



Centrifugal Fans

Owner's Installation & Operation Manual

Sukup Manufacturing Co.

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<u>DATE</u>	<u>REVISIONS</u>	<u>PAGES</u>
10/16/2020	Updated warranty -----	3
	Corrected several dimensions in Table 1-----	8
	Added note on connection of fan; modified Step 10 -----	9
	Updated safety warnings in Maintenance & Troubleshooting sections -----	17-18
	Eliminated outdated information from tables -----	23-24

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Proper management is essential to insure satisfactory performance. Sukup Manufacturing Co. is not liable for damage to grain resulting from improper management during drying or storage.

ATTENTION: Sukup cannot warrant any roof damage due to excessive vacuum or internal pressure caused by fans. Adequate ventilation must be provided for all powered air systems. Do not use downward-flow (suction) systems. Severe roof damage can result from blockage of air passages.

To prevent structural damage to bin roof, vents and discharge louvers must be free of ice or other obstructions before starting aeration fans. Operation of aeration fans during certain adverse weather conditions can cause icing of roof vents and/or discharge louvers, which may result in roof failure.

Operating fan with bin empty may dislodge floor supports and cause floor to fail when bin is filled.

NOTICE: The information contained herein is a confidential disclosure. All information contained in this manual is property of Sukup Manufacturing Co., Sheffield, Iowa, USA and is provided on the condition that it will not be used in any way detrimental to the company's interests.

Reproduction of the contents of this document is prohibited unless express written consent is given from Sukup Manufacturing Co.



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GRAIN HANDLING & MATERIAL HANDLING LIMITED WARRANTY

SUKUP MANUFACTURING CO. (Sukup) warrants to original retail purchaser that within time limits set forth, new equipment shall be free from defects in material and workmanship. A part will not be considered defective if it substantially fulfills performance specifications, such as cosmetic (appearance) issues that will not affect life of product. Should any part prove defective within the warranty period, the part will be replaced without charge F.O.B. Sukup Manufacturing Co., Sheffield, Iowa USA or Distribution Centers - Arcola, Illinois; Aurora, Nebraska; Defiance, Ohio; Jonesboro, Arkansas; Cameron, Missouri; Watertown, South Dakota. To obtain warranty, a copy of original invoice is required, see reverse side.

THE FOREGOING LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE AND OF ANY OTHER TYPE, WHETHER EXPRESS OR IMPLIED. Sukup neither assumes nor authorizes anyone to assume for it any other obligation or liability in connection with said part, and will not be liable for incidental or consequential damages. THE REMEDIES STATED HEREIN SHALL BE THE EXCLUSIVE REMEDIES AVAILABLE UNDER THIS LIMITED WARRANTY.

Sukup reserves the right to change specifications, add improvements or discontinue manufacture of any of its equipment without notice or obligation to purchasers of its equipment. This warranty gives you specific legal rights. You may also have other rights which vary according to state or province.

WARRANTY EXCLUSIONS - Labor, transportation, or any cost related to a service call is not provided by Sukup. This Limited Warranty does not apply to damage resulting from misuse, neglect, normal wear, accident or improper installation or maintenance. ITEMS NOT MANUFACTURED BY SUKUP (e.g. tires, belts, motors) ARE COVERED UNDER WARRANTIES OF THEIR RESPECTIVE MANUFACTURERS AND ARE EXCLUDED FROM COVERAGE UNDER THE SUKUP WARRANTY. Since the stirring down augers are so critical to the successful operation of the stirring machine, Sukup Manufacturing Co. will not warranty any machines unless they are equipped with Sukup down augers. SUKUP MANUFACTURING CO. MAKES NO WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO DOWN AUGERS LONGER THAN 20', INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY AND WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Upon taking delivery of product, purchaser (dealer and/or end user) assumes responsibility for proper storage of all materials. Proper storage includes dry, temperature and humidity controlled facilities, which eliminate the potential of moisture, including condensation, from causing white rust and/or corrosion of any sort. Warranty does not extend to defects, damage or cosmetic (appearance) issues caused by improper storage, handling or erection.

BASIC WARRANTY - All Sukup manufactured products are warranted for one year from date of purchase. Part(s) must be returned to Sukup within 30 days in event of failure.

EXTENDED STIRRING MACHINE WARRANTY - Sukup warrants stirring machines for two years from date of purchase.

EXTENDED STIRRING AUGER WARRANTY - Sukup warrants stirring down augers for two years from date of purchase. Must return top 18" of down auger to obtain credit.

EXTENDED FAN WARRANTY - Sukup warrants fans for two years from date of purchase.

EXTENDED HEATER CIRCUIT BOARD WARRANTY - Sukup warrants heater circuit boards for three years from date of purchase.

EXTENDED MATERIAL HANDLING WARRANTY - Sukup warrants Material Handling, excluding structural support systems, for two years from date of purchase.

REPLACEMENT PARTS WARRANTY PERIOD - Sukup warrants replacement parts (e.g. belts, sensors, rotating contacts, gearmotors, switches) purchased from Sukup for one (1) full drying season following purchase.

ELECTRIC MOTOR WARRANTY - The manufacturers of electric motors warranty their motors through authorized service centers for a 2 year period from motor date code. Contact motor manufacturer for nearest location. If motor warranty is refused by a service center based upon date of manufacture, use the following procedure: Have motor repair shop fill out warranty report form as if they were providing warranty service. State on report reason for refusal. Send report, motor nameplate, and proof of purchase date (invoice from Sukup and invoice for your customer) to Sukup. If electric motor warranty is not satisfactorily handled by motor service center, contact Sukup for assistance. Sukup will attempt to obtain warranty from motor manufacturer, any credit obtained will be passed on. Warranty may also be obtained by returning motor to Sukup Manufacturing Co. or Distribution Centers with prior authorization. **NOTE:** Sukup will not be responsible for unauthorized motor replacement or repair. Labor for removal of motor from fan not included.

WARRANTY CERTIFICATION - Warranty registration card should be mailed within one month of product delivery to certify warranty coverage.

UNAPPROVED PARTS OR MODIFICATION - All obligations of Sukup under this warranty are terminated if unapproved parts such as stirring augers longer than 20' are used, or if equipment is modified or altered in any way not approved by Sukup.

12/7/18

SAFETY



Read manual before installing or using product. Failure to follow instructions and safety precautions in manual can result in death or serious injury. Keep manual in a safe location for future reference.



On safety decals, this symbol and the signal words Danger, Warning, Caution and Notice draw your attention to important instructions regarding safety. They indicate potential hazards and levels of intensity.



RED - DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



ORANGE - WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



YELLOW - CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



BLUE - NOTICE alerts you to practices unrelated to personal injury, such as messages related to property damage.

IMPORTANT: To prevent death or serious injury to you or your family, it is essential that safety decals are clearly visible, in good condition, and applied to the appropriate equipment.

FOLLOW MANUAL & SAFETY DECAL MESSAGES

Carefully read this manual and all safety decals on your equipment.

Safety decals must be kept in good condition. Replace missing or damaged safety decals free of charge by contacting Sukup Manufacturing Co. via mail at PO Box 677, Sheffield, Iowa USA 50475; by phone at 641-892-4222; or by e-mail at info@sukup.com.



It is the responsibility of the owner/operator to know what specific requirements, precautions, and work hazards exist. It is also the responsibility of owner/operator to inform anyone operating or working in the area of this equipment of hazards and safety precautions that need to be taken to avoid personal injury or death. Always keep children away from bins and vehicles with flowing grain.

Make no unauthorized modifications to machine. Modifications may endanger function and/or safety of unit. Keep unit in good working condition. Repair and/or replace worn parts.

Keep shields in place. Replace worn or missing shields free of charge by contacting Sukup Manufacturing Co.

GRAIN BIN SAFETY

When entering a bin, owners/operators are responsible for following site-specific confined space entry procedures. OSHA's confined space entry procedures (29CFR 1910.146) can be found at www.osha.gov.

If you must enter bin for repair or maintenance:

- Use a safety harness, safety line and respirator
- Station another person outside of bin
- Avoid the center of the bin
- Wear appropriate personal protective equipment
- Keep clear of all augers and moving parts



DANGER: Never enter bin unless all power is locked out and another person is present.

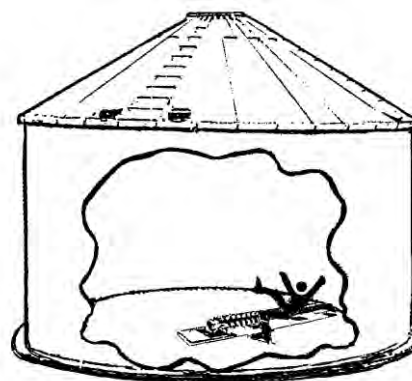


Rotating augers can kill or dismember!

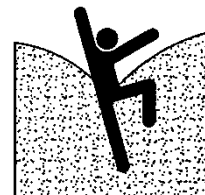
NEVER enter bin when augers are running!

When bin is nearly empty, sweep auger will travel at an increasingly fast speed. Keep away from sweep and sump augers to avoid entanglement.

Failure to follow precautions above will result in death or serious injury.



DANGER: Flowing grain may trap and suffocate. If you enter a bin of flowing grain you can be completely submerged in grain in about 8 seconds.



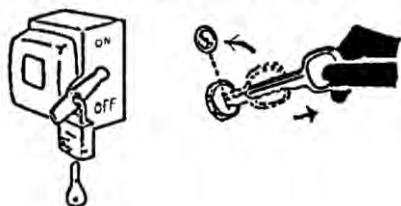
Failure to heed this warning will result in death or serious injury.

To avoid electric shock or electrocution, all equipment must be properly wired and grounded according to electrical codes. Have unit wired by qualified electrician.



Have an electrician install a main power disconnect switch capable of being locked only in OFF position. Mark disconnect clearly as to equipment it operates. Always lock out main power disconnect switch whenever equipment is not in use.

Service Disconnect



WARNING: Heater must be electrically interlocked with fan. When this is not possible, an air switch kit needs to be added to heater.

NEVER operate heater without airflow.

Failure to do so may cause a fire, resulting in death or serious injury.



WARNING: When servicing equipment, never enter bin unless all power is locked out and another person is present. Always LOCK OUT all power and always check with voltage meter before servicing.

Failure to do so could result in death or serious injury.

NOTE: Refer to OSHA's typical minimal lockout procedures (29CFR 1910.147 App A) at www.osha.gov to establish a written plan for your work site.

Frequently inspect all mechanical and electrical components. Ensure all electrical wires are in good condition.



WARNING: KEEP CLEAR OF ALL MOVING PARTS.

Keep people (ESPECIALLY YOUTH) away from equipment, particularly during operation.

Keep away from all moving parts. Keep all shields in place. SHUT OFF AND LOCK OUT all power before servicing. Keep inlet guard in place and in good working condition.

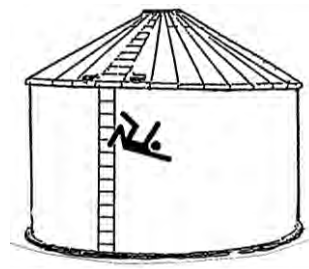


If fan is wired for suction, outlet must be shielded to protect individual from moving parts.

Failure to follow precautions above could result in death or serious injury.



WARNING: Metal is slippery when wet. To avoid falls, never carry items if climbing on bin. Maintain secure hand and foothold if climbing on bin. Failure to do so could result in death or serious injury.



CAUTION: Metal edges are sharp. To avoid injury, wear protective clothing and handle equipment and parts with care.

Failure to do so may result in minor or moderate injury.

PERSONAL PROTECTIVE EQUIPMENT



Owners/Operators are responsible for developing site-specific personal protective equipment standards. OSHA's personal protective equipment standards (29CFR 1910.132) can be found at www.osha.gov.



**WARNING:
PREVENT EXPLOSION OR FIRE**

- Carefully review operator's manual.
- Clean under floor, as fines may cause a bin fire.
- Check for gas leaks, (spray soapy solution on piping and joints.)
- Run fan at least a half minute before starting heater.
- NEVER start heater if you smell gas or hear a hissing sound.
- NEVER run heater with inspection door open.
- Check fan blade, hub and shaft for cracks.
- Replace immediately if cracks are visible.



Failure to heed these warnings may cause serious injury or death.

EMERGENCIES – KNOW WHAT TO DO

Have emergency numbers and written directions to work site readily available in case of emergency. An area for emergency phone numbers to be recorded is provided below and at end of this manual.

Ambulance • Fire • Police: 9-1-1

Bin rescue team: _____

Local EMS team: _____

Address of work site: _____

Directions to work site: _____

Safety Decal Placement for Centrifugal Fans & Heaters

Safety decals are mounted at factory when possible.

Yearly and prior to equipment use, please check that all decals and shields are in place according to drawings below and are legible. To order a replacement decal or shield free of charge, contact Sukup Manufacturing Co., PO Box 677, Sheffield, IA USA 50475. Please specify computer number.

IMPORTANT: If suggested locations are not clearly visible, place safety decals in a more suitable area. Never cover up any existing safety decals.

Make sure location area for decal is free from grease, oil and dirt. Remove backing from decal and place in proper position.

- DECAL L0281 – WARNING:** Follow general safety regulations.



- DECAL L0165 – WARNING:** Disconnect electricity; Bleed gas



- DECAL L0166 – WARNING:** Keep guards and shields in place; Disconnect electricity; Check fan blade for tightness.



- DECAL L0204 – DANGER:** Do not operate with door removed.



