RHIC Accelerator Controls Section
Alcove 1005B Wiring Diagrams
BNL Drawing Number 94028303

Brookhaven National Laboratory, Upton, New York 11973

Created By: Phil Pape
Last Updated 6/16/03

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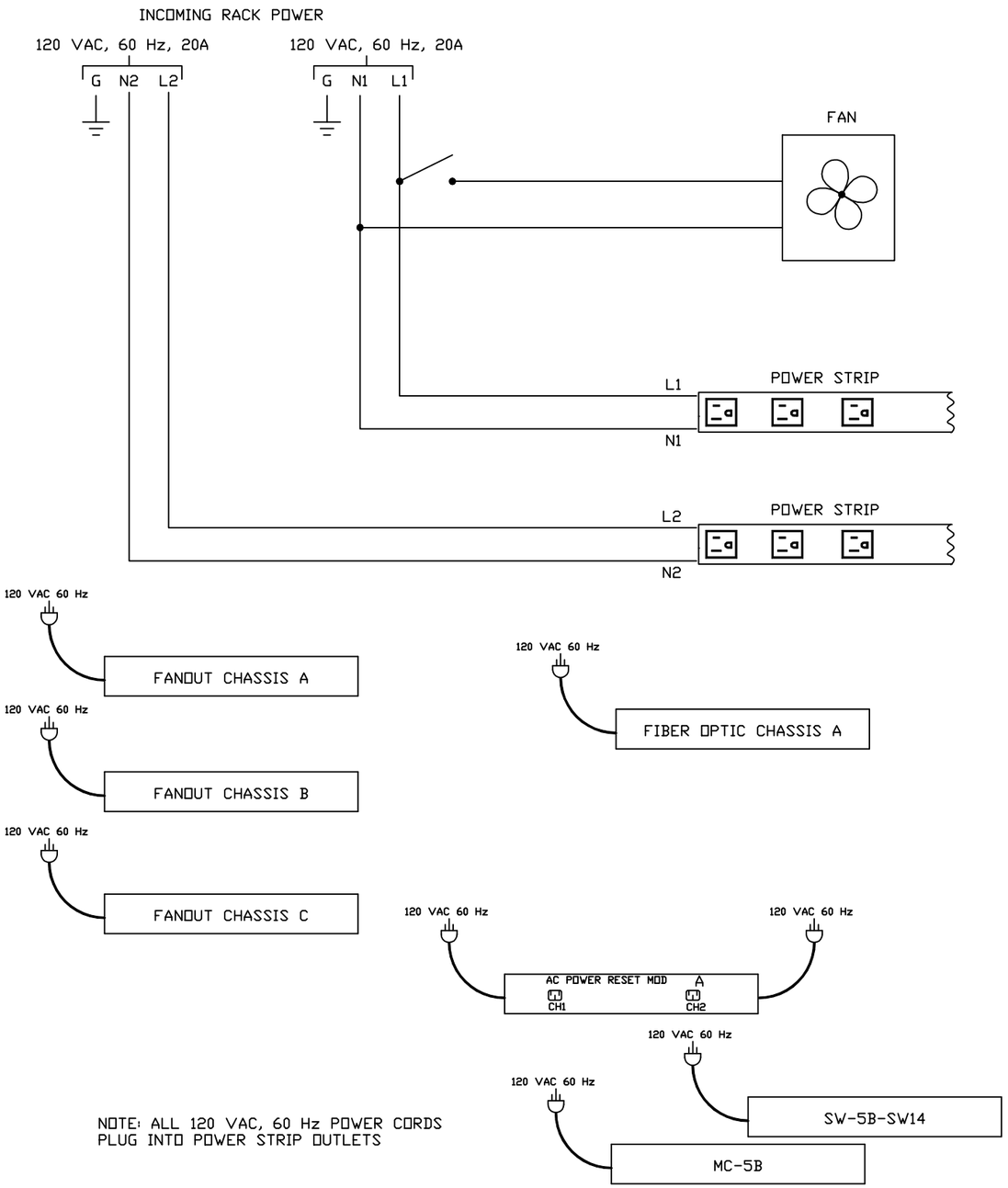
NOTE: Sheets 31, 34, 35 are Blank

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 1/8/02 11:49 AM 8303_01.dwg



NOTE: ALL 120 VAC, 60 Hz POWER CORDS PLUG INTO POWER STRIP OUTLETS

RACK R05B08

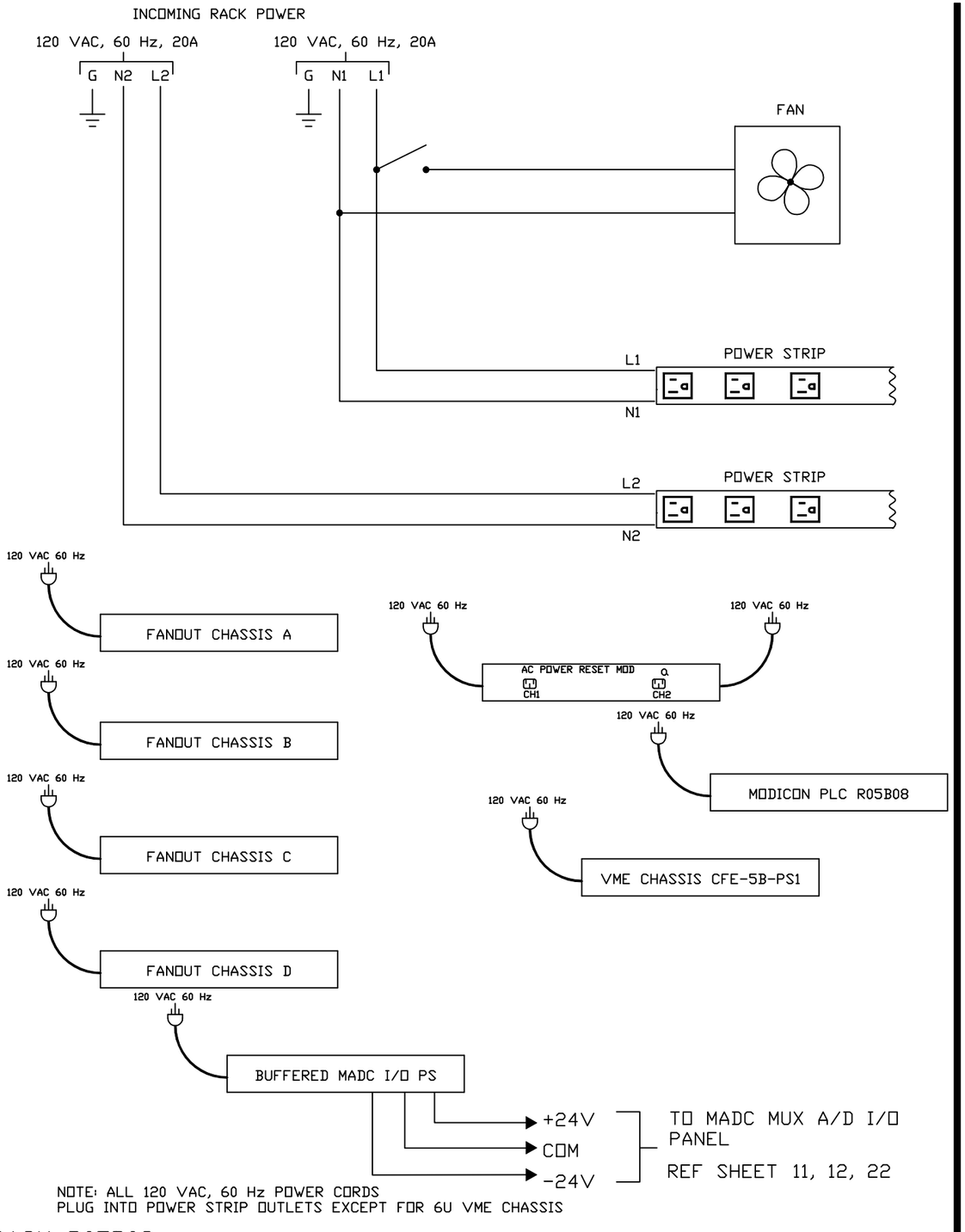
QTY REQD -3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.
		90		11	CABLE ASSY, POWER SUPPLY TO MADC A/D I/O PANEL (3 CABLES/PS)	
		30		10	CABLE ASSY, LOW RES PS IF MODULE TO POWER SUPPLY	
		1		9	PERMIT SYSTEM INTERFACE CABLE, T120 TO PERMIT SYSTEM INTERFACE PANEL	D09-E2225-2
		33		8	SERIAL LINK TWINAX CABLE, LENGTH AS REQUIRED	94028176
		32		7	SERIAL LINK TWINAX CABLE, 1 FT	94028176
		30		6	DUPLEX MULTIMODE FIBER OPTIC CABLE, T115 TO LOW RES PS INTERFACE MODULE	94028249
		13		5	SINGLE MODE FIBER OPTIC CABLE	94028251
		8		4	MADC A/D I/O CABLE	94028216
		17		3	TRANSITION MODULE P2 RIBBON CABLE, V115, V120	94028159
		2		2	MADC V113 TO V114 P2 INTERFACE RIBBON CABLE	94028218
		3		1	NETWORK CABLE TO FEC	

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989	Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN BY P. PAPE	10/17/97	UPTON, N.Y. 11973		
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°	CHECKED BY		RHIC CONTROLS WIRING DIAGRAM		
	DESIGN APPROVAL		ALCOVE 1005B, RACK R05B08		
	ENGINEER APPROVAL R. MICHNOFF	10/17/97	POWER DISTRIBUTION		
	SUPVR. APPROVAL		NEXT ASSEMBLY	SIZE D	94028303 REV. A
OUTSTANDING ECN	NA FINISH	BREAK SHARP EDGES MAX. XX MIN. XX		DRAWING NUMBER	
				MATERIAL: ——— SCALE: NA WEIGHT: –	SHEET 1 OF X

*AUTOCAD

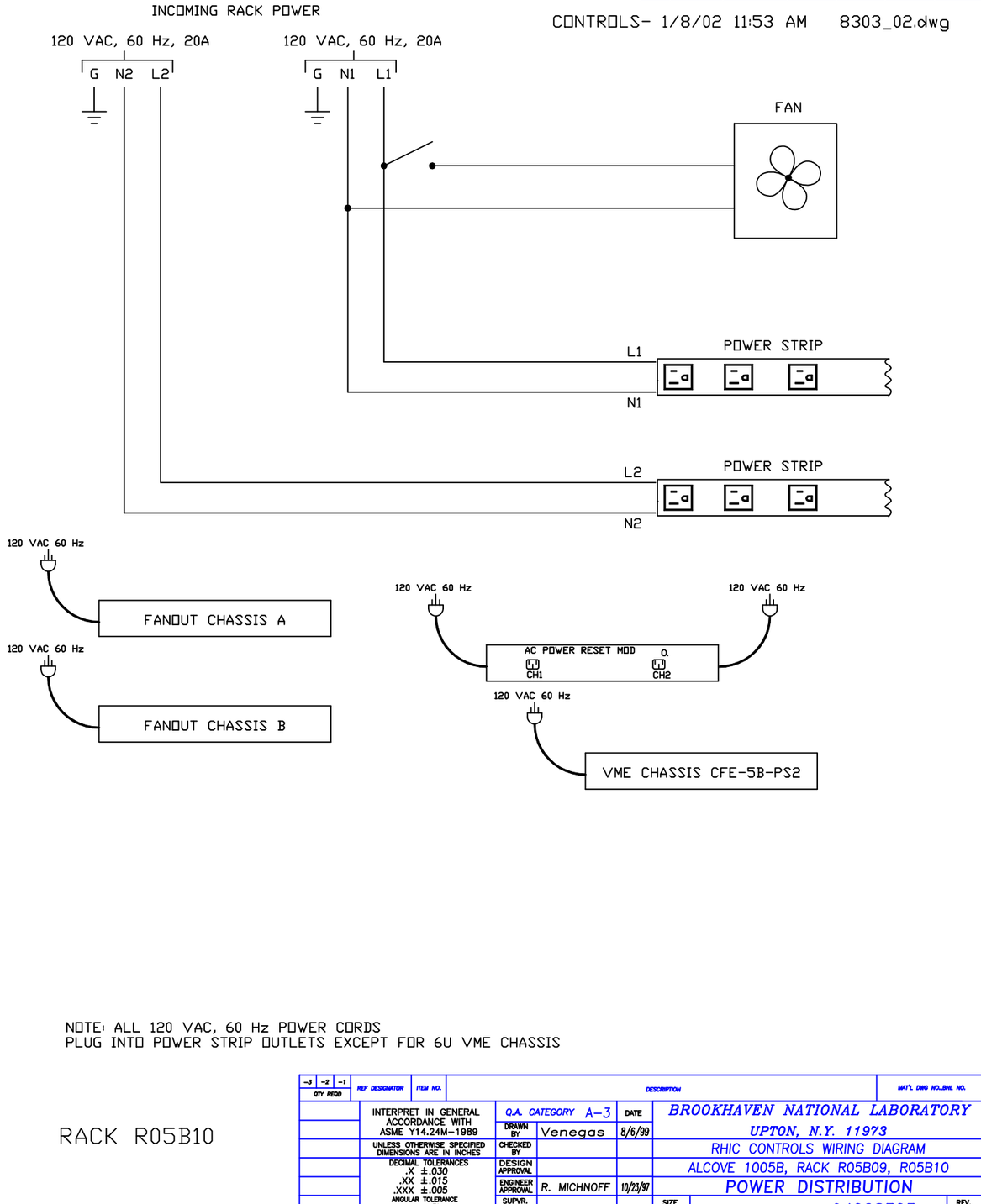
REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 1/8/02 11:53 AM 8303_02.dwg



NOTE: ALL 120 VAC, 60 Hz POWER CORDS
PLUG INTO POWER STRIP OUTLETS EXCEPT FOR 6U VME CHASSIS

RACK R05B09



NOTE: ALL 120 VAC, 60 Hz POWER CORDS
PLUG INTO POWER STRIP OUTLETS EXCEPT FOR 6U VME CHASSIS

RACK R05B10

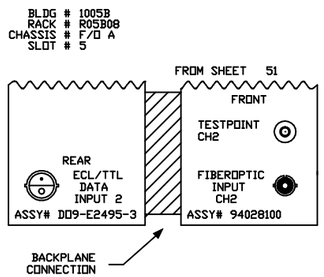
-3 -2 -1 QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989	Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN BY Venegas	8/6/99	UPTON, N.Y. 11973	
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°	CHECKED BY		RHIC CONTROLS WIRING DIAGRAM	
	DESIGN APPROVAL		ALCOVE 1005B, RACK R05B09, R05B10	
	ENGINEER APPROVAL R. MICHNOFF	10/23/97	POWER DISTRIBUTION	
	SUPVR. APPROVAL		SIZE D — 94028303 — REV. A	
OUTSTANDING ECN	NA FINISH	BREAK SHARP EDGES MAX. XX MIN. XX	NEXT ASSEMBLY	DRAWING NUMBER
			MATERIAL: ———	SCALE: NA WEIGHT: – SHEET 2 OF 38

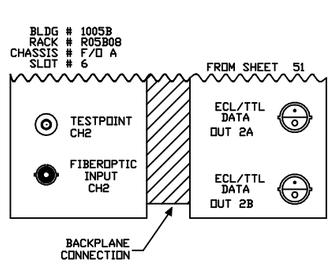
*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

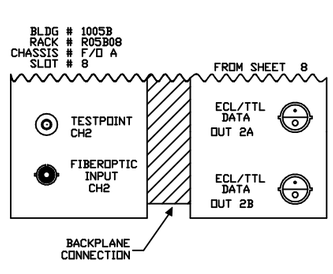
MULTIMODE FIBER OPTIC TRANSMITTER



FIBER OPTIC RECEIVER



FIBER OPTIC RECEIVER



-3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L. DWG NO./PNL NO.
QTY REQD						

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DECIMAL TOLERANCES
.X ±.030
.XX ±.015
.XXX ±.005
ANGULAR TOLERANCE ± .5°

OUTSTANDING ECN

NA FINISH

BREAK SHARP EDGES
MAX. XX MIN. XX

Q.A. CATEGORY A-3		DATE
DRAWN BY	P. PAPE	10/17/97
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	10/17/97
SUPVR. APPROVAL		
NEXT ASSEMBLY		

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

ALCOVE 1005B

SPARE F/O RCVR/XMIT CHANNELS

SIZE D | 94028303 | REV. A

DRAWING NUMBER

MATERIAL: ——— | SCALE: NA | WEIGHT: – | SHEET 3 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 8/6/99 3:24 PM 8303_04.dwg

EVENT LINK
BLDG # 1004B
RACK # R4B02
MIC # MIC- 064D

EVENT LINK
BLDG # 1005B
RACK # R05B08
MIC ID # MIC 066A

REAR | A1 | FRONT

ASSY# 94028251
SINGLEMODE FIBER
(TYP 1 PLACE)

SINGLE MODE F/O RECEIVER

EVENT LINK
BLDG # 1005B
RACK # R05B08
CHASSIS # F/O A
SLOT # 9

FRONT
ASSY# 94028101
TESTPOINT CH1
FIBEROPTIC INPUT CH1

REAR
ASSY# DD9-E-2542
ECL/TTL DATA OUT 1A
ECL/TTL DATA OUT 1B

TO SHEET 6

BACKPLANE CONNECTION

ASSY# 94028176
LENGTH AS REQUIRED
(TYP 4 PLACES)

