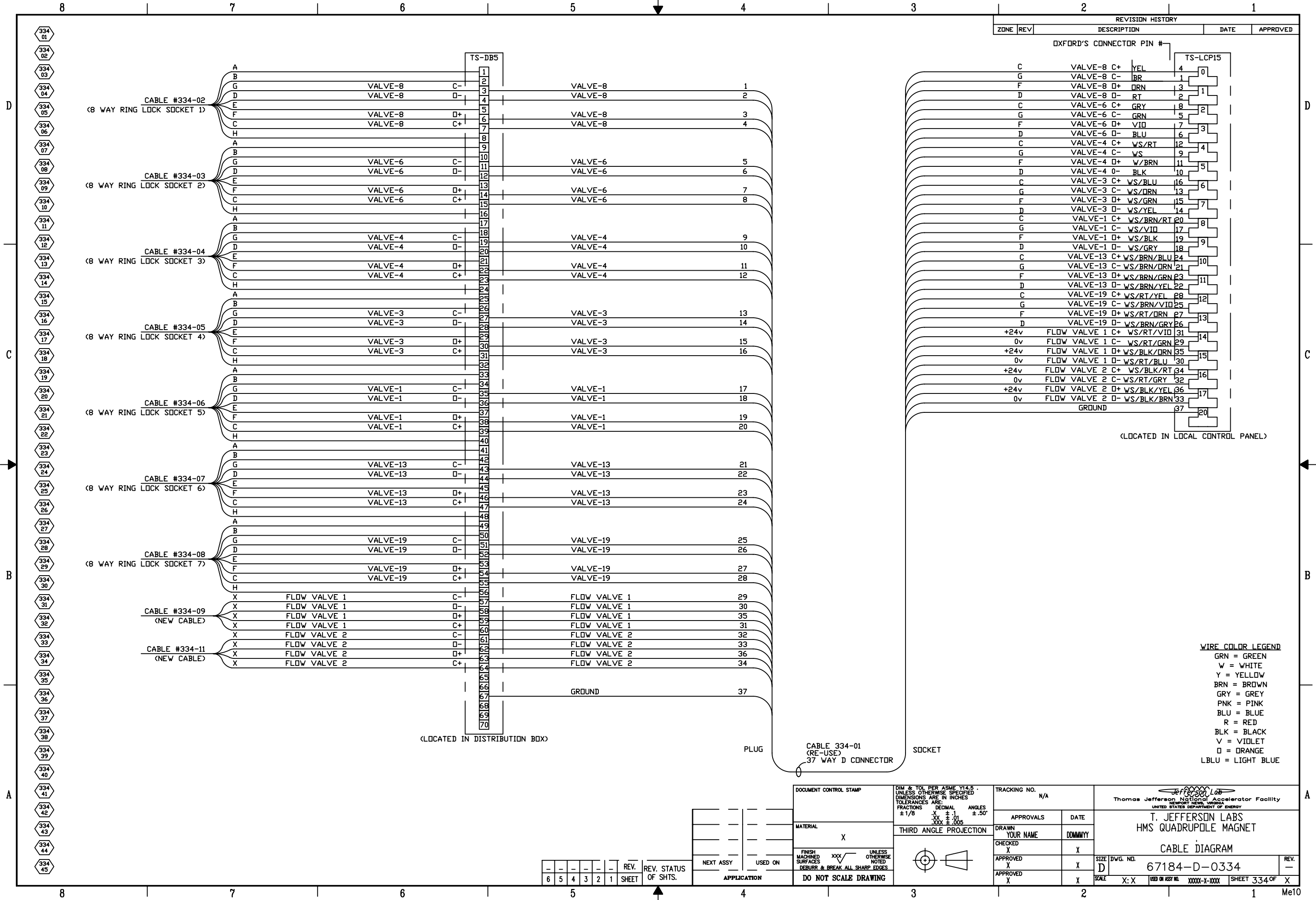
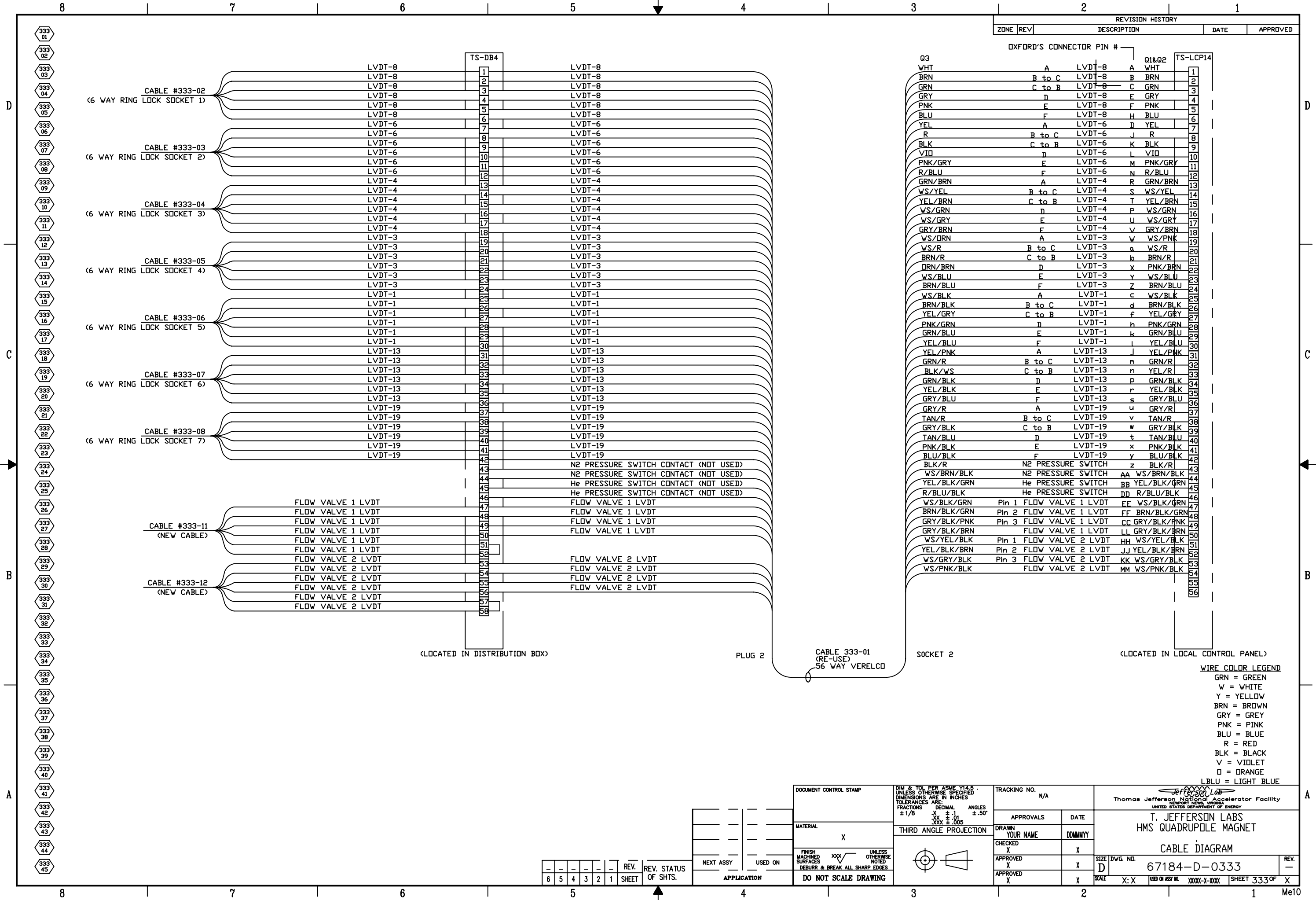
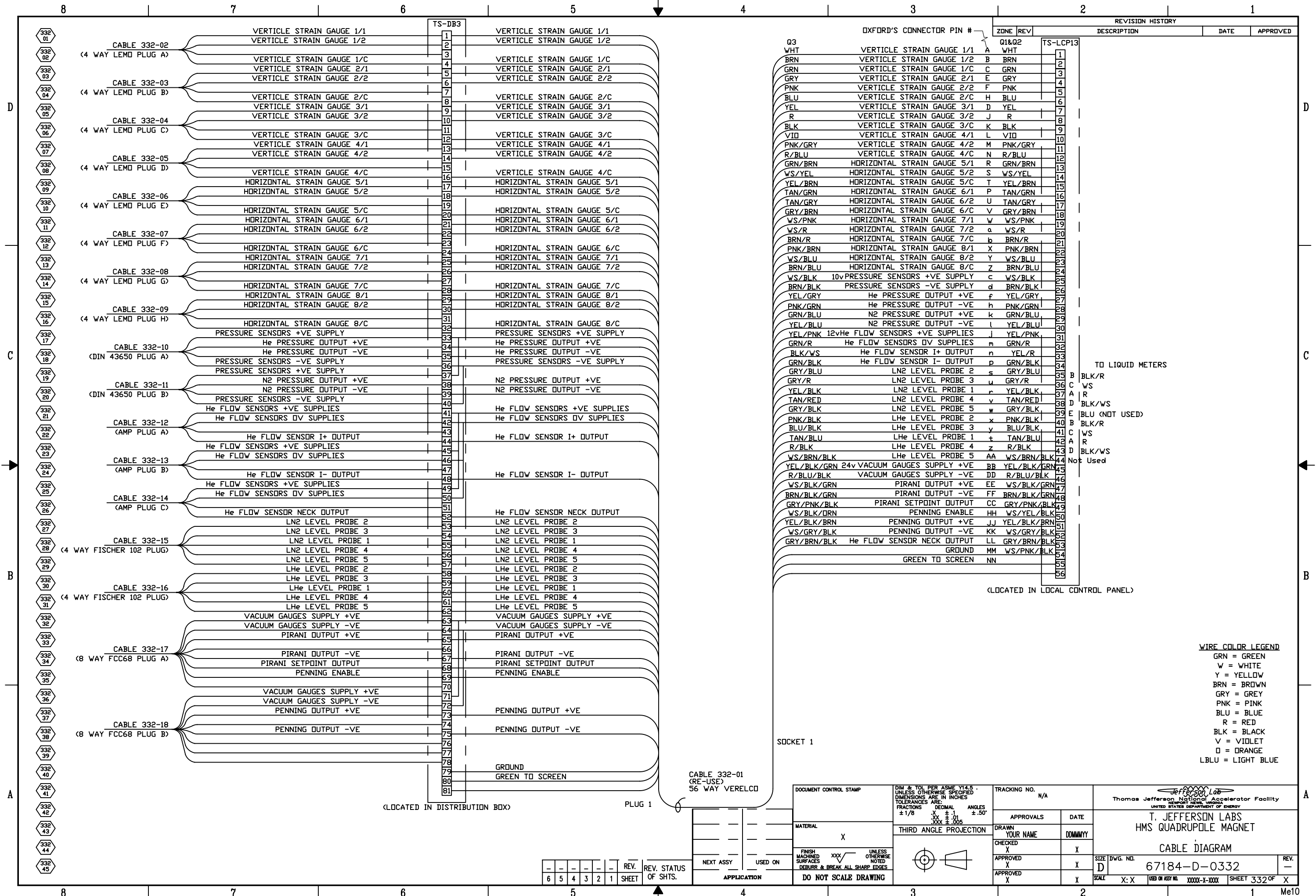
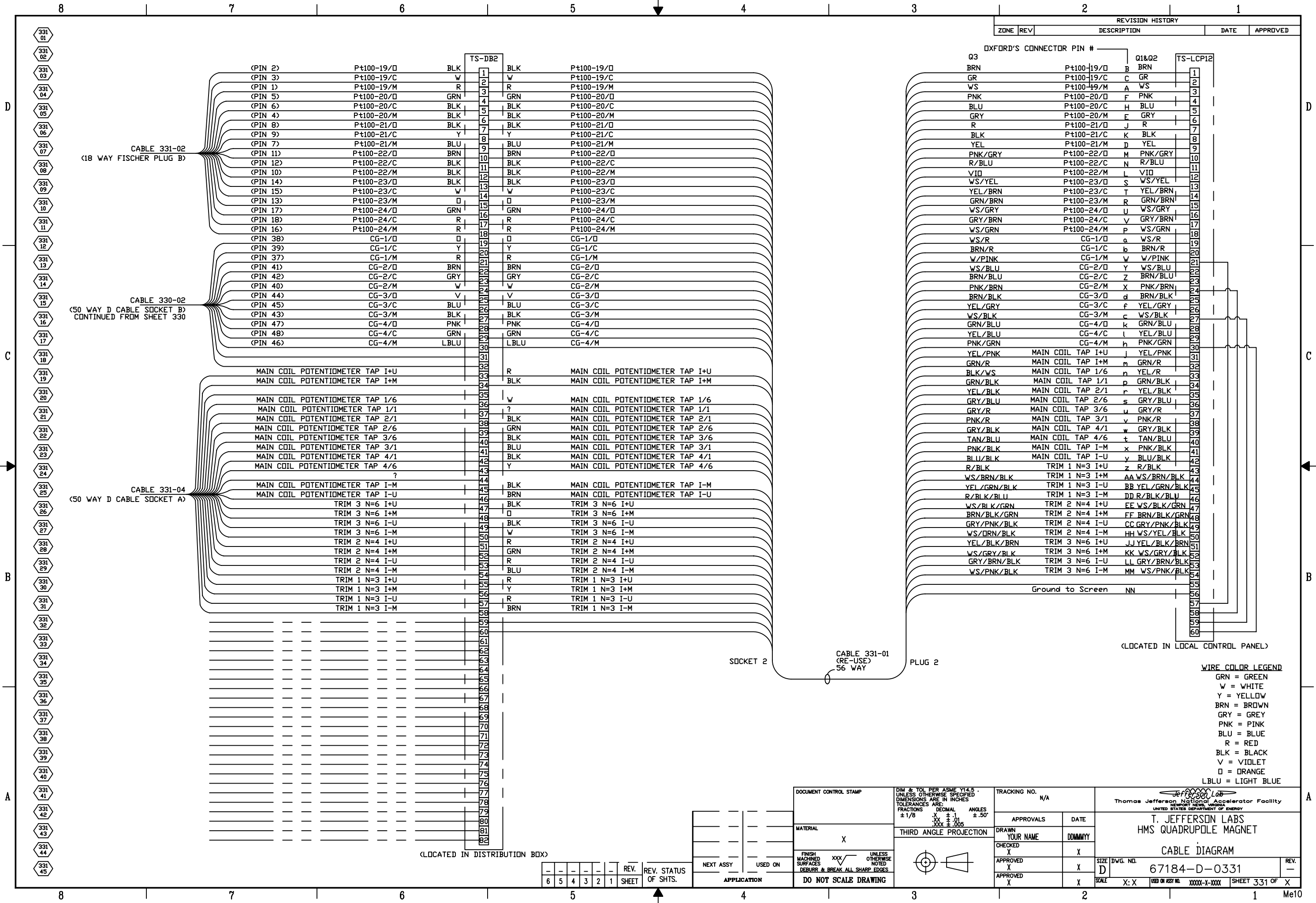
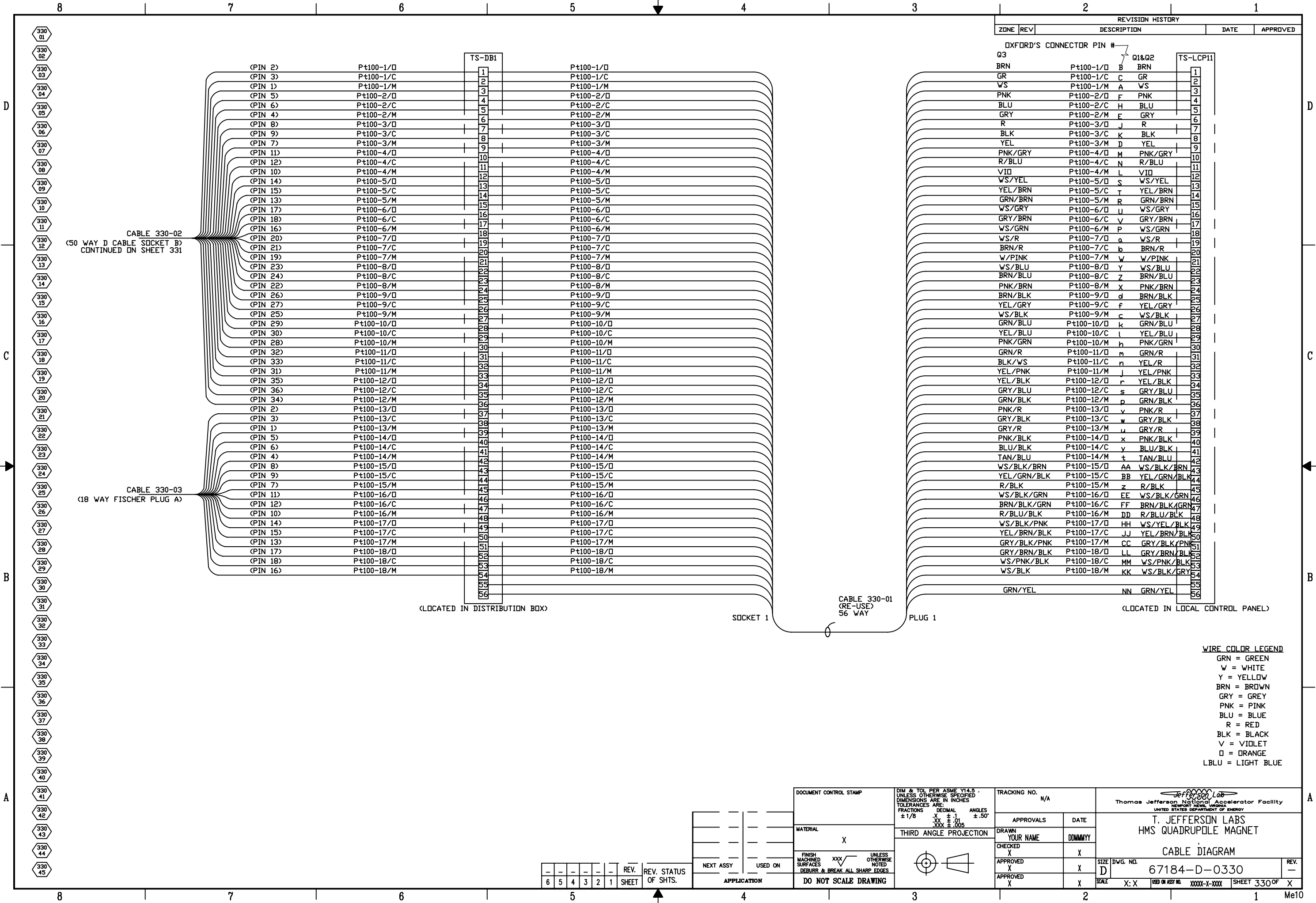


