

**Model LX Static Hydraulic
Universal Testing System****Reference Manual - Equipment**
M47-17043-EN Revision B

Electromagnetic Compatibility

Where applicable, this equipment is designed to comply with International Electromagnetic Compatibility (EMC) standards.

To ensure reproduction of this EMC performance, connect this equipment to a low impedance ground connection. Typical suitable connections are a ground spike or the steel frame of a building.

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Original Instructions

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Corporate Headquarters

Instron
825 University Avenue
Norwood, MA 02062-2643
United States of America

European Headquarters

Instron
Coronation Road
High Wycombe, Bucks HP12 3SY
United Kingdom

About This Document

This Equipment Reference Manual has been prepared to provide customers with assembly drawings and schematics that pertain to the various models of LX Static Hydraulic Universal Testing Systems. These drawings are provided for your use and Instron personnel use only. These drawings are the property of Instron and may be subject to return upon demand. The contents of this manual must not be copied or submitted to outside parties for use or examination.

How to Use This Document

The drawings included in this manual are arranged in numerical order for ease of locating any given drawing; refer to the “List of Drawings” section for a list of drawing titles and numbers. To determine which drawings pertain to your specific model of LX testing system, use the information given in the “System Identification” section in conjunction with the “Options and Applicable Drawings” section.

System Identification

Your system has been given a unique serial number for system identification. This serial number can be found on the serial tag located on the rear of the frame.

The frame serial tag includes other important system information, including information on your frame’s configuration. Frame configuration information can also be found on your copy of the Instron quote.

Options and Applicable Drawings

This section provides a list of LX testing system options and their applicable drawings. The options are listed in alphabetical order.

Not all options have applicable drawings. If any of the options purchased for your testing system are not listed here, then there are no drawings provided that pertain to that option.

300LX

General Assembly _____	R236310-3
Hydraulic Schematic _____	R217495-3B
LX Power – Schematic _____	R236084-4
LX Power – Wire List Layout _____	R236670-3

600LX

General Assembly _____	R236311-3
Hydraulic Schematic _____	R217495-3B
LX Power – Schematic _____	R236084-4
LX Power – Wire List Layout _____	R236670-3

List of Drawings

The following is a list of all drawings that appear in this manual. The drawings are in numerical order for ease of locating.

Hydraulic Schematic _____	R217495-3B
General Assembly _____	R236310-3
General Assembly _____	R236311-3
LX Power – Schematic _____	R236084-4
LX Power – Wire List Layout _____	R236670-3

Appendix A

This section provides the Material Safety Data Sheet for the oil used in the hydraulic power supply (HPS).

Material Safety Data Sheet _____ Altra AW32 Oil

System Documentation

In addition to this Equipment Reference Manual, the following manuals are included under separate cover:

- Model LX Series Static Hydraulic Universal Testing System – Pre-Installation Manual
Manual No. M47-17040-EN
- Model LX Series Static Hydraulic Universal Testing System – Operating Instructions
Manual No. M47-17041-EN
- Model LX Series Static Hydraulic Universal Testing System – System Concepts Manual
Manual No. M47-17042-EN

List of Drawings

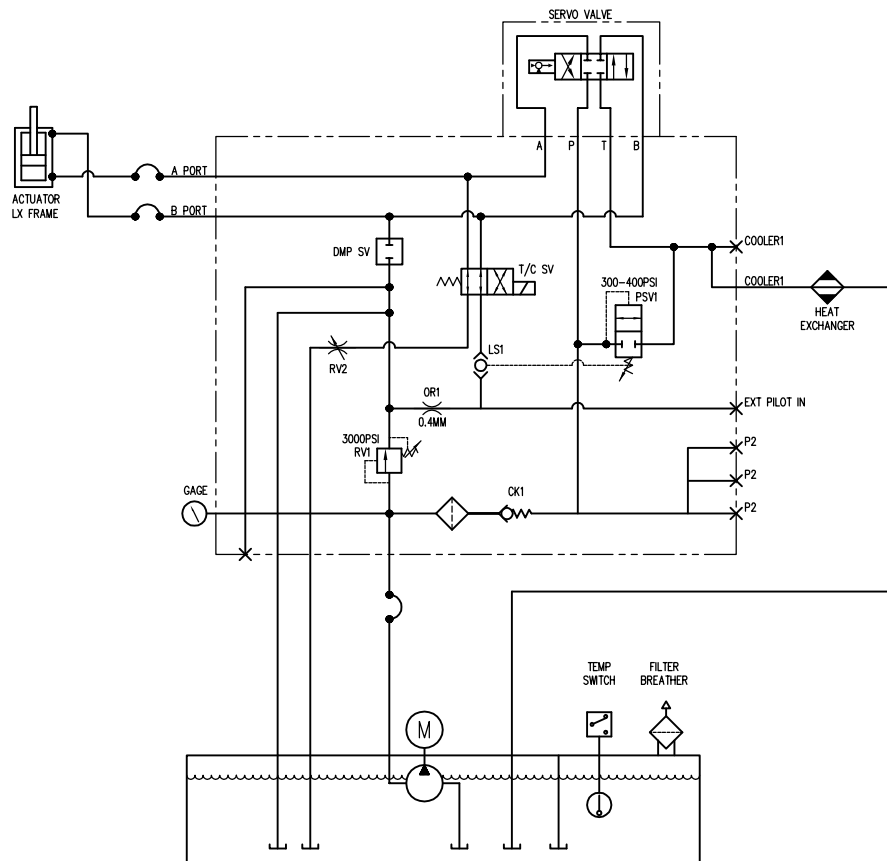
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NOTES:

BALANCE RELIEF(RV2) SETUP (IF REQUIRED):

THE BALANCE RELIEF IS PROVIDED IN SITUATIONS WHERE PRESSURE INCREASES WHILE HOLDING A LOAD LEVEL. THE NEEDLE VALVE PROVIDES RELIEF TO TANK FROM THE NON-LOAD SIDE OF THE CYLINDER TO ELIMINATE THIS PRESSURE BUILD.

- REFER TO HYDRAULIC SPREADSHEET FOR MAXIMUM SYSTEM PRESSURE SETTINGS
- PLACE AMP METER ON MOTOR LEADS AND VOLT METER TO MEASURE SERVO COMMAND SIGNAL ON FRAME INTERFACE BOARD
- ADJUST MOTOR OVERLOAD TO APPROPRIATE SETTING
- TURN IN BACKUP RELIEF TO MAXIMUM VALVE SETTING
- TURN IN BALANCE RELIEF (RV2) FULL CLOSED (CW)
- START PUMP AND ADJUST IDLE PRESSURE (PSVI) TO APPROPRIATE SETTING
- WITH CROSSHEAD PROPERLY CLAMPED, LOAD SYSTEM TO FULL CAPACITY IN POSITION CONTROL TO ENSURE CLAMPING (-J3)
- UNLOAD AND ALLOW SYSTEM TO IDLE FOR 60 SECONDS. VERIFY IDLE PRESSURE IS CORRECT.
- LOAD SYSTEM TO FULL CAPACITY IN LOAD CONTROL AND MONITOR PRESSURE. PRESSURE GAGE SHOULD READ AS SPECIFIED IN HYDRAULIC SPREADSHEET AS MAXIMUM SYSTEM PRESSURE. MONITOR FOR 60 SECONDS. IF PRESSURE REMAINS CORRECT, NO ADJUSTMENT TO THE BALANCE RELIEF (RV2) IS NECESSARY.
- IF SYSTEM EXCEEDS MAXIMUM SYSTEM PRESSURE OR MOTOR AMPERAGE IS MORE THAN 10% OVER MOTOR NAMEPLATE, PERFORM THE FOLLOWING:
 - MONITOR MOTOR AMPERAGE AND SERVO COMMAND
 - SLOWLY OPEN BALANCE RELIEF (RV2) CCW INCREMENTALLY (¼ TURN AT A TIME).
 - OBSERVE AMPERAGE BEGINS TO DROP AND STABILIZES OR HOLDS CURRENT.
 - CONTINUE TO OPEN BALANCE RELIEF (RV2) CCW INCREMENTALLY UNTIL CURRENT DRAW IS WITHIN 10% OF MOTOR NAMEPLATE RATING.
 - ONCE APPROPRIATE CURRENT DRAW IS ACHIEVED, CHECK PRESSURE GAGE IS STABLE AND APPROXIMATELY MAXIMUM SYSTEM PRESSURE.
 - LOCK BALANCE RELIEF (RV2) SETTING.
 - UNLOAD SYSTEM, ALLOW TO STABILIZE AT IDLE PRESSURE AND RELOAD SYSTEM TO MAXIMUM CAPACITY.
 - RE-CHECK ALL PRESSURES AND AMP DRAW ARE WITHIN SPECIFIED LEVELS.
 - UNLOAD SYSTEM AND REMOVE LOAD STRING.
 - JOG ACTUATOR IN BOTH DIRECTIONS AND WITH T/C SWITCH IN BOTH POSITIONS. ENSURE ACTUATOR MAKES SPEED IN ALL MODES.
 - VERIFY SERVO COMMAND SIGNAL IS WITHIN NORMAL LEVELS WHILE JOGGING IN ALL MODES.
 - BALANCE RELIEF (RV2) SETUP IS COMPLETE.



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FINISH:		TOLERANCES UNLESS OTHERWISE NOTED	
RACIAL: ±.0005		DECIMAL: ±.0005	
ANGLE: ±.01 DEGREE		ANGLE: ±.01 DEGREE	
MATERIAL:			
HARDNESS:			
HYDRAULIC SCHEMATIC			
STD LX WITH J1 OPTION			
MADE FOR: LX			
INSTROTRON/SATTEC SYSTEMS, INC.			
GROVE CITY, PENNSYLVANIA			
NO.	REV.	DATE	BY
6	0002	ADD BALANCE RELIEF IN POS.	S/S
7	0002	ADD VAL IN BALANCE RELIEF TO T/C VALV	S/S
8	0002	ADD T/C VALV IN BALANCE RELIEF TO T/C VALV	S/S
9	0002	ADD VAL IN BALANCE RELIEF TO T/C VALV	S/S
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26	0002	ADD VAL IN BALANCE RELIEF TO T/C VALV	S/S
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30	0002	ADD VAL IN BALANCE RELIEF TO T/C VALV	S/S
31	0002	ADD VAL IN BALANCE RELIEF TO T/C VALV	S/S
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48	0002	ADD VAL IN BALANCE RELIEF TO T/C VALV	S/S
49	0002	ADD VAL IN BALANCE RELIEF TO T/C VALV	S/S
50	0002	ADD VAL IN BALANCE RELIEF TO T/C VALV	S/S

SHEET 1 OF 2

R217495-3B

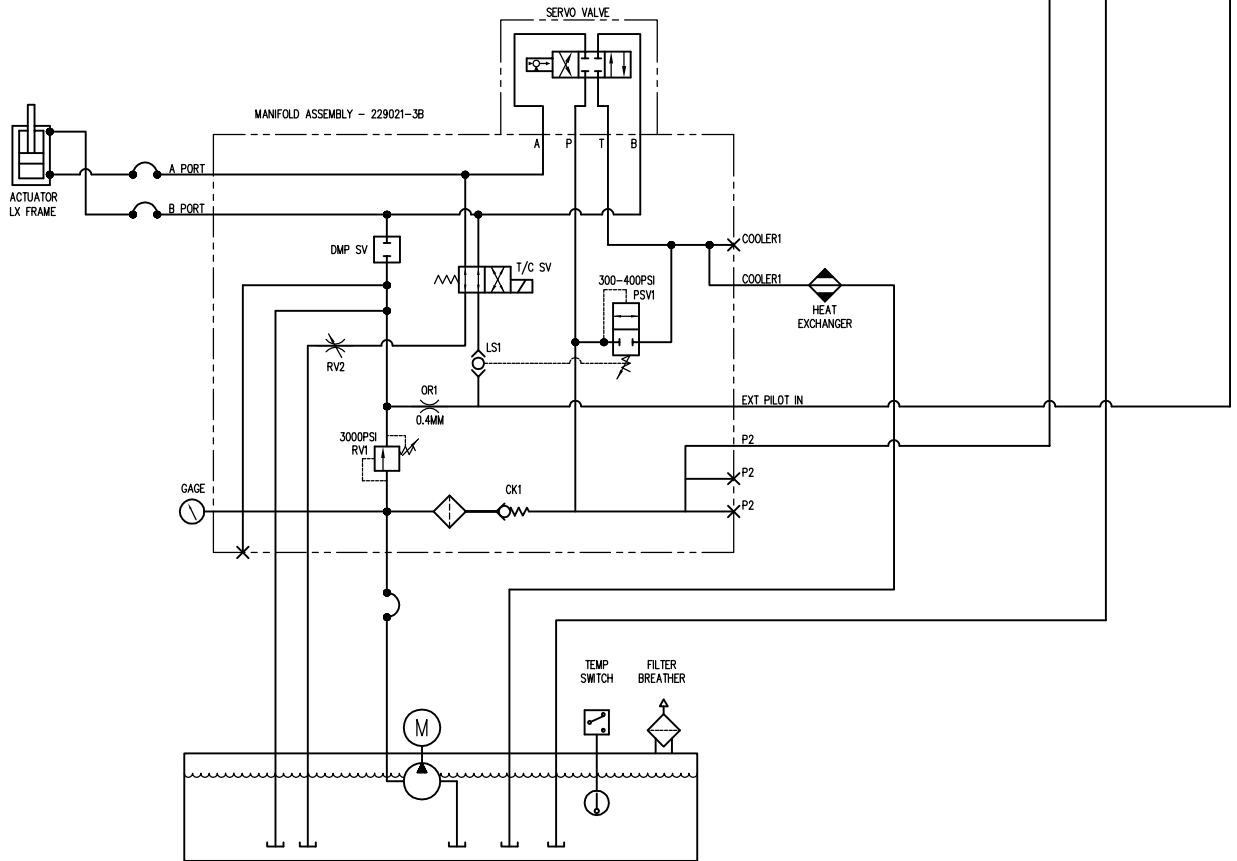
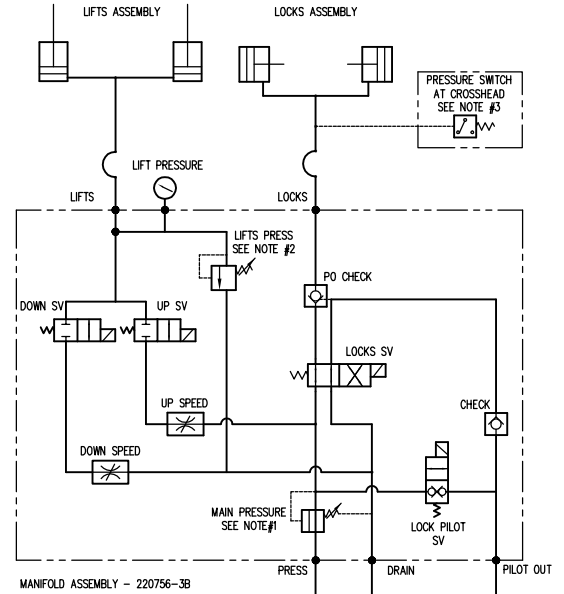
NOTES:

- SEE HYDRAULIC SPREADSHEET FOR PRESSURE SETTING. SETTING FOR "HPS MANIFOLD GAGE READING" TO BE READ ON PUMPING UNIT PRESSURE GAGE. SET WITH LOCKS SWITCH IN "UNLOCK" POSITION.
- SET TO 500PSI AT LIFT PRESSURE GAGE. READ AT GAGE ON L/L MANIFOLD WITH LIFTS EXTENDED FULL OUT. SETTING IS FOR BASIC FRAME. MAY REQUIRE ADDITIONAL PRESSURE DEPENDING ON GRIPS/ACCESSORIES.
- AFTER SETTING PRESSURE FOR LOCKS PER NOTE #1, ADJUST PRESSURE SWITCH AS FOLLOWS:
 - REFER TO HYDRAULIC SPREADSHEET FOR PRESSURE SETTINGS.
 - INSTALL TEST GAGE AT PRESSURE SWITCH MANIFOLD (3000PSI GAGE)
 - BACK OUT PRESSURE SWITCH (CW) SEVERAL TURNS
 - CLAMP CROSSHEAD
 - ADJUST (CW) UNTIL SWITCH TRIPS AS INDICATED ON CONTROLLING SOFTWARE SCREEN.
 - CHECK PRESSURE AT TEST GAGE AND ADJUST SWITCH (CW) UNTIL TEST GAGE INDICATES "TEST GAGE AT LOCKS (INITIAL)".
 - CYCLE LOCKS SEVERAL TIMES TO ENSURE SOFTWARE CLEARS LOCKS CONDITION AND PUMP RAMPS BACK TO IDLE WHEN CLAMPED.
 - LOAD MACHINE TO FULL CAPACITY IN TENSION AND VERIFY "TEST GAGE AT LOCKS (FINAL)" AS SPECIFIED.
 - CHECK SOFTWARE INDICATOR CONDITION TO ENSURE PROPER OPERATION AND VERIFY ALL PRESSURE SETTINGS.

BALANCE RELIEF (RV2) SETUP (IF REQUIRED):

THE BALANCE RELIEF IS PROVIDED IN SITUATIONS WHERE PRESSURE INCREASES WHILE HOLDING A LOAD LEVEL. THE NEEDLE VALVE PROVIDES RELIEF TO TANK FROM THE NON-LOAD SIDE OF THE CYLINDER TO ELIMINATE THIS PRESSURE BUILD.

