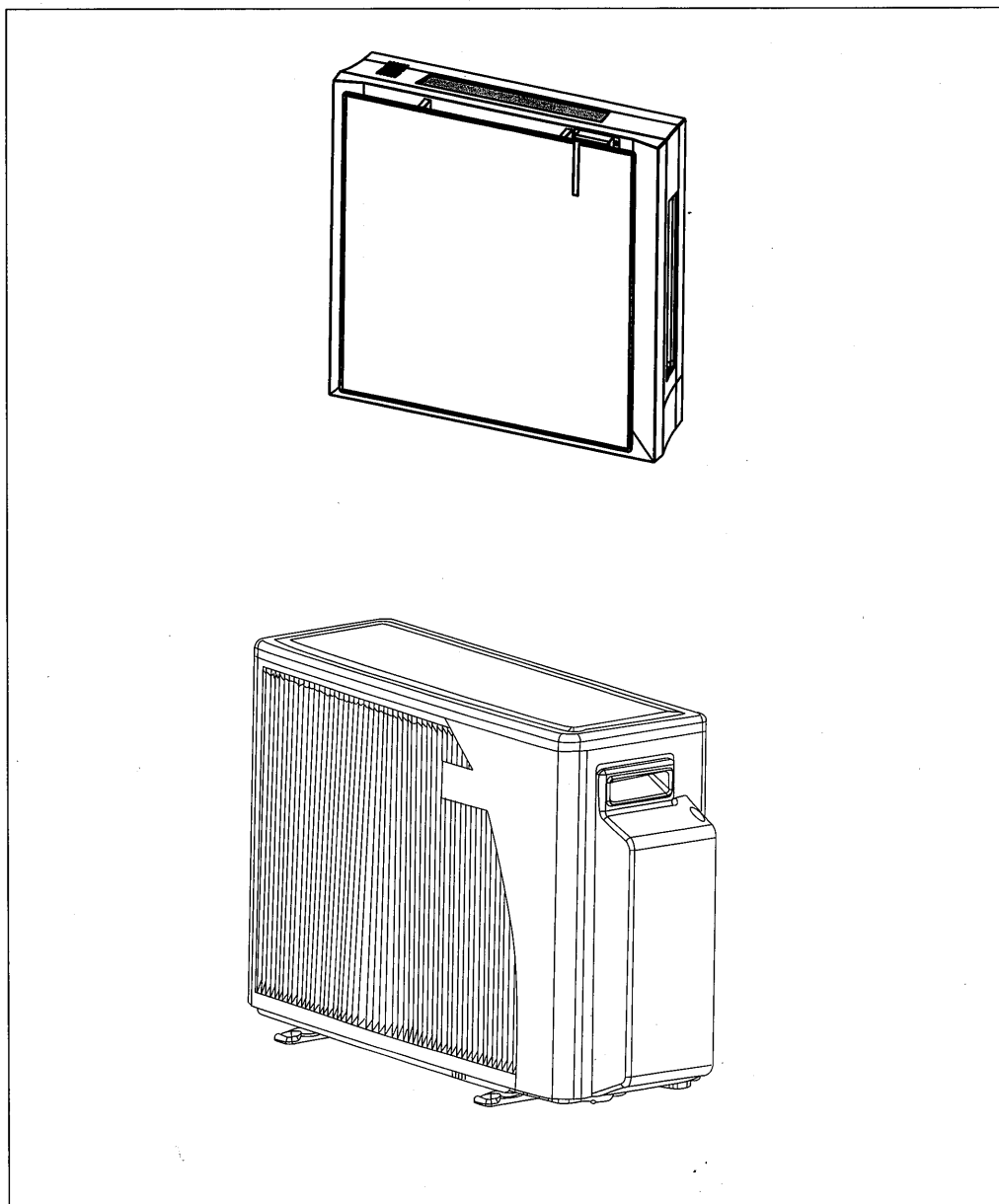


SPLIT WALL MOUNTED AIR CONDITIONER
CLIMATISEUR SPLIT
GETEILTES KLIMAGERÄT
CLIMATIZZATORI SPLIT MONTATI A PARETE
ACONDICIONADOR DE AIRE SPLIT
НАСТЕННАЯ СПЛИТ-СИСТЕМА КАОНДИЦИОНЕРА



INSTALLATION INSTRUCTIONS
CONSIGNES D'INSTALLATION
EINBAU ANWESUNGEN
ISTRUZIONI PER L'INSTALLAZIONE
MANUAL DE INSTALACION
ИНСТРУКЦИИ ПО УСТАНОВКЕ

