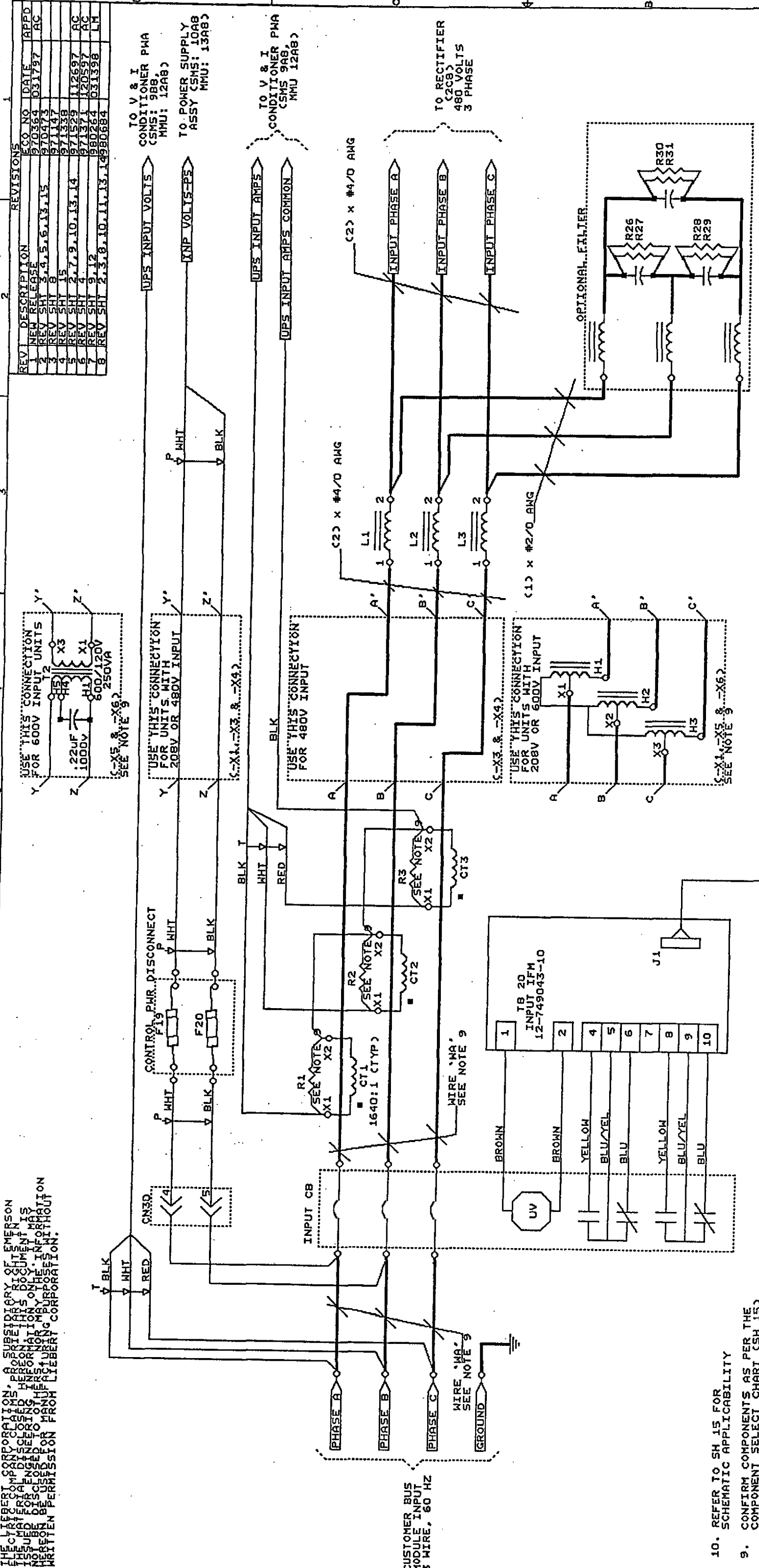


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REV	DESCRIPTION	ECO NO	DATE	APPRO
1	NEW RELEASE	970364	031797	AC
2	REV SHT 3, 4, 5, 6, 13, 15	970473		
3	REV SHT 8	971147		
4	REV SHT 15	971338		
5	REV SHT 2, 7, 9, 10, 13, 14	971529	112697	AC
6	REV SHT 4	971571	120597	AC
7	REV SHT 9, 12	971571	120597	AC
8	REV SHT 2, 3, 8, 10, 11, 13, 14	980264	031398	LM



