8 Maintenance procedure

Warning

① Maintenance of the air dryer should only be carried out by someone with sufficient knowledge and experience of air dryers and related equipment.

② Before carrying out maintenance, the important warnings in this manual must be thoroughly read and understood.

Danger

① When replacing or cleaning parts of the air dryer, be sure to remove the compressed air pressure inside the air dryer to “0”. Never remove the case assembly when the air dryer is operated or air pressure remains inside. It is extremely dangerous if compressed air pressure remains inside the air dryer, as parts may come flying off at speed when loosened, or other unexpected accidents.

② This product has parts that become hot during operation and a power supply with high voltage applied. There is a risk of burns due to heat or electrification by high voltage. Even when operation is shut down after switching off the air dryer’s illuminated light, there are also charging lines. When working on the charged sections, be sure to switch off the earth leakage breaker installed before starting work.

③ As some parts of the air dryer will remain hot, there is a risk of burns due to residual heat after the power is switched off. So do not carry out replacement work until the temperature of these parts has fallen to 122°F (50°C□) or less. Wait for about 10 to 15 minutes as a guide.

④ When carrying out maintenance work on the auto drain strainer and auto drain, there is a risk of touching the drain fluid during work. Please follow the safety procedure for operators specified by customer.（Example: carry out work wearing safety glasses, apron and gloves to prevent discharged fluid from touching the human body.）

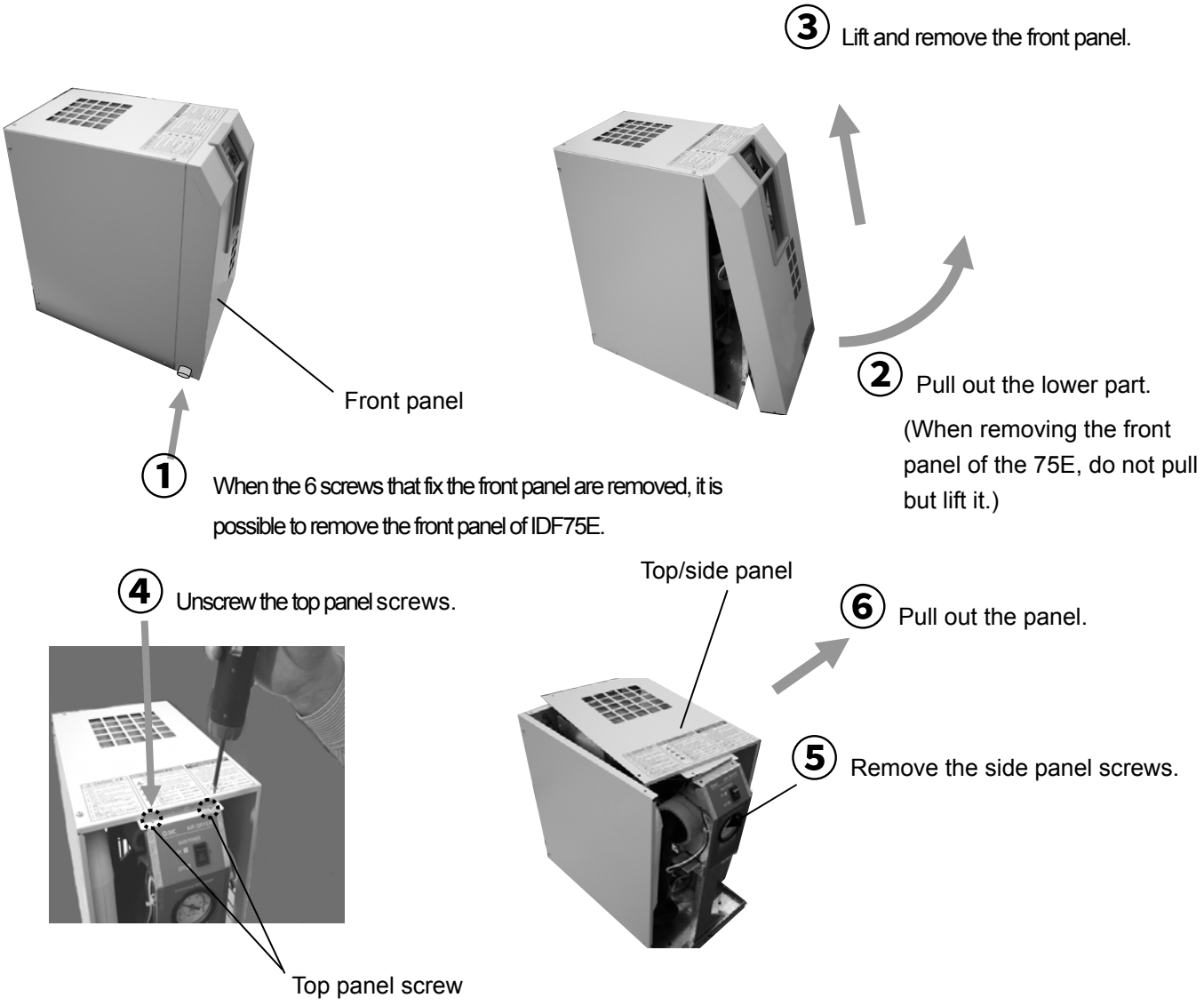
⑤ Use neutral detergent solution to clean parts such as the auto drain strainer and auto drain. Never use solvent such as thinner.

