RHIC Accelerator Controls Section
Bldg. 1006A Rack Diagrams
BNL Drawing Numbers 94028xxx

Brookhaven National Laboratory, Upton, New York 11973

Created By: Bill Venegas
Last Updated 7/28/99

Power Distribution
📖 Rack ? (Sheet 1)

Spares
📖 F/O Channels (Sheet 3)

Serial Links
📖 Event Link (Sheet 4)
📖 Real Time Data Link (Sheet 6)
📖 Reset Link (Sheet 8)
📖 Beam Sync Yellow Link (Sheet 9)
📖 Beam Sync Blue Link (Sheet 10)

VME Chassis CFE-6A-STAR modules
📖 Front End Computer, V108 Utility Module (Sheet 11)
📖 V102 Delay Module (Sheet 12)
📖 V115 WFG A: PTT-EAST,PTT-WEST (Sheet 13)
📖 V115 WFG B: TRIM-EAST,TRIM-WEST (Sheet 14)
📖 V115 WFG C:MAIN MAGNET,Spare (Sheet 15)
📖 V124 Beam Sync Modules (Sheet 16,17)
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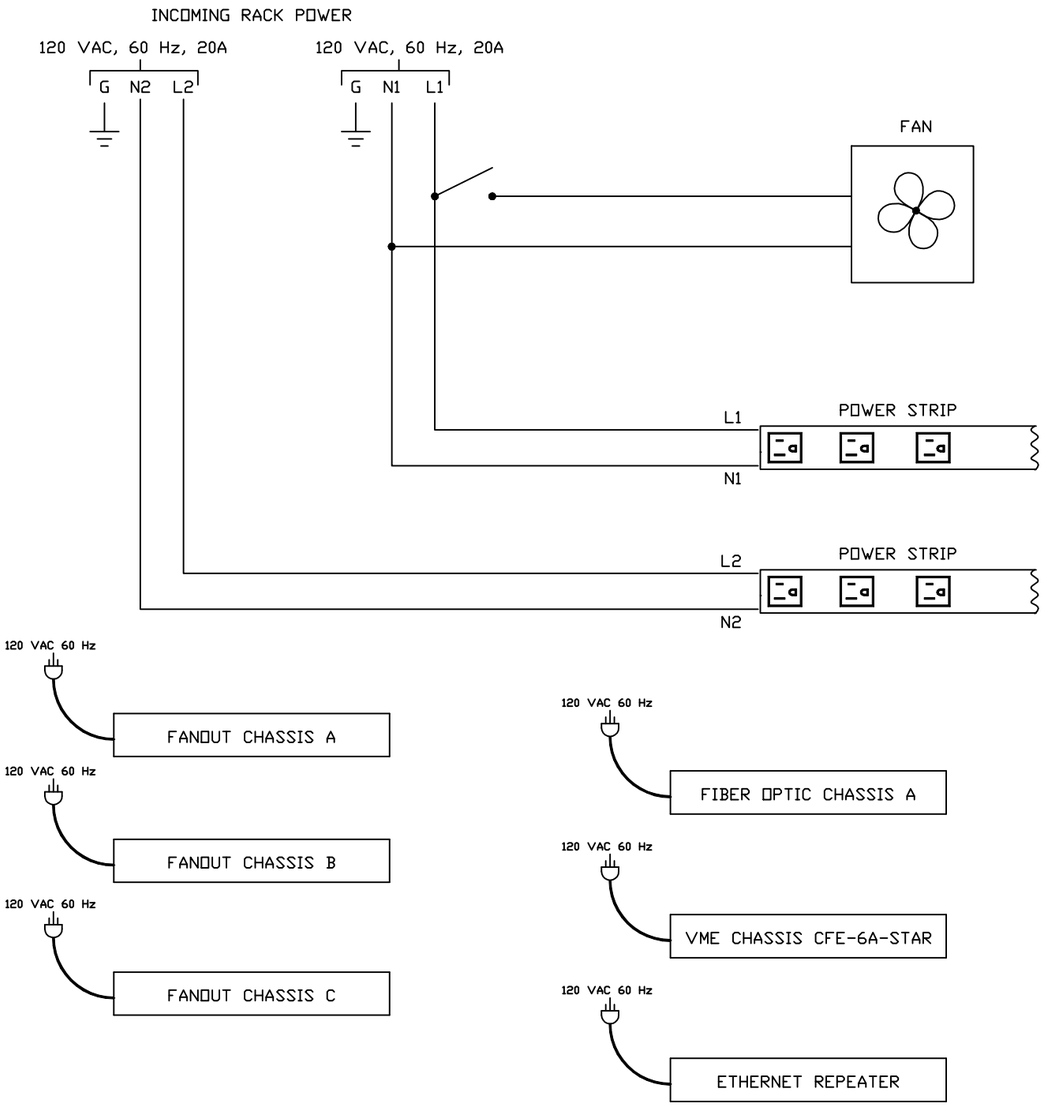
📖 Permit System Interface Panel (Sheet 19)
📖 SIS3803 VME Scaler (Sheet 20)
📖 A&B Programmable Controller (Sheet 21)

NOTE: Sheets 2, 5, 7 are Blank.

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 7/28/99 2:30 PM STAR_01.dwg



RACK DC1

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

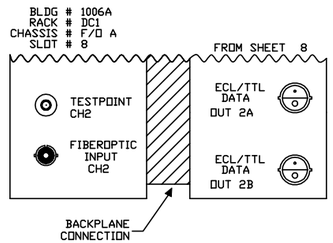
QTY REQD -3	QTY REQD -2	QTY REQD -1	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./PNL NO.
		X		11		
		X		10		
		X		9		
		10		8	SERIAL LINK TWINAX CABLE, LENGTH AS REQUIRED	94028176
		6		7	SERIAL LINK TWINAX CABLE, 1 FT	94028176
		6		6	DUPLEX MULTIMODE FIBER OPTIC CABLE, T115 TO LOW RES PS INTERFACE MODULE	94028249
		5		5	SINGLE MODE FIBER OPTIC CABLE	94028251
		X		4		
		3		3	TRANSITION MODULE P2 RIBBON CABLE, V115	94028159
		X		2		
		2		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 Ed Koropsak	7/14/98	UPTON, N.Y. 11973	
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°	CHECKED BY		RHIC CONTROLS WIRING DIAGRAM	
	DESIGN APPROVAL		BLDG, 1006A, RACK DC1	
	ENGINEER APPROVAL R. MICHNOFF	7/14/98	POWER DISTRIBUTION	
	SUPVR. APPROVAL		SIZE D	94028XXX REV. A
NA FINISH	BREAK SHARP EDGES MAX. XX MIN. XX	NEXT ASSEMBLY	DRAWING NUMBER	
OUTSTANDING ECN			MATERIAL: ——— SCALE: NA WEIGHT: –	SHEET 1 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

