RHIC Accelerator Controls Section
Bldg. 1010A Wiring Diagrams
BNL Drawing Number 94028569

Brookhaven National Laboratory, Upton, New York 11973

Created By: Ed Koropsak
Last Updated 1/02/02

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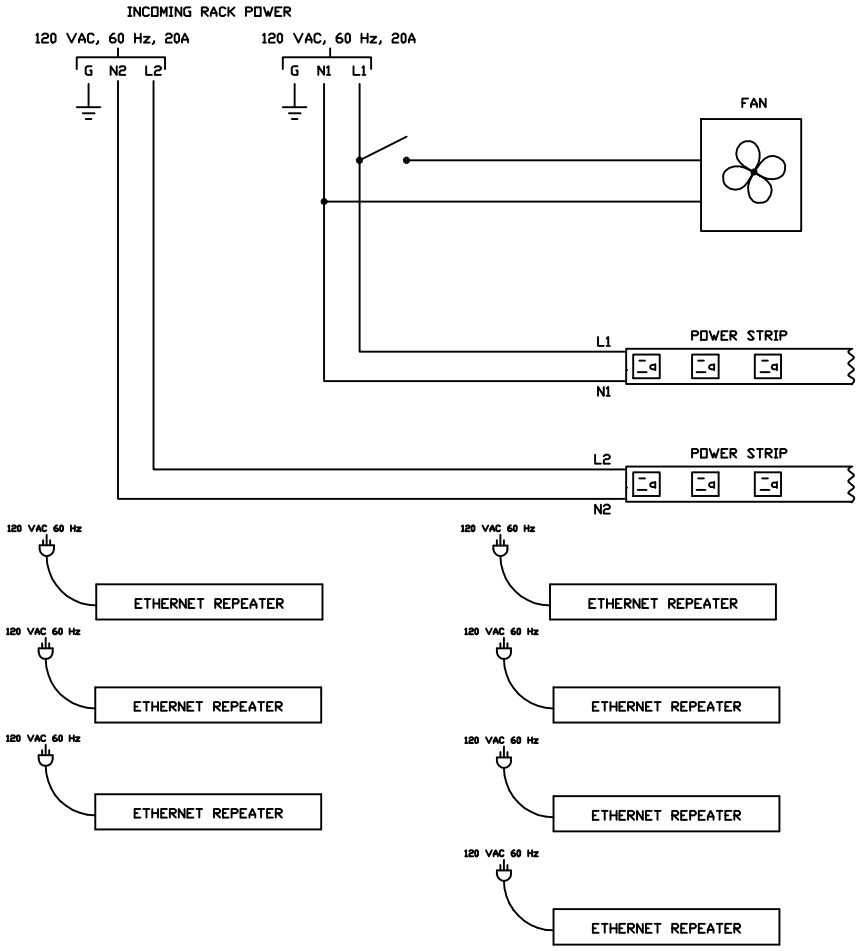
NOTE: Sheets 25-27, 42-44, 46 are Blank



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

RACK R10A14

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

QTY REQD	REF DESIGNATION	ITEM NO.		DESCRIPTION	MFG. DWG NO./INT. NO.
X		11		CABLE ASSY, POWER SUPPLY TO MADC A/D I/O PANEL (3 CABLES/PS)	
X		10		CABLE ASSY, LOW RES PS IF MODULE TO POWER SUPPLY	
X		9		PERMIT SYSTEM INTERFACE CABLE, T120 TO PERMIT SYSTEM INTERFACE PANEL	D09-E2225-2
X		8		SERIAL LINK TWINAX CABLE, LENGTH AS REQUIRED	94028176
X		7		SERIAL LINK TWINAX CABLE, 1 FT	94028176
X		6		DUPLEX MULTIMODE FIBER OPTIC CABLE, T115 TO LOW RES PS INTERFACE MODULE	94028249
X		5		SINGLE MODE FIBER OPTIC CABLE	94028251
X		4		MADC A/D I/O CABLE	94028216
X		3		TRANSITION MODULE P2 RIBBON CABLE, V115, V120	94028159
X		2		MADC V113 TO V114 P2 INTERFACE RIBBON CABLE	94028218
X		1		NETWORK CABLE TO FRONT END COMPUTER	

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	Ed Koropsak	6/16/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	6/16/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

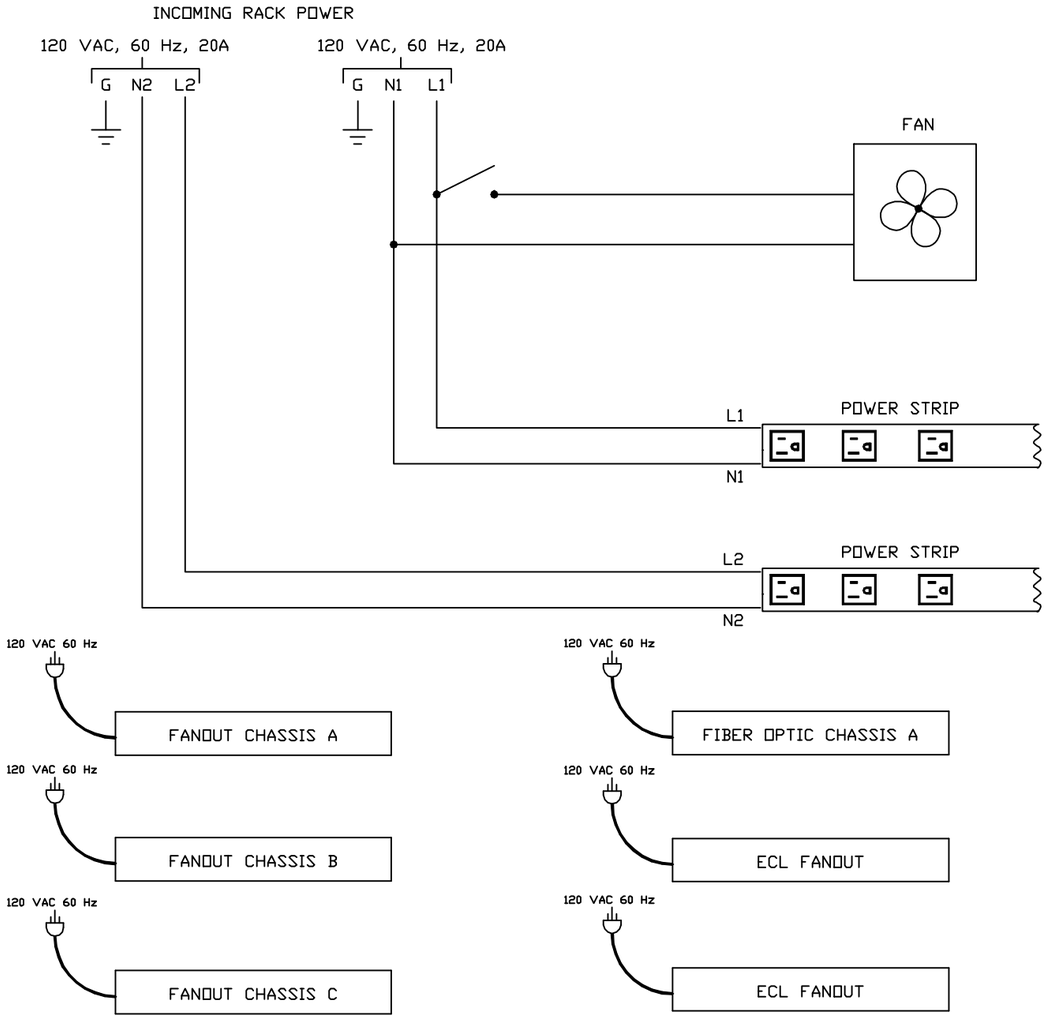
BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
SERVICE BLDG. RACK R10A14
POWER DISTRIBUTION

SIZE D | 94028569 | REV. A
DRAWING NUMBER
MATERIAL: —— SCALE: NA WEIGHT: — SHEET 1 OF 52

*AUTOCAD

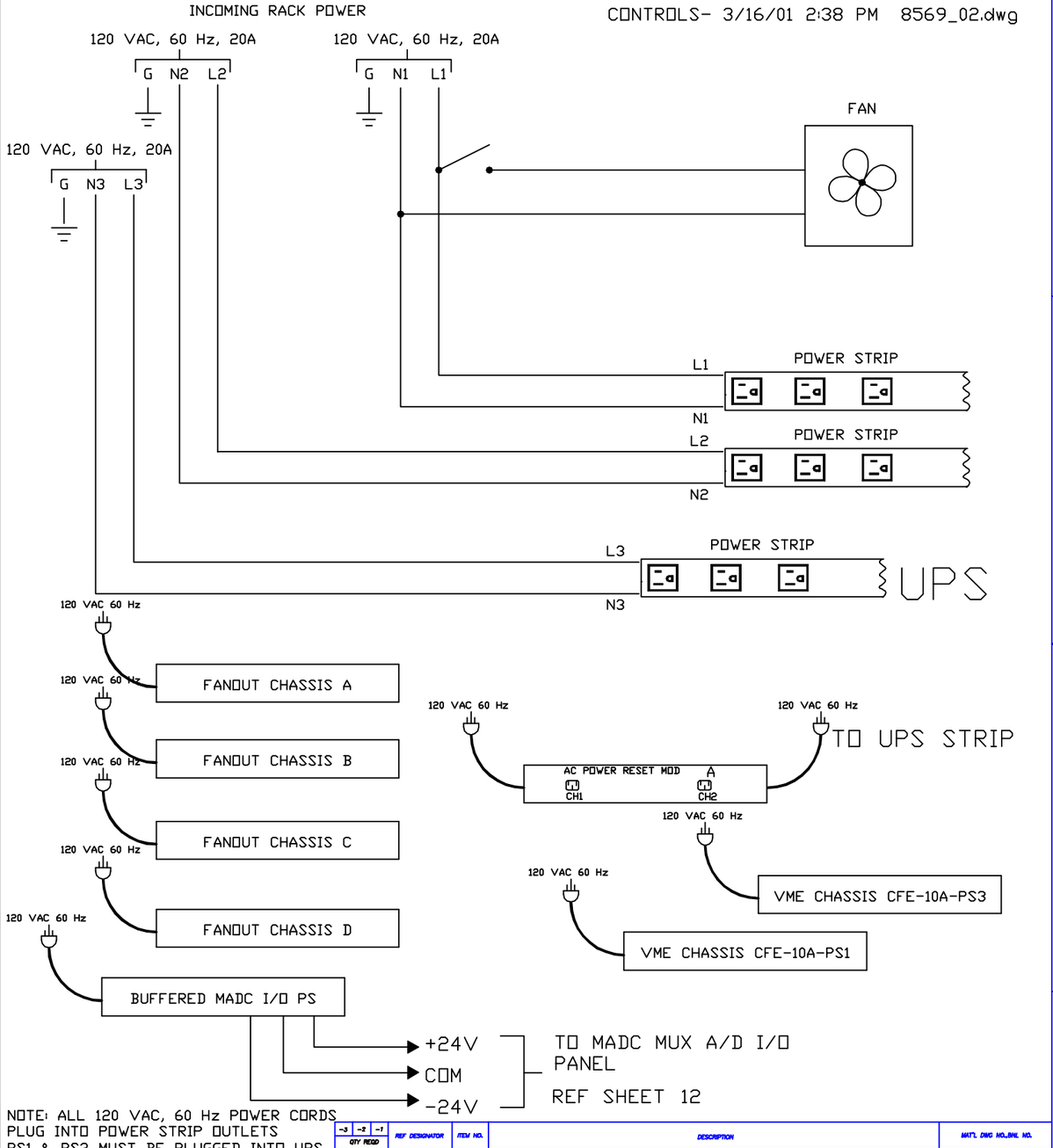
REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 3/16/01 2:38 PM 8569_02.dwg



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

RACK R10A13



NOTE: ALL 120 VAC, 60 Hz POWER CORDS PLUG INTO POWER STRIP OUTLETS PS1 & PS3 MUST BE PLUGGED INTO UPS

RACK R10A06

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

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 Ed Koropsak	6/16/98	UPTON, N.Y. 11973	
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°	CHECKED BY		RHIC CONTROLS WIRING DIAGRAM	
	DESIGN APPROVAL		SERVICE BLDG. 1010A RACK R10A13, R10A06	
	ENGINEER APPROVAL R. MICHNOFF	6/16/98	POWER DISTRIBUTION	
	SUPVR. APPROVAL		SIZE D	94028569 REV. A
NA FINISH	BREAK SHARP EDGES MAX. XX MIN. XX		NEXT ASSEMBLY	DRAWING NUMBER
OUTSTANDING ECN			MATERIAL: ——	SCALE: NA WEIGHT: — SHEET 2 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

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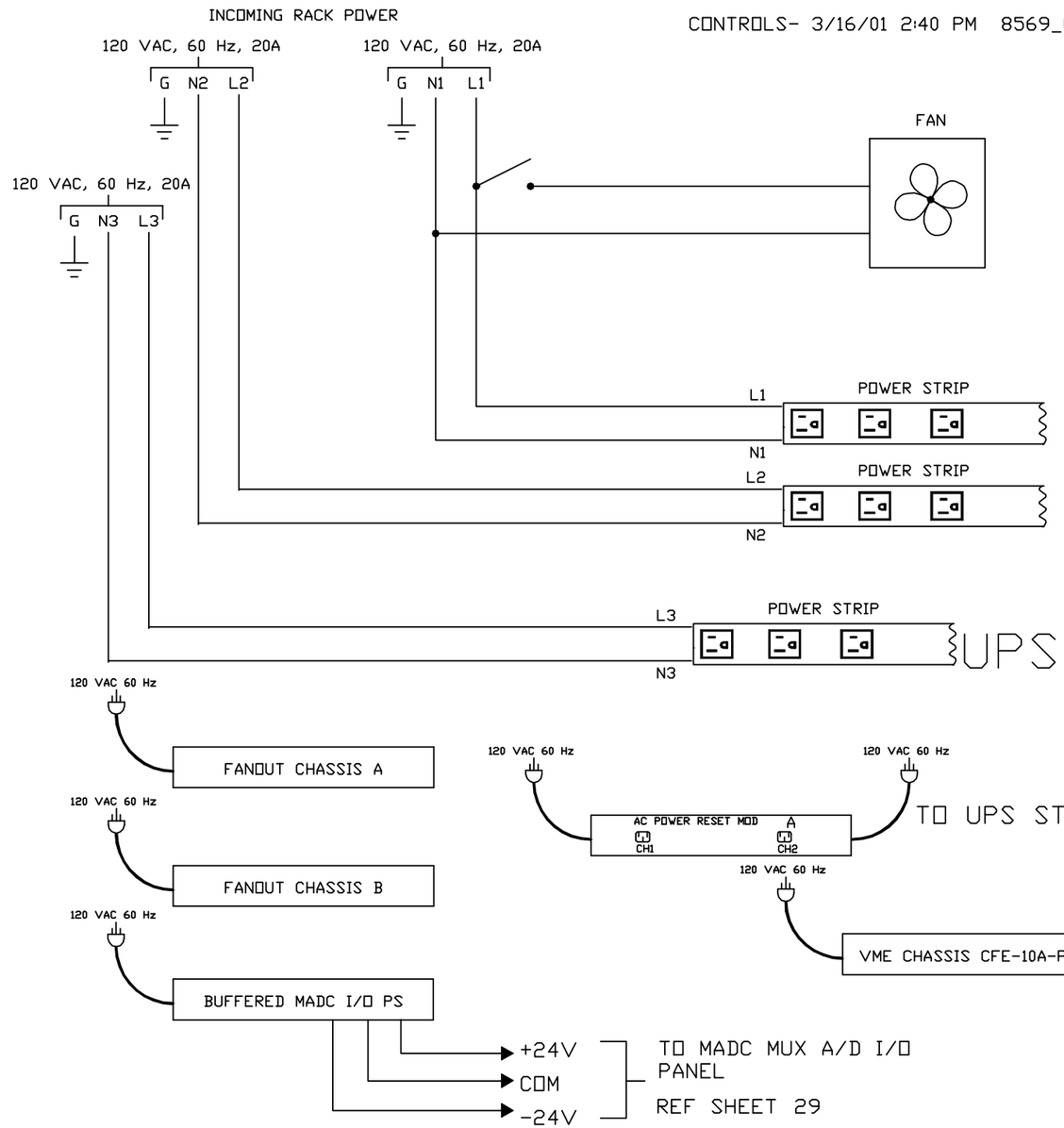

NOTE: ALL 120 VAC, 60 Hz POWER CORDS
PLUG INTO POWER STRIP OUTLETS
PS2 MUST BE PLUGGED INTO UPS

RACK R10A07

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

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 Ed Koropsak	6/16/98	UPTON, N.Y. 11973
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°	CHECKED BY		RHIC CONTROLS WIRING DIAGRAM
	DESIGN APPROVAL		SERVICE BLDG. 1010A RACK R10A07
	ENGINEER APPROVAL R. MICHNOFF	6/16/98	POWER DISTRIBUTION
	SUPVR. APPROVAL		SIZE D — 94028569 — REV. A
OUTSTANDING ECN	NA FINISH — BREAK SHARP EDGES MAX. XX MIN. XX	NEXT ASSEMBLY	DRAWING NUMBER — MATERIAL: —— SCALE: NA WEIGHT: — SHEET 3 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

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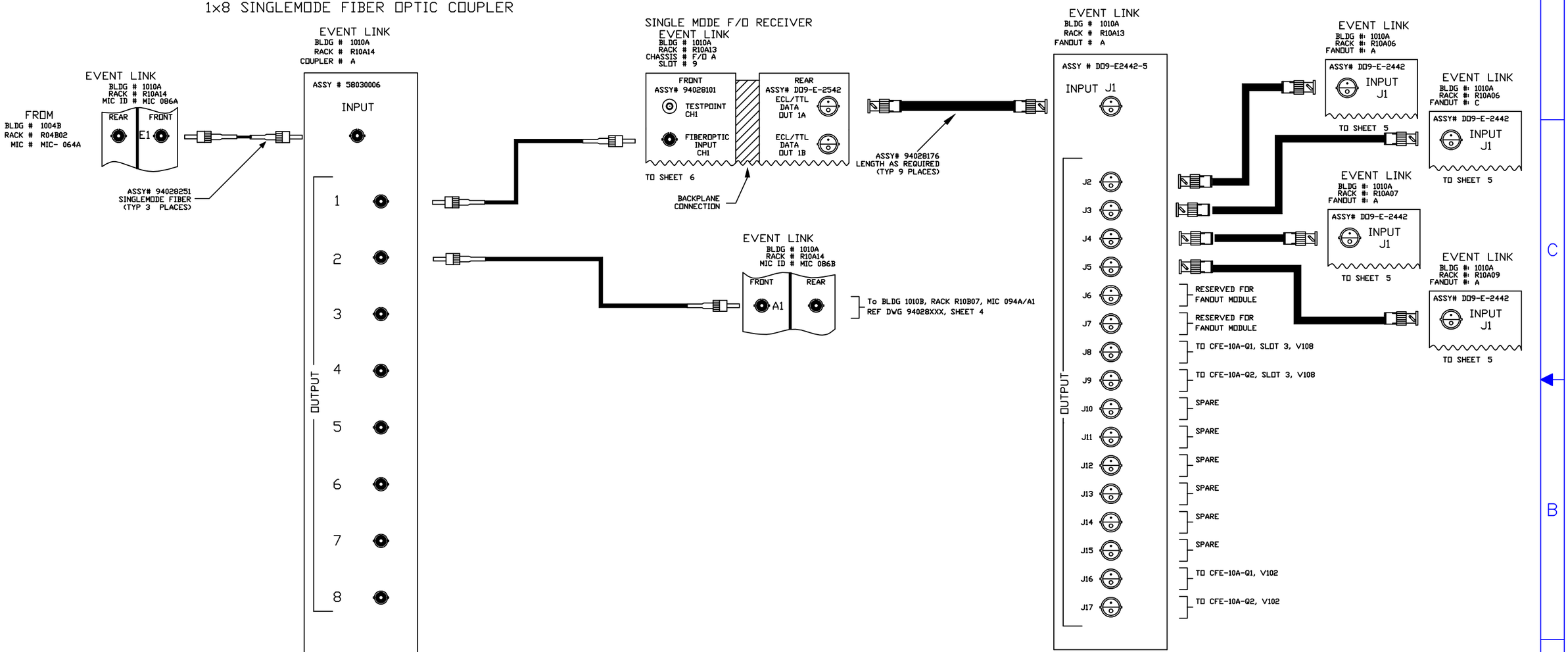
1x8 SINGLEMODE FIBER OPTIC COUPLER



-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	Ed Koropsak	6/17/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	6/17/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
1010A
EVENT LINK

SIZE D | 94028569 | REV. A
DRAWING NUMBER

MATERIAL: ——— SCALE: NA WEIGHT: — SHEET 4 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

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EVENT LINK FANOUT MODULE

BLDG # 1010A
RACK # R10A06
FANOUT # A

FROM SHEET 4
ASSY # DD9-E2442-5

OUTPUT

J2	SPARE
J3	To CFE-10A-PS1, SLOT 4, V113 REF SHEET 12
J4	TO CFE-10A-PS1, SLOT 6, V113 REF SHEET 12
J5	TO CFE-10A-PS1, SLOT 19, T215 REF SHEET 24
J6	TO CFE-10A-PS1, SLOT 18, T215 REF SHEET 23
J7	TO CFE-10A-PS1, SLOT 17, T215 REF SHEET 22
J8	TO CFE-10A-PS1, SLOT 16, T215 REF SHEET 21
J9	To CFE-10A-PS1, SLOT 15, T215 REF SHEET 20
J10	To CFE-10A-PS1, SLOT 14, T215 REF SHEET 19
J11	To CFE-10A-PS1, SLOT 13, T215 REF SHEET 18
J12	To CFE-10A-PS1, SLOT 12, T215 REF SHEET 17
J13	To CFE-10A-PS1, SLOT 11, T215 REF SHEET 16
J14	To CFE-10A-PS1, SLOT 10, T215 REF SHEET 15
J15	To CFE-10A-PS1, SLOT 9, T215 REF SHEET 14
J16	To CFE-10A-PS1, SLOT 8, T215 REF SHEET 13
J17	SPARE

EVENT LINK FANOUT MODULE

BLDG # 1010A
RACK # R10A06
FANOUT # C

FROM SHEET 4
ASSY # DD9-E2442-5

OUTPUT

J2	TO CFE-10A-PS3, SLOT 21, V120 REF SHEET 51
J3	TO CFE-10A-BPM1, SLOT 3, V108
J4	TO CFE-10A-PS3, SLOT 18, V125
J5	TO CFE-10A-PS3, SLOT 19, V125
J6	TO CFE-10A-PS2, SLOT 20, V125
J7	TO CFE-10A-PS2, SLOT 21, V125
J8	TO CFE-10A-PS1, SLOT 3, V108 REF SHEET 11
J9	TO CFE-10A-PS2, SLOT 3, V108 REF SHEET 28
J10	TO CFE-10A-PS3, SLOT 3, V108 REF SHEET 45
J11	TO CFE-10A-PS3, SLOT 20, V120 REF SHEET 51
J12	TO CFE-10A-PS3, SLOT 8, T215
J13	TO CFE-10A-PS3, SLOT 9, T215
J14	TO CFE-10A-PS3, SLOT 7, V102 REF SHEET 49
J15	SPARE
J16	SPARE
J17	SPARE

EVENT LINK FANOUT MODULE

BLDG # 1010A
RACK # R10A07
FANOUT # A

FROM SHEET 4
ASSY # DD9-E2442-5

OUTPUT

J2	SPARE
J3	To CFE-10A-PS2, SLOT 4, V113 REF SHEET 29
J4	TO CFE-10A-PS2, SLOT 6, V113 REF SHEET 29
J5	TO CFE-10A-PS2, SLOT 19, T215 REF SHEET 41
J6	TO CFE-10A-PS1, SLOT 18, T215 REF SHEET 40
J7	TO CFE-10A-PS1, SLOT 17, T215 REF SHEET 39
J8	TO CFE-10A-PS1, SLOT 16, T215 REF SHEET 38
J9	To CFE-10A-PS2, SLOT 15, T215 REF SHEET 37
J10	To CFE-10A-PS2, SLOT 14, T215 REF SHEET 36
J11	To CFE-10A-PS2, SLOT 13, T215 REF SHEET 35
J12	To CFE-10A-PS2, SLOT 12, T215 REF SHEET 34
J13	To CFE-10A-PS2, SLOT 11, T215 REF SHEET 33
J14	To CFE-10A-PS2, SLOT 10, T215 REF SHEET 32
J15	To CFE-10A-PS2, SLOT 9, T215 REF SHEET 31
J16	To CFE-10A-PS2, SLOT 8, T215 REF SHEET 30
J17	SPARE