EVENT LINK
BLDG # 1005B
RACK # R05B08
FANOUT # A

ASSY # DD9-E2442-5

INPUT J1

OUTPUT
J2
J3
J4
J5
J6
J7
J8
J9
J10
J11
J12
J13
J14
J15
J16
J17

RESERVED FOR FANOUT MODULE
RESERVED FOR FANOUT MODULE
RESERVED FOR FANOUT MODULE
TO CFE-5B-PS1, SLOT 3, V108
REF SHEET 11
TO CFE-5B-PS2, SLOT 3, V108
REF SHEET 21
SPARE
To CFE-5B-QD1, SLOTx, V108
QUENCH SYSETM
To CFE-5B-QD1, SLOT X, V102
QUENCH SYSTEM
SPARE
SPARE
SPARE
SPARE
SPARE

EVENT LINK FANOUT MODULE
BLDG #: 1005B
RACK #: R05B09
FANOUT #: A

ASSY# DD9-E-2442
INPUT J1
TO SHEET 5

EVENT LINK FANOUT MODULE
BLDG #: 1005B
RACK #: R05B10
FANOUT #: A

ASSY# DD9-E-2442
INPUT J1
TO SHEET 5

-3	-2	-1	QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./DWG NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DECIMAL TOLERANCES
X ±.030
.XX ±.015
.XXX ±.005
ANGULAR TOLERANCE
± .5°

NA FINISH

BREAK SHARP EDGES
MAX. XX MIN. XX

OUTSTANDING ECN

Q.A. CATEGORY A-3		DATE
DRAWN BY	P. PAPE	10/17/97
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	10/17/97
SUPVR. APPROVAL		
NEXT ASSEMBLY		

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B
EVENT LINK

SIZE D | 94028303 | REV. A
DRAWING NUMBER

MATERIAL: ——— | SCALE: NA | WEIGHT: — | SHEET 4 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

EVENT LINK FANOUT MODULE

BLDG # 1005B
RACK # R05B09
FANOUT # A

FROM SHEET 4
ASSY # DD9-E2442-5

OUTPUT

J2	TO CFE-5B-PS1, SLOT 21,T120 REF SHEET 36
J3	TO CFE-5B-PS1, SLOT 4, V113 REF SHEET 12
J4	SPARE
J5	SPARE
J6	SPARE
J7	SPARE
J8	SPARE
J9	SPARE
J10	To CFE-5B-PS1, SLOT 13, T115 REF SHEET 20
J11	To CFE-5B-PS1, SLOT 12, T115 REF SHEET 19
J12	To CFE-5B-PS1, SLOT 11, T115 REF SHEET 18
J13	To CFE-5B-PS1, SLOT 10, T115 REF SHEET 17
J14	To CFE-5B-PS1, SLOT 9, T115 REF SHEET 16
J15	To CFE-5B-PS1, SLOT 8, T115 REF SHEET 15
J16	To CFE-5B-PS1, SLOT 7, T115 REF SHEET 14
J17	To CFE-5B-PS1, SLOT 6, T115 REF SHEET 13

EVENT LINK FANOUT MODULE

BLDG # 1005B
RACK # R05B10
FANOUT # A

FROM SHEET 4
ASSY # DD9-E2442-5

OUTPUT

J2	TO CFE-5B-PS2, SLOT 20, V102 REF SHEET 33
J3	TO CFE-5B-PS2, SLOT4, V113 REF SHEET 22
J4	SPARE
J5	SPARE
J6	SPARE
J7	SPARE
J8	SPARE
J9	SPARE
J10	To CFE-5B-PS2, SLOT 13, T115 REF SHEET 30
J11	To CFE-5B-PS2, SLOT 12, T115 REF SHEET 29
J12	To CFE-5B-PS2, SLOT 11, T115 REF SHEET 28
J13	To CFE-5B-PS2, SLOT 10, T115 REF SHEET 27
J14	To CFE-5B-PS2, SLOT 9, T115 REF SHEET 26
J15	To CFE-5B-PS2, SLOT 8, T115 REF SHEET 25
J16	To CFE-5B-PS2, SLOT 7, T115 REF SHEET 24
J17	To CFE-5B-PS2, SLOT 6, T115 REF SHEET 23

-3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.
QTY REQD						

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005
ANGULAR TOLERANCE ± .5°
FINISH: NA
BREAK SHARP EDGES MAX. XX MIN. XX
OUTSTANDING ECN

Q.A. CATEGORY A-3

DRAWN BY	P. PAPE	10/17/97
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	10/17/97
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B
EVENT LINK

SIZE D
94028303
DRAWING NUMBER
REV. A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 5 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

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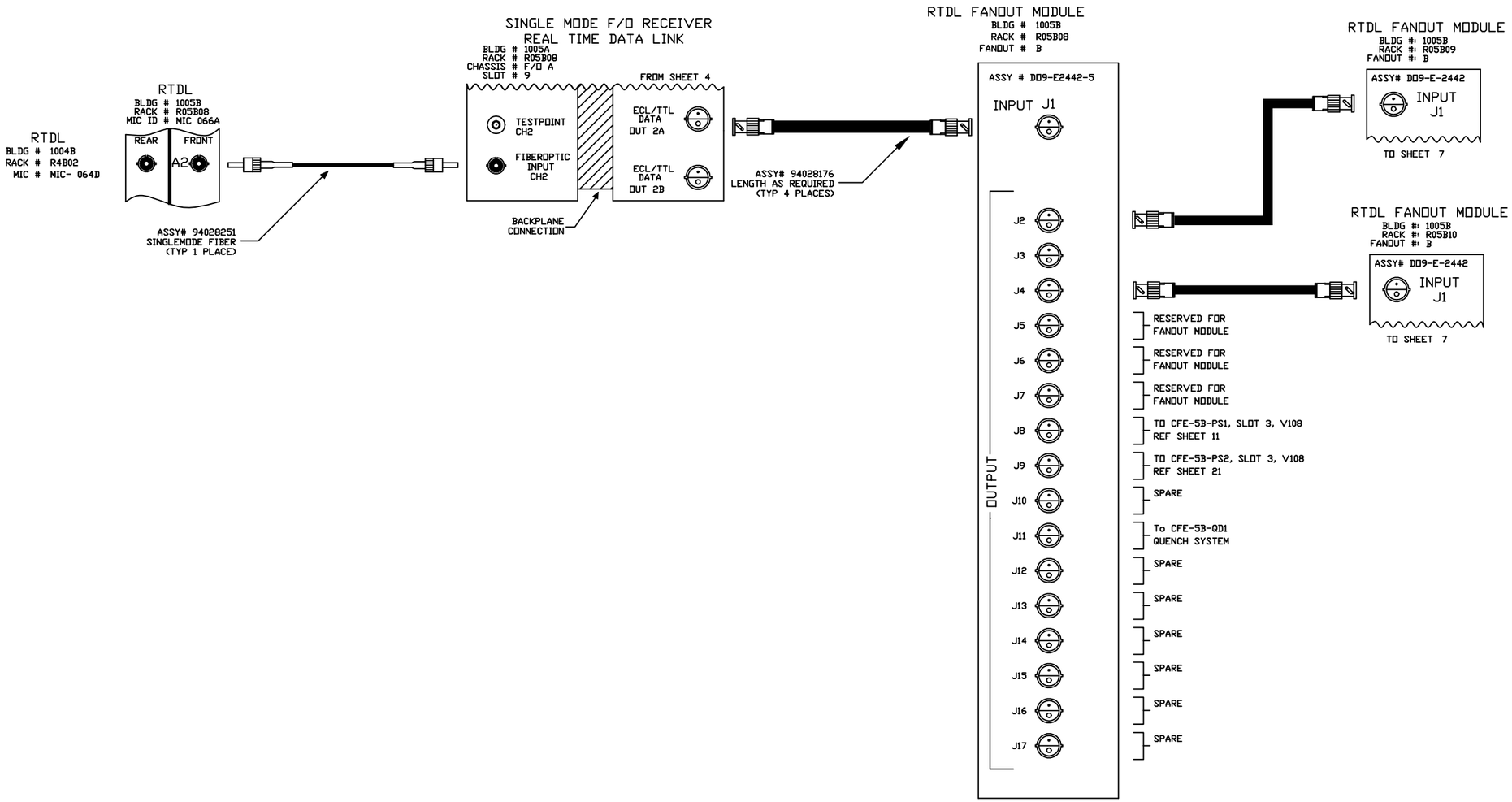

-3	-2	-1	QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./DWG NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DECIMAL TOLERANCES
X ±.030
.XX ±.015
.XXX ±.005
ANGULAR TOLERANCE
± .5°

NA FINISH

BREAK SHARP EDGES
MAX. XX MIN. XX

OUTSTANDING ECN

Q.A. CATEGORY A-3		DATE
DRAWN BY	P. PAPE	10/17/97
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	10/17/97
SUPVR. APPROVAL		
NEXT ASSEMBLY		

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UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B
REAL TIME DATA LINK

SIZE D | 94028303 | REV. A
DRAWING NUMBER

MATERIAL: ——— SCALE: NA WEIGHT: — SHEET 6 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

RTDL FANOUT MODULE

BLDG # 1005B
RACK # R05B09
FANOUT # B

FROM SHEET 6
ASSY # DD9-E2442-5

OUTPUT

J2	SPARE
J3	SPARE
J4	SPARE
J5	SPARE
J6	SPARE
J7	SPARE
J8	SPARE
J9	SPARE
J10	To CFE-5B-PS1, SLOT 13, T115 REF SHEET 20
J11	To CFE-5BPS1, SLOT 12, T115 REF SHEET 19
J12	To CFE-5B-PS1, SLOT 11, T115 REF SHEET 18
J13	To CFE-5B-PS1, SLOT 10, T115 REF SHEET 17
J14	To CFE-5B-PS1, SLOT 9, T115 REF SHEET 16
J15	To CFE-5B-PS1, SLOT 8, T115 REF SHEET 15
J16	To CFE-5B-PS1, SLOT 7, T115 REF SHEET 14
J17	To CFE-5B-PS1, SLOT 6, T115 REF SHEET 13

RTDL FANOUT MODULE

BLDG # 1005B
RACK # R05B10
FANOUT # B

FROM SHEET 6
ASSY # DD9-E2442-5

OUTPUT

J2	SPARE
J3	SPARE
J4	SPARE
J5	SPARE
J6	SPARE
J7	SPARE
J8	SPARE
J9	SPARE
J10	To CFE-5B-PS2, SLOT 13, T115 REF SHEET 30
J11	To CFE-5B-PS2, SLOT 12, T115 REF SHEET 29
J12	To CFE-5B-PS2, SLOT 11, T115 REF SHEET 28
J13	To CFE-5B-PS2, SLOT 10, T115 REF SHEET 27
J14	To CFE-5B-PS2, SLOT 9, T115 REF SHEET 26
J15	To CFE-5B-PS2, SLOT 8, T115 REF SHEET 25
J16	To CFE-5B-PS2, SLOT 7, T115 REF SHEET 24
J17	To CFE-5B-PS2, SLOT 6, T115 REF SHEET 23

-3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.
QTY REQD						

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005
ANGULAR TOLERANCE ± .5°

OUTSTANDING ECN

NA FINISH

BREAK SHARP EDGES MAX. XX MIN. XX

Q.A. CATEGORY A-3		DATE
DRAWN BY	P. PAPE	10/17/97
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	10/17/97
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
ALCOVE1005B
REAL TIME DATA LINK

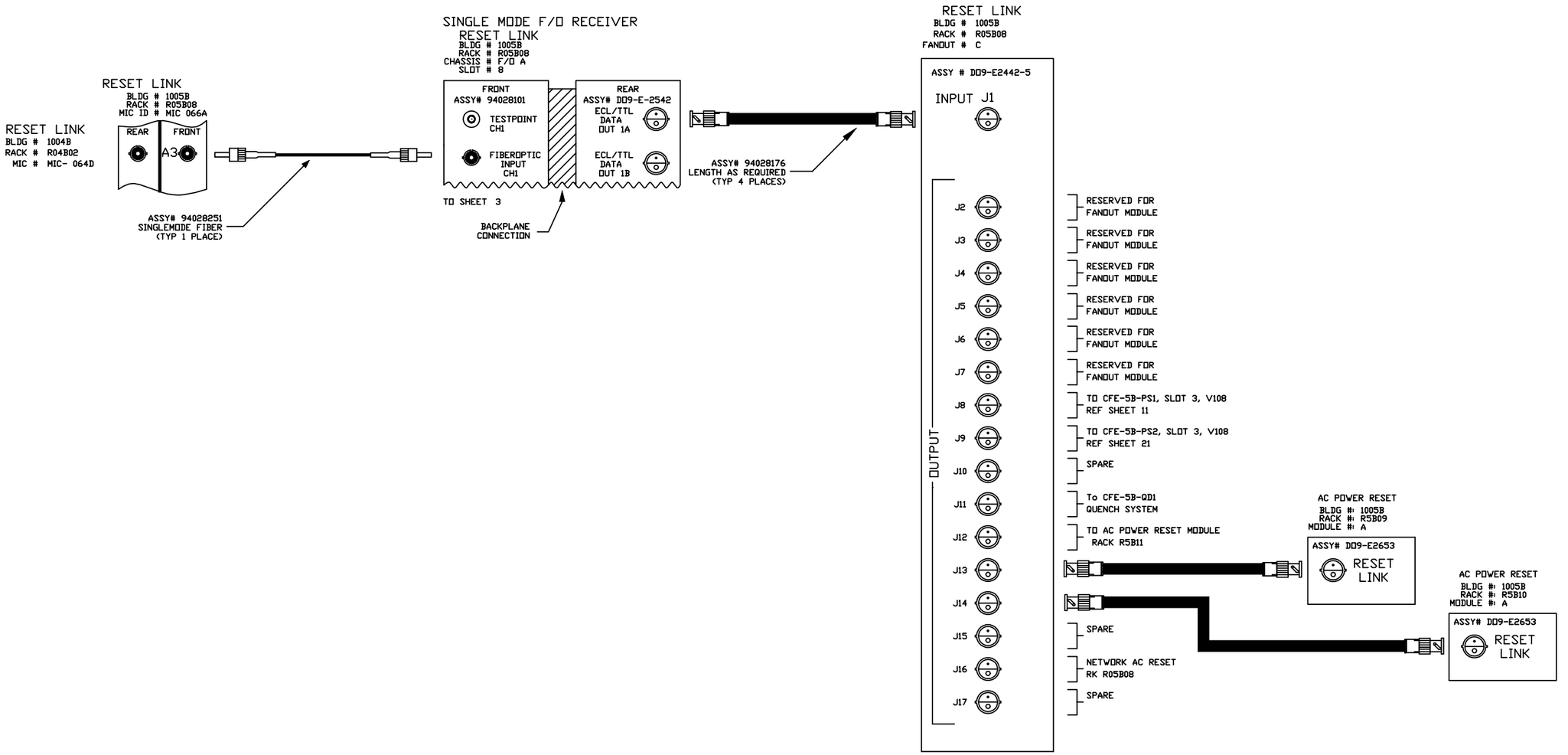
SIZE D
94028303
DRAWING NUMBER
REV. A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 7 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 1/8/02 11:55 AM 8303_08.dwg



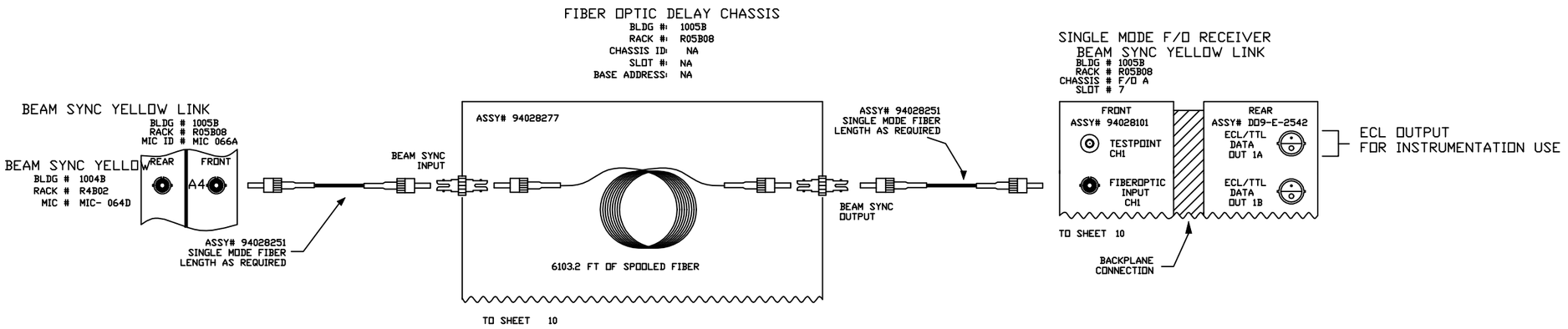
-3	-2	-1	QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./INT. NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989	Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY UPTON, N.Y. 11973
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN BY Venegas	8/6/99	RHIC CONTROLS WIRING DIAGRAM
DECIMAL TOLERANCES X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°	CHECKED BY		ALCOVE 1005B
	DESIGN APPROVAL		RESET LINK
	ENGINEER APPROVAL R. MICHNOFF	10/23/97	
	SUPVR. APPROVAL		
NA FINISH BREAK SHARP EDGES MAX. XX MIN. XX	NEXT ASSEMBLY	SIZE D	94028303 REV. A
OUTSTANDING ECN		MATERIAL: ———	SCALE: NA WEIGHT: — SHEET 8 OF 38