- REFER TO HYDRAULIC SPREADSHEET FOR MAXIMUM SYSTEM PRESSURE SETTINGS
- PLACE AMP METER ON MOTOR LEADS AND VOLT METER TO MEASURE SERVO COMMAND SIGNAL ON FRAME INTERFACE BOARD
- ADJUST MOTOR OVERLOAD TO APPROPRIATE SETTING
- TURN IN BACKUP RELIEF TO MAXIMUM VALVE SETTING
- TURN IN BALANCE RELIEF (RV2) FULL CLOSED (CW)
- START PUMP AND ADJUST IDLE PRESSURE (PSVI) TO APPROPRIATE SETTING
- WITH CROSSHEAD PROPERLY CLAMPED, LOAD SYSTEM TO FULL CAPACITY IN POSITION CONTROL TO ENSURE CLAMPING (~J3)
- UNLOAD AND ALLOW SYSTEM TO IDLE FOR 60 SECONDS. VERIFY IDLE PRESSURE IS CORRECT.
- LOAD SYSTEM TO FULL CAPACITY IN LOAD CONTROL AND MONITOR PRESSURE. PRESSURE GAGE SHOULD READ AS SPECIFIED IN HYDRAULIC SPREADSHEET AS MAXIMUM SYSTEM PRESSURE. MONITOR FOR 60 SECONDS. IF PRESSURE REMAINS CORRECT, NO ADJUSTMENT TO THE BALANCE RELIEF (RV2) IS NECESSARY.
- IF SYSTEM EXCEEDS MAXIMUM SYSTEM PRESSURE OR MOTOR AMPERAGE IS MORE THAN 10% OVER MOTOR NAMEPLATE, PERFORM THE FOLLOWING:
 - MONITOR MOTOR AMPERAGE AND SERVO COMMAND
 - SLOWLY OPEN BALANCE RELIEF (RV2) CW INCREMENTALLY (1/4 TURN AT A TIME).
 - OBSERVE AMPERAGE. BEGINS TO DROP AND STABILIZES OR HOLDS CURRENT.
 - CONTINUE TO OPEN BALANCE RELIEF (RV2) CW INCREMENTALLY UNTIL CURRENT DRAW IS WITHIN 10% OF MOTOR NAMEPLATE RATING.
 - ONCE APPROPRIATE CURRENT DRAW IS ACHIEVED, CHECK PRESSURE GAGE IS STABLE AND APPROXIMATELY MAXIMUM SYSTEM PRESSURE.
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 - VERIFY SERVO COMMAND SIGNAL IS WITHIN NORMAL LEVELS WHILE JOGGING IN ALL MODES.
 - BALANCE RELIEF (RV2) SETUP IS COMPLETE.

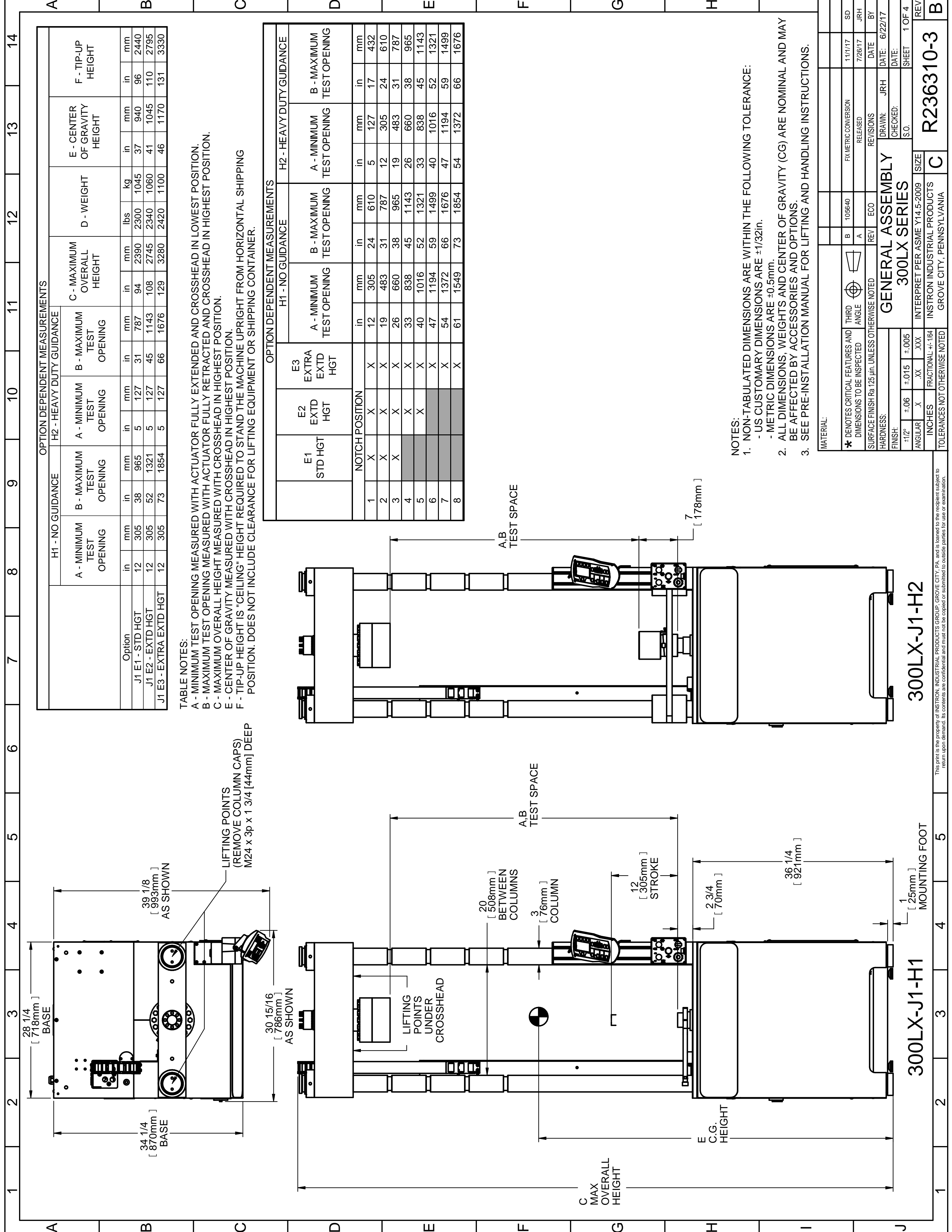


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MATERIAL:		HARDNESS:	
FINISH:		TOLERANCES UNLESS OTHERWISE NOTED	
RADIUSES: 1/16		DECIMAL: +/- .005	
ANGLES: 1/16 DEGREE		MADE FOR: LX	
NO. 1		EON	
REV. 1		DATE: 1/31/03	
REV. 2		DATE: 1/31/03	
REV. 3		DATE: 1/31/03	
REV. 4		DATE: 1/31/03	
REV. 5		DATE: 1/31/03	
REV. 6		DATE: 1/31/03	
REV. 7		DATE: 1/31/03	
REV. 8		DATE: 1/31/03	
REV. 9		DATE: 1/31/03	
REV. 10		DATE: 1/31/03	
REV. 11		DATE: 1/31/03	
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REV. 13		DATE: 1/31/03	
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REV. 48		DATE: 1/31/03	
REV. 49		DATE: 1/31/03	
REV. 50		DATE: 1/31/03	

SHEET 2 OF 2

HYDRAULIC SCHEMATIC
STD LX WITH J3 OPTION
INSTROTRON/SATREC SYSTEMS, INC.
GROVE CITY, PENNSYLVANIA
R217495-3B



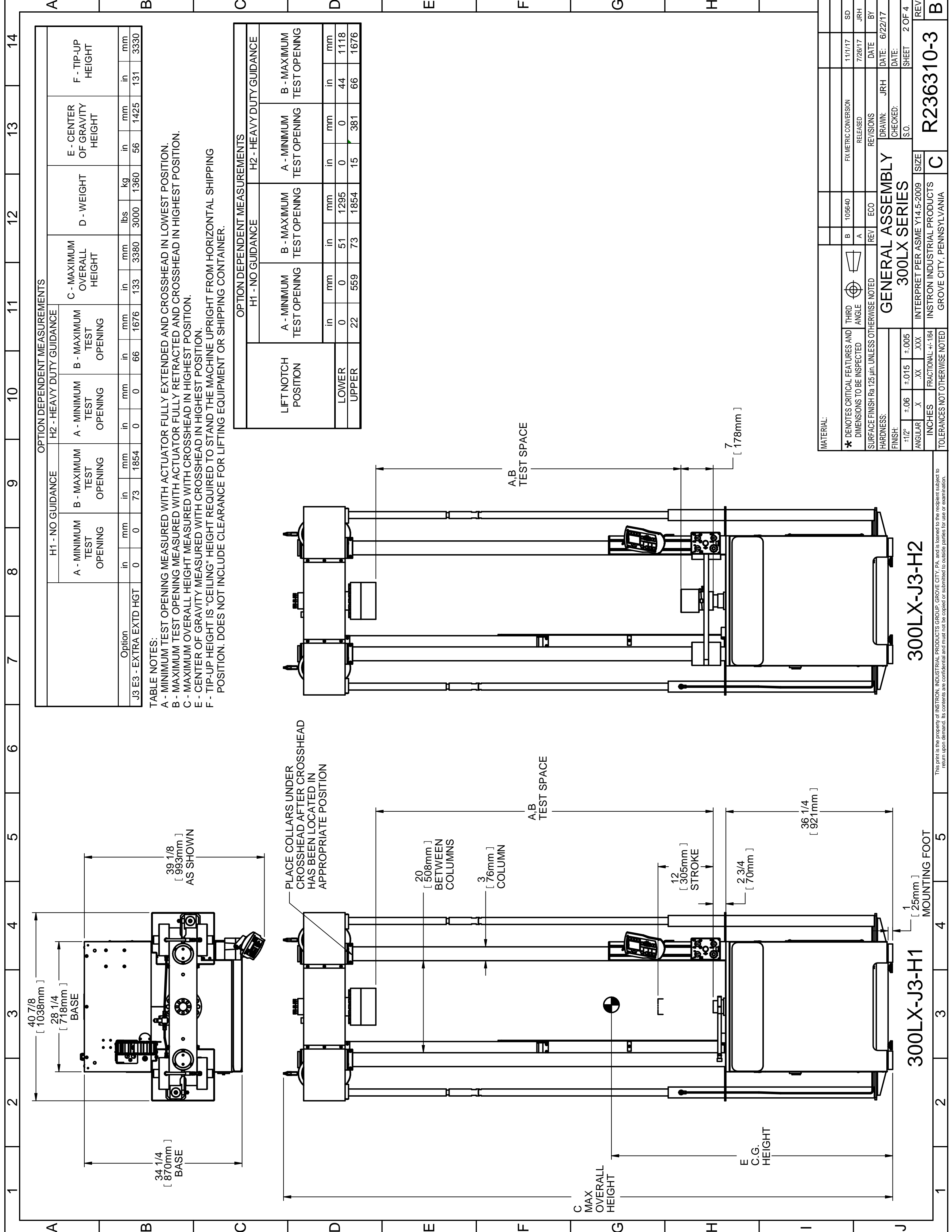
OPTION DEPENDENT MEASUREMENTS															
H1 - NO GUIDANCE					H2 - HEAVY DUTY GUIDANCE										
A - MINIMUM TEST OPENING		B - MAXIMUM TEST OPENING		C - MAXIMUM OVERALL HEIGHT		D - WEIGHT		E - CENTER OF GRAVITY HEIGHT		F - TIP-UP HEIGHT					
Option	in	mm	in	mm	in	mm	lbs	kg	in	mm	in	mm			
J1 E1 - STD HGT	12	305	38	965	5	127	31	787	94	2390	1045	37	940	96	2440
J1 E2 - EXT'D HGT	12	305	52	1321	5	127	45	1143	108	2745	2340	41	1045	110	2795
J1 E3 - EXTRA EXT'D HGT	12	305	73	1854	5	127	66	1676	129	3280	2420	46	1170	131	3330

TABLE NOTES:
 A - MINIMUM TEST OPENING MEASURED WITH ACTUATOR FULLY EXTENDED AND CROSSHEAD IN LOWEST POSITION.
 B - MAXIMUM TEST OPENING MEASURED WITH ACTUATOR FULLY RETRACTED AND CROSSHEAD IN HIGHEST POSITION.
 C - MAXIMUM OVERALL HEIGHT MEASURED WITH CROSSHEAD IN HIGHEST POSITION.
 E - CENTER OF GRAVITY MEASURED WITH CROSSHEAD IN HIGHEST POSITION.
 F - TIP-UP HEIGHT IS "CEILING" HEIGHT REQUIRED TO STAND THE MACHINE UPRIGHT FROM HORIZONTAL SHIPPING POSITION. DOES NOT INCLUDE CLEARANCE FOR LIFTING EQUIPMENT OR SHIPPING CONTAINER.

OPTION DEPENDENT MEASUREMENTS													
H1 - NO GUIDANCE					H2 - HEAVY DUTY GUIDANCE								
E1 STD HGT		E2 EXT'D HGT		E3 EXTRA EXT'D HGT		A - MINIMUM TEST OPENING		B - MAXIMUM TEST OPENING		A - MINIMUM TEST OPENING		B - MAXIMUM TEST OPENING	
NOTCH POSITION		in		mm		in		mm		in		mm	
1	X	X	12	305	24	610	5	127	17	432			
2	X	X	19	483	31	787	12	305	24	610			
3	X	X	26	660	38	965	19	483	31	787			
4		X	33	838	45	1143	26	660	38	965			
5		X	40	1016	52	1321	33	838	45	1143			
6		X	47	1194	59	1499	40	1016	52	1321			
7		X	54	1372	66	1676	47	1194	59	1499			
8		X	61	1549	73	1854	54	1372	66	1676			

NOTES:
 1. NON-TABULATED DIMENSIONS ARE WITHIN THE FOLLOWING TOLERANCE:
 - US CUSTOMARY DIMENSIONS ARE ±1/32in.
 - METRIC DIMENSIONS ARE ±0.5mm.
 2. ALL DIMENSIONS, WEIGHTS AND CENTER OF GRAVITY (CG) ARE NOMINAL AND MAY BE AFFECTED BY ACCESSORIES AND OPTIONS.
 3. SEE PRE-INSTALLATION MANUAL FOR LIFTING AND HANDLING INSTRUCTIONS.

MATERIAL:		THIRD ANGLE		FIX METRIC CONVERSION		SD	
* DENOTES CRITICAL FEATURES AND DIMENSIONS TO BE INSPECTED		REV		ECO		11/1/17	
SURFACE FINISH Ra 125 µin. UNLESS OTHERWISE NOTED		REV		ECO		7/26/17	
HARDNESS:		REV		ECO		DATE	
FINISH:		REV		ECO		DATE	
±1/2"		±.06		±.015		DATE	
ANGULAR		.X		.XX		DATE	
INCHES		FRACTIONAL: ±1/64		REV		DATE	
TOLERANCES NOT OTHERWISE NOTED		REV		ECO		DATE	
GENERAL ASSEMBLY		REV		ECO		DATE	
300LX SERIES		REV		ECO		DATE	
INTERPRET PER ASME Y14.5-2009		REV		ECO		DATE	
INSTON INDUSTRIAL PRODUCTS		REV		ECO		DATE	
GROVE CITY, PENNSYLVANIA		REV		ECO		DATE	
SIZE		REV		ECO		DATE	
C		REV		ECO		DATE	
SHEET		REV		ECO		DATE	
1 OF 4		REV		ECO		DATE	
R236310-3		REV		ECO		DATE	



Option	H1 - NO GUIDANCE				H2 - HEAVY DUTY GUIDANCE				C - MAXIMUM OVERALL HEIGHT				D - WEIGHT		E - CENTER OF GRAVITY HEIGHT		F - TIP-UP HEIGHT	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
J3 E3 - EXTRA EXTD HGT	0	0	73	1854	0	0	66	1676	133	3380	3000	1360	56	1425	131	3330		

TABLE NOTES:
 A - MINIMUM TEST OPENING MEASURED WITH ACTUATOR FULLY EXTENDED AND CROSSHEAD IN LOWEST POSITION.
 B - MAXIMUM TEST OPENING MEASURED WITH ACTUATOR FULLY RETRACTED AND CROSSHEAD IN HIGHEST POSITION.
 C - MAXIMUM OVERALL HEIGHT MEASURED WITH CROSSHEAD IN HIGHEST POSITION.
 E - CENTER OF GRAVITY MEASURED WITH CROSSHEAD IN HIGHEST POSITION.
 F - TIP-UP HEIGHT IS "CEILING" HEIGHT REQUIRED TO STAND THE MACHINE UPRIGHT FROM HORIZONTAL SHIPPING POSITION. DOES NOT INCLUDE CLEARANCE FOR LIFTING EQUIPMENT OR SHIPPING CONTAINER.

