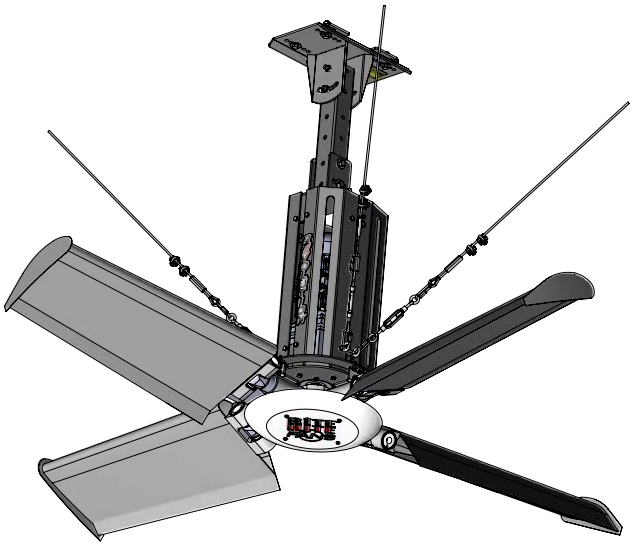
RITE-HITE®
ALWAYS LOOKING AHEAD

Revolution® HVLS Fan
Rogue® HVLS Fan

Installation/Service/Owner's Manual

This manual covers units shipped February 2019 to date.



Fan-Commander 2.0
Required to operate the fan(s) (ordered separately).

Use Fan-Commander 2.0 manual with this manual for complete installation and operation instructions.

Manual Part #: **54450031**
Model: **REVOLUTION, ROGUE**
Publication: **AMEN00064 2019-03-07**

Language: **English** (Hazards: English, French)

NOTICE TO USER

READ AND SAVE THESE INSTRUCTIONS.

Thank you for purchasing a Rite-Hite product.

The Revolution and Rogue Fans are high-volume/low-speed (HV/LS) industrial fans that provide more consistent air circulation and ventilation with better energy efficiency than traditional high-speed ceiling fans or industrial floor fans.

The English version of this manual shall prevail over any error in, or conflicting interpretation of, any translations.

Rite-Hite reserves the right to substitute and/or modify parts and drawings (electrical and architectural) from those contained in this manual. Separate prints may be included with the unit.

For best results, have this product serviced by an authorized Rite-Hite representative.

A Planned Maintenance Program (P.M.P.), customized to your specific operation is available and recommended. For a P.M.P., contact your local Rite-Hite representative or Rite-Hite technical support at (U.S.) 888-456-3625 or 1-414-973-3625, (S.A.) +55 21 99616 4421, (E.U.) +49-5693 98700.

Manufactured by Rite-Hite Engineered Solutions Group, Inc.

FCC Compliance

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

NOTE: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Contains FCC ID: MCQ-XB900HP

Contains IC: 1846A-XB900HP

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesirable operation.

SAFETY

Safety Identifications

⚠ DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

Indique une situation dangereuse qui, si elle n'est pas évitée, peut entraîner la mort ou de graves blessures.

⚠ WARNING / AVERTISSEMENT

Indicates a hazardous situation which, if not avoided, *could result in death or serious injury*.

Indique une situation dangereuse qui, si elle n'est pas évitée, *peut entraîner la mort ou des blessures graves*.

⚠ CAUTION / ATTENTION

Indicates a hazardous situation which, if not avoided, *could result in minor or moderate injury*.

Indique une situation dangereuse qui, si elle n'est pas évitée, *peut entraîner des blessures légères à modérées*.

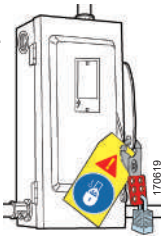
NOTICE

Indicates a situation which can cause damage to the equipment, personal property and/or the environment, or cause the equipment to operate improperly.

NOTE: A note is used to inform you of important installation, operation, or maintenance information.

SAFETY

Lockout Procedure



Barricade work area and post safety warnings.

Power supply/control must:

- Be disconnected or locked in OFF position using a lockout device approved by local codes.
- Have signage that:
  - Clearly states repairs are being made.
  - Identifies person responsible for lockout condition.
    NOTE: Only this person should be able to remove warnings and lockout device.
  - Withstands environmental conditions (weather, wet, and damp, etc.) and remains readable.

General

⚠ DANGER

Installation to be completed in accordance with the National Electric Code, ANSI/NFPA 70-1999, and local codes.

L'installation doit être effectuée conformément au Code national de l'électricité, à la norme ANSI/NFPA 70-1999, et aux codes locaux.

⚠ DANGER

A qualified electrician should install the wiring in accordance with local electrical codes.

Use lockout procedures to prevent death or severe personal injury.

L'installation du câblage doit être effectuée par un électricien qualifié, conformément aux normes électriques nationales et locales.

Afin de réduire le risque de blessures graves ou mortelles, utilisez des procédures de verrouillage.

⚠ CAUTION / ATTENTION

Barricade the work area until the unit(s) have been completely installed.

Barricader la zone de travail jusqu'à ce que l'unité(s) ont été complètement installé.

⚠ WARNING / AVERTISSEMENT

Rotating fan blades can cause serious injury.

Les lames rotatif du ventilateur peut causer des blessures graves.

INSTALLATION

Components

Before installation, verify all components were received. Notify your Rite-Hite representative if parts are missing or damaged.

- 1 box: Motor, hub assembly, remote mounted control switch and disconnect switches. ≈ 160lb [73kg]
- 1 box: Mounting hardware and cables. ≈ 50lb [23kg]
- 1 box: Control box. ≈ 35lb [16kg]
- Revolution Fan: 4 blades
- Rogue Fan: 2 blades

Required Tools

2	7/16in wrenches	(1 can be socket/driver)
2	1/2in wrenches	
2	9/16in wrenches	
2	3/4in wrenches	
1	Vice grip	
2	Flat screwdrivers (large and small)	
1	Small standard screwdriver	
1	Medium Phillips screwdriver	
1	Torque wrench, minimum 200-ft-lb (270 Nm), 1/2in drive	
1	1/2in to 3/4in socket adapter	
1	1/2in socket extender	
1	Metric 7mm deep well socket – or Driver	
1	1/4in cable cutter	
4	Crimp on ring terminals, M4 (#8) stud, for motor wiring	
1	Torpedo level	
1	Drill and 1/2in drill bit. If mounting to support angles that span building joists	

Specifications

Diameter (Ø)	8ft, 12ft, 16ft, 20ft and 24ft [2440mm, 3660mm, 4880mm, 6100mm and 7320mm]
Blades	Aluminum
Blade Finish	Mill-finish standard, custom colors optional
# of Blades	2 (Rogue) or 4 (Revolution)
Watts	75 (@ 10Hz) to 1750 (@ 60Hz) Typical
Frequency	50/60 Hz
Coverage	Up to 22,000sq ft [2046m^2] 85ft [26m] from the fan's center in all directions
Decibels	40 to 63 dBA depending on fan speed (measured 20ft [6100mm] below and 20ft [6100mm] from the fan's center)
Air Speed	Up to 7mph [3m/s] at full speed
Controls	Variable speed
Mounting Heights	10ft - 80ft [3m - 24m] from finished floor to bottom of blade

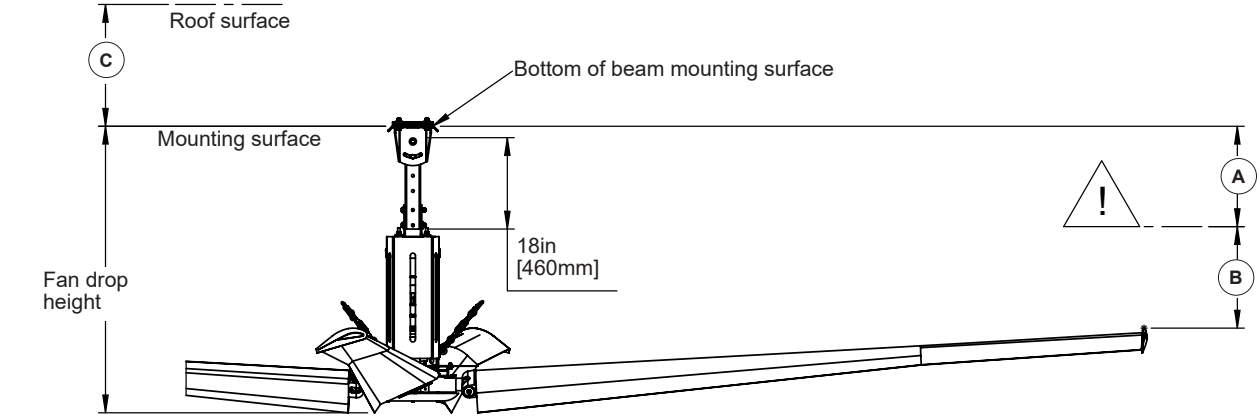
Fan Ø	RPM	Weight
8ft [2440mm]	30-150	268lb [122kg]
12ft [3660mm]	18-96	276lb [125kg]
16ft [4880mm]	15-74	284lb [129kg]
20ft [6100mm]	12-59	292lb [132kg]
24ft [7320mm]	10-52	300lb [136kg]

Revolution and Rogue 2 HP (1.5 kW)		Supply Voltage		
		200-240V 1ϕ	200-240V 3ϕ	400-480V 3ϕ
Fan Input Current (Amps)		13	7	3.5
Control Box Fuse Rating (Amps)		20	15	10
Minimum Service Amps		20	15	10
Maximum Number of Fans per Branch Circuit				
Branch Circuit Amps	**15**	NA	1	3
	20	1	2	4
	25	1	2	5
	30	1	3	6
	35	2	4	8
	40	2	4	9