FIBER OPTIC RECEIVER



-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	7/14/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	7/14/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
BLDG. 1006A
SPARE F/O RCVR/XMIT CHANNELS

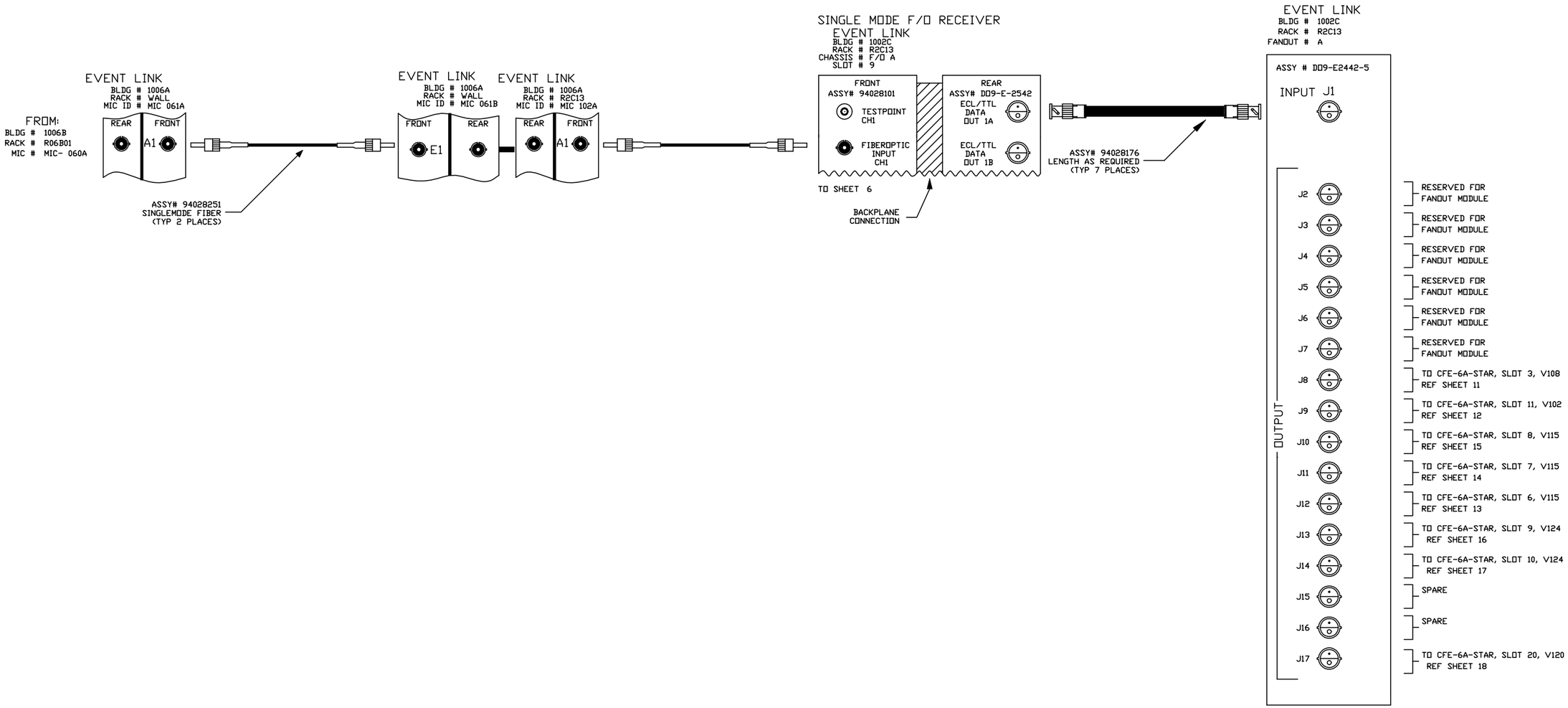
SIZE	DRAWING NUMBER	REV.
D	94028XXX	A

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

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 7/22/99 1:31 PM STAR_04.dwg



-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	VENEGAS	7/21/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	7/14/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
BLDG. 1002C
EVENT LINK