EVENT LINK FANOUT MODULE

BLDG # 1010A
RACK # R10A09
FANOUT # A

FROM SHEET 4
ASSY # DD9-E2442-5

OUTPUT

J2	TO CFE-10A-BLM1, SLOT 3, V108
J3	TO CFE-10A-BLM1, SLOT 6, V113
J4	TO CFE-10A-BLM1, SLOT 13, V118
J5	TO CFE-10A-BLM2, SLOT 3, V108
J6	TO CFE-10A-BLM2, SLOT 6, V113
J7	TO CFE-10A-BLM2, SLOT 13, V118
J8	TO CFE-10A-BLM2, SLOT 8, V113
J9	SPARE
J10	SPARE
J11	SPARE
J12	SPARE
J13	SPARE
J14	SPARE
J15	SPARE
J16	SPARE
J17	SPARE

-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	BROOKHAVEN NATIONAL LABORATORY
DRAWN BY	Ed Koropsak	6/17/98	UPTON, N.Y. 11973
CHECKED BY			RHIC CONTROLS WIRING DIAGRAM
DESIGN APPROVAL			1010A
ENGINEER APPROVAL	R. MICHNOFF	6/17/98	EVENT LINK
SUPVR. APPROVAL			SIZE D — 94028569 — REV. A
NEXT ASSEMBLY			DRAWING NUMBER
MATERIAL: ———	SCALE: NA	WEIGHT: –	SHEET 5 of 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

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1x8 SINGLEMODE FIBER OPTIC COUPLER

FROM
BLDG # 1004B
RACK # R04B02
MIC # MIC- 064A

RTDL
BLDG # 1010A
RACK # R10A14
MIC ID # MIC 086A
REAR FRONT E2

ASSY# 94028251
SINGLEMODE FIBER
(TYP 3 PLACES)

RTDL
BLDG # 1010A
RACK # R10A14
COUPLER # B
ASSY # 58030006
INPUT
OUTPUT
1
2
3
4
5
6
7
8

REAL TIME DATA LINK
BLDG # 1010A
RACK # R10A13
CHASSIS # F/O A
SLOT # 9
TESTPOINT CH2
FIBEROPTIC INPUT CH2
ECL/TTL DATA OUT 2A
ECL/TTL DATA OUT 2B
BACKPLANE CONNECTION

ASSY# 94028176
LENGTH AS REQUIRED
(TYP 8 PLACES)

RTDL
BLDG # 1010A
RACK # R10A14
MIC ID # MIC 086B
FRONT A2 REAR

To BLDG 1010B, RACK R10B07, MIC 094A/A2
REF DWG 94028XXX, SHEET 6

RTDL FANOUT MODULE
BLDG # 1010A
RACK # R10A13
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-10A-Q1, SLOT 3, V108
TO CFE-10A-Q2, SLOT 3, V108
TO CFE-10A-BLM1, SLOT 3, V108
TO CFE-10A-BLM2, SLOT 3, V108
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE

RTDL
BLDG #: 1010A
RACK #: R10A06
FANOUT #: A
ASSY# DD9-E-2442
INPUT J1
TO SHEET 7

RTDL
BLDG #: 1010A
RACK #: R10A07
FANOUT #: A
ASSY# DD9-E-2442
INPUT J1
TO SHEET 7

RTDL
BLDG #: 1010A
RACK #: R10A06
FANOUT #: C
ASSY# DD9-E-2442
INPUT J1
TO SHEET 7

-3	-2	-1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./INV. 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	BROOKHAVEN NATIONAL LABORATORY	
DRAWN BY Ed Koropsak	6/18/98	UPTON, N.Y. 11973	
CHECKED BY		RHIC CONTROLS WIRING DIAGRAM	
DESIGN APPROVAL		1010A	
ENGINEER APPROVAL R. MICHNOFF	6/18/98	EVENT LINK	
SUPVR. APPROVAL		94028569	REV. A
NEXT ASSEMBLY		SIZE D / DRAWING NUMBER	
MATERIAL: ———	SCALE: NA	WEIGHT: –	SHEET 6 OF 52

8 7 6 5 4 3 2 1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

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RTDL FANOUT MODULE

BLDG # 1010A
RACK # R10A06
FANOUT # B

FROM SHEET 6
ASSY # DD9-E2442-5

OUTPUT

J2	SPARE
J3	SPARE
J4	SPARE
J5	TO CFE-10A-PS1, SLOT 19, T215 REF SHEET 24
J6	TO CFE-10A-PS1, SLOT 18, T215 REF SHEET 23
J7	TO CFE-10A-PS1, SLOT 17, T215 REF SHEET 22
J8	TO CFE-10A-PS1, SLOT 16, T215 REF SHEET 21
J9	To CFE-10A-PS1, SLOT 15, T215 REF SHEET 20
J10	To CFE-10A-PS1, SLOT 14, T215 REF SHEET 19
J11	To CFE-10A-PS1, SLOT 13, T215 REF SHEET 18
J12	To CFE-10A-PS1, SLOT 12, T215 REF SHEET 17
J13	To CFE-10A-PS1, SLOT 11, T215 REF SHEET 16
J14	To CFE-10A-PS1, SLOT 10, T215 REF SHEET 15
J15	To CFE-10A-PS1, SLOT 9, T215 REF SHEET 14
J16	To CFE-10A-PS1, SLOT 8, T215 REF SHEET 13
J17	SPARE

RTDL FANOUT MODULE

BLDG # 1010A
RACK # R10A06
FANOUT # D

FROM SHEET 6
ASSY # DD9-E2442-5

OUTPUT

J2	SPARE
J3	TO CFE-10A-BPM1, SLOT 3, V108
J4	SPARE
J5	SPARE
J6	SPARE
J7	SPARE
J8	TO CFE-10A-PS1, SLOT 3, V108 REF SHEET 11
J9	TO CFE-10A-PS2, SLOT 3, V108 REF SHEET 28
J10	TO CFE-10A-PS3, SLOT 3, V108 REF SHEET 45
J11	SPARE
J12	TO CFE-10A-PS3, SLOT 8, T215
J13	TO CFE-10A-PS3, SLOT 9, T215
J14	SPARE
J15	SPARE
J16	SPARE
J17	SPARE

RTDL FANOUT MODULE

BLDG # 1010A
RACK # R10A07
FANOUT # B

FROM SHEET 6
ASSY # DD9-E2442-5

OUTPUT

J2	SPARE
J3	SPARE
J4	SPARE
J5	TO CFE-10A-PS2, SLOT 19, T215 REF SHEET 41
J6	TO CFE-10A-PS1, SLOT 18, T215 REF SHEET 40
J7	TO CFE-10A-PS1, SLOT 17, T215 REF SHEET 39
J8	TO CFE-10A-PS1, SLOT 16, T215 REF SHEET 38
J9	To CFE-10A-PS2, SLOT 15, T215 REF SHEET 37
J10	To CFE-10A-PS2, SLOT 14, T215 REF SHEET 36
J11	To CFE-10A-PS2, SLOT 13, T215 REF SHEET 35
J12	To CFE-10A-PS2, SLOT 12, T215 REF SHEET 34
J13	To CFE-10A-PS2, SLOT 11, T215 REF SHEET 33
J14	To CFE-10A-PS2, SLOT 10, T215 REF SHEET 32
J15	To CFE-10A-PS2, SLOT 9, T215 REF SHEET 31
J16	To CFE-10A-PS2, SLOT 8, T215 REF SHEET 30
J17	SPARE

-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	Ed Koropsak	6/18/98	
CHECKED BY			
DESIGN APPROVAL			
ENGINEER APPROVAL	R. MICHNOFF	6/18/98	
SUPVR. APPROVAL			
NEXT ASSEMBLY			

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
1010A
REAL TIME DATA LINK

SIZE D | 94028569 | REV. A
DRAWING NUMBER

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 7 of 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 3/16/01 11:31 AM 8569_08.dwg

1×8 SINGLEMODE FIBER OPTIC COUPLER

FROM
BLDG # 1004B
RACK # R04B02
MIC # MIC- 064A

RESET LINK
BLDG # 1010A
RACK # R10A14
MIC ID # MIC 086A
REAR FRONT
E3

ASSY# 94028251
SINGLEMODE FIBER
(TYP 3 PLACES)

RESET LINK
BLDG # 1010A
RACK # R10A14
COUPLER # C

ASSY # 58030006

INPUT

OUTPUT
1
2
3
4
5
6
7
8

SINGLE MODE F/O RECEIVER
RESET LINK
BLDG # 1010A
RACK # R10A13
CHASSIS # F/O A
SLOT # 8

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 48

BACKPLANE CONNECTION

ASSY# 94028176
LENGTH AS REQUIRED
(TYP 11 PLACES)

RESET LINK
BLDG # 1010B
RACK # R10B14
MIC ID # MIC 086B
FRONT REAR
A3

To BLDG 1010B, RACK R10B07, MIC 094A/A3
REF DWG 94028XXX, SHEET 8

RESET LINK
BLDG # 1010A
RACK # R10A13
FANOUT # C

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
RESERVED FOR FANOUT MODULE
TO AC POWER RESET MODULE R10A09
TO CFE-10A-PS1, SLOT 3, V108 REF SHEET 11
TO CFE-10A-PS2, SLOT 3, V108 REF SHEET 28
TO CFE-10A-PS3, SLOT 3, V108 REF SHEET 45
TO CFE-10A-BLM1, SLOT 3, V108
TO CFE-10A-BLM2, SLOT 3, V108
TO CFE-10A-Q1, SLOT 3, V108
TO CFE-10A-Q2, SLOT 3, V108
SPARE

RESET LINK (INST)
BLDG # 1010A
RACK # R10A01
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

TO CFE-10A-BPM1, SLOT 3, V108
TO POWER RESET MODULE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE

AC POWER RESET
BLDG #: 1010A
RACK #: R10A06
MODULE #: A
ASSY# DD9-E2653
RESET LINK

AC POWER RESET
BLDG #: 1010A
RACK #: R10A07
MODULE #: A
ASSY# DD9-E2653
RESET LINK

-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
NEXT ASSEMBLY

Q.A. CATEGORY A-3		DATE
DRAWN BY	Ed Koropsak	6/18/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	6/18/98
SUPVR. APPROVAL		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
1010A
RESET LINK

SIZE	DRAWING NUMBER	REV.
D	94028569	A

MATERIAL: ——— SCALE: NA WEIGHT: — SHEET 8 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/9/99 8:46 AM 8569_09.dwg

1x8 SINGLEMODE FIBER OPTIC COUPLER

BEAM SYNC YELLOW
BLDG # 1010A
RACK # R10A14
COUPLER # D

ASSY # 58030006

INPUT

OUTPUT
1
2
3
4
5
6
7
8

BEAM SYNC YELLOW LINK
BLDG # 1010A
RACK # R10A14
MIC ID # MIC 086A

REAR | FRONT E4

FROM:
BLDG # 1004B
RACK # R04B02
MIC # 064A

ASSY# 94028251
SINGLE MODE FIBER
LENGTH AS REQUIRED
(TYP 3 PLACES)

FIBER OPTIC DELAY CHASSIS

BLDG #: 1010A
RACK #: R10A13
CHASSIS ID: NA
SLOT #: NA
BASE ADDRESS: NA

ASSY# 94028277

BEAM SYNC INPUT

789.9 FT OF SPOOLED FIBER

BEAM SYNC OUTPUT

SINGLE MODE F/O RECEIVER
BEAM SYNC YELLOW LINK
BLDG # 1010A
RACK # R10A13
CHASSIS # F/O CHASSIS A
SLOT # 7

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 10

BACKPLANE CONNECTION

BEAM SYNC YELLOW
BLDG # 1010A
RACK # R10A14
MIC ID # MIC 086B

FRONT | REAR A4

To BLDG 1010B, RACK R10B07, MIC 094A/A4
REF DWG 94028XXX, SHEET 9

BEAM SYNC YELLOW
BLDG # 1010A
RACK # R10A13
FANOUT # D

INPUT J1

OUTPUT
J2
J3
J4
J5
J6
J7
J8
J9

To INST. FANOUT RACK R10A02
TO CFE-10A-PS2, SLOT 20, V125
TO CFE-10A-PS3, SLOT 18, V125
SPARE
SPARE
SPARE
SPARE
SPARE

-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	BROOKHAVEN NATIONAL LABORATORY	
DRAWN BY Ed Koropsak	6/18/98	UPTON, N.Y. 11973	
CHECKED BY		RHIC CONTROLS WIRING DIAGRAM	
DESIGN APPROVAL		SERVICE BLDG 1010A	
ENGINEER APPROVAL R. MICHNOFF	6/18/98	BEAM SYNC YELLOW LINK	
SUPVR. APPROVAL		SIZE D — 94028569 — REV. A	
		DRAWING NUMBER	
MATERIAL: ———	SCALE: NA	WEIGHT: –	SHEET 9 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/9/99 9:09 AM 8569_10.dwg

1x8 SINGLEMODE FIBER OPTIC COUPLER

BEAM SYNC BLUE
BLDG # 1010A
RACK # R10A14
COUPLER # E

ASSY # 58030006

INPUT

OUTPUT
1
2
3
4
5
6
7
8

BEAM SYNC BLUE LINK
BLDG # 1010A
RACK # R10A14
MIC ID # MIC 086A

REAR E5 FRONT

FROM:
BLDG # 1004B
RACK # R04B02
MIC # 064A

ASSY# 94028251
SINGLE MODE FIBER
LENGTH AS REQUIRED
(TYP 4 PLACES)

FIBER OPTIC DELAY CHASSIS
BLDG #: 1010A
RACK #: R10A13
CHASSIS ID: NA
SLOT #: NA
BASE ADDRESS: NA

BEAM SYNC INPUT

789.9 FT OF SPOOLED FIBER

ASSY# 94028277

BEAM SYNC OUTPUT

BEAM SYNC BLUE LINK
BLDG # 1010A
RACK # R10A13
CHASSIS # F/O A
SLOT # 7

TESTPOINT CH2
FIBEROPTIC INPUT CH2
ECL/TTL DATA OUT 2A
ECL/TTL DATA OUT 2B

BACKPLANE CONNECTION

BEAM SYNC BLUE
BLDG # 1010A
RACK # R10A14
MIC ID # MIC 086B

FRONT A5 REAR

To BLDG 1010B, RACK R10B07, MIC 094A/A5
REF DWG 94028XXX, SHEET 9

BEAM SYNC BLUE
BLDG # 1010A
RACK # R10A13
FANOUT # E

INPUT J1

OUTPUT
J2 To INST. FANOUT RACK R10A02
J3 TO CFE-10A-PS2, SLOT 21, V125
J4 TO CFE-10A-PS3, SLOT 19, V125
J5 SPARE
J6 SPARE
J7 SPARE
J8 SPARE
J9 SPARE

-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

DRAWN BY	Ed Koropsak	6/18/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	6/18/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

DATE

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
SERVICE BLDG 1010A
BEAM SYNC BLUE LINK

SIZE D
94028569
REV. A
DRAWING NUMBER

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 10 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 1/2/02 2:07 PM 8569_11.dwg

FRONT END COMPUTER
BLDG #: 1010A
RACK #: R10A06
CHASSIS ID: CFE-10A-PS1
SLOT#: 1
FEC NAME: cfe-10a-ps1

FEC
RESET
LINK USER
FAIL SCON
COM2
COM1
KYBD MSE
ETHERNET
PMC

ETHERNET NETWORK
REF. NETWORK DIAGRAM

DEVICE: MEMORY BOARD
BLDG #: 1010A
RACK #: R010A06
CHASSIS ID: CFE-10A-PS1
SLOT #: 2
A24 BASE ADDRESS:

Micro Memory Inc
B2
B1
MM-6702

JUMPER LIST
1. REMOVE E1.
2. INSTALL E15.
3. SW3 CLOSE ALL POSITIONS.
4. SW2 CLOSE POSITIONS 7 AND 8.
5. SW1 CLOSE POSITIONS 2-8.
6. INSTALL E14 AND E25 TO ENABLE BATTERIES

DEVICE: V108 UTILITY MODULE
BLDG #: 1010A
RACK #: R10A06
CHASSIS ID: CFE-10A-PS1
SLOT #: 3
A24 BASE ADDRESS: 0X--004000

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

ASSY# 94028094

EVENT LINK
BLDG #: 1010A
RACK #: R10A06
FANOUT #: C
OUTPUT J8

RESET LINK
BLDG #: 1010A
RACK #: R10A13
FANOUT #: C
OUTPUT J8

REAL TIME DATA LINK
BLDG #: 1010A
RACK #: R10A06
FANOUT #: D
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

HIGH BAY ROOM TEMP SENSOR
POWER FROM EXTERNAL POWER SUPPLY
+24 V
GND

MADC MUX A/D IO PANEL
BLDG #: 1010A
RACK #: R10A06
PANEL #: MADC A/D IO PANEL G
FR SHEET47
J14
CHAN 62
HIGH BAY TEMP

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

MADC MUX A/D IO PANEL
BLDG #: 1010A
RACK #: R10A06
PANEL #: MADC A/D IO PANEL XXX
FR SHEET11
J15
CHAN 63
CONTROL ROOM TEMP

-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	Ed Koropsak	6/18/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	6/18/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
1010A, VME CHASSIS CFE-10A-PS1
FT END COMP/V108 UTIL MODULE

SIZE D | 94028569 | REV. A
DRAWING NUMBER

MATERIAL: ——— | SCALE: NA | WEIGHT: – | SHEET 11 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 5/9/01 1:07 PM 8569_12.dwg

EVENT LINK
BLDG #: 1010A
RACK #: R10A06
FANOUT #: A

OUTPUT J3

MADC CONTROLLER
RACK#: R10A06
CHASSIS ID: CFE-10A-PS1
SLOT #: 4
A24 BASE ADDRESS: 540000
A32 BASE ADDRESS: 24000000

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# 94028176
LENGTH AS REQUIRED
(TYP 1 PLACE)

P2 INTERFACE RIBBON CABLE

ASSY# 94028138

MADC A/D MODULE
RACK#: R10A06
CHASSIS ID: CFE-10A-PS1
SLOT #: 5
CONFIGURATION: +/- 10V

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

ASSY# 94028226

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

MADC MUX A/D IO PANEL
BLDG #: 1010A
RACK #: R10A06
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 #: 1010A
RACK #: R10A06
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 #: 1010A
RACK #: R10A06
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 17

MADC MUX A/D IO PANEL
BLDG #: 1010A
RACK #: R10A06
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 19

V113 JUMPERS INSTALLED

E3-E4

V113
BASE ADDRESS DIP SWITCHES

A24 BASE — A32 BASE
A18 A19 A20 A21 A22 A23 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

EVENT LINK
BLDG #: 1010A
RACK #: R10A06
FANOUT #: A

OUTPUT J4

MADC CONTROLLER
RACK#: R10A06
CHASSIS ID: CFE-10A-PS1
SLOT #: 6
A24 BASE ADDRESS: 580000
A32 BASE ADDRESS: 28000000

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# 94028176
LENGTH AS REQUIRED
(TYP 1 PLACE)

P2 INTERFACE RIBBON CABLE

ASSY# 94028138

MADC A/D MODULE
RACK#: R10A06
CHASSIS ID: CFE-10A-PS1
SLOT #: 7
CONFIGURATION: +/- 10V

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

ASSY# 94028226

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

MADC MUX A/D IO PANEL
BLDG #: 1010A
RACK #: R10A06
PANEL #: MADC A/D IO PANEL E

ASSY# 94028670 ANALOG OUTPUT
+24V
COM
-24V
FROM BUFFERED MADC I/O POWER SUPPLY REF SH. 2

TO SHEET 21

MADC MUX A/D IO PANEL
BLDG #: 1010A
RACK #: R10A06
PANEL #: MADC A/D IO PANEL F

ASSY# 94028670 ANALOG OUTPUT
+24V
COM
-24V
FROM BUFFERED MADC I/O POWER SUPPLY REF SH. 2

TO SHEET 23

MADC MUX A/D IO PANEL
BLDG #: 1010A
RACK #: R10A06
PANEL #: MADC A/D IO PANEL G

ASSY# 94028670 ANALOG OUTPUT
+24V
COM
-24V
FROM BUFFERED MADC I/O POWER SUPPLY REF SH. 2

TO SHEET 50

MADC MUX A/D IO PANEL
BLDG #: 1010A
RACK #: R10A06
PANEL #: MADC A/D IO PANEL H

ASSY# 94028670 ANALOG OUTPUT
+24V
COM
-24V
FROM BUFFERED MADC I/O POWER SUPPLY REF SH. 2

TO SHEET 47

V113 JUMPERS INSTALLED

E3-E4

V113
BASE ADDRESS DIP SWITCHES

A24 BASE — A32 BASE
A18 A19 A20 A21 A22 A23 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 QTY REQD	-2 QTY REQD	-1 QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MATL DWG NO./MFR. 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	Ed Koropsak	6/18/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	6/18/98
SUPVR. APPROVAL		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
1010A, VME CHASSIS CFE-10A-PS1
MADC SYSTEM

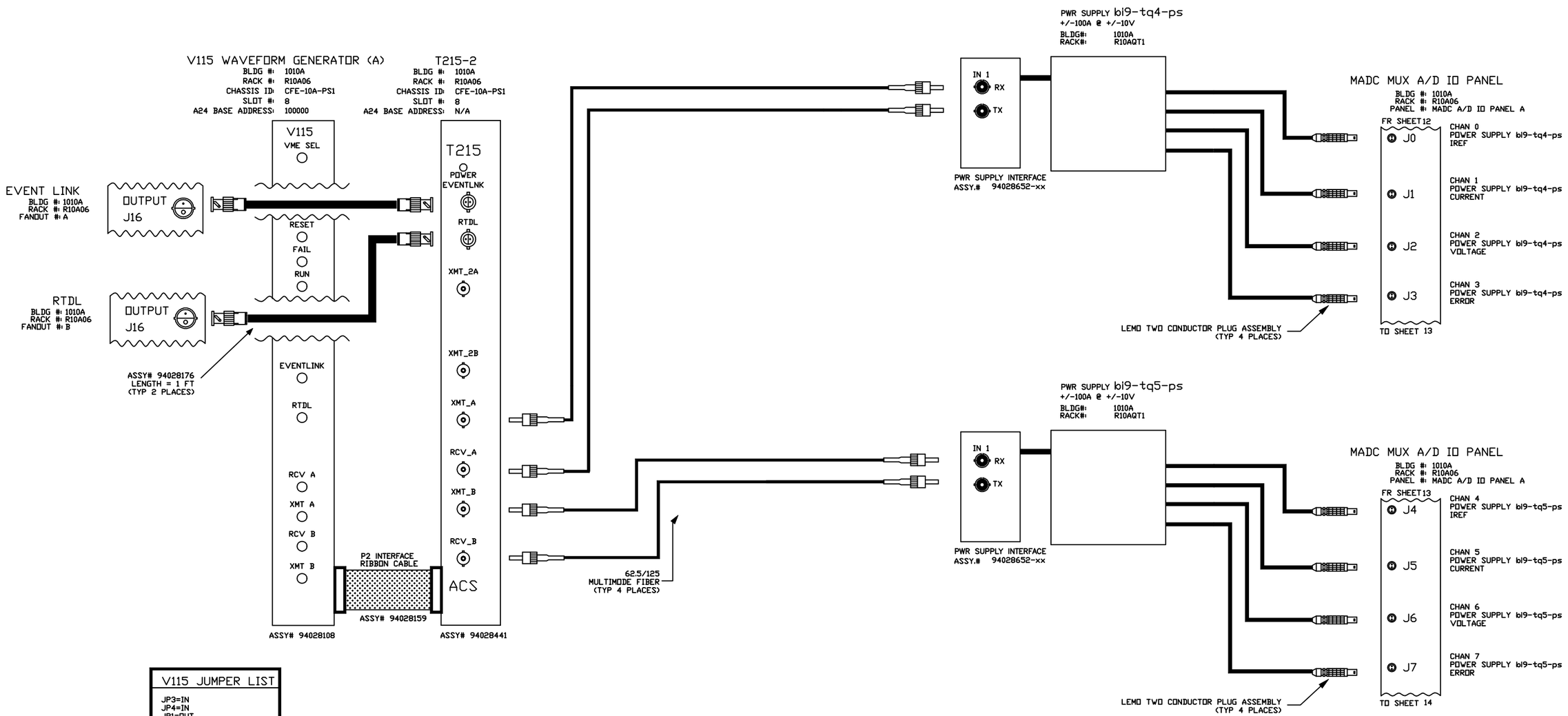
SIZE D
94028569
DRAWING NUMBER
REV. A

MATERIAL: ——— SCALE: FULL WEIGHT: – SHEET 12 OF 52

1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/9/99 9:25 AM 8569_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 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	Ed Koropsak	6/18/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	6/18/98
SUPVR. APPROVAL		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A, CFE-10A-PS1
bi9-tq4-ps/bi9-tq5-ps

