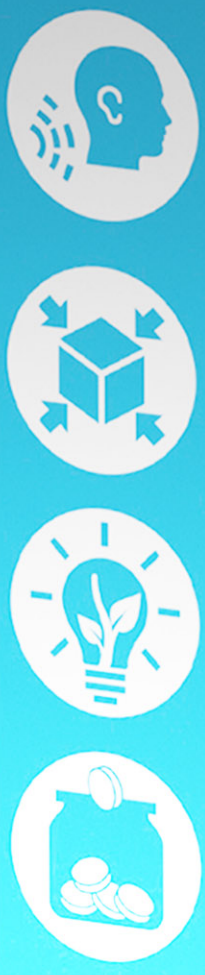
INSTRUCTION BOOK

AII695471

SF 11

Atlas Copco



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Instruction book

Original instructions

This instruction book is valid for CE as well as non-CE labelled machines. It meets the requirements for instructions specified by the applicable European directives as identified in the Declaration of Conformity.

2018 - 02

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1 Safety precautions

1.1 Safety icons

Explanation

	Danger to life
	Warning
	Important note

1.2 Safety precautions, general

General precautions

1. The operator must employ safe working practices and observe all related work safety requirements and regulations.
2. If any of the following statements does not comply with the applicable legislation, the stricter of the two shall apply.
3. Installation, operation, maintenance and repair work must only be performed by authorized, trained, specialized personnel.
4. Never use compressed air as breathing air without prior purification in accordance with local legislation and standards.
5. Before any maintenance, repair work, adjustment or any other non-routine checks, stop the compressor, press the emergency stop button, switch off the voltage and depressurize the compressor. In addition, the power isolating switch must be opened and locked.
6. Never play with compressed air. Do not apply the air to your skin or direct an air stream at people. Never use the air to clean dirt from your clothes. When using the air to clean equipment, do so with extreme caution and wear eye protection.
7. The owner is responsible for maintaining the unit in safe operating condition. Parts and accessories shall be replaced if unsuitable for safe operation.
8. It is not allowed to walk or stand on the compressor or its components.

1.3 Safety precautions during installation

	All responsibility for any damage or injury resulting from neglecting these precautions, or non observance of the normal caution and care required for installation, operation, maintenance and repair, even if not expressly stated, will be disclaimed by the manufacturer. These precautions apply to machinery processing or consuming air or inert gas. Processing of any other gas requires additional safety precautions typical to the application which are not included herein. Some precautions are general and cover several machine types and equipment; hence some statements may not apply to your machine.

Precautions during installation

1. The machine must only be lifted using suitable equipment in accordance with local safety regulations. Loose or pivoting parts must be securely fastened before lifting. It is strictly forbidden to dwell or stay in the risk zone under a lifted load. Lifting acceleration and deceleration must be kept within safe limits. Wear a safety helmet when working in the area of overhead or lifting equipment.
2. Place the machine where the ambient air is as cool and clean as possible. If necessary, install a suction duct. Never obstruct the air inlet. Care must be taken to minimise the entry of moisture at the inlet air. Consult section Reference conditions and limitations.
3. Any blanking flanges, plugs, caps and desiccant bags must be removed before connecting the pipes.
4. Air hoses must be of correct size and suitable for the working pressure. Never use frayed, damaged or worn hoses. Distribution pipes and connections must be of the correct size and suitable for the working pressure.
5. The aspirated air must be free of flammable fumes, vapours and particles, e.g. paint solvents, that can lead to internal fire or explosion.
6. Arrange the air intake so that loose clothing worn by people cannot be sucked in.
7. Ensure that the discharge pipe from the compressor to the aftercooler or air net is free to expand under heat and that it is not in contact with or close to flammable materials.
8. No external force may be exerted on the air outlet valve. The connected pipe must be free of strain.
9. If remote control is installed, the machine must bear a clear sign stating "DANGER: This machine is remotely controlled and may start without warning".
   The operator has to make sure that the machine is stopped and that the isolating switch is open and locked before any maintenance or repair. As a further safeguard, persons switching on remotely controlled machines shall take adequate precautions to ensure that there is no one checking or working on the machine. To this end, a suitable notice shall be affixed to the start equipment.
10. Air-cooled machines must be installed in such a way that an adequate flow of cooling air is available and that the exhausted air does not recirculate to the compressor air inlet or cooling air inlet.
11. The electrical connections must correspond to the applicable codes. The machines must be earthed and protected against short circuits by fuses in all phases. A lockable power isolating switch must be installed near the compressor.
12. On machines with automatic start-stop system or if the automatic restart function after voltage failure is activated, a sign stating "This machine may start without warning" must be affixed near the instrument panel.

13. In multiple compressor systems, manual valves must be installed to isolate each compressor. Non-return valves (check valves) must not be relied upon for isolating pressure systems.
14. Never remove or tamper with the safety devices, guards or insulation fitted on the machine. Every pressure vessel or auxiliary installed outside the machine to contain air above atmospheric pressure must be protected by a pressure relieving device or devices as required.
15. Piping or other parts with a temperature in excess of 80˚C (176˚F) and which may be accidentally touched by personnel in normal operation must be guarded or insulated. Other high temperature piping must be clearly marked.
16. For water-cooled machines, the cooling water system installed outside the machine has to be protected by a safety device with set pressure according to the maximum cooling water inlet pressure.
17. If the ground is not level or can be subject to variable inclination, consult the manufacturer.

	Also consult following safety precautions: Safety precautions during operation and Safety precautions during maintenance.

1.4 Safety precautions during operation

	All responsibility for any damage or injury resulting from neglecting these precautions, or non observance of the normal caution and care required for installation, operation, maintenance and repair, even if not expressly stated, will be disclaimed by the manufacturer. These precautions apply to machinery processing or consuming air or inert gas. Processing of any other gas requires additional safety precautions typical to the application which are not included herein. Some precautions are general and cover several machine types and equipment; hence some statements may not apply to your machine.

Precautions during operation

1. Never touch any piping or components of the compressor during operation.
2. Use only the correct type and size of hose end fittings and connections. When blowing through a hose or air line, ensure that the open end is held securely. A free end will whip and may cause injury. Make sure that a hose is fully depressurized before disconnecting it.
3. Persons switching on remotely controlled machines shall take adequate precautions to ensure that there is no one checking or working on the machine. To this end, a suitable notice shall be affixed to the remote start equipment.
4. Never operate the machine when there is a possibility of taking in flammable or toxic fumes, vapors or particles.
5. Never operate the machine below or in excess of its limit ratings.
6. Keep all bodywork doors shut during operation. The doors may be opened for short periods only, e.g. to carry out routine checks. Wear ear protectors when opening a door.
7. People staying in environments or rooms where the sound pressure level reaches or exceeds 90 dB(A) shall wear ear protectors.
8. Periodically check that:
   - All guards are in place and securely fastened
   - All hoses and/or pipes inside the machine are in good condition, secure and not rubbing

- There are no leaks
- All fasteners are tight
- All electrical leads are secure and in good order
- Safety valves and other pressure relief devices are not obstructed by dirt or paint
- Air outlet valve and air net, i.e. pipes, couplings, manifolds, valves, hoses, etc. are in good repair, free of wear or abuse

9. If warm cooling air from compressors is used in air heating systems, e.g. to warm up a working area, take precautions against air pollution and possible contamination of the breathing air.
10. Do not remove any of, or tamper with, the sound dampening material.
11. Never remove or tamper with the safety devices, guards or insulation fitted to the machine. Every pressure vessel or auxiliary installed outside the machine to contain air above atmospheric pressure shall be protected by a pressure relieving device or devices as required.
12. Be aware of possible blow off of safety valves during operation. For the location of the safety valves, consult the description in this instruction book.
13. Yearly inspect the air receiver. Minimum wall thickness as specified in the instruction book must be respected. Local regulations remain applicable if they are more strict.

	Also consult following safety precautions: Safety precautions during installation and Safety precautions during maintenance.

1.5 Safety precautions during maintenance or repair

	All responsibility for any damage or injury resulting from neglecting these precautions, or non observance of the normal caution and care required for installation, operation, maintenance and repair, even if not expressly stated, will be disclaimed by the manufacturer. These precautions apply to machinery processing or consuming air or inert gas. Processing of any other gas requires additional safety precautions typical to the application which are not included herein. Some precautions are general and cover several machine types and equipment; hence some statements may not apply to your machine.

Precautions during maintenance or repair

1. Always use the correct safety equipment such as safety glasses, gloves, safety shoes, etc.
2. Use only the correct tools for maintenance and repair work.
3. Use only genuine spare parts.
4. All maintenance work shall only be undertaken when the machine has cooled down.
5. A warning sign bearing a legend such as "Work in progress; do not start" shall be attached to the starting equipment.
6. Persons switching on remotely controlled machines shall take adequate precautions to ensure that there is no one checking or working on the machine. To this end, a suitable notice shall be affixed to the remote start equipment.
7. Close the compressor air outlet valve before connecting or disconnecting a pipe.
8. Before removing any pressurized component, effectively isolate the machine from all sources of pressure and relieve the entire system of pressure.
9. Never use flammable solvents or carbon tetrachloride for cleaning parts. Take safety precautions against toxic vapours of cleaning liquids.

10. Scrupulously observe cleanliness during maintenance and repair. Keep dirt away by covering the parts and exposed openings with a clean cloth, paper or tape.
11. Never weld or perform any operation involving heat near any oil system. Oil tanks must be completely purged, e.g. by steam-cleaning, before carrying out such operations. Never weld on, or in any way modify, pressure vessels.
12. Whenever there is an indication or any suspicion that an internal part of a machine is overheated, the machine shall be stopped but no inspection covers shall be opened before sufficient cooling time has elapsed to avoid spontaneous ignition of the oil vapour (if applicable) when air is admitted.
13. Never use a light source with open flame for inspecting the interior of a machine, pressure vessel, etc.
14. Make sure that no tools, loose parts or rags are left in or on the machine.
15. All regulating and safety devices shall be maintained with due care to ensure that they function properly. They may not be put out of action.
16. Before clearing the machine for use after maintenance or overhaul, check that operating pressures, temperatures and time settings are correct. Check that all control and shut-down devices are fitted and that they function correctly. If removed, check that the coupling guard of the compressor drive shaft has been reinstalled.
17. Protect the motor, air filter, electrical and regulating components, etc. to prevent moisture from entering them, e.g. when steam-cleaning.
18. Make sure that all sound-damping material, e.g. on the bodywork and in the air inlet and outlet systems of the compressor, is in good condition. If damaged, replace it by genuine material from the manufacturer to prevent the sound pressure level from increasing.
19. Never use caustic solvents which can damage materials of the air net, e.g. polycarbonate bowls.
20. **The following safety precautions are stressed when handling refrigerant:**
    - Never inhale refrigerant vapours. Check that the working area is adequately ventilated; if required, use breathing protection.
    - Always wear special gloves. In case of refrigerant contact with the skin, rinse the skin with water. If liquid refrigerant contacts the skin through clothing, never tear off or remove the latter; flush abundantly with fresh water over the clothing until all refrigerant is flushed away; then seek medical first aid.
21. Protect hands to avoid injury from hot machine parts, e.g. during draining of oil.
22. Be aware of eventual sharp edges on certain parts of the machine.

	Also consult following safety precautions: Safety precautions during installation and Safety precautions during operation.

2 General description

2.1 General description

Introduction

SF compressors are stationary oil-free compressors, driven by an electric motor.

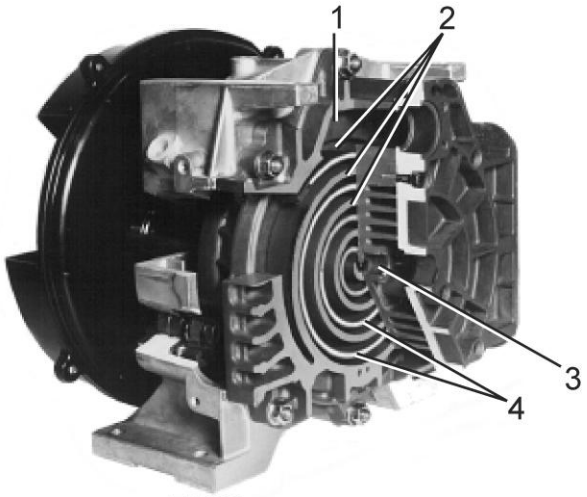
SF 6, SF 8, SF 11 and SF 15 are available as *SF Multi*. SF Multi can be delivered with or without integrated air dryer.

SF Multi Pack

The compressors have two up to four compressor modules, enclosed in a sound-insulated bodywork. The front door houses the Elektronikon® regulator, incorporating the start and stop button. An emergency stop button is also provided. An electric cabinet comprising the motor starters is installed behind the front door panel.

Compressor element operating principle

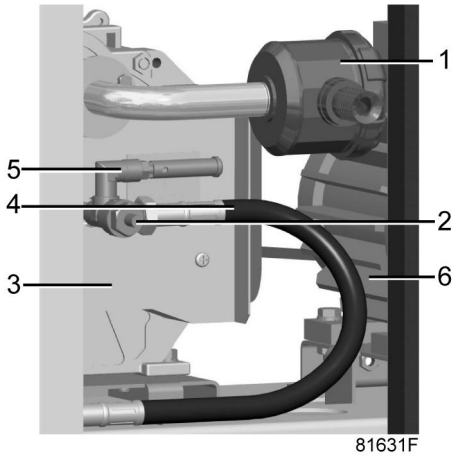
Each compressor element consists of a fixed scroll-shaped housing and a scroll-shaped rotor. Air enters the compressor element through inlet opening (1). Once the air is drawn in, the orbiting scroll (4) seals the inlet opening and forces the air into a continuously decreasing space. As scroll (4) keeps orbiting, this process of compression is constantly repeated, resulting in discharging of oil free compressed air through outlet opening (3).



Compressor element, typical

1	Air inlet
2	Fixed scroll
3	Compressed air outlet
4	Orbiting scroll

Compressor module



Compressor module (SF M)

1	Air filter
2	Check valve
3	Compressor element
4	Compressed air outlet
5	Safety valve
6	Motor

2.2 Air flow

SF Multi

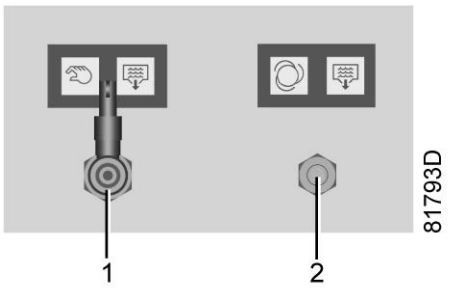
Air is drawn through the air filter into each compressor module and is compressed. The compressed air is discharged via the check valve of each module and a common air cooler.

2.3 Cooling system and condensate drain

Each compressor element is cooled by a fan, mounted on the drive shaft of the compressor element. The cooling air is blown over the compressor element via a duct.

SF Multi have a common aftercooler with an electric fan. A separate fan expels warm air from the bodywork.

The aftercooler has a condensate trap with an automatic condensate outlet and a manual drain valve.



Condensate drains on SF Multi

1	Manual condensate drain valve
2	Automatic condensate drain outlet

2.4 Regulating system

Electronic regulation

SF 6 to SF 15 Multi are provided with an Elektronikon® regulator to control the compressor.

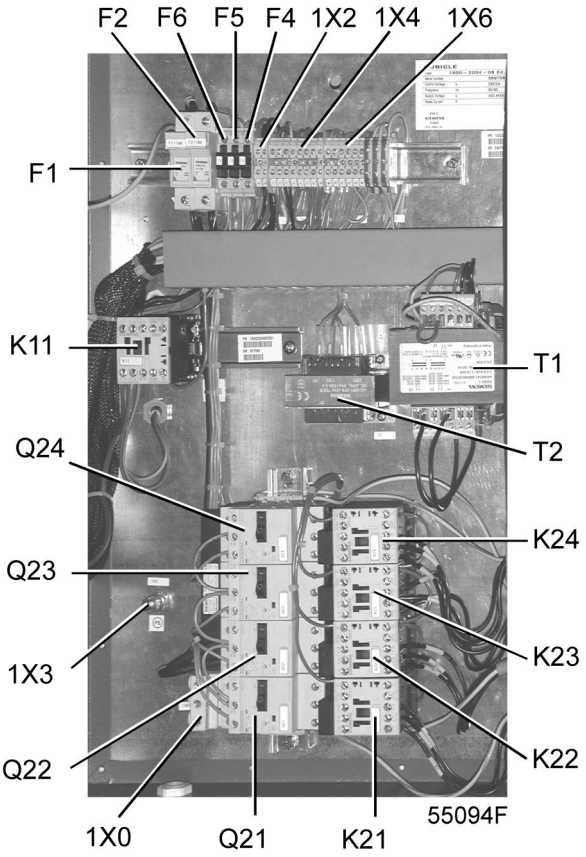
The regulator performs following functions by switching on and off the compressor modules in the compressor:

- Controlling the compressor
- Protecting the compressor
- Monitoring components subject to service
- Automatic restart after voltage failure

For more details, please consult the section on the regulator further in this book.

