



Installation, Start-up and Service Instructions

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START-UP CHECKLISTCL-1

SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment.

Untrained personnel can perform basic maintenance functions of cleaning coils and filters and replacing filters. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes, including ANSI (American National Standards Institute) Z223.1. Wear safety glasses and work gloves. Use quenching cloth for unbrazing operations. Have fire extinguisher available for all brazing operations.

It is important to recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

DANGER

ELECTRICAL SHOCK HAZARD

Failure to follow this warning will result in personal injury or death.

Before performing service or maintenance operations on unit, turn off main power switch to unit and install lock(s) and lockout tag(s). Ensure electrical service to rooftop unit agrees with voltage and amperage listed on the unit rating plate. Unit may have more than one power switch.

WARNING

UNIT OPERATION AND SAFETY HAZARD

Failure to follow this warning could cause personal injury, death and/or equipment damage.

R-410A refrigerant systems operate at higher pressures than standard R-22 systems. Do not use R-22 service equipment or components on R-410A refrigerant equipment.

WARNING

PERSONAL INJURY AND ENVIRONMENTAL HAZARD

Failure to follow this warning could cause personal injury or death.

Relieve pressure and recover all refrigerant before system repair or final unit disposal.

Wear safety glasses and gloves when handling refrigerants. Keep torches and other ignition sources away from refrigerants and oils.

CAUTION

CUT HAZARD

Failure to follow this caution may result in personal injury.

Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing, safety glasses, and gloves when handling parts and servicing units.

CAUTION

UNIT OPERATION HAZARD

Failure to follow this caution could cause equipment damage.

Ensure voltage listed on unit data plate agrees with electrical supply provided for the unit.

PRE-INSTALLATION

1. The power supply (v, ph, and Hz) must correspond to that specified on unit rating plate.
2. The electrical supply provided by the utility must be sufficient to handle load imposed by this unit.
3. Refer to Installation, General section (page 2) and Fig. 2 and Fig. 3 for locations of electrical inlets, condensate drain, duct connections, and required clearances before setting unit in place.
4. This installation must conform with local building codes and with the NEC (National Electrical Code) or ANSI (American National Standards Institute)/NFPA (National Fire Protection Association) latest revision. Refer to provincial and local plumbing or wastewater codes and other applicable local codes.

Moving and Storage

To transfer unit from truck to storage site, use a fork truck. Do not stack units more than 2 high during storage. If unit is to be stored for more than 2 weeks before installation, choose a level, dry storage site free from vibration. Do not remove plastic wrap or skid from unit until final installation.

Rigging

All 40RU Series units can be rigged by using the shipping skid. Units are shipped fully assembled. Do not remove shipping skids or protective covering until unit is ready for final placement; damage to bottom panels can result. Use slings and spreader bars as applicable to lift unit.

INSTALLATION

General

Allow the following clearances for service access and airflow:

- Rear: 3 ft (914 mm) [2-1/2 ft (762 mm) with electric heat accessory]
- Front: 2-1/2 ft (762 mm)
- Right Side: 3-1/2 ft (1067 mm)
- Left Side: 2-1/2 ft (762 mm)

For units equipped with an economizer, refer to the accessory installation instructions for additional clearance requirements. Be sure floor, wall, or ceiling can support unit weight (Tables 1-6). See Fig. 2 and 3 for dimensions.

Uncrating

Move unit as near as possible to final location before removing shipping skid.

Remove metal banding, top skid, and plastic wrap. Examine unit for shipping damage. If shipping damage is evident, file claim with transportation agency. Remove base skid just prior to actual installation.

Check nameplate information against available power supply and model number description in Fig. 1.

NOTE: Be sure to remove the styrofoam shipping pad from the thermostatic expansion valve (TXV). Verify that it has been removed. (See Fig. 4.)

Accessories

Refer to instructions shipped with each accessory for specific information.

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Example	4	0	R	U	A	A	1	2	A	1	A	6	-	0	A	0	A	0

Model Type

40RU = Packaged Air Handling Unit
with Puron® R-410A Refrigerant

Type of Coil

A = Standard DX Coil
Q = DX Coil for Heat Pump Duty
S = Chilled Water Coil

Refrigerant Options

A = None

Nominal Tonnage

07 = 6 Tons (40RUA and 40RUQ only)
08 = 7.5 Tons
10 = 8.5 Tons (40RUS only)
12 = 10 Tons
14 = 12.5 Tons (40RUA and 40RUS only)
16 = 15 Tons

Fan Motor Speed Controller

A = None - Standard
T = 2 Speed Fan Controller (VFD) - Staged Air Volume (SAV™)

Indoor Fan Motor Options - Belt Drive

1 = Standard Motor / Standard Drive
2 = Standard/Alternate Motor / Medium Drive
3 = High Motor / High Drive **
6 = High Static, High Efficient Motor / High Drive (16 size only)

Packaging

0 = Standard

Future Use

A = Standard

Cabinet Paint

0 = None
1 = Painted

Future Use

A = Standard

Future Use

0 = Standard

Revision Number

- = Standard

Voltage*

1 = 575-3-60
3 = 208/230-1-60 (07, 08 and 10 sizes only)
5 = 208/230-3-60
6 = 460-3-60

Coil Options

A = Standard Aluminum Fin / Copper Tube

Notes:

* All 40RU*07 through 14 units and 40RUQ07 through 16 units with a "6" voltage designation are triple voltage; ie., 308/230/460-3-60.
Size 40RU*16 is also triple voltage in the "6" configuration unless the High Static motor option is used that is discrete 460-3-60.

** Single-phase 07, 08 and 10 sizes designate standard motor and high static drive.

Units that require 2-Speed indoor fan motor must use dedicated voltage models listed. The VFD used is not multi voltage.

Fig. 1 — Model Number Nomenclature

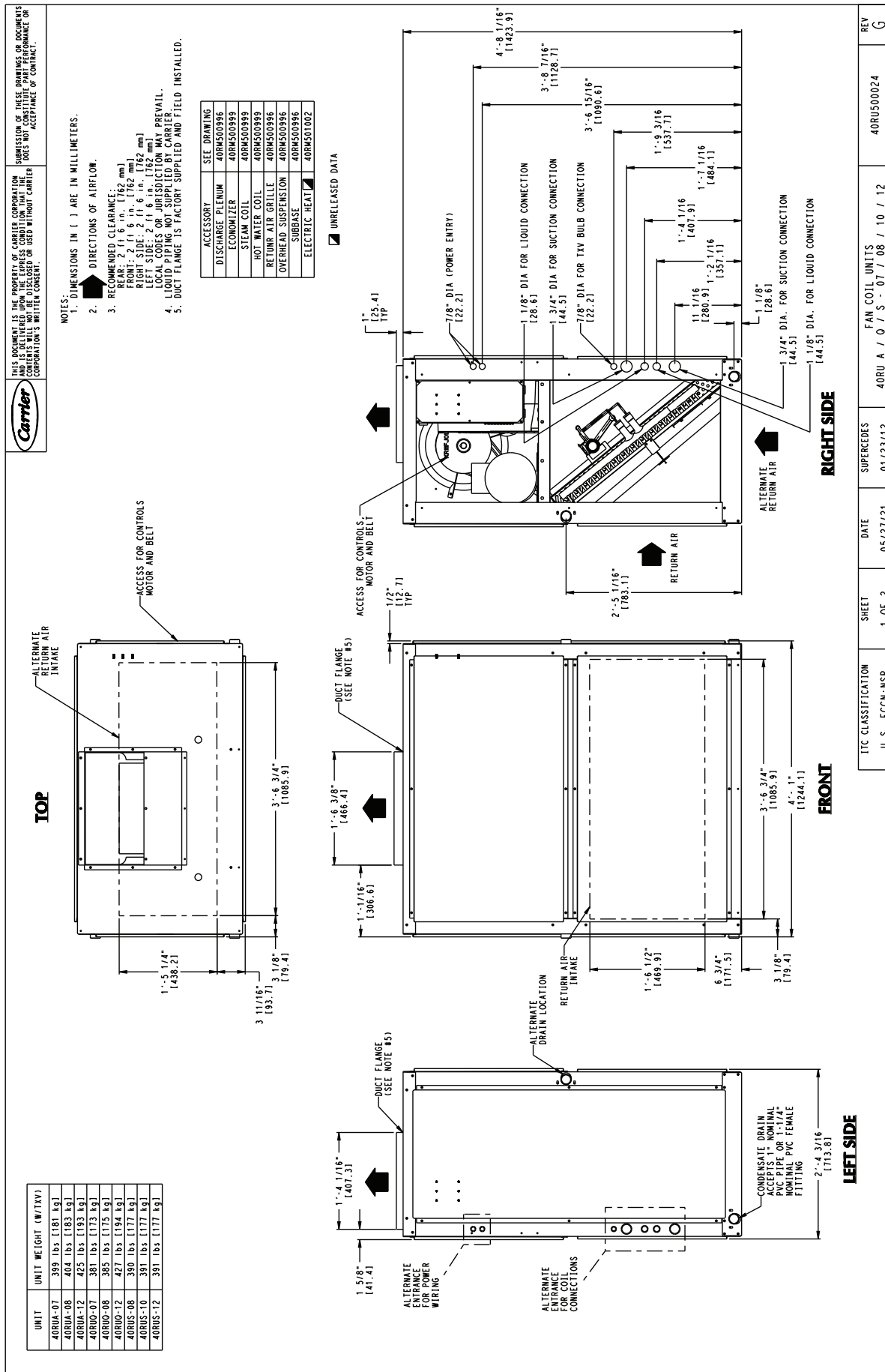


Fig. 2 — Dimensions — Sizes 07-12

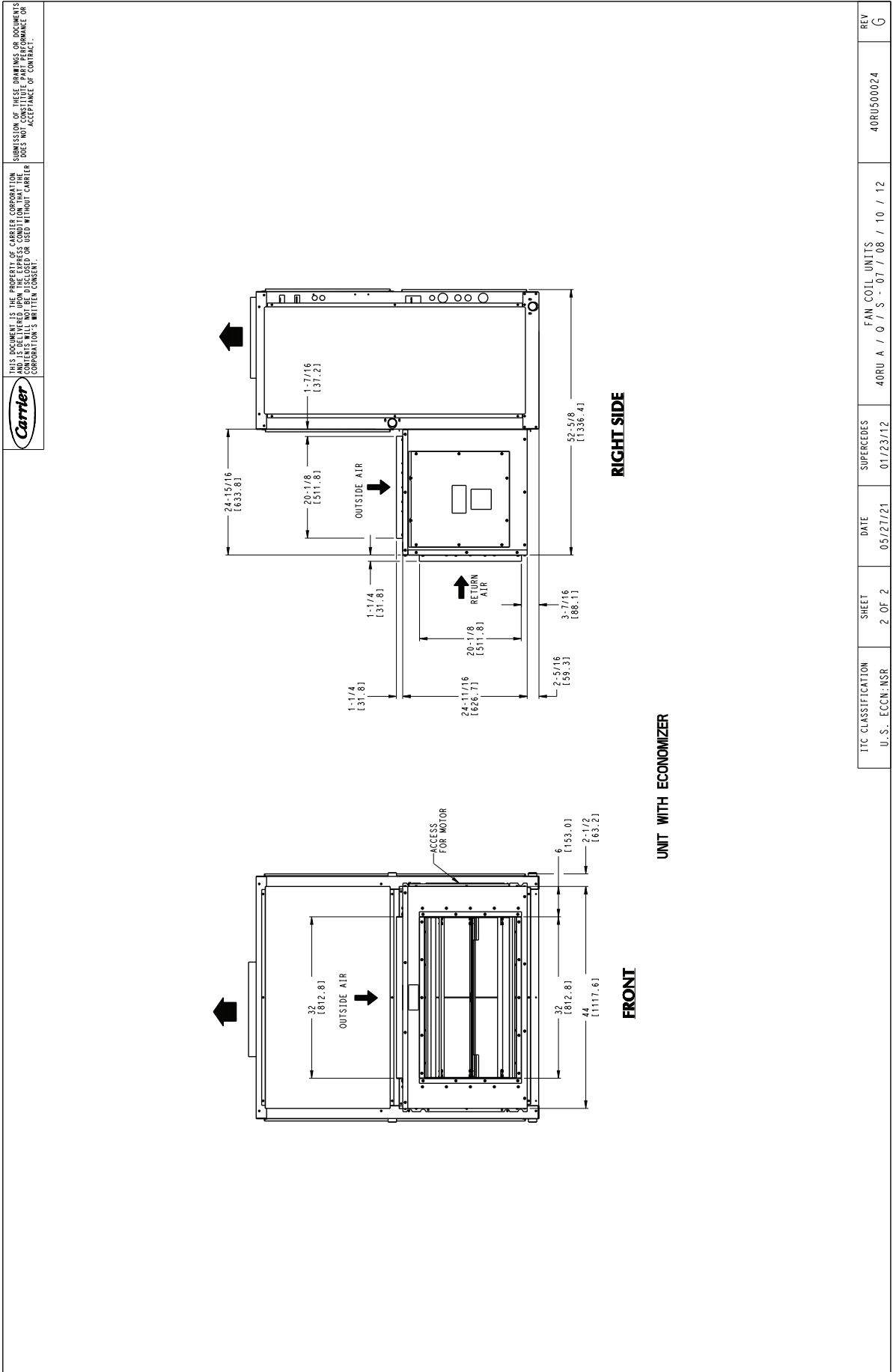


Fig. 2 — Dimensions – Sizes 07-12 (cont)

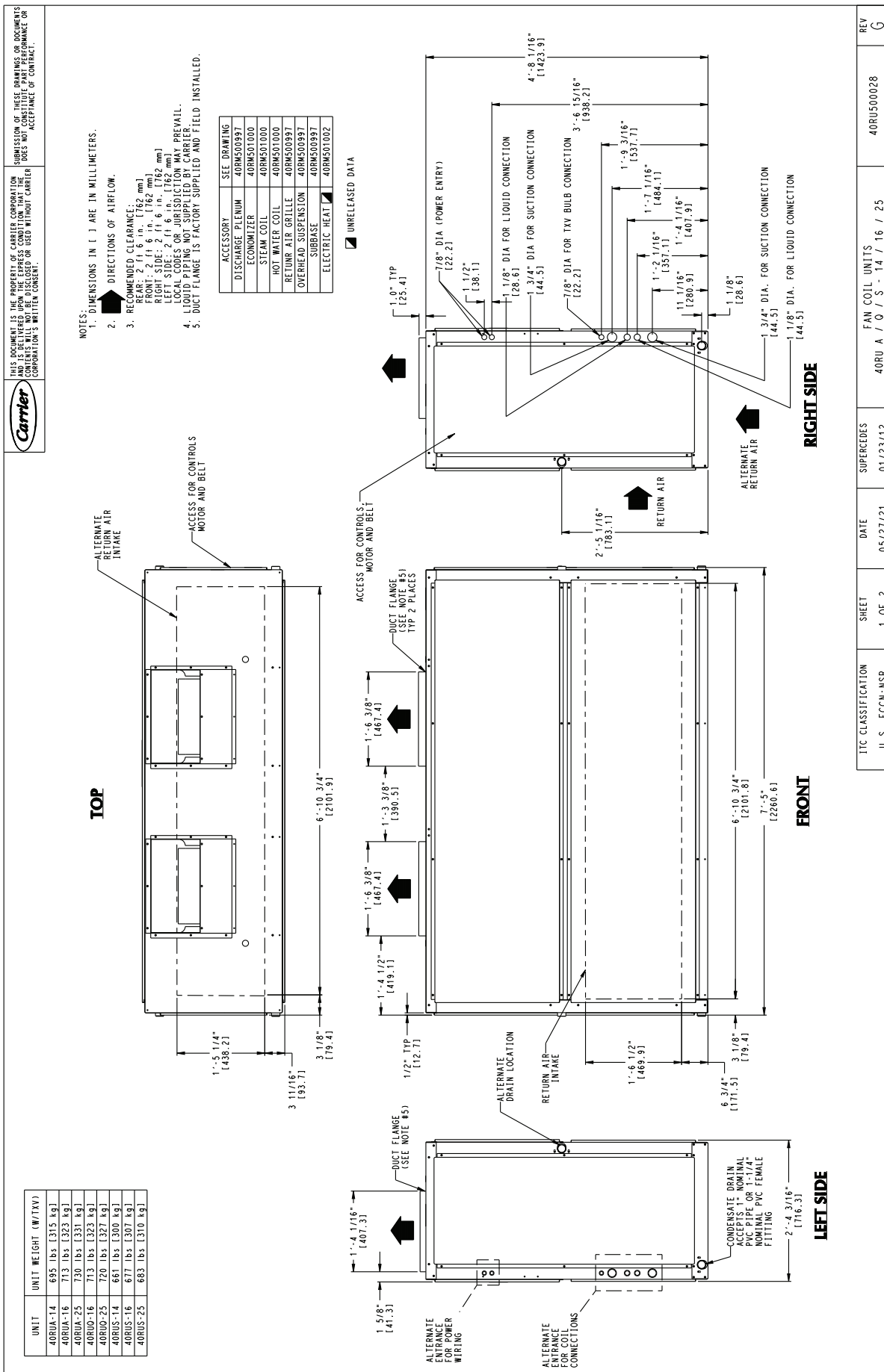


Fig. 3 — Dimensions – Size 14 and 16

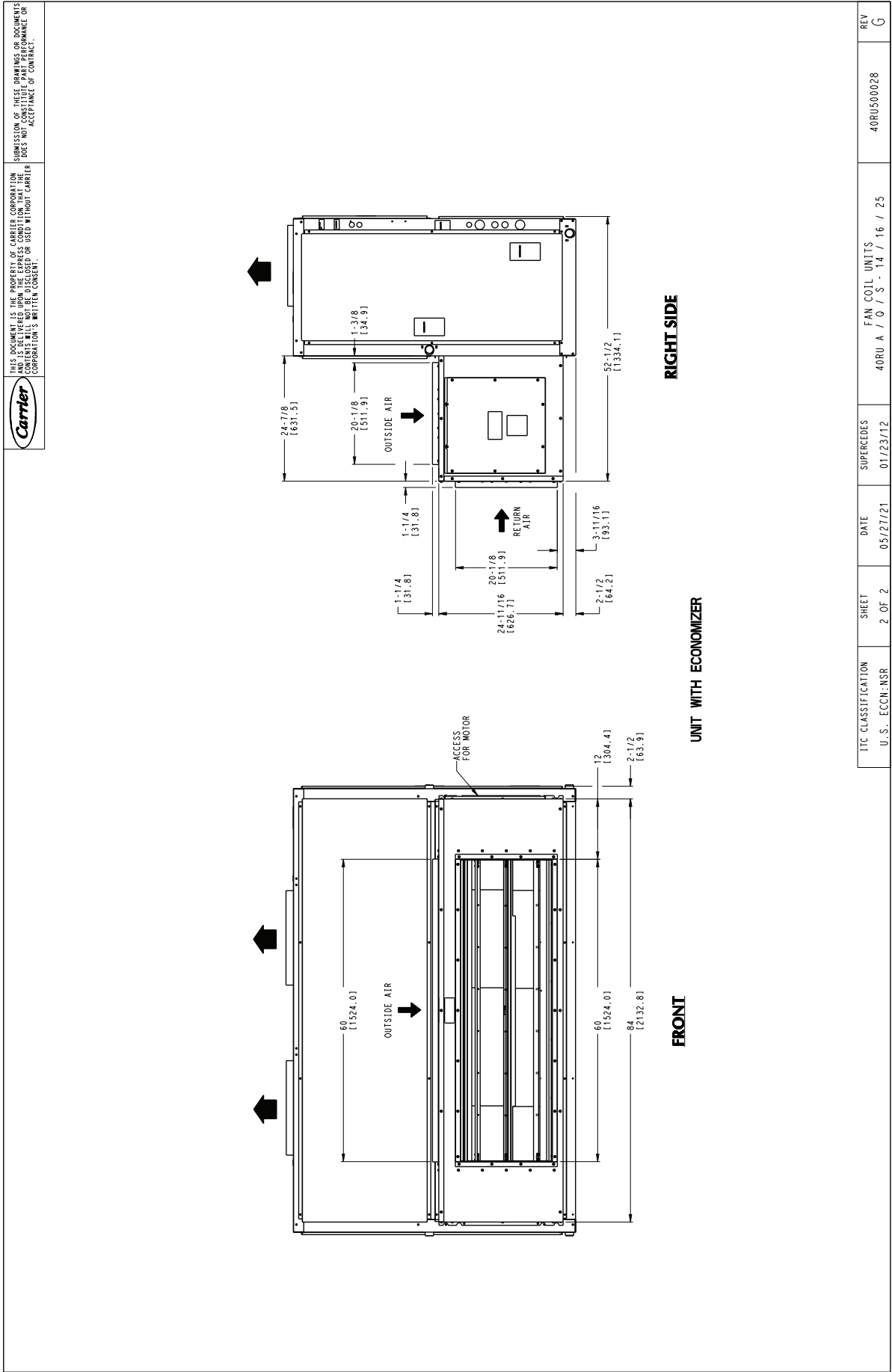


Fig. 3 — Dimensions – Size 14 and 16 (cont)

Table 1 — 40RUA Physical Data, English — Cooling Units

UNIT 40RUA	07	08	12	14	16
NOMINAL CAPACITY (tons)	6	7-1/2	10	12-1/2	15
OPERATING WEIGHT (lb)					
Base Unit with TXV	399	404	425	695	713
Plenum	175	175	175	225	225
FANS					
Qty...Diam. (in.)	1...15	1...15	1...15	2...15	2...15
Nominal Airflow (cfm)	2400	3000	4000	5000	6000
Airflow Range (cfm)	1800-3000	2250-3750	3000-5000	3750-6250	4500-7500
Nominal Motor Hp (Standard Motor)					
208/230-1-60	1.3	2.4	—	—	—
208/230-3-60 and 460-3-60	2.4	2.4	2.4	2.9	3.7
575-3-60	1.0	2.0	2.0	3.0	3.0
Motor Speed (rpm)					
208/230-1-60	1725	1725	—	—	—
208/230-3-60 and 460-3-60	1725	1725	1725	1725	1725
575-3-60	1725	1725	1725	1725	1725
REFRIGERANT	R-410A				
Operating Charge (lb) (approx per circuit)*	3	3	1.5/1.5	2.0/2.0	2.5/2.5
DIRECT - EXPANSION COIL	Enhanced Copper Tubes, Aluminum Sine - Wave Fins				
Max Working Pressure (psig)	650	650	650	650	650
Face Area (sq ft)	6.67	8.33	10	13.25	17.67
No. of Splits	1	1	2	2	2
No. of Circuits per Split	12	15	9	12	16
Split Type...Percentage	—	—	Face...50/50	Face...50/50	Face...50/50
Rows...Fins/in.	4...15	4...15	4...15	4...15	4...15
PIPING CONNECTIONS					
Quantity...Size (in.)					
DX Coil — Suction (ODF)	1...1-1/8	1...1-1/8	2...1-1/8	2...1-1/8	2...1-1/8
DX Coil — Liquid Refrigerant (ODF)	1...5/8	1...5/8	2...5/8	2...5/8	2...5/8
Steam Coil, In (MPT)	1...2-1/2	1...2-1/2	1...2-1/2	1...2-1/2	1...2-1/2
Steam Coil, Out (MPT)	1...1-1/2	1...1-1/2	1...1-1/2	1...1-1/2	1...1-1/2
Hot Water Coil, In (MPT)	1...1-1/2	1...1-1/2	1...1-1/2	1...2	1...2
Hot Water Coil, Out (MPT)	1...1-1/2	1...1-1/2	1...1-1/2	1...2	1...2
Condensate (PVC)	1...1-5/8 ODM / 1-1/4 IDF				
FILTERS	Throwaway — Factory Supplied				
Quantity...Size (in.)	4...16 x 24 x 2	4...16 x 24 x 2	4...16 x 24 x 2	4...16 x 20 x 2 4...16 x 24 x 2	4...16 x 20 x 2 4...16 x 24 x 2
Access Location	Either Side				
STEAM COIL†					
Max Working Pressure (psig at 260°F)	20	20	20	20	20
Total Face Area (sq ft)	6.67	6.67	6.67	13.33	13.33
Rows...Fins/in.	1...9	1...9	1...9	1...10	1...10
HOT WATER COIL†					
Max Working Pressure (psig)	150	150	150	150	150
Total Face Area (sq ft)	6.67	6.67	6.67	13.33	13.33
Rows...Fins/in.	2...8.5	2...8.5	2...8.5	2...8.5	2...8.5
Water Volume					
(gal)	8.3	8.3	8.3	13.9	13.9
(ft³)	1.1	1.1	1.1	1.85	1.85

LEGEND

DX — Direct Expansion
IDF — Inside Diameter, Female
ODF — Outside Diameter, Female
ODM — Outside Diameter, Male
TXV — Thermostatic Expansion Valve

* Units are shipped without refrigerant charge.

