TOWER DRYER

SUPPLEMENTAL MANUAL

(Use with Manual L13892)

EU - Under Declaration of Incorporation

QuadraTouch Pro ™
Dryer Control System

Sukup Manufacturing Co.
1555 255th Street, Box 677
Sheffield, Iowa USA 50475-0677

Phone: 641-892-4222 **Fax: 641-892-4629**
Website: www.sukup.com **E-mail: info@sukup.com**

Manual L13892EU (Under Dec. of Inc.)
01/23/2018

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Concerning Regulations and Codes

Authorities having jurisdiction should be consulted before installations are begun. Equipment shall be installed in accordance with all current machinery and electrical codes.

All wiring and safety circuitry shall be completed by a qualified electrician in accordance with current editions of and in compliance with BS EN 60204-1:2006+A1:2009 and BS EN ISO 13849-1:2015. The recommendation after undertaking a risk assessment in accordance with BS EN ISO 13849-1: 2015 of the overall installation is to achieve a PLr of Category “d” and a designated architecture of Category 3.*

PLr : Performance level of the tower dryer door interlock safety function is in accordance with Annex A; BS EN ISO 13849-1:2015.

This is a supplemental manual specifically for the Sukup Manufacturing Co. Tower Dryer. Step by step instructions for installation, operation and maintenance appear in **Dryer Manual L13892**, along with a parts assembly for each specific Tower Dryer model.

**BS EN ISO 13849-1: 2015, Section 3.0*

PL : Performance level : Discrete level used to specify the ability of safety-related parts of control systems to perform a safety function under foreseeable conditions.

PLr : Required Performance level : Performance level (PL) applied in order to achieve the required risk reduction for each safety function.

GENERAL SAFETY PRACTICES

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.

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

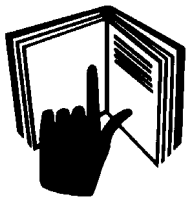
WARNING indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

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

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

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

OBSERVE SAFE OPERATING PRACTICES



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. by 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 the owner/operator to inform anyone operating or working in the area of this equipment of the hazards and the safety precautions that need to be taken to avoid personal injury or death. **An example training register is printed in this section to assist in that process.**

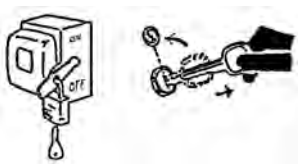
Basic Safety Rules

1. Learn how to use controls and operate equipment.
2. Do not let anyone operate unit without thorough training of basic operating and safety procedures. **Always follow a proper lockout procedure.**
3. Do not modify or redesign equipment without first obtaining written approval from Sukup Manufacturing Co. Unauthorized modifications to equipment may impair function and/or safety and affect machine life.
4. Periodically check all mechanical and electrical components. Keep unit in good working condition.
5. Handle equipment and parts with care. **Wear protective clothing** to avoid injury from sharp metal edges.
6. Wear Personal Protective Equipment (PPE) such as safety glasses, gloves, hardhat, steel-toe boots, ear protection and dust mask, in accordance with local and national requirements.

Keep unit well maintained according to procedures in the maintenance section of Operation Manual L13892.

WARNING: To avoid electrocution, all equipment must be properly wired and grounded according to electrical codes. Have unit wired by qualified electrician. Failure to heed this warning could result in death or serious injury.

IMPORTANT: Supporting electrical panels or combinations of electrical components supplied by the end user must be compliant with current editions of BS EN ISO 13849-1:2015.



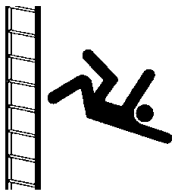
Mains Isolater must be located outside of dryer. It must be easily accessible from ground level and must be lockable in off position. Mark clearly as to equipment it operates. See Mains Isolater decal placement information later in this section.

Always LOCK OUT main power switch (Mains Isolater) whenever equipment is not in use or when servicing unit. Check with voltage meter before servicing unit.

USE PROPER LOCKOUT PROCEDURES. Facility management needs to proactively train employees to ensure use of proper lockout procedures while working on dryer. Management also needs to inspect this unit for any covers or guards not in proper place. It is everyone's responsibility to report any missing grates, guards, equipment failures or failures to lock out. Make certain that no cover is removed unless power is locked out.

NOTE: Refer to the OSHA document 1910.147 App A for a typical minimum lockout procedure.

WARNING: Inspect ladder carefully before use. Never climb deteriorated, damaged, or improperly assembled ladder components. Maintain secure hand and foothold when climbing. Metal is slippery when wet. Never carry items while climbing. Failure to heed these warnings may cause serious injury or death. Use safety harness and safety line as required. Load limit on ladder is 300 lbs (136 kg).



SAFETY QUESTIONS OR CONCERNS

Remember: Good housekeeping practices and correct safety procedures will help protect lives, jobs, property and profits. Keep area clean and place No Smoking Sign in immediate area of operation. Ensure quick access to an ABC (dry chemical) fire extinguisher.

Contact Sukup Manufacturing Co. with any specific safety needs regarding your tower dryer or its use!

WARNING: PREVENT EXPLOSION OR FIRE

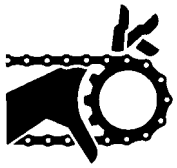
- Carefully review operator's manual, including all safety instruction.
- Keep dryer clean inside and out, as fines may cause a fire.
- Check for gas leaks, (spray soapy solution on piping and joints.)
- NEVER start heater if you smell gas or hear a hissing sound.
- NEVER run heater with inspection door open.

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

Please refer to Owner's Operation Manual for detailed instruction.

Initial gas hookups should only be performed by qualified gas service technicians in accordance with all applicable code requirements. In conditions of a threaded pipe train, a regulator must be installed on the gas tank and limit the pressure to 7 psi (0.5 bars). **IMPORTANT: End user must supply regulator, which must be in accordance with standard BS EN 88 or BS EN 334.**

WARNING: KEEP CLEAR OF ALL MOVING PARTS



Keep people (ESPECIALLY YOUTH) away from equipment, particularly during operation. Keep away from all moving parts. Entanglement can cause serious injury or death. Keep fan screen guards and all shields in place and in good working condition. Replacement screen guards and shields are available from Sukup Manufacturing Co. at no charge.

Failure to follow the above precautions may cause serious injury or death.

EMERGENCIES - KNOW WHAT TO DO

Have telephone numbers and written directions to your location near your telephone in the event of emergency. A place to record information is provided here.

Emergency Information

Ambulance: _____

Fire:_____

Address of work site:_____

Directions to your location: _____

Tower Dryer Safety Decals

To prevent death or serious injury to all persons involved in operation of this equipment, it is essential that these safety decals be mounted on dryer. Check that all are in place according to the decal placement drawing and are legible when dryer is installed.

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

Make sure location for decal is free from grease, oil and dirt. Remove backing from decal and place in proper position. Replace missing or damaged safety decals or shields free of charge by contacting Sukup Manufacturing Co., by mail at PO Box 677, Sheffield, Iowa 50475 USA; by phone at 641-892-4222; or by e-mail at info@sukup.com. Please specify computer number when ordering.

1. **Decal L0164 - WARNING:** Ladder safety – falling from heights hazard. Overall precautions for ladder safety. **Load limit is 300 lbs (136 kg).**

2. **Decal L0258A - DANGER:** Do not enter this bin! Keep clear of all augers.

3. **Decal L0520 - CAUTION:** Failure to keep unit clean may cause fire and serious injury or death.

4. **Decal L0237 - DANGER:** Door interlock switch. To prevent serious injury or death.

5. **Decal L0165 - WARNING:** Disconnect Electricity; Bleed gas; etc.

6. **Decal L0284 - WARNING:** Keep away from all moving parts.

7. **Decal L0281 - WARNING:** To avoid serious injury or death.