2.5 Electrical system

Cubicle layout



Electric cabinet SF 11 and SF 15 Multi (typical)

References

K21/K22/K23...	Contactor
Q21/Q22/Q23...	Circuit breakers
Q15	Circuit breaker
T1/T2/T4...	Transformer
1X0	Terminal strip (supply cables)
F1/F2/...	Fuses

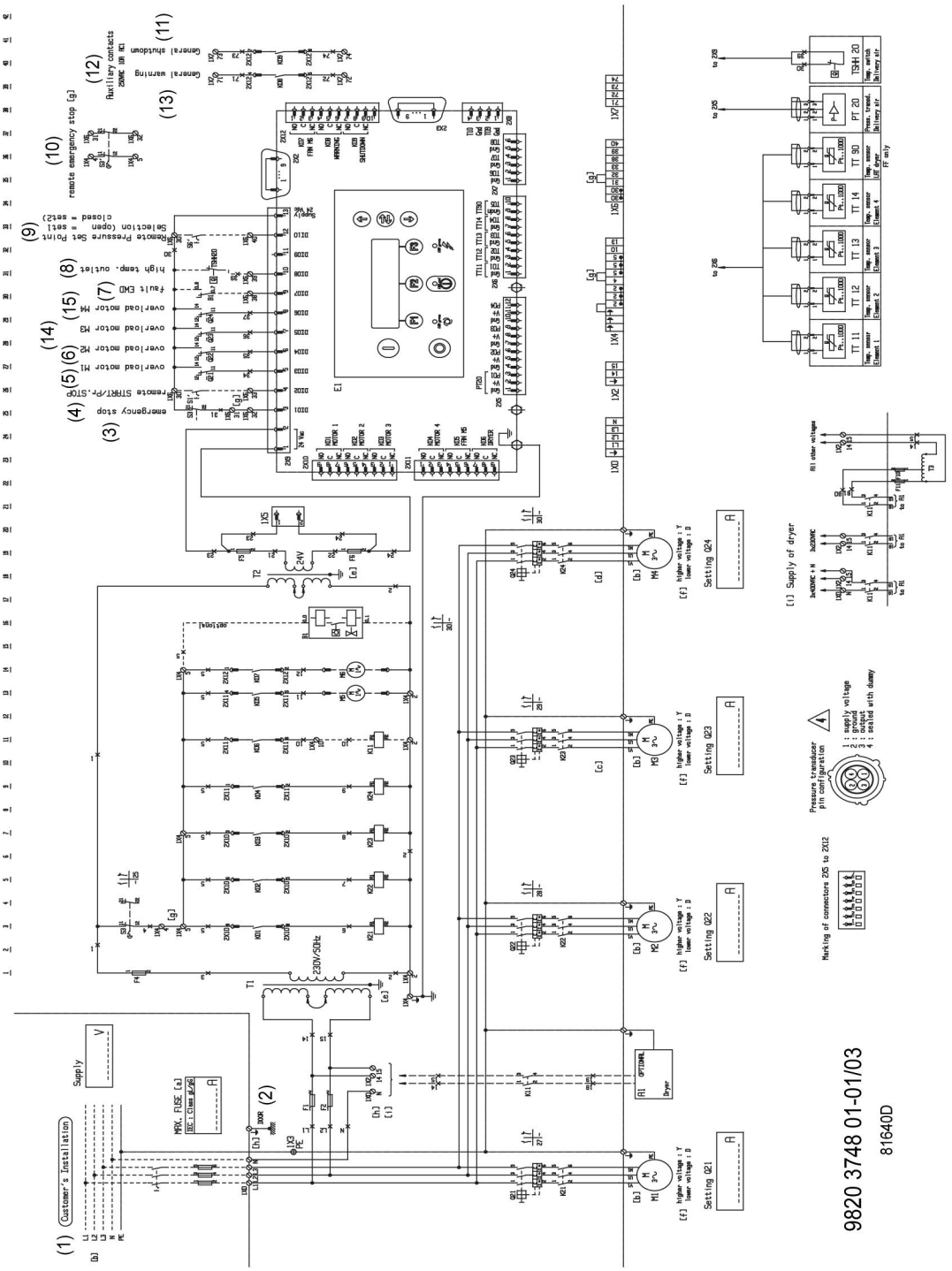
2.6 Electrical diagram

Important

	• The electrical installation must correspond to the local codes. • The mains supply and earthing lines must be of suitable size. See section Electric cable size. • The installation must be earthed and protected by fuses in each phase. • An isolating switch must be installed near the compressor. Make sure that this switch is open to isolate the compressor from the mains before carrying out any connection.

SF Multi

Connect the supply cable to terminals L1, L2 and L3 of terminal strip (1X0), connect the neutral conductor to terminal (N), and the earthing conductor to the earthing bolt (1X3).



Electric diagram (typical)

(a)	Maximum fuses with regard to short circuit protection of starter. Cable section might impose fuses of smaller value.
(b)	Power supply to be connected for counter clockwise rotation of compressor motor. Rotation to be observed while facing the drive end shaft of the motors.
(c)	Not used for SF 6 and SF 8 Multi.
(d)	Not used for SF 6 up to SF 11 Multi.

(e)	Correct transformer settings: see on transformer.
(f)	Y/D connections made in motor terminal box.
(g)	Optional remote emergency stop: replace bridges by the NC contacts of the remote emergency stop.
(h)	Terminal 1X0: N provided for 3 x 400 V + N FF only.
(i)	Supply of dryer.

References used in the electric diagrams (typical)

1	Customer's Installation
2	Door
3	Emergency stop
4	Remote Start/Stop
5	Overload motor M1
6	Overload motor M2
7	Fault EWD
8	High temperature outlet
9	Remote pressure setpoint selection
10	Remote emergency stop
11	General shutdown
12	Auxiliary contacts
13	General warning
14	Overload motor M3
15	Overload motor M4

E1	Compressor control module
F1-11	Fuses
Q21-24	Motor/starter protection
K21-24	Line contactors
K11	Aux. contactor dryer
S7	Horn reset (optional)
T1/T2	Transformer
1X0	Terminal strip (supply)
1X2	Terminal strip (dryer)
1X3	Terminal strip (earth)
1X4	Terminal strip (230V AC)
1X5	Plug (supply 24V AC for controller download)
1X6	Terminal strip (Elektronikon 24V DC)
1X7	Terminal strip (Potential free contacts)
S10	Main switch (optional)

K01	Blocking relay M1

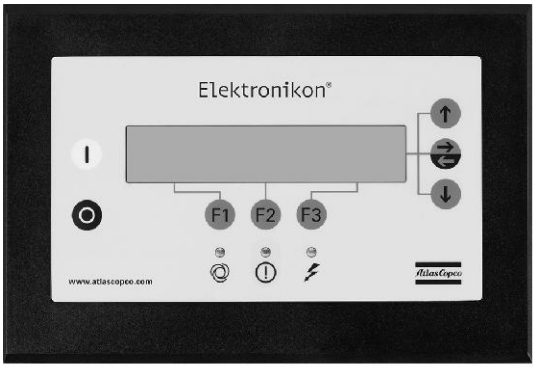
K02	Blocking relay M2
K03	Blocking relay M3
K04	Blocking relay M4
K05	Blocking relay M5
K06	Auxiliary relay dryer control
K07	Blocking relay M6
K08	Auxiliary relay general warning
K09	Auxiliary relay general shutdown

A1	Dryer (optional)
B1	Electronic water drain (optional)
M1-M4	Compressor motors
M5	Fan motor after cooler
M6	Fan motor canopy
PT20	Pressure transducer delivery air
TT90	Temperature sensor LAT (optional dryer)
TT11-14	Temperature sensor (element temperature)
TSHH20	Temperature switch delivery air

3 Electronic regulator

3.1 Electronic regulator

Control panel



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Introduction

The regulator performs following functions:

- Controlling the compressor
- Protecting the compressor
- Monitoring components subject to service
- Automatic restart after voltage failure

Controlling the compressor

The regulator keeps the net pressure within programmable limits by starting and stopping the compressor modules, depending on the air consumption. The regulator also distributes the running time among the compressor modules, taking into account the availability and number of running hours of each compressor module.

When the compressor has stopped automatically and the net pressure decreases, the regulator will start a compressor module before the net pressure has dropped to the starting pressure to prevent the net pressure from falling under the programmed minimum level.

Protecting the compressor

If one or more compressor modules are shut down due to a protection function, a warning message will be shown on the display.

The compressor will be shut down in case the temperature sensor trips.

Monitoring components subject to service

A number of service operations are grouped in plans (called Service plans A, B and D).

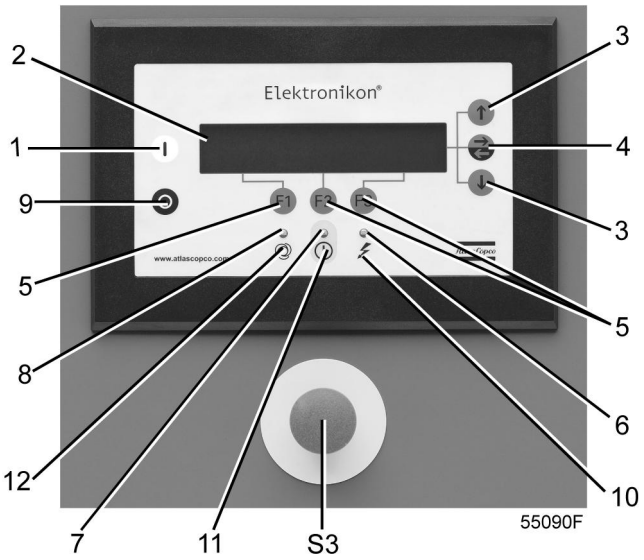
Each Service plan has a programmed time interval. If a time interval is exceeded, a message will appear on the display to warn the operator to carry out the service actions belonging to that plan.

Automatic restart after voltage failure

The regulator has a built-in function to automatically restart the compressor if the voltage is restored after voltage failure. For compressors leaving the factory, this function is made inactive. If desired, the function can be activated. Consult Atlas Copco.

	• If activated and provided the regulator was in the automatic operation mode, the compressor will automatically restart if the supply voltage to the module is restored within a programmed time period. • The power recovery time (the period within which the voltage must be restored to have an automatic restart) can be set between 15 and 3600 seconds or to infinite. If the power recovery time is set to infinite, the compressor will always restart after a voltage failure, no matter how long it takes to restore the voltage. A restart delay can also be programmed, allowing e.g. two compressors to be restarted one after the other.

3.2 Control panel



Reference	Designation	Function
1	Start button	Push button to start the compressor. LED (8) lights up indicating that the regulator is operative (in automatic operation).
2	Display	Indicates messages concerning the compressor operating condition, a service need or a fault.
3	Scroll keys	Keys to scroll through the display
4	Tabulator key	Key to select the parameter indicated by a horizontal arrow. Only the parameters followed by an arrow pointing to the right are accessible for modifying.
5	Function keys	Keys to control and program the compressor
6	Voltage on LED	Indicates that the voltage is switched on.
7	General alarm LED	Is alight in case of a warning condition. Blinks in case of shut-down condition, if a sensor with shut-down function is out of order or after an emergency stop.

Reference	Designation	Function
8	Automatic operation LED	Indicates that the regulator is automatically controlling the compressor: the compressor is stopped and restarted depending on the air consumption and the limitations programmed in the regulator.
9	Stop button	Push button to stop the compressor. LED (8) goes out.
10	Pictograph	Voltage on
11	Pictograph	Alarm condition
12	Pictograph	Automatic operation
S3	Emergency stop button	Push button to stop the compressor immediately in case of emergency. After remedying the trouble, unlock the button by pulling it out.

Display

Example of the Main screen

“Compressor Outlet”		7.0 bar	
.			
“Compressor Running”			↓
“Menu”		- - - -	
F1	F2	F3	

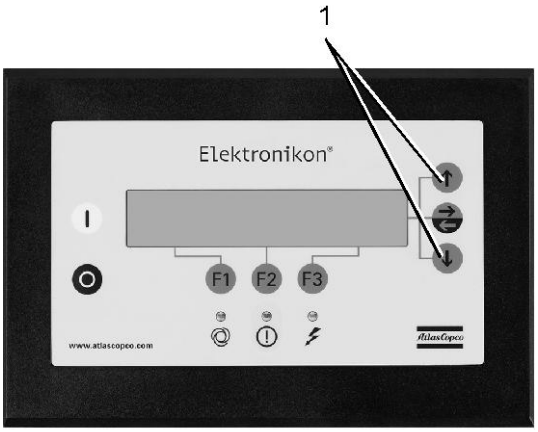
Operating condition of a compressor module

The symbols shown below key F3 indicate the operating condition of each control module. See section Main screen.

Symbol	Description
-	The compressor module is available (ready to run). Each symbol (-)stands for a compressor module (the left symbol stands for the lowest mounted module, the right symbol stands for the highest module).
■	The compressor module is running.
- (blinking)	The compressor module is not available (due to minimum stop time or too many starts).
* (blinking)	The compressor module is shut-down.

3.3 Scroll keys

Control panel



Scroll keys

The keys (1) allow the operator to scroll through the display.

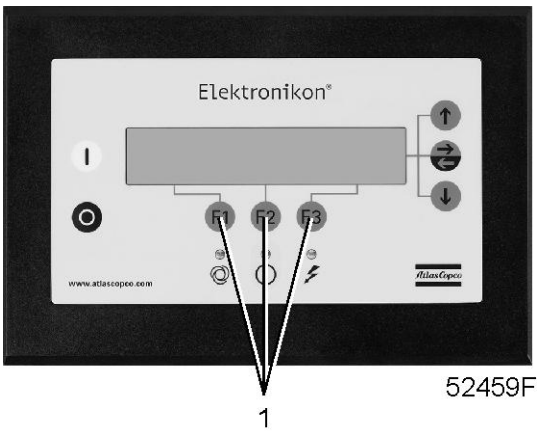
As long as a downwards pointing arrow is shown at the utmost right position of the display, the scroll key with the same symbol can be used to see the next item.

As long as an upwards pointing arrow is shown at the utmost right position of the display, the scroll key with the same symbol can be used to see the previous item.

It is possible to scroll through the items of the menu by pushing the arrow up key or arrow down key (1) for two seconds, except on the Main screen.