⑥ When removing the outer casing panel or case assembly of the auto drain, wear gloves to prevent injuries.

8.1 How to remove and mount the panel

Follow the steps as shown in figures ①～⑥ to remove the front panel and side panel. Reverse the steps to mount them.

An example using an IDFB3E type is given below. The outer casing panel of all models can be removed and mounted by following similar steps.



Example of IDFB3E is shown.

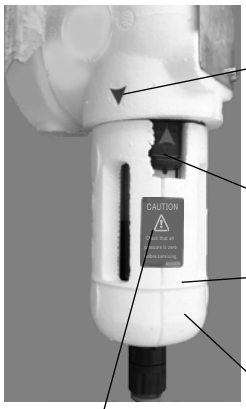
8.2 How to clean and replace the auto drain/strainer.

When carrying out maintenance work on the auto drain and auto drain strainer, please follow the steps below.

① Turn off the illuminated ON/OFF switch.
② Disconnect the earth leakage breaker at the power supply or unplug the power plug from the socket.
③ Fully close the IN/OUT valves. Only open the bypass when compressed air is required during work.
④ Remove the outer casing panel only at the section required for work referring to “How to remove and mount the panel” in 8.1.

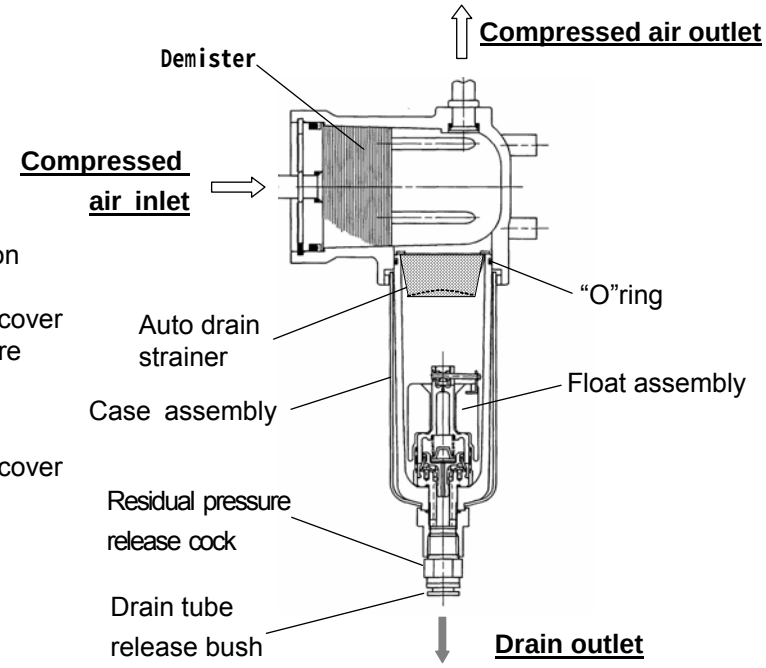
8.2.1 IDFB3E to IDFB11E

Appearance of drain separator

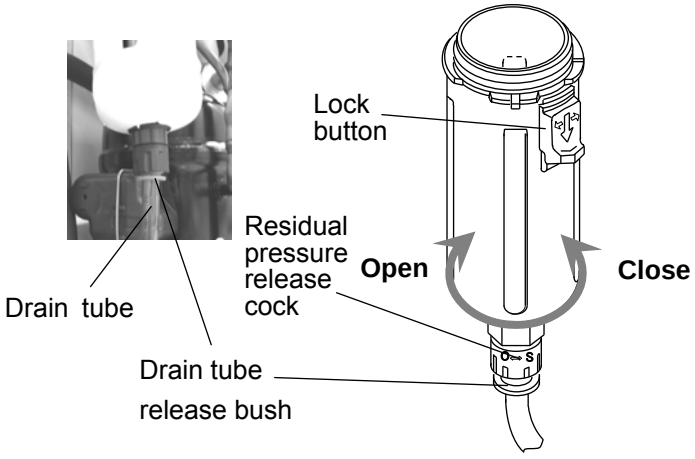


Check that air pressure is at zero before removing it.

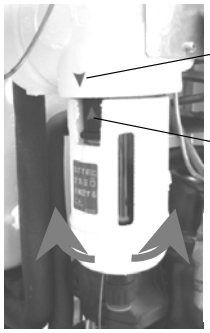
Internal construction of drain separator



① Remove the drain tube.
Pull out the tube while pushing up the drain tube release bush with finger.