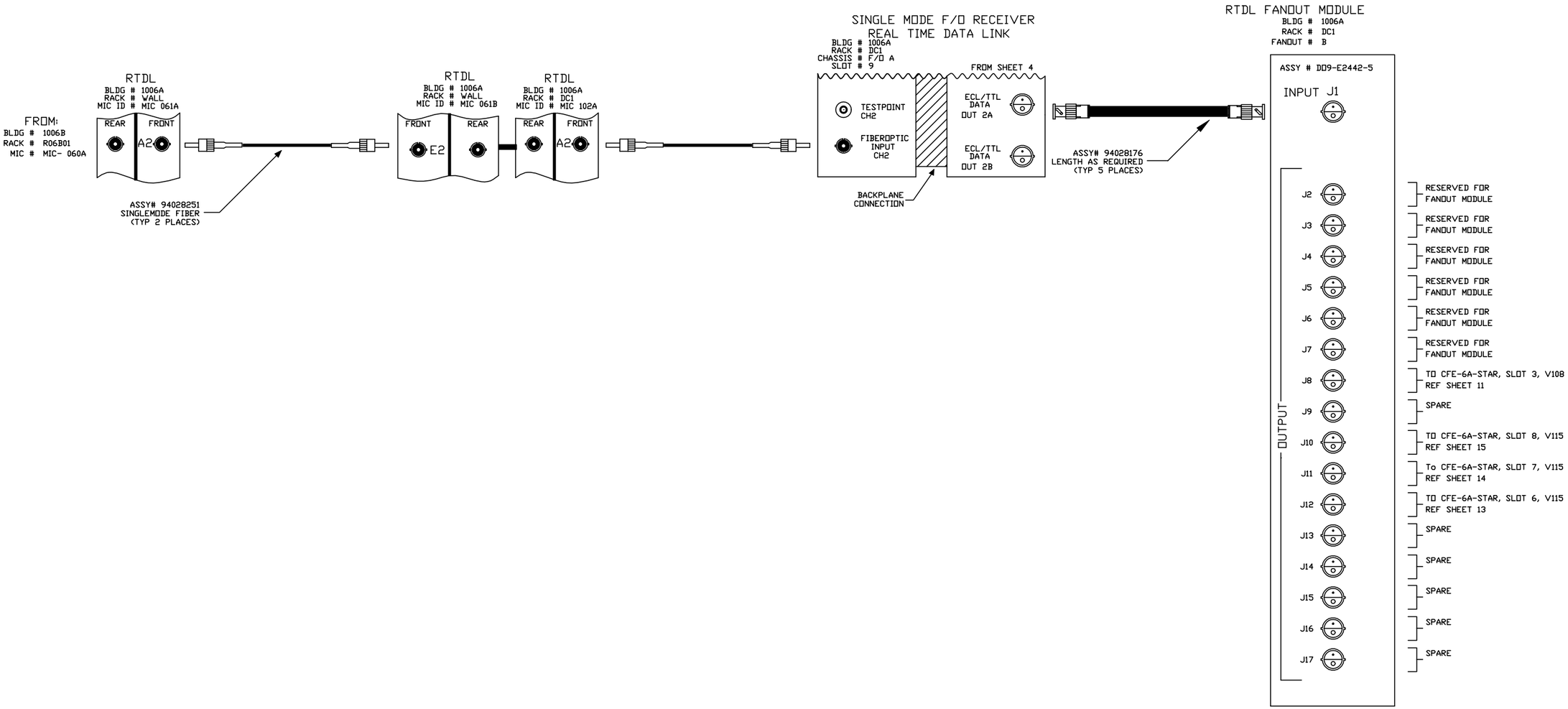
SIZE D | 94028XXX | REV. A
DRAWING NUMBER

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

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 7/22/99 1:32 PM STAR_06.dwg



-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°

NA FINISH

BREAK SHARP EDGES
MAX. XX MIN. XX

OUTSTANDING ECN

Q.A. CATEGORY A–3		DATE
DRAWN BY	Ed Koropsak	7/14/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	7/14/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

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UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
BLDG. 1006A
REAL TIME DATA LINK

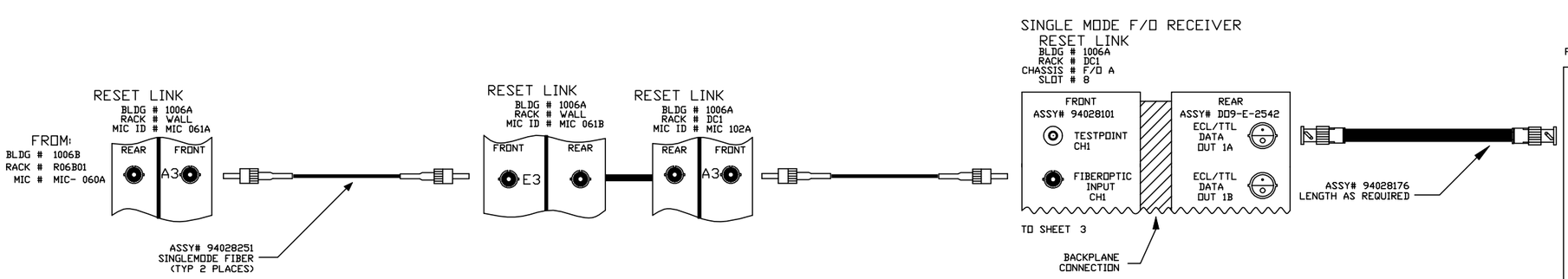
SIZE D | 94028XXX | REV. A
DRAWING NUMBER

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

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 7/22/99 1:33 PM STAR_08.dwg



-3 / -2 / -1 QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BPNL 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	7/14/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	7/14/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

BLDG. 1006A

RESET LINK

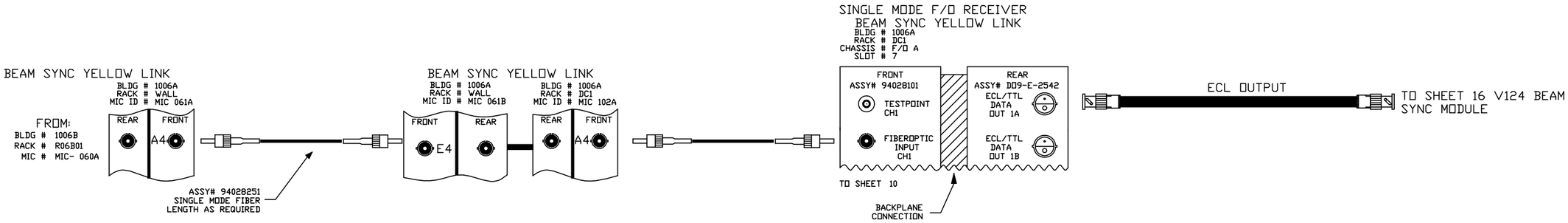
SIZE	DRAWING NUMBER	REV.
D	94028XXX	A

MATERIAL: ———	SCALE: NA	WEIGHT: –	SHEET 8 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 7/22/99 1:35 PM STAR_09.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

NEXT ASSEMBLY

Q.A. CATEGORY A-3		DATE
DRAWN BY	VENEGAS	7/21/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	7/14/98
SUPVR. APPROVAL		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

BLDG. 1006A

BEAM SYNC YELLOW LINK

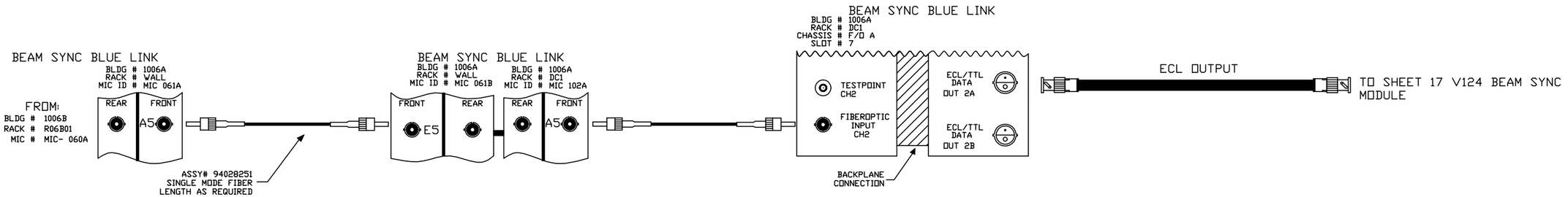
SIZE D — 94028XXX — DRAWING NUMBER — REV. A