ENGLISH

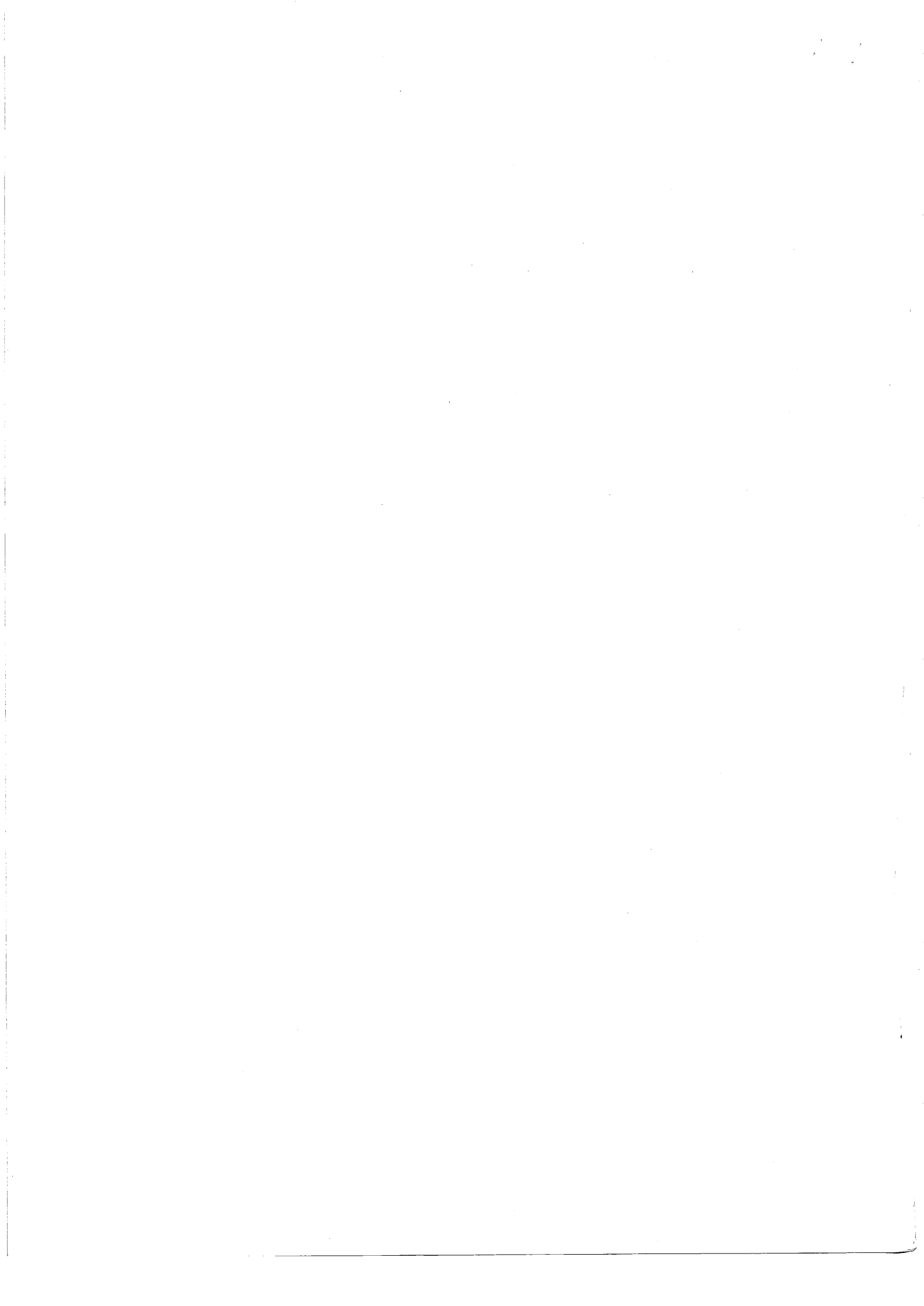
FRANÇAIS

DEUTSCH

ITALIANO

ESPAÑOL

РУССКИЙ



INSTALLATION INSTRUCTIONS

ENGLISH

1. ACCESSORIES SUPPLIED WITH THE AIR CONDITIONER
2. LOCATION OF INDOOR AND OUTDOOR UNITS
3. ELECTRICAL REQUIREMENTS
4. INSTALLATION OF THE INDOOR UNIT
5. CONDENSATE HOSE CONNECTION
6. ELECTRICAL CONNECTIONS BETWEEN INDOOR AND OUTDOOR UNITS
7. REFRIGERANT TUBING
8. INSTALLATION/SERVICE TOOLS (ONLY FOR R410A PRODUCT)
9. EVACUATION OF THE REFRIGERATION TUBES AND THE INDOOR UNIT
10. FINAL TASKS
11. INSTALLATION OF A MULTI SPLIT UNIT UP TO 3.5 Kw (2 indoor units)
12. ELECTRICAL CONNECTIONS BETWEEN OUTDOOR UNIT AND TWO INDOOR UNITS














The appliance shall not be installed in the laundry.

INSTALLATION INSTRUCTIONS

FOR SPLIT WALL MOUNTED AIR CONDITIONER

1

ACCESSORIES SUPPLIED WITH THE AIR CONDITIONER

Shape	Designation	Qty	Used for
	Mounting rail	1	Wall mounting of the indoor unit
	Remote control with batteries	1	Operating the unit
	Screws, washers and dowels	4	Installing the indoor unit
	Screws and dowels	2	Installing the remote control bracket
	Outdoor unit drain hose	1	Outdoor unit water drain
	Mounting pads	4	Padding the outdoor unit support
	Cable ties	4	Securing the wires in the indoor and outdoor unit
	Cable terminals	1	Securing the grounding wire on the indoor and outdoor unit
	Twin wire cable (for heat pump units)	1	Transmitting signals
	Operation and installation instructions	1	Users and installers reference
	Air outlet cover	1	Covering a desired air outlet
	Drain tube	1	Draining the indoor condensed water
	Stoppers	1	Adjusting air outlet opening

2

LOCATION OF INDOOR AND OUTDOOR UNITS

Select the location considering the following:

INDOOR UNIT

1. Choose a location which provides good air circulation. Make sure that nothing prevents air circulation.
2. Do not install the unit near a heat source or where it will be exposed to direct sunlight.
3. The location must allow easy connection for electrical cables and drainage tubing.
4. Installation site should provide an easy passage to outdoors.
5. The unit must be mounted on a solid wall capable of withstanding the generated vibrations.
6. Install the mounting rail as shown.
7. There is an option for user convenience to close one of the air outlets (except for the top one) and allow the installation close to the wall.
8. There is an option for corner installation.

OUTDOOR UNIT

1. The location must enable easy servicing and provide good air circulation.
2. The unit may be suspended from a wall by a bracket (optional) or located in a free standing position on the floor (preferably slightly elevated).
3. If the unit is suspended, ensure that the bracket is firmly connected and the wall is strong enough to withstand vibrations.
4. The unit's location should not disturb neighbors with noise or exhaust air flow.
5. Place the mounting pads under the unit legs.
6. Install the outdoor unit as shown. Refer to the technical and installation manual for permitted clearance.
7. When the unit is installed on a wall, install the drain connector hose and the drain plug as shown.

Fig. 1
1. Bottom of outdoor unit
2. Drain connector

Fig. 2
An example of drain installation

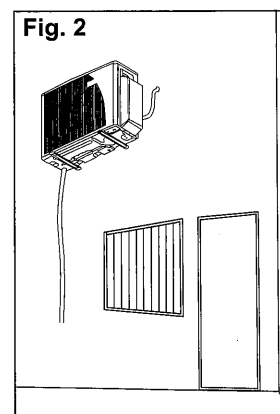
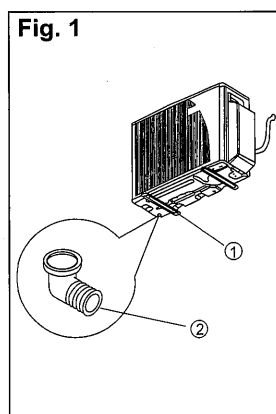
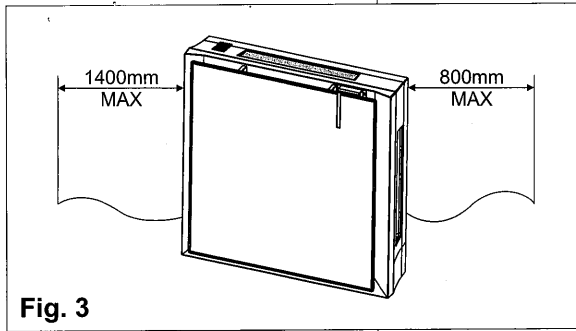