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 1/8/02 2:58 PM 8303_09.dwg



-3	-2	-1	QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L. DWG NO./BNL NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DECIMAL TOLERANCES
.X ±.030
.XX ±.015
.XXX ±.005
ANGULAR TOLERANCE ± .5°

NA FINISH

BREAK SHARP EDGES
MAX. XX MIN. XX

OUTSTANDING ECN

Q.A. CATEGORY A-3		DATE
DRAWN BY	P. PAPE	10/17/97
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	10/17/97
SUPVR. APPROVAL		
NEXT ASSEMBLY		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B
BEAM SYNC YELLOW LINK

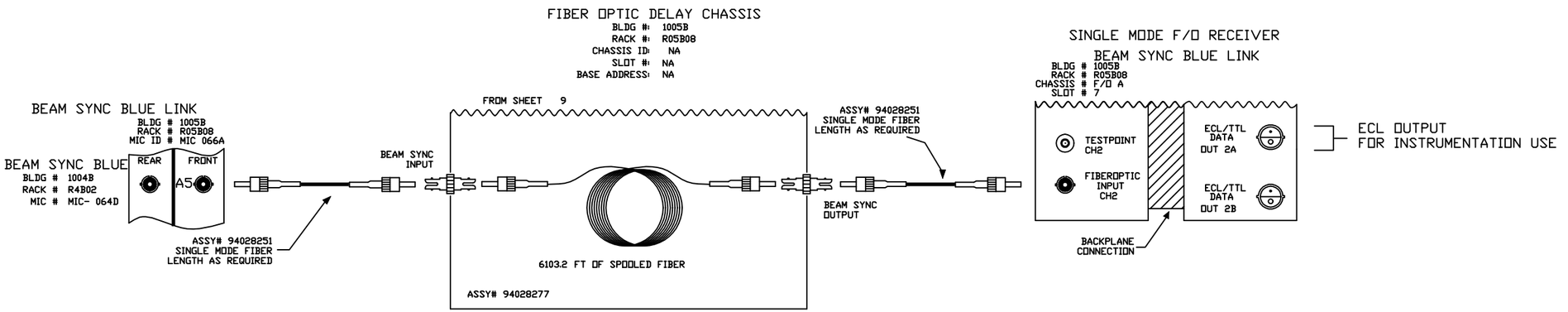
SIZE D | 94028303 | REV. A
DRAWING NUMBER

MATERIAL: ———— SCALE: NA WEIGHT: – SHEET 9 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 1/8/02 2:60 PM 8303_10.dwg



-3	-2	-1	QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L. DWG NO./BNL NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DECIMAL TOLERANCES
.X ±.030
.XX ±.015
.XXX ±.005
ANGULAR TOLERANCE ± .5°

OUTSTANDING ECN

NA FINISH

BREAK SHARP EDGES
MAX. XX MIN. XX

Q.A. CATEGORY A-3		DATE
DRAWN BY	P. PAPE	10/17/97
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	10/17/97
SUPVR. APPROVAL		
NEXT ASSEMBLY		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B
BEAM SYNC BLUE LINK

SIZE D
94028303
DRAWING NUMBER
REV. A

MATERIAL: ———— SCALE: NA WEIGHT: – SHEET 10 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 6/16/03 1:16 PM 8303_11.dwg

FRONT END COMPUTER
BLDG #: 1005B
RACK #: R05B09
CHASSIS ID: CFE-5B-PS1
SLOT#: 1
FEC NAME: cfe-5b-ps1

RESET
LINK USER
FAIL SCON
COM2
COM1
KYBD
MSE
ETHERNET
PMC
POWER-3e

ETHERNET NETWORK
REF. NETWORK DIAGRAM

MM-6702 MEMORY MODULE
BLDG #: 1005B
RACK #: R05B09
CHASSIS ID: CFE-5B-PS1
SLOT #: 2
A32 BASE ADDRESS: 80000000

Micro Memory Inc
B2
B1
MM-6702

JUMPER LIST
1. REMOVE E1.
2. INSTALL E15.
3. SW3 CLOSE ALL POSITIONS. LOWER LIMIT=XX000000
4. SW2 CLOSE POSITIONS 7 AND 8. UPPER LIMIT=XX3FFFFE
5. SW1 OPEN POSITION 1. BASE=80XXXXXX
6. INSTALL E14 AND E25 TO ENABLE BATTERIES
7. SW4 ALL OPEN.
8. SW5 ALL OPEN.
9. SW6 ALL OPEN.

DEVICE: V108 UTILITY MODULE
BLDG #: 1005B
RACK #: R05A09
CHASSIS ID: CFE-5B-PS1
SLOT #: 3
A24 BASE ADDRESS: 0XF0004000

V108
VME SEL
UC 1
UC 2
EVENTLINK
RSTLINK
RTDL
EXT INA
EXT INB
ASSY# 94028094

EVENT LINK
BLDG #: 1005B
RACK #: R05B08
FANOUT #: A
OUTPUT J8

RESET LINK
BLDG #: 1005B
RACK #: R05B08
FANOUT #: C
OUTPUT J8

REAL TIME DATA LINK
BLDG #: 1005B
RACK #: R05B08
FANOUT #: B
OUTPUT J8
ASSY# 94028176
LENGTH AS REQUIRED
(TYP 3 PLACES)

5 +
6 -
VME CHASSIS FAN FAIL MODULE
CONNECT TO P2 PINS ON REAR OF VME CHASSIS CABLE & CONNECTOR SUPPLIED WITH VME CHASSIS

JUMPER LIST

E25 through E50 are configured for remote reset address at the time of board acceptance test.
DO NOT MODIFY!

Remote reset pulls VME SYS Reset.
E58-E60, E59-E61

A24 BASE ADDRESS= 4000h
E57-E13, E2-E14, E3-E15, E4-E16, E5-E17, E6-E18
E7-E19, E8-E20, E9-E21, E10-E22, E11-E24, E57-E23
SW1=OPEN
SW2=CLOSED
SW3=OPEN
SW4=OPEN

ROOM TEMP SENSOR
POWER FROM BUFFERED MADC POWER SUPPLY
+24 V
GND

MADC MUX A/D IO PANEL
BLDG #: 1005B
RACK #: R05B09
PANEL #: MADC A/D IO PANEL A
FR SHEET15
J15
CHAN 15
ROOM TEMP 1005B

V199
BLDG #: 1005B
RACK #: R05B09
CHASSIS ID: CFE-5B-PS1
SLOT #: 19
MADC 5VDC OUT

LEMO TWO CONDUCTOR CABLE ASSEMBLY

MADC MUX A/D IO PANEL
BLDG #: 1005B
RACK #: R05B10
PANEL #: MADC A/D IO PANEL D
FR SHEET 38
J15
CH 63
VOLTAGE
CFE-5B-PS1 5VDC

-3	-2	-1	QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005
ANGULAR TOLERANCE ± .5'
OUTSTANDING ECN
NA FINISH
BREAK SHARP EDGES MAX. XX MIN. XX

Q.A. CATEGORY A-3 | DATE
DRAWN BY Venegas 8/6/99
CHECKED BY
DESIGN APPROVAL
ENGINEER APPROVAL R. MICHNOFF 10/21/97
SUPVR. APPROVAL
NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B, VME CHASSIS CFE-5B-PS1
CPU/MEMORY /V108 UTIL MODULE
SIZE D | 94028303 | REV. A
DRAWING NUMBER
MATERIAL: — SCALE: NA WEIGHT: — SHEET 11

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 1/8/02 3:34 PM 8303_12.dwg

MADC CONTROLLER
RACK#: R05B09
CHASSIS ID: CFE-5B-PS1
SLOT #: 4
A24 BASE ADDRESS: 0XF0540000
A32 BASE ADDRESS: 0X2400000

V113
VME SEL
SYS FAIL
CPU RUN
ADC ERR
EVENTLINK
RESET
EXT TRIG INPUTS 0 1 2 3
SCAN TRIG OUT0
SCAN TRIG OUT1

ASSY# 94028138

MADC A/D MODULE
RACK#: R05B09
CHASSIS ID: CFE-5B-PS1
SLOT #: 5
CONFIGURATION: +/- 10V

V114
CHAN 0 - 15
CHAN 16 - 31
CHAN 32 - 47
CHAN 48 - 63

ASSY# 94028226

EVENT LINK
BLDG #: 1005B
RACK #: R05B09
FANOUT #: A

OUTPUT J3

ASSY# 94028176
LENGTH AS REQUIRED
(TYP 1 PLACE)

P2 INTERFACE RIBBON CABLE
ASSY# 94028218

MADC A/D IO CABLE
ASSY# 94028216
(TYP 4 PLACES)

MADC MUX A/D IO PANEL
BLDG #: 1005B
RACK #: R05B09
PANEL #: MADC A/D IO PANEL A
ASSY# 94028670 ANALOG OUTPUT
+24V
COM
-24V
FROM BUFFERED MADC I/O POWER SUPPLY REF SH.2
TO SHEET 13

MADC MUX A/D IO PANEL
BLDG #: 1005B
RACK #: R05B09
PANEL #: MADC A/D IO PANEL B
ASSY# 94028670 ANALOG OUTPUT
+24V
COM
-24V
FROM BUFFERED MADC I/O POWER SUPPLY REF SH.2
TO SHEET 15

MADC MUX A/D IO PANEL
BLDG #: 1005B
RACK #: R05B09
PANEL #: MADC A/D IO PANEL C
ASSY# 94028670 ANALOG OUTPUT
+24V
COM
-24V
FROM BUFFERED MADC I/O POWER SUPPLY REF SH.2
TO SHEET 18

MADC MUX A/D IO PANEL
BLDG #: 1005B
RACK #: R05B09
PANEL #: MADC A/D IO PANEL D
ASSY# 94028670 ANALOG OUTPUT
+24V
COM
-24V
FROM BUFFERED MADC I/O POWER SUPPLY REF SH.2
TO SHEET 20

V113 JUMPERS INSTALLED

E3-E4

V113
BASE ADDRESS DIP SWITCHES

A24 BASE — A32 BASE
A18 A19 A20 A21 A22 A23 | A24 A25 A26 A27 A28 A29 A30 A31
SW1 SW2
PUSH SWITCH IN DIRECTION SHOWN

V114 JUMPERS INSTALLED

J1, J2, J4, J5, J9
J19, J15, J21

ALL OTHER JUMPERS OUT

-3	-2	-1	QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005
ANGULAR TOLERANCE ± .5°
FINISH NA
BREAK SHARP EDGES MAX. XX MIN. XX
OUTSTANDING ECN
NEXT ASSEMBLY

Q.A. CATEGORY A-3	DATE	
DRAWN BY P. PAPE	10/17/97	
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL R. MICHNOFF	10/17/97	
SUPVR. APPROVAL		

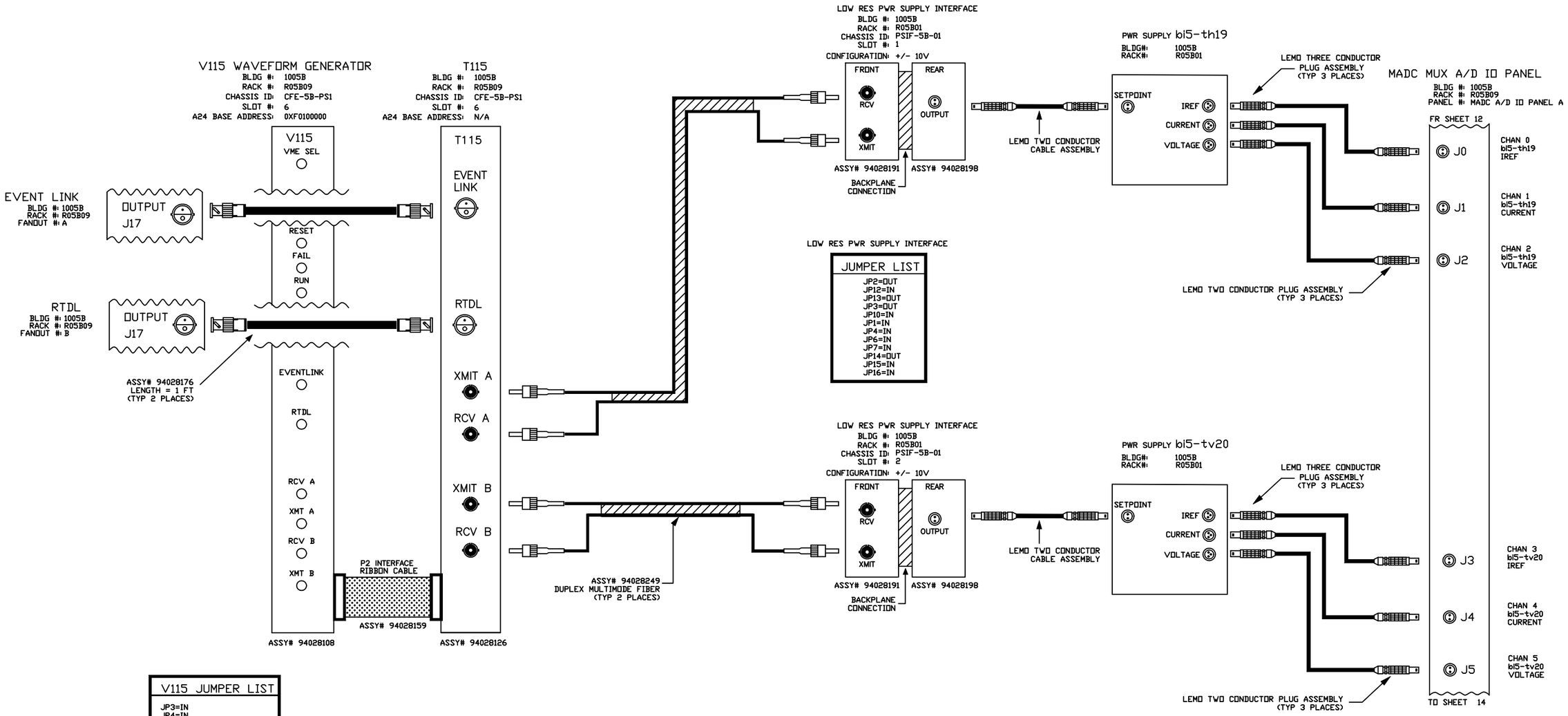
BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B, VME CHASSIS CFE-5B-PS1
MADC SYSTEM

SIZE D | 94028303 | REV. A
DRAWING NUMBER
MATERIAL: ——— SCALE: FULL WEIGHT: – SHEET 12 OF X

8 7 6 5 4 3 2 1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 5/29/03 8:25 AM 8303_13.dwg



V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=IN JB1-A20=OUT JB1-A19=IN JB1-A18=IN

-3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./PRL NO.
QTY REQD						

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DECIMAL TOLERANCES
.X ±.030
.XX ±.015
.XXX ±.005
ANGULAR TOLERANCE ± .5°

NA FINISH

BREAK SHARP EDGES MAX. XX MIN. XX

OUTSTANDING ECN

Q.A. CATEGORY A-3 DATE

DRAWN BY	P. PAPE	10/17/97
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	10/17/97
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B, CFE-5B-PS1
POWER SUPPLY bi5-th19/bi5-tv20

