***MiTek*®**
Machinery Division

Service Bulletin

Machinery Affected:	***Cyber*®, *Cyber*® *A/T*, *SmartSet*®, and *SmartSet*® *Pro* Saws**
Document:	**SB180**
Title:	**Replacing a *GE*® AF-300 E11 VFD with a *GE* AF-300 Mini VFD**
Applies To:	**All *Cyber* and *Cyber A/T* Saws Shipped Before 15 November 2007, All *SmartSet* and *SmartSet Pro* Saws Shipped before 1 November 2007**

MiTek
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Item #	SB180 Rev. A
Revised	26 March 2009
Revised By	R. Tucker
Date Created	25 October 2007
Created By	R. Widder
Reviewed by	R. Tucker
Approved by	G. McNeelege
Applicability	77500-501, 60000-530
Effectivity	*Cyber* and *Cyber A/T* saws shipped before 15 November 2007, *SmartSet* and *SmartSet Pro* saws shipped before 1 November 2007

Purpose and Scope

The *Cyber*®, *Cyber A/T*, *SmartSet*®, and *SmartSetPro* saws use *GE*® AF-300 E11 VFDs (variable frequency drives) that have been discontinued. If these VFDs require replacement, they must be replaced with the new AF-300 Mini VFD.

Overview

The parts included in each kit are shown in Table 1 through Table 3. Please ensure all parts are present before starting this procedure.

Table 1: Parts for ANGLE and/or CENTERLINE VFD Replacement

Saw Model		*Cyber A/T*	*Cyber*	*SmartSet Pro* (angle)	*SmartSet*
Qty.	**Part Description**	**SB180KIT-A**	**SB180KIT-J**	**SB180KIT-D**	**N/A**
1	Service Bulletin	SB180A	SB180D	SB180B	N/A
1	VFD, 1hp	94001	94026	94004	N/A
1 ea	Drawing included	90507	92034	90129	N/A

Table 2: Parts for CARRIAGE VFD Replacement

Saw Model		*Cyber A/T*	*Cyber*	*SmartSet Pro*	*SmartSet*
Qty.	**Part Description**	**SB180KIT-B**	**SB180KIT-K**	**SB180KIT-E**	**SB180KIT-G**
1	Service Bulletin	SB180A	SB180D	SB180B	SB180C
1	VFD, 2hp	94002	94027	94005	94007
4	8-32x1/2" round head machine screw	341068	341068	341068	341068
1 ea	Drawings included	90507	92034	90129	90124

Table 3: Parts for INFEED VFD Replacement

Saw Model		*Cyber A/T*	*Cyber*	*SmartSet Pro*	*SmartSet*
Qty.	**Part Description**	**SB180KIT-C**	**SB180KIT-L**	**SB180KIT-F**	**SB180KIT-H**
1	Service Bulletin	SB180A	SB180D	SB180B	SB180C
1	VFD, 2hp	94003	94028	94006	94008
4	8-32x1/2" round head machine screw	341068	341068	341068	341068
1 ea	Drawings included	90507	92034	90129	90124

Before beginning the procedure, gather the supplies listed in Table 4.

Table 4: Customer-Supplied Items

Qty.	Part Description
1	Phillips screwdriver set
1	Drill
1	#29 drill bit
1	8/32 tap
1	Marker or grease pencil

If you have any questions, call MiTek Machinery Division Customer Service at 800-523-3380.

Procedure

Electrical Lockout/Tagout Procedures

	WARNING
	ELECTROCUTION HAZARD! **Verify that all power to the machine has been turned off and follow approved lockout/tagout safety procedures before performing any maintenance.** **All electrical work must performed by a qualified electrician.** **If it is absolutely necessary to troubleshoot an energized machine, follow NFPA 70E for proper procedures and personal protective equipment.**

Before opening the main electrical enclosure, or attempting to repair or replace an electrical transmission line to the machine, lockout/tagout the machine properly. Follow your company's approved lockout/tagout procedures which should include, but are not limited to the steps here.

1. Engage an E-stop on the machine.
2. Turn the machine's disconnect switch to the "off" position. This is usually required to open the main electrical enclosure's door.
3. Shut the power to the machine off at the machine's power source which is usually an electrical service entry panel on the facility wall. One example of a locked-out power source panel is shown in Figure 1.
4. Attach a lock and tag that meets OSHA requirements for lockout/tagout to the electrical service entry panel.
5. Open the door to the enclosure in which you need access, and using a multimeter, verify that the power is off.

Figure 1: Lockout/Tagout on the Power Source Panel

Pneumatic System Lockout/Tagout Procedure

	WARNING
	MOVING PARTS CAN CRUSH AND CUT. **Always verify that power to the machine has been turned off and follow approved lockout/tagout procedures.** **Turn off the air switch before performing any maintenance on the equipment.**

	WARNING
	HIGH PRESSURE HAZARD. **Bleed pneumatic before performing any maintenance on the pneumatic system.**

Replacing the VFD

Removing the VFD

1. Disconnect all wiring from the VFD, noting how it is wired.
2. Unscrew and remove the hardware attaching the VFD. Keep the hardware for re-use.
3. Remove the VFD.

Attaching the New VFD (1-hp VFD)

1. Place the new VFD in the same location as the VFD you removed.
2. Mark the location of the VFD mounting holes on the enclosure.
3. Remove the VFD.
4. Drill holes at the marked locations using a #29 drill bit. Drill the holes from the inside of the enclosure to the outside. Cover electrical components with clean rags if there is a risk of shavings falling onto them.
5. Tap the holes to 8/32.
6. Attach the VFD using the same hardware you removed and tighten the screws.
7. Vacuum any debris out of the electrical enclosure.

CAUTION

Do not use compressed air to blow out debris in the electrical enclosure! This may force contaminants into components. NEVER use water in an electrical enclosure.

Attaching the New VFD (2-hp VFD).

1. Place the new VFD in the same location as the VFD you removed
2. Attach the VFD using the 8-32x1/2-in. screws provided in your kit.
3. Tighten the screws.
4. Vacuum any debris out of the electrical enclosure.

Figure 2: New 2hp VFD on a *Cyber A/T* Saw

Connecting the VFD (*Cyber A/T* Saw)

Some wires with butt splices are preconnected to the VFD before shipping. If the drawing indicates you should connect a wire to that terminal, connect it to the butt splice, then crimp the splice into place as seen in Figure 3.

Figure 3: Crimp Butt Splice

To connect wires to the new VFD, find the correct VFD on Drawing 90507. Connect the wires as indicated in Table 5.

Table 5: Old and New Terminal Connections, *Cyber A/T* Saw

Wire	Old Terminal	New Terminal
T#A/B/C-L1	R	R
T#A/B/C-L2	S	S
T#A/B/C-L3	T	T
T#B-T1	U	U
T#B-T2	V	V
T#B-T3	W	W
1T	C	C, and may also daisy chain to other VFDs
VFD Fault	B	B
Common	CM	CM
Common	11	11
+10V	12	12
REV/RAISE	REV	REV
FWD/EXTEND	FWD	FWD
RESET	X5	**X3**
+24 VDC	Y1	Y1
-24 VDC	CME	Y1E

Connecting the VFD (*Cyber* Saw)

Some wires with butt splices are preconnected to the VFD before shipping. If the drawing indicates you should connect a wire to that terminal, connect it to the butt splice, then crimp the splice into place as seen in Figure 3.

To connect wires to the new VFD, find the correct VFD on Drawing 92034. Connect the wires as indicated in Table 6.

Table 6: Old and New Terminal Connections, *Cyber* Saw

Wire	Old Terminal	New Terminal
T#A/B-L1	R	R
T#A/B-L2	S	S
T#A/B-L3	T	T
T#B-T1	U	U
T#B-T2	V	V
T#B-T3	W	W
1S	C	C, and may also daisy chain to other VFDs
VFD Fault	B	B
Common	SD	**CM**
Common	5	**11**
+10V	2	**12**
REV/UP	STR	**REV**
FWD/DOWN	STF	**FWD**

Connecting the VFD (*SmartSet Pro* Saw)

Some wires with butt splices are preconnected to the VFD before shipping. If the drawing indicates you should connect a wire to that terminal, connect it to the butt splice, , then crimp the splice into place as seen in Figure 3.

To connect wires to the new VFD, find the correct VFD on Drawing 90129. Connect the wires as indicated in Table 7.

Table 7: Old and New Terminal Connections, *SmartSet Pro* Saw

Old Terminal	New Terminal
R	R
S	S
T	T
U	U
V	V
W	W
CM	CM
X1	X1
X2	X2
X3	X3
X5	—
VFD Fault	**30A**
1	**30C, and may also daisy chain to other VFDs**
REV	REV
FWD	FWD

Connecting the VFD (*SmartSet* Saw)

Some wires with butt splices are preconnected to the VFD before shipping. If the drawing indicates you should connect a wire to that terminal, connect it to the butt splice, then crimp the splice into place as seen in Figure 3.

To connect wires to the new VFD, find the correct VFD on Drawing 90124. Connect the wires as indicated in Table 8.

Table 8: Old and New Terminal Connections, *SmartSet* Saw

Old Terminal	New Terminal
R	R
S	S
T	T
U	U
V	V
W	W
CM	CM
REV	REV
FWD	FWD
11	11
12	12
13	13

END OF SERVICE BULLETIN

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE
U	10/02/07	SEE ECO #6540	LWS			
V	11/08/07	MOVED VFD PARAMETERS SEE ECO-6563	GB			

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE
M	2/14/00	UPDATE DWG.	SDH			
N	12/17/03	SEE ECN# 5155	IL			
O	12/17/03	ELECTRICAL DRAWING CHANGES ONLY SEE PAGE 5	GI			
P	4/23/04	NEW VFDs, SEE ECN 5174	IL			
R	6/9/04	FOR ALL VFD ANGLES, ADDED JUMPER X3-CM REMOVED PARAMETER C05, ADDED, C08 AND C09	DKM			
S	8/16/04	NEW 5HP & 10HP SAW MTRs, SEE ECN 5192	IL			
T	8/07/05	NEW 2HP VFD PARAMETER SEE ECN 5245	GB			

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE
B	10/6/98	UPDATE WIRE LABELS AND ADDED VFD PARAMETER CHART	STRIDSEL			
C	1-14-99	REV'S ON Pg's 1,7,10,11,13,18. SEE ECN 2689.	GeB			
D	2-4-99	UPDATE ELECTRICAL WITH MORE DETAILS END-TO-END CBL/AUX. DS-1/PANEL LAYOUT	VDC			
E	2/15/99	CHANGE COLOR WIRES ON THE ENCODER	DK			
F	3-4-99	CALL-OUT CHANGES ON Pg'S 8,11,12.	GCB			
G	4-30-99	ECN #2813	VDC			
H	6-14-99	SIZE ECN# 2842	GCB			
I	7-1-99	DESCRIPTION CHANGES Pg 14 - ITEM'S 41,42,46.	GCB			
J	8-12-99	SEE ECR 2897	GCB			
K	9-23-99	ADDED ITEM 103, QTY #25 WAS 158 NOW 170 QTY #28 WAS 20 NOW 22. ECR 2937.	SDH			
L	10/15/99	ELECTRICAL DWG CHANGES ONLY PAGE 5	VDC			

US MOTORS 5 & 10 HP SAW BLADE MTRs FRAME #403 & ONWARD

230 VAC
3 PHASE 60 Hz
INCOMING POWER
1L1 1L2 1L3

GND

CB-1
150A

2L1 2L2 2L3

POWER DIST. BLOCK

14.5-18A

2L1 — FU-S1 25A — S1L1 — MS-S1 — #10 AWG — OL-S1 — S1T1
2L2 — FU-S1 25A — S1L2 — MS-S1 — OL-S1 — S1T2
2L3 — FU-S1 25A — S1L3 — MS-S1 — OL-S1 — S1T3

MTR-S1

QUADRANT 1
SAW MOTOR
5 H.P.
208-230V/460V
14.01-13.00/6.50 FLA

14.5-18A

2L1 — FU-S2 25A — S2L1 — MS-S2 — #10 AWG — OL-S2 — S2T1
2L2 — FU-S2 25A — S2L2 — MS-S2 — OL-S2 — S2T2
2L3 — FU-S2 25A — S2L3 — MS-S2 — OL-S2 — S2T3

MTR-S2

QUADRANT 2
SAW MOTOR
5 H.P.
208-230V/460V
14.01-13.00/6.50 FLA

24-32A

2L1 — FU-S6 50A — S6L1 — MS-S6 — #8 AWG — OL-S6 — S6T1
2L2 — FU-S6 50A — S6L2 — MS-S6 — OL-S6 — S6T2
2L3 — FU-S6 50A — S6L3 — MS-S6 — OL-S6 — S6T3

MTR-S6

QUADRANT 6
SAW MOTOR
* OPTIONAL *
10 H.P.
208-230V/460V
27.50-24.80/12.40 FLA

2.5-4.1A

2L1 — FU-W1 10A — W1L1 — WL1 — MS-W1 — #14 AWG — OL-W1 — W1T1
2L2 — FU-W1 10A — W1L2 — WL2 — MS-W1 — OL-W1 — W1T2
2L3 — FU-W1 10A — W1L3 — WL3 — MS-W1 — OL-W1 — W1T3

MTR-W1

WASTE CONVEYOR
DRIVE MOTOR
1 H.P.
3.6 FLA

2L1 2L2 2L3 W1L1 W1L2 W1L3

NOTES: 1.1) OBSERVE FOLLOWING COLOR CODES FOR WIRING

BLACK.....ALL AC POWER
RED.....ALL AC CONTROL
ORANGE.....ALL DC ZERO VOLTS
DK BLUE...DC CONTROL & +24VDC
LT BLUE...DC SIGNAL
GREEN.....GROUND
WHITE.....NEUTRAL

1.2) RUNGS 110-112, OMIT IF BLADE 6 NOT INSTALLED

LEGEND:

STATIONARY END TERMINAL	◇
CARRIAGE END TERMINAL	⊘
CONTROL PANEL TERMINAL	□
END-TO-END CABLE	— — — — — — — — — —
CONTROL PANEL CABLE	----------

230 VAC
3 PHASE 60 Hz

2L1 2L2 2L3

W1L1 W1L2 W1L3

1.8-2.7A

W1L1 — MS-W2 — #14 AWG — OL-W2 — W2T1
W1L2 — MS-W2 — OL-W2 — W2T2
W1L3 — MS-W2 — OL-W2 — W2T3

MTR-W2

INCLINE CONVEYOR
DRIVE MOTOR
1/2 H.P.
2.2 FLA

2L1 — FU-M1 15A — 4L1 — CR-M1 — #14 AWG — M1L1 — L1 W — #14 AWG — A1T1
2L2 — FU-M1 15A — 4L2 — CR-M1 — M1L2 — L2 V — A1T2
2L3 — FU-M1 15A — 4L3 — CR-M1 — M1L3 — L3 U — A1T3

VFD-A1

MTR-A1

QUADRANT 1
ANGULATION MOTOR
1/15 H.P.
.5 FLA

GROUND MOTOR AT VFD

CB-2
80A

3L1 3L2 3L3

#4 AWG/4COND.
S.O. CABLE

3L1 3L2 3L3 GND

CONTINUED ON SHEET 3

1-1.5A

M1L1 — MS-C1U — #14 AWG — OL-C1 — C1T1
M1L2 — MS-C1U — OL-C1 — C1T2
M1L3 — MS-C1U — OL-C1 — C1T3

MS-C1D
MS-C1D
MS-C1D

MTR-C1

QUADRANT 1
CENTERLINE MOTOR
1/4 H.P.
1.2 FLA

M1L1 M1L2 M1L3

CONTINUED ON SHEET 2

A	X	X	X	X	X	
KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS

ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.

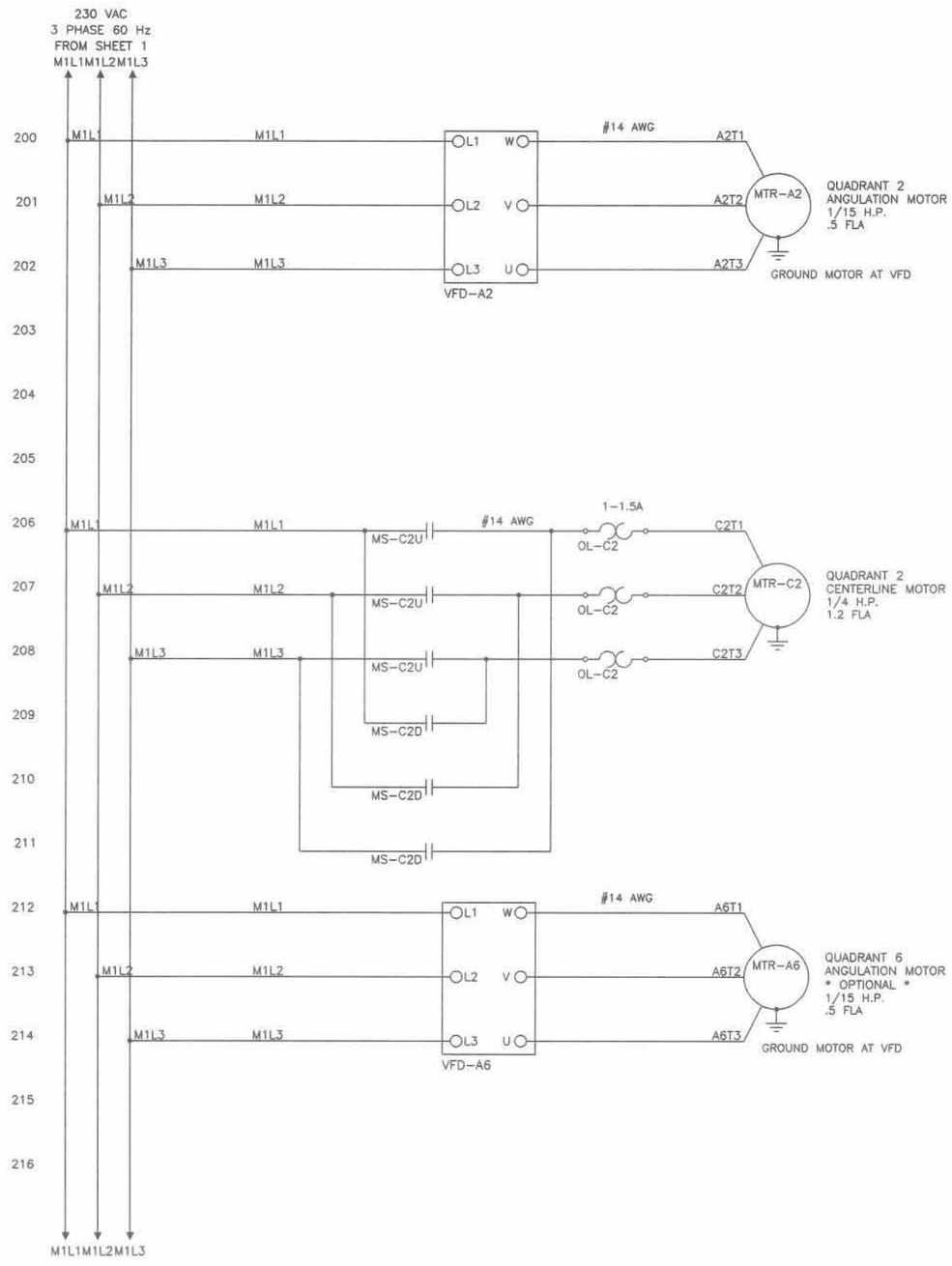
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES;
ANGLES ± 1°
FRACTIONS ± 1/32
DECIMALS ± .010
TOTAL RUNOUT ±
MACHINED SURFACES NOT SPECIFIED 250

