

Installation of an FP circuit breaker in a PGB or PGC

- All locking-out operations must be performed according to the "General Safety Instructions booklet for Electrical Applications" and the particular rules for the network concerned.
- Respect the locking-out procedures (wearing of working gloves, etc.) when working on energized equipment.
- The operations described below are to be carried out on de-energized equipment.

Symbols & conventions



Code for a product recommended and marketed by Schneider Electric



Torque value Example : **16 daN.m**



CAUTION! Remain vigilant!
Precautions to be taken in order to avoid any accident or injury



INFORMATION - ADVICE
Your attention is drawn to a specific point or operation

Packaging and handling of the PGB or PGC Functional Unit

Refer to the instructions in Chapter 2 of the User Manual AMTNoT090-02.

Packaging and handling of the FP circuit breaker

In the special case of air transport , the circuit breaker is shipped separately from the Functional Unit.

The SF₆ gas pressure of the FP is lowered to 0.5 relative bar. A gas filling and pressure adjustment kit is delivered with the device.



For all shipments by air, reset the SF₆ circuit breaker to its rated pressure before the first mechanical operating test.



The circuit breaker must remain on its base plate, in its original factory packaging, during any eventual storage and this until it is installed.

Installation of the Functional Unit

Unpack then install the Functional Unit (refer to the indications in the User Manual AMTNoT090-02).

General instructions for pressure adjustment of FP circuit breaker

Reminder:

Pressure adjustment is only necessary in the case of a circuit breaker supplied under reduced pressure (air transport for example).

Tools required:

- 1 open-ended spanner size 30
- 1 SF₆ gas pressure filling and adjustment kit

Duration: 1.00 h. per circuit breaker



WARNING: Our devices are produced and controlled with the greatest of rigour. Nevertheless, despite all our precautions handling incidents (shocks), and those for transport or storage are always possible.

This is why we recommend laying protective netting over the circuit breaker during pressure adjustment operations in order to prevent any possible risk of pole failure.



The switchgear should have the same temperature as the equipment room in order to carry out a corrective measure. Otherwise, it is advisable to wait for 24 hours.



The rated pressure is specified on the circuit breaker plate.

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Pressure adjustment procedure



The gas bottle must always be in the vertical position.

- Remove the protection plug for the pole filling valve.
- Slightly open the tap of the gas bottle in order to remove the air from the hose.
- Connect up the hose to the valve on the pole.



- Cover the circuit breaker with protective netting.
- Tie down the protective netting using bungee cords or linkages (not supplied).



- Open the bottle of SF₆ gas. The pole is filled with gas.



The rated pressure is indicated at an ambient temperature of +20°C.

It will be necessary to correct the filling pressure whilst taking into account the ambient temperature at the time of the operation (refer to the Pressure – Temperature diagram § 8).

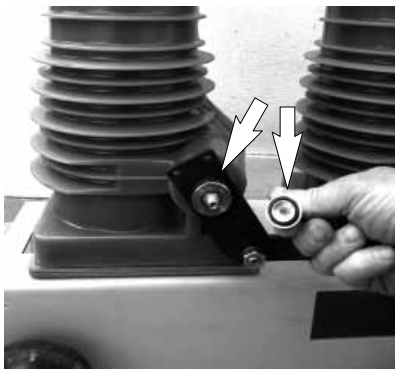
- Adjust the pressure by the lower screw.



Do not exceed the recommended pressure.



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- Close the bottle again as soon as the dial of the pressure reducing valve indicates the desired pressure adjustment.
- Control the pressure with the pressure gauge.
- Remove the protective netting.
- Before refitting the protective plug, check the cleanliness of the seal under the plug and the contact surface of the seal on the circuit breaker.

- Screw on and firmly tighten the pole valve plug by hand.



Repeat these operations for the other poles on the circuit breaker.

Reminder of the SF6 gas volumes and pressures depending on the circuit breakers

Circuit breaker	Relative pressure (bar)	Volume released (litres)	Volume enclosure (litres)	SF ₆ Weight (g)
FP 61/ 62 (per pole)	3.5 (-0, +0.2)	19.5	4.5	120
FP 71 (per pole)	3.5 (-0, +0.2)	24.5	5.5	150
FP 63 (per pole)	5.5 (-0, +0.2)	40	7	240
FP 73 (per pole)	3.5 (-0, +0.2)	58.5	13	360
FP 731 (per pole)	5.5 (-0, +0.2)	90	13.5	550
FP 741 (per pole)	5.5 (-0, +0.2)	90	13.5	550