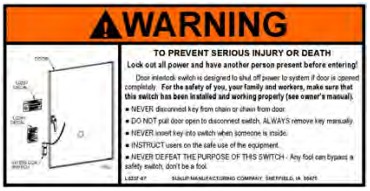
8. **Decal L01135 - WARNING:** Avoid platform collapse. **Do not exceed 500 lbs. (227 kg) maximum load.**

Tower Dryer Decal Placement

L0164

L01135

L0165



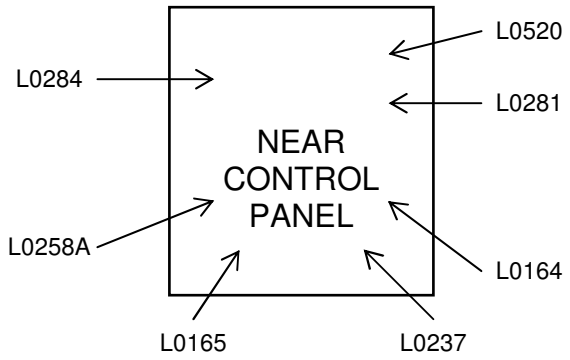
L0237

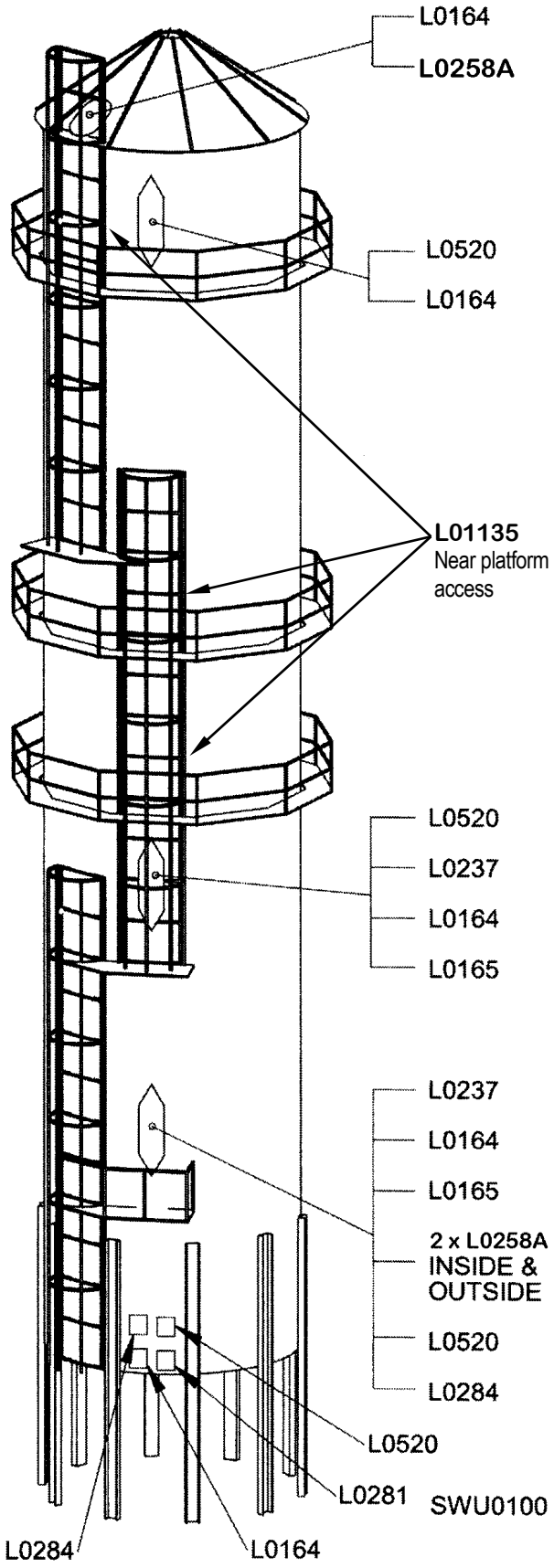
L0520

L0281

L0258A

L0284





TOWER DRYER EU SAFETY LABELS

To prevent serious injury or death to you or your family, it is essential that these safety decals be mounted on your dryer.

Make sure location for decal is free from grease, oil and dirt. Remove backing from decal and place in proper position. Replace missing or damaged safety decals or shields free of charge by contacting Sukup Manufacturing Co. by mail at PO Box 677, Sheffield, Iowa 50475; by phone at 641-892-4222; or by e-mail at info@sukup.com. Please specify computer number.

Label #L5100 – Place inside power box of dryer and on dryer where electrical precautions are needed.

Label #L5101 – Place near power disconnect of dryer.

Label #L5102 – Place near main power source of dryer.

Label #L5103 – Place near main power source of dryer.

Label #L5104 - Place at dryer access door (entrance to plenum).

Label #L5105 – Place at dryer access door (entrance to plenum).

Label #L5106 – Place near shut off to power source.

Label #L5107 – Place near main power shut off.

Label #L5109 – Place near main power panel.

Label #L5112 – Place near main power panel.

Label #L5113 – Place near main power panel.

Label #L5114 – Place near main power panel.

Risk reduction for servicing dryer

IMPORTANT: Conditions inside dryer plenum may vary greatly from the ambient conditions.

Please follow the safety guidelines before entering the plenum:

- Appoint a responsible individual to oversee the task and remain outside the dryer while servicing.
- Ensure the dryer is isolated, and all fuel and power is disabled to the unit.
- Operator is in good physical condition and at low risk of medical problems such as asthma and cardiac problems.
- Unit is empty of grain; avoid entry when unit is full.
- Do not close doors while inside the unit, to ensure proper airflow and vent toxic gasses.
- Have immediate and close access to a lifting device, which can reach the dryer platforms in the event of emergency.
- Have adequate tools on hand for quick removal of the ladder and cage in the event of an emergency.
- Carry a communication device to use in the event of an emergency and ensure proper signal is available (mobile phone with adequate signal).
- Wear personal protective equipment such as safety glasses, gloves, dust mask, steel-toe boots, ear protectors, safety harness, and hardhat, in accordance with local and national requirements.
- Consider additional risks when performing maintenance that includes cutting or welding (fire, fumes and dust). Ensure quick access to an ABC (dry chemical) fire extinguisher.
- Assess the climatic conditions: If the weather is undesirable (icy platforms, extreme heat) reduce risk by servicing when the climate improves.

Maintenance and inspection activities

- Use lifting device with safety cage to access top sections outside of dryer.
- Any access activities should be limited to allow for available space on platform. Make other arrangements for larger components.
- Do not exceed 500 lbs (227 kg) maximum load on platforms.
- Due to the infrequent operation of the rear access door interlock, the requirement is to perform a check at the start of the season to confirm the dryer does not start with the interlock disengaged.

In the event of minor injury (minor cuts and scrapes):

- Ensure a first aid kit is available on site and workers are trained in first aid to treat minor injury.
- Avoid first aid on the platforms due to low available workspace and height.
- Contact emergency services if the injury prevents descending from the dryer platforms.

In the event of serious injury (loss of consciousness or serious cut):

- Contact emergency services immediately.
- In the event of rescue from inside the plenum the ladder may hinder rescue. **The ladder and cage may be removed by cutting or unbolting the bracing brackets from the unit.**

Potential for Explosive Atmosphere

II (3) D

II Identifies the area as Group 2

(3) Identifies the area as Category 3

D Identifies the area as having the potential for generating a dust explosion

Tower Dryer Specifications (EU)

Dryer Dimensions

Model	Grain Column mm / (in)	Tower Diameter mm / (ft, in)	Overall Height mm / (ft)
U1212	324 mm (12.75")	3,658 mm (12'0")	15,850 mm (52')
U1512	324 mm (12.75")	3,658 mm (12'0")	17,983 mm (59')
U1812	324 mm (12.75")	3,658 mm (12'0")	21,031 mm (69')
U2012	324 mm (12.75")	3,658 mm (12'0")	23,165 mm (76')
U2412	324 mm (12.75")	3,658 mm (12'0")	26,213 mm (86')
U2518	324 mm (12.75")	5,486 mm (18'0")	20,117 mm (66')
U3018	324 mm (12.75")	5,486 mm (18'0")	23,165 mm (76')
U3518	324 mm (12.75")	5,486 mm (18'0")	26,213 mm (86')
U4018	324 mm (12.75")	5,486 mm (18'0")	29,261 mm (96')
U4718	324 mm (12.75")	5,486 mm (18'0")	33,223 mm (109')
U5024	324 mm (12.75")	7,315 mm (24'0")	29,870 mm (98')
U6024	324 mm (12.75")	7,315 mm (24'0")	32,918 mm (108')
U7024	324 mm (12.75")	7,315 mm (24'0")	35,966 mm (118')

Dryer Mass

Model	Mass Empty kg / (lbs)	Mass Full kg / (lbs)
U1212	14,515 (32,000)	54,930 (121,100)
U1512	15,422 (34,000)	61,171 (134,860)
U1812	16,329 (36,000)	70,052 (154,440)
U2012	17,055 (37,600)	76,112 (167,800)
U2412	18,144 (40,000)	85,039 (187,480)
U2518	22,679 (50,000)	104,598 (230,600)
U3018	27,215 (60,000)	121,517 (267,900)
U3518	30,073 (66,300)	136,758 (301,500)
U4018	34,019 (75,000)	153,006 (337,320)
U4718	36,287 (80,000)	171,875 (378,920)
U5024	45,359(100,000)	226,615(499,600)
U6024	49,895(110,000)	242,445(534,500)
U7024	54,431(120,000)	258,003(568,800)