Fig. 3
Length of the power outlet



* NOTE: The minimum distance can be reduced if the air outlet is covered

Fig. 4
Direction of tubing

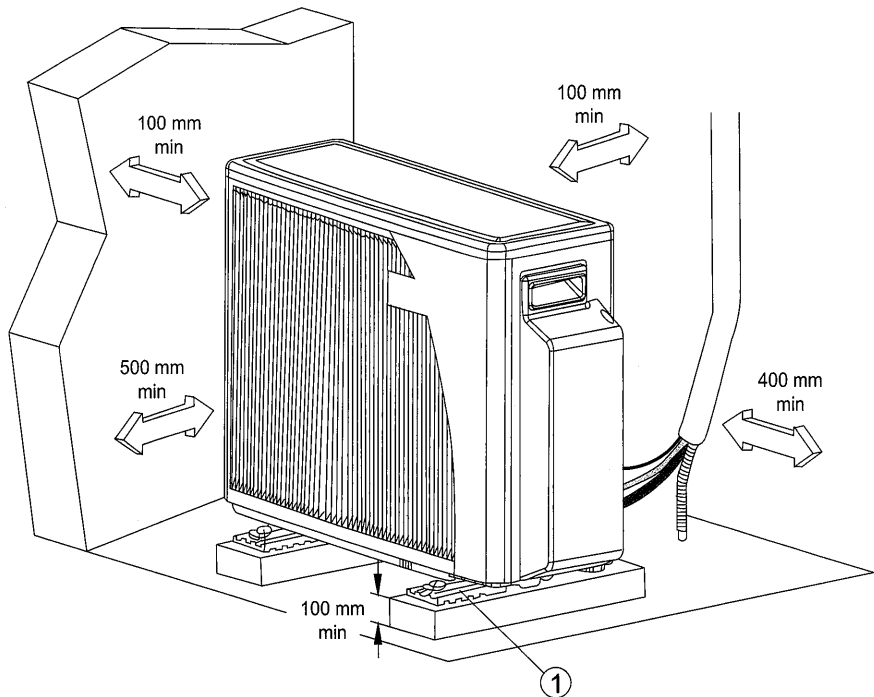
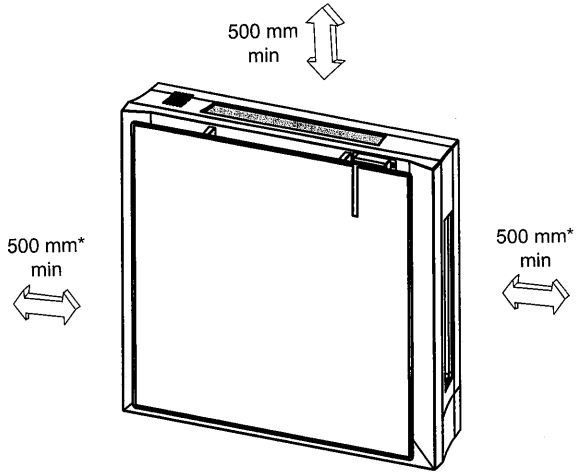
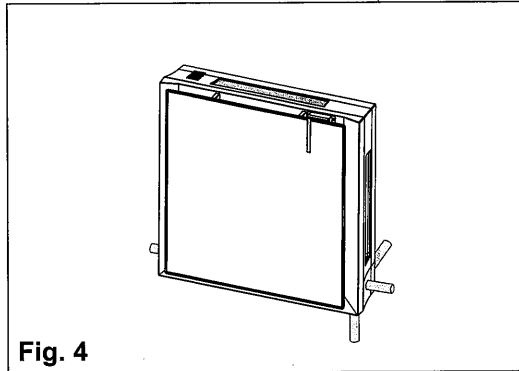


Fig. 5

Fig. 5
1. Mounting pads (x4)

ELECTRICAL REQUIREMENTS

Electrical wiring and connections should be made by qualified electricians and in accordance with local electrical codes and regulations. The air conditioner units must be grounded and connected to an adequate power outlet from a separate circuit protected by a time delay circuit breaker, as specified on unit's nameplate. Voltage should not vary beyond $\pm 10\%$ of the rated voltage.

NOTE: make sure the plug will be easily accessible after installing the unit.

INSTALLATION OF THE INDOOR UNIT

INSTALLATION OF THE MOUNTING RAIL (see figure 6, 7)

1. Figure 6 shows the location of the mounting rail, as related to the unit.
2. Position horizontally the mounting rail on the wall, using a spirit level. (The arrow UP)
3. Mark the position of the two mounting holes on the wall and drill holes to insert the dowels.
4. Mount the mounting rail using the screws. Tight properly the screws.
5. Open and remove the front panel (1).

6. Remove the air filter.
7. Unscrew the screws to release the frame (4).
8. Remove the left or right corners (5) according to the installation routing.
9. Following the installation of the indoor unit, reinstall the corner panels and frame.
10. Reinstall the air filter.
11. Replace the frame screws (2).
12. Reinstall the front panel (1).

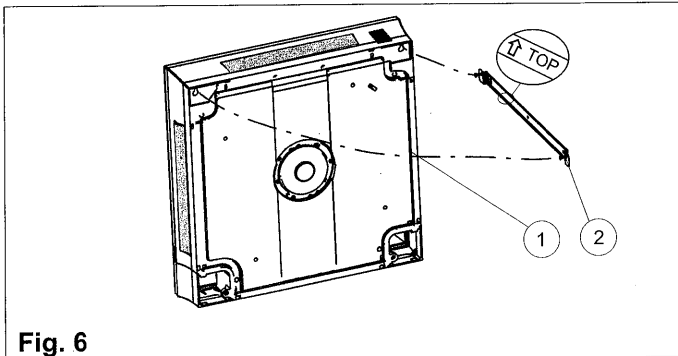


Fig. 6

Fig. 6
1. Indoor unit

2. Mounting rail

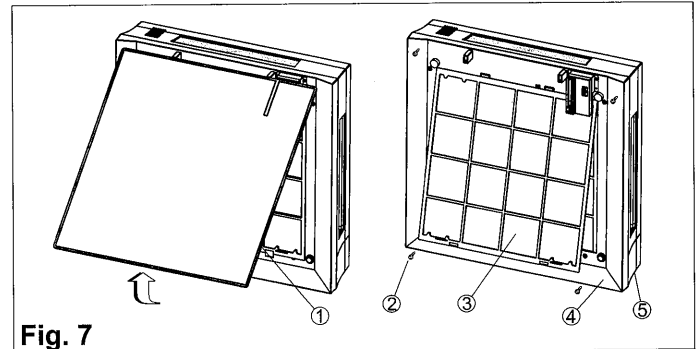


Fig. 7

Fig. 7
1. Lift the front panel
2. Screws
3. Filter

4. Frame
5. Corner cover

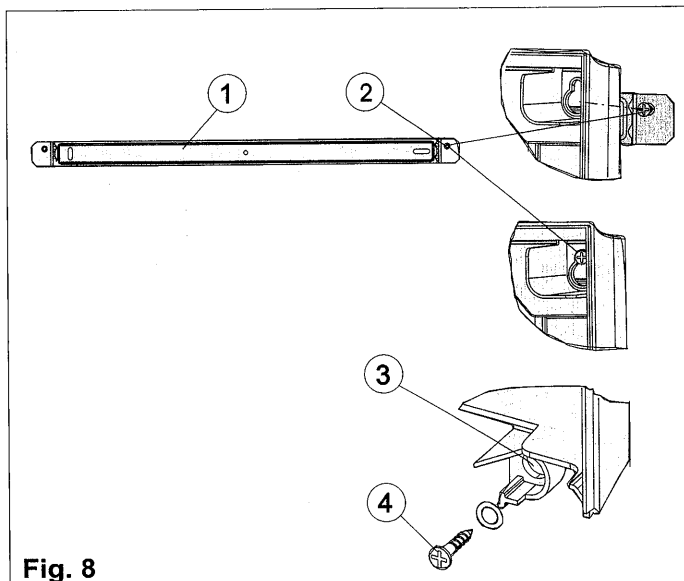


Fig. 8

Fig. 8
1. Mounting rail 3. Mounting bottom holes
2. Screws 4. Screws

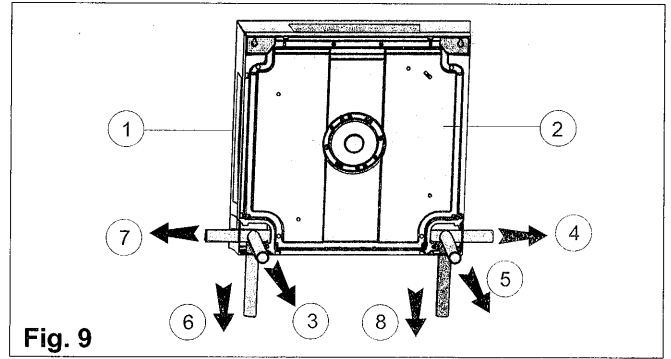
SUSPENDING THE UNIT ON THE MOUNTING RAIL

(see figure 8)

1. Hang the indoor unit on the screws located near the top edge of the mounting rail.
2. Mark the location of the bottom holes on the wall and drill the holes to insert the dowels.
3. Secure the indoor unit to the wall by the screws.