3.4 Function keys

Control panel



Function keys

The keys (1) are used:

- To call up or to program settings
- To reset a motor overload, shut-down or service message, or an emergency stop
- To access all data collected by the regulator

The function keys allow to make the required selection from a menu of possibilities. The functions of the keys vary depending on the displayed menu. The actual function is indicated just above the relevant key. The most common functions are listed below:

Designation	Function
"Back"	To return to a previously shown option or menu
"Cancel"	To cancel a programmed setting when programming parameters
"Delete"	To delete compressor start/stop commands
"Extra"	To find the module configuration of the regulator
"Help"	To find the Manufacturer's internet address
"Limits"	To show limits for a programmable setting
"Mainscreen"	To return from a menu to the main screen
"Menu"	Starting from the main screen to access the submenus Starting from a submenu to return to a previous menu
"Modify"	To modify programmable settings
"Program"	To program modified settings
"Reset"	To reset a timer or message
"Return"	To return to a previously shown option or menu

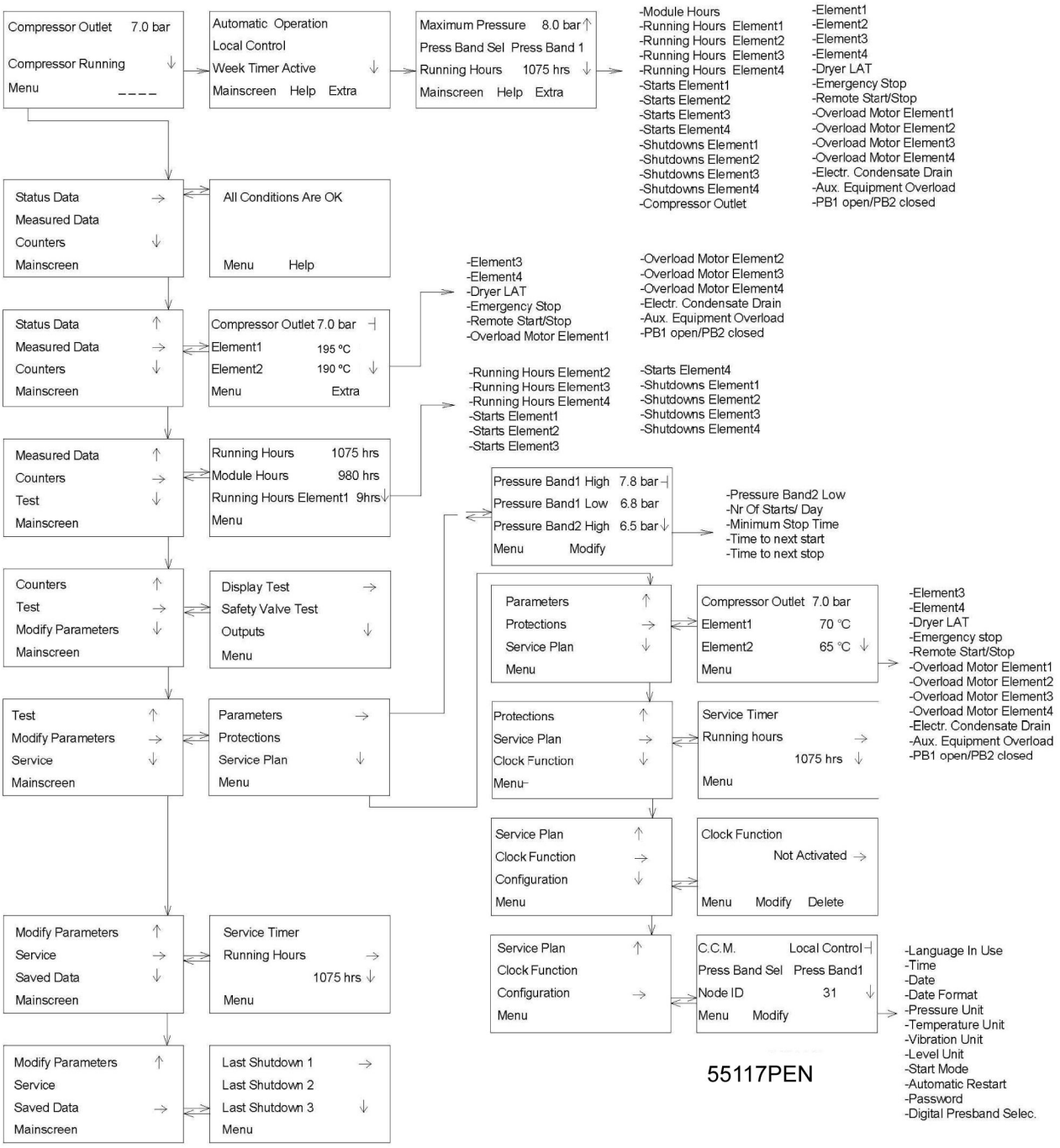
To facilitate controlling the compressor, menu driven programs are implemented in the electronic regulator. Use the function keys to select the menus in order to program and monitor the compressor. See also section Control programs.

3.5 Control programs

Menu driven control programs

To facilitate programming and controlling the compressor, menu driven programs are implemented in the electronic module.

A simplified menu flow is shown below.



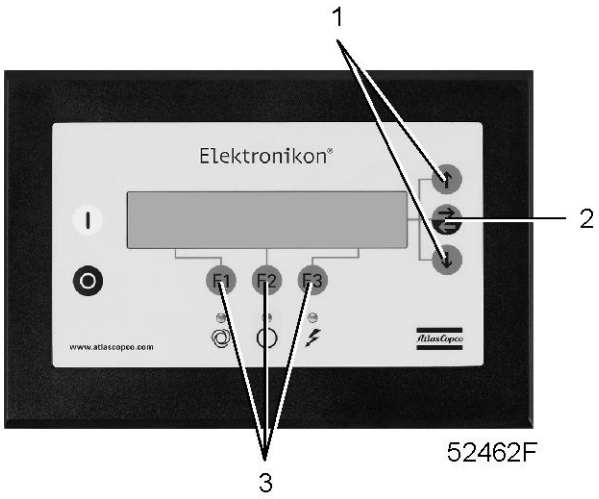
Function of control programs

Program/Function	Description
"Mainscreen"	Shows the operation status of the compressor. It is the gateway to all functions.
"Status Data"	Calling up the status of the compressor protection functions: • shut-down • service warning • warning Resetting of a shut-down and service condition

Program/Function	Description
"Measured Data"	Calling up: • actually measured data • status of some inputs such as the motor overload protection per compressor module
"Counters"	Calling up: • Running Hours • Regulator (module) hours • Running hours per compressor module • Number of starts per compressor module • Number of shut-downs per compressor module
"Test"	Allows a display test
"Modify Parameters"	Modifying the settings for: • Parameters (e.g. number of starts per day) • Protections (e.g. dewpoint temperature of dryer) • "Service Plans" • Clock Function" (automatic compressor start/stop/pressure band commands) • Configuration (time, date, display language, ...)
"Service"	Calling up service plans and resetting the timers after carrying out the service actions belonging to a plan.
"Saved Data"	Calling up the saved data : last shut-down data

3.6 Main screen

Function



Control panel

The "Mainscreen" menu shows the status of the compressor operation and is the gateway to all functions implemented in the regulator.

Procedure

The main screen is shown automatically when the voltage is switched on.

If the function or arrow keys (1, 2 and 3) are not used for some minutes, the regulator will automatically return to the main screen.

Whenever displayed on a submenu screen, press the “Mainscreen” (F1) key to return to the main screen.

Main screen, typical example

“Compressor Outlet”		7.0 bar	
.			
“Compressor running”			↓
“Menu”		- - - -	
F1	F2	F3	

Below table gives the interpretation of the above example.

Row	Indicates	Remarks
1	Sensor which is active and the actual reading	The unit for pressure can be bar, psi or kg/cm^2, depending on the programmed selection. The unit for temperature can be °C or °F.
2	-	-
3	Compressor status	Examples: • "Compressor Off" • "Compressor Running"
	"Shutdown"	If the unit is shut-down, the regulator will automatically show a shut-down message on the display. It remains possible to have a closer look at other parameters related to the shut-down by means of the menus.
	"Service Required"	Indicates that the unit needs servicing. Consult section Service menu .
	"Sensor Error"	Indicates that a sensor is out of order: • Outlet pressure transducer • Dewpoint sensor (on compressors with integrated dryer) Stop the compressor. Switch off the voltage and depressurize the compressor. Check the sensor wiring. Replace the sensor or transducer, if necessary.
	Remote control	Indicates that the compressor is set in remote control. Consult Atlas Copco.
4	Functions of keys below display	See section Function keys.
	Symbols	Indicating the status of each compressor module. See **Operating condition of a compressor module** in section Control panel.

Note:

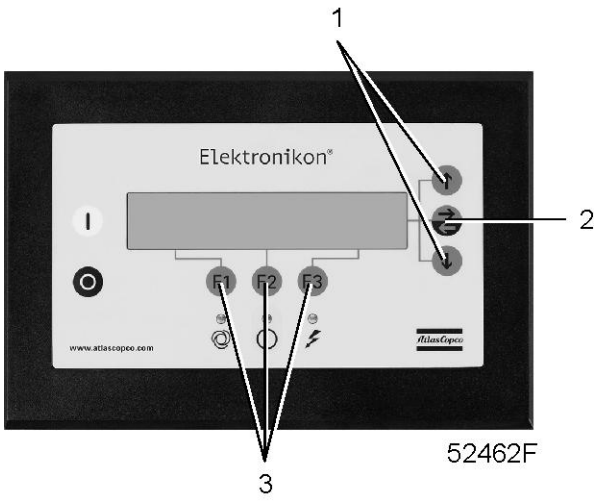
When more than one message needs to be displayed (e.g. both warning and service), the messages will be displayed one after the other for 3 seconds.

Element status screen, typical example

“Element 1”		"Stopped"	
“Element 2”		"Running"	
“Element 3”		"Stopped"	↓
“Menu”			
F1	F2	F3	

Press key F3 on the main screen to check which compressor module is running or stopped.

3.7 Calling up menus



Control panel

When the voltage is switched on, the main screen is shown automatically:

Main screen, typical example

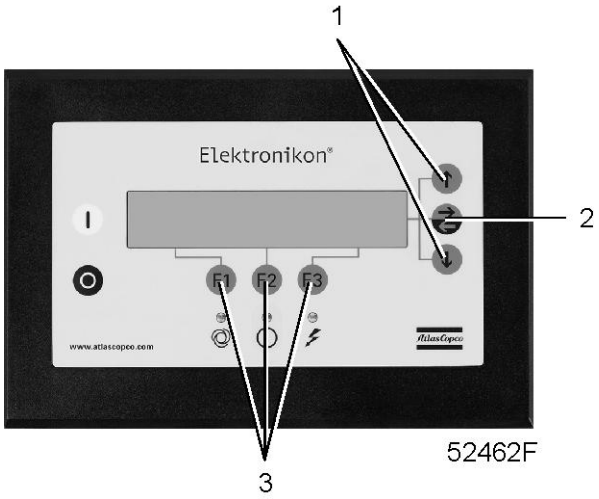
“Compressor Outlet”		7.0 bar	
.			
“Compressor Running”			↓
“Menu”		- - - -	
F1	F2	F3	

Starting from the main screen,

- Use the down arrow key (1) for a quick look at the actual compressor status. See section Quick look at actual compressor status
- Press the key "Menu" (F1), the option "Status data" will be followed by a horizontal arrow:
  - Either press the tabulator key (2) to select this menu, or
  - Use the down arrow key to scroll until the desired submenu is followed by a horizontal arrow and then press the tabulator key (2) to select this menu.

3.8 Quick look at actual compressor status

Procedure



Control panel

1. Starting from the main screen, press the down arrow key. A screen similar to the one below appears:

Example of an actual compressor status display

“Automatic Operation”			
"Local Control"			
“Week Timer Active”			↓
“Mainscreen”	"Help"	"Extra"	
F1	F2	F3	

- **Line 1** indicates the automatic or manual operation status of the regulator:
  "Automatic operation" means that the regulator automatically adapts the operation of the compressor, i.e. starting and stopping the compressor modules according to the programmed parameters.
- **Line 2** indicates whether the regulator operates in local control, remote control or LAN control mode:
  "Local control" means that the start/stop buttons on the keyboard are active.
  "Remote control" means that these functions are controlled remotely. Consult Atlas Copco.
  "LAN control" means that the compressor can be controlled by an ES controller.
- **Line 3** indicates whether the timer, which generates time-based start and stop commands is activated or not.

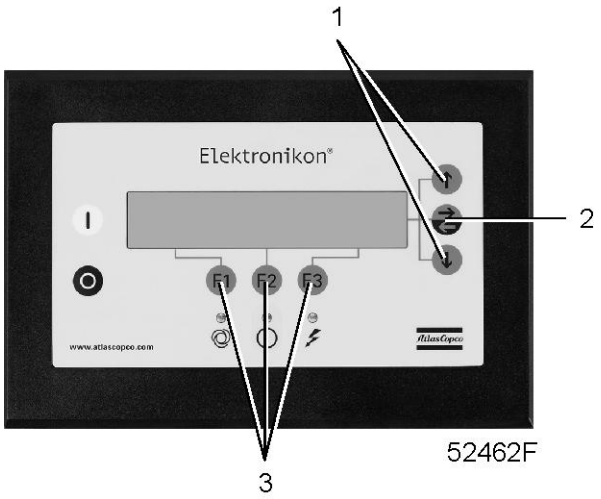
See section Function keys for the functions of the keys "Mainscreen", "Help" and "Extra".

2. Press the down arrow key (1) to get other data (actual compressor conditions of the compressor) as shown in the menu, section Control programs.

3.9 Status data menu

Function

The status data submenu gives information regarding the status of the compressor protection functions (shut-down, service warning and warning) and allows resetting of a shut-down and service condition.



Control panel

Procedure

Starting from the main screen:

- Press the key “Menu” (F1): the option “Status Data” will be followed by a horizontal arrow.
- Press the tabulator key (2).

No message exists

General alarm LED (1) is off and the message on the display will indicate that all conditions are normal:

			.
“All Conditions Are OK”			
			.
“Menu”	“Help”		
F1	F2	F3	

A shut down message exists

In case the compressor is shut down, LED (1) will blink. A shut-down message exists after an emergency stop or after the temperature switch (TSHH20) or a temperature sensor (TT11, TT12,...) has tripped (indicated on the display as "Aux. Equipment Overload").

In case of a shut-down due to an emergency stop, a screen similar to the one below will appear:

"Emergency stop"		"Open"	
			.
"Shutdown"		"Open"	
“Menu”	***	*** "Reset"	
F1	F2	F3	

- The indicators (***) are blinking. The screen shows that the compressor is shut down due to an emergency stop. The contacts of the emergency switch are open. The setting of the shut-down is open.
- It remains possible to scroll through other menus, e.g. to check the values of other parameters. When returning to the status data menu, the option "Shutdowns" will blink. This option can be selected by pressing the tabulator key to return to the shut-down screen.

Shut-down reset

1. Switch off the voltage, depressurize the compressor and remedy the trouble. After remedying, switch on the voltage and press the key "Reset" (F3).
2. Press the keys "Menu" and "Mainscreen" to return to the Main screen and restart the compressor by means of button I.

A warning message exists

1. If a shut-down exists, LED (1) is alight. The main screen will change into a screen similar to the one below:

"Compressor outlet"		7.0 bar	
			.
**	"Warning"		** ↓
“Menu”	*** . ***	* - - -	
F1	F2	F3	

2. The indicators (***) are blinking and the message "**Warning**" appears alternately with the messages indicating whether the compressor is in operation or not ("Compressor Running" or "Compressor Off").
3. Press the key "Menu" (F1) and the tabulator key (2) to select the "Status Data" menu, the option "Protection" is blinking.
4. Scroll to this option and select it by pressing the tabulator key (2): option "Warnings" blinks. Scroll to this option and select it by pressing the tabulator key (2). A screen similar to the one below appears:

Example of a warning screen

"Element 1"		210 °C	
			.
"Warning"	"Maximum"	200°C	
“Menu”	*** . ***		
F1	F2	F3	

The above screen shows that the temperature at the outlet of "Element 1" (210 °C) is too high.

5. Stop the compressor by means of button O and wait until the compressor has stopped.
6. Switch off the voltage, inspect the compressor and remedy.
7. The warning message will disappear automatically as soon as the warning condition disappears.

A service warning message exists

1. General alarm LED (1) is alight and the main screen will change into a screen similar to that shown in the table below.