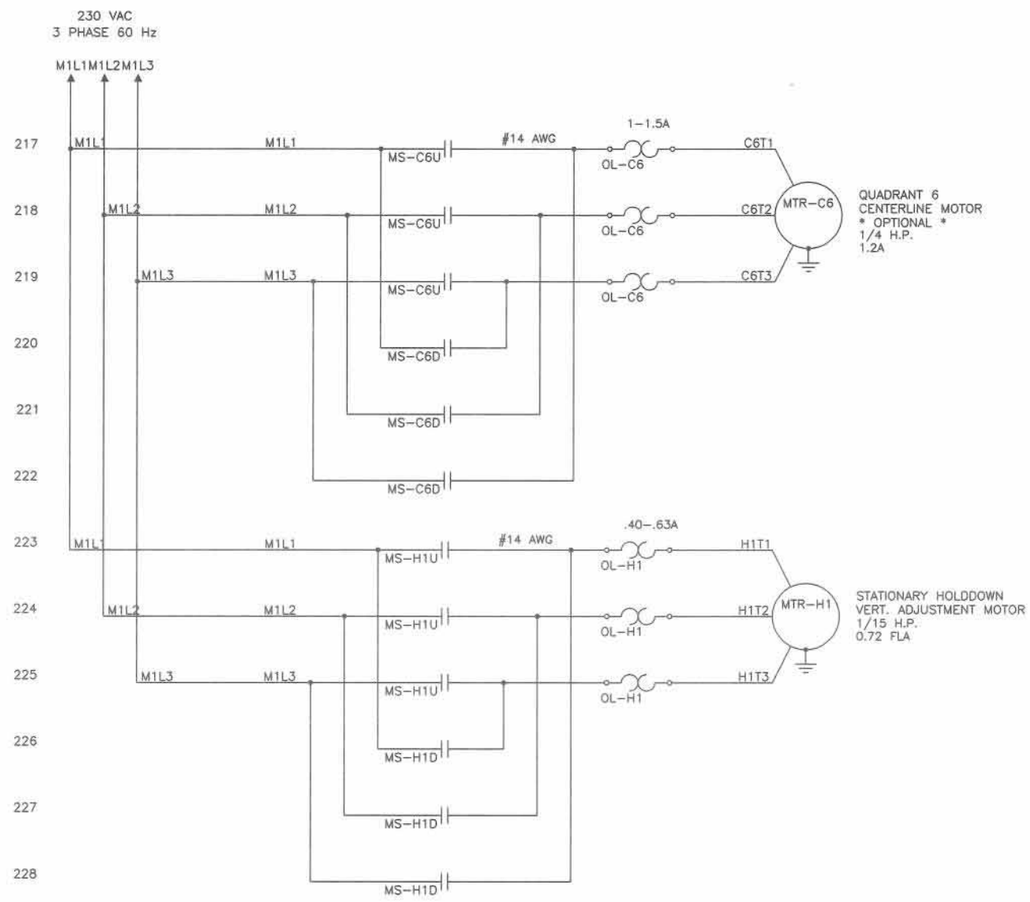
MiTek Industries, Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

DRAWING 001048 X X X
PAGE 41

APPROVED	DATE	MFG.	SMARTSET-PRO, ELECTRICAL			
CHECKED	DATE	DRAWN	DATE	FINISH PAINT	SCALE	PAGE	REV.
SDC	11/11/99	STREISEL	11/11/99	1 : 1	NONE	1 OF 19	90129	V

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE





ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES;
FRACTIONS ± 1/32
DECIMALS ± .010
ANGLES ± 1°
TOTAL RUNOUT ±
MACHINED SURFACES 250
NOT SPECIFIED

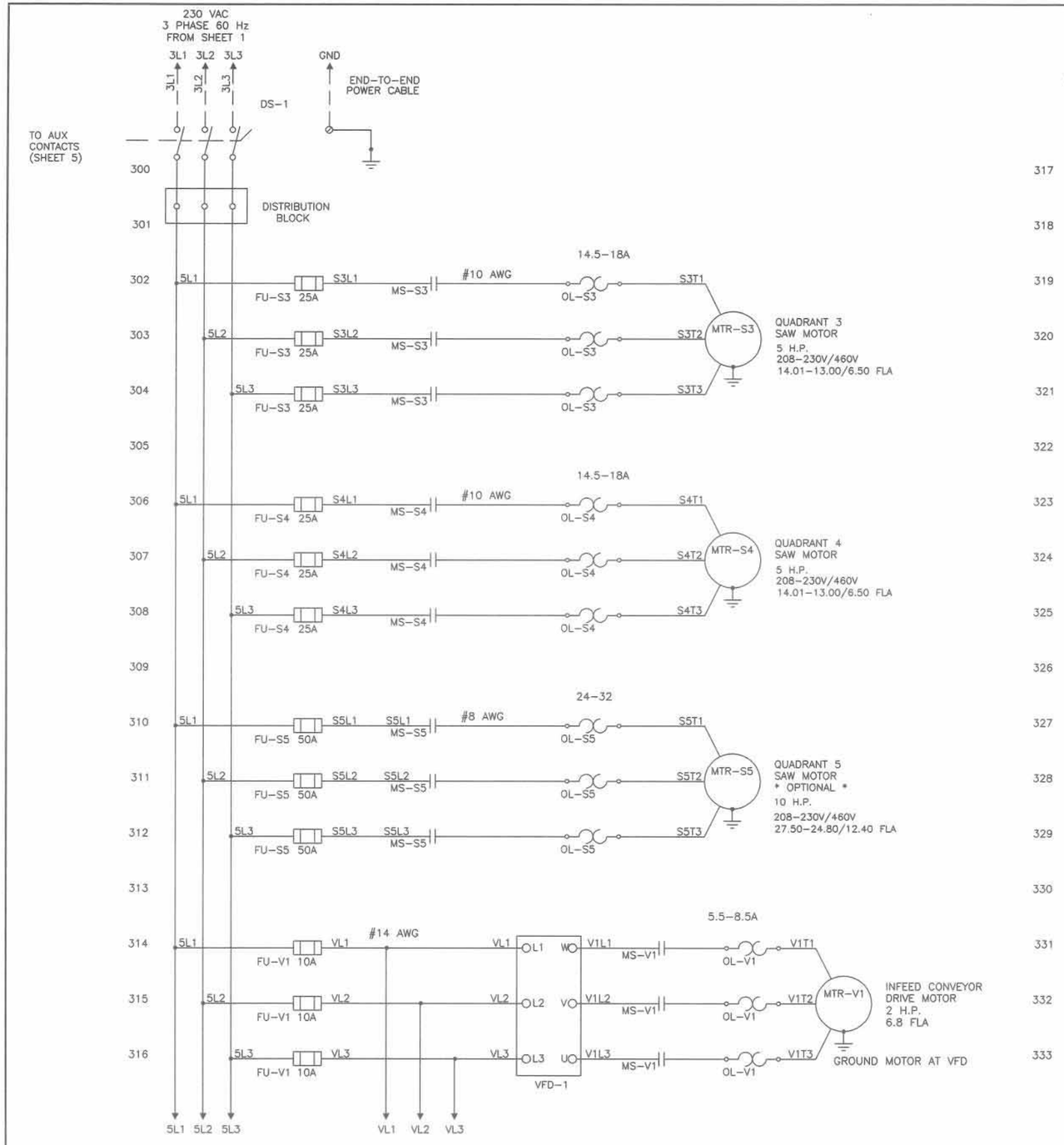
MiTek Industries, Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

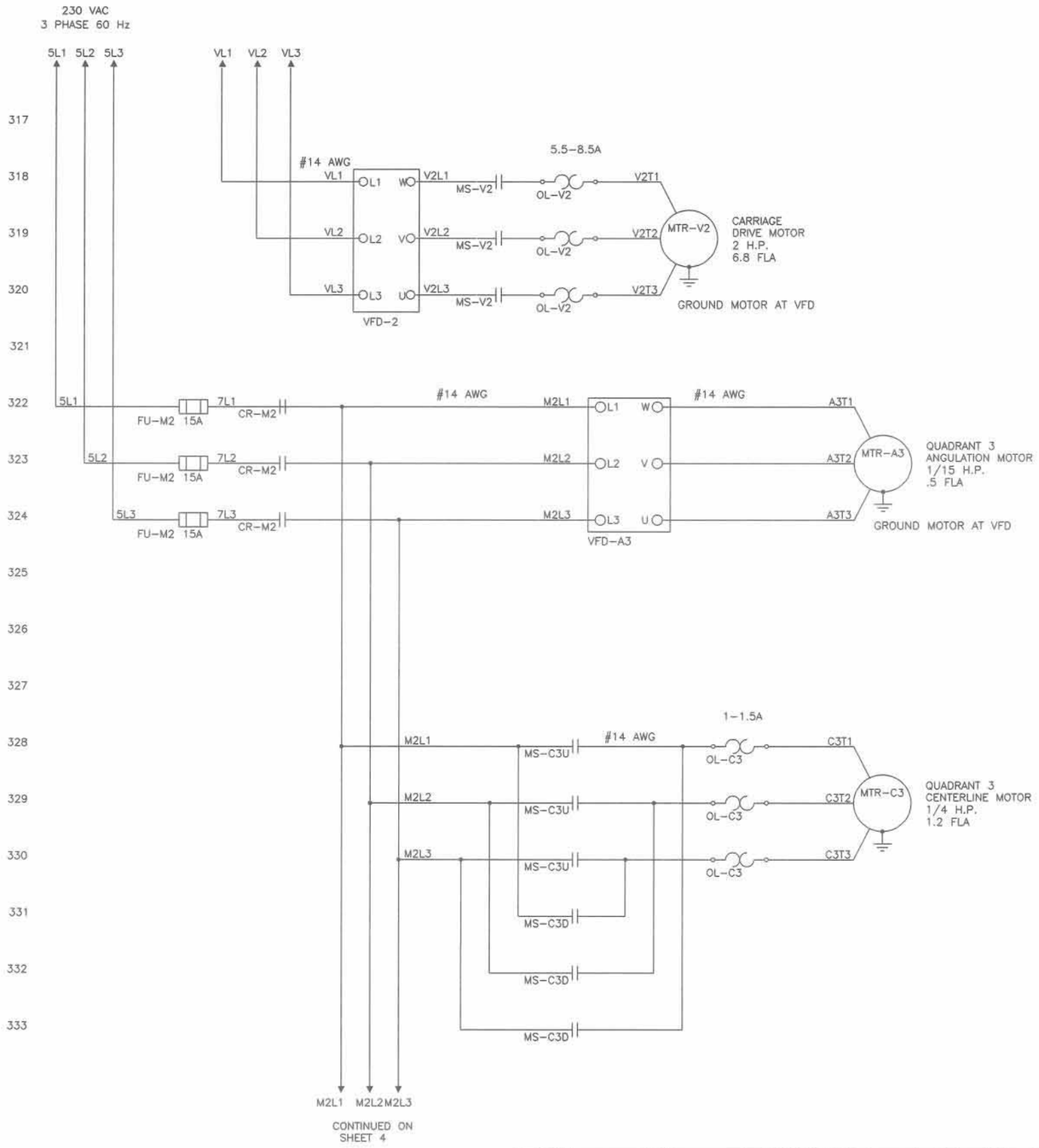
DRAWING	001048
	X
	X
PAGE	42
	X
	X

APPROVED	DATE	MFG.	SMARTSET–PRO, ELECTRICAL				
CHECKED	DATE	DRAWN	DATE	FINISH PAINT	SCALE	PAGE	REV.
	1/9/97	STREISEL	11/11/97	1 : 1	NONE	2 OF 19	90129 V

KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE





NOTES: 3.1) RUNGS 310-312, OMIT IF BLADE 5 NOT INSTALLED

KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.

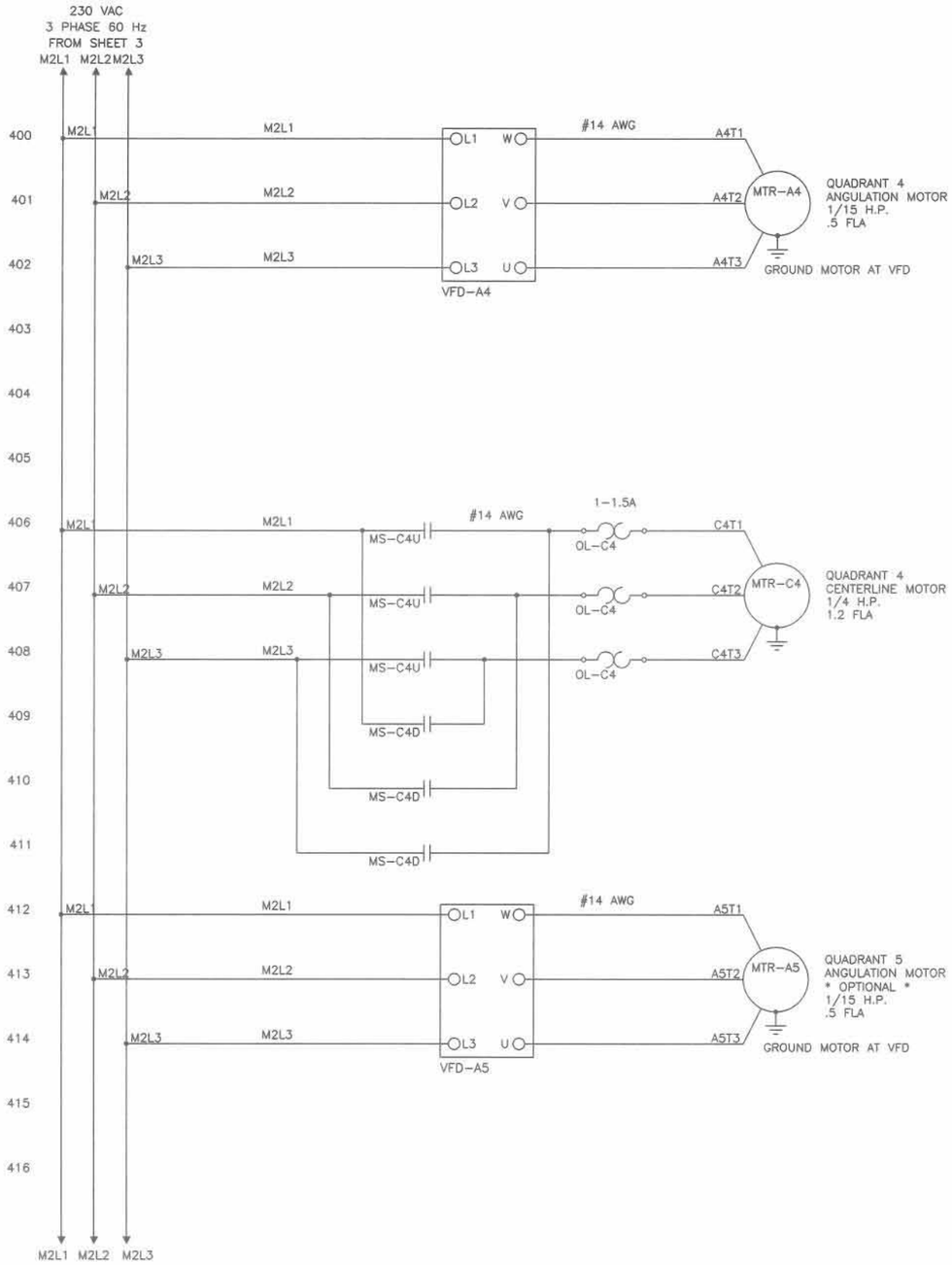
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES:
ANGLES ± 1°
FRACTIONS ± 1/32
TOTAL RUNOUT ±
DECIMALS ± .010
MACHINED SURFACES NOT SPECIFIED 250

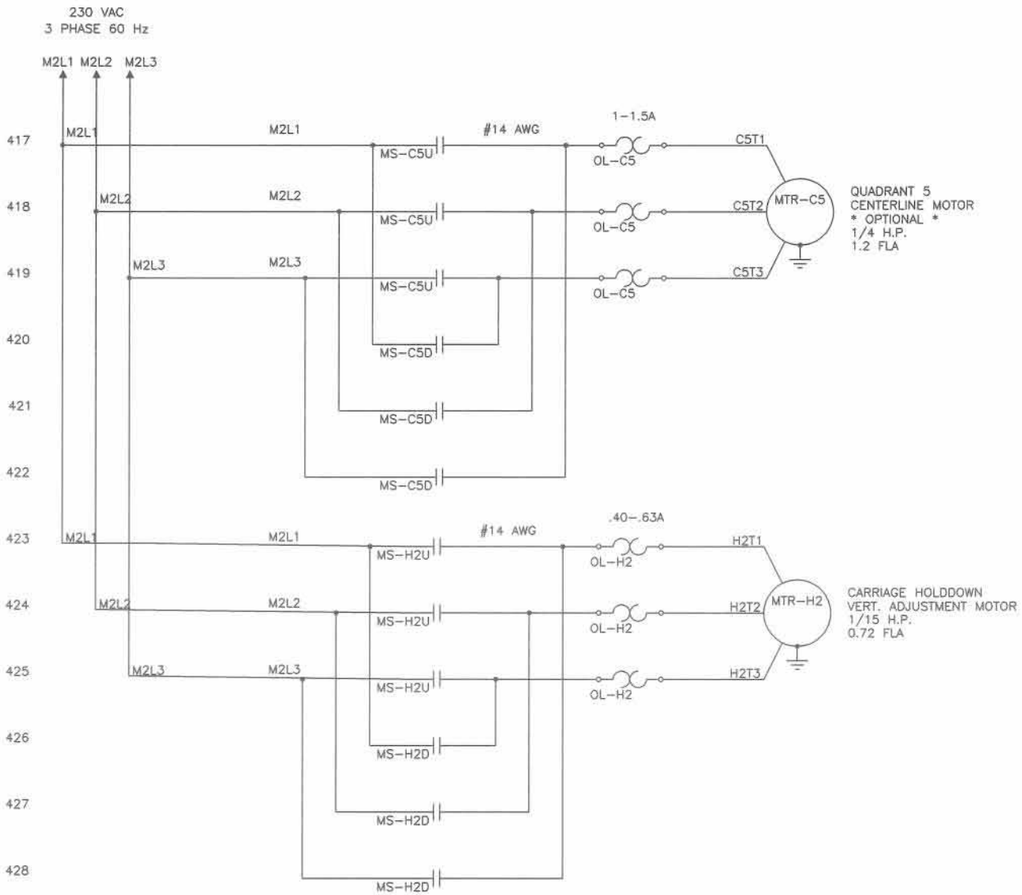
MiTek Industries, Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

