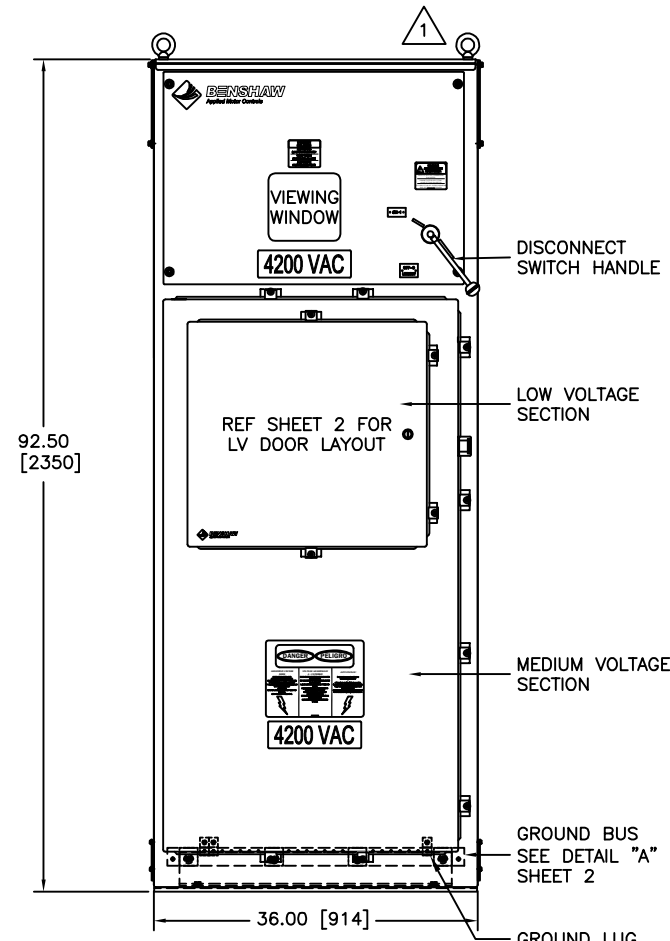
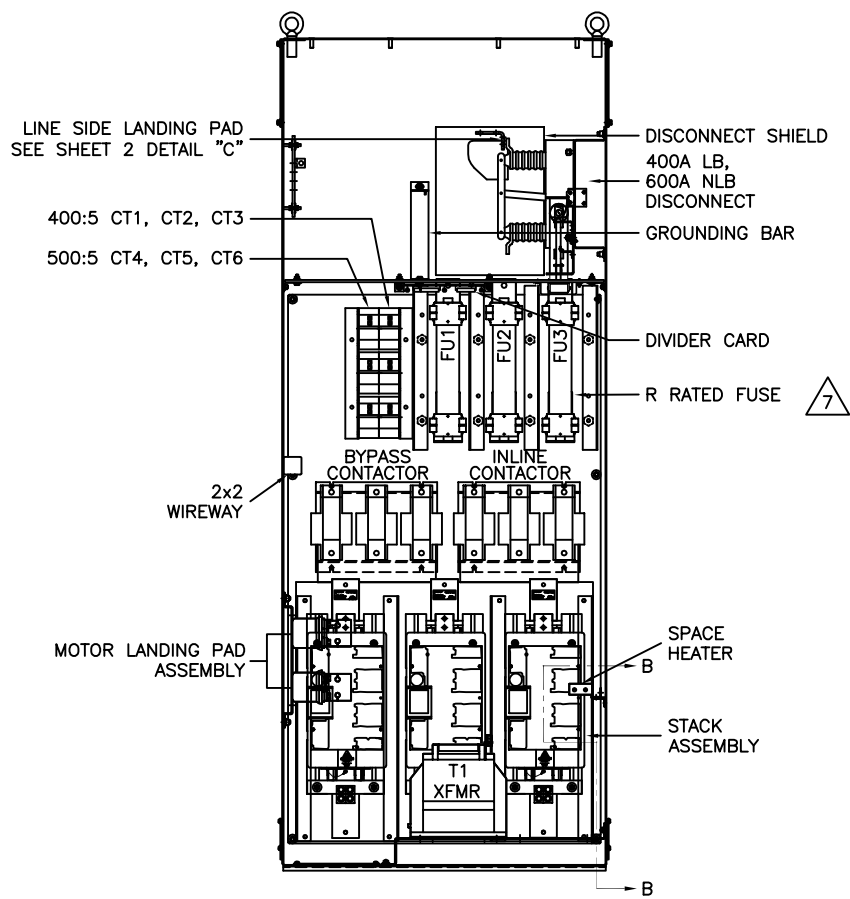