LIFT NOTCH POSITION	H1 - NO GUIDANCE				H2 - HEAVY DUTY GUIDANCE			
	in	mm	in	mm	in	mm	in	mm
LOWER	0	0	51	1295	0	0	44	1118
UPPER	22	559	73	1854	15	381	66	1676

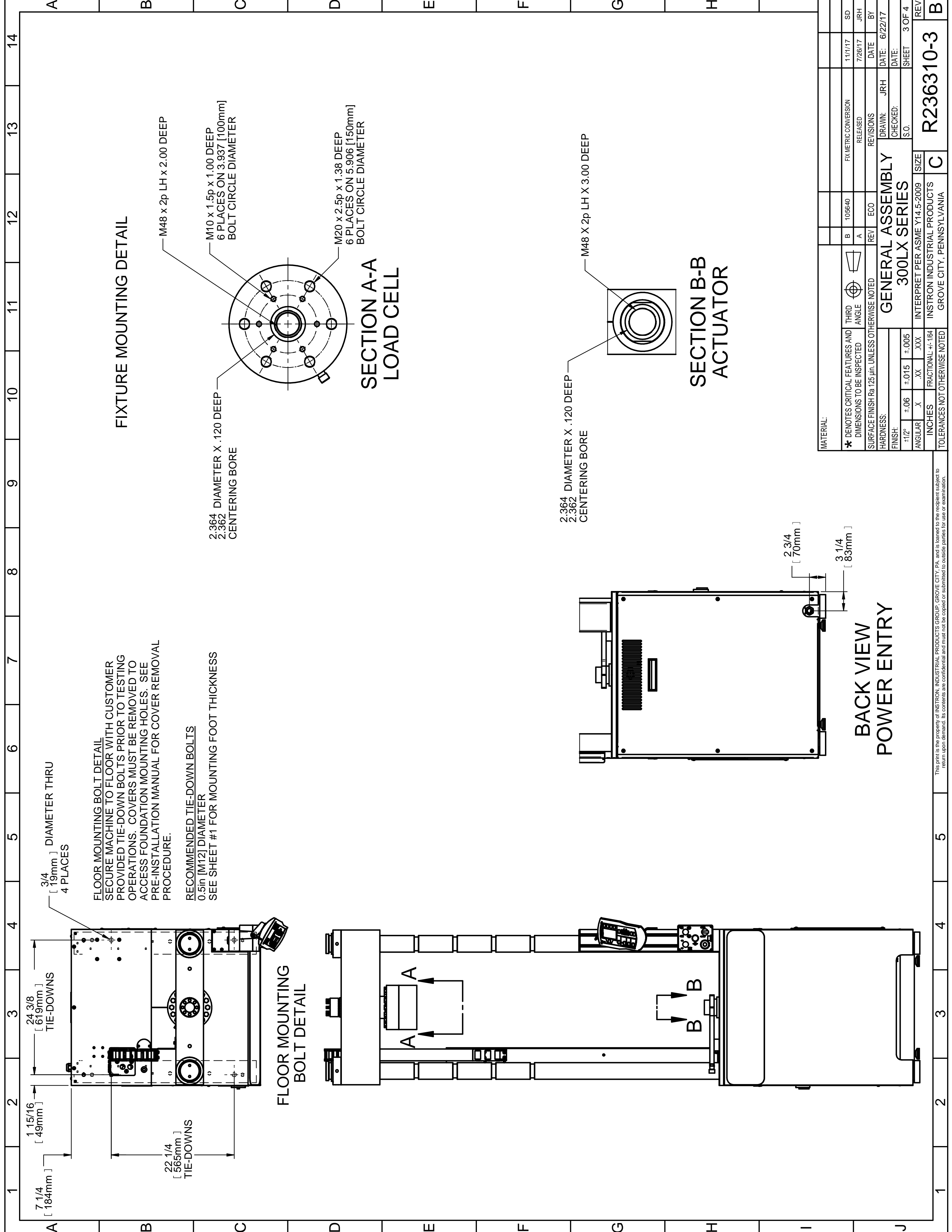
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* DENOTES CRITICAL FEATURES AND DIMENSIONS TO BE INSPECTED		RELEASED		106640		11/1/17	
SURFACE FINISH Ra 125 µin. UNLESS OTHERWISE NOTED		REV ECO		A		7/26/17	
HARDNESS:		REV		REV		DATE	
FINISH:		DRAWN: JRH		DATE: 6/22/17		DATE:	
:1/2° ±.06		CHECKED:		S.O.		SHEET 2 OF 4	
ANGULAR .X		GENERAL ASSEMBLY		300LX SERIES		REV	
INCHES FRACTIONAL: +/- 1/64		INTERPRET PER ASME Y14.5-2009		INSTRON INDUSTRIAL PRODUCTS		R236310-3	
TOLERANCES NOT OTHERWISE NOTED		GROVE CITY, PENNSYLVANIA		C		B	

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300LX-J3-H2

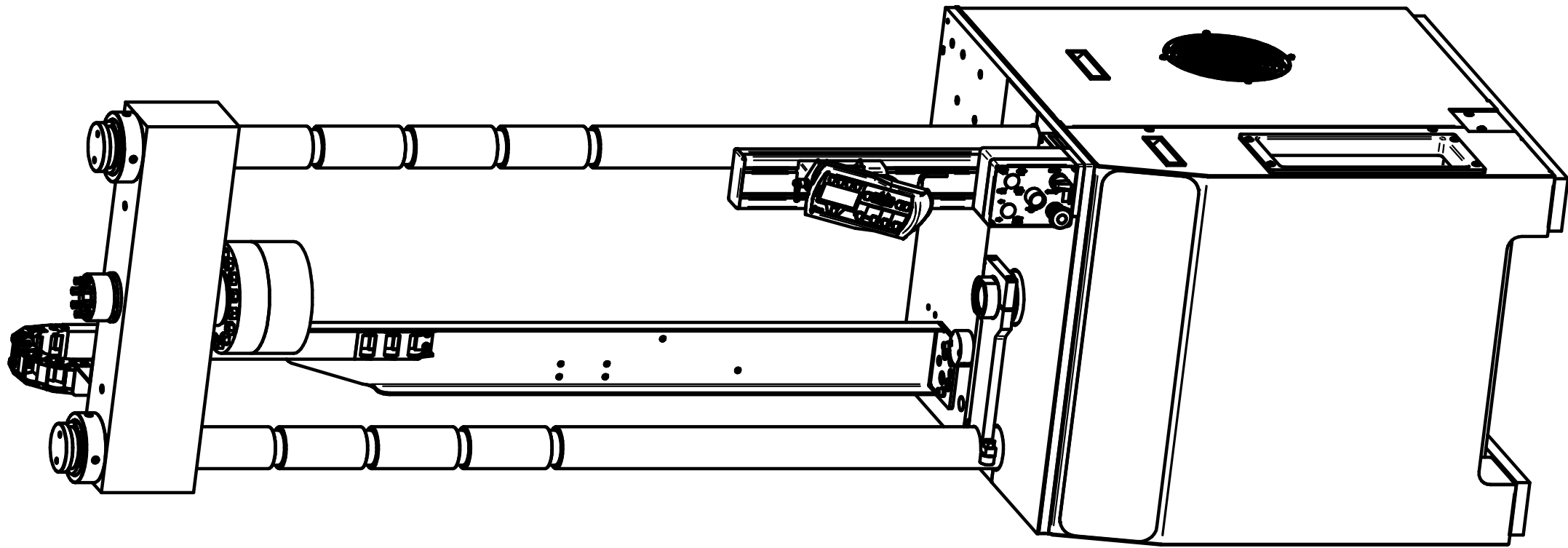
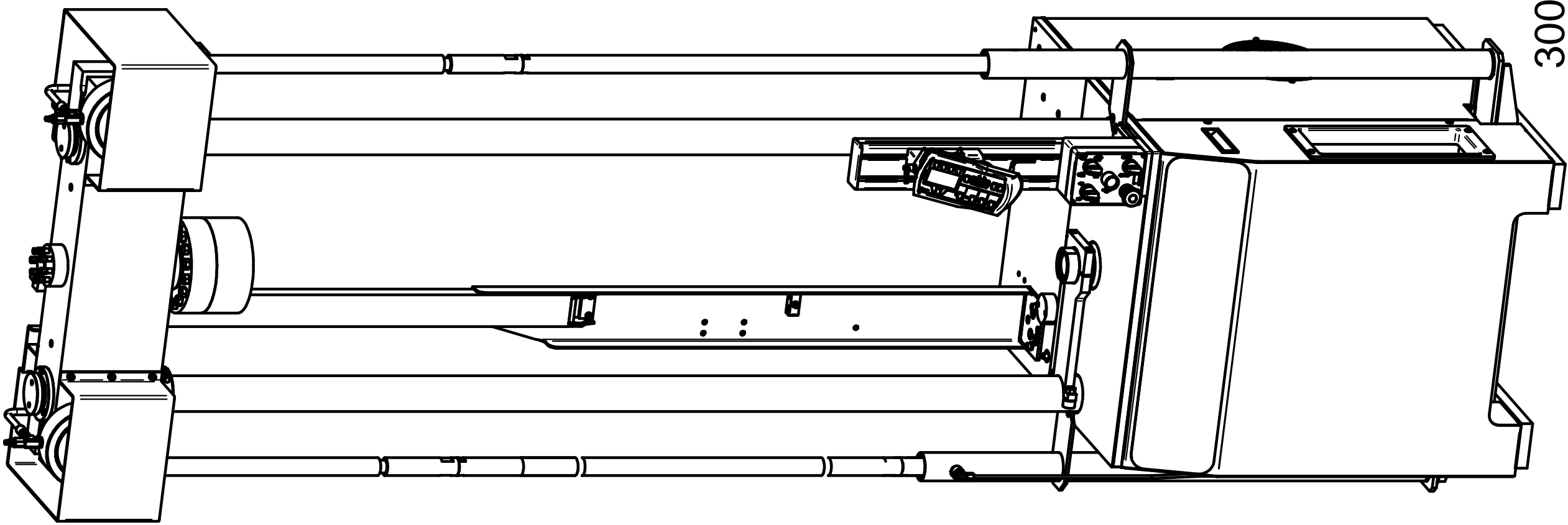
300LX-J3-H1

MOUNTING FOOT



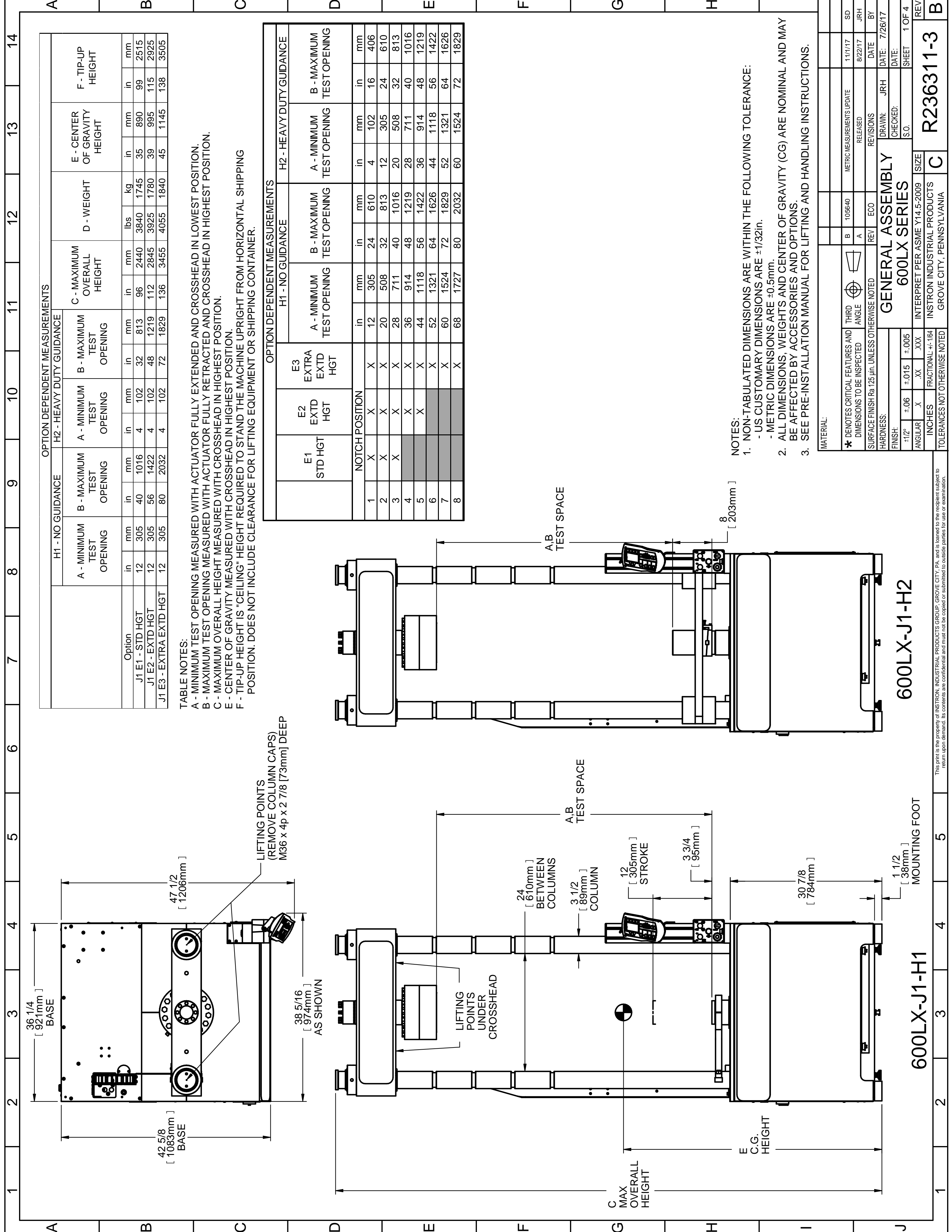
MATERIAL:		THIRD ANGLE		FIX METRIC CONVERSION		SD	
* DENOTES CRITICAL FEATURES AND DIMENSIONS TO BE INSPECTED		A		B 105640		11/1/17	
SURFACE FINISH Ra 125 µin. UNLESS OTHERWISE NOTED		REV ECO		RELEASED		7/26/17	
HARDNESS:		REV ECO		REVISIONS		DATE BY	
FINISH:		GENERAL ASSEMBLY		DRAWN: JRH		DATE: 6/22/17	
ANGULAR .X ±.06		300LX SERIES		CHECKED:		DATE:	
INCHES FRACTIONAL: +/- 1/64		INTERPRET PER ASME Y14.5-2009		S.O.		SHEET 3 OF 4	
TOLERANCES NOT OTHERWISE NOTED		INSTRON INDUSTRIAL PRODUCTS		SIZE C		REV B	
		GROVE CITY, PENNSYLVANIA		R236310-3			

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MATERIAL:												
* DENOTES CRITICAL FEATURES AND DIMENSIONS TO BE INSPECTED	THIRD ANGLE	105640	11/1/17	SD								
SURFACE FINISH Ra 125 µin. UNLESS OTHERWISE NOTED		REV	RELEASED	RELEASED	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
HARDNESS:		ECO	ECO	ECO	ECO	ECO	ECO	ECO	ECO	ECO	ECO	ECO
FINISH:		REV	ECO	ECO	ECO	ECO	ECO	ECO	ECO	ECO	ECO	ECO
ANGULAR	.X	±.06	±.015	±.005								
INCHES												
GENERAL ASSEMBLY 300LX SERIES INTERPRET PER ASME Y14.5-2009 INSTRON INDUSTRIAL PRODUCTS GROVE CITY, PENNSYLVANIA												
DRAWN: JRH										DATE: 6/22/17		
CHECKED:										DATE:		
S.O.										SHEET 4 OF 4		
R236310-3										REV B		
C										SIZE C		

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OPTION DEPENDENT MEASUREMENTS

Option	H1 - NO GUIDANCE		H2 - HEAVY DUTY GUIDANCE		A - MINIMUM TEST OPENING		B - MAXIMUM TEST OPENING		C - MAXIMUM OVERALL HEIGHT		D - WEIGHT		E - CENTER OF GRAVITY HEIGHT		F - TIP-UP HEIGHT	
	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg	in	mm	in	mm
J1 E1 - STD HGT	12	305	4	102	4	102	32	813	96	2440	3840	1745	35	890	99	2515
J1 E2 - EXT'D HGT	12	305	4	102	4	102	48	1219	112	2845	3925	1780	39	995	115	2925
J1 E3 - EXTRA EXT'D HGT	12	305	4	102	4	102	72	1829	136	3455	4055	1840	45	1145	138	3505

TABLE NOTES:
 A - MINIMUM TEST OPENING MEASURED WITH ACTUATOR FULLY EXTENDED AND CROSSHEAD IN LOWEST POSITION.
 B - MAXIMUM TEST OPENING MEASURED WITH ACTUATOR FULLY RETRACTED AND CROSSHEAD IN HIGHEST POSITION.
 C - MAXIMUM OVERALL HEIGHT MEASURED WITH CROSSHEAD IN HIGHEST POSITION.
 E - CENTER OF GRAVITY MEASURED WITH CROSSHEAD IN HIGHEST POSITION.
 F - TIP-UP HEIGHT IS "CEILING" HEIGHT REQUIRED TO STAND THE MACHINE UPRIGHT FROM HORIZONTAL SHIPPING POSITION. DOES NOT INCLUDE CLEARANCE FOR LIFTING EQUIPMENT OR SHIPPING CONTAINER.