DRAWING 001048 XX XX XX PAGE 43

APPROVED	DATE	MFG.	SMARTSET-PRO, ELECTRICAL					
CHECKED VDC	DATE 1/16/98	DRAWN STREISEL	DATE 11/11/97	FINISH PAINT 1 : 1	SCALE NONE	PAGE 3 OF 19	90129	REV. V

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE





ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES;

FRACTIONS ± 1/32 — ANGLES ± 1°

DECIMALS ± .010 — TOTAL RUNOUT ±

MACHINED SURFACES 250 — NOT SPECIFIED

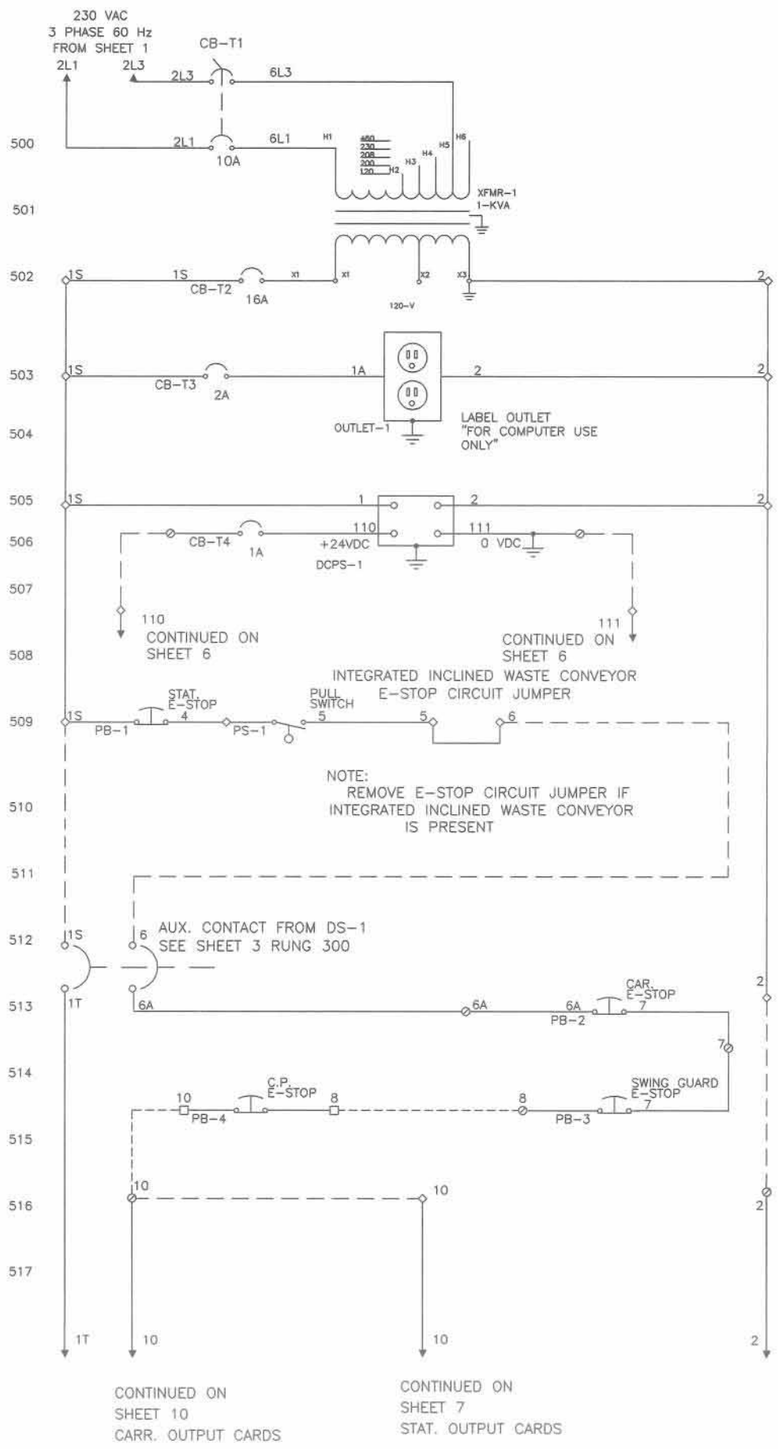
MiTek Industries, Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

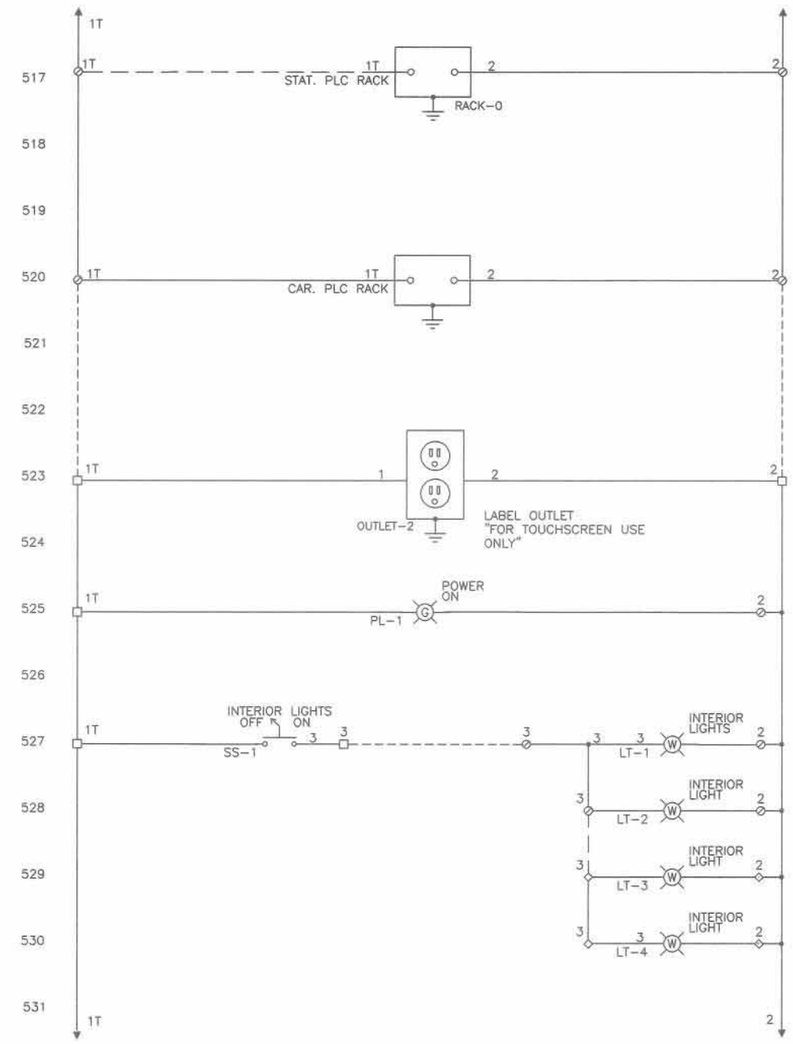
DRAWING 001048 X X X — PAGE 44 X X

KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

APPROVED	DATE	MFG.	SMARTSET–PRO, ELECTRICAL				
CHECKED VDC	DATE 11/25/97	DRAWN STREISEL	DATE 11/11/97	FINISH PAINT 1 : 1	SCALE NONE	PAGE 4 OF 19	90129	REV. V

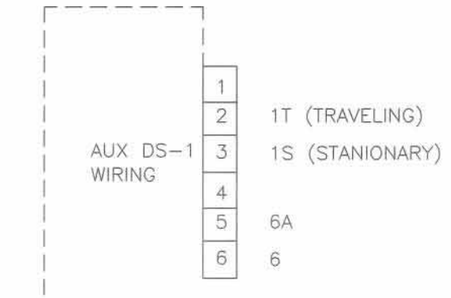
REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE





END-TO- END CABLE
WIRING COLOR CODE

RED	1S
WHT	2
BLK	3
BLU	6
ORG	10
RED/BLK	1T
WHT/BLK	SPARE
GRN	GND



THE AUX CONTACT ON DS-1 CIRCUIT BREAKER WILL OPEN WHEN TRIPPED. TO TEST PRESS THE TRIP BUTTON LOCATED ON THE BREAKER.

LEGEND:

STATIONARY END TERMINAL	◇
CARRIAGE END TERMINAL	⊘
CONTROL PANEL TERMINAL	□
END-TO-END CABLE	– – – – – – – – – –
CONTROL PANEL CABLE	----------

NOTES: 5.1) THE END-TO-END CABLE CONNETION FOR WIRES #1 AND #6 (CARRIAGE END) WILL TERMINATE ON THE TEMINALS FOR THE AUXILLIRY CONTACTS OF THE DISCONNECT SWITCH ONLY. DO NOT TERMINATE THEM ON THE MAIN TERMINAL BLOCKS

KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES;
ANGLES ± 1°
FRACTIONS ± 1/32
DECIMALS ± .010
TOTAL RUNOUT ±
MACHINED SURFACES 250
NOT SPECIFIED

MiTek Industries,Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

MANUAL 001048 XX XX PAGE 45 XX

APPROVED	DATE	MFG.	SMARTSET-PRO, ELECTRICAL					
CHECKED	DATE	DRAWN STREISEL	DATE 11/11/97	FINISH PAINT 1 : 1	SCALE NONE	PAGE 5 OF 19	90129	REV. V

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE

110 VOLTS AC
FROM SHEET 5

RACK 0 SLOT 2
IC693MDL-240
110VAC 16 PT INPUT

600	STATIONARY END EMERGENCY STOP	PB-1	I-001	1 A1	STATIONARY END EMERGENCY STOP SWITCH
601	CABLE PULL SWITCH	CP-1	I-002	2 A2	PERIMETER SWITCH
602	AIR PRESS. SWITCH	PS-1	I-003	3 A3	AIR PRESSURE SWITCH
603	VFD AUX. CONTACT	VFD-A1	I-004	4 A4	ANGLE 1 VFD
604	VFD AUX CONTACT	VFD-A2	I-005	5 A5	ANGLE 2 VFD FAULT
605	VFD AUX CONTACT	VFD-A6	I-006	6 A6	ANGLE 6 VFD FAULT
606		OL-C1	I-007	7 A7	CENTERLINE 1 OVERLOAD TRIP
607		OL-C2	I-008	8 A8	CENTERLINE 2 OVERLOAD TRIP
608		OL-C6	I-009	9 B1	CENTERLINE 6 OVERLOAD TRIP
609		OL-S1	I-010	10 B2	SAW 1 OVERLOAD TRIP
610		OL-S2	I-011	11 B3	SAW 2 OVERLOAD TRIP
611		OL-S6	I-012	12 B4	SAW 6 OVERLOAD TRIP
612		OL-H1	I-013	13 B5	STATIONARY HOLDDOWN OVERLOAD TRIP
613		OL-W1	I-014	14 B6	WASTE CONVEYOR OVERLOAD TRIP
614		OL-W2	I-015	15 B7	INCLINE CONVEYOR OVERLOAD TRIP
615	MAINT JMPR TERMINAL BLK		I-016	16 B8	MAINTENANCE JUMPER
616				19	

CONTINUED ON
SHEET 9

+24 VOLTS DC
FROM SHEET 5

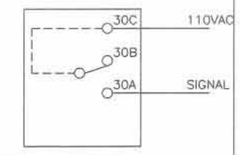
RACK 0 SLOT 3
IC693MDL-646
24VDC 16 PT INPUT (FAST)

617				1	
618	110	PROX-A1C	I-017	2 A1	ANGLE 1 COUNT PROXIMITY SWITCH
619	110	PROX-C1C	I-018	3 A2	CENTERLINE 1 COUNT PROXIMITY SWITCH
620	110	PROX-A2C	I-019	4 A3	ANGLE 2 COUNT PROXIMITY SWITCH
621	110	PROX-C2C	I-020	5 A4	CENTERLINE 2 COUNT PROXIMITY SWITCH
622	110	PROX-A6C	I-021	6 A5	ANGLE 6 COUNT PROXIMITY SWITCH
623	110	PROX-C6C	I-022	7 A6	CENTERLINE 6 COUNT PROXIMITY SWITCH
624	JUMPER 111		I-023	8 A7	BLADE 6 INSTALLED
625	JUMPER 111		I-024	9 A8	24 VOLT DC POWER VERIFY
626	110	PROX-A1H	I-025	10 B1	ANGLE 1 HOME PROXIMITY SWITCH
627	110	PROX-C1H	I-026	11 B2	CENTERLINE 1 HOME PROXIMITY SWITCH
628	110	PROX-A2H	I-027	12 B3	ANGLE 2 HOME PROXIMITY SWITCH
629	110	PROX-C2H	I-028	13 B4	CENTERLINE 2 HOME PROXIMITY SWITCH
630	110	PROX-A6H	I-029	14 B5	ANGLE 6 HOME PROXIMITY SWITCH
631	110	PROX-C6H	I-030	15 B6	CENTERLINE 6 HOME PROXIMITY SWITCH
632			I-031	16 B7	TEST MODE
633	JUMPER 111		I-032	17 B8	SAW IS METRIC

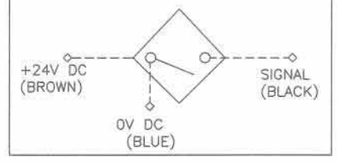
CONTINUED ON
SHEET 9

OVERLOAD CONTACT CONNECTION

VFD ALARM CONTACT CONNECTION



PROXIMITY SWITCH CONNECTION



NOTES: 6.1) OMIT RUNGS 606, 609, 612, 622, 623, 630, 631 IF BLADE 6 IS NOT INSTALLED

6.2) OMIT RUNG 633 IF SAW IS NOT METRIC

KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.

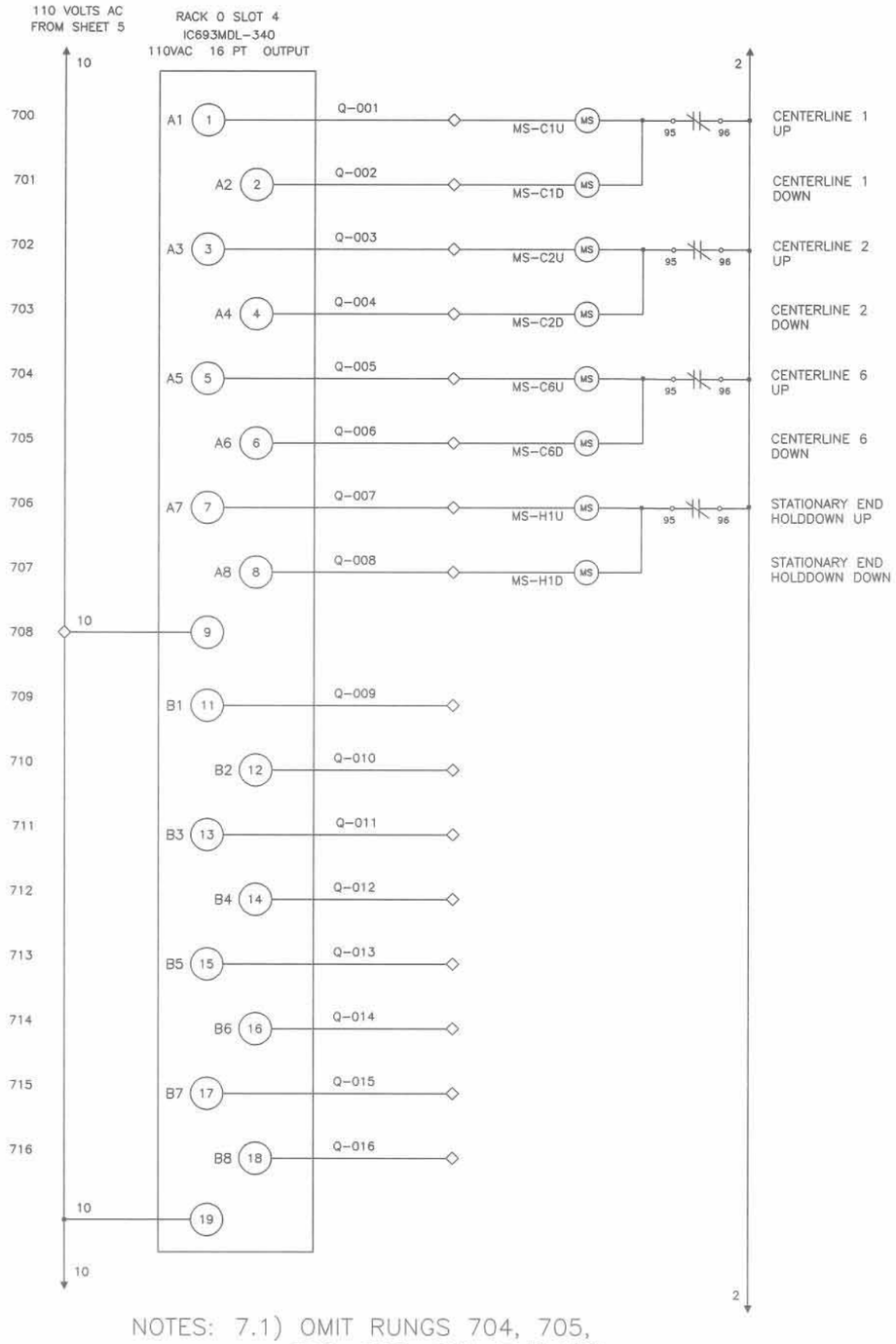
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES;
FRACTIONS ± 1/32 ANGLES ± 1°
DECIMALS ± .010 TOTAL RUNOUT ± [ ]
MACHINED SURFACES NOT SPECIFIED 250