SIZE D | 94028303 | REV. A

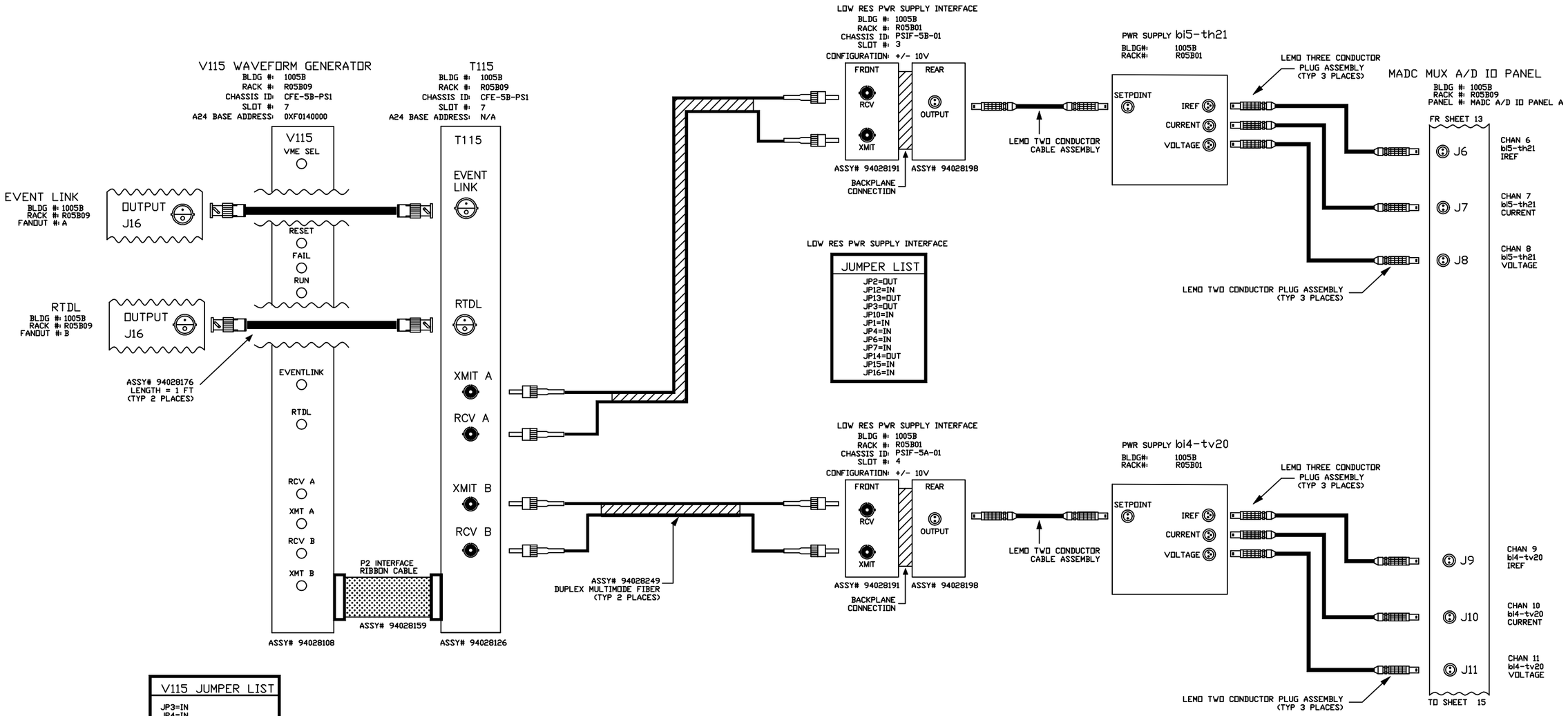
DRAWING NUMBER

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 13

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 5/29/03 8:28 AM 8303_14.dwg



V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=IN JB1-A20=OUT JB1-A19=IN JB1-A18=OUT

-3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./PRL NO.
QTY REQD						

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°
NA FINISH
BREAK SHARP EDGES MAX. XX MIN. XX
OUTSTANDING ECN

Q.A. CATEGORY A-3 DATE

DRAWN BY	P. PAPE	10/17/97
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	10/17/97
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.
UPTON, N.Y. 11973

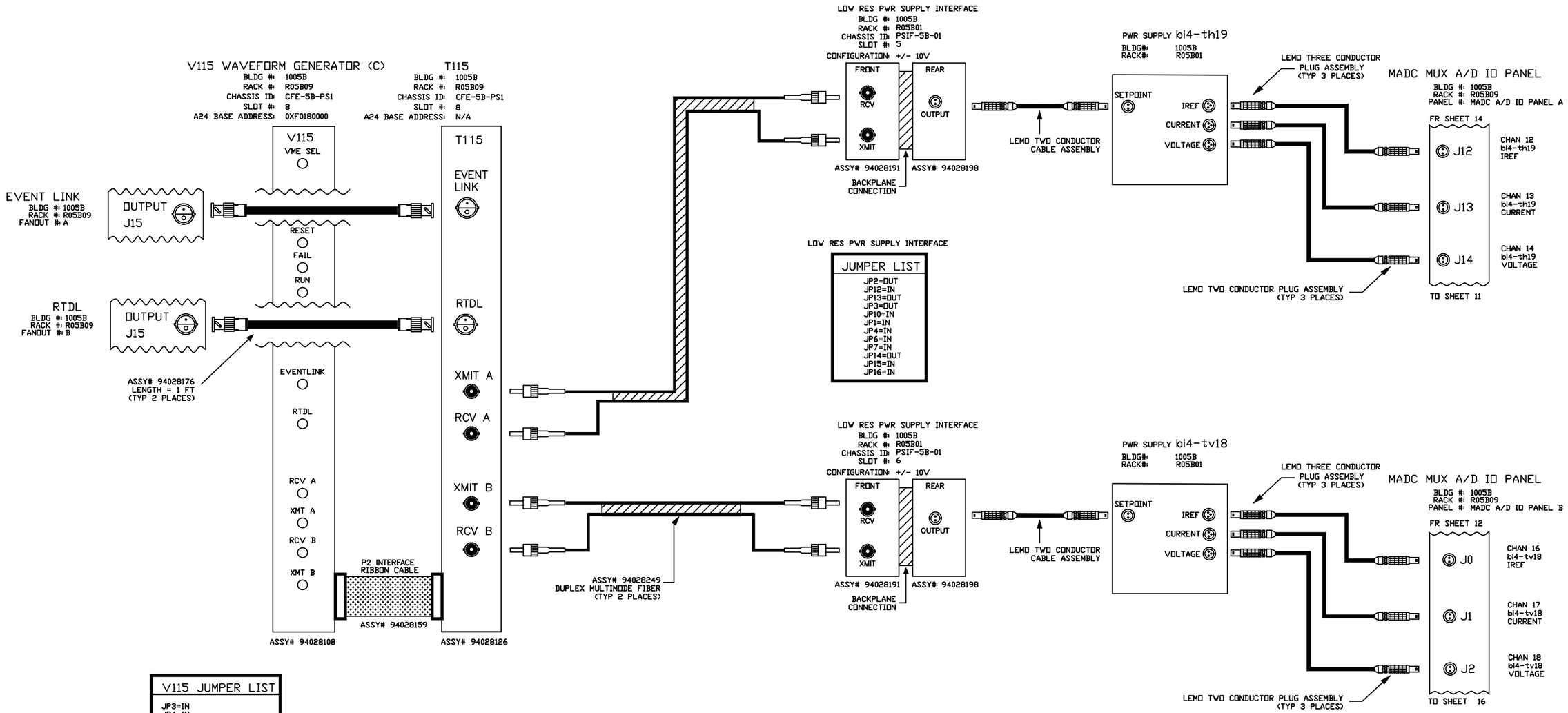
RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B, CFE-5B-PS1
POWER SUPPLY bi5-th21/bi4-tv20

SIZE D | 94028303 | REV. A
DRAWING NUMBER
MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 14

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 1/8/02 3:39 PM 8303_15.dwg



V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=IN JB1-A20=OUT JB1-A19=OUT JB1-A18=IN

-3	-2	-1	QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°

NA FINISH

BREAK SHARP EDGES MAX. XX MIN. XX

OUTSTANDING ECN

NEXT ASSEMBLY

Q.A. CATEGORY A-3		DATE	
DRAWN BY	P. PAPE		10/17/97
CHECKED BY			
DESIGN APPROVAL			
ENGINEER APPROVAL	R. MICHNOFF		10/17/97
SUPVR. APPROVAL			

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

ALCOVE 1005B, CFE-5B-PS1

POWER SUPPLY bi4-th19/bi4-tv18

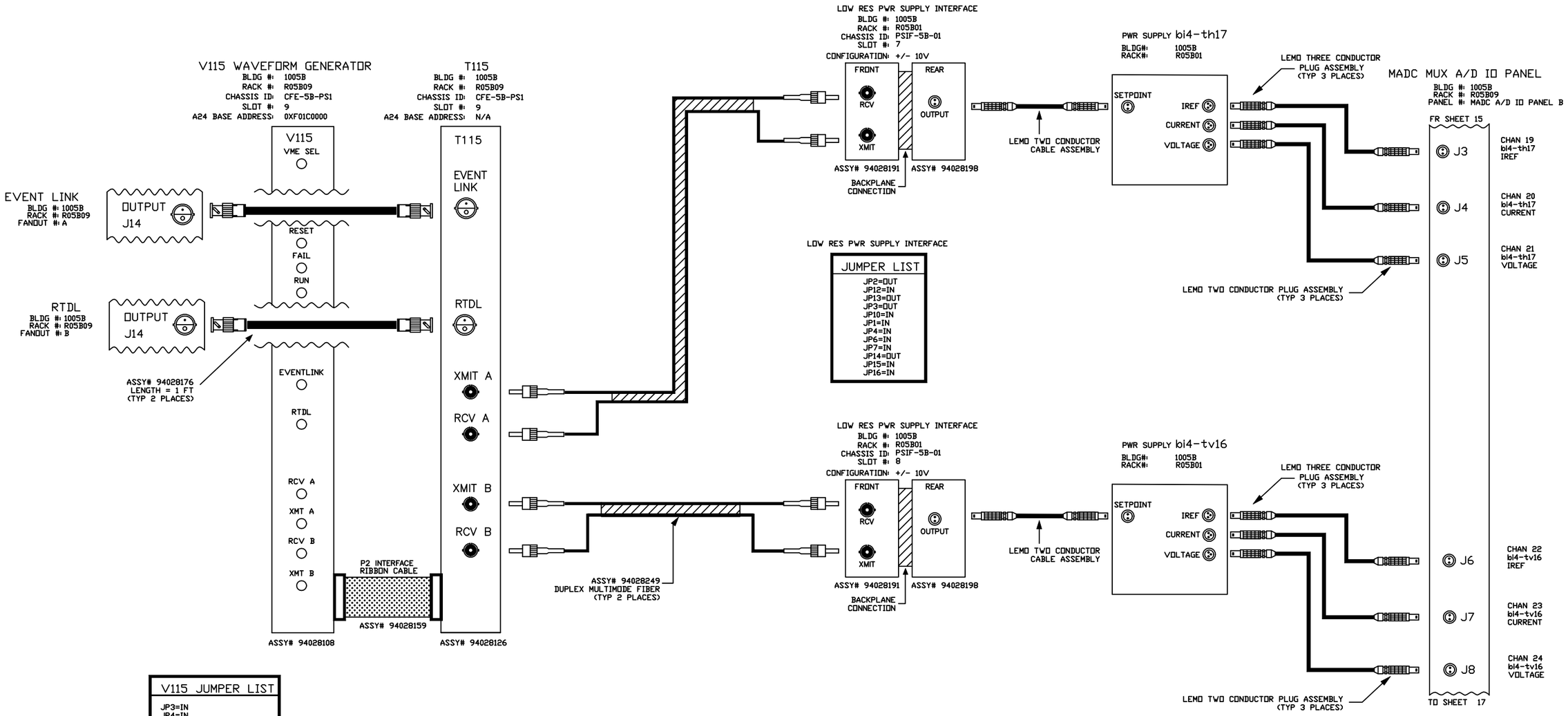
SIZE D | 94028303 | REV. A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 15 OF X

1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 5/29/03 8:30 AM 8303_16.dwg



V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=IN JB1-A20=OUT JB1-A19=OUT JB1-A18=OUT

-3	-2	-1	QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./PRL NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005
ANGULAR TOLERANCE ± .5°
NA FINISH
BREAK SHARP EDGES MAX. XX MIN. XX
OUTSTANDING ECN

Q.A. CATEGORY	A-3	DATE	
DRAWN BY	P. PAPE	10/17/97	
CHECKED BY			
DESIGN APPROVAL			
ENGINEER APPROVAL	R. MICHNOFF	10/17/97	
SUPVR. APPROVAL			
NEXT ASSEMBLY			

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B, CFE-5B-PS1
POWER SUPPLY bi4-th17/bi4-tv16

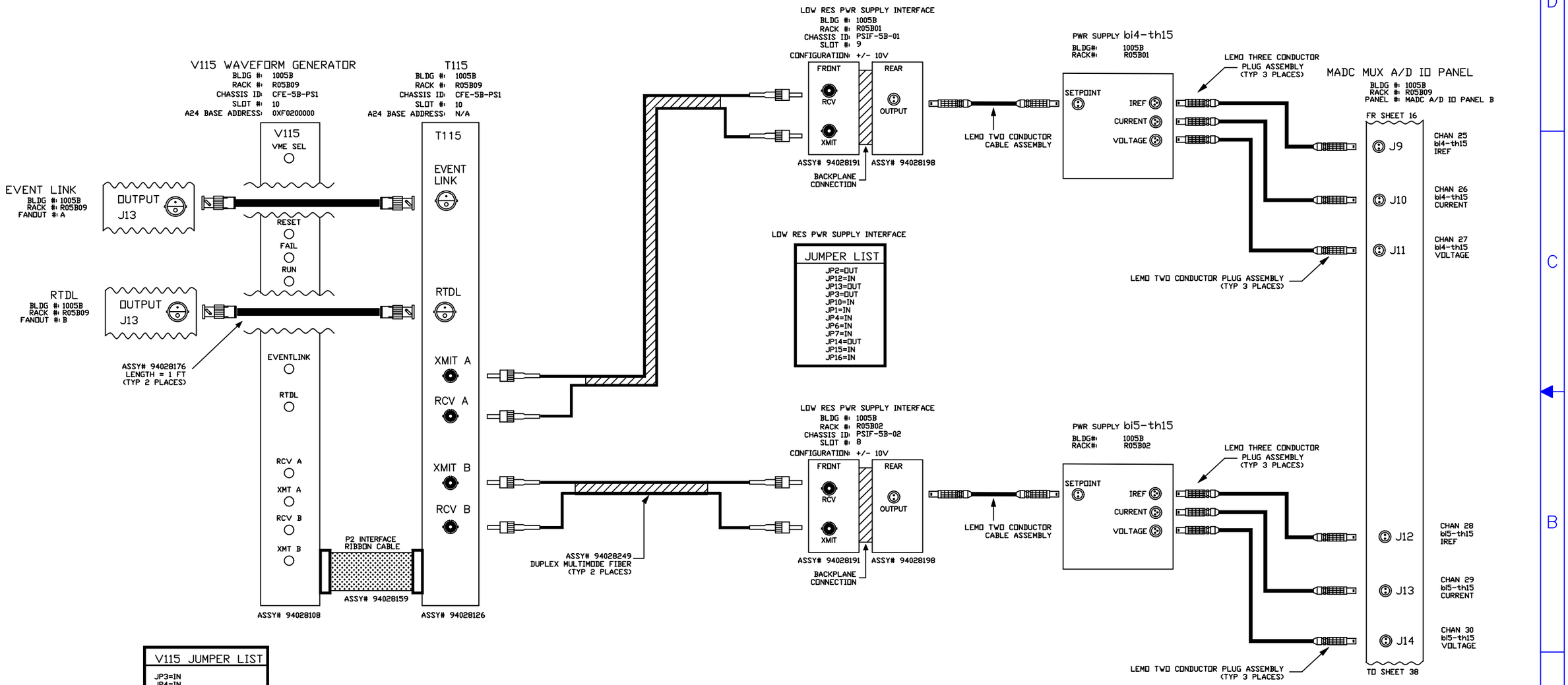
SIZE D | 94028303 | REV. A
DRAWING NUMBER

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 16

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 6/16/03 1:18 PM 8303_17.dwg



V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=OUT JB1-A20=IN JB1-A19=IN JB1-A18=IN

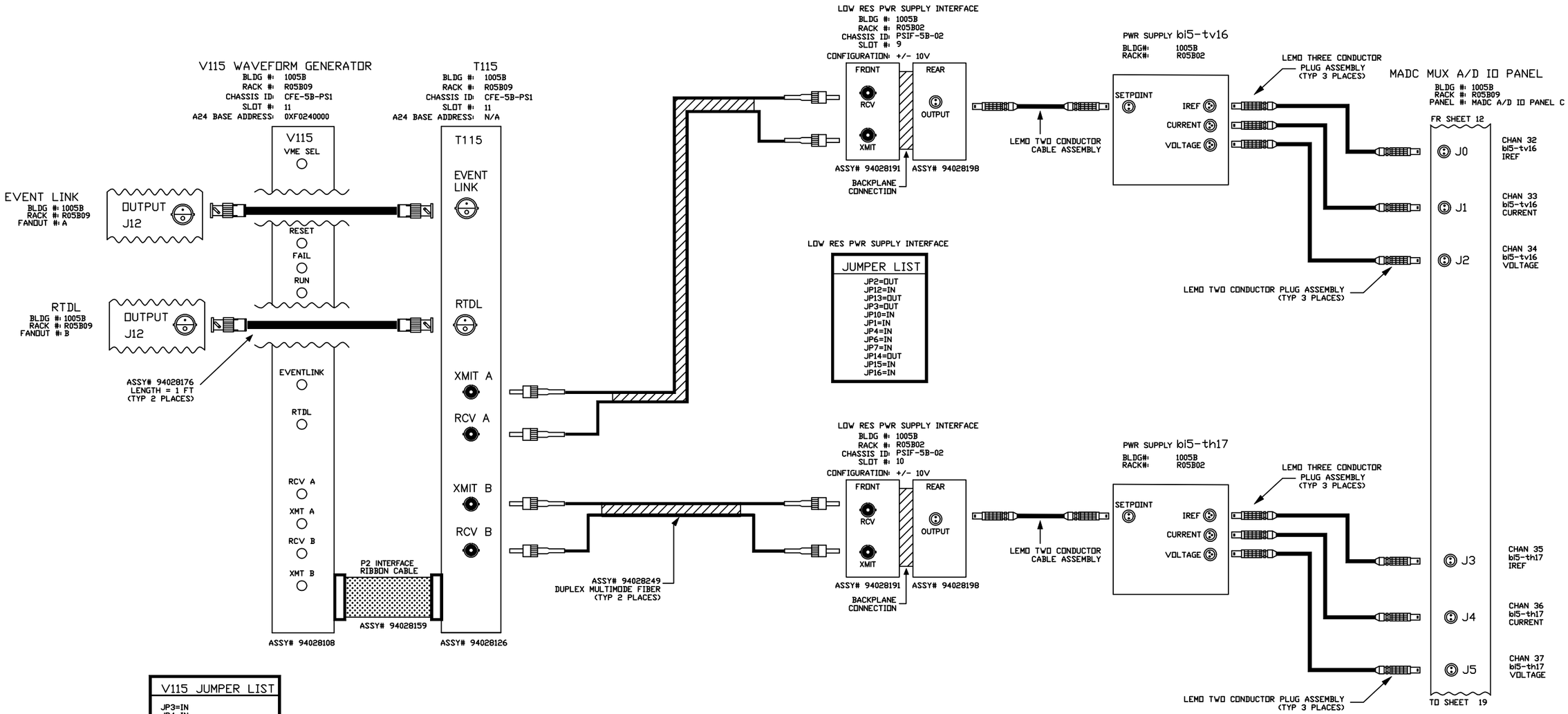
-3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.
QTY REQD						