† Field-installed accessory only.

Table 2 — 40RUA Physical Data, SI — Cooling Units

UNIT 40RUA	07	08	12	14	16
NOMINAL CAPACITY (kW)	21	26	35	43	52
OPERATING WEIGHT (kg)					
Base Unit with TXV	181	183	193	315	323
Plenum	80	80	80	102	102
FANS					
Qty...Diam. (mm)	1...381	1...381	1...381	2...381	2...381
Nominal Airflow (L/s)	1133	1604	1888	2360	2831
Airflow Range (L/s)	850-1416	1203-2006	1416-2360	1770-2949	2124-3539
Nominal Motor Hp (Standard Motor)					
208/230-1-60	0.97	1.79	—	—	—
208/230-3-60 and 460-3-60	1.79	1.79	1.79	2.16	2.16
575-3-60	0.75	1.49	1.49	2.24	2.24
Motor Speed (r/s)					
208/230-1-60	28.8	28.8	—	—	—
208/230-3-60 and 460-3-60	28.8	28.8	28.8	28.8	28.8
575-3-60	28.8	28.8	28.8	28.8	28.8
REFRIGERANT					
R-410A					
Operating Charge (kg) (approx per circuit)*	1.36	1.36	0.68/0.68	0.90/0.90	1.13/1.13
DIRECT - EXPANSION COIL					
Enhanced Copper Tubes, Aluminum Sine - Wave Fins					
Max Working Pressure (kPag)	4481	4481	4481	4481	4481
Face Area (sq m)	0.62	0.77	0.93	0.93	1.64
No. of Splits	1	1	2	2	2
No. of Circuits per Split	12	15	9	12	16
Split Type...Percentage	—	—	Face...50/50	Face...50/50	Face...50/50
Rows...Fins/m	4...591	4...591	4...591	4...591	4...591
PIPING CONNECTIONS					
Quantity...Size (in.)					
DX Coil — Suction (ODF)	1...1-1/8	1...1-1/8	2...1-1/8	2...1-1/8	2...1-1/8
DX Coil — Liquid Refrigerant (ODF)	1...5/8	1...5/8	2...5/8	2...5/8	2...5/8
Steam Coil, In (MPT)	1...2-1/2	1...2-1/2	1...2-1/2	1...2-1/2	1...2-1/2
Steam Coil, Out (MPT)	1...1-1/2	1...1-1/2	1...1-1/2	1...1-1/2	1...1-1/2
Hot Water Coil, In (MPT)	1...1-1/2	1...1-1/2	1...1-1/2	1...2	1...2
Hot Water Coil, Out (MPT)	1...1-1/2	1...1-1/2	1...1-1/2	1...2	1...2
Condensate (PVC)	1...1-5/8 ODM / 1-1/4 IDF				
FILTERS					
Throwaway — Factory Supplied					
Quantity...Size (mm)	4...406 x 610 x 51			4...406 x 508 x 51	
				4...406 x 610 x 51	
Access Location	Either Side				
STEAM COIL†					
Max Working Pressure (kPag at 126°C)	138	138	138	138	138
Total Face Area (sq m)	0.62	0.62	0.62	1.24	1.24
Rows...Fins/m	1...355	1...355	1...355	1...394	1...394
HOT WATER COIL†					
Max Working Pressure (kPag)	1034	1034	1034	1034	1034
Total Face Area (sq m)	0.62	0.62	0.62	1.24	1.24
Rows...Fins/m	2...335	2...335	2...335	2...335	2...335
Water Volume					
(L)	31.4	31.4	31.4	52.6	52.6
(m³)	0.031	0.031	0.031	0.052	0.052

LEGEND

DX — Direct Expansion
IDF — Inside Diameter, Female
ODF — Outside Diameter, Female
ODM — Outside Diameter, Male
TXV — Thermostatic Expansion Valve

* Units are shipped without refrigerant charge.

† Field-installed accessory only.

Table 3 — 40RUQ Physical Data, English — Heat Pump Units

UNIT 40RUQ	07	07T	08	12	16
NOMINAL CAPACITY (tons)	6	6	7-1/2	10	15
OPERATING WEIGHT (lb)					
Base Unit with TXV	381	381	385	427	713
Plenum	175	175	175	175	225
FANS					
Qty...Diam. (in.)	1...15	1...15	1...15	1...15	2...15
Nominal Airflow (cfm)	2400	2400	3000	4000	6000
Airflow Range (cfm)	1800-3000	1800-3000	2250-3750	3000-5000	4500-7500
Nominal Motor Hp (Standard Motor)					
208/230-1-60	1.3	1.3	2.4	—	—
208/230-3-60 and 460-3-60	2.4	2.4	2.4	2.4	3.7
575-3-60	1.0	1.0	2.0	2.0	3.0
Motor Speed (rpm)					
208/230-1-60	1725	1725	1725	—	—
208/230-3-60 and 460-3-60	1725	1725	1725	1725	1725
575-3-60	1725	1725	1725	1725	1725
REFRIGERANT	R-410A				
Operating Charge (lb) (approx per circuit)*	3.0	3.0	3.0	2.0/2.0	3.0/3.0
DIRECT - EXPANSION COIL	Enhanced Copper Tubes, Aluminum Sine - Wave Fins				
Max Working Pressure (psig)	650	650	650	650	650
Face Area (sq ft)	8.33	8.33	8.33	10	16.56
No. of Splits	1	1	1	2	2
No. of Circuits per Split	15	12	12	9	10
Split Type...Percentage	—	—	—	Face...50/50	Face...50/50
Rows...Fins/in.	3...15	4...15	4...15	4...15	4...15
PIPING CONNECTIONS					
Quantity...Size (in.)					
DX Coil — Suction (ODF)	1...1-1/8	1...1-1/8	1...1-1/8	2...1-1/8	2...1-1/8
DX Coil — Liquid Refrigerant (ODF)	1...5/8	1...5/8	1...5/8	2...5/8	2...5/8
Steam Coil, In (MPT)	1...2-1/2	1...2-1/2	1...2-1/2	1...2-1/2	1...2-1/2
Steam Coil, Out (MPT)	1...1-1/2	1...1-1/2	1...1-1/2	1...1-1/2	1...1-1/2
Hot Water Coil, In (MPT)	1...1-1/2	1...1-1/2	1...1-1/2	1...1-1/2	1...2
Hot Water Coil, Out (MPT)	1...1-1/2	1...1-1/2	1...1-1/2	1...1-1/2	1...2
Condensate (PVC)	1...1-5/8 ODM / 1-1/4 IDF				
FILTERS					
Throwaway — Factory Supplied					
Quantity...Size (in.)	4...16 x 24 x 2	4...16 x 24 x 2	4...16 x 24 x 2	4...16 x 24 x 2	4...16 x 20 x 2 4...16 x 24 x 2
Access Location	Either Side				
STEAM COIL†					
Max Working Pressure (psig at 260°F)	20	20	20	20	20
Total Face Area (sq ft)	6.67	6.67	6.67	6.67	13.33
Rows...Fins/in.	1...9	1...9	1...9	1...9	1...10
HOT WATER COIL†					
Max Working Pressure (psig)	150	150	150	150	150
Total Face Area (sq ft)	6.67	6.67	6.67	6.67	13.33
Rows...Fins/in.	2...8.5	2...8.5	2...8.5	2...8.5	2...8.5
Water Volume					
(gal)	8.3	8.3	8.3	8.3	13.9
(ft³)	1.1	1.1	1.1	1.1	1.85

LEGEND

DX — Direct Expansion
IDF — Inside Diameter, Female
ODF — Outside Diameter, Female
ODM — Outside Diameter, Male
TXV — Thermostatic Expansion Valve

* Units are shipped without refrigerant charge.

† Field-installed accessory only.

Table 4 — 40RUQ Physical Data, SI — Heat Pump Units

UNIT 40RUQ	07	07T	08	12	16
NOMINAL CAPACITY (kW)	21	21	26	35	52
OPERATING WEIGHT (kg)					
Base Unit with TXV	173	173	175	194	323
Plenum	80	80	80	80	102
FANS					
Qty...Diam. (mm)	1...381	1...381	1...381	1...381	2...381
Nominal Airflow (L/s)	1133	1133	1604	1888	2831
Airflow Range (L/s)	850-1416	850-1416	1203-2006	1416-2360	2124-3539
Nominal Motor Hp (Standard Motor)					
208/230-1-60	0.97	0.97	1.79	—	—
208/230-3-60 and 460-3-60	1.79	1.79	1.79	1.79	2.76
575-3-60	0.75	0.75	1.49	1.49	2.24
Motor Speed (r/s)					
208/230-1-60	28.8	28.8	28.8	—	—
208/230-3-60 and 460-3-60	28.8	28.8	28.8	28.8	28.8
575-3-60	28.8	28.8	28.8	28.8	28.8
REFRIGERANT	R-410A				
Operating Charge (kg) (approx per circuit)*	1.36	1.36	1.36	0.91/0.91	1.36/1.36
DIRECT - EXPANSION COIL	Enhanced Copper Tubes, Aluminum Sine - Wave Fins				
Max Working Pressure (kPag)	4482	4482	4482	4482	4482
Face Area (sq m)	0.77	0.77	0.77	0.93	1.54
No. of Splits	1	1	1	2	2
No. of Circuits per Split	15	12	12	9	10
Split Type...Percentage	—	—	—	Face...50/50	Face...50/50
Rows...Fins/m	3...591	4...591	4...591	3...591	4...591
PIPING CONNECTIONS					
Quantity...Size (in.)					
DX Coil — Suction (ODF)	1...1-1/8	1...1-1/8	1...1-1/8	2...1-1/8	2...1-1/8
DX Coil — Liquid Refrigerant (ODF)	1...5/8	1...5/8	1...5/8	2...5/8	2...5/8
Steam Coil, In (MPT)	1...2-1/2	1...2-1/2	1...2-1/2	1...2-1/2	1...2-1/2
Steam Coil, Out (MPT)	1...1-1/2	1...1-1/2	1...1-1/2	1...1-1/2	1...1-1/2
Hot Water Coil, In (MPT)	1...1-1/2	1...1-1/2	1...1-1/2	1...1-1/2	1...2
Hot Water Coil, Out (MPT)	1...1-1/2	1...1-1/2	1...1-1/2	1...1-1/2	1...2
Condensate (PVC)	1...1-5/8 ODM / 1-1/4 IDF				
FILTERS	Throwaway — Factory Supplied				
Quantity...Size (mm)	4...406 x 610 x 51	4...406 x 610 x 51	4...406 x 610 x 51	4...406 x 610 x 51	4...406 x 508 x 51 4...406 x 610 x 51
Access Location	Either Side				
STEAM COIL†					
Max Working Pressure (kPag at 126°C)	138	138	138	138	138
Total Face Area (sq m)	0.62	0.62	0.62	0.62	1.24
Rows...Fins/m	1...355	1...355	1...355	1...355	1...394
HOT WATER COIL†					
Max Working Pressure (kPag)	1034	1034	1034	1034	1034
Total Face Area (sq m)	0.62	0.62	0.62	0.62	1.24
Rows...Fins/m	2...335	2...335	2...335	2...335	2...335
Water Volume					
(L)	31.4	31.4	31.4	31.4	52.6
(m³)	0.031	0.031	0.031	0.031	0.052

LEGEND

DX — Direct Expansion
IDF — Inside Diameter, Female
ODF — Outside Diameter, Female
ODM — Outside Diameter, Male
TXV — Thermostatic Expansion Valve

* Units are shipped without refrigerant charge.

† Field-installed accessory only.

Table 5 — 40RUS Physical Data, English — Chilled Water Units

UNIT 40RUS	08	10	12	14	16
NOMINAL CAPACITY (tons)	7-1/2	8-1/2	10	12-1/2	15
OPERATING WEIGHT (lb)					
Base Unit	390	391	391	661	677
Plenum	175	175	175	225	225
FANS					
Qty...Diam. (in.)	1...15	1...15	1...15	2...15	2...15
Nominal Airflow (cfm)	3000	3000	4000	5000	6000
Airflow Range (cfm)	2250-3750	2250-4250	3000-5000	3750-6250	4500-7500
Nominal Motor Hp (Standard Motor)					
208/230-1-60	2.4	2.4	—	—	—
208/230-3-60 and 460-3-60	2.4	2.4	2.4	2.9	3.7
575-3-60	2.0	2.0	2.0	3.0	3.0
Motor Speed (rpm)					
208/230-1-60	1725	1725	—	—	—
208/230-3-60 and 460-3-60	1725	1725	1725	1725	1725
575-3-60	1725	1725	1725	1725	1725
CHILLED WATER COIL	Enhanced Copper Tubes, Aluminum Sine - Wave Fins				
Max Working Pressure (psig)	435	435	435	435	435
Face Area (sq ft) — Upper	8.3	9.0	9.9	8.3	8.3
Face Area (sq ft) — Lower	—	—	—	5.5	8.3
Rows...Fins/in.	3...15	3...15	3...15	3...15	3...15
PIPING CONNECTIONS					
Quantity...Size (in.)					
Chilled Water — In	1...1-3/8 ODF	1...1-3/8 ODF	1...1-3/8 ODF	2...1-3/8 ODM	2...1-3/8 ODM
Chilled Water — Out	1...1-3/8 ODF	1...1-3/8 ODF	1...1-3/8 ODF	2...1-3/8 ODM	2...1-3/8 ODM
Steam Coil, In (MPT)	1...2-1/2	1...2-1/2	1...2-1/2	1...2-1/2	1...2-1/2
Steam Coil, Out (MPT)	1...1/2	1...1/2	1...1/2	1...1/2	1...1/2
Hot Water Coil, In (MPT)	1...1-1/2	1...1-1/2	1...1-1/2	1...2	1...2
Hot Water Coil, Out (MPT)	1...1-1/2	1...1-1/2	1...1-1/2	1...2	1...2
Condensate (PVC)	1...1-5/8 ODM / 1-1/4 IDF				
FILTERS					
Throwaway — Factory Supplied					
Quantity...Size (in.)	4...16 x 24 x 2	4...16 x 24 x 2	4...16 x 24 x 2	4...16 x 20 x 2	4...16 x 20 x 2
				4...16 x 24 x 2	4...16 x 24 x 2
Access Location	Either Side				
STEAM COIL*					
Max Working Pressure (psig at 260°F)	20	20	20	20	20
Total Face Area (sq ft)	6.67	6.67	6.67	13.33	13.33
Rows...Fins/in.	1...9	1...9	1...9	1...9	1...10
HOT WATER COIL*					
Max Working Pressure (psig)	150	150	150	150	150
Total Face Area (sq ft)	6.67	6.67	6.67	13.33	13.33
Rows...Fins/in.	2...8.5	2...8.5	2...8.5	2...8.5	2...8.5
Water Volume					
(gal)	8.3	8.3	8.3	13.9	13.9
(ft³)	1.1	1.1	1.1	1.85	1.85

LEGEND

IDF — Inside Diameter, Female
ODF — Outside Diameter, Female
ODM — Outside Diameter, Male

* Field-installed accessory only.

Table 6 — 40RUS Physical Data, SI — Chilled Water Units

UNIT 40RUS	08	10	12	14	16
NOMINAL CAPACITY (kW)	26	29	35	43	52
OPERATING WEIGHT (kg)					
Base Unit	177	177	177	300	307
Plenum	80	80	80	102	102
FANS					
Qty...Diam. (mm)	1...381	1...381	1...381	2...381	2...381
Nominal Airflow (L/s)	1416	1605	1888	2360	2831
Airflow Range (L/s)	1062-1770	1204-2006	1416-2360	1770-2949	2124-3539
Nominal Motor Hp (Standard Motor)					
208/230-1-60	1.79	1.79	—	—	—
208/230-3-60 and 460-3-60	1.79	1.79	1.79	1.79	2.76
575-3-60	1.49	1.49	1.49	1.49	2.24
Motor Speed (r/s)					
208/230-1-60	28.8	28.8	—	—	—
208/230-3-60 and 460-3-60	28.8	28.8	28.8	28.8	28.8
575-3-60	28.8	28.8	28.8	28.8	28.8
CHILLED WATER COIL	Enhanced Copper Tubes, Aluminum Sine - Wave Fins				
Max Working Pressure (kPag)	2999	2999	2999	2999	2999
Face Area (sq m) — Upper	0.77	0.84	0.91	0.77	0.77
Face Area (sq m) — Lower	—	—	—	0.51	0.77
Rows...Fins/m	3...591	3...591	3...591	3...591	3...591
PIPING CONNECTIONS					
Quantity...Size (in.)					
Chilled Water — In	1...1-3/8 ODF	1...1-3/8 ODF	1...1-3/8 ODF	2...1-3/8 ODM	2...1-3/8 ODM
Chilled Water — Out	1...1-3/8 ODF	1...1-3/8 ODF	1...1-3/8 ODF	2...1-3/8 ODM	2...1-3/8 ODM
Steam Coil, In (MPT)	1...2-1/2	1...2-1/2	1...2-1/2	1...2-1/2	1...2-1/2
Steam Coil, Out (MPT)	1...1/2	1...1/2	1...1/2	1...1/2	1...1/2
Hot Water Coil, In (MPT)	1...1-1/2	1...1-1/2	1...1-1/2	1...2	1...2
Hot Water Coil, Out (MPT)	1...1-1/2	1...1-1/2	1...1-1/2	1...2	1...2
Condensate (PVC)	1...1-5/8 ODM / 1-1/4 IDF				
FILTERS					
Throwaway — Factory Supplied					
Quantity...Size (mm)	4...406 x 610 x 51			4...406 x 508 x 51	
				4...406 x 610 x 51	
Access Location	Either Side				
STEAM COIL*					
Max Working Pressure (kPag at 126°C)	138	138	138	138	138
Total Face Area (sq m)	0.62	0.62	0.62	1.24	1.24
Rows...Fins/m	1...355	1...355	1...355	1...355	1...394
HOT WATER COIL*					
Max Working Pressure (kPag)	1034	1034	1034	1034	1034
Total Face Area (sq m)	0.62	0.62	0.62	1.24	1.24
Rows...Fins/m	2...335	2...335	2...335	2...335	2...335
Water Volume					
(L)	31.4	31.4	31.4	52.6	52.6
(m³)	0.031	0.031	0.031	0.052	0.052

LEGEND

IDF — Inside Diameter, Female
ODF — Outside Diameter, Female
ODM — Outside Diameter, Male

* Field-installed accessory only.

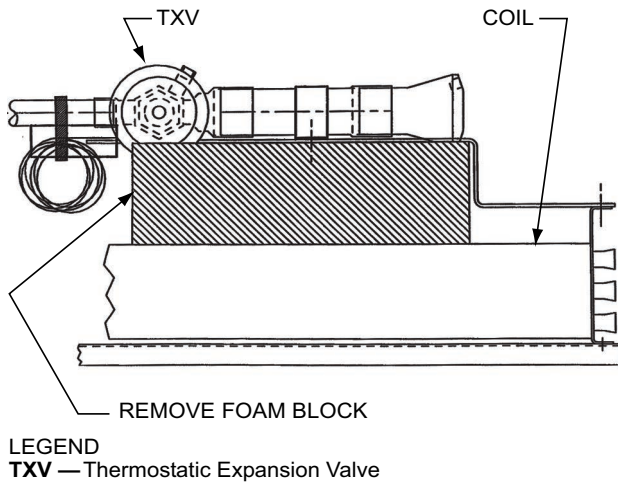


Fig. 4 — Foam Block Location

Rated Indoor Airflow (cfm)

Tables 7-9 list the rated indoor airflow used for the AHRI (Air-Conditioning, Heating, and Refrigeration Institute) efficiency rating for the units covered in this document.

Table 7 — 38AUZ with 40RUA

MODEL NUMBER	FULL LOAD AIRFLOW (CFM)
38AUZA/B07 — 40RUA*07	2400
38AUZD/E07 — 40RUA*07	2625
38AUZA/B08 — 40RUA*08	3000
38AUZD/E08 — 40RUA*08	3000
38AUZ*12 — 40RUA*12	4000
38AUZ*14 — 40RUA*14	4375
38AUZ*16 — 40RUA*16	6000

Table 8 — 38AUD with 40RUA

MODEL NUMBER	FULL LOAD AIRFLOW (CFM)
38AUD*12 — 40RUA*12	4000
38AUD*14 — 40RUA*14	4400
38AUD*16 — 40RUA*16	6000

Table 9 — 38AUQ with 40RUQ

MODEL NUMBER	FULL LOAD AIRFLOW (CFM)
38AUQA/B07 — 40RUQ*07	2400
38AUQD/E07 — 40RUQ*07	2400
38AUQA/B08 — 40RUQ*08	3000
38AUQD/E08 — 40RUQ*08	2625
38AUQA/B12 — 40RUQ*12	3000
38AUQD/E12 — 40RUQ*12	3000
38AUQ*16 — 40RUQ*16	6000

Unit Positioning

The unit can be mounted on the floor for vertical application with return air entering the face of the unit and supply air discharging vertically through the top of the unit. The unit can also be applied in a horizontal arrangement with return air entering horizontally and the supply air discharging horizontally. When applying the unit in a horizontal arrangement, ensure the condensate drain pan is located at the bottom center of the unit for adequate condensate disposal. See Fig. 5 for condensate connections for each unit position.