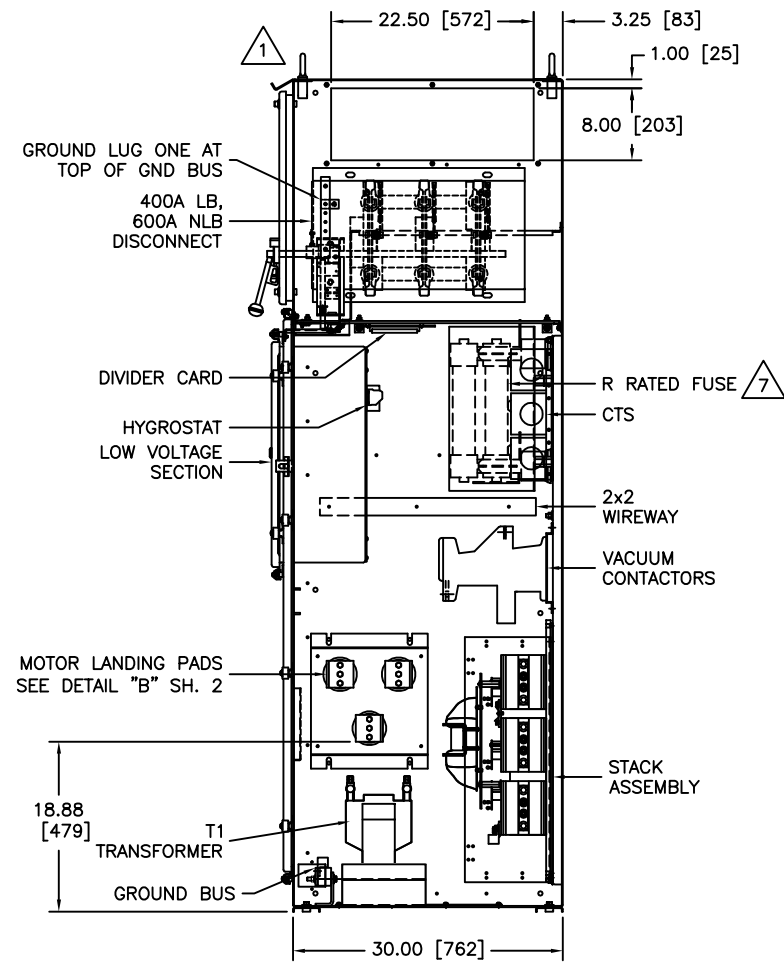
TOP VIEW



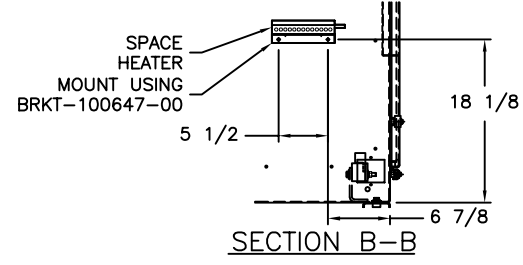
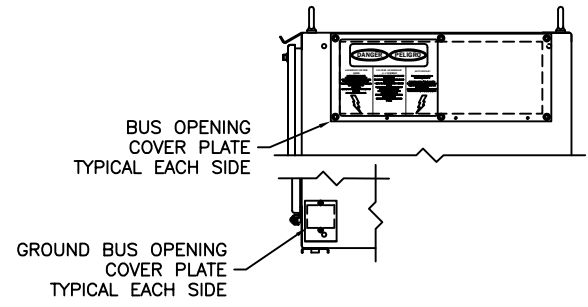
FRONT VIEW



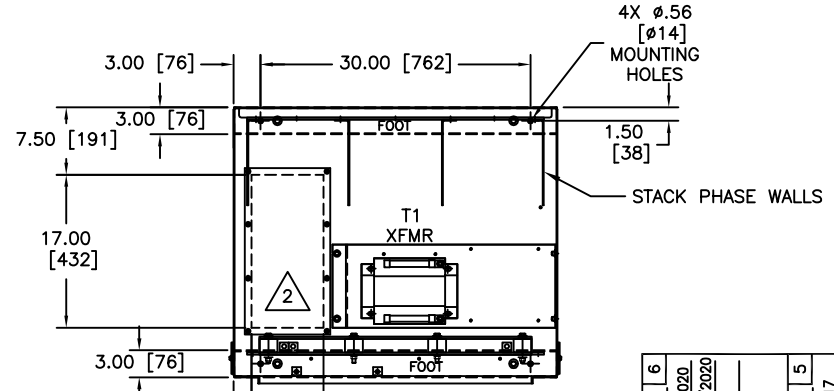
FRONT INTERIOR VIEW



RIGHT SIDE INTERIOR VIEW



SECTION B-B



FRONT OF ENCLOSURE PLAN VIEW

- NOTES:
- 1 REMOVABLE LIFTING EYEBOLTS
 - 2 CABLE ENTRY/EXIT AREA. CUTOUT W/ COVER PLATE SUPPLIED
 - 3 CABLE ENTRY/EXIT AREA. NO CUTOUT SUPPLIED. CUSTOMER TO CUT AS REQUIRED.
 - 4 ENCLOSURE COLOR: ANSI 61 GREY
 - 5 TIGHTEN BOLTS PER CHART BELOW

STEEL BOLT TORQUE IN POUND-FOOT [NEWTON-METER]				
1/4-20	5/16-18	3/8-16	1/2-13	5/8-11
5 [6.8]	12 [16.3]	20 [27]	50 [67.8]	95 [128.8]

- 6. APPROXIMATE WEIGHT IS 1600LBS [726KG]
- 7 R-FUSES SHOWN FOR REFERENCE. REFERENCE SALES ORDER FOR FUSE SIZE.

ECO #5642	ECO# E5202	APPRD:JBU 2/28/2020	CHG BY:JBU 2/28/2020	CHANGE: UL 347 UPDATE
ECO# E5202	APPRD:SMM 5/19/17	CHG BY:RBM 5/19/17	CHANGE:CHANGED TO MICRORUPTER DISCONNECT	4
APPRD:JBU 7/13/16	CHG BY:RBM 7/13/16	CHANGE: GENERAL UPDATE.		

THIRD ANGLE PROJECTION

THIS DRAWING AND ALL INFORMATION CONTAINED HEREIN, IS THE PROPERTY OF BENSCHAW INC., AND MAY NOT BE REPRODUCED, OR DIVULGED TO UNAUTHORIZED PERSONS WITHOUT THE EXPRESS WRITTEN CONSENT OF BENSCHAW INC. IT IS PROVIDED SOLELY FOR THE CONVENIENCE OF THE USER, AND SHALL BE RETURNED UPON REQUEST.