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989	Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY ASSOCIATED UNIVERSITIES, INC. UPTON, N.Y. 11973
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN BY P. PAPE	10/17/97	RHIC CONTROLS WIRING DIAGRAM
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°	CHECKED BY		ALCOVE 1005B, CFE-5B-PS1
	DESIGN APPROVAL		POWER SUPPLY bi4-th15/bi5-th15
	ENGINEER APPROVAL R. MICHNOFF	10/17/97	SIZE D — 94028303 — REV. A
	SUPVR. APPROVAL		DRAWING NUMBER
NA FINISH — BREAK SHARP EDGES MAX. XX MIN. XX	NEXT ASSEMBLY		MATERIAL: — SCALE: NA WEIGHT: – SHEET 17
OUTSTANDING ECN			

8 7 6 5 4 3 2 1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 5/29/03 8:34 AM 8303_18.dwg



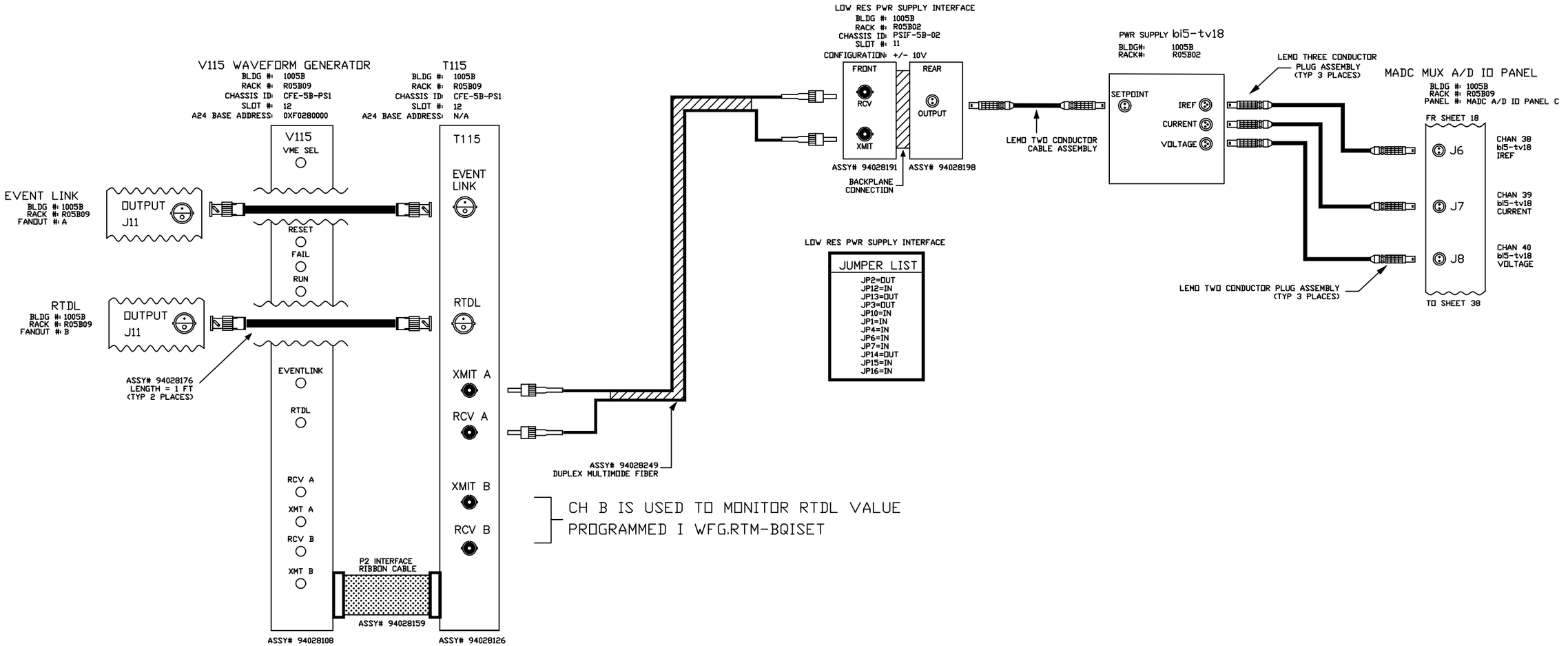
V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=OUT JB1-A20=IN JB1-A19=IN JB1-A18=OUT

-3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.
QTY REQD						

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989	Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY ASSOCIATED UNIVERSITIES, INC. UPTON, N.Y. 11973
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN BY P. PAPE	10/17/97	RHIC CONTROLS WIRING DIAGRAM
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°	CHECKED BY		ALCOVE 1005B, CFE-5B-PS1
	DESIGN APPROVAL		POWER SUPPLY bi5-tv16/bi5-th17
	ENGINEER APPROVAL R. MICHNOFF	10/17/97	SIZE D — DRAWING NUMBER 94028303 — REV. A
NA FINISH	BREAK SHARP EDGES MAX. XX MIN. XX	NEXT ASSEMBLY	MATERIAL: — SCALE: NA WEIGHT: — SHEET 18
OUTSTANDING ECN			

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 6/16/03 1:27 PM 8303_19.dwg



V115 JUMPER LIST

JP3=IN
JP4=IN
JP1=OUT
JP2=OUT

A24 BASE ADDRESS
JB1-A23=IN
JB1-A22=IN
JB1-A21=OUT
JB1-A20=IN
JB1-A19=OUT
JB1-A18=IN

-3 QTY REQD	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./DWG NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DECIMAL TOLERANCES
X ±.030
.XX ±.015
.XXX ±.005
ANGULAR TOLERANCE
± .5°

NA FINISH

BREAK SHARP EDGES
MAX. XX MIN. XX

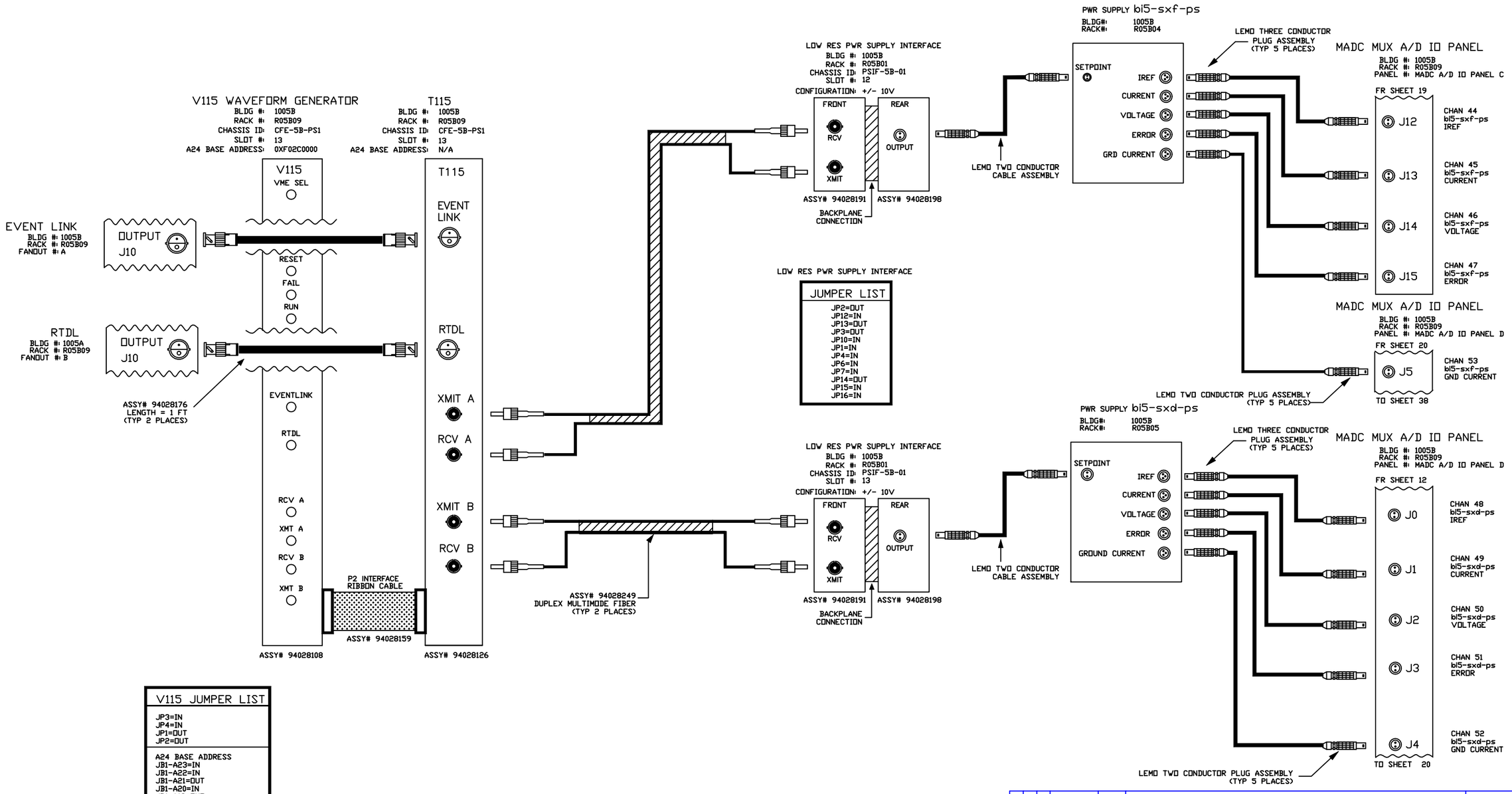
OUTSTANDING ECN

Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY
DRAWN BY P. PAPE	10/17/97	UPTON, N.Y. 11973
CHECKED BY		RHIC CONTROLS WIRING DIAGRAM
DESIGN APPROVAL		ALCOVE 1005B, CFE-5B-PS1
ENGINEER APPROVAL R. MICHNOFF	10/17/97	POWER SUPPLY bi5-tv18
SUPVR. APPROVAL		SIZE D — 94028303 — REV. A
NEXT ASSEMBLY		DRAWING NUMBER
MATERIAL: ———	SCALE: NA	WEIGHT: — SHEET 19

1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 6/16/03 1:35 PM 8303_20.dwg



V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=OUT JB1-A20=IN JB1-A19=OUT JB1-A18=OUT

-3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./DRL NO.
QTY REQD						

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°

NA FINISH

BREAK SHARP EDGES MAX. XX MIN. XX

OUTSTANDING ECN

Q.A. CATEGORY A-3

DRAWN BY	P. PAPE	10/17/97
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	10/17/97
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B, CFE-5B-PS1
PWR SPLY bi5-sxf-ps/bi5-sxd-ps

SIZE D
94028303
REV. A
DRAWING NUMBER

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 20

1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

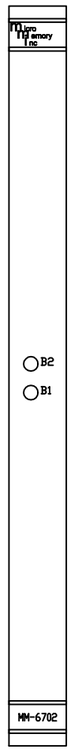
CONTROLS- 6/16/03 1:39 PM 8303_21.dwg

FRONT END COMPUTER
BLDG #: 1005B
RACK #: R05B10
CHASSIS ID: CFE-5B-PS2
SLOT#: 1
FEC NAME: cfe-5B-ps2

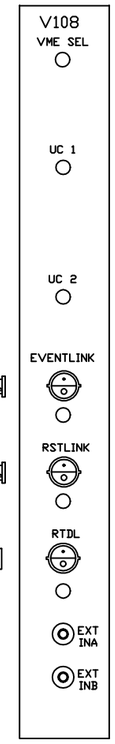
ETHERNET NETWORK

REF. NETWORK DIAGRAM

MM-6702 MEMORY MODULE
BLDG #: 1005B
RACK #: R05B10
CHASSIS ID: CFE-5B-PS2
SLOT #: 2
A32 BASE ADDRESS: 80000000



DEVICE: V108 UTILITY MODULE
BLDG #: 1005B
RACK #: R05B10
CHASSIS ID: CFE-5B-PS2
SLOT #: 3
A24 BASE ADDRESS: 0XF0004000



ASSY# 94028094

EVENT LINK
BLDG #: 1005B
RACK #: R05B08
FANOUT #: A

OUTPUT J9

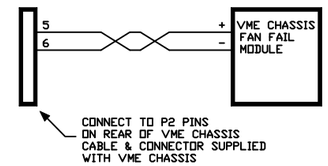
RESET LINK
BLDG #: 1005B
RACK #: R05B08
FANOUT #: C

OUTPUT J9

REAL TIME DATA LINK
BLDG #: 1005B
RACK #: R05B08
FANOUT #: B

OUTPUT J9

ASSY# 94028176
LENGTH AS REQUIRED
(TYP 3 PLACES)



JUMPER LIST
1. REMOVE E1.
2. INSTALL E15.
3. SW3 CLOSE ALL POSITIONS. LOWER LIMIT=XX000000
4. SW2 CLOSE POSITIONS 7 AND 8. UPPER LIMIT=XX3FFFFE
5. SW1 OPEN POSITION 1. BASE=80XXXXXX
6. INSTALL E14 AND E25 TO ENABLE BATTERIES
7. SW4 ALL OPEN.
8. SW5 ALL OPEN.
9. SW6 ALL OPEN.

JUMPER LIST

E25 through E50 are configured for remote reset address at the time of board acceptance test.
DO NOT MODIFY!

Remote reset pulls VME SYS Reset.
E58-E60, E59-E61

A24 BASE ADDRESS= 4000h
E57-E13, E2-E14, E3-E15, E4-E16, E5-E17, E6-E18
E7-E19, E8-E20, E9-E21, E10-E22, E11-E24, E57-E23
SW1=OPEN
SW2=CLOSED
SW3=OPEN
SW4=OPEN

V199
BLDG #: 1005B
RACK #: R05B10
CHASSIS ID: CFE-5B-PS2
SLOT #: 19

MADC MUX A/D IO PANEL
BLDG #: 1005B
RACK #: R05B09
PANEL #: MADC A/D IO PANEL D

FR SHEET 38

-3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.
QTY REQD						

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005
ANGULAR TOLERANCE ± .5°
FINISH: NA
BREAK SHARP EDGES MAX. XX MIN. XX
OUTSTANDING ECN

Q.A. CATEGORY A-3

DRAWN BY	Venegas	8/6/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	10/21/97
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B, VME CHASSIS CFE-5B-PS2
CPU/ MEMORY /V108 UTIL MODULE