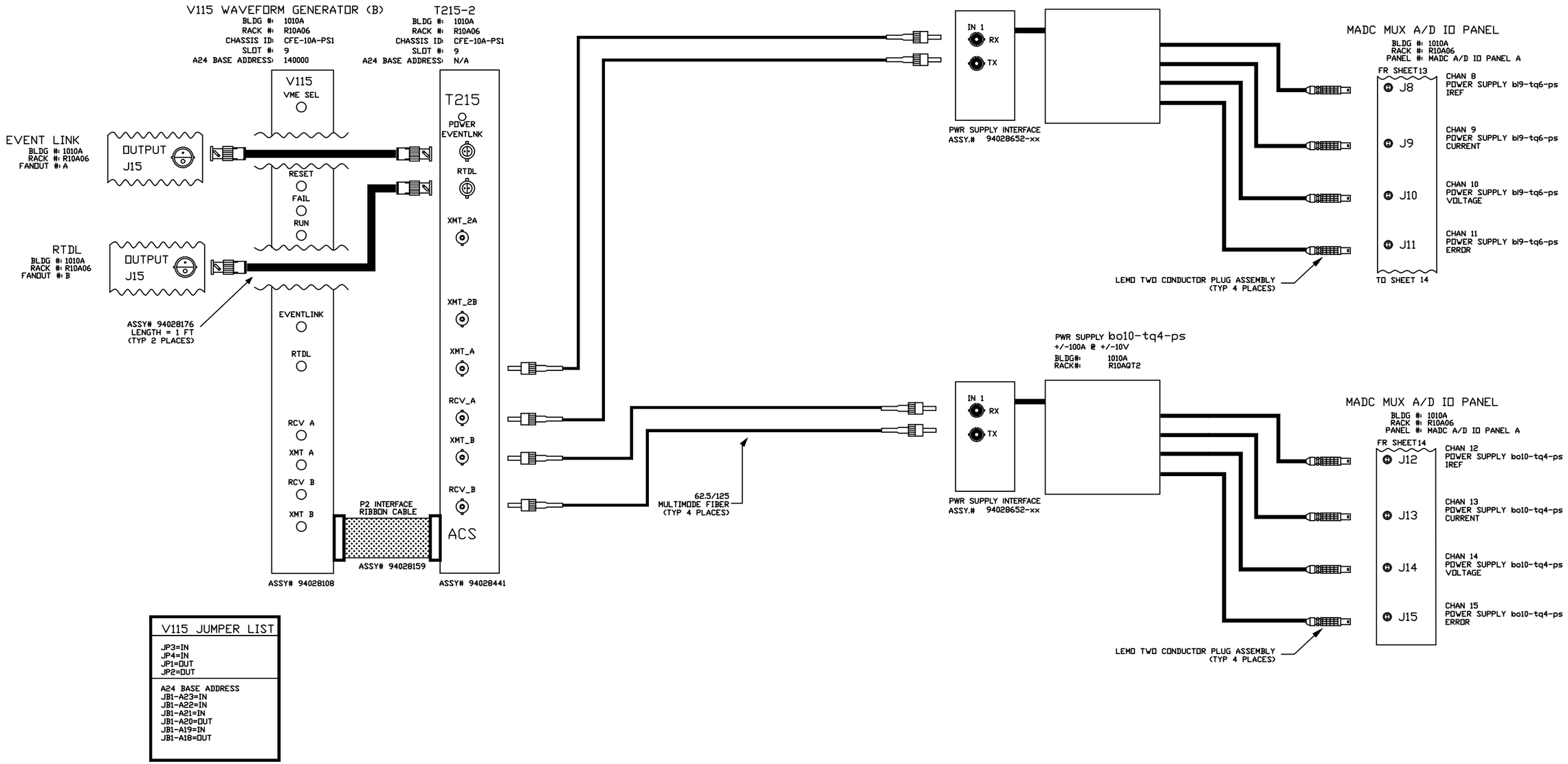
SIZE	DRAWING NUMBER	REV.
D	94028569	A

MATERIAL: —— SCALE: NA WEIGHT: — SHEET 13 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/9/99 9:27 AM 8569_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 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

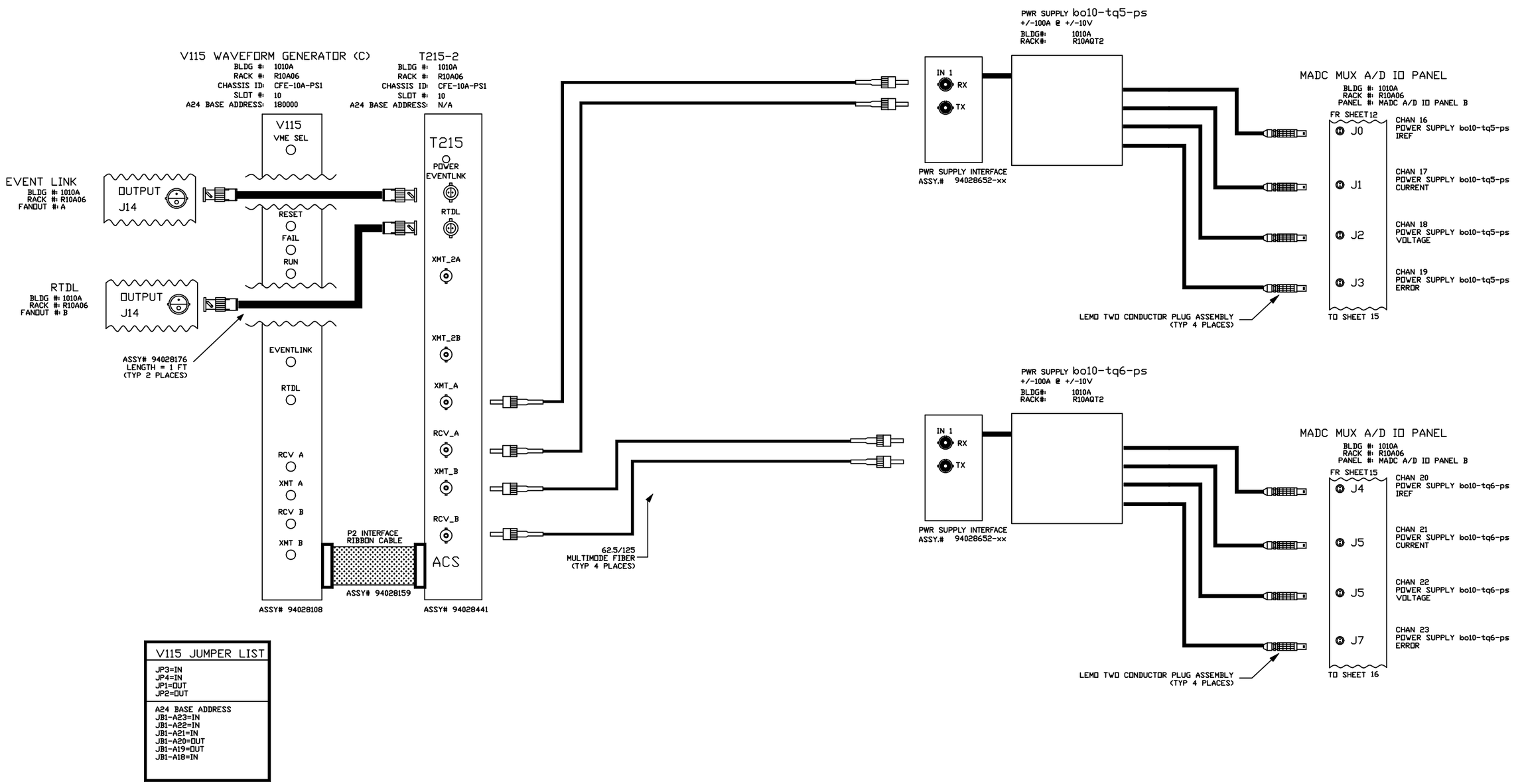
OUTSTANDING ECN

Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY
DRAWN BY Ed Koropsak	6/18/98	UPTON, N.Y. 11973
CHECKED BY		RHIC CONTROLS WIRING DIAGRAM
DESIGN APPROVAL		BLDG. 1010A, CFE-10A-PS1
ENGINEER APPROVAL R.MICHNOFF	6/18/98	bi9-tq6-ps/bo10-tq4-ps
SUPVR. APPROVAL		SIZE D — 94028569 — REV. A
NEXT ASSEMBLY		DRAWING NUMBER
MATERIAL: ———	SCALE: NA	WEIGHT: – SHEET 14 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/9/99 9:29 AM 8569_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

Q.A. CATEGORY A-3

DRAWN BY	Ed Koropsak	6/18/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	6/18/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A, CFE-10A-PS1
bo10-tq5-ps/bo10-tq6-ps

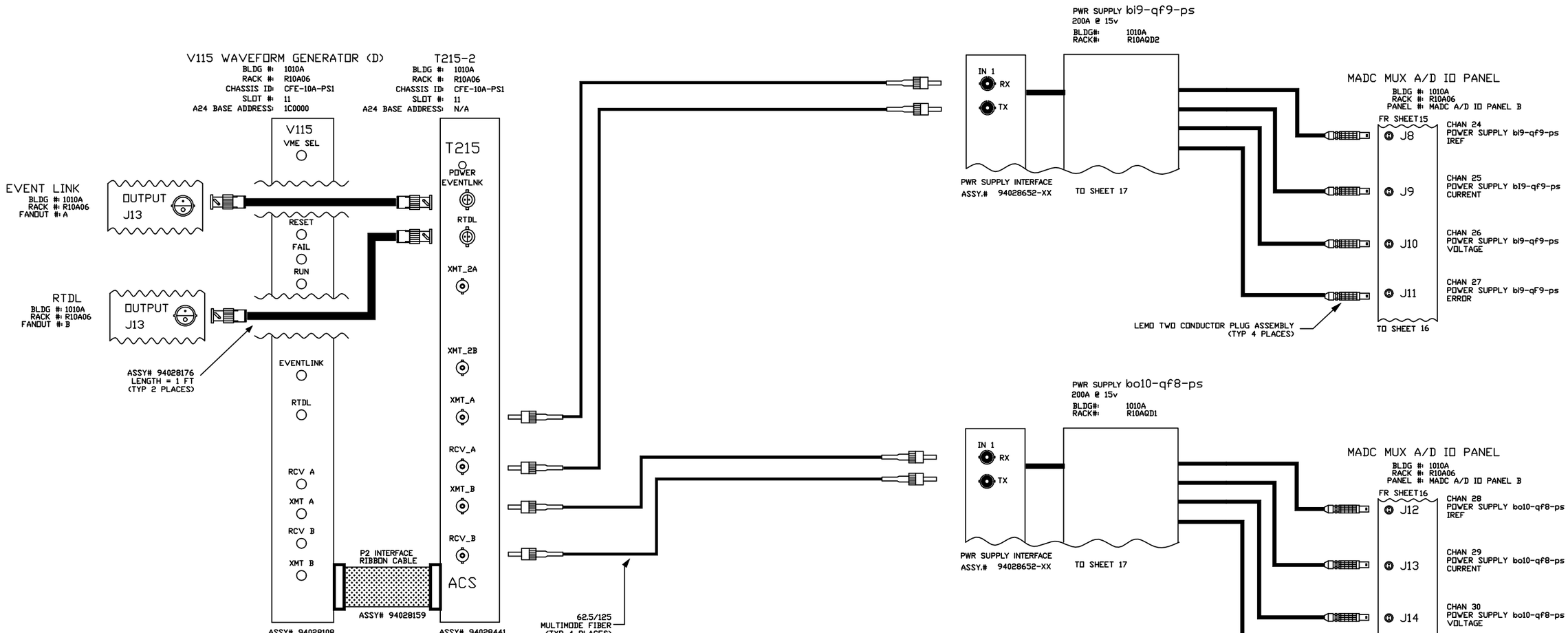
SIZE D | 94028569 | REV. A
DRAWING NUMBER

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 15 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/9/99 9:32 AM 8569_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./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	Ed Koropsak	6/18/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	6/18/98
SUPVR. APPROVAL		

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 16 OF 52

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

BLDG. 1010A, CFE-10A-PS1

bi9-qf9-ps/bo10-qf8-ps

SIZE D | 94028569 DRAWING NUMBER | REV. A

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

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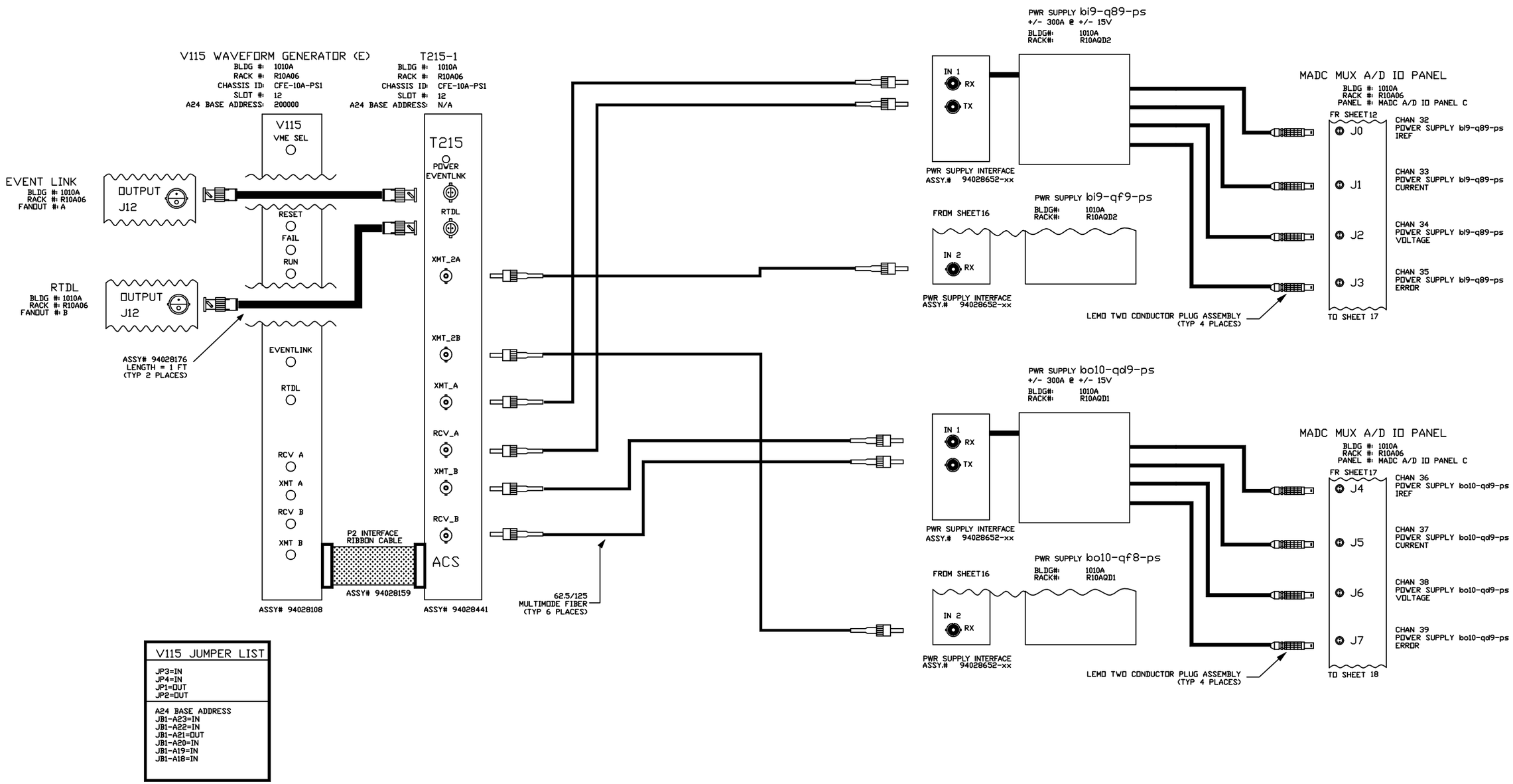

V115 JUMPER LIST

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 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	Ed Koropsak		6/18/98
CHECKED BY			
DESIGN APPROVAL			
ENGINEER APPROVAL	R.MICHNOFF		6/18/98
SUPVR. APPROVAL			

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A, CFE-10A-PS1
bi9-q89-ps/bo10-qd9-ps
SIZE D
94028569
REV. A
DRAWING NUMBER
MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 17 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

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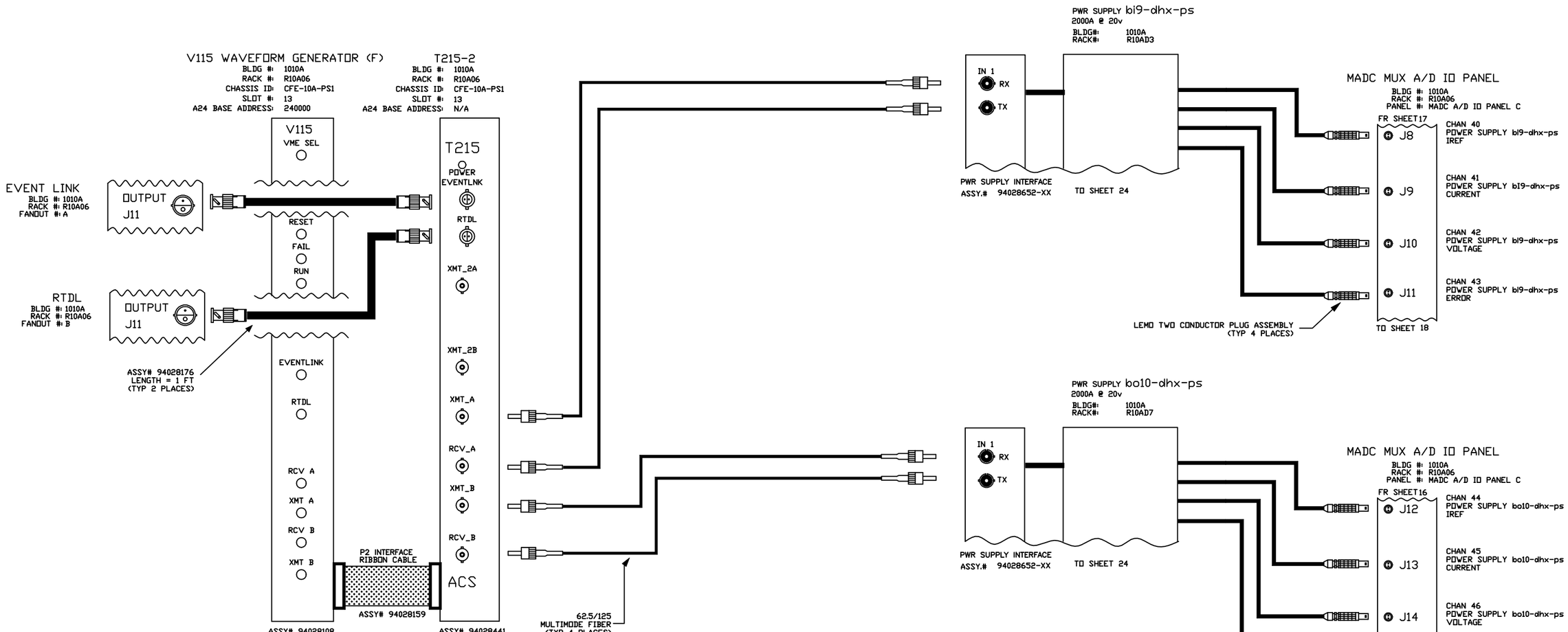

V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=OUT JB1-A20=IN JB1-A19=IN JB1-A18=OUT

-3	-2	-1 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	BROOKHAVEN NATIONAL LABORATORY
DRAWN BY Ed Koropsak	6/18/98	UPTON, N.Y. 11973
CHECKED BY		RHIC CONTROLS WIRING DIAGRAM
DESIGN APPROVAL		BLDG. 1010A, CFE-10A-PS1
ENGINEER APPROVAL R.MICHNOFF	6/18/98	bi9-dhx-ps/bo10-dhx-ps
SUPVR. APPROVAL		SIZE D — 94028569 — REV. A
NEXT ASSEMBLY		DRAWING NUMBER
		MATERIAL: —— SCALE: NA WEIGHT: – SHEET 18 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

PWR SUPPLY bi9-qf1-ps
200A @ 15V
BLDG#: 1010A
RACK#: R10ABQF1

ACS, BNL 9/10/99 3:29 PM 8569_19.dwg

V115 WAVEFORM GENERATOR (G)

BLDG #: 1010A
RACK #: R10A06
CHASSIS ID: CFE-10A-PS1
SLOT #: 14
A24 BASE ADDRESS: 280000

V115
VME SEL
RESET
FAIL
RUN
EVENTLINK
RTDL
RCV A
XMT A
RCV B
XMT B

ASSY# 94028108

T215-2

BLDG #: 1010A
RACK #: R10A06
CHASSIS ID: CFE-10A-PS1
SLOT #: 14
A24 BASE ADDRESS: N/A

T215
POWER
EVENTLNK
RTDL
XMT_2A
XMT_2B
XMT_A
RCV_A
XMT_B
RCV_B
ACS

ASSY# 94028441

EVENT LINK
BLDG #: 1010A
RACK #: R10A06
FANOUT #: A

OUTPUT
J10

RTDL
BLDG #: 1010A
RACK #: R10A06
FANOUT #: B

OUTPUT
J10

ASSY# 94028176
LENGTH = 1 FT
(TYP 2 PLACES)

P2 INTERFACE
RIBBON CABLE

ASSY# 94028159

62.5/125
MULTIMODE FIBER
(TYP 4 PLACES)

IN 1
RX
TX

PWR SUPPLY INTERFACE
ASSY.# 94028652-XX

TO SHEET 20

MADC MUX A/D IO PANEL

BLDG #: 1010A
RACK #: R10A06
PANEL #: MADC A/D IO PANEL D

FR SHEET12

J0 CHAN 48
bi9-qf1-ps
IREF

J1 CHAN 49
bi9-qf1-ps
CURRENT

J2 CHAN 50
bi9-qf1-ps
VOLTAGE

J3 CHAN 51
bi9-qf1-ps
ERROR

TO SHEET 19

LEMO TWO CONDUCTOR PLUG ASSEMBLY
(TYP 4 PLACES)

PWR SUPPLY bo10-qd1-ps
200A @ 15V
BLDG#: 1010A
RACK#: R10ABQ4

IN 1
RX
TX

PWR SUPPLY INTERFACE
ASSY.# 94028652-XX

TO SHEET 22

MADC MUX A/D IO PANEL

BLDG #: 1010A
RACK #: R10A06
PANEL #: MADC A/D IO PANEL D

FR SHEET19

J4 CHAN 52
POWER SUPPLY bo10-qd1-ps
IREF

J5 CHAN 53
POWER SUPPLY bo10-qd1-ps
CURRENT

J6 CHAN 54
POWER SUPPLY bo10-qd1-ps
VOLTAGE

J7 CHAN 55
POWER SUPPLY bo10-qd1-ps
ERROR

TO SHEET 20

LEMO TWO CONDUCTOR PLUG ASSEMBLY
(TYP 4 PLACES)

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./BNK 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
DRAWN BY Ed Koropsak 6/18/98
CHECKED BY
DESIGN APPROVAL
ENGINEER APPROVAL R.MICHNOFF 6/18/98
SUPVR. APPROVAL

DATE

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A, CFE-10A-PS1
bi9-qf1-ps/bo10-qd1-ps

SIZE D
94028569
REV. A
DRAWING NUMBER
MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 19 OF 52