MiTek Industries, Inc.
4233 SHORELINE DRIVE, EARTH CITY, MO. 63045

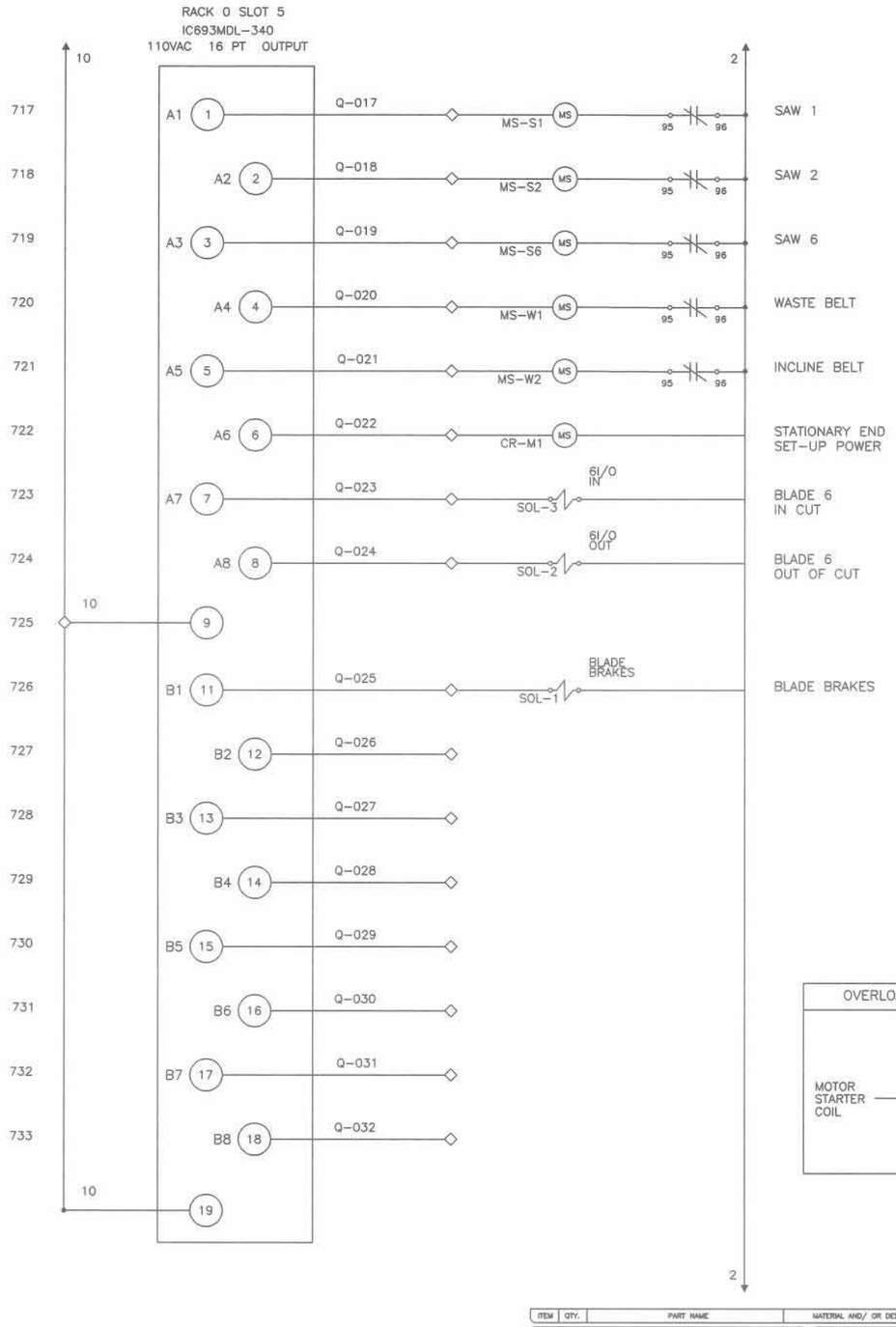
MANUAL 001048 X X X
PAGE 46 X X X

APPROVED	DATE	MFG.	SMARTSET-PRO, ELECTRICAL				
CHECKED	DATE	DRAWN	DATE	FINISH PAINT	SCALE	PAGE	REV.
		STREISEL	11/11/97	1 : 1	NONE	6 of 19	90129 V

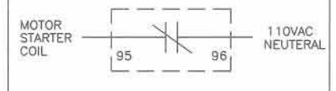
REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE



NOTES: 7.1) OMIT RUNGS 704, 705, 719, 723, 724 IF BLADE 6 IS NOT INSTALLED



OVERLOAD CONTACT CONNECTION



ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.

KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

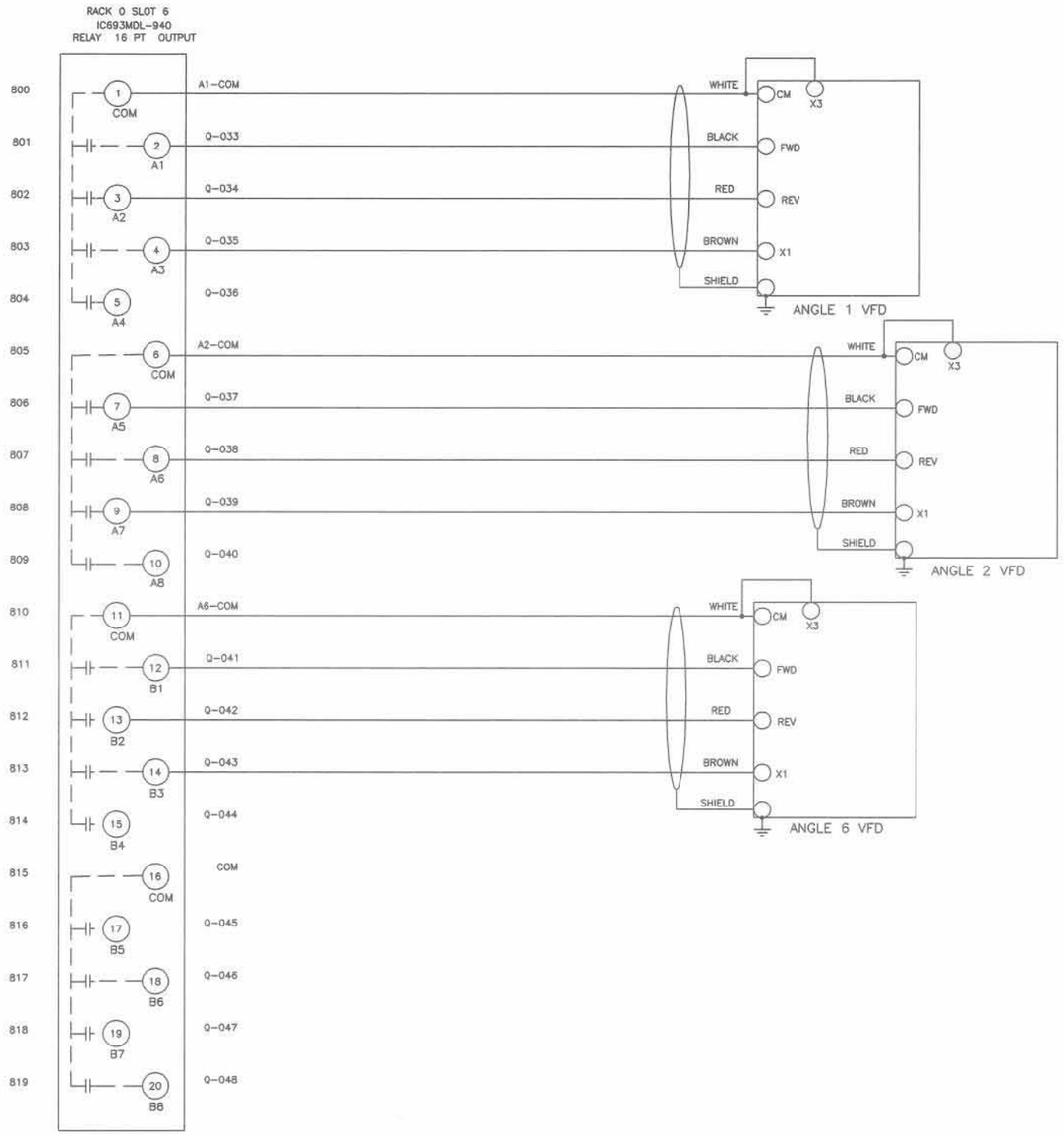
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES;
FRACTIONS ± 1/32 DECIMALS ± .010 ANGLES ± 1° TOTAL RUNOUT ± MACHINED SURFACES NOT SPECIFIED 250

MiTek Industries, Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

MANUAL 001048 XX XX PAGE 47 XX

APPROVED	DATE	MFG.	SMARTSET-PRO, ELECTRICAL				
CHECKED NOE	DATE 11/24/97	DRAWN STREISEL	DATE 11/11/97	FINISH PAINT 1 : 1	SCALE NONE	PAGE 7 OF 19	90129 REV. V

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE



NOTE: 8.1) OMIT RUNGS 810-814
IF BLADE 6 NOT INSTALLED

ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES:
FRACTIONS ± 1/32
DECIMALS ± .010
ANGLES ± 1°
TOTAL RUNOUT ±
MACHINED SURFACES NOT SPECIFIED 250

MiTek Industries, Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

DRAWING 001048 PAGE 48

KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

APPROVED	DATE	MFG.	SMARTSET-PRO, ELECTRICAL				
CHECKED	DATE	DRAWN	DATE	FINISH PART	SCALE	PAGE	REV.
		STREISEL	11/11/97	1 : 1	NONE	8 OF 19	90129 V

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE

110 VOLTS AC
FROM SHEET 6

RACK 1 SLOT 1
IC693MDL-240
110VAC 16 PT INPUT

900	CARRIAGE END EMERGENCY STOP	PB-2	I-033	1	A1
901	SWING GAURD EMERGENCY STOP	PB-3	I-034	2	A2
902	CONTROL PANEL EMERGENCY STOP	PB-4	I-035	3	A3
903	VFD AUX. CONTACT	VFD-A3	I-036	4	A4
904	VFD AUX CONTACT	VFD-A4	I-037	5	A5
905	VFD AUX CONTACT	VFD-A5	I-038	6	A6
906		OL-C3	I-039	7	A7
907		OL-C4	I-040	8	A8
908		OL-C5	I-041	9	B1
909		OL-S3	I-042	10	B2
910		OL-S4	I-043	11	B3
911		OL-S5	I-044	12	B4
912		OL-H2	I-045	13	B5
913	VFD AUX CONTACT	VFD-1	I-046	14	B6
914	VFD AUX CONTACT	VFD-2	I-047	15	B7
915	JMPR		I-048	16	B8
916				19	

1 → 2

900	CARRIAGE END EMERGENCY STOP SWITCH
901	SWING GUARD EMERGENCY STOP SWITCH
902	CONTROL PANEL EMERGENCY STOP SWITCH
903	ANGLE 3 VFD FAULT
904	ANGLE 4 VFD FAULT
905	ANGLE 5 VFD FAULT
906	CENTERLINE 3 OVERLOAD TRIP
907	CENTERLINE 4 OVERLOAD TRIP
908	CENTERLINE 5 OVERLOAD TRIP
909	SAW 3 OVERLOAD TRIP
910	SAW 4 OVERLOAD TRIP
911	SAW 5 OVERLOAD TRIP
912	CARRIAGE HOLDDOWN OVERLOAD TRIP
913	INFEED DRIVE VFD FAULT
914	CARRIAGE DRIVE VFD FAULT

24 VOLTS DC
FROM SHEET 6

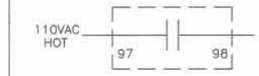
RACK 1 SLOT 2
IC693MDL-646
24VDC 16 PT INPUT (FAST)

917	110			1	
918	110	ENC-A3C	I-049	2	A1
919	110	ENC-C3C	I-050	3	A2
920	110	ENC-A4C	I-051	4	A3
921	110	ENC-C4C	I-052	5	A4
922	110	ENC-A5C	I-053	6	A5
923	110	ENC-C5C	I-054	7	A6
924	110	LS-1	I-055	8	A7
925	JUMPER 111		I-056	9	A8
926	110	ENC-A3H	I-057	10	B1
927	110	ENC-C3H	I-058	11	B2
928	110	ENC-A4H	I-059	12	B3
929	110	ENC-C4H	I-060	13	B4
930	110	ENC-A5H	I-061	14	B5
931	110	ENC-C5H	I-062	15	B6
932		OL-V1	I-063	16	B7
933		OL-V2	I-064	17	B8
					111

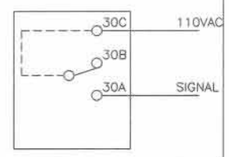
111

917	ANGLE 3 COUNT PROXIMITY SWITCH
918	CENTERLINE 3 COUNT PROXIMITY SWITCH
919	ANGLE 4 COUNT PROXIMITY SWITCH
920	CENTERLINE 4 COUNT PROXIMITY SWITCH
921	ANGLE 5 COUNT PROXIMITY SWITCH
922	CENTERLINE 5 COUNT PROXIMITY SWITCH
923	LUMBER COUNTER
924	BLADE 5 INSTALLED
925	ANGLE 3 HOME PROXIMITY SWITCH
926	CENTERLINE 3 HOME PROXIMITY SWITCH
927	ANGLE 4 HOME PROXIMITY SWITCH
928	CENTERLINE 4 HOME PROXIMITY SWITCH
929	ANGLE 5 HOME PROXIMITY SWITCH
930	CENTERLINE 5 HOME PROXIMITY SWITCH
931	INFEED OVERLOAD TRIP
932	CARRIAGE OVERLOAD TRIP

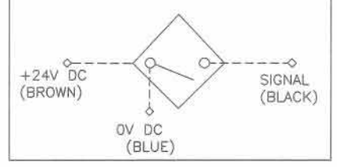
OVERLOAD CONTACT CONNECTION



VFD ALARM CONTACT CONNECTION



PROXIMITY SWITCH CONNECTION



CONTINUED ON SHEET 10

NOTE:

9.1) OMIT RUNGS 906, 909, 912, 923 925, 930, 931 IF BLADE 5 IS NOT INSTALLED

KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.

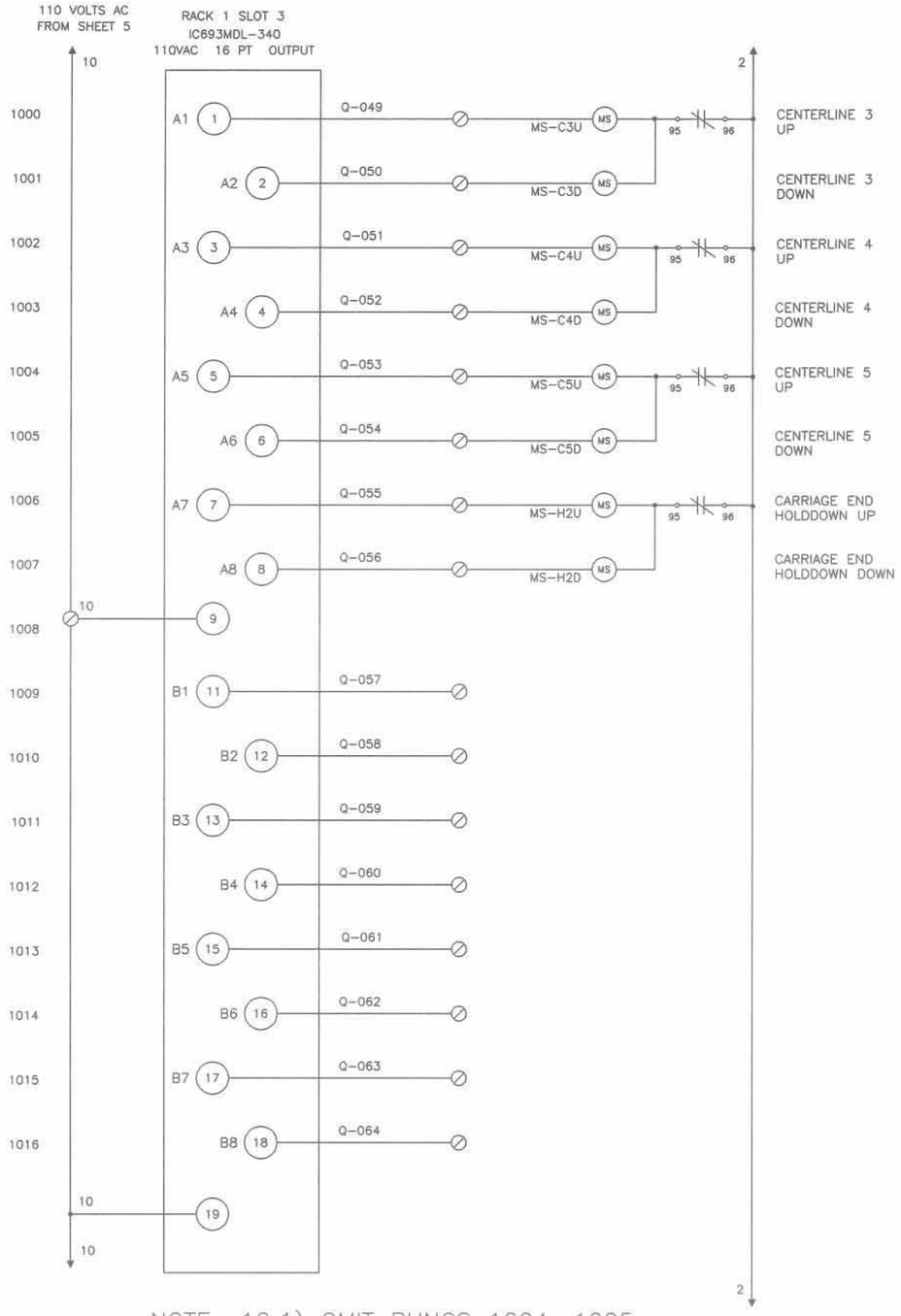
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES;
ANGLES ± 1°
FRACTIONS ± 1/32
DECIMALS ± .010
TOTAL RUNOUT ±
MACHINED SURFACES NOT SPECIFIED 250