Example of a service warning screen

"Compressor outlet"		7.0 bar	
			.
**	"Service required"		** ↓
“Menu”	*** . ***		
F1	F2	F3	

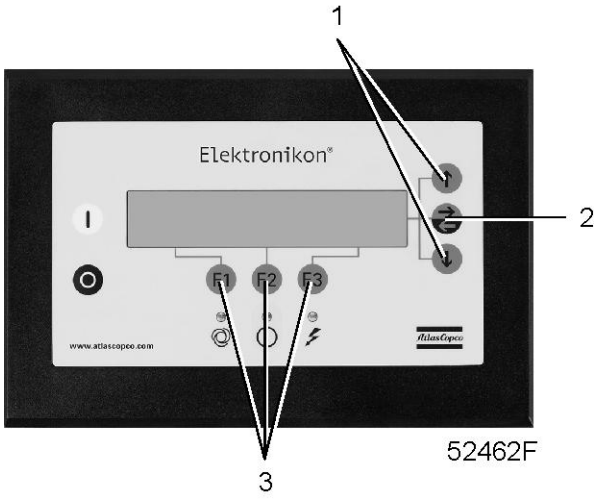
2. The indicators (***) are blinking and the service warning message appears alternately with the messages indicating whether the compressor is in operation or not ("Compressor Running" or "Compressor Off").
3. Press the key "Menu" (F1) and the tabulator key (2) to select the "Status Data" menu: the option "Service" is blinking.
4. Scroll to this option and select it by pressing the tabulator key (2): two options may blink:
   "Inputs": option is not applicable.
   "Plan": If a service plan interval is exceeded.
5. Stop the compressor and switch off the voltage.
6. In case the service message was referring to "Plan": Carry out the service actions related to the indicated plans. Reset the timers of the related plans as described in section Service menu.

3.10 Measured data menu

Function

To call up information regarding the actually measured data and the status of some inputs such as the motor overload protection per compressor module.

Procedure



Control panel

1. Starting from the main screen, press the key "Menu" (F1).
2. Press the down arrow key (1) until the option "Measured data" is followed by a horizontal arrow.
3. Press the tabulator key to activate the menu.

Example of a measured data screen

“Compressor Outlet”		7.0 bar	⊣
“Element 1”		195 °C	
“Element 2”		190 °C	↓
“Menu”		“Extra”	
F1	F2	F3	

4. By pressing the down arrow key (1) , a number of actually measured data can be found.
5. If one of the sensors is linked to a shut-down, service or warning function, both the actually measured value as well as the corresponding shut-down, warning or service level can be called up by pressing the tabulator key.

3.11 Counters menu

Function

To allow the operator to call up the number of:

- running hours
- regulator (module) hours (the hours the module has been under tension)
- starts per compressor module
- shutdowns per compressor module

Procedure

1. Starting from the main screen, press the key "Menu" (F1).

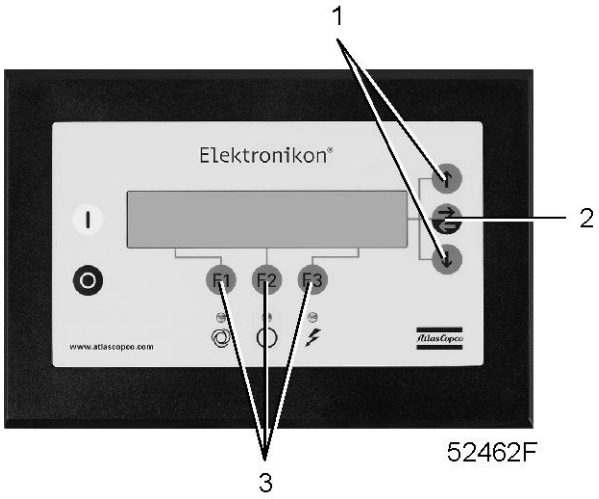
2. Press the down arrow key until the option "Counters" is followed by a horizontal arrow.
3. Press the tabulator key to activate the menu.
4. By pressing the down arrow key, the above mentioned data can be found.

3.12 Test menu

Function

To carry out a display test, i.e. to check whether the display and LED's are still intact.

Procedure



Control panel

1. Starting from the Main screen, press the key "Menu" (F1).
2. Press the down arrow key (1) until the option "Test" is followed by a horizontal arrow.
3. Press the tabulator key (2) to activate the menu.
4. The option "Display test" will be followed by a horizontal arrow.
5. After pressing the tabulator key (2), the regulator will generate a series of patterns on the display which enable the operator to check that each pixel still functions normally, at the same time the LED's are lit.

3.13 Modify parameters menu

Function

The menu allows the operator to program:

- Parameters, (see section Modifying parameters)
- Protection settings, (see section Modifying protection settings)
- Service plan settings, (see section Modifying service plans)
- Clock function settings, (see section Programming the clock function)
- Configuration settings, (see section Configuration menu)

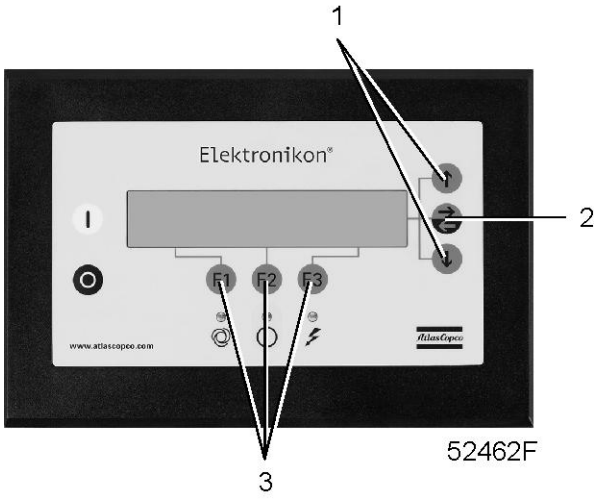
3.14 Modifying parameters

Function

To modify a number of parameters as mentioned below. Refer to the menu flow in section Control programs.

- "Pressure Band 1 High"
- "Pressure Band 1 Low"
- "Pressure Band 2 High"
- "Pressure Band 2 Low"
- "Number Of Starts/Day" (per compressor module)
- "Minimum Stop Time" (i.e. the time period during which the compressor, if stopped automatically, remains stopped whatever happens with the air net pressure)
- "Power recovery time" (if automatic restart after voltage failure is activated)
- "Restart delay" (can be programmed, allowing e.g. compressors to be restarted one after the other)
- "Time to next start" (time between the starting of two compressor modules)
- "Time to next stop" (time between the stopping of two compressor modules during regulation)

Procedure



Control panel

1. Starting from the main screen,
   - Press the key "Menu" (F1)
   - Press the down arrow key (1) until the option "Modify Parameters" is followed by a horizontal arrow
   - Press the tabulator key (2) to activate the menu
2. The first option "Parameters" will be followed by a horizontal arrow.
3. Press the tabulator key (2) : the first item "Pressure Band 1 High" and its setting will appear.
4. Use the down arrow key (1) to scroll until the parameter to be modified is followed by a horizontal arrow.

3.15 Modifying pressure bands

Function

If desired, the operator can program two pressure bands (band 1 and band 2) with different pressure settings. The settings for band 1 are indicated as "Pressure Band 1 High" and "Pressure Band 1 Low", the settings for band 2 are indicated as "Pressure Band 2 High" and "Pressure Band 2 Low".

Example:

For pressure band 1:

- "Pressure Band 1 Low": 6.8 bar
- "Pressure Band 1 High": 7.8 bar

For pressure band 2:

- "Pressure Band 2 Low": 5.5 bar
- "Pressure Band 2 High": 6.5 bar

Procedure

1. Consult section Modifying parameters to select the parameter "Pressure Band 1 High":

"Pressure Band 1 High"		7.8 bar	⊣
"Pressure Band 1 Low"		6.8 bar	
"Pressure Band 2 High"		6.5 bar	↓
“Menu”	“Modify”		
F1	F2	F3	

2. The screen shows that the current setting of "Pressure Band 1 High" is 7.8 bar(e). To modify this setting, press the key "Modify" (F2):

			.
"Pressure Band 1 High"		7.8 bar	
			.
“Program”	“Limits”	"Cancel"	
F1	F2	F3	

3. The key "Limits" (F2) can be used to find the limitations for the parameter. Use the down arrow key or the up arrow key to change the value.
4. Press the key "Program" (F1) to program the new setting or the key "Cancel" (F3) to cancel the modification operation.
5. The procedure to modify the "Pressure Band 1 Low" is similar to the description above.
6. If required, repeat the procedure for the "Pressure Band 2 High" and "Pressure Band 2 Low" (Pressure Band 2).

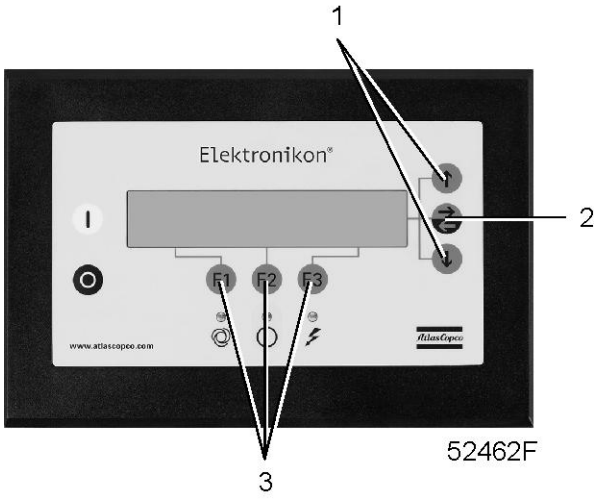
3.16 Modifying protection settings

Function

- To modify protection settings: warning ("Warning"), e.g. Dryer LAT (Low Ambient Temperature) on compressors with integrated dryer.
- To check some compressor conditions, (e.g. the status of the motor overload contacts per compressor module). The list of parameters is shown in the Menu flow in section Control programs.

	Some parameters cannot be modified.

Procedure



Control panel

1. Starting from the main screen, press the key "Menu" (F1)
2. Press the down arrow key (1) until the option "Modify parameters" is followed by a horizontal arrow.
3. Press the tabulator key (2) to activate the menu.
4. Use the down arrow key (1) to scroll until the option "Protections" is followed by a horizontal arrow.
5. Press the tabulator key (2) : the first item "Compressor outlet" and its value will appear.
6. Use the down arrow key (1) to scroll until the parameter to be modified or checked is followed by a horizontal arrow.
7. Press the tabulator key (2) to select the parameter.

Checking protections for compressor modules

1. Consult the section above to select the parameter "Element 1":

“Element 1”		190 °C	
			.
“Warning”	“Maximum”	210 °C	
“Back”	“Modify”		
F1	F2	F3	

2. The screen shows that the current temperature is 190 °C and that the shut-down setting is 210 °C.

Modifying protections for Dryer LAT on compressors with integrated dryer

1. Consult the section above to select the parameter Dryer LAT (Low Ambient Temperature):

“Dryer LAT”		10 °C	
			.
“Warning”	“Maximum”	25 °C	
“Back”	“Modify”		
F1	F2	F3	

2. The screen shows that the Dryer LAT is 10 °C and that the shut-down setting is 25 °C. To modify this setting, press the key "Modify" (F2):

“Dryer LAT”		10 °C	
			.
“Warning”	“Maximum”	25 °C	
“Program”	“Limits”	“Cancel”	
F1	F2	F3	

3. The key "Limits" (F2) can be used to find the limitations for the parameter. Use the down arrow key (1) or up arrow key (1) to change the value.
4. Press the key "Program" (F1) to program the new setting or the key "Cancel" (F3) to cancel the modification operation.

	The modifying procedure for other settings is similar. For some settings, a delay can be programmed. See section Programmable settings.

3.17 Modifying service plans

Function

To modify the hour intervals for the service plans.

Service plans

The service operations to be carried out are grouped in plans, called Service plan A, B, D or I. When reaching an interval, a message will appear on the screen indicating which Service plans are to be carried out.

Important

	Always consult Atlas Copco in case any timer setting should be changed. The intervals must not exceed the periods below and must coincide logically.

Programmed service plan intervals

Service plans	Intervals
Service plan A	Each 2500 running hours
Service plan B	Each 5000 running hours
Service plan C	Each 10000 running hours
Service plan D	Each 20000 running hours

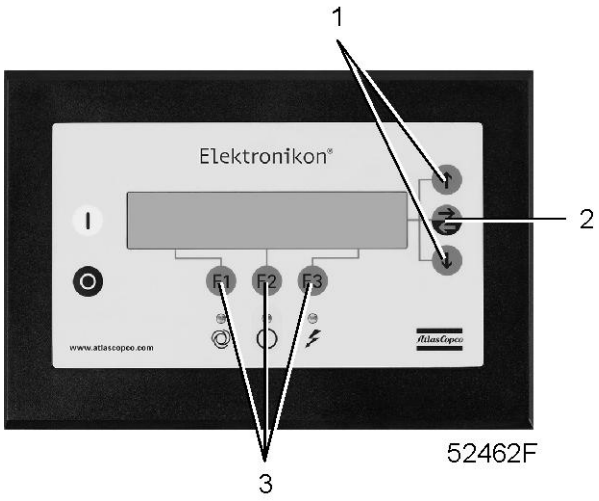
Resulting service actions to be carried out

Service actions according to	at
Service plan A	2500 running hours
Service plan A and B	5000 running hours
Service plan A, B and C	10000 running hours
Service plan A, B, C and D	20000 running hours

Note

The figures indicating the running hours are only as example. For exact figures see section Preventive maintenance schedule.

Procedure



Control panel

1. Starting from the main screen, press the key "Menu" (F1).

2. Press the arrow down key (1) until the option "Modify parameters" is followed by a horizontal arrow.
3. Press the tabulator key (2) to activate the menu.
4. Use the arrow down key (1) to scroll until the option "Service plan" is followed by a horizontal arrow.
5. Press the tabulator key (2) again. A screen similar to the one below will appear:

“Service Timer”			
“Running Hours”			→
		1075 "hrs"	↓
“Menu”			
F1	F2	F3	

The screen shows the actual running hours (1075).

6. Press the tabulator key again. A screen similar to the one below will appear:

“Service Timer”			
“Level”		A	
		4000 "hrs"	↓
“Menu”	“Modify”		
F1	F2	F3	

7. The screen indicates that the level for Service plan A is set at 4000 running hours.
8. Press the "Modify" key. The key "Limits" (F2) can be used to find the limitations for the parameter. Use the down arrow key or up arrow key to modify the interval.
9. Press the key "Program" (F1) to program the new setting or the key "Cancel" (F3) to cancel the modification operation.
10. The procedure to modify the Service plans B, D and I are carried out in a similar way. Press the down arrow key on the screen given in the table of item 5 above to find the other Service plans.

3.18 Programming the clock function

Function

To program:

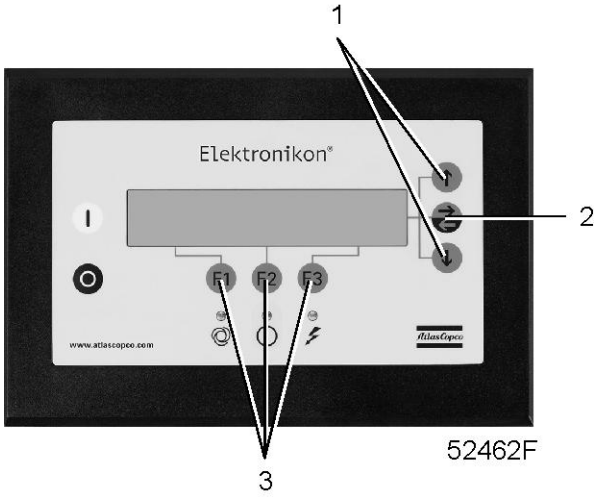
- Time-based start/stop commands for the compressor
- Time-based change-over commands for the net pressure band. See section Modifying pressure bands.