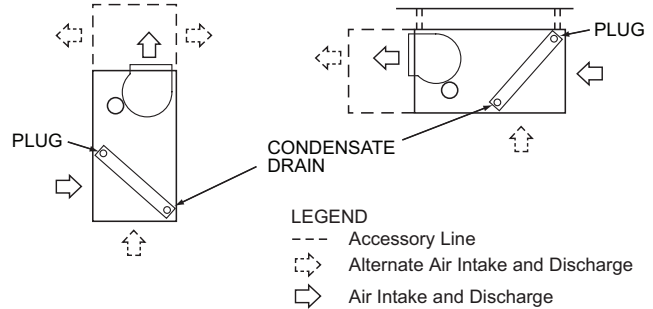


Fig. 5 — Typical Unit Positioning

IMPORTANT: Do NOT attempt to install unit with return air entering top panel of unit. Condensate will not drain from unit.

Typical positioning and alternate return air locations are shown in Fig. 5. Alternate return air locations can be used by moving the unit panel from the alternate return air location to the standard return air location. Refer to overhead suspension accessory drawing (see Fig. 6) for preferred suspension technique. The unit needs support underneath to prevent sagging.

Unit Isolation

Where extremely quiet operation is essential, install isolators between floor and base of unit, or between ceiling and top section of unit.

Be sure that unit is level and adequately supported. Use channels at front and sides of unit for reference points when leveling.

IMPORTANT: Do not bury refrigerant piping underground.

OVERHEAD SUSPENSION ACCESSORY

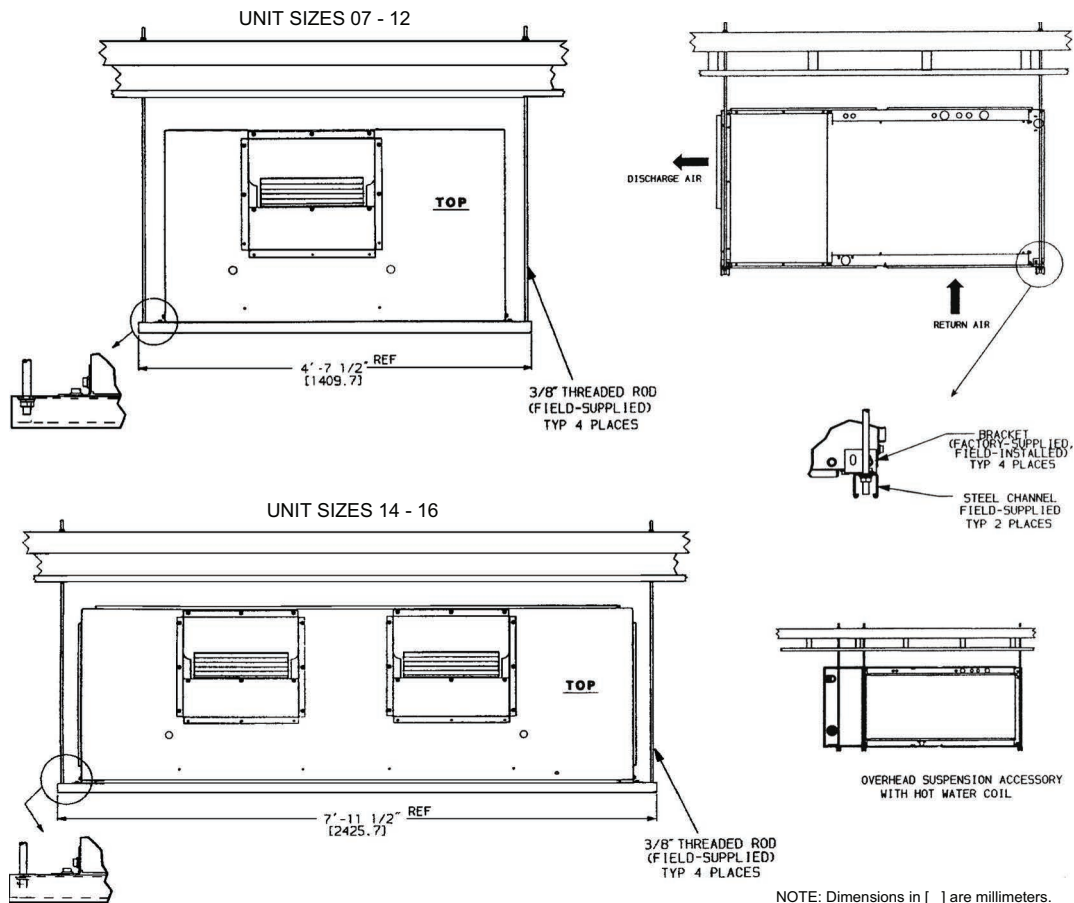


Fig. 6 — Preferred Suspension Technique

Refrigerant Piping

See Tables 1-6 for refrigerant pipe connection sizes. For ease in brazing, it is recommended that all internal solder joints be made before unit is placed in final position.

The 40RU direct-expansion units have internal factory-installed thermostatic expansion valves (TXVs), distributors, and nozzles for use with R-410A. See Table 10 for part numbers. Knockouts are provided in the unit corner posts for 40RU refrigerant piping. See Fig. 7, which also lists recommended knockouts and access holes to use for each 40RU unit size. Recommended fittings are listed in Table 11.

The sensor bulb capillary tubes must be routed from the TXVs inside the unit through one of the piping access holes. Clamp the TXV sensor bulb on a vertical portion of the suction line, outside the unit. (See Fig. 8.)

Refrigerant and Chilled Water Piping Access

The 40RU Series units come with standard knockouts for refrigerant and chilled water piping. These knockouts are located on both sides of the unit for installation flexibility. The standard knockouts provide sufficient access to the unit's coils for all 40RUA*07, 08, 12, 14, and 16 and 40RUQ*07, 08, and 12 units. 40RUQ*16 units, as well as 40RUS*08, 12, 14, and 16 units require additional holes

that must be field-fabricated to accommodate the piping. See Fig. 7 for the positions and dimensions of the additional access holes required for 40RUQ*16 and 40RUS units. Recommended access hole use is also listed for all units. Note that Fig. 7 shows the access holes on the control-box side of the unit; this is the side of the unit with the coil headers, so it is used most often for piping access.

NOTE: Be sure to remove the styrofoam shipping pad from the TXV. Verify that it has been removed. (See Fig. 4.)

IMPORTANT: Never attach the sensor to the suction manifold. Do NOT mount the sensor on a trapped portion of the suction line.

The 40RU Series evaporator coils have a face-split design. Ensure that lower circuit of coil is first on/last off when connected to the condensing unit and/or system controls. (See Fig. 9.)

External TXV equalizer connections are provided and factory-brazed into the coil suction manifolds.

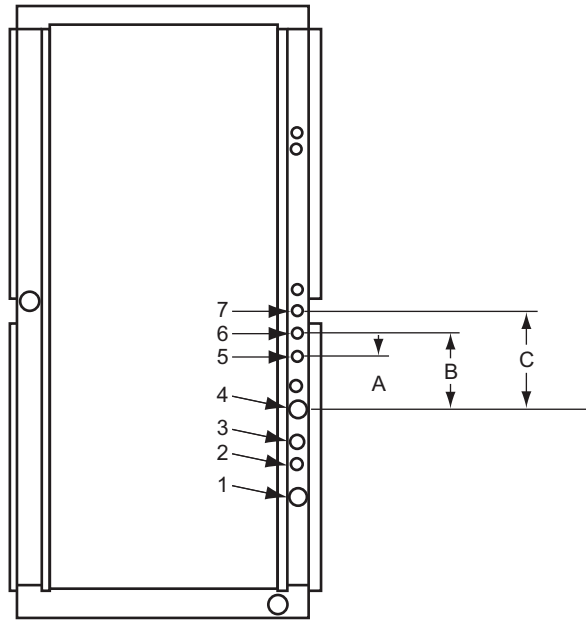
If suction line must be horizontal, clamp bulb to suction line at least 45 degrees above bottom, at approximately the 4 o'clock or 8 o'clock position. (See Fig. 10.)

Table 10 — Factory-Installed Nozzle and Distributor Data

UNIT	COIL TYPE STD	TXV QTY...PART NO.	DISTRIBUTOR QTY... PART NO.	FEEDER TUBES PER DISTRIBUTOR* QTY...SIZE (IN.)	NOZZLE QTY...PART NO.
40RUA*07	4 Row	1...BBIZE—5—GA	1...1135	12...1/4	1...G4
40RUQ*07	3 Row	1...BBIZE—5—GA	1...1136	15...1/4	1...G5
40RUQ*07T	4 Row	1...BBIZE—8—GA	1...1113	12...3/16	1...G5
40RUA*08	4 Row	1...BBIZE—6—GA	1...1136	15...1/4	1...G5
40RUQ*08	4 Row	1...BBIZE—8—GA	1...1113	12...3/16	1...G5
40RUA*12	4 Row	2...BBIZE—4—GA	2...1135	9...1/4	2...G3
40RUQ*12	4 Row	2...BBIZE—5—GA	2...1113	9...3/16	2...G3
40RUA*14	4 Row	2...BBIZE—5—GA	2...1113	12...3/16	2...G3
40RUA*16	4 Row	2...BBIZE—6—GA	2...1136	16...3/16	2...G4
40RUQ*16	4 Row	2...BBIZE—8—GA	2...1113	10...3/16	2...G5

* Feeder tube size is 1/4 in. (6.35 mm).

NOTE: Hot gas bypass applications require field-supplied auxiliary side connector.



UNIT	USE HOLE NUMBERS	FIELD-FABRICATED HOLE DIAMETERS IN. (MM)			FIELD-FABRICATED HOLE POSITION DIMENSIONS, IN. (MM)		
		NO. 5	NO. 6	NO.7	A	B	C
40RUA*07, 08 40RUQ*07,08	1, 3	—	—	—	—	—	—
40RUA*12, 14, 16 40RUQ*12	1, 2, 3, 4	—	—	—	—	—	—
40RUS*08, 10, 12	4, 5	1-3/4 (44.5)	—	—	6.25 (158.8)	—	—
RUS*14, 16	4, 5, 6, 7	1-3/4 (44.5)	1-3/4 (44.5)	1-3/4 (44.5)	3.0 (76.2)	6.0 (152.5)	10.5 (266.7)
40RUQ*16	3*, 5, 6, 7	1-1/8 (28.6)	1-1/8 (28.6)	1-3/4 (44.5)	3.25 (82.6)	6.125 (155.6)	10.38 (263.7)

* Must be enlarged from 1-1/8 in. (28.6 mm) to 1-3/4 in. (44.5 mm)

NOTE: Access hole knockouts 1-4 are factory-supplied.

Fig. 7 — Refrigerant and Chilled Water Piping Access Holes

Table 11 — Fitting Requirements

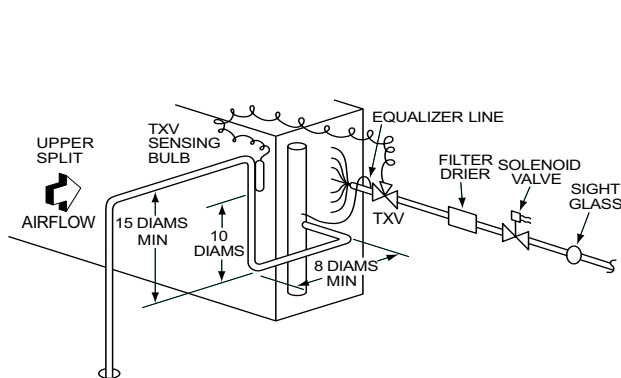
UNIT	ACCESS HOLE NO.*	CONNECTION TYPE	CIRCUIT	FITTING REQUIRED† (IN.)
40RUA*07 40RUQ*07	1	Suction	—	1-1/8 Street Elbow 1-1/8 Nipple, 10-5/8 L 1-1/8 Long Radius Elbow
	3	Liquid	—	5/8 Street Elbow 5/8 Nipple, 8-5/8 L 5/8 Long Radius Elbow
40RUA*08 40RUQ*08	1	Suction	—	1-1/8 Street Elbow 1-1/8 Nipple, 8-5/8 L 1-1/8 Long Radius Elbow
	3	Liquid	—	5/8 Street Elbow 5/8 Nipple, 8-5/8 L 5/8 Long Radius Elbow
40RUS*08 40RUS*10 40RUS*12	4	Return	—	1-3/8 Nipple, 4-3/8 L 1-3/8 Long Radius Elbow 1-3/8 Nipple, 7-3/8 L 1-3/8 Long Radius Elbow
	5	Supply	—	1-3/8 Nipple, 6-5/8 L 1-3/8 Long Radius Elbow
40RUA*12	1	Suction	Lower	(2) 1-1/8 Street Elbow
	2	Liquid	Lower	5/8 Street Elbow 5/8 Nipple, 8-1/2 L 5/8 Long Radius Elbow
	3	Liquid	Upper	5/8 Street Elbow 5/8 Nipple, 13-1/2 L 5/8 Long Radius Elbow
	4	Suction	Upper	1-1/8 Nipple, 5-3/4 L 1-1/8 Long Radius Elbow 1-1/8 Nipple, 12 L 1-1/8 Long Radius Elbow
40RUQ*12	1	Suction	Lower	(2) 1-1/8 Street Elbow
	2	Liquid	Lower	5/8 Street Elbow 5/8 Nipple, 5-1/2 L 5/8 Long Radius Elbow
	3	Liquid	Upper	5/8 Street Elbow 5/8 Nipple, 10-1/2 L 5/8 Long Radius Elbow
	4	Suction	Upper	1-1/8 Nipple, 5-5/8 L 1-1/8 Long Radius Elbow 1-1/8 Nipple, 12 L 1-1/8 Long Radius Elbow
40RUA*14	1	Suction	Lower	1-1/8 Street Elbow 1-1/8 Nipple, 7-5/8 L 1-1/8 Long Radius Elbow
	2	Liquid	Lower	5/8 Street Elbow 5/8 Nipple, 1-7/16 L 5/8 Long Radius Elbow
	3	Liquid	Upper	5/8 Street Elbow 5/8 Nipple, 11-1/2 L 5/8 Long Radius Elbow
	4	Suction	Upper	1-1/8 Nipple, 5-5/8 L 1-1/8 Long Radius Elbow 1-1/8 Nipple, 13 L 1-1/8 Long Radius Elbow
40RUA*16	1	Suction	Lower	1-1/8 Street Elbow 1-1/8 Nipple, 72-3/4 L 1-1/8 Long Radius Elbow
	2	Liquid	Lower	5/8 Street Elbow 5/8 Nipple, 1-3/8 L 5/8 Long Radius Elbow
	3	Liquid	Upper	5/8 Street Elbow 5/8 Nipple, 11-1/2 L 5/8 Long Radius Elbow
	4	Suction	Upper	1-1/8 Nipple, 5-5/8 L 1-1/8 Long Radius Elbow 1-1/8 Nipple, 13 L 1-1/8 Long Radius Elbow

Table 11 — Fitting Requirements (cont)

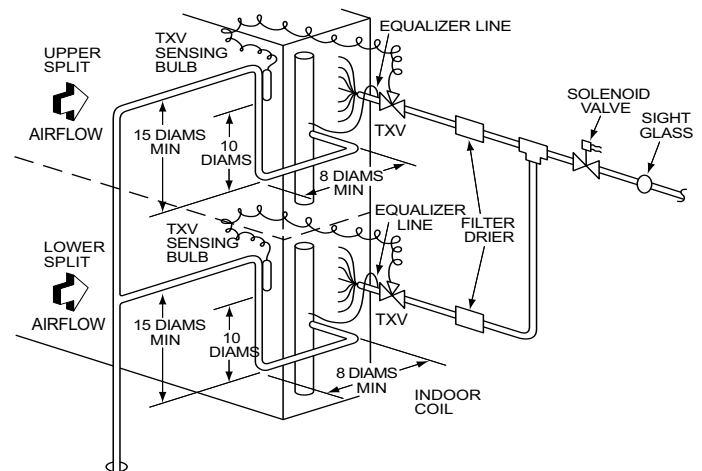
UNIT	ACCESS HOLE NO.*	CONNECTION TYPE	CIRCUIT	FITTING REQUIRED† (IN.)
40RUQ*16	3	Suction	Lower	1-1/8 Nipple, 3 L 1-1/8 Long Radius Elbow
	5	Suction	Lower	5/8 Nipple, 2-7/8 L 5/8 45° Elbow 5/8 Nipple, 1-5/8 L 5/8 Long Radius Elbow
	6	Liquid	Upper	5/8 Nipple, 2-7/8 L 5/8 45° Elbow 5/8 Nipple, 4-1/4 L 5/8 Long Radius Elbow
	7	Suction	Upper	1-1/8 Nipple, 5 L 1-1/8 45° Elbow 1-1/8 Nipple, 8-3/4 L 1-1/8 Long Radius Elbow
40RUS*14 40RUS*16	4	Supply	Lower	1-3/8 Long Radius Elbow 1-3/8 Nipple, 3-3/4 L 1-3/8 Long Radius Elbow
	5	Return	Lower	1-3/8 Long Radius Elbow 1-3/8 Nipple, 3-3/8 L 1-3/8 Long Radius Elbow
	6	Return	Upper	1-3/8 Long Radius Elbow 1-3/8 Nipple, 7 L 1-3/8 Long Radius Elbow
	7	Supply	Upper	1-3/8 Long Radius Elbow 1-3/8 Nipple, 11-3/4 L 1-3/8 Long Radius Elbow

* See Fig. 7 for access hole location by number.

† Fittings are listed in order from header or tee stub connection out to access hole in corner support post.



Single Circuit Coil Piping Configuration - RU*07, 08
For single compressor condensing units.



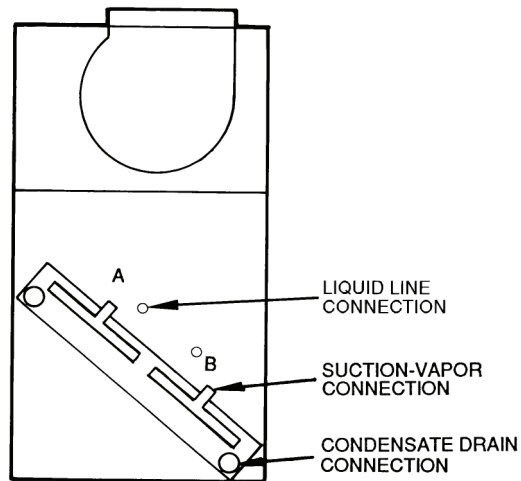
Dual Circuit Coil Piping Configuration - RU*12-16
For single compressor condensing units

LEGEND

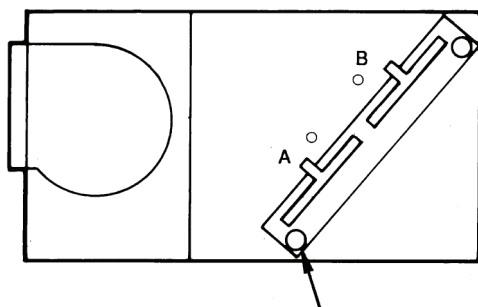
TXV — Thermostatic Expansion Valve

NOTE: Component location arrangement shown for field installation of sight glasses, solenoid valves, filter driers, and TXV sensing bulbs. The TXVs and equalizer lines are factory-installed.

Fig. 8 — Face-Split Coil and Liquid Line Piping (Typical)

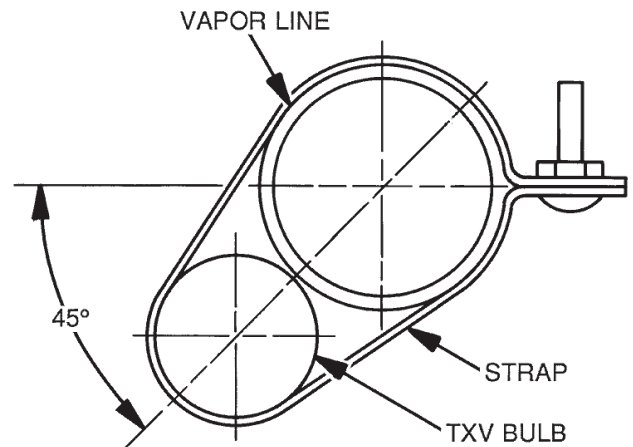


FIRST ON/LAST OFF = B
VERTICAL INSTALLATION



CONDENSATE DRAIN CONNECTION
FIRST ON/LAST OFF = A
HORIZONTAL INSTALLATION

Fig. 9 — Typical Evaporator Coil Connections (40RU)



LEGEND

TXV — Thermostatic Expansion Valve

NOTE: The 8 o'clock position is shown above.

Fig. 10 — TXV Sensing Bulb Location

Chilled Water Piping

See Tables 5 and 6 for chilled water connection sizes. For ease in brazing, it is recommended that all internal solder joints be made before unit is placed in final position.

Knockouts are provided in the unit corner posts for 40RUS refrigerant piping. Additional field-fabricated access holes are required for 40RUS chilled water piping. See Fig. 7, which lists recommended knockouts and access holes to use for each 40RUS unit size.

To size, design, and install chilled water piping, consult the Carrier System Design manual. See Fig. 11 for an example of a typical installation. Recommended fittings are listed in Table 11.

To access 40RUS coil vents and drains, remove the unit side panel over the coil header. Vent and drain plugs are on the top and bottom of header, respectively. See the Service section for information on preventing coil freeze-up during winter.