② Open the residual pressure release cock at the drain tube connection port to release air left in the equipment.
③ Have a container ready to catch drain water pushed out by air pressure left inside the equipment.
④ Check that no more drain is received into the container and dispose of the drain fluid collected in the container.



⑤ Hold the case assembly lightly and pull down the lock button with thumb. Then, turn the case assembly to the left (or right) to 45 ° to align the marks.

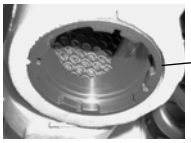


⑥ Release your thumb from the lock button and slowly pull down the case assembly (vertically) to remove it.

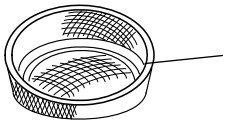
⑦ Remove the auto drain strainer and clean it. Take care not to cut your hand with the sharp edges of the strainer.

⑧ Pour solution of neutral detergent into the case assembly and shake it well to clean.

⑨ Check the case O-ring for damage such as scratches, twisting or foreign particles attached to it. Then, apply grease thinly and fit it in the groove in the case assembly.



⑩ Fit the auto drain strainer to the case assembly and fit it into the drain separator body. Turn it untill the lock button clicks.



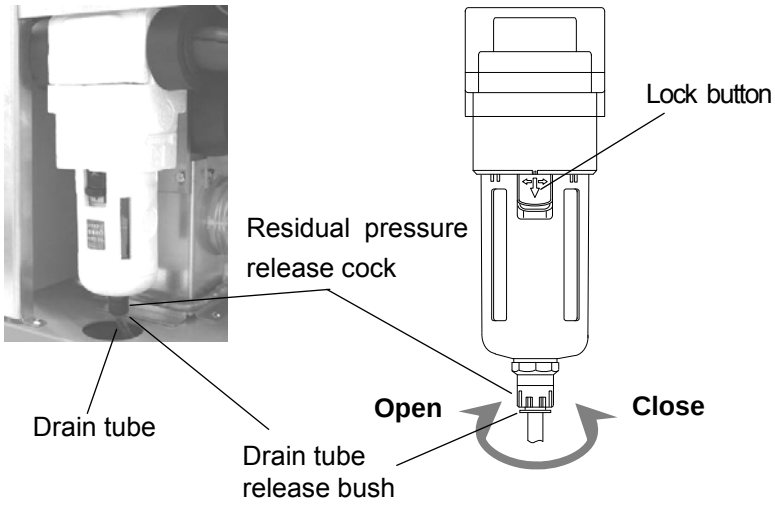
⑪ Try to turn the case assembly lightly and check that it does not turn. If it turns, start with fitting the case assembly to the body again.