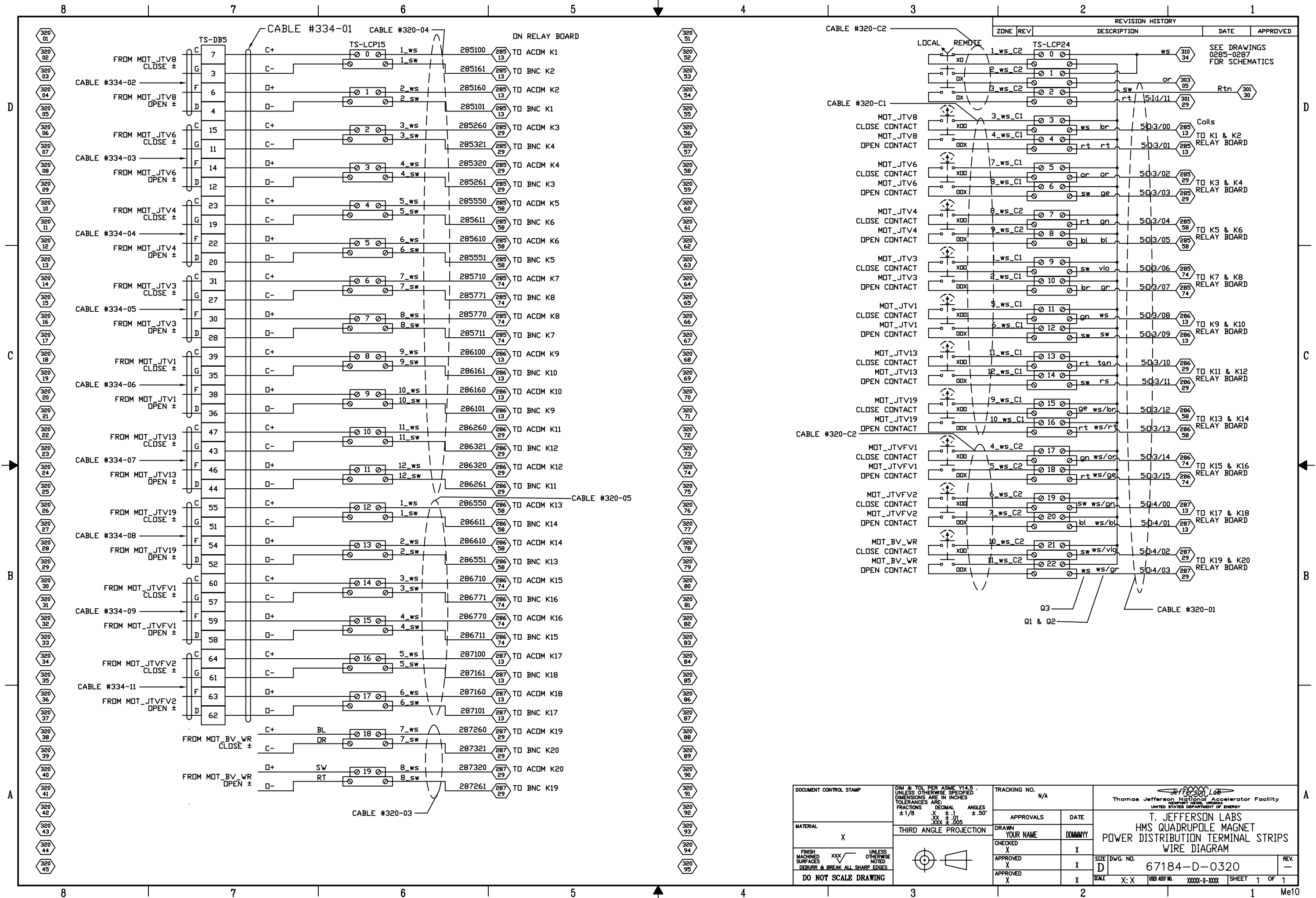


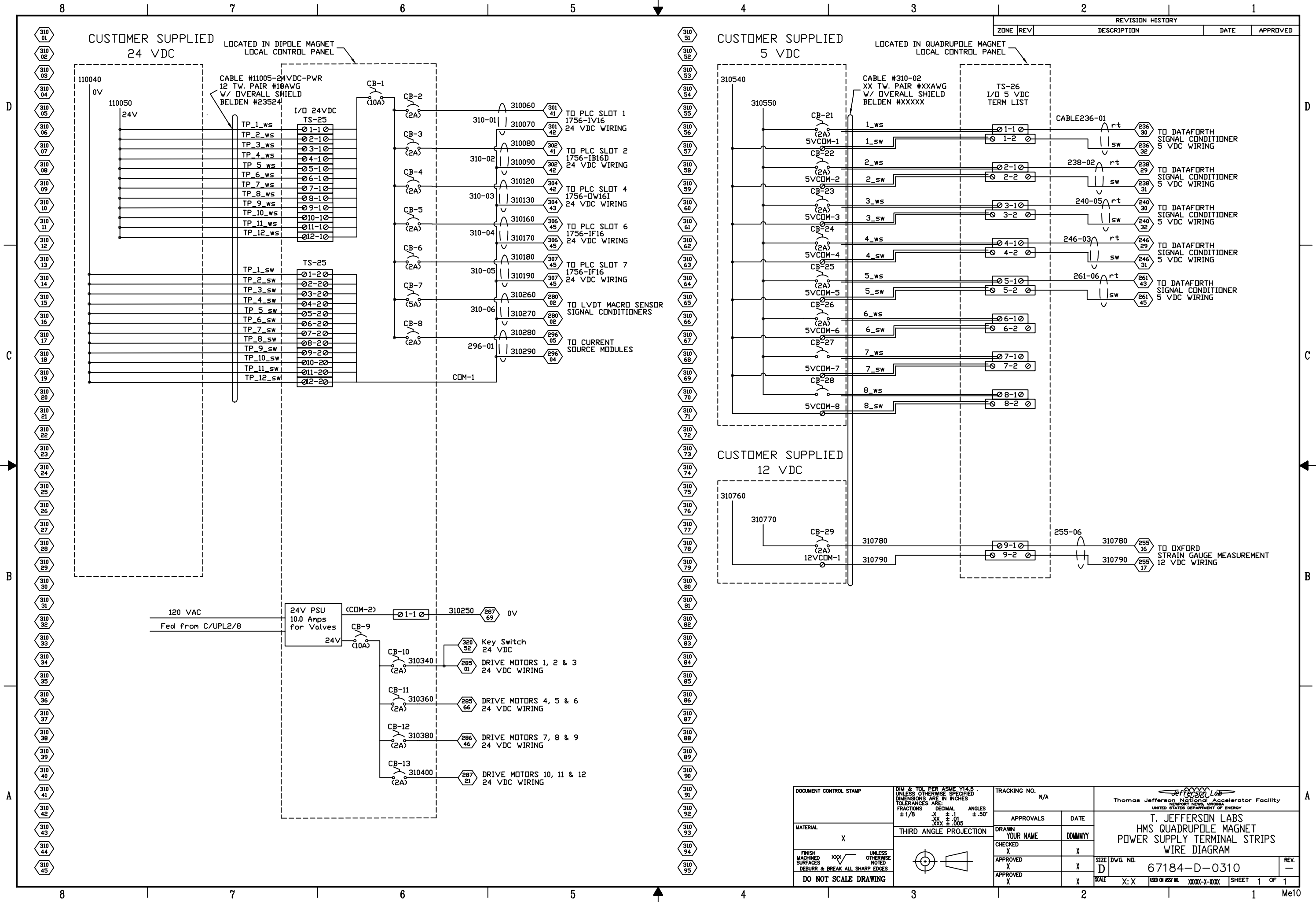






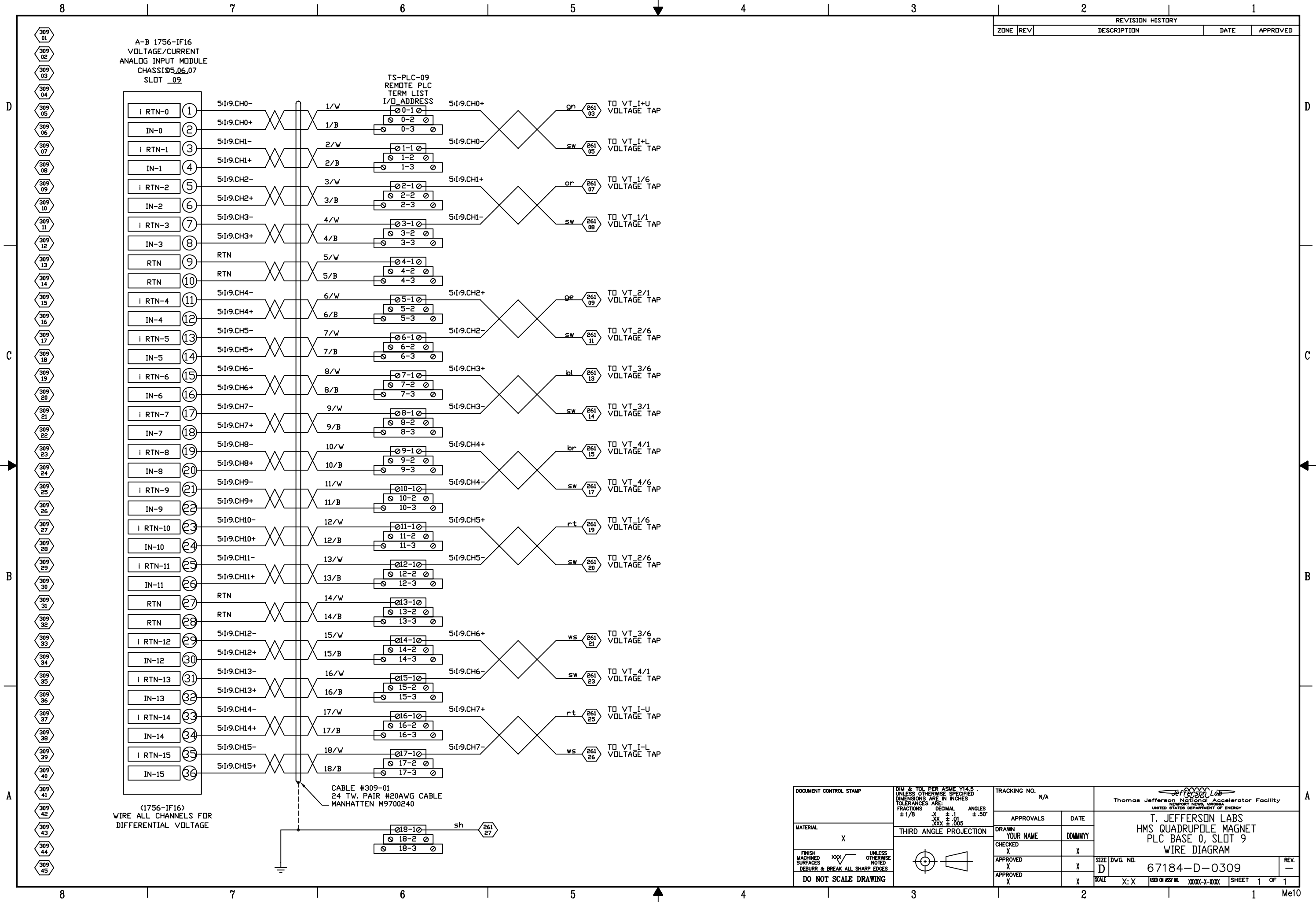


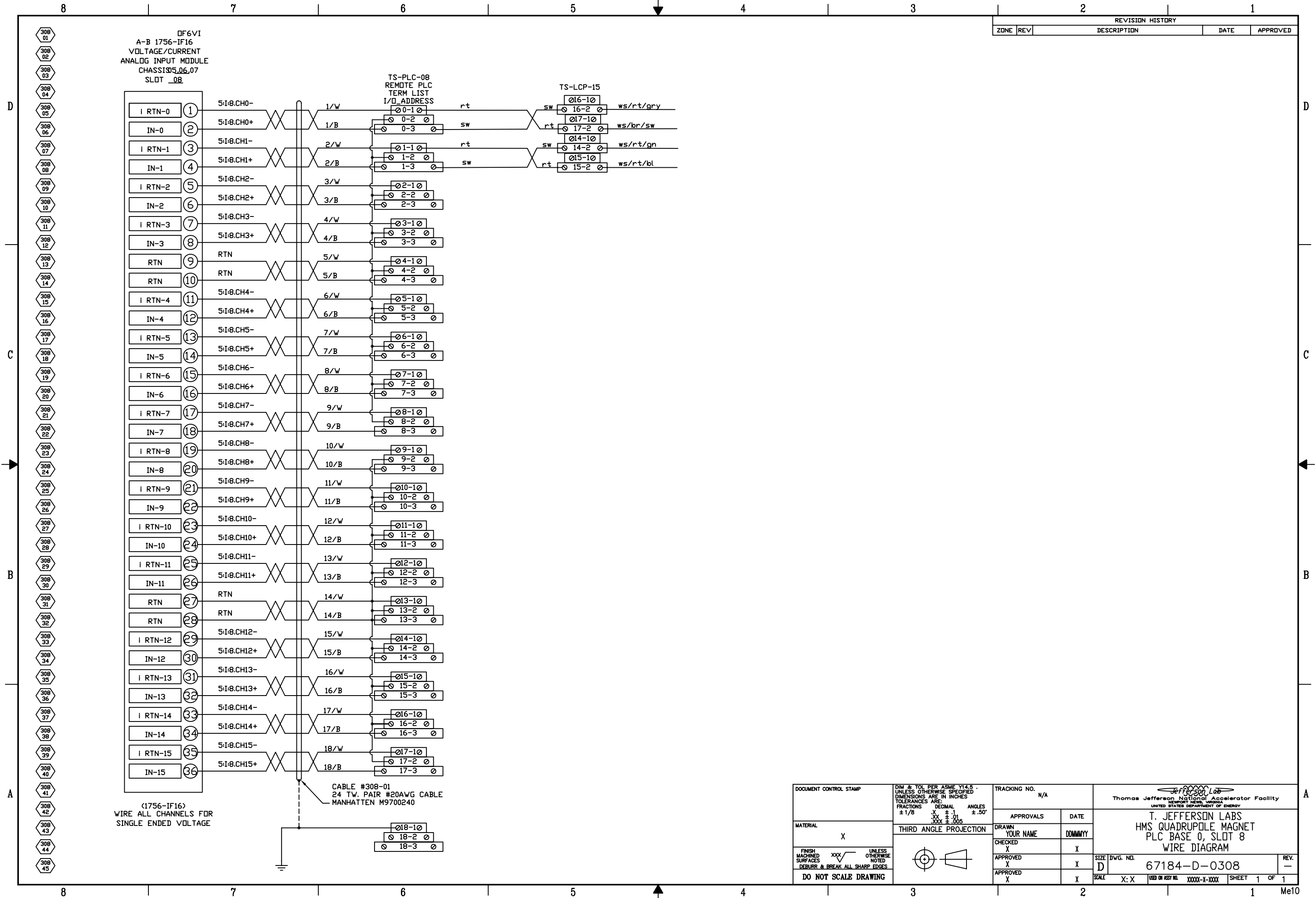


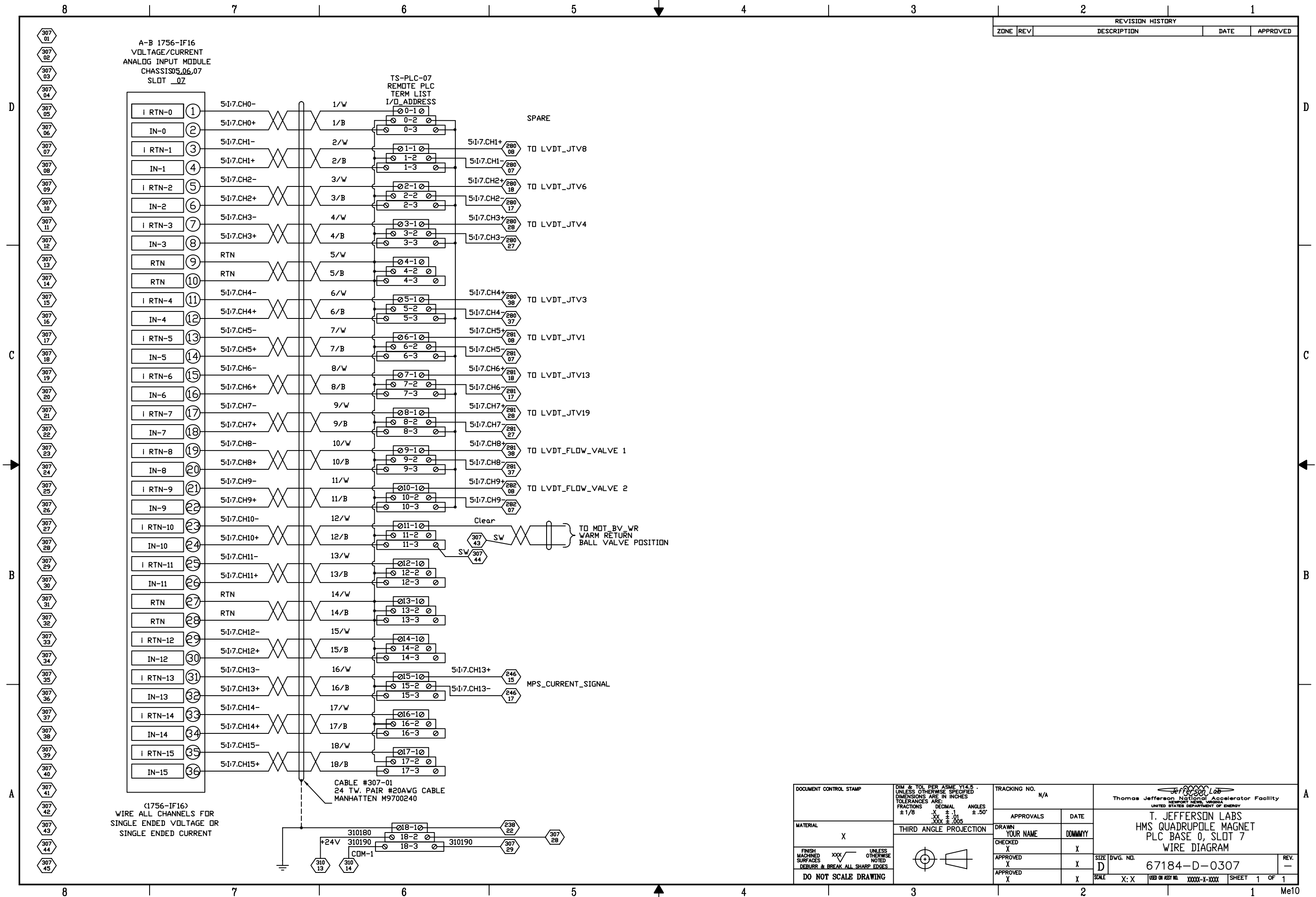


REVISION HISTORY			
ZONE	REV	DESCRIPTION	DATE

DOCUMENT CONTROL STAMP		DIM & TOL PER ASME Y14.5 - UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS DECIMAL ANGLES ± 1/8 .001 ± .01 ± .50°		TRACKING NO. N/A			
MATERIAL X		THIRD ANGLE PROJECTION		APPROVALS	DATE		
FINISH MACHINED SURFACES UNLESS OTHERWISE NOTED DEBURR & BREAK ALL SHARP EDGES				DRAWN YOUR NAME	DDMMYY		
DO NOT SCALE DRAWING				CHECKED X	X		
				APPROVED X	X		
				APPROVED X	X		
				Thomas Jefferson National Accelerator Facility HMS QUADRUPOLE MAGNET POWER SUPPLY TERMINAL STRIPS WIRE DIAGRAM			
				SIZE D	DWG. NO. 67184-D-0310		
				SCALE X: X	REV. 1		







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A-B 1756-IF16
VOLTAGE/CURRENT
ANALOG INPUT MODULE
CHASSIS 05,06,07
SLOT 06

TS-PLC-06
REMOTE PLC
TERM LIST
I/O ADDRESS

Temporary removed

TO m_flow_LCL
MASS FLOW SENSOR

TO m_flow_RCL
MASS FLOW SENSOR

TO m_flow_NECK
NECK FLOW SENSOR

SPARE

RTN

SPARE

SPARE

SPARE

Mass Flow CL N Original

Mass Flow CL P Original

Mass Flow Neck Original

TO LIQUID
HELIUM PRESSURE SENSOR

TO LIQUID
NITROGEN PRESSURE SENSOR

RTN

PARANI

TO Penning_X
PENNINGVAC VACUUM GAUGE
PRESSURE SENSOR

TO h_LN2
LIQUID NITROGEN LEVEL

TO h_LHe
LIQUID HELIUM LEVEL

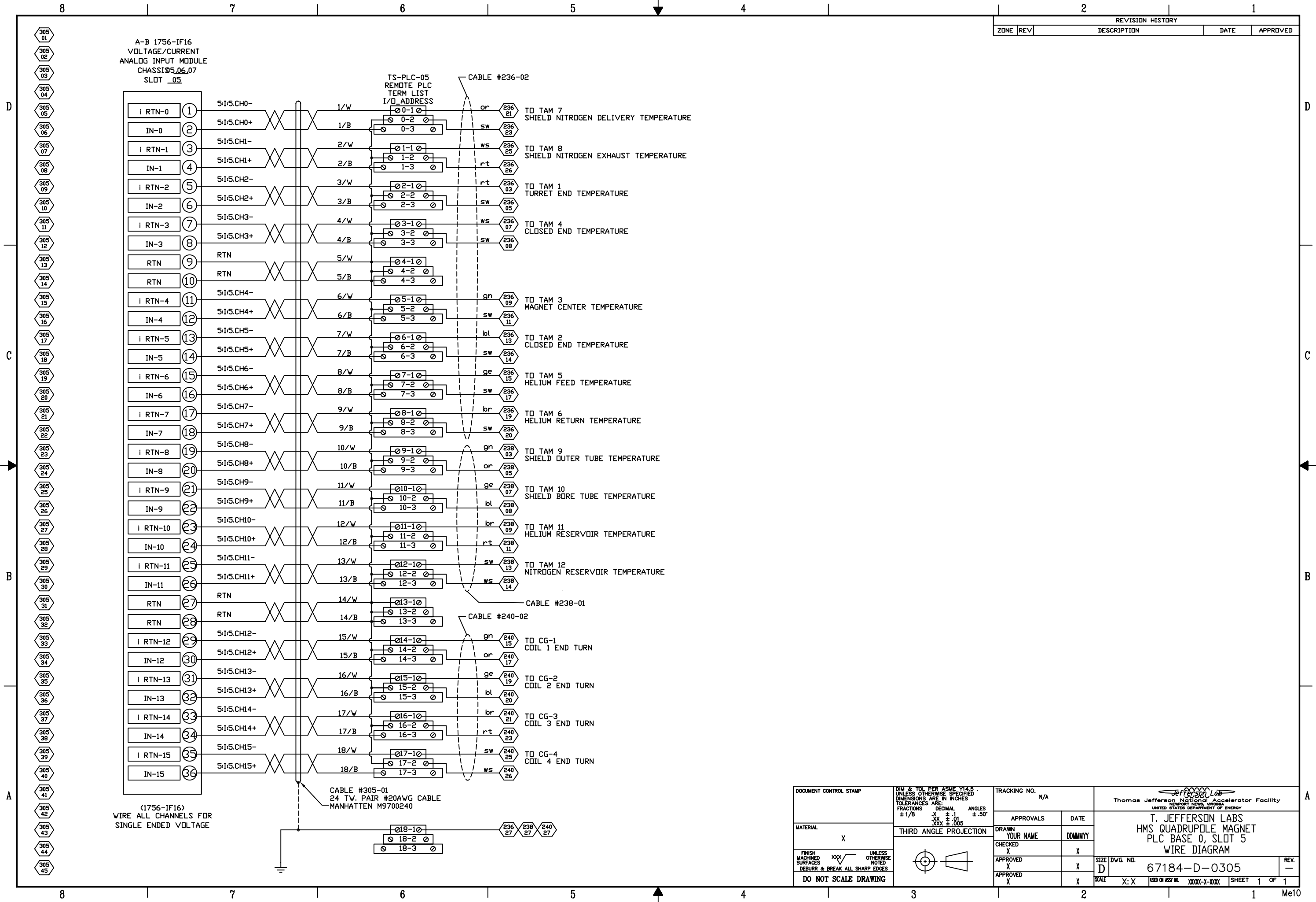
CABLE #306-01
24 TW, PAIR #20AWG CABLE
MANHATTEN M9700240

CABLE 246-01

(1756-IF16)
WIRE CHANNELS 0-7 FOR
SINGLE ENDED CURRENT
WIRE CHANNELS 8-15 FOR
SINGLE ENDED VOLTAGE

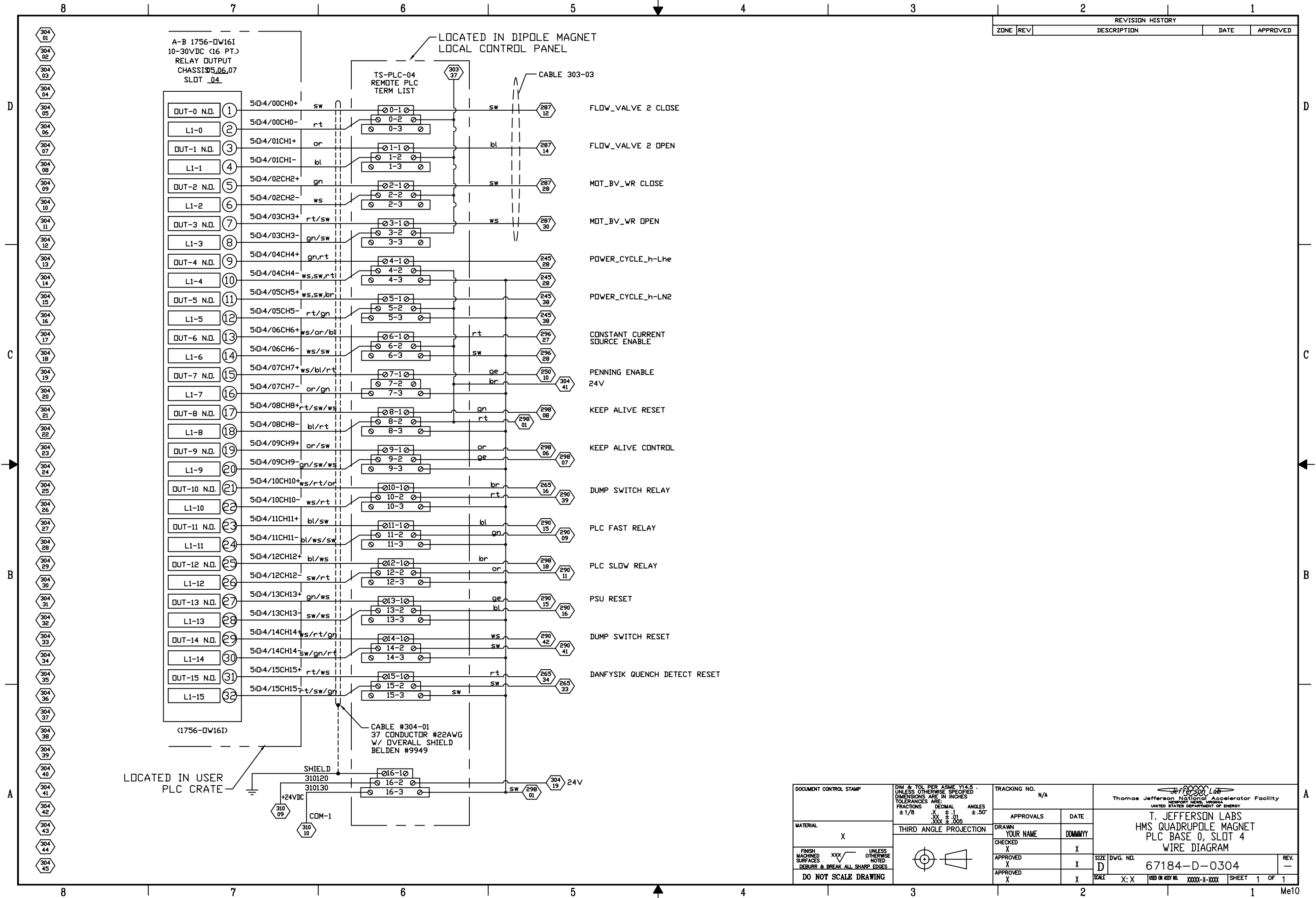
DOCUMENT CONTROL STAMP		DIM & TOL PER ASME Y14.5 UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS DECIMAL ANGLES ± 1/8 .001 ± .01 ± .50° XXX ± .005		TRACKING NO. N/A		Thomas Jefferson National Accelerator Facility HENRICO, VIRGINIA UNITED STATES DEPARTMENT OF ENERGY	
MATERIAL X		THIRD ANGLE PROJECTION		APPROVALS		DATE	
FINISH MACHINED SURFACES DEBURR & BREAK ALL SHARP EDGES		UNLESS OTHERWISE NOTED		DRAWN YOUR NAME		DDMMYY	
DO NOT SCALE DRAWING				CHECKED X		X	
				APPROVED X		X	
				APPROVED X		X	
				SIZE D		DWG. NO. 67184-D-0306	
				SCALE X: X		SHEET 1 OF 1	