1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

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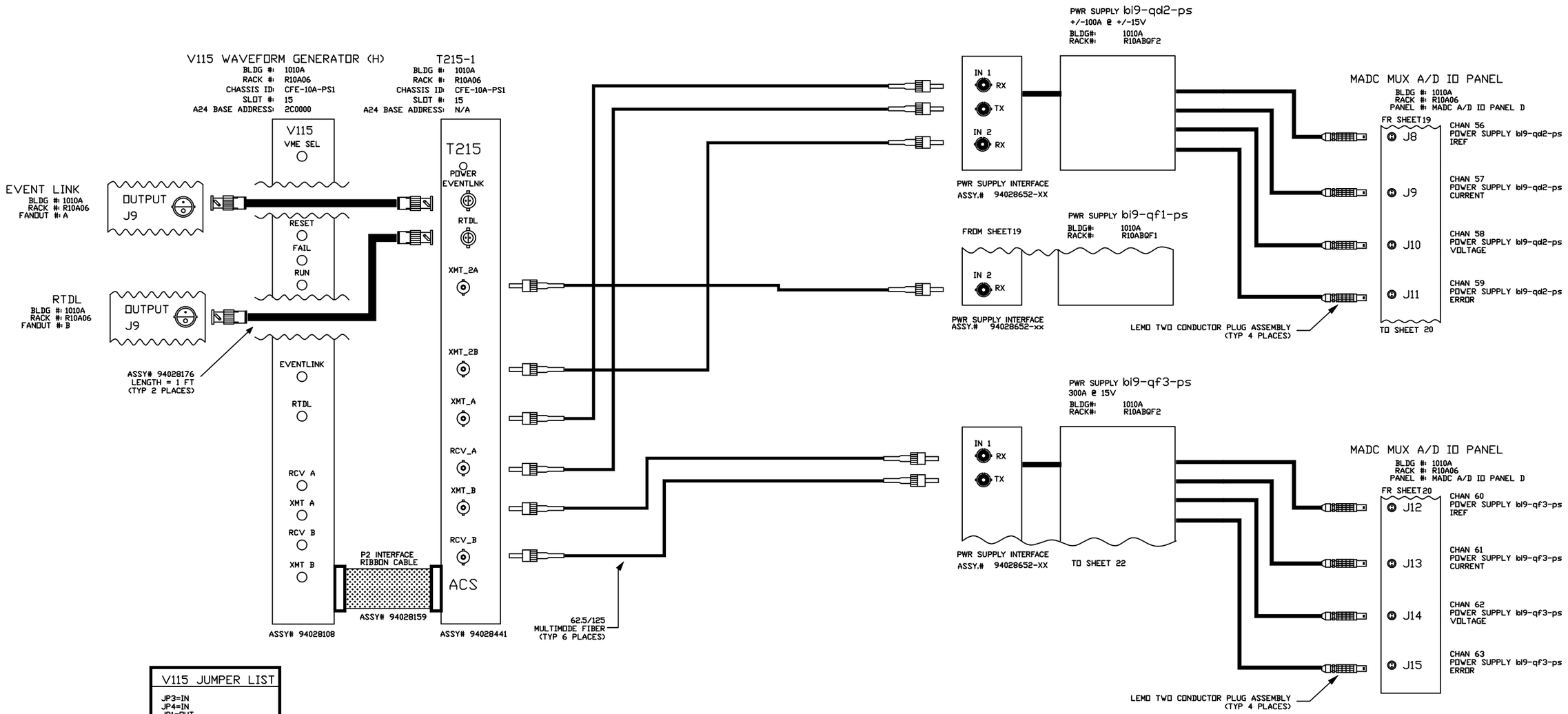


V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=OUT JB1-A20=IN JB1-A19=OUT JB1-A18=OUT

-3	-2	-1 QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNK 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	Ed Koropsak	6/18/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	6/18/98
SUPVR. APPROVAL		
NEXT ASSEMBLY		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A, CFE-10A-PS1
bi9-qd2-ps/bi9-qf3-ps

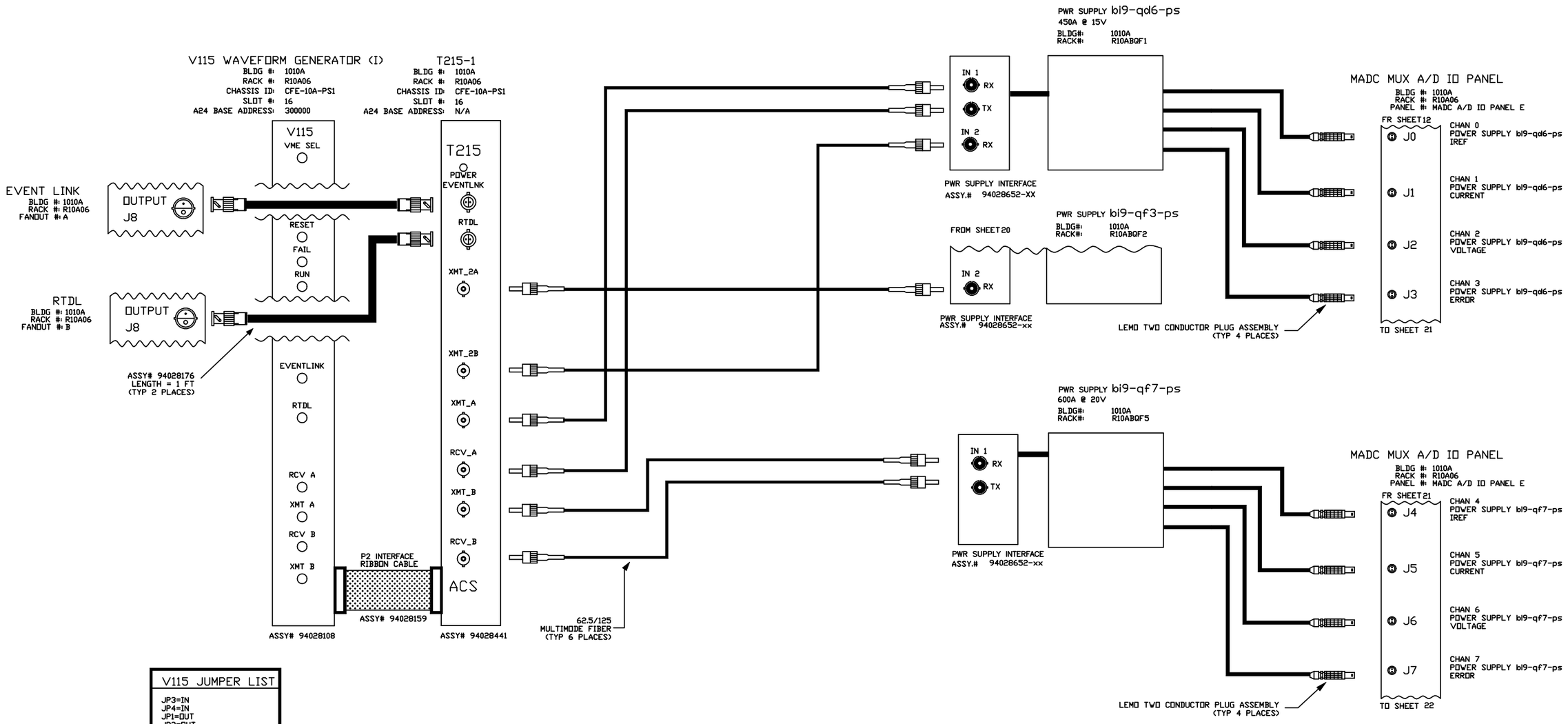
SIZE	DRAWING NUMBER	REV.
D	94028569	A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 20 OF 52

8 7 6 5 4 3 2 1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/10/99 3:32 PM 8569_21.dwg



V115 JUMPER LIST

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

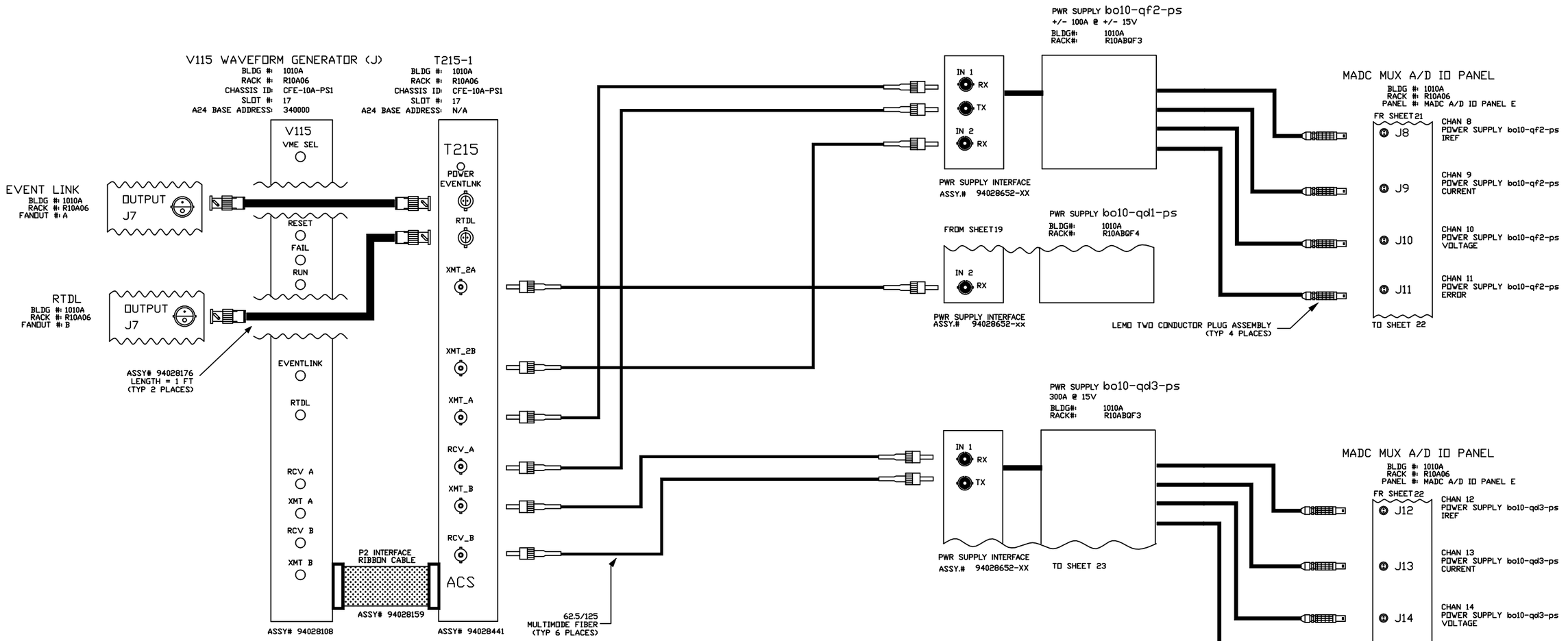
A24 BASE ADDRESS
JB1-A23=IN
JB1-A22=IN
JB1-A21=OUT
JB1-A20=OUT
JB1-A19=IN
JB1-A18=IN

-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	Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN BY Ed Koropsak	6/22/98	UPTON, N.Y. 11973
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°	CHECKED BY		RHIC CONTROLS WIRING DIAGRAM
	DESIGN APPROVAL		BLDG. 1010A, CFE-10A-PS1
	ENGINEER APPROVAL R.MICHNOFF	6/22/98	bi9-qd6-ps/bi9-qf7-ps
	SUPVR. APPROVAL		SIZE D — 94028569 — REV. A
OUTSTANDING ECN	NA FINISH / BREAK SHARP EDGES MAX. XX MIN. XX	NEXT ASSEMBLY	DRAWING NUMBER
			MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 21 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.



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=OUT
JB1-A19=IN
JB1-A18=OUT

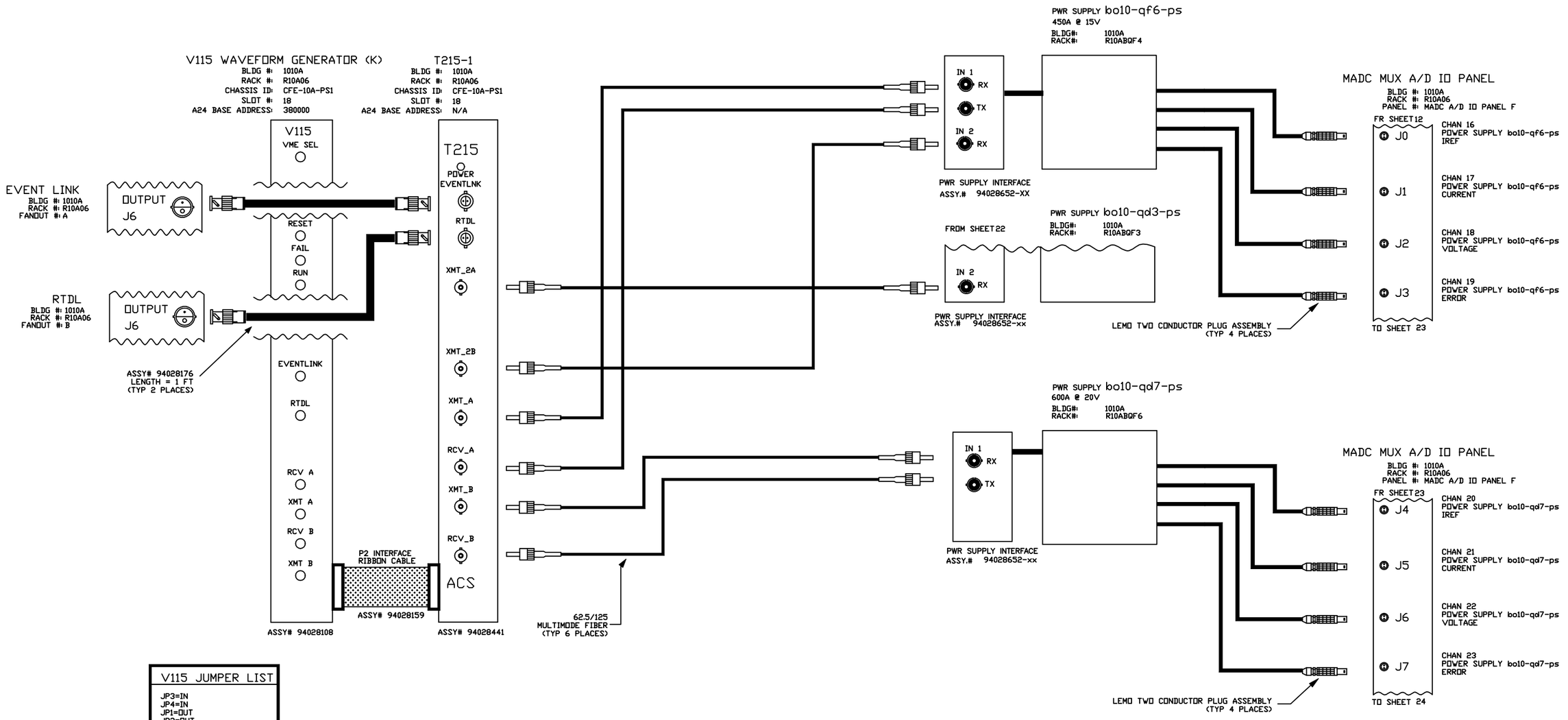
-3	-2	-1	QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989	Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY
	DRAWN BY: Ed Koropsak	6/22/98	UPTON, N.Y. 11973
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	CHECKED BY:		RHIC CONTROLS WIRING DIAGRAM
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°	DESIGN APPROVAL:		BLDG. 1010A, CFE-10A-PS1
	ENGINEER APPROVAL: R.MICHNOFF	6/22/98	bo10-qf2-ps/bo10-qd3-ps
	SUPVR. APPROVAL:		SIZE D — 94028569 — REV. A
OUTSTANDING ECN	NA FINISH — BREAK SHARP EDGES MAX. XX MIN. XX	NEXT ASSEMBLY	DRAWING NUMBER
			MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 22 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/10/99 3:35 PM 8569_23.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=OUT JB1-A19=OUT JB1-A18=IN

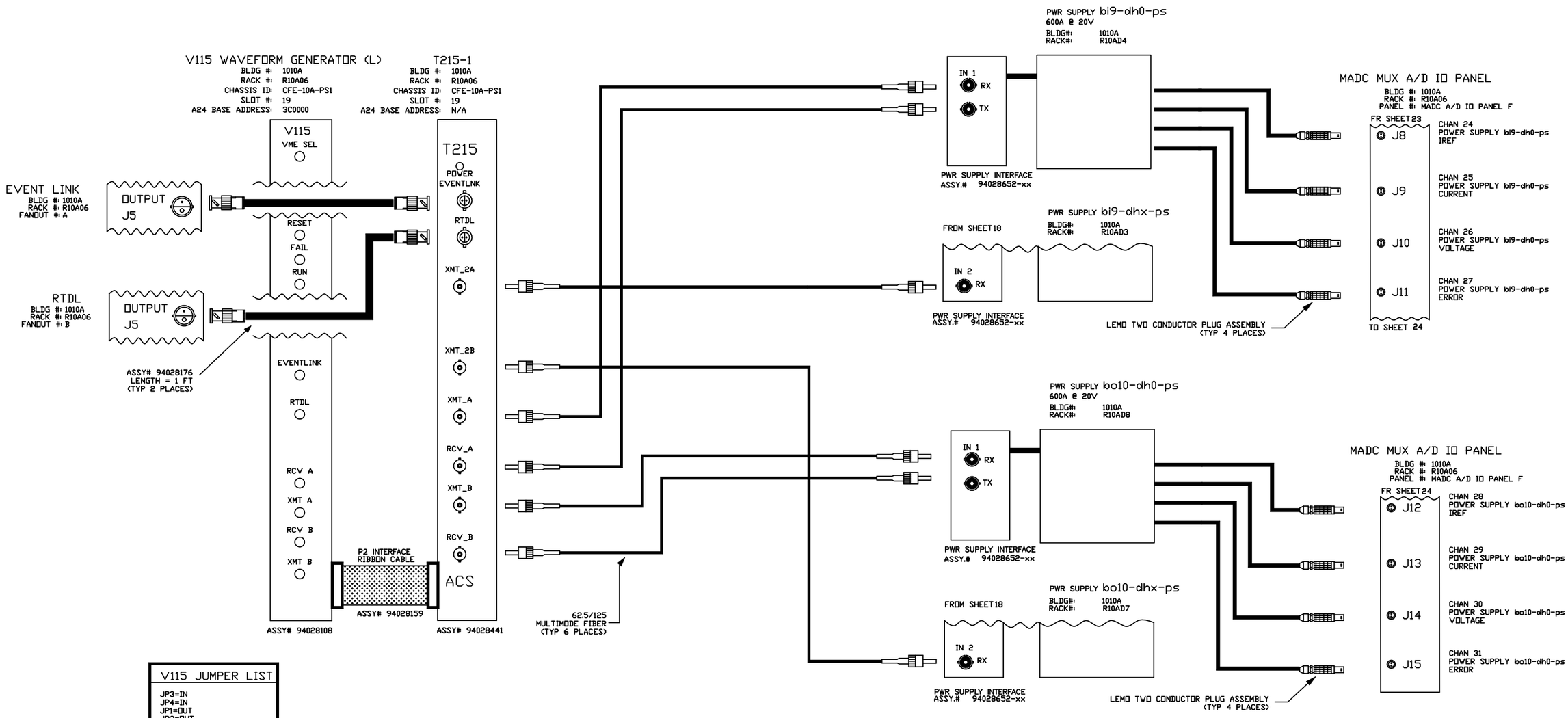
-3	-2	-1 QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989	Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN BY: Ed Koropsak	6/22/98	UPTON, N.Y. 11973
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°	CHECKED BY:		RHIC CONTROLS WIRING DIAGRAM
	DESIGN APPROVAL:		BLDG. 1010A, CFE-10A-PS1
	ENGINEER APPROVAL: R.MICHNOFF	6/22/98	bo10-qf6-ps/bo10-qd7-ps
	SUPVR. APPROVAL:		SIZE D — 94028569 — REV. A
OUTSTANDING ECN	NA FINISH	BREAK SHARP EDGES MAX. XX MIN. XX	NEXT ASSEMBLY — DRAWING NUMBER
			MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 23 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/10/99 3:37 PM 8569_24.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=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	Ed Koropsak	6/22/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	6/22/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A, CFE-10A-PS1
bi9-dh0-ps/bo10-dh0-ps

SIZE D | DRAWING NUMBER 94028569 | REV. A

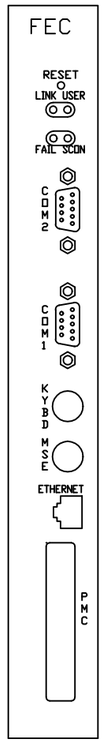
MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 24 OF 52

1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/11/00 1:32 PM 8569_28.dwg

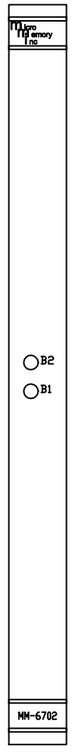
FRONT END COMPUTER
BLDG #: 1010A
RACK #: R10A07
CHASSIS ID: CFE-10A-PS2
SLOT#: 1
FEC NAME: cfe-10a-ps2



ETHERNET NETWORK

REF. NETWORK DIAGRAM

DEVICE: MEMORY BOARD
BLDG #: 1010A
RACK #: R010A07
CHASSIS ID: CFE-10A-PS2
SLOT #: 2
A24 BASE ADDRESS:



JUMPER LIST
1. REMOVE E1.
2. INSTALL E15.
3. SW3 CLOSE ALL POSITIONS.
4. SW2 CLOSE POSITIONS 7 AND 8.
5. SW1 CLOSE POSITIONS 2-8.
6. INSTALL E14 AND E25 TO ENABLE BATTERIES

DEVICE: V108 UTILITY MODULE
BLDG #: 1010A
RACK #: R10A07
CHASSIS ID: CFE-10A-PS2
SLOT #: 3
A24 BASE ADDRESS: 004000

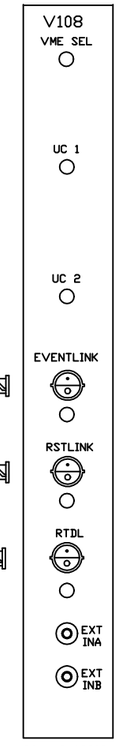
EVENT LINK
BLDG #: 1010A
RACK #: R10A06
FANOUT #: C

RESET LINK
BLDG #: 1010A
RACK #: R10A13
FANOUT #: C

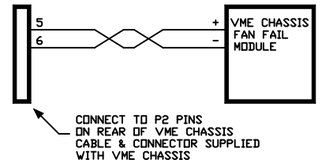
REAL TIME DATA LINK
BLDG #: 1010A
RACK #: R10A06
FANOUT #: D

OUTPUT J9

ASSY# 94028176
LENGTH AS REQUIRED
(TYP 3 PLACES)



ASSY# 94028094



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

-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
	DRAWN BY Ed Koropsak	6/18/98	UPTON, N.Y. 11973
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	CHECKED BY		RHIC CONTROLS WIRING DIAGRAM
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°	DESIGN APPROVAL		1010A, VME CHASSIS CFE-10A-PS2
	ENGINEER APPROVAL R. MICHNOFF	6/18/98	FT END COMP/V108 UTIL MODULE
	SUPVR. APPROVAL		SIZE D — 94028569 — REV. A
NA FINISH — BREAK SHARP EDGES MAX. XX MIN. XX	NEXT ASSEMBLY		DRAWING NUMBER
OUTSTANDING ECN			MATERIAL: ——— SCALE: FULL WEIGHT: – SHEET 28 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/11/00 1:34 PM 8569_29.dwg

EVENT LINK
BLDG #: 1010A
RACK #: R10A07
FANOUT #: A

OUTPUT J3

ASSY# 94028176
LENGTH AS REQUIRED
(TYP 1 PLACE)

MADC CONTROLLER
RACK#: R10A07
CHASSIS ID: CFE-10A-PS2
SLOT #: 4
A24 BASE ADDRESS: 540000
A32 BASE ADDRESS: 24000000

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

P2 INTERFACE RIBBON CABLE
ASSY# 94028218

MADC A/D MODULE
RACK#: R10A07
CHASSIS ID: CFE-10A-PS2
SLOT #: 5
CONFIGURATION: +/- 10V

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

ASSY# 94028226

MADC MUX A/D IO PANEL
BLDG #: 1010A
RACK #: R10A07
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 30

MADC MUX A/D IO PANEL
BLDG #: 1010A
RACK #: R10A07
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 32

MADC MUX A/D IO PANEL
BLDG #: 1010A
RACK #: R10A07
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 34