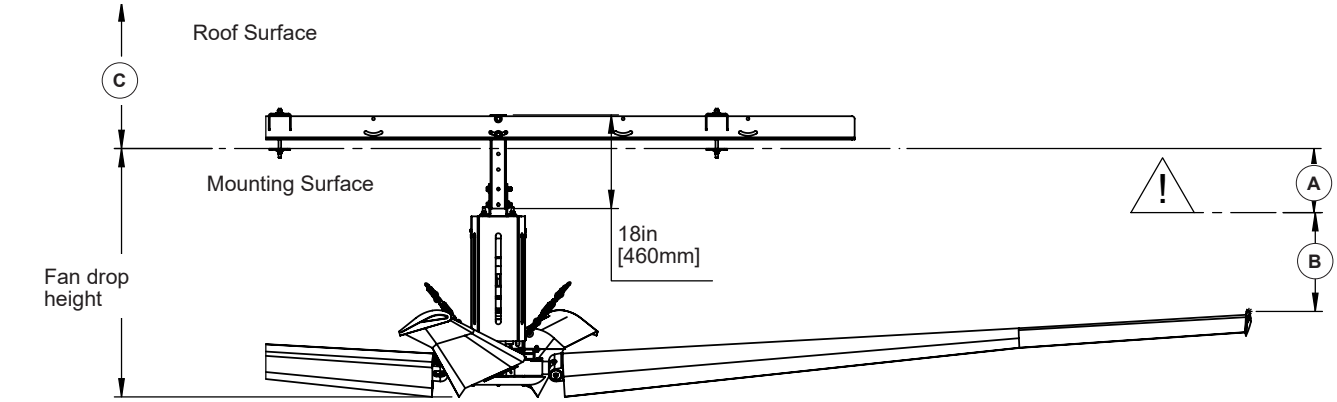
INSTALLATION

Fan Clearance, Air Intake

Beam Kit Mounted



Truss Kit Mounted



	(A) = Mounting Surface to Obstruction Maximum with 18in [460mm] Drop Tube				(B) = Blade Tip at Rest to Obstruction Minimum	
	Beam Kit		**Truss Kit**			
	Fan Drop Height = 56.5in [1440mm]		**Fan Drop Height = 48.00in [1220mm]**			
Fan Ø	**Standard;**	**Low Headroom**	**Standard**	**Low Headroom**	**Standard**	**Low Headroom**
8ft [2440mm]	34in [870mm]	36in [920mm]	25in [640mm]	28in [40mm]	12in [310mm]	12in [310mm]
12ft [3660mm]	33in [840mm]	36in [920mm]	24in [610mm]	28in [37mm]	12in [310mm]	12in [310mm]
16ft [4880mm]	30in [770mm]	35in [890mm]	21in [540mm]	26in [41mm]	14in [360mm]	14in [360mm]
20ft [6100mm]	28in [720mm]	34in [870mm]	19in [490mm]	25in [10mm]	15in [390mm]	15in [390mm]
24ft [7320mm]	25in [640mm]	32in [820mm]	16in [410mm]	24in [39mm]	16in [410mm]	16in [410mm]

	(C) = Extra Air Intake – Extra Height Above the Mounting Surface					
	Beam Kit – Drop Tube			**Truss Kit – Drop Tube**		
Fan Ø	**No Drop Tube**	**18in [457mm]**	**30in [762mm]**	**No Drop Tube**	**18in [457mm]**	**30in [762mm]**
8ft [2440mm]	None	None	None	2in [60mm]	None	None
12ft [3660mm]	5in [130mm]	None	None	16in [410mm]	None	None
16ft [4880mm]	20in [510mm]	7in [180mm]	None	30in [770mm]	14in [360mm]	3in [80mm]
20ft [6100mm]	34in [870mm]	21in [540mm]	9in [230mm]	45in [1150mm]	27in [690mm]	17in [440mm]
24ft [7320mm]	49in [1250mm]	36in [920mm]	24in [610mm]	59in [1500mm]	41in [1050mm]	32in [820mm]

Figure 1

NOTE: **"Figure 1"** is shown with standard headroom.

INSTALLATION

Step 1 – Mounting Preparation

⚠ WARNING / AVERTISSEMENT

Mount directly to a structural framing member to reduce risk of fire, electric shock or injury.

Monter directement sur un membre de charpente pour réduire les risques d'incendie, d'électrocution ou de blessure.

NOTICE

For optimal/unrestricted air movement follow these guidelines:

If the ceiling support structure is a;

- Open-web design, take all hanging dimensions from the underside of the ceiling.
- Solid beam or solid channel, take all measurements from the bottom of the beam for the hanger dimension.

If the roof is pitched, this must be accounted for above the tips of the blades.

Fan Weight and Torque

NOTICE

The weight of the fan that will be suspended from the ceiling is ≈ 300lb [136.4kg] and will generate torque of up to 300ft-lb [407Nm].

Step 2 – Mounting

I-Beam (TYPICAL)

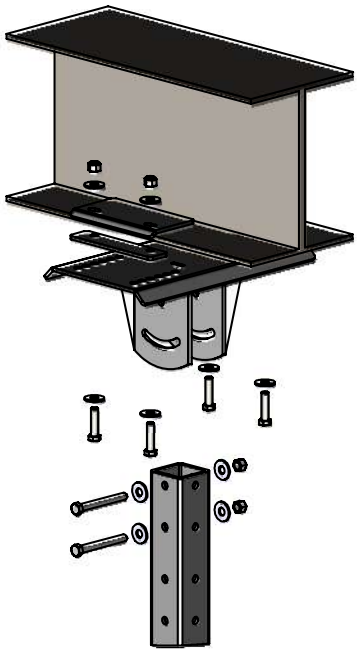


Figure 2

1. Mount fan directly to building support I-beam (6in – 13.5in [150mm – 350mm] wide) with provided brackets.
2. Clamp the brackets around the beam using the holes in the upper beam mounting bracket that are closest to the edge of the beam.

   NOTE: When the beam is larger than the bracket (greater than 13.5in [350mm] wide), clamp the bracket on 1 edge of the beam and drill holes through the beam to bolt the other side securely. Use only Grade 8 hardware.
3. Use a level to ensure the extension tube is hanging vertical.

INSTALLATION

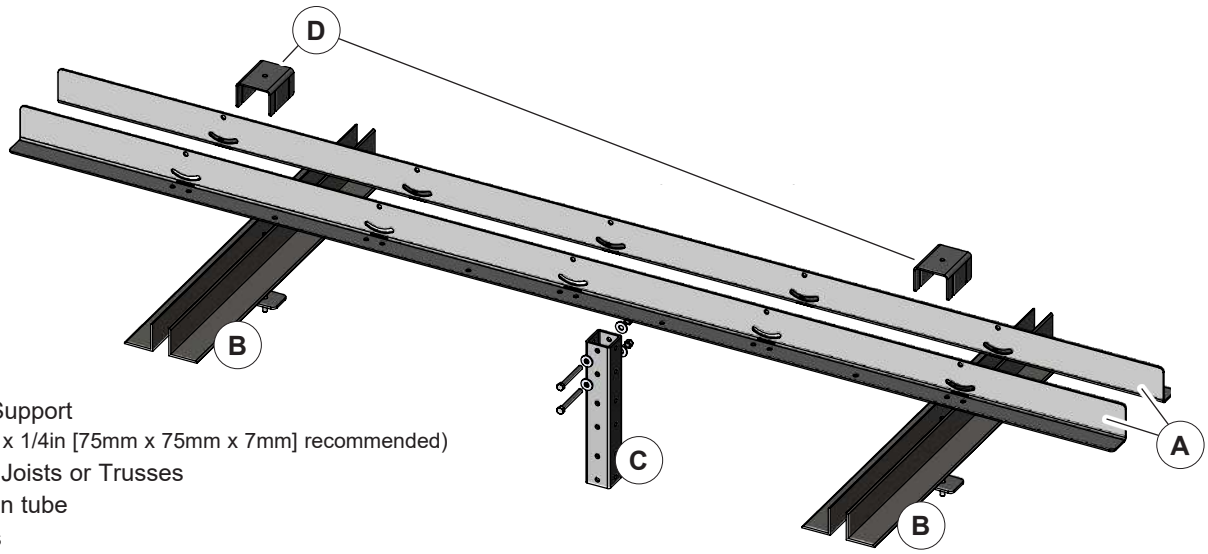
Step 2 – Mounting *Continued*

Ceiling Truss Kit (OPTIONAL)

⚠ WARNING / AVERTISSEMENT

Always mount the fan to 2 joists. 1 joist will not provide the rigidity and support necessary for the fan during operation, and may cause the fan to fall and cause injury.

Toujours monter le ventilateur sur deux solives. Une seule solive n'apportera pas la rigidité et le soutien nécessaire au ventilateur en marche ; cela pourrait entrainer la chute du ventilateur et causer des blessures.



A. Angles/Support
(3in x 3in x 1/4in [75mm x 75mm x 7mm] recommended)
B. Building Joists or Trusses
C. Extension tube
D. Brackets

Figure 3

1. Mount the angles to the building trusses/joists:
   - So fan can be hung using standard I-Beam mounting bracket **Figure 2 (page 6)** with a gap between the angles for the 3in x 3in [75mm x 75mm] drop tube.
   - Securely so the angles cannot move.
2. Use a level to ensure the extension tube is hanging vertical.

NOTE:

- I-beam ceiling brackets are not provided when a Ceiling Truss Kit is ordered.
- Several mounting positions have been cut into the angles for flexibility in positioning the fan.