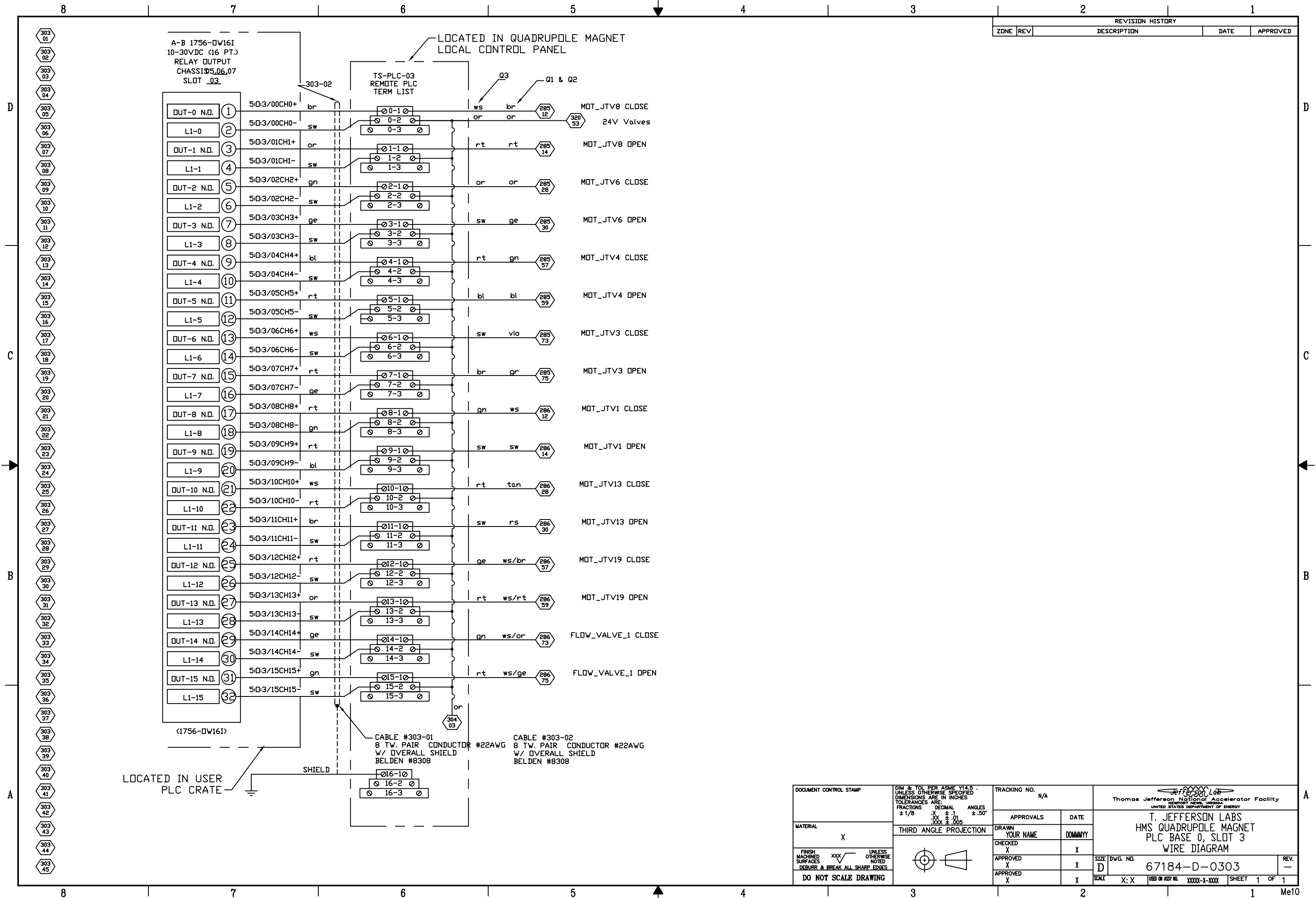
Me10

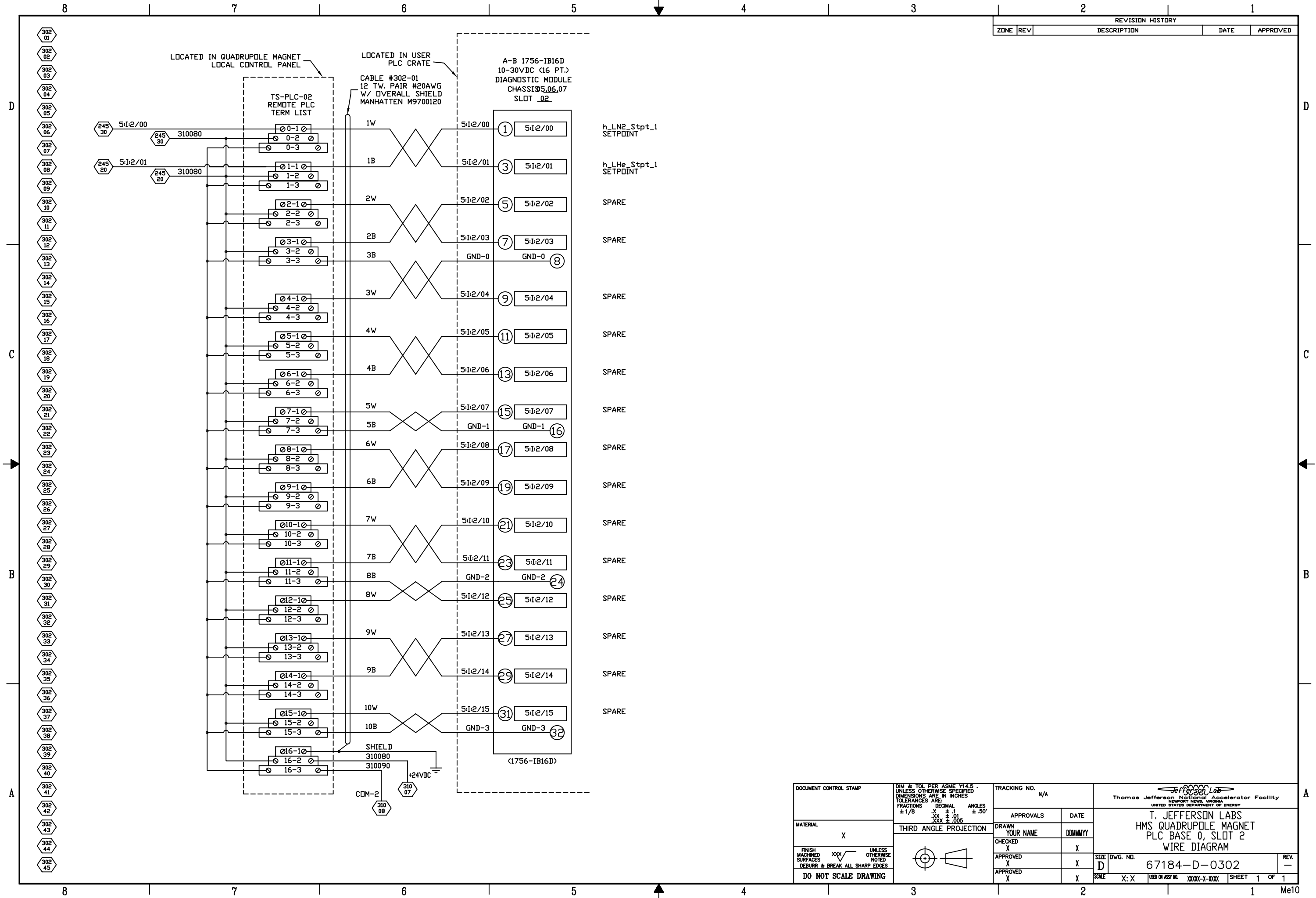


REVISION HISTORY			
ZONE	REV	DESCRIPTION	DATE
			APPROVED

DOCUMENT CONTROL STAMP		DIM & TOL PER ASME Y14.5 UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMAL ANGLES ± 1/8 .005 ± .01 ± .50° XXX ± .01 XXX ± .005		TRACKING NO. N/A		Thomas Jefferson National Accelerator Facility NEWPORT NEWS, VIRGINIA UNITED STATES DEPARTMENT OF ENERGY	
MATERIAL X		THIRD ANGLE PROJECTION		APPROVALS	DATE	T. JEFFERSON LABS HMS QUADRUPOLE MAGNET PLC BASE 0, SLOT 5 WIRE DIAGRAM	
FINISH MACHINED SURFACES DEBURR & BREAK ALL SHARP EDGES		UNLESS OTHERWISE NOTED		DRAWN YOUR NAME	DDMMYY	SIZE DWG. NO. D 67184-D-0305	
DO NOT SCALE DRAWING		X X X		CHECKED X	X	REV. —	
				APPROVED X	X	SCALE X: X USED ON ASSY NO. XXXXX-X-XXXX SHEET 1 OF 1	







REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	APPROVED
D5	A	REPLACED 1756-1B16D WITH 1756-1V16 & REWIRED	01/13/05	-

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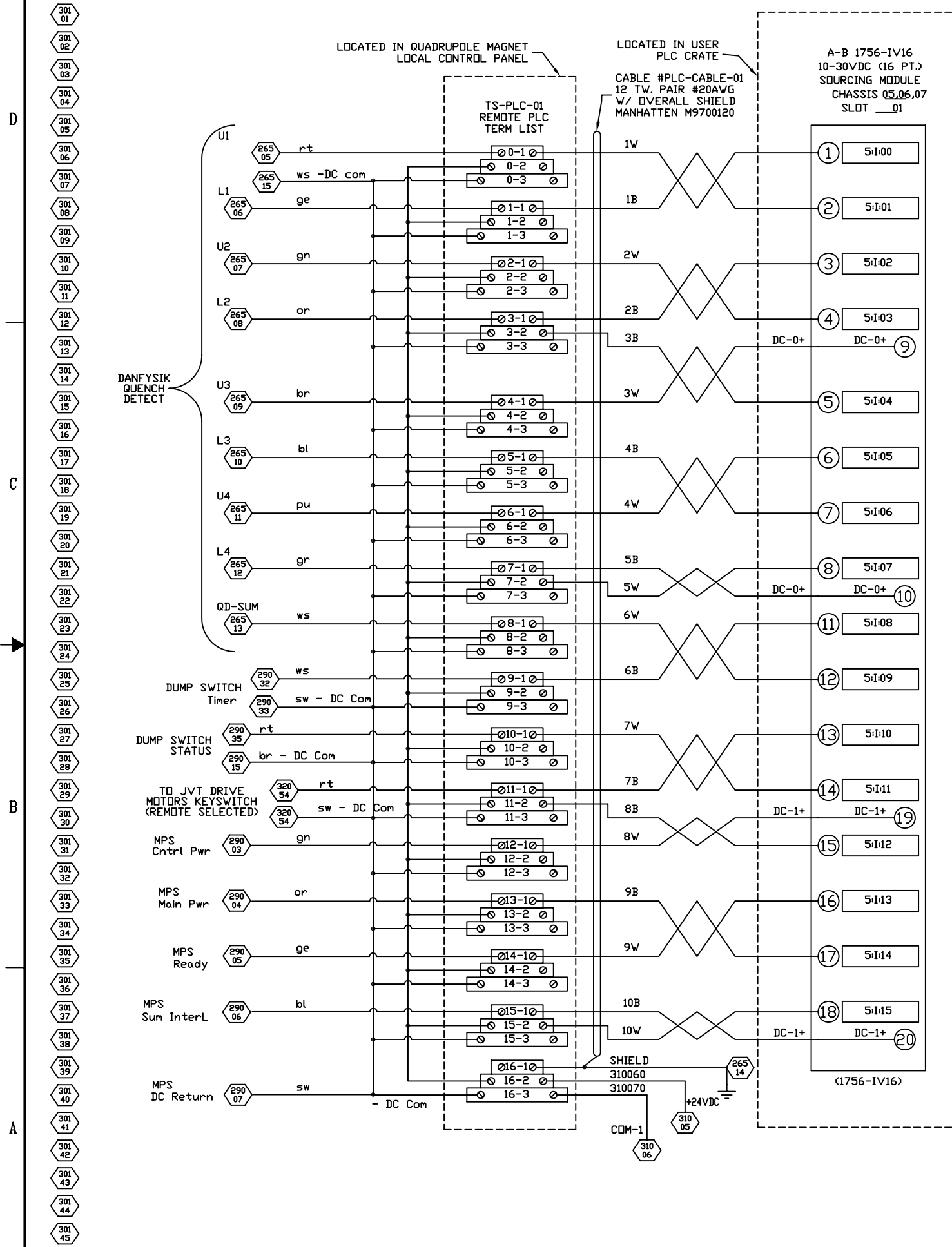
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DOCUMENT CONTROL STAMP		DIM & TOL PER ASME Y14.5 UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMAL ANGLES ± 1/8 .005 ± .01 ± .50° XXX ± .005		TRACKING NO. N/A		Thomas Jefferson National Accelerator Facility JEFFERSON LABS UNITED STATES DEPARTMENT OF ENERGY	
MATERIAL X		THIRD ANGLE PROJECTION		APPROVALS	DATE	T. JEFFERSON LABS HMS QUADRUPOLE MAGNET PLC BASE 0, SLOT 1 WIRE DIAGRAM	
FINISH MACHINED SURFACES DEBURR & BREAK ALL SHARP EDGES		X X X		DRAWN YOUR NAME	DDMMYY	SIZE DWG. NO. D 67184-D-0 301	
DO NOT SCALE DRAWING		X X X		CHECKED X	X	SCALE X: X USED ON ASSY NO. XXXXX-X-XXXX	
				APPROVED X	X	SHEET 1 OF 1	
				APPROVED X	X	REV. -	

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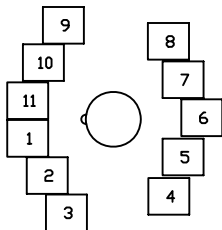
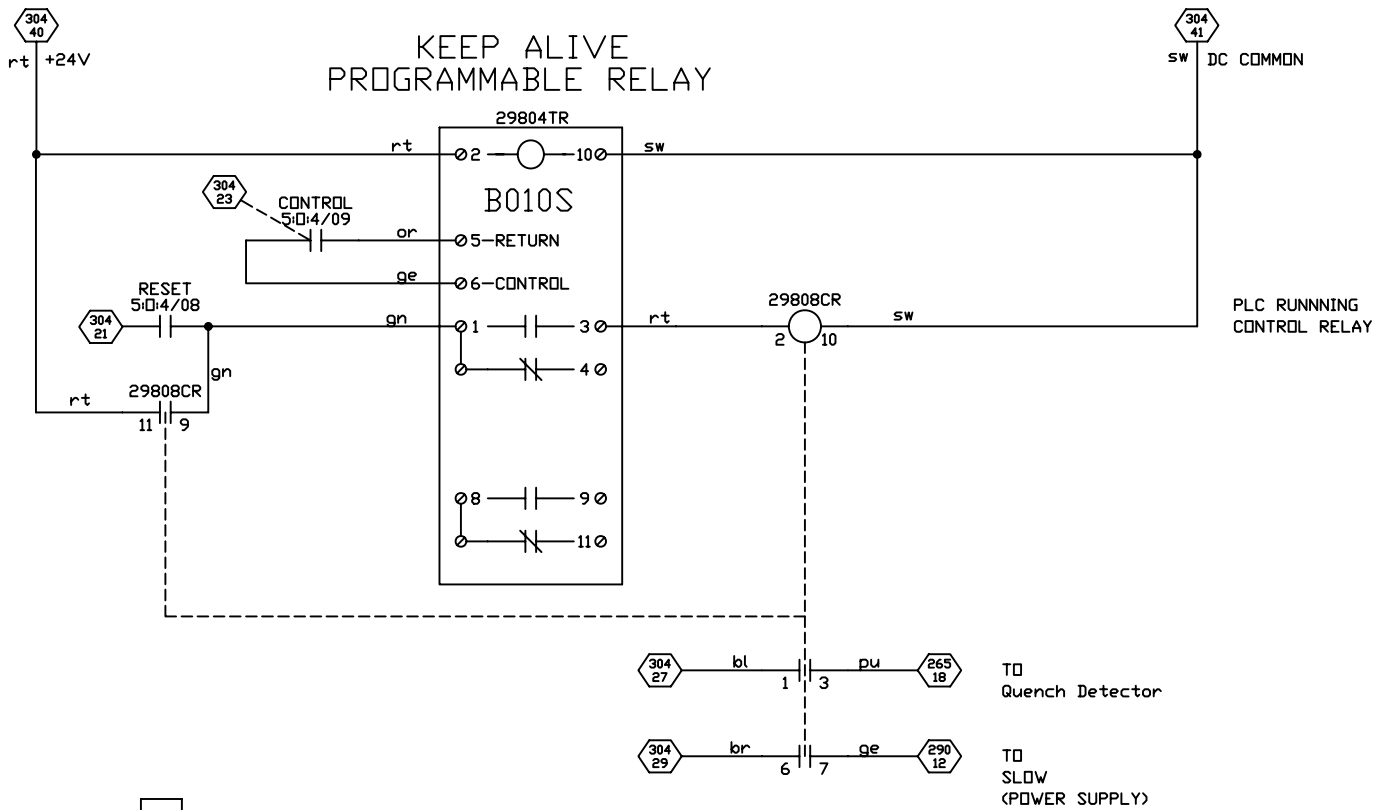
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WIRE COLOR LEGEND

gn = GREEN
ws = WHITE
ge = YELLOW
br = BROWN
gr = GREY
rs = PINK
bl = BLUE
rt = RED
sw = BLACK
vio = VIOLET
or = ORANGE
S = SHIELD

DOCUMENT CONTROL STAMP	DIM & TOL PER ASME Y14.5 - UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS DECIMAL ANGLES ± 1/8 .X ± .1 ± .50 .XX ± .01 .XXX ± .005	TRACKING NO. N/A	Thomas Jefferson National Accelerator Facility UNITED STATES DEPARTMENT OF ENERGY			
MATERIAL X	THIRD ANGLE PROJECTION	APPROVALS	DATE	T. JEFFERSON LABS HMS QUADRUPOLE MAGNET KEEP ALIVE TIMING RELAY WIRE DIAGRAM		
FINISH MACHINED SURFACES DEBURR & BREAK ALL SHARP EDGES		DRAWN YOUR NAME	DDMMYY			
UNLESS OTHERWISE NOTED		CHECKED X	X			
DO NOT SCALE DRAWING		APPROVED X	X			
		APPROVED X	X	SIZE D	DWG. NO. 67184-D-0298	REV. —
		SCALE X: X		USED ON ASSY NO. XXXXX-X-XXXX	SHEET 1	OF 1

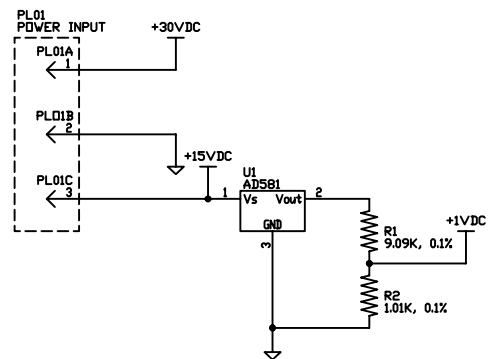
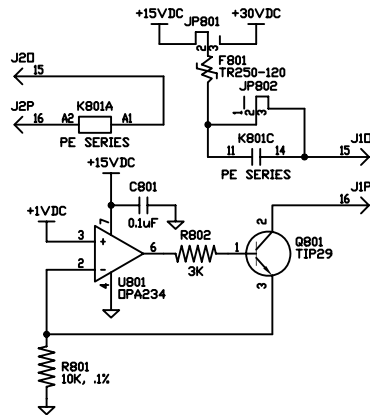
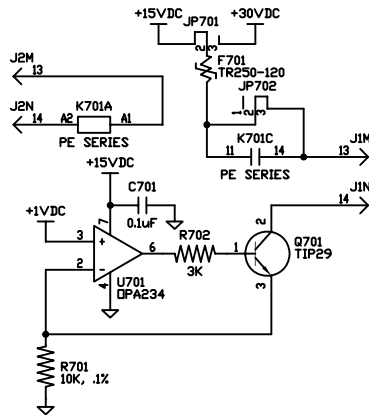
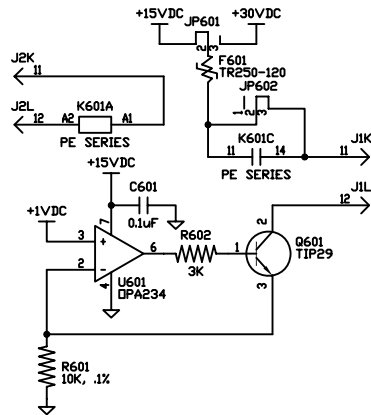
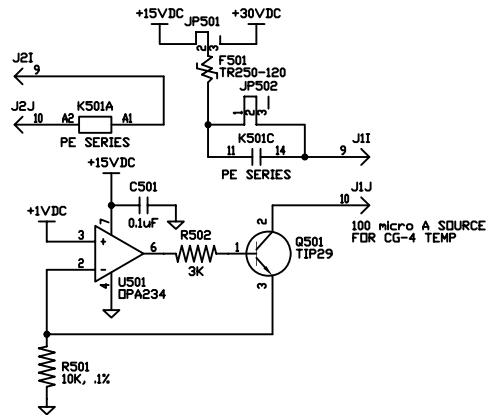
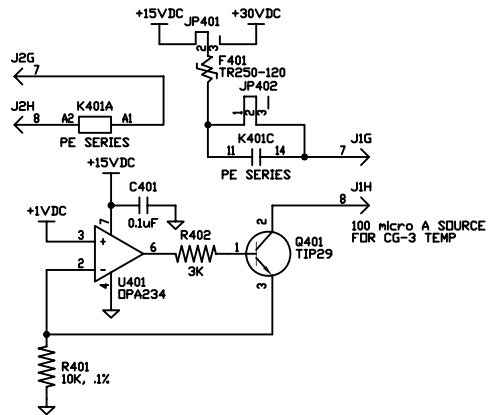
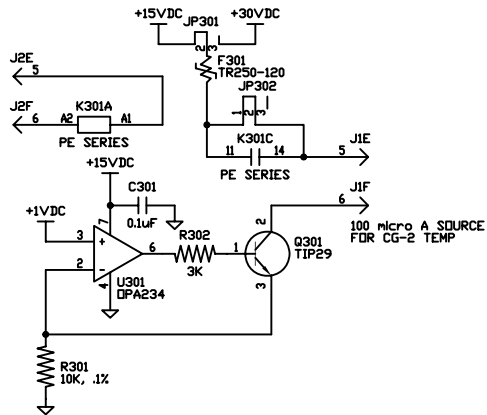
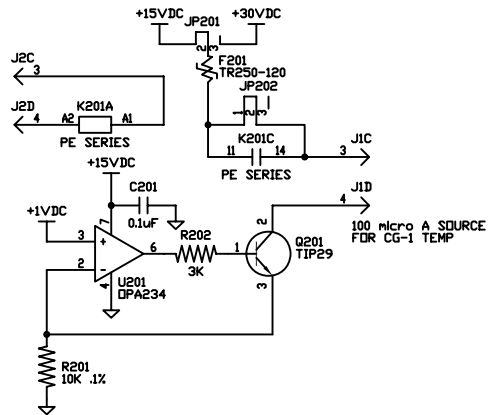
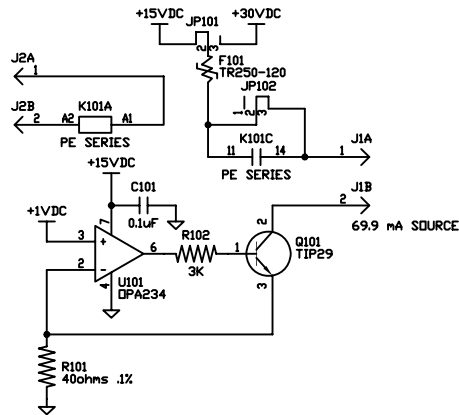
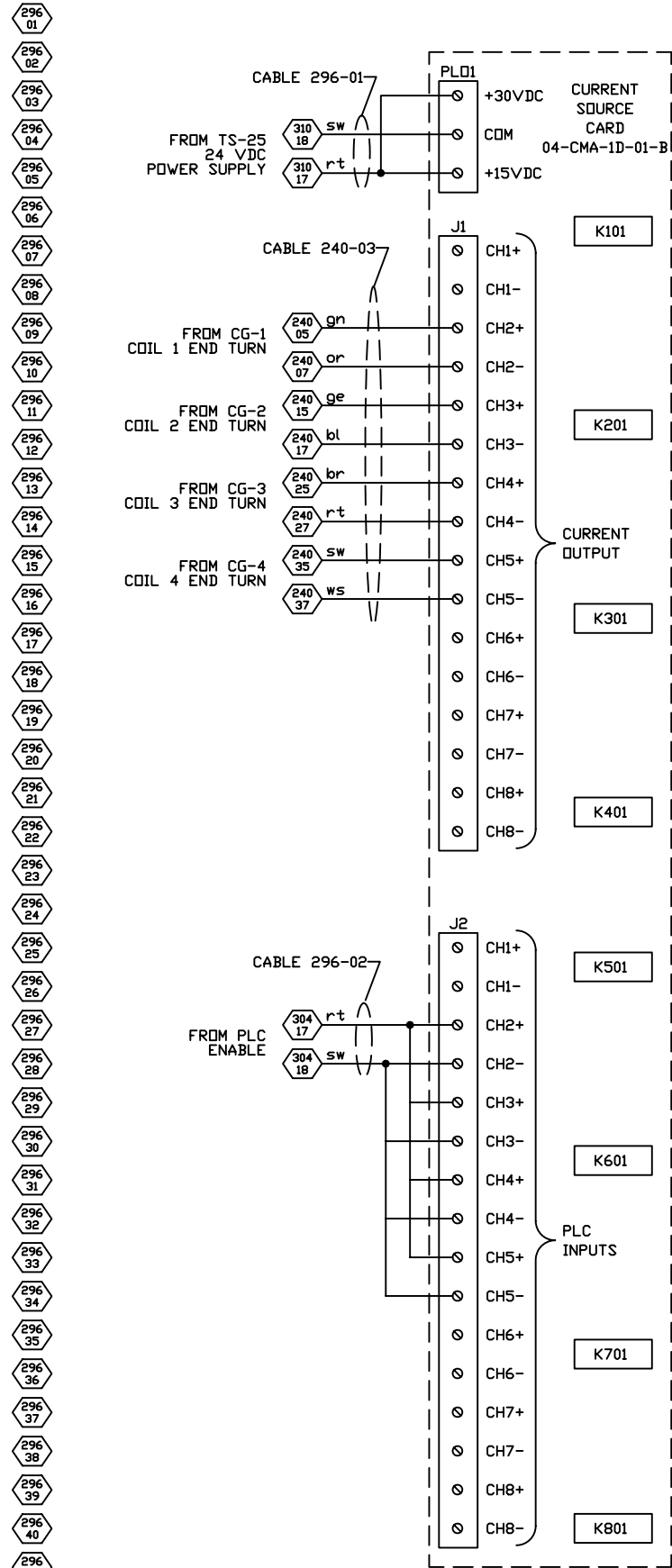
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NOTE 1: PUT JUMPER ACROSS PINS 1 & 2 OF JP701 FOR 15V SUPPLY OR ACCROSS PINS 2 & 3 FOR 30V SUPPLY.

NOTE 2: PUT JUMPER ON PINS 1 & 2 OF JP702 FOR A-B PLC ENABLING OF THE CURRENT SOURCE OR PINS 2 & 3 FOR LOCAL CONTROL OF THE CURRENT.