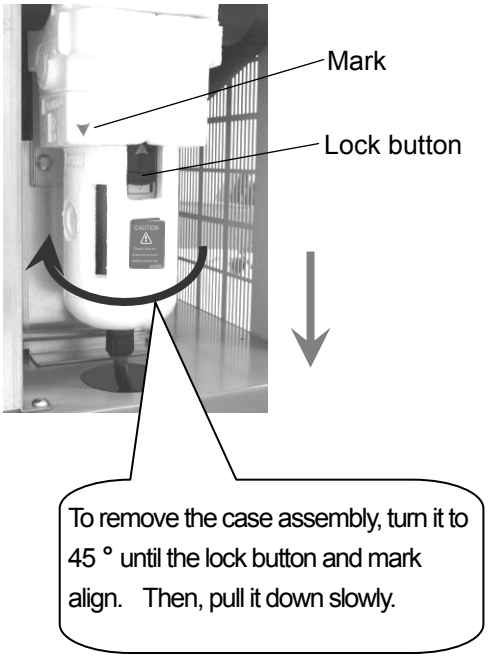
⑫ Close the residual pressure release cock and mount the drain tube and front panel as they were.

⑬ When reapplying compressed air to the air dryer, first open the valve on the inlet side slowly. Check for compressed air leak and if everything is all right, open the valve on the outlet side.

⑭ If the auto drain strainer or case assembly is damaged or very dirty, replace it with a new one.

8.2.2 IDFB15E





① Open the residual pressure release cock at the drain tube connection port to release air and drain fluid left in the equipment. (Leave the drain tube connected and hold it with hand so that it does not get twisted.)

② Remove the tube while pushing the release bush.

③ Hold the case assembly lightly and pull down the lock button with thumb. Then, turn the case assembly to the left (or right) to 45 ° to align the marks, Release your thumb from the lock button and slowly pull down the case assembly (vertically) to remove it.

④ Remove the auto drain strainer and clean it. Take care not to cut your hand with the sharp edges of the strainer.

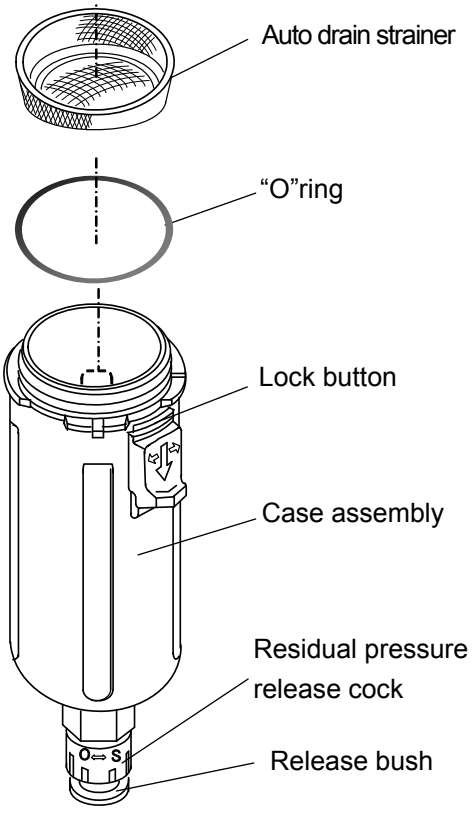
⑤ Pour solution of neutral detergent into the case assembly and shake it well to clean.

⑥ Check the case O-ring for damage such as scratches, twisting or foreign particles attached to it. Then, apply grease thinly and fit it in the groove in the case assembly.

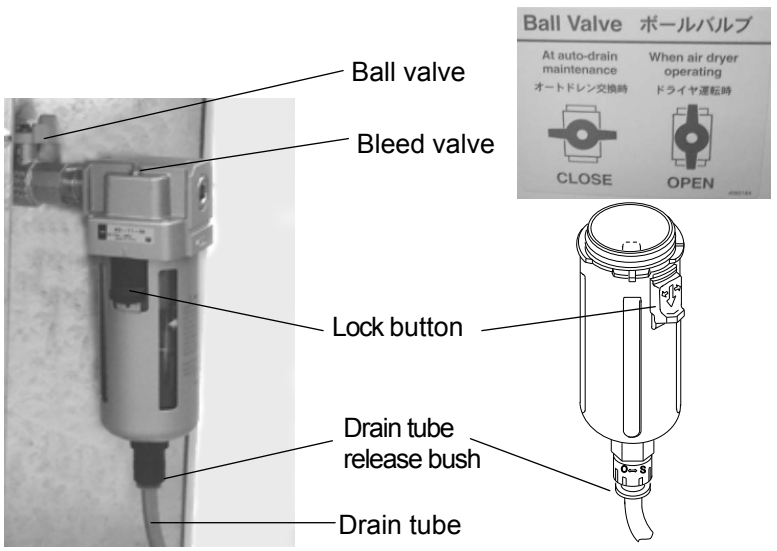
⑦ Fit the auto drain strainer to the case assembly and fit it into the drain separator body. Turn it untill the lock button clicks. Try to turn the case assembly lightly and check that it does not turn. If it turns, start with fitting the case assembly to the body again.