INSTALLATION

Step 2 – Mounting *Continued*

Laminated Beam Kit (OPTIONAL)

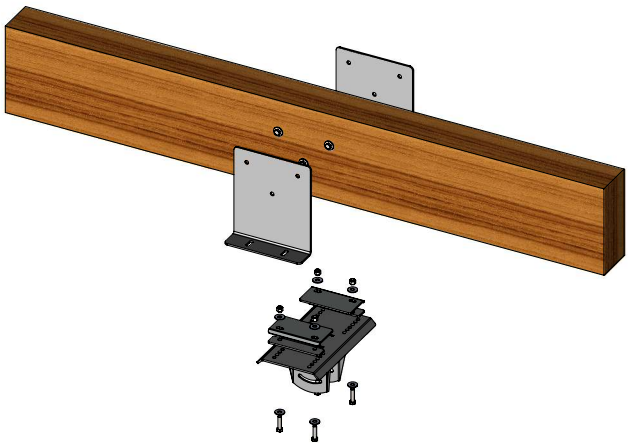


Figure 4

1. Through bolt the laminated beam brackets with 1 bracket on each side of the laminated (or concrete) beam (**Figure 4**).
2. Attach the standard ceiling mounting bracket to this bracket in the normal manner.

Alternative Methods

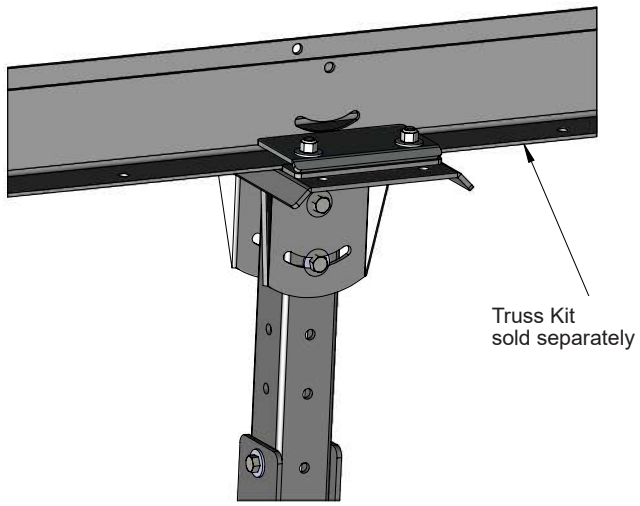


Figure 5

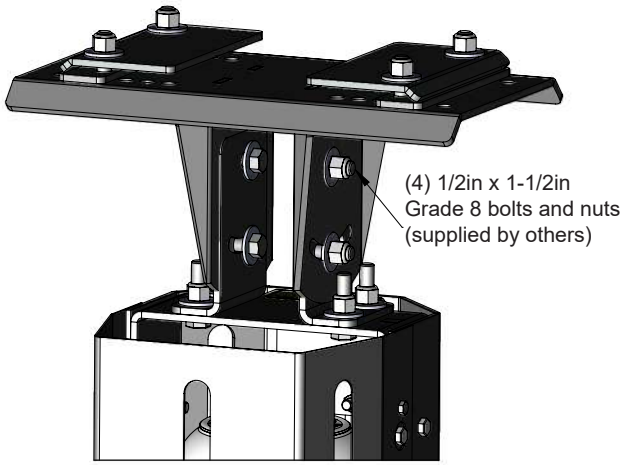


Figure 6

INSTALLATION

Step 3 – Motor Bracket

The motor bracket attaches to the extension tube with (2) 1/2in x 4-1/2in Grade 8 bolts, washers, and locknuts.

1. Position the motor bracket so that 1 angle is on each side of the extension tube.
2. Insert the bolts through the holes in the angles at the top of the motor bracket and through the extension tube and back through the second angle.
3. Tighten both locknuts securely.

When an extended down tube is used:

The smaller square tubing (3in x 3in [75mm x 75mm]) will telescope inside the larger square tubing (3.5in x 3.5in [90mm x 90mm]). The brackets on the top of the motor bracket are bolted in slots to allow the larger tube to bolt to the top of the motor. The 3in x 3in [75mm x 75mm] tube should always bolt to the ceiling bracket.

When fan assembly is mounted directly to the ceiling bracket (without an extension tube):

Use (4) 1/2in x 1-1/2in Grade 8 bolts (supplied by others) to attach the ceiling bracket.

INSTALLATION

Step 4– Safety Cables (INCLUDED WITH KIT)

⚠ WARNING / AVERTISSEMENT

Always use safety cables. They protect against a fan fall in the event of a bolted joint loosening.

Toujours utiliser des câbles de sécurité. Ils protègent contre la chute d'un ventilateur dans le cas d'un relâchement de l'assemblage boulonné.

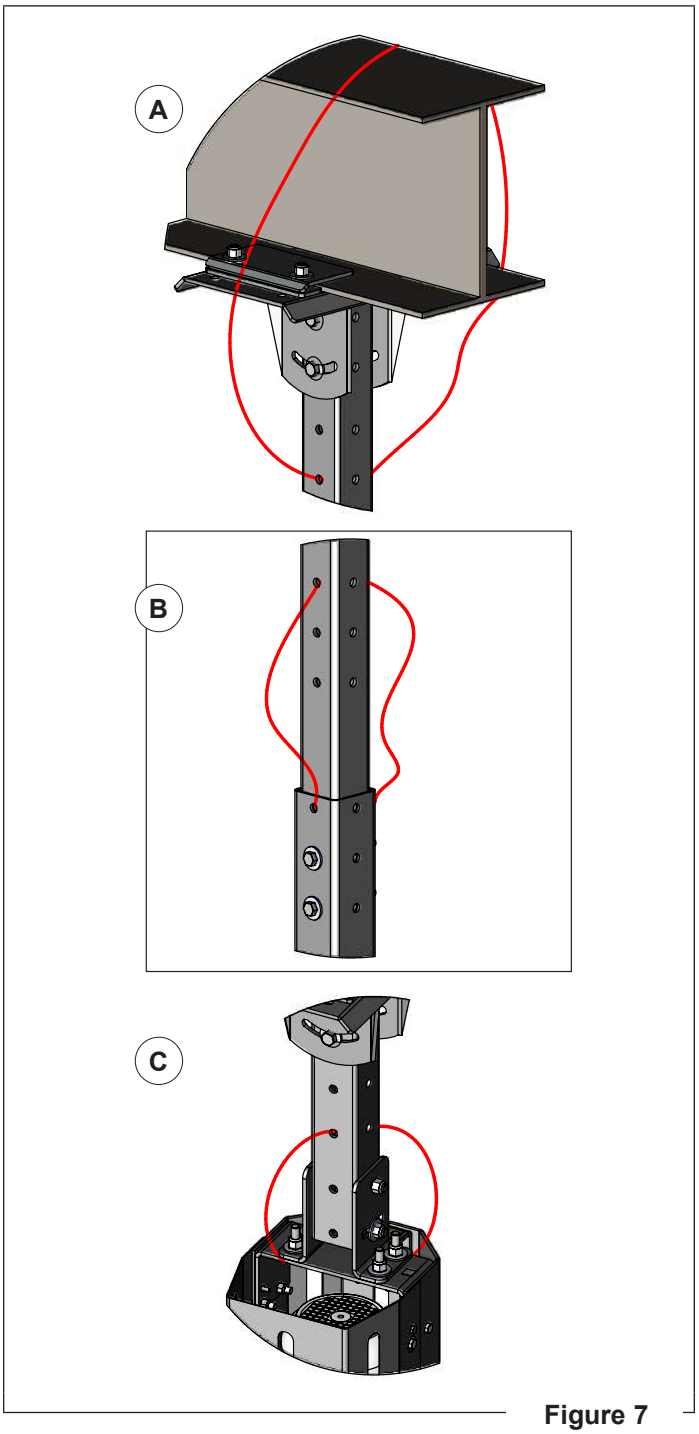


Figure 7

1. Wrap a safety cable around the bolted brackets at the ceiling and through the top of the extension tube (A).
2. If installing with adjustable-length extension tubes, use a third safety cable to secure the center bolted joint of the extension tubes (B).
3. Wrap a second safety cable through the bottom of the extension tube and through the top of the motor housing (C).
4. Secure the safety cables with the provided clamps.

INSTALLATION

Step 5– Stabilization Cables (INCLUDED WITH KIT)

⚠ WARNING / AVERTISSEMENT

Always use stabilization cables. They protect the fan from tilting and allowing the blades to impact a ceiling joist or object.

Toujours utiliser des câbles de stabilisation. Ils empêchent le ventilateur de basculer et ses pales d'entrer en contact avec une solive du plafond ou un objet.

Stabilization cables anchor the fan for situations like cross winds or impacts that could tilt the fan, causing the blades to impact a ceiling joist or other object. Use these cables to attach the fan bracket to the ceiling.

1. For greatest support, attach the stabilization cables to the ceiling at 90° to each other and as far away as possible from the point where the fan is mounted.
2. Secure the stabilization cables to the ceiling with 2 cable clamps, and tighten with a turnbuckle.
3. Cut stabilization cable to length as required.
4. Ensure that stabilization cables are attached in a position that does not allow the blades to hit the stabilization cables when the fan is operating.
5. Tighten the turnbuckle 1 turn past hand-tight.
6. Install stabilization cable clamp nuts away from turnback.