Burner Capacity

Model	Burner Capacity (BTU x 1000)/hr	Burner Capacity (KJ x 1000)/hr	Drying CFM	Drying CMS
U1212	13,457	14,198	62,300	29.4
U1512	16,805	17,730	77,800	36.7
U1812	18,490	19,508	85,600	40.4
U2012	20,434	21,559	94,600	44.6
U2412	23,825	25,137	110,300	52.1
U2518	27,767	29,296	128,550	60.7
U3018	32,011	33,773	148,200	69.9
U3518	37,649	39,722	174,300	82.3
U4018	44,582	47,036	206,400	97.4
U4718	48,859	51,549	226,200	106.8
U5024	59,422	62,694	275,100	129.8
U6024	63,958	67,479	296,100	139.7
U7024	74,196	78,281	343,500	162.1

Tower Dryer Specifications (continued)

Gas Consumption

Model	Max BTU/hr	Max kJ/hr	LPG L(gal)/hr	NG m^3(ft^3)/hr
U1212	13,457,000	14,197,887	553.7(146.3)	381.1(13,457.0)
U1512	16,805,000	17,730,214	691.5(182.7)	475.9(16,805.0)
U1812	18,490,000	19,507,983	760.8(201.0)	523.6(18,490.0)
U2012	20,434,000	21,559,011	840.8(222.1)	578.6(20,434.0)
U2412	23,825,000	25,136,706	980.3(259.0)	674.6(23,825.0)
U2518	27,767,000	29,295,736	1,142.5(301.8)	786.3(27,767.0)
U3018	32,011,000	33,773,393	1,317.1(347.9)	906.5(32,011.0)
U3518	37,649,000	39,721,798	1,549.1(409.2)	1,066.1(37,649.0)
U4018	44,582,000	47,036,500	1,834.4(484.6)	1,262.4(44,582.0)
U4718	48,859,000	51,548,974	2,010.3(531.1)	1,383.5(48,859.0)
U5024	59,422,000	62,693,529	2,444.7(645.9)	1,682.6(59,422.0)
U6024	63,958,000	67,479,262	2,631.3(695.2)	1,811.1(63,958.0)
U7024	74,196,000	78,280,924	3,052.5(806.5)	2,101.0(74,196.0)

Heat capacity of gas used:
Natural Gas: 1,000 btu/ft^3, 43,000 kJ/m^3
LPG: 2,500 btu/ft^3, 101,000 kJ/m^3

Gas pressure supplied to the dryer must be 7psi (0.5 bar), provided by local utility. End user must supply regulator, which must be in accordance with standard BS EN 88 or BS EN 334.

Many factors, such as grain variety, maturity levels, grain cleanliness, weather conditions and operation-management, can affect the performance of your tower dryer and results may vary. This information is calculated and is not a guarantee of product specifications or performance and should only be used to estimate tower dryer performance under normal operating conditions.

Electrical Load Requirements

Note: A Service-Rated, Fused Disconnect needs to be installed ahead of the Dryer power distribution box. This disconnect is not included with the dryer and should be installed by a qualified electrician in accordance with local and national standards.

Caution: The only device connected to this disconnect should be your Grain Dryer.

Note: All current specifications include the Service Factor.

The following charts provide information for the electrician wiring the Grain Dryer. It is recommended that you contact your local Power Company and have a representative inspect the installation to see that your wiring is compatible with their system, and that sufficient power is supplied to your dryer.

Standard electrical safety practices and codes should be used. **IMPORTANT: Any supporting electrical panels or combinations of electrical components supplied by the end user must be compliant with current editions of BS EN ISO 13849-1:2015.**

All electrical work should be completed by a qualified electrician.

Dryer Electrical Specifications

SINGLE FAN MODEL

U1212 Tower Dryer 400 Volts 3PH Main Switch = 250 Amps

	Fan #1	Unload	Total Amp Load
Motor	45 kw 90 Amps	1.1 kw 3.0 Amps	93

SINGLE FAN MODEL

U1812 Tower Dryer 400 Volts 3PH Main Switch = 250 Amps

	Fan #1	Unload	Total Amp Load
Motor	55 kw 100 Amps	1.1 kw 3.0 Amps	103

SINGLE FAN MODEL

U2412 Tower Dryer 400 Volts 3PH Main Switch = 250 Amps

	Fan #1	Unload	Total Amp Load
Motor	75 kw 134 Amps	1.1 kw 3.0 Amps	137

THREE FAN MODEL

U3518 Tower Dryer 400 Volts 3PH Main Switch = 400 Amps

	Fan #1	Fan #2	Fan #3	Unload	Total Amp Load
Motor	45 kw 90 Amps	45 kw 90 Amps	45 kw 90 Amps	1.5 kw 3.4 Amps	273.4

Therm-O-Disc High Temperature Limit Switch

GENERAL ELECTRICAL RATINGS

The 10H series of controls has been rated by major agencies throughout the world. The agency ratings can be used as a guide when evaluating specific applications. However, the mechanical, electrical, thermal and environmental conditions to which a control may be exposed in an application may differ significantly from agency test conditions. Therefore, the user must not rely solely on agency ratings, but must perform adequate testing of the product to confirm that the control selected will operate as intended in the user's application.

Thermostat Type	Maximum Capillary Temperature	Maximum Switchcase Temperature	Resistive Amperes	Volts AC	Cycles	Agency Recognition
10H11	350°F	221°F	25	120/240/277	100,000	UL Guide MBPR2, File MH-5304
10H14	350°F	221°F	25	120/240/277	6,000	CSA File LR19988

NOTE: For complete and current ratings, please consult Therm-O-Disc online at **www.thermodisc.com**