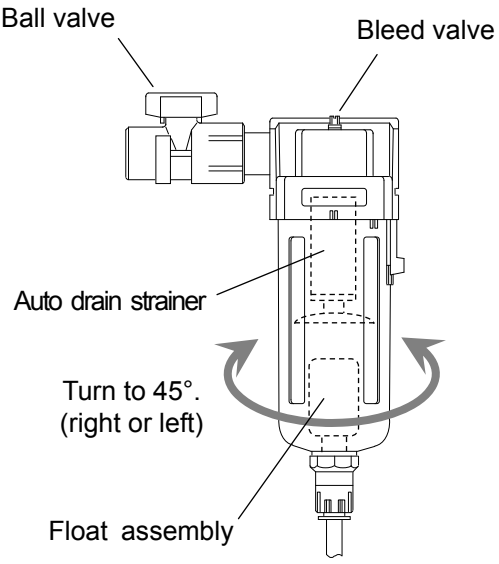
⑧ Close the residual pressure release cock and mount the drain tube and front panel as they were.

⑨ If the auto drain strainer or case assembly is damaged or very dirty, replace it with a new one.

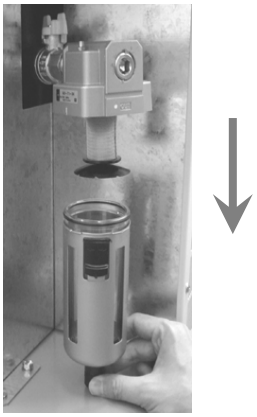


8.2.3 IDFB22E/IDFB37E/IDFB55E/IDFB75E

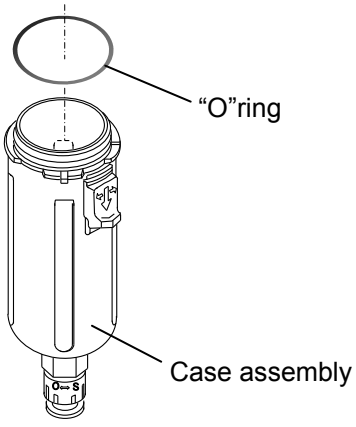




① Close the ball valve.
② Open the bleed valve by turning it anticlockwise to release air left in the equipment.
③ Remove the drain tube from the case assembly.
④ Hold the case assembly lightly and pull down the lock button with thumb. Then, turn the case assembly to the left (or right) to 45 ° to align the marks,
Release your thumb from the lock button and slowly pull down the case assembly (vertically) to remove it.
⑤ Pour solution of neutral detergent into the case assembly and shake it well to clean.
⑥ Check the case O-ring for damage such as scratches, twisting or foreign particles attached to it. Then, apply grease thinly and fit it in the groove in the case assembly.
⑦ Fit the case assembly to the auto drain body. Turn it untill the lock button clicks.
⑧ Try to turn the case assembly lightly and check that it does not turn. If it turns, start with fitting the case assembly to the body again.
⑨ Close the bleed valve by turning it clockwise and fit the drain tube as it was.
⑩ Open the ball valve.
⑪ If the case assembly is damaged or very dirty, replace it with a new one.



Pull down the case assembly slowly.