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

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 7/22/99 1:36 PM STAR_10.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	VENEGAS	7/21/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	7/14/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

BLDG. 1006A

BEAM SYNC BLUE LINK

SIZE D | 94028XXX | REV. A

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

*AUTOCAD

FRONT END COMPUTER

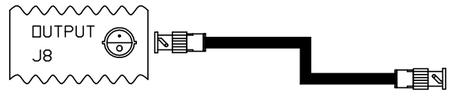
BLDG #: 1006A
RACK #: DC1
CHASSIS ID: CFE-6A-STAR
SLOT#: 1
FEC NAME: cfe-6a-star

ETHERNET NETWORK

REF. NETWORK DIAGRAM

EVENT LINK

BLDG #: 1006A
RACK #: DC1
FANOUT #: A

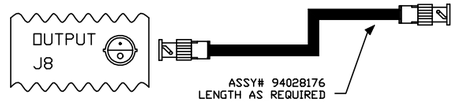


RESET LINK

BLDG #: 1006A
RACK #: DC1
FANOUT #: C

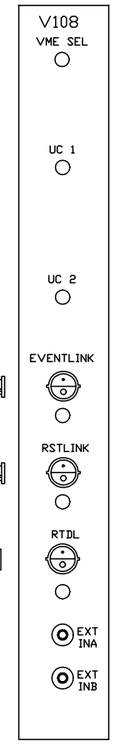
REAL TIME DATA LINK

BLDG #: 1006A
RACK #: DC1
FANOUT #: B

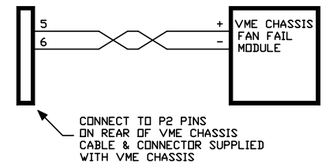


DEVICE: V108 UTILITY MODULE

BLDG #: 1006A
RACK #: DC1
CHASSIS ID: CFE-6A-STAR
SLOT #: 3
A24 BASE ADDRESS: 004000



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
E1-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 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	7/15/98
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	7/15/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

BLDG. 1006A, VME CHASSIS CFE-6A-STAR

FT END COMP/V108 UTIL MODULE

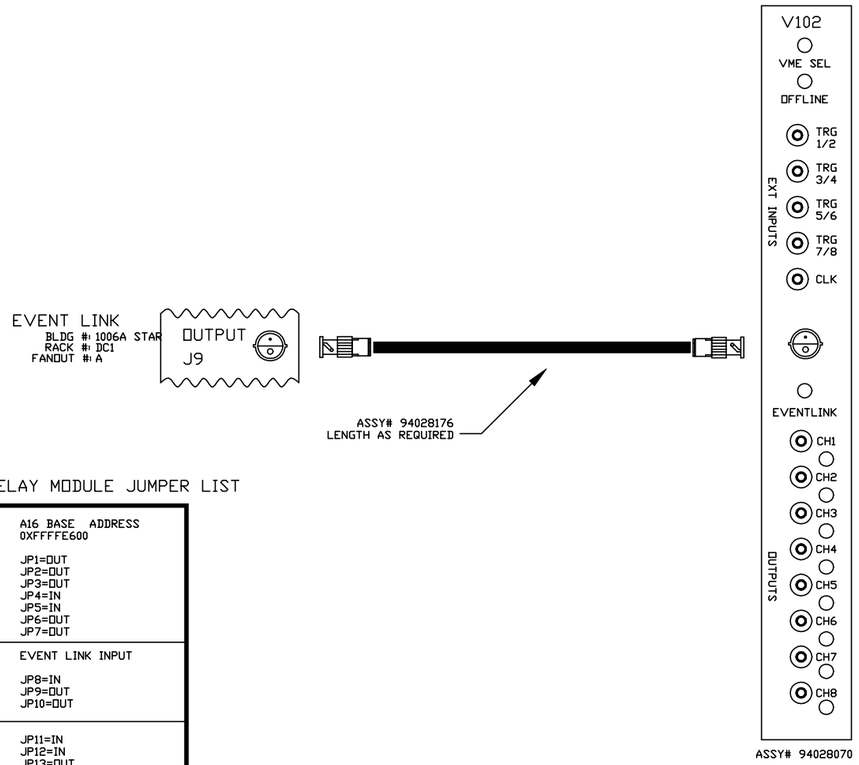
SIZE: D
94028XXX
REV.: A
DRAWING NUMBER

MATERIAL: ——— SCALE: NA WEIGHT: — SHEET 11 OF X

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 7/22/99 1:39 PM STAR_12.dwg

V102 DELAY MODULE
BLDG #: 1006A STAR
RACK #: DC1
CHASSIS ID: CFE-6A-STAR
SLOT #: 11
A16 BASE ADDRESS: E600



ASSY# 94028070

EVENT LINK
BLDG #: 1006A STAR
RACK #: DC1
FANOUT #: A

OUTPUT
J9

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.