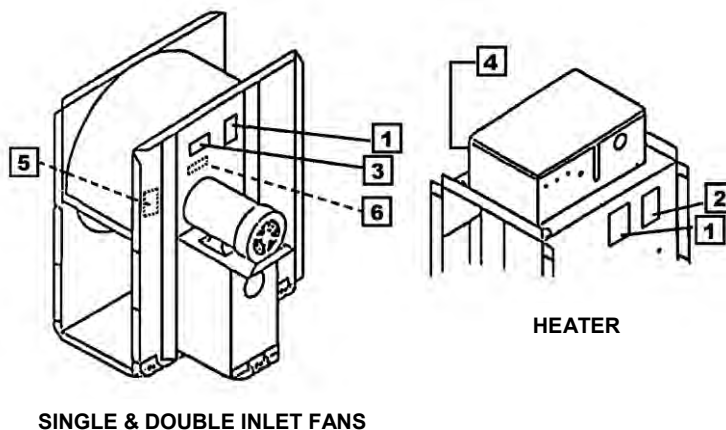
- DECAL L0284 – WARNING:** Keep away from all moving parts (Decal located on belt shield)



- DECAL L0271 – DANGER:** Shield Missing (Decal located inside of belt shield)



Numbers on drawings below refer to location of safety decals listed above.



FAN DIMENSIONS

Fig. 1 – Fan & transition dimensions

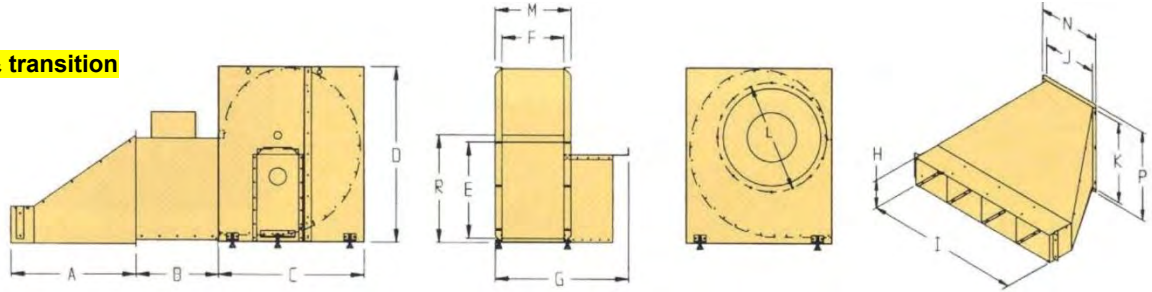


Table 1 – 1750 RPM fan dimensions listed in inches

1750 RPM Centrifugal Fan Dimensions - inches																
HP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	R
3	36	--	31 ³ / ₄	36 ⁵ / ₈	19 ³ / ₄	12	29 ¹ / ₂	11	45	24	34 ³ / ₄	26	16 ¹ / ₈	28	38 ³ / ₈	24 ³ / ₄
5	36	--	42 ¹ / ₄	50 ³ / ₄	27 ¹ / ₈	15 ⁵ / ₈	32 ¹ / ₂	11	45	24	34 ³ / ₄	26	20	28	38 ³ / ₈	30 ³ / ₈
7 ¹ / ₂ Std.	36	24	42 ¹ / ₄	50 ³ / ₄	29 ¹ / ₈	18	38 ¹ / ₂	10 ¹ / ₄	55 ³ / ₄	18 ¹ / ₂	29	29	22 ¹ / ₈	22	31 ¹ / ₄	32 ⁵ / ₈
7 ¹ / ₂ HD*	--	--	--	--	--	--	--	11	45	24	34 ³ / ₄	--	--	28	38 ³ / ₈	--
10 Std.	36	24	42 ¹ / ₄	50 ³ / ₄	29 ¹ / ₈	18 ¹ / ₄	39 ¹ / ₂	10 ¹ / ₄	55 ³ / ₄	18 ¹ / ₂	29	31 ¹ / ₂	22 ³ / ₈	22	31 ¹ / ₄	32 ⁵ / ₈
10 HD*	--	--	--	--	--	--	--	11	45	24	34 ³ / ₄	--	--	28	38 ³ / ₈	--
15 Std.	36	24	42 ¹ / ₄	50 ³ / ₄	29 ¹ / ₈	19 ¹ / ₄	42 ¹ / ₄	10 ¹ / ₄	55 ³ / ₄	18 ¹ / ₂	29	31 ¹ / ₂	23 ¹ / ₂	22	31 ¹ / ₄	32 ⁵ / ₈
15 HD*	--	--	--	--	--	--	--	11	45	24	34 ³ / ₄	--	--	28	38 ³ / ₈	--
20 Std.	33	24	48 ¹ / ₄	59 ¹ / ₄	34 ³ / ₄	20	43	10 ¹ / ₄	68 ³ / ₄	20 ¹ / ₄	34	35 ¹ / ₈	24 ¹ / ₄	23 ¹ / ₄	36 ¹ / ₂	37 ³ / ₄
20 HD*	--	--	--	--	--	--	--	11	45	24	34 ³ / ₄	--	--	28	38 ³ / ₈	--
25 Std.	33	24	48 ¹ / ₄	59 ¹ / ₄	34 ³ / ₄	21	46	10 ¹ / ₄	68 ³ / ₄	20 ¹ / ₄	34	35 ¹ / ₈	25 ¹ / ₄	23 ¹ / ₄	36 ¹ / ₂	37 ³ / ₄
25 HD*	--	--	--	--	--	--	--	11	45	24	34 ³ / ₄	--	--	28	38 ³ / ₈	--
30 Std.	36	28	48 ¹ / ₄	59 ¹ / ₄	34 ³ / ₄	24	48	10 ¹ / ₄	68 ³ / ₄	20 ¹ / ₄	34	35 ¹ / ₈	28 ¹ / ₈	23 ¹ / ₄	36 ¹ / ₂	37 ³ / ₄
30 HD*	--	--	--	--	--	--	--	11	45	24	34 ³ / ₄	--	--	28	38 ³ / ₈	--
30 dbl.	48	24	49 ¹ / ₄	59 ¹ / ₄	34 ¹ / ₈	42	80	14 ¹ / ₄	100 ¹ / ₄	42	34 ¹ / ₂	35 ¹ / ₈	46 ¹ / ₈	47	37	37 ³ / ₄
40 sng.	--	--	48 ³ / ₈	59 ³ / ₁₆	34 ¹ / ₂	25 ⁷ / ₈	55 ¹³ / ₁₆	10 ³ / ₄	44 ¹¹ / ₁₆	26	34 ⁷ / ₈	35 ¹ / ₈	30 ¹ / ₁₆	30	38 ³ / ₈	37 ³ / ₄
40 dbl.	48	24	49 ¹ / ₄	59 ¹ / ₄	34 ¹ / ₈	42	80	14 ¹ / ₄	100 ¹ / ₄	42	34 ¹ / ₂	35 ¹ / ₈	46 ¹ / ₈	47	37	37 ³ / ₄
50 sng.	--	--	55 ³ / ₄	68 ¹¹ / ₃₂	38 ³ / ₄	22 ⁹ / ₁₆	52 ³ / ₄	Call for Details				42 ³ / ₈	26 ¹ / ₁₆	Call		42 ¹ / ₄
50 dbl.	48	24	49 ¹ / ₄	59 ¹ / ₄	34 ¹ / ₈	44	84	14 ¹ / ₄	100 ¹ / ₄	42	34 ¹ / ₂	35 ³ / ₈	48 ³ / ₈	47	37	37 ³ / ₄

*Heavy-Duty transition is made of 14-gauge galvanized steel. It is also narrower to fit between stiffeners on stiffened bins and for aeration tunnels.

Table 2 – 3500 RPM Fan dimensions listed in inches

3500 RPM Centrifugal Fan Dimensions - inches																
HP	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	R
3	36	--	29 ¹ / ₄	31 ¹ / ₄	16 ³ / ₄	7 ³ / ₈	26 ¹ / ₂	11	45	24	34 ³ / ₄	18	11 ¹ / ₄	28	38 ³ / ₈	19 ³ / ₈
5	36	--	29 ¹ / ₄	31 ¹ / ₄	16 ³ / ₄	9	28	11	45	24	34 ³ / ₄	18	13 ¹ / ₈	28	38 ³ / ₈	19 ³ / ₈
7 ¹ / ₂	36	--	30	35 ³ / ₄	19	9 ³ / ₈	30	11	45	24	34 ³ / ₄	21 ³ / ₄	13 ¹ / ₂	28	38 ³ / ₈	22 ¹ / ₂
10	36	--	30	35 ³ / ₄	19	11 ¹ / ₄	32	11	45	24	34 ³ / ₄	21 ³ / ₄	15 ¹ / ₂	28	38 ³ / ₈	22 ¹ / ₂
15	36	--	30	35 ³ / ₄	19	12 ³ / ₈	33	11	45	24	34 ³ / ₄	21 ³ / ₄	16 ³ / ₈	28	38 ³ / ₈	22 ¹ / ₂
20	33	--	31 ³ / ₄	36 ⁵ / ₈	20 ⁷ / ₈	11 ³ / ₈	36 ³ / ₈	11	45	24	34 ³ / ₄	26	15 ³ / ₈	28	38 ³ / ₈	24 ³ / ₄
30	36	--	31 ³ / ₄	36 ⁵ / ₈	20 ⁷ / ₈	13 ³ / ₄	43 ¹ / ₂	11	45	24	34 ³ / ₄	26	18 ⁵ / ₈	28	38 ³ / ₈	24 ³ / ₄
40	36	--	42 ¹ / ₄	50 ³ / ₄	27 ¹ / ₈	15 ⁵ / ₈	45 ¹ / ₄	11	45	24	34 ³ / ₄	26	20	28	38 ³ / ₈	30 ³ / ₈
50	36	--	42 ¹ / ₄	50 ³ / ₄	29 ¹ / ₈	15 ⁵ / ₈	45 ¹ / ₂	11	45	24	34 ³ / ₄	29	20	28	38 ³ / ₈	32 ⁵ / ₈
60	36	--	42 ¹ / ₄	50 ³ / ₄	29 ¹ / ₈	16 ¹ / ₈	47 ³ / ₈	11	45	24	34 ³ / ₄	29	20 ¹ / ₄	28	38 ³ / ₈	33

INSTALLATION USING CONCRETE PAD

1. Install floor supports and unload for uniform airflow. Preferred arrangement is 180° between fan and unload. Be sure floor is strong enough to support grain. If two fans and heaters are installed on bin, locate them about one bin sheet apart. Install single thermostat midway and use two-heater relay kit.

NOTE: Ideally, fan is mounted on concrete or metal pad. In cases where such support is not possible, fan may be suspended via cables using a suspension kit. See installation instructions on next page.

2. Pour concrete fan pad level with bin pad for single inlet and double inlet fans. For Sukup transitions use pad dimensions in Tables 3 and 4. For other transitions: (pad length) = (A) – (27) + (your transition length).

NOTE: See assembly instructions L0516 & L1486 (packed with transition) for more Sukup transition information.

Table 3 – 1750 RPM Dimensions

	1750 RPM						
	HP						
	Single Inlet				Double Inlet		
	3	5	7 ½-15	20	30	30-40	50
A w/heater	-	-	96"	104"	108"	113"	113"
A w/o heater	62"	72"	72"	80"	84"	89"	89"
B	36"	41"	43"	46"	50"	84"	88"
C	11"	14"	15"	15"	17"	26"	28"
D	40"	48"	55 ½"	68 ½"	68 ½"	100"	100"
E	10"	10"	10"	10"	10"	14"	14"

Table 4 – 3500 RPM Dimensions

	3500 RPM								
	HP								
	Single Inlet								
	3	5	7 ½	10	15	20	30	40	50
A	72"	72"	75"	75"	75"	75"	75"	80"	80"
B	30"	30"	35"	36"	37"	38"	42"	48"	48"
C	9"	10"	10"	11"	11"	11"	12"	13"	13"
D	40"	40"	40"	40"	48"	48"	48"	48"	55 ½"
E	10"	10"	10"	10"	10"	10"	10"	10"	10"

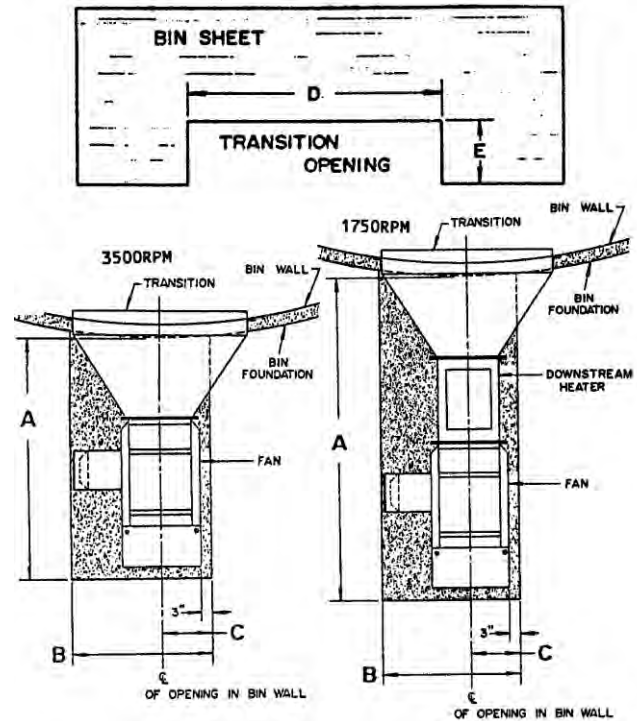


Fig. 2 – Transition Dimensions

3. Check size of your Sukup transition-entrance collar. Cut hole in bin sheet to fit entrance collar snugly. Push transition-entrance collar into opening until angle iron stops are against bin sheet.
4. Caulk fan (heater) and transition flanges with a material rated up to 200°F.
5. Set equipment on pad.
6.
 - a. When mounting (heater) downstream of fan, connect fan and heater first by sliding bottom flange of heater into fan mounting lip as far as possible. Be sure to center.
 - b. When mounting (heater) upstream of fan, and after bolting heater to intake of fan, it is important to check for clearance between venturi and fan blade before proceeding. Adjusting position of venturi may be necessary.
7. Slide fan (heater) up to transition and connect similarly.
8. Secure flanges with bolts provided.
9. Check that assembly is square with bin. Angle iron stops on each side of entrance collar should be tight against bin sheet. Adjust leveling feet on fan until each supports equal weight. Check that leg beneath motor mount is in firm contact with pad. Tighten lock nuts. 30-40HP fans must be leveled using shims.