REFRIGERATION TUBE ROUTING (see figure 9)

1. There are six possible routing for the refrigeration tube, as shown in fig. 9.
2. For routing (6) and (8), cut the bottom notch of the corner cover.
3. For routing (4) or (7), change between the left and the right corners and cut the side notch accordingly.



PENETRATION OF WALL FOR TUBING (see figure 10)

1. Mark the location of the hole on the wall according to the tubing routing as shown on figure 10 and drill the hole at a 5° downward angle as shown.
2. The downward angle prevents condensed or rain water from penetrating the room.
3. Trim the hole in the wall with a 70 mm diameter commercial plastic tube.

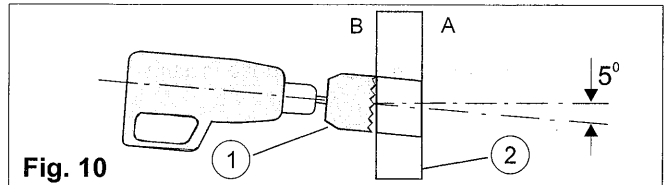


Fig. 10

A. Outdoor side
B. Indoor side

1. Drill 70 mm diameter
2. Wall

CLOSING AN AIR OUTLET (see figure 11)

1. In case the indoor unit is mounted nearby a wall (less than 500 mm), the air outlet cover must be installed instead of the air louvre.
2. There is an option for customer convenience to close one of the air outlets (left or right). Remove the desired air louvre (3) by pulling it out and installing an air outlet cover (2) instead, just by pushing it to place (1).

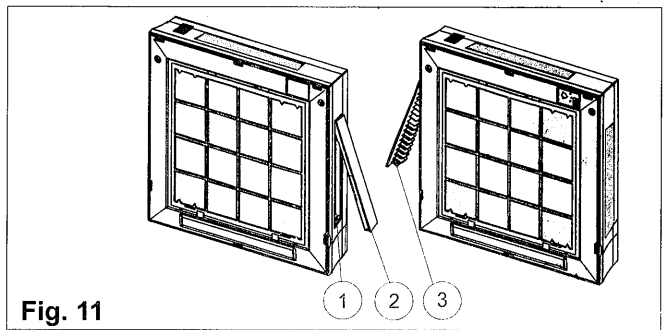


Fig. 11

Fig. 11
1. Air outlet
2. Air outlet cover
3. Air louvre

ADJUSTING THE AIR OUTLET OPENING (see figure 12, 13)

1. In case the distance between the unit and the wall is 200-500 mm, a stopper must be installed to reduce the air outlet opening to provide a desirable air flow angle.
2. To remove the air louvre raise the latch (3) by a screwdriver and pull it out.
3. Install the stopper (1) at the opening (2) as shown. Reinstall the air louvre.

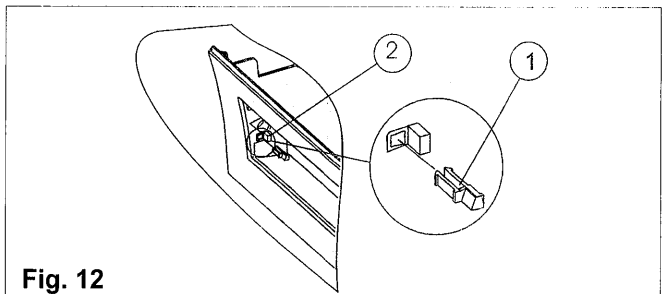


Fig. 12

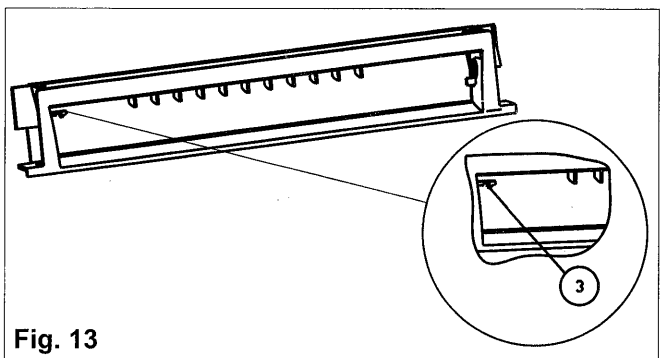


Fig. 13

Fig 12 and 13
1. Stopper
2. Opening
3. Latch

CONDENSATE HOSE CONNECTION

1. Attach the condensate drain hose to the corrugated hose in the rear groove of the indoor unit.
2. Wrap the drain hose together with the refrigerant tubes and electrical cables.

3. Ensure that the condensate drain hose routing is always directed downwards.

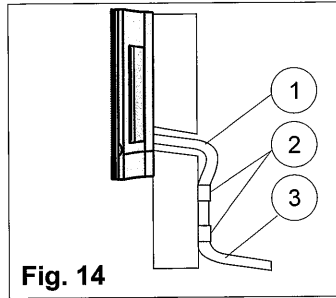


Fig. 14

- Fig. 14
 1. Drain hose
 2. Clamp
 3. Downward slope

4. When installing the drain hose avoid traps and U - bends. The end of the drain hose should not be immersed in water.

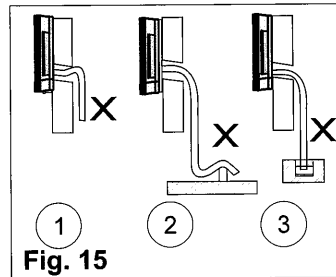


Fig. 15

- Fig. 15
 1. Trap
 2. U-bend
 3. End immersed in water.

5. Connect the drain hose on the bottom of the indoor unit on the left or right hand according to the tubing routing. **Make sure to close the other opening by means of the rubber plug.**

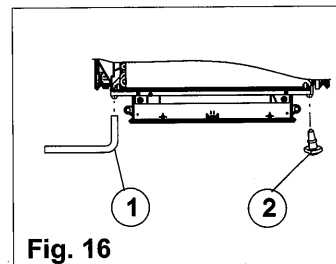


Fig. 16

- Fig. 16
 1. Condensate drain hose
 2. Rubber plug

6. When the installation location requires long horizontal sections, a vent must be provided at the top of the hose to prevent overflow of the unit drain pan.

7. Upon completing the installation, test the water drain by pouring at least two liters of water into the unit drain pan. Check that the water drains off.

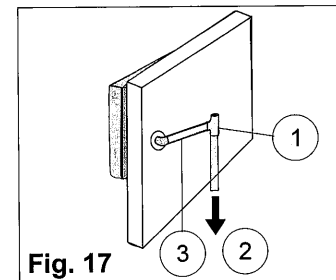


Fig. 17

- Fig. 17
 1. Vent
 2. Downward drain
 3. Water drain hose

ELECTRICAL CONNECTIONS BETWEEN INDOOR AND OUTDOOR UNITS

1. To connect the indoor unit to the outdoor unit use the following electrical cables, protected for outdoor use:

Cooling and heating model:

Multiple wire cable (220 - 240V)
 5 wires x 1.5 mm²
 2 wires x 0.5 mm² - for low voltage
 (supplied with RC units).