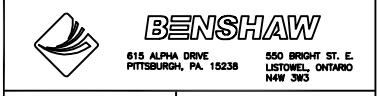
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS IN INCHES [mm] INTERPRET DRAWING PER ASME Y14.5M-1994

TOLERANCES: .XX ± .03
.XXX ± .015
ANGLES ± 1°

MATERIAL:
FINISH:

SIGNATURES	DATE
DRWN: SMM	6/16/14
CHKD: SMM	6/16/14
ENG: SMM	6/16/14

TITLE: UL LABELED MVRXE18-3000-4160-3R SOLID STATE STARTER ENCLOSURE LAYOUT



SCALE: 3/32 : 1 SHEET 1 OF 7

SIZE DWG. NO. D MVRXE18300041603R

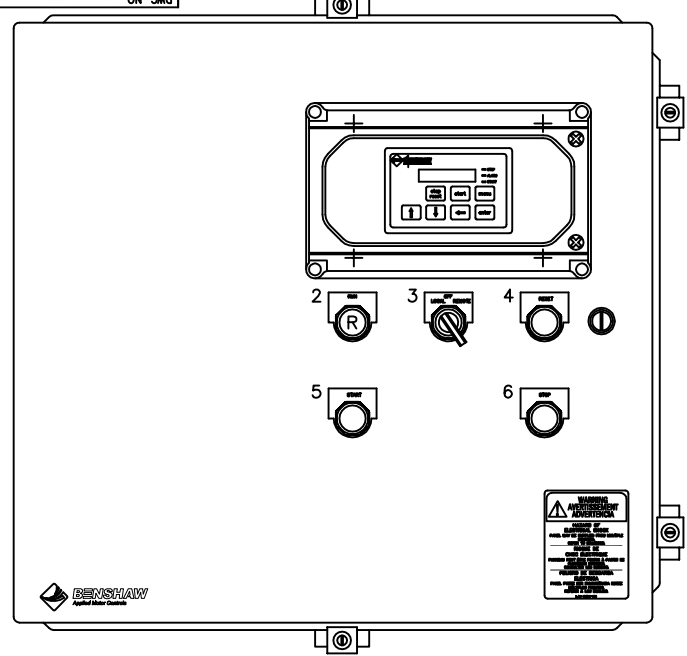
ECO #5663	7
APPRD:SMM 7/23/20	
CHG BY:SMM 7/23/20	
CHANGE: NO CHANGE THIS SHEET	

**CUSTOMER
TERMINAL BLOCKS**

6	REMOTE E-STOP
6C	YELLOW JUMPER (REMOVE IF REMOTE E-STOP SUPPLIED)
6B	START/STOP COMMAND CUSTOMER SUPPLIED
65	
66	
80	FAULT INDICATION IN S.S. MODE FOR CUSTOMER USE
81	
82	
83	UP-TO-SPEED INDICATION IN S.S. MODE FOR CUSTOMER USE
84	
85	
86	RUN INDICATION IN ATL & S.S. MODES FOR CUSTOMER USE
87	
88	
92	ANALOG OUTPUT FOR CUSTOMER USE
93	
94	
95	O/L FAULT IND. IN ATL MODE FOR CUSTOMER USE
96	
97	
98	
99	RS-485
100	
SP	
SP	
SP	

**BENSHAW
TERMINAL BLOCKS**

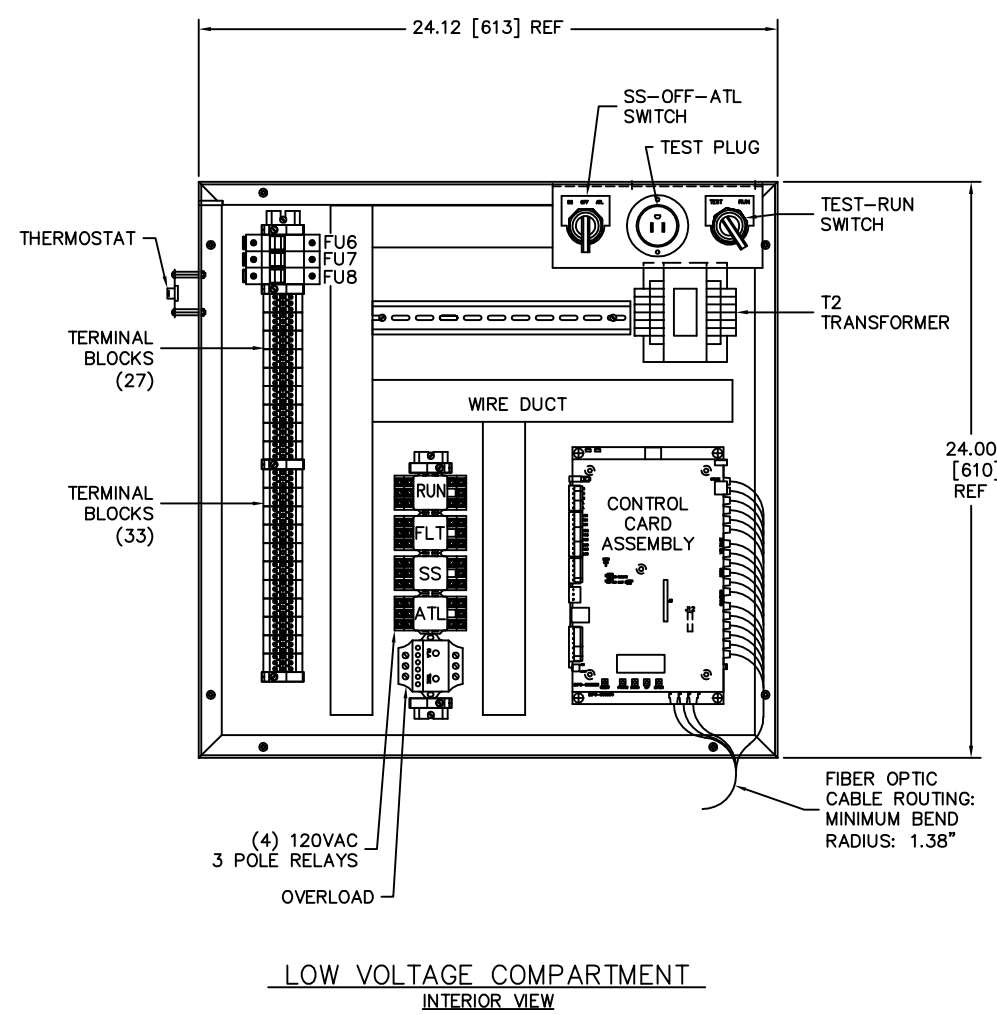
4
5A
6
6
6B
6B
6B
7
7
7
7
7
7
7
7
5
5
10
10
13
36
41
42
43
44
51
52
SP
SP
SP
SP