NOTE: Because fan will have some vibration, it should not be welded or rigidly connected to concrete foundation or metal support frame.

10. Seal entrance collar along bottom, top and sides with sealant caulk provided (rated up to 200°F). Secure angle iron stops to bin with screws. Bend slotted angle iron to fit curve of bin on top of entrance collar. Attach with screws.

INSTALLATION USING SUSPENSION KITS D6170-D6176

Follow instructions on these pages to attach centrifugal fan to bin transition using suspension cables. Ideally, fan is mounted on concrete or metal pad. In cases where such support is not possible, fan may be suspended via cables using Kits D6170-D6176, depending on horsepower, sidewall thickness and fan housing size. Installation instructions are same for all kits. Instructions for attaching fan to transition begin on previous page.

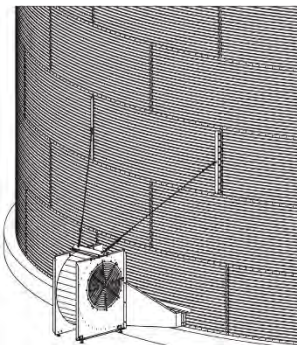


Fig. 3 – Centrifugal fan suspended by cables



Image 1 – Fan bracket & turnbuckle

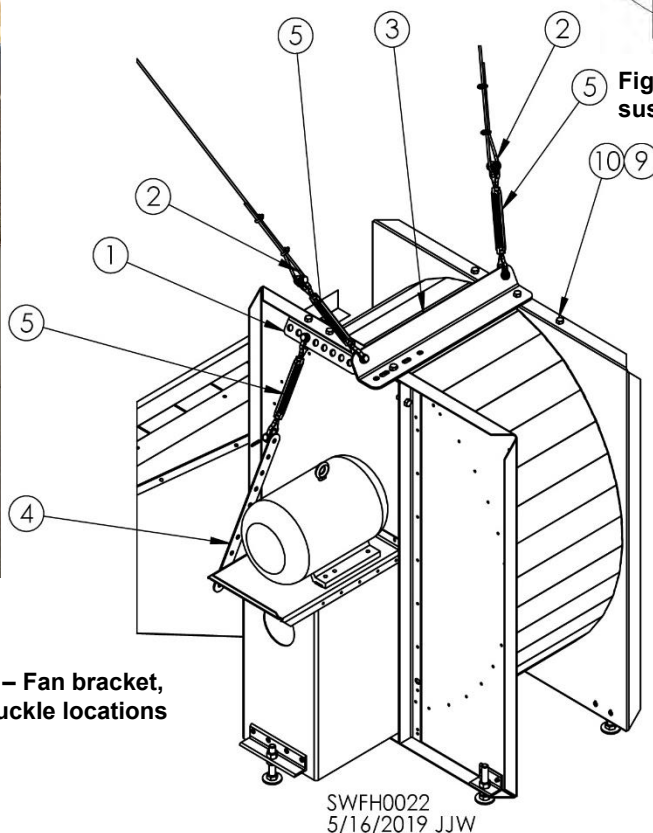
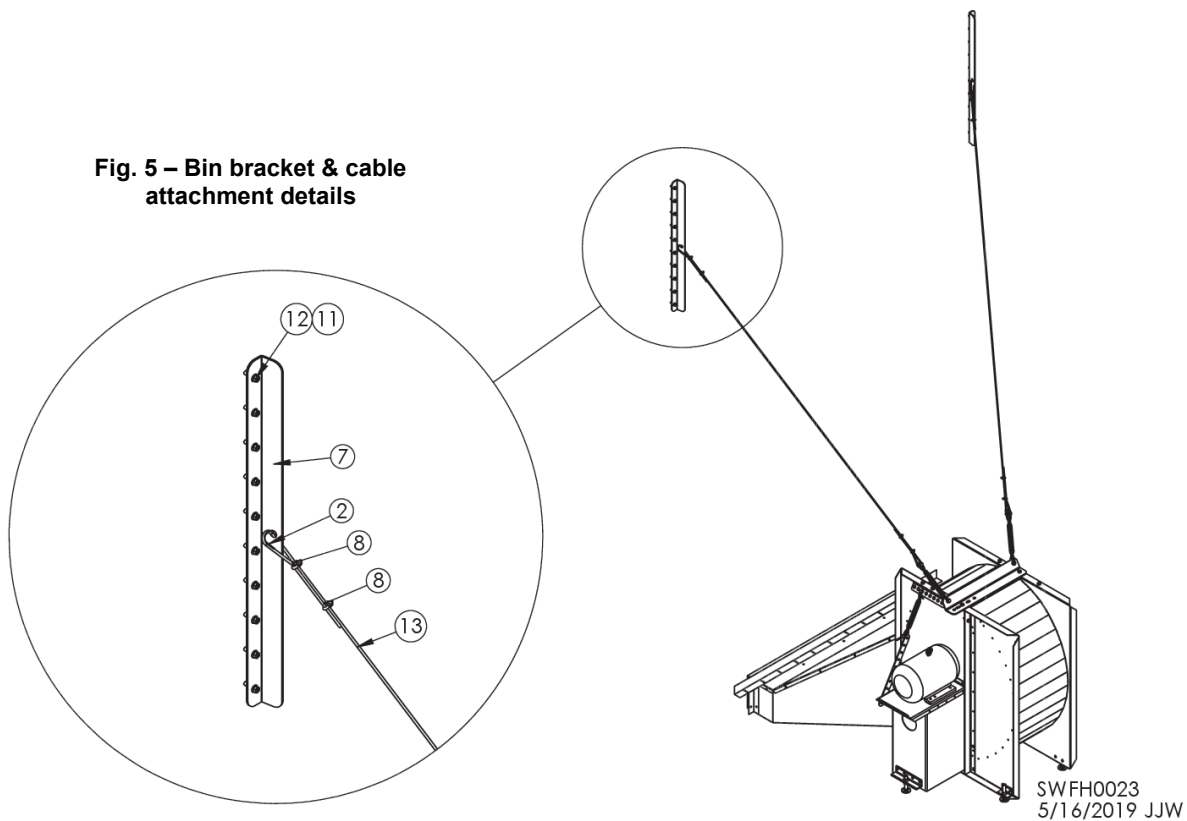


Fig. 4 – Fan bracket, turnbuckle locations

Table 5 – Suspension Kit Parts List

REF. #	DESCRIPTION	PART #	QTY.
1	Motor-side (left) bracket	D6160, D6161	1
2	Cable thimble, 1/4", galv.	J0872	4
3	Top fan bracket	D6151-D6153	1
4	Motor mount bracket	D6162	1
5	Turnbuckle	J0876	3
6	Intake side (right) bracket (not shown)	D6154, D6156	1
7	Bin bracket	D6150	2
8	Cable clamp, 1/4"	J3260	8
9	Lock nut, 1/2" – 13	J1042	9
10	Bolt, 1/2 - 13 x 1-1/2"	J0730	9
11	Flange nut, 3/8" – 16	B5962	20
12	Bolt, 3/8 - 16 x 1-1/4"	B5972	20
13	Cable, 1/4" x 16', galv.	D6159	2

Fig. 5 – Bin bracket & cable attachment details



See Figs. 4 & 5 and parts list on previous page for identification of parts and verification of quantities.
See Tables 6 & 7 for kit used depending on motor horsepower.

				BRACKET PART #		
	Motor HP	Kit #	Motor Turnbuckle	Motor Side	Intake Side	Top Bracket
1750 RPM	3	D6173	J0876	D6160	D6156	D6151
	5	D6174	J0876	D6161	D6154	D6152
	7.5	D6175	J0876	D6160	D6154	D6152
	10	D6175	J0876	D6160	D6154	D6152
	15	D6175	J0876	D6160	D6154	D6152
	20	D6175	J0876	D6160	D6154	D6152
	25S	D6175	J0876	D6160	D6154	D6152
	30S	D6176	J0876	D6160	D6154	D6153
	40S	D6176	J0876	D6160	D6154	D6153
	50S	D6176	J0876	D6160	D6154	D6153

Tables 6 & 7 – Kit identification

				BRACKET PART #		
	Motor HP	Kit #	Motor Turnbuckle	Motor Side	Intake Side	Top Bracket
3500 RPM	3	D6170	J0876	D6160	D6156	D6151
	5	D6170	J0876	D6160	D6156	D6151
	7.5	D6171	J0876	D6160	D6156	D6151
	10	D6171	J0876	D6160	D6156	D6151
	15	D6172	J0876	D6160	D6156	D6151
	20	D6172	J0876	D6160	D6156	D6151
	30	D6172	J0876	D6160	D6156	D6151
	40	D6174	J0876	D6161	D6154	D6152
	50	D6174	J0876	D6161	D6154	D6152
	60	D6174	J0876	D6161	D6154	D6152

1. Attach fan brackets (Items 1, 3 & 6) to fan housing. Use 1/2-13 x 1-1/2" bolts and 1/2" lock nuts. Start by field-drilling 9/16" holes as needed, using brackets as drill guides. Loosely bolt motor-side bracket (Item 1), to vertical brace on side of fan housing as shown in Fig. 6. If there is no vertical brace, line up bolt hole at far right of motor-side bracket with right-hand side of motor stand. Hole will also be used for bolt connecting top fan bracket (Item 3) to fan housing. See Fig. 6. Position top fan bracket on fan and use as a drilling guide for common hole on intake side. Loosely bolt intake-side bracket (Item 6) to fan housing and top bracket. Use Items 1 and 6 as guides to drill other attachment holes in flanges of fan housing. Attach with 1/2" hardware. Tighten all other fan bracket attachment bolts.

2. Attach motor mount bracket & turnbuckle. Attach motor mount bracket (Item 4) to motor mount using 3/8-16 x 1-1/4" bin bolts and 3/8" flange nuts. For larger motors, it may be necessary to use washers as spacers so bracket does not interfere with side of motor. **NOTE:** If there is no hole for bracket in motor mount, drill a 7/16" hole in middle of flange of motor mount, 1" away from motor mount stand. See Image 1. Attach turnbuckle (Item 5) to motor mount bracket and motor-side bracket. Use hole in motor-side bracket that is most straight above left edge of motor stand. Avoid lateral pull on motor mount bracket. Hand-tighten turnbuckle to place tension on motor mount and minimize vibration during fan operation. Be careful not to over-tighten and cause vibration or deflection in motor mount or fan housing.

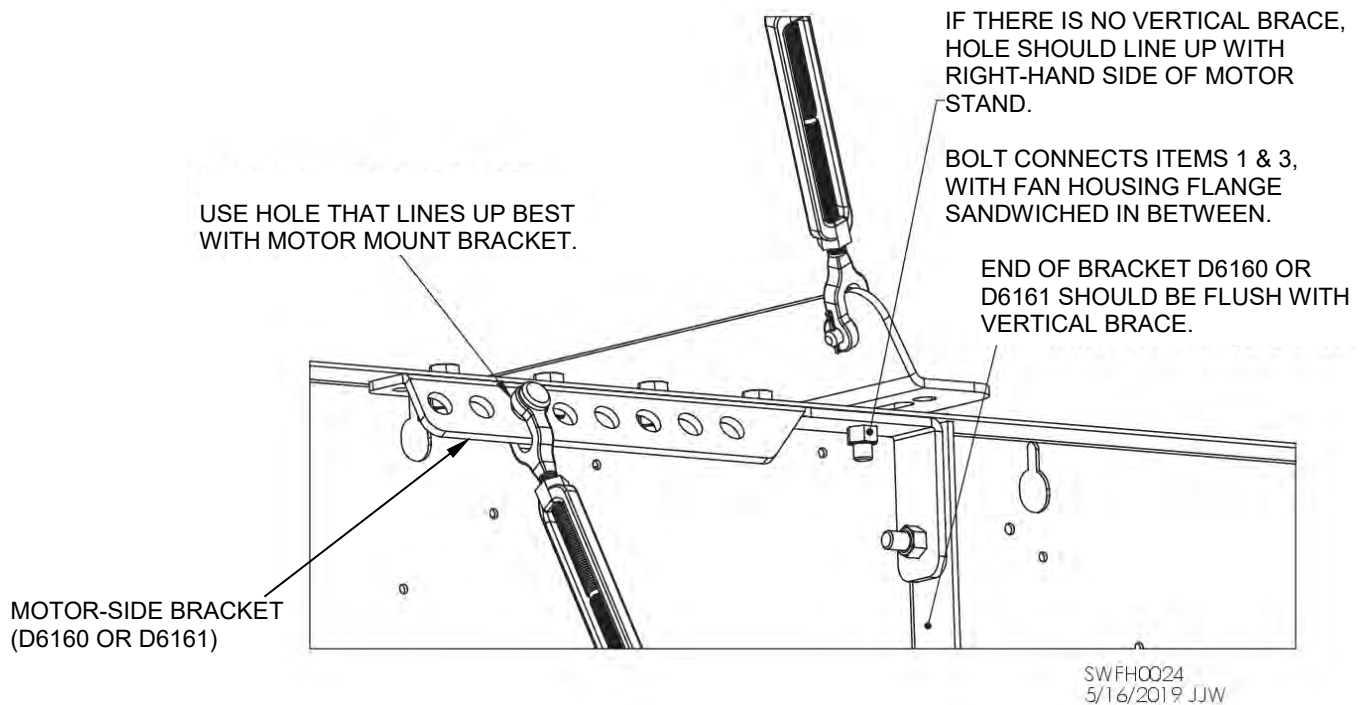


Fig. 6 – Positioning left (motor-side) bracket & motor mount turnbuckle

3. Attach bin brackets. Use 3/8-16 x 1-1/4" bin bolts with washers and 3/8" flange nuts. Brackets (Item 7, D6150) should be placed vertically in middle of sidewall panels in third ring of wide-corrugation bins, using bolts connecting sidewall panels. See Fig. 3. On narrow-corrugation bins, middle of bracket should be 110 inches from foundation. Brackets should be equidistant from fan as shown in Fig. 7. On bins with four stiffeners per sidewall sheet, brackets should be placed inside of stiffeners as shown in Fig. 7. If there are no stiffeners (as in Fig. 3) or only two stiffeners per sidewall sheet, bin brackets should be placed vertically in middle of seams between sidewall panels. Field-drill 7/16" holes in bin sidewall, using bracket as a guide. Drill top and bottom holes first and loosely bolt bracket to sidewall while drilling remaining holes. Place a bolt in every hole in bin brackets and tighten.