MADC MUX A/D IO PANEL
BLDG #: 1010A
RACK #: R10A07
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 36

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

V113 JUMPERS INSTALLED

E3-E4

V113
BASE ADDRESS DIP SWITCHES

A24 BASE — A32 BASE
A18 A19 A20 A21 A22 A23 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

EVENT LINK
BLDG #: 1010A
RACK #: R10A07
FANOUT #: A

OUTPUT J4

ASSY# 94028176
LENGTH AS REQUIRED
(TYP 1 PLACE)

MADC CONTROLLER
RACK#: R10A07
CHASSIS ID: CFE-10A-PS2
SLOT #: 6
A24 BASE ADDRESS: 580000
A32 BASE ADDRESS: 28000000

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

P2 INTERFACE RIBBON CABLE
ASSY# 94028218

MADC A/D MODULE
RACK#: R10A07
CHASSIS ID: CFE-10A-PS2
SLOT #: 7
CONFIGURATION: +/- 10V

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

ASSY# 94028226

MADC MUX A/D IO PANEL
BLDG #: 1010A
RACK #: R10A07
PANEL #: MADC A/D IO PANEL E

ASSY# 94028670 ANALOG OUTPUT
+24V
COM
-24V
FROM BUFFERED MADC I/O POWER SUPPLY REF SH. 2
TO SHEET 56

MADC MUX A/D IO PANEL
BLDG #: 1010A
RACK #: R10A07
PANEL #: MADC A/D IO PANEL F

ASSY# 94028670 ANALOG OUTPUT
+24V
COM
-24V
FROM BUFFERED MADC I/O POWER SUPPLY REF SH. 2
TO SHEET 57

MADC MUX A/D IO PANEL
BLDG #: 1010A
RACK #: R10A07
PANEL #: MADC A/D IO PANEL G

ASSY# 94028670 ANALOG OUTPUT
+24V
COM
-24V
FROM BUFFERED MADC I/O POWER SUPPLY REF SH. 2
TO SHEET xx

MADC MUX A/D IO PANEL
BLDG #: 1010A
RACK #: R10A07
PANEL #: MADC A/D IO PANEL H

ASSY# 94028670 ANALOG OUTPUT
+24V
COM
-24V
FROM BUFFERED MADC I/O POWER SUPPLY REF SH. 2
TO SHEET xx

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

V113 JUMPERS INSTALLED

E3-E4

V113
BASE ADDRESS DIP SWITCHES

A24 BASE — A32 BASE
A18 A19 A20 A21 A22 A23 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°

NA FINISH

BREAK SHARP EDGES
MAX. XX MIN. XX

OUTSTANDING ECN

Q.A. CATEGORY	A-3	DATE
DRAWN BY	Ed Koropsak	6/18/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	6/18/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
1010A, VME CHASSIS CFE-10A-PS2
MADC SYSTEM

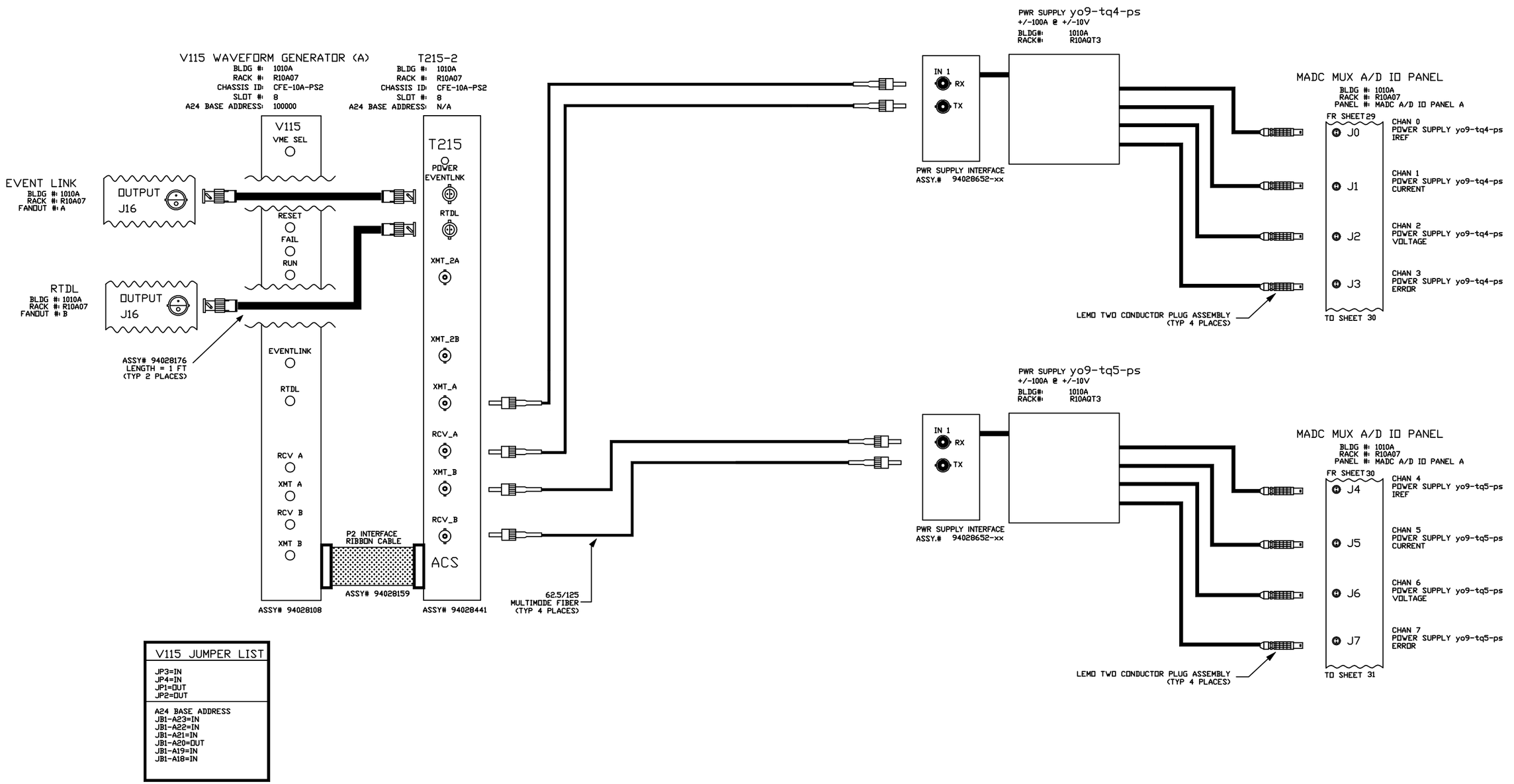
SIZE D
94028569
DRAWING NUMBER
REV. A

MATERIAL: ——— SCALE: FULL WEIGHT: – SHEET 29 OF 52

8 7 6 5 4 3 2 1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/20/99 9:55 AM 8569_30.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 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	Ed Koropsak	6/22/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	6/22/98
SUPVR. APPROVAL		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A, CFE-10A-PS2
yo9-tq4-ps/yo9-tq5-ps

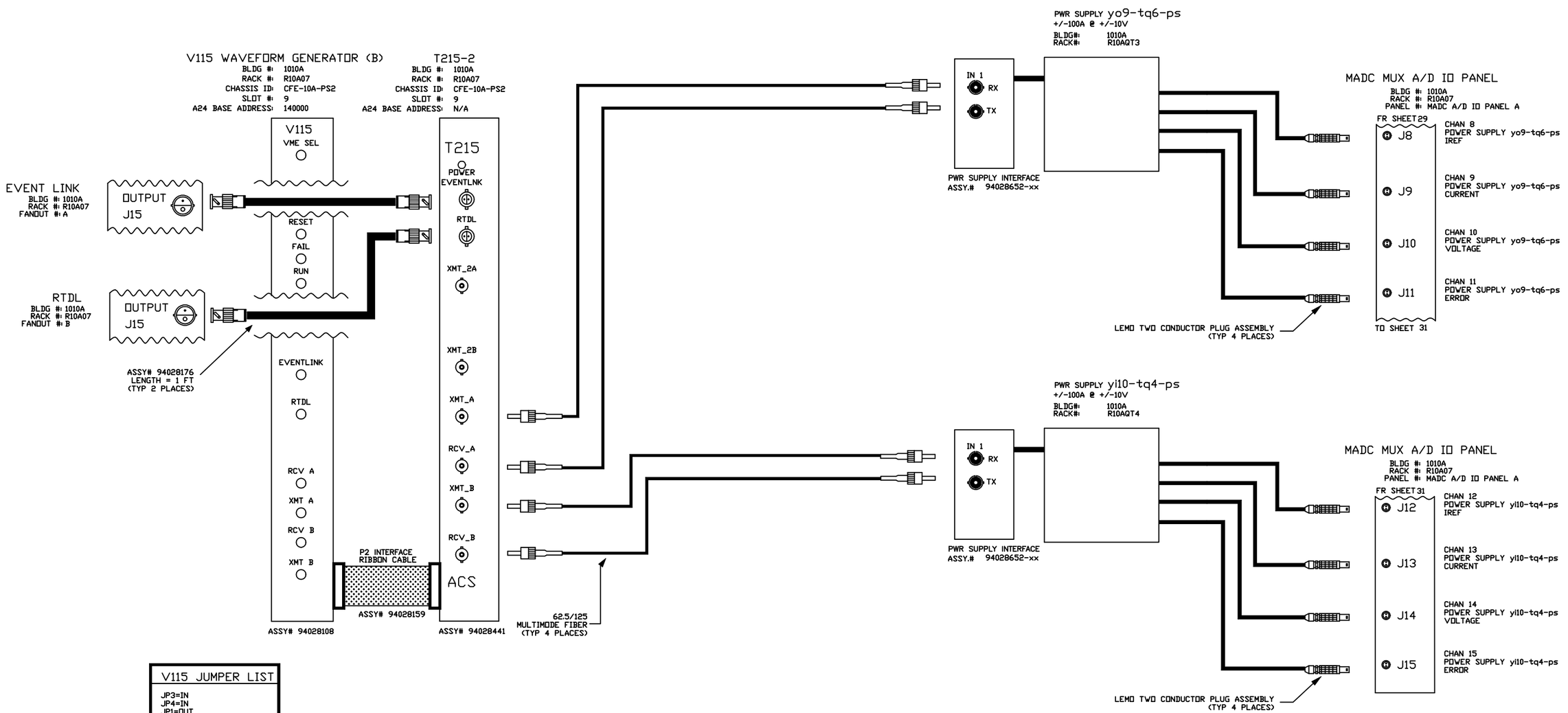
SIZE	DRAWING NUMBER	REV.
D	94028569	A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 30 OF 52

8 7 6 5 4 3 2 1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/20/99 10:21 AM 8569_31.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 QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.

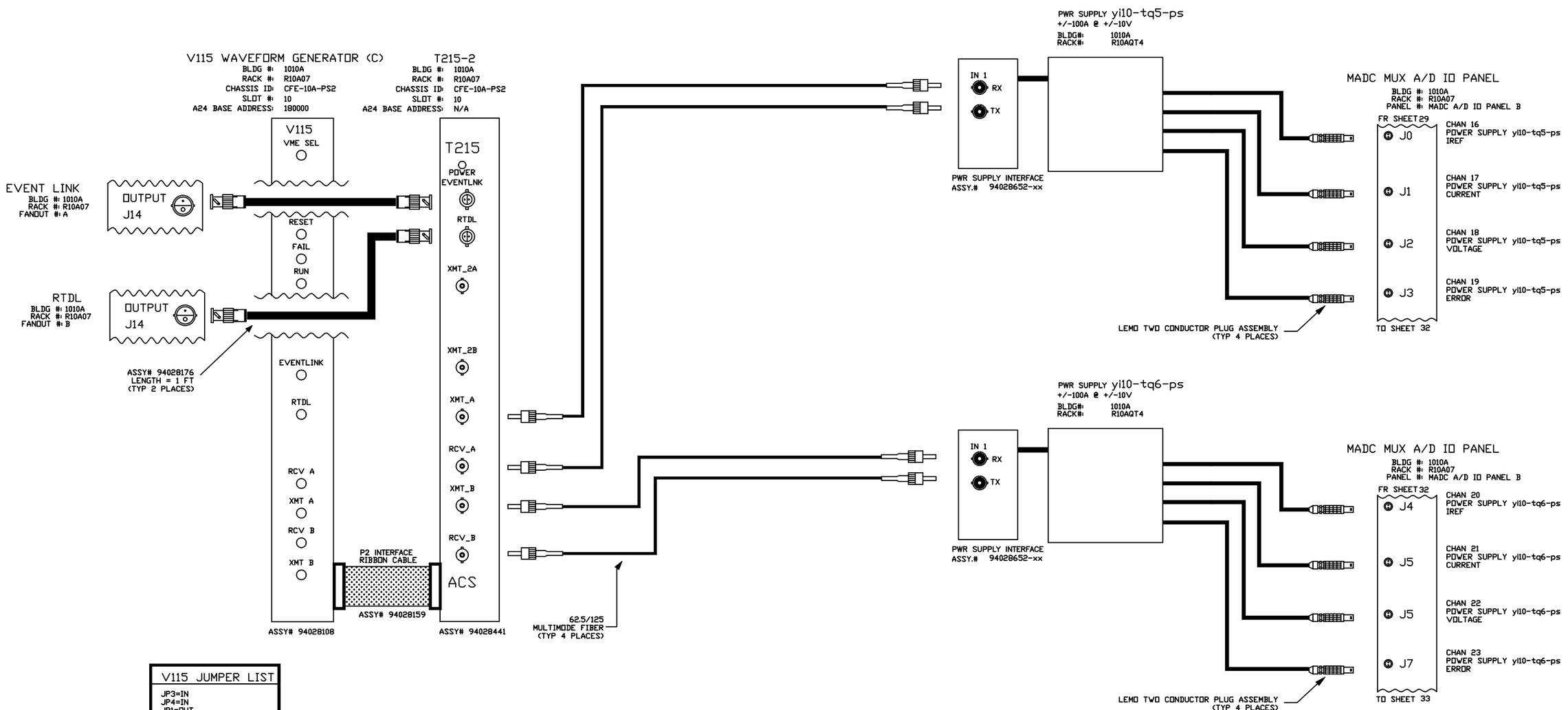
INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005
ANGULAR TOLERANCE ± .5°
NA FINISH
BREAK SHARP EDGES MAX. XX MIN. XX
OUTSTANDING ECN

Q.A. CATEGORY A-3		DATE	BROOKHAVEN NATIONAL LABORATORY
DRAWN BY	Ed Koropsak	6/22/98	UPTON, N.Y. 11973
CHECKED BY			RHIC CONTROLS WIRING DIAGRAM
DESIGN APPROVAL			BLDG. 1010A, CFE-10A-PS2
ENGINEER APPROVAL	R.MICHNOFF	6/22/98	yo9-tq6-ps/yi10-tq4-ps
SUPVR. APPROVAL			94028569
NEXT ASSEMBLY			SIZE D, REV. A, DRAWING NUMBER
MATERIAL: ———	SCALE: NA	WEIGHT: –	SHEET 31 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/20/99 10:22 AM 8569_32.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

Q.A. CATEGORY A-3

DRAWN BY	Ed Koropsak	6/22/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	6/22/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A, CFE-10A-PS2
yi10-tq5-ps/yi10-tq6-ps

SIZE D | 94028569 DRAWING NUMBER | REV. A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 32 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

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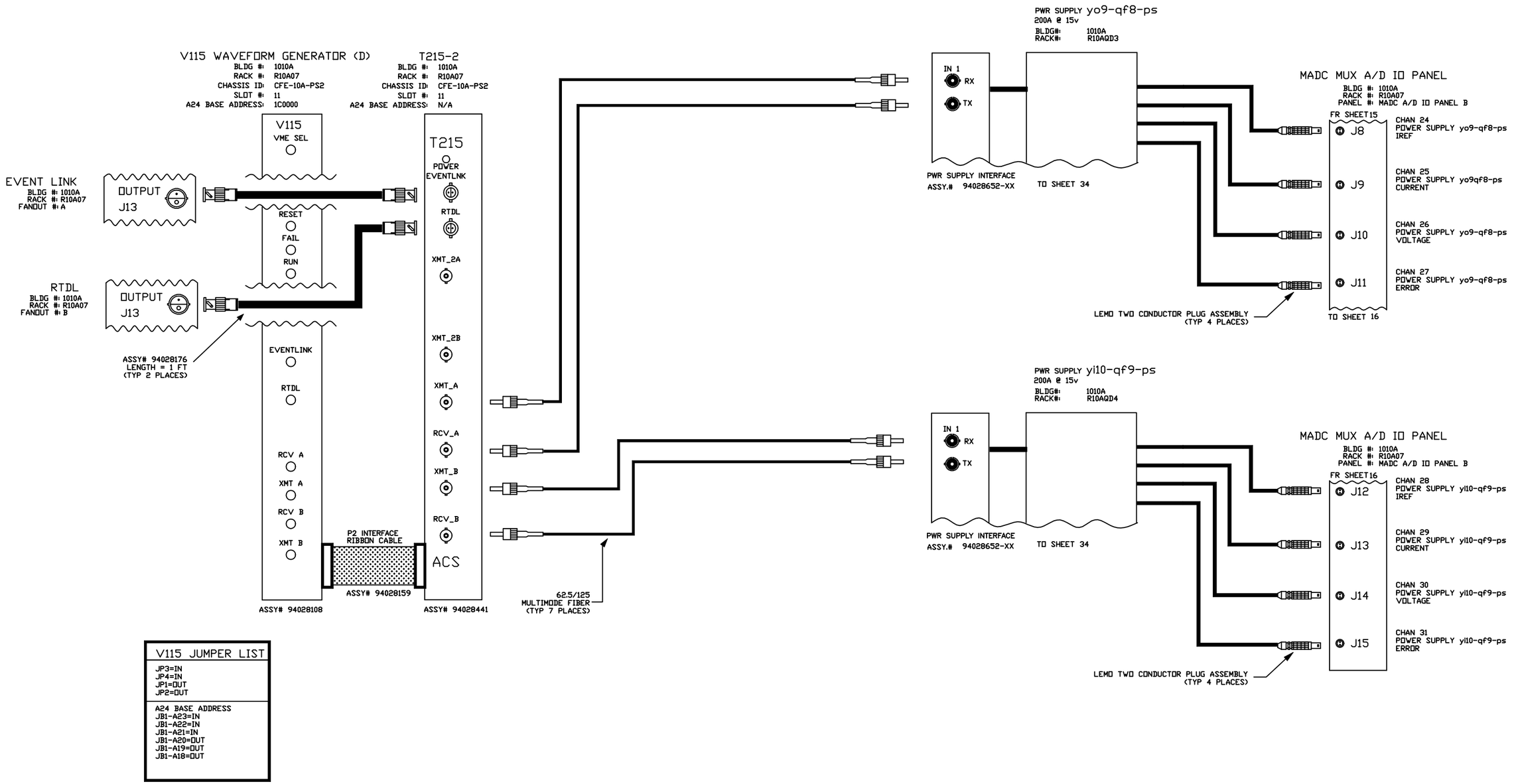


V115 JUMPER LIST
JP3=IN JP4=IN JP1=OUT JP2=OUT
A24 BASE ADDRESS JB1-A23=IN JB1-A22=IN JB1-A21=IN JB1-A20=OUT JB1-A19=OUT JB1-A18=OUT

-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

NEXT ASSEMBLY

Q.A. CATEGORY A-3		DATE
DRAWN BY	Ed Koropsak	6/22/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	6/22/98
SUPVR. APPROVAL		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

BLDG. 1010A, CFE-10A-PS2

yo9-qf8-ps/yi10-qf9-ps

SIZE D | 94028569 | REV. A

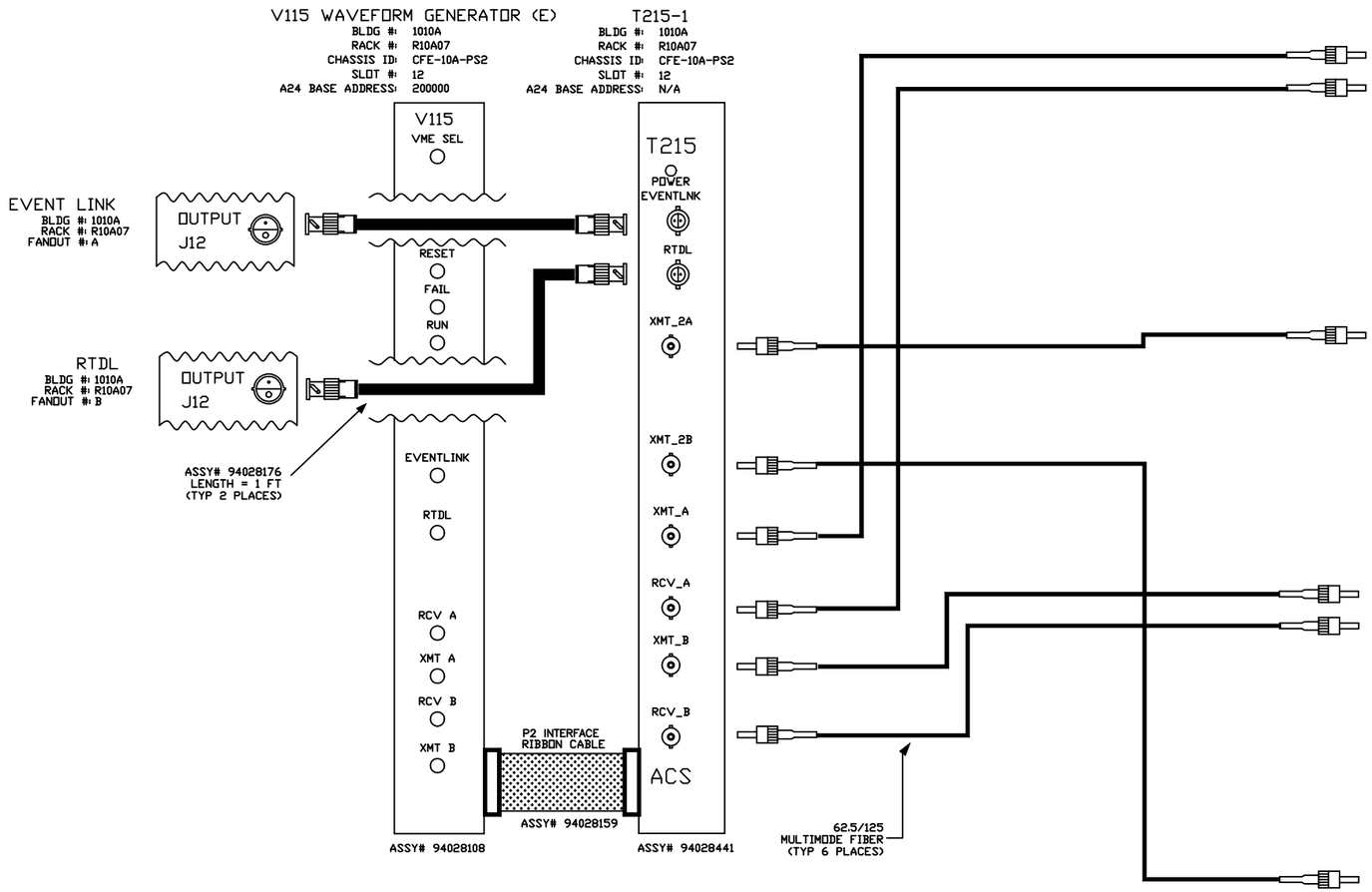
DRAWING NUMBER

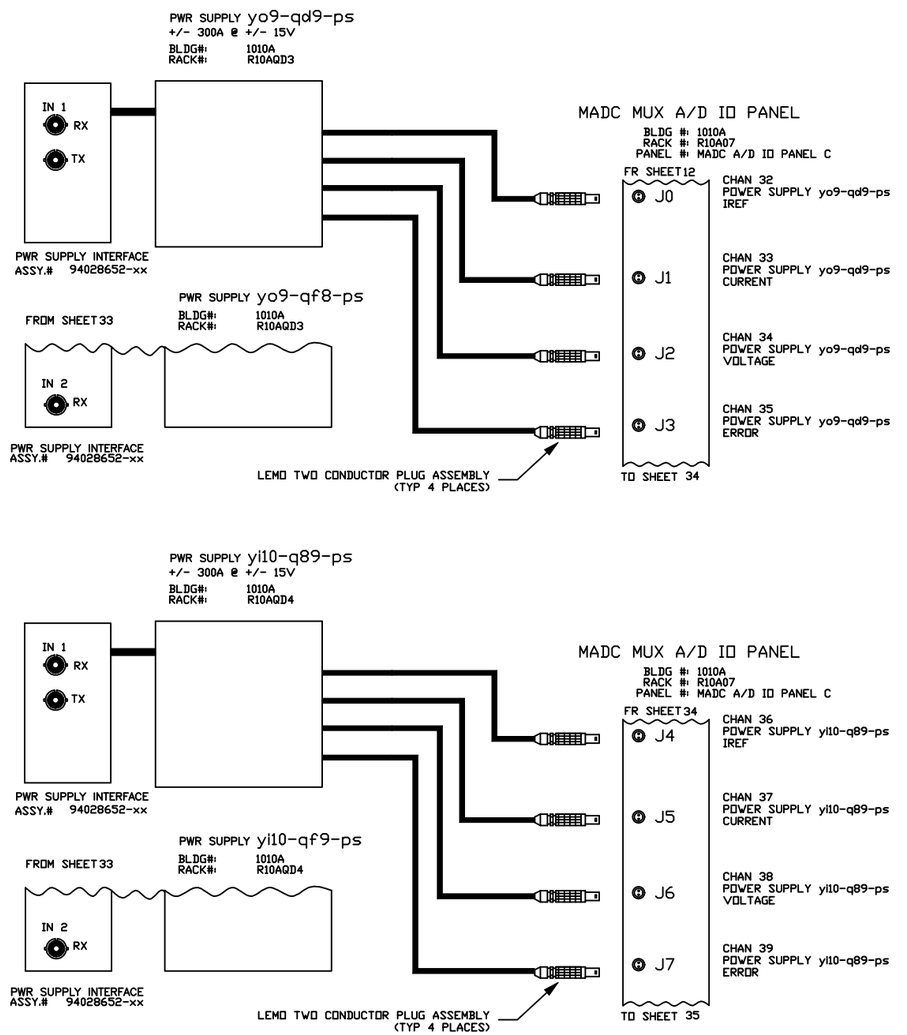
MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 33 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/20/99 10:29 AM 8569_34.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 QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.