Step 6– Attach Blades

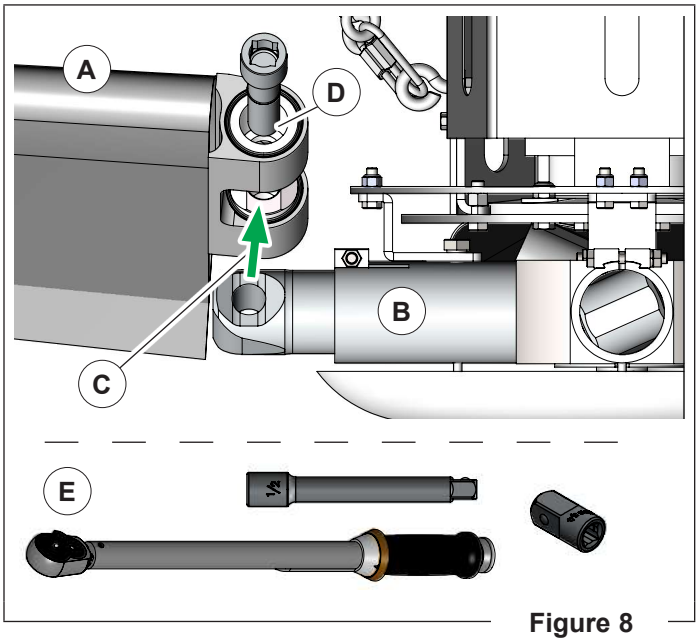


Figure 8

Clean each blade with a paper towel to remove fingerprints and dirt before the blades are installed.

To attach each fan blade to the fan hub:

1. Use a step ladder or lift as required.
2. Raise the blade (A) above the arm of the hub (B) and allow the slot of the blade to slide onto the hub (C).
3. Insert (provided) 1in bolt (D). Use a torque wrench (E) with a 3/4in drive extension to tighten the bolt to 200 ft-lb. [271 Nm].

Step 7– Level Hub

1. Hold a level across the center of the hub (all directions).
2. Make fine adjustments with the (turnbuckle clamped) stabilization cables.
3. **Run / Test (page 17)** the unit, then re-adjust fan level and cable tension.

INSTALLATION

Step 8– Fan Electrical Installation (TYPICAL)

A. Mount Fan Control Box (VFD Enclosure) at maintenance accessible height.
B. Mount disconnect at accessible height, according to local code.

Mount Fan Control Box (A) and disconnect (B) safely outside the fan diameter.

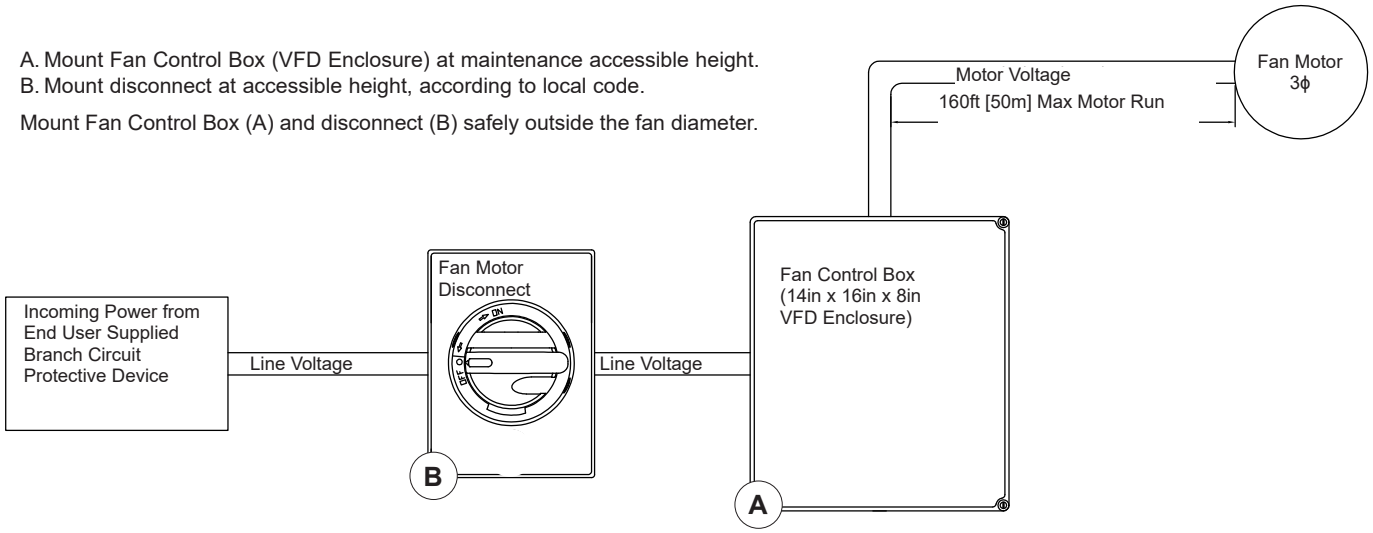
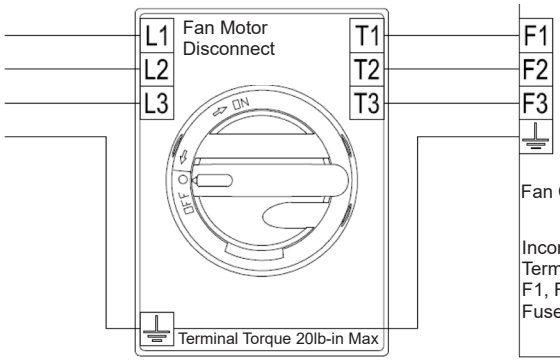


Figure 9

Field Wiring

Power/High Voltage

Incoming Power from
End User Supplied
Branch Circuit



NOTE:

- If fan runs backwards swap 2 motor wires.
- L3 not used on 1ϕ fans. Copper conductors only 14-8 AWG, 75°C min.

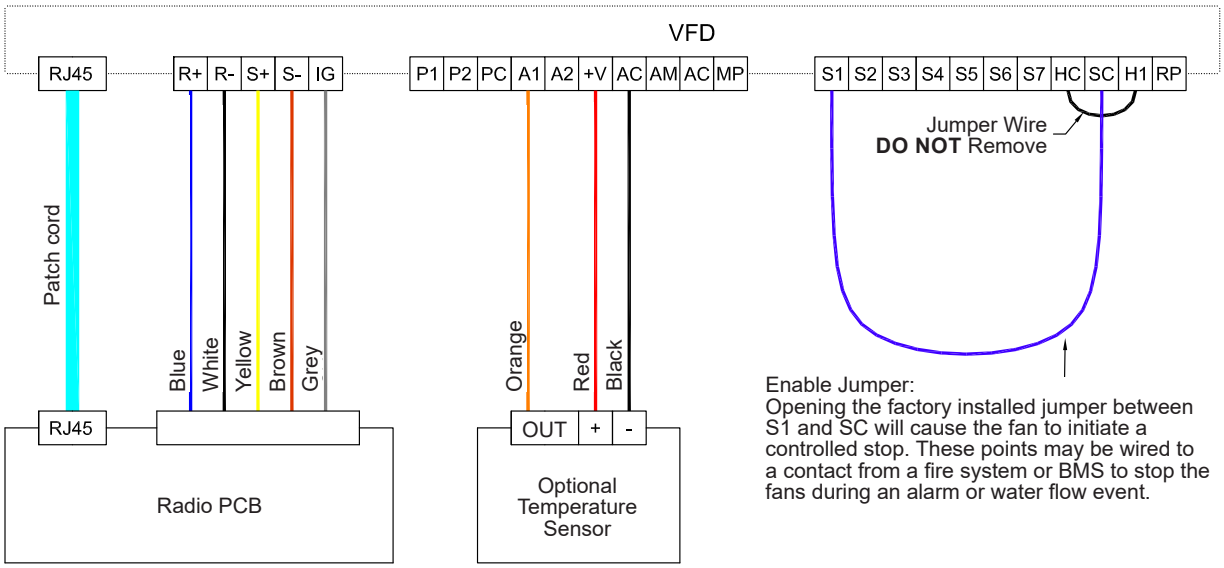
ACCEPTABLE:

Unshielded Stranded Conductor Types:
THHN/THWN in Metallic Conduit

Shielded Stranded Cable Types:
Belden 29501
AlphaWire V16014

Use copper wire only, minimum 600V 75°C

Control/Low Voltage



Enable Jumper:
Opening the factory installed jumper between S1 and SC will cause the fan to initiate a controlled stop. These points may be wired to a contact from a fire system or BMS to stop the fans during an alarm or water flow event.

Figure 10

INSTALLATION

Step 9 – Control Box

⚠ CAUTION / ATTENTION

Mount control boxes outside of the fan diameter. A control box mounted above a fan or inside the fan diameter cannot be locked out safely.

Monter les boîtes de commande en dehors du diamètre du ventilateur. Une boîte de commande montée au-dessus ou dans le champ du ventilateur ne peut être verrouillée en toute sécurité.

Mount the 17.6in x 16in x 8.4in [447mm x 406mm x 212mm] control box:

- Securely to a wall or building column with appropriate anchors (supplied by others).
- Within 160ft [50m] from the fan it is controlling. The fan must be visible from the control box mounting location.

Step 10 – Label Plate

1. Attach the label plate mounting brackets to the bottom of the fan hub:
   a. Insert the 4 1/4-20 x 1.0in bolts with lock washers through the end with the round hole.
      NOTE: Do not tighten completely until the label plate is attached.
   b. Align the bracket so the slotted hole faces outward, toward the fan blade.
   c. Repeat this process for the remaining 3 brackets.
2. Attach the label plate to the label plate brackets:
   a. Insert the bolt up through the label plate and through the label plate bracket.
      NOTE: You may need to puncture a small hole through the label with a sharp object to insert the bolt.
   b. Install a 1/4-20in Nylock nut on the bolt to secure it in position.
   c. Repeat this process to attach the label plate to the remaining label plate brackets.
3. Tighten all the bolts holding the brackets and label plate securely.