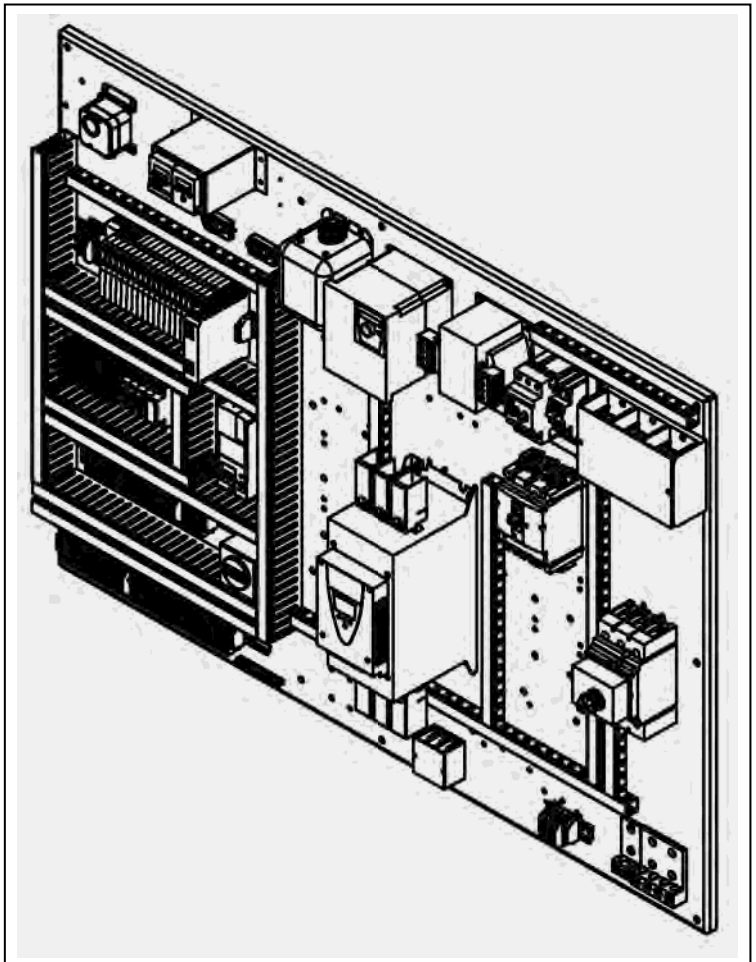
ITEM #	PART #	DESCRIPTION	QTY.
1	J4053	LUG,CONTACTOR,350MCM CULVER,TA350	6
2	J40471	LUG,COVER,FOR ATS22, CULVER LA9F702, 6/PK	1
3	J4051	LUG,GROUND,4 HOLE,250MCM CULVER,4250L4	1
4	J4052	LUG,GROUND.2 HOLE,250MCM CULVER,NSI, N/A	1
5	J47412	RACEWAY,1X3, CULVER,PC1030LS	8
6	J4766	HOURMETER,115V,60HZ, #711-0150 ALLIED 620-4016	1
7	J47902	BAR,GROUND,9 HOLE ALUM., PK9GTA, CULVER	1
8	J48189	BREAKER,CIRCUIT,1PH,2POLE,480V	2
9	J48190	BREAKER,CIRCUIT,1PH,1/2A,250V	1
10	J48191	BREAKER,CIRCUIT,1PH,3AMP,250V	2
11	J48194	BREAKER,CIRCUIT,1PH,7AMP,250V	1
12	J48951	TRANSFORMER,380V-120V,1 KVA. CULVER	1
13	J52121	SWITCH,MAIN,250A,3PH (JGL36000S25)	1
14	J5233	STARTER,PROTECTOR,2.5-4 AMPS, (GV2ME08)	1
15	J5241	STARTER,PROTECTOR,90-150 AMPS	1
16	J52412	LUG,BOX,FOR J52411 (GV7AC022) 3 PER PK	2
17	J52413	SHUNT,TRIP,FOR GV7 SERIES SP GV7AS107 110V	2
18	J5263	AUX CONTACT (GV7-AE11)	1
19	J5614	RELAY,TIMER,RE11RAMU ON DELAY,24-230V	1
20	J5710	TRANSFORMER,IGNITION,A06-SA6	1
21	J57134	MODULE,PROG,PME73.840A1 FOR LME 73, SIEMENS	1
22	J57136	CONTROL,GAS,BURNER.LME73.000A1, SIEMENS	1
23	J5868	SWITCH,AIR,DUNGS, LGW10 A2	1
24	J6690	BLOCK,DISTRIBUTIOIN,3PH,2/0	1
25	J6691	COVER,FINGER SAFE,FOR J6690, CULVER,9080LB23	1
26	J6696	COVER,ASSY, 3P9080LB51 M.C. GLASS	1
27	J6697	BLOCK,POWER DIST.,STACK, LBA365208	1
28	J6706	COVER ASS'Y,9070FSC-2	2
29	J6718	RAIL,DIN,1111.013 (2M/PC) 35MMX7.5MM PLTD	80
30	J67401	RACEWAY,1",SLA1X1G	11
31	J67411	COVER,RACEWAY,1",TC1G4	19
32	J67421	TERMINAL,FEED THRU,70 AMP (011 512 017)	4
33	J6754	STOP,DIN END	29
34	J67697	MECHANISM,IEC OPER,250AMP,SQD,S29338,MECH ONLY	1
35	J67801	DISPLAY,REMOTE,VFD,FOR ATV312	1
36	J67803	DISPLAY,REMOT,SFT ST,VW3G22101	1
37	J6851	DRIVE UNIT,AC,3HP 460V 3P, (ATV31HU22N4)	1
38	J6868	STRTR,MTR,SFTST,110A,ATS22C11S6U,2V-30HP,6V-100HP	1
39	J6904	TERMINAL,PARTITION,PHOENIX	6
40	J6905	BRIDGE,TERM,2-TERM,PHOENIX,CRESCENT	6
41	J6907	BRIDGE,TERM,4-TERM,PHOENIX,CRESCENT	4
42	J6915	TERMINAL, PIT 2,5 TWIN,PHOENIX	128
43	J6916	TERMINAL,COVER,PIT 2,5-PHOENIX	14
44	J6920	TERMINAL,GROUND,PHOENIX	2
45	J8700	PLC,PHOENIX,ILC150	1
46	J8701	SLICE I/O,DI4ME,PHOENIX	2
47	J8702	SLICE I/O,DI16ME,PHOENIX	1
48	J8703	SLICE I/O,DO4ME,PHOENIX	1
49	J87031	SLICE,I/O,D016ME,PHOENIX	1
50	J8704	SLICE I/O,AI2/SF-ME,PHOENIX	3
51	J8705	SLICE I/O,AO2ME,PHOENIX	1
52	J8706	SUPPLY,POWER,TRIO,PHOENIX	1
53	J8772	RELAY, 24VDC, PT PHOENIX #2900299 CESCO #801746	22
54	J8774	RELAY, 110VAC, PHOENIX PT PHOENIX #2900304	4
55	T16530	BRACKET,HOURMETER,PORT DRYER	1
56	T80334	BRACKET,AIR SWITCH,DUNGS,CE DRYER	1
57	U12265	PLATE,INT,MOUNTING,5'X4',2011 TOWER DRYER	1
58	U12386	MOUNT,DISPLAY,TWR DRYR PWR BOX	1
59	U17018	TRANSMITTER,RTD,GRAY,100 OHM TOWER	1
60	U17028	TRANSMITTER,RTD,BLACK,1000 OHM TOWER	1