OPTION DEPENDENT MEASUREMENTS

	E1 STD HGT		E2 EXT'D HGT		E3 EXTRA EXT'D HGT		H1 - NO GUIDANCE				H2 - HEAVY DUTY GUIDANCE			
	in	mm	in	mm	in	mm	A - MINIMUM TEST OPENING	B - MAXIMUM TEST OPENING	A - MINIMUM TEST OPENING	B - MAXIMUM TEST OPENING	A - MINIMUM TEST OPENING	B - MAXIMUM TEST OPENING	A - MINIMUM TEST OPENING	B - MAXIMUM TEST OPENING
1	X	12	X	12	X	12	305	24	610	4	102	16	406	
2	X	20	X	20	X	20	508	32	813	12	305	24	610	
3	X	28	X	28	X	28	711	40	1016	20	508	32	813	
4	X	36	X	36	X	36	914	48	1219	28	711	40	1016	
5	X	44	X	44	X	44	1118	56	1422	36	914	48	1219	
6	X	52	X	52	X	52	1321	64	1626	44	1118	56	1422	
7	X	60	X	60	X	60	1524	72	1829	52	1321	64	1626	
8	X	68	X	68	X	68	1727	80	2032	60	1524	72	1829	

NOTES:
 1. NON-TABULATED DIMENSIONS ARE WITHIN THE FOLLOWING TOLERANCE:
 - US CUSTOMARY DIMENSIONS ARE ±1/32in.
 - METRIC DIMENSIONS ARE ±0.5mm.
 2. ALL DIMENSIONS, WEIGHTS AND CENTER OF GRAVITY (CG) ARE NOMINAL AND MAY BE AFFECTED BY ACCESSORIES AND OPTIONS.
 3. SEE PRE-INSTALLATION MANUAL FOR LIFTING AND HANDLING INSTRUCTIONS.

MATERIAL:

THIRD ANGLE	106640	METRIC MEASUREMENTS UPDATE	11/1/17	SD
DIMENSIONS TO BE INSPECTED	A	RELEASED	8/22/17	JRH
SURFACE FINISH Ra 125 µin. UNLESS OTHERWISE NOTED	REV	ECO	REVISIONS	DATE
HARDNESS:	REV	ECO	REVISIONS	DATE
FINISH:	REV	ECO	REVISIONS	DATE
±1/2"	±.06	±.015	±.005	
ANGULAR	.X	.XX	.XXX	
INCHES	FRACTIONAL: ±1/64			
TOLERANCES NOT OTHERWISE NOTED				

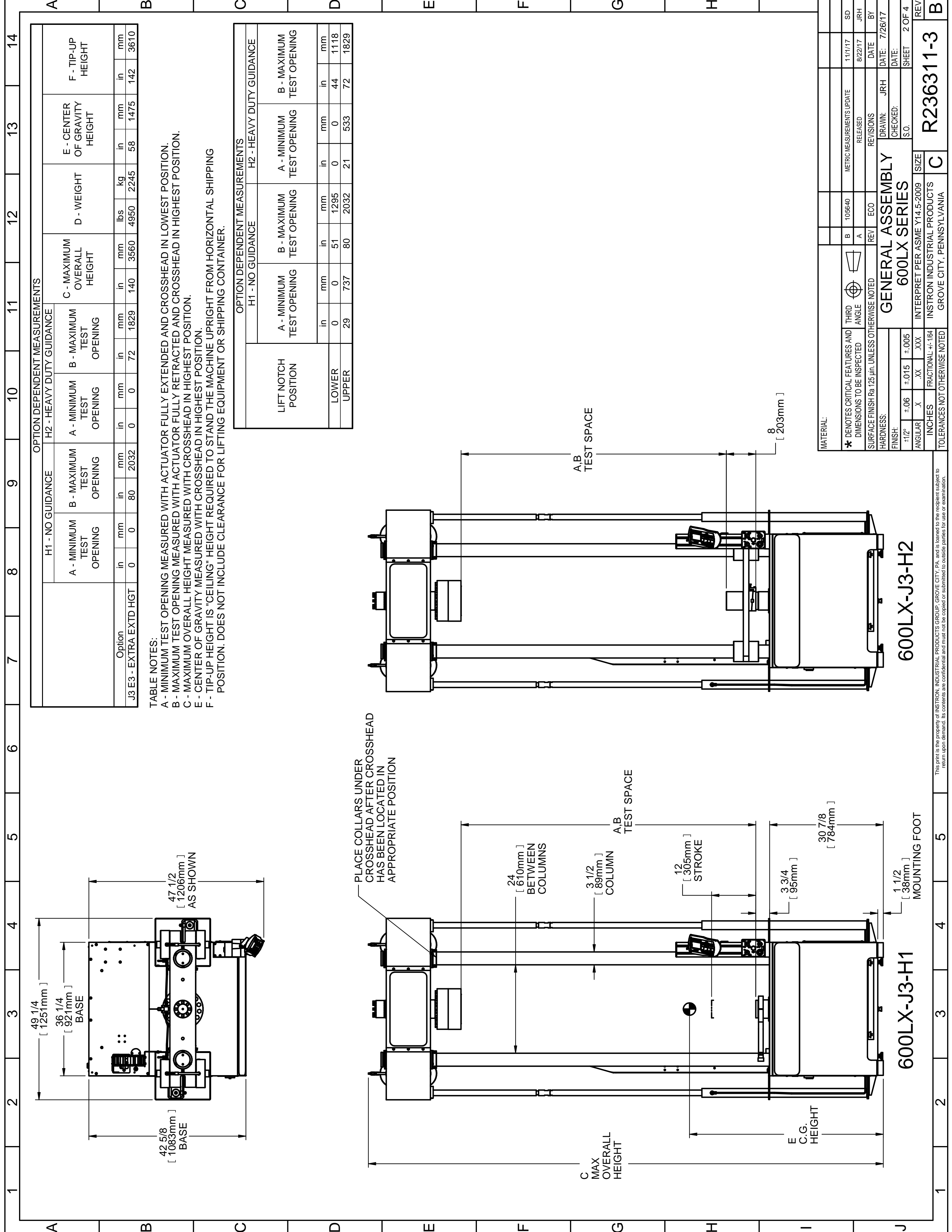
GENERAL ASSEMBLY
600LX SERIES

DRAWN: JRH DATE: 7/26/17
 CHECKED: DATE:
 S.O. SHEET 1 OF 4

INTERPRET PER ASME Y14.5-2009 SIZE C
 INSTRON INDUSTRIAL PRODUCTS
 GROVE CITY, PENNSYLVANIA

R236311-3

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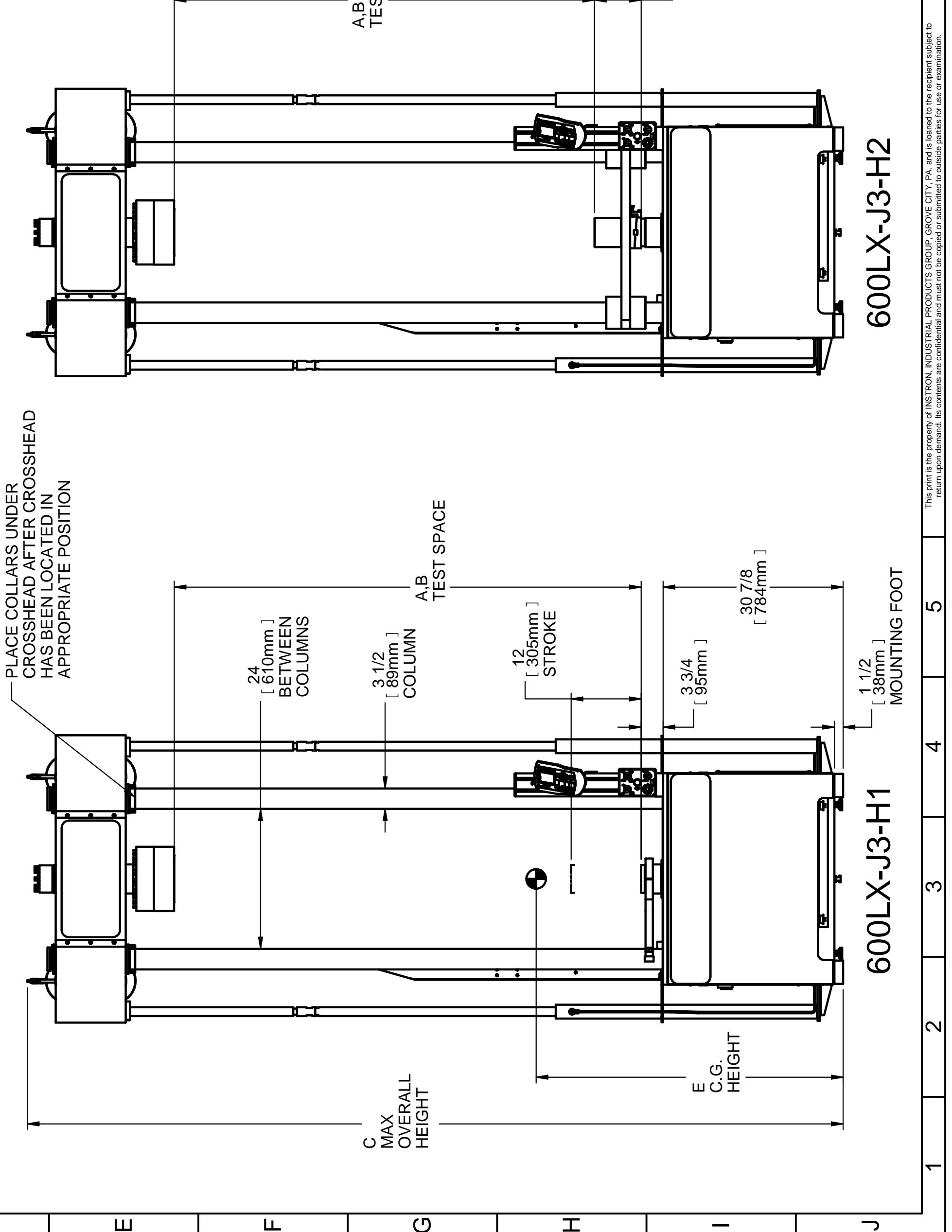


OPTION DEPENDENT MEASUREMENTS									
H1 - NO GUIDANCE					H2 - HEAVY DUTY GUIDANCE				
A - MINIMUM TEST OPENING	B - MAXIMUM TEST OPENING	C - MAXIMUM OVERALL HEIGHT		D - WEIGHT	E - CENTER OF GRAVITY HEIGHT	F - TIP-UP HEIGHT			
in	mm	in	mm	lbs	kg	in	mm		
0	0	0	2032	0	0	0	72		
0	0	0	2032	4950	2245	58	1475		
0	0	0	2032	4950	2245	58	1475		
0	0	0	2032	4950	2245	58	1475		

TABLE NOTES:
 A - MINIMUM TEST OPENING MEASURED WITH ACTUATOR FULLY EXTENDED AND CROSSHEAD IN LOWEST POSITION.
 B - MAXIMUM TEST OPENING MEASURED WITH ACTUATOR FULLY RETRACTED AND CROSSHEAD IN HIGHEST POSITION.
 C - MAXIMUM OVERALL HEIGHT MEASURED WITH CROSSHEAD IN HIGHEST POSITION.
 E - CENTER OF GRAVITY MEASURED WITH CROSSHEAD IN HIGHEST POSITION.
 F - TIP-UP HEIGHT IS "CEILING" HEIGHT REQUIRED TO STAND THE MACHINE UPRIGHT FROM HORIZONTAL SHIPPING POSITION. DOES NOT INCLUDE CLEARANCE FOR LIFTING EQUIPMENT OR SHIPPING CONTAINER.

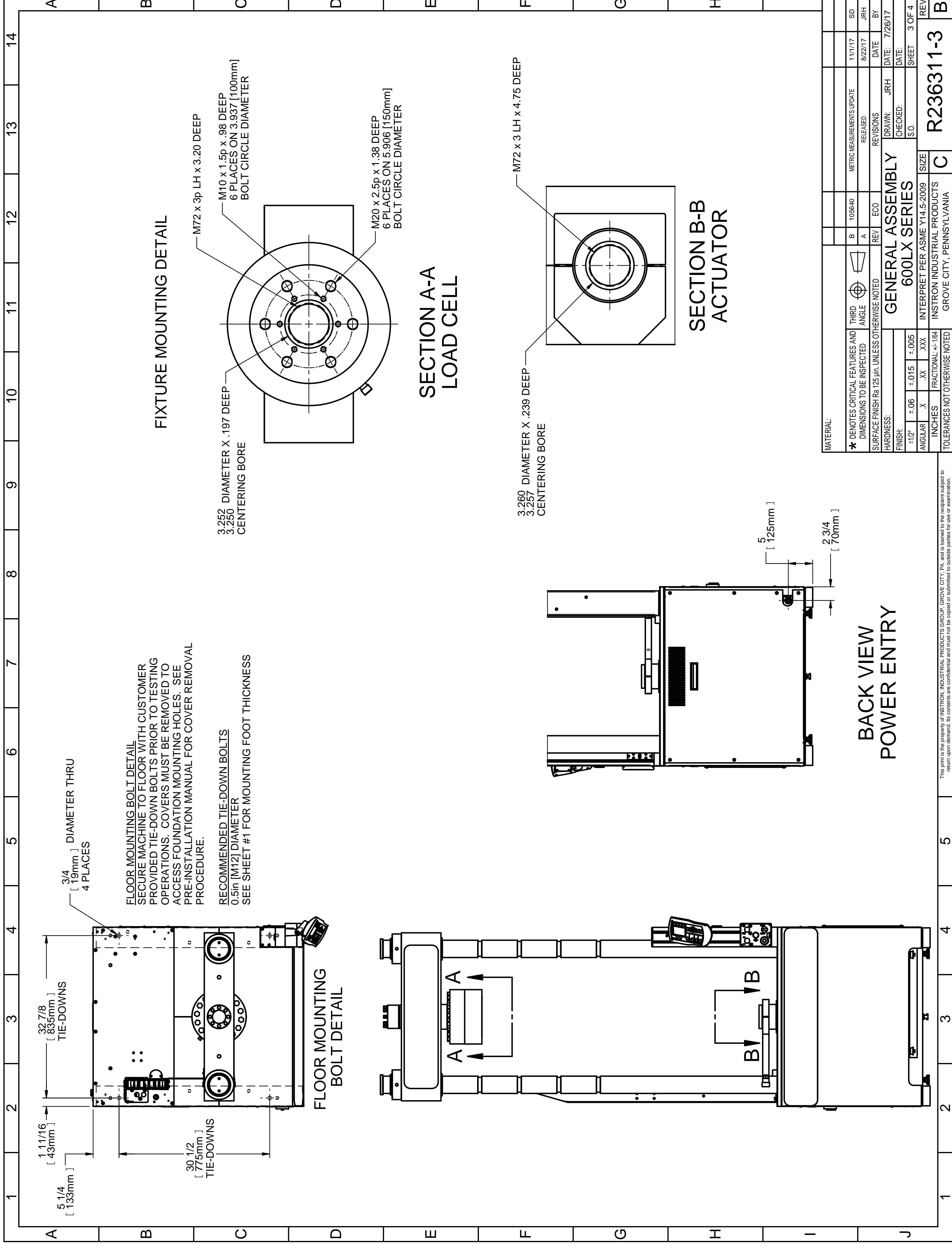
OPTION DEPENDENT MEASUREMENTS									
H1 - NO GUIDANCE					H2 - HEAVY DUTY GUIDANCE				
LIFT NOTCH POSITION		A - MINIMUM TEST OPENING	B - MAXIMUM TEST OPENING	A - MINIMUM TEST OPENING	B - MAXIMUM TEST OPENING				
LOWER	UPPER	in	mm	in	mm				
0	29	0	737	0	51				
0	29	0	737	0	51				
0	29	0	737	0	51				
0	29	0	737	0	51				

OPTION DEPENDENT MEASUREMENTS									
H1 - NO GUIDANCE					H2 - HEAVY DUTY GUIDANCE				
A - MINIMUM TEST OPENING	B - MAXIMUM TEST OPENING	C - MAXIMUM OVERALL HEIGHT		D - WEIGHT	E - CENTER OF GRAVITY HEIGHT	F - TIP-UP HEIGHT			
in	mm	in	mm	lbs	kg	in	mm		
0	0	0	2032	0	0	0	72		
0	0	0	2032	4950	2245	58	1475		
0	0	0	2032	4950	2245	58	1475		
0	0	0	2032	4950	2245	58	1475		