WIRE COLOR LEGEND

gn = GREEN
ws = WHITE
ge = YELLOW
br = BROWN
gr = GREY
rs = PINK
bl = BLUE
rt = RED
sw = BLACK
vio = VIOLET
or = ORANGE
S = SHIELD

DOCUMENT CONTROL STAMP	DIM & TOL PER ASME Y14.5 - UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS DECIMAL ANGLES ± 1/8 .001 ± .01 .50° XXX ± .005	TRACKING NO. N/A	Thomas Jefferson National Accelerator Facility JEFFERSON LABS UNITED STATES DEPARTMENT OF ENERGY	
MATERIAL X	THIRD ANGLE PROJECTION	APPROVALS	DATE	T. JEFFERSON LABS HMS QUADRUPOLE MAGNET CURRENT SOURCE MODULE WIRE DIAGRAM SIZE DWG. NO. 67184-D-0296 SCALE X: X USED ON ASSY NO. XXXXX-X-XXXX SHEET 1 OF 1
FINISH MACHINED SURFACES XXX UNLESS OTHERWISE NOTED DEBURR & BREAK ALL SHARP EDGES		DRAWN YOUR NAME	DDMMYY	
DO NOT SCALE DRAWING		CHECKED X	X	
		APPROVED X	X	

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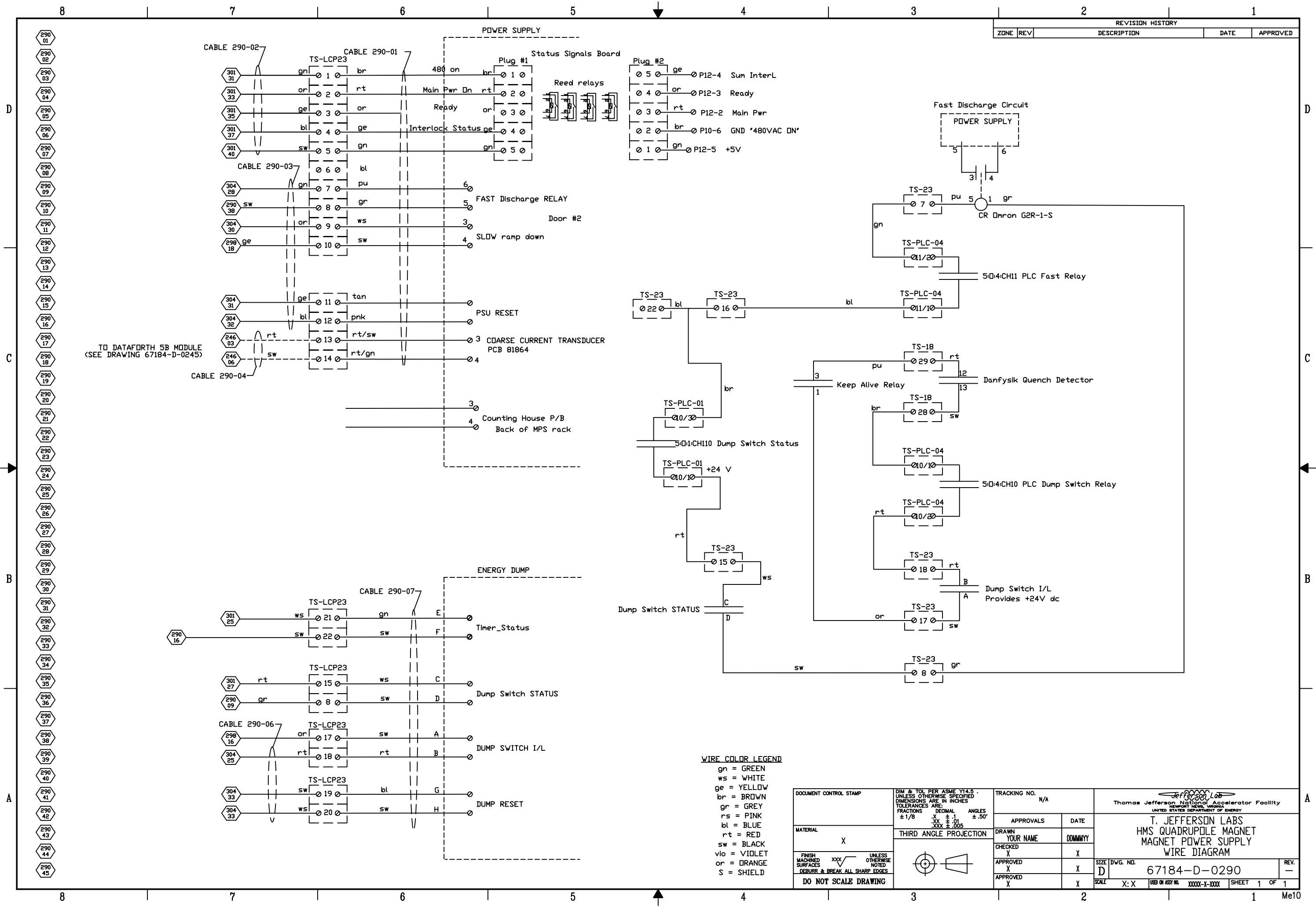
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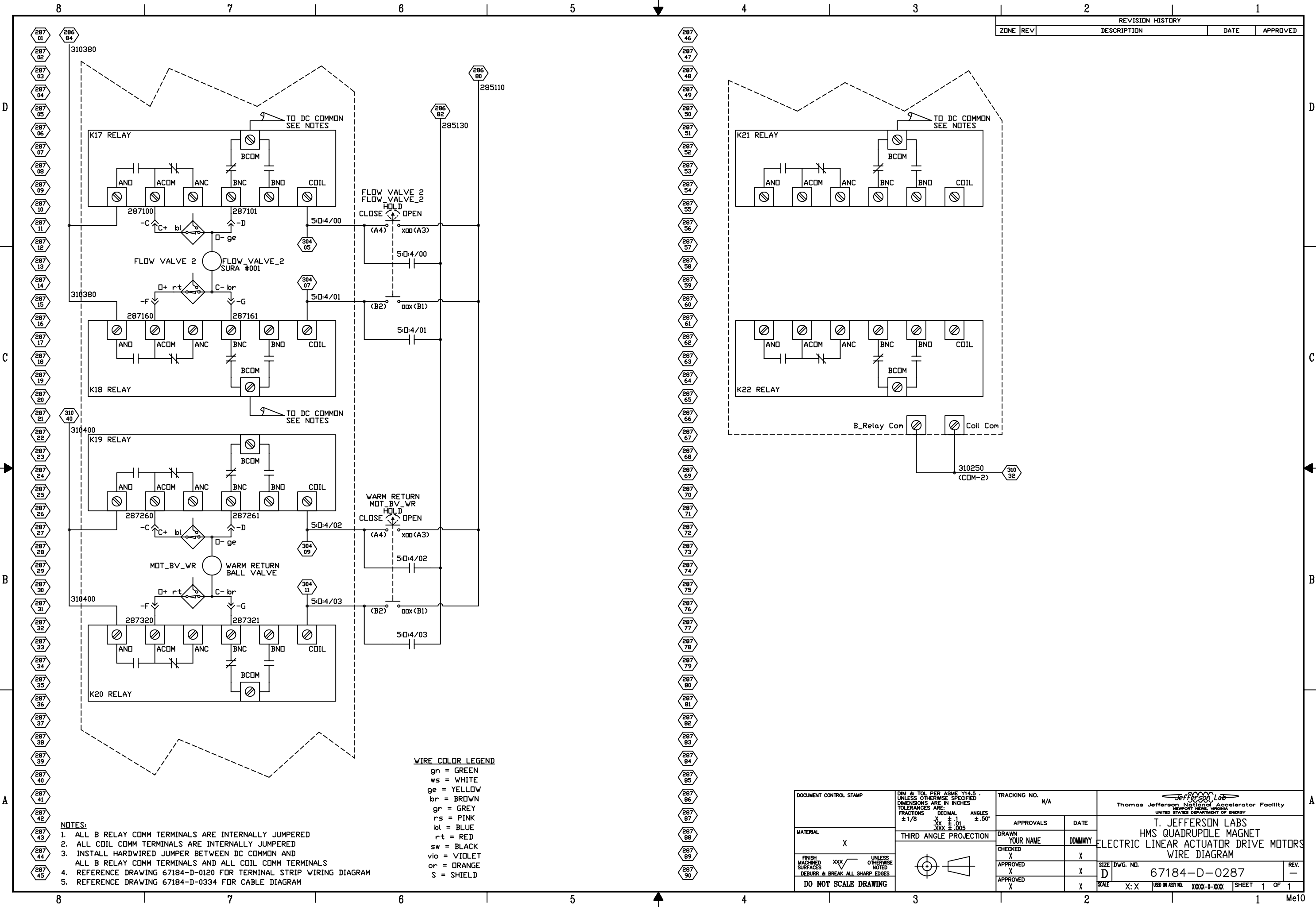
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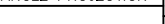
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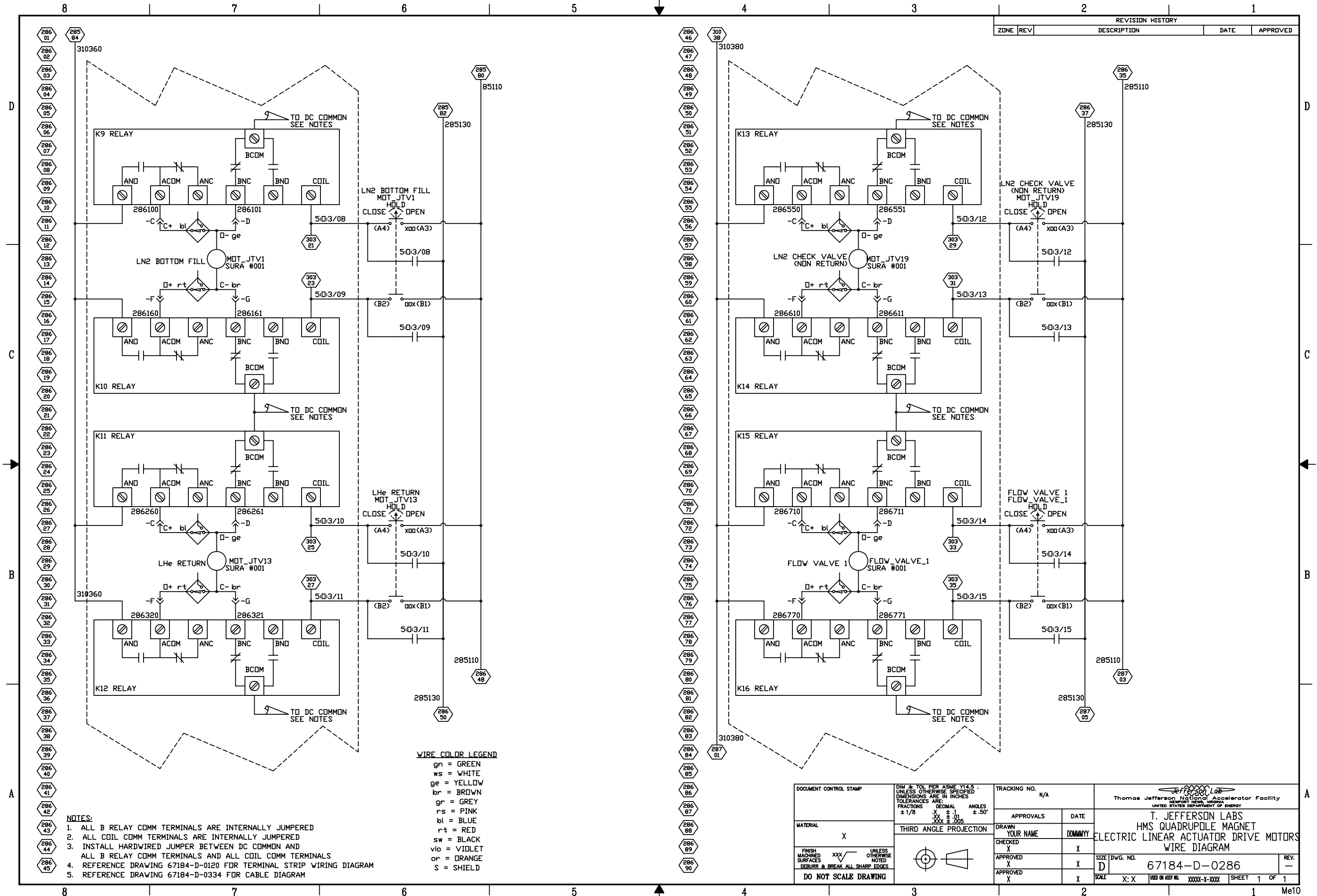
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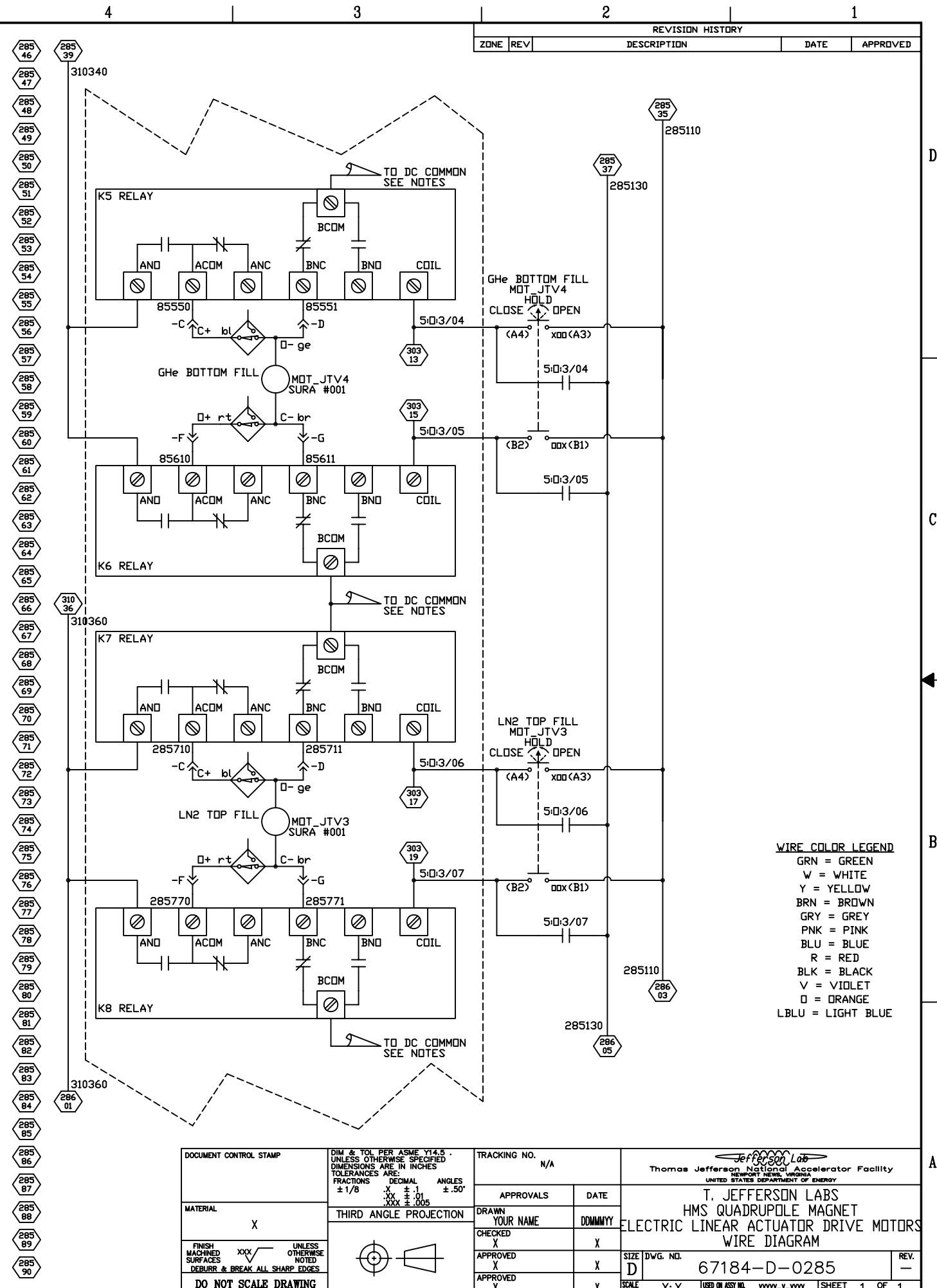
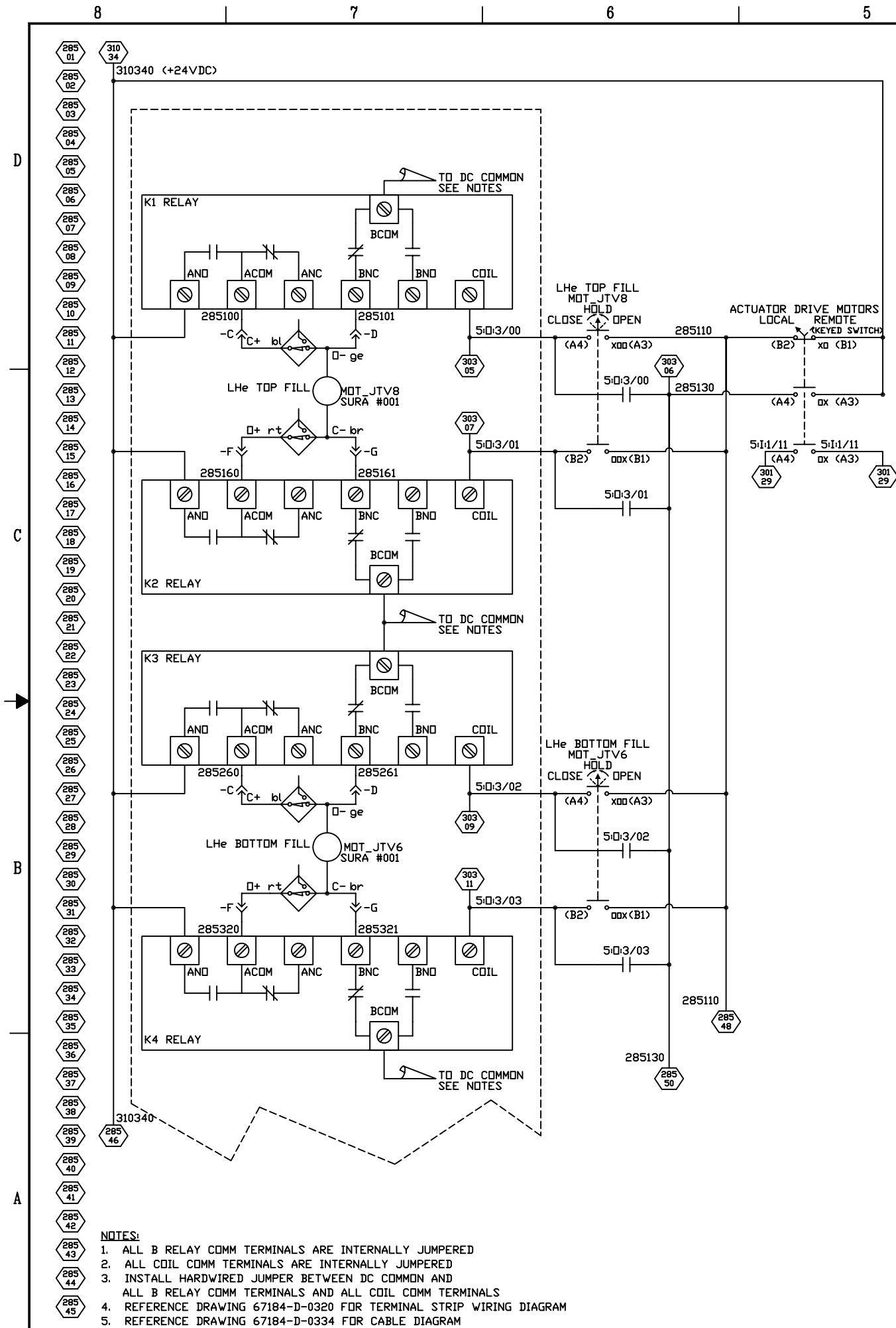
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DOCUMENT CONTROL STAMP		DIM & TOL PER ASME Y14.5 - UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMAL ANGLES ± 1/8 .XXX ± .005 ± .50° X .XX ± .01		TRACKING NO. N/A		Jefferson Lab Thomas Jefferson National Accelerator Facility JEFFERSON, NEW YORK UNITED STATES DEPARTMENT OF ENERGY					
MATERIAL X		THIRD ANGLE PROJECTION		APPROVALS		DATE		T. JEFFERSON LABS HMS QUADRUPOLE MAGNET ELECTRIC LINEAR ACTUATOR DRIVE MOTORS WIRE DIAGRAM			
FINISH MACHINED SURFACES DEBURR & BREAK ALL SHARP EDGES				DRAWN YOUR NAME		DDMMYY		SIZE DWG. NO.			
DO NOT SCALE DRAWING				CHECKED X		X		D 67184-D-0287		REV. —	
				APPROVED X		X		SCALE X: X USED ON ASSY NO. XXXXX-X-XXXX		SHEET 1 OF 1	





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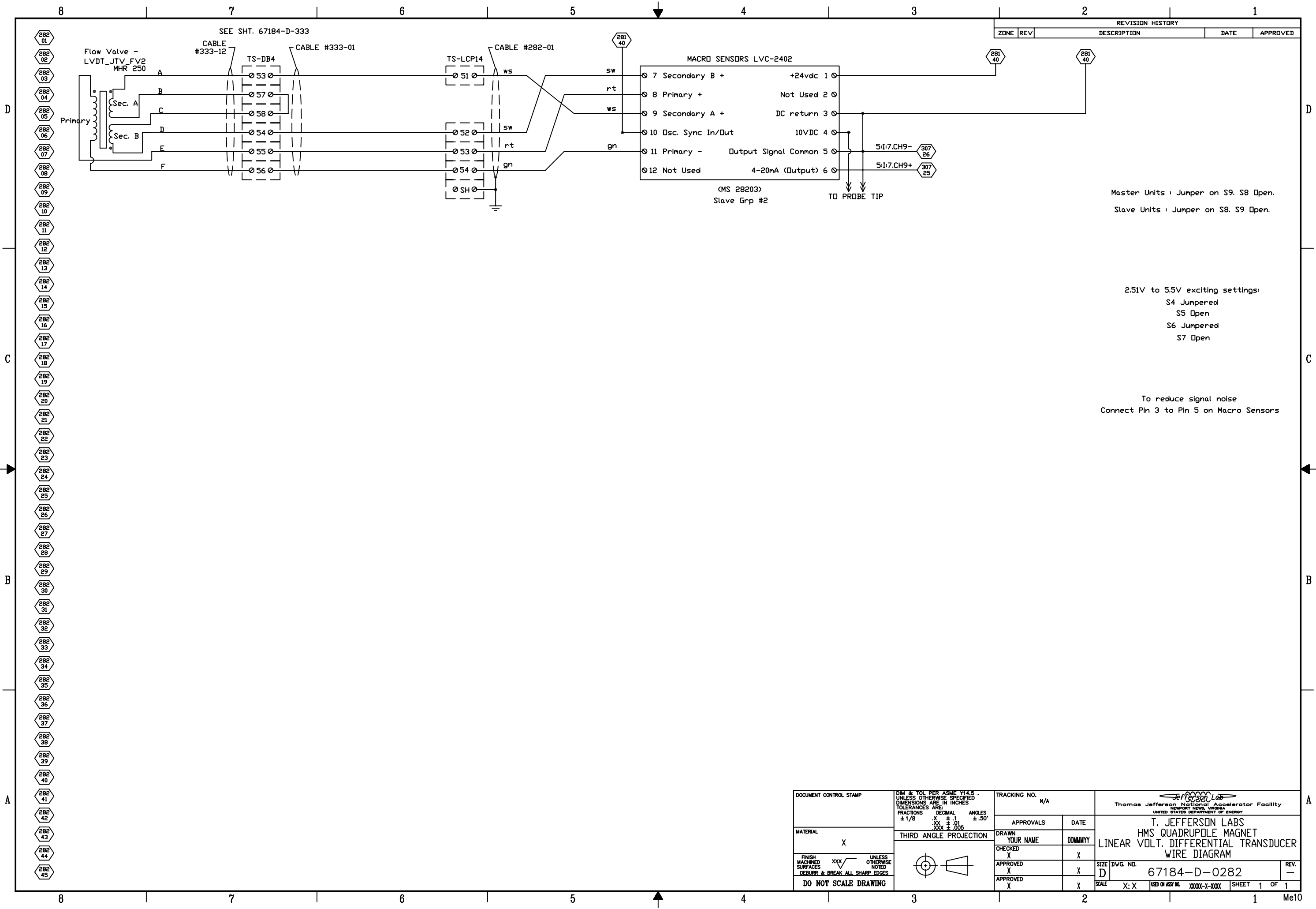
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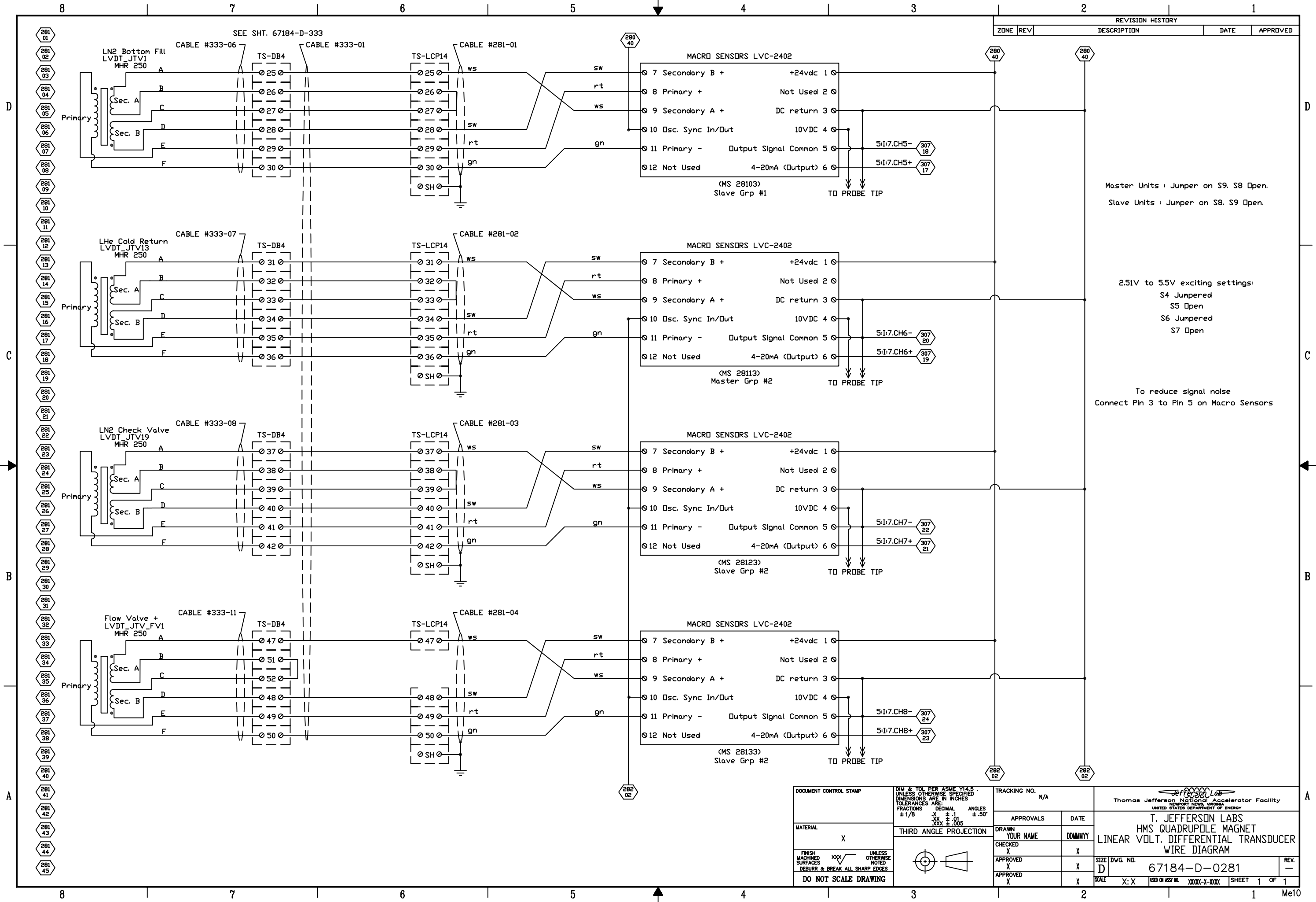
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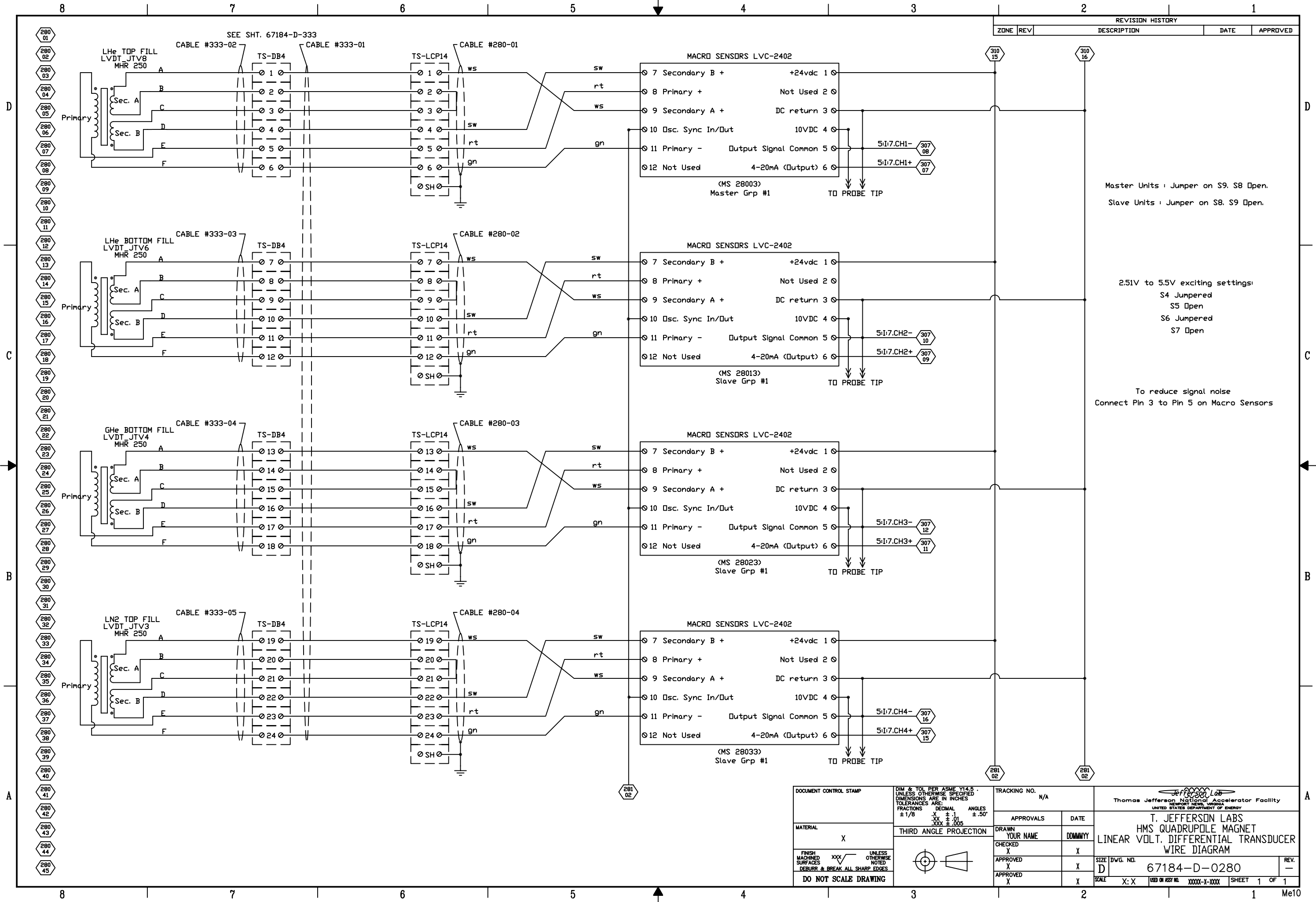
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	APPROVED