MiTek Industries, Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

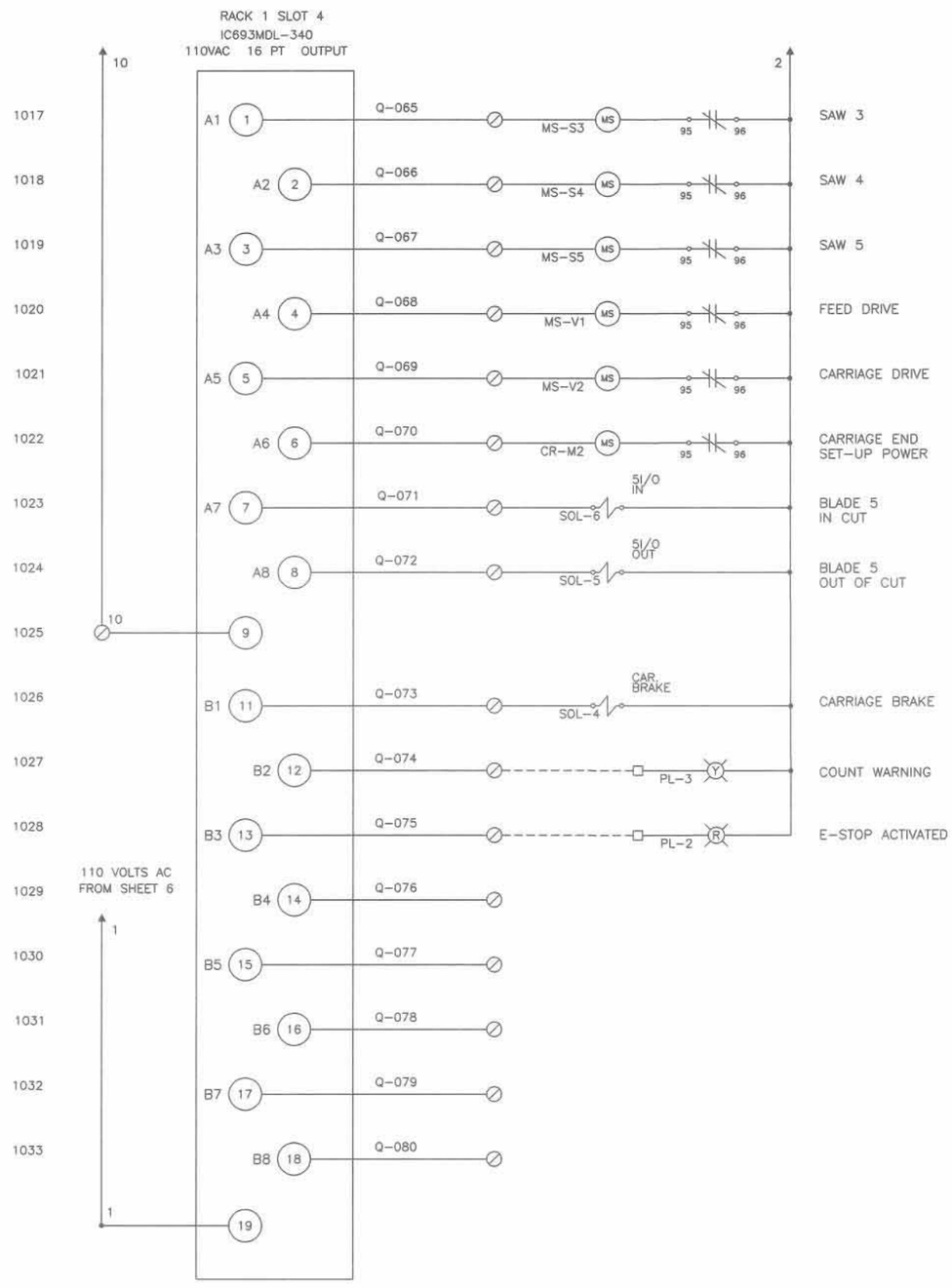
APPROVED	DATE	MFG.	SMARTSET-PRO, ELECTRICAL					
CHECKED	DATE	DRAWN STREISEL	DATE 11/11/97	FINISH PAINT	SCALE 1 : 1	NONE	PAGE 9 OF 19	90129

DRAWING 001048 X X PAGE 49 X X REV. V

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE



NOTE: 10.1) OMIT RUNGS 1004, 1005, 1019, 1023,1024 IF BLADE 5 IS NOT INSTALLED



ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES;
FRACTIONS ± 1/32 DECIMALS ± .010 ANGLES ± 1° TOTAL RUNOUT ± MACHINED SURFACES NOT SPECIFIED 250

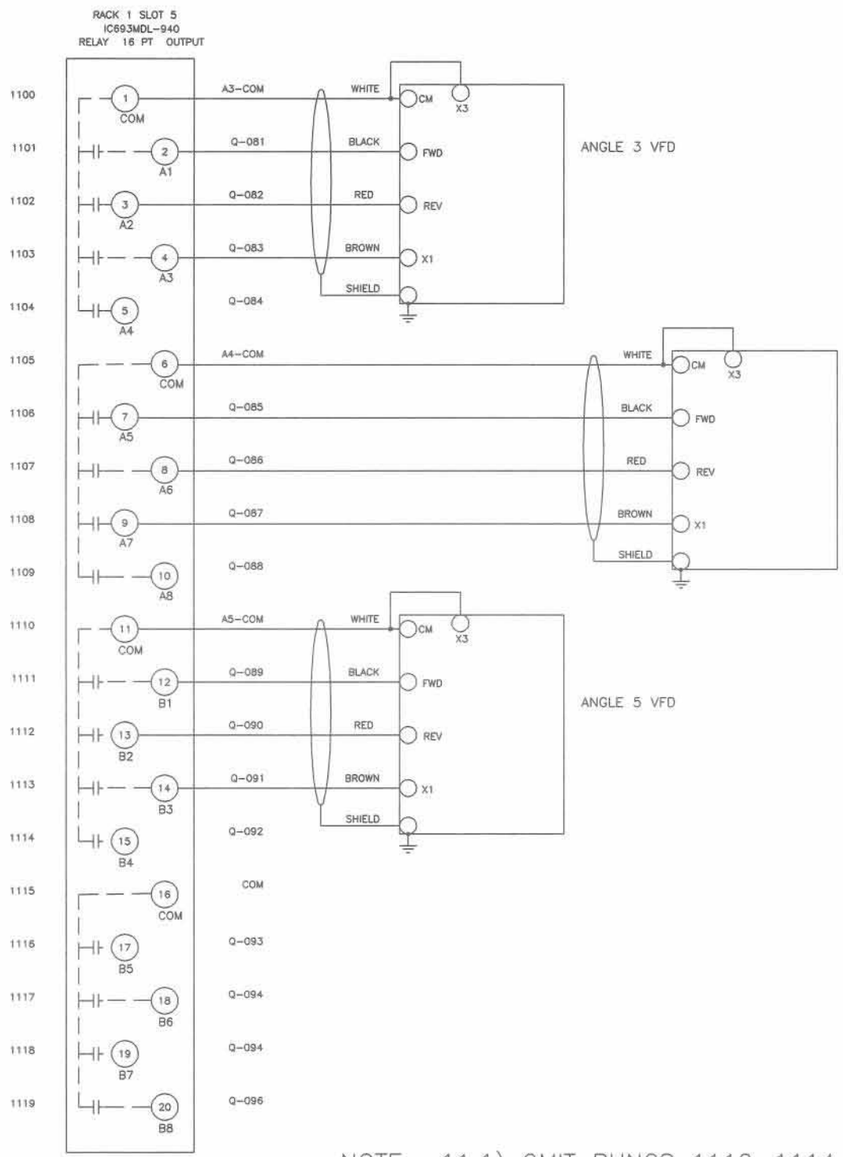
MiTek Industries,Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

MINIMUM 001048 X X PAGE 50 X X

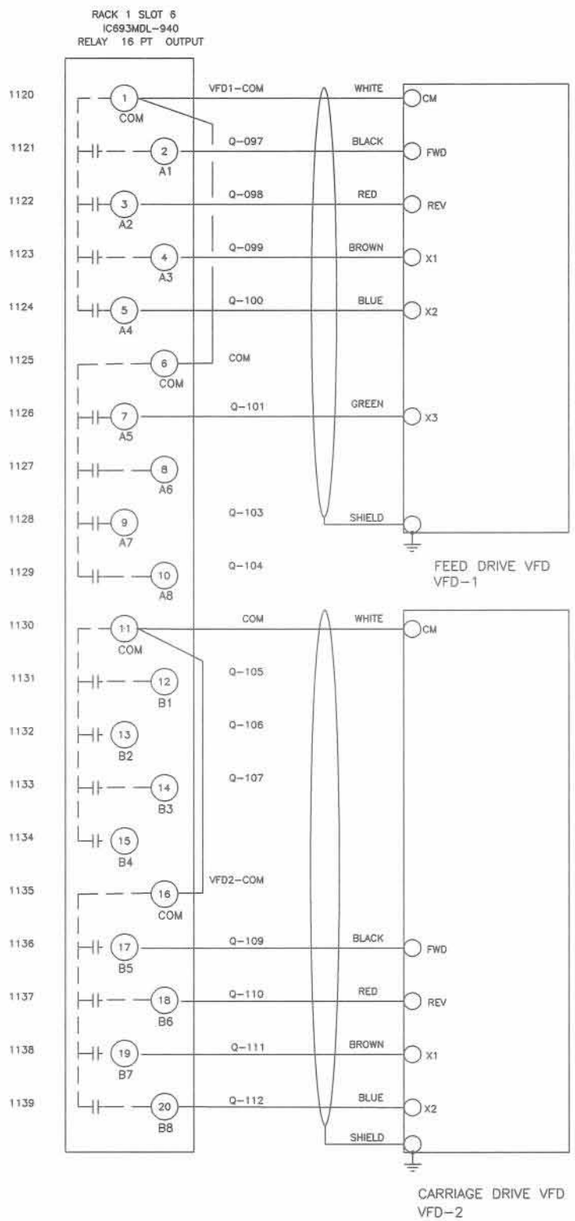
KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

APPROVED	DATE	MFG.	SMARTSET-PRO ELECTRICAL					
CHECKED	DATE	DRAWN	DATE	FINISH PAINT	SCALE	PAGE		REV.
VDC	11/11/97	STREISEL	11/11/97	1 : 1	NONE	10 of 19	90129	V

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE
B	10/6/98	UPDATE WIRE LABELS AND ADDED VFD PARAMETER CHART	STREISEL			



NOTE: 11.1) OMIT RUNGS 1110–1114
IF BLADE 5 NOT INSTALLED



ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES;
ANGLES ± 1°
FRACTIONS ± 1/32
DECIMALS ± .010
TOTAL RUNOUT ±
MACHINED SURFACES 250
NOT SPECIFIED

MiTek Industries, Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

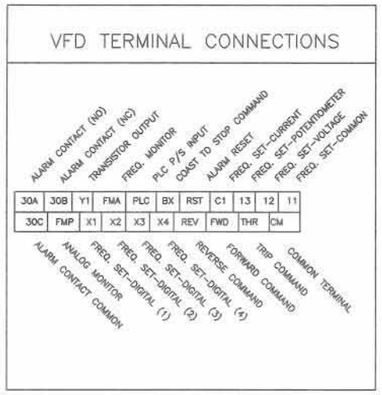
DRAWING 001048 XX XX PAGE 51 XX XX

APPROVED	DATE	MFG.	SMARTSET-PRO, ELECTRICAL			
CHECKED	DATE	DRAWN	DATE	FINISH PAINT	SCALE	PAGE	REV.
		STREISEL	11/11/97	1 : 1	NONE	11 OF 19	90129	V

KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE
9	10/6/98	UPDATE WIRE LABELS AND ADDED VFD PARAMETER CHART	STREISEL			

AF300
MICRO $AVER DRIVES
THRU FRAME #391



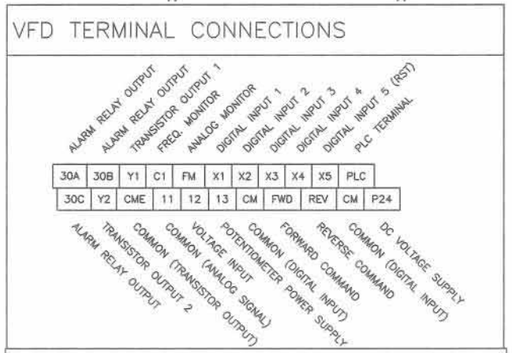
ANGLE MOTOR VFD PARAMETERS

Function	Description	Setting	DEFAULT?
F-00	DATA PROTECTION	0	Y
F-01	FREQUENCY COMMAND	0	N
F-02	OPERATION COMMAND	1	N
F-03	MAX FREQUENCY	60	Y
F-04	BASE FREQUENCY	60	Y
F-05	MAX OUTPUT VOLTAGE	230	Y
F-06	ACCELERATION TIME 1	0.5	N
F-07	DECELERATION TIME 1	0.1	N
F-08	TORQUE BOOST 1	10	N
F-10	MOTOR POLES	4	Y
F-13	NUMBER OF RESTART ATTEMPTS	0	Y
F-14	RESTART AFTER POWER FAILURE	0	Y
F-15	ELECTRONIC OVERLOAD	2	Y
F-17	OVERLOAD LEVEL	0.8	N
F-16	DC BRAKE	0	Y
F-21	MULTISTEP FREQ. 1	30	N

INFEED AND CARRIAGE VFD PARAMETERS

Function	Description	Setting Infeed	Setting Carriage	DEFAULT?
F-00	DATA PROTECTION	0	0	Y
F-01	FREQUENCY COMMAND	0	0	N
F-02	OPERATION COMMAND	1	1	N
F-03	MAX FREQUENCY	60	60	Y
F-04	BASE FREQUENCY	60	60	Y
F-05	MAX OUTPUT VOLTAGE	230	230	Y
F-06	ACCELERATION TIME 1	1	0.5	N
F-07	DECELERATION TIME 1	0.1	0.1	N
F-08	TORQUE BOOST 1	10	10	N
F-10	MOTOR POLES	4	4	Y
F-13	NUMBER OF RESTART ATTEMPTS	0	0	Y
F-14	RESTART AFTER POWER FAILURE	0	0	Y
F-15	ELECTRONIC OVERLOAD	2	2	Y
F-17	OVERLOAD LEVEL	6.8	0.8	N
F-16	DC BRAKE	0	0	Y
F-21	MULTISTEP FREQ. 1	5	4	N
F-22	MULTISTEP FREQ. 2	25	20	N
F-23	MULTISTEP FREQ. 3	30	40	N
F-24	MULTISTEP FREQ. 4	45	40	N
F-25	MULTISTEP FREQ. 5	50	44	N
F-26	MULTISTEP FREQ. 6	50	52	N
F-27	MULTISTEP FREQ. 7	60	60	N

AF300
E11 DRIVES
FRAME #392 THRU #555



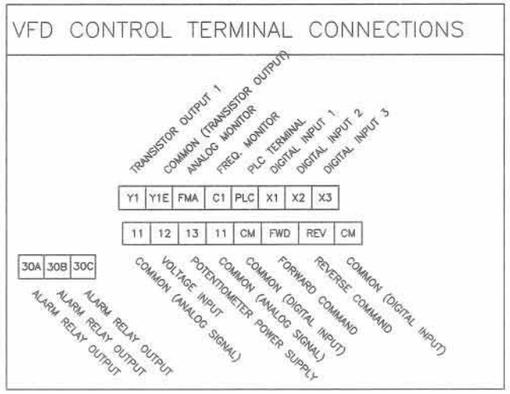
ANGLE MOTOR VFD PARAMETERS

Function	Description	Setting	DEFAULT?
F-00	DATA PROTECTION	0	Y
F-01	FREQUENCY COMMAND	0	N
F-02	OPERATION COMMAND	1	N
F-03	MAX FREQUENCY	60	Y
F-04	BASE FREQUENCY	60	Y
F-05	MAX OUTPUT VOLTAGE	230	Y
F-07	ACCELERATION TIME 1	0.5	N
F-08	DECELERATION TIME 1	0.1	N
F-09	TORQUE BOOST 1	10	N
F-10	ELECTRONIC OVERLOAD	2	Y
F-11	OVERLOAD LEVEL	0.8	Y
F-14	RESTART AFTER POWER FAILURE	0	Y
F-20	DC BRAKE (STARTING FREQUENCY)	0	Y
F-21	DC BRAKE (BRAKING LEVEL)	0	N
F-22	DC BRAKE (BRAKING TIME)	0	Y
C-08	MULTISTEP FREQ. 1	60	N
C-09	MULTISTEP FREQ. 2	30	N
P-01	MOTOR POLES	4	Y
P-03	RATED CURRENT	8.1	N

INFEED AND CARRIAGE VFD PARAMETERS

Function	Description	Setting Infeed	Setting Carriage	DEFAULT?
F-00	DATA PROTECTION	0	0	Y
F-01	FREQUENCY COMMAND	0	0	Y
F-02	OPERATION COMMAND	1	1	N
F-03	MAX FREQUENCY	60	60	Y
F-04	BASE FREQUENCY	60	60	Y
F-05	MAX OUTPUT VOLTAGE	230	230	Y
F-07	ACCELERATION TIME 1	1	1	N
F-08	DECELERATION TIME 1	0.1	0.1	N
F-09	TORQUE BOOST 1	10	10	N
F-10	ELECTRONIC OVERLOAD	2	2	N
F-11	OVERLOAD LEVEL	6.8	6.8	N
F-14	RESTART AFTER POWER FAILURE	0	0	Y
F-20	DC BRAKE (STARTING FREQUENCY)	0	0	Y
F-21	DC BRAKE (BRAKING LEVEL)	0	0	Y
F-22	DC BRAKE (BRAKING TIME)	0	0	Y
C-05	MULTISTEP FREQ. 1	5	4	N
C-06	MULTISTEP FREQ. 2	25	20	N
C-07	MULTISTEP FREQ. 3	30	40	N
C-08	MULTISTEP FREQ. 4	45	40	N
C-09	MULTISTEP FREQ. 5	50	44	N
C-10	MULTISTEP FREQ. 6	50	52	N
C-11	MULTISTEP FREQ. 7	60	60	N
P-01	NUMBER OF MOTOR POLES	4	4	Y
P-03	RATED CURRENT	8.1	8.1	N

AF300
MINI DRIVES
FRAME #556 ONWARD



FOR VFD SETTINGS OF THE AF300 MINI DRIVES SEE DRAWING #'S

94004 SMARTSET-PRO ANGLES
94005 SMARTSET-PRO CARRIAGE
94006 SMARTSET-PRO INFEED

ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.

KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

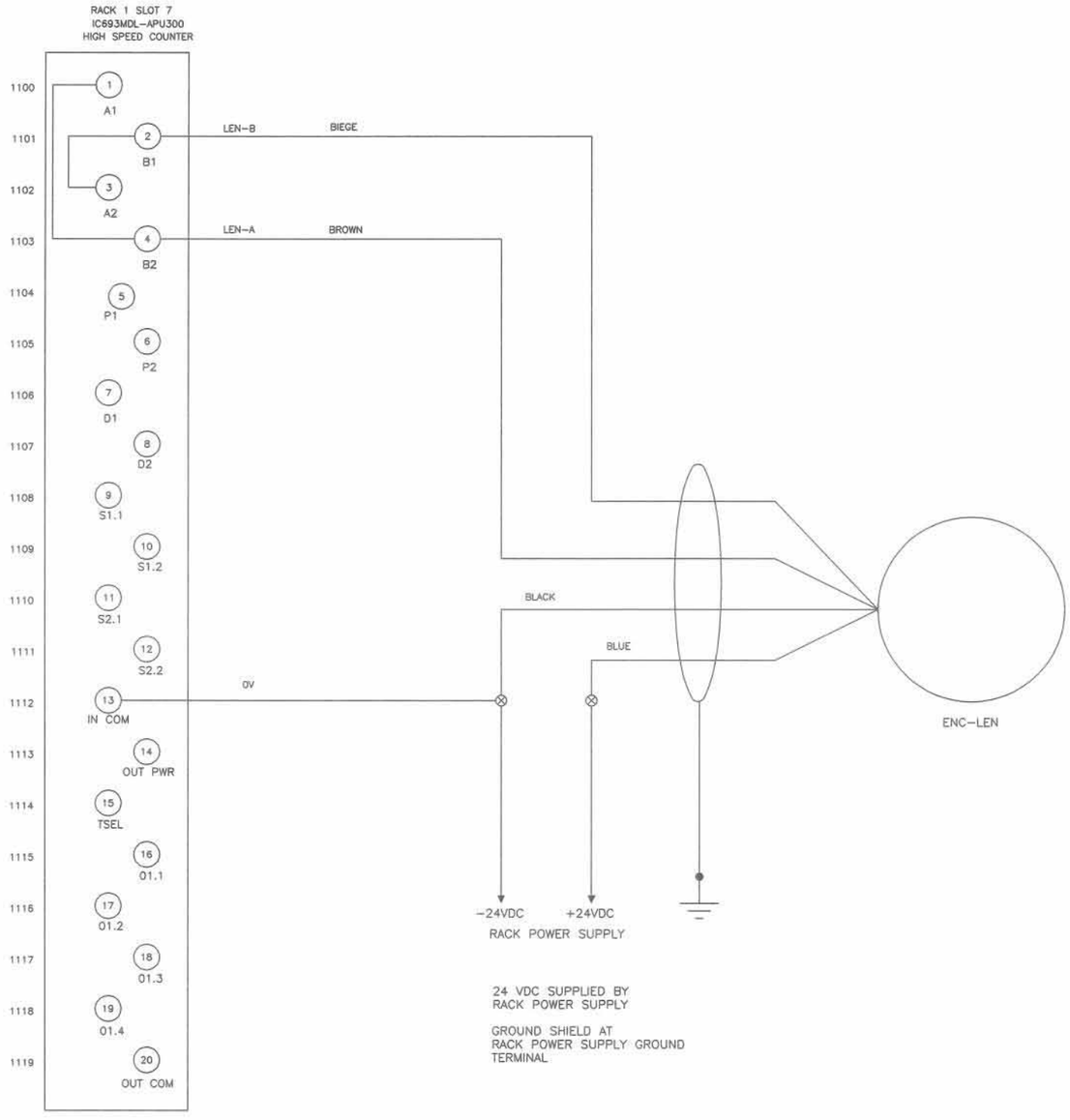
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES;
FRACTIONS ± 1/32 — ANGLES ± 1°
DECIMALS ± .010 — TOTAL RUNOUT ±
MACHINED SURFACES 250 √ NOT SPECIFIED

MiTek Industries, Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

DRAWING 001048 XX XX — PAGE 51 XX XX

APPROVED	DATE	MFG.	SMARTSET-PRO, ELECTRICAL			
CHECKED	DATE	DRAWN	DATE	FINISH PAINT	SCALE	PAGE	REV.
		STREISEL	11/11/97	1 : 1	NONE	12 OF 19	90129	V

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE



KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES:
FRACTIONS ± 1/32 ANGLES ± 1°
DECIMALS ± .010 TOTAL RUNOUT ±
MACHINED SURFACES 250 / NOT SPECIFIED

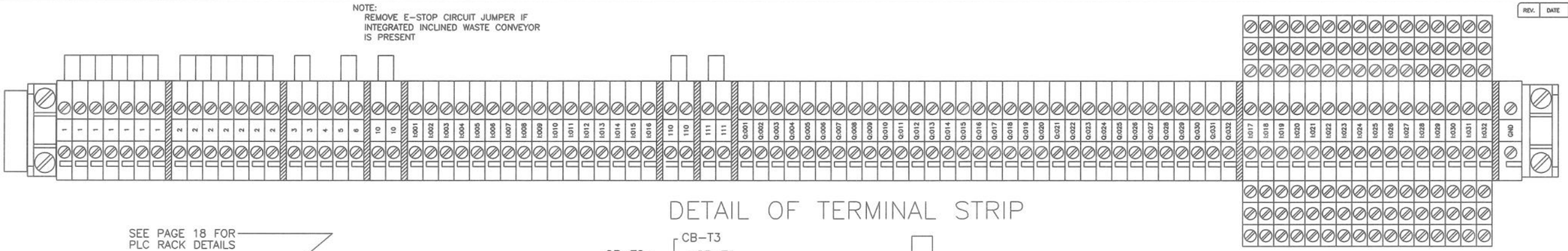
MiTek Industries, Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

DRAWING 001048 PAGE 52 X X X

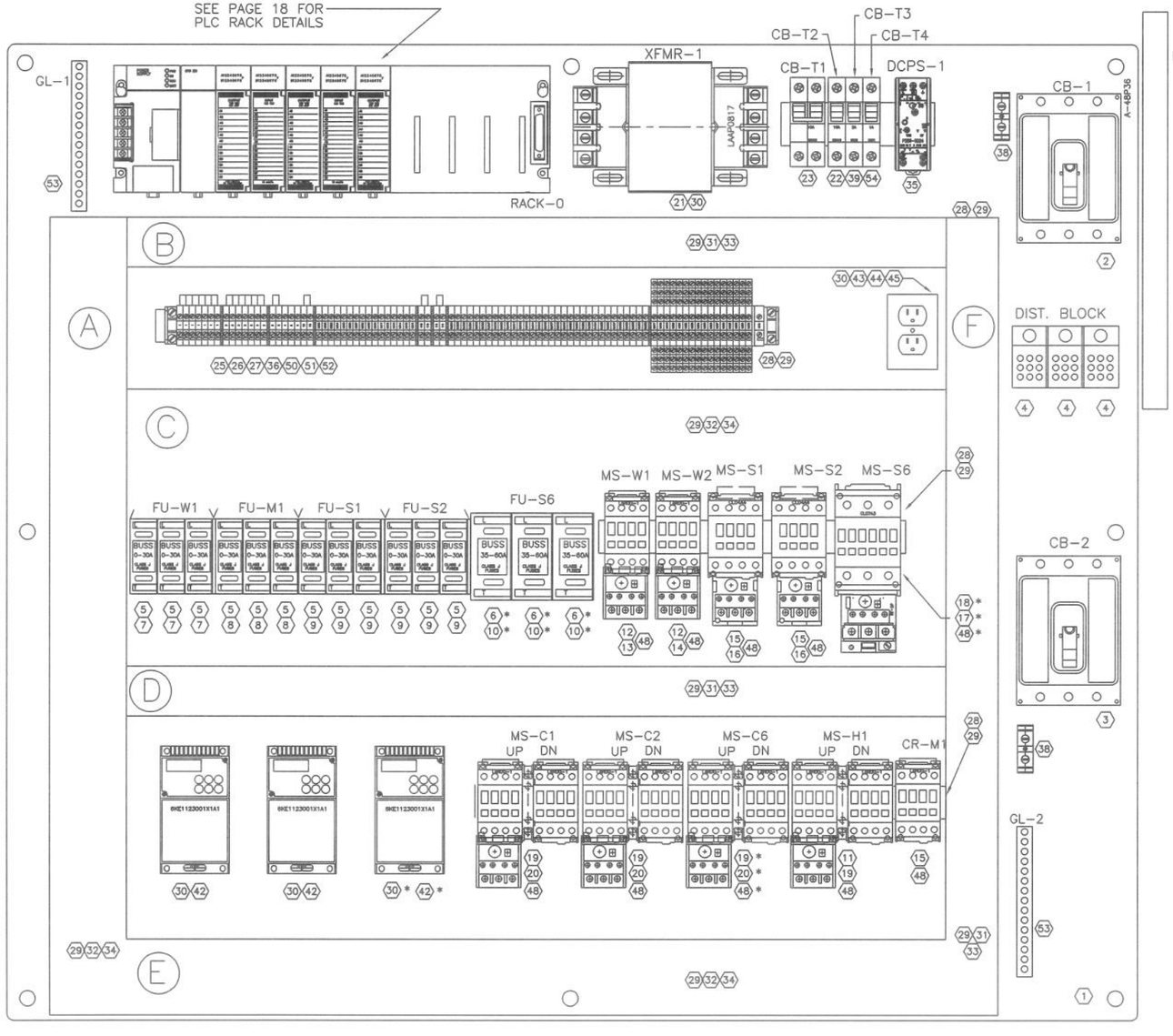
APPROVED	DATE	MFG.	SMARTSET-PRO, ELECTRICAL			
CHECKED	DATE	DRAWN	DATE	FINISH PAINT	SCALE	PAGE	REV.
		STREISEL	11/11/97	1 : 1	NONE	13 OF 19	90129	V

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE

NOTE:
REMOVE E-STOP CIRCUIT JUMPER IF INTEGRATED INCLINED WASTE CONVEYOR IS PRESENT



DETAIL OF TERMINAL STRIP



NOTES: 13.1) ALL QUANTITIES ARE GIVEN FOR A 6-BLADED SAW. IF BLADE 5 AND/OR BLADE 6 ARE NOT INSTALLED, THE QUANTITIES FOR ITEMS 3, 6, 10, 11, 17, 18, 19, 20, 48, 64, 67, 70, 71, 72, 80, AND 81 WILL NEED ADJUSTMENT

13.2) OMIT ALL ITEMS MARKED WITH AN ASTERISK (*) IF BLADE 6 IS NOT INSTALLED

13.3) DURING BENCH WIRING, CONNECT ALL WIRES COMING FORM THE PLC TO THE TOP OF THE TERMINAL STRIP. ALL WIRES GOING TO OTHER DEVICES WILL CONNECT TO THE BOTTOM OF THE TERMINAL STRIP

13.4) SET ALL OVERLOAD RESET BUTTONS TO AUTOMATIC RESET

CABLE ROUTING NOTES:

13.4) ROUTE SAW MOTOR CABLES DOWN DUCT (A) AND ACROSS DUCT (D) TO GROUND LUG 2. STRIP INSULATION SHEATH OFF OF CABLE AS CLOSE TO MOTOR STARTER AS POSSIBLE. CONNECT GROUND WIRE TO GROUND LUG 2, AND CONNECT MOTOR WIRES TO MOTOR STARTER.

13.5) ROUTE CENTERLINE MOTOR CABLES DOWN DUCT (A) AND ACROSS DUCT (E) TO GROUND LUG 3. STRIP INSULATION SHEATH OFF OF CABLE AS CLOSE TO MOTOR STARTER AS POSSIBLE. CONNECT GROUND WIRE TO GROUND LUG 3. TRIM MOTOR WIRES TO NEAT LENGTH AND CONNECT TO MOTOR STARTER.

13.6) ROUTE ANGLE MOTOR CABLES NEXT TO DUCT (A). (LEAVE CABLES OUT SIDE THE DUCT) AND ACROSS DUCT (E) TO EACH VFD. STRIP OFF ONLY AS MUCH INSULATION SHEATH AS NECESSARY TO CONNECT TO VFD. CONNECT THE GROUND WIRE TO THE GROUND LUG PROVIDED ON EACH VFD.

13.7) ROUTE PROX. CABLES DOWN DUCT (A) AND ACROSS DUCT (C). TRIM CABLES TO NEAT LENGTH. CONNECT SHEILD WIRES TO GROUND TERMINALS PROVIDED ON EACH TRI-LEVEL TERMINAL BLOCK.

13.8) DO NOT BRAID OR OTHERWISE INTERTWINE ANY CABLES. MAINTAIN AS MUCH SEPARATION AS POSSIBLE BETWEEN CABLES AND OTHER WIRES.

	ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.
	36	4 EA	JUMPER,BAR,10-POLE	ENTRELEC #168.973.07		P	518143
	35	1 EA	PWR,SPPLY,24VDC,1.7A	IDEC #PS5R-SD24		P	504524
	34	22 FT	COVER,DUCT 3"	PANDUIT #C3 LG6		P	510150
	33	12 FT	COVER,DUCT 2"	PANDUIT #C2 LG6		P	510152
	32	22 FT	WIRING,DUCT	PANDUIT #E3 x 4LG6		P	510149
	31	12 FT	WIRING,DUCT	PANDUIT #E2 x 4LG6		P	510148
	30	40 EA	SCREW RDHD MACH	#10-32x3/8		P	341103
	29	100 EA	RIVET 5/32"	POP #ABA53		P	390005
	28	18 FT	MOUNTING,RAIL,DIN	AB #1492-DR6		P	504388
	27	6 EA	END,STOP	ENTRELEC #199408.02,		P	518192
K	26	19 EA	END,SECTION	ENTRELEC #118368.16		P	518234
K	25	158 EA	TERMINAL,BLK,FLD-FLD	ENTRELEC #115116.07		P	518223
	24	2 EA	GROUNDING BAR	SQUARE-D #PK 9 GTA		P	504230
	23	1 EA	BRKR,2P,10A,UL/CSA	ALTECH #2DU10		P	516610
	22	1 EA	BRKR,1P,16A,UL/CSA	ALTECH #1DU16		P	516609
	21	1 EA	T'FORMR,1KVA,PRI230/SEC115	CH #CE1000K5EFS		P	509168
	20	6 EA	RELAY,OVERLOAD,1.0-1.5A	GE #RT1G		P	514142
	19	8 EA	MTR-STARTER,9A,REVERSING	GE #LAR00AJ		P	509210
	18	2 EA	RELAY,OVERLOAD,24-32A	GE #RT2D		P	514176
	17	2 EA	MTR-STARTER,62A,NON-REV	GE #CL07A311MJ		P	509224
	16	4 EA	RELAY,OVERLOAD,14.5-18A	GE #RT1S		P	514160
	15	6 EA	MTR-STARTER,32A,NON-REV	GE #CL04A310MJ		P	509219
	14	1 EA	RELAY,OVERLOAD,1.8-2.7A	GE #RT1J		P	514146
	13	1 EA	RELAY,OVERLOAD,2.5-4.1A	GE #RT1K		P	514148
	12	2 EA	MTR-STARTER,10A,NON-REV	GE #CL00A310TJ		P	509211
	11	2 EA	RELAY,OVERLOAD,.65-1.1A	GE #RT1F		P	509316
	10	6 EA	FUSE,50A	BUSS #LPJ-50SP		P	516494
	9	12 EA	FUSE,25 A	BUSS #LPJ-25SP		P	516491
	8	6 EA	FUSE,15 A	BUSS #LPJ-15SP		P	516489
	7	6 EA	FUSE,10 A	BUSS #LPJ-10SP		P	516488
	6	6 EA	FUSE,BLOCK,30-60A,TYPE J	BUSS #JTN60060		P	516555
	5	24 EA	FUSE,BLOCK,0-30A,TYPE J	BUSS #JTN60030		P	516554
	4	6 EA	DISTRIBUTION BLOCK	ENTRELEC #BRU250A		P	518205
	3	1 EA	CIRCUIT,BREAKER,80A	WESTINGHOUSE #EHD3080		P	516405
	2	1 EA	CIRCUIT BREAKER,150A	WESTINGHOUSE #EDH3150		P	516406
K	1	0 EA	PANEL (SEE ITEM #55)	PART OF MITEK P/N 519156		P	519156

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES:
FRACTIONS ± 1/32 — DECIMALS ± .010 — ANGLES ± 1° — TOTAL RUNOUT ± — MACHINED SURFACES NOT SPECIFIED 250

MiTek Industries,Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

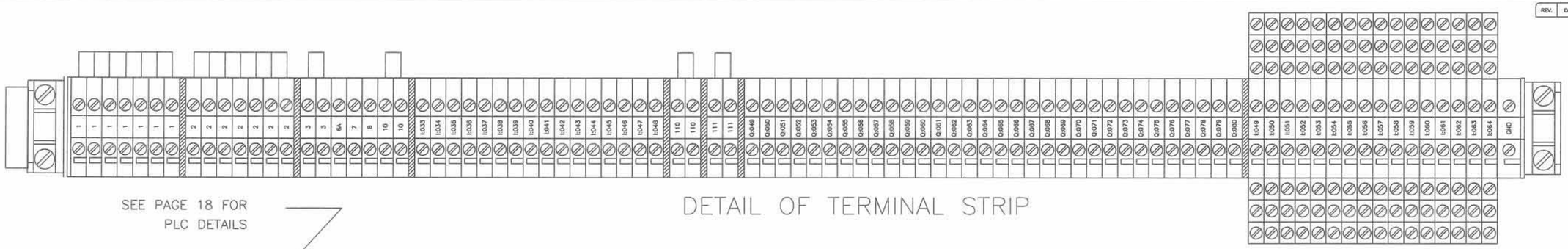
MANUAL 001048 PAGE 53 XX XX

KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

APPROVED	DATE	MFG.	SMARTSET-PRO, ELECTRICAL					
CHECKED	DATE	DRAWN	DATE	FINISH PAINT	SCALE	PAGE		REV.
JDC 11/11/97		STREISEL	11/11/97	1 : 1	NONE	14 OF 19	90129	V