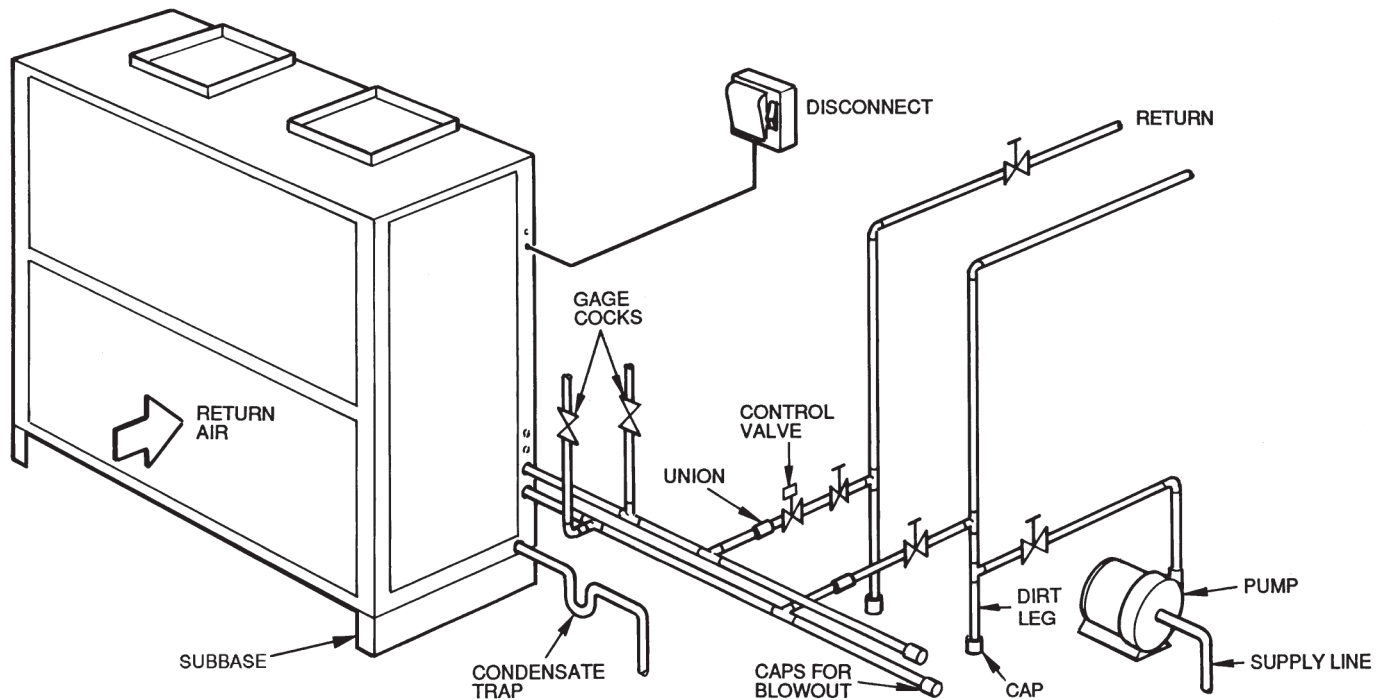


Fig. 11 — Typical 40RUS Chilled Water Piping

Condensate Drain

Install a trapped condensate drain line to unit connection as shown in Fig. 12. The unit drain connection is a PVC stub. (See Fig. 13.) Some areas may require an adapter to connect to either galvanized steel or copper pipe. For these applications, install a field-supplied threaded PVC adapter.

NOTE: A trap must be installed in the condensate drain line to ensure that the static pressure of fans is balanced with the water column in the drain line and that condensate can drain completely from pan. Without a trap, air can be drawn up drain line until water level in condensate pan becomes equal to static pressure created by fans, preventing complete drainage. Conditions will worsen as filters become dirty.

Install clean-out plugs in trap. Pitch drain line downward to an open floor drain or sump. Provide service clearance around drain line to permit removal of unit panels. Observe all local sanitary codes.

As shipped, the unit's condensate drain pan is NOT sloped towards the drain connection. The pan slope must be changed to pitch towards the side of the unit with the drain connection. (See Fig. 13.) Loosen the 2 screws next to the drain outlet at both ends of the unit, push drain pan down in the slots near the drain connection, and up in the slots on the opposite end. Re-tighten screws. The pan should have a pitch of at least 1/4 in. over its length toward the drain connection.

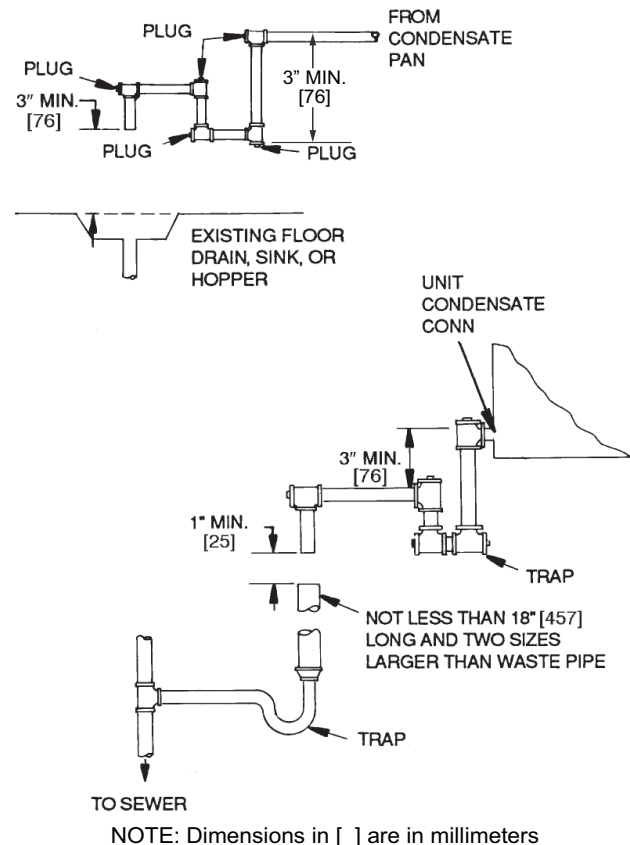


Fig. 12 — Condensate Drain

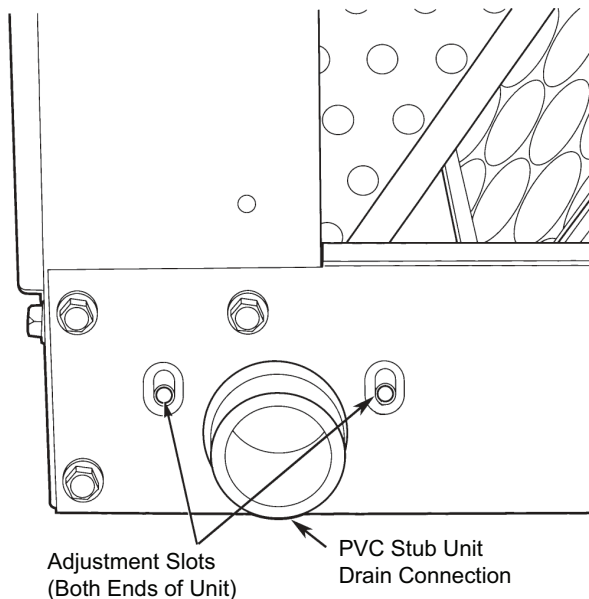


Fig. 13 — Drain Pan Slope Adjustment

Fan Motors and Drives

Motor and drive packages are factory installed in all units. The motor and drive packages consist of the following items:

- 1 — fan motor
- 1 — adjustable motor pulley
- 1 — fan pulley
- 1 — fan belt
- (40RUA*07-12, 40RUQ*07-12, 40RUS*08-12 units)
- 2 — matched fan belts
- (40RUA*14-16, 40RUQ*16, 40RUS*14-16 units)

For instructions on changing fan rotation, changing drive speeds and adjusting drives, see “Pulley and Drive Adjustment” on page 30.

Power Supply and Wiring

Check the unit data plate to ensure that available power supply matches electrical characteristics of the unit. Provide a disconnect switch with an integrated lock-out feature of size required to provide adequate fan motor starting current. See Tables 12-15 for unit electrical data. See Table 16 for fan contactor coil data.

⚠ WARNING

Failure to follow this warning could result in personal injury or death.

Do not use gas piping as an electrical ground.

Unit cabinet must have an uninterrupted, unbroken electrical ground to minimize the possibility of personal injury if an electrical fault should occur. This ground may consist of electrical wire connected to unit ground lug in control compartment, or conduit approved for electrical ground when installed in accordance with NEC (National Electrical Code); ANSI/NFPA 70, latest edition (in Canada, Canadian Electrical Code CSA [Canadian Standards Association] C22.1), and local electrical codes.

⚠ WARNING

FIRE HAZARD

Failure to follow this warning could result in personal injury, death, or property damage.

Do not connect aluminum wire between disconnect switch and fan coil unit. Use only copper wire. (See Fig. 14.)

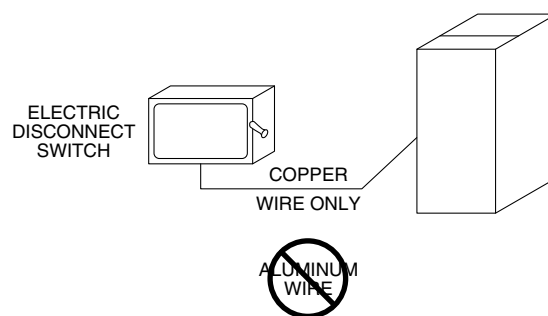


Fig. 14 — Disconnect Switch and Unit

Table 12 — Electrical Data, Standard Motors — Single Speed

UNIT	V-PH-Hz*	VOLTAGE LIMITS	FAN MOTOR		POWER SUPPLY	
			Hp (kW)	FLA	MINIMUM CIRCUIT AMPS	MAX FUSE OR HACR BRKR
40RUA*07 40RUQ*07	208/230-160	187-253	1.3 (0.97)	6.6	9.0	15
	208/230-3-60	187-253	2.4 (1.79)	5.2	7.0	15
	460-3-60	414-506	2.4 (1.79)	2.6	4.0	15
	575-3-60	518-632	1.0 (0.75)	1.4	2.0	15
40RUA*08 40RUS*08 40RUQ*08	208/230-1-60	187-253	2.4 (1.79)	11.0	13.8	20
	208/230-3-60	187-253	2.4 (1.79)	5.2	7.0	15
	460-3-60	414-506	2.4 (1.79)	2.6	4.0	15
	575-3-60	518-632	2.0 (1.49)	2.4	3.0	15
40RUS*10	208/230-1-60	187-253	2.4 (1.79)	11.0	13.8	20
	208/230-3-60	187-253	2.4 (1.79)	5.2	7.0	15
	460-3-60	414-506	2.4 (1.79)	2.6	4.0	15
	575-3-60	518-632	2.0 (1.49)	2.3	3.0	15
40RUA*12 40RUS*12 40RUQ*12	208/230-3-60	187-253	2.4 (1.79)	5.2	7.0	15
	460-3-60	414-506	2.4 (1.79)	2.6	4.0	15
	575-3-60	518-632	2.0 (1.49)	2.4	3.0	15
40RUA*14 40RUS*14	208/230-3-60	187-253	2.9 (2.16)	7.5	10.0	15
	460-3-60	414-506	2.9 (2.16)	3.4	5.0	15
	575-3-60	518-632	3.0 (2.24)	3.8	5.0	15
40RUA*16 40RUS*16 40RUQ*16	208/230-3-60	187-253	3.7 (2.76)	10.2	13.0	20
	460-3-60	414-506	3.7 (2.76)	4.8	6.0	15
	575-3-60	518-632	3.0 (2.24)	3.8	5.0	15

See Legend and Notes on page 26.

Table 13 — Electrical Data, Alternate Motors — Single Speed

UNIT	V-PH-Hz*	VOLTAGE LIMITS	FAN MOTOR		POWER SUPPLY	
			Hp (kW)	FLA	MINIMUM CIRCUIT AMPS	MAX FUSE OR HACR BRKR
40RUA*07 40RUQ*07	208/230-1-60	187-253	2.4 (1.79)	11.0	13.8	20
	208/230-3-60	187-253	2.9 (2.16)	7.5	10.0	15
	460-3-60	414-506	2.9 (2.16)	3.4	5.0	15
	575-3-60	518-632	2.0 (1.49)	2.4	3.0	15
40RUA*08 40RUS*08 40RUQ*08	208/230-1-60	187-253	2.4 (1.79)	11.0	13.8	15
	208/230-3-60	187-253	2.9 (2.16)	7.5	10.0	15
	460-3-60	414-506	2.9 (2.16)	3.4	5.0	15
	575-3-60	518-632	3.0 (2.24)	3.8	5.0	15
40RUS*10	208/230-1-60	187-253	2.4 (1.79)	11.0	13.8	20
	208/230-3-60	187-253	2.9 (2.16)	7.5	10.0	15
	460-3-60	414-506	2.9 (2.16)	3.4	5.0	15
	575-3-60	518-632	3.0 (2.24)	3.8	5.0	15
40RUA*12 40RUS*12 40RUQ*12	208/230-3-60	187-253	3.7 (2.76)	10.2	13.0	20
	460-3-60	414-506	3.7 (2.76)	4.8	6.0	15
	575-3-60	518-632	3.0 (2.24)	3.8	5.0	15
40RUA*14 40RUS*14	208/230-3-60	187-253	3.7 (2.76)	10.2	13.0	20
	460-3-60	414-506	3.7 (2.76)	4.8	6.0	15
	575-3-60	518-632	5.0 (3.73)	8.0	10.0	15
40RUA*16 40RUS*16 40RUQ*16	208/230-3-60	187-253	5.0 (3.73)	18.0	23.0	40
	460-3-60	414-506	5.0 (3.73)	9.1	12.0	20
	575-3-60	518-632	5.0 (3.73)	8.0	10.0	15

See Legend and Notes on page 26.

Table 14 — Electrical Data, Standard Motors — Two Speed

UNIT	V-PH-Hz*	VOLTAGE LIMITS	FAN MOTOR		POWER SUPPLY	
			Hp (kW)	FLA	MINIMUM CIRCUIT AMPS	MAX FUSE OR HACR BRKR
40RUA*07 40RUQ*07	208/230-3-60	187-253	2.4 (1.79)	7.1	9.0	15
	460-3-60	414-506	2.4 (1.79)	3.8	5.0	15
	575-3-60	518-632	2.4 (1.79)	3.5	5.0	15
40RUA*08 40RUS*08 40RUQ*08	208/230-3-60	187-253	2.4 (1.79)	7.1	9.0	15
	460-3-60	414-506	2.4 (1.79)	3.8	5.0	15
	575-3-60	518-632	2.4 (1.79)	3.5	5.0	15
40RUS*10	208/230-3-60	187-253	2.4 (1.79)	7.1	9.0	15
	460-3-60	414-506	2.4 (1.79)	3.8	5.0	15
	575-3-60	518-632	2.4 (1.79)	3.5	5.0	15
40RUA*12 40RUS*12	208/230-3-60	187-253	2.4 (1.79)	7.1	9.0	15
	460-3-60	414-506	2.4 (1.79)	3.8	5.0	15
	575-3-60	518-632	2.4 (1.79)	3.5	5.0	15
40RUQ*12 Units Produced On or Prior to 02/28/2016	208/230-3-60	187-253	2.4 (1.79)	7.1	9.0	15
	460-3-60	414-506	2.4 (1.79)	3.8	5.0	15
	575-3-60	518-632	2.4 (1.79)	3.5	5.0	15
40RUQ*12 Units Produced On or After 02/29/2016	208/230-3-60	187-253	1.7 (1.27)	5.8	8.0	15
	460-3-60	414-506	1.7 (1.27)	2.9	4.0	15
	575-3-60	518-632	1.7 (1.27)	2.8	4.0	15
40RUA*14 40RUS*14	208/230-3-60	187-253	2.9 (2.16)	8.6	11.0	15
	460-3-60	414-506	2.9 (2.16)	3.8	5.0	15
	575-3-60	518-632	3.7 (2.76)	4.5	6.0	15
40RUA*16 40RUS*16 40RUQ*16	208/230-3-60	187-253	3.7 (2.76)	10.8	14.0	20
	460-3-60	414-506	3.7 (2.76)	4.9	7.0	15
	575-3-60	518-632	3.7 (2.76)	4.5	6.0	15

See Legend and Notes on page 26.

Table 15 — Electrical Data, Alternate Motors — Two Speed

UNIT	V-PH-Hz*	VOLTAGE LIMITS	FAN MOTOR		POWER SUPPLY	
			Hp (kW)	FLA	MINIMUM CIRCUIT AMPS	MAX FUSE OR HACR BRKR
40RUA*07 40RUQ*07	208/230-3-60	187-253	3.7 (2.76)	10.8	14.0	20
	460-3-60	414-506	3.7 (2.76)	4.9	7.0	15
	575-3-60	518-632	3.7 (2.76)	4.5	6.0	15
40RUA*08 40RUS*08 40RUQ*08	208/230-3-60	187-253	3.7 (2.76)	10.8	14.0	20
	460-3-60	414-506	3.7 (2.76)	4.9	7.0	15
	575-3-60	518-632	3.7 (2.76)	4.5	6.0	15
40RUS*10	208/230-3-60	187-253	3.7 (2.76)	10.8	14.0	20
	460-3-60	414-506	3.7 (2.76)	4.9	7.0	15
	575-3-60	518-632	3.7 (2.76)	4.5	6.0	15
40RUA*12 40RUS*12	208/230-3-60	187-253	3.7 (2.76)	10.8	14.0	20
	460-3-60	414-506	3.7 (2.76)	4.9	7.0	15
	575-3-60	518-632	3.7 (2.76)	4.5	6.0	15
40RUQ*12 Units Produced On or Prior to 02/28/2016	208/230-3-60	187-253	3.7 (2.76)	10.8	14.0	20
	460-3-60	414-506	3.7 (2.76)	4.9	7.0	15
	575-3-60	518-632	3.7 (2.76)	4.5	6.0	15
40RUQ*12 Units Produced On or After 02/29/2016	208/230-3-60	187-253	3.7 (2.76)	10.6	14.0	20
	460-3-60	414-506	3.7 (2.76)	5.3	7.0	15
	575-3-60	518-632	3.7 (2.76)	4.5	6.0	15
40RUA*14 40RUS*14	208/230-3-60	187-253	3.7 (2.76)	10.8	14.0	20
	460-3-60	414-506	3.7 (2.76)	4.9	7.0	15
	575-3-60	518-632	5.0 (3.73)	8.0	10.0	15
40RUA*16 40RUS*16 40RUQ*16	208/230-3-60	187-253	5.0 (3.73)	18.0	23.0	40
	460-3-60	414-506	5.0 (3.73)	9.1	12.0	20
	575-3-60	518-632	5.0 (3.73)	8.0	10.0	15

See Legend and Notes on page 26.

Table 16 — Fan Contactor Coil Data

UNIT 40RU*	VOLTAGE (vac)	MAXIMUM HOLDING VA
07, 08, 12, 14, 16	24	10

Legend and Notes for Tables 12-15

LEGEND

FLA — Full Load Amps

HACR — Heating, Air Conditioning, and Refrigeration

* Motors are designed for satisfactory operation within 10% of normal voltage shown. Voltages should not exceed the limits shown in the Voltage Limits column.

NOTES:

1. Minimum circuit amps (MCA) and maximum overcurrent protection (MOCP) values are calculated in accordance with The NEC, Article 440.
2. Motor FLA values are established in accordance with Underwriters' Laboratories (UL), Standard 1995.
3. Unbalanced 3-Phase Supply Voltage
Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the formula in the example (see column to the right) to determine the percentage of voltage imbalance.
4. Installation with Accessory Electric Heaters
Size the Field Power Wiring between the heater TB1 and the 40RU indoor fan motor per NEC Article 430-28 (1) or (2) (depends on length of conduit between heater enclosure and 40RU power entry location). Install wires in field-installed conduit.

Example: Supply voltage is 230-3-60

$$\% \text{ Voltage Imbalance} = 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$



AB = 394 v

BC = 403 v

AC = 396 v

$$\begin{aligned} \text{Average Voltage} &= \frac{(393 + 403 + 396)}{3} = \frac{1192}{3} \\ &= 397 \end{aligned}$$

Determine maximum deviation from average voltage.

(AB) 397-393 = 4 v

(BC) 403-397 = 6 v

(AC) 397-396 = 1 v

Maximum deviation is 4 v.

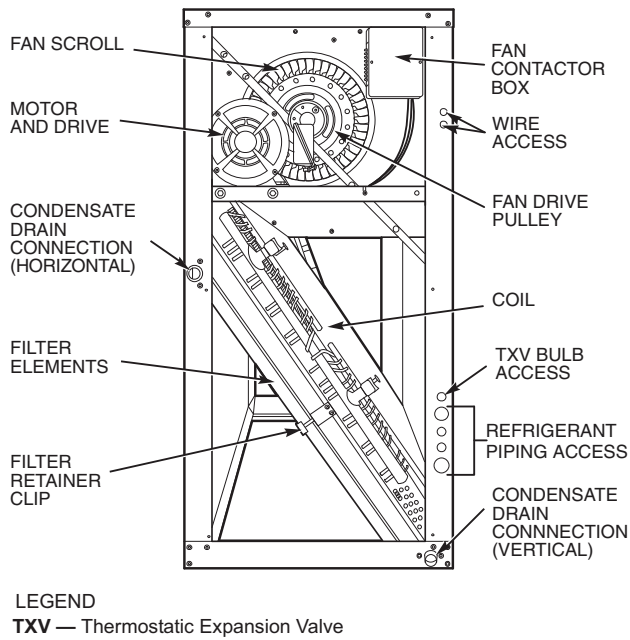
Determine percent of voltage imbalance.

$$\begin{aligned} \% \text{ Voltage Imbalance} &= 100 \times \frac{6}{397} \\ &= 1.5 \end{aligned}$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.

Install disconnect switch and power wiring in accordance with all applicable local codes. See Fig. 14-16 and the unit label diagram. For units with motor sizes less than 5 Hp (3.7 kW), connect power wiring to unit with no. 10 ring terminal. For units with motor sizes of 5 Hp (3.7 kW) or more, connect power wiring with 1/4 in. ring terminal.

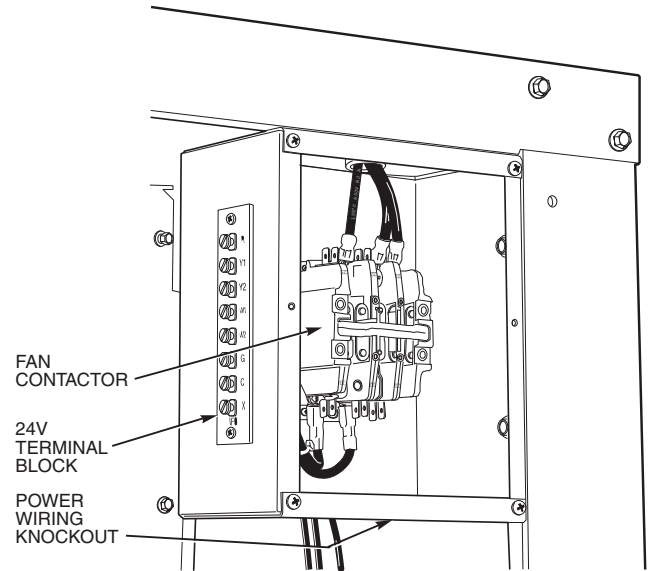


**Fig. 15 — Wiring and Service Access
(Side Panel Removed)**

The 40RU size 07-16 units that have motors wired for 460 v, 3 ph, 60 Hz operation can be field-converted to 208/230 v, 3 ph, 60 Hz operation. Rewire the motor according to the diagram plate on the motor. After reconfiguring the motor, mark the motor specifying

208 v or 230 v operation replacing the 460 v sticker information on the units' corner post.

Fan motors are factory-installed on all units. Indoor-fan contactors are located in the fan contactor box behind the side access panel. (See Fig. 15 and 16.) Wire the thermostat to the 24-v control circuit terminal block located in the side of the fan contactor control box, according to Fig. 17 or the unit label diagram. If the air handler is part of a split system, complete the wiring from the condensing unit to the thermostat shown in Fig. 17.