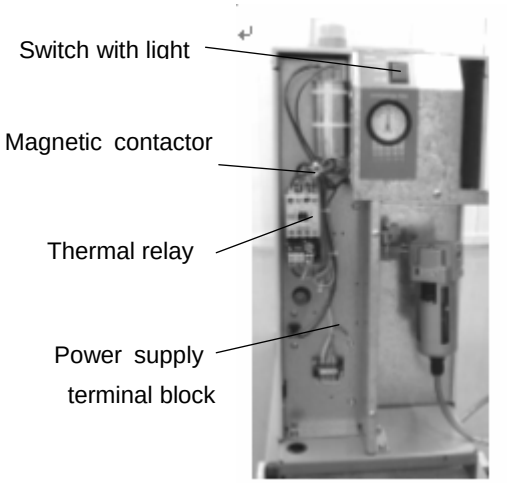


8.3 How to reset the thermal relay and high pressure switch (IDFB55E/IDFB75E)

When the light of the switch goes out and the refrigerated compressor stops during operation of the air dryers IDFB55E/IDFB75E, the thermal relay or high pressure switch are activated to protect the refrigerated compressor.

In order to prevent damage to the dryer due to the repeated starting and stopping, the thermal relay and high pressure switch can be reset manually.
Eliminate the factor that caused the thermal relay or high pressure switch to operate and press the reset button of the thermal relay or high pressure switch by hand to restart the air dryer operation.

Refer to [7.2 Troubleshooting] of chapter 7 to eliminate the factor that caused the thermal relay or high pressure switch to operate.



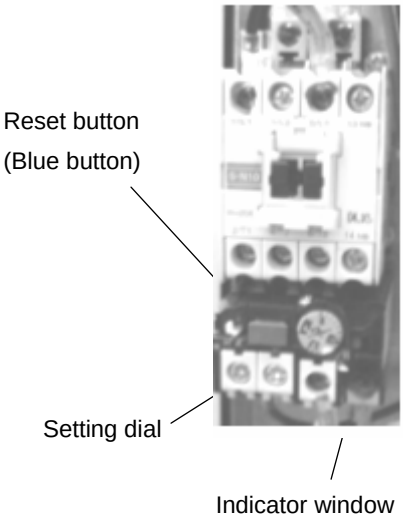
Example construction of IDFB55E

8.3.1 How to reset the thermal relay

① Turn off the switch with light on the body.
Then, turn off the earth leakage breaker.
② Remove the front panel. The thermal relay shown in the example. on the right is mounted on the power supply terminal block.
③ Confirm that the green part is not visible in the indicator window of the thermal relay.

(If you can see the green part, the thermal relay has not operated. Since other causes can be assumed, see [7.Troubleshooting] to investigate the cause.)

④ Press the reset button and confirm that the green part is visible in the indicator window.
⑤ Mount the front panel.
⑥ Turn on the switch with light after turning on the earth leakage breaker. Then the operation will restart.



Magnetic contactor

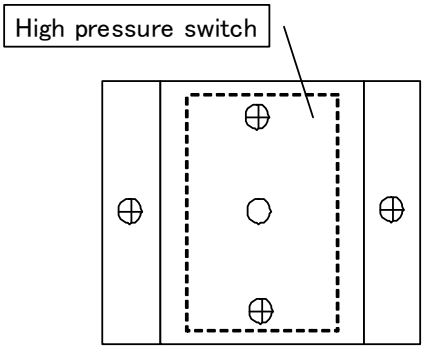
8.3.2 Setting value of the thermal relay

The table below shows the thermal relay setting value when the air dryer is shipped from the factory.
When the magnetic contactor is replaced, set the current
to the value shown in the table below.

Air dryer model number	Power supply	Setting current
IDFB55E-46(N)	Single phase 230V	8A
IDFB75E-46(N)		16A

8.3.3 How to reset the high pressure switch

Turn off the switch with light on the body.
Then, turn off the earth breaker.



① Remove the front panel. The high pressure switch is mounted on the upper right of the power supply terminal block.
② Press the red reset button.

If there is no reaction even if the reset button is pressed ("click" sound is not heard), the high pressure switch has not operated. Since other causes can be assumed, see [7. Troubleshooting] to investigate the cause.