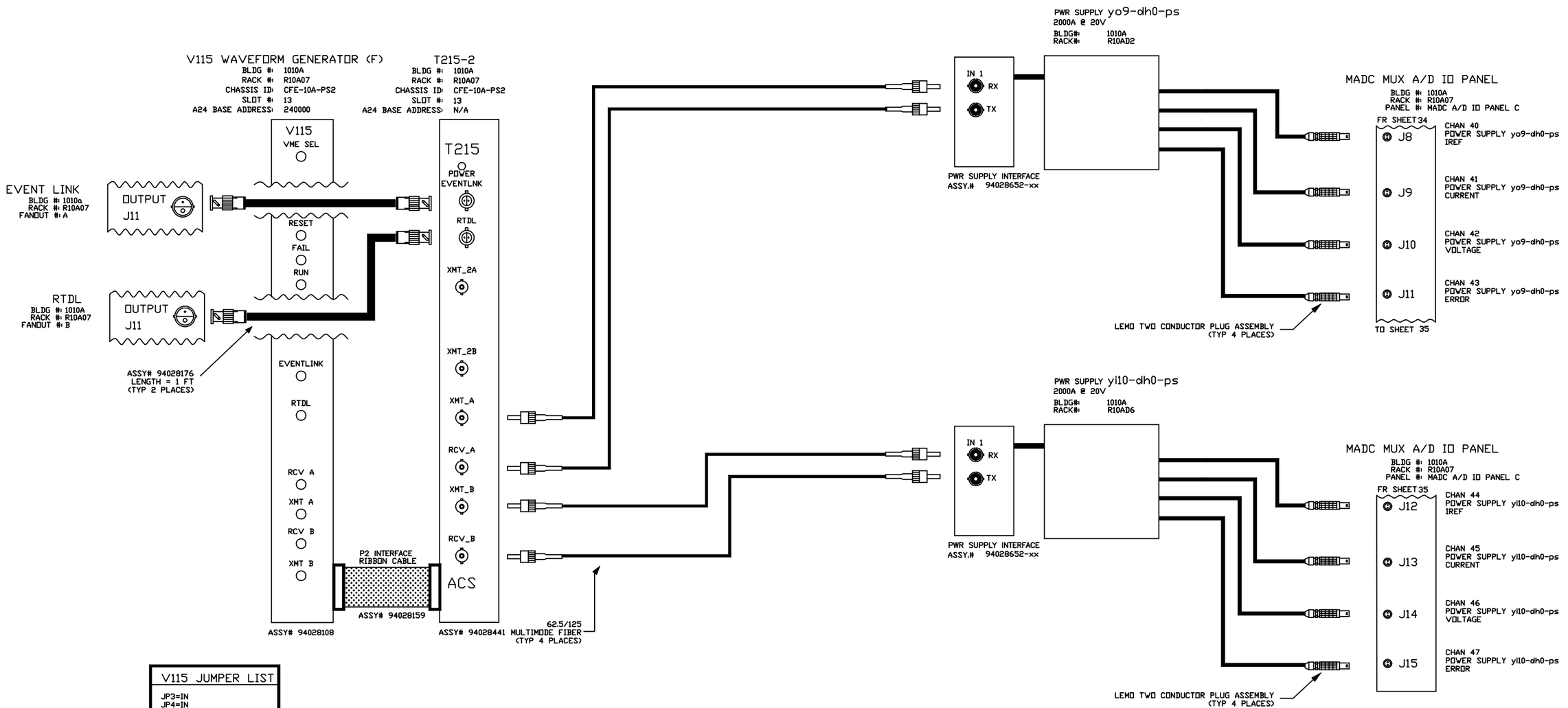
INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005
ANGULAR TOLERANCE ± .5°
FINISH NA
BREAK SHARP EDGES MAX. XX MIN. XX
OUTSTANDING ECN
NEXT ASSEMBLY

Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY
DRAWN BY Ed Koropsak	6/22/98	UPTON, N.Y. 11973
CHECKED BY		RHIC CONTROLS WIRING DIAGRAM
DESIGN APPROVAL		BLDG. 1010A, CFE-10A-PS2
ENGINEER APPROVAL R.MICHNOFF	6/22/98	yo9-qd9-ps/yi10-q89-ps
SUPVR. APPROVAL		SIZE D — 94028569 — REV. A
		DRAWING NUMBER
MATERIAL: ———	SCALE: NA	WEIGHT: – SHEET 34 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/20/99 10:31 AM 8569_35.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 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	Ed Koropsak	6/22/98	
CHECKED BY			
DESIGN APPROVAL			
ENGINEER APPROVAL	R.MICHNOFF	6/22/98	
SUPVR. APPROVAL			
NEXT ASSEMBLY			

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010AB, CFE-10A-PS2
yo9-dh0-ps/yi10-dh0-ps

SIZE	DRAWING NUMBER	REV.
D	94028569	A

MATERIAL: —— SCALE: NA WEIGHT: — SHEET 35 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/20/99 10:33 AM 8569_36.dwg

V115 WAVEFORM GENERATOR (G)

BLDG #: 1010A
RACK #: R10A07
CHASSIS ID: CFE-10A-PS2
SLOT #: 14
A24 BASE ADDRESS: 280000

V115
VME SEL
RESET
FAIL
RUN
EVENTLINK
RTDL
RCV A
XMT A
RCV B
XMT B

ASSY# 94028108

T215-2

BLDG #: 1010A
RACK #: R10A07
CHASSIS ID: CFE-10A-PS2
SLOT #: 14
A24 BASE ADDRESS: N/A

T215
POWER
EVENTLNK
RTDL
XMT_2A
XMT_2B
XMT_A
RCV_A
XMT_B
RCV_B
ACS

ASSY# 94028441

P2 INTERFACE RIBBON CABLE
ASSY# 94028159

EVENT LINK
BLDG #: 1010A
RACK #: R10A07
FANOUT #: A
OUTPUT J10

RTDL
BLDG #: 1010A
RACK #: R10A07
FANOUT #: B
OUTPUT J10

ASSY# 94028176
LENGTH = 1 FT
(TYP 2 PLACES)

62.5/125 MULTIMODE FIBER
(TYP 4 PLACES)

PWR SUPPLY yo9-qd1-ps
200A @ 15V
BLDG#: 1010A
RACK#: R10AYQF1

IN 1
RX
TX

PWR SUPPLY INTERFACE
ASSY.# 94028652-XX

TO SHEET 37

MADC MUX A/D IO PANEL

BLDG #: 1010A
RACK #: R10A07
PANEL #: MADC A/D IO PANEL D

FR SHEET 29

J0 CHAN 48 POWER SUPPLY yo9-qd1-ps IREF
J1 CHAN 49 POWER SUPPLY yo9-qd1-ps CURRENT
J2 CHAN 50 POWER SUPPLY yo9-qd1-ps VOLTAGE
J3 CHAN 51 POWER SUPPLY yo9-qd1-ps ERROR

TO SHEET 36

LEMO TWO CONDUCTOR PLUG ASSEMBLY
(TYP 4 PLACES)

PWR SUPPLY yi10-qf1-ps
200A @ 15V
BLDG#: 1010A
RACK#: R10AYQF4

IN 1
RX
TX

PWR SUPPLY INTERFACE
ASSY.# 94028652-XX

TO SHEET 39

MADC MUX A/D IO PANEL

BLDG #: 1010A
RACK #: R10A07
PANEL #: MADC A/D IO PANEL D

FR SHEET 36

J4 CHAN 52 POWER SUPPLY yi10-qf1-ps IREF
J5 CHAN 53 POWER SUPPLY yi10-qf1-ps CURRENT
J6 CHAN 54 POWER SUPPLY yi10-qf1-ps VOLTAGE
J7 CHAN 55 POWER SUPPLY yi10-qf1-ps ERROR

TO SHEET 37

LEMO TWO CONDUCTOR PLUG ASSEMBLY
(TYP 4 PLACES)

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./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 Ed Koropsak	6/22/98	
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL R.MICHNOFF	6/22/98	
SUPVR. APPROVAL		
NEXT ASSEMBLY		

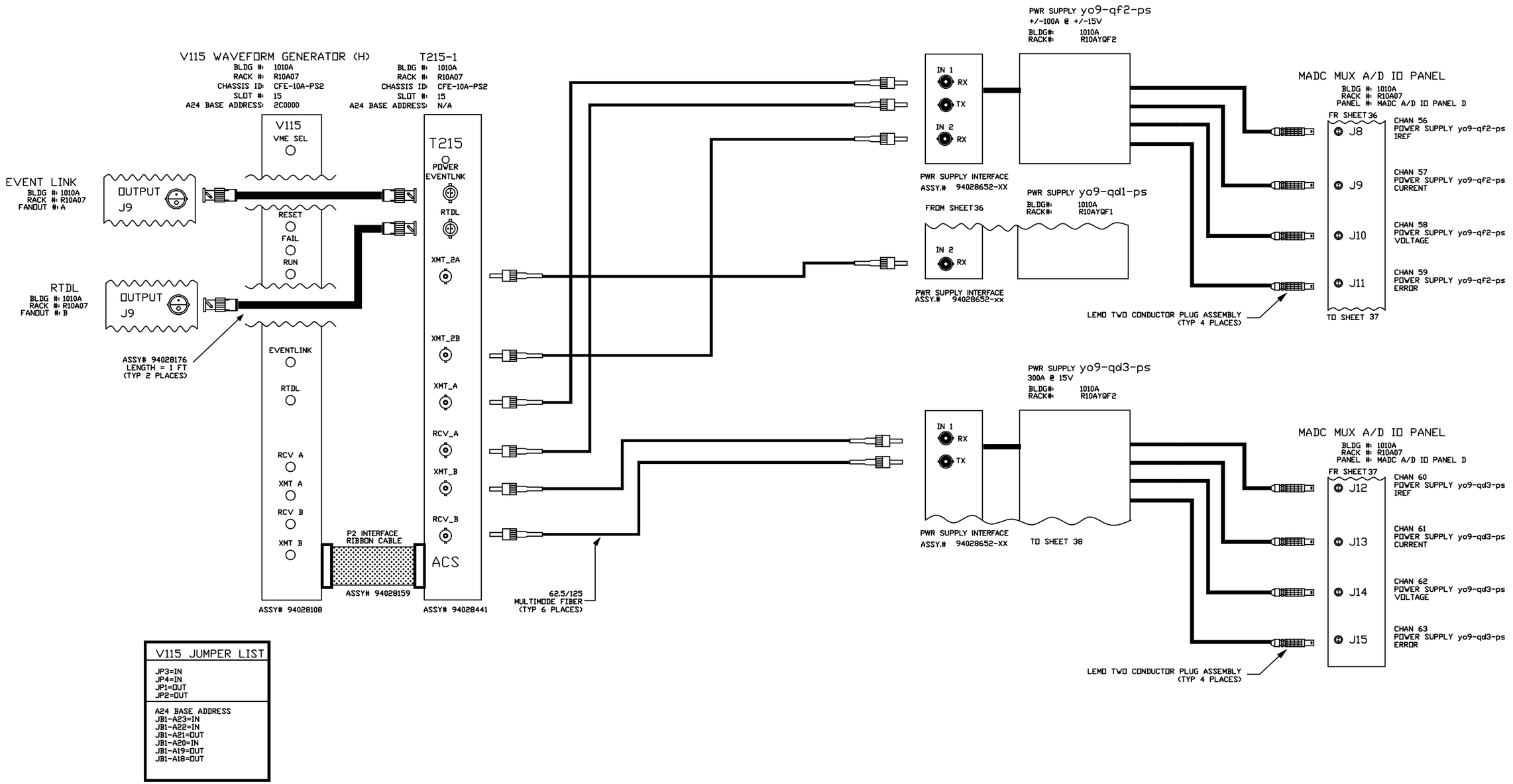
BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A, CFE-10A-PS2
yo9-qd1-ps/yi10-qf1-ps

SIZE D | 94028569 | REV. A
DRAWING NUMBER
MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 36 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/20/99 10:36 AM 8569_37.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
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	Ed Koropsak	6/22/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	6/22/98
SUPVR. APPROVAL		
NEXT ASSEMBLY		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A, CFE-10A-PS2
yo9-qf2-ps/yo9-qqd3-ps

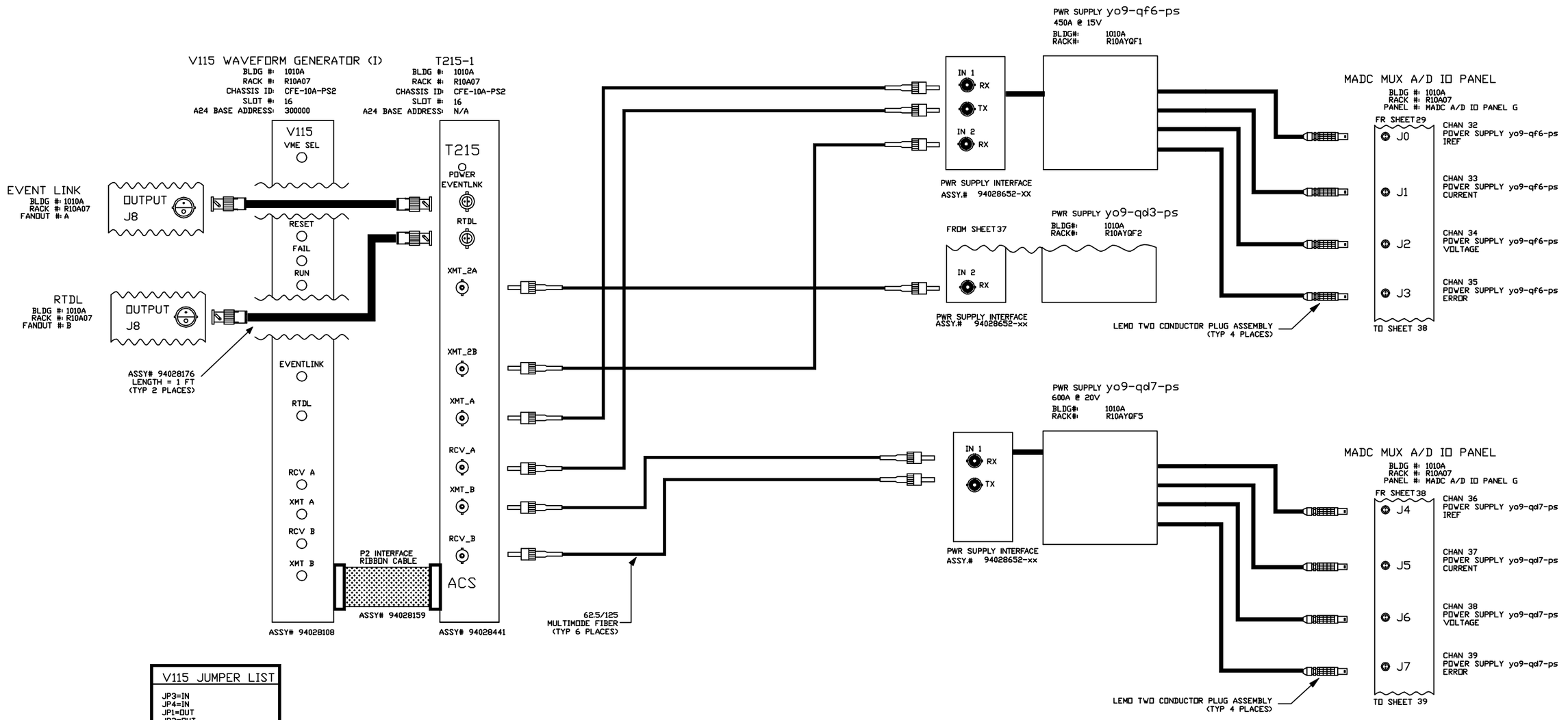
SIZE	DRAWING NUMBER	REV.
D	94028569	A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 37 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 3/16/01 2:42 PM 8569_38.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=OUT JB1-A19=IN JB1-A18=IN

-3	-2	-1 QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./PNL 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	Ed Koropsak	6/22/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	6/22/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A, CFE-10A-PS2
yo9-qf9-ps/yo9-qd7-ps

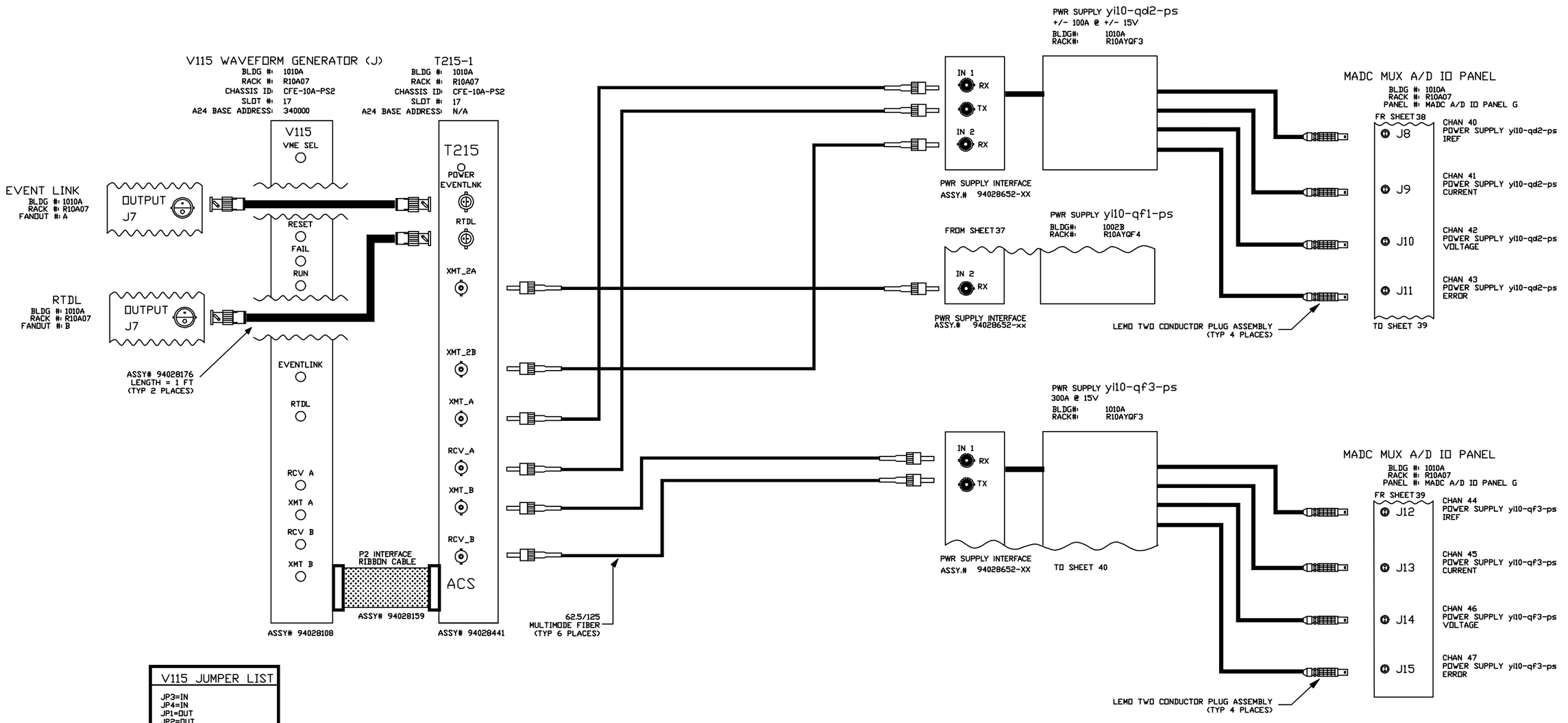
SIZE D | DRAWING NUMBER 94028569 | REV. A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 38 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 3/16/01 2:45 PM 8569_39.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=OUT JB1-A19=IN JB1-A18=OUT

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

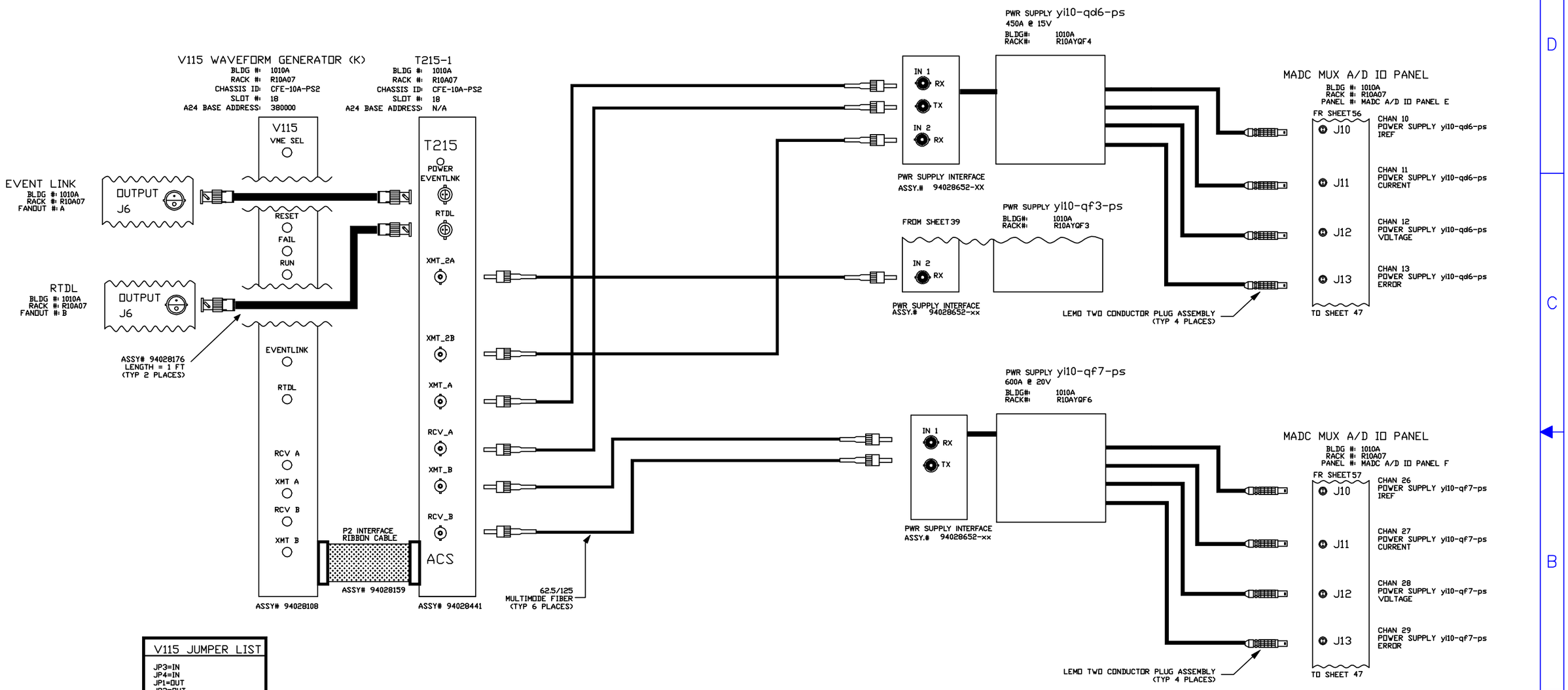
Q.A. CATEGORY A-3		DATE	BROOKHAVEN NATIONAL LABORATORY
DRAWN BY	Ed Koropsak	6/22/98	UPTON, N.Y. 11973
CHECKED BY			RHIC CONTROLS WIRING DIAGRAM
DESIGN APPROVAL			BLDG. 1010A, CFE-10A-PS2
ENGINEER APPROVAL	R.MICHNOFF	6/22/98	yi10-qd2-ps/yi10-qf3-ps
SUPVR. APPROVAL			SIZE D — 94028569 — REV. A
NEXT ASSEMBLY			DRAWING NUMBER