Master Units : Jumper on S9, S8 Open.
Slave Units : Jumper on S8, S9 Open.

2.51V to 5.5V exciting settings:
S4 Jumpered
S5 Open
S6 Jumpered
S7 Open

To reduce signal noise
Connect Pin 3 to Pin 5 on Macro Sensors

DOCUMENT CONTROL STAMP		DIM & TOL PER ASME Y14.5 - UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS DECIMAL ANGLES ± 1/8 .001 ± .01 ± .50° XXX ± .005		TRACKING NO. N/A		Thomas Jefferson National Accelerator Facility UNITED STATES DEPARTMENT OF ENERGY	
MATERIAL X		THIRD ANGLE PROJECTION		APPROVALS		DATE	
FINISH MACHINED SURFACES DEBURR & BREAK ALL SHARP EDGES		UNLESS OTHERWISE NOTED		DRAWN YOUR NAME		DDMMYY	
DO NOT SCALE DRAWING		CHECKED X		APPROVED X		X	
		APPROVED X		X		X	
		SIZE D		DWG. NO. 67184-D-0281		REV. -	
		SCALE X: X		USED ON ASSY NO. XXXXX-X-XXXX		SHEET 1 OF 1	



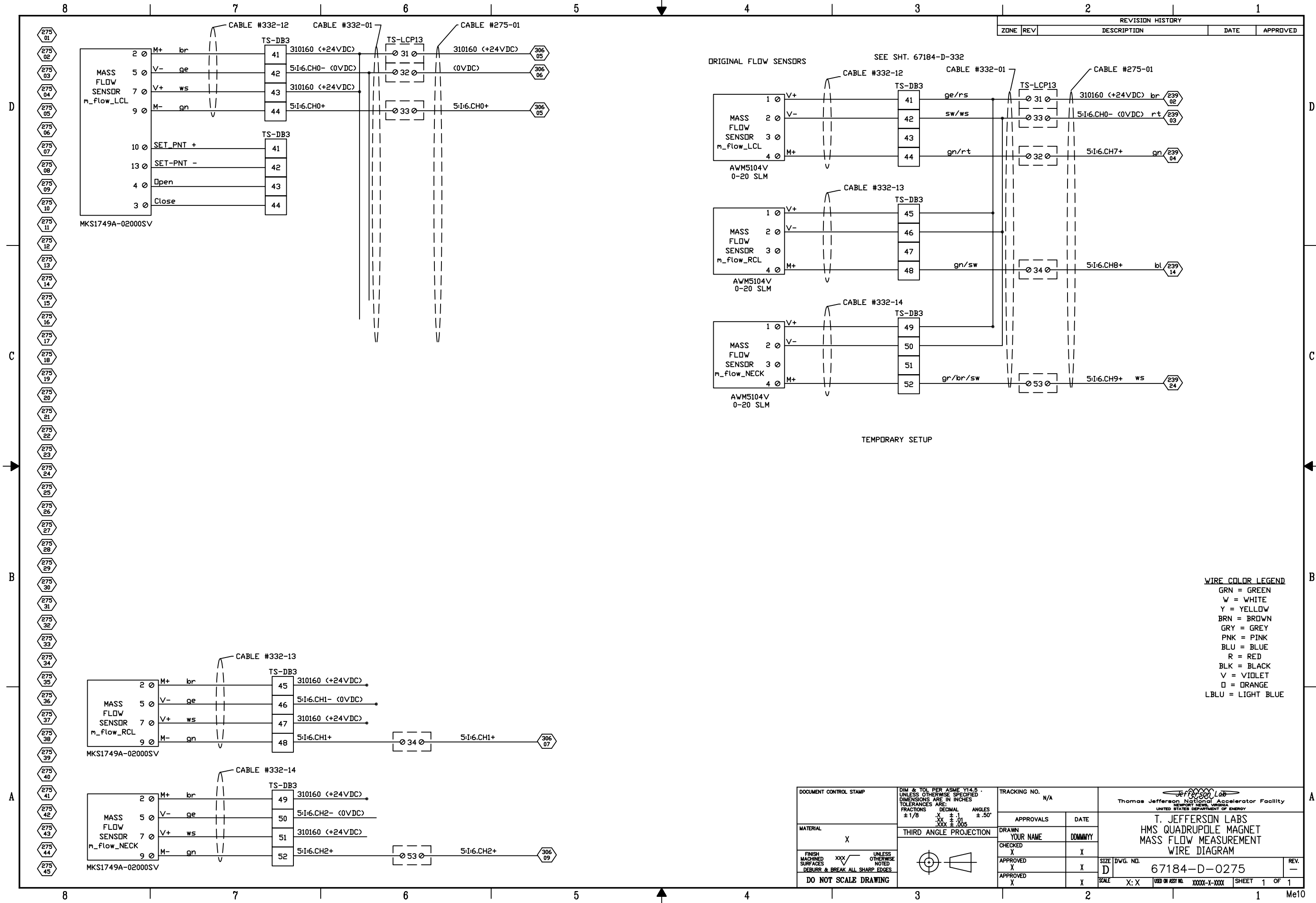
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	APPROVED

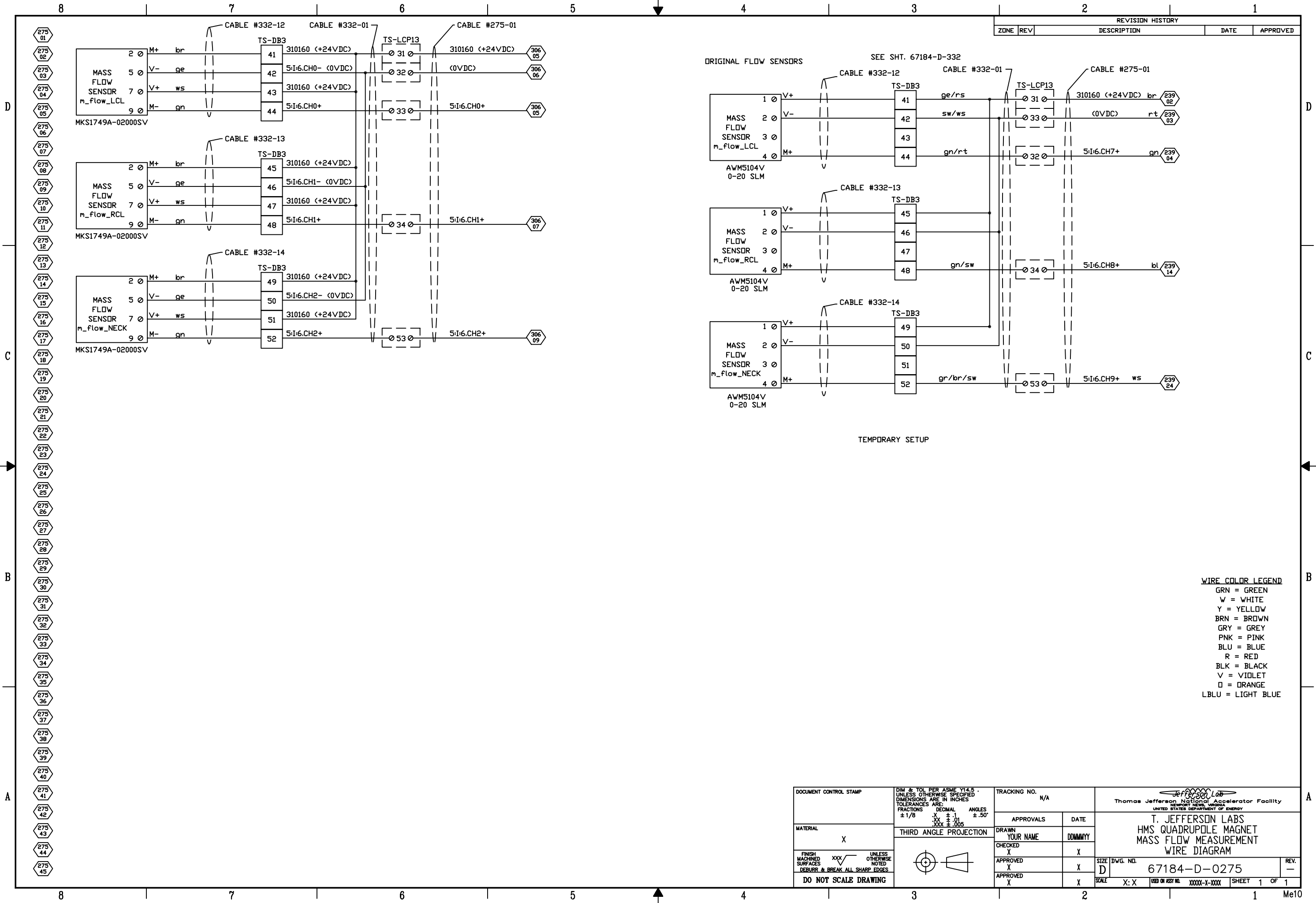
Master Units : Jumper on S9, S8 Open.
Slave Units : Jumper on S8, S9 Open.

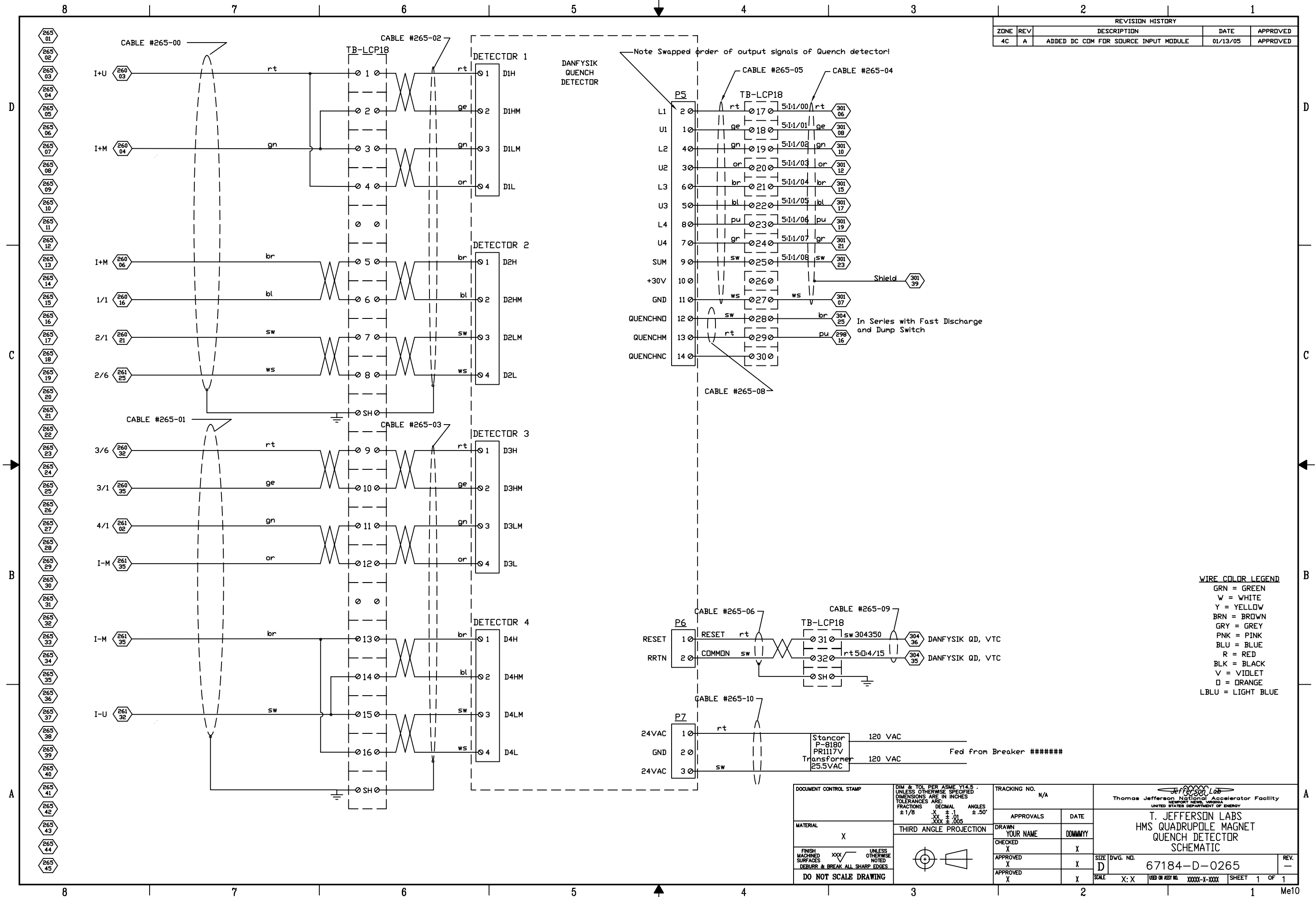
2.51V to 5.5V exciting settings:
S4 Jumpered
S5 Open
S6 Jumpered
S7 Open

To reduce signal noise
Connect Pin 3 to Pin 5 on Macro Sensors

DOCUMENT CONTROL STAMP		DIM & TOL PER ASME Y14.5 - UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS DECIMAL ANGLES ± 1/8 .001 ± .01 ± .50° XXX ± .005		TRACKING NO. N/A		Thomas Jefferson National Accelerator Facility HIGHLIGHT VOLTAGE, VIRGINIA UNITED STATES DEPARTMENT OF ENERGY	
MATERIAL X		THIRD ANGLE PROJECTION		APPROVALS		DATE	
FINISH MACHINED SURFACES UNLESS OTHERWISE NOTED DEBURR & BREAK ALL SHARP EDGES		DO NOT SCALE DRAWING		DRAWN YOUR NAME		DDMMYY	
				CHECKED X		X	
				APPROVED X		X	
				APPROVED X		X	
				SIZE D		DWG. NO. 67184-D-0280	
				SCALE X: X		SHEET 1 OF 1	