**Fig. 16 — Fan Contactor Box and Terminal Block
(Cover Removed) (Typical)**

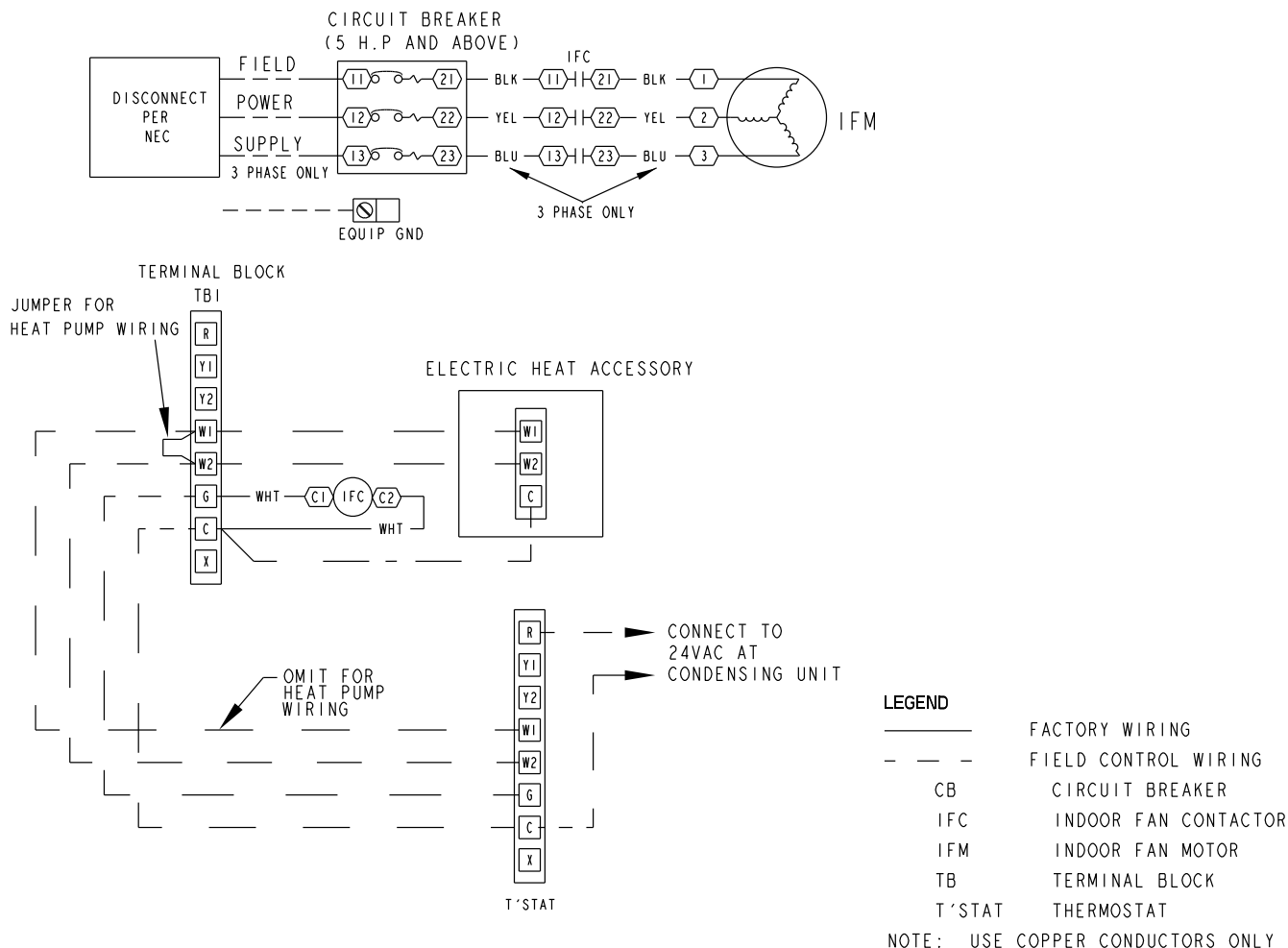


Fig. 17 — Unit Wiring

Connecting Ductwork

Refer to the Carrier System Design Manual for the recommended design and layout of ductwork. Figure 18 shows recommended duct connection to units with 2 fans.

CAUTION

UNIT OPERATION HAZARD

Failure to follow this caution could cause equipment damage.

Do not operate unit without ductwork or discharge plenum unless fan speed has been adjusted for external static pressure of zero in. wg. Failure to do so may result in motor overload.

DISCHARGE CONNECTIONS

Duct flanges are factory-supplied; they are shipped inside the unit attached to the hairpin end of the coil tube sheet for field installation. Using the existing screws, install the duct flanges on the unit's fan deck. Each fan discharge requires 2 flanges; each flange must be bent in the middle to conform to the discharge opening.

(See Fig. 19.) After flanges are installed, connect them to the supply duct using a canvas connection to prevent vibration. It is important that this connection be properly fabricated to prevent high air friction losses and air noise.

RETURN CONNECTIONS

When using return-air ductwork, route return-air duct to the unit's return air inlet near the filter rack, using a canvas connection to prevent transmission of unit vibration. If the duct blocks off the unit's access panel, provide a slip joint in the ductwork to permit removal for servicing.

OUTDOOR-AIR INLET CONNECTIONS

Connect outdoor-air inlet to field-installed economizer. Refer to Economizer Installation Instructions.

Return-Air Filters

Type and size of filters are shown in Tables 1-6 and are factory-supplied and factory-installed. In all units with 2 fans, a filter replacement tool (hook) is shipped inside the unit for field use when replacing filters. See the Service section for instructions on filter element replacement.

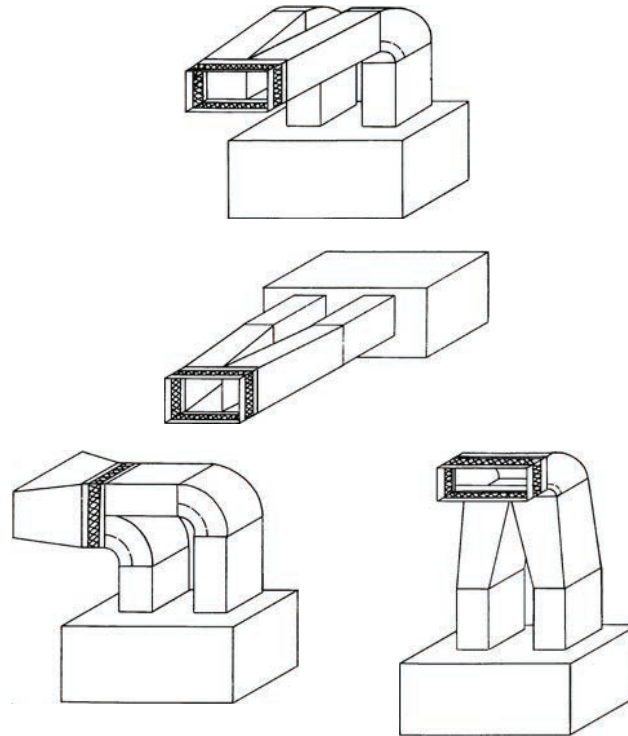


Fig. 18 — Typical Fan Discharge Connections for Multiple Fan Units

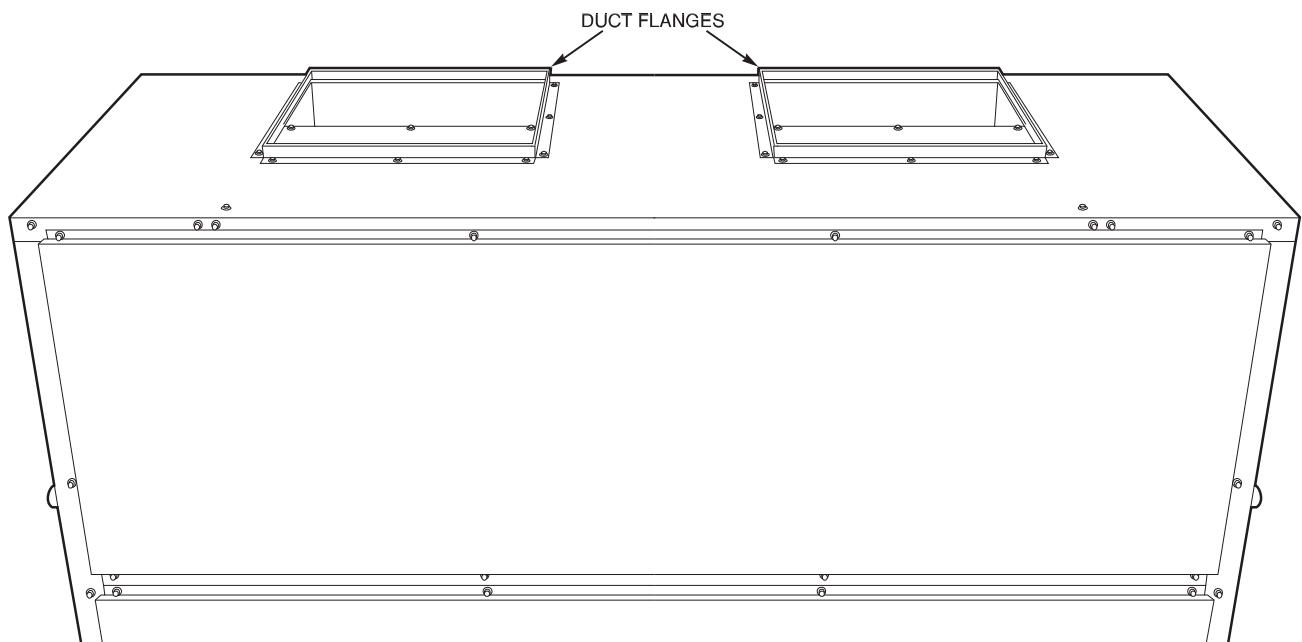


Fig. 19 — Duct Flange Installation

START-UP

Before starting unit, check the following and correct as necessary:

- Is unit solidly supported?
- Is fan adjusted for speed and pulley alignment?
- Are pulleys, motor, and bearings securely mounted?
- Are there any loose parts that will rattle or vibrate?
- Is condensate drain pan pitched for correct drainage?
- Are coil baffle plates tight against coil to prevent air bypass?
- Are all panels securely fastened?
- Are all electrical connections correct and tight?

40RUA and 40RUQ ONLY

- Is TXV bulb located on suction tube per Fig. 20?
- Is the capillary tube to the bulb free of kinks and not subject to pinching?
- Is the bulb well secured to the suction tube with strap?

Also refer to condensing unit or outdoor heat pump section instructions before starting a split system. A split system start-up checklist is provided at the end of these instructions.

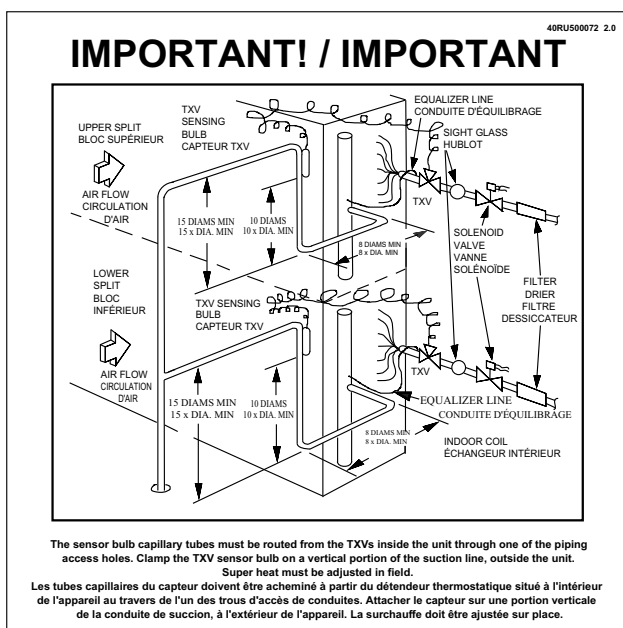


Fig. 20 — TXV Bulb Location Label

Adjusting TXV for Superheat (40RUA and 40RUQ only)

The unit-mounted thermostatic expansion valve(s) is/are factory set to provided superheat at the bulb location in 10°F to 15°F (5.5°C to 8.3°C) range. Actual system load conditions may require adjustment of the factory setting. (See Fig. 21.)

To adjust the TXV superheat setting:

1. Remove the seal cap from the bottom of the TXV body.
2. To increase superheat, turn the stem clockwise. To decrease the superheat, turn the stem counterclockwise. Do not turn the stem more than one full turn.
3. Wait until suction pressure and superheat stabilize. This may take more than 30 minutes.
4. Continue adjustment until superheat reaches 10°F to 15°F (5.5°C to 8.3°C).
5. Replace the seal cap; tighten.

⚠ INSTALLER / INSTALLATEUR

TXV superheat must be checked at initial unit start-up and adjusted if necessary. Superheat must be 10 - 15 deg F.

La surchauffe TXV doit être vérifiée au moment de la mise en route initiale et ajustée si nécessaire. La surchauffe doit être comprise entre 10 et 15 degrés F.

40RUS00073 2.0

Fig. 21 — TXV Adjustment Label

SERVICE

Inspection and maintenance should be performed at regular intervals and should include the following:

- Complete cleaning of cabinet, fan wheel, cooling coil, condensate pan and drain, heating coils, and return-air grille (if present).
- Inspection of panels and sealing of unit against air leakage.
- Adjustment of fan motor, belt, bearings, and wheels.
- Cleaning or replacement of filters.
- Testing for cooling/heating system leaks.
- Checking of all electrical connections.

⚠ WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could result in personal injury or death.

Before performing service or maintenance operations on unit, always turn off main power switch to unit and install lockout tag. Unit may have more than one power switch.

Most unit service can be performed by removing one or both of the unit's side panels. Coil cleaning, removal or insulation cleaning may require removal of a rear, top, or bottom panel, depending on the unit's orientation. When service is completed, replace unit panels.

Panels

Panels are fastened to unit frame with sheet metal screws. Fan and coil compartment must be sealed tightly after service to prevent air from bypassing the cooling coil.

Fan Motor Lubrication

Fan motor supplied with unit is permanently lubricated and requires no further lubrication.

Fan Shaft Bearings

Size 07-12 units are sealed, permanently lubricated bearings that require no further lubrication. Sizes 14-16 units have pillow-block bearings (see Fig. 22) that must be lubricated with suitable bearing grease approximately every 3 months. See Table 17 for suitable lubricants.

Table 17 — Lubricant Data

MANUFACTURER	LUBRICANT
Mobil	Mobilplex EP No. 2
Sunoco	Prestige 42
Texaco	Multifak 2
Texaco	Regal AFB - 2*

*Preferred lubricant, contains rust and oxidation inhibitors.

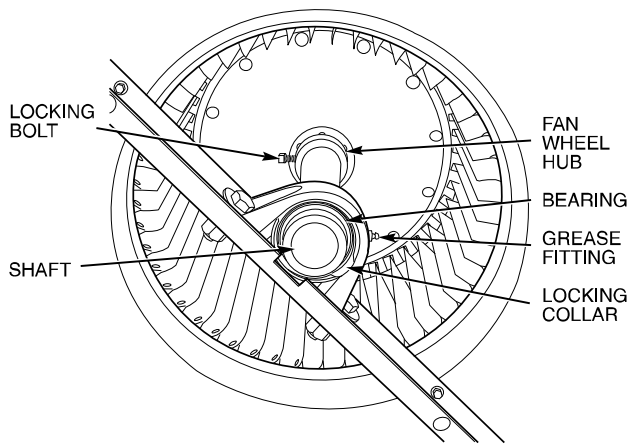


Fig. 22 — Fan Shaft, Bearings, and Fan Wheel (Typical)

Centering Fan Wheel

If fan and fan shaft assembly are not properly centered, blades may scrape against the blower side scroll plate or may create an objectionable whistling noise. It may be necessary to adjust individual fan wheels or move entire fan shaft. See the following 2 sections.

Fan Shaft Position Adjustment

Loosen setscrew or locking collar of each fan shaft bearing. Slide shaft into correct position and replace locking collar. (See Fig. 23). To replace locking collar, push collar up against inner face of bearing. Turn collar in direction of fan rotation until tight, and tighten setscrew. Tightening locking collar in direction of fan rotation results in further tightening of collar should setscrew work itself loose.

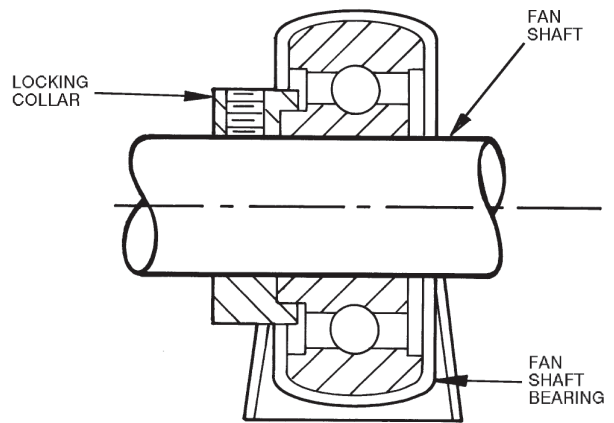


Fig. 23 — Fan Shaft Bearing

Individual Fan Wheel Adjustment

Loosen the 2 locking bolts holding the fan wheel hub to shaft. (See Fig. 22.) Position fan wheel in center of the fan housing and tighten locking bolts. Clearance between wheel and housing should be the same on both sides.

Fan Belts

Motor mounting plate and motor support angles are slotted to permit both vertical and horizontal adjustment. Adjust belt(s) for correct deflection by loosening motor plate mounting bolts, moving motor/plate assembly forward or back, and re-tightening bolts. Press down on belt with one finger midway between fan and motor pulleys to check deflection. For units with motor sizes up to and including 3.7 Hp (2.76 kW), correct deflection is 3/16 in. (4.8 mm). For larger motor sizes, correct deflection is 1/8 in. (3.2 mm). (See Fig. 24.)

If complete belt replacement is required during servicing, loosen the motor plate mounting bolts (Fig. 24), move motor/plate assembly towards fan pulley, and pull belt(s) off pulleys. Reverse the procedure with new bolts and readjust deflection.

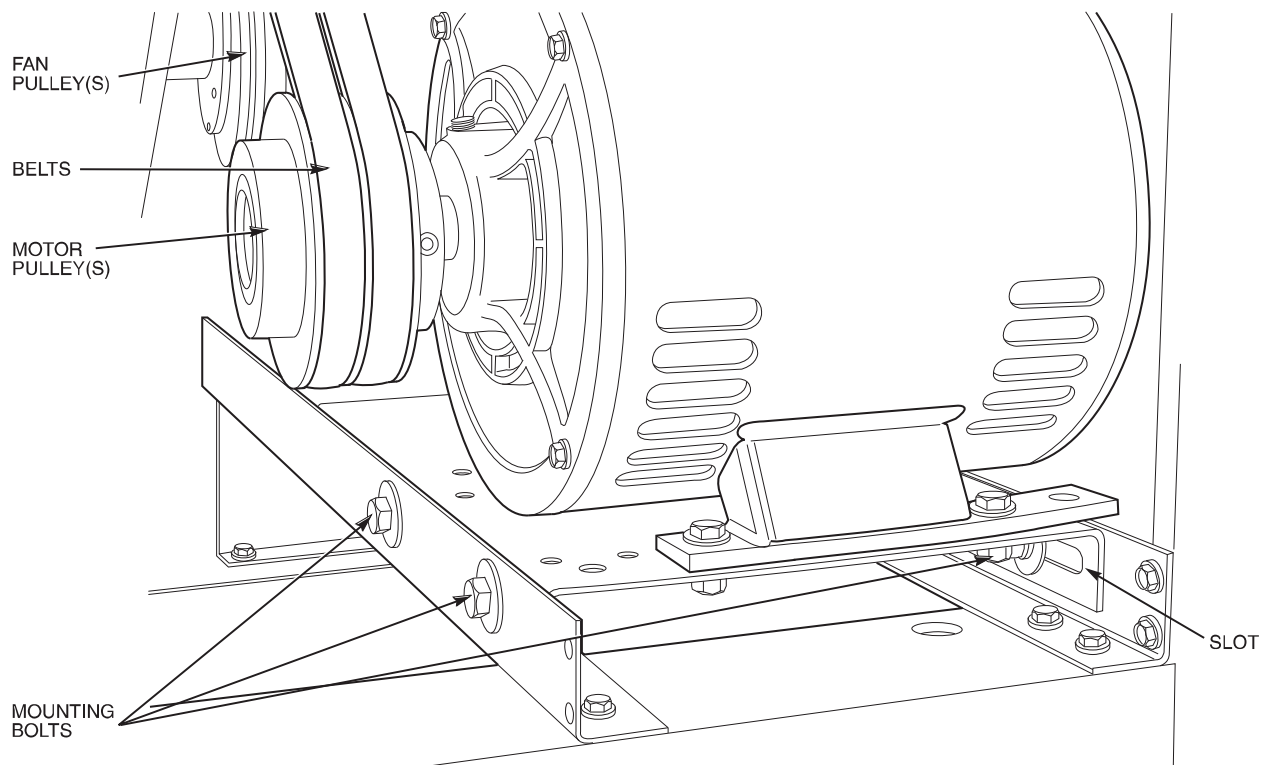


Fig. 24 — Fan Motor Mounting

Fan Rotation

Correct fan rotation with respect to fan outlet is shown in Fig. 25.

To reverse the direction of rotation of a 3-phase fan motor, reverse any 2 of the power leads. Refer to the connection diagram on the inside of motor terminal box cover for proper reversing procedure of a single-phase motor.

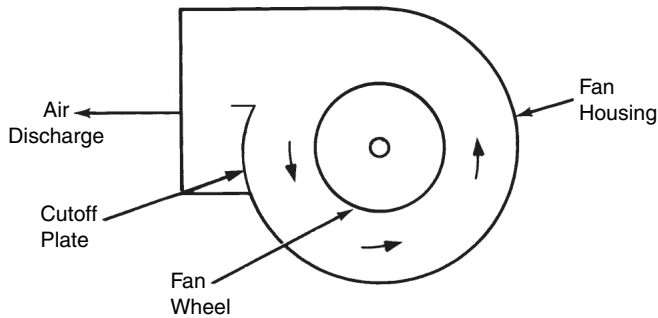


Fig. 25 — Fan Rotation

Fan Pulley Alignment

Align as follows:

1. Loosen setscrews on pulleys.
2. Align pulleys visually and tighten setscrews on fan pulley to lock it in place.
3. Use the methods shown in Fig. 26 to check proper pulley alignment.

