BRANCH JOINT INSTALLATION MANUAL

Selection of refrigerant piping size and use of Branch Joint

① Prepare the pipe to be connected in the field.

② Determine the piping sizes of each part from table 3, 4, 5.

③ Determine the branch joint from table 1.

④ When pipe is cut with a pipe cutter or the like remove burr, dust and foreign materials inside the pipe and connect the pipe.

⑤ Always weld while flowing nitrogen, otherwise, the product may not operate due to sludge within the pipe.

Table 1. Branch Join Kit

[unit:mm]

Models	Gas pipe	Liquid pipe
ARBLN01621		
ARBLN03321		
ARBLN07121		
ARBLN14521		

※ For example. Indicated Ø9.52 is the outer diameter(O.D..) of field jointed piping

Table 2. Contents of branch joint kit

	Branch Joint	Insulation	Manual
Contents	Gas side:1EA Liquid side:1EA	Gas side:1EA Liquid side:1EA	1EA

Table 3. Branch pipe for connection between Outdoor Units

Outdoor Units	Branch Joint pipe
2	ARCNN20
3	ARCNN20,ARCNN30

Table 4. Refrigerant pipe diameter from branch to branch (Fig1.- B,C,D)

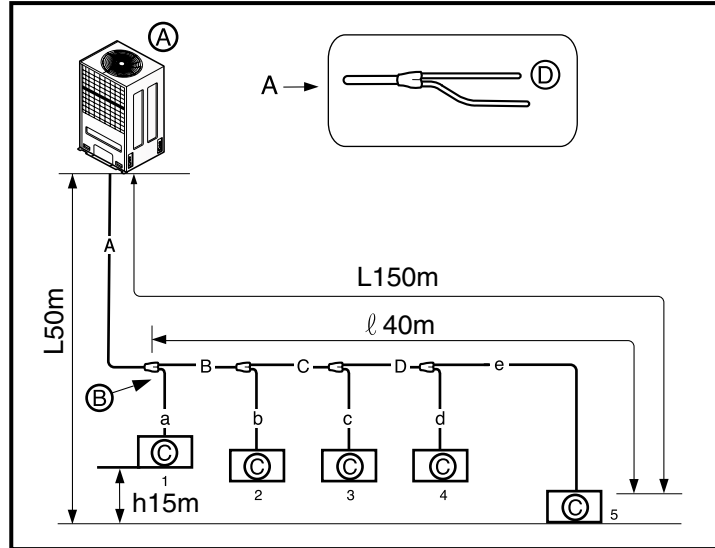| Downward Indoor Unit total capacity [kW(Btu/h)]	Liquid pipe [mm(inch)]	Gas pipe [mm(inch)]
< 5.6 (19,100)	Ø6.35(1/4)	Ø12.7(1/2)
< 16 (54,600)	Ø9.52(3/8)	Ø15.88(5/8)
< 22.4 (76,400)	Ø9.52(3/8)	Ø19.05(3/4)
< 33 (112,600)	Ø9.52(3/8)	Ø22.2(7/8)
< 47 (160,400)	Ø12.7(1/2)	Ø28.58(9/8)
< 71 (242,300)	Ø15.88(5/8)	Ø28.58(9/8)
< 104 (354, 900)	Ø19.05(3/4)	Ø34.9($1^3/_8$)
104 (354,900) ≤	Ø19.05(3/4)	Ø41.3($1^5/_8$)

Table 5. Between branching and Indoor Unit (Fig1 -a,b,c,d,e)

Indoor Unit capacity [kW(Btu/h)]	Liquid pipe [mm(inch)]	Gas pipe [mm(inch)]
< 5.6(19,100)	Ø6.35(1/4)	Ø12.7(1/2)
< 16.0(54,600)	Ø9.52(3/8)	Ø15.88(5/8)
< 22.4(76,400)	Ø9.52(3/8)	Ø19.05(3/4)