Cooling only models:

Multiple wire cable (220 - 240V)
 4 wires x 1.5 mm²

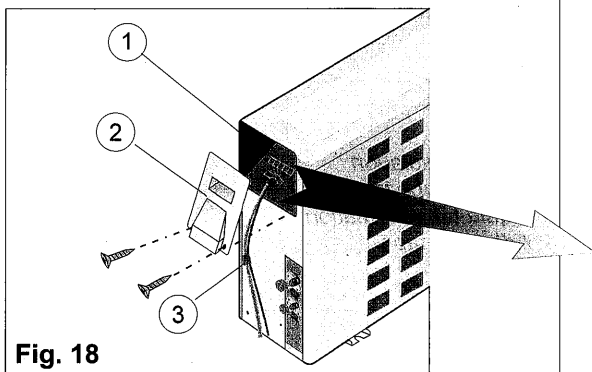
2. Prepare the multiple wire (3) cable ends for connection as shown in fig. 19.
 3. Connect the cable ends to the terminals of the indoor and outdoor units, as shown in fig. 21.

4. **NOTE:** For multi split and cooling only units skip steps 5, 6, 7 and 9.

5. Prepare the twin wire cable end for connection as shown in fig. 20.
 6. Disconnect the resistor (4) from the indoor unit and connect the twin wire cable (3) instead.
 7. Connect the other end of the twin wire cable (3) to the outdoor unit twin wire terminal (7).
 8. Secure the multiple wire power cable with the cable clamps (6).
 9. Fasten the twin wire cable to the power cable with cable ties.

Fig. 18

1. Terminal 2. Cover 3. Cable tie



NOTES:

1. The wire color code can be selected by the installer.
2. Wires leading to outdoor unit twin wire terminal (7), must run in a separate twin wire cable, otherwise the electronic controls will be subjected to operational malfunctions.
3. For cooling only model, terminal number 5 should not be connected.

MULTIPLE WIRE POWER CABLE BETWEEN THE UNITS

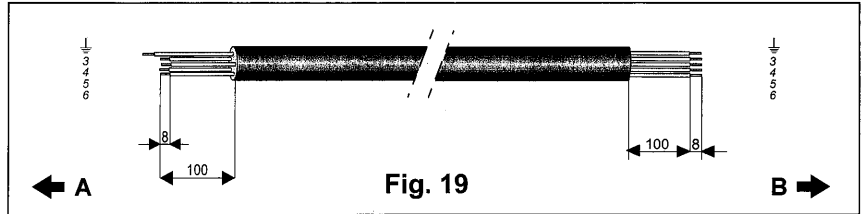


Fig. 19 A. OUTDOOR B. INDOOR

TWIN-WIRE LOW VOLTAGE CABLE (for RC units only)

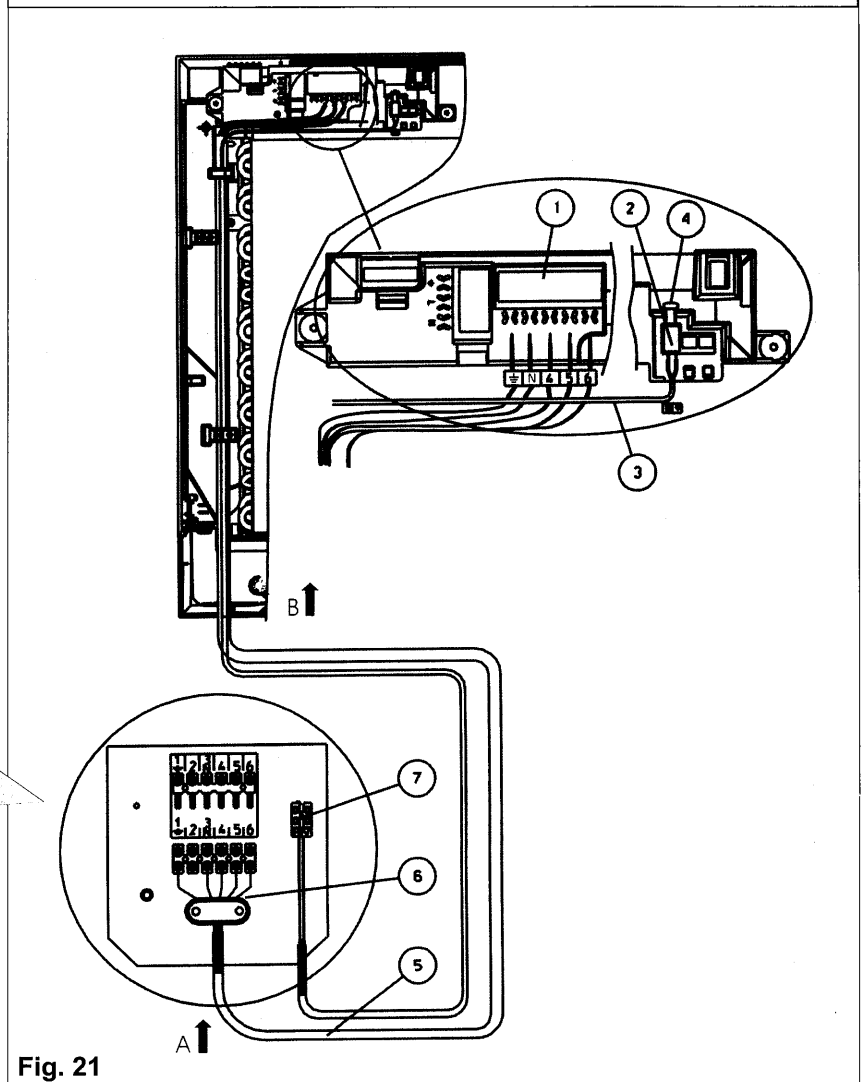
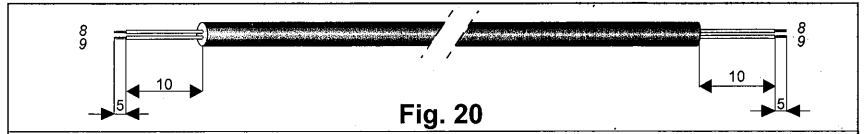


Fig. 21

1. Indoor unit terminal 4. Resistor A. OUTDOOR
 2. Indoor twin wire terminal 5. Multiple wire cable B. INDOOR
 3. Twin wire cable 6. Cable clamp
 7. Outdoor twin wire terminal

REFRIGERANT TUBING

CONNECT INDOOR WITH OUTDOOR UNIT

The indoor unit contains a small quantity of refrigerant. Do not unscrew the nuts from the unit until you are ready to connect the tubing. The outdoor unit is supplied with sufficient refrigerant charge for 7.5 m tubing length. For additional charge, please refer to outdoor unit nameplate. For a proper tube bending, bend tubes using a bending tool.

NOTE: Use refrigeration type copper tubing only.