Step 11 – Motor Cover

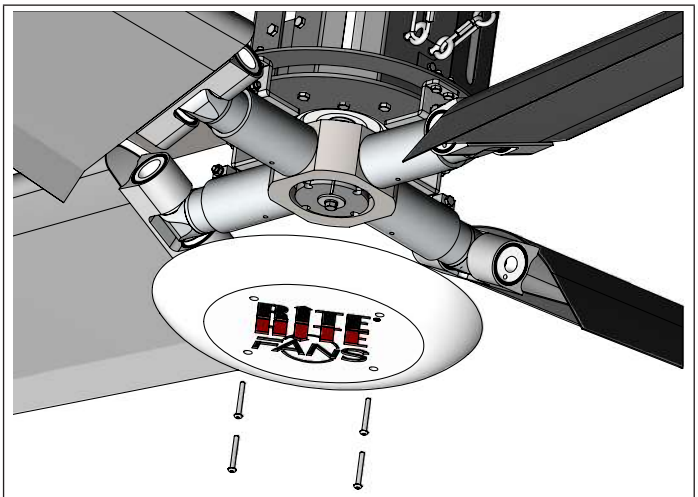


Figure 11

Attach the motor cover over the motor bracket:

1. Insert 4 1/4-20 x 1in bolts with locknut through the motor cover and motor bracket.
2. Secure bolts with a Nylock nut on the inside.
3. Tighten all 4 bolts securely.

Fan Guarding

After installation, guard the fan when there is potential for a person or object to contact moving fan blades.

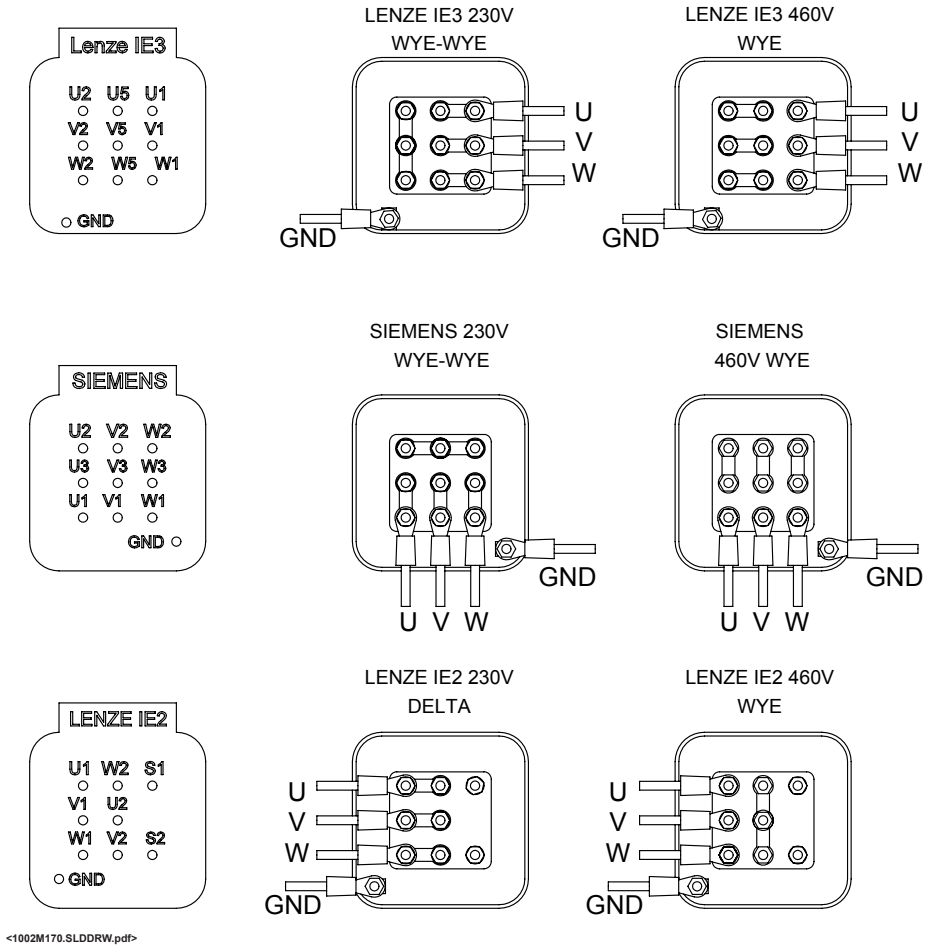
Guarding (supplied by others) can be a:

- Structure near the edge of the blades to deter fork trucks, objects or people from entering a danger area.
- Cage around the fan blades to protect moving fan blades.

  NOTE: Always mount cage(s) from the ceiling or columns and independent of the fan.

ELECTRICAL

Motor Wiring



NOTE: Use stranded copper conductors only, minimum 75˚C. To maintain 4X rating, use only UL listed 4X fittings. Do not make conduit connections through the top of enclosure. To reduce risk of electric shock, an earth ground connection must be field installed to the Green/Yellow control box ground terminal.

Figure 12

The fan motor will receive three-phase power from the fan control box even if single-phase power is provided to the control box. Remove the cover from the motor junction box. Change the wire leads as necessary for high or low voltage **(Figure 12)**.

NOTICE

Do Not use solid core wiring of any size or insulation class for controller output/motor leads.

To connect the fan control box to the motor use these (14AWG Minimum Gauge) acceptable wire types:

Unshielded cable:
- THHN/THWN Minimum 600V 90°C

Shielded XLPE VFD cable:
- Belden 29501
- AlphaWire V16014

Conduit Restrictions

NOTICE

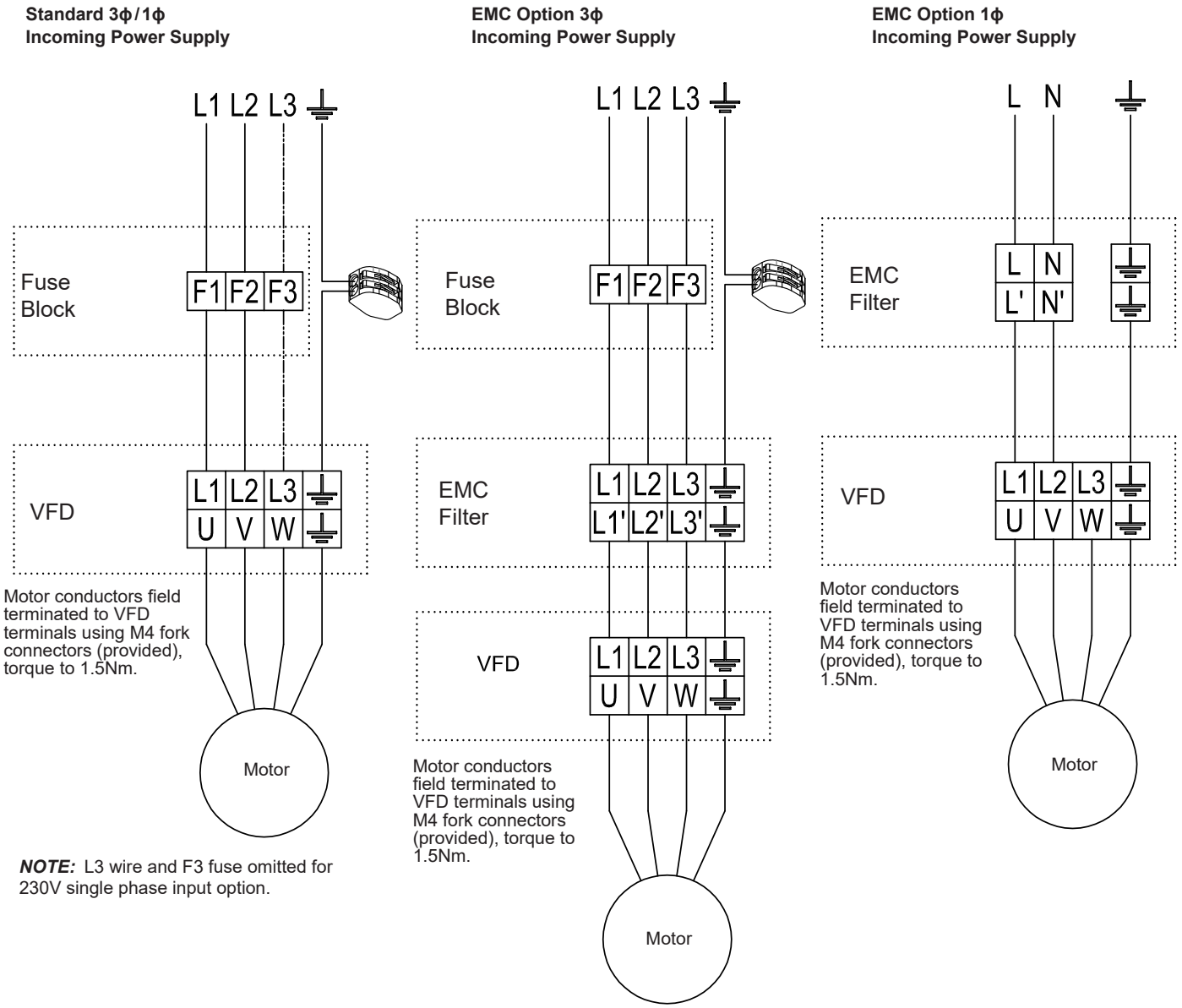
Power supply lines for a controller ***May*** share the same conduit with Power supply lines for 1 or more additional controllers.

Power supply lines for a controller and output/motor leads for the same controller or another controller ***May Not*** share the same conduit.