Figure1. Line Branch method

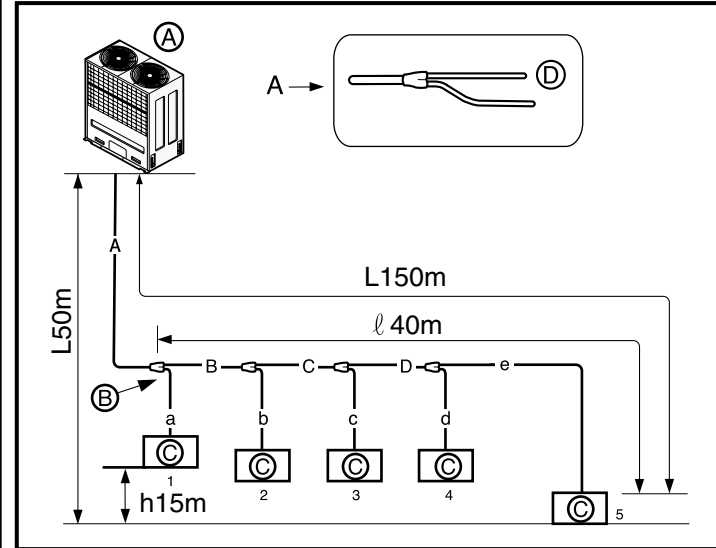### Example) 5 Indoor Units connected

Ⓐ : Outdoor Unit
Ⓑ : 1st branch (Y branch)
Ⓒ : Indoor Units
Ⓓ : Downward Indoor Unit

Total pipe length = A+B+C+D+a+b+c+d+e ≤ 300m

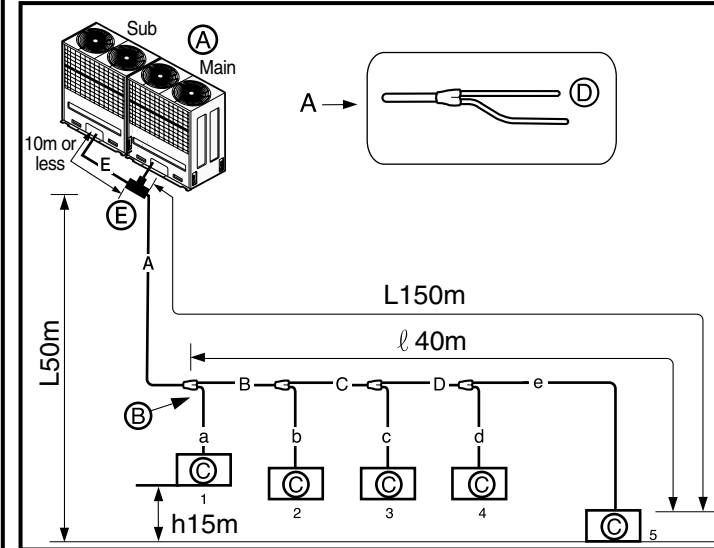| L	Longest pipe length	* Equivalent pipe length
	A+B+C+D+e ≤ 150m	A+B+C+D+e ≤ 175m
ℓ	Longest pipe length after 1st branch	
	B+C+D+e ≤ 40m	
H	Difference in height(Outdoor Unit ↔ Indoor Unit)	
	H ≤ 50m (40m : Outdoor Unit is lower than Indoor Units)**	
h	Difference in height (Indoor Unit ↔ Indoor Unit)	
	h ≤ 15m	

