR. There is a pressure relief valve that will relieve at 4 BAR. Compressors are set for use with a maximum water pressure of 3.5 BAR on the sprinkler valve. At pressures exceeding 3.5 BAR the pressure switch will need to be adjusted. For other pressure settings see attached sheet item 8 and to set pressure switch see item 9.

7. MAINTENANCE

Before any maintenance work is commenced ensure the wall isolator is switched and locked off. Attach "Men at Work" sign to isolator.

Check all surfaces of compressor and pipework are cool prior to continuing, if not, wait until they are.

Turn the manual air isolation valve to off position, and disconnect nylon hose (see connection).

It is important to keep the Air Compressor clean and this may be done with the help of a small soft brush and vacuum cleaner. In particular the air intake filter should be inspected periodically, so that it is always kept free of any dirt particles, which if not cleaned away will affect the performance of the machine. Also, particles must not at any time be allowed to pass through into the cylinder head as this would adversely
effect the valves, including possible damage, and entail more extensive dismantling and cleaning. To clean the air intake filter, carefully prise off the plastic end cover and remove the sponge element from inside. Clean the sponge and the inner housing a soft brush. If necessary, the sponge may be gently washed in warm soapy water, rinsed and allowed to dry thoroughly before refitting. Ensure that the outer cover is then clipped back into its original position. If any part of the filter is damaged then you should obtain a replacement.

8. PRESSURE SETTINGS

Water Supply Pressure		**Valve Make & Model** **System Air Pressure** *min 25 psi of Air when accelerator Installed																			
		Automatic Model 39				**Central** 50, 65, 80, 100, 150mm, AF; 100, 150mm AG; 50, 65mm D				**Central** 80mm D 100, 150mm H&K **Spraysafe** 100, 150mm AF, AG, F/H				**Firematic**				**Grunau** 50, 80, 100, 150mm **Grimes** 100, 150mm B **Reliable** Model C2			
Psi	Bars	Psi		Bars		Psi		Bars		Psi		Bars		Psi		Bars		Psi		Bars	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
50	3.4	*15	25	1	1.7	*15	25	1	1.7	15	25	1	1.7	16	25	1.1	1.7	15	25	1	1.7
75	5.2	*20	30	1.4	2.0	25	35	1.7	2.4	25	35	1.7	2.4	20	31	1.4	2.1	20	30	1.4	2.0
100	6.9	25	34	1.7	2.4	35	45	2.4	3.1	35	45	2.4	3.1	25	35	1.7	2.4	25	35	1.7	2.4
125	8.6	30	45	2.0	3.1	40	50	2.7	3.4	40	50	2.7	3.4	31	41	2.1	2.8	30	45	2.0	3.1
150	10.3	35	50	2.4	3.4	40	50	2.7	3.4	40	50	2.7	3.4	35	45	2.4	3.1	35	50	2.4	3.4
175	12	40	50	2.7	3.4	40	50	2.7	3.4	40	50	3.1	3.4	41	51	2.8	3.5	-	-	-	-