The conduit with the incoming power and the conduit with the power going to the motor should be separated by a minimum of 6in [150mm].

ELECTRICAL

Control Box Wiring



- All factory wiring 14 AWG AVLV2/8
- Power wiring to be black
- Ground conductors to be green/yellow

Figure 13

ELECTRICAL

EMC Compliance (OPTIONAL)

The EMC Compliance Option includes an EMC filter on the line side of the VFD.

To maintain IEC 61800-3 C1 compliance, you must observe the following installation guidelines:

- Ensure maximum physical separation between low voltage control cables and high voltage power cables (minimum 150mm or 6in).
- Ensure maximum physical separation between motor cable and all other circuits (minimum 150mm or 6in).
- Use shielded, low capacitance VFD cable with XLPE (Cross-linked Polyethylene) insulation. Example products:
  - Belden 29501
  - AlphaWire V16014
- Ground the motor cable shield at both ends of the cable (VFD and motor).
- The total motor cable length must not exceed exceed 65ft [20m].

MAINTENANCE

⚠ WARNING / AVERTISSEMENT

Follow lockout procedures before cleaning or re-torquing the fan.

Suivre les procédures de verrouillage avant le nettoyage ou le resserrage du ventilateur.

Planned Maintenance

PLANNED MAINTENANCE TASK	INSPECT AND PERFORM THE FOLLOWING:
Fan Mounting	Re-torque all fasteners (1/2in Grade 8 [98ft-lb or 133Nm], 5/16in Grade 8 [29ft-lb or 39Nm]).
	Inspect fan and mounting supports for wear and tear. Tighten any loose hardware.
Cables	Re-torque clamps.
	Check for fraying or wear.
Gear Reducer	Check for oil leaks. If leaks are present, contact factory.
	Check oil level. Add oil if necessary (oil type is marked on the gear case).
Motor	Check for dust and dirt. Remove using a brush or compressed air.
Fan Controller	Inspect all terminal connections inside the VFD control box. Tighten any loose connections.

TROUBLESHOOTING

Run / Test

Turn the power disconnect switch on the control box to the ON position. Allow a few seconds for the frequency drive to power up.

Adjust the fan speed to 60 Hz. Count the number of revolutions the fan makes in 1 minute. They should be:

24ft [7320mm] Fan ≈ 52 rpm

20ft [6100mm] Fan ≈ 59 rpm

16ft [4880mm] Fan ≈ 74 rpm

12ft [3660mm] Fan ≈ 96 rpm

8ft [2440mm] Fan ≈ 150 rpm

NOTE: If fan does not spin at these speeds, consult your Rite-Hite representative.

TROUBLESHOOTING

Motor

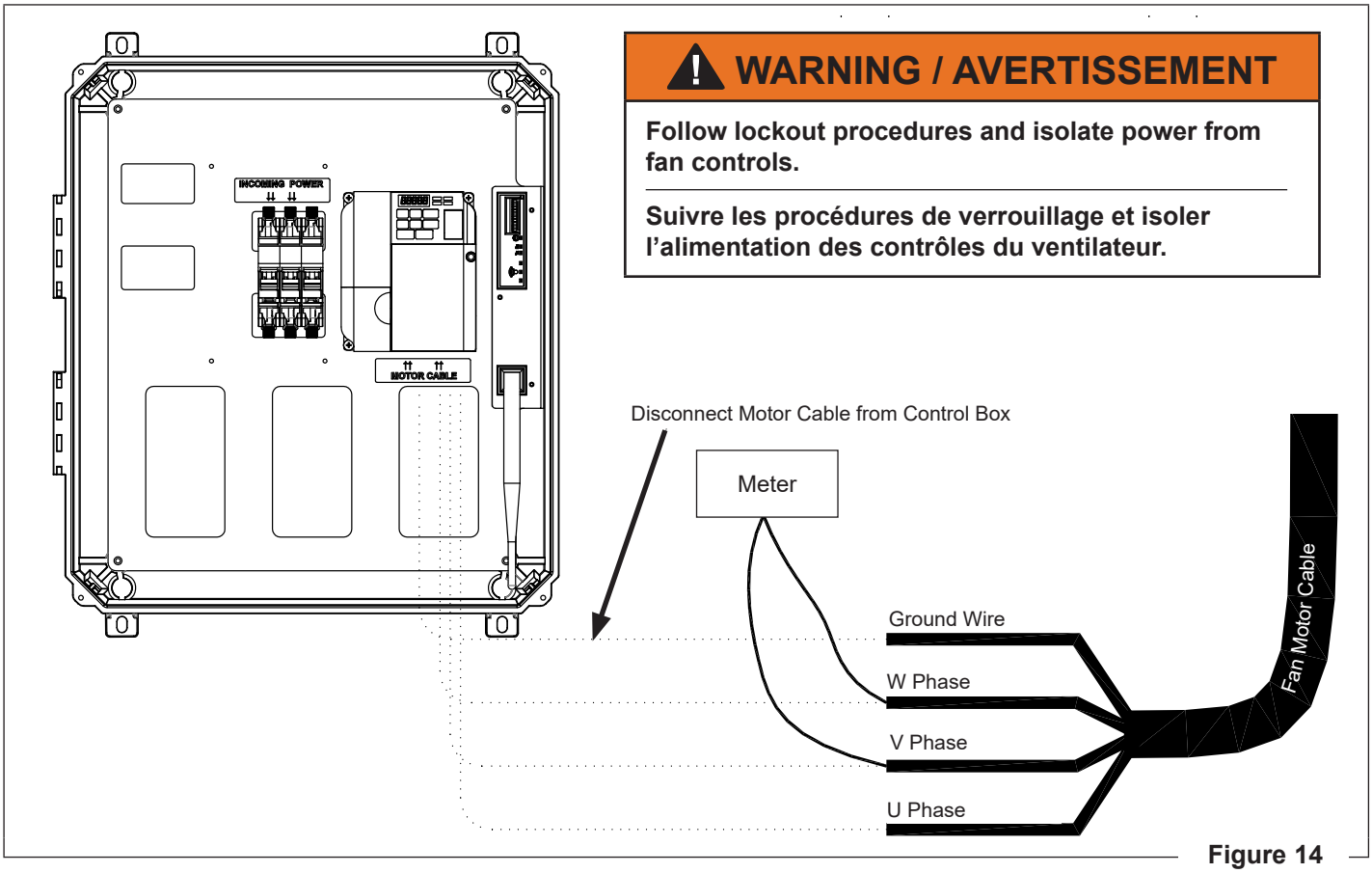


Figure 14

1. Disconnect fan motor cable from u, v, w, and ground terminals (GND).
2. Using electrical meter, measure resistance (ohms, Ω) between phase wand Phase V.

   Record the 6 resistance values:

   Phase W to V ☐ Ω Phase W to GND ☐ Ω

   Phase W to U ☐ Ω Phase V to GND ☐ Ω

   Phase V to U ☐ Ω Phase U to GND ☐ Ω

   Phase to phase values should be equal. (±5%).

   Phase to ground values should be infinite. (Open circuit - meter display "OL")

   If phase-phase values are not equal. Or, if phase-ground resistance is measured:

   - Disconnect motor cable from motor.
   - Repeat measurements at motor wiring terminals.

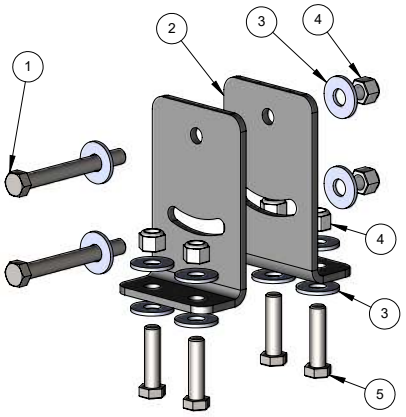
Motor Wobble

Verify:
- All hardware is tight.
- Stabilization Cables are taut.
- The motor bracket is installed vertically.

PARTS

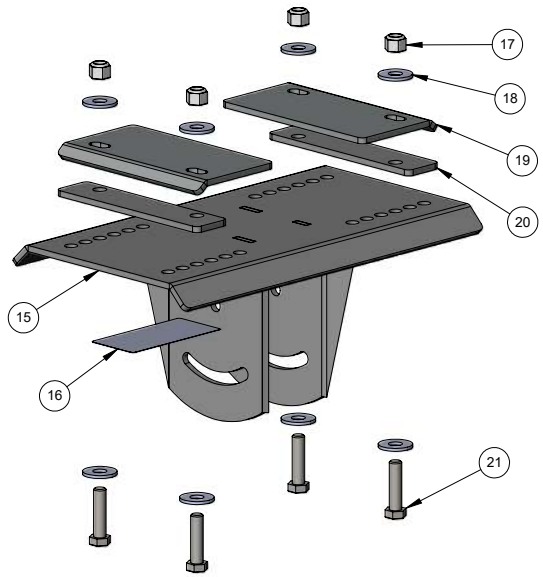
Mounting

Swivel Bracket



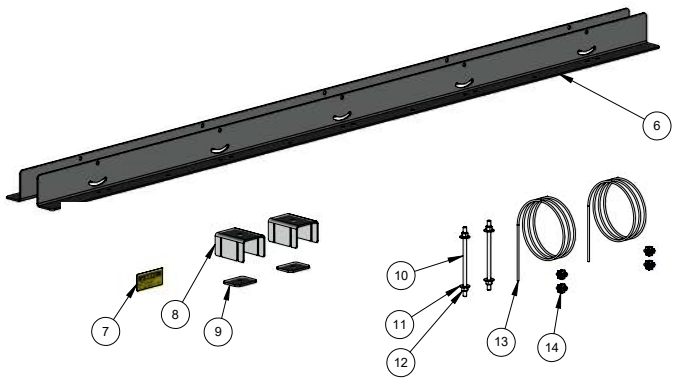
#	QTY	DESCRIPTION	PART #
–	1	BRKT,ASSY,SWVL,HOUSING,FAN,GY	14501306
1	2	SCR,HHMS,1/2-13X4-1/2,GR8,ZNC	–
2	2	BRKT,MNT,HOUSING,SWVL,FAN,GY	–
3	12	WSHR,FLAT,1/2X1-3/8X7/64,ZNC	–
4	6	NUT,HEX,NYL LOCK,1/2-13,GR8,Z	–
5	4	SCR,HHMS,1/2-13X2,GRD8,ZNC	–