NOTE: On non-stiffened bins, sidewalls of third ring must be made of at least 14ga steel to support fans with motors of 25 hp or more. Sidewalls must be 17ga or thicker to support fans of 20 hp or less.

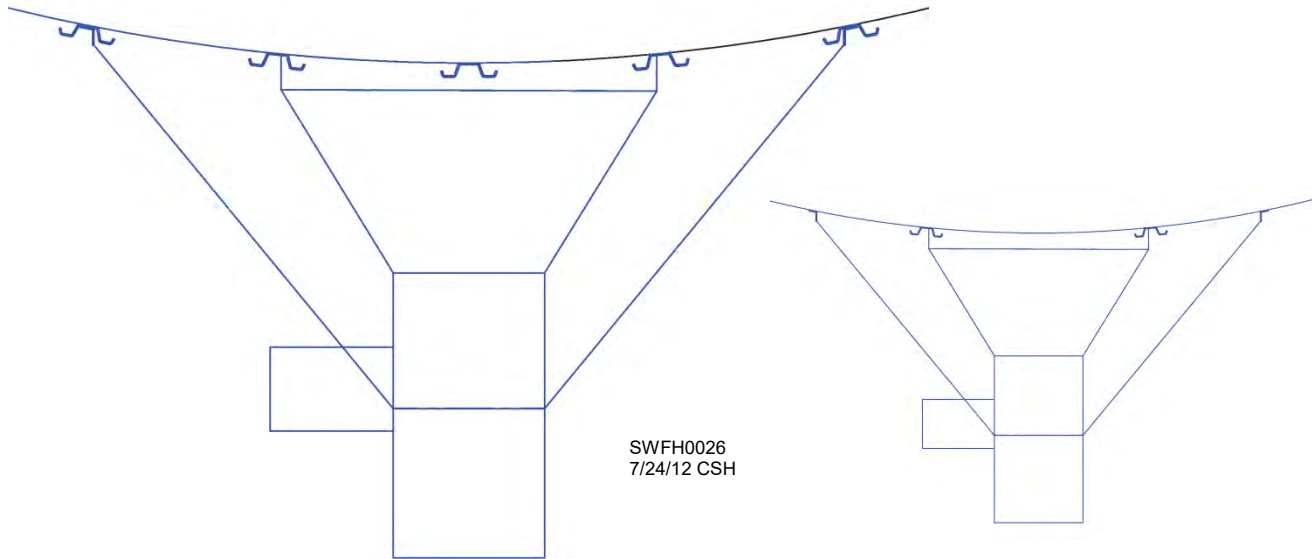


Fig. 7 – Attaching brackets to bin with four or two stiffeners per sidewall sheet

4. Attach fan suspension turnbuckles (Item 5, J0876) to top fan bracket (Item 3) using hardware provided.

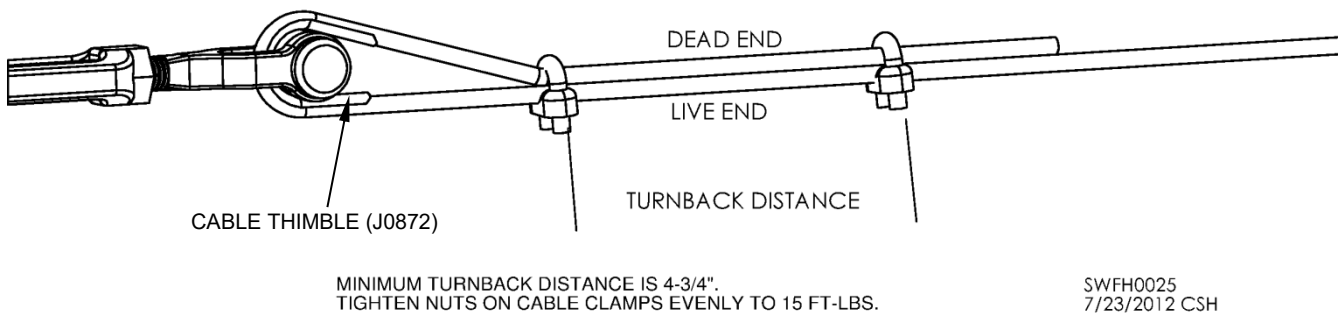


Fig. 8 - Clamping suspension cables

5. Attach fan to transition. Use forklift or loader to position fan while attaching to transition using hardware provided.

6. Attach suspension cables. Loop cable through hole in bin bracket as shown in Fig. 5, using a cable thimble (Item 2, J0872) to prevent cable wear. Loop other end of cable around bolt in jaw of turnbuckle, also using a cable thimble as shown in Fig. 8. At each loop use two (2) cable clamps (Item 8, J3260) as shown in Fig. 8. Place first cable clamp as close as possible to thimble. Saddle of cable clamp should grip live end of cable. Place second clamp at least 4-3/4" from first as shown in Fig. 8. Tighten clamp nuts equally, alternating from one nut to other, to 15 ft. lbs. of torque. Repeat process for other suspension cable.

7. Tighten cables. Twist turnbuckles to tighten cables, making sure cables equally support weight of fan. Use a level to ensure fan is plumb and level.

ELECTRICAL

All electrical work must be done by a qualified electrician in accordance with local and federal codes.

Provide manual disconnect on or near bin in clear view from fan. Use properly sized time-delay fuses or time-limit circuit breakers. Use properly sized safety ground and neutral wire.

Use Table 8 as a guide for copper wire size. Increase 1-2 sizes for aluminum conductors.

Table 8 – Determining copper wire size

	MINIMUM COPPER WIRE SIZE																				
	230V – 1PH					230V – 3PH								460V – 3PH							
Motor HP	3	5	7.5	10	15	3	5	7.5	10	15	20	30	40	3	5	7.5	10	15	20	30	40
Motor FLA	17	21	36	40	62	10	15	23	30	39	48	73	99	4	6	12	15	19	24	37	40
Motor SFA	20	24	42	50	62	10	17	27	35	45	55	84	114	5	8	14	17	19	28	43	58
*Copper Wire Size 0-50 ft.	10	8	6	4	4	14	12	8	8	6	4	2	0	14	14	14	12	12	8	6	4
*Copper Wire Sz 50-100 ft.	8	6	6	4	4	12	10	8	6	6	4	2	0	12	12	12	10	10	8	6	4
**Recommended Breaker Size	35	40	70	90	100	20	30	45	60	80	90	110	150	15	15	20	25	40	60	80	90

* Minimum size copper wire required to allow not more than 2% voltage drop.

**Breaker sizes are recommendations only. Check motor nameplate amperage, National Electric Code and local codes to size breakers properly.

Punch hole in convenient location on fan control box for incoming power. Connect wires as shown. On three-phase systems, connect wild line to center terminal on magnetic contactor.

On 230-volt fans when a heater will be used, a neutral line must be supplied with the incoming power.

Wiring fan without receptacle to heater with electrical plug on heater cord:

DISCONNECT POWER BEFORE WORKING ON UNIT!

Attach black wire of heater cord to red or “power” side of power block marked 115V power for heater.
 Attach white wire of heater cord to white or “neutral” side (marked) of power block.
 Attach green wire of heater cord to ground lug.

Wiring heater without electrical plug to fan with receptacle:

DISCONNECT POWER BEFORE WORKING ON UNIT!

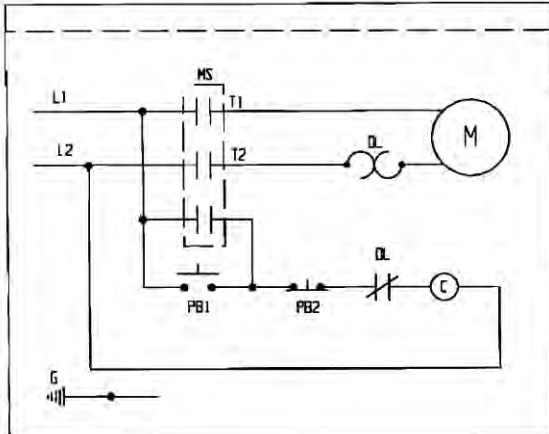
1. Drill 7/8” hole in fan control box close to receptacle for heater cord to go into box.
2. On neutral block in fan control box, remove jumper across terminals.
3. Remove red wire from receptacle and attach to terminal of block that is not connected to neutral side.
4. Remove white wire from neutral block that goes to receptacle.
5. Bring cord from heater into fan control box thru hole drilled in box. Insert plastic bushing around heater cord to protect cord from edges of fan control box.
6. Attach black wire from heater cord to terminal on block with red wire. Attach white wire from heater cord to terminal on block with neutral or white wire. Attach green wire to ground lug.

ELECTRICAL DIAGRAMS

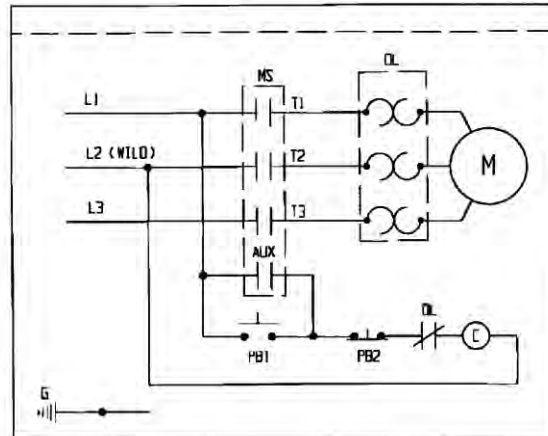
NOTES:

1. Customer must provide means of disconnect, short circuit and ground fault protection.
2. Control circuit voltages are same as that of incoming power supply.
3. Wire motor as per nameplate diagram.

230 VOLT – SINGLE-PHASE WITHOUT INHERENT PROTECTION



200/600 VOLT - THREE-PHASE WITHOUT INHERENT PROTECTION



KEY:

- M** = Motor
- MS** = Magnetic Starter
- C** = Magnetic Starter Coil
- OL** = Overload Relay
- PB1** = Start Button (Black)
- PB2** = Stop Button (Red)
- G** = Ground Terminal
- Aux** = Auxiliary Contact



Sukup Manufacturing Co.
1555 255th St, Box 677
Sheffield, Iowa 50475 USA

FAN (with heater power block) ELECTRICAL DIAGRAMS

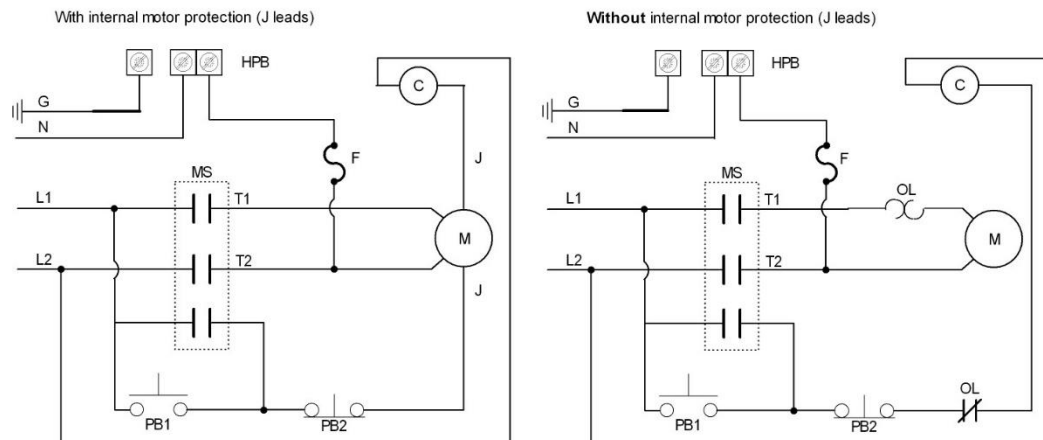
NOTES:

- Customer must provide means of disconnect, short circuit, and ground fault protection.
- For motors without internal protection, correctly sized thermal units must be used in overload relay.
- Control circuit voltages are the same as that of the incoming power supply.
- Wire motor as per nameplate diagram.