Programming start, stop, and pressure band commands

In this example, the compressor will be programmed as follows:

- On Monday at 6:15 starting in pressure band 1
- On Friday at 18:00 changing over to pressure band 2
- On Saturday at 18:00 stopping

Procedure:



Control panel

1. Starting from the main screen, press the key "Menu" (F1).
2. Press the down arrow key (1) until the option "Modify Parameters" is followed by a horizontal arrow.
3. Press the tabulator key (2) to activate the menu.
4. Use the down arrow key (1) to scroll until the option "Clock Function" is followed by a horizontal arrow. Press the tabulator key (2). Following screen appears:

“Clock function”			
		“Not activated”	→
			.
“Menu”	“Modify”	“Delete”	
F1	F2	F3	

5. Press the tabulator key (2). Following screen appears:

“Monday ”			→
“Tuesday ”			
“Wednesday ”			↓
“Back”		“Delete”	
F1	F2	F3	

6. Use the scroll keys (1) until the day on which a command must be programmed is followed by a right pointing arrow. Press the tabulator key; following screen appears:

--:--	----------		⊣
--:--	----------		
--:--	----------		↓
“Back”	“Modify”	“Delete”	
F1	F2	F3	

7. Press the key "Modify" (F2). The first two digits will flash. Use the scroll keys (1) to enter "06". Press the tabulator key (2) to jump to the following two dashes. Use the scroll keys (1)

to enter "15". Press the tabulator key to jump to the row of dashes. Next, use the scroll keys to enter the command "Start". Press the key "Program" to program the command: 06:15 "Start"

8. Press the down arrow key (1) : the symbol ┤ indicates that the second line is accessible. Press the key "Modify" and modify this line to the following command line: 06:15 "Pressure Band 1" in a similar way.
9. Press the key "Back" (F1) and scroll to "Friday":

“Thursday ”			↑
“Friday ”			→
“Saturday ”			↓
“Back”		“Delete”	
F1	F2	F3	

10. Programming the command to change over to "Pressure Band 2" at 18:00 h is carried out in a similar way as described above.
11. Press the key "Back" (F1) and scroll to "Saturday". Programming the command to stop at 18:00 h is carried out in a similar way as described above.

Activating/deactivating the timer

1. Starting from the main screen, press the key "Menu" (F1).
2. Press the down arrow key (1) until the option "Modify Parameters" is followed by a horizontal arrow.
3. Press the tabulator key (2) to activate the menu.
4. Use the down arrow key again to scroll until the option "Clock Function" is followed by a horizontal arrow. Press the tabulator key (2). Following screen appears:

“Clock function ”			
		“Not activated ”	→
			.
“Menu”	“Modify”	“Delete”	
F1	F2	F3	

5. Press the key "Modify". "Not activated" starts blinking.
6. Press the down arrow key; "Not activated" changes into "Activated".
7. Press the key "Program".

	It is necessary to program the start/stop/pressure band commands in successive order timewise. For example: • 07.30 Start • 07.30 Pressure Band 1 • 08.30 Pressure Band 2 • 17.00 Stop
	Make sure that the clock function is activated (indicated as "Activated"). If not, the programmed start/stop commands will not be executed.

Modifying a command

Suppose the command to stop the compressor on Saturday 18:00 h is to be modified: stopping at 17:00 h instead of 18:00 h:

1. Starting from the main screen, press the key "Menu" (F1).
2. Press the down arrow key (1) until the option "Modify Parameters" is followed by a horizontal arrow.
3. Press the tabulator key (2) to activate the menu.
4. Use the down arrow key to scroll until the option "Clock Function" is followed by a horizontal arrow. Press the tabulator key (2); following screen appears:

“Clock function ”			
		“Not activated ”	→
			.
“Menu”	“Modify”	“Delete”	
F1	F2	F3	

5. Press the tabulator key (2); following screen appears:

“Monday ”			→
“Tuesday ”			
“Wednesday ”			↓
“Menu”		“Delete”	
F1	F2	F3	

6. Scroll through the display until "Saturday" is followed by a horizontal arrow. Press the tabulator key (2). If necessary, scroll through the compressor start/stop/pressure band commands until the command to be modified is followed by symbol ┤ on the screen. Press the key "Modify"; the first two digits of the command start blinking. Modify as required using the scroll keys, i.e. in the example above change "18" into "17" using the down arrow key.
7. If necessary, press the tabulator key (2) to go to the next field to be modified, the minutes indication and the start/stop/pressure band indication.
8. Press the key "Program" to program the new command or the key "Cancel" to quit without reprogramming.

Adding a command at the end of an existing list

1. Starting from the main screen, press the key "Menu" (F1).
2. Press the down arrow key (1) until the option "Modify Parameters" is followed by a horizontal arrow.
3. Press the tabulator key (2) to activate the menu.
4. Use the down arrow key (1) to scroll until the option "Clock function" is followed by a horizontal arrow. Press the tabulator key (2); following screen appears:

“Clock function ”			
		“Not activated ”	→
			.
“Menu”	“Modify”	“Delete”	
F1	F2	F3	

Suppose the command to stop the compressor at 18:00 must be added to the list of Monday:
- 06:15 start
- 06:15 "Pressure Band 1"

5. Press the tabulator key (2); following screen appears:

“Monday ”			→
“Tuesday ”			
“Wednesday ”			↓
“Menu”		“Delete”	
F1	F2	F3	

6. Scroll through the display until "Monday" is followed by a horizontal arrow. Press the tabulator key (2). Scroll through the compressor start/stop/pressure band commands until the first empty command line is indicated by symbol ┤ on the screen.
7. Press the key "Modify", the first two digits of the command start blinking. Enter "18:00 stop", using the scroll keys ↑ or ↓ to modify a field and the tabulator key (2) to jump from one field to another.
8. Press the key "Program" to program the new command or the key "Cancel" to quit without reprogramming.

Adding a command between two existing commands

1. Suppose the command 17:00 pressure band 2 must be added to following list:
   - 06:00 "Start"
   - 06:00 "Pressure Band 1"
   - 18:00 "Stop"
2. The regulator does not allow to enter a new command which is situated timewise before the last command in the list.
3. Scroll through the display until the command before which the new command must be entered is followed by symbol ┤ (in the example above: 18:00 "Stop") and press the key "Modify". Change this command to the new command (in the example above: 17:00 "Pressure Band 2") and press the "Program". Press the down key, add the last command of the list (in the example above: 18:00 stop) and press the key "Program".

Deleting a command

1. Starting from the main screen, press the key "Menu" (F1).
2. Press the down key (1) until the option "Modify Parameters" is followed by a horizontal arrow.
3. Press the tabulator key (2) to activate the menu.
4. Use the down arrow key to scroll until the option "Clock Function" is followed by a horizontal arrow. Press the tabulator key (2); following screen appears:

“Clock function ”			
		“Not activated ”	→
			.
“Menu”	“Modify”	“Delete”	
F1	F2	F3	

Deleting all commands

Press the key "Delete" (F3) in the screen above. A question to confirm the deleting operation will appear.

Deleting all commands related to a specific day

Scroll through the display until the desired day is followed by a horizontal arrow. Press the key "Delete" (F3). A question to confirm the deleting operation will appear.

Deleting a specific start, stop, or pressure band command

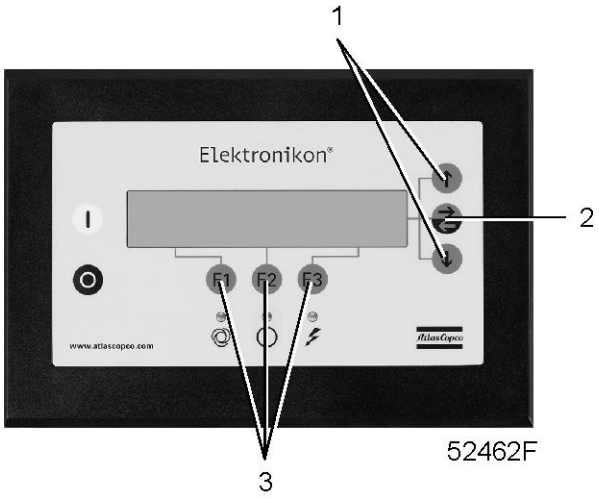
Scroll through the display until the desired "Start", "Stop", "Pressure Band 1" or "Pressure Band 2" command line is followed by symbol ┤. Press the key "Delete" (F3). A question to confirm the deleting operation will appear.

3.19 Configuration menu

Function

To reprogram a number of parameters. Refer to Menu flow in section Control programs .

Procedure



Control panel

1. Starting from the main screen, press the key "Menu" (F1).
2. Press the down arrow key (1) until the option "Modify Parameters" is followed by a horizontal arrow.
3. Press the tabulator key (2) to activate the menu.
4. Use the down arrow key to scroll until the option "Configuration" is followed by a horizontal arrow.
5. Press the tabulator key (2): The first option shown is "C.C.M" (Compressor Control Mode). If another option is desired, scroll through the display using the scroll keys (1) until the option is followed by symbol ┤.

6. In case of option "Time", the first line indicates the actual setting, e.g. 14:30 followed by symbol ┤.
7. If it is desired to modify the time, press the key "Modify". If not, press the key "Menu" to return to the submenu.
8. After pressing the key "Modify", the first field (14) will blink. Modify the hours using the scroll keys (1). Then press the tabulator key (5) to go to the next field (i.e. 30). The setting of this field can now be modified with the scroll keys (1).
9. The bottom line of the display will show two options:
   - "Program" to program the new setting
   - "Cancel" to cancel the new setting
10. Proceed in a similar way for the other parameters to be modified.

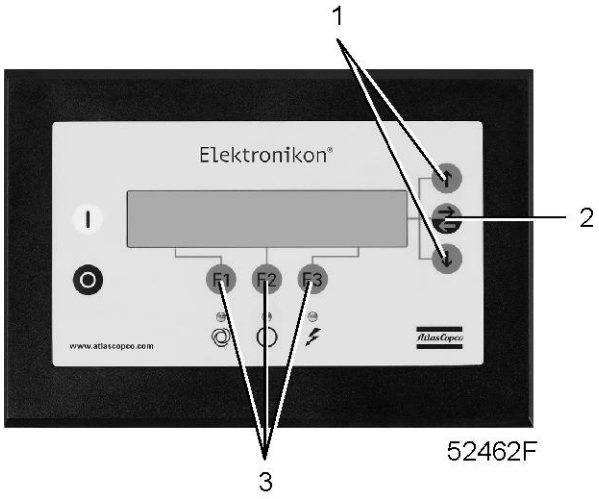
3.20 Programming compressor control modes

Compressor control modes

The compressor can be controlled locally, remotely or via a local area network (LAN).

Consult Atlas Copco for more details.

Procedure



Control panel

1. Starting from the main screen, press the key "Menu" (F1).
2. Press the down arrow key until the option "Modify Parameters" is followed by a horizontal arrow.
3. Press the tabulator key (2) to activate the menu.
4. Use the down arrow key to scroll until the option "Configuration" is followed by a horizontal arrow.
5. Press the tabulator key (2): The first option shown is "C.C.M." (Compressor Control Mode), followed by the actual setting. Following screen is shown:

“C.C.M.”		“Local Control”	⊣
“Pressure Band Selected”		“Pressure Band 1”	
“Node ID”		31	↓
“Menu”	“Modify”		
F1	F2	F3	

6. Press the key "Modify" and use the scroll keys to select the desired control mode. Press the "Program" key to program or the "Cancel" key to cancel the modification.

3.21 Service menu

Function

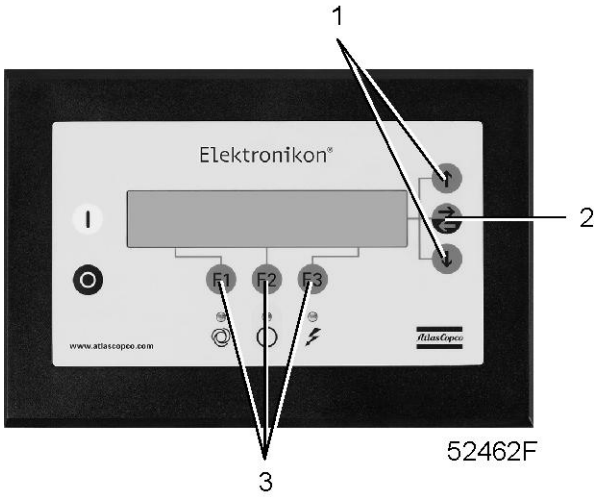
- To reset the service plans which are carried out.
- To check for both the next service plans to be carried out and to find which service plans were carried out previously.

Service plans

- Contact your Atlas Copco customer centre for the service actions related to these plans.
- Consult section Modifying service plans if any modification to the intervals should be required.

When the service plan interval is reached, a message will appear on the screen. See section Status data menu .

Procedure



Control panel

1. Starting from the main screen, press the key "Menu" (F1).
2. Press the down arrow key (1) until the option "Service" is followed by a horizontal arrow.
3. Press the tabulator key (2) to activate the menu.
4. A screen similar to the one below appears:

“Service Timer”			
“Running hours”			→
		7971 “hrs”	↓
“Menu”			
F1	F2	F3	

The screen shows that the total compressor running time is 7971 hours.

5. Press the tabulator key (2):

“Next Timer”			
“Level”		ABI	
		8000 “hrs”	↓
“Back”		"Reset"	
F1	F2	F3	

The screen shows that the next service plans to be carried out are plans A, B and I and that these plans are to be carried out every 8000 running hours.

6. Press the down arrow key (1) to find which service plans were carried out previously. A screen similar to the one below appears:

“Previous Timer”			↑
“Level”		AI	
		4008 “hrs”	
“Back”			
F1	F2	F3	

The screen shows that service plans A and I were carried out at 4008 running hours.

7. Stop the compressor, switch off the voltage and carry out the service operations related to plans A, B and I.
8. Switch on the voltage and scroll to the service screen shown in screen of step 5. Press the "Reset" button (F3) to reset the timer. Confirm the question for resetting.

Note

The figures indicating the running hours are only as example. For exact figures see section Preventive maintenance schedule.

Important note

	• The "Reset" button only appears when the Next Timer Level is almost reached (from 400 running hours before elapsing of the service plan interval). • After pressing the down arrow key in the screen of step 2, the Life time hours are shown (i.e. the number of hours elapsed since initial programming ex-factory). This counter is not taken into account.

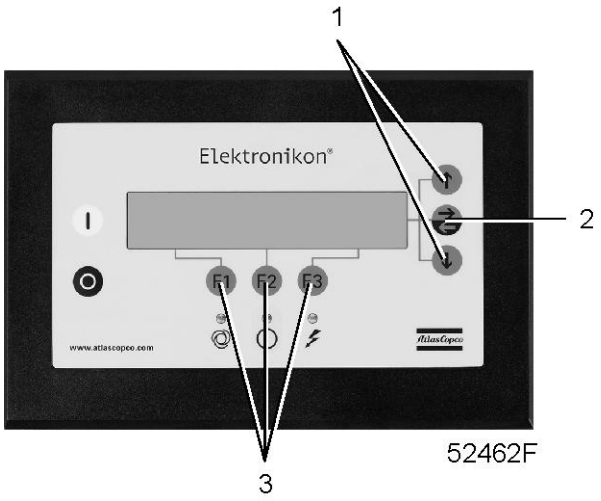
3.22 Saved data menu

Function

To call up some compressor data saved by the regulator. These data are:

- Last shut-down data
- Last emergency stop data

Procedure



Control panel

1. Starting from the main screen, press the key "Menu" (F1).
2. Press the arrow down key (1) until the option "Saved data" is followed by a horizontal arrow.
3. Press the tabulator key (2) to activate the menu.
4. The list of last shut-down cases is shown.
5. Scroll through the items to select the desired shut-down item.
6. Press the tabulator key (2) to find the date, time and other data reflecting the status of the compressor at the last shut-down occurred.