1. Remove tubing covers and the relative corner cover.
2. Use tubing diameter that corresponds to the tubing diameter of the indoor unit. Note that liquid and suction tubes are of different diameters. (See tube size versus tightening torque tables).
3. Place flare nuts on tube ends before preparing them with a flaring tool. Use the flare nuts that are mounted on the supplied outdoor units.
4. Connect the four ends of the tubing to indoor and outdoor units.
5. Insulate each tube separately, and their unions, with at least 6 mm of insulation. Wrap the refrigerant tubing, drain hose and electric cables together with a vinyl tape (UV resistant). (See fig. 23).
6. After connecting the tubing make sure that refrigerant tubes, electric cables and condensate water hose are well insulated with closed cell rubber insulating tubes (6 mm thick), are wrapped together with UV resistant non-adhesive plastic tape, and passed through the hole in the wall. Set the tubing insulation (1) with adhesive tape (4) as shown in fig. 23.
7. Connection to the rear right outlet:
 - A. Cut out the insulation up to the liquid flare 1/4"
 - B. Bend the 1/4" tube to the rear outlet direction from position A to position B (see fig. 24).
 - C. Release the suction nut (3) and turn it to the right hand outlet, to position B.
8. Connection to the right hand outlet or bottom right hand outlet:
 - A. Proceed as for instructions supplied in paragraph 7.
 - B. Bend the suction tube according to the desired direction using a bending tool.

Tightening torques of unions and valve caps:

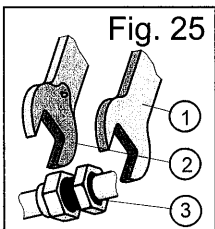


Fig. 25
1. Wrench
2. Torque wrench
3. Union

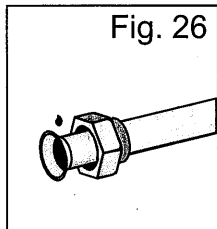


Fig. 26
To prevent refrigerant leakage, coat the flared surface with refrigeration oil.

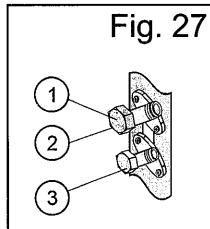


Fig. 27
1. Suction valve
2. Service port
3. Liquid valve

TUBE SIZE	TORQUE
Liquid line 1/4"	15 - 20 N.M.
Suction line 3/8"	30 - 35 N.M.
Suction line 1/2"	50 - 54 N.M.
Suction line 5/8"	75 - 78 N.M.

Caution!

When unscrewing the valve caps, do not stand in front of them or of the spindles, since the system is under pressure.

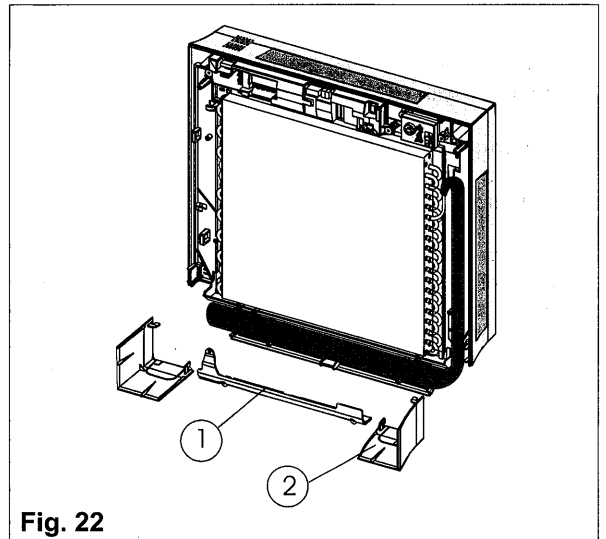


Fig. 22

Fig 22
1. Tubing cover
2. Corner cover

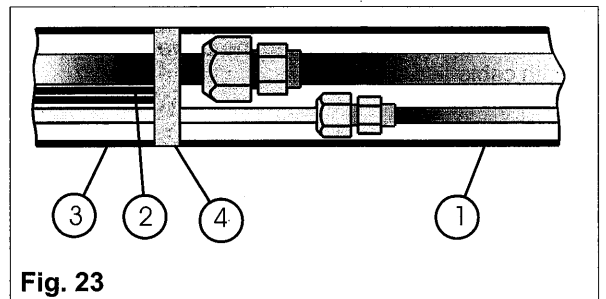


Fig. 23

Fig 23
1. Tubing insulation
2. Suction tube insulation
3. Liquid tube insulation
4. Adhesive tape

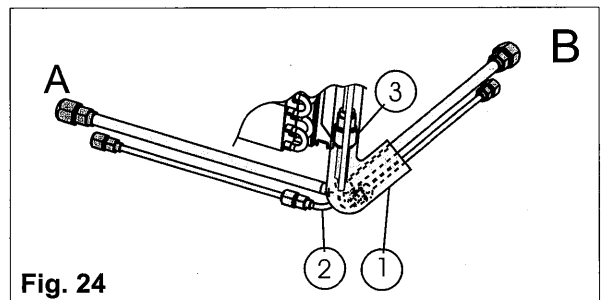


Fig. 24

Fig 24
1. Insulation
2. Liquid tube
3. Suction tube nut

INSTALLATION/SERVICE TOOLS (ONLY FOR R410A PRODUCT)

CAUTION

New Refrigerant Air Conditioner Installation

THIS AIR CONDITIONER ADOPTS THE NEW HFC REFRIGERANT (R410A) WHICH DOES NOT DESTROY OZONE LAYER. R410A refrigerant is apt to be affected by impurities such as water, oxidizing membrane, and oils because the working pressure of R410A refrigerant is approx. 1.6 times of refrigerant R22. Accompanied with the adoption of the new refrigerant, the refrigeration machine oil has also been changed. Therefore, during installation work, be sure that water, dust, former refrigerant, or refrigeration machine oil does not enter into the new type refrigerant R410A air conditioner circuit.








To prevent mixing of refrigerant or refrigerating machine oil, the sizes of connecting sections of charging port on main unit and installation tools are different from those used for the conventional refrigerant units. Accordingly, special tools are required for the new refrigerant (R410A) units. For connecting pipes, use new and clean piping materials with high pressure fittings made for R410A only, so that water and/or dust does not enter. Moreover, do not use the existing piping because there are some problems with pressure fittings and possible impurities in existing piping.

Changes in the product and components

In air conditioners using R410A, in order to prevent any other refrigerant from being accidentally charged, the service port diameter size of the outdoor unit control valve (3 way valve) has been changed. (1/2 UNF 20 threads per inch)

- In order to increase the pressure resisting strength of the refrigerant piping, flare processing diameter and opposing flare nuts sizes have been changed. (for copper pipes with nominal dimensions 1/2 and 5/8)

New tools for R410A

New tools for R410A	Applicable to R22 model	Changes
Gauge manifold	×	 As the working pressure is high, it is impossible to measure the working pressure using conventional gauges. In order to prevent any other refrigerant from being charged, the port diameters have been changed.
Charge hose	×	 In order to increase pressure resisting strength, hose materials and port sizes have been changed (to 1/2 UNF 20 threads per inch). When purchasing a charge hose, be sure to confirm the port size.
Electronic balance for refrigerant charging	○	 As working pressure is high and gasification speed is fast, it is difficult to read the indicated value by means of charging cylinder, as air bubbles occur.
Torque wrench (nominal dia. 1/2, 5/8)	×	 The size of opposing flare nuts have been increased. Incidentally, a common wrench is used for nominal diameters 1/4 and 3/8.
Flare tool (clutch type)	○	 By increasing the clamp bar's receiving hole size, strength of spring in the tool has been improved.
Gauge for projection adjustment	—	Used when flare is made by using conventional flare tool.
Vacuum pump adapter	○	 Connected to conventional vacuum pump. It is necessary to use an adapter to prevent vacuum pump oil from flowing back into the charge hose. The charge hose connecting part has two ports -- one for conventional refrigerant (7/16 UNF 20 threads per inch) and one for R410A. If the vacuum pump oil (mineral) mixes with R410A a sludge may occur and damage the equipment.
Gas leakage detector	×	 Exclusive for HFC refrigerant.