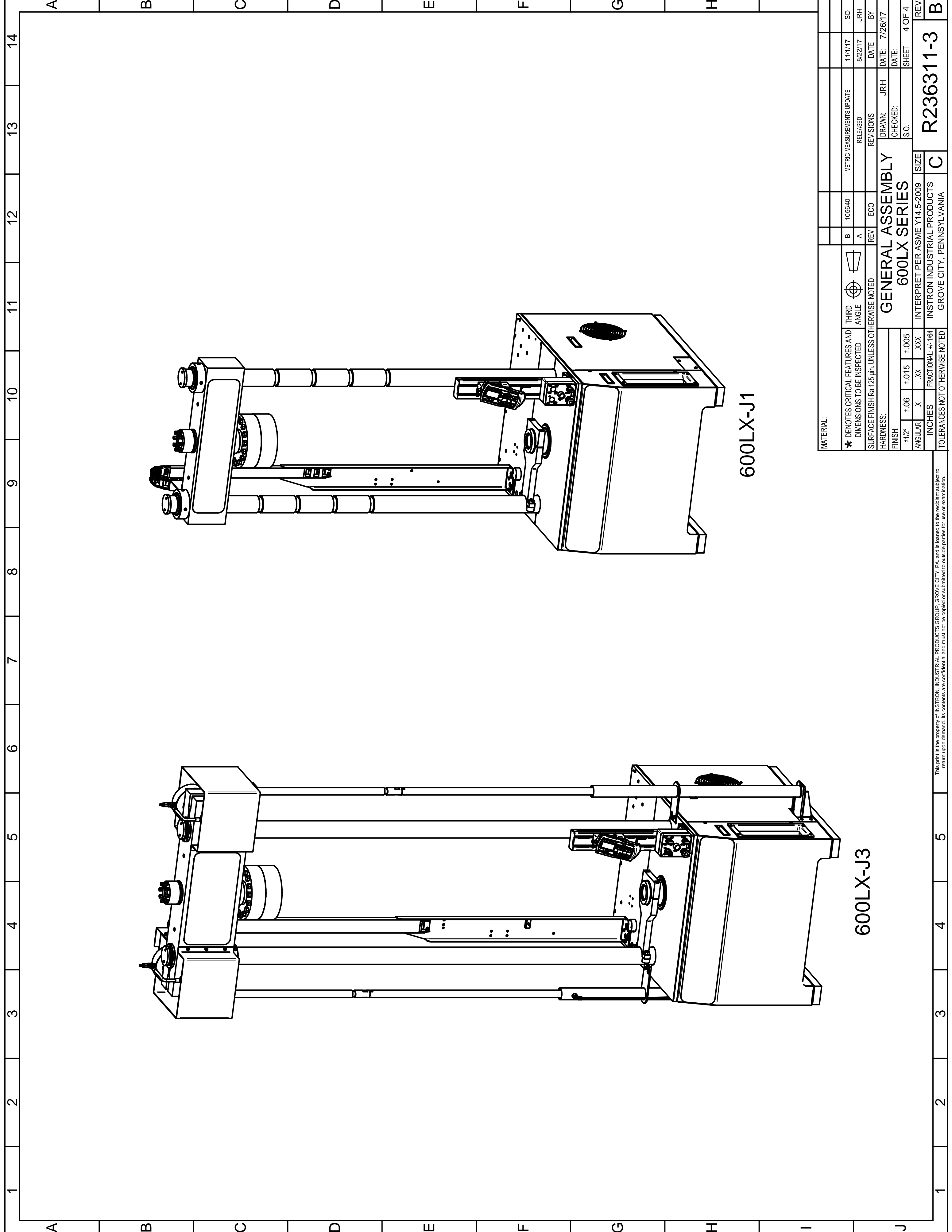
MATERIAL:		THIRD ANGLE		METRIC MEASUREMENTS UPDATE		SD	
* DENOTES CRITICAL FEATURES AND DIMENSIONS TO BE INSPECTED		RELEASED		106640		11/1/17	
SURFACE FINISH Ra 125 µin. UNLESS OTHERWISE NOTED		REV. ECO		A		8/22/17	
HARDNESS:		REV. ECO		REV. ECO		DATE BY	
FINISH:		DRAWN: JRH		DATE: 7/26/17		SHEET 2 OF 4	
:1/2" ±.06		:XX ±.015		:XXX ±.005		DATE: _____	
ANGULAR .X		FRACTIONAL +/- 1/64		INCHES		SHEET 2 OF 4	
TOLERANCES NOT OTHERWISE NOTED		GENERAL ASSEMBLY		600LX SERIES		R236311-3	
TOLERANCES NOT OTHERWISE NOTED		INTERPRET PER ASME Y14.5-2009		INSTRON INDUSTRIAL PRODUCTS		GROVE CITY, PENNSYLVANIA	

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MATERIAL:		THIRD ANGLE		B 106640		METRIC MEASUREMENTS UPDATE		11/1/17		SD	
* DENOTES CRITICAL FEATURES AND DIMENSIONS TO BE INSPECTED		REV		A		RELEASED		8/22/17		JRH	
SURFACE FINISH Ra 125 µin. UNLESS OTHERWISE NOTED		REV		ECO		REVISIONS		DATE		BY	
HARDNESS:		REV		ECO		DRAWN:		JRH		DATE: 7/26/17	
FINISH:		REV		ECO		CHECKED:		DATE:		SHEET 3 OF 4	
ANGULAR .X ±.06		REV		ECO		GENERAL ASSEMBLY		DATE:		REV	
INCHES FRACTIONAL: +/- 1/64		REV		ECO		600LX SERIES		DATE:		REV	
TOLERANCES NOT OTHERWISE NOTED		REV		ECO		INTERPRET PER ASME Y14.5-2009		DATE:		REV	
		REV		ECO		INSTRON INDUSTRIAL PRODUCTS		DATE:		REV	
		REV		ECO		GROVE CITY, PENNSYLVANIA		DATE:		REV	
		REV		ECO		SIZE		DATE:		REV	
		REV		ECO		C		DATE:		REV	
		REV		ECO		R236311-3		DATE:		REV	

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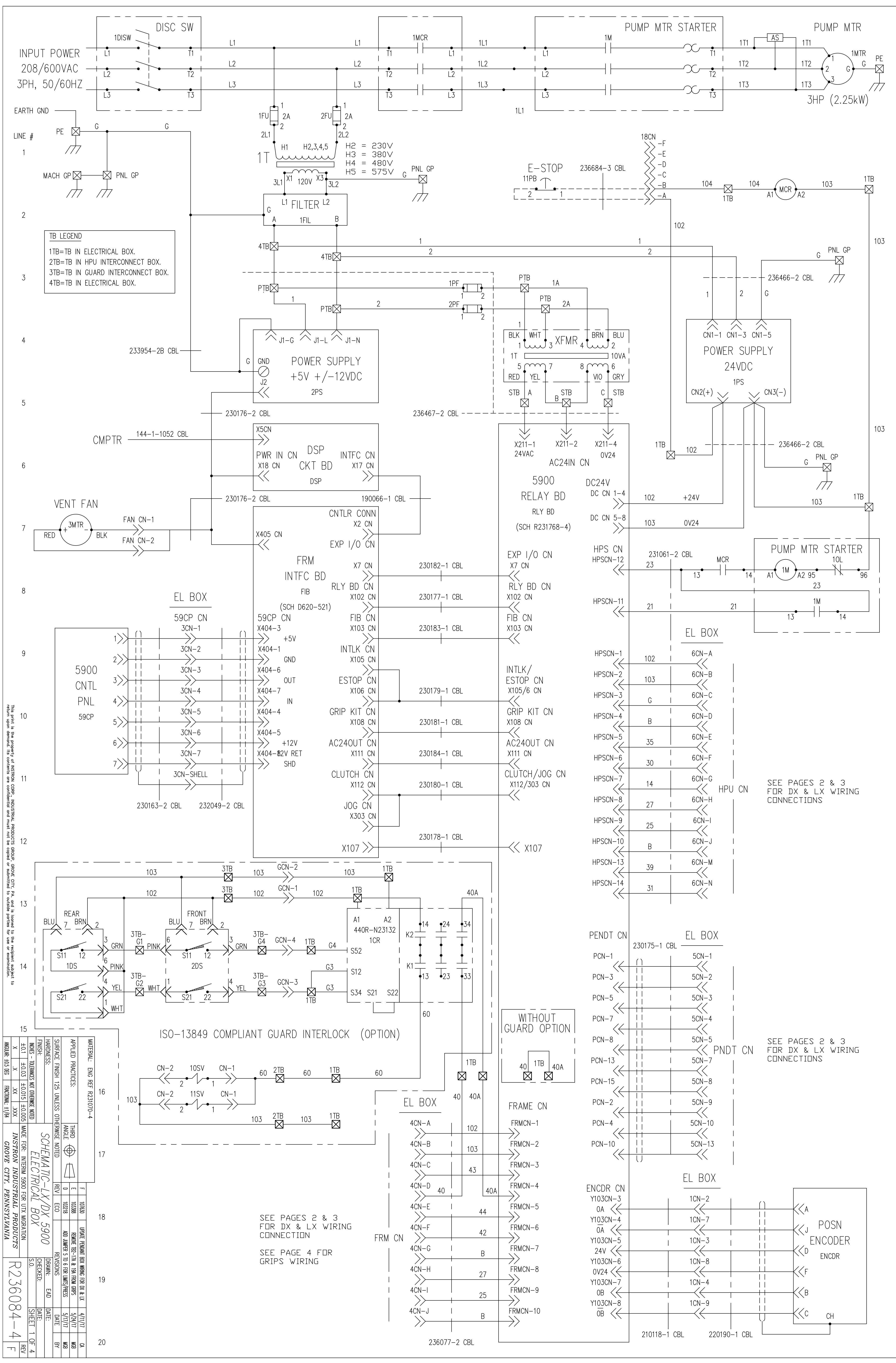
600LX-J1

600LX-J3

MATERIAL:

* DENOTES CRITICAL FEATURES AND DIMENSIONS TO BE INSPECTED	THIRD ANGLE	106640	METRIC MEASUREMENTS UPDATE	11/1/17	SD
SURFACE FINISH Ra 125 µin. UNLESS OTHERWISE NOTED	⊕	A	RELEASED	8/22/17	JRH
HARDNESS:		REV	ECO	DATE	BY
FINISH:					
ANGULAR	.X				
	±.06				
	±.015				
	.XXX				
	±.005				
TOLERANCES NOT OTHERWISE NOTED		GENERAL ASSEMBLY		DRAWN: JRH	DATE: 7/26/17
		600LX SERIES		CHECKED:	DATE:
		INTERPRET PER ASME Y14.5-2009		S.O.	SHEET 4 OF 4
		INSTRON INDUSTRIAL PRODUCTS			
		GROVE CITY, PENNSYLVANIA			
		SIZE	REV		
		C	R236311-3		

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TB LEGEND
 1TB=TB IN ELECTRICAL BOX.
 2TB=TB IN HPU INTERCONNECT BOX.
 3TB=TB IN GUARD INTERCONNECT BOX.
 4TB=TB IN ELECTRICAL BOX.

SEE PAGES 2 & 3 FOR DX & LX WIRING CONNECTIONS

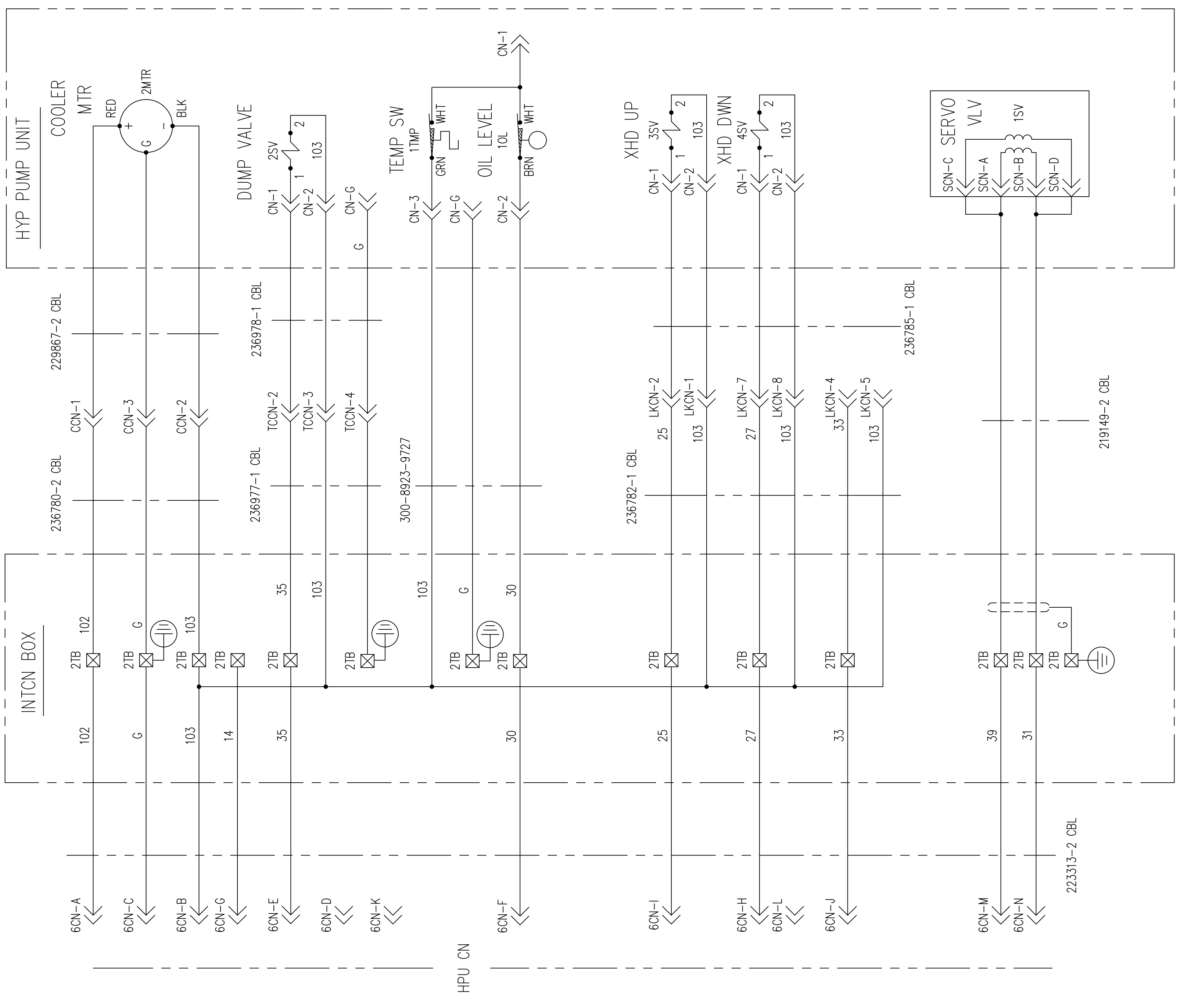
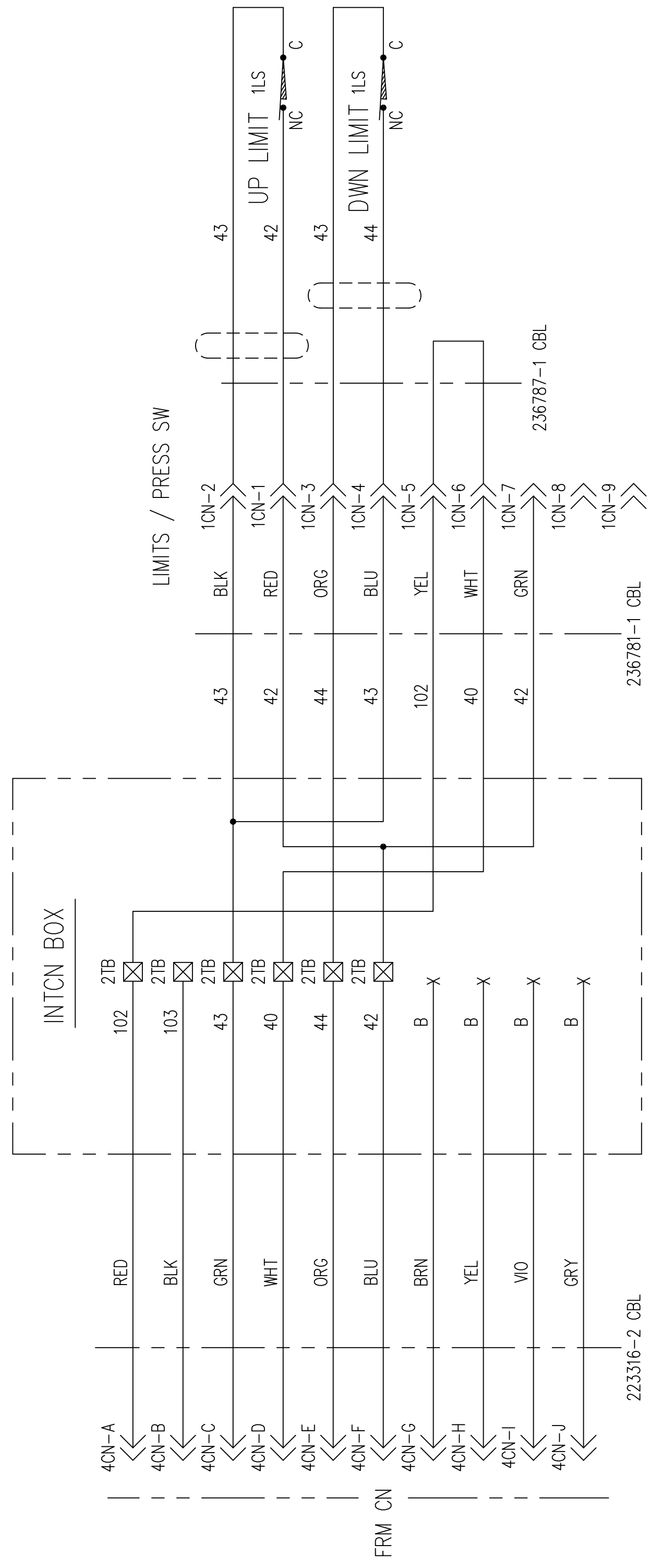
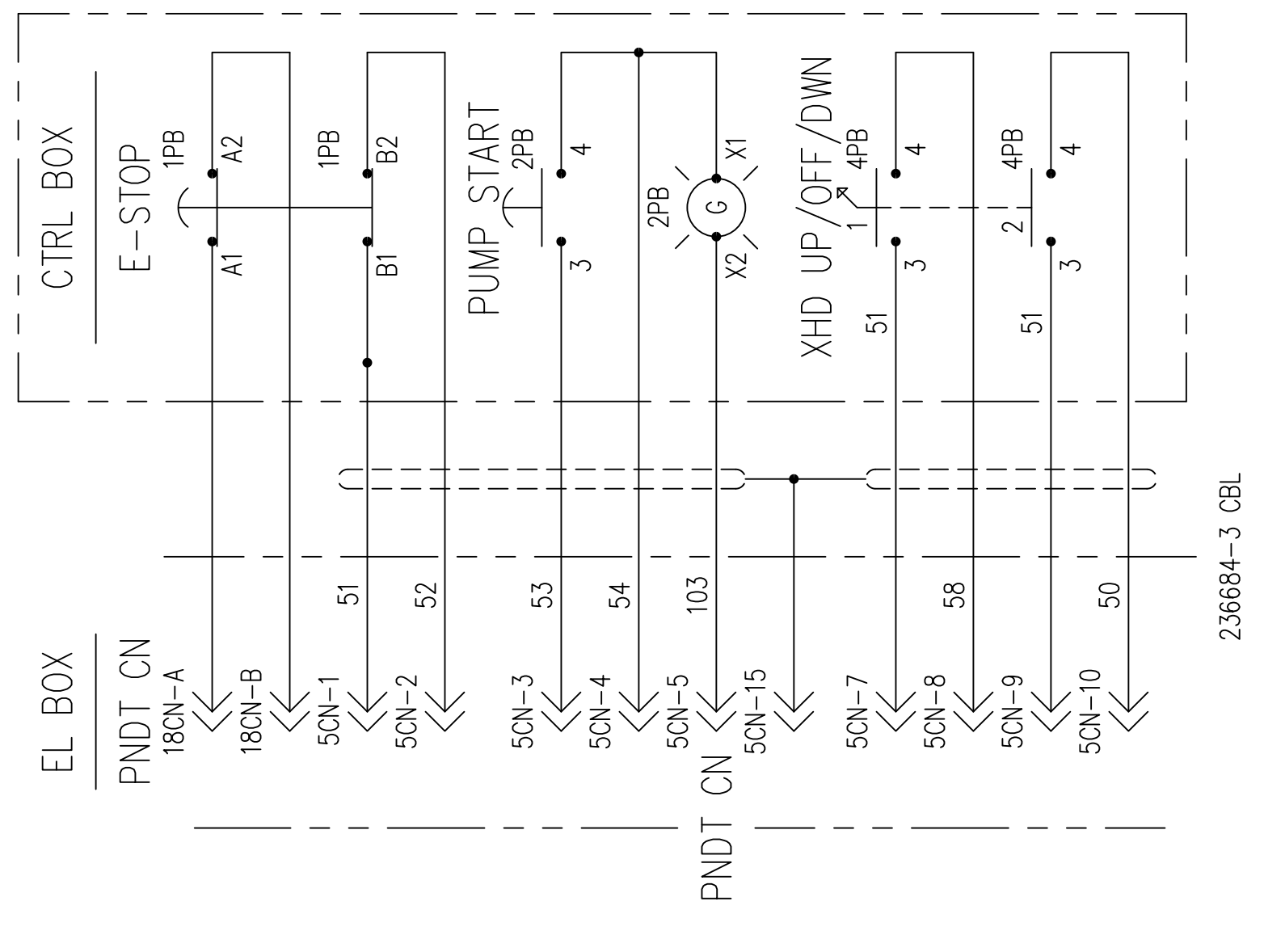
SEE PAGES 2 & 3 FOR DX & LX WIRING CONNECTIONS