3.23 Programmable settings

Regulation settings

		Minimum setting	Factory setting	Maximum setting
Number of motor starts/day		240	720	720
Minimum stop time (note 1)	sec	5	5	30
Stop between 2 compressor modules	sec	2	2	5
Start between 2 compressor modules	sec	2	2	10
Power recovery time (note 2)	sec	10	10	3600
Delay at restarting after power recovery (note 2)	sec	0	0	1200

		Minimum setting	Factory setting	Maximum setting
Minimum pressure (note 3)				
10 bar compressors without integrated dryer	bar(e)	4	9	9.9
Maximum pressure (note 3)				
10 bar compressors without integrated dryer	bar(e)	4.1	10	10

Service settings

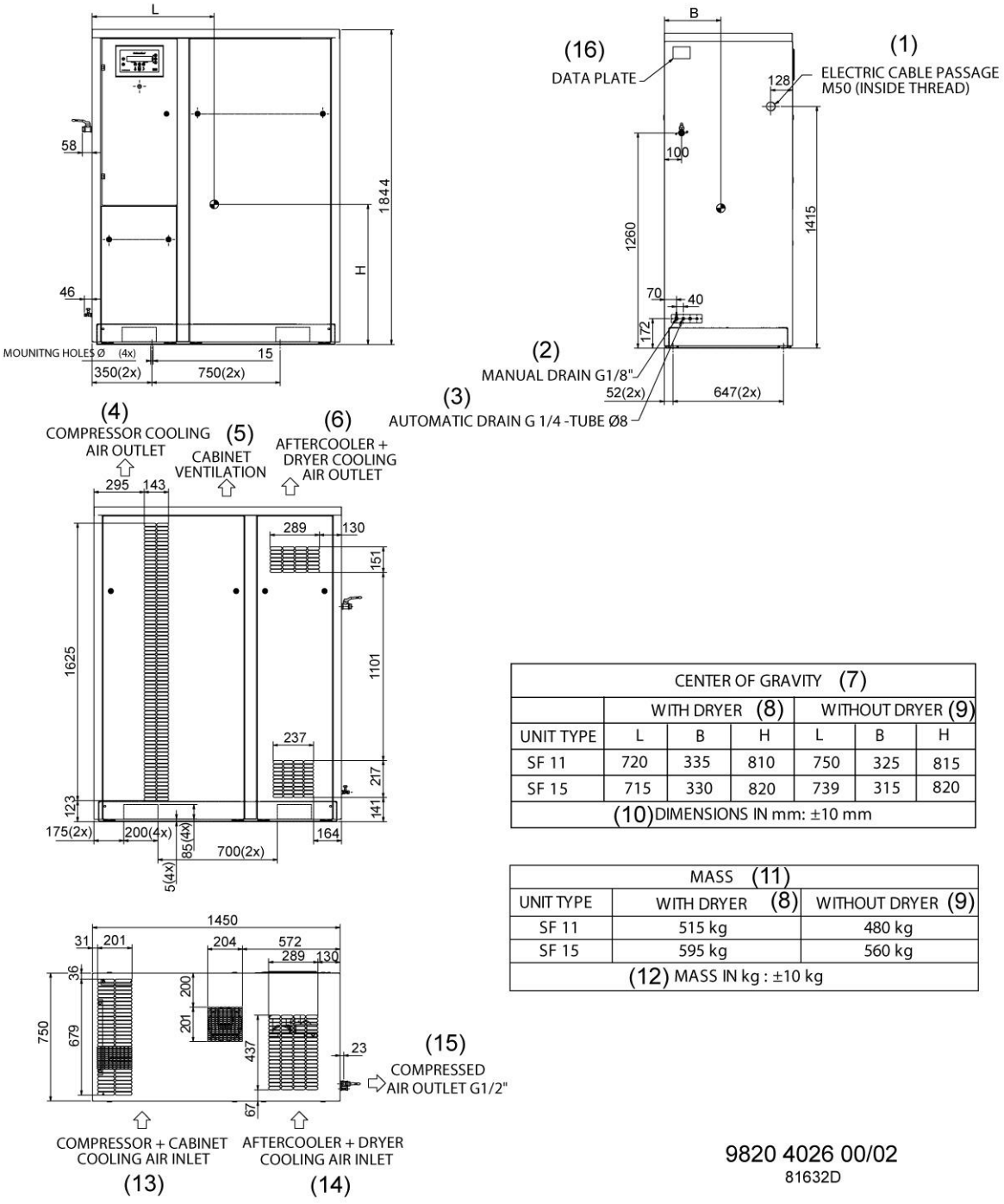
		Factory setting
Service plan A	hrs	2500
Service plan B	hrs	5000
Service plan C	hrs	10000

Notes

1. Once a compressor module is automatically stopped, it will remain stopped for the minimum stop time, whatever happens with the air net pressure.
2. Is only accessible if the automatic restart function is activated. The power recovery time (the period within which the voltage must be restored to have an automatic restart) can be set between 10 and 3600 seconds. A delay at restarting can also be programmed, allowing e.g. compressors to be restarted one after the other.
   To activate the automatic restart function, consult Atlas Copco.
3. The regulator does not accept illogical settings, e.g. if the stopping pressure is programmed at 7.0 bar(e), the maximum limit for the starting pressure changes into 6.9 bar(e). The recommended minimum pressure difference between starting and stopping is 0.6 bar.

4 Installation guidelines

4.1 Dimension drawing



CENTER OF GRAVITY (7)						
	WITH DRYER (8)			WITHOUT DRYER (9)		
UNIT TYPE	L	B	H	L	B	H
SF 11	720	335	810	750	325	815
SF 15	715	330	820	739	315	820
(10) DIMENSIONS IN mm: ±10 mm						

MASS (11)		
UNIT TYPE	WITH DRYER (8)	WITHOUT DRYER (9)
SF 11	515 kg	480 kg
SF 15	595 kg	560 kg
(12) MASS IN kg : ±10 kg		

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81632D

SF 11 and SF 15 Multi

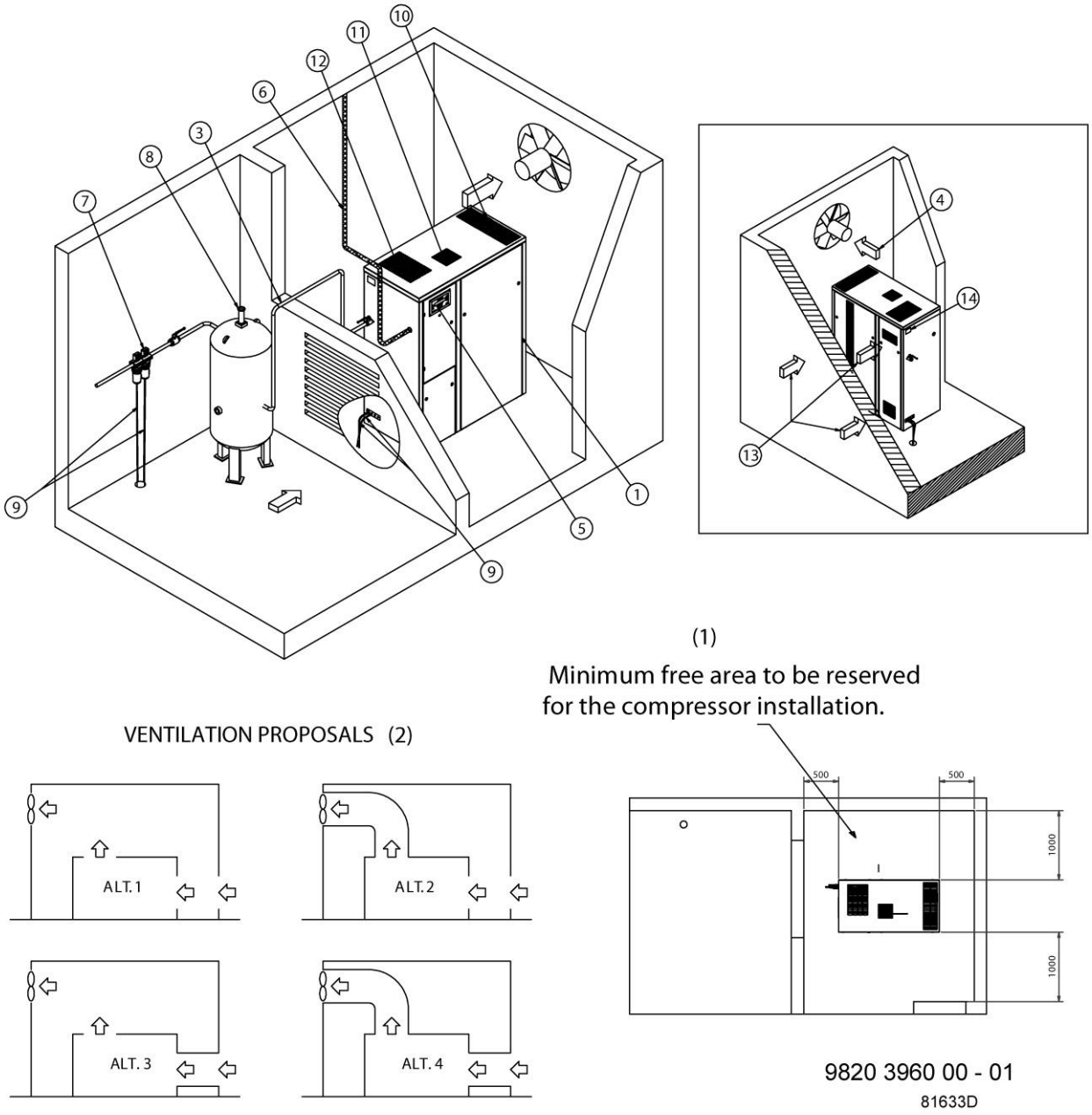
Reference	Description	Reference	Description
1	Supply cable passage	9	Without dryer
2	Manual drain	10	Dimensions ± 10 mm
3	Automatic drain	11	Mass
4	Compressor cooling air outlet	12	Mass ± 10 kg
5	Bodywork ventilation	13	Compressor and bodywork cooling air inlet
6	Aftercooler and dryer cooling air outlet	14	Aftercooler and dryer cooling air inlet
7	Centre of gravity	15	Compressed air outlet
8	With dryer	16	Data plate

4.2 Installation proposal

Outdoor/altitude operation

	If the compressor is installed outdoors or if the air inlet temperature can be below 0 °C (32 °F), precautions must be taken. In this case, and also if operating at high altitude, consult Atlas Copco.

Installation alternatives



Installation proposal, SF Multi

Reference	Description
1	Minimum free area to be reserved for the compressor installation
2	Ventilation proposals

Main components

1. Install the compressor on a level horizontal industrial floor, in a frost-free and preferably low dust location. The compressor unit must be installed on a level floor suitable for taking the weight of the compressor.

2. Compressed air outlet valve.
3. Delivery pipe.
   The pressure drop over the air delivery pipe can be calculated as follows:
   $\Delta p = (L \times 450 \times Q_c^{1.85}) / (d^5 \times P)$, with
   d = inner diameter of the pipe in mm
   Δp = pressure drop in bar (recommended maximum: 0.1 bar (1.5 psi))
   L = length of the pipe in m
   P = absolute pressure at the compressor outlet in bar
   Q_c= Free air delivery of the compressor in l/s
4. Ventilation: The inlet grid(s) and ventilation fan should be installed in such a way that any recirculation of hot cooling air to the inlet gratings of the compressor/dryer is avoided.
   The air velocity to the grid(s) has to be limited to 5 m/s (16.5 ft/s).
   Maximum allowable pressure drop over cooling air ducts is 50 Pa (0.12 in WC).
   When 50 Pa is exceeded, a ventilation fan is needed at the outlet of the cooling air ducts.
   The maximum air temperature at the compressor intake opening is 40° C (104 °F), the minimum is 0° C (32 °F).
   Alternative 1 and 3: The required ventilation to limit the compressor room temperature can be calculated from :
   $Q_v = 0{,}92\ N / \Delta t$
   with
   Q_v = required ventilation capacity in m^3/s
   N = shaft input of the compressor in kW
   Δt = temperature increase in the compressor room in °C
   Alternative 2 and 4: The fan capacity should match the compressor fan capacity at a pressure head equal to the pressure drop caused by the cooling air ducts.
5. Control cubicle with monitoring panel.
6. Mains cable entry.
7. **Optional filters can be installed in the pressure line downstream the air outlet valve, e.g.:**
   - A DD filter for general-purpose filtration. The filter traps solid particles down to 1 micron.
   - A PD filter for filtration down to 0.01 micron. A PD filter must always be installed downstream a DD filter.

   It is recommended to provide bypass pipes and valves across the filters in order to isolate the filters during maintenance without disturbing the compressed air delivery.
8. Safety valve.
9. The drain pipes to the drain must not dip into the water.
10. Compressor cooling air outlet.
11. Ventilation outlet
12. Aftercooler cooling air outlet.
13. See item 4 above.
14. Data plate.

4.3 Electrical connections

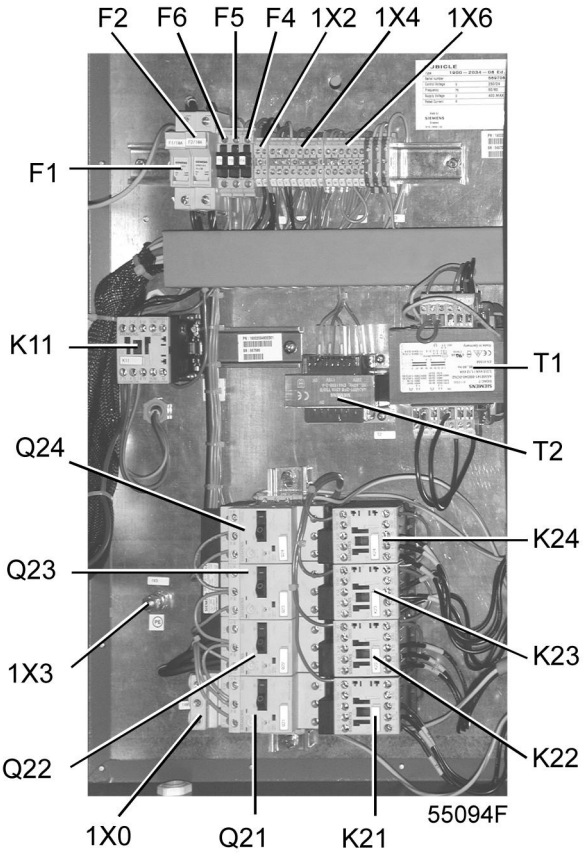
Attention

⚠	The electrical installation must correspond to the local codes. The mains supply and earthling lines must be of suitable size. The installation must be earthed and protected by fuses in each phase. An isolating switch should be installed near the compressor. **Make sure that this switch is open to isolate the compressor from the mains before carrying out any connection.** To preserve the protection degree of the electric cubicle and to protect its components from dust from the environment, it is mandatory to use a proper cable gland when connecting the supply cable to the compressor.

Supply cable

Consult section Electric cable size for the section of the power supply cable.

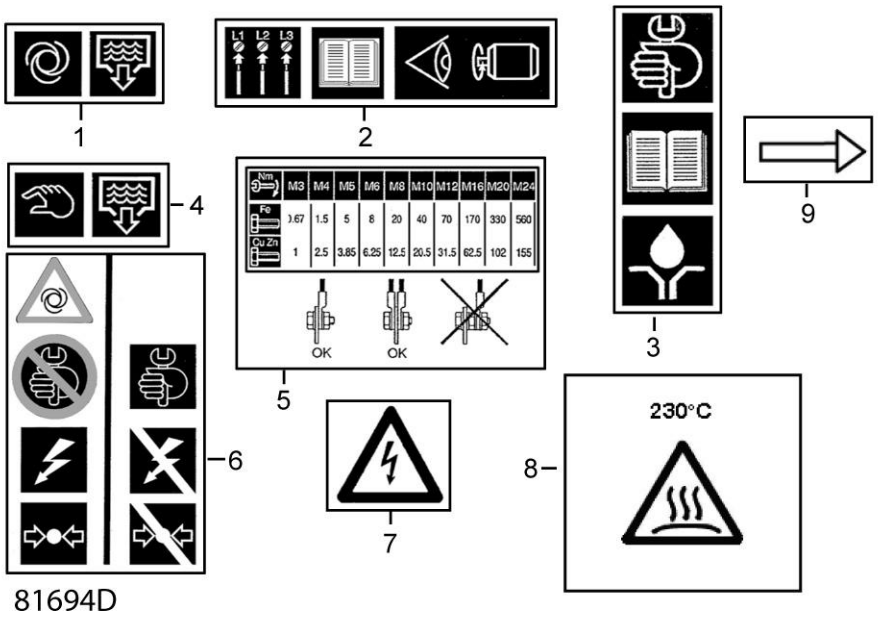
SF Multi



See section Electrical diagram. Connect the supply cable to terminals L1, L2 and L3 of terminal strip (1X0), connect the neutral conductor to terminal (N) (if applicable) and the earthing conductor to the earthing bolt (1X3).