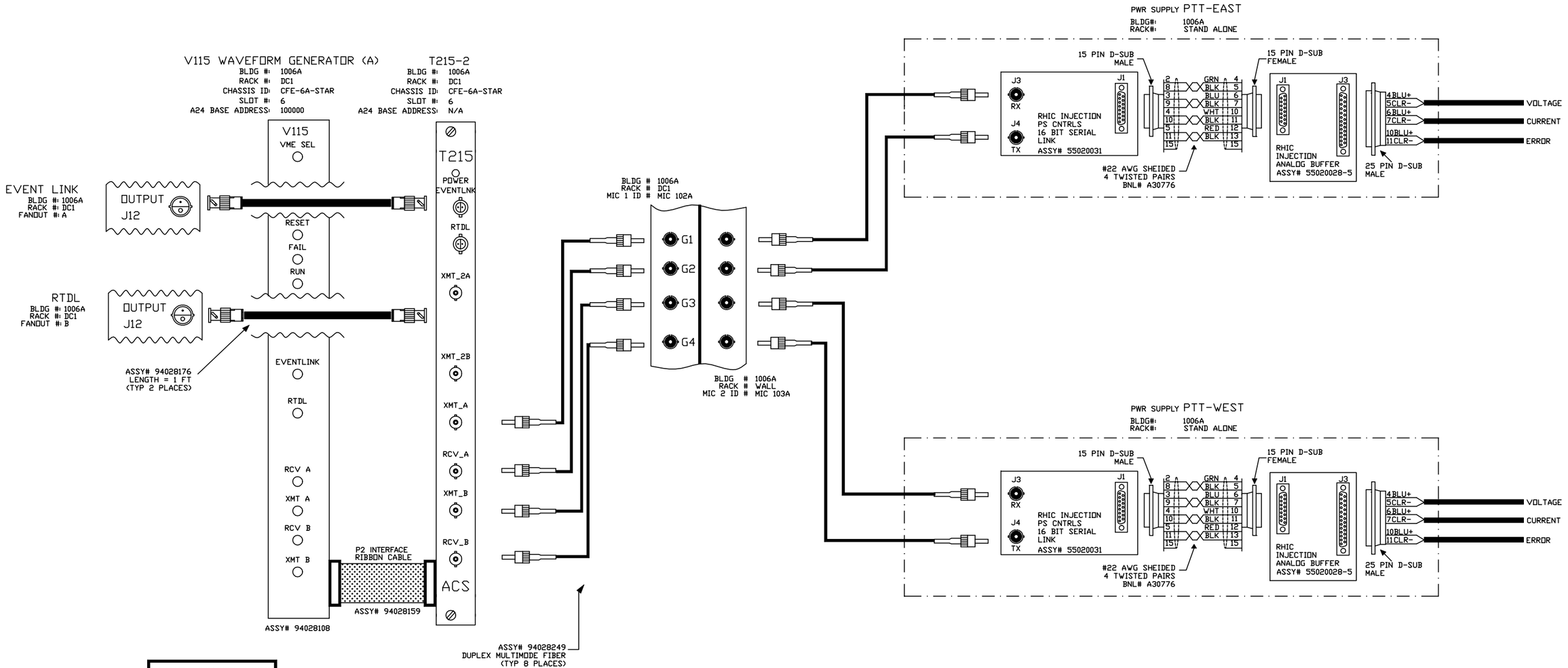
INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005
ANGULAR TOLERANCE ± .5'
FINISH: NA
BREAK SHARP EDGES MAX. XX MIN. XX
OUTSTANDING ECN

Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY	
DRAWN BY: VENEGAS	7/21/99	UPTON, N.Y. 11973	
CHECKED BY		RHIC CONTROLS WIRING DIAGRAM	
DESIGN APPROVAL		BLDG. 1006A CHASSIS CFE-6A-STAR	
ENGINEER APPROVAL: R. MICHNOFF	7/21/99	V102 DELAY MODULE	
SUPVR. APPROVAL		SIZE: D — 94028XXX — REV: A	
NEXT ASSEMBLY		DRAWING NUMBER	
MATERIAL: ———	SCALE: NA	WEIGHT: –	SHEET 12 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 7/22/99 1:43 PM STAR_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

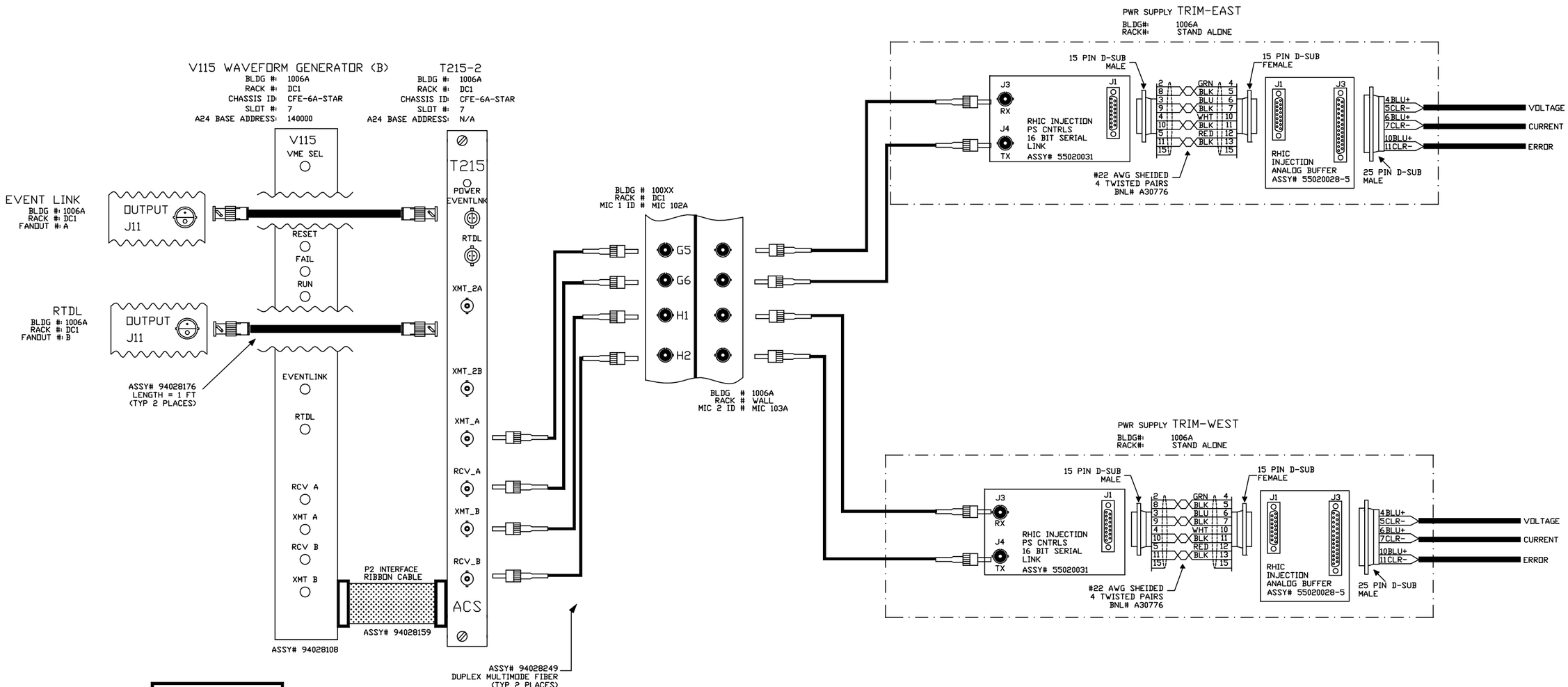
-3 QTY REQD	-2 QTY REQD	-1 QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./BNL NO.