TO V & I  
CONDITIONER PMA  
(SMS: 98B,  
MMU: 12AB)

TO POWER SUPPLY  
ASSY (SMS: 10AB  
MMU: 13AB)

TO V & I  
CONDITIONER PMA  
(SMS 9AB,  
MMU 12AB)

TO RECTIFIER  
(ZCB)  
480 VOLTS  
3 PHASE

INPUT CB SIGNALS  
TO J3 INFC PMA  
(SMS: 10DB, MMU: 13DB)

SHT	1	2	3	4	5	6	7	8
SHT 1	1	2	3	4	5	6	7	8
SHT 2	1	2	3	4	5	6	7	8
SHT 3	1	2	3	4	5	6	7	8
SHT 4	1	2	3	4	5	6	7	8
SHT 5	1	2	3	4	5	6	7	8
SHT 6	1	2	3	4	5	6	7	8
SHT 7	1	2	3	4	5	6	7	8
SHT 8	1	2	3	4	5	6	7	8
SHT 9	1	2	3	4	5	6	7	8
SHT 10	1	2	3	4	5	6	7	8
SHT 11	1	2	3	4	5	6	7	8
SHT 12	1	2	3	4	5	6	7	8
SHT 13	1	2	3	4	5	6	7	8
SHT 14	1	2	3	4	5	6	7	8
SHT 15	1	2	3	4	5	6	7	8

- REFER TO SH 15 FOR SCHEMATIC APPLICABILITY
- CONFIRM COMPONENTS AS PER THE COMPONENT SELECT CHART (SH 15)
- CONNECT WIRES AS PER THE CONNECTION CHART (CSH 15)
- NUMBERS IN PARENTHESIS AFTER DESTINATIONS INDICATE CPAGE AND ZONE).
- CONNECT GROUND WIRES TO GROUND BUS  
SMS: SHT 8, ZN C-1.; MMU: SHT 12, ZN C-1
- CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.
- ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WHT. UNLESS OTHERWISE SPECIFIED.
- SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT 15).
- ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.
- ALL CONTROL WIRE TO BE #20 AWG, MIN 600V. UNLESS OTHERWISE SPECIFIED