Model U2412 Uses J5234 J52411

Model U1212 Uses J6868

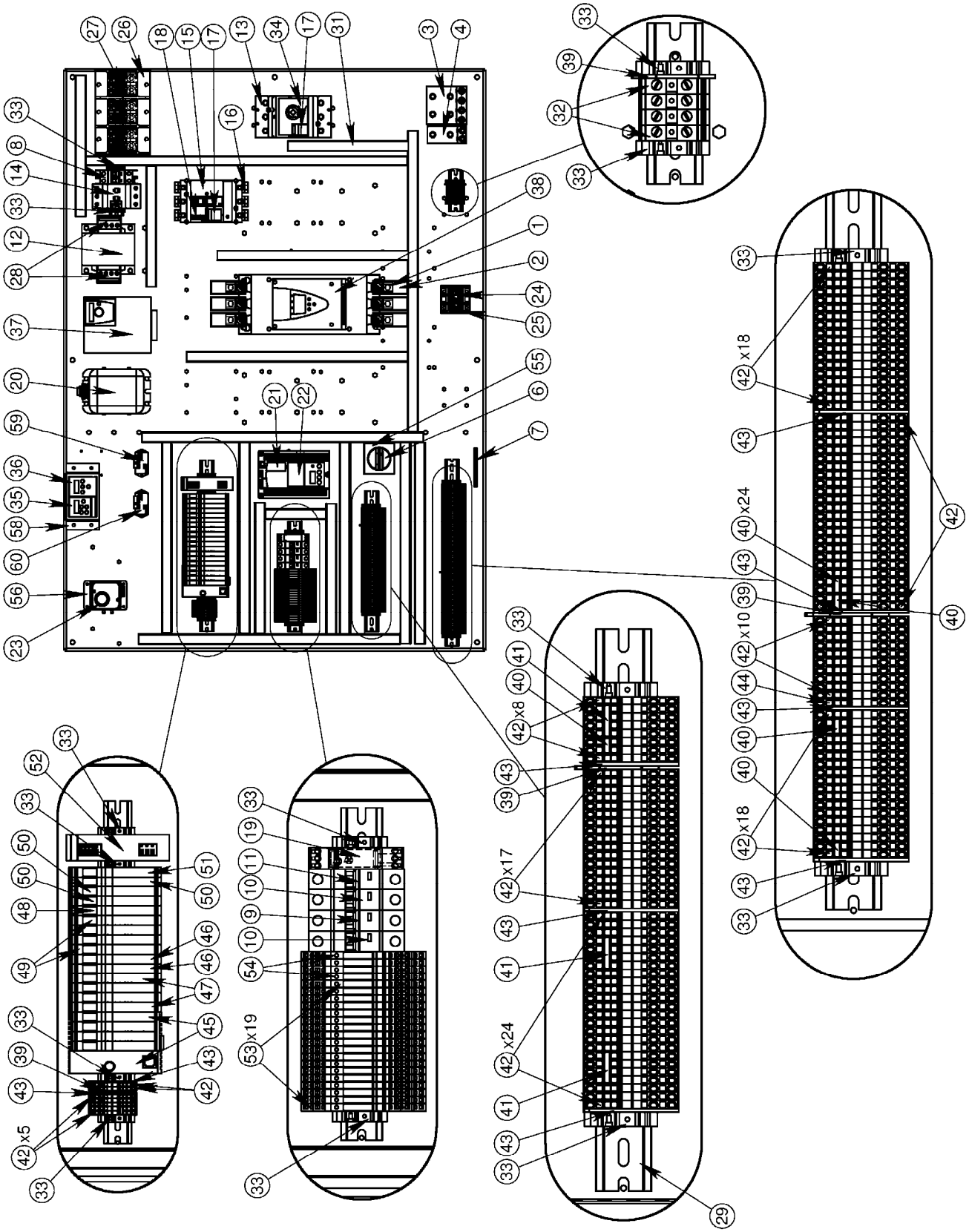
U1812 Uses J6869

U2412 Uses J6870

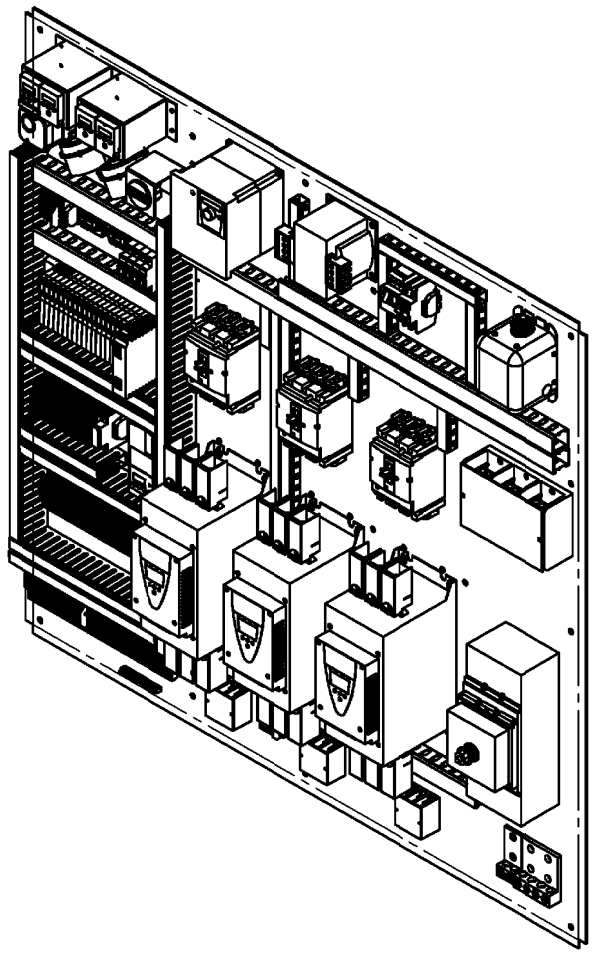


07/07/2014
TOWER DRYER CONTROL BOX
COMP. ELEC. 380V. 1x50/60 HP

U1212, U1812, U2412 Tower Dryer Control Box



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	J4046	LUG, CONTACTOR, DZ2FH1 FOR J6078(TOWER)	18
2	J40471	LUG,COVER,FOR ATS22 CULVER, LA9F702	18
3	J4051	LUG, GROUND, 4 HOLE, 250 MCM CULVER, 4250L4	1
4	J4052	LUG,GROUND,2 HOLE, 250 MCM CULVER, NSI, 2250L2	1
5	J47412	RACEWAY,1X3,PANEL CHANNEL, CULVER HAHN, PC1030LS	8
6	J4766	HOURMETER, 115V, 60HZ	1
7	J47902	GROUND BAR, 9 HOLE ALUM (PK9GTA)	1
8	J48189	BREAKER, CIRCUIT, 1 PH, 2 POLE, 480V, 3 AMP	1
9	J48190	BREAKER, CIRCUIT, 1PH, 250V, 0.5 AMP	1
10	J48191	BREAKER, CIRCUIT, 1PH, 250V, 3 AMP	2
11	J48194	BREAKER, CIRCUIT, 1PH, 250V, 7 AMP	1
12	J48951	TRANSFORMER, 380V-120V,1 KVA, CULVER	1
13	J52143	SWITCH, MAIN, 600 AMP, 3 POLE, MHL360006M, DJL36000S60	1
14	J5236	STARTER, PROTECTOR, 6-10 AMPS (GV2ME14)	1
15	J5241	STARTER, PROTECTOR, 90 - 150 AMP	3
16	J52412	LUG BOX,FOR J5241	18
17	J52413	SHUNT, TRIP, 110 V TOWER	4
18	J5263	AUX CONTACT (GV7-AE11)	3
19	J5614	RELAY, TIMER, RE11RAMU	1
20	J5710	TRANSFORMER, IGNITION, A06-SA6	1
21	J57134	MODULE,PROGRAMMING,PME73.840A,FOR LME 73,SIEMENS	1
22	J57136	CONTROL,GAS BURNER,LME73.000A, SIEMENS	1
23	J5860	AIR SWITCH, B1 - IC - 31, MOD R74	2
24	J5868	SWITCH, AIR,DUNGS,LGW10A2	1
25	J6690	BLOCK, DISTRIBUTION, 3PH, 2/0	3
26	J6691	COVER,FINGER SAFE, FOR J 6690, CULVER 9080LB23	3
27	J6696	COVER, ASS'Y, 3P9080LB51 M.C. GLASS, FOR J6697	1
28	J6697	BLOCK, POWER DISTRIBUTION, STACK	1
29	J6706	COVER ASSY	2
30	J6718	RAIL, DIN, 8501NT13	8
31	J6740	RACEWAY, 1.5"	5
32	J67401	RACEWAY, 1"	10
33	J6741	COVER, 1.5" RACEWAY	5
34	J67411	COVER, 1" RACEWAY	18
35	J67421	TERMINAL, FEED THRU, 70 AMP	4
36	J6754	STOP, DIN END	17
37	J67698	MECHANISM,IEC OPERATOR,400 AMP,600 AMP	1
38	J67801	DISPLAY, TERMINAL, REMOTE,VFD	1
39	J67803	DISPLAY, TERMINAL, REMOTE,SOFT START	3
40	J6851	DRIVE UNIT, AC,3HP,460V,3PH	1
41	J6869	STARTER,MOTOR,SOFTSTART,140A,ATS22C14S6U	3
42	J6904	TERMINAL, PARTITION, PHOENIX	4
43	J6905	BRIDGE,TERM,2-TERM,PHEONIX CRESCENT ELECTRIC	6
44	J6907	BRIDGE,TERM,4-TERM,PHEONIX CRESCENT ELECTRIC	3
45	J6915	TERMINAL, TWIN, PHOENIX	134
46	J6916	TERMINAL, COVER, TWIN, PHOENIX	9
47	J6920	TERMINAL, GROUND, PHOENIX	1
48	J8700	SLICE, ILC150, PHOENIX	1
49	J8701	SLICE, I/O DI14ME, PHOENIX	2
50	J8702	SLICE, I/O DI16ME, PHOENIX	1
51	J8703	SLICE, I/O DO4ME, PHOENIX	1
52	J87031	SLICE, I/O DI16ME, PHOENIX	1
53	J8704	SLICE, I/O AI2ME, PHOENIX	3
54	J8705	SLICE, I/O AO2ME, PHOENIX	1
55	J8706	POWER SUPPLY, TRIO, PHOENIX	1
56	J8724	RELAY,BASE,SPRING CAGE, DC,24V	22
57	J8726	RELAY,BASE,SPRING CAGE, AC, 110V	4
58	T16530	BRACKET, HOURMETER, PORT DRYER	1
59	T80334	BRKT, AIR SWITCH, DUNGS	1
60	U12386	MOUNT, DISPLAY, TWR DRYER	2
61	U12388	PLATE,INTERIOR MOUNTING,5X5 SPLIT	1
62	U17016	TRANSMITTER, RTD, GRAY, 100 OHM, TWR DRYER	1
63	U17026	TRANSMITTER, RTD, BLACK, 1000 OHM, TWR DRYER	1