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 39 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 3/16/01 2:49 PM 8569_40.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=OUT
JB1-A19=OUT
JB1-A18=IN

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

DRAWN BY	Ed Koropsak	6/22/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	6/22/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

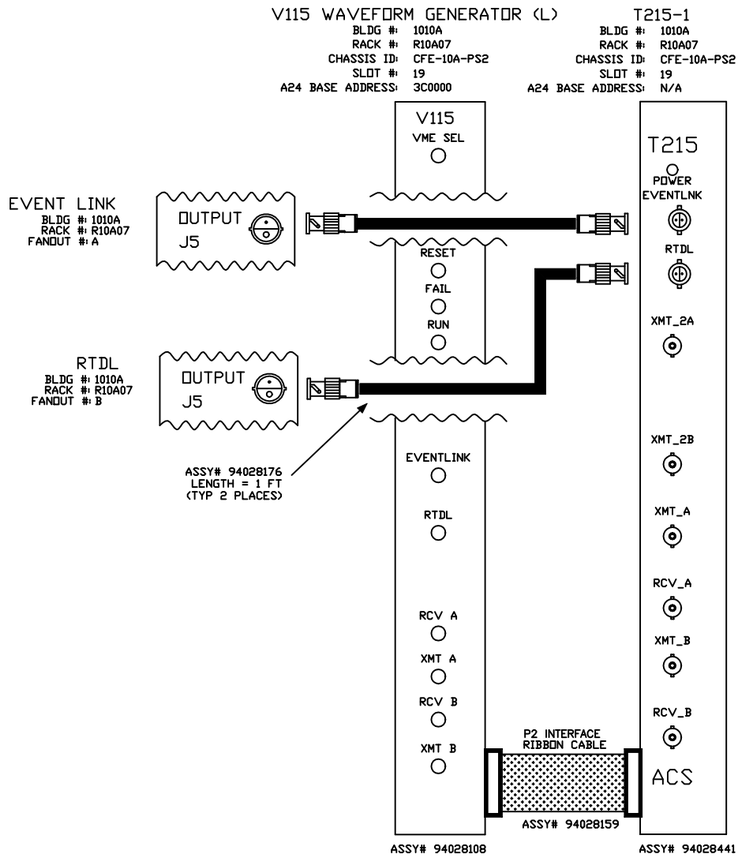
BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A, CFE-10A-PS2
yi10-qd6-ps/yi10-qf7-ps

SIZE D | DRAWING NUMBER 94028569 | REV. A

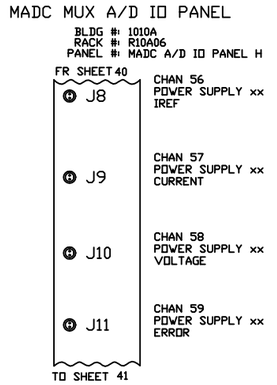
MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 40 OF 52

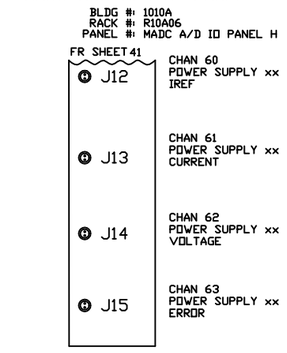
*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.



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=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°

FINISH: NA

BREAK SHARP EDGES
MAX. XX MIN. XX

OUTSTANDING ECN

Q.A. CATEGORY A-3		DATE
DRAWN BY	Ed Koropsak	6/22/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	6/22/98
SUPVR. APPROVAL		
NEXT ASSEMBLY		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A, CFE-10A-PS2
SPARE WFG

SIZE: D
94028569
DRAWING NUMBER
REV.: A

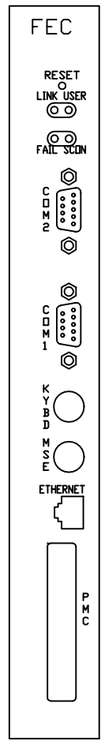
MATERIAL: ———— SCALE: NA WEIGHT: — SHEET 41 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/11/00 1:35 PM 8569_45.dwg

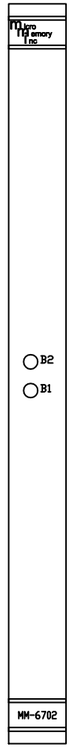
FRONT END COMPUTER
BLDG #: 1010A
RACK #: R10A06
CHASSIS ID: CFE-10A-PS3
SLOT#: 1
FEC NAME: cfe-10a-ps3



ETHERNET NETWORK

REF. NETWORK DIAGRAM

DEVICE: MEMORY BOARD
BLDG #: 1010A
RACK #: R10A06
CHASSIS ID: CFE-10A-PS3
SLOT #: 2
A24 BASE ADDRESS:

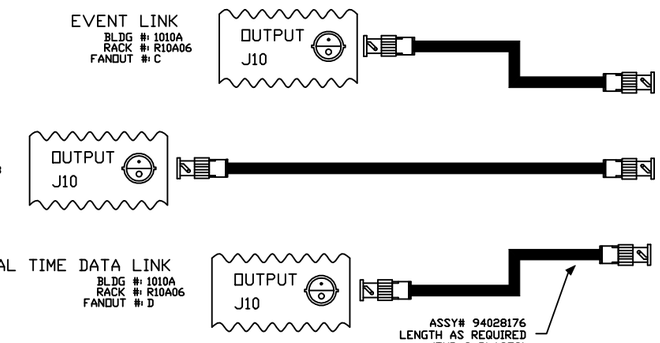


JUMPER LIST
1. REMOVE E1.
2. INSTALL E15.
3. SW3 CLOSE ALL POSITIONS.
4. SW2 CLOSE POSITIONS 7 AND 8.
5. SW1 CLOSE POSITIONS 2-8.
6. INSTALL E14 AND E25 TO ENABLE BATTERIES

EVENT LINK
BLDG #: 1010A
RACK #: R10A06
FANOUT #: C

RESET LINK
BLDG #: 1010A
RACK #: R10A13
FANOUT #: C

REAL TIME DATA LINK
BLDG #: 1010A
RACK #: R10A06
FANOUT #: D



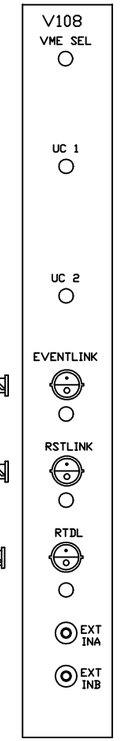
JUMPER LIST

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

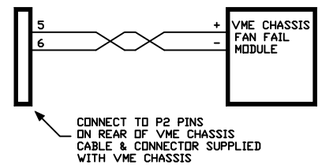
Remote reset pulls VME SYS Reset.
E58-E60, E59-E61

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

DEVICE: V108 UTILITY MODULE
BLDG #: 1010A
RACK #: R10A06
CHASSIS ID: CFE-10A-PS3
SLOT #: 3
A24 BASE ADDRESS: 0X--004000



ASSY# 94028094



-3 QTY REQD	-2 QTY REQD	-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	DATE	
DRAWN BY Ed Koropsak	6/18/98	
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL R. MICHNOFF	6/18/98	
SUPVR. APPROVAL		
NEXT ASSEMBLY		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
1010A, VME CHASSIS CFE-10A-PS3
FT END COMP/V108 UTIL MODULE

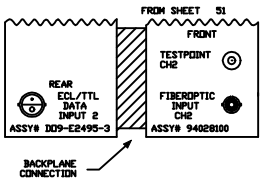
SIZE D | 94028569 | REV. A
DRAWING NUMBER
MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 45 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

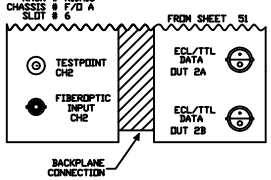
MULTIMODE FIBER OPTIC TRANSMITTER

BLDG # 1010A
RACK # R10A13
CHASSIS # F/O A
SLOT # 5



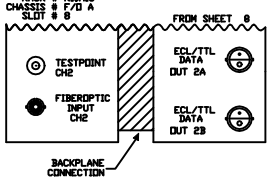
FIBER OPTIC RECEIVER

BLDG # 1010A
RACK # R10A13
CHASSIS # F/O A
SLOT # 6



FIBER OPTIC RECEIVER

BLDG # 1010A
RACK # R10A13
CHASSIS # F/O A
SLOT # 8



QTY REQD	REF DESIGNATION	REV NO.	DESCRIPTION	DEPT. DWG NO./DWL 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	Ed Koropsak	6/22/18
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	6/22/18
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
SERVICE BLDG. 1010A
SPARE F/O RCVR/XMIT CHANNELS

SIZE D | 94028569 | REV. A

MATERIAL: ——— SCALE: NA WEIGHT: — SHEET 48 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 1/2/02 2:12 PM 8569_47.dwg

MADC MUX A/D ID PANEL

BLDG #: 100XX
RACK #: R10A06
PANEL #: MADC A/D ID PANEL H

FR SHEET 12

J0	CHAN 48 POWER SUPPLY XXX SETPOINT XXXX
J1	CHAN 49 POWER SUPPLY XXX SETPOINT XXXX
J2	CHAN 50 POWER SUPPLY XXX SETPOINT XXXX
J3	CHAN 51 POWER SUPPLY XXX SETPOINT XXXX
J4	CHAN 52 POWER SUPPLY XXX SETPOINT XXXX
J5	CHAN 53 POWER SUPPLY XXX SETPOINT XXXX
J6	CHAN 54 POWER SUPPLY XXX SETPOINT XXXX
J7	CHAN 55 POWER SUPPLY XXX SETPOINT XXXX

TO SHEET 41

MADC MUX A/D ID PANEL

BLDG #: 1010A
RACK #: R10A07
PANEL #: MADC A/D ID PANEL H

FR SHEET 29

J0	CHAN 48 POWER SUPPLY XXX SETPOINT XXXX
J1	CHAN 48 POWER SUPPLY XXX SETPOINT XXXX
J2	CHAN 50 POWER SUPPLY XXX SETPOINT XXXX
J3	CHAN 51 POWER SUPPLY XXX SETPOINT XXXX

TO SHEET 47

MADC MUX A/D ID PANEL

BLDG #: 1010A
RACK #: R10A07
PANEL #: MADC A/D ID PANEL H

FR SHEET 47

J8	CHAN 56 POWER SUPPLY XXX SETPOINT XXXX
J9	CHAN 57 POWER SUPPLY XXX SETPOINT XXXX
J10	CHAN 58 POWER SUPPLY XXX SETPOINT XXXX
J11	CHAN 59 POWER SUPPLY XXX SETPOINT XXXX

TO SHEET 47

MADC MUX A/D ID PANEL

BLDG #: 1010A
RACK #: R10A07
PANEL #: MADC A/D ID PANEL H

FR SHEET 47

J4	CHAN 52 POWER SUPPLY XXX SETPOINT XXXX
J5	CHAN 53 POWER SUPPLY XXX SETPOINT XXXX
J6	CHAN 54 POWER SUPPLY XXX SETPOINT XXXX
J7	CHAN 55 POWER SUPPLY XXX SETPOINT XXXX

TO SHEET 47

MADC MUX A/D ID PANEL

BLDG #: 1010A
RACK #: R10A07
PANEL #: MADC A/D ID PANEL H

FR SHEET 47

J12	CHAN 60 POWER SUPPLY XXX IREF XXXX
J13	CHAN 61 POWER SUPPLY XXX CURRENT XXXX
J14	CHAN 62 POWER SUPPLY XXX VOLTAGE XXXX
J15	CHAN 63 POWER SUPPLY XXX ERROR XXXX

MADC MUX A/D ID PANEL

BLDG #: 1010A
RACK #: R10A06
PANEL #: MADC A/D ID PANEL G

FR SHEET 50

J12	CHAN 44 POWER SUPPLY XXX SETPOINT SPARE
J13	CHAN 45 POWER SUPPLY XXX SETPOINT SPARE

TO SHEET 11

MADC MUX A/D ID PANEL

BLDG #: 1010A
RACK #: R10A07
PANEL #: MADC A/D ID PANEL E

FR SHEET 40

J14	CHAN 14 POWER SUPPLY XXX SETPOINT XXXX
J15	CHAN 15 POWER SUPPLY XXX SETPOINT XXXX

MADC MUX A/D ID PANEL

BLDG #: 1010A
RACK #: R10A07
PANEL #: MADC A/D ID PANEL F

FR SHEET 40

J14	CHAN 30 POWER SUPPLY XXX SETPOINT XXXX
J15	CHAN 31 POWER SUPPLY XXX SETPOINT XXXX

-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	Ed Koropsak	6/22/98	
CHECKED BY			
DESIGN APPROVAL			
ENGINEER APPROVAL	R.MICHNOFF	6/22/98	
SUPVR. APPROVAL			

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

BLDG. 1010A

SPARE MADC CHANNELS

SIZE D | 94028569 | REV. A

DRAWING NUMBER

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 47 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/20/99 10:52 AM 8569_49.dwg

V102 DELAY MODULE

BLDG #: 1010A
RACK #: R10A06
CHASSIS ID: CFE-10A-PS3
SLOT #: 20
A16 BASE ADDRESS: E600

EVENT LINK
BLDG #: 1010A
RACK #: R10A06
FANOUT #: A

OUTPUT
J2

ASSY# 94028176
LENGTH AS REQUIRED

V102

VME SEL

OFFLINE

EXT INPUTS
- TRG 1/2
- TRG 3/4
- TRG 5/6
- TRG 7/8
- CLK

EVENTLINK

OUTPUTS
- CH1 — TO DUMP KICKER BLUE START CHARGE, REF DRAWING #?????
- CH2 — TO DUMP KICKER YELLOW START CHARGE, REF DRAWING #?????
- CH3 — TO DUMP KICKER BLUE SCOPE TRIGGER, REF DRAWING #?????
- CH4 — TO DUMP KICKER YELLOW SCOPE TRIGGER, REF DRAWING #?????
- CH5 — RESERVED FOR DUMP KICKER SYSTEM, REF DRAWING #?????
- CH6 — RESERVED FOR DUMP KICKER SYSTEM, REF DRAWING #?????
- CH7 — RESERVED FOR DUMP KICKER SYSTEM, REF DRAWING #?????
- CH8 — RESERVED FOR DUMP KICKER SYSTEM, REF DRAWING #?????

ASSY# 94028070

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	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MATL 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°

NA — FINISH

BREAK SHARP EDGES MAX. XX MIN. XX

OUTSTANDING ECN

Q.A. CATEGORY	A-3	DATE
DRAWN BY	Ed Koropsak	6/22/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	6/22/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

BLDG. 1010A CHASSIS CFE-10A-PS3

V102 DELAY MODULE

SIZE D — 94028569 — REV. A
DRAWING NUMBER

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 49 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

CONTROLS- 1/2/02 2:15 PM 8569_50.dwg

DX Heater PS MADC Readbacks

MADC MUX A/D IO PANEL

BLDG #: 1010A
RACK #: R10A06
PANEL #: MADC A/D IO PANEL G

FR SHEET 12

- J0 — CHAN 32 — POWER SUPPLY 1010A-9-1-A2 — VOLTAGE — g9-dxh-hta
- J1 — CHAN 33 — POWER SUPPLY 1010A-9-1-A2 — CURRENT — g9-dxh-hta
- J2 — CHAN 34 — POWER SUPPLY 1010A-9-1-A2 — GND CURRENT — g9-dxh-hta

TO SHEET 50

MADC MUX A/D IO PANEL

BLDG #: 1010A
RACK #: R10A06
PANEL #: MADC A/D IO PANEL G

FR SHEET 50

- J6 — CHAN 38 — POWER SUPPLY 1010A-10-1-A1 — VOLTAGE — g10-dxh-hta
- J7 — CHAN 39 — POWER SUPPLY 1010A-10-1-A1 — CURRENT — g10-dxh-hta
- J8 — CHAN 40 — POWER SUPPLY 1010A-10-1-A1 — GND CURRENT — g10-dxh-hta

TO SHEET 50

MADC MUX A/D IO PANEL

BLDG #: 1010A
RACK #: R10A06
PANEL #: MADC A/D IO PANEL G

FR SHEET 50

- J3 — CHAN 35 — POWER SUPPLY 1010A-9-2-B2 — VOLTAGE — g9-dxh-htb
- J4 — CHAN 36 — POWER SUPPLY 1010A-9-2-B2 — CURRENT — g9-dxh-htb
- J5 — CHAN 37 — POWER SUPPLY 1010A-9-2-B2 — GND CURRENT — g9-dxh-htb

TO SHEET 50

MADC MUX A/D IO PANEL

BLDG #: 1010A
RACK #: R10A06
PANEL #: MADC A/D IO PANEL G

FR SHEET 50

- J9 — CHAN 41 — POWER SUPPLY 1010A-10-2-B1 — VOLTAGE — g10-dxh-htb
- J10 — CHAN 42 — POWER SUPPLY 1010A-10-2-B1 — CURRENT — g10-dxh-htb
- J11 — CHAN 43 — POWER SUPPLY 1010A-10-2-B1 — GND CURRENT — g10-dxh-htb

TO SHEET 47

-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		DATE
DRAWN BY	Ed Koropsak	6/22/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	6/22/98
SUPVR. APPROVAL		
NEXT ASSEMBLY		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

BLDG. 1010A CHASSIS CFE-10A-PS1

DX HEATER PS MADC READBACKS

SIZE D — 94028569 — REV. A

DRAWING NUMBER

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 50 OF 52

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/23/99 8:43 AM 8569_51.dwg

EVENT LINK
BLDG #: 1010A
RACK #: R10A06
FANOUT #: A

OUTPUT J11

ASSY# 94028176
LENGTH AS REQUIRED
(TYP 11 PLACES)

V120 PERMIT MASTER MODULE
BLDG #: 1010A
RACK #: R10A06
CHASSIS ID: CFE-10A-PS3
SLOT #: 21
A16 BASE ADDRESS: F000

V125
BLDG #: 1010A
RACK #: R10A06
CHASSIS ID: CFE-10A-PS3
SLOT #: 19
A16 BASE ADDRESS: F400

FROM SHEET 59

PERMIT OUT

V120
VME SEL
MASTER
EVENT
PERMIT LINK
BLU INDEX
YEL INDEX
BLINT LINK
YELINT LINK
EVENT LINK
PERMIT1
PERMIT2
PERMIT3
PERMIT4
PERMIT5
PERMIT6
QUENCH7
QUENCH8
OFFLINE
BEAM DUMP
BLU DUMP
YEL DUMP
B PS LINK
Y PS LINK

SLOTS 20,21
T120
PERMIT LINK IN
PERMIT LINK OUT
BLU INT LINK IN
BLU INT LINK OUT
YEL INT LINK IN
YEL INT LINK OUT
PERMIT INPUTS
ASSY# 94028199-2

ASSY# 94028077

P2 INTERFACE RIBBON CABLE
ASSY# 94028159

V120 PERMIT MODULE
BLDG #: 1010A
RACK #: R10A06
CHASSIS ID: CFE-10A-PS3
SLOT #: 20
A16 BASE ADDRESS: F200

SLOTS 18,19
T120
PERMIT LINK IN
PERMIT LINK OUT
BLU INT LINK IN
BLU INT LINK OUT
YEL INT LINK IN
YEL INT LINK OUT
PERMIT INPUTS
ASSY# 94028199-2

PERMIT LINK
BLDG # 1010A
RACK # R10A13
CHASSIS # F/O A
SLOT # 5

BACKPLANE CONNECTION

REAR
ECL/TTL DATA INPUT 1
ASSY# DD9-2495

FRONT
TESTPOINT CH1
FIBEROPTIC INPUT CH1
ASSY# 94028100

TO SHEET 48

BLDG # 1010A
RACK # R10A14
MIC # MIC-086B

FRONT
REAR
C1

PERMIT LINK
TO: MIC-094A
BLDG: 1010B
RACK: R10B09
REF: SHEET 18
DWG: 94028XXX

EVENT LINK
BLDG #: 1010A
RACK #: R10A06
FANOUT #: A

OUTPUT J2

MULTI MODE FIBEROPTIC TRANSMITTER
QUENCH LINKS
BLDG # 1010A
RACK # R10A13
CHASSIS # F/O A
SLOT # 3

REAR
ECL/TTL DATA INPUT CH 1
ECL/TTL DATA INPUT CH 2
ASSY# DD9-E2495-3

FRONT
TESTPOINT CH1
FIBEROPTIC INPUT CH1
TESTPOINT CH2
FIBEROPTIC INPUT CH2
ASSY# 94028100

BACKPLANE CONNECTION

BLDG # 1010A
RACK # R10A14
MIC # MIC-086D

K2
K3

QUENCH YEL LINK

TO: MIC-085A
BLDG: 1011A
RACK: R11A08
REF: SHEET 51
DWG: 94028474

QUENCH BLUE LINK

FROM: MIC 087A
BLDG: 1009C
RACK: R09C08
REF: SH 51
DWG 94028714

MIC-086C
BLDG #: 1010A
RACK #: R10A14

REAR
FRONT
QUENCH YELLOW LINK
L2
QUENCH BLUE LINK
L3

ASSY# 94028251
MULTIMODE FIBER
(TYP 6 PLACES)

SINGLE MODE FIBEROPTIC RECEIVER
QUENCH LINK
BLDG # 1010A
RACK # R10A13
CHASSIS # F/O A
SLOT # 4

FRONT
TESTPOINT CH1
FIBEROPTIC INPUT CH1
TESTPOINT CH2
FIBEROPTIC INPUT CH2
ASSY# 94028100

REAR
ECL/TTL DATA OUT 1A
ECL/TTL DATA OUT 1B
ECL/TTL DATA OUT 2A
ECL/TTL DATA OUT 2B

BACKPLANE CONNECTION
ASSY# DD9-E2542-3

ASSY# DD9-E2225-2

PERMIT SYSTEM
INFERFACE PANEL
BLDG #: 1010A
RACK #: R10A06
PANEL#: BEAM PERMIT PANEL A

P3
ASSY# 94028215
TO SHEET 53

PERMIT SYSTEM
INFERFACE PANEL
BLDG #: 1010A
RACK #: R10A07
PANEL#: BEAM PERMIT PANEL B

P3
ASSY# 94028215
TO SHEET 53

V120 JUMPER LIST
ADDR.
J1=OUT
J2=OUT
J3=OUT
J4=OUT
J5=IN
J6=IN
J7=IN
10.1 MHz
J8=IN
J9=OUT
J10=OUT
QUENCH INPUTS ARE PERMIT
J11=OUT
MASTER
J12=IN
QUENCH DISABLE
J13=OUT
J14=OUT

T120 JUMPER LIST
J4=IN
ALL OTHERS OUT

V120 JUMPER LIST
ADDR.
J1=OUT
J2=OUT
J3=OUT
J4=OUT
J5=IN
J6=IN
J7=OUT
10.1 MHz
J8=IN
J9=OUT
J10=OUT
QUENCH INPUTS ARE PERMIT
J11=OUT
MASTER
J12=OUT
QUENCH DISABLE
J13=OUT
J14=OUT

T120 JUMPER LIST
J4=IN
ALL OTHERS 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

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	Ed Koropsak	9/20/99	
CHECKED BY			
DESIGN APPROVAL			
ENGINEER APPROVAL	R. MICHNOFF	9/20/99	
SUPVR. APPROVAL			

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

SERVIVE BLDG. 1010A, CHASSIS CFE-10A-PS3

V120/T120 PERMIT SYSTEM

SIZE D
94028569
DRAWING NUMBER
REV. A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 51 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

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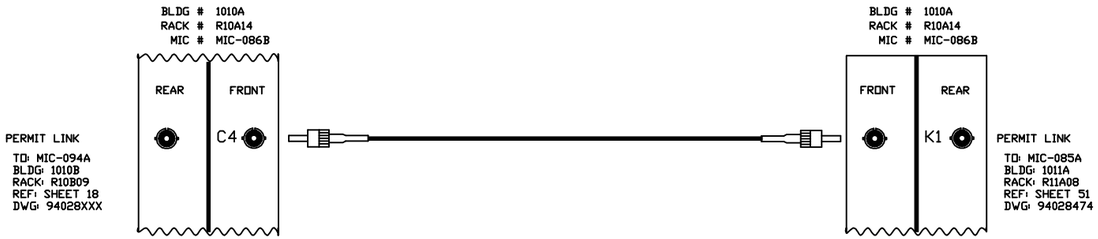


-3	-2	-1	QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L. DWG NO./BNL NO.