I-Beam Kit



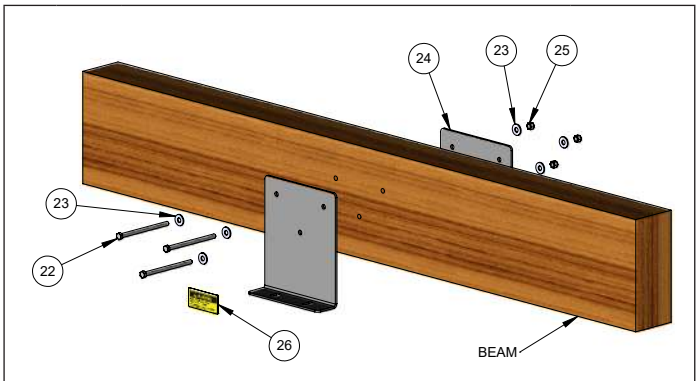
#	QTY	DESCRIPTION	PART #
–	1	BRKT,ASSY,SWVL,CLNG,FAN,GY	14501233
15	1	BRKT,WLDMNT,SWVL,FAN,GY	–
16	1	LABEL,DECAL,INSTL,SUPPORT,FAN	–
17	4	NUT,HEX,NYL LOCK,1/2-13,GR8,Z	–
18	8	WSHR,FLAT,1/2X1-3/8X7/64,ZNC	–
19	2	PLATE,CLAMP,MNT,FAN,GY	–
20	2	PLATE,SHIM,MNT,FAN,GY	–
21	4	SCR,HHMS,1/2-13X2,GRD8,ZNC	–

Truss Kit



#	QTY	DESCRIPTION	PART #
–	–	MOUNT,ASSY,TRUSS,FAN,GY	55290016
6	2	BRKT,MNT,TRUSS,FAN,GY	–
7	1	LABEL,DECAL,INSTL,SUPPORT,FAN	–
8	2	BRKT,CLAMP,TRUSS,FAN,GY	–
9	2	PLATE,CLAMP,TRUSS,FAN,GY	–
10	2	ROD,THRD,1/2-13X10",FLTD,STNLS	–
11	4	WSHR,FLAT,1/2X1-3/8X7/64,ZNC	–
12	4	NUT,HEX,NYL LOCK,1/2-13,GR8,Z	–
13	2	CABLE,AIRCRAFT,GLV,1/4,84"	–
14	4	CLAMP,CABLE,ZINC,1/4,SNGL SAD	–

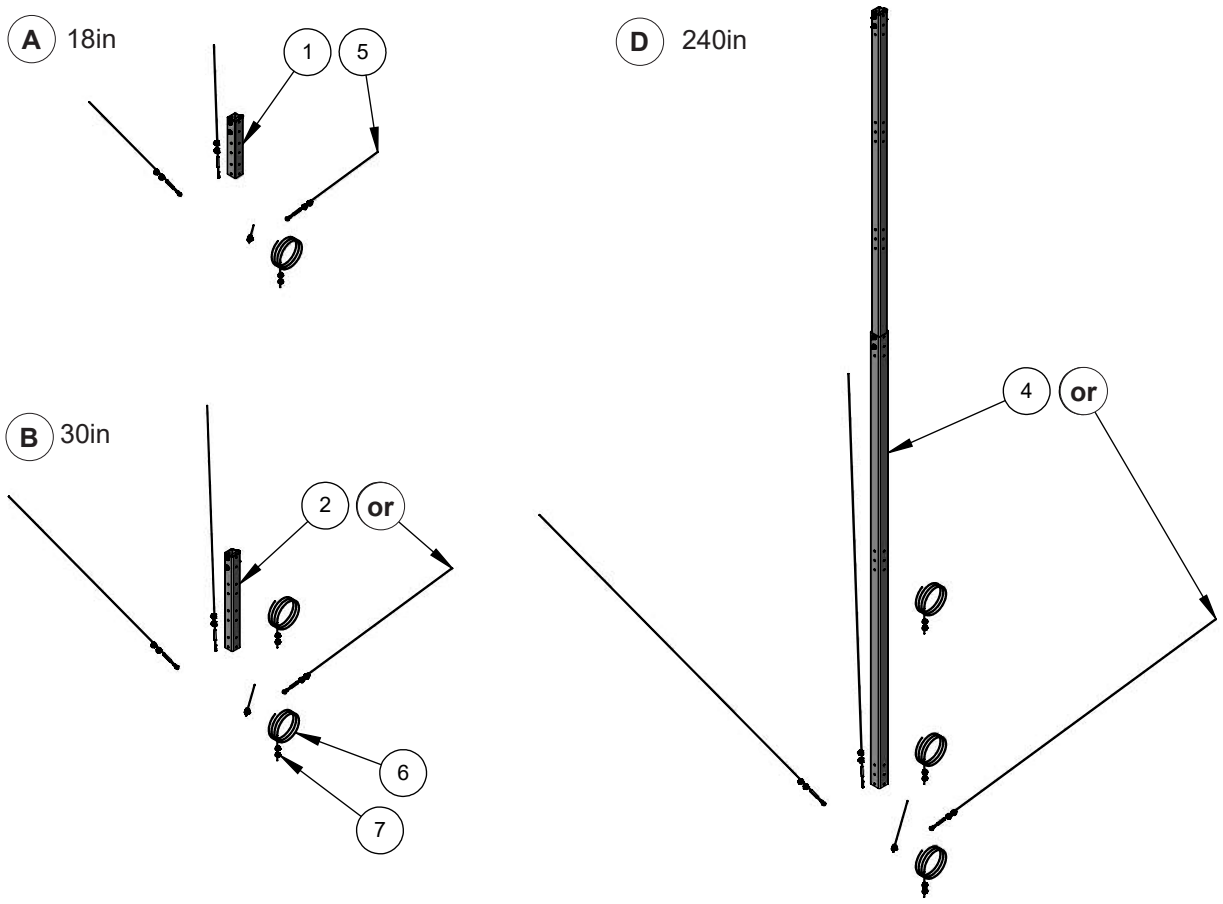
Laminated Beam Kit



#	QTY	DESCRIPTION	PART #
–	1	BRKT,ASSY,MNT,LAM BEAM,FAN,GY	14501239
22	3	SCR,HHMS,1/2-13X8,GRD8,ZNC	–
23	6	WSHR,FLAT,1/2X1-3/8X7/64,ZNC	–
24	2	BRKT,MNT,LMNTD BEAM,FAN,GY	–
25	3	NUT,HEX,NYL LOCK,1/2-13,GR8,Z	–
26	1	LABEL,DECAL,INSTL,SUPPORT,FAN	–

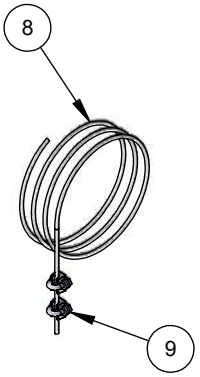
PARTS

Extension Tube Assemblies, Cables



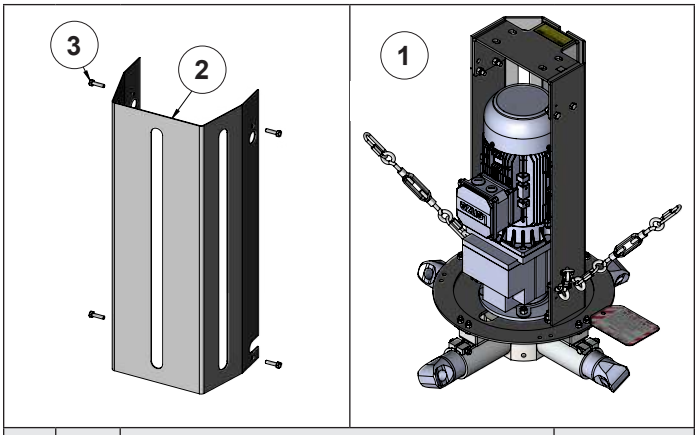
#	DESCRIPTION	18"	30"	84"	240"
1	EXTN,ASSY,FAN,18",GY	1	–	–	–
2	EXTN,ASSY,FAN,30",GY	–	1	–	–
3	EXTN,ASSY,FAN,84",GY	–	–	1	–
4	EXTN,ASSY,FAN,240",GY	–	–	–	1
5	CABLE,AIRCRAFT,GLV,1/4,120"	4	–	–	–
or	CABLE,AIRCRAFT,GLV,1/4,240"	–	4	4	–
or	CABLE,AIRCRAFT,GLV,1/4,420"	–	–	–	4
6	CABLE,AIRCRAFT,GLV,1/4,84"	1	2	3	3
7	CLAMP,CABLE,ZINC,1/4,SNGL SAD	10	12	14	14