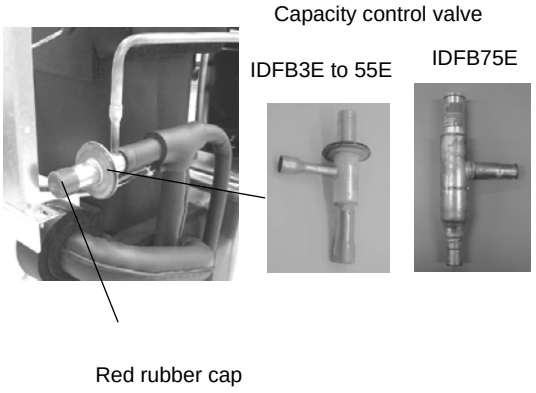
③ Mount the front panel.
④ When the switch with light is turned on after turning on the earth leakage breaker, the operation will restart.

8.3.4 Setting value of the high pressure switch

The table below shows the high pressure switch setting value when the air dryer is shipped from the factory.
Since the setting value is fixed, it is not necessary to adjust after replacement, but please confirm that it is reset.

Air dryer model number	Operating (OFF) pressure	Reset pressure
IDFB55E-46(N)	413±14.5psig (2.85±0.1MPa)	Approx.342psig or less (Approx. 2.36MPa or less)
IDFB75E-46(N)		

8.4 How to adjust capacity control valve



Important

The capacity control valve is set in the factory. Please do not adjust more than necessary.
If the indication on the evaporating thermometer is outside the range 32 to 45°F (0 to 7**℃**) when the air dryer is operated without flow of compressed air, adjust the evaporation capacity control valve.

Important

If the indication on the evaporating thermometer is around -13 to -40°F (–25 to -40**℃**) when operation is stopped, there is a leakage of refrigerant. Do not operate the unit; call in a maintenance engineer immediately.

8.4.1 Adjustment procedure

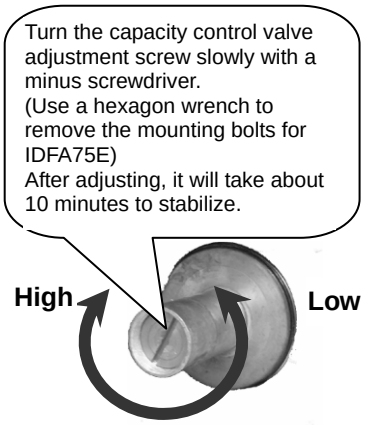
① Operate the air dryer without load for 20 to 30 minutes and check the evaporating thermometer indication.
② If the indication on the evaporating thermometer is outside the range 32 to 45°F (0 to 7**℃**), switch OFF the illuminated switch, stop the air dryer, and remove the panels necessary for work.
③ Remove the red rubber cap from the capacity control valve. (A screw type cap (cover) is mounted to the adjusting screw of the capacity regulating valve.)
④ Switch ON the illuminated switch to restart the air dryer. Wait until the evaporating thermometer indication stabilizes, then slowly turn the capacity control valve adjustment screw.
⑤ Adjustment screw turning direction

- To increase temperature, turn clockwise
- To reduce temperature, turn anticlockwise

※ When sdjusting thr temperature of the IDFA75E, refer to the [+] and [-] symbols printed on the body of the capacity regulating valve.

Example of model IDFB15E

Evaporation thermometer



⑥ After adjusting the screw, it will take about 10 minutes for the evaporating thermometer indication to stabilize. Adjust slowly and gradually, while checking the evaporating thermometer indication.
⑦ After adjusting, replace red rubber cap on capacity control valve, and replace panels that were removed.

8.4.2 If adjustment is impossible

If adjustment is impossible, refer to the diagram on the right and Chapter 7 “Troubleshooting”, and take the necessary action.