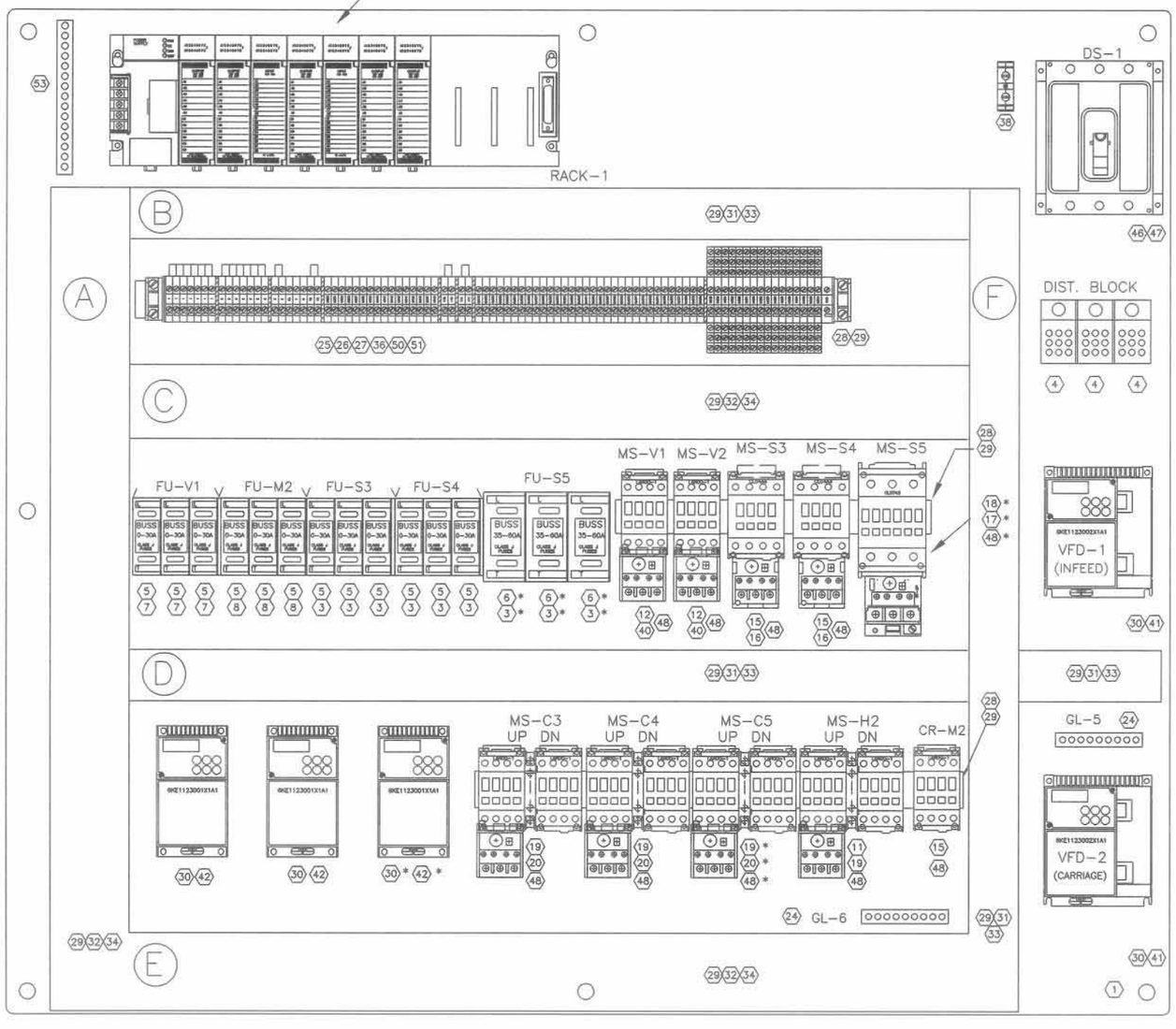
STATIONARY END CONTROL PANEL

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE



DETAIL OF TERMINAL STRIP

SEE PAGE 18 FOR PLC DETAILS



CARRIAGE END CONTROL PANEL

NOTES:

14.1) OMIT ALL ITEMS MARKED WITH AN ASTERISK (*) IF BLADE 5 IS NOT INSTALLED

14.2) DURING BENCH WIRING, CONNECT ALL WIRES COMING FROM THE PLC TO THE TOP OF THE TERMINAL STRIP. ALL WIRES GOING TO OTHER DEVICES WILL CONNECT TO THE BOTTOM OF THE TERMINAL STRIP

14.3) SET ALL OVERLOAD RESET BUTTONS TO AUTOMATIC RESET

CABLE ROUTING NOTES:

14.3) ROUTE SAW MOTOR CABLES DOWN DUCT (A) AND ACROSS DUCT (D) TO GROUND LUG 5. STRIP INSULATION SHEATH OFF OF CABLE AS CLOSE TO MOTOR STARTER AS POSSIBLE. CONNECT GROUND WIRE TO GROUND LUG 5, AND CONNECT MOTOR WIRES TO MOTOR STARTER.

14.4) ROUTE CENTERLINE MOTOR CABLES DOWN DUCT (A) AND ACROSS DUCT (E) TO GROUND LUG 6. STRIP INSULATION SHEATH OFF OF CABLE AS CLOSE TO MOTOR STARTER AS POSSIBLE. CONNECT GROUND WIRE TO GORUND LUG 6. TRIM MOTOR WIRES TO NEAT LENGTH AND CONNECT TO MOTOR STARTER.

14.5) ROUTE ANGLE MOTOR CABLES NEXT TO DUCT (A). (LEAVE CABLES OUT SIDE THE DUCT) AND ACROSS DUCT (E) TO EACH VFD. STRIP OFF ONLY AS MUCH INSULATION SHEATH AS NECESSARY TO CONNECT TO VFD. CONNECT THE GROUND WIRE TO THE GROUND LUG PROVIDED ON EACH VFD.

14.6) ROUTE PROX. CABLES DOWN DUCT (A) AND ACROSS DUCT (C). TRIM CABLES TO NEAT LENGTH. CONNECT SHEILD WIRES TO GROUND TERMINALS PROVIDED ON EACH TRI-LEVEL TERMINAL BLOCK.

14.7) DO NOT BRAID OR OTHERWISE INTERTWINE ANY CABLES. MAINTAIN AS MUCH SEPARATION AS POSSIBLE BETWEEN CABLES AND OTHER WIRES.

ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.
54	1 EA	BRKR,1P,1A,UL/CSA	ALTECH #1DU1		P	516603
53	3 EA	GROUNDING BAR	SQUARE-D #PK 15 GTA		P	504382
52	1 EA	TERMINAL JUMPER BLOCK	ENTRELEC #115215.12		P	518233
51	2 EA	TERMINAL BLOCK,GND	ENTRELEC #165114.17		P	518230
50	32 EA	TERMIAL BLOCK, 3-TIER	ENTRELEC #115541.11		P	518241
48	28 EA	SURGE-SUPPRESSOR	GE #BSLV3K		P	509249
47	2 EA	AUX. CONTACT,2-NO/NC	WESTINGHOUSE #A2X1RTK		P	516586
46	1 EA	MOLDED CASE SWITCH,100A	WESTINGHOUSE #EHD3100K		P	516417
45	2 EA	OUTLET-ELECTRIC	LEVITON #5320		P	511592
44	2 EA	OUTLET COVER	STEEL CITY #54C6		P	519496
43	2 EA	OUTLET BOX	STEELCITY #54171		P	519495
42	6 EA	VFD,1HP,230VAC,3PH,4.0A	GE #D7214		P	509765
41	2 EA	VFD,2HP,230VAC,3PH,7.0A	GE #D7215		P	509764
40	2 EA	RELAY,OVERLOAD	GE #RT1M		P	514152
39	1 EA	BRKR,1P,2A,UL/CSA	ALTECH #1DU2		P	516604
38	3 EA	GROUND TERMINAL BLK, 35mm	ENTRELEC #165111.14		P	518244
37	1 EA	TERMINAL,MARKER,CYBER JR	ENTRELEC #RC610		P	518335

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES;
FRACTIONS ± 1/32 ANGLES ± 1°
DECIMALS ± .010 TOTAL RUNOUT ± [ ]
MACHINED SURFACES NOT SPECIFIED 250

MiTek Industries, Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

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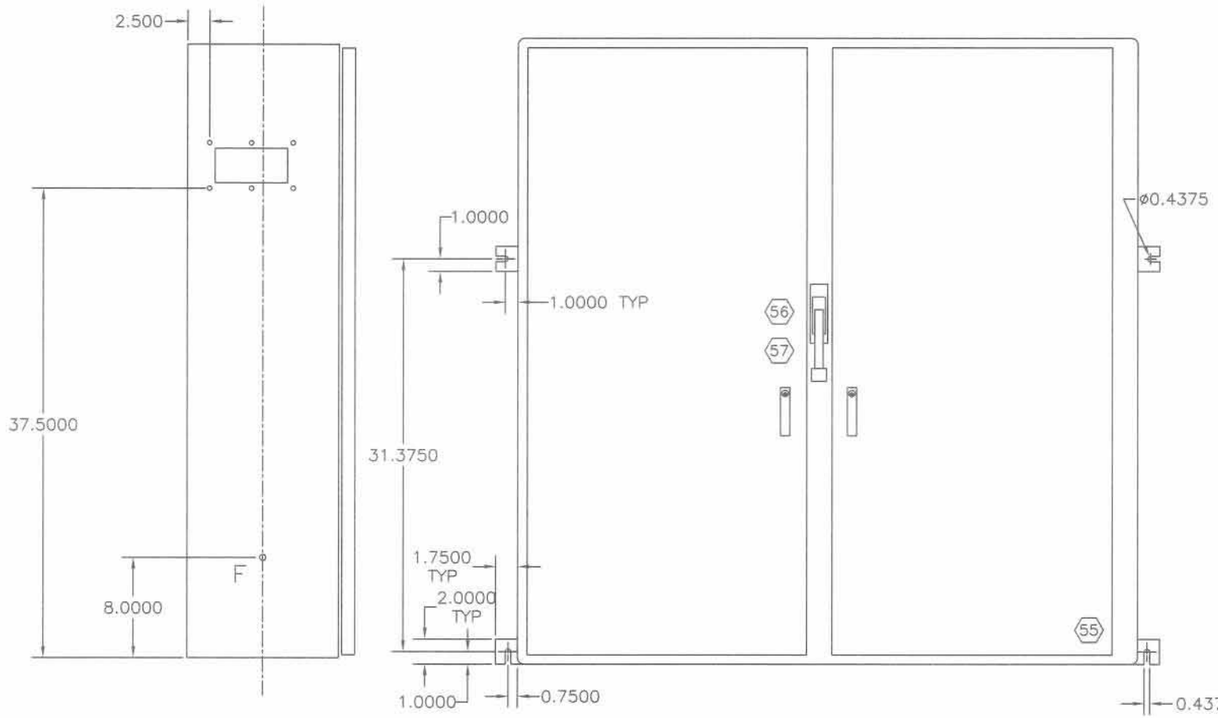
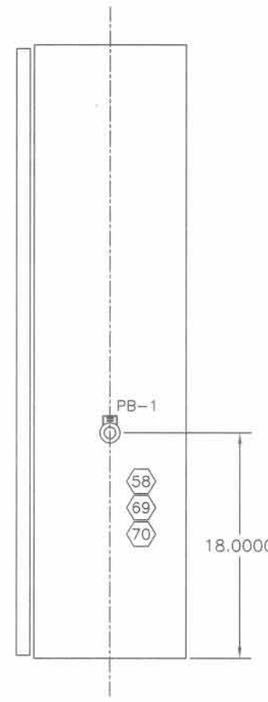
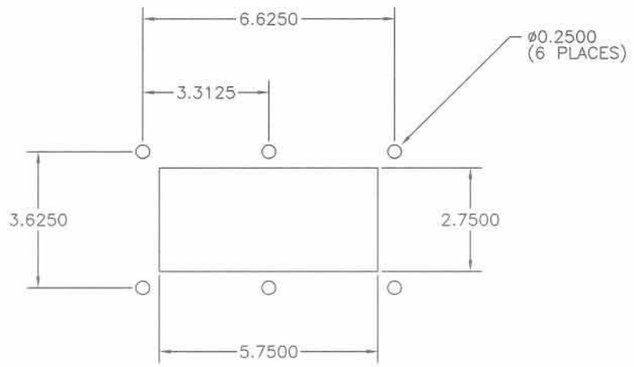
KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

APPROVED	DATE	MFG.	SMARTSET-PRO, ELECTRICAL				
CHECKED	DATE	DRAWN	DATE	FINISH PAINT	SCALE	PAGE	REV.
		STREISEL	11/11/97	1 : 1	NONE	15 OF 19	90129 V

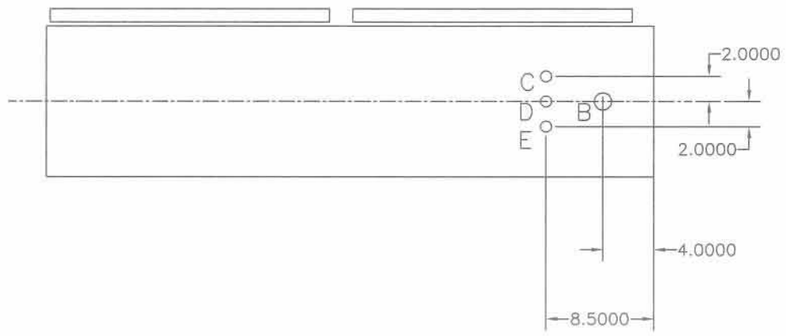
REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE







DETAIL OF DUCT MOUNT DRILLING



HOLE LEGEND:

HOLE	USE	SIZE
A	INCOMING POWER	1-1/8"
B	END-TO-END POWER CABLE	7/8"
C	PULL SWITCH	7/8"
D	WASTE CONVEYOR	7/8"
E	INCLINE CONVEYOR	7/8"
F	AIR PRESSURE SWITCH	1/2"

STATIONARY END CONTROL PANEL

ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.
58	2 EA	BUTTON,PUSH,MSHRM-HD,RED	GE #P9CET4RN1		P	513656
57	2 EA	DOOR,HARDWARE,3-POINT	WESTINGHOUSE #HDH-3R		P	512807
56	2 EA	OPERATING HANDLE W/FLEXSHAFT	WESTINGHOUSE #F2S03		P	509417
55	2 EA	ENCLOSURE W/PANEL	ENCL,HOFF#A-42SA4912LP,CUSTOM		P	519156

KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES;
FRACTIONS ± 1/32 — DECIMALS ± .010 — ANGLES ± 1° — TOTAL RUNOUT ± — MACHINED SURFACES NOT SPECIFIED 250

MiTek Industries, Inc.
4253 SHORELINE DRIVE, EARTH CITY, MO. 63045

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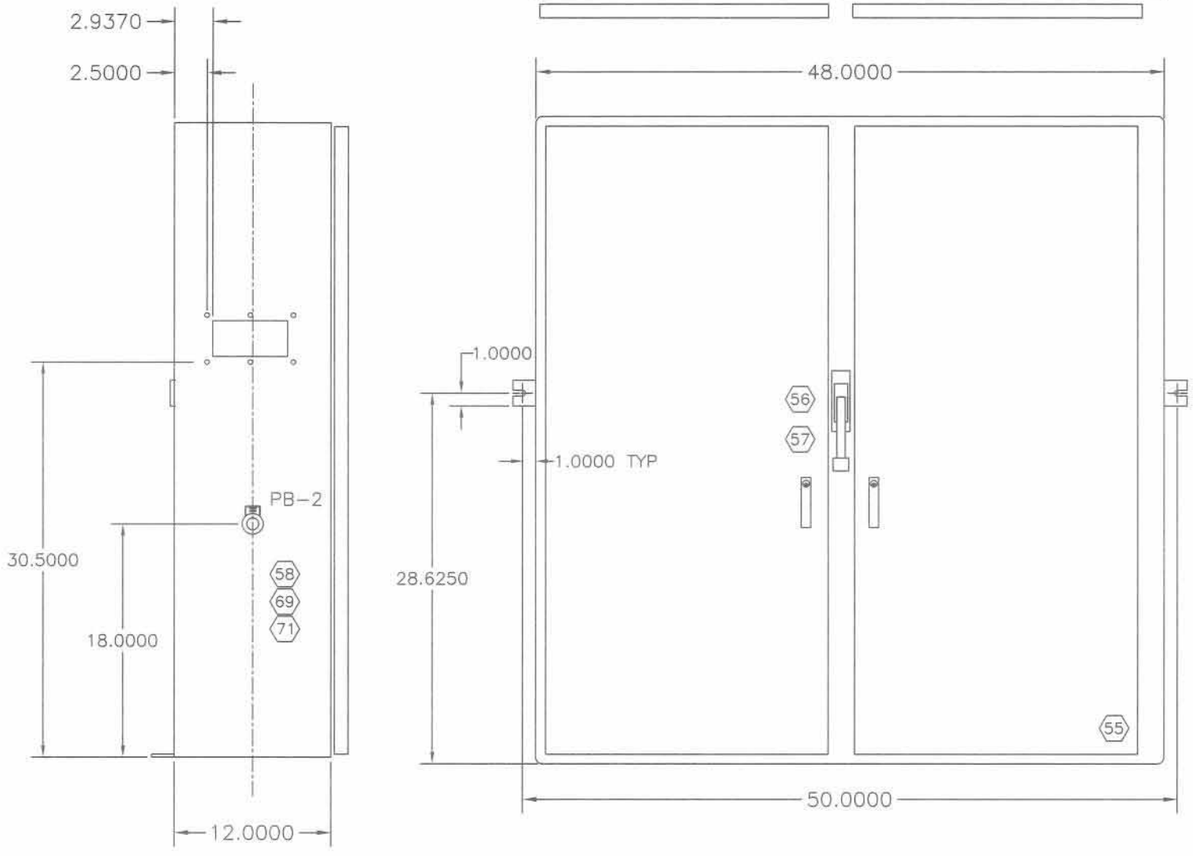
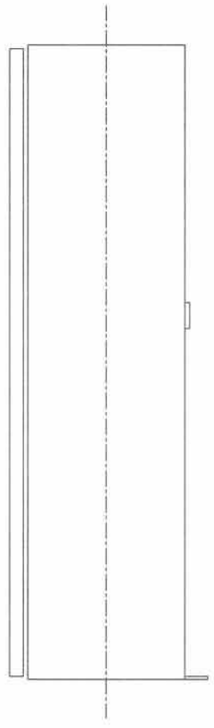
APPROVED	DATE	MFG.
CHECKED	DATE	DRAWN STREISEL

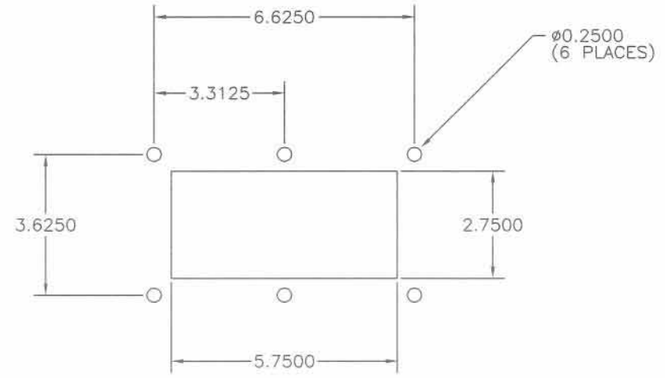
SMARTSET-PRO, ELECTRICAL

DATE	FINISH PAINT	SCALE	PAGE		REV.
11/11/97	1 : 1	NONE	16 OF 19	90129	V

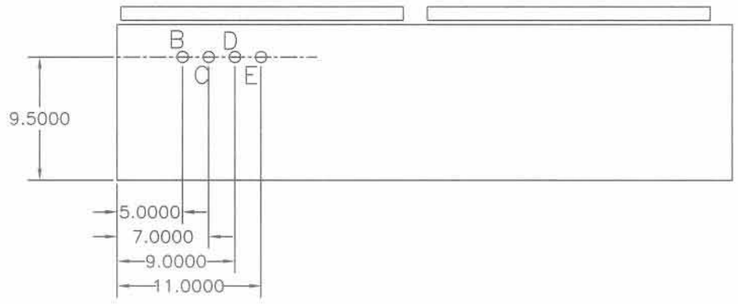
REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE







DETAIL OF DUCT MOUNT DRILLING



CARRIAGE END
CONTROL PANEL

HOLE LEGEND:

A	END-TO-END POWER CABLE
B	CARRIAGE MOTOR
C	CARRIAGE ENCODER
D	BOARD COUNTER
E	CAR. BRAKE AIR SOLENOID

KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.