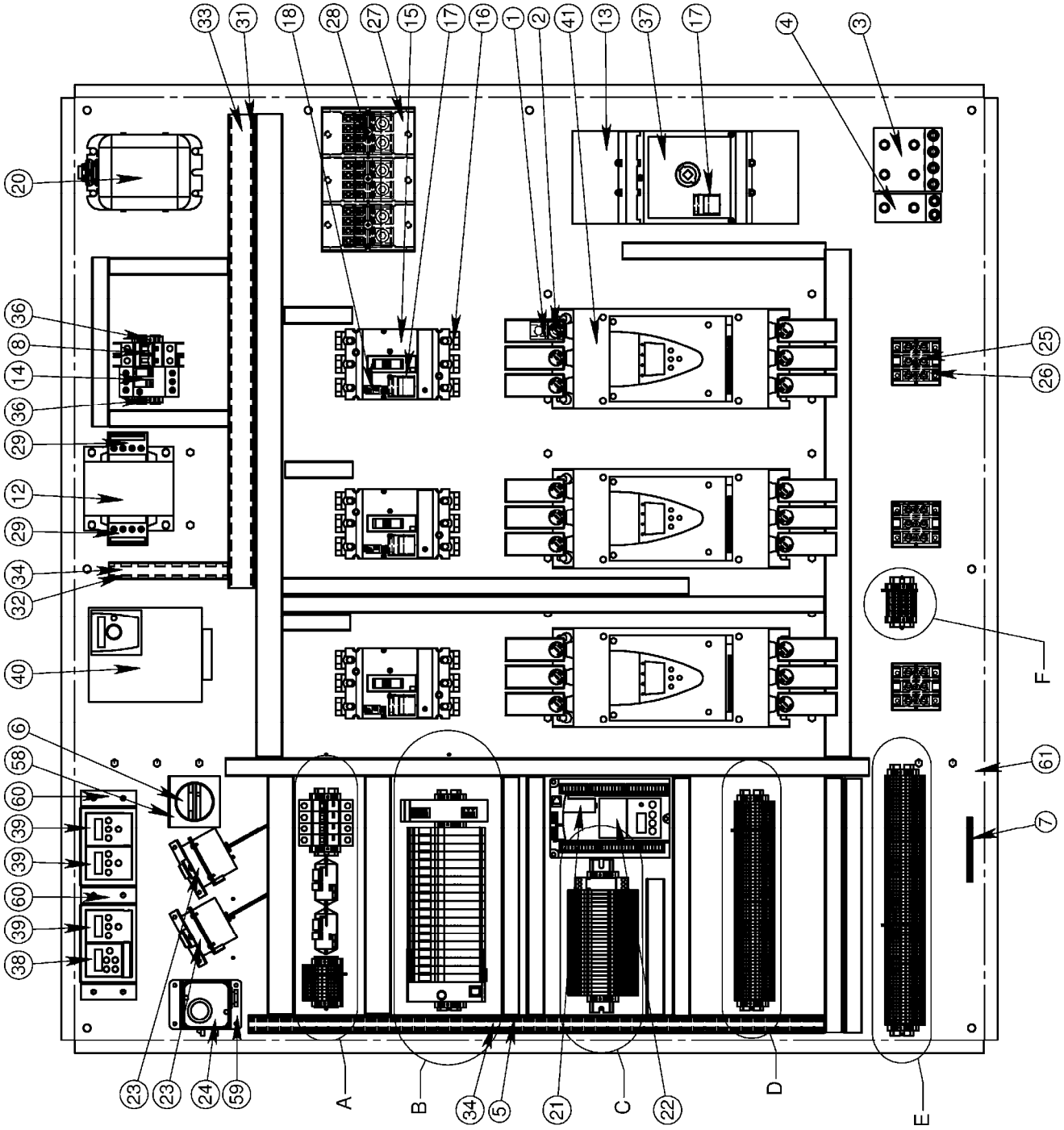
REV.	DESCRIPTION OR ENG. ORDER #	DATE	BY
REVISIONS			

TOLERANCE UNLESS SPECIFIED
.X = ± .050
.XX = ± .010
.XXX = ± .005
FRAC = ± 1/32
= ± 1°

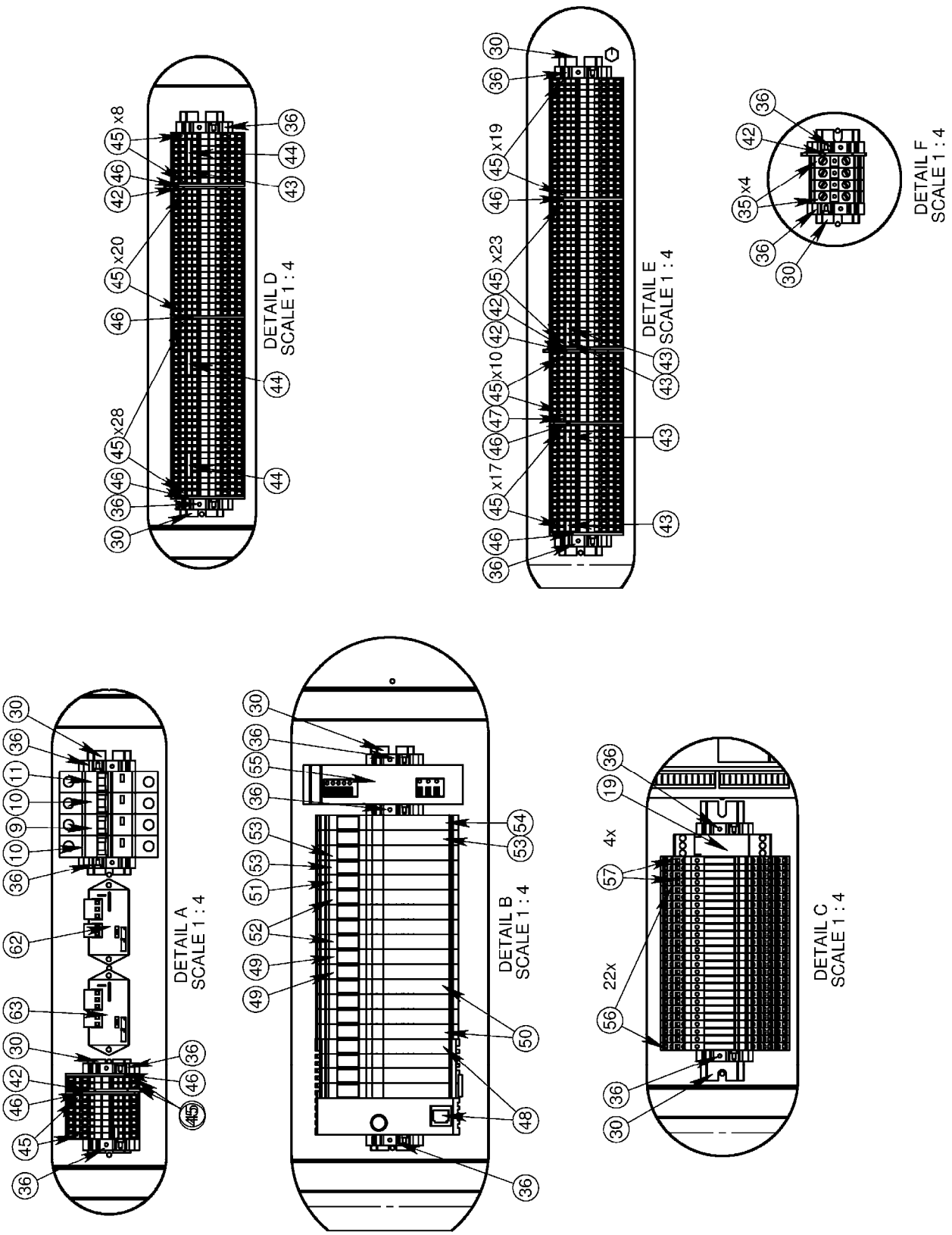
SUKUP MFG. CO.
SUKUP PARKWAY
SHEFFIELD, IA. 50475

DRAWN BY CSH	RAW MAT'L NO.	PART NO. U189986
DATE 7/2/2012	MATERIAL	
USED IN ASS'Y OF TOWER DRYER CONTROL BOX		WEIGHT
DESCRIPTION COMP,ELEC,380V,3x75 HP		SHEET: 1 OF 3

U3518 Tower Dryer Control Box



U3518 Tower Dryer Control Box



Training Register – Tower Grain Dryer

Training on operation of a Sukup Tower Dryer and related equipment is paramount to ensuring safe and successful use of the dryer.