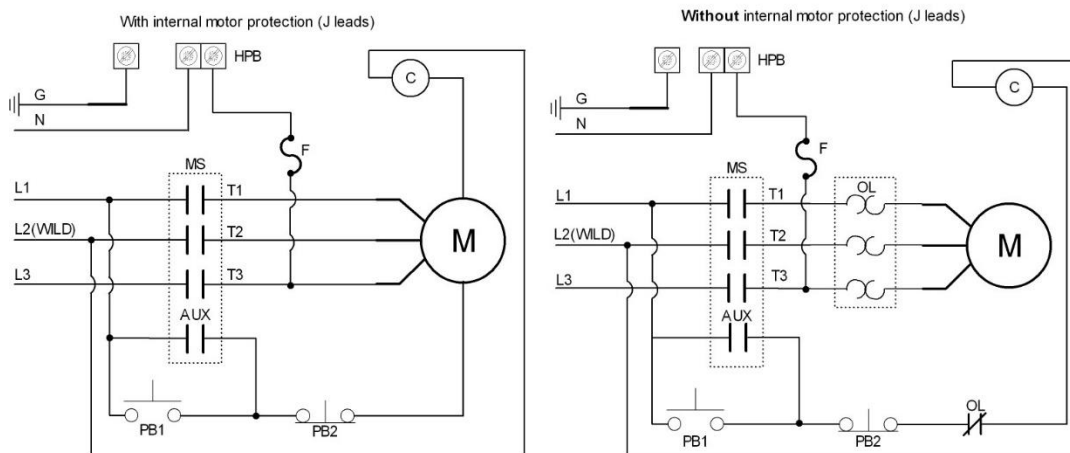
KEY:

- M** - Motor
- MS** - Magnetic Starter
- C** - Magnetic Starter Coil
- OL** - Overload Relay
- PB1** - Start Button (Green)
- PB2** - Stop Button (Red)
- HPB** - Heater Power Block
- F** - Fuse
- N** - Neutral Terminal
- G** - Ground Terminal
- AUX** - Auxiliary Contact
- XFMR** - Control Transformer
- L1,L2,L3** - Incoming Lines
- T1,T2,T3** - Contactor Terminals
- J** - Motor Leads w/ Internal Protection

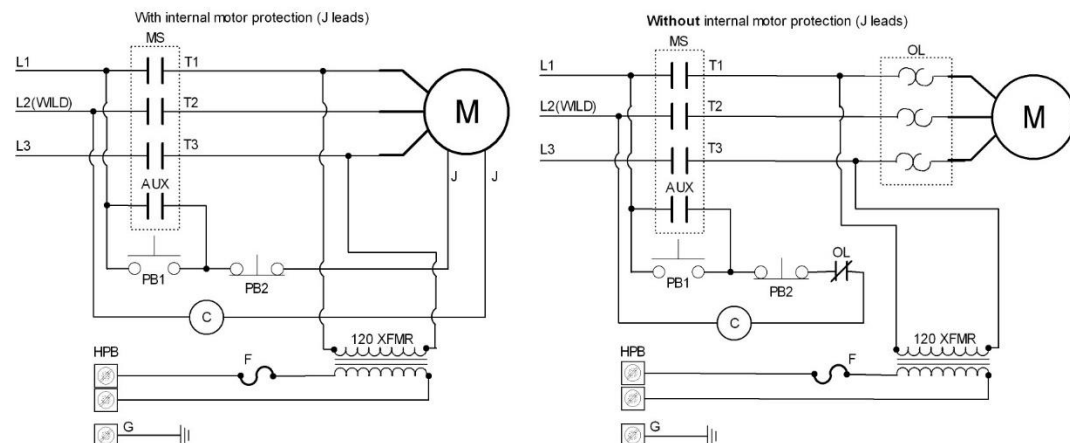
208 - 230 VOLT, SINGLE PHASE



208 - 230 VOLT, THREE PHASE



380 - 460 VOLT, THREE PHASE



MAINTENANCE



WARNING: Keep all guards and screens in place. Disconnect all power sources before doing any repair, maintenance or inspections. Failure to heed this warning could result in death or serious injury.

BEGINNING OF EACH DRYING SEASON:

1. Remove inlet screen. Check for foreign material on fan blade. With power off, turn fan by hand to be sure it rotates freely.
2. Lubricate fan motor bearings with high temperature grease as indicated on motor nameplate or motor fact sheet. Do not over-grease. Check ventilation openings in motor for any blockage.
3. Check wiring of fan. Look for loose connections, bare wires, or rodent damage. Be sure to check ignition wire and flame sensor wires for any damage.

AFTER DRYING SEASON:

1. Balance of a centrifugal blade is critical. Vibration can cause fan housing to crack. To prevent this, check behind blade for dirt, dust or foreign material.
2. Cover fan inlet to keep out weather and pests, and to prevent “windmilling,” which can cause wear on start switch in single-phase motors.

DURING OFF-SEASON:

1. Every six weeks, remove inlet cover and operate fan to redistribute grease in bearings. Let motor warm up enough to force out any accumulated moisture.
2. Make sure control box cover is in place and secured. Turn off power.

TROUBLESHOOTING

Procedures outlined below are for use **ONLY** by qualified service personnel.



WARNING: If fan is used with a heater, shut off fuel supply and bleed all lines before servicing. Run fan several minutes to purge gas from heater. Failure to heed this warning could cause a fire, resulting in death or serious injury.

CHECK AND CORRECTION PROCEDURE

1. Check line voltage:
Single phase:
Line voltage should be present between terminals L1 & L2 on top of magnetic starter.
Three phase:
Check line voltage between terminals L1 & L2, L1 & L3, and L2 & L3.
If voltmeter does not indicate proper voltage, check power supply.

MAGNETIC STARTER DOES NOT ENERGIZE

2. Connect one lead of voltmeter to neutral block.
If fan does not have neutral block, connect lead to L2 on single-phase unit or to L3 on three-phase unit. This lead will remain connected at this point throughout test procedure.

3. Check Start button:
Connect lead at a point between Start and Stop buttons. Press Start button. Meter should show a voltage reading. If no reading, replace Start button.
4. Check Stop button:
Connect lead at a point between Stop button and overload relay. Press Start button. Meter should show voltage reading. If no reading, replace Stop button.
5. Check Overload Relay (if applicable):
Connect lead to magnetic starter coil. Press Start button. Meter should show a voltage reading. If no reading, reset overload relay. If meter shows proper voltage but magnetic starter does **NOT** energize, replace starter coil.

MAGNETIC STARTER CLOSSES, FAN DOES NOT START PROPERLY

6. Check magnetic starter contacts: (Magnetic starter energized)
Connect voltmeter leads to T1 & T2 on magnetic starter. On three-phase power also check between T1 & T3, and between T2 & T3. If meter **DOES NOT** indicate proper voltage, replace magnetic starter. If meter **DOES** indicate proper voltage, check motor.

FAN RUNS ONLY WHEN START BUTTON IS DEPRESSED

7. Single phase: Clean contact points between L3 & T3 on magnetic starter.
Three phase: Replace auxiliary contact on side of magnetic starter.

FAN SHUTS OFF, OVERLOAD TRIPPED

8. Check incoming voltage while fan is starting and while fan is running. If voltage is low, it is indicative of an electrical service problem. Consult your electric utility.
9. Amperage readings should be a maximum of 10 percent above motor nameplate amperage for motors with a 1.15 service factor. Amperage readings should not exceed nameplate amperage on motors with a service factor of 1.00. If amperage is too high, loosen setscrews on motor shaft and slide fan wheel away from motor. Use Locktite (or similar product) when retightening setscrews. Tighten keyway setscrew first.

On fans using Telemecanique overload, amperage adjustment dial should be set at motor full load amperage on motor nameplate. All overloads installed at factory are pre-set to proper amperage.

NOTICE: Increasing amperage on adjustment dial could cause motor damage if an overload condition were to exist.

FAN WHEEL REMOVAL

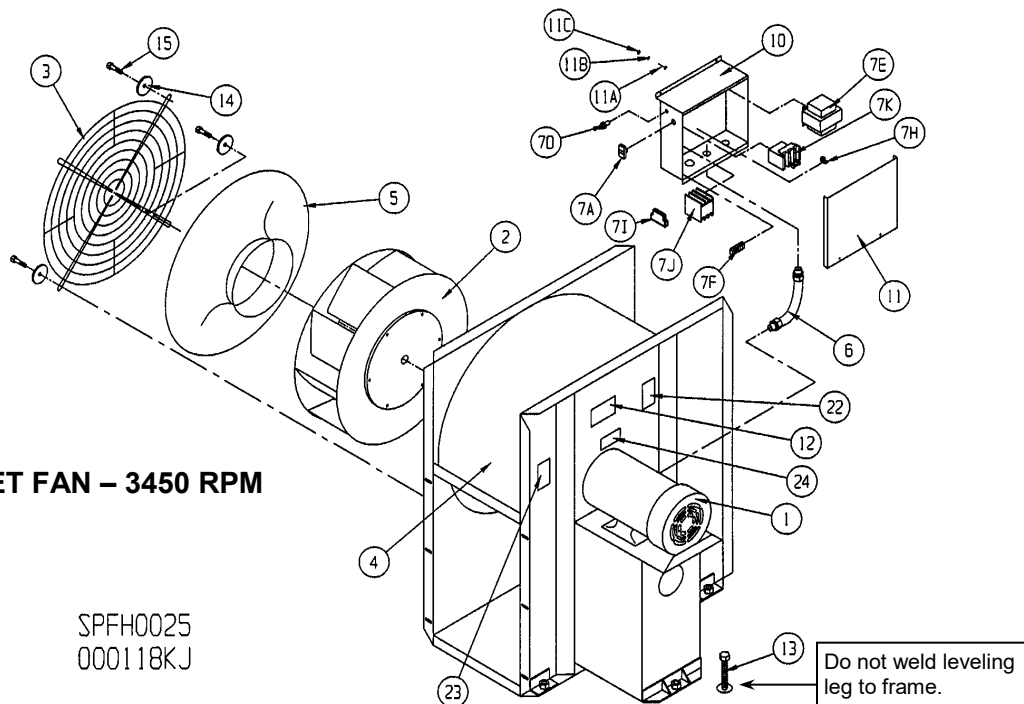
10. Distance from venturi inner edge to fan wheel back plate affects air inlet and motor load. Measure this distance before removing fan wheel and reinstall in same position.
11. If correct position is unknown and bin is less than full, maximum possible motor load must be determined. Separate fan from heater (or transition) slightly. Apply resistance to airflow by blocking fan outlet with a piece of sheet metal or plywood. Move blockage downward until maximum amperage is read. Adjust as in Step 9.



WARNING: KEEP AWAY from moving fan wheel. Failure to heed this warning could result in contact causing death or serious injury.