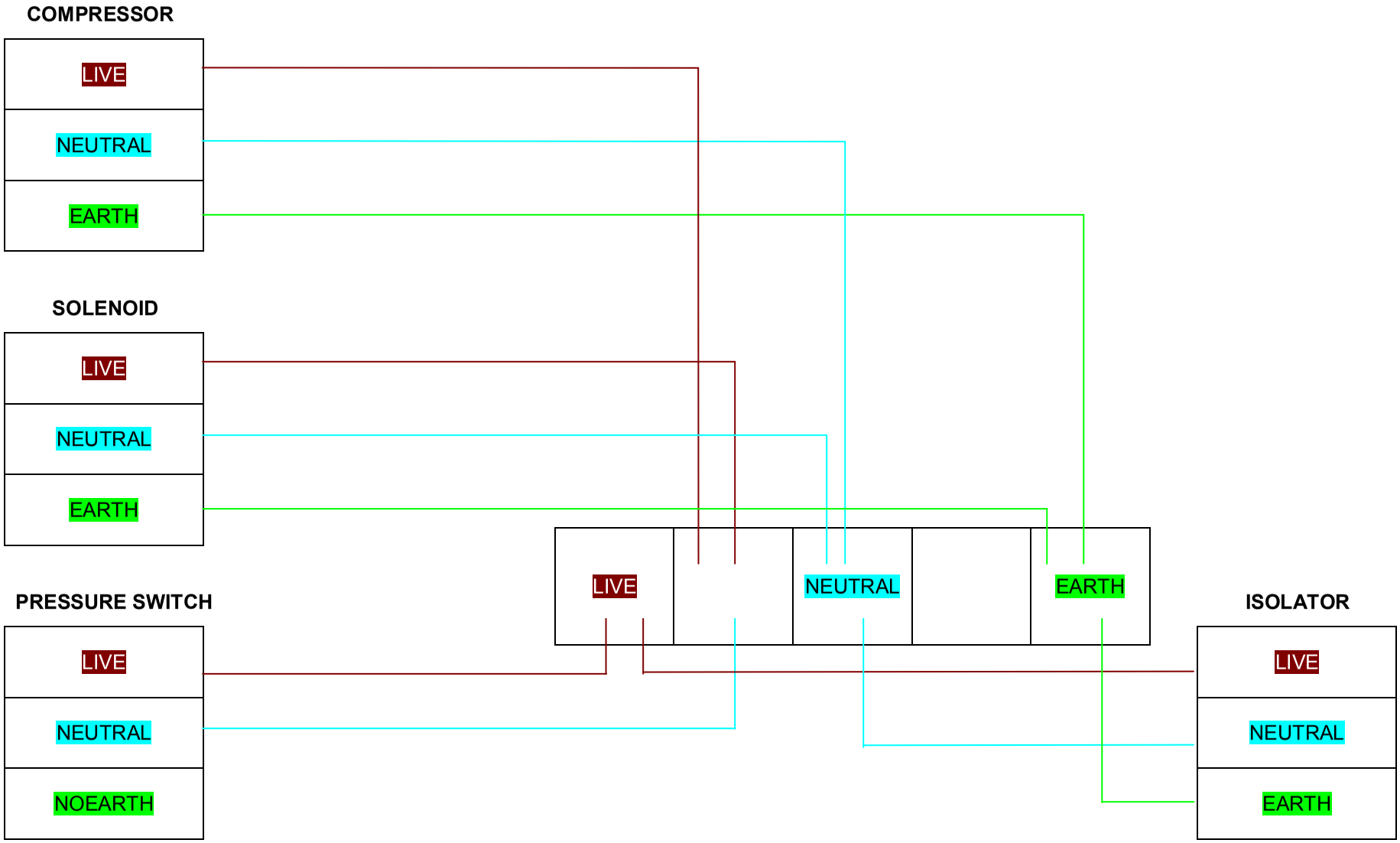
Water Supply Pressure		**Valve Make & Model** **System Air Pressure** *min 25 psi of Air when accelerator Installed															
		Globe Model F-2				**Hodgman**				**Reliable** 100,150mm **D**				**Star** 80,100,150mm **G**			
Psi	Bar	Psi		Bar		Psi		Bar		Psi		Bar		Psi		Bar	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
20	1.4	-	-	-	-	-	-	-	-	10	20	0.6	1.4	-	-	-	-
30	2	15	20	1	1.4	-	-	-	-	-	-	-	-	-	-	-	-
50	3.4	20	25	1.4	1.7	15	25	1	1.7	15	25	1	1.7	15	25	1	1.7
75	5.2	25	30	1.7	2.0	25	35	1.7	2.4	20	30	1.4	2.0	20	30	1.4	2.0
100	6.9	30	35	2.0	2.4	35	45	2.4	3.1	25	35	1.7	2.4	25	35	1.7	2.4
125	8.6	35	40	2.4	2.7	40	50	2.7	3.4	30	40	2.0	2.7	30	40	2.0	2.7
150	10.3	40	45	2.7	3.1	40	50	2.7	3.4	35	45	2.4	3.1	35	45	2.4	3.1
175	12	45	50	3.1	3.4	-	-	-	-	40	50	2.7	3.4	40	50	2.7	3.4