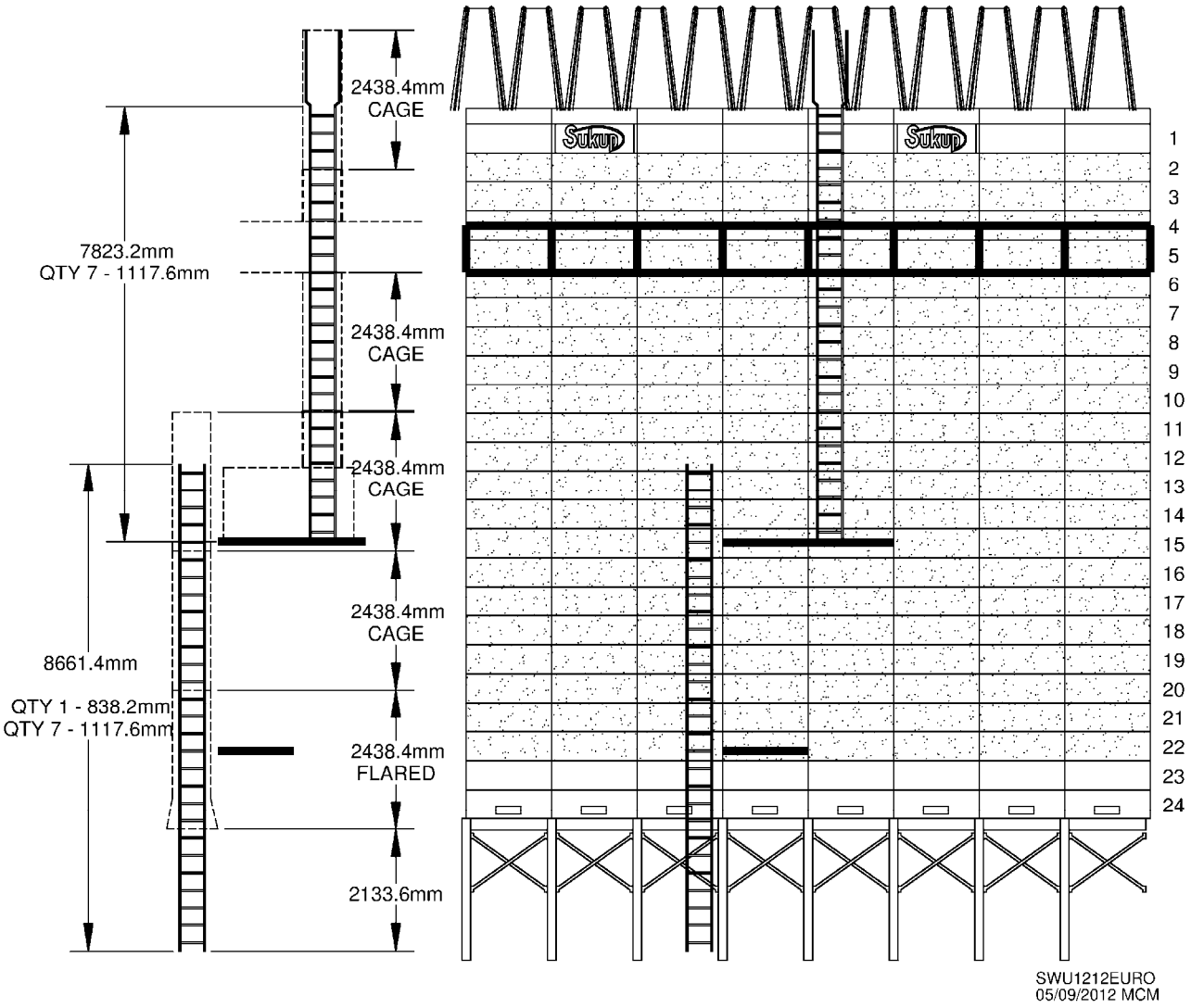
This training register is to be used in conjunction with the general operation and maintenance instructions to emphasize the importance of safety. Use additional spaces for elements unique to your dryer.

NOTE: It is the owner's responsibility to give adequate training to employees and to assess their ability to safely use the equipment.

Element	Date	Comments
Prior to start-up, inspect: - burner unit for blockage of ports or holes - wiring for loose connections or damage - belts for tension, cracks or wear - moisture sensor for buildup inside tube - fuel train, pipework, valves, filters for leaks - pipetrain drain valve for water; then close - rotor for obstruction - should turn freely		
Power shut off Fuel system shut off		
ATEX training Safe practice		
Action in event of emergency/fire		Use ABC (dry chemical) fire extinguisher
Alarms – what to do		
PPE (Personal Protective Equipment)		
Cleaning/maintenance and safe access to plenum - Isolate power to dryer; lock out		Follow maintenance procedures in operation manual
Entry into confined spaces Authorized personnel only Safe practice and access		Confined space entry training
Maintenance of the dryer - Problem solving - Isolate power to dryer; lock out - Authorized personnel only to work on gas train/electrical - Perform a check at start of each season to confirm dryer does not start with rear access door interlock disengaged.		Use lifting device with safety cage to access top sections outside of dryer.
Best practices for grain drying		Sunflower seeds and canola require a low temperature setting

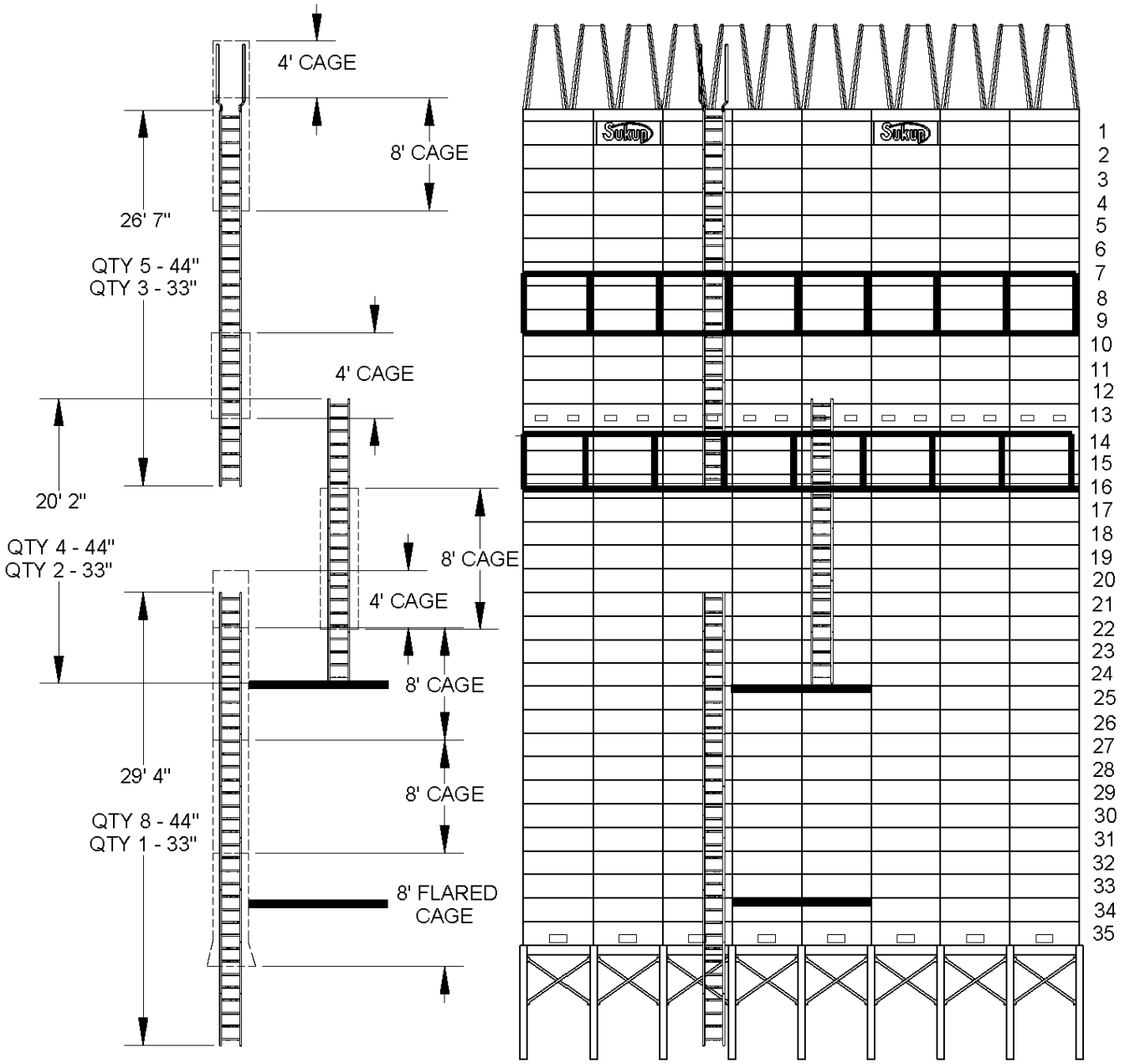
LADDER PLACEMENT, 1212 TOWER DRYER

Illustration below shows ladder and cage locations referring to a flat Tower Dryer view