PARTS / ASSEMBLIES

SINGLE INLET FAN – 3450 RPM



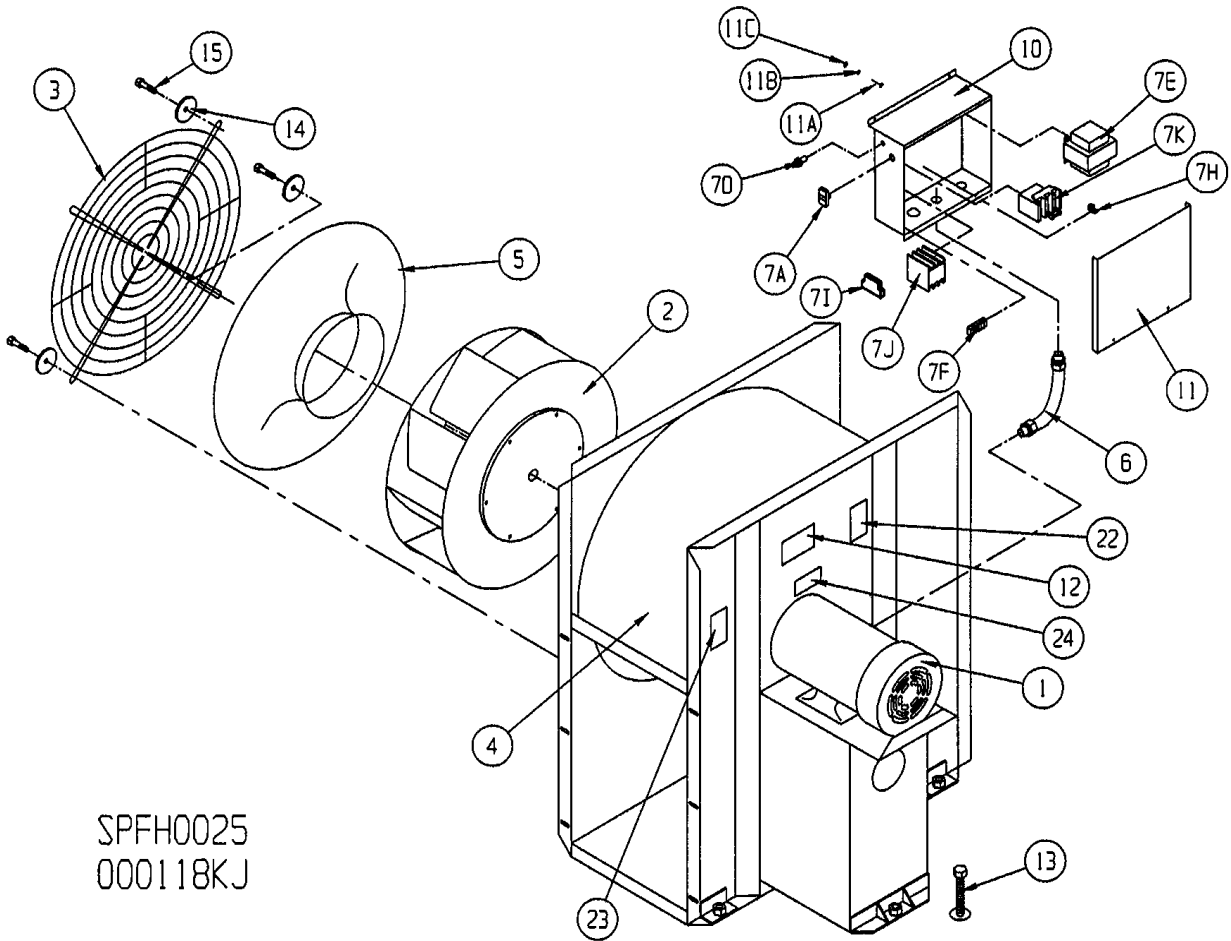
REF. #	DESCRIPTION	NOTE	3HP	5HP	7.5HP	10HP	15HP	20HP	30HP	40HP	50HP
1	Motor-1ph 3450rpm Motor-3ph 3450rpm		H3100 H3150	H3900 H3950	H4700 H4750	H5400 H5450	----- H6250	----- H6775	----- H7350	----- H7400	----- H7450
2	Fan Wheel w/hub Set Screw, 1/2-13x1-3/4" sq hd	c a	D9001 J1385	D9051 J1385	D9099 J1385	D9151 J1385	D9201 J1385	D9253 J1385	D9301 J1385	D9351 J1385	D9401 J1385
3	Screen guard		D9003	D9003	D9103	D9103	D9103	D3160	D3160	D3160	D3162
4	Fan housing, galvanized		D9039	D9049	D9109	D9149	D9199	D9249	D9299	D9349	D9398
5	Venturi		D9004	D9004	D9104	D9104	D9104	D0475	D0475	D0475	D9405
6	Conduit, wires, fittings-1ph " " " 3ph 230v " " " 3ph 460v	d d d	D6652 D6653 D6655	D6658 D6659 D6655	D66581 D6659 D6661	D66582 D6664 D6654	----- D6667 D6668	----- D6671 D6672	----- D6675 D6676	----- D6678 D6683	----- D6680 D6682
7	Control Box complete -1ph 230v Control Box complete -3ph 230v Control Box complete -3ph 460v	cdei cdei cdei	D6530 D6536 D6588	D6531 D6537 D6589	D6531 D6580 D6590	D6531 D6540 D6591	----- D65831 D6592	----- D6583 D6553	----- D6542 D6554	----- D6544 D6555	----- D6546 D65551
7A	Start-Stop-single push button	di	J4482	J4482	J4482	J4482	J4482	J4482	J4482	J4482	J4482
7H	Ground bar, 4-hole, aluminum		J47904	J47904	J47904	J47904	J47904	J47904	J47904	J47904	J47904
7I	Accessory contact kit 3ph Pg. 24										
7J	Mag contactor see Page 24										
7K	Overload relay see Page 24 Heater strip see Page 25										
10	Control box (1ph) Control box (3ph 230v) Control box (3ph 460)	c c c	D6403 D6403 D6403	D6403 D6403 D6403	D6403 D6403 D6403	D6403 D6403 D6403	D6403 D6403 D6403	----- D6403 D6403	----- D6403 D6403	----- D9443 D6403	----- D9443 D6403
11	Control box lid only 1ph Control box lid only 3ph 230v Control box lid only 3ph 460v		D6404 D6404 D6404	D6404 D6404 D6404	D6404 D6404 D6404	D6404 D6404 D6404	D6404 D6404 D6404	----- D6404 D6404	----- D6404 D6404	----- D9444 D6404	----- D9444 D6404
11A	Bolt, 1/4-20 x 1" Gr 5		J0508	J0508	J0508	J0508	J0508	J0508	J0508	J0508	J0508
11B	Flat washer, 1/4"		J1105	J1105	J1105	J1105	J1105	J1105	J1105	J1105	J1105
11C	Nut, 1/4"		J0990	J0990	J0990	J0990	J0990	J0990	J0990	J0990	J0990
12	Decal, Disconnect electricity, etc.		L0166	L0166	L0166	L0166	L0166	L0166	L0166	L0166	L0166
13	Leveling leg		D9006	D9006	D9006	D9006	D9006	D9006	-----	-----	-----
14	Washer 2-1/2 "OD x 3/8" ID		D1494	D1494	D1494	D1494	D1494	D1494	D1494	D1494	D1494
15	Screw, 5/16 x 1"		J0527	J0527	J0527	J0527	J0527	J0527	J0527	J0527	J0527
22	Decal, Safe Operation		L0281	L0281	L0281	L0281	L0281	L0281	L0281	L0281	L0281
23	Decal, Wrn,Keep away mov prts		L0284	L0284	L0284	L0284	L0284	L0284	L0284	L0284	L0284
24	Decal, Danger, Shield Missing		L0271	L0271	L0271	L0271	L0271	L0271	L0271	L0271	L0271

a: Not shown on drawing; b: Not used
c: Includes indented parts that follow
d: Not included on fans less controls

e: Includes connecting wires w/ terminals
f: Not used
g: Used with control circuits below 250V

h: Used with control circuits above 250V
i: Control circuit is same voltage as power supply

SINGLE INLET FAN – 1750 RPM



SPFH0025
000118KJ

REF. #	DESCRIPTION	NOTE	3HP	5HP	7.5HP	10HP	15HP	20HP	30HP
1	Motor - 1ph Motor - 1ph Ronk Motor - 3ph		H2885 H3245	H3790 H4110	H4625 H4800	H5175 H5475	H6030 H6025 H6275	----- H6750 H6801	----- ----- H7125
2	Fan Wheel w/hub 1ph Fan Wheel w/hub 3ph Set Screw, ½ -13 x 1-3/4" sq hd	c c a	D0220 D0220 J1385	D0420 D0420 J1385	D0620 D0620 J1385	D0820 D0820 J1385	D1020 D1020 J1385	D1221 D1220 J1385	D1370 D1370 J1385
3	Screen guard		D3160	D3160	D3162	D3162	D3162	D3164	D3164
4	Fan housing, galvanized 1ph Fan housing, galvanized 3ph		D0214 D0214	D0414 D0414	D0614 D0614	D0814 D0814	D1014 D1014	D1210 D1209	D1313 D1313
5	Venturi, galvanized		D0475	D0475*	D0675	D0875	D0875	D1275	Q84612
6	Conduit, wires, fittings-1ph " " " 1ph Ronk " " " 3ph 230v " " " 3ph 460v	d d d d	D6650 ----- D6651 D6654	D6656 ----- D6657 D6660	D6662 ----- D66571 D66601	D6662 ----- D6663 D66601	D6665 ----- D6687 D6669 D6666	----- ----- D6688 D66691 D6670	----- ----- ----- D66731 D66741
7	Control Box complete -1ph 230v Electrical components -1ph Ronk Control Box complete -3ph 230v Control Box complete -3ph 460v	cdei ----- cdei cdei	D6530 ----- D6536 D6588	D6531 ----- D6537 D6589	D6532 ----- D6538 D6547	D6532 ----- D6539 D6552	D6533 ----- D6581 D6586	----- ----- D6535 D6582 D6548	----- ----- ----- D6541 D6549
7A	Start-Stop-single push button	di	J4482	J4482	J4482	J4482	J4482	J4482	J4482
7D	Fuse holder Fuse only, 3 amp	d d	----- -----	----- -----	J4660 J4667	J4660 J4667	J4660 J4667	J4660 J4667	J4660 J4667
7E	Transformer	dfi	-----	-----	J4907	J4907	J4907	J4907	J4903
7F	Heater Power Block	d	-----	-----	D65073	D65073	D65073	D65073	D65073

(Continued)

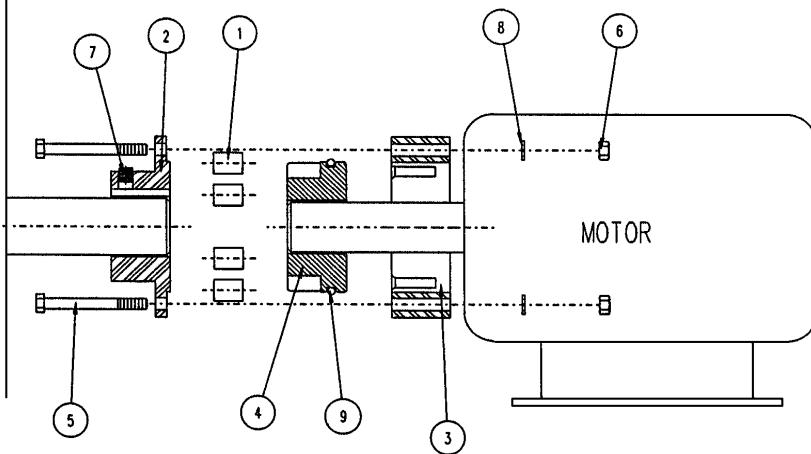
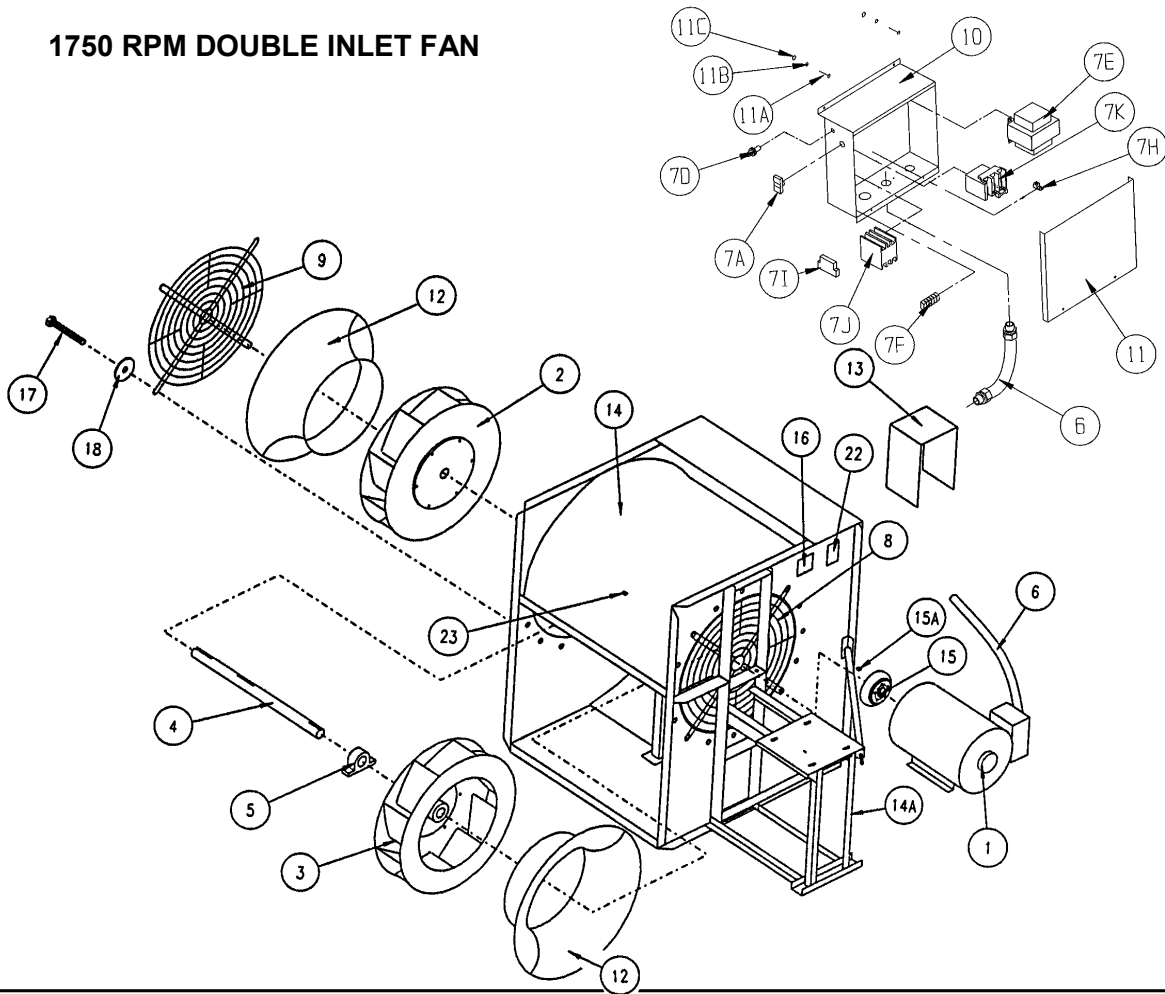
SINGLE INLET FAN – 1750 RPM (Continued)