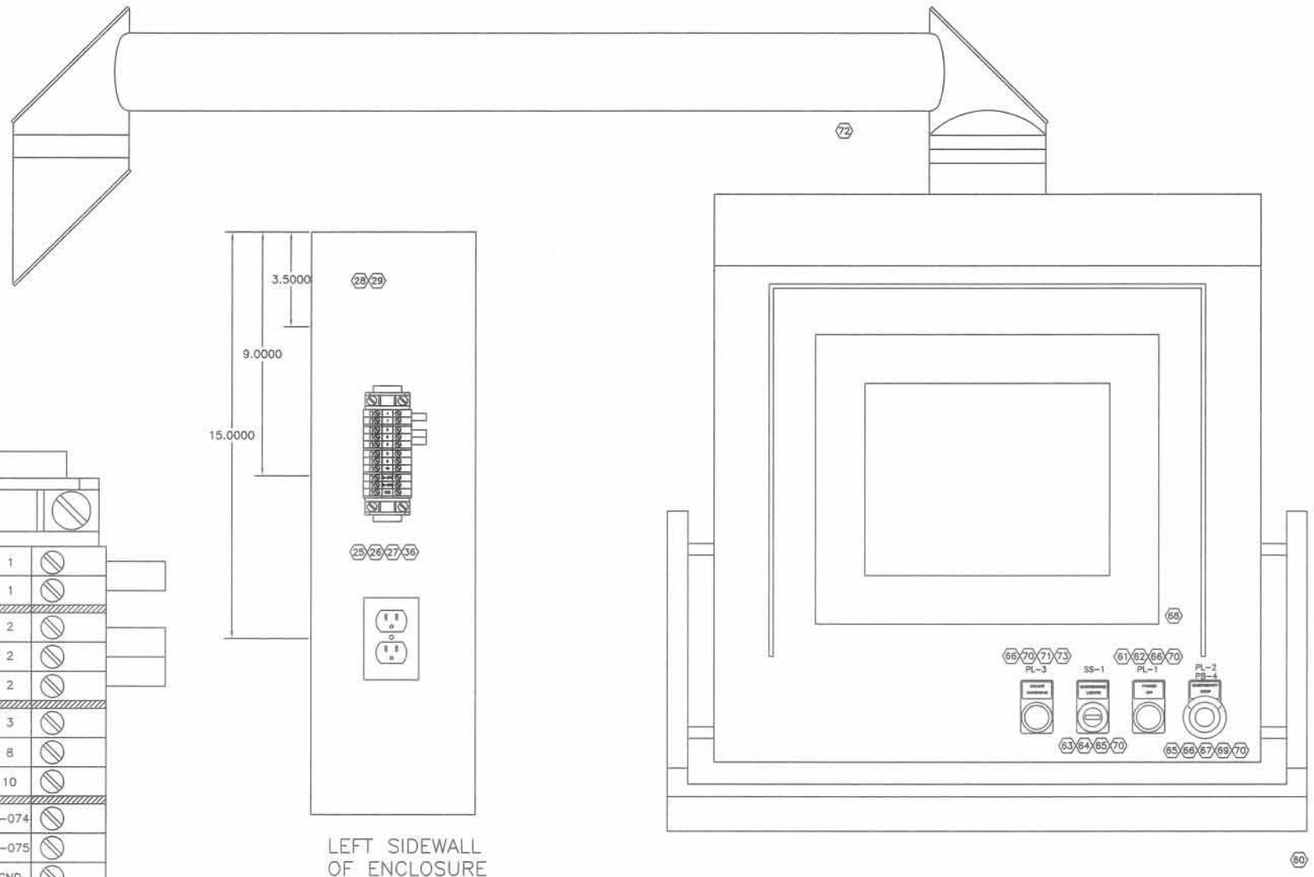
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES;
FRACTIONS ± 1/32 — ANGLES ± 1°
DECIMALS ± .010 — TOTAL RUNOUT ±
MACHINED SURFACES NOT SPECIFIED 250

MiTek Industries,Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

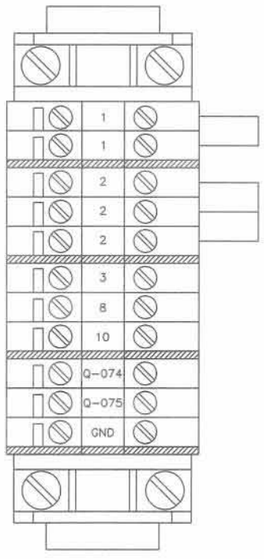
MARK 001048 PAGE 56 X X X

APPROVED	DATE	MFG.	SMARTSET-PRO, ELECTRICAL				
CHECKED	DATE	DRAWN STREISEL	DATE 11/11/97	FINISH PAINT 1 : 1	SCALE NONE	PAGE 17 OF 19	90129 REV. V

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE

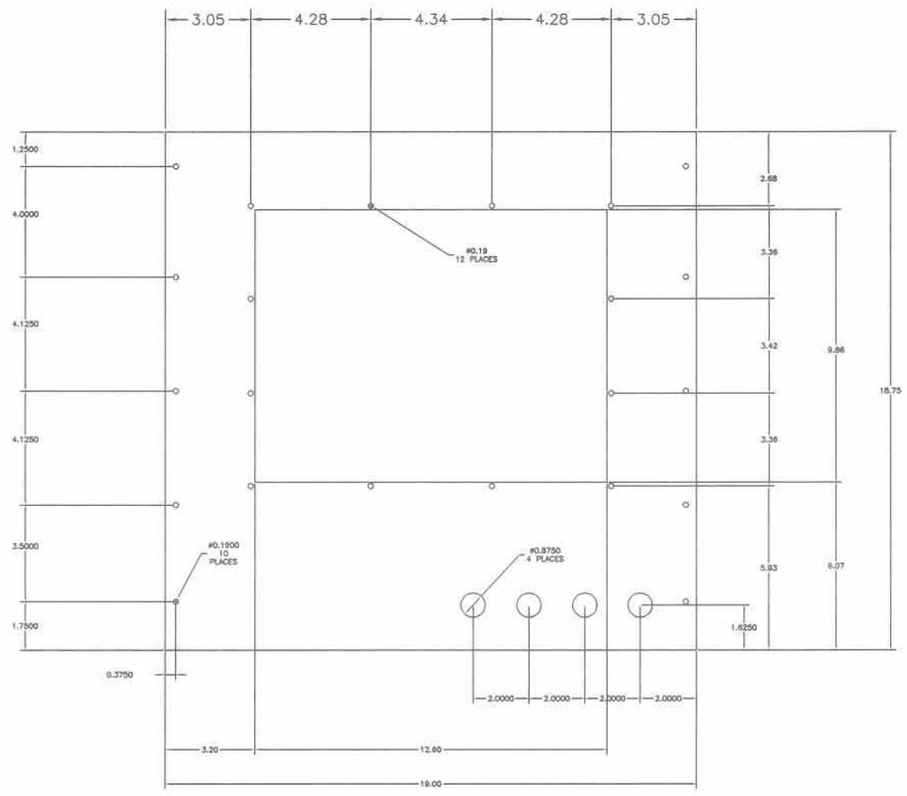


LEFT SIDEWALL OF ENCLOSURE (VIEWED FROM INSIDE)



DETAIL OF TERMINAL STRIP

DETAIL OF MOUNTING PLATE



ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.
73	1 EA	LIGHT,YELLOW LENS	GE #P9CLGD		P	513851
72	1 EA	SWINGARM,ASSY,T-SCRN	REF (MWA)		P	B519663
71	1 EA	NAMEPL,FIG.B,TEXT=COUNT WARNING	GE #P9ARTBSEN		P	513853
70	6 EA	NAMEPLATE,HOLDER	GE #P9ARTBS		P	513676
69	3 EA	NAMEPLT."E-STOP/PULL TO RST"	GE #P9ACPBS230		P	513675
68						
67	1 EA	PUSH-BUTTON,RED,MUSHROOM	GE #P9CET4RL1		P	513654
66	2 EA	LIGHT,120VAC,X-FORM	GE #P9PTNVJ		P	513652
65	5 EA	CONTACT,BLOCK,1NO/1NC	GE #P9B11VN		P	513651
64	1 EA	P-BUTTON,TOGGLE,2-POS,MAINT.	GE #P9CCD		P	513786
63	1 EA	NAMEPLATE,"MAINT.LIGHT"	GE #P9ARTBSEN		P	513875
62	1 EA	NAMEPLATE,"POWER-ON"	GE# P9ACPBS240		P	513682
61	1 EA	LIGHT,GREEN LENS	GE #P9CLVD		P	513646
60	1 EA	OPERATOR STATION	(MWA)		P	015069

KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES:
FRACTIONS ± 1/32 — ANGLES ± 1°
DECIMALS ± .010 — TOTAL RUNOUT ±
MACHINED SURFACES NOT SPECIFIED 250

MiTek Industries, Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

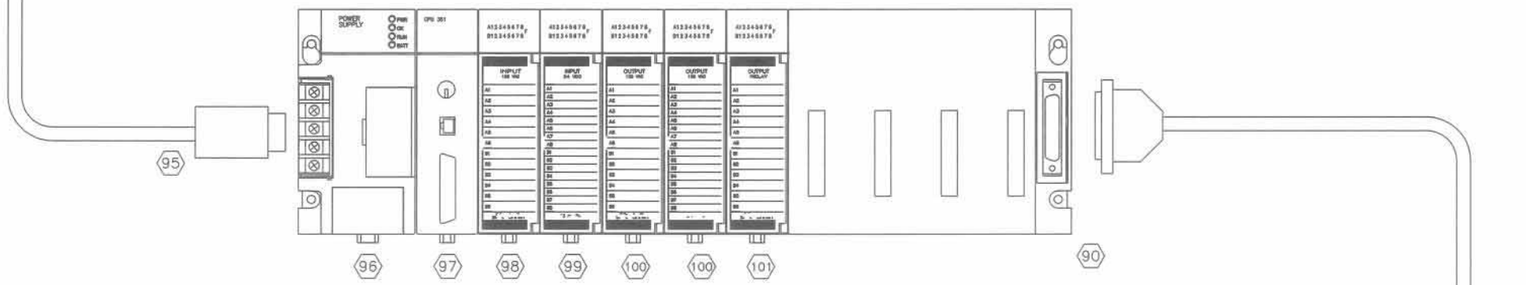
DRAWING 001048 X X X — PAGE 57 X X X

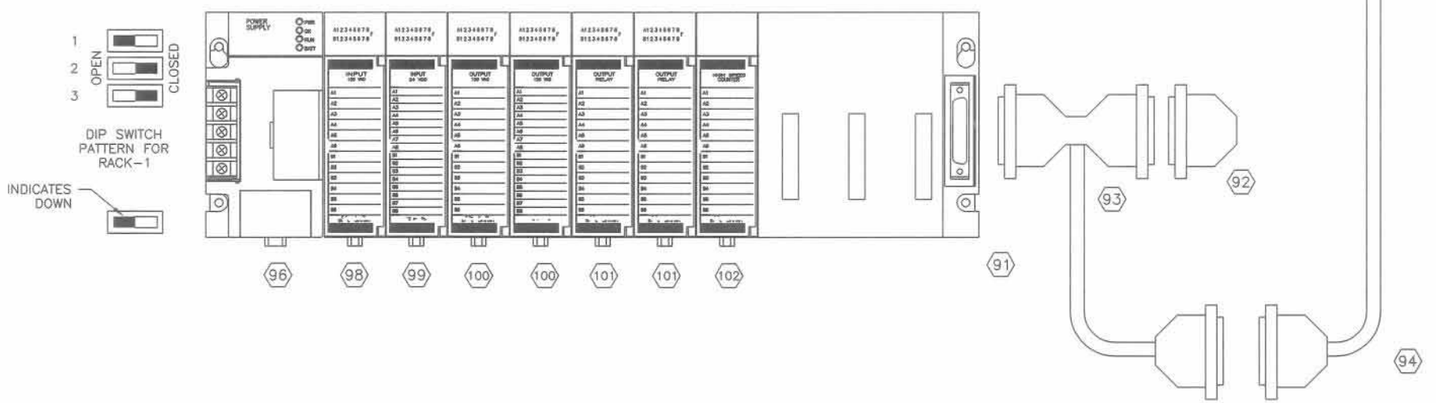
APPROVED	DATE	MFG.	SMARTSET-PRO, ELECTRICAL				
CHECKED	DATE	DRAWN	DATE	FINISH PAINT	SCALE	PAGE	REV.
		STREISEL	11/11/97	1 : 1	NONE	18 OF 19	90129 V

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D	DATE

FOR DETAIL OF CABLE SEE DWG# 92047 FOR CTC
DWG# 92024 FOR GE

REF: TOUCHSCREEN





STATIONARY END

	SLOT 1	SLOT 2	SLOT 3	SLOT 4	SLOT 5	SLOT 6
TYPE	CPU	110VAC INPUT	24VDC INPUT	110VAC OUTPUT	110VAC OUTPUT	RELAY OUTPUT
REF ADD.		%I001	%I017	%Q001	%Q017	%Q033
POINT						
1		DOOR E-STOP (PB-1)	ENC-A1	C1-U	S1	VFD-A1 FWD
2		PULL SWITCH (CS-1)	ENC-C1	C1-D	S2	VFD-A1 REV
3		AIR PRES. SW. (PS-1)	ENC-A2	C2-U	S6	VFD-A1 SLOW
4		VFD-A1 OL	ENC-C2	C2-D	W-1	N/C
5		VFD-A2 OL	ENC-A6	C6-U	W-2	VFD-A2 FWD
6		VFD-A6 OL	ENC-C6	C6-D	W-1	VFD-A2 REV
7		OL-C1	BLADE 6 INSTALLED	H1-U	6-I/O-IN	VFD-A2 SLOW
8		OL-C2	24 VDC VERIFY	H1-D	6-I/O-OUT	N/C
9		OL-C6	HOME-A1		BRAKES	VFD-A6 FWD
10		OL-S1	HOME-C1			VFD-A6 REV
11		OL-S2	HOME-A2			VFD-A6 SLOW
12		OL-S6	HOME-C2			N/C
13		OL-H1	HOME-A6			
14		OL-W1	HOME-C6			
15		OL-W2	TEST MODE			
16			METRIC JUMPER			

CARRIAGE END

	SLOT 1	SLOT 2	SLOT 3	SLOT 4	SLOT 5	SLOT 6	SLOT 7
TYPE	110VAC INPUT	24VDC INPUT	110VAC OUTPUT	110VAC OUTPUT	RELAY OUTPUT	RELAY OUTPUT	HI-SPEED COUNTER
REF ADD.	%I033	%I049	%Q049	%Q065	%Q081	%Q097	%AI001
POINT							
1	DOOR E-STOP (PB-2)	ENC-A3	C3-U	S3	VFD-A3 FWD	VFD-1 FWD	
2	GUARD E-STOP (PB-3)	ENC-C3	C3-D	S4	VFD-A3 REV	VFD-1 REV	
3	PANEL E-STOP (PB-4)	ENC-A4	C4-U	S5	VFD-A3 SLOW	VFD-1 SPEED 1	
4	VFD-A3 OL	ENC-C4	C4-D	V-1	N/C	VFD-1 SPEED 2	
5	VFD-A3 OL	ENC-A5	C5-U	V-2	VFD-A4 FWD	VFD-1 SPEED 3	
6	VFD-A5 OL	ENC-C5	C5-D	5-I/O-IN	VFD-A4 REV		
7	OL-C3	BOARD COUNT	H2-U	5-I/O-OUT	VFD-A4 SLOW		
8	OL-C4	BLADE 5 INSTALLED	H2-D	CARRIAGE BRAKE	N/C		
9	OL-C5	HOME-A3		BUZZER	VFD-A5 FWD		
10	OL-S3	HOME-C3			VFD-A5 REV		
11	OL-S4	HOME-A4			VFD-A5 SLOW		
12	OL-S5	HOME-C4			N/C		
13	OL-H2	HOME-A5				VFD-2 FWD	
14		HOME-C5				VFD-2 REV	
15						VFD-2 SPEED 1	
16						VFD-2 SPEED 2	

ITEM	QTY.	PART NAME	MATERIAL AND/ OR DESCRIPTION	LENGTH	CODE	DWG.NO./PART NO.
103	2 EA	BRKR,2P,1A	ABB #S282UX-K1		P	516596
102	1 EA	COUNTER,HI-SPEED,PLC	GE #IC693APU300		P	504410
101	3 EA	PLC,OUTPUT,RELAY,16POINT	GE #IC693MDL940		P	504406
100	4 EA	PLC,OUTPUT,120V,16POINT	GE #IC693MDL340		P	504405
99	2 EA	PLC,INPUT,16PT,DC	GE #IC693MDL646		P	504424
98	2 EA	PLC,INPUT,GE,AC,16POINT	GE #IC693MDL240		P	504403
97	1 EA	CPU	GE #IC693CPU363		P	504425
96	2 EA	PLC,POWER SUPPLY,120VAC	GE #IC693PWR321		P	504407
95	1 EA	SMARTSET-PRO,TOUCHSCREEN CABLE	SEE DRAWING		P	92047
94	1 EA	COMMUNICATION CABLE	EXPANSION BUS		P	92019
93	1 EA	CABLE,EXPANSION,RACK,COMM	GE #IC693CBL300		P	504433
92	0 EA	PLUG, TERMINATING(SEE ITEM #93)	GE #IC693AW307A		P	504434
91	1 EA	PLC,BASE,10-SLOT,EXPANSION	GE #IC693CHS392		P	504510
90	1 EA	PLC,RACK,10-SLOT,BASE	GE #IC693CHS391		P	504412

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN WITH THE FOLLOWING TOLERANCES;
FRACTIONS ± 1/32 DECIMALS ± .010 ANGLES ± 1° TOTAL RUNOUT ± MACHINED SURFACES NOT SPECIFIED 250

MiTek Industries,Inc.
4203 SHORELINE DRIVE, EARTH CITY, MO. 63045

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KEY	NO. OF HOLES	HOLE DIA.	HOLE DEPTH	TAP DIA.	TAP DEPTH	REMARKS
A	X	X	X	X	X	

APPROVED	DATE	MFG.	SMARTSET-PRO, ELECTRICAL					
CHECKED	DATE	DRAWN	DATE	FINISH PAINT	SCALE	PAGE		REV.
VDC 11/11/97		STREISEL	11/11/97	1 : 1	NONE	19 OF 19	90129	V