8. PRESSURE SETTINGS Cont.

Water Supply Pressure		Valve Make & Mode! System Air Pressure							
		Viking				GEM F302			
Psi	Bar	Psi Min	Bar Min	Psi Max	Bar Max	Psi Min	Psi Max	Bar Min	Bar Max
50	3.4	15	1.03	25	1.72	28	34	1.9	2.3
75	5.1	20	1.38	30	2.07	32	38	2.2	2.6
100	6.89	25	1.72	35	2.41	36	43	2.5	3.0
125	8.61	30	2.07	45	3.10	39	46	2.7	3.2
150	10.34	35	2.41	50	3.45	-	-	-	-
175	12	45	3.10	**60**	4.14	-	-	-	-

Water Pressure Maximum		*min **Valve Make and Model System Air Pressure** 25psi of Air when accelerator installed			
		Angus Model 'D'			
Psi	**Bar**	**Min**		**Max**	
		Psi	**Bar**	**Psi**	**Bar**
50.7	3.50	14.5	1.00	**29**	2.00
76	5.25	20.3	1.40	33	2.30
101.5	7.00	25.3	1.75	37.7	2.60
126.9	8.75	29	2.00	46.4	3.20
152.29	10.50	36.3	2.50	50.76	3.50

WIRING DIAGRAM



TROUBLE SHOOTING

SYMPTOM	*REASONS*	*ACTION*
a) Compressor does not start	1. System air pressure is above 2 BAR.	Check system pressure and ensure manual air isolation valve is open.
	2. Red on/off switch is in off position.	Switch to ON.
	3. Power supply failed.	Call competent person to check supply.
	4. Pressure switch failure.	Call competent person to check supply.
b) Compressor takes longer than 55 minutes to fill system.	1. System volume exceeds 2.5 mtrs³.	Check system volume. Install second compressor if larger than 2.5 mtrs³.
	2. Air filter partially blocked.	Strip and clean air filter.
	3. Compressor valves or seals dirty.	Advise service engineers to strip, clean and check.
c) Compressor cuts in & out over short periods.	1. Main System Leaking	Shut ball valve between flexible pipe and system. If compressor stops, open valve. If compressor starts and stops, there is a leak on the installation.
	2. Air leaks on small section of pipe	Check for leaks on pipework between non-return valve on compressor and connection to system. Check with soapy water. Ensure checks are completed right up to system. Remake any leaking joints.
d) Compressor thermal trip operates	Non-return valve allowing air to remain in compressor discharge line prior to starting	Strip and check non-return valve. Fit stop valve between plastic feed pipe and system. Ensure compressor cuts in and out properly by opening and shutting this stop valve.

9. SET PRESSURE SWITCH

Diaphragm/Piston Pressure Switch
Series 0180/0181
Series 0186/0187

Operation and use

The series 0180/0181 and 0186/0187 switch opens or closes an electrical circuit when a certain (adjustable) pressure is reached. A diaphragm or piston is moved by the increase in pressure. The amount of diaphragm deflection or piston travel depends on the force of the pressure applied and the (adjustable) spring tension. At a predetermined deflection of the diaphragm or movement of the pluger, a microswitch is actuated which opens or closes the electrical contacts (changeover).

The pressure switch monitors a preset pressure.

Conditions governing the use of the product

The following general instructions are to be observed at all times to ensure the correct, safe use of the pressure switch:-

- Do not exceed the specified limits for e.g. pressures, forces, moments or temperatures under any circumstance.
- Give due consideration to the prevailing ambient conditions (temperature, atmospheric, humidity, atmospheric pressure, etc.).
- Observe the applicable safety regulations laid down by the regulatory bodies in the country of use.
- Observe without fail the warning notices and other instructions laid down in the operating instructions.
- Never expose the pressure switch to severe side impacts or vibrations.
- Use the product only in its original condition. Do not carry out any unauthorised modifications.
- Remove all items providing protection in transit such as foils, caps or cartons.
- Disposal of the above-named materials in recycling containers is permitted.

Operating conditions

Media temperatures other than room temperature (20ºC):

- The effects of extreme temperatures (relative to room temperature) can lead to pronounced variations in the switching point or the failure of the pressure switch.