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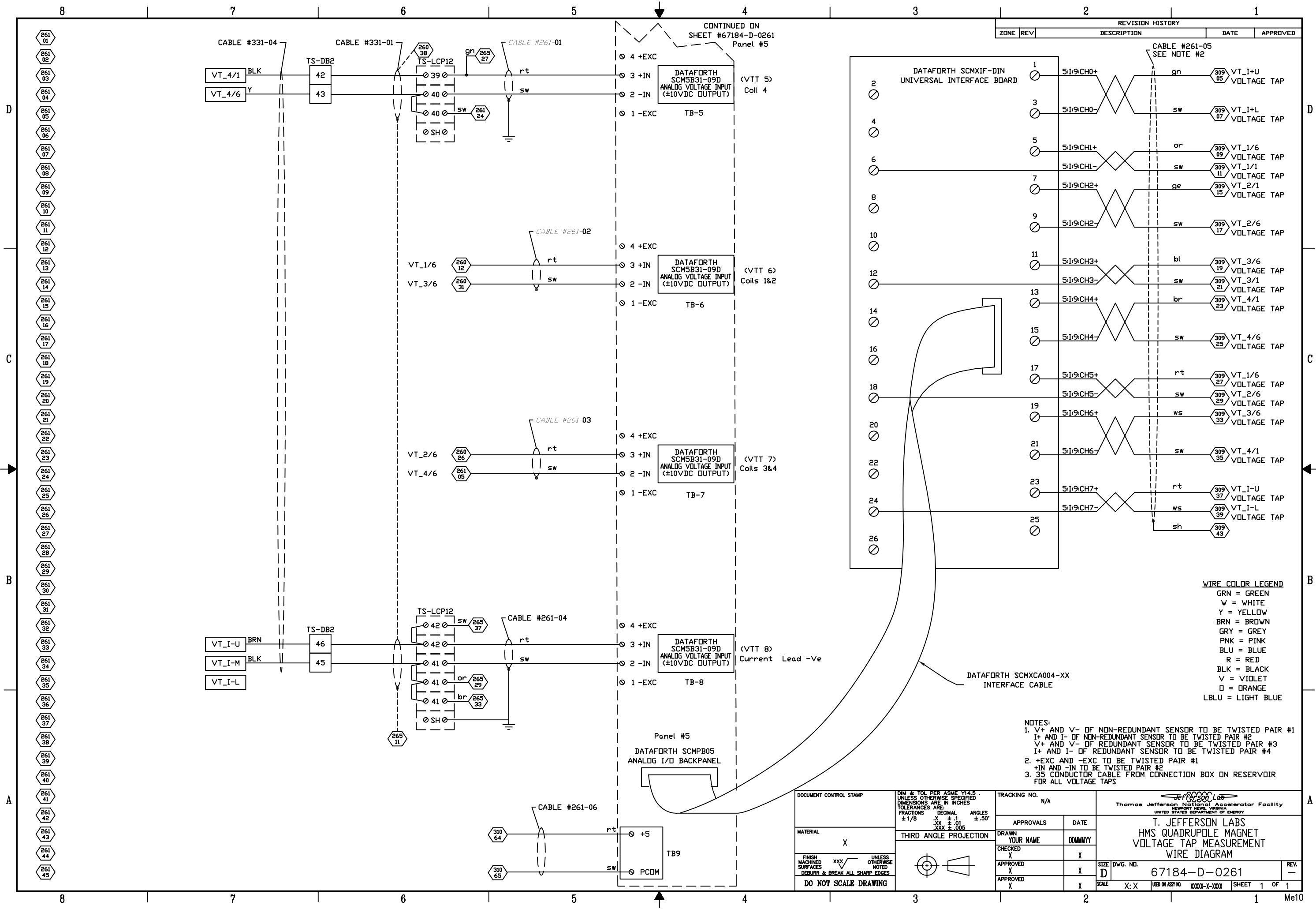
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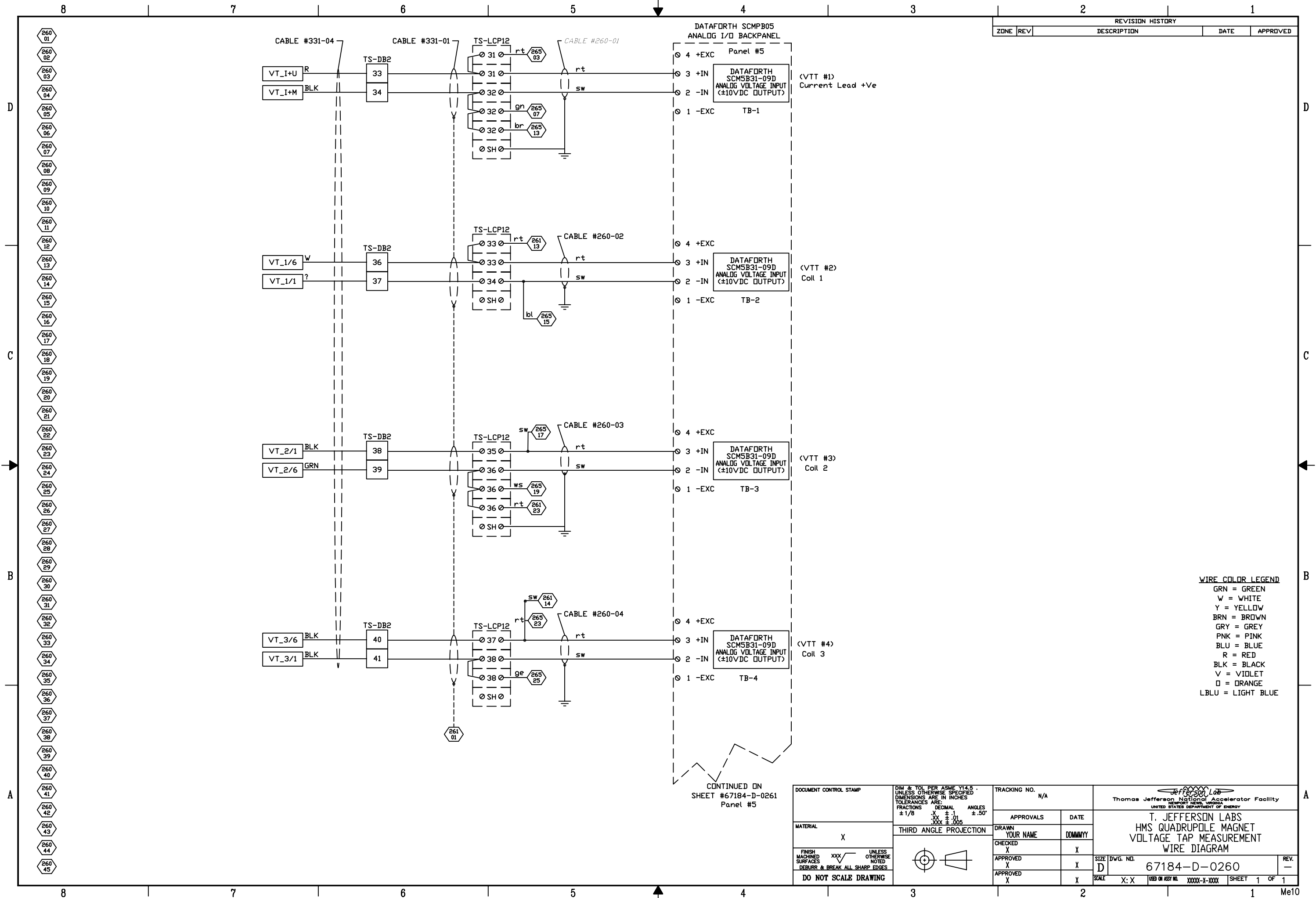
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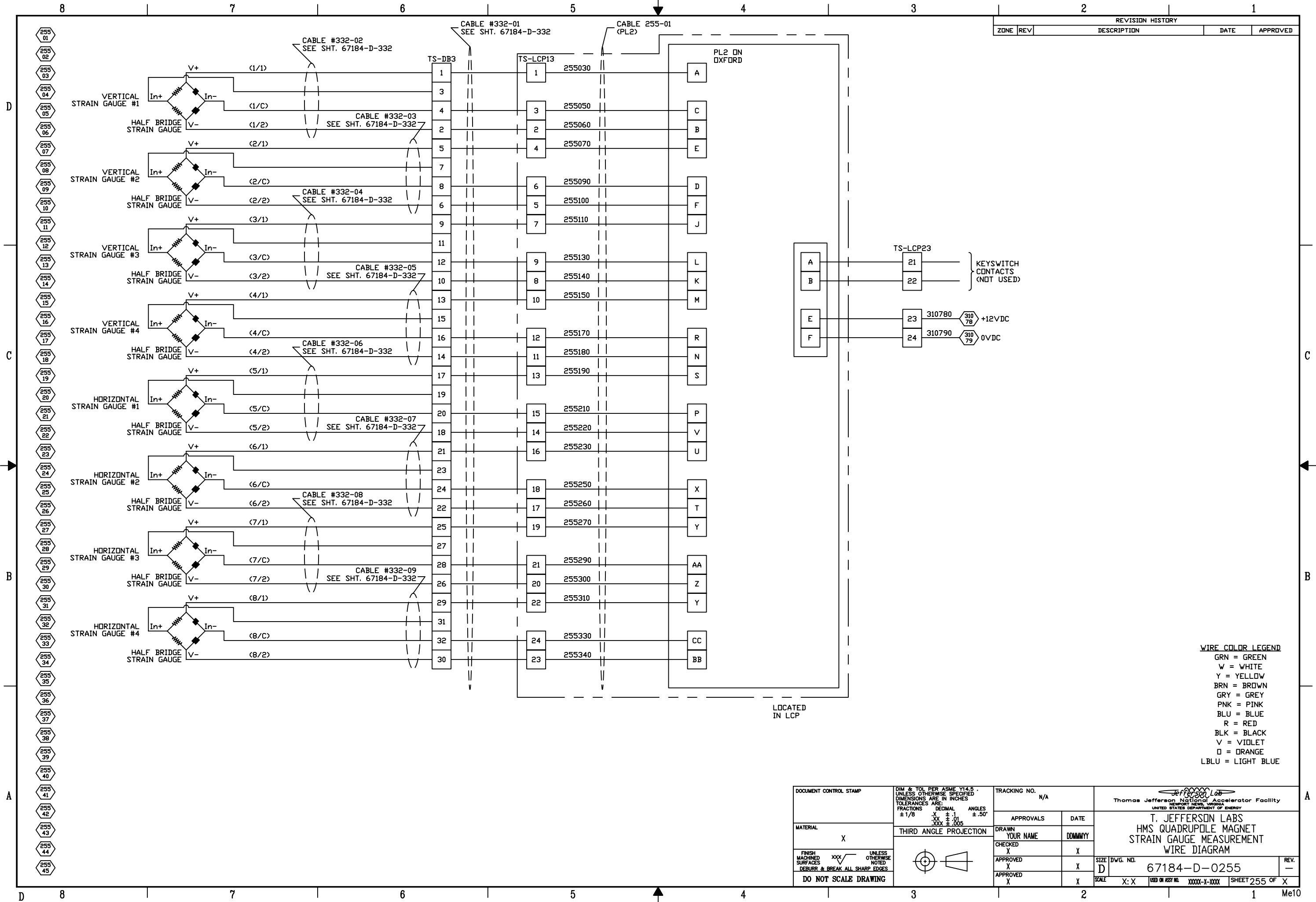
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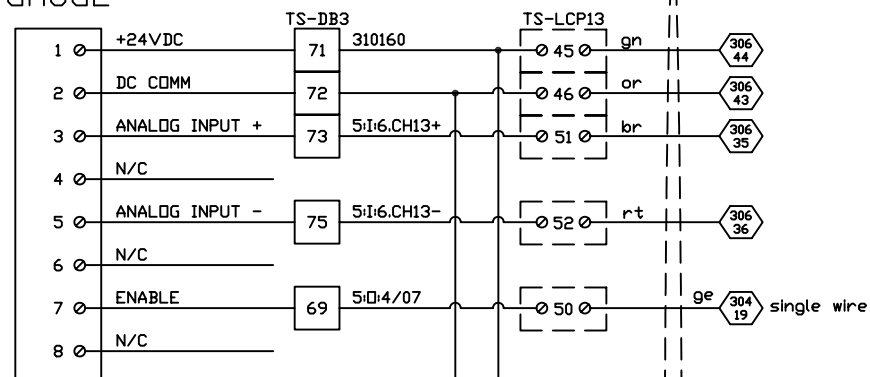
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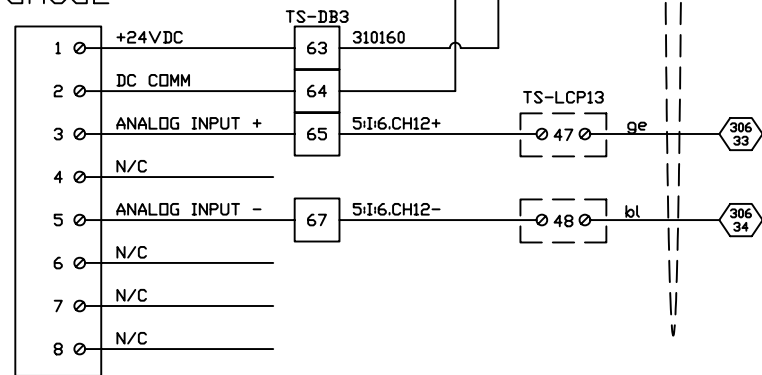
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PENNING
VACUUM
GAUGE



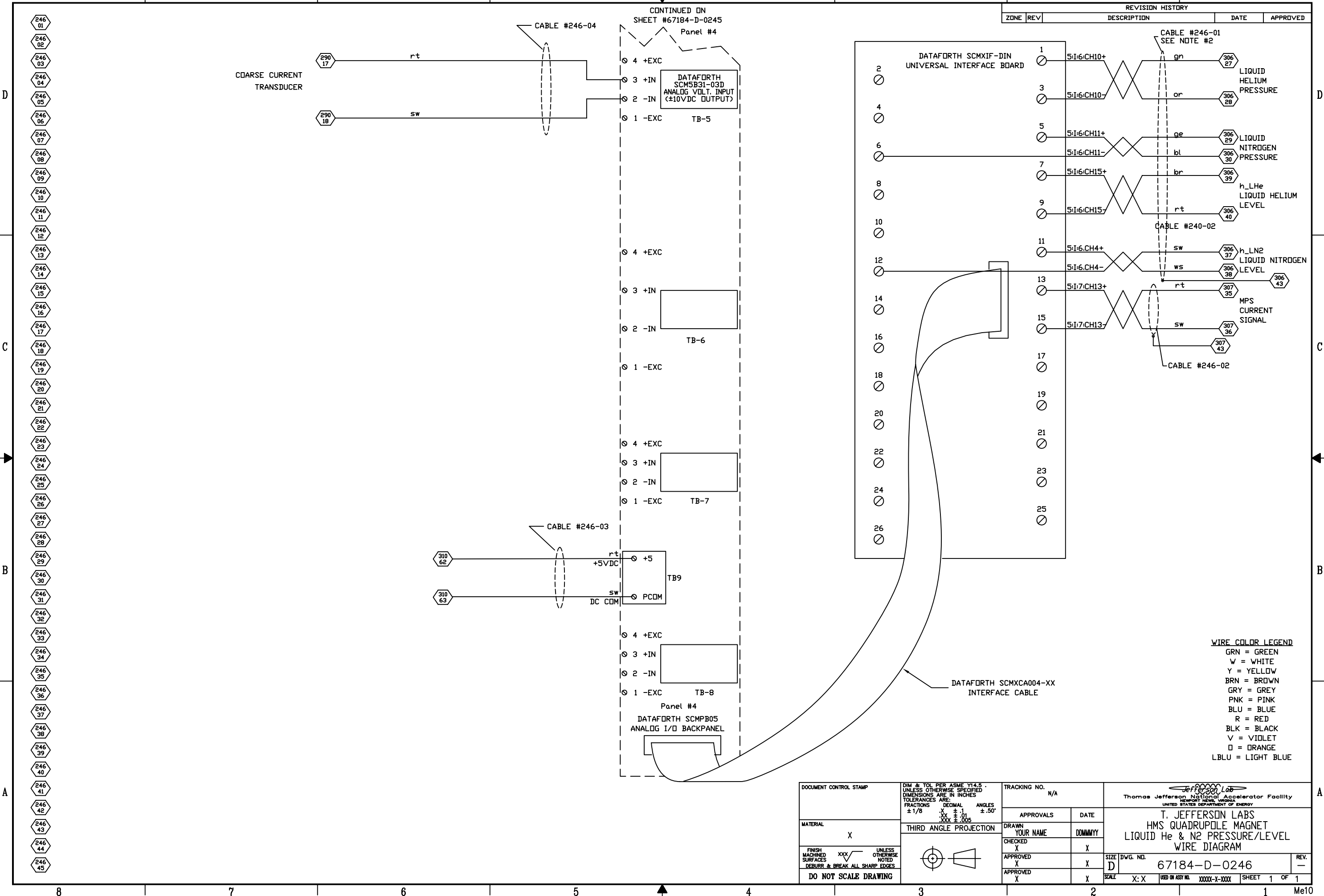
PIRANI
VACUUM
GAUGE



REVISION HISTORY			
ZONE	REV	DESCRIPTION	DATE

DOCUMENT CONTROL STAMP	DIM & TOL PER ASME Y14.5 - UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS DECIMAL ANGLES ± 1/8 .X ± .1 .X ± .01 .XXX ± .005	TRACKING NO. N/A		Thomas Jefferson National Accelerator Facility HENRIFORT NEWS, VIRGINIA UNITED STATES DEPARTMENT OF ENERGY	
		APPROVALS	DATE	T. JEFFERSON LABS HMS QUADRUPOLE MAGNET VACUUM PRESSURE SENSORS WIRE DIAGRAM	
MATERIAL X	THIRD ANGLE PROJECTION	DRAWN YOUR NAME	DDMMYY	SIZE D	
FINISH MACHINED SURFACES DEBURR & BREAK ALL SHARP EDGES		CHECKED X	X	DWG. NO. 67184-D-0250	
DO NOT SCALE DRAWING		APPROVED X	X	REV. -	
		APPROVED X	X	SCALE X: X USED ON ASSY NO. XXXXX-X-XXXX SHEET 1 OF 1	

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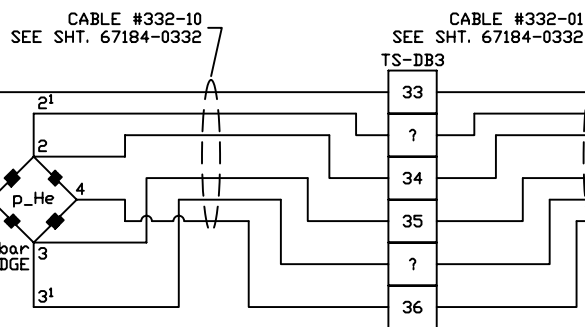
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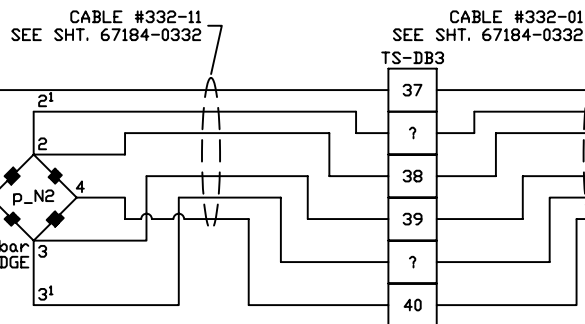
LIQUID HELIUM PRESSURE
New Equipment
Not Installed / wired

P6P/5bar
FULL BRIDGE



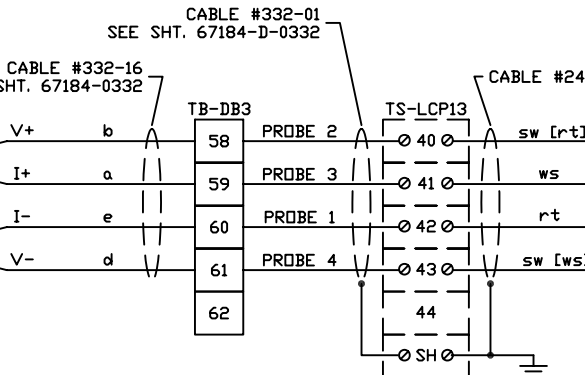
LIQUID NITROGEN PRESSURE
New Equipment
Not Installed / wired

P6P/5bar
FULL BRIDGE



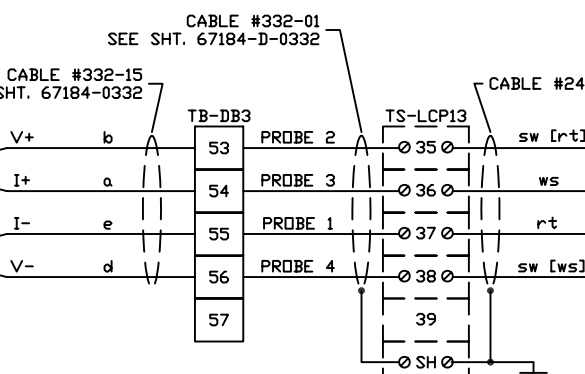
LIQUID HELIUM LEVEL
h_LHE

V+
I+
I-
V-



LIQUID NITROGEN LEVEL
h_LN2

V+
I+
I-
V-



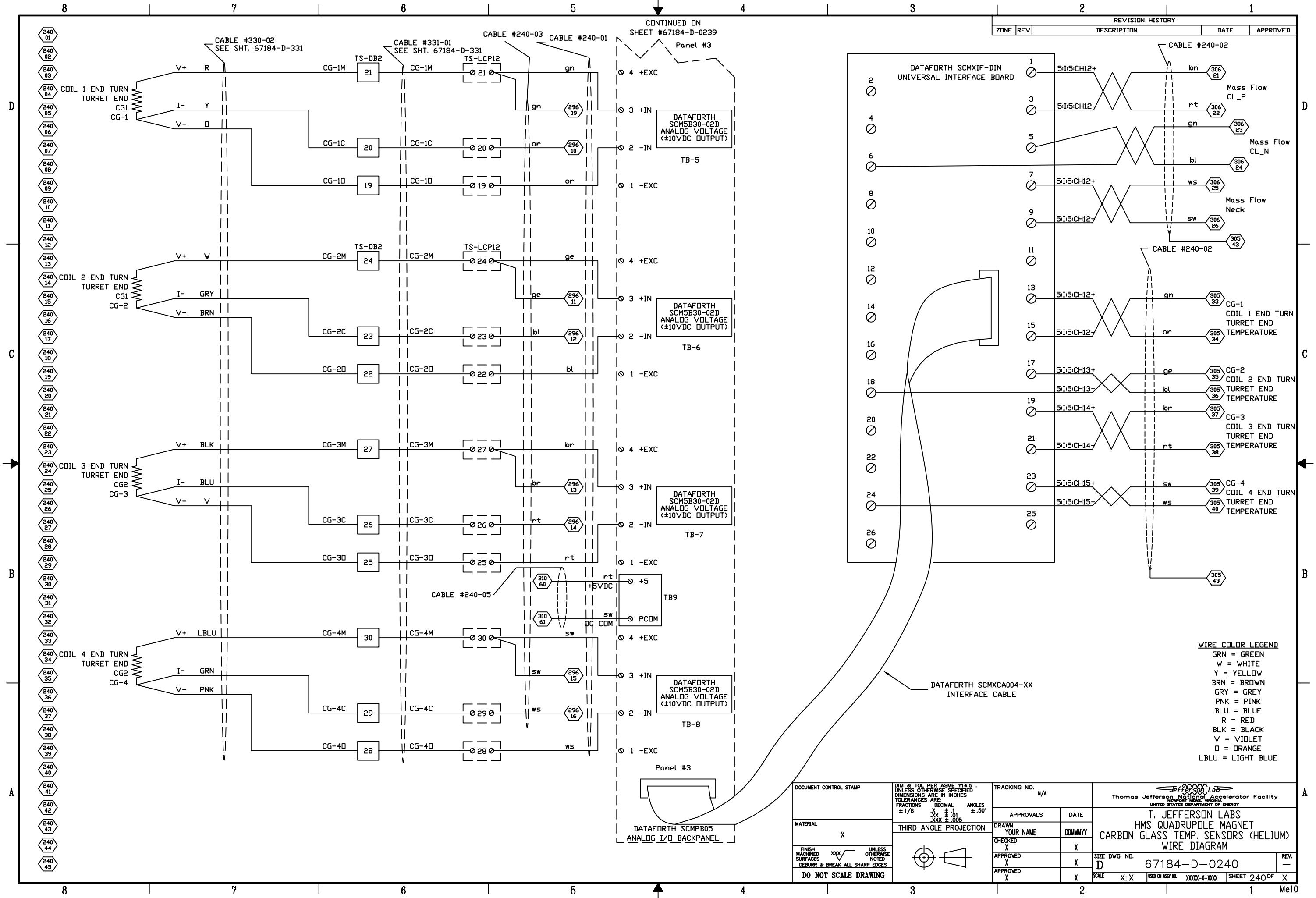
CONTINUED ON
SHEET #67184-D-0246
Panel #4

REVISION HISTORY			
ZONE	REV	DESCRIPTION	DATE
			APPROVED

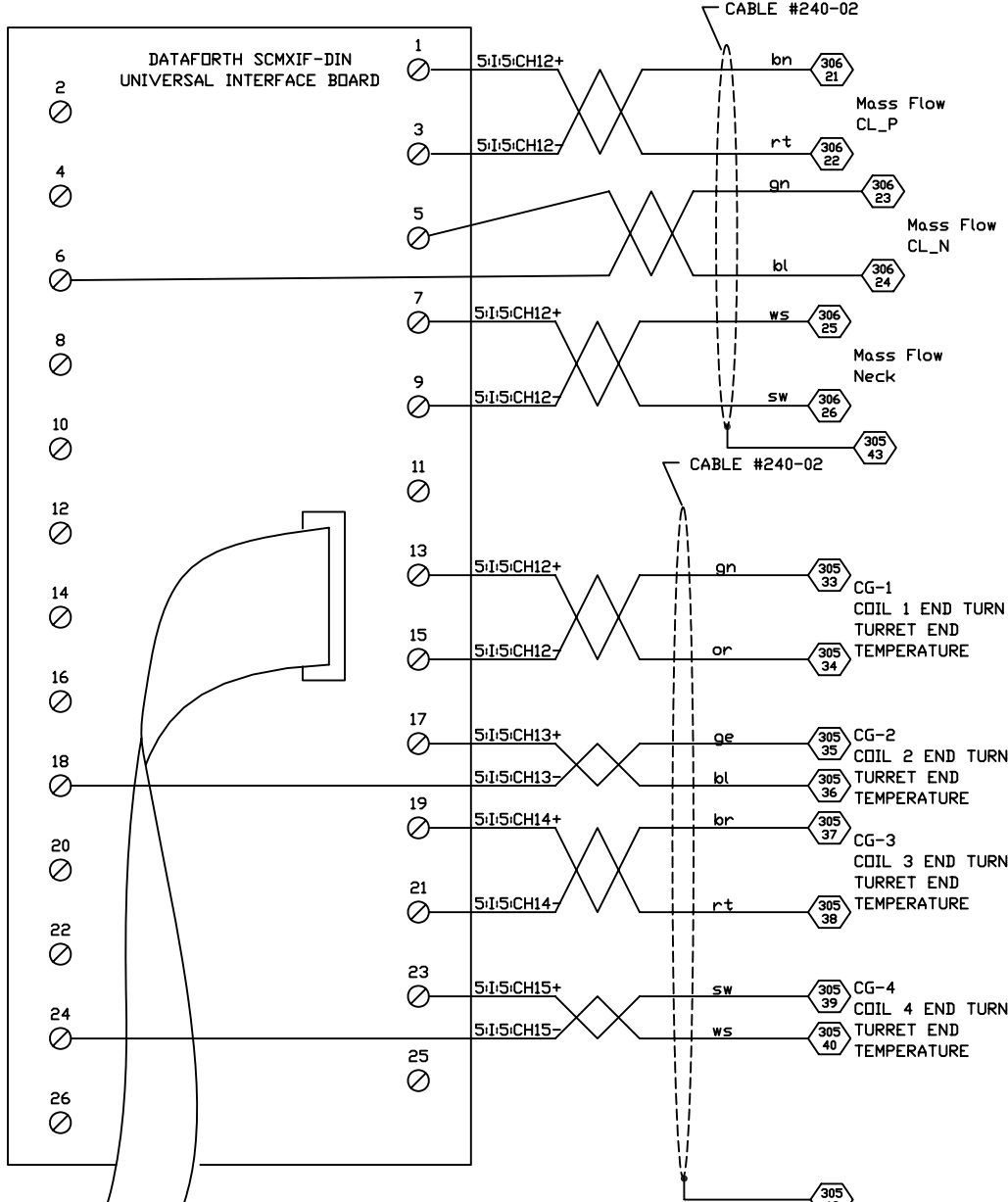
WIRE COLOR LEGEND
GRN = GREEN
W = WHITE
Y = YELLOW
BRN = BROWN
GRY = GREY
PNK = PINK
BLU = BLUE
R = RED
BLK = BLACK
V = VIOLET
O = ORANGE
LBU = LIGHT BLUE

DOCUMENT CONTROL STAMP		DIM & TOL PER ASME Y14.5 UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMAL ANGLES ± 1/8 .XX ± .01 ± .50° XXX ± .005		TRACKING NO. N/A		JEFFERSON LAB Thomas Jefferson National Accelerator Facility UNITED STATES DEPARTMENT OF ENERGY					
MATERIAL X		THIRD ANGLE PROJECTION		APPROVALS		DATE		T. JEFFERSON LABS HMS DIPOLE MAGNET LIQUID He & N2 PRESSURE/LEVEL WIRE DIAGRAM			
FINISH MACHINED SURFACES DEBURR & BREAK ALL SHARP EDGES				DRAWN YOUR NAME		DDMMYY		SIZE D DWG. NO. 67184-D-0245			
DO NOT SCALE DRAWING				CHECKED X		X					
				APPROVED X		X					
		APPROVED X		X							
						SCALE X: X		USED ON ASSY NO. XXXXX-X-XXXX		SHEET 245 OF X	

Me10



REVISION HISTORY			
ZONE	REV	DESCRIPTION	DATE



WIRE COLOR LEGEND
GRN = GREEN
W = WHITE
Y = YELLOW
BRN = BROWN
GRY = GREY
PNK = PINK
BLU = BLUE
R = RED
BLK = BLACK
V = VIOLET
O = ORANGE
LBLU = LIGHT BLUE

DOCUMENT CONTROL STAMP		DIM & TOL PER ASME Y14.5 - UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS DECIMAL ANGLES ± 1/8 .X ± .1 .XXX ± .005		TRACKING NO. N/A	
MATERIAL X		THIRD ANGLE PROJECTION		APPROVALS	DATE
FINISH MACHINED SURFACES DEBURR & BREAK ALL SHARP EDGES				DRAWN YOUR NAME	DDMMYY
DO NOT SCALE DRAWING				CHECKED X	X
				APPROVED X	X
				APPROVED X	X
				SIZE D	DWG. NO. 67184-D-0240
				SCALE X: X	USED ON ASSY NO. XXXXX-X-XXXX
				SHEET 240 OF X	REV. -

Jefferson Lab
Thomas Jefferson National Accelerator Facility
HMS QUADRUPOLE MAGNET
CARBON GLASS TEMP. SENSORS (HELIUM)
WIRE DIAGRAM