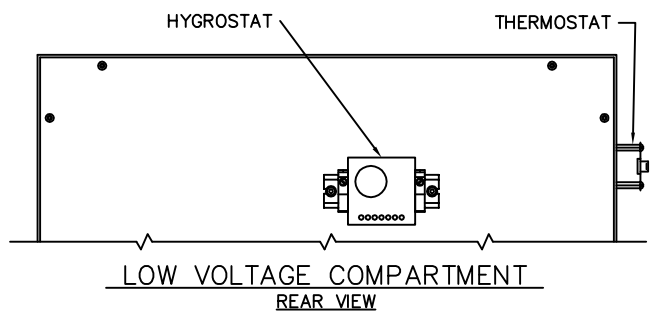
LOW VOLTAGE COMPARTMENT DOOR

DEVICE LEGEND

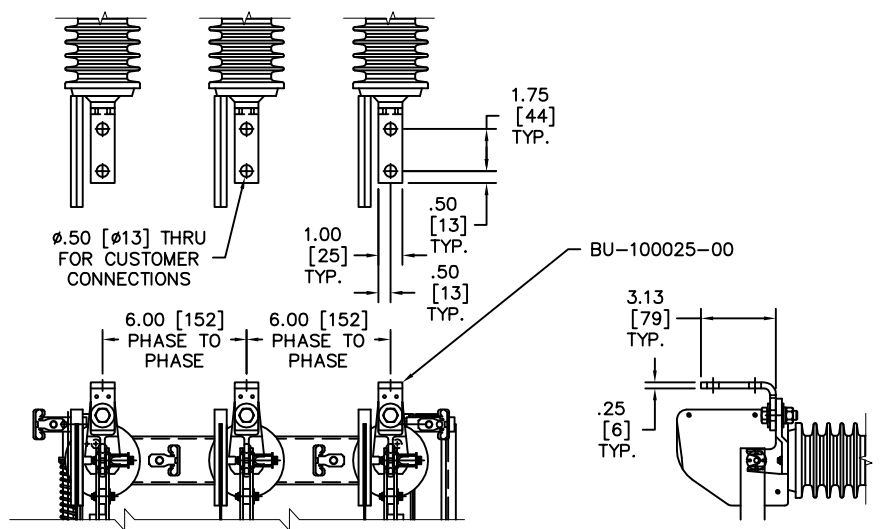
1. KEYPAD DISPLAY WITH 3R COVER
2. "RUN" (RED) PILOT LIGHT
3. "LOCAL-OFF-REMOTE" SELECTOR SWITCH
4. "RESET" (BLACK) PUSHBUTTON
5. "START" (GREEN) PUSHBUTTON
6. "STOP" (RED) RAISED PUSHBUTTON



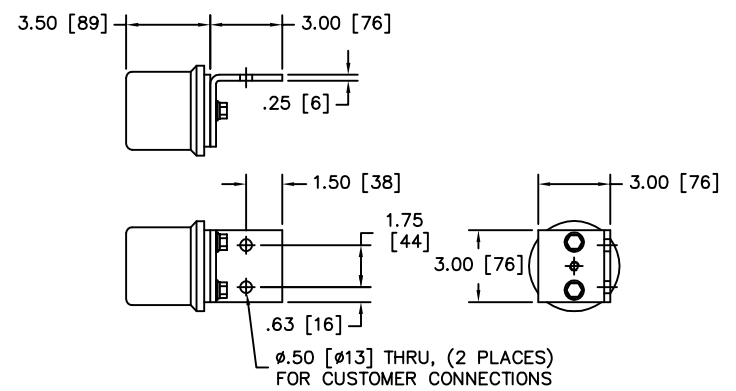
**LOW VOLTAGE COMPARTMENT
INTERIOR VIEW**