- Incidentally, the "refrigerant cylinder" comes with the refrigerant designation (R410A) and protector coating in the U.S.'s ARI specified rose color (ARI color code: PMS 507).
- Also, the "charge port and packing for refrigerant cylinder" requires 1/2 UNF 20 threads per inch corresponding to the charge hose's port size.

EVACUATION OF THE REFRIGERATION TUBES AND THE INDOOR UNIT

After connecting the unions of the indoor and outdoor units, evacuate the air from tubes and indoor unit as follows:

1. Connect the charging hoses with a push pin to the low and high sides of the charging set and the service port of the suction and liquid valves. Be sure to connect the end of the charging hose with the push pin to the service port.
2. Connect the center hose of the charging set to a vacuum pump.
3. Turn on the power switch of the vacuum pump and make sure that the needle in the gauge moves from 0 Mpa (0 cm Hg) to -0.1 Mpa (-76 cm Hg). Let the pump run for 15 minutes.
4. Close the valves of both the low and high sides of the charging set and turn off the vacuum pump. Note that the needle in the gauge should not move after approximately five minutes.
5. Disconnect the charging hose from the vacuum pump and from the service ports of the suction and liquid valves.
6. Tighten the service port caps of both suction and liquid valves
7. Remove the caps from both valves, and open them using a hexagonal Allen wrench.
8. Remount valve caps onto the valves.
9. Check for gas leaks from the four unions and from the valve caps. Test with electronic leak detector or with a sponge immersed in soapy water for bubbles.

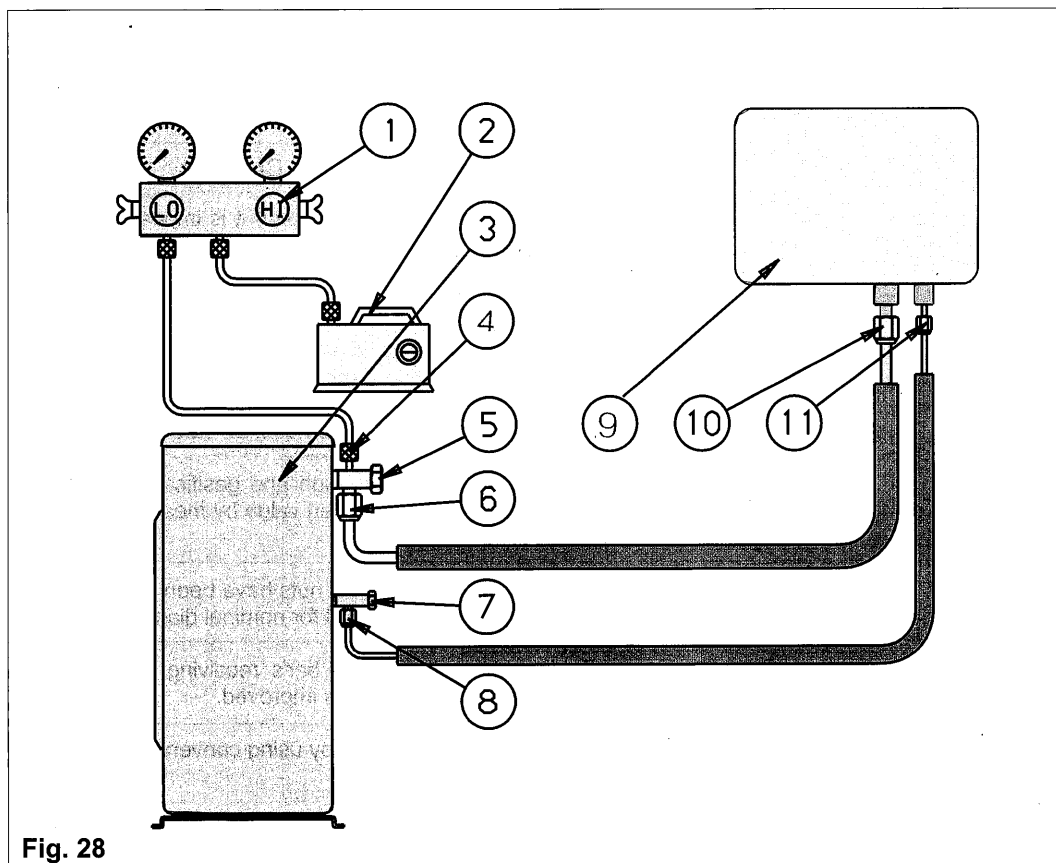


Fig. 28

Fig. 28

- 1. Charging set
- 2. Vacuum pump
- 3. Outdoor unit
- 4. Service valve

- 5. Cap
- 6. Suction valve
- 7. Cap
- 8. Liquid valve

- 9. Indoor unit
- 10. Suction flare connection
- 11. Liquid flare connection

FINAL TASKS

1. Replace all valve caps and ensure that they are properly tightened.
2. Fill gaps on the wall between hole sides and tubing with sealer.
3. Attach wiring and tubing to the wall with clamps where necessary.
4. Start the air conditioner with the customer and explain all the functions.
5. Explain filter removal, cleaning and re-installation.
6. Supply the operating and installation manual to the customer.

INSTALLATION OF A MULTI SPLIT UNIT UP TO 3.5 Kw (2 indoor units)

The multi-split unit will be installed according to the previous instructions.