CONTRACT NO. UPS

DRAWN RR 030597  
CHECK RR 030697  
DES APPD JBC 031197

PROJ APPD JBC 031197

APPROVED

Title  
SCHEMATIC/WIRING DIAGRAM  
AP646T SMS & MMU  
208, 480 & 600VAC

Size FSCM Drawing No. 52414  
Scale NONE

Sheet 1 of 15

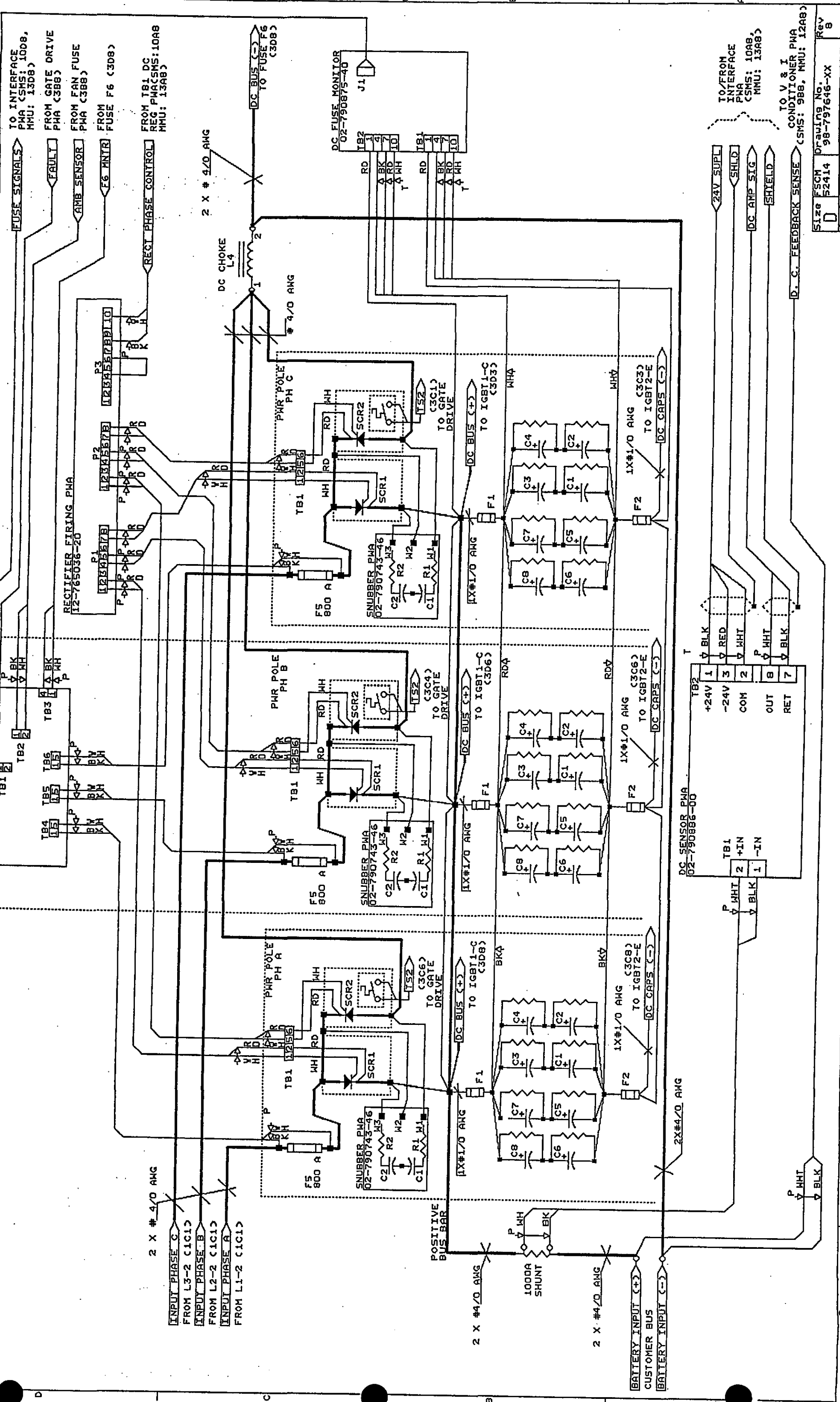
LIEBERT

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	970364		
2	UPDATE DRW	971529	112697	AC
3	ADD 152 TO PHASE B	980684		

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	970364		
2	UPDATE DRW	971529	112697	AC
3	ADD 152 TO PHASE B	980684		

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	970364		
2	UPDATE DRW	971529	112697	AC
3	ADD 152 TO PHASE B	980684		

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	970364		
2	UPDATE DRW	971529	112697	AC
3	ADD 152 TO PHASE B	980684		



TO INTERFACE PMA (SMS: 1008, MMU: 1308)  
 FROM GATE DRIVE PMA (388)  
 FROM FAN FUSE PMA (388)  
 FROM F6 (308) FUSE F6 (308)  
 FROM IBI DC REG PMA (SMS: 10A8, MMU: 13A8)

RECTIFIER FIRING PMA 12-765036-20  
 P1, P2, P3  
 12345678910

FUSE MONITOR 02-790875-15  
 J1  
 TB1, TB2, TB3, TB4, TB5, TB6

DC FUSE MONITOR 02-790875-40  
 TB2, TB1, TB1, TB1

DC SENSOR PMA 02-790886-00  
 TB2, TB1

TO V & I CONDITIONER PMA (SMS: 988, MMU: 12A8)

TO/ FROM INTERFACE PMA (SMS: 10A8, MMU: 13A8)

TO V & I CONDITIONER PMA (SMS: 988, MMU: 12A8)

TO V & I CONDITIONER PMA (SMS: 988, MMU: 12A8)

TO V & I CONDITIONER PMA (SMS: 988, MMU: 12A8)

TO V & I CONDITIONER PMA (SMS: 988, MMU: 12A8)