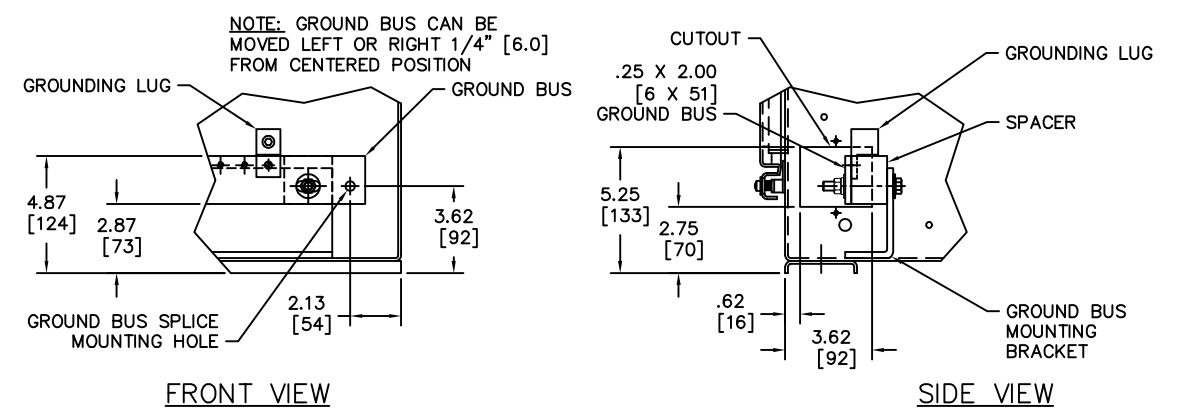
**LOW VOLTAGE COMPARTMENT
REAR VIEW**



LINE SIDE LANDING PAD DETAIL "C"
MATERIAL: .25" THICK TIN PLATED COPPER



LANDING PAD DETAIL "B"
MATERIAL: .25" THICK TIN PLATED COPPER



GROUND BUS DETAIL "A"
MATERIAL: .25 [6] THK. X 2.00 [51] WIDE BARE COPPER

7	ECO #5663	7	ECO #5642	5	ECO# E5202	3	E4864A	2		THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS IN INCHES [mm] INTERPRET DRAWING PER ASME Y14.5M-1994	SIGNATURES	DATE	TITLE: UL LABELED MVRXE18-3000-4160-3R SOLID STATE STARTER LOW VOLTAGE COMPARTMENT AND ENCLOSURE DETAILS	<p>615 ALPHA DRIVE PITTSBURGH, PA. 15238 550 BRIGHT ST. E. LUTSELM, ONTARIO N4W 3K3</p>
	APPRD: SMM 7/23/20		CHG BY: SMM 7/23/20		APPRD: JBU 2/28/2020		CHG BY: REM 5/19/17		APPRD: SMM 6/16/14	THIS DRAWING AND ALL INFORMATION CONTAINED HEREIN, IS THE PROPERTY OF BENSHAW INC. AND MAY NOT BE REPRODUCED, OR DIVULGED TO UNAUTHORIZED PERSONS WITHOUT THE EXPRESS WRITTEN CONSENT OF BENSHAW INC. IT IS PROVIDED SOLELY FOR THE CONVENIENCE OF THE USER AND SHALL BE RETURNED UPON REQUEST.	DRWN: SMM 6/16/14	6/16/14		SCALE: 1/4 : 1	
	CHANGE: NO CHANGE THIS SHEET		CHG BY: JBU 2/28/2020		CHANGE: UL 347 UPDATE		CHG BY: REM 7/13/16		CHG BY: SMM 6/16/14	DO NOT SCALE DWG	TOLERANCES: .XX ± .03 .XXX ± .015 ANGLES ± 1°	CHKD: SMM 6/16/14			SHEET 2 OF 7
							CHANGE: LABEL UPDATE		CHG BY: SMM 6/16/14	REVISION	MATERIAL: FINISH:	ENG: SMM 6/16/14			REV 7

GROUND BUS DETAIL "A"

MATERIAL: .25 [6] THK. X 2.00 [51] WIDE BARE COPPER

DRWN: SMM 6/16/14

CHKD: SMM 6/16/14

ENG: SMM 6/16/14

DATE: 6/16/14

SCALE: 1/4 : 1

SHEET 2 OF 7

REV 7

SHOP NOTES:

- S1 ALL INSTRUMENT AND CONTROL GROUND WIRES ARE #12AWG GREEN WIRE, EXCEPT WHERE NOTED, RUN SEPARATELY TO GROUND LUG POINT. DO NOT DAISY CHAIN GROUND WIRES. RUN ALL GROUND WIRES A MINIMUM OF FOUR (4) INCHES FROM POWER CABLE AND HEATSINKS.
- S2 ALL SECONDARY POWER WIRING MUST BE ROUTED SEPARATE FROM GROUND WIRES AND CONTROL WIRING.
- S3 ALL CURRENT TRANSFORMER SIGNAL WIRING TO BE COVERED WITH HIGH VOLTAGE SLEEVING. ALL CURRENT TRANSFORMERS TO BE SEPARATELY GROUNDED TO GROUND BUS.
- S4 ALL WIRING IN THE MEDIUM VOLTAGE AREA WITHIN FOUR (4) INCHES OF THE HEATSINK ASSEMBLY OR POWER CABLE MUST HAVE 5KV SLEEVING.
- S5 SEPARATE LOW VOLTAGE SUPPLY & CONTROL WIRING AS MUCH AS POSSIBLE FROM MV WIRING. MINIMUM SPACE IS 3". WIRES TO CROSS AT 90° ANGLES.
- S6 14AWG GREEN WIRE, EXCEPT WHERE OTHERWISE NOTED, RUN SEPARATELY TO GROUND LUG POINT. DO NOT DAISY CHAIN GROUND WIRES. RUN ALL GROUND WIRES A MINIMUM OF FOUR (4) INCHES FROM POWER CABLE AND HEATSINKS.
- S7 SCR GATE WIRES TO BE COVERED WITH HIGH VOLTAGE SLEEVING.
- S8 ALL CONTROL WIRING TO BE 14AWG EXCEPT WHERE NOTED.