Type of Protection IP 65:
Type testing does not apply to all ambient conditions without limitations. The user is responsible for verifying that the plug-and-socket connection complies with the specified rules and regulations of CE, or whether it may be used for specialised purposes other than those intended by us.

Use with oxygen:
Diaphragm Pressure Switch:
If oxygen is used, the applicable accident prevention regulations must be observed. In addition, we recommend a maximum operating pressure of 10 bar, which should not be exceeded.

Piston Pressure Switch:
Piston Pressure Switches are not suitable for gaseous media, particularly oxygen.

Protection against overpressure:
The statistical overpressure safety is included in the technical data. The overpressure safety corresponds to the hydraulic, pneumatic part of the pressure switch. The dynamic rating of the overpressure safety is smaller than 30 to 50%.

Operating controls and connections

Fig. 1

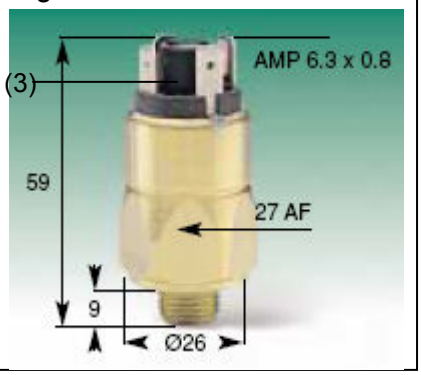
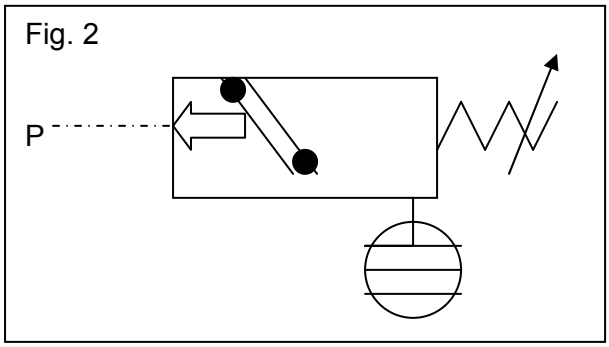


Fig. 2



Installation

Mechanical/pneumatic/hydraulic:
With a size 27 open-ended wrench (to DIN 894 or similar), install the pressure switch, by means of the hexagon connector, in the corresponding pressure socket (for torque specification, see following table).

For sealing the system, use a standard copper gasket of the appropriate dimensions.

Commencing thread	**Torque**
M10 x 1kegl. and NPT 1/8”	Tighten until system is hermetically sealed
M10 x 1 straight	35 Nm
Others	50 Nm

Electrical:
Connect up the pressure switch in accordance with the circuit diagram (Fig. 2).

Use a connector type 1-1-80-652-002 (not included in the delivery specification).

Entry into service

1. Using a continuity tester, wire up the electrical connections 1 and 4 (Fig.2)

If using a testing lamp as a continuity tester, observe the maximum permissible switching capacity (see Technical Data).

2. First, screw in the adjusting screw (3) as far as it will go. To adjust the pressure switch, use a screwdriver with a 2.5mm wide blade.

Take care to ensure the adjusting screw (3) does not seize at any point other than when it is fully tightened down.

3. Adjust the pressure switch to the desired actuating pressure (a test pressure gauge is required).
4. Ease off the adjusting screw (3) to a sufficient extent to cause the pressure switch to trip (continuity tester reacts).
5. If necessary, adjust the trip pressure setting by turning the adjusting screw (3).

When putting the pressure switch into service, please observe the applicable safety regulations laid down by the governing bodies in the country of use.

The adjustment of hysteresis can only be carried out in the factory. If this is inexpertly undertaken, damage may be caused to the pressure switch.

Removing the pressure switch

When removing the pressure switch, observe the following important instructions:

- The pressurised system form, which the pressure switch is intended to be removed from, must be entirely relieved of pressure.
- All the relevant safety regulations must be observed.
- Use a size 27 open-ended wrench (to DIN 894 or similar), to remove the pressure switch.