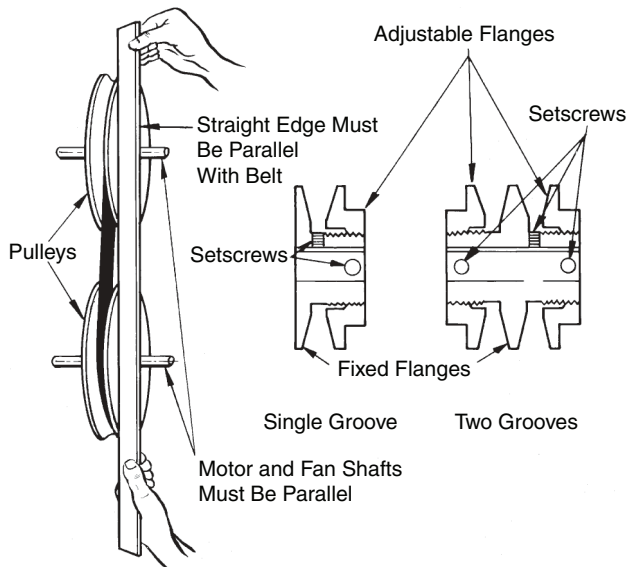


Fig. 26 — Fan Pulley Adjustments

4. If pulleys are not in correct alignment, loosen the motor hold-down bolts and slide the motor axially until the pulleys are aligned.
5. Tighten motor holddown bolts.

Pulley and Drive Adjustment

To obtain desired fan speed, refer to the fan motor, drive data and performance data in Tables 18-42 and adjust fan motor pulley as follows:

1. Remove belt from fan motor pulley after loosening motor from motor base.

2. Loosen setscrew in moveable flange of pulley. Screw moveable flange toward fixed flange to increase the fan speed and away from fixed flange to reduce speed. Before tightening setscrew, make certain that setscrew is over nearest flat surface of pulley hub. (See Fig. 26.)

CAUTION

UNIT OPERATION HAZARD

Failure to follow this caution could cause equipment damage. Increasing fan speed produces a greater load on motor. Do not exceed rated capacity of motor.

Condensate Drains

Keep condensate drains free of dirt and foreign matter.

Return-Air Filters

Refer to Replacing Filters section on page 42 for filter accessibility and removal. Replace with clean filters of the sizes listed in Tables 1-6.

Chilled Water Coil Freeze Protection

Shut off water supply to unit. Remove side panel of unit and remove vent and drain plugs in top and bottom of coil header. Drain coil and blow out remaining water. Reinstall plugs and side panel. Alternative freeze protection methods follow:

- Circulate hot water within the water coil's supply main or supplementary space heating.
- Close off supply lines to unit and open a union or field-supplied drain valve in the return line.

IMPORTANT: Draining from return line will not completely drain water from coils.

- After draining as much water as possible from coils, add sufficient antifreeze to prevent residual water in the coil from freezing.
- Add a sufficient quantity of non-corrosive antifreeze to the entire system to prevent all water within the system from freezing.

Coil Removal

Remove unit panels and corner posts as required. Disconnect coil connections and remove fastening screws. Remove coil through end or side sections of unit.

Cleaning Cooling Coil

Remove return-air filters. Remove any heavy dirt that may have accumulated on underside of coil. Coil can be cleaned more easily with a stiff brush, vacuum cleaner, or compressed air when coil is dry. If coil is wet or if water is to be used for cleaning, guard against splashing water on electrical components or damaging surrounding area. Clean coil baffles as applicable and check for tight fit to be sure air does not bypass coil.

Cleaning Insulation

The insulation contains an immobilized antimicrobial agent that helps prevent the growth of bacteria and fungi. Clean the inner surface of the insulation according to the separate maintenance instructions shipped with the unit.

Table 18 — Fan Motor Data, 40RUA/Q/S Standard Motor, Single Speed — English

UNIT	40RUA/Q 07	40RUA/Q/S 08	40RUS 10	40RUA/Q/S 12	40RUA/S 14	40RUA/Q/S 16
208/230-1-60						
Speed (rpm)	1725	1725	1725	—	—	—
Hp	1.3	2.4	2.4	—	—	—
Frame (NEMA)	56Y	56Y	56Y	—	—	—
Shaft Dia (in.)	5/8	5/8	5/8	—	—	—
208/230-3-60 and 460-3-60						
Speed (rpm)	1750	1750	1750	1750	1750	1750
Hp	2.4	2.4	2.4	2.4	2.9	3.7
Frame (NEMA)	56Y	56Y	56Y	56Y	56Y	56HZ
Shaft Dia (in.)	5/8	5/8	5/8	5/8	7/8	7/8
575-3-60						
Speed (rpm)	1725	1725	1725	1725	1725	1725
Hp	1.0	2.0	2.0	2.0	3.0	3.0
Frame (NEMA)	56HZ	56HZ	56HZ	56HZ	56HZ	56HZ
Shaft Dia (in.)	5/8	7/8	7/8	7/8	7/8	7/8

LEGEND

NEMA — National Electrical Manufacturers Association

Table 19 — Fan Motor Data, 40RUA/Q/S Alternate Motor, Single Speed — English

UNIT	40RUA/Q 07	40RUA/Q/S 08	40RUS 10	40RUA/Q/S 12	40RUA/S 14	40RUA/Q/S 16
208/230-1-60						
Speed (rpm)	1725	1725	1725	—	—	—
Hp	2.4	2.4	2.4	—	—	—
Frame (NEMA)	56Y	56Y	56Y	—	—	—
Shaft Dia (in.)	5/8	5/8	5/8	—	—	—
230-3-60 and 460-3-60S						
Speed (rpm)	1750	1750	1750	1750	1750	1755
Hp	2.9	2.9	2.9	3.7	3.7	5.0
Frame (NEMA)	56Y	56Y	56Y	56HZ	56HZ	184T
Shaft Dia (in.)	7/8	7/8	7/8	7/8	7/8	1-1/8
575-3-60						
Speed (rpm)	1725	1725	1725	1725	1755	1755
Hp	2.0	3.0	3.0	3.0	5.0	5.0
Frame (NEMA)	56HZ	56HZ	56HZ	56HZ	184T	184T
Shaft Dia (in.)	7/8	7/8	7/8	7/8	1-1/8	1-1/8

LEGEND

NEMA — National Electrical Manufacturers Association

Table 20 — Motor Efficiency 40RUA/Q/S

MOTOR HP	EPACT MINIMUM (%)	MOTOR EFFICIENCY (%)
1.3*	—	70.0
2.4	—	76.8
2.9	—	77.1
3.7	—	81.5
5.0	89.5	89.5

LEGEND

EPACT — Energy Policy and Conservation Act of 1992

* Single-phase only.

Table 21 — Fan Motor Data, 40RUA/Q/S Standard Motor, Single Speed — SI

UNIT	40RUA/Q 07	40RUA/Q/S 08	40RUS 10	40RUA/Q/S 12	40RUA/S 14	40RUA/Q/S 16
208/230-1-60						
Speed (r/s)	28.75	28.75	28.75	—	—	—
Shaft kW	0.97	1.79	1.79	—	—	—
Frame (NEMA)	56Y	56Y	56Y	—	—	—
Shaft Dia (mm)	15.9	15.9	15.9	—	—	—
208/230-3-60 and 460-3-60						
Speed (r/s)	29.17	29.17	29.17	29.17	29.17	29.17
Shaft kW	1.79	1.79	1.79	1.79	2.16	2.76
Frame (NEMA)	56Y	56Y	56Y	56Y	56Y	56HZ
Shaft Dia (mm)	15.9	15.9	15.9	15.9	22.2	22.2
575-3-60						
Speed (r/s)	28.75	28.75	28.75	28.75	28.75	28.75
Shaft kW	0.75	1.49	1.49	1.49	2.24	2.24
Frame (NEMA)	56HZ	56HZ	56HZ	56HZ	56HZ	56HZ
Shaft Dia (mm)	15.9	22.2	22.2	22.2	22.2	22.2

LEGEND

NEMA — National Electrical Manufacturers Association

Table 22 — Fan Motor Data, 40RUA/Q/S Alternate Motor, Single Speed — SI

UNIT	40RUA/Q 07	40RUA/Q/S 08	40RUS 10	40RUA/Q/S 12	40RUA/S 14	40RUA/Q/S 16
208/230-1-60						
Speed (r/s)	28.75	28.75	28.75	—	—	—
Shaft kW	1.79	1.79	1.79	—	—	—
Frame (NEMA)	56Y	56Y	56Y	—	—	—
Shaft Dia (mm)	15.9	15.9	15.9	—	—	—
208/230-3-60 and 460-3-60						
Speed (r/s)	29.17	29.17	29.17	29.17	29.17	29.25
Shaft kW	2.16	2.16	2.16	2.76	2.76	3.73
Frame (NEMA)	56Y	56Y	56Y	56HZ	56HZ	184T
Shaft Dia (mm)	22.2	22.2	22.2	22.2	22.2	28.6
575-3-60						
Speed (r/s)	28.75	28.75	28.75	28.75	29.25	29.25
Shaft kW	1.49	2.24	2.24	2.24	3.73	3.73
Frame (NEMA)	56HZ	56HZ	56HZ	56HZ	184T	184T
Shaft Dia (mm)	22.2	22.2	22.2	22.2	28.6	28.6

LEGEND

NEMA — National Electrical Manufacturers Association

Table 23 — Fan Motor Data, 40RUA/S Standard Motor, Two Speed — English

UNIT	40RUA 07	40RUA/S 08	40RUS 10	40RUA/S 12	40RUA/S 14	40RUA/S 16
208/230-3-60 and 460-3-60						
Speed (rpm)	1680	1680	1680	1680	1735	1750
Hp	2.4	2.4	2.4	2.4	2.9	3.7
Frame (NEMA)	56HY	56HY	56HY	56HY	56HY	56HY
Shaft Dia (in.)	5/8	5/8	5/8	5/8	7/8	7/8
575-3-60						
Speed (rpm)	1680	1680	1680	1680	1710	1710
Hp	2.4	2.4	2.4	2.4	3.7	3.7
Frame (NEMA)	56HY	56HY	56HY	56HY	56HY	56HY
Shaft Dia (in.)	5/8	5/8	5/8	5/8	7/8	7/8

Table 24 — Fan Motor Data, 40RUA/S Alternate Motor, Two Speed — English

UNIT	40RUA 07	40RUA/S 08	40RUS 10	40RUA/S 12	40RUA/S 14	40RUA/S 16
208/230-3-60 and 460-3-60						
Speed (rpm)	1750	1750	1750	1750	1750	1755
Hp	3.7	3.7	3.7	3.7	3.7	5.0
Frame (NEMA)	56HY	56HY	56HY	56HY	56HY	184T
Shaft Dia (in.)	7/8	7/8	7/8	7/8	7/8	1-1/8
575-3-60						
Speed (rpm)	1710	1710	1710	1710	1755	1755
Hp	3.7	3.7	3.7	3.7	5.0	5.0
Frame (NEMA)	56HY	56HY	56HY	56HY	184T	184T
Shaft Dia (in.)	7/8	7/8	7/8	7/8	1-1/8	1-1/8

Table 25 — Motor Efficiency 40RUA/S — Two-Speed Motor

MOTOR HP	EPACT MINIMUM (%)	MOTOR EFFICIENCY (%)
2.4	—	80.0
2.9	—	86.5
3.7	—	83.6
5.0	89.5	89.5

LEGEND

EPACT — Energy Policy and Conservation Act of 1992

Table 26 — Fan Motor Data, 40RUA/S Standard Motor, Two Speed — SI

UNIT	40RUA 07	40RUA/S 08	40RUS 10	40RUA/S 12	40RUA/S 14	40RUA/S 16
208/230-3-60 and 460-3-60						
Speed (r/s)	28.00	28.00	28.00	28.00	28.92	29.17
Shaft kW	1.79	1.79	1.79	1.79	2.16	2.76
Frame (NEMA)	56HY	56HY	56HY	56HY	56HY	56HY
Shaft Dia (mm)	15.9	15.9	15.9	15.9	22.2	22.2
575-3-60						
Speed (r/s)	28.00	28.00	28.00	28.00	28.50	28.50
Hp	1.79	1.79	1.79	1.79	2.76	2.76
Frame (NEMA)	56HY	56HY	56HY	56HY	56HY	56HY
Shaft Dia (mm)	15.9	15.9	15.9	15.9	22.2	22.2

Table 27 — Fan Motor Data, 40RUA/S Alternate Motor, Two Speed — SI

UNIT	40RUA 07	40RUA/S 08	40RUS 10	40RUA/S 12	40RUA/S 14	40RUA/S 16
208/230-3-60 and 460-3-60						
Speed (r/s)	29.17	29.17	29.17	29.17	29.17	29.25
Shaft kW	2.76	2.76	2.76	2.76	2.76	3.73
Frame (NEMA)	56HY	56HY	56HY	56HY	56HY	184T
Shaft Dia (mm)	22.2	22.2	22.2	22.2	22.2	28.6
575-3-60						
Speed (r/s)	28.50	28.50	28.50	28.50	29.25	29.25
Hp	2.76	2.76	2.76	2.76	3.73	3.73
Frame (NEMA)	56HY	56HY	56HY	56HY	184T	184T
Shaft Dia (mm)	22.2	22.2	22.2	22.2	28.6	28.6

Table 28 — Fan Motor Data, 40RUQ Standard Motor, Two Speed — English

UNIT	40RUQ 07	40RUQ 08	40RUQ 12	40RUQ 16
208/230-3-60 and 460-3-60				
Speed (rpm)	1680	1680	1680	1750
Hp	2.4	2.4	1.7	3.7
Frame (NEMA)	56HY	56HY	56HY	56HY
Shaft Dia (in.)	5/8	5/8	5/8	7/8
575-3-60				
Speed (rpm)	1680	1680	1665	1710
Hp	2.4	2.4	1.7	3.7
Frame (NEMA)	56HY	56HY	56HY	56HY
Shaft Dia (in.)	5/8	5/8	5/8	7/8

Table 29 — Fan Motor Data, 40RUQ Alternate Motor, Two Speed — English

UNIT	40RUQ 07	40RUQ 08	40RUQ 12	40RUQ 16
208/230-3-60 and 460-3-60				
Speed (rpm)	1750	1750	1725	1755
Hp	3.7	3.7	3.7*	5.0
Frame (NEMA)	56HY	56HY	56HY	184T
Shaft Dia (in.)	7/8	7/8	7/8	1-1/8
575-3-60				
Speed (rpm)	1710	1710	1710	1755
Hp	3.7	3.7	3.7	5.0
Frame (NEMA)	56HY	56HY	56HY	184T
Shaft Dia (in.)	7/8	7/8	7/8	1-1/8

* High Efficiency Motor.

Table 30 — Motor Efficiency 40RUQ — Two-Speed Motor

MOTOR HP	EPACT MINIMUM (%)	MOTOR EFFICIENCY (%)
1.7	—	82.0
2.4	—	80.0
2.9	—	86.5
3.7	—	83.6
3.7*	—	87.9
5.0	89.5	87.9

LEGEND

EPACT — Energy Policy and Conservation Act of 1992

* High Efficiency Motor.

Table 31 — Fan Motor Data, 40RUQ Standard Motor, Two Speed — SI

UNIT	40RUQ 07	40RUQ 08	40RUQ 12	40RUQ 16
208/230-3-60 and 460-3-60				
Speed (r/s)	28.00	28.00	28.17	29.17
Shaft kW	1.79	1.79	1.27	2.76
Frame (NEMA)	56HY	56HY	56HY	56HY
Shaft Dia (mm)	15.9	15.9	15.9	22.2
575-3-60				
Speed (r/s)	28.00	28.00	27.75	28.50
Hp	1.79	1.79	1.27	2.76
Frame (NEMA)	56HY	56HY	56HY	56HY
Shaft Dia (mm)	15.9	15.9	15.9	22.2

Table 32 — Fan Motor Data, 40RUQ Alternate Motor, Two Speed — SI

UNIT	40RUQ 07	40RUQ 08	40RUQ 12	40RUQ 16
208/230-3-60 and 460-3-60				
Speed (r/s)	29.17	29.17	29.17	29.25
Shaft kW	2.76	2.76	2.76	3.73
Frame (NEMA)	56HY	56HY	56HY	184T
Shaft Dia (mm)	22.2	22.2	22.2	28.6
575-3-60				
Speed (r/s)	28.50	28.50	28.50	29.25
Hp	2.76	2.76	2.76	3.73
Frame (NEMA)	56HY	56HY	56HY	184T
Shaft Dia (mm)	22.2	22.2	22.2	28.6

Table 33 — Standard Drive Data, 60 Hz — English

UNIT	40RUA/Q 07	40RUA/Q/S 08	40RUS 10	40RUA/Q/S 12	40RUA/S 14	40RUA/Q/S 16
MOTOR DRIVE						
Motor Pulley Pitch Diameter (in.)	2.4-3.4	2.8-3.8	2.8-3.8	3.4-4.4	2.8-3.8	2.8-3.8
Pulley Factory Setting Full Turns Open	2.5	2.5	2.5	2.5	2.5	2.5
FAN DRIVE						
Pulley Pitch Dia (in.)	8.8	8.8	8.8	8.8	9.0	9.0
Pulley Bore (in.)	1	1	1	1	1-7/16	1-7/16
Belt No. — Section	1—A	1—A	1—A	1—A	1—A	1—A
Belt Pitch (in.)	40.3	41.3	41.3	42.3	42.3	42.3
FAN SPEEDS (RPM)						
Factory Setting	568	647	647	764	632	632
Range	470-666	549-745	549-745	666-863	537-728	537-728
Max Allowable Speed (rpm)	1200	1200	1200	1200	1200	1200
Change per 1/2 Turn of Moveable Motor Pulley Flange	19.6	19.6	19.6	19.7	19.1	19.1
MAX FULL TURN FROM CLOSED POSITION	5	5	5	5	5	5
SHAFTS CENTER DISTANCE (IN.)	10.44-12.32	10.44-12.32	10.44-12.32	10.44-12.32	10.44-12.32	10.44-12.32

Table 34 — Medium-Static Drive Data, 60 Hz — English

UNIT	40RUA/Q 07	40RUA/Q/S 08	40RUS 10	40RUA/Q/S 12	40RUA/S 14	40RUA/Q/S 16
MOTOR DRIVE						
Motor Pulley Pitch Diameter (in.)	3.4-4.4	3.4-4.4	3.4-4.4	3.4-4.4	3.4-4.4	3.7-4.7
Pulley Factory Setting Full Turns Open	2.5	2.5	2.5	2.5	2.5	3.0
FAN DRIVE						
Pulley Pitch Dia (in.)	8.8	8.0	8.0	8.0	8.2	8.6
Pulley Bore (in.)	1	1	1	1	1-7/16	1-7/16
Belt No. — Section	1—A	1—A	1—A	1—A	1—A	1—B
Belt Pitch (in.)	42.3	40.3	40.3	40.3	41.3	41.8
FAN SPEEDS (RPM)						
Factory Setting	764	841	841	841	820	842
Range	666-863	733-949	733-949	733-949	715-926	742-943
Max Allowable Speed (rpm)	1200	1200	1200	1200	1200	1200
Change per 1/2 Turn of Moveable Motor Pulley Flange	19.7	21.6	21.6	21.6	21.1	16.7
MAX FULL TURN FROM CLOSED POSITION	5	5	5	5	5	6
SHAFTS CENTER DISTANCE (IN.)	10.44-12.32	10.44-12.32	10.44-12.32	10.44-12.32	10.44-12.32	10.44-12.32

Table 35 — High-Static Drive Data, 60 Hz — English

UNIT	40RUA/Q 07	40RUA/Q/S 08	40RUS 10	40RUA/Q/S 12	40RUA/S 14	40RUA/Q/S 16
MOTOR DRIVE						
Motor Pulley Pitch Diameter (in.)	3.4-4.4	3.4-4.4	3.4-4.4	3.4-4.4	3.7-4.7	4.3-5.3
Pulley Factory Setting Full Turns Open	2.5	2.5	2.5	2.5	3.0	3.0
FAN DRIVE						
Pulley Pitch Dia (in.)	7.0	6.0*	6.0	6.0	7.4	7.9
Pulley Bore (in.)	1	1	1	1	1-7/16	1-7/16
Belt No. — Section	1—A	1—A	1—A	1—A	1—B	1—B
Belt Pitch (in.)	41.3	37.3	37.3	37.3	39.8	39.8
FAN SPEEDS (RPM)						
Factory Setting	961	1121	1121	1121	979	1060
Range	838-1084	978-1200*†	978-1200†	978-1200†	873-1096	950-1171
Max Allowable Speed (rpm)	1200	1200	1200	1200	1200	1200
Change per 1/2 Turn of Moveable Motor Pulley Flange	24.6	28.7	28.7	28.7	19.4	18.4
MAX FULL TURN FROM CLOSED POSITION	5	5	5	5	6	6
SHAFTS CENTER DISTANCE (IN.)	10.44-12.32	10.44-12.32	10.44-12.32	10.44-12.32	10.44-12.32**	9.16-10.99

* Values for 3-phase motor shown. For single-phase motor, pulley pitch diameter is 7 in. and resulting fan speed is 837-1096 rpm.

† It is possible to adjust drive so that fan speed exceeds maximum allowable. DO NOT exceed 1200 rpm.