REF. #	DESCRIPTION	NOTE	3HP	5HP	7.5HP	10HP	15HP	20HP	30HP
7H	Ground bar, 4-hole, aluminum	d	J47904	J47904	J47904	J47904	J47904	J47904	J47904
7I	Accessory contact kit (3ph only) – see Page 24								
7J	Mag contactor - see Page 24	di							
7K	Overload relay -see Page 24 Heater strip - see Page 25	d d							
10	Control box (1ph) Control box (3ph 230v) Control box (3ph 460)	c c c	D6403 D6403 D6403	D6403 D6403 D6403	D6403 D6403 D6403	D6403 D6403 D6403	D6403 D6403 D6403	----- D6403 D6403	----- D6403 D6403
11	Control box lid only 1ph Control box lid only 3ph 230v Control box lid only 3ph 460v		D6404 D6404 D6402	D6404 D6404 D6402	D6404 D6404 D6402	D6404 D6404 D6402	D6404 D6404 D6402	D6404 D6404 D6402	D6404 D6404 D6402
11A	Bolt, 1/4-20 x 1" Gr 5		J0508	J0508	J0508	J0508	J0508	J0508	J0508
11B	Flat washer, 1/4"		J1105	J1105	J1105	J1105	J1105	J1105	J1105
11C	Nut, 1/4"		J0990	J0990	J0990	J0990	J0990	J0990	J0990
12	Decal, Disconnect electricity, check guards, screens		L0166	L0166	L0166	L0166	L0166	L0166	L0166
13	Leveling leg		D9006	D9006	D9006	D9006	D9006	D9006	D9006
14	Washer 2-1/2" OD x 3/8" ID		D1494	D1494	D1494	D1494	D1494	D1494	D1494
15	Screw, 5/16 x 1"		J0527	J0527	J0527	J0527	J0527	J0527	J0527
22	Decal, Safe Operation		L0281	L0281	L0281	L0281	L0281	L0281	L0281
23	Decal, Warning, Moving parts		(L0284 on belt drive)						
24	Decal, Danger, Shield Missing		(L0271 on belt drive)						

a: Not shown on drawing ; b: Not used
c: Includes indented parts that follow
d: Not included on fans less controls
e: Includes connecting wires w/terminals

f: Used only with 460v fan with 115v control conduit
g: Used with control circuits below 250v
h: Used with control circuits above 250v
i: Control circuit is same voltage as power supply

1750 RPM DOUBLE INLET FAN



COUPLING ASSEMBLY FOR 30, 40, & 50HP

Complete Coupling Assemblies

30HP #D1410

40HP #D1411

50HP #D1411

REF. #	DESCRIPTION	QTY.	30HP PART #	40-50HP PART #
1	Drive Pin, Nylon	6	D1412	D1412
2	Fan Hub, Dbl Inlet, 2 1/8" bore	1	D1413	D1413
3	Outside Coupling	1	D1525	D1525
4	Inside Coupling	1	D1526	D1527
5	Screw, 3/8-16, 3, PLT, Gr 5, HHCS	6	J0661	J0661
6	Nut, Hex, 3/8-16, PLT	6	J1020	J1020
7	Setscrew, 1/2-13, 3/4, SH	4	J1087	J1087
8	Lock Washer, 3/8, PLT, Split	6	J1205	J1205
9	O/Ring, 4.25ID, 3/16 Ring Dia.	1	J3552	J3552

1750 RPM DOUBLE INLET FANS

REF. #	DESCRIPTION	NOTES	30HP	40HP	50HP
1	Motor - 3 PH		H7125	H7175	H7205
2	Fan Wheel w/hub (regular)		D14701	D15701	D16701
3	Fan Wheel w/hub (reverse)	C	D14711	D15711	D16711
	Set screw, 1/2 - 13 x 1 3/4" Square head	A	J1385	J1385	J1385
4	Drive shaft		D1520	D1675	D1655
5	Single pillow block bearing, 2 1/8"		J0048	J0048	J0048
6	Conduit, wires, fittings - 3 PH 230V	D	D6673	D6677	D6680
	" " " - 3 PH 460V	D	D6674	D6674	D6679
7	Control Box Complete - 3 PH 230V	CDEI	D6541	D6543	D6545
	Control Box Complete - 3 PH 460V	CDEI	D56549	D6550	D65502
7A	Stop-Start single push button	DI	J4482	J4482	J4482
7D	Fuse Holder	DI	J4660	J4660	J4660
	Fuse only, 3A	DI	J4667	J4667	J4667
7E	Transformer	DFI	J4903	J4903	J4903
7F	Heater Power Block	D	D65073	D65073	D65073
7H	Ground bar, 4-hole, aluminum	D	J47904	J47904	J47904
7I	Accessory contact kit 3 PH only – See Page 24	D			
7J	Mag contactor – See Page 24	DI			
7K	Overload relay – See Page 24	D			
	Heater strip – See Page 25	D			
8	Screen guard (for drive side)		D3165	D3165	D3165
9	Screen guard (standard)		D3164	D3164	D3164
10	Control Box only - 3 PH 230V	CD	D6403	D9443	D9443
	Control Box only - 3 PH 460V	CD	D6403	D9443	D9443
11	Control Box lid only - 3 PH 230V	D	D6404	D9444	D9444
	Control Box lid only – 3 PH 460V	D	D6404	D9444	D9444
11A	Bolt, 1/4 - 20 x 1" Gr. 5		J0508	J0508	J0508
11B	Flat Washer, 1/4"		J1105	J1105	J1105
11C	Nut, 1/4"		J0990	J0990	J0990
12	Venturi		D1275V	D1275V	D1275V
13	Fan coupling shield		D1507	D1507	D1507
14	Fan housing, painted less motor frame		D1514	D1514	D1513
14A	Motor mount		D1505	D1510	D1625
	Frame brace		D1506	D1506	D1506
15	Fan coupling – See drawing and components on previous page				
15A	Square Key, 1/2" x 2"		D1682	D1682	D1682
16	Decal, Disconnect electricity, check guards		L0166	L0166	L0166
17	Bolt, 5/16" x 1		J0527	J0527	J0527
18	Washer		D1494	D1494	D1424
22	Decal, Safe Operation-Orange		L0281	L0281	L0281
23	Grease Pipe Assembly	A	D16261	D16261	D16261
24	Spacer, 2 3/8 OD use w/Pillow Block		D1496	D1496	D1496
25	Rotation Sticker		L0292	L0292	L0292

A: Not shown on drawing

B: Must order painted fan housing
number plus add on number

C: Includes indented parts that follow

D: Not included on fans less controls

E: Includes connecting wires w/terminals

F: Used only on 460v fan (for 115v receptacle)

G: Used with control circuits below 250v

H: Used with control circuits above 250v

I: Control circuit is same voltage as power supply.

CENTRIFUGAL FAN ELECTRICAL COMPONENTS

Fan Size			Magnetic Contactor With Coil (Square D)				
1PH 230V	3PH 230V	3PH 460V	FLA	VENDOR #	PART #	Series C* PART #	Coil Volts
----	----	3-20	40	DPA43V06	J5254M	J52542	460
3	3-10	----	40	DPA43V09	J5250M	J52502	230
5-10	15-20	----	60	DPA63V09	J5251M	----	230
----	----	30	60	DPA63V06	J5255M	----	460
15	30	----	90	DPA93V09	J5252M	----	230
----	----	40-50	90	DPA93V06	J5256M	----	460
----	40	----	115	LC1D115U7	J6071	----	230
----	50	----	150	LC1D150U7	J6072	----	230

*Series "C" Square D contactor beginning in 2010

Fan Size			Coil Only (Square D)			
1PH 230V	3PH 230V	3PH 460V	Coil Volts	VENDOR #	PART #	Series C** PART #
----	----	3-20	460	DA1V06	J5285	NA
3	3-10	----	230	DA1V09	J5281	NA
5-10	15-20	----	230	DA2V09	J5282	NA
15	30	----	230	DA3V09	J5279	NA
----	----	30	460	DA2V06	J5286	NA
15	----	----	230	DA3V09	J5279	NA
----	----	40-50	460	DA3V06	J5287	NA

**Series "C" Square D contactor coil is not replaceable

OVERLOAD RELAY

Fan Size			Square D		
1PH 230V	3PH 230V	3PH 460V	FLA	VENDOR #	PART #
3	----	----	30	SE04	J5267
5-10	----	----	56	SE07S1	J5269
15	----	----	86	9065HA2	J5274
----	3 - 7.5	3 - 15	30	SE05	J5268
----	10 - 20	20 - 40	60	SE0851	J5270
----	30	50	90	SE012	J5271
----	50	----	140	LRD4369	J6066

ACCESSORY CONTACT KIT (used on all 3 phase)

Mag Starter Amperage	Square D			
	VENDOR #	PART #	VENDOR #	Series C*** PART #
30-90	9999D10	J5260	9999DD11	J52605

***Auxiliary contactor J52605 is for Series "C" Square D contactor only. It WILL NOT interchange with earlier Square D contactor. J5260 WILL NOT interchange on newer Series "C" Square D contactors.

NOTE: Contactor, coil and accessory contact kit must be all the same brand (all Square D). Heater strip must be same brand as overload. However, a Furnas overload relay may be used with Square D contactor, or vice versa. "Telemecanique" temperature compensated overload does not require heater strips.

"TELEMECANIQUE" TEMPERATURE COMPENSATED OVERLOAD

FAN SIZE		OVERLOAD RELAY			MOUNTING BRACKET	
3ph -230v	3ph-460v	AMPERAGE	VENDOR #	PART #	VENDOR #	PART #
--	--	2.5 - 4	LR2D1308	J5351	LA7D1064	J5364
--	3	4-6	LR2D1310	J5352	LA7D1064	J5364
--	5	5.5-8	LR2D1312	J5353	LA7D1064	J5364
3	--	7-10	LR2D1314	J5354	LA7D1064	J5364
--	7.5	9-13	LR2D1316	J5356	LA7D1064	J5364
5	10	12-18	LR2D1321	J5357	LA7D1064	J5364
7.5	15	17-25	LR2D1322	J5359	LA7D1064	J5364
--	20	23-32	LR2D2353	J5355	LA7D2064	J5364
10	--	30-40	LR2D3355	J5361	LA7D3064	J5366
15	30	37-50	LR2D3357	J5358	LA7D3064	J5366
20	50	48-65	LR2D3359	J5360	LA7D3064	J5366
30	--	63-80	LR2D3363	J5362	LA7D3064	J5366

OVERLOAD SUGGESTED IS FOR TYPICAL FAN MOTOR - ACTUAL OVERLOAD NEEDED SHOULD BE SIZED FOR MOTOR NAMEPLATE AMPS. NOTE: Must order both overload and mounting bracket.

SQUARE D HEATER STRIPS FOR VARIOUS MOTOR AMPERAGES*
 *For 1.15 to 1.25 service factor motors use motor full load current as listed. For 1.0 service factor motors use 90% of motor full load current.

SINGLE PHASE

30 Amp Overload (J5267, SE04S1)				60 Amp Overload (J5269, SE07S1)			
1.15 SF*	Strip	Comp. #	1.15 SF*	Strip	Comp. #	1.15 SF*	Strip
2.2-2.4	B3.00	J5300	3.5-3.9	B4.85	J5304		
2.4-2.7	B3.30	J5301	3.9-4.5	B5.50	J5305		
2.7-3.0	B3.70	J5302	4.5-4.9	B6.25	J5306		
3.0-3.5	B4.15	J5303	4.9-5.5	B6.90	J5307		
3.5-4.0	B4.85	J5304	5.5-5.8	B7.70	J5308		
4.0-4.6	B5.50	J5305	5.8-6.6	B8.20	J5309		
4.6-5.0	B6.25	J5306	6.6-7.4	B9.10	J5310		
5.0-5.6	B6.90	J5307	7.4-8.3	B10.2	J5311		
5.6-6.0	B7.70	J5308	8.3-9.2	B11.5	J5312		
6.0-6.6	B8.20	J5309	9.2-10.0	B12.8	J5313		
6.6-7.3	B9.10	J5310	10.1-11.2	B14	J5314		
7.3-8.2	B10.2	J5311	11.3-12.5	B15.5	J5315		
8.2-9.1	B11.5	J5312	12.6-14.2	B17.5	J5316		
9.1-9.9	B12.8	J5313	14.3-16.1	B19.5	J5317		
9.9-10.7	B14	J5314	16.2-18.4	B22	J5318		
10.8-12.1	B15.5	J5315	18.5-20.5	B25	J5319		
12.2-13.5	B17.5	J5316	20.6-23.2	B28.0	J5320		
13.6-15.1	B19.5	J5317	23.3-26.6	B32	J5321		
15.2-17.0	B22	J5318	26.7-29.6	B36	J5322		
17.1-18.9	B25	J5319	29.7-33.5	B40	J5323		
19.0-21.5	B28.0	J5320	33.6-37.2	B45	J5324		
21.6-24.0	B32	J5321	37.3-41.5	B50	J5325		
24.1-26.0	B36	J5322	41.6-44.0	B56	J5326		
---	B40	J5323	44.1-46.3	B62	J5327		
---	---	---	46.4-52.5	B70	J5328		
---	---	---	52.6-56.0	B79	J5330		

THREE PHASE

40 Amp Overload (J5268, SE05)				60 Amp Overload (J5270, SE08S1)				90 Amp Overload (J5271, SE012)			
1.15 SF*	Strip	Comp. #	1.15 SF*	Strip	Comp. #	1.15 SF*	Strip	1.15 SF*	Strip	Comp. #	1.15 SF*
1.9-2.1	B3.00	J5300	3.4-3.6	B4.85	J5304	50.4-54.5	CC68.5			J5335	
2.2-2.3	B3.30	J5301	3.7-4.1	B5.50	H5305	54.6-58.3	CC74.6			J5337	
2.4-2.7	B3.70	J5302	4.1-4.4	B6.25	J5306	58.4-63.1	CC81.5			J5338	
2.7-3.2	B4.15	J5303	4.4-5.2	B6.90	J5307	63.2-68.4	CC87.7			J5339	
3.2-3.5	B4.85	J5304	5.2-5.6	B7.70	J5308	68.5-73.8	CC94.0			J5340	
3.5-3.9	B5.50	J5305	5.6-6.0	B8.20	J5309	73.9-78.9	CC103			J5342	
3.9-4.1	B6.25	J5306	6.0-6.8	B9.10	J5310	79.0-86.0	CC112			J5341	
4.2-4.7	B6.90	J5307	6.8-7.9	B10.2	J5311						
4.7-5.3	B7.70	J5308	7.9-9.1	B11.5	J5312						
5.3-5.6	B8.20	J5309	9.1-10.0	B12.8	J5313						
5.7-6.4	B9.10	J5310	10.1-10.7	B14	J5314						
6.4-7.4	B10.2	J5311	10.8-12.0	B15.5	J5315						
7.4-8.6	B11.5	J5312	12.1-13.5	B17.5	J5316						
8.6-9.4	B12.8	J5313	13.6-14.6	B19.5	J5317						
9.4-10.0	B14	J5314	14.7-16.7	B22	J5318						
10.1-11.2	B15.5	J5315	16.8-18.9	B25	J5319						
11.3-12.5	B17.5	J5316	19.0-21.6	B28.0	J5320						
12.6-13.5	B19.5	J5317	21.7-24.1	B32	J5321						
13.6-15.4	B22	J5318	24.2-27.6	B36	J5322						
15.5-17.5	B25	J5319	27.7-31.2	B40	J5323						
17.6-19.9	B28.0	J5320	31.3-35.5	B45	J5324						
20.0-22.2	B32	J5321	35.6-37.8	B50	J5325						
22.3-25.5	B36	J5322	37.9-41.5	B56	J5326						
25.6-26.0	B40	J5323	41.6-44.0	B62	J5327						
---	---	---	44.1-49.9	B70	J5329						
---	---	---	50.0-56.0	B79	J5330						

If you have any questions regarding heater strip sizing, call Sukup Mfg. with the following information: Brand of overload, model number on overload (Example-SE04S1), full load amperage on motor name plate, and service factor on motor name plate.