PARAMETER SETTINGS

SEE MANUAL FOR ADDITIONAL SETTINGS

GROUP	DISPLAY	FUNCTION	AS BUILT
QST 04	LOCAL SRC	LOCAL START SOURCE	TERMINAL
QST 05	REMOTE SRC	REMOTE START SOURCE	TERMINAL
I/O/ 26	Kpd Stop	KEYPAD STOP ENABLE / DISABLE	DISABLE
I/O/ 01	DI 1 CONFIG	DIGITAL INPUT #1 CONFIGURATION	OFF
I/O/ 02	DI 2 CONFIG	DIGITAL INPUT #2 CONFIGURATION	INLINE CNFRM
I/O/ 03	DI 3 CONFIG	DIGITAL INPUT #3 CONFIGURATION	DISCONNECT
I/O/ 04	DI 4 CONFIG	DIGITAL INPUT #4 CONFIGURATION	FAULT LOW
I/O/ 05	DI 5 CONFIG	DIGITAL INPUT #5 CONFIGURATION	OFF
I/O/ 06	DI 6 CONFIG	DIGITAL INPUT #6 CONFIGURATION	FAULT RESET
I/O/ 07	DI 7 CONFIG	DIGITAL INPUT #7 CONFIGURATION	OFF
I/O/ 08	DI 8 CONFIG	DIGITAL INPUT #8 CONFIGURATION	OFF
I/O/ 10	R1 CONFIG	RELAY OUTPUT #1 CONFIGURATION	FAULT FS
I/O/ 11	R2 CONFIG	RELAY OUTPUT #2 CONFIGURATION	UTS
I/O/ 12	R3 CONFIG	RELAY OUTPUT #3 CONFIGURATION	RUNNING
I/O/ 13	R4 CONFIG	RELAY OUTPUT #4 CONFIGURATION	OFF
I/O/ 14	R5 CONFIG	RELAY OUTPUT #5 CONFIGURATION	OFF
I/O/ 15	R6 CONFIG	RELAY OUTPUT #6 CONFIGURATION	OFF
I/O/ 21	Aout Fctn	ANALOG OUTPUT FUNCTION	OFF
RTD 01	RTDMod1 Addr	RTD MODULE #1 ADDRESS	OFF
RTD 02	RTDMod2 Addr	RTD MODULE #2 ADDRESS	OFF

GROUP	DISPLAY	FUNCTION	AS BUILT
FUN 03	CT RATIO	CT RATIO	400:5
FUN 05	RATED VOLTS	RATED RMS VOLTAGE	4160
FUN 07	STARTER TYPE	STARTER TYPE	NORMAL
FUN 20	STACK OL	STACK OL ENABLE / DISABLE	ENABLE
FUN 21	STACK RATING	STACK RATING	360A

STANDARD LEGEND

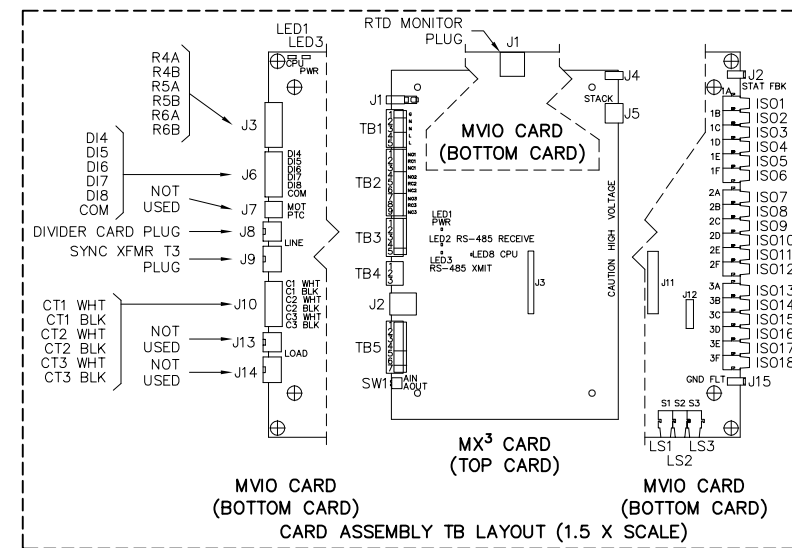
- WIRE NODE SYMBOL
- BENSRAW SUPPLIED TERMINAL BLOCK
- POWER CONNECTION
- TWISTED PAIR
- TWISTED, SHIELDED PAIR
- SHIELDED
- FIBER OPTIC CABLE
ARROW INDICATES DIRECTION OF SIGNAL
- (C-3) UNDERLINED CONTACT REFERENCES ARE NORMALLY CLOSED
- (C-3) NORMALLY OPENED CONTACT REFERENCES ARE NOT UNDERLINED

CUSTOMER NOTES:

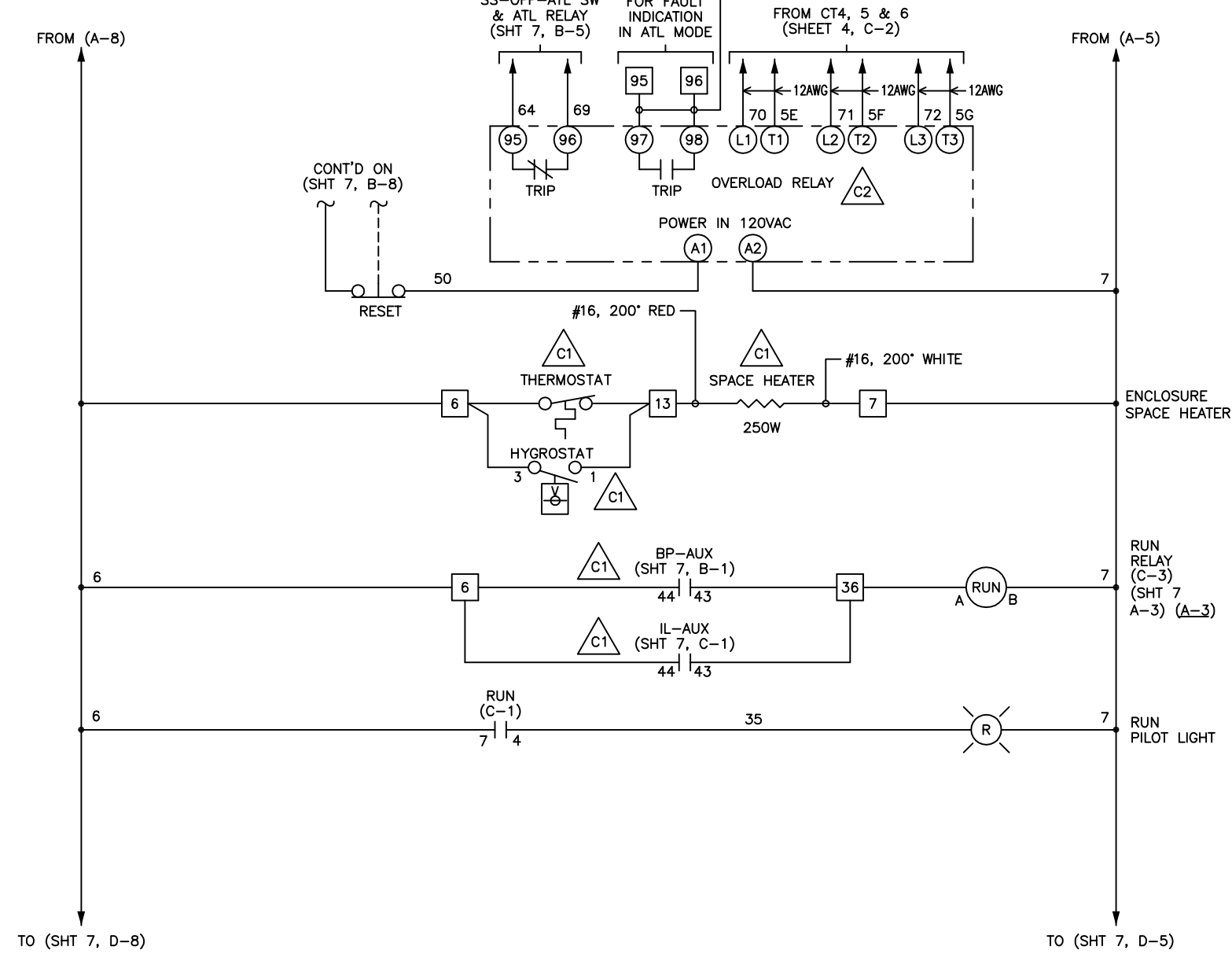
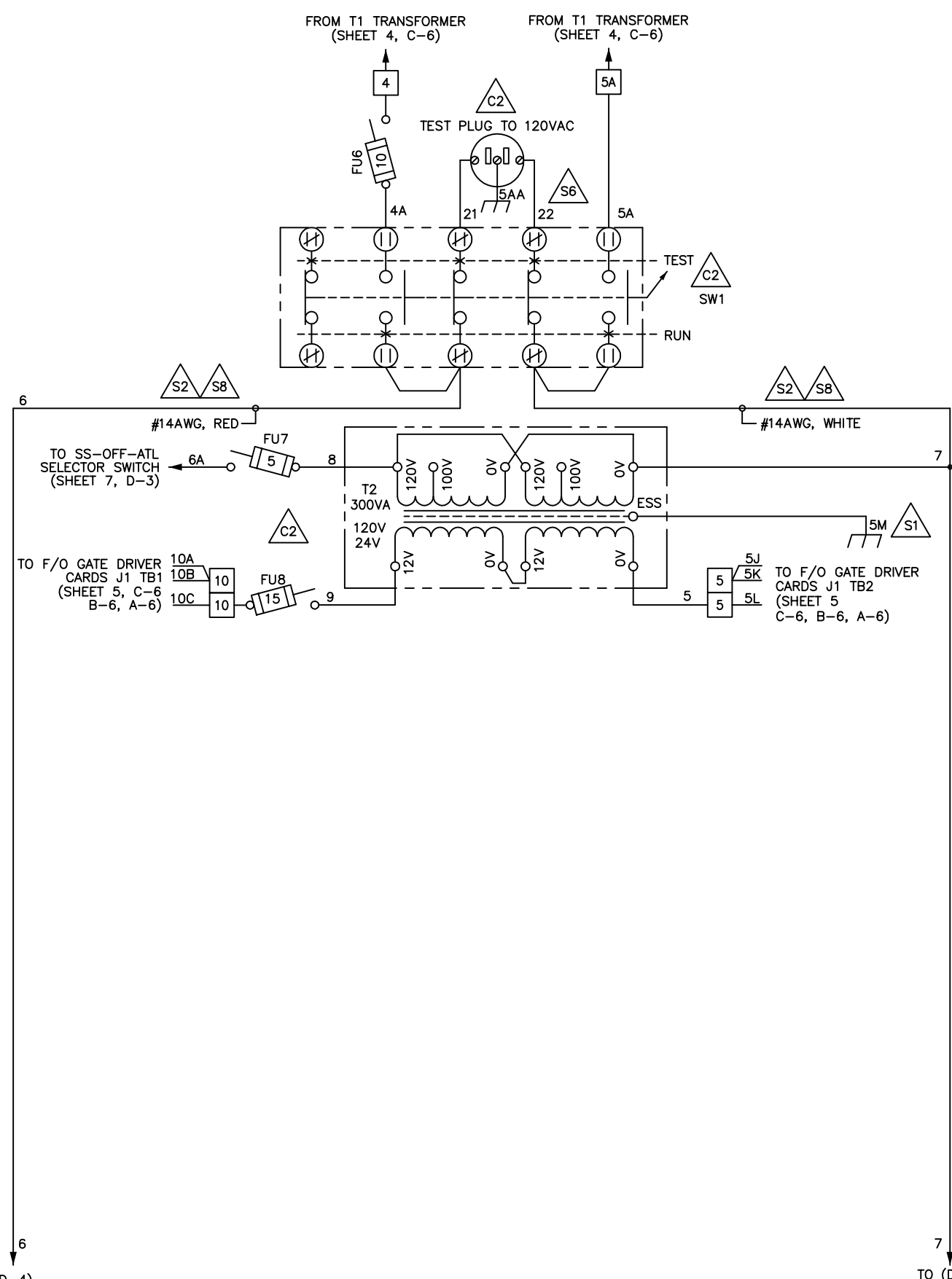
- C1 ITEM LOCATED IN STARTER MEDIUM VOLTAGE SECTION.
- C2 ITEM LOCATED IN STARTER LOW VOLTAGE SECTION.
- C3 R1 RELAY SHOWN IN DE-ENERGIZED STATE. R1 N.O. CONTACT WILL OPEN AND R1 N.C. CONTACT WILL CLOSE ON SYSTEM FAULT. R1 RELAY INDICATES FAULT ON POWER-UP UNTIL STARTER SELF-CHECK IS COMPLETE.
- C4 LED STATUS WITH POWER APPLIED.
 "ON" "OFF"
- C5 REMOVE REMOTE RUN COMMAND PRIOR TO RESETTING A FAULT TO PREVENT IMMEDIATE RESTART OF THE MOTOR.
- C6 REFERENCE SALES ORDER FOR R-FUSE SIZE.
- C7 THE ACTUAL HP AND FLA RATINGS VARY PER MOTOR. SIZE R-FUSES PER MOTOR FLA. THE MAXIMUM SIZE R-FUSE FOR THIS MODEL MVRXE IS 24R.