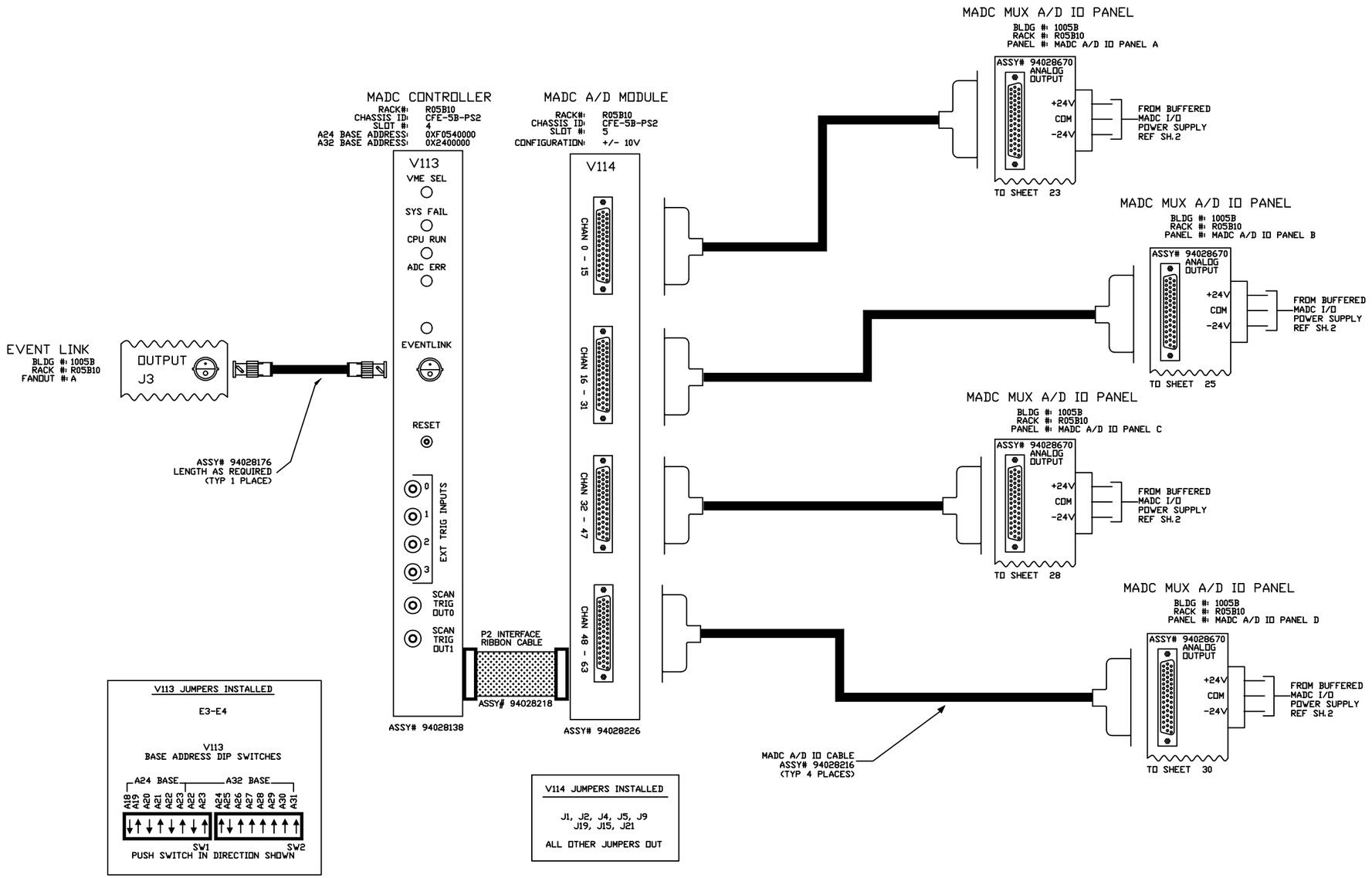
SIZE D | 94028303 | REV. A
DRAWING NUMBER

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 21

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 1/8/02 4:11 PM 8303_22.dwg



V113 JUMPERS INSTALLED

E3-E4

V113
BASE ADDRESS DIP SWITCHES

PUSH SWITCH IN DIRECTION SHOWN

V114 JUMPERS INSTALLED

J1, J2, J4, J5, J9
J19, J15, J21

ALL OTHER JUMPERS OUT

-3	-2	-1	QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DECIMAL TOLERANCES
.X ±.030
.XX ±.015
.XXX ±.005
ANGULAR TOLERANCE
± .5°

NA FINISH

BREAK SHARP EDGES
MAX. XX MIN. XX

OUTSTANDING ECN

NEXT ASSEMBLY

Q.A. CATEGORY A-3	DATE	
DRAWN BY P. PAPE	6/27/97	
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL R. MICHNOFF	10/17/97	
SUPVR. APPROVAL		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

10/17/97

ALCOVE 1005B, VME CHASSIS CFE-5B-PS2

MADC SYSTEM

SIZE D | 94028303 | REV. A

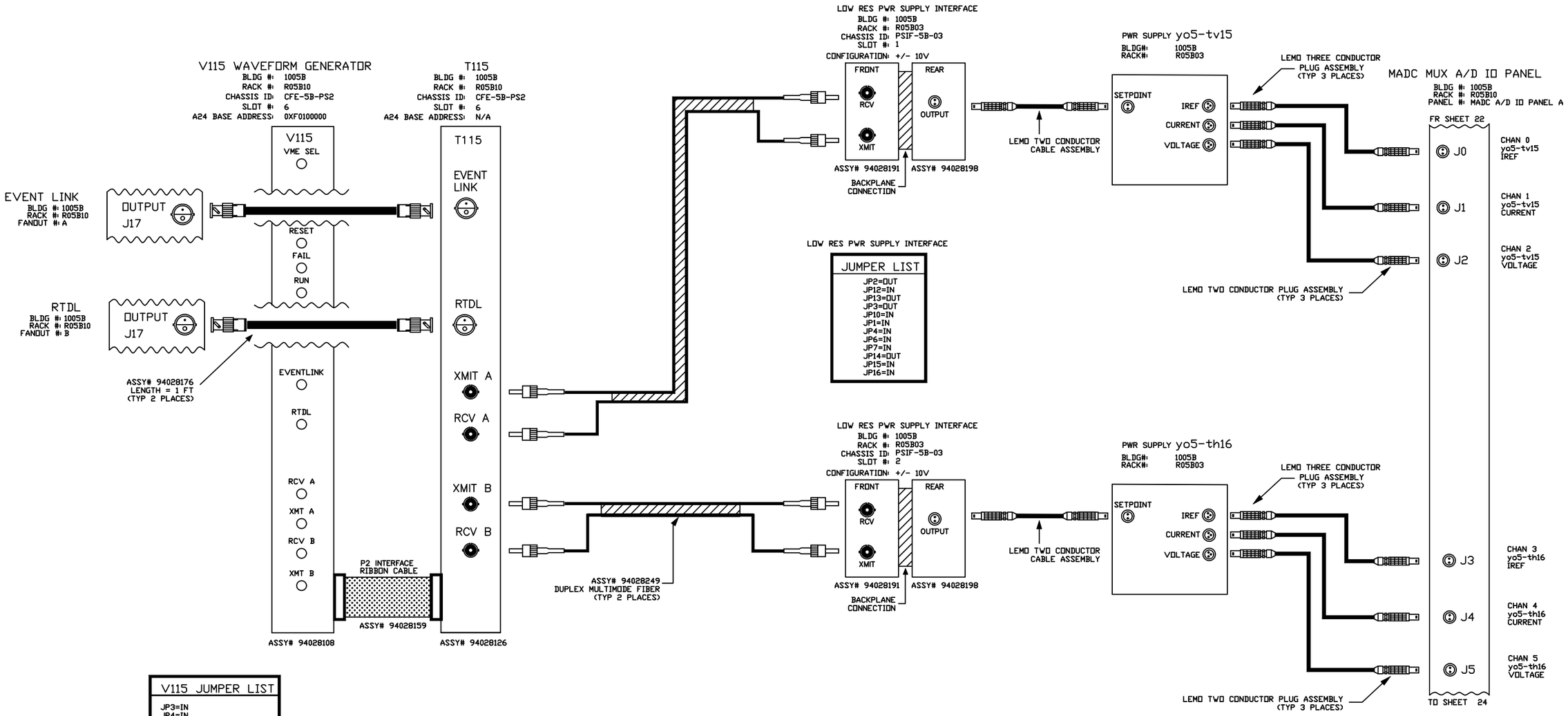
DRAWING NUMBER

MATERIAL: ——— SCALE: FULL WEIGHT: – SHEET 22 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 5/29/03 8:41 AM 8303_23.dwg



V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=IN JB1-A20=OUT JB1-A19=IN JB1-A18=IN

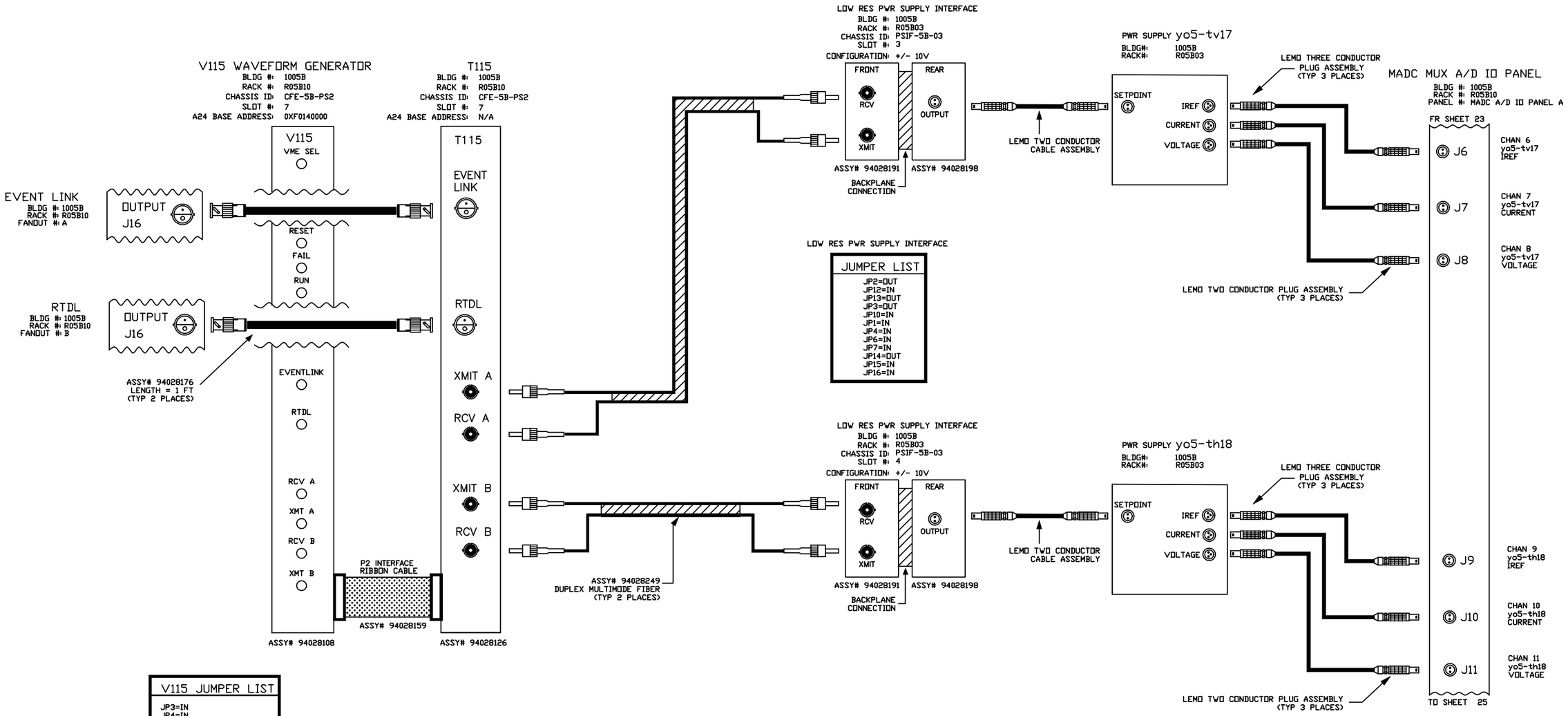
-3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./PRL NO.
QTY REQD						

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989	Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY ASSOCIATED UNIVERSITIES, INC. UPTON, N.Y. 11973
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN BY P.PAPE	10/17/97	RHIC CONTROLS WIRING DIAGRAM
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°	CHECKED BY		ALCOVE 1005B, CFE-5B-PS2
	DESIGN APPROVAL		
	ENGINEER APPROVAL R. MICHNOFF	10/17/97	POWER SUPPLY yo5-tv15/yo5-th16
	SUPVR. APPROVAL		SIZE D — 94028303 — REV. A
NA FINISH — BREAK SHARP EDGES MAX. XX MIN. XX	NEXT ASSEMBLY		DRAWING NUMBER
OUTSTANDING ECN			MATERIAL: —— SCALE: NA WEIGHT: — SHEET 23

1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 5/29/03 8:48 AM 8303_24.dwg



V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=IN JB1-A20=OUT JB1-A19=IN JB1-A18=OUT

-3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./PRL NO.
QTY REQD						

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005
ANGULAR TOLERANCE ± .5°
NA FINISH
BREAK SHARP EDGES MAX. XX MIN. XX
OUTSTANDING ECN

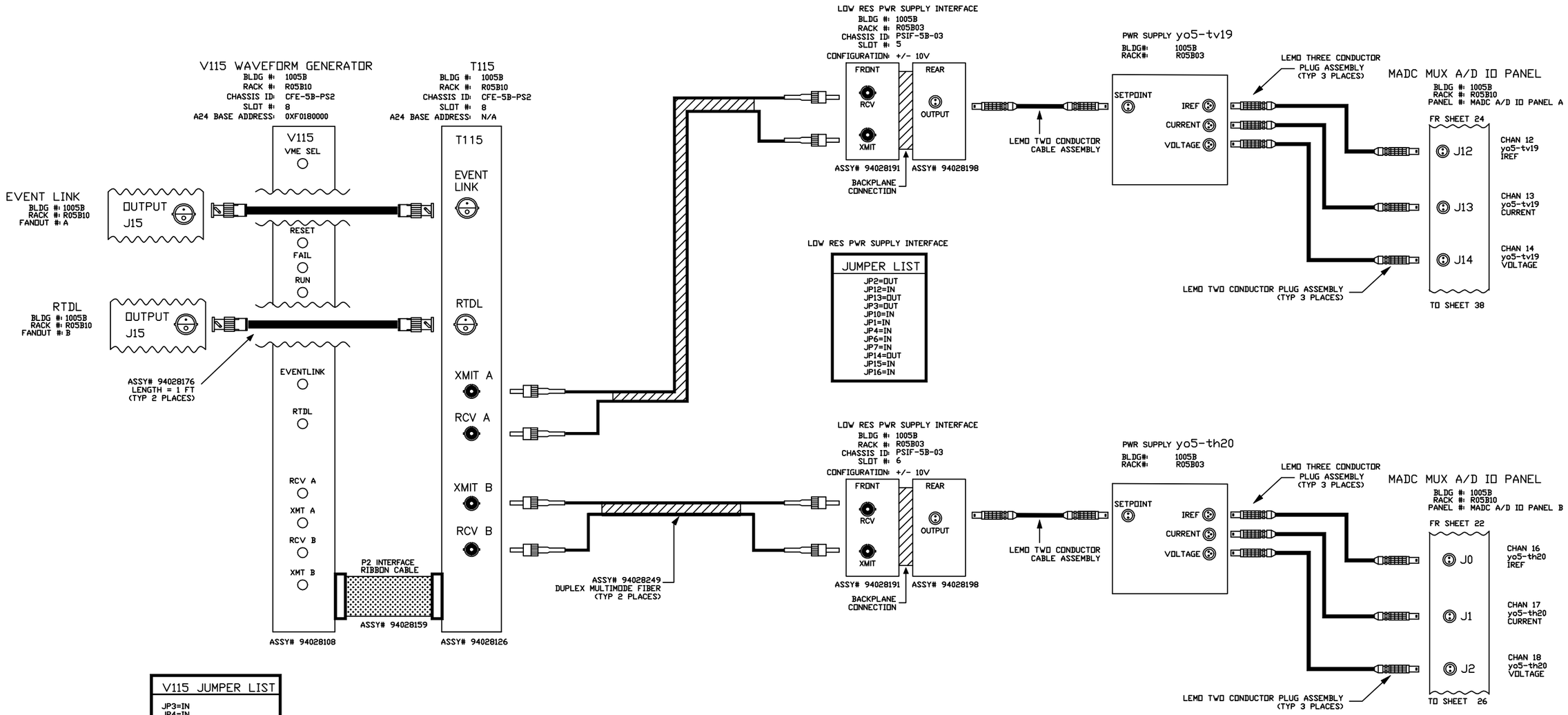
Q.A. CATEGORY A-3 DATE
DRAWN BY P. PAPE 10/17/97
CHECKED BY
DESIGN APPROVAL
ENGINEER APPROVAL R. MICHNOFF 10/17/97
SUPVR. APPROVAL
NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B, CFE-5B-PS2
POWER SUPPLY yo5-tv17/yo5-th18
SIZE D
94028303
REV. A
DRAWING NUMBER
MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 24

8 7 6 5 4 3 2 1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 6/16/03 1:43 PM 8303_25.dwg



V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=IN JB1-A20=OUT JB1-A19=OUT JB1-A18=IN

-3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.
QTY REQD						

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°

NA FINISH | BREAK SHARP EDGES MAX. XX MIN. XX

OUTSTANDING ECN

Q.A. CATEGORY	A-3	DATE	
DRAWN BY	P. PAPE	10/17/97	
CHECKED BY			
DESIGN APPROVAL			
ENGINEER APPROVAL	R. MICHNOFF	10/17/97	
SUPVR. APPROVAL			
NEXT ASSEMBLY			

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B, CFE-5B-PS2
POWER SUPPLY yo5-tv19/yo5-th20