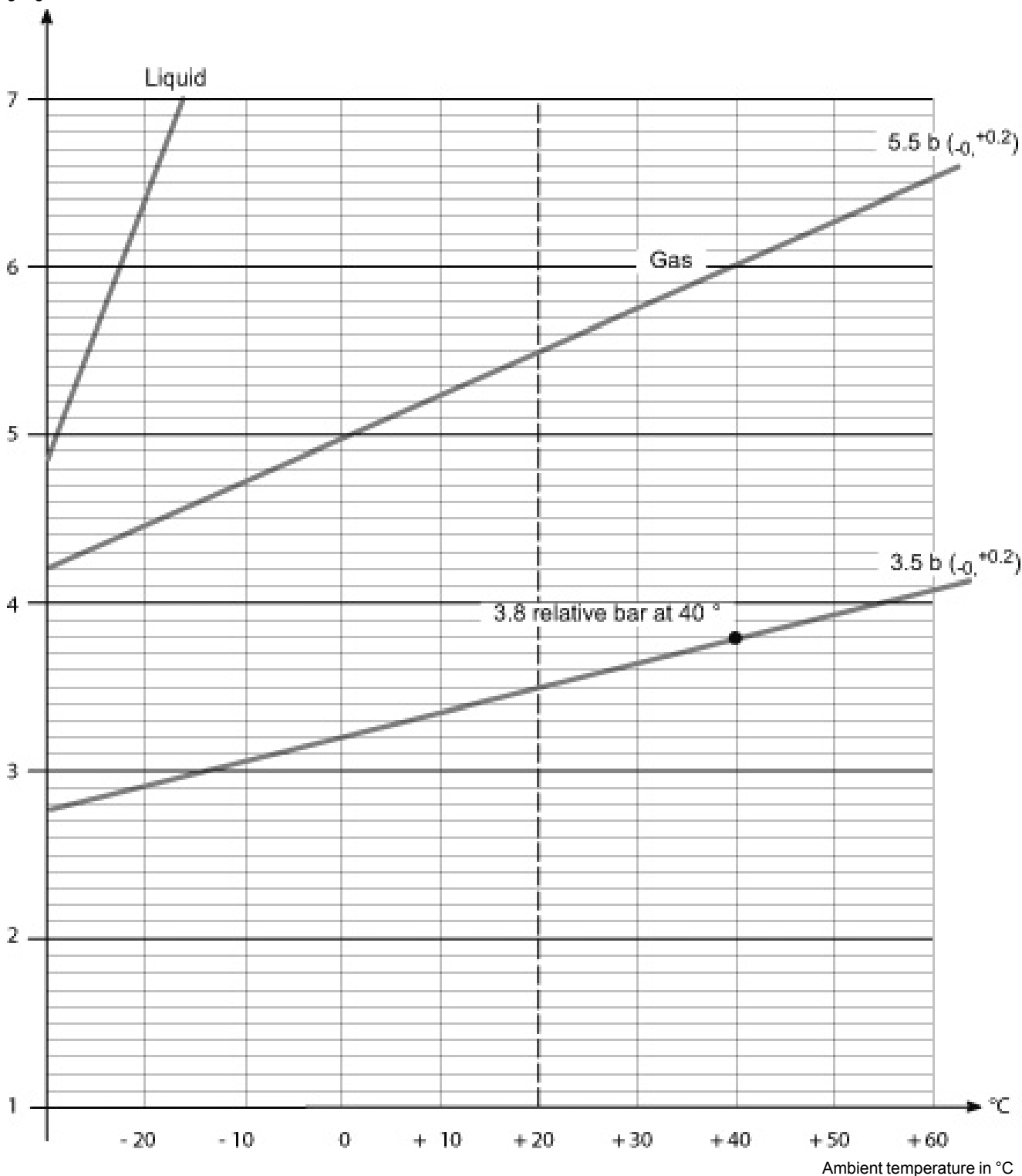
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Pressure – Temperature Diagram

Diagram of filling pressures as a function of the ambient temperature

Relative pressure of the pressure gauge in relative bar

Nominal filling pressure in relative bar at 20° C



Example: for a nominal filling pressure of 3.5 bar, if the ambient temperature is +40°C, the adjustment pressure of the circuit breaker on the pressure gauge will be 3.8 relative bar.

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Installation and connection of the FP circuit breaker



- Dismantle the front crossbeam of the Functional Unit (4 H M6x16 bolts).



- Unclip the 3 upper deflectors, unscrew the H M12 nut (18 mm spanner) and remove the 2 washers.