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	Ed Koropsak	9/20/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	9/20/99
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A, RACK R10A14
PERMIT SYSTEM

SIZE D | 94028569 DRAWING NUMBER | REV. A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 52 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 1/27/00 11:51 AM 8569_53.dwg

PERMIT SYSTEM INTERFACE MODULE

BLDG #: 1010A
RACK #: R10A06
PANEL #: PERMIT I/F PANEL A

FROM SHEET 51

ASSY # 94028215

BEAM PERMIT SYSTEM

OUTPUTS

PERMIT LEVEL

BLUE

YELLOW

INPUTS

1 — FROM CFE-10A-BLM1, V118 REF DRAWING ????

2 — FROM CFE-10A-BLM2, V118 REF DRAWING ????

3 — FROM VACUUM SYSTEM BLUE REF DRAWING ????

4 — FROM VACUUM SYSTEM YELLOW REF DRAWING ????

5 — N/C REF DRAWING ????

6 — FROM QUAD TRIM IP10 REF DRAWING ????

7 — BLUE QUENCH

8 — YELLOW QUENCH

PERMIT SYSTEM INTERFACE MODULE

BLDG #: 1010A
RACK #: R10A07
PANEL #: PERMIT I/F PANEL B

FROM SHEET 51

ASSY # 94028215

BEAM PERMIT SYSTEM

OUTPUTS

PERMIT LEVEL

BLUE

YELLOW

INPUTS

1 — FROM DUMP KICKER BLUE REF DRAWING ????

2 — FROM DUMP KICKER YELLOW REF DRAWING ????

3 — N/C REF DRAWING ????

4 — FROM SAFETY PASS-A REF DRAWING ????

5 — FROM SAFETY PASS-B REF DRAWING ????

6 — N/C REF DRAWING ????

7 — BLUE QUENCH

8 — YELLOW QUENCH

-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	Ed Koropsak	6/22/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	6/22/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

BLDG. 1010A, RACK R10A06

PERMIT SYSTEM INTERFACE PANELS

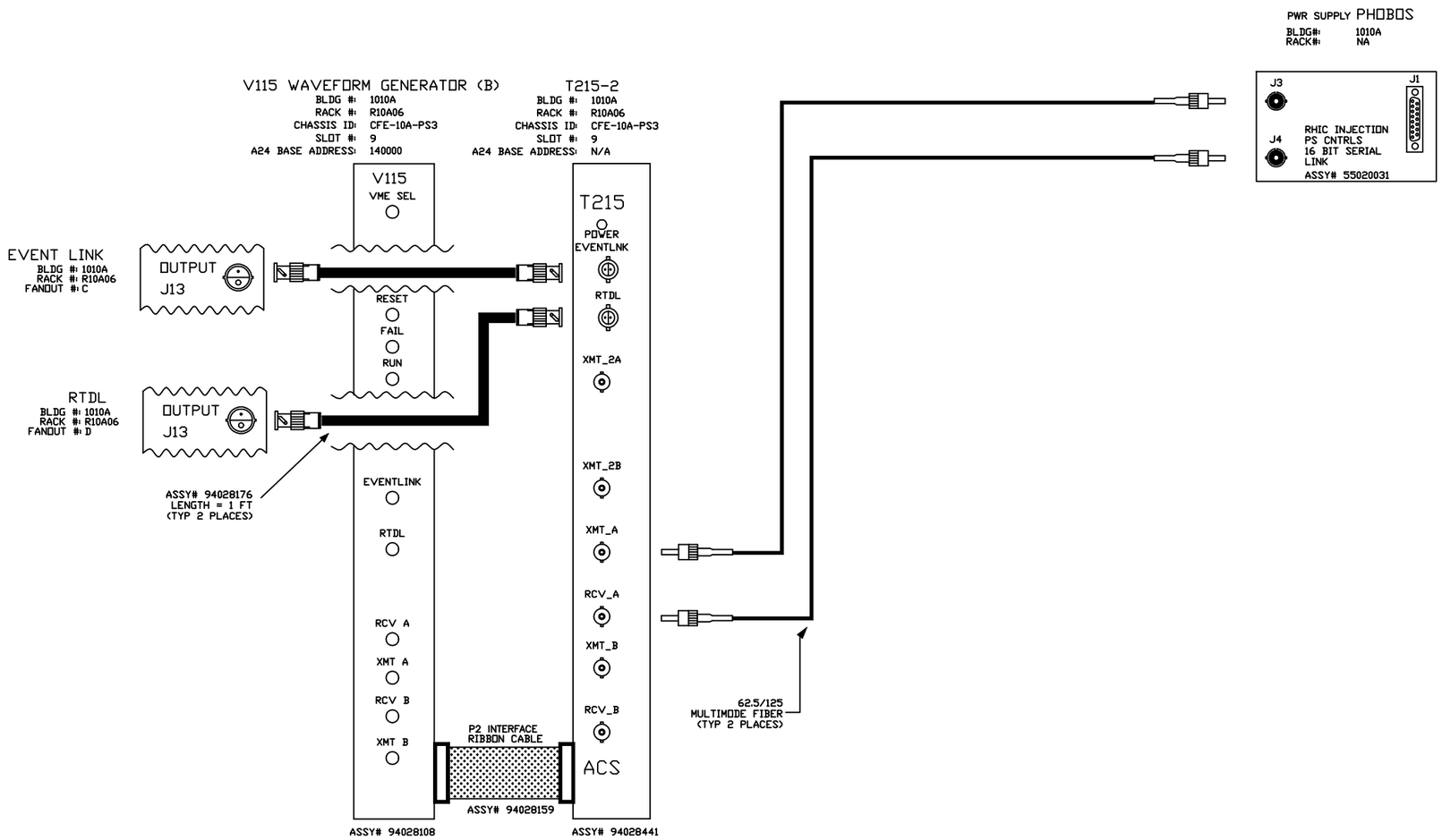
SIZE D — DRAWING NUMBER 94028569 — REV. A

MATERIAL: ——— SCALE: NA WEIGHT: — SHEET 53 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/21/99 1:43 PM 8569_54.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./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	Ed Koropsak	9/21/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	9/21/99
SUPVR. APPROVAL		
NEXT ASSEMBLY		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A, CFE–10A–PS3
PHOBOS PS

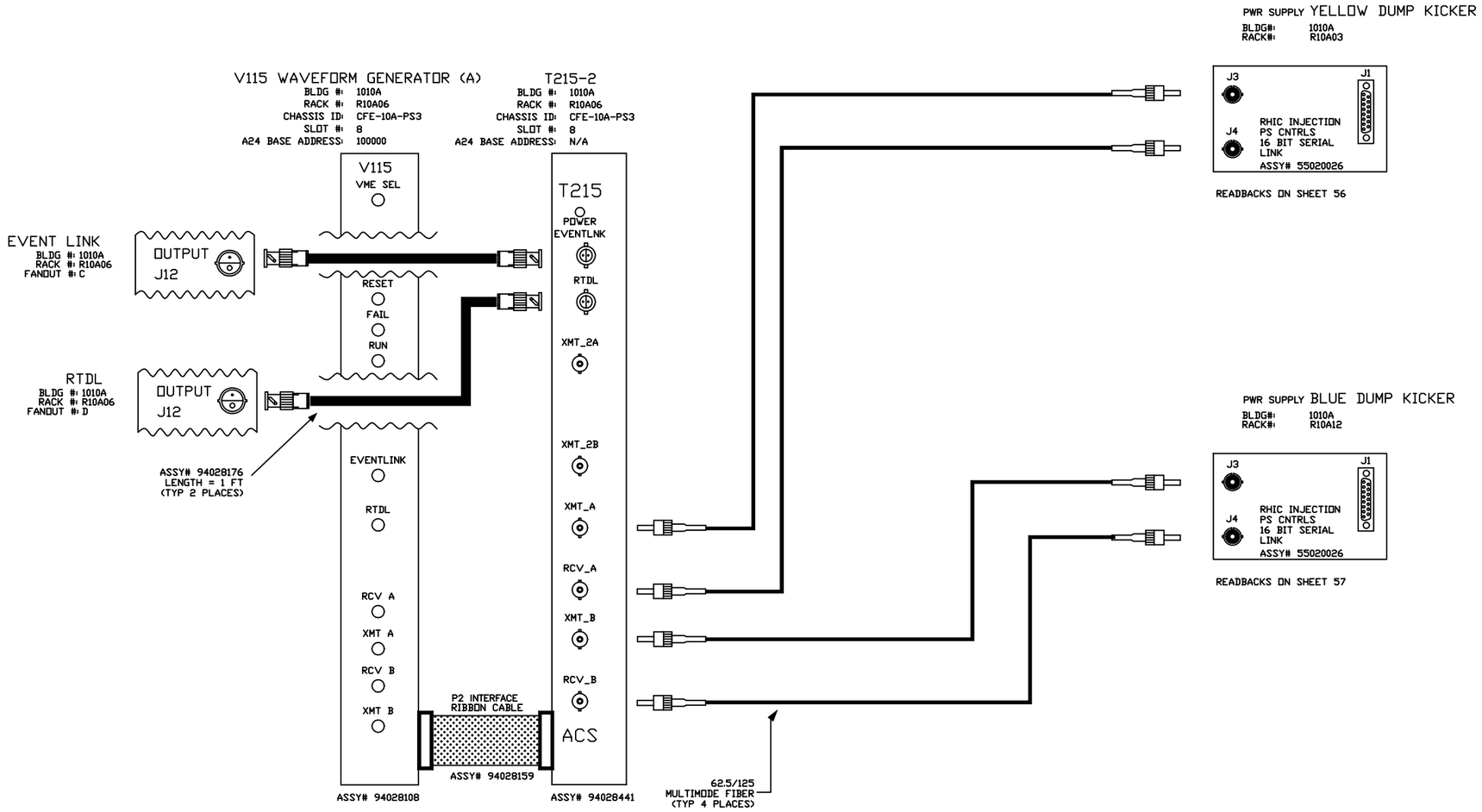
SIZE D
94028569
DRAWING NUMBER
REV. A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 54 OF 52

1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/11/00 1:38 PM 8569_55.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 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	Ed Koropsak	9/21/99	UPTON, N.Y. 11973
CHECKED BY			RHIC CONTROLS WIRING DIAGRAM
DESIGN APPROVAL			BLDG. 1010A, CFE-10A-PS3
ENGINEER APPROVAL	R.MICHNOFF	9/21/99	DUMP KICKER PS
SUPVR. APPROVAL			94028569
NEXT ASSEMBLY			SIZE D, REV. A, DRAWING NUMBER

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 55 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/11/00 1:41 PM 8569_56.dwg

YELLOW DUMP KICKER SUPPLY

BLDG #: 1010A
RACK #: R10A04
CHASSIS # NIM A
SLOT # 5

CHANNEL 1
CHANNEL 2

BLDG #: 1010A
RACK #: R10A07
PANEL E
FROM SHEET 29

J0	CHAN 0	PFN VOLTAGE A
J1	CHAN 1	PFN VOLTAGE B
J2	CHAN 2	PFN VOLTAGE C
J3	CHAN 3	PFN VOLTAGE D
J4	CHAN 4	PFN VOLTAGE E

BLDG #: 1010A
RACK #: R10A04
CHASSIS # NIM A
SLOT # 6

CHANNEL 1
CHANNEL 2

BLDG #: 1010A
RACK #: R10A04
CHASSIS # NIM A
SLOT # 7

CHANNEL 1
CHANNEL 2

YELLOW DUMP KICKER SUPPLY

BLDG #: 1010A
RACK #: R10A04
CHASSIS # NIM A
SLOT # 9

CHANNEL 1
CHANNEL 2

BLDG #: 1010A
RACK #: R10A07
PANEL E

J5	CHAN 5	PFN CURRENT A
J6	CHAN 6	PFN CURRENT B
J7	CHAN 7	PFN CURRENT C
J8	CHAN 8	PFN CURRENT D
J9	CHAN 9	PFN CURRENT E

TO SHEET 47

BLDG #: 1010A
RACK #: R10A04
CHASSIS # NIM A
SLOT # 10

CHANNEL 1
CHANNEL 2

BLDG #: 1010A
RACK #: R10A04
CHASSIS # NIM A
SLOT # 11

CHANNEL 1
CHANNEL 2

-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	Ed Koropsak	9/21/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	9/21/99
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A, CFE–10A–PS3
YELLOW DUMP KICKER PS

SIZE D
94028569
DRAWING NUMBER
REV. A

MATERIAL: ———— SCALE: NA WEIGHT: – SHEET 56 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/11/00 1:44 PM 8569_57.dwg

BLUE DUMP KICKER SUPPLY

BLDG #: 1010A
RACK #: R10A13
CHASSIS # NIM A
SLOT # 5

CHANNEL 1

CHANNEL 2

BLDG #: 1010A
RACK #: R10A07
PANEL F
FROM SHEET 29

J0 — CHAN 16 — PFN VOLTAGE A

J1 — CHAN 17 — PFN VOLTAGE B

J2 — CHAN 18 — PFN VOLTAGE C

J3 — CHAN 19 — PFN VOLTAGE D

J4 — CHAN 20 — PFN VOLTAGE E

BLDG #: 1010A
RACK #: R10A13
CHASSIS # NIM A
SLOT # 6

CHANNEL 1

CHANNEL 2

BLDG #: 1010A
RACK #: R10A13
CHASSIS # NIM A
SLOT # 7

CHANNEL 1

CHANNEL 2

BLUE DUMP KICKER SUPPLY

BLDG #: 1010A
RACK #: R10A13
CHASSIS # NIM A
SLOT # 9

CHANNEL 1

CHANNEL 2

BLDG #: 1010A
RACK #: R10A07
PANEL F

J5 — CHAN 21 — PFN CURRENT A

J6 — CHAN 22 — PFN CURRENT B

J7 — CHAN 23 — PFN CURRENT C

J8 — CHAN 24 — PFN CURRENT D

J9 — CHAN 25 — PFN CURRENT E

TO SHEET 47

BLDG #: 1010A
RACK #: R10A13
CHASSIS # NIM A
SLOT # 10

CHANNEL 1

CHANNEL 2

BLDG #: 1010A
RACK #: R10A13
CHASSIS # NIM A
SLOT # 11

CHANNEL 1

CHANNEL 2

-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	Ed Koropsak	9/21/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	9/21/99
SUPVR. APPROVAL		
NEXT ASSEMBLY		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

BLDG. 1010A, CFE–10A–PS3

BLUE DUMP KICKER PS

SIZE D

94028569

DRAWING NUMBER

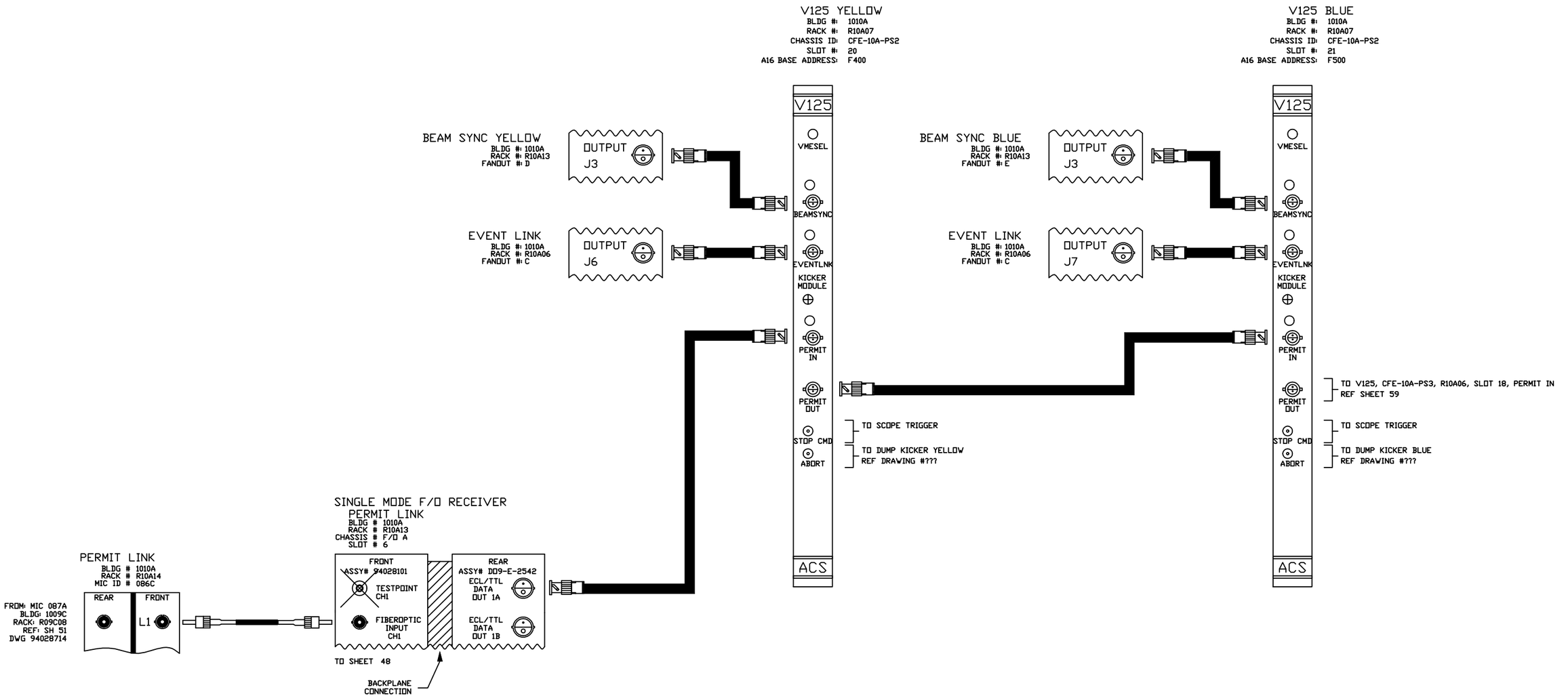
REV. A

MATERIAL: ———— SCALE: NA WEIGHT: – SHEET 57 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/23/99 8:46 AM 8569_58.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	Ed Koropsak	9/22/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	9/22/99
SUPVR. APPROVAL		
NEXT ASSEMBLY		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A
DUMP KICKER LOGIC

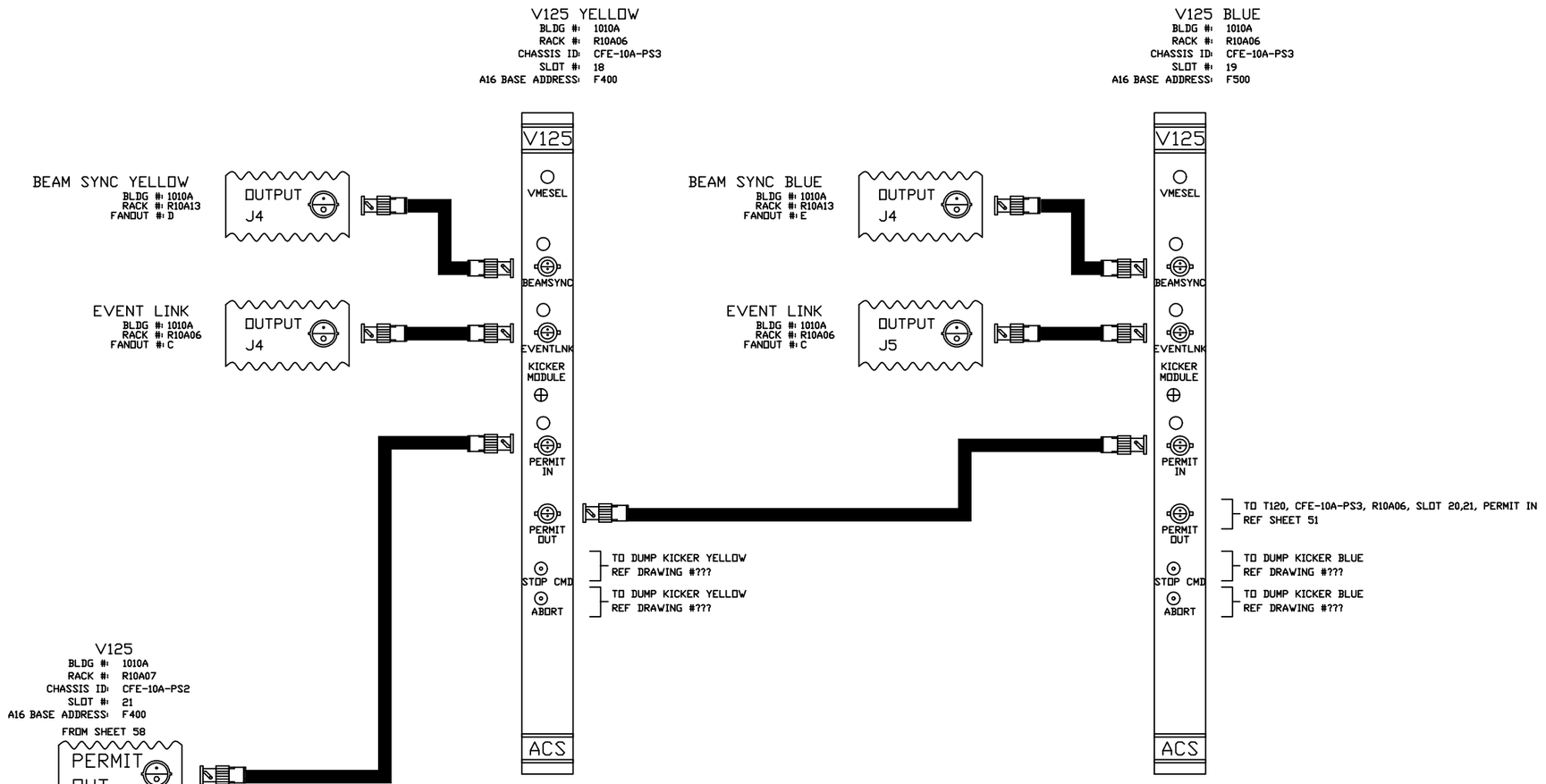
SIZE D | 94028569 DRAWING NUMBER | REV. A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 58 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/22/99 11:15 AM 8569_59.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	Ed Koropsak	9/22/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R.MICHNOFF	9/22/99
SUPVR. APPROVAL		
NEXT ASSEMBLY		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A
DUMP KICKER LOGIC

SIZE D
94028569
DRAWING NUMBER
REV. A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 59 OF X

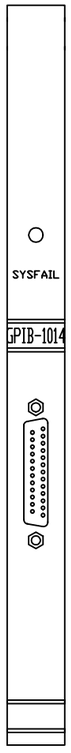
*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

ACS, BNL 9/23/99 8:48 AM 8569_60.dwg

GPIB SCOPE CONTROL

GPIB-1014
BLDG #: 1010A
RACK #: R10A06
CHASSIS ID: CFE-10A-PS3
SLOT #: 14
A32 BASE ADDRESS: 00002000



-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

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SUPVR. APPROVAL		
NEXT ASSEMBLY		

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RHIC CONTROLS WIRING DIAGRAM
BLDG. 1010A
GPIB SCOPE CONTROL

SIZE D | 94028569 DRAWING NUMBER | REV. A

MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 60 OF X

1 *AUTOCAD