4.4 Pictographs

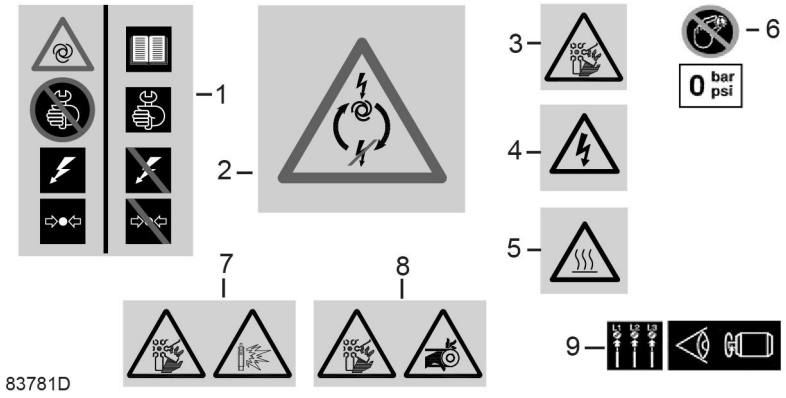
Pictographs



Pictographs

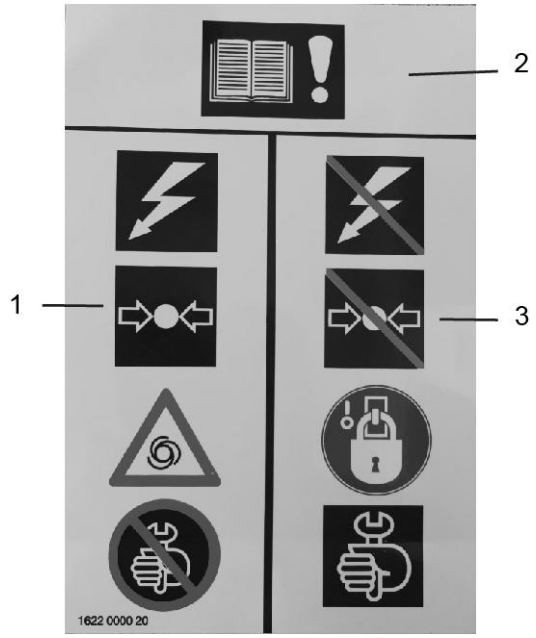
Reference	Designation
1	Automatic condensate drain
2	Warning: before connecting compressor electrically, consult Instruction book for motor rotation direction
3	Consult the specific instructions before greasing
4	Manual condensate drain
5	Torques for steel (Fe) or brass (CuZn) bolts
6	Switch off the voltage and depressurise the compressor before maintenance or repair
7	Warning: voltage
8	Warning: hot surface
9	Rotation direction of fan

Alternative label:



Reference	Explanation
1	Warning: the compressor starts and stops automatically. Do not perform service when pressurized and when the voltage is on. Read the instruction book, switch off the power and depressurize the compressor before maintenance or repair.
2	After power failure during automatic operation, the unit restarts automatically.
3	Warning: rotating fan.
4	Warning: supply voltage.
5	Warning: hot surface.
6	Do not adjust the pressure switch while it is depressurized , because this can damage the switch (only for compressors controlled by a pressure switch).
7	Warning: rotating fan. Warning: safety valve blowing.
8	Warning: rotating fan. Warning: belts
9	Warning: before connecting compressor electrically, consult Instruction book for motor rotation direction

Alternative for label 1:



Reference	Explanation
1	Do not work on the compressor when still powered, under pressure or in automatic operation.
2	Always read the instruction book first.
3	Switch off the voltage, release the pressure and prevent the unit is switched on inadvertently (Lock out/Tag out) before working on the equipment.

5 Operating instructions

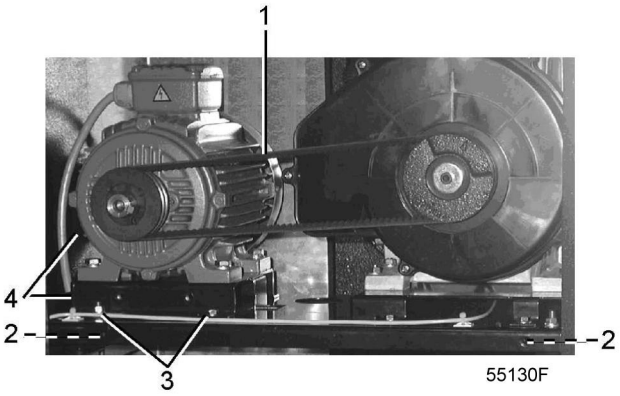
5.1 Initial start-up

Safety

	The operator must apply all relevant Safety precautions.

Initial start-up procedure

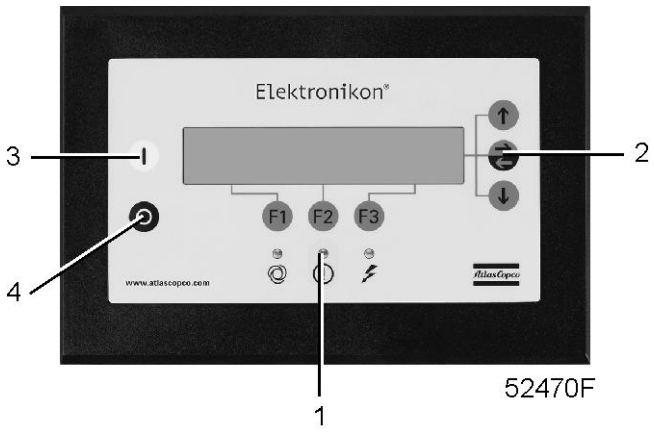
1. Remove the red painted transport brackets (2).



2. SF Multi:
   Check the settings of the overload relays. See section Settings of overload relay and fuses .
3. Connect the compressor electrically. See section Electrical connections.
4. Close the condensate drain valve. See section Condensate drain.
5. Switch on the voltage. Start and stop the compressor. On 3-phase compressors, check for correct direction of rotation (arrows are provided on the motors). If the rotation direction is wrong, switch off the voltage and reverse two incoming electric lines.

5.2 Starting

SF Multi



Control panel

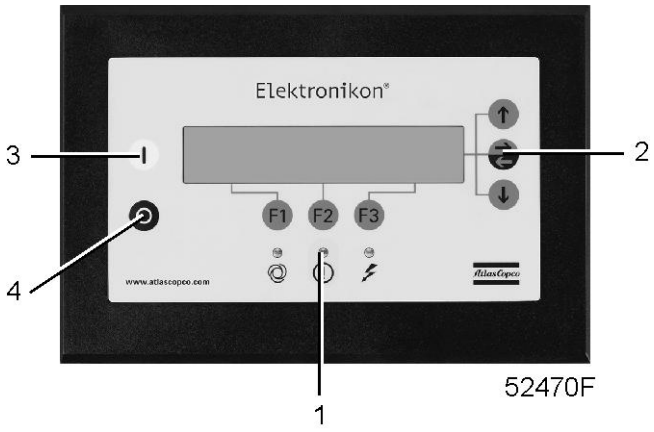
Procedure

1. Open the air outlet valve. See section Introduction for its location.
2. Switch on the voltage.
3. Close all manual condensate drain valves. See section Condensate drain system.
4. Press start button (3). The compressor starts running and automatic operation LED lights up.
5. The regulator will automatically stop and start the compressor modules in function of the air pressure.

	The number of starts is limited to 30 starts per hour. See also section Programmable settings.

5.3 During operation

SF Multi



Control panel

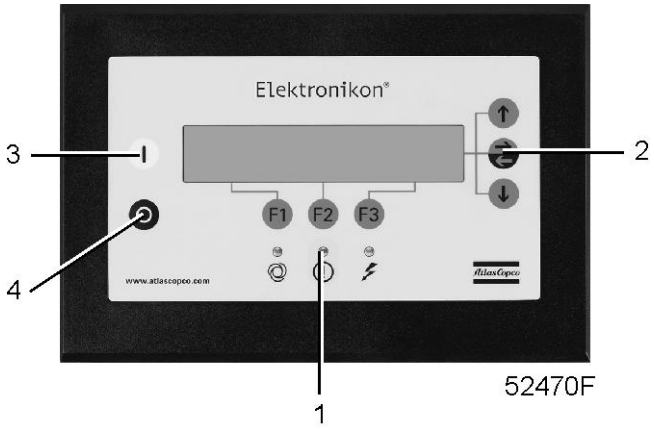
Procedure

1. If the automatic operation LED (8) is alight, the regulator is automatically controlling the compressor modules (starting/stopping).

2. Check the readings on the display (2). In case of a warning or shut-down condition, see section Saved data menu.
3. Check that condensate is discharged automatically from the condensate drain outlet during operation.

5.4 Stopping

SF Multi



Control panel

Procedure

1. Press the stop button (4).
2. Close the air outlet valve. See section Introduction.
3. Switch off the voltage.
4. Open the manual condensate drain valve. See section Condensate drain system.

5.5 Taking out of operation

Procedure

1. Stop the compressor and close the air outlet valve.
2. Switch off the voltage and disconnect the compressor from the mains.
3. Depressurize the compressor. Open the condensate drain valve.
4. Shut off and depressurize the part of the air net which connected to the outlet valve. Disconnect the compressor from the air net.
5. Disconnect the condensate piping from the local condensate drain system.

6 Maintenance

6.1 Preventive maintenance schedule

Warning

	**Before carrying out any maintenance, repair work or adjustments, proceed as follows:** • Stop the compressor • Switch off the voltage and open the isolating switch • Close the air outlet valve. • Open the manual drain valve. The operator must apply all relevant Safety precautions during maintenance or repair.

Warranty - Product Liability

Use only authorised parts. Any damage or malfunction caused by the use of unauthorised parts is not covered by Warranty or Product Liability.

General

When servicing, replace all removed gaskets, O-rings and washers.

Intervals

The local customer centre may overrule the specified maintenance schedule, especially the service intervals, depending on the environmental and operating conditions of the compressor.

	**The longer interval checks must always include the shorter interval checks.**

Preventive maintenance schedule

A number of service operations are grouped in plans called Service plans I, A, B or D. See the table below. On compressors with an electronic regulator, a message will appear on the regulator display when reaching the interval, indicating which Service plans are to be carried out. After servicing, the regulator is to be reset. For detailed information, consult section Status data menu.

Period (note 1)	Running hours (note 1)	Service Plan (*)	Action
Daily	--	--	• Check readings on the display. • Receiver mounted compressors:Drain the condensate manually at the end of the day.
Every 3 months (note 2)	500	--	• Check the pressure drop over the filters (available as option). • Inspect the air inlet filter(s): check for cleanness and damage. Replace a dirty or damaged filter with a new one. • Check the coolers. Clean by air jet if necessary.

Period (note 1)	Running hours (note 1)	Service Plan (*)	Action
Every 6 months	--	--	• Operate the safety valve(s). • Clean the compressor.
Yearly	2500	--	• Test the safety valve(s). • Have electrical components/shutdown switch tested.
	2500	A	• Check tension and condition of the V-belts. • Replace the air inlet filters.
	5000	B	• Remove, dismantle and clean the float valve of the condensate trap (if applicable). • Replace the V-belts.
Every 2 years	5000	B	• Clean fan, fan duct and element cooling fins (see note 2). • Replace the check valve(s). 10 bar and 145 psi compressors: • Replace the element outlet pipe and the plastic insert. See section Outlet pipe replacement. • Have orbiting scroll bearing and pin crank bearings greased (see note 3). • Have tip seals and dust seal replaced (see note 4).

(*) : on SF Multi

Notes:

1. Maintenance must be done according the number of running hours **or** according the running period, whichever comes first.
2. More frequently in a dusty environment.
3. **Important note:** Regreasing of the bearings of the compressor element must be done with **special grease**, a **special grease gun** and according a **specific procedure**.
   In high ambient conditions, the bearings must be greased more frequently: for every 5 °C (9 °F) increase above 30 °C (86 °F), the maintenance interval should be reduced with 30 %.
   Contact your supplier for details.
   Check more frequently if operating in a dusty atmosphere. Check for cleanness and damage. Replace a dirty or damaged filter by a new one.
4. In extremely dry conditions (relative humidity below 15 %), the tip seals and dust seals need to be replaced more frequently.

6.2 Service kits

Service kits

For overhauling and for preventive maintenance, a wide range of service kits is available. Service kits comprise all parts required for servicing the component and offer the benefits of genuine parts while keeping the maintenance budget low.

Consult the Spare Parts List for part numbers.

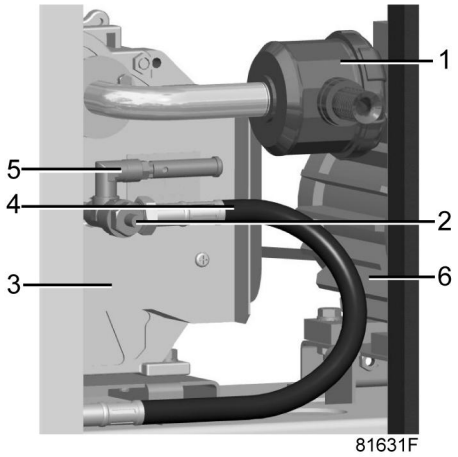
6.3 Disposal of used material

Used filters or any other used material (e.g. desiccant, lubricants, cleaning rags, machine parts, etc.) must be disposed of in an environmentally friendly and safe manner, and in line with the local recommendations and environmental legislation.

Electronic components are subject to the EU Directive 2012/19/EC for Waste Electrical and Electronic Equipment (WEEE). As such, these parts must not be disposed of at a municipal waste collection point. Refer to local regulations for directions on how to dispose of this product in an environmental friendly manner.

7 Adjustments and servicing procedures

7.1 Air filter



Compressor module on SF Multi

Procedure

1. Stop the compressor, close the air outlet valve and switch off the voltage.
2. Remove the filter cover and the filter element. Discard damaged or clogged elements. Clean the cover.
3. Fit the new element and reinstall the filter cover.

7.2 Air cooler

Cleaning

Keep the cooler clean to maintain cooling efficiency. If necessary, remove any dirt with a fibre brush. Never use a wire brush or metal objects.

Next, clean by air jet in reverse direction of normal flow.

If it is necessary to wash the cooler with a cleansing agent, consult Atlas Copco.

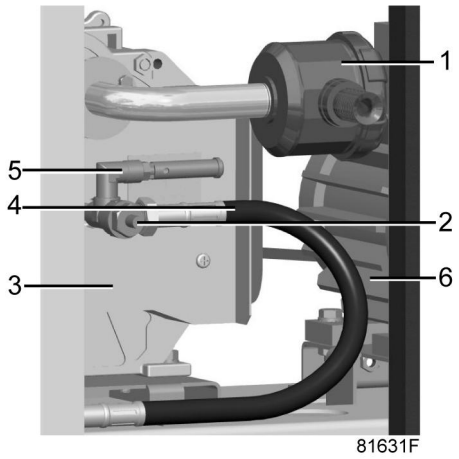
7.3 Drive motor

Instructions

The motor bearings are greased for life and do not require special attention.

Keep the motor free from dust for optimal cooling.

7.4 Safety valve



Compressor module on SF Multi

Operating

Operate the safety valve (5) by unscrewing the knurled cap one or two turns. Re-tighten the cap.

Testing

The valve can be tested on a separate compressed air line.

If the safety valve does not open at the specified pressure, it must be replaced.

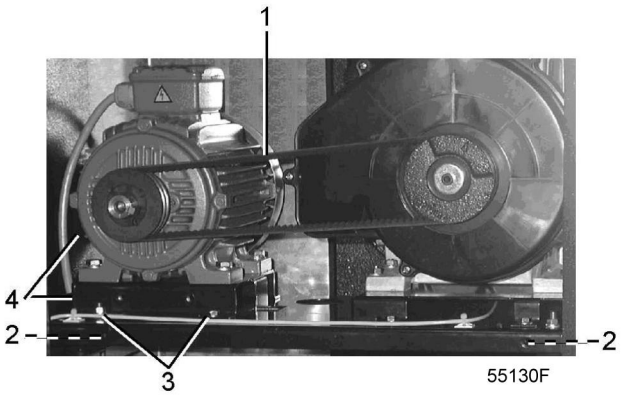
	No adjustments are allowed. Never run the compressor without safety valve.

7.5 Belt set exchange and tensioning

Important

	The belts must be replaced as a set, even if only one of them seems worn. Use Atlas Copco belts only. The number of the belt set is mentioned in the Parts list.