Fig 29
1. INDOOR UNIT -1
2. INDOOR UNIT-2
3. OUTDOOR UNIT

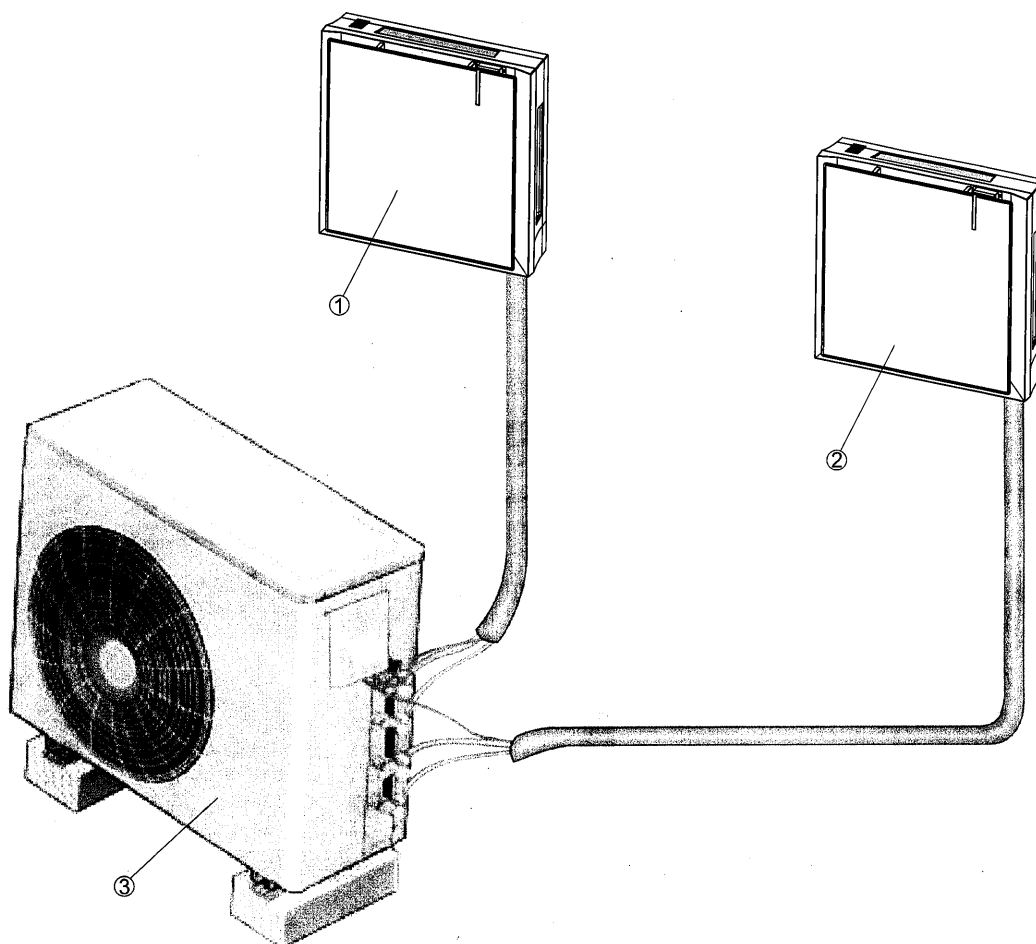


Fig. 29

ELECTRICAL CONNECTIONS BETWEEN OUTDOOR UNIT AND TWO INDOOR UNITS

1. Use electrical cables according to paragraph 6.
2. Make electrical connections of the indoor units according to paragraph 6. Identical for unit No. 1 and unit No. 2.
3. At the outdoor unit:
 - A. Wire the connector of the outdoor unit to the multiple wire power cables and insert it into the terminal end connector in the outdoor unit.
 - B. Connect the yellow/green earth wire to the ground screw.
 - C. Secure multiple wire power cable with the cable clamps.
4. The main power cable should be connected to a switch and, from there, to outdoor unit.

Attention! For multi-split units, remove power supply cord from indoor unit. Connect the main power supply to the outdoor unit only!

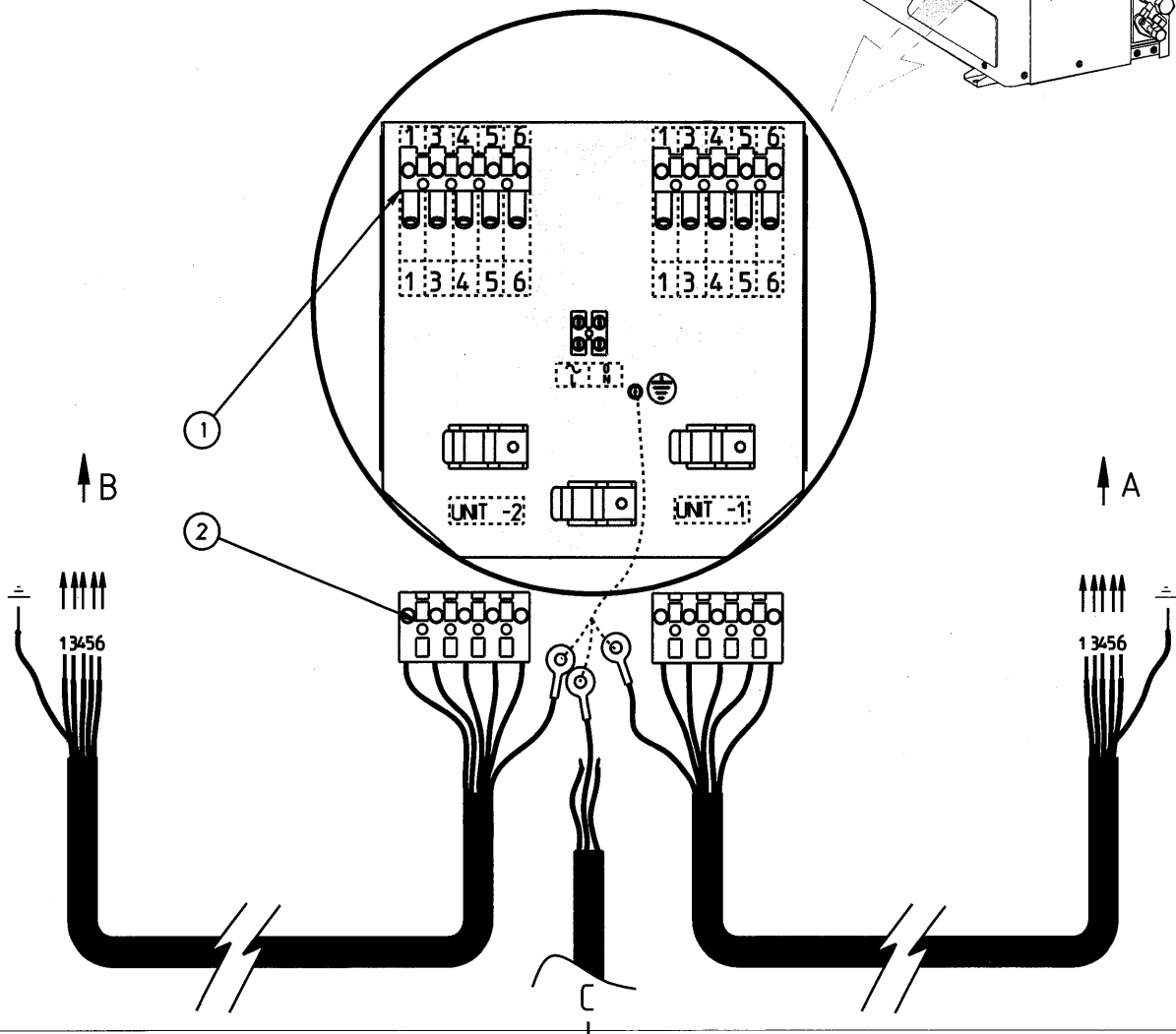
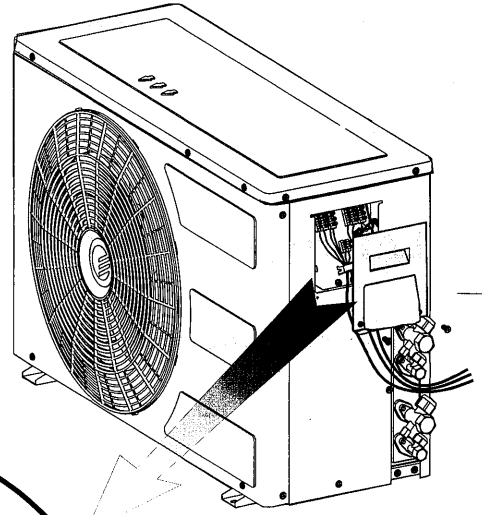


Fig 30

- Fig. 30
1. Connector terminal end
 2. Connector cable end
 - A. Connection to indoor unit number 1
 - B. Connection to indoor unit number 2

Electrical cable to be connected via a separate switch to the mains.

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