** 575v unit has a center distance of 9.16-10.99.

Table 36 — Standard Drive Data, 60 Hz — SI

UNIT	40RUA/Q 07	40RUA/Q/S 08	40RUS 10	40RUA/Q/S 12	40RUA/S 14	40RUA/Q/S 16
MOTOR DRIVE						
Motor Pulley Pitch Diameter (mm)	61.0-86.4	71.1-96.5	71.1-96.5	86.4-111.8	71.1-96.5	71.1-96.5
Pulley Factory Setting Full Turns Open	2.5	2.5	2.5	2.5	2.5	2.5
FAN DRIVE						
Pulley Pitch Dia (mm)	224	224	224	224	229	229
Pulley Bore (mm)	25.4	25.4	25.4	25.4	36.5	36.5
Belt No. — Section	1—A	1—A	1—A	1—A	1—A	1—A
Belt Pitch (mm)	1024	1049	1049	1074	1074	1074
FAN SPEEDS (R/S)						
Factory Setting	9.5	10.8	10.8	12.7	10.5	10.5
Range	7.8-11.1	9.2-12.4	9.2-12.4	11.1-14.4	9.0-12.1	9.0-12.1
Max Allowable Speed (r/s)	20.0	20.0	20.0	20.0	20.0	20.0
Change per 1/2 Turn of Moveable Motor Pulley Flange	0.327	0.327	0.327	0.328	0.318	0.318
MAX FULL TURN FROM CLOSED POSITION	5	5	5	5	5	5
SHAFTS CENTER DISTANCE (MM)	265-313	265-313	265-313	265-313	265-313	265-313

Table 37 — Medium-Static Drive Data, 60 Hz — SI

UNIT	40RUA/Q 07	40RUA/Q/S 08	40RUS 10	40RUA/Q/S 12	40RUA/S 14	40RUA/Q/S 16
MOTOR DRIVE						
Motor Pulley Pitch Diameter (mm)	86.4-111.8	86.4-111.8	86.4-111.8	86.4-111.8	86.4-111.8	94.0-119.4
Pulley Factory Setting Full Turns Open	2.5	2.5	2.5	2.5	2.5	3.0
FAN DRIVE						
Pulley Pitch Dia (mm)	224	203	203	203	208	218
Pulley Bore (mm)	25.4	25.4	25.4	25.4	36.5	36.5
Belt No. — Section	1—A	1—A	1—A	1—A	1—A	1—B
Belt Pitch (mm)	1074	1024	1024	1024	1049	1062
FAN SPEEDS (R/S)						
Factory Setting	12.7	14.0	14.0	14.0	13.7	14.0
Range	11.1-14.4	12.2-15.8	12.2-15.8	12.2-15.8	11.9-15.4	12.4-15.7
Max Allowable Speed (r/s)	20.0	20.0	20.0	20.0	20.0	20.0
Change per 1/2 Turn of Moveable Motor Pulley Flange	0.328	0.360	0.360	0.360	0.352	0.278
MAX FULL TURN FROM CLOSED POSITION	5	5	5	5	6	6
SHAFTS CENTER DISTANCE (MM)	265-313	265-313	265-313	265-313	265-313	265-313

Table 38 — High-Static Drive Data, 60 Hz — SI

UNIT	40RUA/Q 07	40RUA/Q/S 08	40RUS 10	40RUA/Q/S 12	40RUA/S 14	40RUA/Q/S 16
MOTOR DRIVE						
Motor Pulley Pitch Diameter (mm)	86.4-111.8	86.4-111.8	86.4-111.8	86.4-111.8	94.0-119.4	109.2-134-.6
Pulley Factory Setting Full Turns Open	2.5	2.5	2.5	2.5	3.0	3.0
FAN DRIVE						
Pulley Pitch Dia (mm)	178	152*	152	152	188	201
Pulley Bore (mm)	25.4	25.4	25.4	25.4	36.5	36.5
Belt No. — Section	1—A	1—A	1—A	1—A	1—B	1—B
Belt Pitch (mm)	1049	947	947	947	1011	1011
FAN SPEEDS (R/S)						
Factory Setting	16.0	18.7	18.7	18.7	16.3	17.7
Range	14.0-18.1	16.3-20.0*†	16.3-20.0†	16.3-20.0†	14.4-18.3	15.8-19.5
Max Allowable Speed (r/s)	20.0	20.0	20.0	20.0	20.0	20.0
Change per 1/2 Turn of Moveable Motor Pulley Flange	0.410	0.478	0.478	0.478	0.323	0.307
MAX FULL TURN FROM CLOSED POSITION	5	5	5	5	6	6
SHAFTS CENTER DISTANCE (MM)	265-313	265-313	265-313	265-313	265-313**	232-279

* Values for 3-phase motor shown. For single-phase motor, pulley pitch diameter is 178 mm and resulting fan speed is 14.0-18.3 r/s.

† It is possible to adjust drive so that fan speed exceeds maximum allowable. DO NOT exceed 20 r/s.

** 575v unit has a center distance of 233-279.

Table 39 — Fan Performance Data — 40RU, 0.0-1.2 in. wg ESP, 60 Hz — English

UNIT	AIRFLOW (Cfm)	EXTERNAL STATIC PRESSURE (in. wg)													
		0.0		0.2		0.4		0.6		0.8		1.0		1.2	
		Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
40RUA*07 40RUQ*07	1,800	419	0.21	471	0.26	564	0.37	649	0.49	<u>727</u>	<u>0.63</u>	797	<u>0.77</u>	862	<u>0.92</u>
	2100	471	0.31	519	0.37	602	0.49	<u>679</u>	<u>0.62</u>	<u>751</u>	<u>0.77</u>	<u>819</u>	<u>0.92</u>	<u>882</u>	<u>1.09</u>
	2400	524	0.44	568	0.51	645	0.64	<u>715</u>	<u>0.79</u>	<u>781</u>	<u>0.94</u>	<u>844</u>	<u>1.11</u>	<u>905</u>	<u>1.28</u>
	2700	578	0.61	619	0.69	<u>690</u>	<u>0.84</u>	<u>755</u>	<u>0.99</u>	<u>816</u>	<u>1.15</u>	<u>875</u>	<u>1.33</u>	<u>932</u>	<u>1.51</u>
	3000	633	0.81	<u>671</u>	<u>0.90</u>	<u>738</u>	<u>1.07</u>	<u>799</u>	<u>1.24</u>	<u>856</u>	<u>1.41</u>	<u>910</u>	<u>1.60</u>	<u>963</u>	<u>1.79</u>
40RUA*08 40RUQ*08 40RUS*08	2250	290	0.10	510	0.39	594	0.51	669	0.65	739	0.79	<u>806</u>	<u>0.95</u>	<u>870</u>	<u>1.12</u>
	2600	349	0.19	561	0.55	640	0.70	709	0.84	<u>773</u>	<u>1.00</u>	<u>834</u>	<u>1.16</u>	<u>893</u>	<u>1.34</u>
	3000	579	0.70	621	0.79	695	0.96	<u>759</u>	<u>1.12</u>	<u>818</u>	<u>1.30</u>	<u>874</u>	<u>1.47</u>	<u>928</u>	<u>1.66</u>
	3400	646	0.99	683	1.09	<u>752</u>	<u>1.29</u>	<u>813</u>	<u>1.48</u>	<u>869</u>	<u>1.67</u>	<u>920</u>	<u>1.86</u>	<u>970</u>	<u>2.06</u>
	3750	705	1.31	739	1.42	<u>804</u>	<u>1.63</u>	<u>862</u>	<u>1.85</u>	<u>915</u>	<u>2.05</u>	<u>964</u>	<u>2.26</u>	<u>1011</u>	<u>2.48</u>
40RUS*10	2550	396	0.42	502	0.54	586	0.65	658	0.76	722	0.87	<u>780</u>	<u>0.97</u>	<u>833</u>	<u>1.08</u>
	2975	462	0.60	556	0.72	634	0.84	701	0.95	<u>762</u>	<u>1.06</u>	<u>818</u>	<u>1.18</u>	<u>870</u>	<u>1.29</u>
	3400	527	0.80	612	0.93	684	1.06	<u>748</u>	<u>1.18</u>	<u>806</u>	<u>1.30</u>	<u>860</u>	<u>1.41</u>	<u>910</u>	<u>1.53</u>
	3825	593	1.05	670	1.18	737	1.31	<u>797</u>	<u>1.44</u>	<u>852</u>	<u>1.56</u>	<u>904</u>	<u>1.68</u>	<u>952</u>	<u>1.80</u>
	4250	659	1.33	729	1.47	<u>791</u>	<u>1.60</u>	<u>848</u>	<u>1.73</u>	<u>901</u>	<u>1.86</u>	<u>950</u>	<u>1.98</u>	<u>997</u>	<u>2.11</u>
40RUA*12 40RUQ*12 40RUS*12	3000	421	0.35	592	0.73	670	0.90	737	1.06	<u>797</u>	<u>1.23</u>	<u>854</u>	<u>1.41</u>	<u>908</u>	<u>1.59</u>
	3500	626	0.98	664	1.08	735	1.28	798	1.48	<u>855</u>	<u>1.67</u>	<u>908</u>	<u>1.87</u>	<u>958</u>	<u>2.07</u>
	4000	706	1.42	738	1.54	803	1.77*	862	2.00*	<u>917</u>	<u>2.23</u>	<u>967</u>	<u>2.45</u>	<u>1014</u>	<u>2.67</u>
	4500	786	1.99*	815	2.12*	<u>873</u>	<u>2.39</u>	<u>929</u>	<u>2.65</u>	<u>980</u>	<u>2.90</u>	<u>1028</u>	<u>3.16</u>	<u>1073</u>	<u>3.41</u>
	5000	<u>867</u>	<u>2.70</u>	<u>893</u>	<u>2.84</u>	<u>946</u>	<u>3.14</u>	<u>997</u>	<u>3.43</u>	<u>1046</u>	<u>3.72</u>	<u>1092</u>	<u>4.00</u>	<u>1135</u>	<u>4.28</u>
40RUA*14 40RUS*14	3750	410	0.43	467	0.55	567	0.83	649	1.12	721	1.41	<u>788</u>	<u>1.72</u>	<u>851</u>	<u>2.05</u>
	4300	455	0.62	504	0.74	599	1.05	679	1.38	<u>748</u>	<u>1.70</u>	<u>811</u>	<u>2.04</u>	<u>871</u>	<u>2.39</u>
	5000	514	0.92	556	1.06	641	1.39	718	1.76	<u>786</u>	<u>2.14</u>	<u>847</u>	<u>2.52</u>	<u>903</u>	<u>2.91</u>
	5700	575	1.32	612	1.47	686	1.82	<u>759</u>	<u>2.23</u>	<u>825</u>	<u>2.66</u>	<u>884</u>	<u>3.09</u>	<u>939</u>	<u>3.52</u>
	6250	624	1.71	657	1.87	725	2.24	<u>793</u>	<u>2.66</u>	<u>856</u>	<u>3.12</u>	<u>915</u>	<u>3.59</u>	<u>969</u>	<u>4.06</u>
40RUA*16 40RUQ*16 40RUS*16	4500	437	0.61	483	0.72	576	1.01	660	1.35	<u>732</u>	<u>1.69</u>	<u>797</u>	<u>2.03</u>	<u>856</u>	<u>2.38</u>
	5300	499	0.95	538	1.07	617	1.37	696	1.74	<u>767</u>	<u>2.13</u>	<u>830</u>	<u>2.53</u>	<u>888</u>	<u>2.94</u>
	6000	555	1.34	590	1.48	659	1.79	<u>730</u>	<u>2.17</u>	<u>798</u>	<u>2.59</u>	<u>860</u>	<u>3.04</u>	<u>918</u>	<u>3.49</u>
	6800	620	1.91	651	2.06	712	2.39	<u>774</u>	<u>2.78</u>	<u>836</u>	<u>3.22</u>	<u>896</u>	<u>3.71</u>	<u>952</u>	<u>4.21</u>
	7500	677	2.52	706	2.69	<u>761</u>	<u>3.04</u>	<u>817</u>	<u>3.44</u>	<u>873</u>	<u>3.89</u>	<u>929</u>	<u>4.39</u>	<u>984</u>	<u>4.93</u>

LEGEND

Bhp — Brake Horsepower Input to Fan

ESP — External Static Pressure

Bold indicates field-supplied drive is required.

Plain type indicates standard motor and standard drive.

Underlining indicates a different motor and drive combination other than the standard motor and standard drive combination is required. Refer to fan motor and drive tables to complete selection.

* For 40RUQ*12, these operating points require different motor and drive combinations.

NOTES:

1. Maximum allowable fan speed is 1200 rpm for all sizes.
2. Fan performance is based on deductions for wet coil, clean 2 in. filters, and unit casing. See table at right for factory-supplied filter pressure drop.
3. Refer to fan motor and drive tables for additional data.

Factory-Supplied Pressure Drop — English

UNIT	AIRFLOW (Cfm)	PRESSURE DROP (in. wg)
40RUA*07 40RUQ*07	850	0.05
	1,150	0.08
	1,450	0.11
40RUA*08 40RUQ*08 40RUS*08	2,250	0.07
	3,000	0.11
	3,750	0.15
40RUS*10	2,550	0.09
	3,400	0.13
	4,250	0.18
40RUA*12 40RUQ*12 40RUS*12	3,000	0.11
	4,000	0.17
	5,000	0.23
40RUA*14 40RUS*14	3,750	0.06
	5,000	0.10
	6,250	0.13
40RUA*16 40RUQ*16 40RUS*16	4,500	0.08
	6,000	0.12
	7,500	0.17

Table 40 — Fan Performance Data — 40RU, 1.4-2.4 in. wg ESP, 60 Hz — English

UNIT	AIRFLOW (Cfm)	EXTERNAL STATIC PRESSURE (in. wg)											
		1.4		1.6		1.8		2.0		2.2		2.4	
		Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
40RUA*07 40RUQ*07	1800	<u>921</u>	1.07	<u>975</u>	1.23	<u>1026</u>	1.39	<u>1074</u>	1.55	1120	1.72	1164	1.90
	2100	<u>942</u>	1.26	<u>997</u>	1.43	<u>1048</u>	1.61	1097	1.79	1143	1.97	1186	2.16
	2400	<u>963</u>	1.47	<u>1017</u>	1.66	<u>1069</u>	1.85	1118	2.05	1164	2.25	—	—
	2700	<u>987</u>	1.71	<u>1039</u>	1.91	1090	2.12	1138	2.33	1185	2.55	—	—
	3000	<u>1015</u>	1.99	<u>1065</u>	2.20	1113	2.42	1161	2.65	—	—	—	—
40RUA*08 40RUQ*08 40RUS*08	2250	<u>930</u>	1.29	<u>986</u>	1.47	<u>1039</u>	1.65	<u>1089</u>	1.84	<u>1136</u>	2.03	<u>1181</u>	<u>2.22</u>
	2600	<u>950</u>	1.53	<u>1005</u>	1.72	<u>1057</u>	1.92	<u>1107</u>	2.13	<u>1154</u>	2.33	—	—
	3000	<u>980</u>	1.86	<u>1031</u>	2.06	<u>1081</u>	2.27	<u>1129</u>	2.49	<u>1175</u>	2.72	—	—
	3400	<u>1018</u>	2.26	<u>1065</u>	2.48	<u>1111</u>	2.70	<u>1156</u>	2.93	—	—	—	—
	3750	<u>1057</u>	2.69	<u>1101</u>	2.92	<u>1144</u>	3.15	<u>1186</u>	3.39	—	—	—	—
40RUS*10	2550	<u>884</u>	1.18	<u>931</u>	1.29	<u>975</u>	1.40	<u>1018</u>	1.50	<u>1059</u>	1.61	—	—
	2975	<u>919</u>	1.40	<u>965</u>	1.51	<u>1009</u>	1.62	<u>1050</u>	1.73	<u>1090</u>	1.84	—	—
	3400	<u>957</u>	1.64	<u>1002</u>	1.76	<u>1044</u>	1.87	<u>1085</u>	1.98	<u>1124</u>	2.10	—	—
	3825	<u>998</u>	1.92	<u>1041</u>	2.04	<u>1082</u>	2.16	<u>1122</u>	2.27	<u>1160</u>	2.39	—	—
	4250	<u>1041</u>	2.23	<u>1083</u>	2.35	<u>1123</u>	2.48	<u>1161</u>	2.60	<u>1199</u>	2.72	—	—
40RUA*12 40RUQ*12 40RUS*12	3000	<u>961</u>	1.78	<u>1012</u>	1.98	<u>1062</u>	2.19	<u>1111</u>	2.41	<u>1158</u>	2.64	—	—
	3500	<u>1005</u>	2.27	<u>1052</u>	2.49	<u>1098</u>	2.71	<u>1142</u>	2.94	<u>1186</u>	3.18	—	—
	4000	<u>1058</u>	2.90	<u>1101</u>	3.13	<u>1143</u>	3.36	<u>1184</u>	3.60	—	—	—	—
	4500	<u>1116</u>	3.66	<u>1157</u>	3.91	<u>1196</u>	4.16	—	—	—	—	—	—
	5000	<u>1176</u>	4.56	—	—	—	—	—	—	—	—	—	—
40RUA*14 40RUS*14	3750	<u>912</u>	2.39	<u>971</u>	2.76	<u>1028</u>	3.14	<u>1083</u>	3.54	1135	3.95	1185	4.36
	4300	<u>928</u>	2.75	<u>982</u>	3.13	<u>1036</u>	3.53	<u>1087</u>	3.94	1138	4.37	1187	4.81
	5000	<u>956</u>	3.30	<u>1007</u>	3.71	<u>1056</u>	4.13	1104	4.56	1151	5.00	1196	5.46
	5700	<u>990</u>	3.96	<u>1039</u>	4.40	<u>1086</u>	4.85	1130	5.31	1174	5.78	—	—
	6250	<u>1019</u>	4.54	<u>1067</u>	5.02	1112	5.50	1156	5.99	1198	6.49	—	—
40RUA*16 40RUQ*16 40RUS*16	4500	<u>912</u>	2.75	<u>967</u>	3.12	<u>1019</u>	3.52	<u>1070</u>	3.92	<u>1120</u>	4.35	<u>1168</u>	4.79
	5300	<u>942</u>	3.34	<u>992</u>	3.76	<u>1041</u>	4.18	<u>1088</u>	4.61	<u>1134</u>	5.06	1179	5.52
	6000	<u>971</u>	3.95	<u>1020</u>	4.40	<u>1067</u>	4.86	<u>1112</u>	5.33	<u>1156</u>	5.81	1198	6.29
	6800	<u>1005</u>	4.72	<u>1054</u>	5.23	<u>1101</u>	5.75	<u>1145</u>	6.27	1187	6.79	—	—
	7500	<u>1036</u>	5.48	<u>1084</u>	6.04	<u>1131</u>	6.61	1174	7.17	—	—	—	—

LEGEND

Bhp — Brake Horsepower Input to Fan

ESP — External Static Pressure

Bold indicates field-supplied drive is required.

Plain type indicates standard motor and standard drive.

Underlining indicates a different motor and drive combination other than the standard motor and standard drive combination is required. Refer to fan motor and drive tables to complete selection.

NOTES:

1. Maximum allowable fan speed is 1200 rpm for all sizes.
2. Fan performance is based on deductions for wet coil, clean 2 in. filters, and unit casing. See table at right for factory-supplied filter pressure drop.
3. Refer to fan motor and drive tables for additional data.

Factory-Supplied Pressure Drop — English

UNIT	AIRFLOW (Cfm)	PRESSURE DROP (in. wg)
40RUA*07 40RUQ*07	850	0.05
	1,150	0.08
	1,450	0.11
40RUA*08 40RUQ*08 40RUS*08	2,250	0.07
	3,000	0.11
	3,750	0.15
40RUS*10	2,550	0.09
	3,400	0.13
	4,250	0.18
40RUA*12 40RUQ*12 40RUS*12	3,000	0.11
	4,000	0.17
	5,000	0.23
40RUA*14 40RUS*14	3,750	0.06
	5,000	0.10
	6,250	0.13
40RUA*16 40RUQ*16 40RUS*16	4,500	0.08
	6,000	0.12
	7,500	0.17

Table 41 — Fan Performance Data — 40RU 0-300 Pa ESP, 60 Hz — SI

UNIT	AIRFLOW (L/s)	EXTERNAL STATIC PRESSURE (Pa)													
		0		50		100		150		200		250		300	
		r/s	kW	r/s	kW	r/s	kW	r/s	kW	r/s	kW	r/s	kW	r/s	kW
40RUA*07 40RUQ*07	850	6.98	0.16	7.86	0.19	9.40	0.27	10.81	0.37	12.11	<u>0.47</u>	13.29	<u>0.57</u>	14.36	<u>0.69</u>
	990	7.84	0.23	8.64	0.27	10.03	0.36	<u>11.31</u>	<u>0.46</u>	<u>12.52</u>	<u>0.57</u>	<u>13.65</u>	<u>0.69</u>	<u>14.71</u>	<u>0.81</u>
	1130	8.73	0.33	9.46	0.38	10.75	0.48	<u>11.91</u>	<u>0.59</u>	<u>13.01</u>	<u>0.70</u>	<u>14.07</u>	<u>0.83</u>	<u>15.08</u>	<u>0.96</u>
	1270	9.63	0.45	10.31	0.51	<u>11.51</u>	<u>0.62</u>	<u>12.58</u>	<u>0.74</u>	<u>13.60</u>	<u>0.86</u>	<u>14.58</u>	<u>0.99</u>	<u>15.53</u>	<u>1.13</u>
	1420	0.55	0.61	<u>11.18</u>	<u>0.67</u>	<u>12.30</u>	<u>0.80</u>	<u>13.31</u>	<u>0.92</u>	14.26	1.05	15.17	1.19	16.05	1.33
40RUA*08 40RUQ*08 40RUS*08	1060	4.83	0.07	8.50	0.29	9.91	0.38	11.15	0.48	12.32	0.59	<u>13.44</u>	<u>0.71</u>	<u>14.50</u>	<u>0.83</u>
	1230	5.81	0.14	9.35	0.41	10.67	0.52	11.81	0.63	12.88	<u>0.74</u>	<u>13.90</u>	<u>0.87</u>	<u>14.89</u>	<u>1.00</u>
	1420	9.65	0.52	10.35	0.59	11.59	0.71	<u>12.66</u>	<u>0.84</u>	<u>13.64</u>	<u>0.97</u>	<u>14.57</u>	<u>1.10</u>	<u>15.47</u>	<u>1.24</u>
	1600	10.76	0.74	11.39	0.81	<u>12.54</u>	<u>0.96</u>	<u>13.55</u>	<u>1.10</u>	<u>14.48</u>	<u>1.24</u>	<u>15.34</u>	<u>1.39</u>	<u>16.17</u>	<u>1.53</u>
	1770	11.74	0.97	12.32	1.06	<u>13.40</u>	<u>1.22</u>	<u>14.37</u>	<u>1.38</u>	<u>15.25</u>	<u>1.53</u>	<u>16.07</u>	<u>1.69</u>	<u>16.86</u>	<u>1.85</u>
40RUS*10	1200	6.60	0.31	8.37	0.40	9.77	0.49	10.97	0.57	12.03	0.65	<u>13.00</u>	<u>0.72</u>	<u>13.88</u>	<u>0.81</u>
	1400	7.70	0.45	9.27	0.54	10.57	0.63	11.68	0.71	<u>12.70</u>	<u>0.79</u>	<u>13.63</u>	<u>0.88</u>	<u>14.50</u>	<u>0.96</u>
	1600	8.78	0.60	10.20	0.69	11.40	0.79	<u>12.47</u>	<u>0.88</u>	<u>13.43</u>	<u>0.97</u>	<u>14.33</u>	<u>1.05</u>	<u>15.17</u>	<u>1.14</u>
	1800	9.88	0.78	11.17	0.88	12.28	0.98	<u>13.28</u>	<u>1.08</u>	<u>14.20</u>	<u>1.17</u>	<u>15.07</u>	<u>1.25</u>	<u>15.87</u>	<u>1.34</u>
	2000	10.98	0.99	12.15	1.10	<u>13.18</u>	<u>1.20</u>	<u>14.13</u>	<u>1.29</u>	<u>15.02</u>	<u>1.39</u>	<u>15.83</u>	<u>1.48</u>	<u>16.62</u>	<u>1.58</u>
40RUA*12 40RUQ*12 40RUS*12	1420	7.02	0.26	9.86	0.54	11.17	0.67	12.28	0.79	<u>13.29</u>	<u>0.92</u>	<u>14.23</u>	<u>1.05</u>	<u>15.14</u>	<u>1.19</u>
	1650	10.44	0.73	11.06	0.80	12.25	0.96	13.31	1.10	<u>14.25</u>	<u>1.25</u>	<u>15.13</u>	<u>1.39</u>	<u>15.96</u>	<u>1.54</u>
	1890	11.76	1.06	12.31	1.15	13.38	1.32*	14.37	1.49*	<u>15.28</u>	<u>1.66</u>	<u>16.11</u>	<u>1.83</u>	<u>16.89</u>	<u>1.99</u>
	2120	13.10	1.48*	13.59	1.58*	<u>14.55</u>	<u>1.78</u>	<u>15.48</u>	<u>1.97</u>	<u>16.34</u>	<u>2.17</u>	<u>17.14</u>	<u>2.35</u>	<u>17.89</u>	<u>2.54</u>
	2360	<u>14.45</u>	<u>2.01</u>	<u>14.89</u>	<u>2.12</u>	<u>15.76</u>	<u>2.34</u>	<u>16.62</u>	<u>2.56</u>	<u>17.43</u>	<u>2.77</u>	<u>18.20</u>	<u>2.98</u>	<u>18.92</u>	<u>3.19</u>
40RUA*14 40RUS*14	1770	6.84	0.32	7.78	0.41	9.46	0.62	10.82	0.83	12.02	1.05	<u>13.13</u>	<u>1.28</u>	<u>14.19</u>	<u>1.53</u>
	2030	7.58	0.46	8.40	0.55	9.98	0.78	11.31	1.03	<u>12.47</u>	<u>1.27</u>	<u>13.52</u>	<u>1.52</u>	<u>14.51</u>	<u>1.78</u>
	2360	8.57	0.69	9.27	0.79	10.68	1.04	11.96	1.31	<u>13.09</u>	<u>1.60</u>	<u>14.11</u>	<u>1.88</u>	<u>15.05</u>	<u>2.17</u>
	2690	9.59	0.99	10.20	1.10	11.44	1.36	<u>12.64</u>	<u>1.66</u>	<u>13.74</u>	<u>1.98</u>	<u>14.74</u>	<u>2.30</u>	<u>15.65</u>	<u>2.63</u>
	2950	10.40	1.28	10.96	1.39	12.09	1.67	<u>13.21</u>	<u>1.98</u>	<u>14.27</u>	<u>2.33</u>	<u>15.25</u>	<u>2.68</u>	<u>16.15</u>	<u>3.03</u>
40RUA*16 40RUQ*16 40RUS*16	2120	7.28	0.45	8.05	0.54	9.60	0.75	11.00	1.00	<u>12.21</u>	<u>1.26</u>	<u>13.28</u>	<u>1.15</u>	<u>14.27</u>	<u>1.78</u>
	2500	8.32	0.71	8.97	0.80	10.29	1.02	11.59	1.30	<u>12.78</u>	<u>1.59</u>	<u>13.84</u>	<u>1.89</u>	<u>14.80</u>	<u>2.19</u>
	2830	9.25	1.00	9.83	1.10	10.99	1.33	<u>12.16</u>	<u>1.62</u>	<u>13.29</u>	<u>1.93</u>	<u>14.34</u>	<u>2.27</u>	<u>15.30</u>	<u>2.60</u>
	3210	10.33	1.42	10.85	1.54	11.87	1.78	<u>12.90</u>	<u>2.07</u>	<u>13.93</u>	<u>2.40</u>	<u>14.93</u>	<u>2.76</u>	<u>15.87</u>	<u>3.14</u>
	3540	11.29	1.88	11.77	2.01	<u>12.69</u>	<u>2.27</u>	<u>13.62</u>	<u>2.56</u>	<u>14.56</u>	<u>2.90</u>	<u>15.49</u>	<u>3.27</u>	<u>16.40</u>	<u>3.67</u>