#	QTY	DESCRIPTION	PART #
A	–	KIT,EXTN,W/CABLES,REV,18"	53760032
B	–	KIT,EXTN,W/CABLES,REV,30"	53760033
C	–	KIT,EXTN,W/CABLES,REV,84"	53760034
D	–	KIT,EXTN,W/CABLES,REV,240"	53760035
–	–	CABLE,ASSY,SAFETY,84"	15700022
8	1	CABLE,AIRCRAFT,GLV,1/4,84"	–
9	2	CLAMP,CABLE,ZINC,1/4,SNGL SAD	–



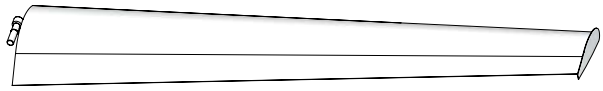
PARTS

Motor Cover, Motor Assembly



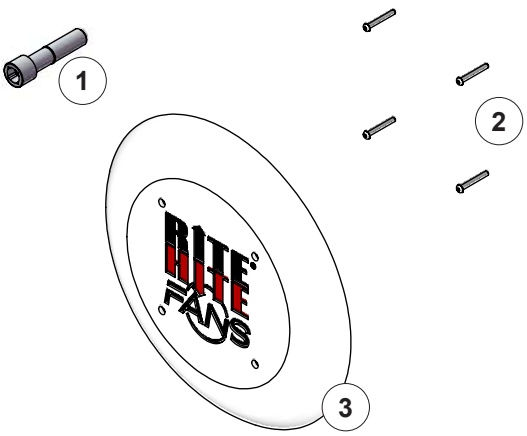
#	QTY	DESCRIPTION	PART #
1	1	MOT,ASSY,FAN,W/VOLTAGE	1012.XXX
–	–	CVR,KIT,HOUSING,MOTOR,W/HRDW	17900208
2	1	CVR,HOUSING,MOTOR,REV	–
3	4	SCR,HHMS,1/4-20X1,GR8,ZNC	–

Blades



DESCRIPTION		PART #
STANDARD HEADROOM	BLADE,SNGL,REV,8'DIA	12510049
	BLADE,SNGL,REV,12'DIA	12510050
	BLADE,SNGL,REV,16'DIA	12510051
	BLADE,SNGL,REV,20'DIA	12510052
	BLADE,SNGL,REV,24'DIA	12510053
LOW HEADROOM	BLADE,SNGL,REV,8'DIA,LHR	12510056
	BLADE,SNGL,REV,12'DIA,LHR	12510057
	BLADE,SNGL,REV,16'DIA,LHR	12510058
	BLADE,SNGL,REV,20'DIA,LHR	12510059
	BLADE,SNGL,REV,24'DIA,LHR	12510060

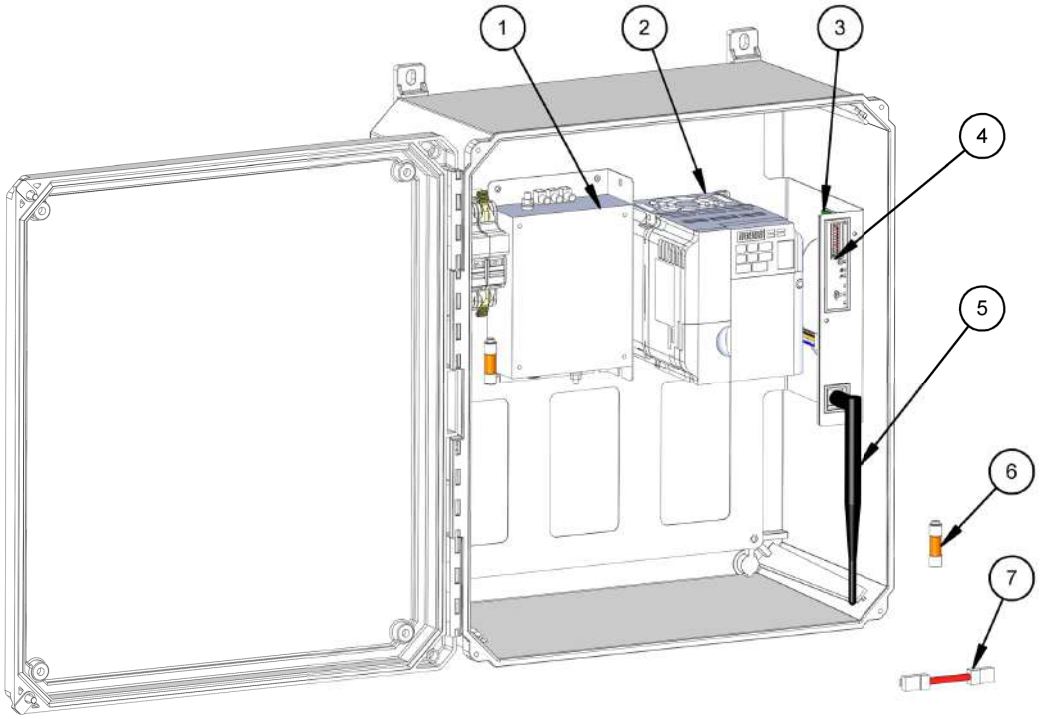
Hub



#	QTY	DESCRIPTION	PART #
1	1	KIT,BLD,SCR,M24X100MM,AL	53760007
2	4	SCR,BHMS,SCKT,1/4-20X2,SS	67870130
3	1	CVR,HUB,DOME,RITEHITE,REV	17900203

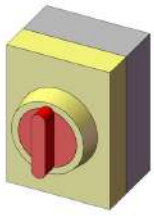
PARTS

Controls 2.0



7642 (CONFIGURABLE)
CBOX,[XXX]V,[X]PH,[EMC],[XXX]Hz

#	DESCRIPTION	PART #
1	Filter,EMC,YSKW,480V,3PH,10A	45500027
or	FIlter,EMC,YSKW,240V,3PH,14A	45500026
or	Filter,EMC,YSKW,240V,1PH,20A	45500023
2	INV,YSKW,240V,3PH,10A	53300081
or	INV,YSKW,480V,3PH,05A	53300082
or	INV,YSKW,480V,1PH,10A	53300080
3	PCB,RADIO,900MHZ,VFD	16650014
or	PCB,RADIO,2.4MHZ,VFD	16650018
4	RTNR,PCB,RADIO	66800017
5	ANTENNA,900MHZ,RPSMA	11280004
or	ANTENNA,2.4GHZ,RPSMA	11280005
6	FUSE,10A,600V,CC,ATDR	51000066
or	FUSE,15A,600V,CC,ATDR	51000067
or	FUSE,20A,600V,CC,ATDR	51000068
7	CABLE,CAT5.1'	15650330



38400010
DISC,RTRY,MOT,25A

73550037
XFMR,6KVA,600:480,3PH

Rite-Hite Company, LLC and its affiliates (collectively "Rite-Hite") warrant that the Product sold to the Owner will be free of defects in design, materials and workmanship (ordinary wear and tear excepted) for the periods set forth below ("Limited Warranty").

Three (3) Year(s) on all mechanical and electrical parts (non-prorated).
One (1) Year(s) labor, based on Rite-Hite approved travel and labor repair times.

REMEDIES
Parts: Rite-Hite's obligations under this Limited Warranty are limited to repairing or replacing, at Rite-Hite's option, any part which is determined by Rite-Hite to be defective during the applicable warranty period. Such repair or replacement shall be Rite-Hite's sole obligation and the Owner's exclusive remedy under this Limited Warranty.
Labor: Rite-Hite will provide warranty service without charge for labor per the specified warranty period. Thereafter, a charge will apply to any repair or replacement under this Limited Warranty.

CLAIMS Claims under this Limited Warranty must be made (i) within 30 (thirty) days after discovery and (ii) prior to expiration of the applicable warranty period. Warranty period commences on the date of shipment. Claims shall be made in writing or by contacting the representative from whom the Product was purchased directly. Owner must allow Rite-Hite or its agent, a reasonable opportunity to inspect any Product claimed to be defective and shall, at Rite-Hite's option, either (x) grant Rite-Hite or its agent access to Owner's premises for the purpose of repairing or replacing the Product or (y) return of the Product to the Rite-Hite, F.O.B. Rite-Hite's factory.

NOT WARRANTED Rite-Hite does not warrant against and is not responsible for wear items such as fuses, batteries, bulbs, vision and seals. No implied warranty shall be deemed to cover damages that result directly or indirectly from: (i) the unauthorized modification or repair of the Product, (ii) damage due to misuse, neglect, accident, failure to provide necessary maintenance, or normal wear and tear of the Product, (iii) failure to follow Rite-Hite's instructions for installation, failure to operate the Product within the Product's rated capacities and/or specified design parameters, or failure to properly maintain the Product, (iv) use of the Product in a manner that is inconsistent with Rite-Hite's guidelines or local building codes, (v) movement, settling, distortion, or collapse of the ground, or of improvements to which the Products are affixed, (vi) fire, flood, earthquake, elements of nature or acts of God, riots, civil disorder, war, or any other cause beyond the reasonable control of Rite-Hite, (vii) improper handling, storage, abuse, or neglect of the Product by Owner or by any third party.

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RITE-HITE WORLD HEADQUARTERS
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RITE-HITE CHINA
First Floor, Building #3,
558 Tongxie Road,
Changning District
Shanghai 200335, China
+86-21-6237-6333

RITE-HITE LATIN AMERICA
Alameda Lorena 800, Conj. 1310
- Jardim Paulista
São Paulo/SP, CEP 10424-001 - Brazil
+55-11-3527-9590

RITE-HITE GMBH
Carl-Zeiss-Strasse 3
34471 Volkmarsen, Germany
+49-5693 98700