SEE PAGES 2 & 3 FOR DX & LX WIRING CONNECTION
 SEE PAGE 4 FOR GRIPS WIRING

MATERIAL: ENG REF R231070-4		F	010630	UPGRADE FRONT BOX MOUNT FOR DX & LX	4/11/17	QA
APPLIED PRACTICES:		E	103888	REMOVE REAR-TOP & REAR PANELS	5/6/17	QA
SURFACE FINISH: 125 UNLESS OTHERWISE NOTED		D	102018	ADD JAMBER 5 TO 6 FROM PRESS	5/17/17	QA
FINISH: - NETWORKS AND OTHERS NOTED		REV	ECO	REVISIONS	DATE	BY
HARDNESS:						
MATERIAL: 4003 400105 400005		MADE FOR:	INTERNAL 5900 FOR UTX MIGRATION			
DRAWN: EAO		CHECKED:		DATE:		
S.O.		DATE:		SHEET 1 OF 4		
INSTRON INDUSTRIAL PRODUCTS						
GROVE CITY, PENNSYLVANIA						
R236084-4						
REV						

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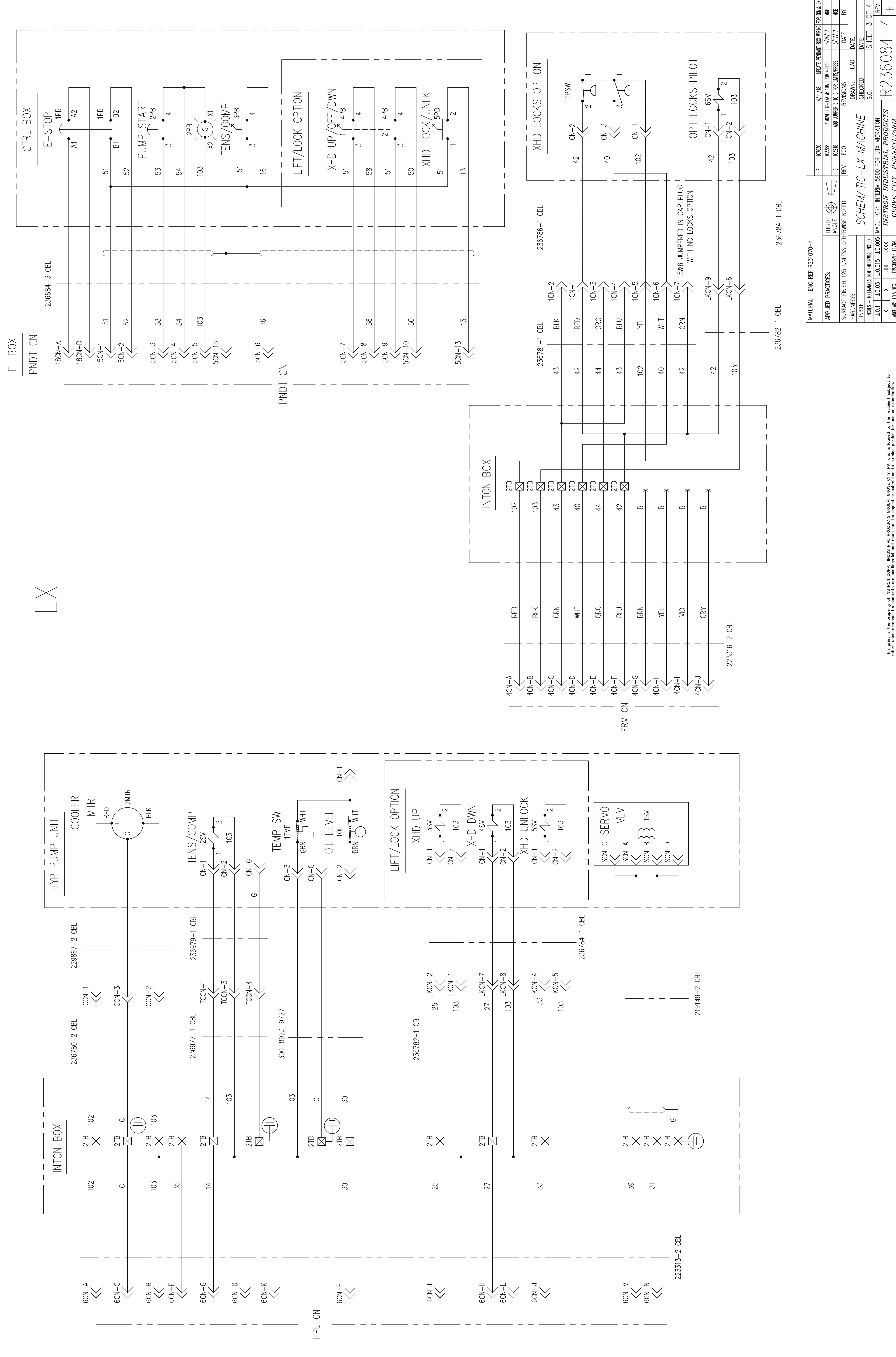
DX



MATERIAL: ENG REF R231070-4

APPLIED PRACTICES:	THIRD ANGLE	10/30	UPDATE FRONT BOX WORK FOR BK & LX	4/11/18	CA
SURFACE FINISH 125 UNLESS OTHERWISE NOTED	REV	E 103388	REMOVE 102-17A & 10A FROM CRPS	5/24/17	MGR
HARDNESS:	REV	D 103218	ADD JAMPER 5 TO 6 FOR LIMBS/PRESS	5/17/17	WR
FINISH:	REV	ECO	REVISIONS	DATE	BY
NOTES - TOLERANCES NOT OTHERWISE NOTED	DRAWN	EAD	DATE	DATE	
±0.1 X ±0.03 X .XX X .XXX INQUIRE FOR REQ	CHECKED:	S.O.	SHEET	2 OF 4	REV
SCHEMATIC-DX MACHINE					R236084-4
MADE FOR: INTERIM 5900 FOR UTX MIGRATION					F
INSTROTRON INDUSTRIAL PRODUCTS					
GROVE CITY, PENNSYLVANIA					

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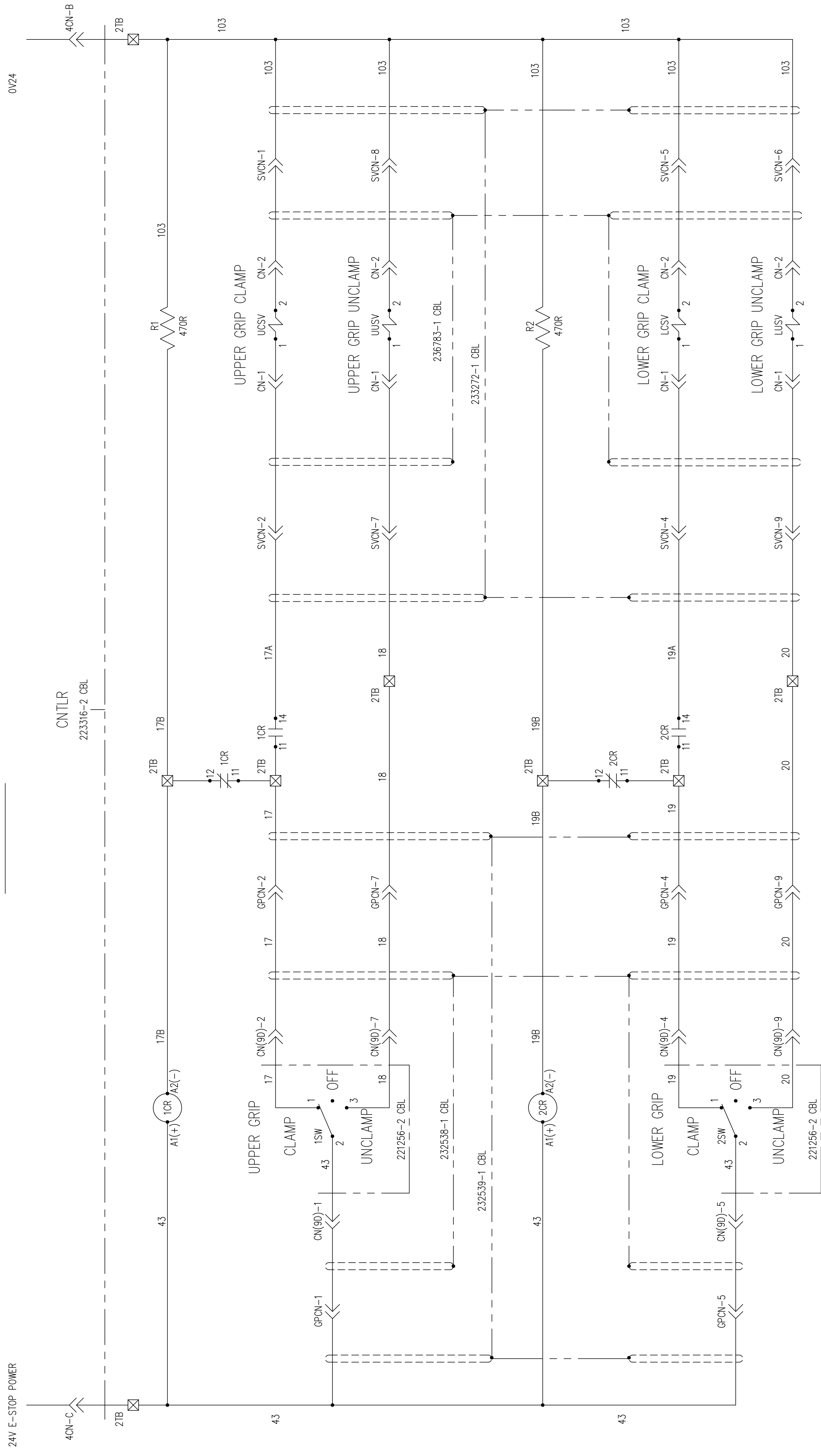


LX

MATERIAL: ENG REF R231070-4		REV	ECO	DATE	BY
F	10/30	4/11/18	UPDATE PUMP BOX WIRING FOR DA & LX		
E	10/30	5/24/17	REMOVE ICE-7A & 19A FROM CRPS	5/24/17	MSB
D	10/30	5/17/17	ADD JUMPER 5 TO 6 FOR LIMS/PRESS	5/17/17	MSB
APPLIED PRACTICES:		THIRD ANGLE			
SURFACE FINISH 125 UNLESS OTHERWISE NOTED					
FINISH:		REVISIONS	EAD	DATE	BY
HARDNESS:		DRAWN	EAD	DATE	
NOTES - TOLERANCES NOT OTHERWISE NOTED		CHECKED:	S.O.	SHEET	3 OF 4
±0.1 ±0.03 ±0.015 ±0.005					
X	.XX	.XXX			
X	.X				
INCHES - 485 DEG	FRACTIONS - 1/164				
SCHEMATIC-LX MACHINE		MADE FOR: INTERIM 5900 FOR UTX MIGRATION			
		INSTROON INDUSTRIAL PRODUCTS			
		GROVE CITY, PENNSYLVANIA			
		R236084-4			F

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GRIPS SCHEMATIC



MATERIAL: ENG REF R231070-4

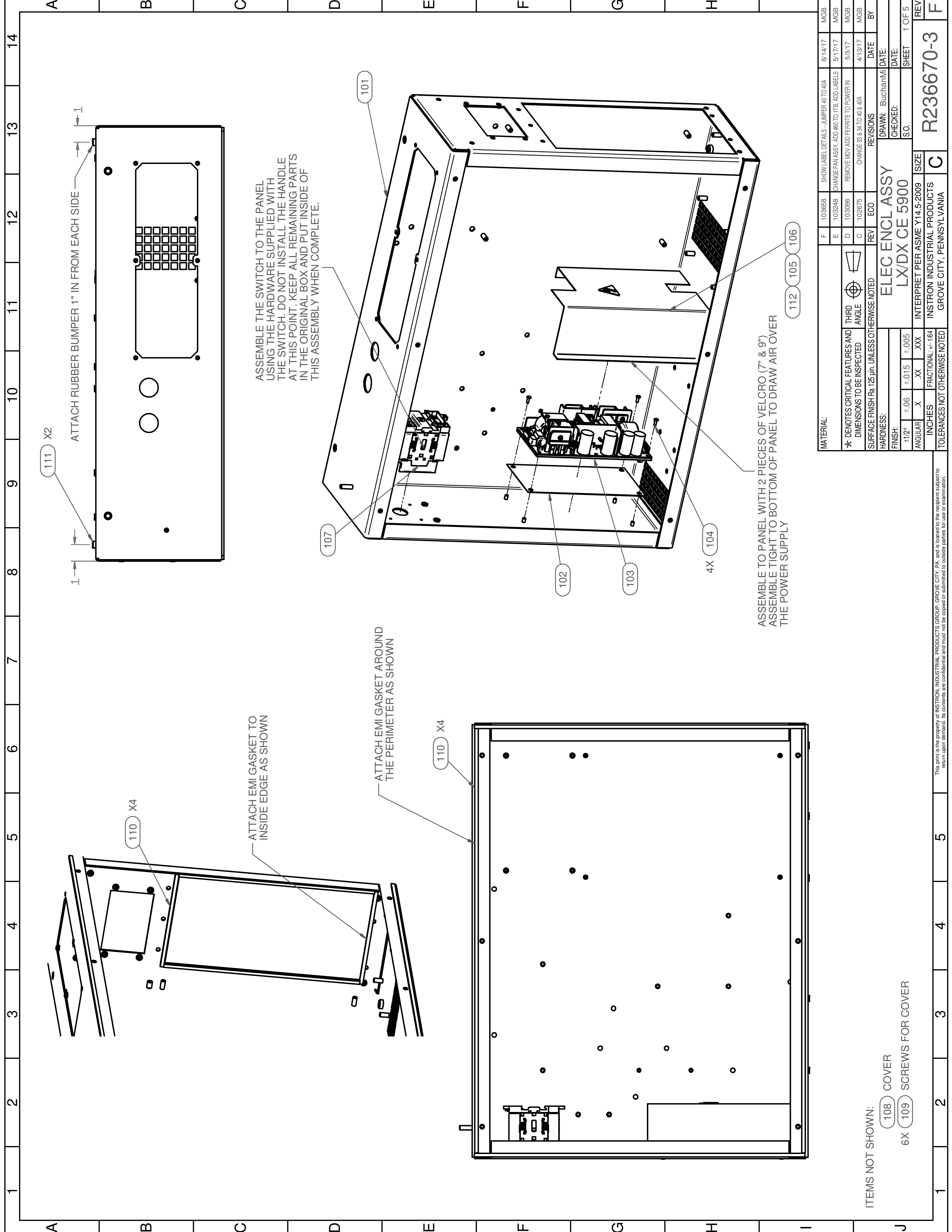
REV	ECO	REVISIONS	DATE	BY
F	10/30	UPDATE FRONT BOX WORK FOR BK & LX	4/11/18	CA
E	10/30	REMOVE 2TB-17A & 19A FROM GRIPS	5/24/17	MSB
D	10/28	ADD JUMPER 5 TO 6 FOR LIMS/PRESS	5/17/17	MSB

APPLIED PRACTICES:
 THIRD ANGLE
 SURFACE FINISH 125 UNLESS OTHERWISE NOTED
 HARDNESS:
 FINISH:
 DIMS - TOLERANCES NOT OTHERWISE NOTED
 UNLESS OTHERWISE SPECIFIED
 X ±0.1
 .XX ±0.05
 .XXX ±0.005
 INCHES: 485 DEG FRACTIONAL: 1/16

SCHEMATIC-LX MACHINE
 DRAWN: EAD
 CHECKED: S.O.
 DATE: SHEET 4 OF 4

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R236084-4 F



ASSEMBLE THE SWITCH TO THE PANEL USING THE HARDWARE SUPPLIED WITH THE SWITCH. DO NOT INSTALL THE HANDLE AT THIS POINT. KEEP ALL REMAINING PARTS IN THE ORIGINAL BOX AND PUT INSIDE OF THIS ASSEMBLY WHEN COMPLETE.