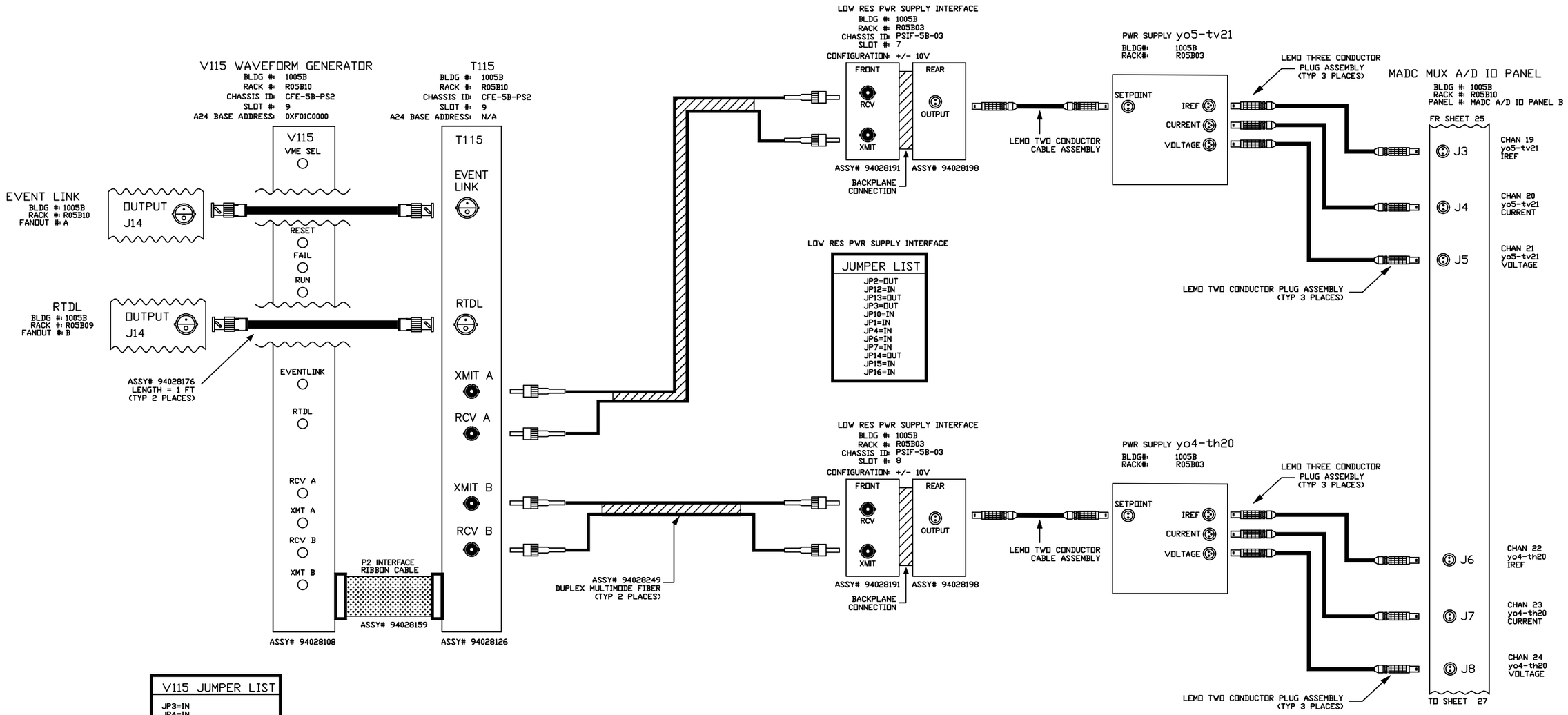
SIZE D | 94028303 | REV. A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 25

8 7 6 5 4 3 2 1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 5/29/03 8:51 AM 8303_26.dwg



V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=IN JB1-A20=OUT JB1-A19=OUT JB1-A18=OUT

-3	-2	-1	QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005
ANGULAR TOLERANCE ± .5°
NA FINISH
BREAK SHARP EDGES MAX. XX MIN. XX
OUTSTANDING ECN

Q.A. CATEGORY A-3 DATE
DRAWN BY P. PAPE 10/17/97
CHECKED BY
DESIGN APPROVAL
ENGINEER APPROVAL R. MICHNOFF 10/17/97
SUPVR. APPROVAL
NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.
UPTON, N.Y. 11973

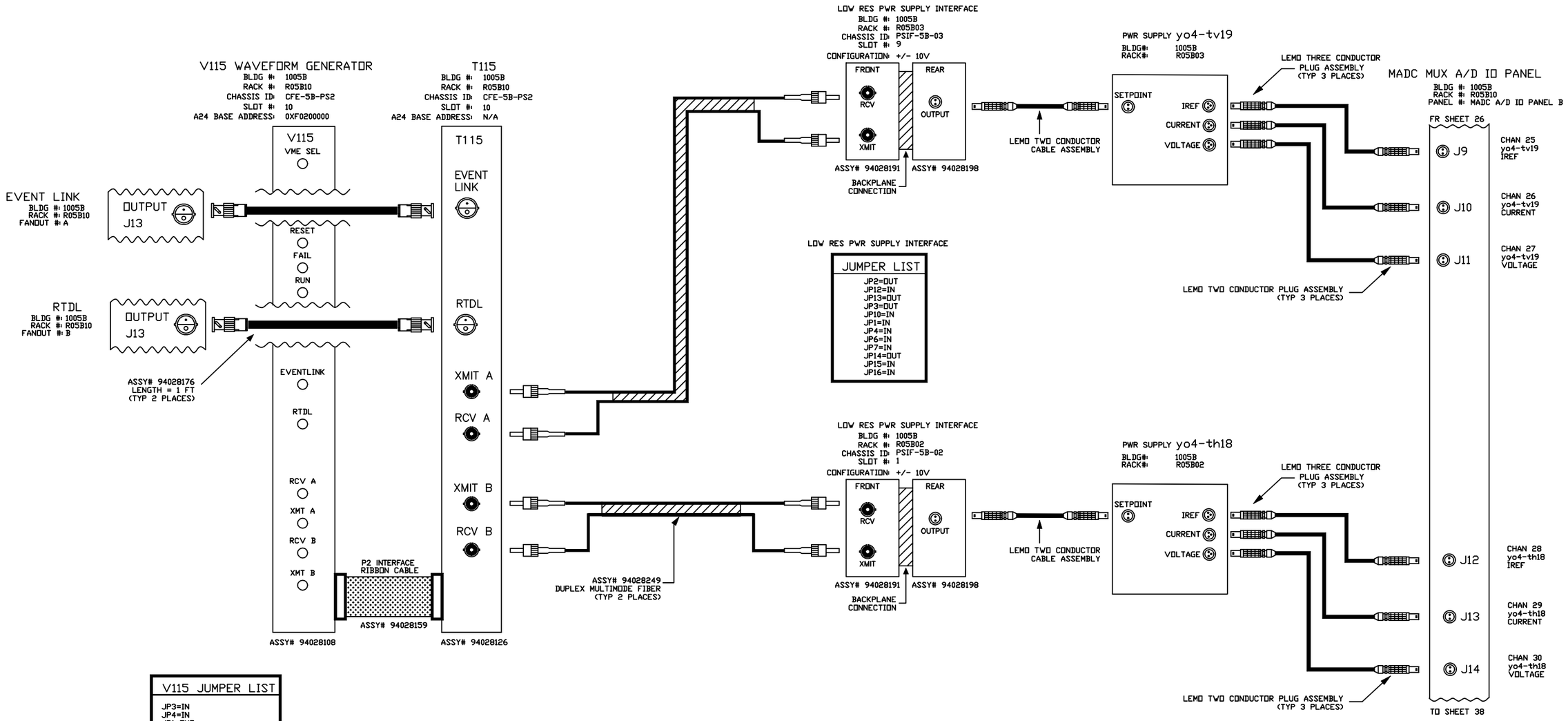
RHIC CONTROLS WIRING DIAGRAM
BLDG. 1005B, CFE-5B-PS2
POWER SUPPLY yo5-tv21/yo4-th20

SIZE D
94028303
REV. A
DRAWING NUMBER
MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 26

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 6/16/03 1:53 PM 8303_27.dwg



V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=OUT JB1-A20=IN JB1-A19=IN JB1-A18=IN

-3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.
QTY REQD						

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DECIMAL TOLERANCES
.X ±.030
.XX ±.015
.XXX ±.005
ANGULAR TOLERANCE ± .5°

NA FINISH

BREAK SHARP EDGES MAX. XX MIN. XX

OUTSTANDING ECN

Q.A. CATEGORY	A-3	DATE	
DRAWN BY	P. PAPE	10/17/97	
CHECKED BY			
DESIGN APPROVAL			
ENGINEER APPROVAL	R. MICHNOFF	10/17/97	
SUPVR. APPROVAL			

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B, CFE-5B-PS2
POWER SUPPLY yo4-tv19/yo4-th18

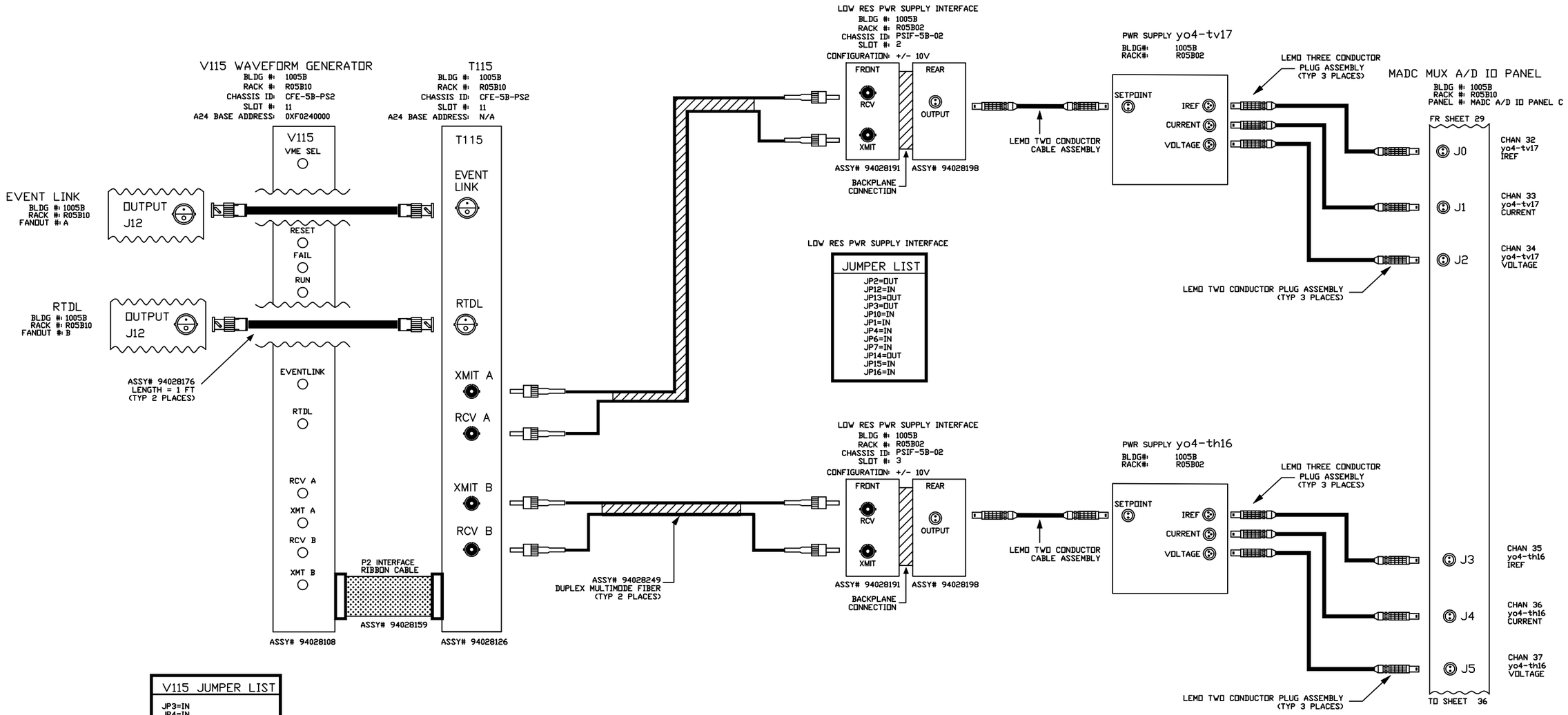
SIZE D | DRAWING NUMBER 94028303 | REV. A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 27

8 7 6 5 4 3 2 1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 5/29/03 8:60 AM 8303_28.dwg



V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=OUT JB1-A20=IN JB1-A19=IN JB1-A18=OUT

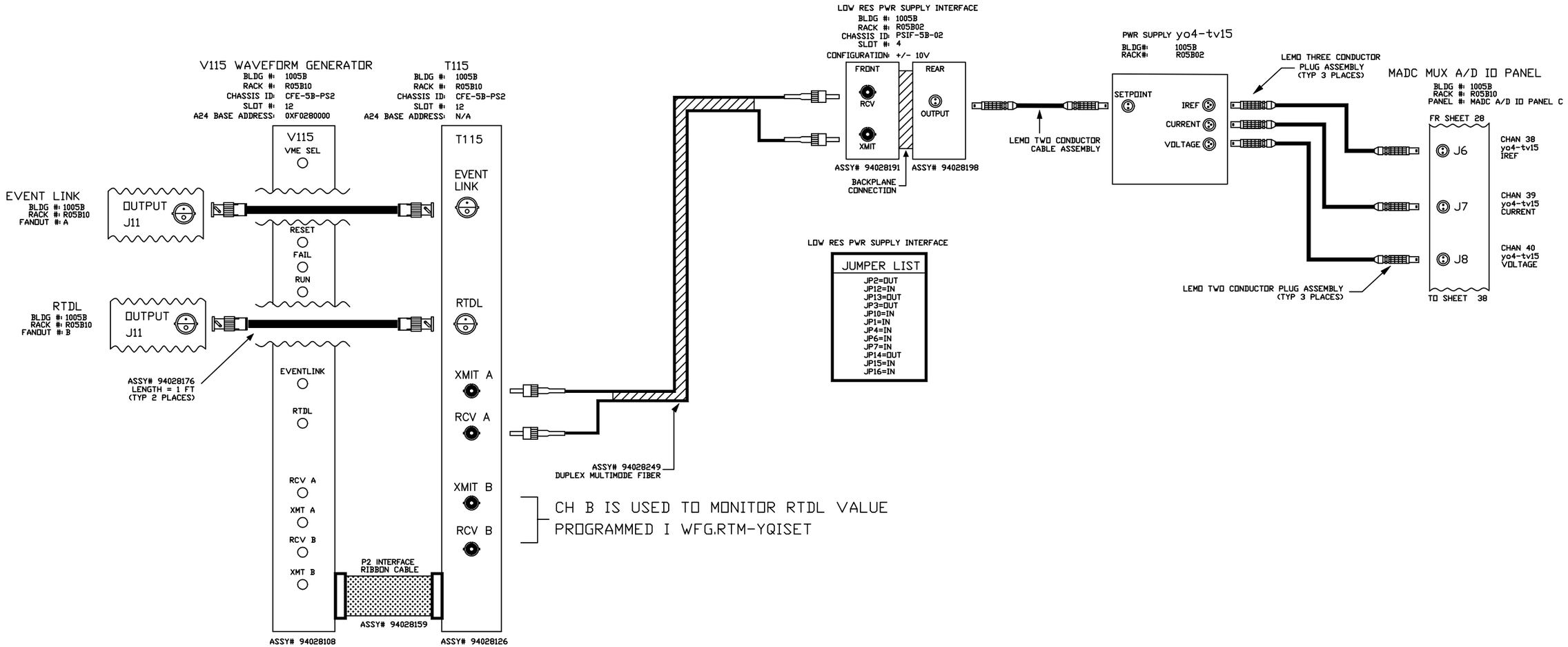
-3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./PRL NO.
QTY REQD						

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989	Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY ASSOCIATED UNIVERSITIES, INC. UPTON, N.Y. 11973
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN BY P. PAPE	10/17/97	RHIC CONTROLS WIRING DIAGRAM
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°	CHECKED BY		ALCOVE 1005B, CFE-5B-PS2
	DESIGN APPROVAL		
	ENGINEER APPROVAL R. MICHNOFF	10/17/97	POWER SUPPLY yo4-tv17/yo4-th16
	SUPVR. APPROVAL		SIZE D — 94028303 — REV. A
NA FINISH — BREAK SHARP EDGES MAX. XX MIN. XX	NEXT ASSEMBLY		DRAWING NUMBER
OUTSTANDING ECN			MATERIAL: —— SCALE: NA WEIGHT: — SHEET 28

8 7 6 5 4 3 2 1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 6/16/03 1:55 PM 8303_29.dwg



LOW RES PWR SUPPLY INTERFACE

JUMPER LIST
JP2=OUT
JP12=IN
JP13=OUT
JP3=OUT
JP10=IN
JP1=IN
JP4=IN
JP6=IN
JP7=IN
JP14=OUT
JP15=IN
JP16=IN

CH B IS USED TO MONITOR RTDL VALUE
PROGRAMMED I WFG.RTM-YQISET

V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=OUT JB1-A20=IN JB1-A19=OUT JB1-A18=IN

-3	-2	-1	QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./DWG NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DECIMAL TOLERANCES
X ±.030
.XX ±.015
.XXX ±.005
ANGULAR TOLERANCE
± .5°
NA FINISH
BREAK SHARP EDGES
MAX. XX MIN. XX
OUTSTANDING ECN