Example) 5 Indoor Units connected

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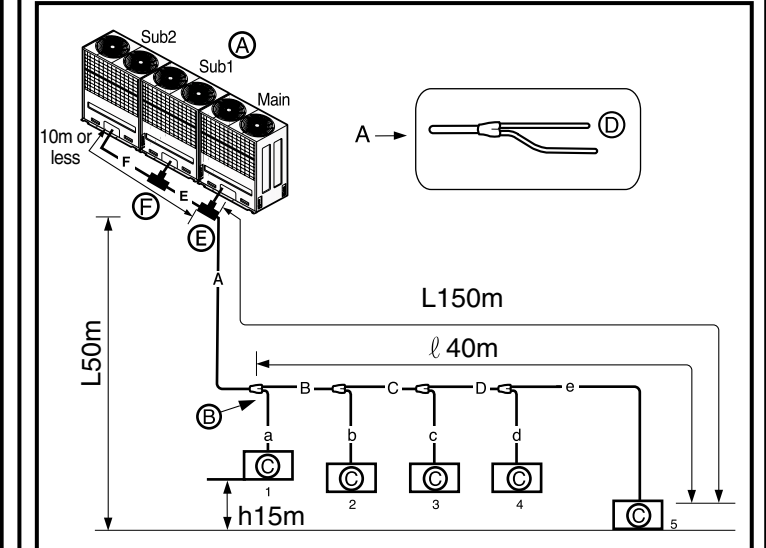| L	Longest pipe length	* Equivalent pipe length
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ℓ	Longest pipe length after 1st branch	
	B+C+D+e ≤ 40m	
H	Difference in height(Outdoor Unit ↔ Indoor Unit)	
	H ≤ 50m (40m : Outdoor Unit is lower than Indoor Units)**	
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Example) 5 Indoor Units connected

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Ⓓ : Downward Indoor Unit
Ⓔ : Connection branch pipe between Outdoor Units: ARCNN20

Total pipe length = A+B+C+D+a+b+c+d+e ≤ 300m

L	Longest pipe length	* Equivalent pipe length
	A+B+C+D+e ≤ 150m	A+B+C+D+e ≤ 175m
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	B+C+D+e ≤ 40m	
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	H ≤ 50m (40m : Outdoor Unit is lower than Indoor Units)**	
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Example) 5 Indoor Units connected


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Ⓔ : Connection branch pipe between Outdoor Units: ARCNN20
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Insulation of Branch Joint

Fig. 2 Example
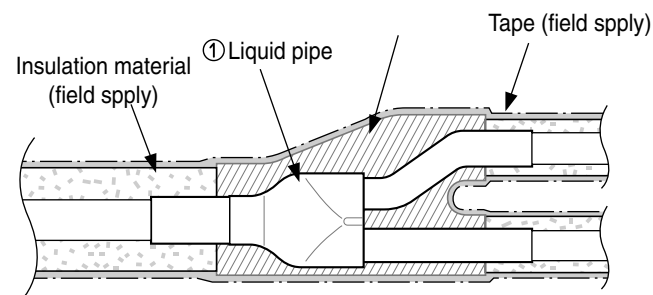
• Mount Liquid pipe ① to pipe cover ② in matching.
  Seal the joing section of pipe cover with inslated
  sealing tape(field supply). (Refer to Fig. 2)

• Apply the same procedures to the gas pipe also.

Fig. 3 Example
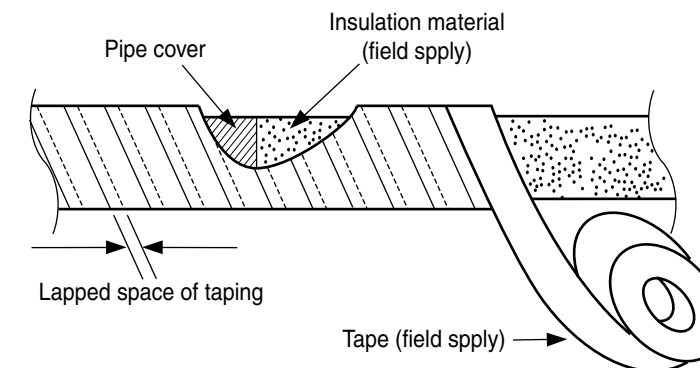
Note 1. Apply insulation to all refrigerant piping (field
  supply). When using the insulation materials
  being marketed, employ heat resistant insulation
  material (heat resistant temperature: 120°C or
  more)

Note 2. As the pipe cover contracts slightly conduct
  taping in the field securely by providing lapped
  parts as shown in so that no gap will exit on the
  piping cover and field supply insulation material.