ASSEMBLE TO PANEL WITH 2 PIECES OF VELCRO (7" & 9") ASSEMBLE TIGHT TO BOTTOM OF PANEL TO DRAW AIR OVER THE POWER SUPPLY

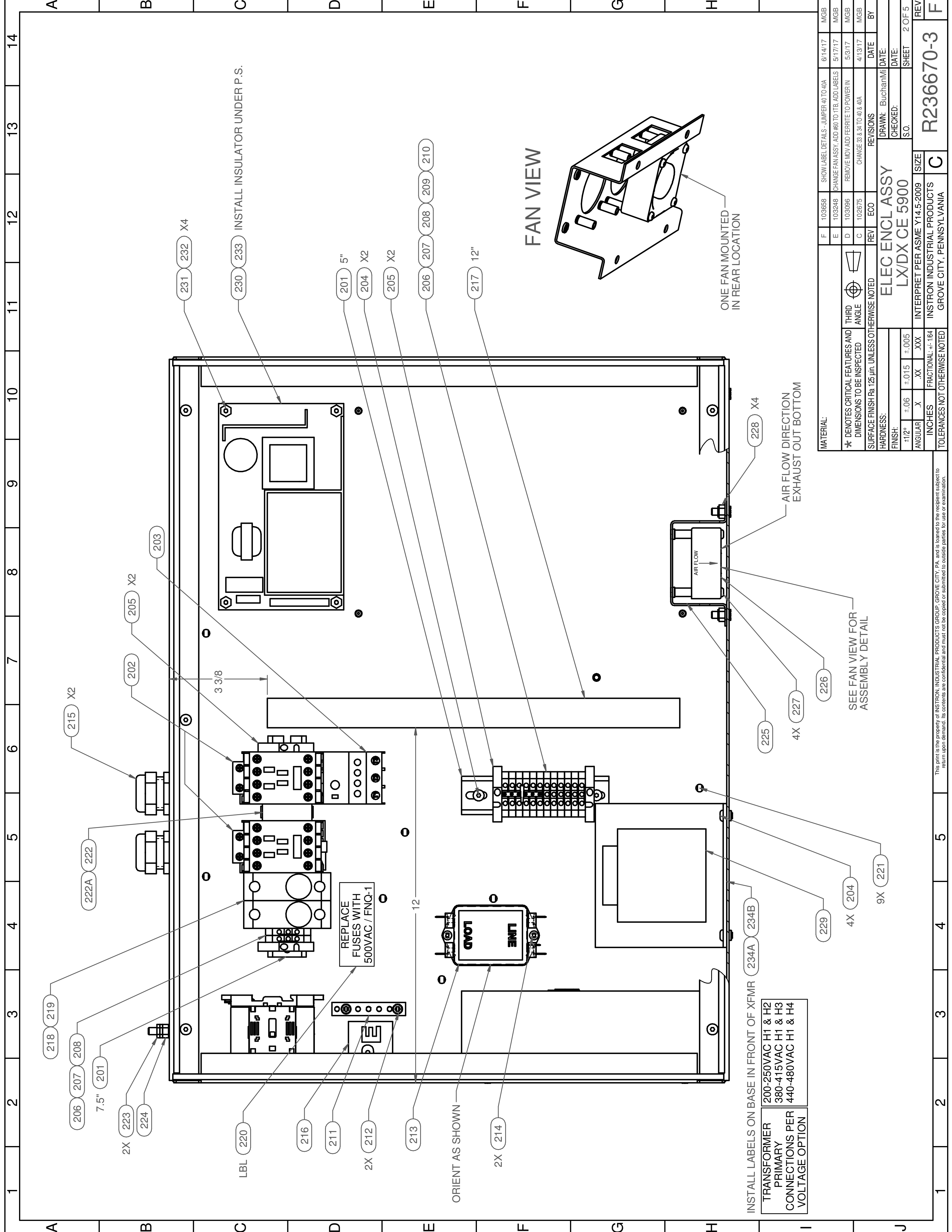
ITEMS NOT SHOWN:

108 COVER

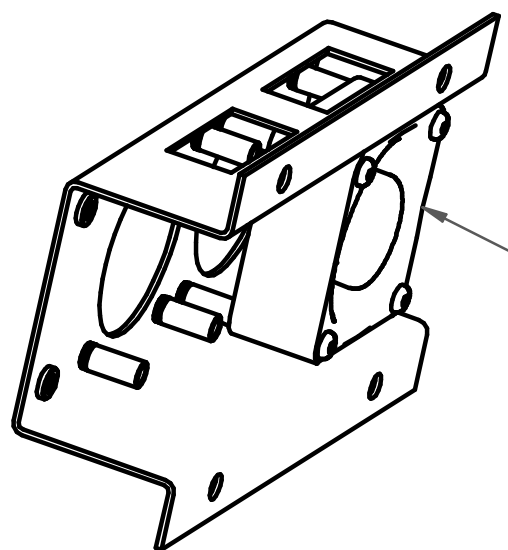
6X 109 SCREWS FOR COVER

MATERIAL:	F 103858	SHOW LABEL DETAILS - JUMPER 40 TO 40A	MGB	6/14/17
	E 103248	CHANGE FAN ASSY, ADD #60 TO 1TB, ADD LABELS	MGB	5/17/17
	D 103096	REMOVE MOV ADD FERRITE TO POWER IN	MGB	5/3/17
	C 102675	CHANGE 33 & 34 TO 40 & 40A	MGB	4/13/17
	REV	ECO	REVISIONS	DATE
HARDNESS:	DRAWN: BuchanM DATE:			
FINISH:	CHECKED: DATE:			
	+1/2°	±.06	±.015	±.005
ANGULAR	.X	.XX	.XXX	
INCHES	FRACTIONAL: ±1/164			
TOLERANCES NOT OTHERWISE NOTED				
ELEC ENCL ASSY				
LX/DX CE 5900				
INTERPRET PER ASME Y14.5-2009	SIZE			
INSTRON INDUSTRIAL PRODUCTS	C			
GROVE CITY, PENNSYLVANIA				
DRAWN: BuchanM DATE:				REV
CHECKED: DATE:				1 OF 5
S.C.				SHEET
R236670-3				F

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FAN VIEW

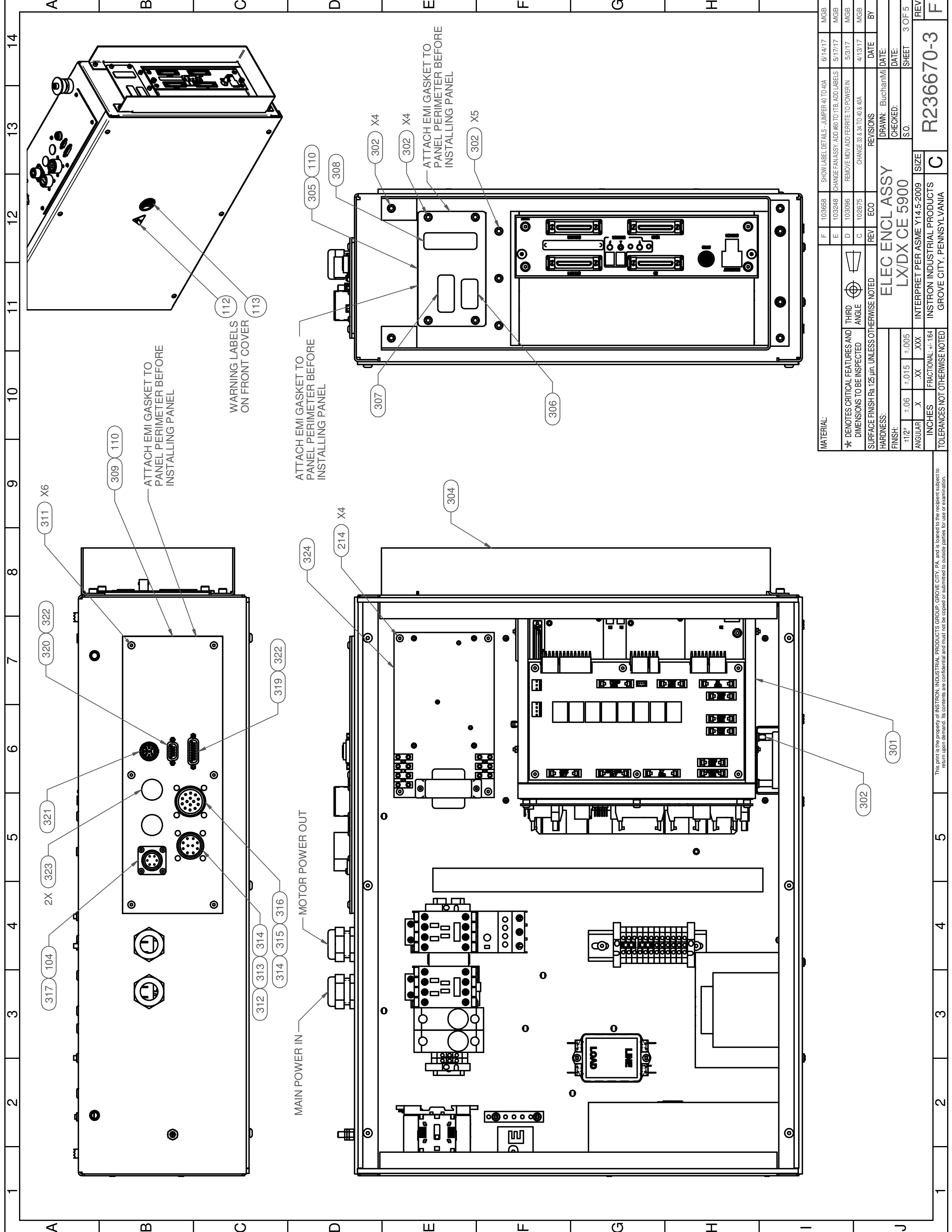


ONE FAN MOUNTED IN REAR LOCATION

F	103658	SHOW LABEL DETAILS - JUMPER 40 TO 40A	6/14/17	MGB
E	103248	CHANGE FAN ASSY, ADD #80 TO 1TB, ADD LABELS	5/17/17	MGB
D	103096	REMOVE MOV ADD FERRITE TO POWER IN	5/3/17	MGB
C	102675	CHANGE 33 & 34 TO 40 & 40A	4/13/17	MGB
REVISIONS			DATE	BY
REV			ECO	
DRAWN: BuchanM DATE:				
CHECKED: DATE:				
S.C. SHEET 2 OF 5				
ELEC ENCL ASSY			SIZE	REV
LX/DX CE 5900			C	F
INTERPRET PER ASME Y14.5-2009			INSTRON INDUSTRIAL PRODUCTS	
GROVE CITY, PENNSYLVANIA				

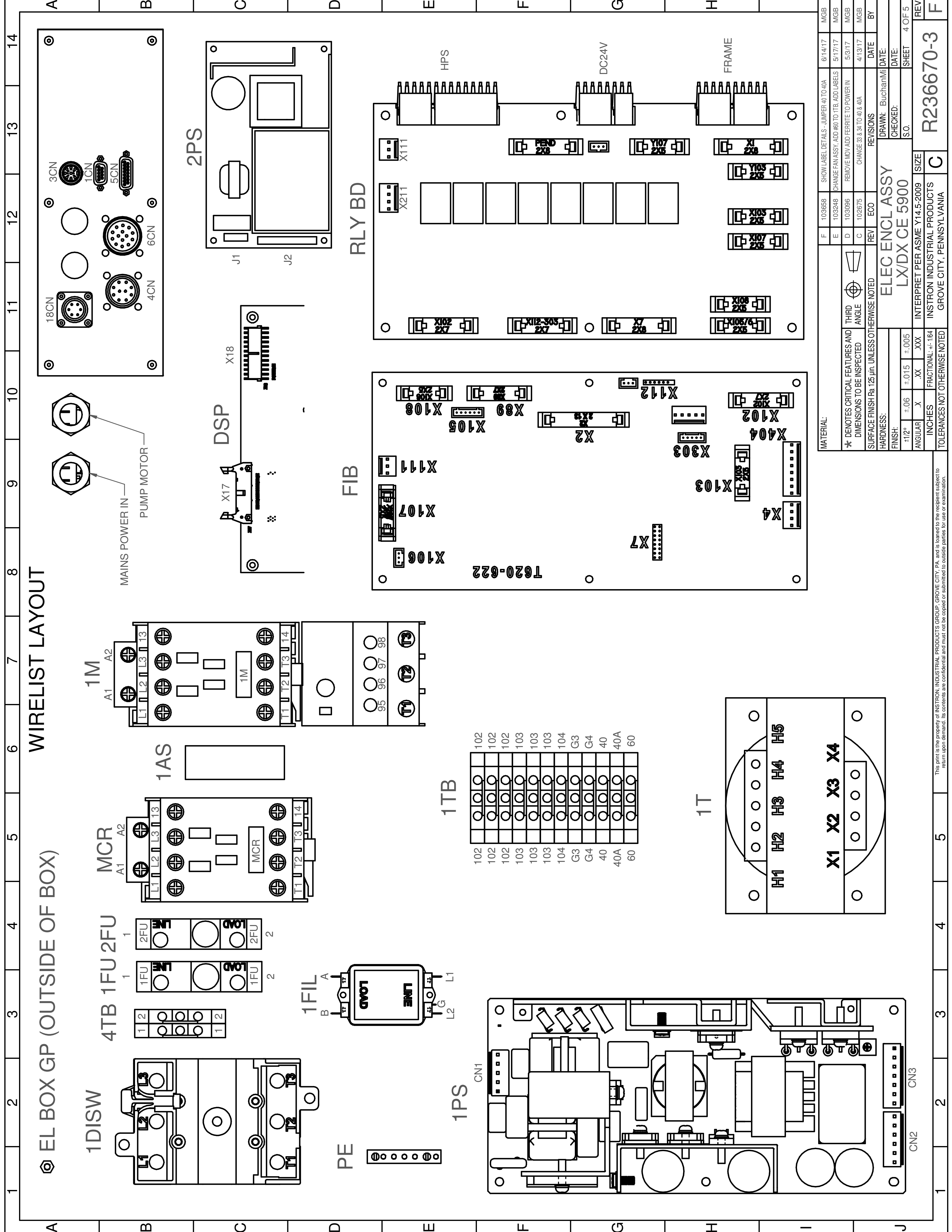
MATERIAL:				
* DENOTES CRITICAL FEATURES AND DIMENSIONS TO BE INSPECTED				
THIRD ANGLE	DRAWING			
SURFACE FINISH Ra 125 µin. UNLESS OTHERWISE NOTED				
HARDNESS:				
FINISH:				
ANGULAR	.X	.XX	.XXX	.005
INCHES	FRACTIONAL: +/- 1/64	TOLERANCES NOT OTHERWISE NOTED		