INTERPRET IN GENERAL ACCORDANCE WITH ASME Y14.24M-1989	Q.A. CATEGORY A-3	DATE	BROOKHAVEN NATIONAL LABORATORY
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DRAWN BY VENEGAS	7/21/99	UPTON, N.Y. 11973
DECIMAL TOLERANCES .X ±.030 .XX ±.015 .XXX ±.005 ANGULAR TOLERANCE ± .5°	CHECKED BY		RHIC CONTROLS WIRING DIAGRAM
	DESIGN APPROVAL		BLDG. 1006A, CFE-6A-STAR
	ENGINEER APPROVAL R. MICHNOFF	7/15/98	PWR SUPPLY PTT-EAST AND WEST
	SUPVR. APPROVAL		SIZE D — 94028XXX — REV. A
NA FINISH — BREAK SHARP EDGES MAX. XX MIN. XX	NEXT ASSEMBLY		DRAWING NUMBER
OUTSTANDING ECN			MATERIAL: —— SCALE: NA WEIGHT: — SHEET 13 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 7/22/99 1:44 PM STAR_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 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
NEXT ASSEMBLY

Q.A. CATEGORY	A-3	DATE
DRAWN BY	VENEGAS	7/21/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	7/15/98
SUPVR. APPROVAL		

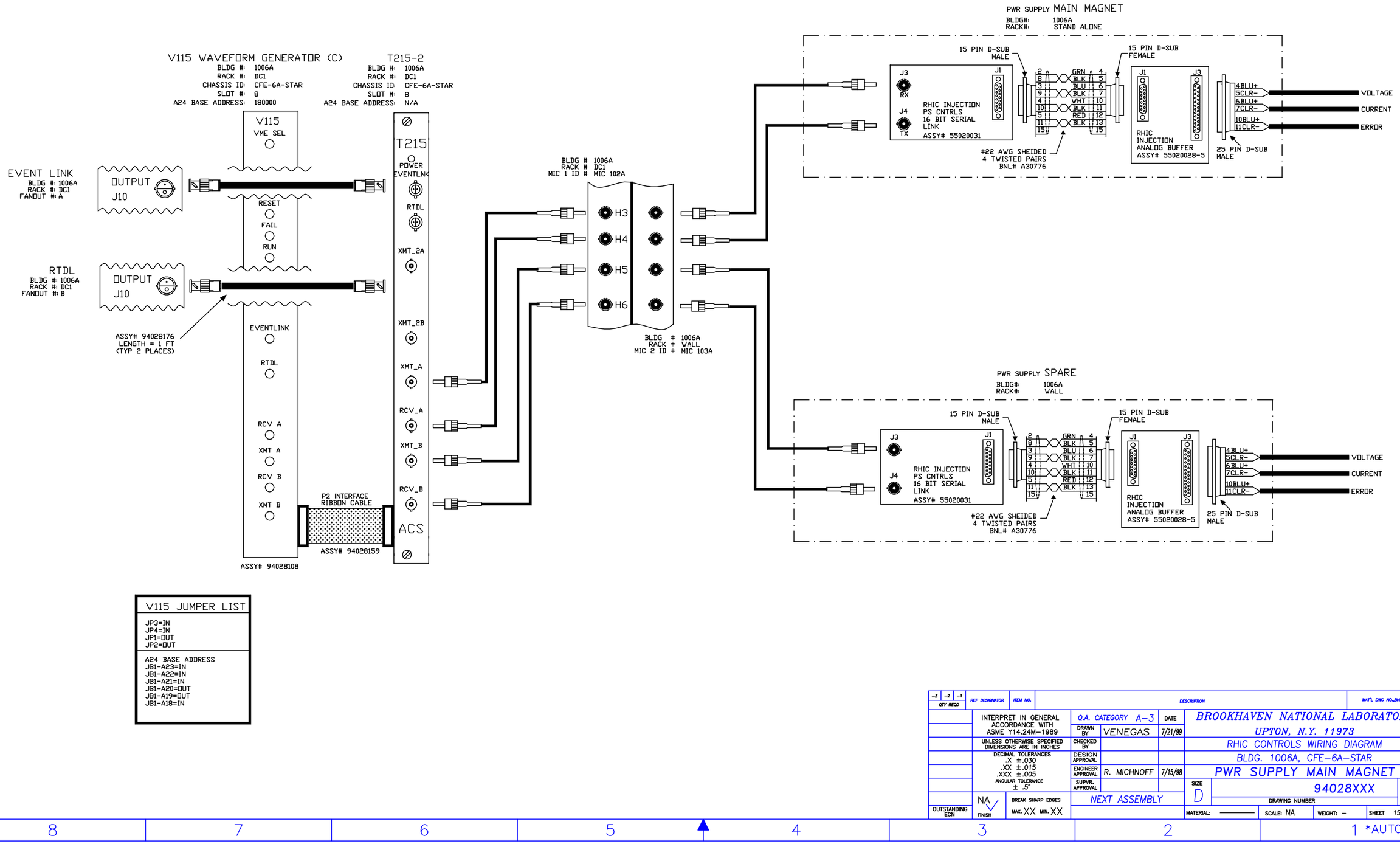
BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
BLDG. 1006A, CFE-6A-STAR
PWR SUPPLY TRIM EAST AND WEST

SIZE D | 94028XXX | REV. A
DRAWING NUMBER
MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 14 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 7/22/99 1:45 PM STAR_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	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	VENEGAS	7/21/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	7/15/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
BLDG. 1006A, CFE-6A-STAR
PWR SUPPLY MAIN MAGNET

SIZE D — DRAWING NUMBER 94028XXX — REV. A

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

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 7/22/99 1:52 PM STAR_16.dwg

V124 YELLOW BEAM SYNC MODULE

BLDG #: 1006A
RACK #: DC1
CHASSIS ID: CFE-6A-STAR
SLOT #: 9
A16 BASE ADDRESS: 9000

SINGLE MODE F/O RECEIVER YELLOW BEAM SYNC

BLDG # 1006A STAR
RACK # DC1
CHASSIS # F/O 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 9

BACKPLANE CONNECTION

EVENT LINK

BLDG #: 1006A
RACK #: DC1
FANOUT #: A

OUTPUT J13

V124
VME_SEL
OFFLINE
BEAM SYNC LNK
EXT TRIG INPUTS
1/2
3/4
5/6
7/8
LNK EVT
RF CLK OUT
TRIGGER OUTPUTS
1
2
3
4
5
6
7
8
ACS

SINGLE MODE FIBER OPTIC TRANSMITTER YELLOW 9 MHZ CLOCK

BLDG # 1006A STAR
RACK # DC1
CHASSIS # F/O A
SLOT # 2

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

FRONT
TESTPOINT CH1
FIBEROPTIC OUTPUT CH1
ASSY# 94028100

TO SHEET XX

A1
10 dB ATTN.