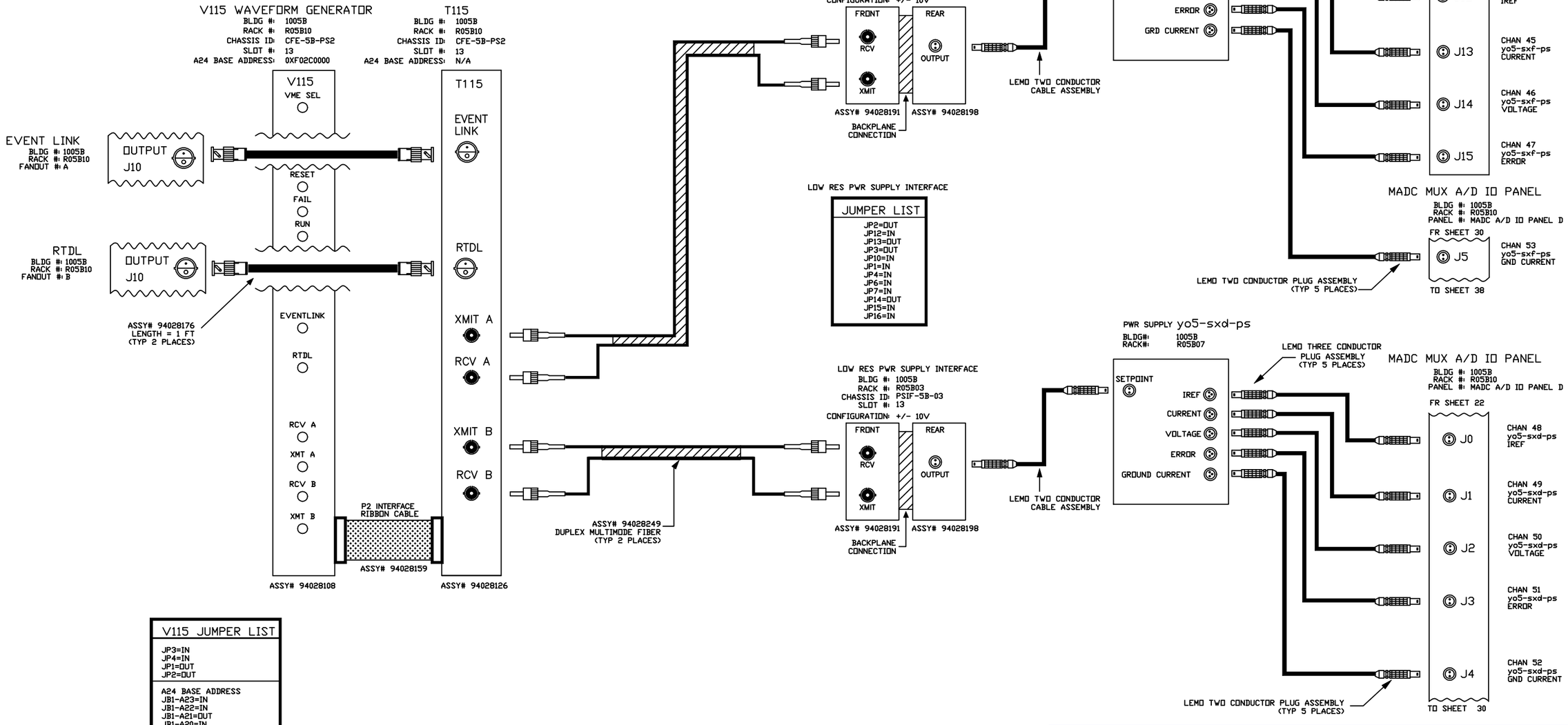
Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY
DRAWN BY P. PAPE	10/17/97	UPTON, N.Y. 11973
CHECKED BY		RHIC CONTROLS WIRING DIAGRAM
DESIGN APPROVAL		ALCOVE 1005B, CFE-5B-PS2
ENGINEER APPROVAL R. MICHNOFF	10/17/97	POWER SUPPLY yo4-tv15
SUPVR. APPROVAL		NEXT ASSEMBLY

SIZE D | 94028303 | REV. A
DRAWING NUMBER
MATERIAL: ——— SCALE: NA WEIGHT: — SHEET 29

1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 6/16/03 2:01 PM 8303_30.dwg



V115 JUMPER LIST

JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=OUT JB1-A20=IN JB1-A19=OUT JB1-A18=OUT

-3	-2	-1 QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989	Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN BY P. PAPE	10/17/97	UPTON, N.Y. 11973
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°	CHECKED BY		RHIC CONTROLS WIRING DIAGRAM
	DESIGN APPROVAL		ALCOVE 1005B, CFE-5B-PS2
	ENGINEER APPROVAL R. MICHNOFF	10/17/97	PWR SPLY yo5-sxf-ps/yo5-sxd-ps
	SUPVR. APPROVAL		SIZE D — 94028303 — REV. A
OUTSTANDING ECN	NA FINISH; BREAK SHARP EDGES MAX. XX MIN. XX	NEXT ASSEMBLY	DRAWING NUMBER; MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 30

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 1/9/02 8:39 AM 8303_32.dwg

-3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.
QTY REQD						

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M–1989

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DECIMAL TOLERANCES
.X ±.030
.XX ±.015
.XXX ±.005
ANGULAR TOLERANCE ± .5°

NA ✓ FINISH

BREAK SHARP EDGES
MAX. XX MIN. XX

OUTSTANDING ECN

Q.A. CATEGORY A–3		DATE
DRAWN BY	P. PAPE	10/17/97
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	10/17/97
SUPVR. APPROVAL		
NEXT ASSEMBLY		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

ALCOVE 1005B CHASSIS CFE–5B–PS3

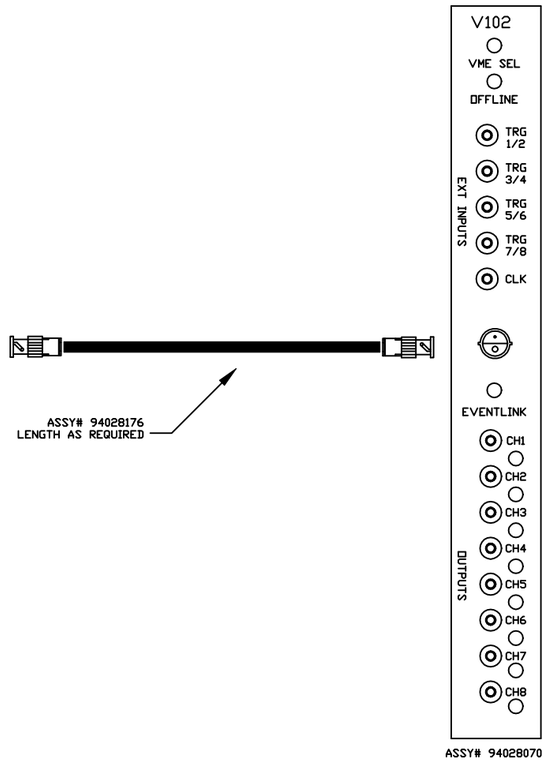
SIZE	DRAWING NUMBER	REV.
D	94028303	A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 32 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

V102 DELAY MODULE
BLDG #: 1005B
RACK #: R05B09
CHASSIS ID: CFE-5B-PS2
SLOT #: 7
A16 BASE ADDRESS: 0XFFFFE600



ASSY# 94028070

EVENT LINK
BLDG #: 1005B
RACK #: R05B10
FANOUT #: A

OUTPUT
J2

ASSY# 94028176
LENGTH AS REQUIRED

V102 DELAY MODULE JUMPER LIST

A16 BASE ADDRESS 0XFFFFE600 JP1=OUT JP2=OUT JP3=OUT JP4=IN JP5=IN JP6=OUT JP7=OUT
EVENT LINK INPUT JP8=IN JP9=OUT JP10=OUT
JP11=IN JP12=IN JP13=OUT JP14=IN

-3	-2	-1 QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005
ANGULAR TOLERANCE ± .5°
FINISH: NA
BREAK SHARP EDGES MAX. XX MIN. XX
OUTSTANDING ECN

Q.A. CATEGORY A-3
DRAWN BY: P. PAPE 10/17/97
CHECKED BY:
DESIGN APPROVAL:
ENGINEER APPROVAL: R. MICHNOFF 10/17/97
SUPVR. APPROVAL:
NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.
UPTON, N.Y. 11973

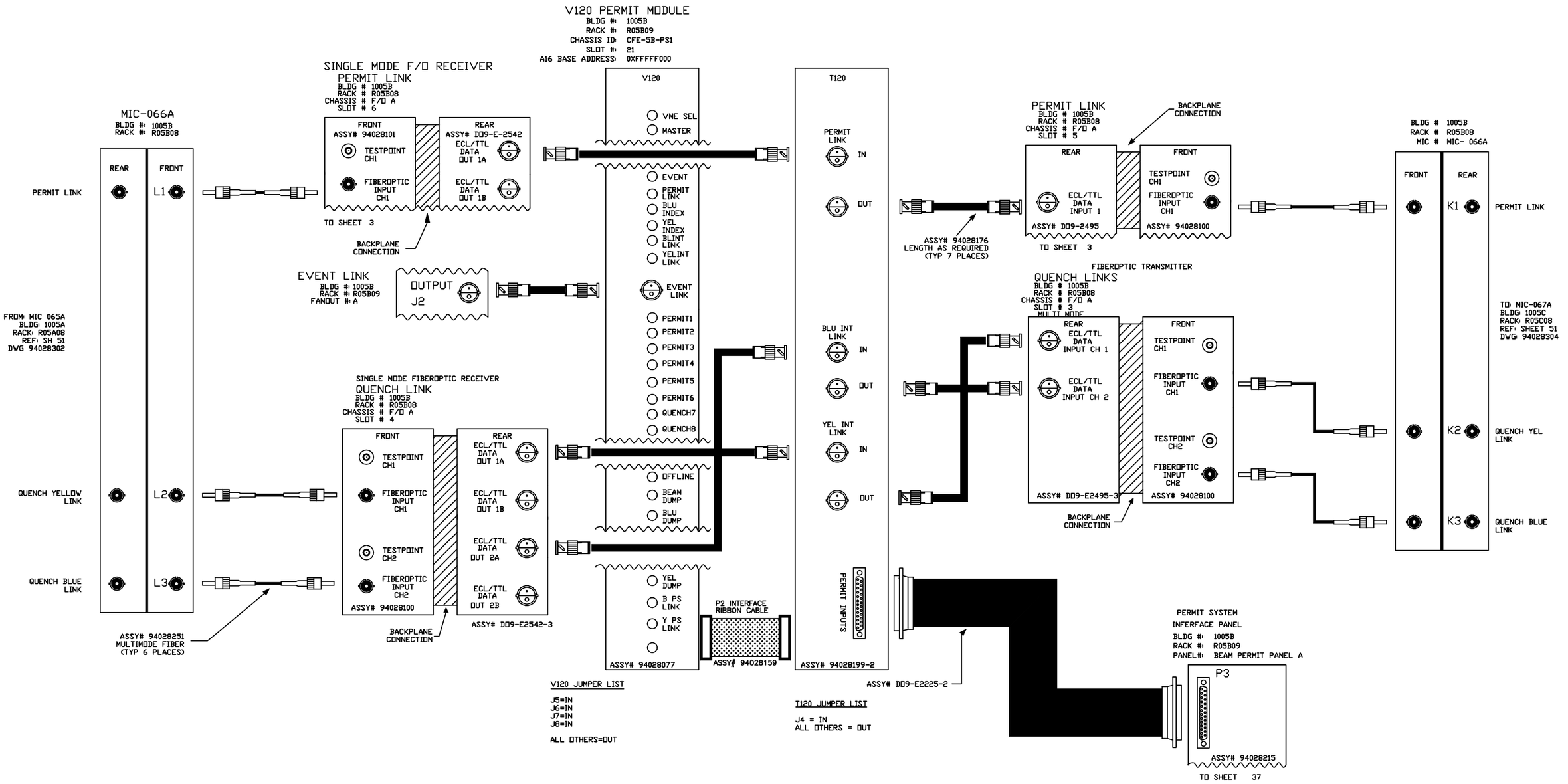
RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B CHASSIS CFE-5B-PS2
V102 DELAY MODULE

SIZE D
94028303
REV. A
DRAWING NUMBER
MATERIAL: ———— SCALE: NA WEIGHT: — SHEET 33 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 8/6/99 3:51 PM 8303_36.dwg



QTY REQD -3	QTY REQD -2	QTY REQD -1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./INL NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

DECIMAL TOLERANCES
X ±.030
.XX ±.015
.XXX ±.005
ANGULAR TOLERANCE ± .5'

FINISH: NA

BREAK SHARP EDGES MAX. XX MIN. XX

OUTSTANDING ECN

Q.A. CATEGORY	A-3	DATE
DRAWN BY	P. PAPE	10/17/97
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	10/17/97
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

ALCOVE 1005B, CHASSIS CFE-5B-PS1

V120/T120 PERMIT SYSTEM

SIZE D | 94028303 | REV. A

DRAWING NUMBER

MATERIAL: ——— SCALE: NA WEIGHT: — SHEET 36 OF X

1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 5/29/03 9:05 AM 8303_37.dwg

PERMIT SYSTEM INTERFACE MODULE

BLDG #: 1005B
RACK #: R05B09
PANEL #: PERMIT I/F PANEL A

FROM SHEET 36

ASSY # 94028215

BEAM PERMIT SYSTEM

OUTPUTS

PERMIT LEVEL

BLUE

YELLOW

1 — TO QUENCH SEXT

2

3

INPUTS

4

5

6 — TO CORR POWER SUPPLY

7 — BLUE QUENCH — TO QUENCH SYSTEM

8 — YELLOW QUENCH — TO QUENCH SYSTEM

-3 QTY REQD	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M–1989	Q.A. CATEGORY A–3	DATE	BROOKHAVEN NATIONAL LABORATORY ASSOCIATED UNIVERSITIES, INC. UPTON, N.Y. 11973	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN BY: P. PAPE	10/17/97	RHIC CONTROLS WIRING DIAGRAM	
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5'	CHECKED BY		ALCOVE 1005B, RACK R05B09	
	DESIGN APPROVAL		PERMIT SYSTEM INTERFACE PANEL	
	ENGINEER APPROVAL: R. MICHNOFF	10/17/97		
	SUPVR. APPROVAL		SIZE: D — 94028303 — REV: A	
NA FINISH — BREAK SHARP EDGES MAX. XX MIN. XX	NEXT ASSEMBLY		DRAWING NUMBER	
OUTSTANDING ECN			MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 37	

8 7 6 5 4 3 2 1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 6/16/03 1:48 PM 8303_38.dwg

MADC MUX A/D IO PANEL
BLDG #: 1005B
RACK #: R05B09
PANEL #: MADC A/D IO PANEL B

FR SHEET 17

J15 — CHAN 31 SPARE

MADC MUX A/D IO PANEL
BLDG #: 1005B
RACK #: R05B09
PANEL #: MADC A/D IO PANEL C

FR SHEET 19

J9 — CHAN 41 SPARE
J10 — CHAN 42 SPARE
J11 — CHAN 43 SPARE

TO SHEET 20

MADC MUX A/D IO PANEL
BLDG #: 1005B
RACK #: R05B09
PANEL #: MADC A/D IO PANEL D

FR SHEET 20

J6 — CHAN 54 SPARE
J7 — CHAN 55 SPARE
J8 — CHAN 56 SPARE
J9 — CHAN 57 SPARE
J10 — CHAN 58 SPARE
J11 — CHAN 59 SPARE
J12 — CHAN 60 SPARE
J13 — CHAN 61 SPARE
J14 — CHAN 62 SPARE

TO SHEET 21

MADC MUX A/D IO PANEL
BLDG #: 1005B
RACK #: R05B10
PANEL #: MADC A/D IO PANEL A

FR SHEET 25

J15 — CHAN 15 SPARE

MADC MUX A/D IO PANEL
BLDG #: 1005B
RACK #: R05B10
PANEL #: MADC A/D IO PANEL B

FR SHEET 27

J15 — CHAN 31 SPARE

MADC MUX A/D IO PANEL
BLDG #: 1005B
RACK #: R05B10
PANEL #: MADC A/D IO PANEL C

FR SHEET 29

J9 — CHAN 41 SPARE
J10 — CHAN 42 SPARE
J11 — CHAN 43 SPARE

TO SHEET 30

MADC MUX A/D IO PANEL
BLDG #: 1005B
RACK #: R05B10
PANEL #: MADC A/D IO PANEL D

FR SHEET 30

J6 — CHAN 54 SPARE
J7 — CHAN 55 SPARE
J8 — CHAN 56 SPARE
J9 — CHAN 57 SPARE
J10 — CHAN 58 SPARE
J11 — CHAN 59 SPARE
J12 — CHAN 60 SPARE
J13 — CHAN 61 SPARE
J14 — CHAN 62 SPARE

TO SHEET 11

-3	-2	-1 QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./DWG NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005
ANGULAR TOLERANCE ± .5°
FINISH NA
BREAK SHARP EDGES MAX. XX MIN. XX
OUTSTANDING ECN

Q.A. CATEGORY A-3		DATE
DRAWN BY	P. PAPE	10/17/97
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	10/17/97
SUPVR. APPROVAL		
NEXT ASSEMBLY		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
ALCOVE 1005B
SPARE MADC INPUTS

SIZE D — 94028303 — REV. A
DRAWING NUMBER
MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 38

*AUTOCAD