LEGEND

ESP — External Static Pressure

Bold indicates field-supplied drive is required.

Plain type indicates standard motor and standard drive.

Underlining indicates a different motor and drive combination other than the standard motor and standard drive combination is required. Refer to fan motor and drive tables to complete selection.

* For 40RUQ*12, these operating points require different motor and drive combinations.

NOTES:

1. Maximum allowable fan speed is 20 r/s for all sizes.
2. Fan performance is based on deductions for wet coil, clean 51 mm filters, and unit casing. See table at right for factory-supplied filter pressure drop.
3. Refer to fan motor and drive tables for additional data.

Factory-Supplied Pressure Drop — SI

UNIT	AIRFLOW (L/s)	PRESSURE DROP (Pa)
40RUA*07 40RUQ*07	850	13
	1150	20
	1450	28
40RUA*08 40RUQ*08 40RUS*08	1000	17
	1400	27
	1800	38
40RUS*10	1200	21
	1600	33
	2000	46
40RUA*12 40RUQ*12 40RUS*12	1450	28
	1900	42
	2350	56
40RUA*14 40RUS*14	1750	15
	2350	24
	3950	33
40RUA*16 40RUQ*16 40RUS*16	2100	20
	2800	30
	3500	42

Table 42 — Fan Performance Data — 40RU 350-600 Pa ESP, 60 Hz — SI

UNIT	AIRFLOW (L/s)	EXTERNAL STATIC PRESSURE (Pa)											
		350		400		450		500		550		600	
		r/s	kW	r/s	kW	r/s	kW	r/s	kW	r/s	kW	r/s	kW
40RUA*07 40RUQ*07	850	<u>15.34</u>	<u>0.80</u>	<u>16.25</u>	<u>0.92</u>	<u>17.10</u>	<u>1.03</u>	<u>17.90</u>	<u>1.16</u>	18.66	1.28	19.39	1.41
	990	<u>15.69</u>	<u>0.94</u>	<u>16.61</u>	<u>1.07</u>	<u>17.47</u>	<u>1.20</u>	18.28	1.33	19.04	1.47	19.77	1.61
	1130	<u>16.04</u>	<u>1.09</u>	<u>16.95</u>	<u>1.23</u>	<u>17.81</u>	<u>1.38</u>	18.63	1.53	19.40	1.67	—	—
	1270	<u>16.44</u>	<u>1.27</u>	<u>17.32</u>	<u>1.42</u>	18.17	1.58	18.87	1.74	19.75	1.90	—	—
	1420	<u>16.91</u>	<u>1.49</u>	<u>17.75</u>	<u>1.64</u>	18.56	1.81	19.34	1.97	—	—	—	—
40RUA*08 40RUQ*08 40RUS*08	1060	<u>15.50</u>	<u>0.96</u>	<u>16.43</u>	<u>1.10</u>	<u>17.31</u>	<u>1.23</u>	<u>18.14</u>	<u>1.37</u>	<u>18.93</u>	<u>1.15</u>	<u>19.68</u>	<u>1.66</u>
	1230	<u>15.84</u>	<u>1.14</u>	<u>16.75</u>	<u>1.28</u>	<u>17.62</u>	<u>1.43</u>	<u>18.45</u>	<u>1.58</u>	<u>19.24</u>	<u>1.74</u>	—	—
	1420	<u>16.34</u>	<u>1.38</u>	<u>17.19</u>	<u>1.54</u>	<u>18.01</u>	<u>1.70</u>	<u>18.81</u>	<u>1.86</u>	<u>19.59</u>	<u>2.03</u>	—	—
	1600	<u>16.97</u>	<u>1.69</u>	<u>17.76</u>	<u>1.85</u>	<u>18.52</u>	<u>2.02</u>	<u>19.27</u>	<u>2.19</u>	—	—	—	—
	1770	<u>17.61</u>	<u>2.01</u>	<u>18.35</u>	<u>2.18</u>	<u>19.07</u>	<u>2.35</u>	<u>19.77</u>	<u>2.53</u>	—	—	—	—
40RUS*10	1200	<u>14.73</u>	<u>0.88</u>	<u>15.52</u>	<u>0.96</u>	<u>16.25</u>	<u>1.05</u>	<u>16.97</u>	<u>1.12</u>	<u>17.65</u>	<u>1.20</u>	—	—
	1400	<u>15.32</u>	<u>1.05</u>	<u>16.08</u>	<u>1.13</u>	<u>16.82</u>	<u>1.21</u>	<u>17.50</u>	<u>1.29</u>	<u>18.17</u>	<u>1.37</u>	—	—
	1600	<u>15.95</u>	<u>1.23</u>	<u>16.70</u>	<u>1.31</u>	<u>17.40</u>	<u>1.40</u>	<u>18.08</u>	<u>1.48</u>	<u>18.73</u>	<u>1.57</u>	—	—
	1800	<u>16.63</u>	<u>1.43</u>	<u>17.35</u>	<u>1.52</u>	<u>18.03</u>	<u>1.61</u>	<u>18.70</u>	<u>1.70</u>	<u>19.33</u>	<u>1.79</u>	—	—
	2000	<u>17.35</u>	<u>1.67</u>	<u>18.05</u>	<u>1.76</u>	<u>18.72</u>	<u>1.85</u>	<u>19.35</u>	<u>1.94</u>	<u>19.98</u>	<u>2.03</u>	—	—
40RUA*12 40RUQ*12 40RUS*12	1420	<u>16.02</u>	<u>1.33</u>	<u>16.87</u>	<u>1.48</u>	<u>17.71</u>	<u>1.64</u>	<u>18.52</u>	<u>1.80</u>	<u>19.30</u>	<u>1.97</u>	—	—
	1650	<u>16.76</u>	<u>1.70</u>	<u>17.53</u>	<u>1.85</u>	<u>18.29</u>	<u>2.02</u>	<u>19.04</u>	<u>2.19</u>	<u>19.77</u>	<u>2.37</u>	—	—
	1890	<u>17.64</u>	<u>2.16</u>	<u>18.35</u>	<u>2.33</u>	<u>19.05</u>	<u>2.51</u>	<u>19.74</u>	<u>2.69</u>	—	—	—	—
	2120	<u>18.60</u>	<u>2.73</u>	<u>19.28</u>	<u>2.91</u>	<u>19.93</u>	<u>3.10</u>	—	—	—	—	—	—
	2360	<u>19.61</u>	<u>3.40</u>	—	—	—	—	—	—	—	—	—	—
40RUA*14 40RUS*14	1770	<u>15.21</u>	<u>1.78</u>	<u>16.19</u>	<u>2.06</u>	<u>17.13</u>	<u>2.34</u>	<u>18.04</u>	<u>2.64</u>	18.91	2.94	19.75	3.25
	2030	<u>15.46</u>	<u>2.05</u>	<u>16.37</u>	<u>2.33</u>	<u>17.26</u>	<u>2.63</u>	<u>18.12</u>	<u>2.94</u>	18.96	3.26	19.78	3.59
	2360	<u>15.94</u>	<u>2.46</u>	<u>16.78</u>	<u>2.77</u>	<u>17.60</u>	<u>3.08</u>	18.40	3.40	19.18	3.73	19.94	4.07
	2690	<u>16.51</u>	<u>2.95</u>	<u>17.32</u>	<u>3.28</u>	<u>18.09</u>	<u>3.62</u>	18.84	3.96	19.57	4.31	—	—
	2950	<u>16.99</u>	<u>3.39</u>	<u>17.78</u>	<u>3.74</u>	18.54	4.10	19.26	4.47	19.96	4.84	—	—
40RUA*16 40RUQ*16 40RUS*16	2120	<u>15.21</u>	<u>2.05</u>	<u>16.11</u>	<u>2.33</u>	<u>16.98</u>	<u>2.62</u>	<u>17.83</u>	<u>2.93</u>	<u>18.66</u>	<u>3.24</u>	<u>19.47</u>	<u>3.57</u>
	2500	<u>15.93</u>	<u>2.49</u>	<u>16.54</u>	<u>2.80</u>	<u>17.35</u>	<u>3.12</u>	<u>18.14</u>	<u>3.44</u>	<u>18.90</u>	<u>3.77</u>	19.64	4.11
	2830	<u>16.18</u>	<u>2.94</u>	<u>17.01</u>	<u>3.28</u>	<u>17.79</u>	<u>3.63</u>	<u>18.54</u>	<u>3.97</u>	<u>19.27</u>	<u>4.33</u>	19.97	4.69
	3210	<u>16.75</u>	<u>3.52</u>	<u>17.57</u>	<u>3.90</u>	<u>18.34</u>	<u>4.29</u>	<u>19.08</u>	<u>4.67</u>	19.78	5.06	—	—
	3540	<u>17.26</u>	<u>4.09</u>	<u>18.07</u>	<u>4.50</u>	<u>18.84</u>	<u>4.93</u>	19.57	5.35	—	—	—	—

LEGEND

ESP — External Static Pressure

Bold indicates field-supplied drive is required.

Plain type indicates standard motor and standard drive.

Underlining indicates a different motor and drive combination other than the standard motor and standard drive combination is required. Refer to fan motor and drive tables to complete selection.

NOTES:

1. Maximum allowable fan speed is 20 r/s for all sizes.
2. Fan performance is based on deductions for wet coil, clean 51 mm filters, and unit casing. See table at right for factory-supplied filter pressure drop.
3. Refer to fan motor and drive tables for additional data.

Factory-Supplied Pressure Drop — SI

UNIT	AIRFLOW (L/s)	PRESSURE DROP (Pa)
40RUA*07 40RUQ*07	850	13
	1150	20
	1450	28
40RUA*08 40RUQ*08 40RUS*08	1000	17
	1400	27
	1800	38
40RUS*10	1200	21
	1600	33
	2000	46
40RUA*12 40RUQ*12 40RUS*12	1450	28
	1900	42
	2350	56
40RUA*14 40RUS*14	1750	15
	2350	24
	3950	33
40RUA*16 40RUQ*16 40RUS*16	2100	20
	2800	30
	3500	42

Replacing Filters

Filters can be removed and installed from either side of the unit. Install new filters in units that have one fan as follows:

1. Remove the side access panel (retain screws).
2. Remove the filter retainer clip (see Fig. 27).
3. Remove old filters by lifting and tilting them out of the filter track. (See Fig. 15 and 28.)
4. Reverse the procedure to install new filters.

To install new filters in larger units that have 2 fans, follow the preceding steps, but use the factory-supplied filter hook to slide filters within reach for removal. The filter hook is shipped inside the unit in the filter track.

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this CAUTION can result in premature wear and damage to equipment.

DO NOT OPERATE THE UNIT WITHOUT THE RETURN AIR FILTERS IN PLACE.

Dirt and debris can collect on heat exchangers and coils possibly resulting in a small fire. Dirt buildup on components can cause excessive current used resulting in motor failure.

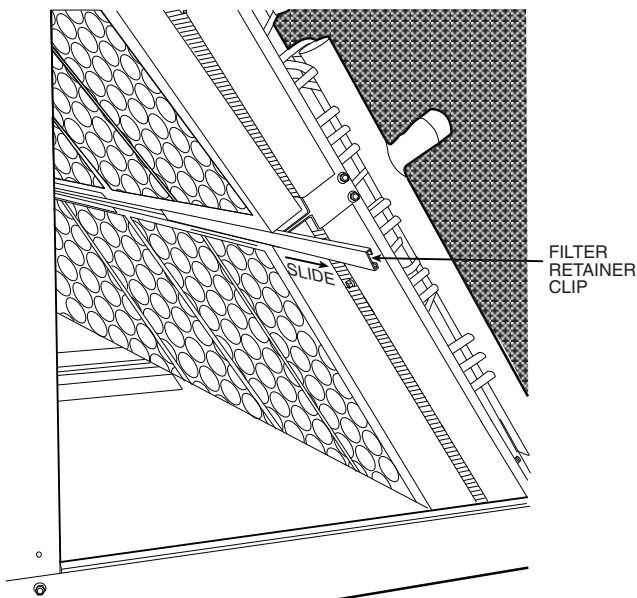


Fig. 27 — Remove Filter Retainer Clip

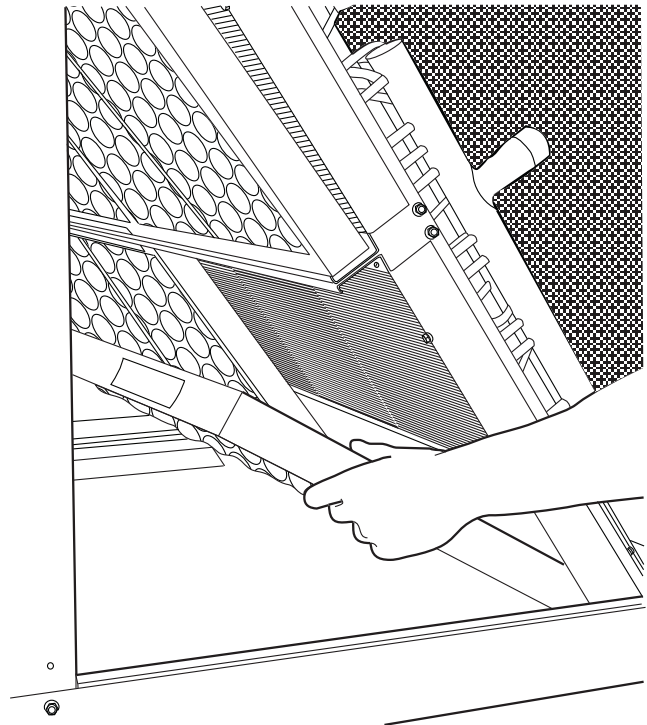


Fig. 28 — Filter Removal/Replacement

START-UP CHECKLIST
(SPLIT SYSTEMS WITH 40RU UNITS)

NOTE: To avoid injury to personnel and damage to equipment or property when completing the procedures listed in this start-up checklist, use good judgment, follow safe practices, and adhere to the safety considerations/information as outlined in preceding sections of this Installation, Start-Up, and Service document.

I. PRELIMINARY INFORMATION

OUTDOOR: MODEL NO. _____

INDOOR: MODEL NO. _____

SERIAL NO. _____

SERIAL NO. _____

ADDITIONAL ACCESSORIES _____

II. PRE-START-UP

OUTDOOR UNIT

IS THERE ANY SHIPPING DAMAGE? (Y/N) _____

IF SO, WHERE: _____

WILL THIS DAMAGE PREVENT UNIT START-UP? (Y/N) _____

CHECK POWER SUPPLY. DOES IT AGREE WITH UNIT? (Y/N) _____

HAS THE GROUND WIRE BEEN CONNECTED? (Y/N) _____

HAS THE CIRCUIT PROTECTION BEEN SIZED AND INSTALLED PROPERLY? (Y/N) _____

ARE THE POWER WIRES TO THE UNIT SIZED AND INSTALLED PROPERLY? (Y/N) _____

HAVE COMPRESSOR HOLDDOWN BOLTS BEEN LOOSENEED? (Y/N) _____

CONTROLS

ARE THERMOSTAT(S) & INDOOR FAN CONTROL WIRING CONNECTIONS MADE & CHECKED? (Y/N) _____

ARE ALL WIRING TERMINALS (including main power supply) TIGHT? (Y/N) _____

HAVE OUTDOOR UNIT CRANKCASE HEATERS BEEN ENERGIZED FOR 24 HOURS? (Y/N) _____

INDOOR UNIT

HAS WATER BEEN PLACED IN DRAIN PAN TO CONFIRM PROPER DRAINAGE? (Y/N) _____

ARE PROPER AIR FILTERS IN PLACE? (Y/N) _____

HAVE FAN AND MOTOR PULLEYS BEEN CHECKED FOR PROPER ALIGNMENT? (Y/N) _____

DO THE FAN BELTS HAVE PROPER TENSION? (Y/N) _____

PIPING

40RUA, 40RUQ

HAS FOAM SHIPPING BLOCK BEEN REMOVED FROM THE TXV (Thermostatic Expansion Valve)? (Y/N) _____

ARE LIQUID LINE SOLENOID VALVES LOCATED AT THE INDOOR UNIT (40RUA) OR OUTDOOR UNIT (40RUQ) COILS AS REQUIRED? (Y/N) _____

HAVE LEAK CHECKS BEEN MADE AT COMPRESSORS, CONDENSERS, INDOOR COILS, TXVs (Thermostatic Expansion Valves) SOLENOID VALVES, FILTER DRIERS, AND FUSIBLE PLUGS WITH A LEAK DETECTOR? (Y/N) _____

LOCATE, REPAIR, AND REPORT ANY LEAKS. _____

HAVE ALL COMPRESSOR SERVICE VALVES BEEN FULLY OPENED (BACKSEATED) (Y/N) _____

ARE THE COMPRESSOR OIL SIGHT GLASSES SHOWING CORRECT LEVELS? (Y/N) _____

40RUS

HAS AIR BEEN BLED FROM SYSTEM? (Y/N) _____

HAVE LEAK CHECKS BEEN MADE AT COMPRESSORS, CHILLERS, VALVES, & INDOOR COILS? (Y/N) _____

LOCATE, REPAIR, AND REPORT ANY LEAKS. _____

CHECK VOLTAGE IMBALANCE

LINE-TO-LINE VOLTS: AB _____ V AC _____ V BC _____ V

$(AB + AC + BC)/3 = \text{AVERAGE VOLTAGE} =$ _____ V

MAXIMUM DEVIATION FROM AVERAGE VOLTAGE = _____ V

VOLTAGE IMBALANCE = $100 \times (\text{MAX DEVIATION})/(\text{AVERAGE VOLTAGE}) =$ _____

IF OVER 2% VOLTAGE IMBALANCE, DO NOT ATTEMPT TO START SYSTEM!

CALL LOCAL POWER COMPANY FOR ASSISTANCE.

III. START-UP

CHECK INDOOR FAN MOTOR SPEED AND RECORD.

AFTER AT LEAST 10 MINUTES RUNNING TIME, RECORD THE FOLLOWING MEASUREMENTS:

	COMP A1	COMP B1
OIL PRESSURE	_____	_____
SUCTION PRESSURE	_____	_____
SUCTION LINE TEMP	_____	_____
DISCHARGE PRESSURE	_____	_____
DISCHARGE LINE TEMP	_____	_____
ENTERING OUTDOOR UNIT AIR TEMP	_____	_____
LEAVING OUTDOOR UNIT AIR TEMP	_____	_____
INDOOR UNIT ENTERING AIR DB TEMP	_____	_____
INDOOR UNIT ENTERING AIR WB TEMP	_____	_____
INDOOR UNIT LEAVING AIR DB TEMP	_____	_____
INDOOR UNIT LEAVING AIR WB TEMP	_____	_____
OUTDOOR UNIT ENTERING WATER TEMP (40RUS ONLY)	_____	_____
OUTDOOR UNIT LEAVING WATER TEMP (40RUS ONLY)	_____	_____
INDOOR UNIT ENTERING WATER TEMP (40RUS ONLY)	_____	_____
INTDOOR UNIT LEAVING WATER TEMP (40RUS ONLY)	_____	_____
COMPRESSOR AMPS (L1/L2/L3)	_____/_____/_____	_____/_____/_____

CHECK THE COMPRESSOR OIL LEVEL SIGHT GLASSES: ARE THE SIGHT GLASSES SHOWING
OIL LEVEL AT 1/8 to 1/3 FULL? (Y/N) _____

NOTES:

CUT ALONG DOTTED LINE

CUT ALONG DOTTED LINE