YEL 9 MHZ CLK

BLDG # 1006A STAR
RACK # DC1
MIC ID # 102A

FRONT L1 REAR

YEL 9 MHZ CLK

BLDG # 1006A STAR
RACK # PLATFORM
MIC ID # 112A

REAR L1 FRONT

SINGLE MODE F/O RECEIVER YEL 9MHZ CLK

BLDG # 1006A STAR
RACK # STAR PLATFORM
CHASSIS # F/O A
SLOT # 1

FRONT
ASSY# 94028101
TESTPOINT CH1
FIBEROPTIC INPUT CH1

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

TO ELECTRONICS ON PLATFORM

TO SHEET Y

BACKPLANE CONNECTION

-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

DRAWN BY	VENEGAS	7/21/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	7/27/98
SUPVR. APPROVAL		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
BLDG. 1006A CHASSIS CFE-6A-STAR
V124 BEAM SYNC MODULE

SIZE D
94028XXX
DRAWING NUMBER
REV. A
MATERIAL: ———— SCALE: NA WEIGHT: – SHEET 16 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 7/22/99 1:55 PM STAR_17.dwg

V124 BLUE BEAM SYNC MODULE

BLDG #: 1006A
RACK #: DC1
CHASSIS ID: CFE-6A-STAR
SLOT #: 10
A16 BASE ADDRESS: 9800

BLUE BEAM SYNC

BLDG # 1006A STAR
RACK # DC1
CHASSIS # F/O A
SLOT # 7

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

BACKPLANE CONNECTION
TO SHEET 10

EVENT LINK

BLDG #: 1006A
RACK #: DC1
FANOUT #: A

OUTPUT J14

V124
VME SEL
OFFLINE
BEAM SYNC LNK
EXT TRIG INPUTS
1/2
3/4
5/6
7/8
LNK EVT
RF CLK OUT
TRIGGER OUTPUTS
1
2
3
4
5
6
7
8
ACS

SINGLE MODE FIBER OPTIC TRANSMITTER

BLUE 9MHZ CLK

BLDG # 1006A STAR
RACK # DC1
CHASSIS # F/O A
SLOT # 2

FROM SHEET X

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

FRONT
TESTPOINT CH2
FIBEROPTIC OUTPUT CH2
ASSY# 94028103

BACKPLANE CONNECTION

A2
10 dB ATTN.

BLUE 9 MHZ CLK

BLDG # 1006A STAR
RACK # DC1
MIC ID # 102A

FRONT L2 REAR

BLUE 9 MHZ CLK

BLDG # 1006A STAR
RACK # PLATFORM
MIC ID # 112A

REAR L2 FRONT

BLUE 9MHZ CLK

BLDG # 1006A STAR
RACK # STAR PLATFORM
CHASSIS # F/O A
SLOT # 1

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

BACKPLANE CONNECTION

TO ELECTONICS ON PLATFORM

-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	VENEGAS	7/21/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	7/27/98
SUPVR. APPROVAL		

NEXT ASSEMBLY

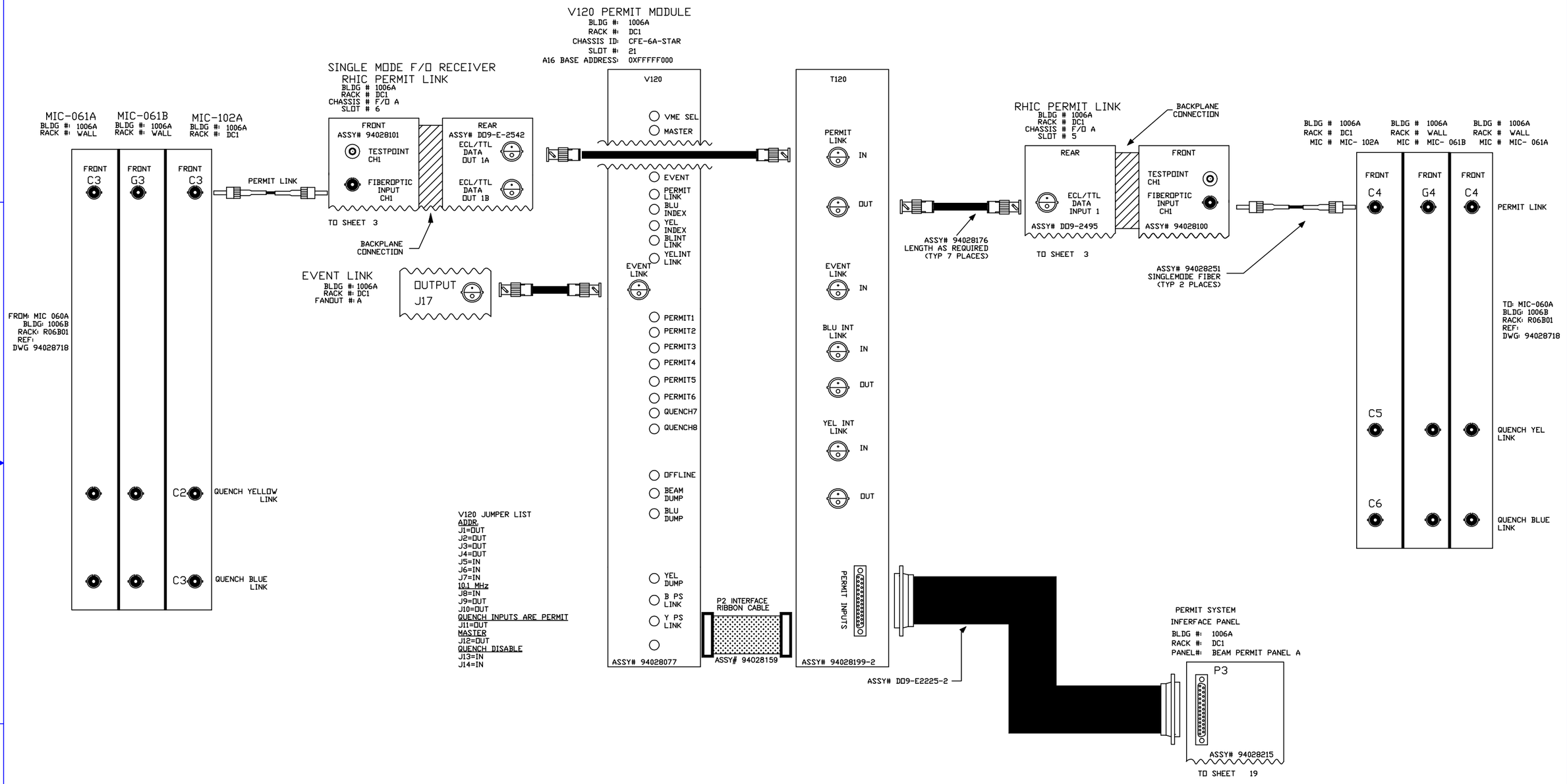
BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
BLDG. 1006A CHASSIS CFE-6A-STAR
V124 BEAM SYNC MODULE