FURNAS HEATER STRIPS FOR VARIOUS MOTOR AMPERAGES
 To select heater strip, go to appropriate overload section, find column for motor service factor (SF), then select heater strip based on nameplate amperage of motor.

SINGLE PHASE

25 Amp Overload (48DA17AA4)				60 Amp Overload (48GA17AA4)			
1.00 SF	1.15 SF	Strip	Comp. #	1.00 SF	1.15 SF	Strip	Comp. #
8.9-9.7	8.0-8.9	E51	J4200	16.9-18.7	13.7-15.2	E57	J4215
9.8-10.5	8.9-9.7	E52	J4205	18.9-18.7	16.9-18.7	E60	J4220
10.6-11.5	9.8-10.5	E53	J4206	20.1-22.5	18.8-20.0	E61	J4225
11.6-12.3	10.6-11.5	E54	J4207	22.6-23.3	20.1-22.5	E62	J4226
12.4-13.4	11.6-12.3	E55	J4210	23.4-25.5	22.6-23.3	E65	J4230
13.5-15.2	12.4-13.4	E56	J4212	25.6-27.9	23.4-25.5	E66	J4235
15.3-17.2	13.5-15.2	E57	J4215	28.0-30.8	25.6-27.9	E67	J4236
17.3-18.4	15.3-17.2	E60	J4220	30.9-33.2	28.0-30.8	E69	J4240
18.5-20.6	17.3-18.4	E61	J4225	33.3-36.6	30.9-33.2	E70	J4245
20.7-21.3	18.5-20.6	E62	J4226	36.7-38.9	33.3-36.6	E71	J4260
21.4-23.4	20.7-21.3	E65	J4230	39.0-43.1	36.7-38.9	E72	J4250
23.5-25.5	21.4-23.4	E66	J4235	43.2-47.4	39.0-43.1	E73	J4251
25.6-30.8	23.5-25.5	E67	J4236	47.5-50.0	43.2-47.4	E74	J4255
---	25.6-30.8	E69	J4240	50.1-55.2	47.5-50.0	E76	J4257
---	---	---	---	55.3-60.0	50.1-55.2	E77	J4258
---	---	---	---	---	55.3-60.0	---	J4259

THREE PHASE

30 Amp Overload (48DC37AA4)				60 Amp Overload (48GC37AA4)			
1.00 SF	1.15 SF	Strip	Comp. #	1.00 SF	1.15 SF	Strip	Comp. #
3.2-3.4	2.6-2.7	E36	J4185	17.5-19.4	16.4-17.4	E61	J4225
3.4-3.8	2.9-3.1	E38	J4187	19.5-20.9	17.5-19.4	E62	J4226
3.8-4.3	3.4-3.8	E41	J4190	21.0-23.3	19.5-20.9	E65	J4230
4.3-4.6	3.8-4.3	E42	J4191	23.4-26.2	21.0-23.3	E66	J4235
5.1-5.6	4.3-4.6	E44	J4193	26.3-29.1	23.4-26.2	E67	J4236
5.6-5.9	5.1-5.6	E48	J4196	29.2-30.0	26.3-29.1	E69	J4240
5.9-6.2	5.6-5.9	E48	J4198	30.1-32.7	29.2-30.0	E70	J4245
6.2-6.7	5.9-6.2	E49	J4197	32.8-34.1	30.1-32.7	E71	J4247
6.7-7.5	6.2-6.7	E50	J4199	34.2-36.9	32.8-34.1	E72	J4250
7.6-8.3	6.7-7.5	E51	J4200	37.0-40.7	34.2-36.9	E73	J4251
8.3-8.9	7.6-8.3	E52	J4205	40.8-44.9	37.0-40.7	E73A	J4252
9.0-9.9	8.3-8.9	E53	J4206	45.0-47.9	40.8-44.9	E74	J4255
9.9-10.4	9.0-9.9	E54	J4207	48.0-53.0	45.0-47.9	E76	J4257
10.5-12.0	9.9-10.4	E55	J4210	53.1-60.0	48.0-53.0	E77	J4258
12.1-13.6	10.5-12.0	E56	J4212	---	53.1-60.0	---	J4259
13.7-15.6	12.1-13.6	E57	J4215	---	---	---	---
15.7-17.0	13.7-15.6	E60	J4220	---	---	---	---
17.1-19.4	15.7-17.0	E61	J4225	---	---	---	---
19.5-20.9	17.1-19.4	E62	J4226	---	---	---	---
21.0-22.5	19.5-20.9	E65	J4230	---	---	---	---
22.6-25.6	21.0-22.5	E66	J4235	---	---	---	---
25.7-29.1	22.6-25.6	E67	J4236	---	---	---	---
29.2-30.0	25.7-29.1	E69	J4240	---	---	---	---
---	29.2-30.0	E70	J4245	---	---	---	---

100 Amp Overload (48HA38AA4)

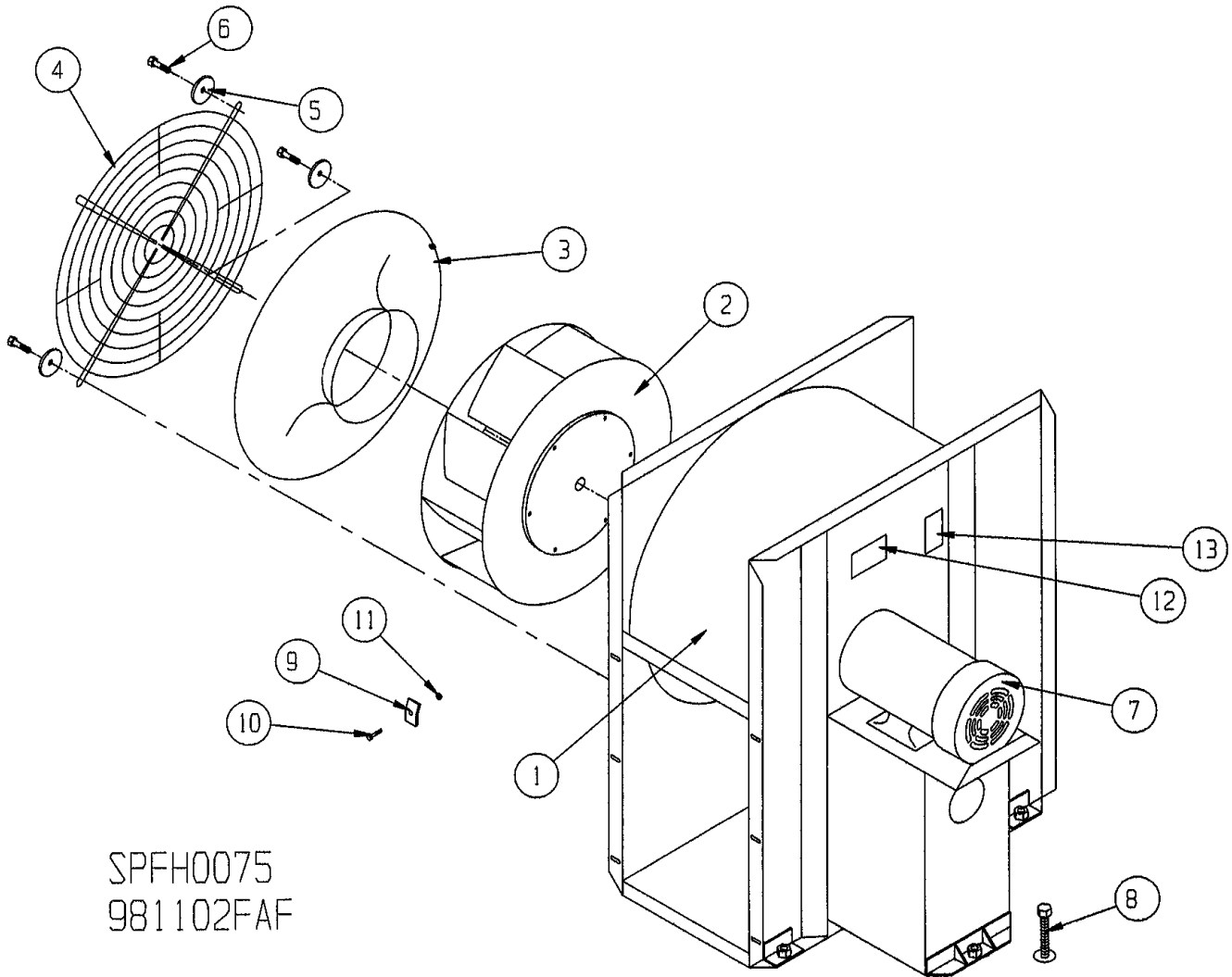
1.00 SF	1.15 SF	Strip	Comp. #
62.9-69.1	57.1-62.8	E77	J4258
69.2-75.0	62.9-69.1	E78	J4259
75.1-83.3	69.2-75.0	E79	J4260
---	75.1-83.3	E80	J4261

180 Amp Overload (48JA37AA4)

1.00 SF	1.15 SF	Strip	Comp. #
98.0-107.9	93.0-97.9	E98	J4272

Contactor, coil and accessory contact kit must be all the same brand (all Fumas or all Square D). Heater strip must be same brand as overload, however, a Fumas overload and assembly may be used with Square D contactor, or vice versa.

2900 RPM FAN
3 Phase – 50 Cycle



REF. #	DESCRIPTION	3hp	5hp	7.5hp	10hp	15hp	20hp	25hp	30hp
1	Fan Housing - galvanized	D9049	D9109	D9149	D9199	D9249	D9235	D9347	D9345
2	Fan wheel w/hub	D9051	D9099	D9151	D9201	D9253	D9301	D9246	D9346
	Set screw, 1/2-13x1-3/4" sq hd	J1385	J1385	J1385	J1385	J1385	J1385	J1385	J1385
3	Venturi	D9004	D9104	D9104	D9104	D0475	D0475	D0475	D9405
4	Screen Guard	D9003	D9103	D9103	D9103	D3160	D3160	D3160	D3162
5	Flat washer, 3/8"	J1117	J1117	J1117	J1117	J1117	J1117	J1117	J1117
6	Nut, 3/8"	J1020	J1020	J1020	J1020	J1020	J1020	J1020	J1020
7	Motor, 3ph, 50hz, 2900 RPM Specify 380V or 415 V	H3950	H4750	H5450	H5450	H6251	H6775	H7305	H7350
8	Leveling Leg	D9006	D9006	D9006	D9006	D9006	D9006	D9006	D9006
9	Transition clip (each)	D3200	D3200	D3200	D3200	D3200	D3200	D3200	D3200
10	Bolt, 5/16-18 x 1-1/2" Gr 5	J0565	J0565	J0565	J0565	J0565	J0565	J0565	J0565
11	Nut, 5/16"	J1002	J1002	J1002	J1002	J1002	J1002	J1002	J1002
12	Decal, Discon. elec; ck guards	L0166	L0166	L0166	L0166	L0166	L0166	L0166	L0166
13	Decal, Safe Operation	L0281	L0281	L0281	L0281	L0281	L0281	L0281	L0281

NOTES



CONTACT INFORMATION

Owner's manuals are available from Sukup and additional copies can be requested at the address, phone number or e-mail address shown below. Please indicate manual number L1406 when requesting Centrifugal Fans Operation Manual.

Sukup Dealer Information

Dealer name:	_____
Address:	_____
Cell phone:	_____
Office phone:	_____
Fax:	_____

In Case of Emergency

Have emergency numbers and written directions to your location near a phone, and arrange and practice a safety plan.

Ambulance • Fire • Police: 9-1-1
Bin rescue team: _____
Local EMS team: _____
911 Address of work site: _____
Directions to work site: _____



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