D

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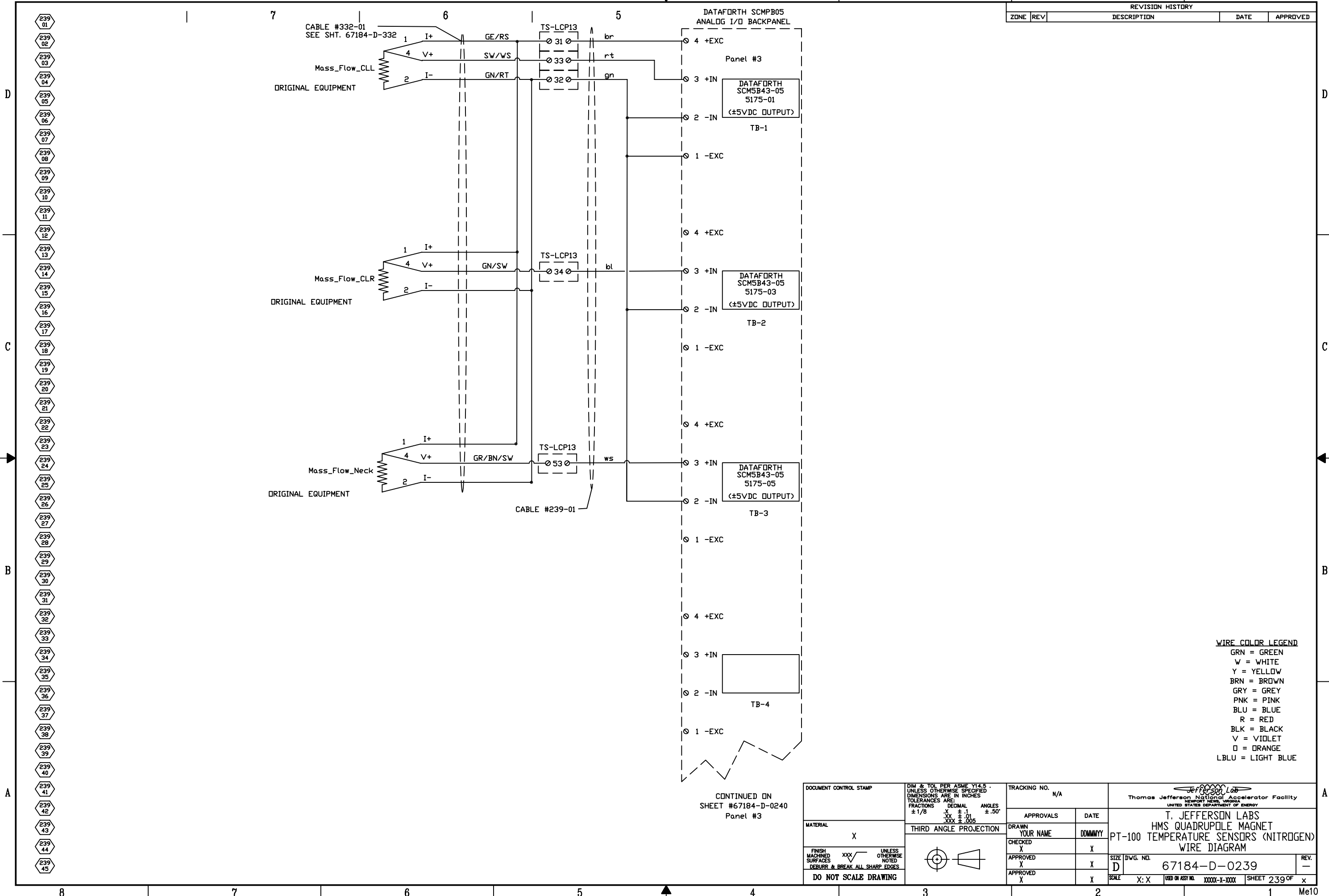
A

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CONTINUED ON
SHEET #67184-D-0240
Panel #3

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238 01
238 02
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CONTINUED ON
SHEET #67184-D-0237

Panel #2

4 +EXC

3 +IN

2 -IN

1 -EXC

4 +EXC

3 +IN

2 -IN

1 -EXC

4 +EXC

3 +IN

2 -IN

1 -EXC

+5

PCDM

4 +EXC

3 +IN

2 -IN

1 -EXC

Panel #2

DATAFORTH SCMPB05
ANALOG I/O BACKPANEL

TB-5

TB-6

TB-7

TB-8

DATAFORTH SCMXIF-DIN
UNIVERSAL INTERFACE BOARD

1

3

5

7

9

11

13

15

17

19

21

23

25

2

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10

12

14

16

18

20

22

24

26

5:1:5:CH8+

5:1:5:CH8-

5:1:5:CH9+

5:1:5:CH9-

5:1:5:CH10+

5:1:5:CH10-

5:1:5:CH11+

5:1:5:CH11-

CABLE #238-01

gn

or

ge

bl

br

rt

sw

ws

TAM 9
SHIELD OUTER
TUBE
TEMPERATURE

TAM 10
SHIELD BORE
TUBE
TEMPERATURE

TAM 11
HELIUM
RESERVOIR
TEMPERATURE

TAM 12
NITROGEN
RESERVOIR
TEMPERATURE

305 23

305 24

305 25

305 26

305 27

305 28

305 29

305 30

305 43

WIRE COLOR LEGEND

GRN = GREEN
W = WHITE
Y = YELLOW
BRN = BROWN
GRY = GREY
PNK = PINK
BLU = BLUE
R = RED
BLK = BLACK
V = VIOLET
O = ORANGE
LBLU = LIGHT BLUE

DOCUMENT CONTROL STAMP

MATERIAL

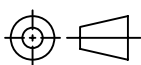
X

FINISH
MACHINED
SURFACES
DEBURR & BREAK ALL SHARP EDGES

DO NOT SCALE DRAWING

DIM & TOL PER ASME Y14.5
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
FRACTIONS DECIMAL ANGLES
 $\pm 1/8$ $\pm .1$ $\pm .50^\circ$
 $\pm .005$ $\pm .01$ $\pm .005$

THIRD ANGLE PROJECTION



TRACKING NO.

N/A

APPROVALS

DRAWN

CHECKED

APPROVED

APPROVED

DATE

DDMMYY

X

X

X

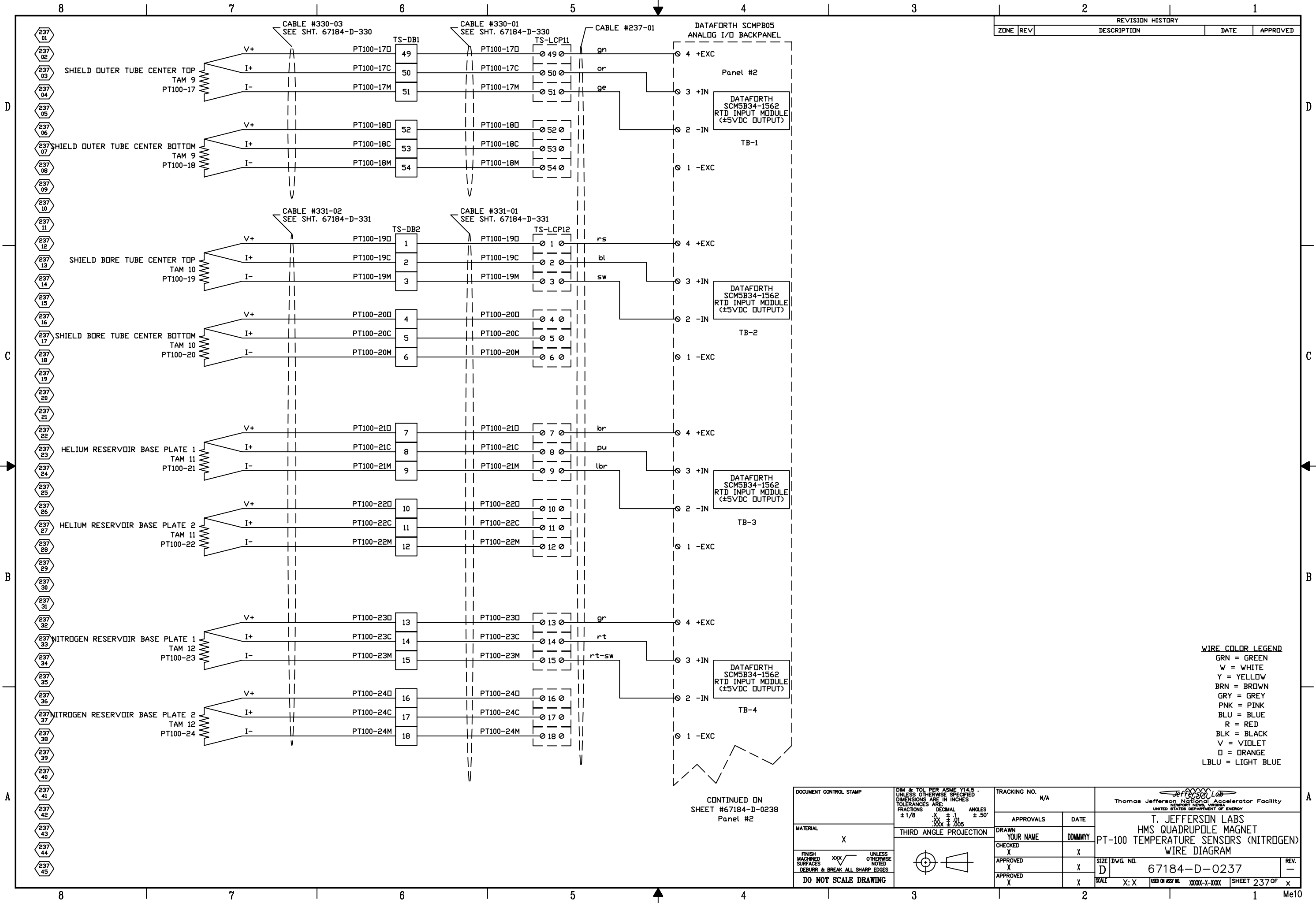
Thomas Jefferson National Accelerator Facility
NEWPORT NEWS, VIRGINIA
UNITED STATES DEPARTMENT OF ENERGY

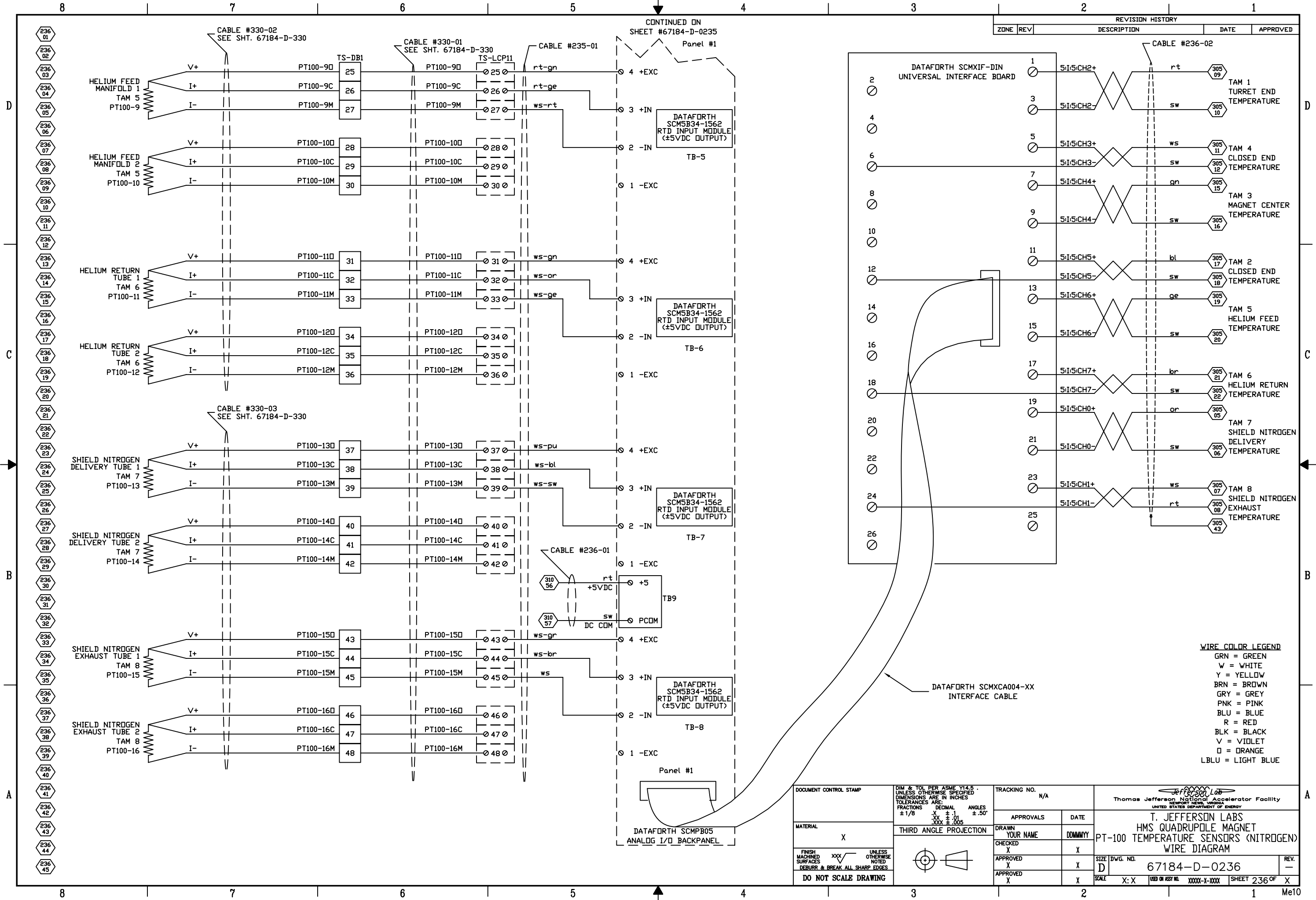
T. JEFFERSON LABS
HMS QUADRUPOLE MAGNET
PT-100 TEMPERATURE SENSORS (NITROGEN)
WIRE DIAGRAM

SIZE DWG. NO.
D 67184-D-0238

SCALE X: X USED ON ASSY NO. XXXX-X-XXXX SHEET 238 OF X

Me10





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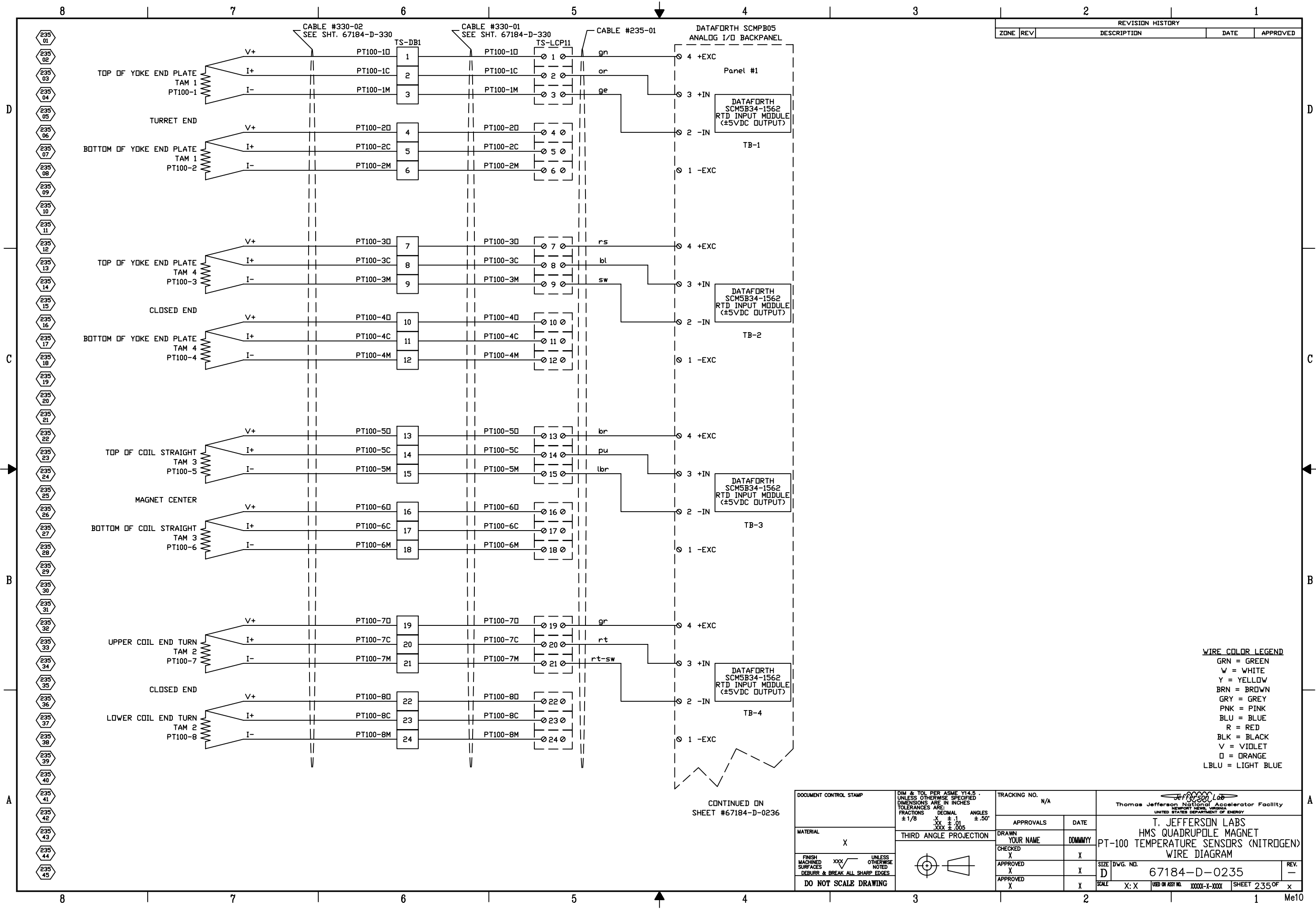
A

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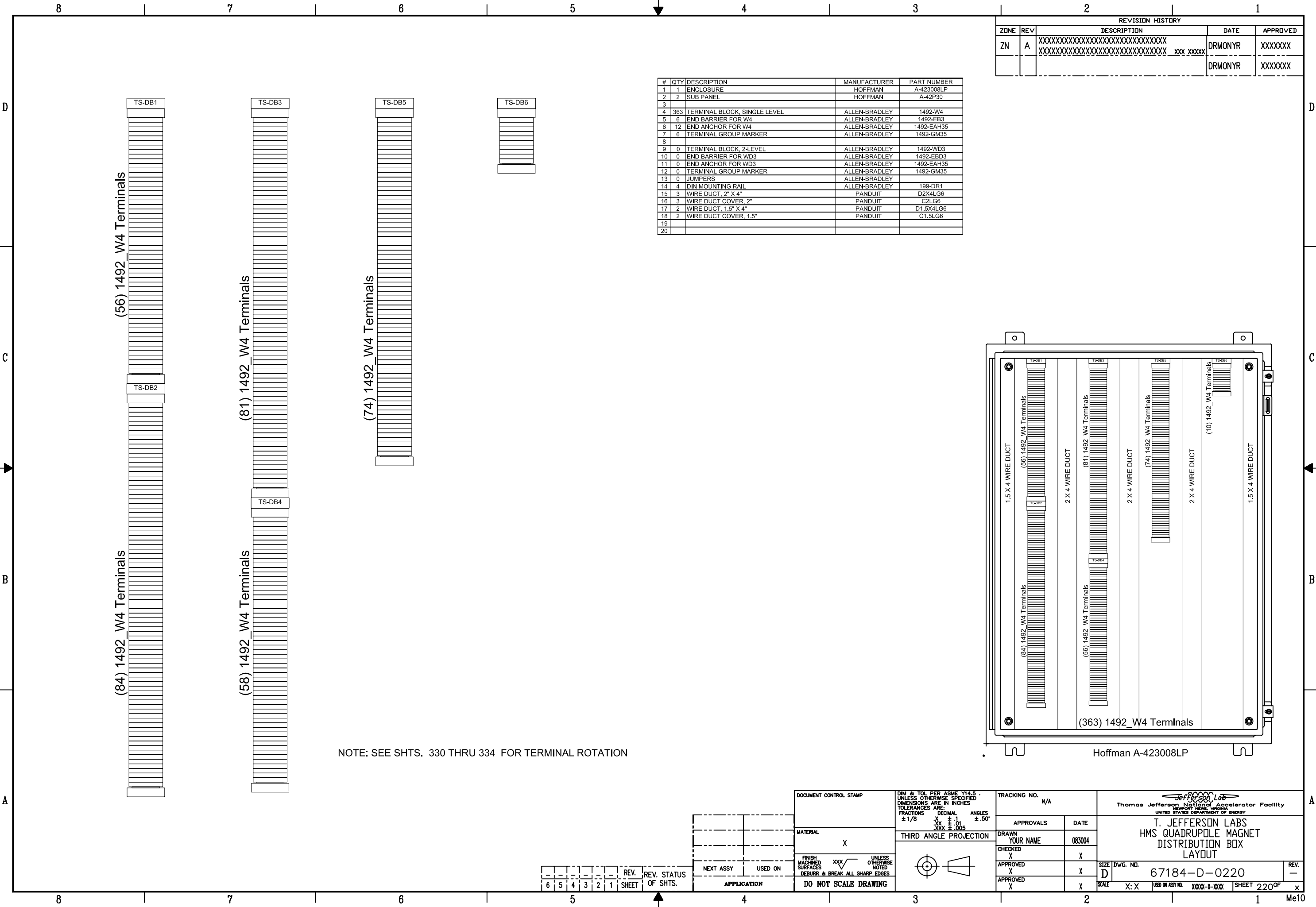


REVISION HISTORY			
ZONE	REV	DESCRIPTION	DATE
			APPROVED

WIRE COLOR LEGEND
GRN = GREEN
W = WHITE
Y = YELLOW
BRN = BROWN
GRY = GREY
PNK = PINK
BLU = BLUE
R = RED
BLK = BLACK
V = VIOLET
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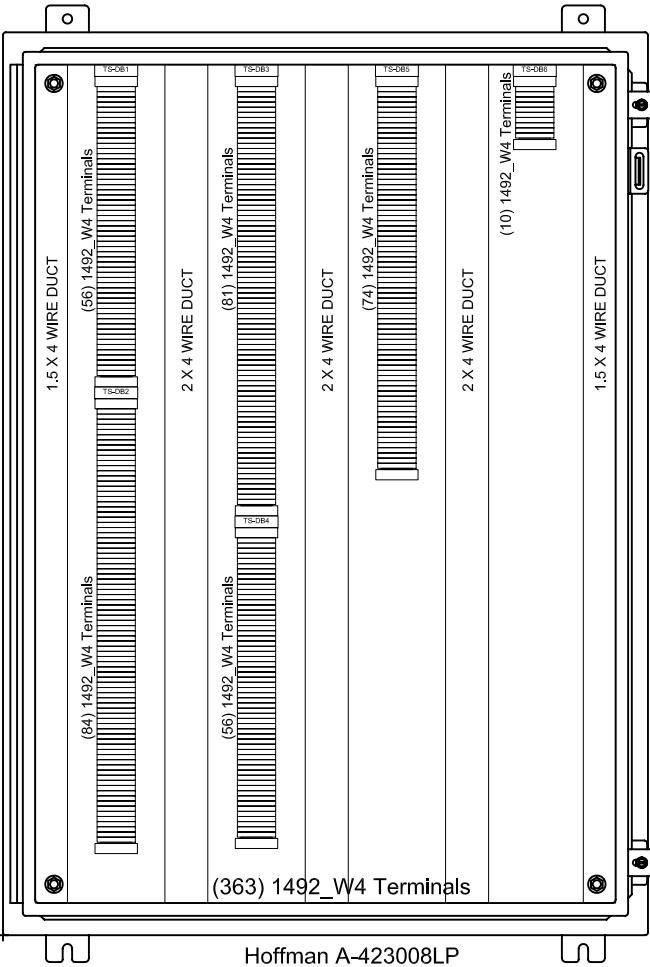
DOCUMENT CONTROL STAMP	DIM & TOL PER ASME Y14.5 - UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS DECIMAL ANGLES ± 1/8 .001 ± .01 ± .50° XXX ± .005	TRACKING NO. N/A	Thomas Jefferson National Accelerator Facility JEFFERSON LABS UNITED STATES DEPARTMENT OF ENERGY			
MATERIAL X	THIRD ANGLE PROJECTION	APPROVALS	DATE	T. JEFFERSON LABS HMS QUADRUPOLE MAGNET PT-100 TEMPERATURE SENSORS (NITROGEN) WIRE DIAGRAM		
FINISH MACHINED SURFACES DEBURR & BREAK ALL SHARP EDGES		DRAWN YOUR NAME	DDMMYY			
DO NOT SCALE DRAWING		CHECKED X	X			
		APPROVED X	X			
		APPROVED X	X	SIZE D	DWG. NO. 67184-D-0235	REV. -
				SCALE X: X	USED ON ASSY NO. XXXXX-X-XXXX	SHEET 235 OF x

CONTINUED ON
SHEET #67184-D-0236



REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	APPROVED
ZN	A	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	DRMONYR	XXXXXX
		XXXXXXXXXXXXXXXXXXXXXXXXXXXX xxx xxxxx	DRMONYR	XXXXXX

#	QTY	DESCRIPTION	MANUFACTURER	PART NUMBER
1	1	ENCLOSURE	HOFFMAN	A-423008LP
2	2	SUB PANEL	HOFFMAN	A-42P30
3				
4	363	TERMINAL BLOCK, SINGLE LEVEL	ALLEN-BRADLEY	1492-W4
5	6	END BARRIER FOR W4	ALLEN-BRADLEY	1492-EB3
6	12	END ANCHOR FOR W4	ALLEN-BRADLEY	1492-EAH35
7	6	TERMINAL GROUP MARKER	ALLEN-BRADLEY	1492-GM35
8				
9	0	TERMINAL BLOCK, 24-LEVEL	ALLEN-BRADLEY	1492-WD3
10	0	END BARRIER FOR WD3	ALLEN-BRADLEY	1492-EBD3
11	0	END ANCHOR FOR WD3	ALLEN-BRADLEY	1492-EAH35
12	0	TERMINAL GROUP MARKER	ALLEN-BRADLEY	1492-GM35
13	0	JUMPERS	ALLEN-BRADLEY	
14	4	DIN MOUNTING RAIL	ALLEN-BRADLEY	199-DR1
15	3	WIRE DUCT, 2" X 4"	PANDUIT	D2X4LG6
16	3	WIRE DUCT COVER, 2"	PANDUIT	C2LG6
17	2	WIRE DUCT, 1.5" X 4"	PANDUIT	D1.5X4LG6
18	2	WIRE DUCT COVER, 1.5"	PANDUIT	C1.5LG6
19				
20				



NOTE: SEE SHTS. 330 THRU 334 FOR TERMINAL ROTATION

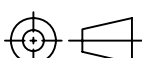
REV.	REV. STATUS
6	5
4	3
2	1
SHEET	OF SHTS.