SIZE D | 94028XXX | REV. A
DRAWING NUMBER
MATERIAL: ——— SCALE: NA WEIGHT: – SHEET 17 OF X

1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 7/22/99 12:00 PM STAR_18.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	BROOKHAVEN NATIONAL LABORATORY
DRAWN BY VENEGAS	7/21/99	UPTON, N.Y. 11973
CHECKED BY		RHIC CONTROLS WIRING DIAGRAM
DESIGN APPROVAL		BLDG. 1006A, CHASSIS CFE-6A-STAR
ENGINEER APPROVAL R. MICHNOFF	1/13/99	V120/T120 PERMIT SYSTEM
SUPVR. APPROVAL		SIZE D — 94028XXX — REV. A
NEXT ASSEMBLY		DRAWING NUMBER
MATERIAL: ——	SCALE: NA	WEIGHT: – SHEET 18 OF X

8 7 6 5 4 3 2 1 *AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 7/22/99 1:59 PM STAR_19.dwg

PERMIT SYSTEM INTERFACE MODULE

BLDG #: 1006A
RACK #: DC1
PANEL #: PERMIT I/O PANEL A

FROM SHEET 18

ASSY # 94028215

BEAM PERMIT SYSTEM

OUTPUTS

- PERMIT LEVEL
- BLUE
- YELLOW

INPUTS

- 1
- 2
- 3
- 4
- 5
- 6
- 7 — BLUE QUENCH
- 8 — YELLOW QUENCH

-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	VENEGAS	7/22/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	1/13/99
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM

BLDG. 1006A, RACK DC1

PERMIT SYSTEM INTERFACE PANEL

SIZE D | DRAWING NUMBER 94028XXX | REV. A

MATERIAL: ——— | SCALE: NA | WEIGHT: – | SHEET 19 OF X

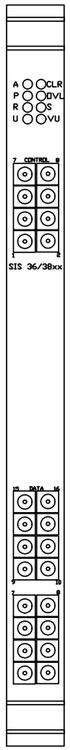
*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 7/28/99 9:52 AM STAR_20.dwg

SIS3803 SCALER

BLDG #: 1006A
RACK #: DC1
CHASSIS ID: CFE-6A-STAR
SLOT #: 19
A32 BASE ADDRESS: 0X8383800



BOARD ADDRESS JUMPERS

EN_A16: OUT
EN_A24: OUT
EN_132: IN

SW_A32UI: 0
SW_A32L: 8
SW_A24U: 3
SW_A24L: 8
SW_A16U: 3 (IF MORE BD'S INSTALLED SW_A16U WILL BE 4,5,6 ETC)

J_ALL: IN

-3	-2	-1	QTY REQD	REF DESIGNATOR	ITEM NO.	DESCRIPTION	MAT'L DWG NO./SPL 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	VENEGAS	7/28/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	1/11/99
SUPVR. APPROVAL		

NEXT ASSEMBLY

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973

RHIC CONTROLS WIRING DIAGRAM
BLDG. 1006A
SIS3803 VME SCALER

SIZE D | 94028XXX | REV. A
DRAWING NUMBER

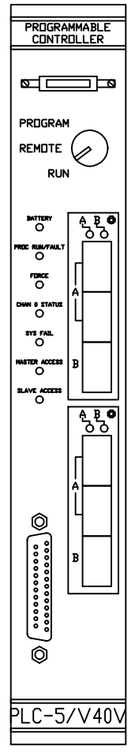
MATERIAL: ——— | SCALE: NA | WEIGHT: – | SHEET 20 OF X

*AUTOCAD

REV.	ZONE	ECN NO.	DATE	BY	CKR	APP.

Controls 7/28/99 11:38 AM STAR_21.dwg

A&B PROGRAMMABLE CONTROLLER
BLDG #: 1006A
RACK #: DC1
CHASSIS ID: CFE-6A-STAR
SLOT #: 4 & 5
A16 BASE ADDRESS: FC00



SWITCH SETTING FOR BOARD

SW 1
1. DH+ STATION NUMBER: POSITION 1-6 DOWN. (ON)
2. POWER UP TEST: POSITION 7 DOWN (ON).
3. MEMORY PROTECT: POSITION 8 DOWN (ON).

SW 2
1. A16 ADDRESS: POSITION 1-3 DOWN (ON).
2. SYSTEM CONTROLLER: POSITION 4 UP (OFF).
3. REQUEST LEVEL: POSITON 6 DOWN (ON).
4. UNUSED: POSITIONS 5,7 AND 8 UP (OFF).

-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	VENEGAS	7/22/99
CHECKED BY		
DESIGN APPROVAL		
ENGINEER APPROVAL	R. MICHNOFF	7/14/98
SUPVR. APPROVAL		
NEXT ASSEMBLY		

BROOKHAVEN NATIONAL LABORATORY
UPTON, N.Y. 11973
RHIC CONTROLS WIRING DIAGRAM
BLDG. 1006A
A&B PROGRAMMABLE CONTROLLER

SIZE	DRAWING NUMBER	REV.
D	PLC-5/V40B	A

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

*AUTOCAD