	SOFTWARE VERSION	MANUAL
MX3 CARD	810023-02-xx	890034-03-xx
MVIO CARD	810024-01-xx	

xx VERSION AT TIME OF SHIPMENT



ECO #5663 APPRD: SMM 7/23/20 CHG BY: SMM 7/23/20 CHANGE: NO CHANGE THIS SHEET	ECO #5642 APPRD: JBU 2/28/2020 CHG BY: JBU 2/28/2020 CHANGE: UL 347 UPDATE	ECO# E5202 APPRD: SMM 5/19/17 CHG BY: RBM 5/19/17 CHANGE: CHANGED TO MICROPROCESSOR DISCONNECT	4 APPRD: JBU 7/13/16 CHG BY: RBM 7/13/16 CHANGE: GENERAL UPDATE.	3 E-4865A APPRD: JBU 1/15/16 CHG BY: JBU 1/15/16 CHANGE: SHEETS 1 & 2	2 APPRD: SMM 6/16/14 CHG BY: SMM 6/16/14 CHANGE: INITIAL RELEASE	REVISION DO NOT SCALE DWG	THIRD ANGLE PROJECTION 	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS IN INCHES [mm] INTERPRET DRAWING PER ASME Y14.5M-1994 TOLERANCES: .XX ± .03 .XXX ± .015 ANGLES ± 1°	MATERIAL: FINISH:	SIGNATURES DRWN: SMM 6/16/14 CHKD: SMM 6/16/14 ENG: SMM 6/16/14	DATE 6/16/14	TITLE: UL LABELED MVRXE18-3000-4160-3R SOLID STATE STARTER SCHEMATIC NOTES	BENSHAW 615 ALPHA DRIVE PITTSBURGH, PA. 15238 550 BRIGHT ST. E. LUSTONEL, ONTARIO N4W 3K3	SCALE: N/A	SHEET 3 OF 7	REV 7
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ECO #5663	APPRD: SMM 7/23/20	CHG BY: SMM 7/23/20	CHANGE: NO CHANGE THIS SHEET	ECO #5642	APPRD: JBU 2/28/2020	CHG BY: JBU 2/28/2020	CHANGE: UL 347 UPDATE	ECO# E5202	APPRD: SMM 5/19/17	CHG BY: REM 5/19/17	CHANGE: CHANGED TO MICROPIPER DISCONNECT	APPRD: JBU 7/13/16	CHG BY: REM 7/13/16	CHANGE: GENERAL UPDATE	E-4865A	APPRD: JBU 1/15/16	CHG BY: JBU 1/15/16	CHANGE: SHEETS 1 & 2	APPRD: SMM 6/16/14	CHG BY: SMM 6/16/14	CHANGE: INITIAL RELEASE	DO NOT SCALE DWG	THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS IN INCHES [mm] INTERPRET DRAWING PER ASME Y14.5M-1994	TOLERANCES: .XX ± .03 .XXX ± .015 ANGLES ± 1°	MATERIAL: FINISH:	SIZE DWG. NO. D MVRXE18300041603R	REV 7							
																							SIGNATURES		DATE	TITLE: UL LABELED MVRXE18-3000-4160-3R SOLID STATE STARTER SCHEMATIC		SCALE: N/A		SHEET 6 OF 7		SEE SHEET 3 FOR NOTES		BENSHAW 615 ALPHA DRIVE PITTSBURGH, PA. 15238 550 BRIGHT ST. E. LISTONEL, ONTARIO N4W 3K3	