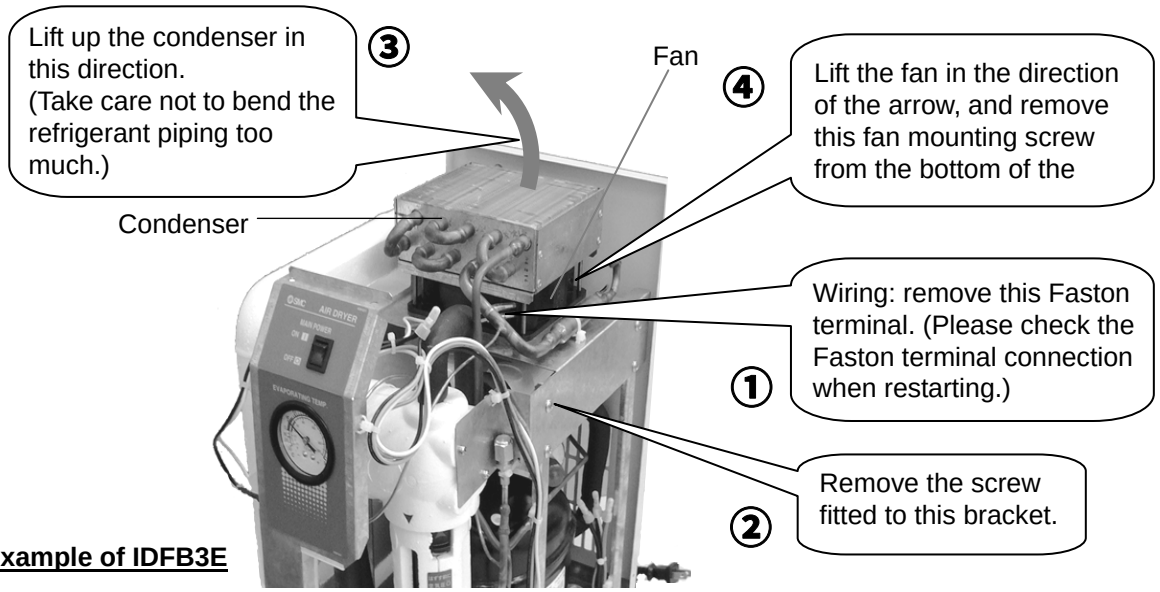
	When air dryer is stopped	When air dryer is operated without load	
Evaporating thermometer indication			
Why adjustment is impossible	Refrigerant leakage. (Stop operation immediately)	Capacity control valve broken. Refrigerant leakage. Refrigerant circuit blocked. Evaporating thermometer broken.	Fan motor broken. Pressure switch broken. Condenser blocked. Capacity control valve broken. Refrigerant compressor broken.

8.5 Replacement of fan motor

8.5.1 For models IDFB3E

① Before starting work, close the air dryer compressed air inlet valve and remove the power cord from the plug.

② Remove the front/side panel and replace the fan motor by the procedure shown below.

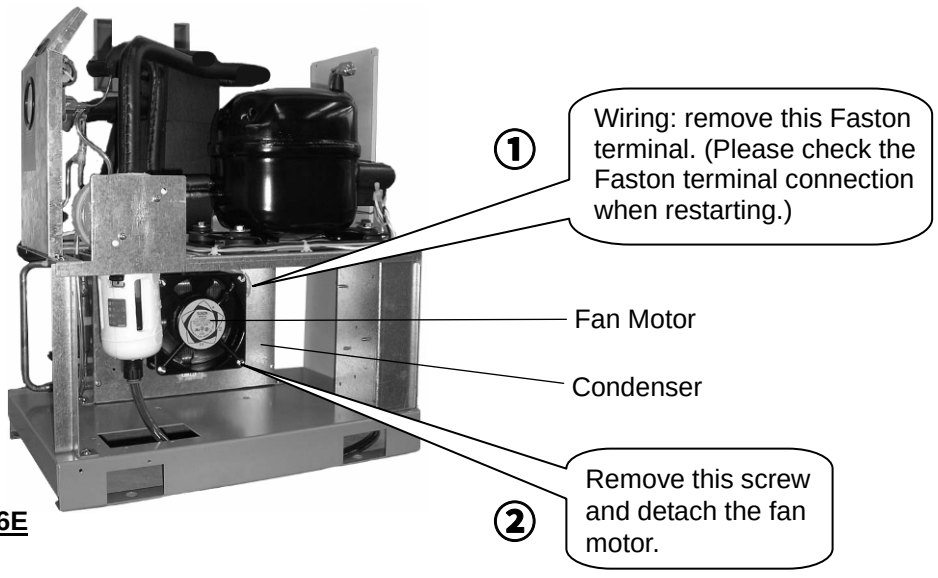


Example of IDFB3E

8.5.2 For models IDFB4E/6E/8E/11E

① Before starting work, close the air dryer compressed air inlet valve and switch off the power leakage breaker, or remove the power cord from the plug.

② Remove the front/side panel and replace the fan motor by the procedure shown below.



Example of IDFB6E