APPLICATION	DO NOT SCALE DRAWING

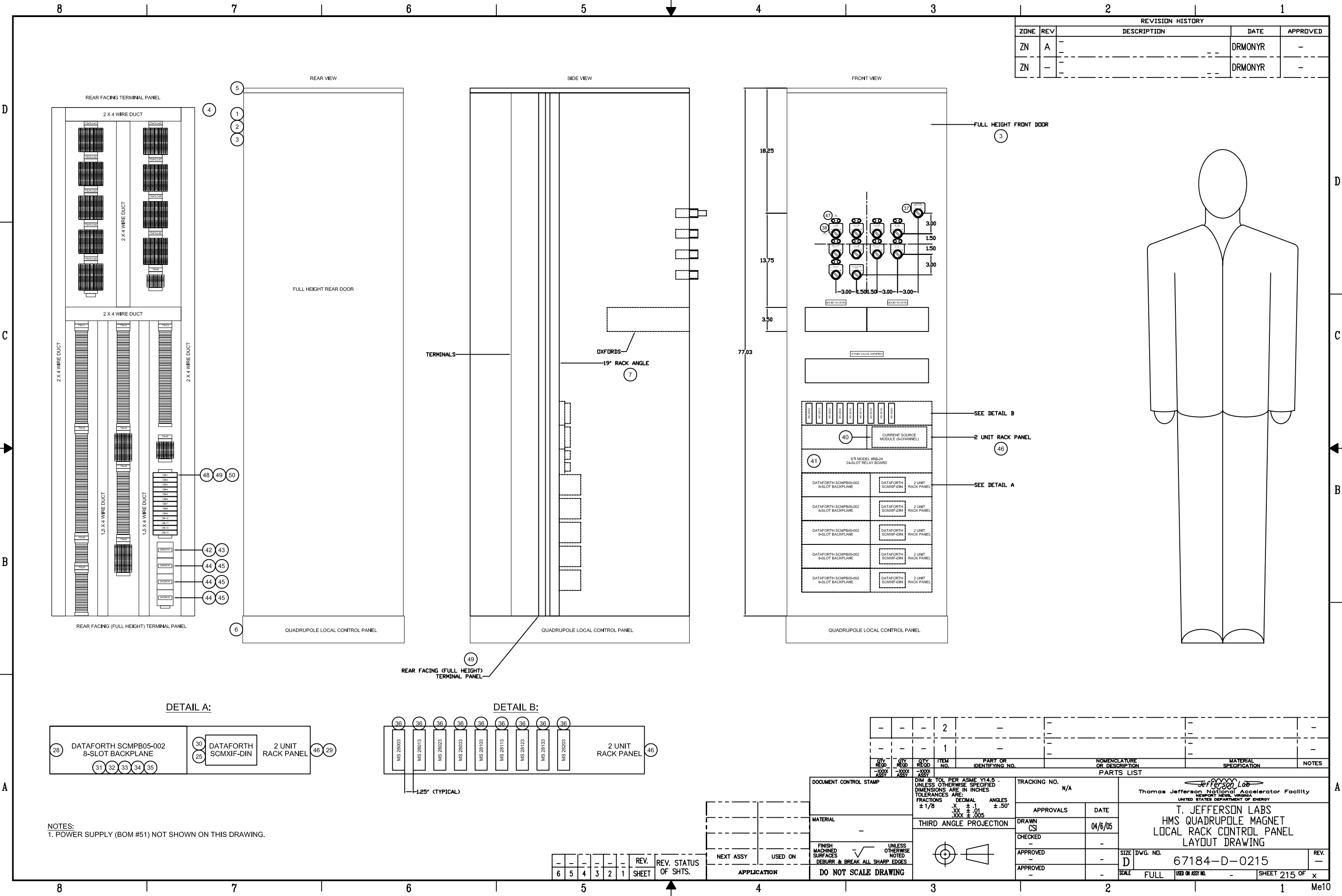
DOCUMENT CONTROL STAMP		DIM & TOL PER ASME Y14.5 - UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMAL ANGLES ± 1/8 .XX ± .01 .XXX ± .005		TRACKING NO. N/A		Thomas Jefferson National Accelerator Facility UNITED STATES DEPARTMENT OF ENERGY	
MATERIAL X		THIRD ANGLE PROJECTION		APPROVALS		DATE	
FINISH MACHINED SURFACES UNLESS OTHERWISE NOTED DEBURR & BREAK ALL SHARP EDGES		DO NOT SCALE DRAWING		DRAWN YOUR NAME		083004	
NEXT ASSY		USED ON		CHECKED X		X	
APPLICATION		DO NOT SCALE DRAWING		APPROVED X		X	
				APPROVED X		X	
				SIZE D		DWG. NO. 67184-D-0220	
				SCALE X: X		SHEET 220 OF x	

#	QTY	DESCRIPTION	MANUFACTURER	PART NUMBER
1	1	RACK FRAME	HOFFMAN	PF2068
2	2	RACK SIDES	HOFFMAN	PSS208
3	2	RACK DOORS	HOFFMAN	PDS206
4	1	RACK FULL SUB-PANEL	HOFFMAN	PPF206
5	1	RACK TOP	HOFFMAN	PT68
6	1	RACK BASE	HOFFMAN	PB168
7	1	19" RACK ANGLE MOUNTING RAIL, SQUARE HOLES	HOFFMAN	PRA1920TH
8	302	TERMINAL BLOCK, SINGLE LEVEL	ALLEN-BRADLEY	1492-W4
9	7	END BARRIER FOR W4	ALLEN-BRADLEY	1492-EB3
10	14	END ANCHOR FOR W4	ALLEN-BRADLEY	1492-EAH35
11	7	TERMINAL GROUP MARKER	ALLEN-BRADLEY	1492-GM35
12				
13	63	TERMINAL BLOCK, 2-LEVEL	ALLEN-BRADLEY	1492-WD3
14	4	END BARRIER FOR WD3	ALLEN-BRADLEY	1492-EBD3
15	8	END ANCHOR FOR WD3	ALLEN-BRADLEY	1492-EAH35
16	4	TERMINAL GROUP MARKER	ALLEN-BRADLEY	1492-GM35
17	0	JUMPERS	ALLEN-BRADLEY	
18				
19	163	TERMINAL BLOCK, 3-LEVEL	ALLEN-BRADLEY	1492-WTF3
20	9	END BARRIER FOR WTF3	ALLEN-BRADLEY	1492-EBTF3
21	18	END ANCHOR FOR WTF3	ALLEN-BRADLEY	1492-EAH35
22	9	TERMINAL GROUP MARKER	ALLEN-BRADLEY	1492-GM35
23	11	JUMPERS, 20-POLE, BLUE, INSULATED	ALLEN-BRADLEY	1492-SJT5-20-B
24				
25	5	DIN MOUNTING RAIL	ALLEN-BRADLEY	199-DR1
26	5	WIRE DUCT, 2" X 4"	PANDUIT	D2X4LG6
27	5	WIRE DUCT COVER, 2"	PANDUIT	C2LG6
28	5	SIGNAL CONDITIONER BACKPLANE, 8-CHANNEL	DATAFORTH	SCMPB05-002
29	5	RIBBON CABLE WITH CONNECTORS, 12 INCH	DATAFORTH	SCMXCA004-12 INCH
30	5	BREAKOUT BOARD FOR DATAFORTH	DATAFORTH	SCMXIF-DIN
31	5	SIGNAL CONDITIONING MODULE	DATAFORTH	SCM5B31-03D
32	12	SIGNAL CONDITIONING MODULE	DATAFORTH	SCM5B34-1562
33	0	SIGNAL CONDITIONING MODULE	DATAFORTH	SCM5B38-35D
34	8	SIGNAL CONDITIONING MODULE	DATAFORTH	SCM5B31-09D
35	4	SIGNAL CONDITIONING MODULE	DATAFORTH	SCM5B30-02D
36	9	SIGNAL CONDITIONER, LVDT	MACRO SENSORS	LVC 2402
37	1	KEYED SELECTOR SWITCH, 2-POSITION, 2NO/2NC	ALLEN-BRADLEY	800T-H33B
38	10	SELECTOR SWITCH, 3-POSITION, STC, 2NO/2NC	ALLEN-BRADLEY	800T-J91A
39				
40	1	CURRENT SOURCE MODULE		
41	1	RELAY BOARD	STI	RB-24
42	1	TIMING RELAY, 24VDC FOR KEEP ALIVE	POTTER BRUMFIELD	CNT-35-96
43	1	SOCKET FOR TIMING RELAY	POTTER BRUMFIELD	27E892
44	3	CONTROL RELAY, 2PDT, 24VDC, 8-PIN	ALLEN-BRADLEY	700-HA33Z24
45	3	RELAY SOCKET, 8-PIN	ALLEN-BRADLEY	700-HN126
46	8	RACK PANEL 2 UNIT	HOFFMAN	P19RP2UA
47	9	INSULATED DOUBLE POLE BANANA JACK, BLACK	POMONA	2269-0
48	2	CIRCUIT BREAKER, 10A	ALLEN-BRADLEY	1492-CB1G100
49	9	CIRCUIT BREAKER, 2A	ALLEN-BRADLEY	1492-CB1G020
50	9	CIRCUIT BREAKER, 5A	ALLEN-BRADLEY	1492-CB1G050
51	1	POWER SUPPLY, 24VDC, 10AMP, SWITCH MODE	TBD	TBD

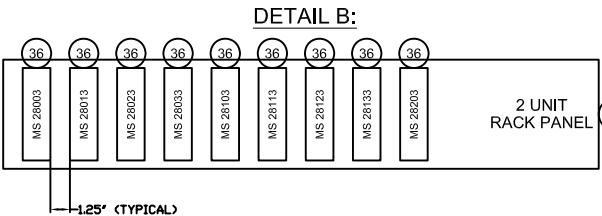
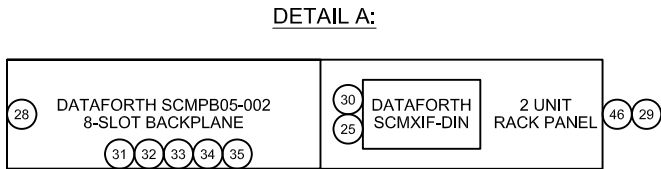
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	APPROVED
ZN	A	---	DRMONYR	---
ZN	---	---	DRMONYR	---

-	-	-	2	-	-	-	-
-	-	-	1	-	-	-	-
QTY -XXXX ASSY	QTY -XXXX RECD	QTY -XXXX RECD	ITEM NO.	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL SPECIFICATION	NOTES
STAMP							
DIM & TOL PER ASME Y14.5 UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMAL ANGLES $\pm 1/8$.X $\pm 1^\circ$ $\pm .50^\circ$.XX $\pm .01$.XXX $\pm .005$				TRACKING NO. N/A		 Thomas Jefferson National Accelerator Facility WASHINGTON STATE DEPARTMENT OF ENERGY	
THIRD ANGLE PROJECTION 				APPROVALS DATE DRAWN 05/17/02 CSI CHECKED - APPROVED - APPROVED -		T. JEFFERSON LABS HMS QUADRUPOLE MAGNET LOCAL RACK PANEL BILL OF MATERIALS SIZE DWG. NO. 67184-D-0216 SCALE FULL USED ON ASSY NO. - SHEET 1 OF 1	
UNLESS OTHERWISE NOTED ALL SHARP EDGES ISOMETRIC DRAWING				REV. -			

-	-	-	-	-	-	REV.	REV. STATUS
6	5	4	3	2	1	SHEET	OF SHTS.



REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	APPROVED
ZN	A	-	DRMONYR	-
ZN	-	-	DRMONYR	-



NOTES:
1. POWER SUPPLY (BOM #51) NOT SHOWN ON THIS DRAWING.

REV.	REV. STATUS	REV.	REV. STATUS	REV.	REV. STATUS	REV.	REV. STATUS	REV.	REV. STATUS
6	-	5	-	4	-	3	-	2	-
1	-	2	-	3	-	4	-	5	-
1	-	2	-	3	-	4	-	5	-

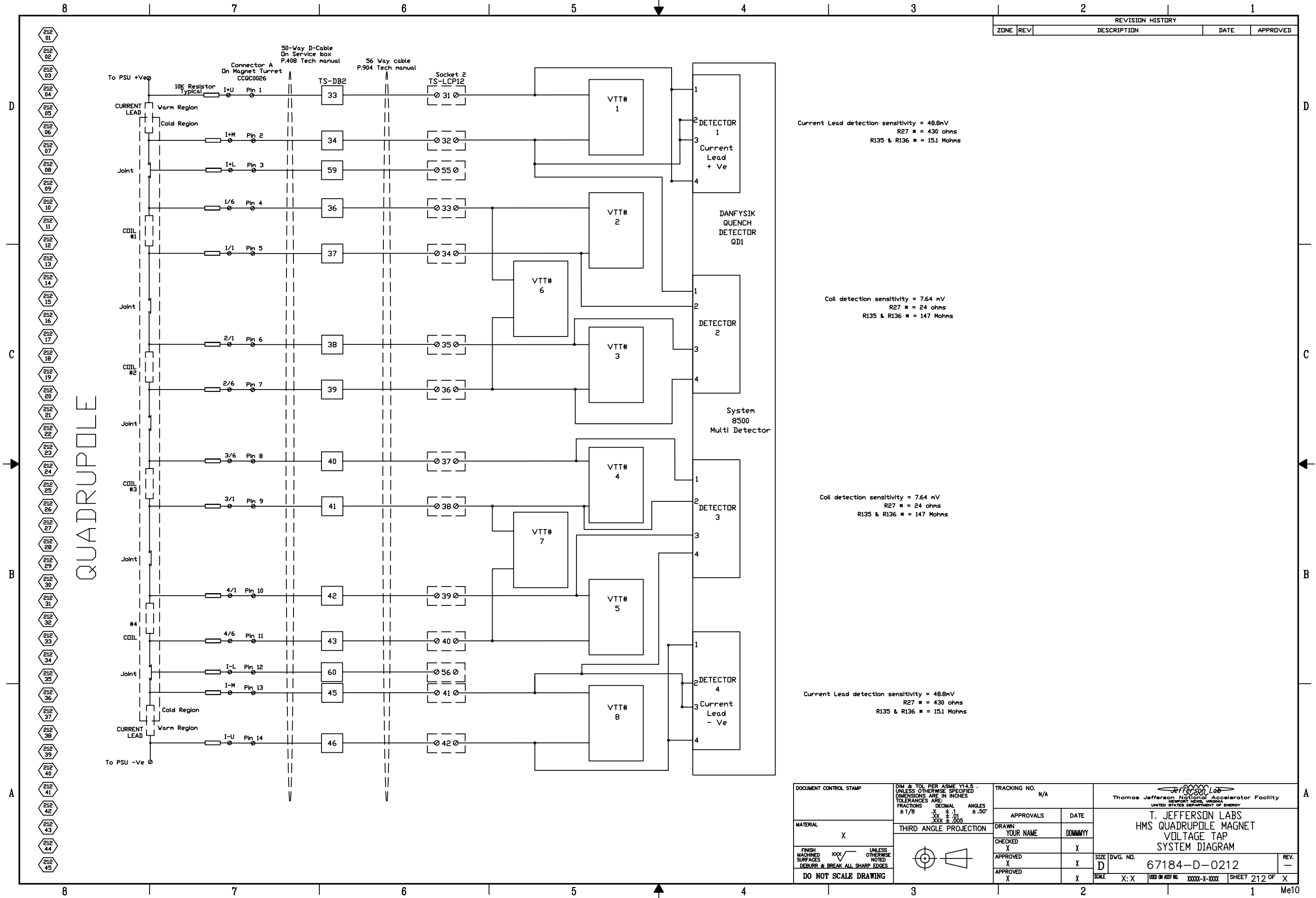
APPLICATION	USED ON	NEXT ASSY
DO NOT SCALE DRAWING		

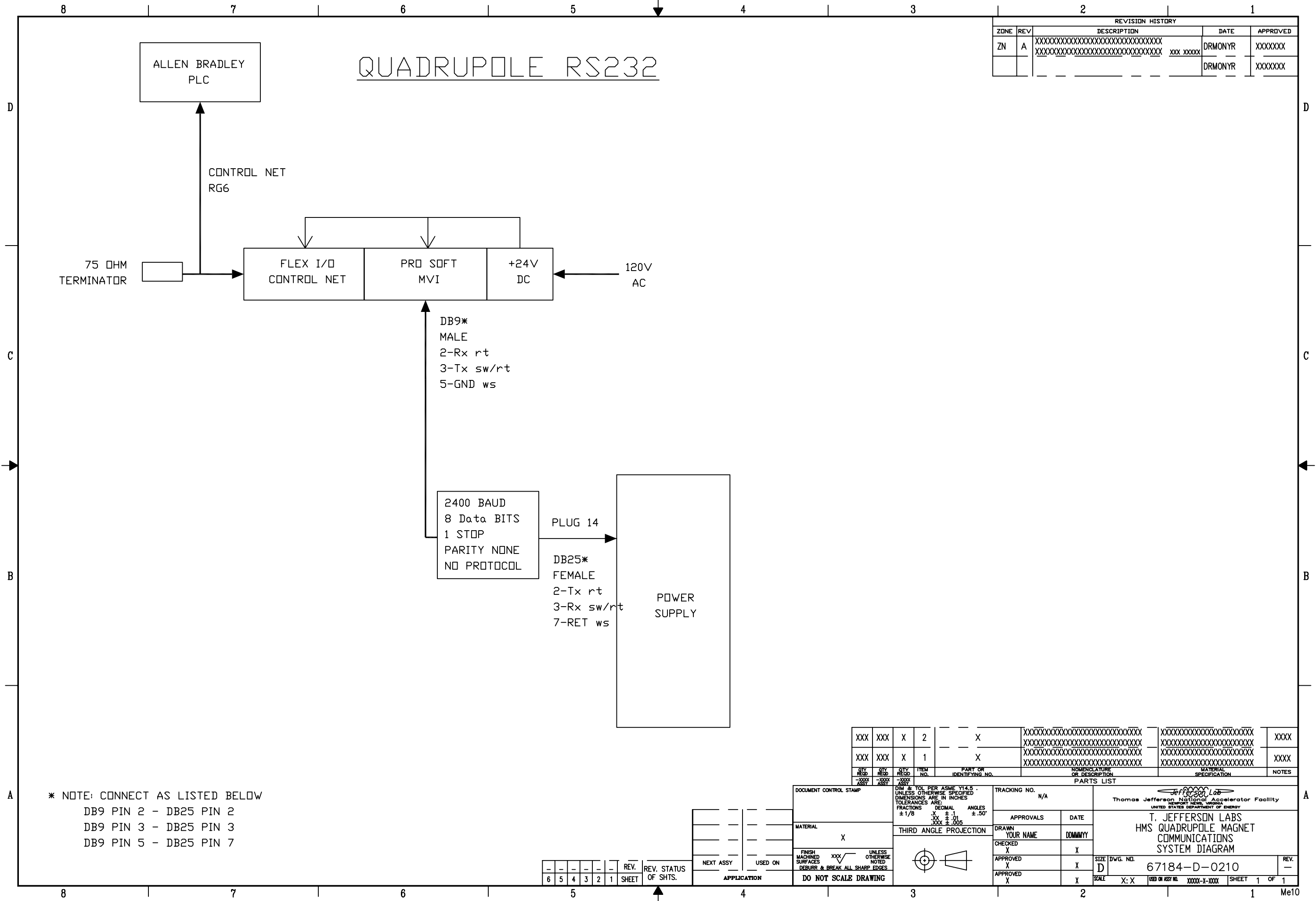
DOCUMENT CONTROL STAMP	MATERIAL	FINISH
		UNLESS OTHERWISE NOTED DEBURR & BREAK ALL SHARP EDGES

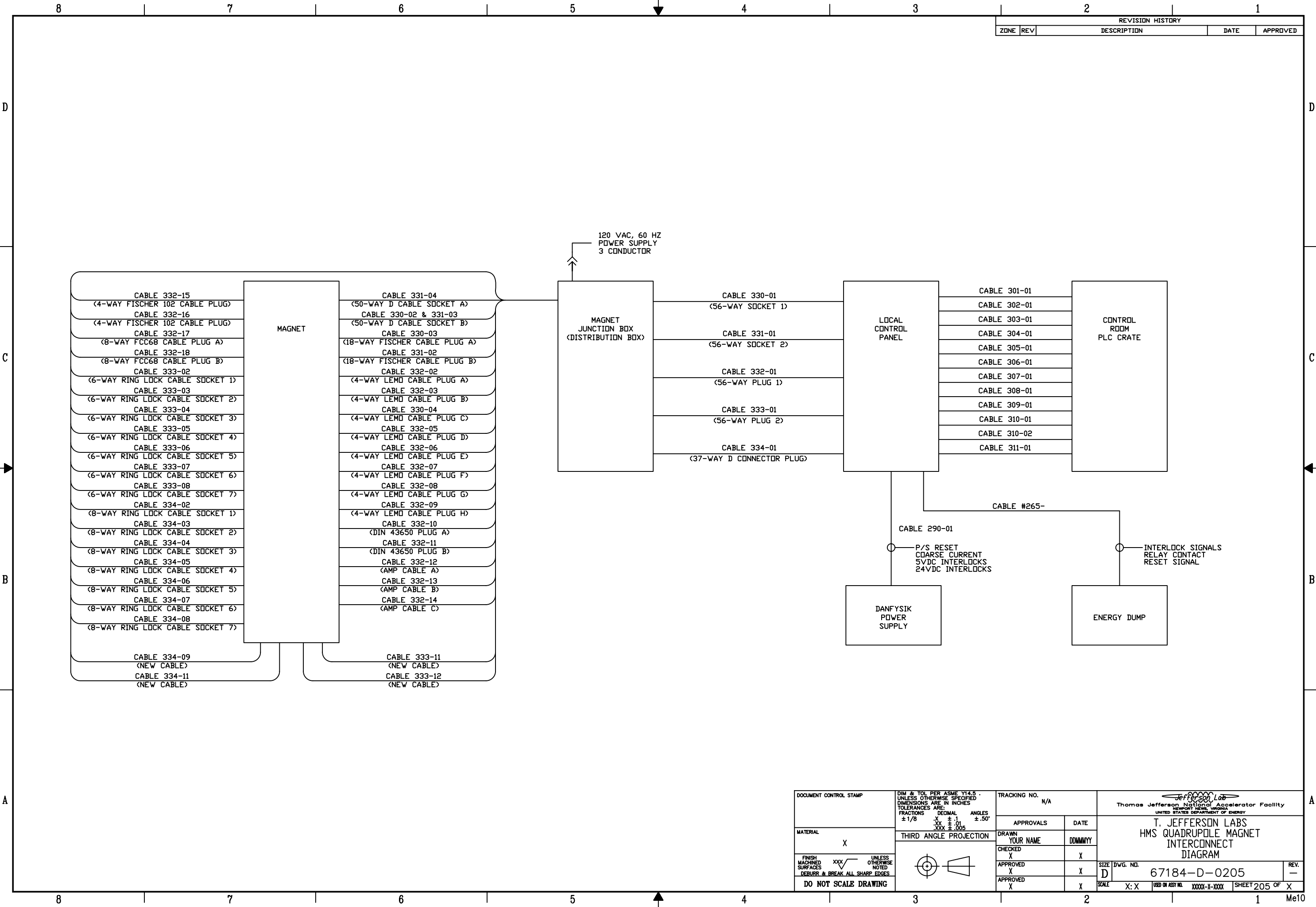
THIRD ANGLE PROJECTION	THIRD ANGLE PROJECTION

TRACKING NO.	APPROVALS	DATE
N/A		04/6/05

Thomas Jefferson National Accelerator Facility	REV.
T. JEFFERSON LABS HMS QUADRUPOLE MAGNET LOCAL RACK CONTROL PANEL LAYOUT DRAWING	-
SIZE D DWG. NO. 67184-D-0215 SCALE FULL	215 OF x







DOCUMENT CONTROL STAMP	DIM & TOL PER ASME Y14.5 - UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMAL ANGLES ± 1/8 .001 ± .01 ± .50° .001 ± .001 .001 ± .005	TRACKING NO. N/A		Thomas Jefferson National Accelerator Facility JEFFERSON LABS UNITED STATES DEPARTMENT OF ENERGY	
		APPROVALS	DATE	T. JEFFERSON LABS HMS QUADRUPOLE MAGNET INTERCONNECT DIAGRAM	
MATERIAL X	THIRD ANGLE PROJECTION	DRAWN YOUR NAME	DDMMYY	SIZE D	DWG. NO. 67184-D-0205
FINISH MACHINED SURFACES XXX UNLESS OTHERWISE NOTED DEBURR & BREAK ALL SHARP EDGES		CHECKED X	X	SCALE X: X	REV. -
DO NOT SCALE DRAWING		APPROVED X	X	USED ON ASSY NO. XXXXX-X-XXXX	SHEET 205 OF X

D

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