Procedure



1. Loosen motor hold-down bolts (3).
2. Loosen the belt tension by screwing bolts (4) equally and take off the belts (1).
3. Install new belts.
4. Tension the belts by screwing bolts (4) equally.
   The tension is correct if the deflection is between 5 mm and 7 mm when exerting a force of 25 N on the belt midway between the pulleys. Make sure that the pulleys remain aligned.
   The maximum out-of-line is:
   - Maximum parallel out-of-line: 0.5 mm
   - Maximum angular out-of-line: 0.5 degrees
5. Tighten bolts (3).
6. Check the belt tension after the first 500 running hours.

7.6 Temperature shut-down switch

Description

The switch measures the temperature of the compressor element.

On compressors with more than one compressor element, the switch shuts down the overheated compressor module. After cooling down, the switch automatically resets itself.

No adjustment is possible.

⚠	• When the compressor is stopped due to overheating, be aware that the compressor will restart automatically after cooling down. **Therefore, always switch off the power before starting maintenance or repair activities.** • **The switch must always be in physical contact with the compressor element!** Never run the compressor without temperature switch.

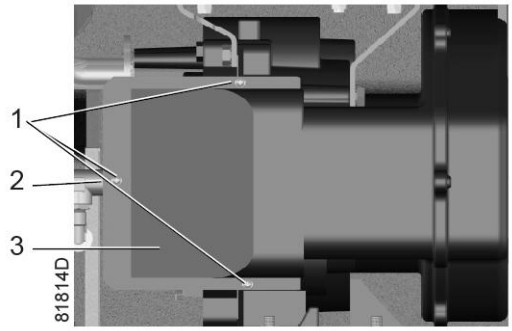
7.7 Cleaning the compressor element

⚠	• Compressor element cooling channels can be hot when the compressor has just been turned off. • Do not clean the cooling channels with organic solvent since this will damage the surface treatment.

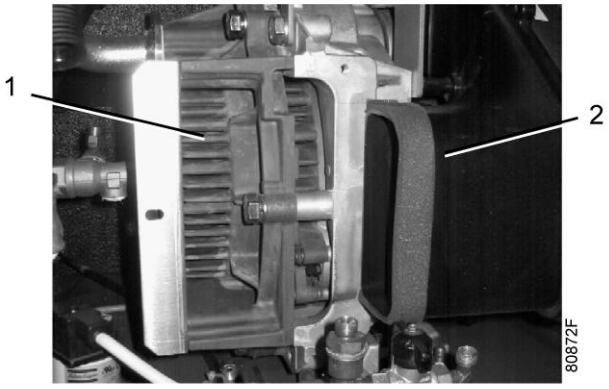
The purpose of cleaning the cooling channels of a scroll element is to prevent the cooling channels to silt up and as such reduce the cooling efficiency. A reduced cooling efficiency can lead towards a premature compressor element failure.

Procedure:

1. Stop the compressor and switch off the power.
2. Close the air outlet valve and depressurise the compressor.
3. Remove the fan duct:
   - Unscrew the 3 bolts (1).
   - Remove clip (2) (if applicable).



   - Remove fan duct (3).
4. Clean cooling channels:
   - Remove dust from the cooling channels (1) by means of air jet (see next figure).
   - Clean the fan duct (2).



5. Reassemble the fan duct:
   - Put the fan duct in place.
   - Fit the 3 bolts and the clip.

The unit is now again ready for use.

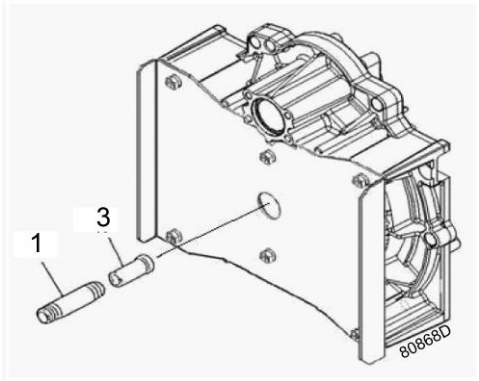
7.8 Replacement of the outlet pipe

Description

Due to the heat of the compressed air, the plastic insert may become brittle after time. It is recommended to replace the outlet pipe together with the insert when that is the case. Both parts are available as a kit (outlet pipe set). Consult the Spare Parts List for part number.

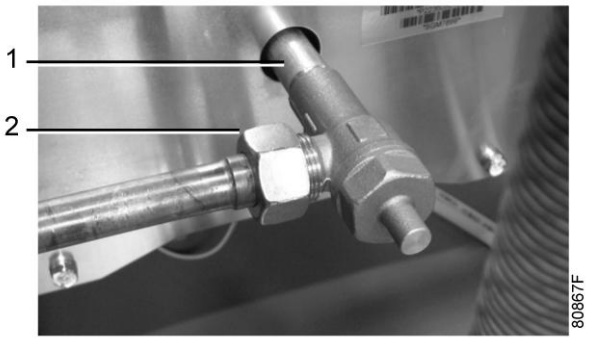
The outlet pipe set contains two parts:

- The plastic insert (3)
- The metal outlet pipe (1)



Procedure

1. Stop the compressor, depressurize and switch off the voltage.
2. Loosen the coupling (2) of the check valve



3. Remove the outlet pipe together with the check valve
4. Fit a new check valve to the new outlet pipe and tighten. Use only PTFE tape.
5. Fit the plastic insert in place as indicated on the drawing and assemble the outlet pipe (1) with a maximum torque of 5 Nm (3.7 lbf.ft) plus maximum one revolution (360 °) to position the check valve.
   Warning: If the outlet pipe is tightened too hard, the insert can break, resulting in overheating of the compressor element.

8 Problem Solving

	**Before carrying out any maintenance or repair, perform following steps:** • Stop the compressor • Switch off the voltage and open the isolating switch • Close the air outlet valve • Open the manual drain valve

Condition	Fault	Remedy
The compressor does not start.	Receiver pressure too high.	Machine will start again when the net pressure drops to the minimum pressure.
	Loose connection.	Check all electrical connections.
Safety valve blows.	Pressure too high	Check settings and correct.
	Safety valve opens too soon.	Replace valve.
Compressor capacity or pressure below normal.	Air consumption exceeds capacity of compressor.	Check equipment connected.
	Choked air filter.	Remove and check filter. Replace if necessary.
	Safety valve leaking.	Replace valve.
	Compressor element out of order.	Consult your supplier.
Compressor module overheating or compressor shutdown on high air temperature.	Insufficient compressor cooling.	Improve ventilation of compressor room. Clean compressor element fins and fan, see Cleaning the compressor element.
	Cooling fan out of order.	Check and correct.

9 Technical data

9.1 Electric cable size

Important

	• The voltage on the compressor terminals must not deviate more than 10 % of the nominal voltage. It is however highly recommended to keep the voltage drop over the supply cables at nominal current below 5 % of the nominal voltage (IEC 60204-1). If cables are grouped together with other power cables, it may be necessary to use cables of a larger size than those calculated for the standard operating conditions. Use the original cable entry. See section Dimension drawings. **To preserve the protection degree of the electric cubicle and to protect its components from dust from the environment, it is mandatory to use a proper cable gland when connecting the supply cable to the compressor.** • Local regulations remain applicable if they are stricter than the values proposed below.

SF Multi

Frequency	Voltage	3-phase	3-phase	SF 11 3-phase	3-phase
IEC					
50 Hz	230 V	6 mm^2	10 mm^2	16 mm^2	25 mm^2
50 Hz	400 V	4 mm^2	6 mm^2	10 mm^2	10 mm^2
60 Hz	380 V	4 mm^2	6 mm^2	10 mm^2	10 mm^2
50 Hz	500 V	2.5 mm^2	4 mm^2	6 mm^2	10 mm^2
UL/cUL					
60 Hz	200 V	AWG 8	AWG 8	AWG 4	AWG 3
60 Hz	230 V	AWG 8	AWG 8	AWG 4	AWG 3
60 Hz	440 V	AWG 10	AWG 10	AWG 8	AWG 6
60 Hz	460 V	AWG 10	AWG 10	AWG 8	AWG 6
60 Hz	575 V	AWG 12	AWG 10	AWG 8	AWG 6

9.2 Settings of overload relays and fuses

Attention

	The indicated fuse value is the maximum value with regard to the short circuit protection of the starter. The cable size used may specify fuses of a lower value.

Overload relays

SF Multi

Frequency	Voltage	See note		SF 11 3-phase	
IEC					
50 Hz	230 V	8 and 14 A	14 A	14 A	14 A
50 Hz	400 V	4.8 and 8 A	8 A	8 A	8 A
60 Hz	380 V	5 and 8.5 A	8.5 A	8.5 A	8.5 A
50 Hz	500 V	3.6 and 6.4 A	6.4 A	6.4 A	6.4 A
UL/cUL					
60 Hz	230 V	9 and 15 A	15 A	15 A	15 A
60 Hz	440 V	4.5 and 7.5 A	7.5 A	7.5 A	7.5 A
60 Hz	460 V	4.5 and 7.5 A	7.5 A	7.5 A	7.5 A
60 Hz	575 V	3.5 and 5.5 A	5.5 A	5.5 A	5.5 A

Note: The first value is for the 2 kW module and the second value is for the 4 kW module.

Main fuses

SF Multi

Frequency	Voltage			SF 11 3-phase	
IEC					
50 Hz	230 V	32 A	50 A	63 A	80 A
50 Hz	400 V	25 A	32 A	50 A	50 A
60 Hz	380 V	25 A	32 A	50 A	50 A
50 Hz	500 V	20 A	25 A	32 A	50 A
ULcUL					
60 Hz	230 V	45 A	60 A	80 A	110 A
60 Hz	440 V	25 A	30 A	45 A	60 A
60 Hz	460 V	25 A	30 A	45 A	60 A
60 Hz	575 V	20 A	25 A	35 A	45 A

9.3 Reference conditions and limitations

Reference conditions

Air inlet pressure (absolute)	bar	1
Air inlet temperature	ºC	20
Relative humidity	%	0
Working pressure		See section Compressor data

Limits

Maximum working pressure		See section Compressor data
Maximum inlet temperature	ºC	40
Minimum ambient temperature	ºC	0

9.4 Compressor data

	All data specified below apply under reference conditions, see section Reference conditions and limitations.

SF 6 up to SF 15 Multi - 8 bar 50 Hz

Compressor type		**SF 6**	**SF 8**	**SF 11**	**SF 15**
		8 bar	**8 bar**	**8 bar**	**8 bar**
Maximum working pressure (without dryer)	bar(e)	8	8	8	8
Maximum working pressure (with integrated dryer)	bar(e)	7.75	7.75	7.75	7.75
Nominal working pressure	bar(e)	7	7	7	7
Air temperature at outlet valve approximate (without dryer)	°C	26	28	30	32
Air temperature at outlet valve approximate (with integrated dryer)	°C	23	25	25	25
Motor shaft speed	r/min	2885	2885	2885	2885
Shaft input	kW	5.6	6.9	10.4	13.8
Sound pressure level (compressors without dryer)	dB(A)	61	62	60	63
For SF Full Feature also:					
Refrigerant type		R134a	R134a	R134a	R134a
Pressure dew point, approximate	°C	3	3	3	3

SF 6 up to SF 15 Multi - 10 bar 50 Hz

Compressor type		**SF 6**	**SF 8**	**SF 11**	**SF 15**
		10 bar	**10 bar**	**10 bar**	**10 bar**
Maximum working pressure (without dryer)	bar(e)	10	10	10	10
Maximum working pressure (with integrated dryer)	bar(e)	9.75	9.75	9.75	9.75
Nominal working pressure	bar(e)	10	10	10	10
Air temperature at outlet valve approximate (without dryer)	°C	26	28	30	32

Compressor type		SF 6	SF 8	SF 11	SF 15
		10 bar	**10 bar**	**10 bar**	**10 bar**
Air temperature at outlet valve approximate (with integrated dryer)	°C	23	25	25	25
Motor shaft speed	r/min	2885	2885	2885	2885
Shaft input	kW	5.9	7.5	11.3	15.0
Sound pressure level (compressors without dryer)	dB(A)	61	62	60	63
For SF Full Feature also:					
Refrigerant type		R134a	R134a	R134a	R134a
Pressure dew point, approximate	°C	3	3	3	3

SF 6 up to SF 15 Multi - 116 psi 60 Hz

Compressor type		SF 6	SF 8	SF 11	SF 15
		116 psi	**116 psi**	**116 psi**	**116 psi**
Maximum working pressure (without dryer)	bar(e)	8	8	8	8
Maximum working pressure (with integrated dryer)	bar(e)	7.75	7.75	7.75	7.75
Nominal working pressure	bar(e)	7	7	7	7
Air temperature at outlet valve approximate (without dryer)	°C	26	28	29	30
Air temperature at outlet valve approximate (with integrated dryer)	°C	23	25	25	25
Motor shaft speed	r/min	3505	3505	3505	3505
Shaft input	kW	5.8	7.2	10.8	14.4
Sound pressure level (compressors without dryer)	dB(A)	61	62	60	63
For SF Full Feature also:					
Refrigerant type		R134a	R134a	R134a	R134a
Pressure dew point, approximate	°C	3	3	3	3

SF 6 up to SF 15 Multi - 145 psi 60 Hz

Compressor type		SF 6	SF 8	SF 11	SF 15
		145 psi	**145 psi**	**145 psi**	**145 psi**
Maximum working pressure (without dryer)	bar(e)	10	10	10	10
Maximum working pressure (with integrated dryer)	bar(e)	9.75	9.75	9.75	9.75
Nominal working pressure	bar(e)	10	10	10	10
Nominal working pressure	psi(g)	145	145	145	145
Air temperature at outlet valve approximate (without dryer)	°C	26	28	30	32

Compressor type		**SF 6**	**SF 8**	**SF 11**	**SF 15**
		145 psi	**145 psi**	**145 psi**	**145 psi**
Air temperature at outlet valve approximate (with integrated dryer)	°C	23	25	25	25
Motor shaft speed	r/min	3495	3495	3495	3495
Shaft input	kW	5.9	7.5	11.3	15.0
Sound pressure level (compressors without dryer)	dB(A)	61	62	60	63
For SF Full Feature also:					
Refrigerant type		R134a	R134a	R134a	R134a
Pressure dew point, approximate	°C	3	3	3	3

10 Guidelines for inspection

Guidelines

On the Declaration of Conformity / Declaration by the Manufacturer, the harmonised and/or other standards that have been used for the design are shown and/or referred to.

The Declaration of Conformity / Declaration by the Manufacturer is part of the documentation that is supplied with this compressor.

Local legal requirements and/or use outside the limits and/or conditions as specified by the manufacturer may require other inspection periods as mentioned below.

11 PED (Pressure Equipment Directive)

Components subject to 97/23/EC Pressure Equipment Directive

Components subject to 97/23/EC Pressure Equipment Directive greater than or equal to category II:

Part number	Description	PED class
0830 1007 75	Safety valve	IV
0830 1007 76	Safety valve	IV
0830 1007 68	Safety valve	IV

Overall rating

The compressors conform to PED category I or smaller.

12 Declaration of conformity

Insert logo here

EU DECLARATION OF CONFORMITY

We, (1) declare under our sole responsibility, that the product
Machine name :
Machine type :
Serial number :

Which falls under the provisions of article 12.2 of the EC Directive 2006/42/EC on the approximation of the laws of the Member States relating to machinery, is in conformity with the relevant Essential Health and Safety Requirements of this directive.

The machinery complies also with the requirements of the following directives and their amendments as indicated.

	Directive on the approximation of laws of the Member States relating to		Harmonized and/or Technical Standards used		Att' mnt
a.	(2)		(3)		
b.					X
c.					
d.					X
e.					
f.					
g.					X

The harmonized and the technical standards used are identified in the attachments hereafter

<1> is authorized to compile the technical file.

	Conformity of the specification to the directives	Conformity of the product to the specification and by implication to the directives
Issued by	Engineering	Manufacturing

Name
Signature
Date
Place

84560D

Typical example of a Declaration of Conformity document

(1): Contact address:

Atlas Copco Airpower n.v.

P.O. Box 100

B-2610 Wilrijk (Antwerp)

Belgium

(2): Applicable directives

(3): Standards used

On the Declaration of Conformity / Declaration by the Manufacturer, the harmonized and/or other standards that have been used for the design are shown and/or referred to.

The Declaration of Conformity / Declaration by the Manufacturer is part of the documentation that is supplied with this device.

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