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MATERIAL:	F 103858	SHOW LABEL DETAILS - JUMPER 40 TO 40A	6/14/17	MGB
	E 103248	CHANGE FAN ASSY, ADD #80 TO 1TB, ADD LABELS	5/17/17	MGB
	D 103096	REMOVE MOV ADD FERRITE TO POWER IN	5/3/17	MGB
	C 102875	CHANGE 33 & 34 TO 40 & 40A	4/13/17	MGB
	REV	ECO	DATE	BY
HARDNESS:				
FINISH:				
	+1/2"	±.06	±.015	±.005
ANGULAR	.X	.XX	.XXX	.XXX
INCHES	FRACTIONAL: +/- 1/64			
TOLERANCES NOT OTHERWISE NOTED				
ELEC ENCL ASSY				
LX/DX CE 5900				
INTERPRET PER ASME Y14.5-2009				
INSTRON INDUSTRIAL PRODUCTS				
GROVE CITY, PENNSYLVANIA				
DRAWN: BuchanM DATE:				
CHECKED: DATE:				
S.C. SHEET 3 OF 5				
R236670-3				REV
C				F

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WIRELIST LAYOUT

EL BOX GP (OUTSIDE OF BOX)

1DISW

4TB 1FU 2FU

MCR

1AS

1M

PE

1FIL

1PS

1TB

1T

2PS

FIB

DSP

RLY BD

HPS

DC24V

FRAME

MAINS POWER IN
PUMP MOTOR

F	103858	SHOW LABEL DETAILS - JUMPER 40 TO 40A	6/14/17	MGB
E	103248	CHANGE FAN ASSY, ADD #60 TO 1TB, ADD LABELS	5/17/17	MGB
D	103096	REMOVE MOV ADD FERRITE TO POWER IN	5/3/17	MGB
C	102675	CHANGE 33 & 34 TO 40 & 40A	4/13/17	MGB
REV ECO			DATE	BY
HARDNESS: BuchanMI				
FINISH: DATE:				
SHEET 4 OF 5				
ELEC ENCL ASSY LX/DX CE 5900			DATE:	REV
INTERPRET PER ASME Y14.5-2009			SIZE	F
INSTRON INDUSTRIAL PRODUCTS			C	
GROVE CITY, PENNSYLVANIA				

MATERIAL:		* DENOTES CRITICAL FEATURES AND DIMENSIONS TO BE INSPECTED		THIRD ANGLE
SURFACE FINISH Ra 125 µin. UNLESS OTHERWISE NOTED		REV ECO		REVISIONS
HARDNESS:		FINISH:		DATE:
ANGULAR	.X	.XX	.XXX	±.005
INCHES				±.015
TOLERANCES NOT OTHERWISE NOTED		DRAWN: BuchanMI		DATE:
		CHECKED:		SHEET 4 OF 5
		S.C.		REV
		DATE:		F

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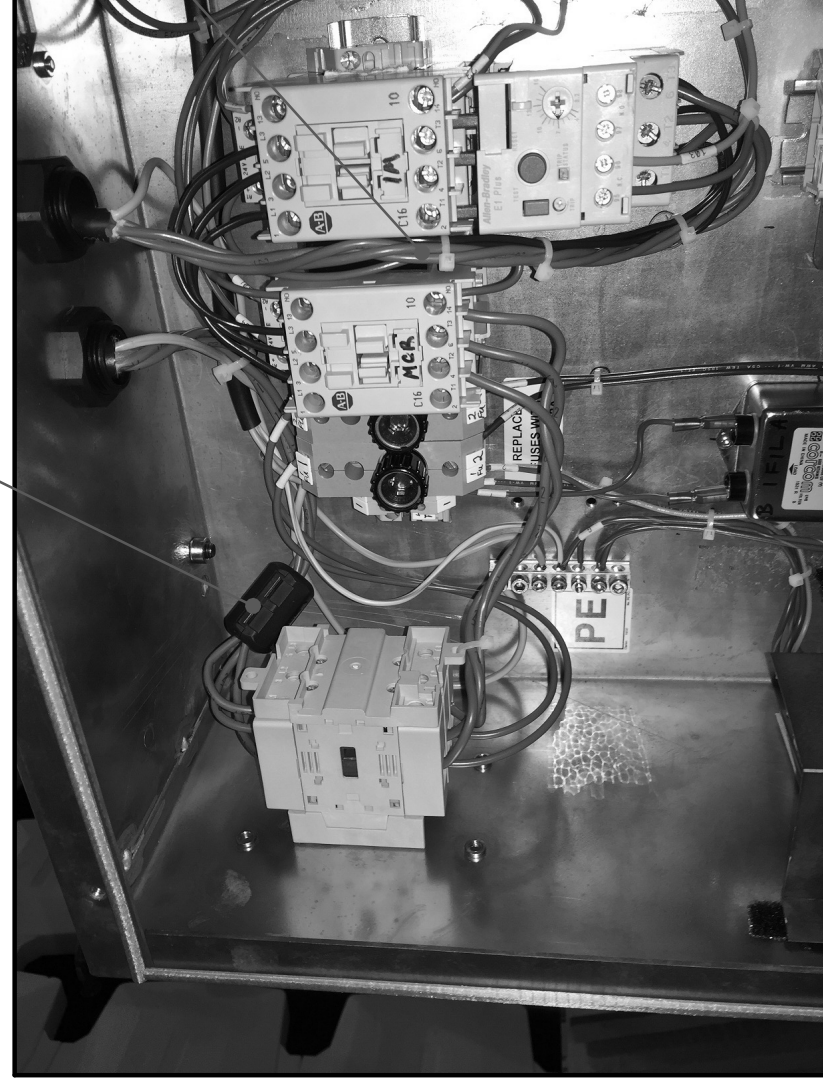
WIRELIST

From Title	Pos.	To Title	Pos.	Wire or Cable			Misc Info
				Num Pairs	Cond	AWG Color	
ELECTRICAL BOX CONNECTIONS							
MAINS INPUT CORD	L1	1DISW	L1	4	12	RED	ATTACH FERRITE BEAD
	L2		L2			OR	USE SJO 17 FT LG
	L3		L3			BLK	12" WIRE IN BOX
	G	PE	--	G		GN/YL	15" GR/YL WIRE IN BOX
EL BOX GP	--	MACH GP	--	1	12	GN/YL	12" YEL RING BOTH ENDS
	T1	MCR	T1	1	12	RED	11" TWIST WIRES
	T2		T2			OR	
	T3		T3			BLK	
MCR	T1	IFU	T1	1	12	RED	13"
	T2	2FU	T2				
	L1	1M	L1	1	14	BLK	5"
	L2		L2				
AS (SUPPR)	L3		L3				
	A1	1TB	104	1	18	GRY	17"
	A2		103			PINK	
	1	1M	T1	1		LEADS	
1MTR (PUMP MTR)	2		T2				
	3		T3				
	G	PE	--	G	4	RED	USE SJO 7 FT LG
	A1	MCR	14	1	18	GN/YL	14" GR/YL WIRE IN BOX
1M (PUMP STR)	14		13			GRY	7"
	A2	1M	95				13"
	96	1TB	103	1	18	PINK	10"
	A	4TB	1	1	18	BRN	6" LG
1FIL	B		2			BLU	5" LG
	G	PE	--	G		GN/YL	9" LG
	1	4TB	1	1	18	BRN	USE 236466-2 CBL
	3		2			BLU	
1PS CN1 (AC IN)	5	PE	--	G		GN/YL	
	1-4	RELAY BD	DC24V	1	18	VIO	USE 236466-2 CBL
	5-6	1TB	102	1	18		
	1	PE	--	G	1	GN/YL	USE 236466-2 CBL
1PS CN3 (024VDC)	2-3	1TB	103	1	18	PINK	
	4-7	RELAY BD	DC24V				
	1	4TB	1	1	18	BRN	USE 236467-2 CBL
	2	CH GND	PE			BLU	

From Title	Pos.	To Title	Pos.	Wire or Cable			Misc Info
				Num Pairs	Cond	AWG Color	
2PS J1 (AC IN)	L	P1B	1	1			USE 236467-2 CBL
	N		2	2			
2PS J2 (5/12VDC)	G	2PS	CH GND	G			
	X1	DSP	X18				USE 230176-2A CBL
		FIB	X405				
		FAN	CN 1-2				USE A604-57
3MTR (VENT MTR)	BLK	FAN CN-	1	--			
	RED		2	--			
FLY BD	Y103	1CN	--	--			USE 210118-1D CBL
	PENDT	5CN	--	--			USE 230175-1A CBL
	HPS	6CN	--	--			USE 231061-2A CBL
	HPS-11	1M	13	21			(LABELED #13)
4CN	HPS-12	FRAME	14	23			(LABELED #A1)
	FRM-4	1TB	40A	40A	1	18	GRY
	D	1TB	40	40			
	X404	FIB	X404	--			USE 232049-2A
18CN (E-STOP)	A	1TB	102	1	18	VIO	USE 235711-2A CBL
	B		104			GRY	
1TB	40	1TB	40A	1	18	GRY	JUMPER
Transformer Secondary Connections all voltages:							
1T	X1	1FIL	L1	3L1	1	18	BRN
	X3		L2	3L2			BLU
	X3	PE	--	G			GN/YL
Transformer Primary Connections 230V:							
1T	H1	IFU	2	2L1	1	18	BLK
	H2	2FU	2	2L2			
Transformer Primary Connections 380V:							
1T	H1	IFU	2	2L1	1	18	BLK
	H3	2FU	2	2L2			
Transformer Primary Connections 480V:							
1T	H1	IFU	2	2L1	1	18	BLK
	H4	2FU	2	2L1			

ATTACH FERRITE BEAD (ITEM #501)
TO POWER INPUT LINES AS SHOWN

ROUTE MOTOR WIRING BETWEEN
CONTACTORS AS SHOWN AND USE
CABLE TIE NEAR THE OL RELAY



MATERIAL:	F	103858	SHOW LABEL DETAILS - JUMPER 40 TO 40A	6/14/17	MGB
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	REV	ECO	REVISIONS	DATE	BY
DRAWN: BuchanMI DATE: _____					
CHECKED: _____ DATE: _____					
SHEET 5 OF 5					
ELEC ENCL ASSY LXDX CE 5900			SIZE	REV	
INTERPRET PER ASME Y14.5-2009			INSTRON INDUSTRIAL PRODUCTS	R236670-3	
GROVE CITY, PENNSYLVANIA			C	F	

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Appendix A

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MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identification

Product Name: Altra AW 32 Hydraulic Oil
Product Number: 11005
Synonyms: Antiwear Hydraulic Fluid, Petroleum Based Lubricant
Chemical Name: Hydrotreated heavy paraffinic distillate
Chemical Family: Petroleum Distillate
CAS Number: Blend

Company Identification

Allegheny Petroleum Products Co.
999 Airbrake Avenue
Wilmerding, PA 15148 USA
1-412-829-1990 (For product information)
1-800-424-9300 (For emergencies)
1-800-424-9300 or 1-703-527-3887 (CHEMTREC)

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT LISTING:

<u>Chemical Name</u>	<u>Amount</u>	<u>CAS Number</u>
HYDROTREATED PARAFFINIC DISTILLATE, DEWAXED	> 98.0 %	64742-65-0
ADDITIVES	< 2.0 %	Blend

(See Section 8 for exposure guidelines)

(See Section 15 for regulatory information)

HAZARDS DISCLOSURE

This product contains no known hazardous materials as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200.

As defined under Sara 311 and 312, this product contains no known hazardous materials.

3. HAZARDS IDENTIFICATION

***** EMERGENCY OVERVIEW *****
*
* Not expected to cause a severe emergency hazard. *
*

HMIS Rating - Health: 1
Flammability: 1
Reactivity: 0

NFPA Rating - Health: 1
Flammability: 1
Reactivity: 0
Special Hazard: N/A

POTENTIAL HEALTH EFFECTS

EYE:

Contact may cause eye irritation and redness.

SKIN:

Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

INHALATION:

Inhalation of vapors or mist may be mildly irritating to the nose, throat, and respiratory tract.

INGESTION:

Small amounts swallowed during normal handling operations are not likely to cause injury.

CHRONIC EFFECTS:

No adverse effects have been documented in humans as a result of chronic exposure.

CARCINOGENICITY INFORMATION:

Based on OSHA 1910.1200 and IARC study requirements, this product does not require labeling.

4. FIRST AID MEASURES

EYE CONTACT FIRST AID:

Flush eye with water for 15 minutes.

Get medical attention if irritation develops or persists.

SKIN CONTACT FIRST AID:

Wash skin with soap and water.

(section 4 continued)

Thoroughly wash (or discard) clothing and shoes before reuse.

INHALATION FIRST AID:

Remove to fresh air.

If not breathing, give artificial respiration.

INGESTION FIRST AID:

If vomiting should occur spontaneously, keep airway clear.

NOTES TO PHYSICIAN:

Treat symptomatically.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

COC Flash Point: 248.9 C (480.0 F)

Autoignition Temperature: > 315.6 C (> 600.1 F)

FLAMMABLE LIMITS IN AIR

LEL: N/A

UEL: N/A

EXTINGUISHING MEDIA:

Carbon dioxide, foam, or dry powder. Water may be used to cool below flash point.

FIRE FIGHTING INSTRUCTIONS:

As in any fire, wear self-contained breathing apparatus pressure-demand MSHA/NIOSH (approved or equivalent) and full protective gear.

COMBUSTION PRODUCTS:

Fumes, smoke and carbon monoxide.

6. ACCIDENTAL RELEASE MEASURES

SAFEGUARDS (PERSONNEL):

Wear appropriate personal protective equipment.

INITIAL CONTAINMENT:

Absorb spills with inert material.

LARGE SPILLS PROCEDURE:

Contain spilled material.

Large spillage should be dammed-off and pumped into containers.

(section 6 continued)

Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

SMALL SPILLS PROCEDURE:

Clean up area by absorbent material.

Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

7. HANDLING AND STORAGE

HANDLING (PERSONNEL):

DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Wash hands thoroughly after handling.

HANDLING (PHYSICAL ASPECTS):

Store in a cool dry area.

Keep container closed to avoid contamination.

STORAGE PRECAUTIONS:

Keep container closed when not in use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:

Not required under normal conditions of use. However, if unusual operating conditions exist, then provide sufficient mechanical ventilation to maintain exposure below PEL/TLV (s).

EYE / FACE PROTECTION REQUIREMENTS:

Where contact with this material is likely, eye protection is recommended.

SKIN PROTECTION REQUIREMENTS:

When prolonged or frequently repeated contact could occur, use protective clothing impervious to this material.

RESPIRATORY PROTECTION REQUIREMENTS:

When there is potential for airborne exposures in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

EXPOSURE GUIDELINES:

No Information Available.

9. PHYSICAL AND CHEMICAL PROPERTIES

FORM: Liquid
COLOR: Amber
ODOR: Characteristic
BOILING POINT: >425 F
VAPOR PRESSURE: Nil mm Hg
VAPOR DENSITY: >1 (Air = 1)
SOLUBILITY IN WATER: Nil
SPECIFIC GRAVITY: 0.861 at 60 deg F (Water = 1)
BULK DENSITY: 7.17 Pounds per Gallon at 60 Deg F
MELTING/FREEZING POINT ...: N/A F
% VOLATILES: Nil %
VISCOSITY: 32 cSt at 40 Deg C

10. STABILITY AND REACTIVITY

STABILITY:

Stable.

POLYMERIZATION:

Hazardous polymerization will not occur.

INCOMPATIBILITY WITH OTHER MATERIALS:

Avoid contact with strong oxidizing agents.

DECOMPOSITION:

In the case of a fire, oxides of carbon, hydrocarbons, fumes, and smoke may be produced.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS:

Minimal irritation on contact.

SKIN EFFECTS:

Practically non-toxic if absorbed. May cause mild irritation with prolonged and repeated exposure.

ACUTE ORAL EFFECTS:

Tests on similar materials indicate low order of acute oral toxicity.

ACUTE INHALATION EFFECTS:

Low acute toxicity expected on inhalation.

MISCELLANEOUS:

Please contact supplier for additional toxicological information.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL HAZARDS:

Ecotoxicological Information: No specific aquatic data available for this product.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:

Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

Do not flush to surface water or sanitary sewer system.

CONTAINER DISPOSAL:

Empty drums should be completely drained, properly bunged and promptly shipped to the supplier or a drum reconditioner.

All other containers should be disposed of in an environmentally safe manner.

14. TRANSPORTATION INFORMATION

PRODUCT LABEL: Altra AW 32 Hydraulic Oil
D.O.T. SHIPPING NAME ...: Not regulated by DOT

15. REGULATORY INFORMATION

MISCELLANEOUS INFORMATION:

This material or all of its components are listed on the Inventory of Existing Chemical Substances under the Toxic Substance Control Act (TSCA).

16. OTHER INFORMATION

REASON FOR ISSUE ...: Revised
APPROVAL DATE: March 3, 2009
SUPERCEDES DATE: March 3, 2009
RTN NUMBER: 00011005 (Official Copy)

ADDITIONAL INFORMATION:

The data in this Material Safety Data Sheet relates only to the specific material designated herein.

This information is furnished without warranty, expressed or implied,
except that it is accurate to the best knowledge of Allegheny Petroleum
Products Co.. The data on this sheet are related only to the specific
material designated herein. Allegheny Petroleum Products Co. assumes no
legal responsibility for use or reliance upon these data.

END OF MSDS

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End of Document

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Product Support: www.instron.com