LADDER PLACEMENT, 1812 TOWER DRYER

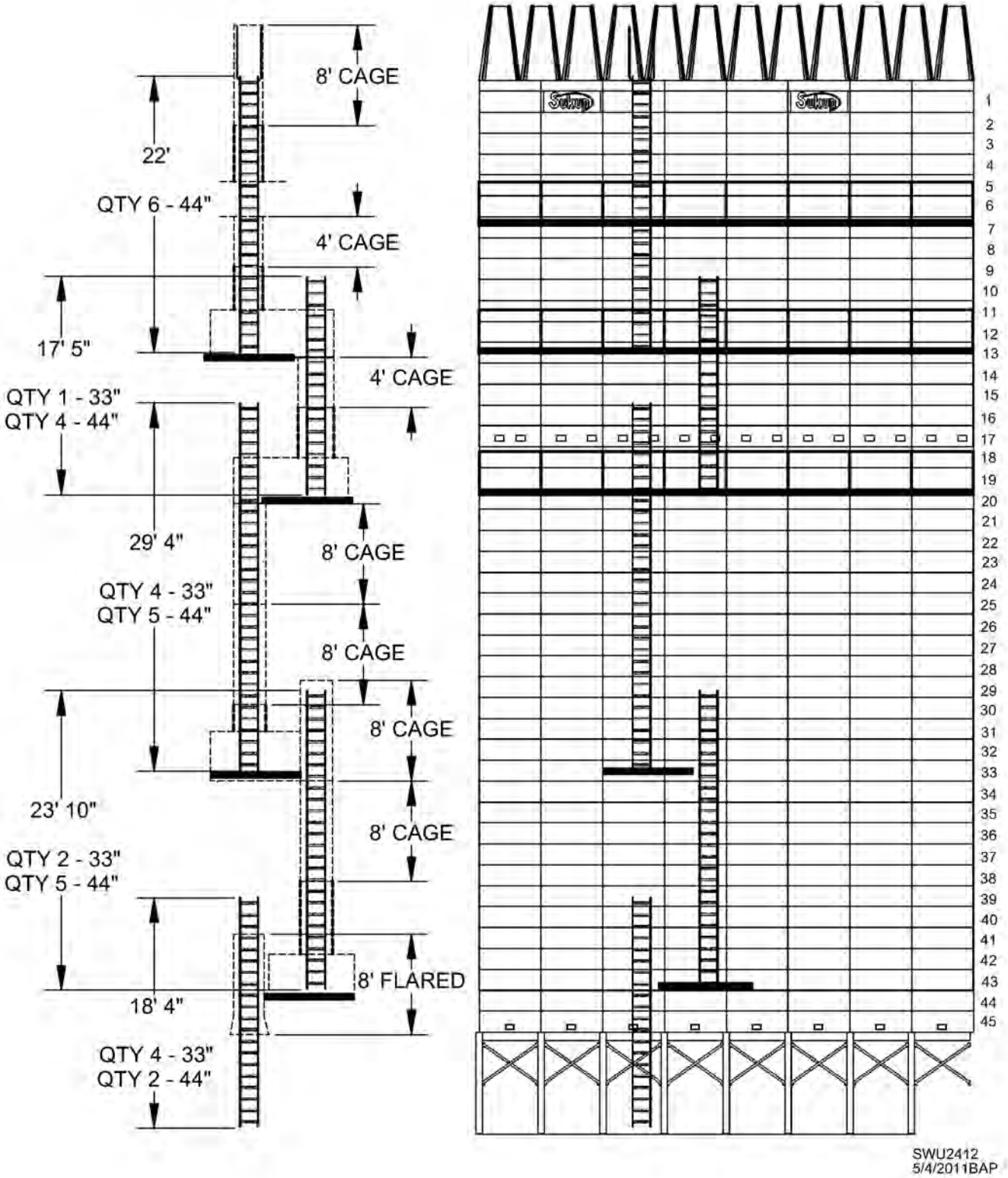
Illustration below shows ladder and cage locations referring to a flat Tower Dryer view



SWU1812
4/6/2011BAP

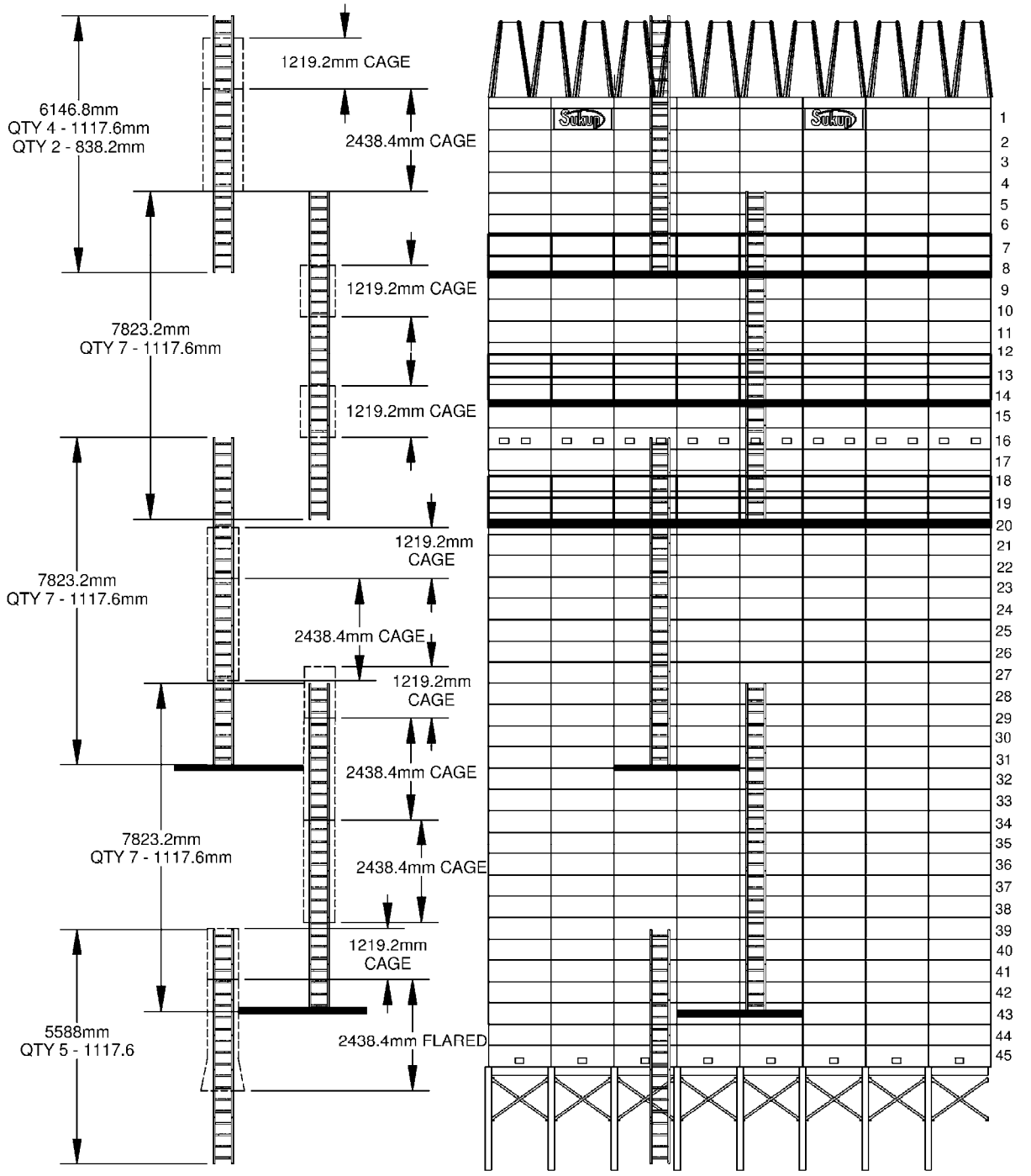
LADDER PLACEMENT, 2412 TOWER DRYER

Illustration below shows ladder and cage locations refering to a flat Tower Dryer view



LADDER PLACEMENT, 3518 TOWER DRYER

Illustration below shows ladder and cage locations referring to a flat Tower Dryer view



SWU3518EURO
05/09/2012MCM

Contact Information

Additional copies of this supplemental manual are available from Sukup at the address, phone number, or e-mail address shown below. Please indicate manual number L13892EU (Under Declaration of Incorporation) when requesting the EU Supplemental Manual for Tower Grain Dryer. This manual is a supplement to Tower Dryer Operation Manual L13892.

Sukup Manufacturing Co.
1555 255th Street, Box 677
Sheffield, Iowa USA 50475-0677
Phone: 641-892-4222 Fax: 641-892-4629
Website: www.sukup.com Email: info@sukup.com