- Dismantle the 3 deflectors from the lower current terminals on the FP circuit breaker.

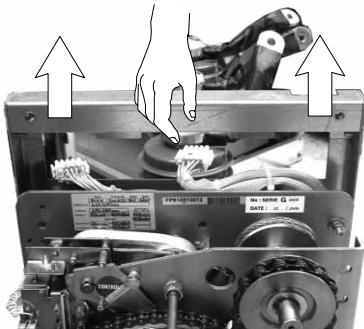


- Approach and begin to enter the circuit breaker into the Functional Unit.

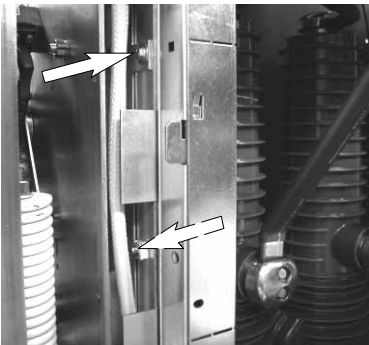


Take care to lower the upper braids of the connection.

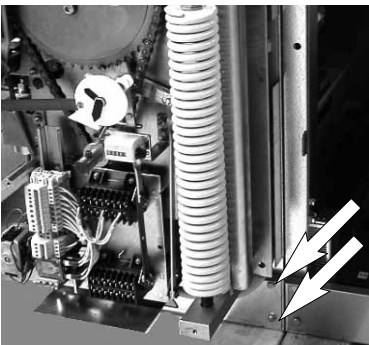
Installation of an FP circuit breaker in a PGB or PGC (contd.)



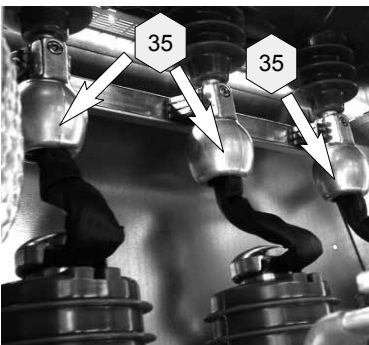
- Lift and maintain the mask.
- Push the circuit breaker until you are able to lower the mask which must then latch against the Functional Unit.
- Push the circuit breaker right home to the end stop.



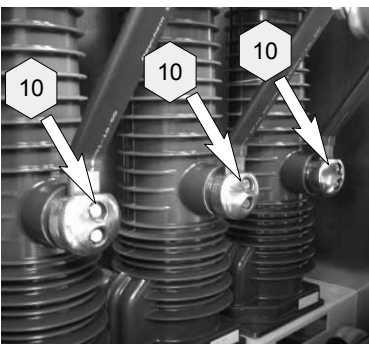
- By the front, fix the circuit breaker by the 2 lateral upper screws (H M6x16).
- From the inside of the Functional Unit, also fix the circuit breaker by 2 H M8x20 screws.



- Re-assemble the front crossbeam (4 H M6x16 screws).

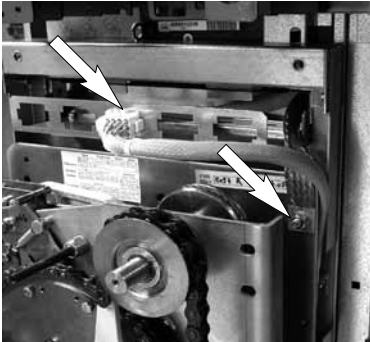


- Position the upper connection braid on to each phase.
- Fit the washer and nut, then tighten to torque.
- Remount the deflector.

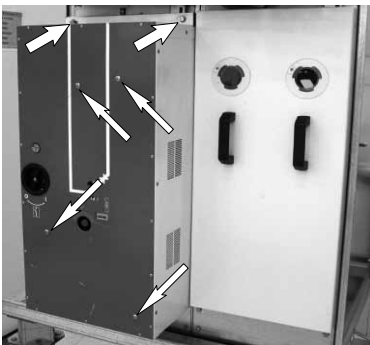


- Position the deflector and the threaded fasteners on to each connecting bar for the lower current terminals.
- Tighten to torque.

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- Connect the earthing braid.
- Connect the low voltage current terminal.



- Replace the FP circuit breaker's cover :
 - 2 H M8x20 bolts (13 mm spanner) on the upper part,
 - 4 screws (flat-headed screwdriver) on the front face of the cover.

Mechanical and electrical tests

When the fitting is completed, proceed with several mechanical and electrical operating tests.

Additional information to the User Manual AMTNoT90-02

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