Size FSC Drawing No. 52414  
 Rev 8  
 Scale NONE Sheet 2 of 15

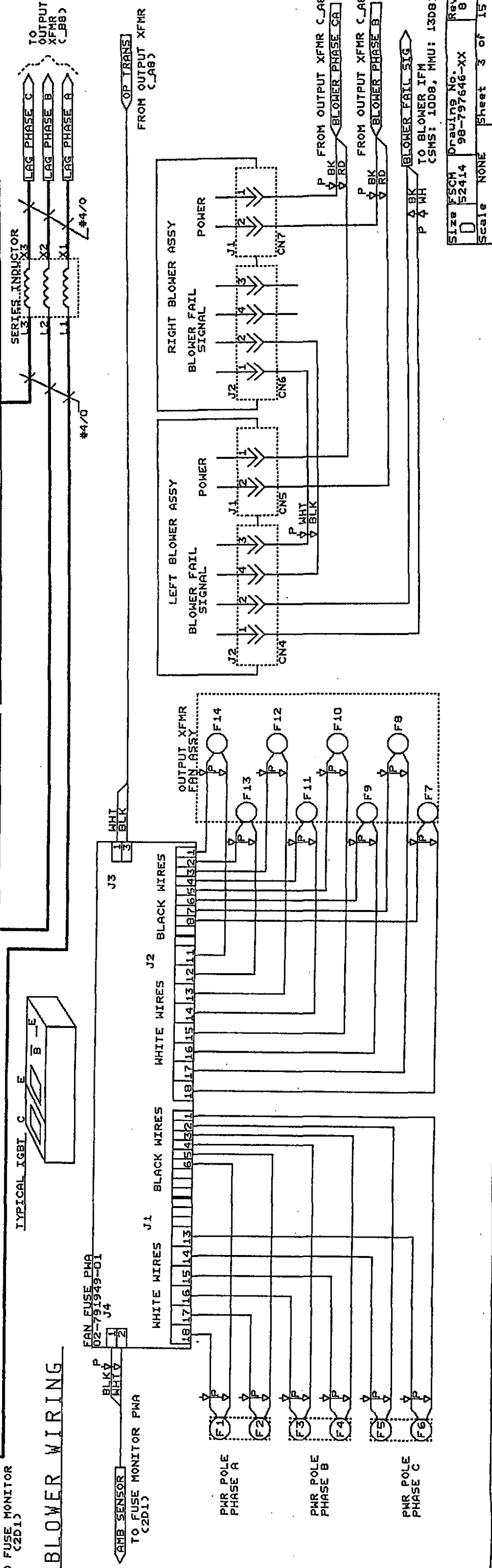
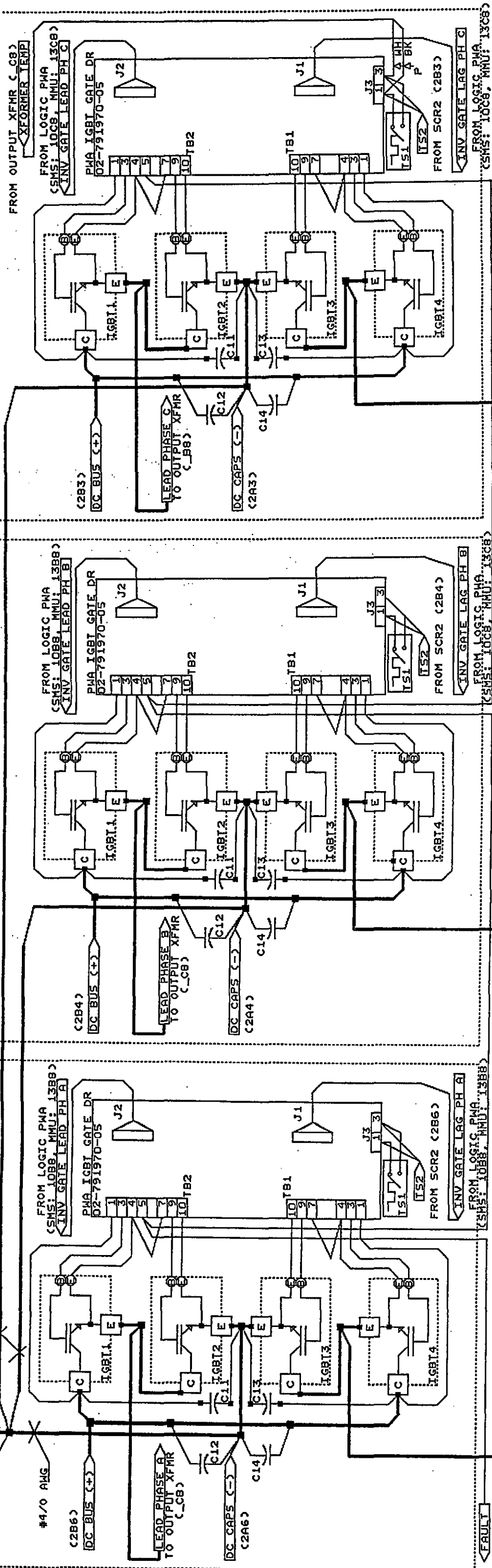
REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	970364	03/29/77	AC
2	UPDATE	970473	04/19/77	AC
3	ADD TS2 TO PHASE B	980684		

PWR POLE PH C

PWR POLE PH B

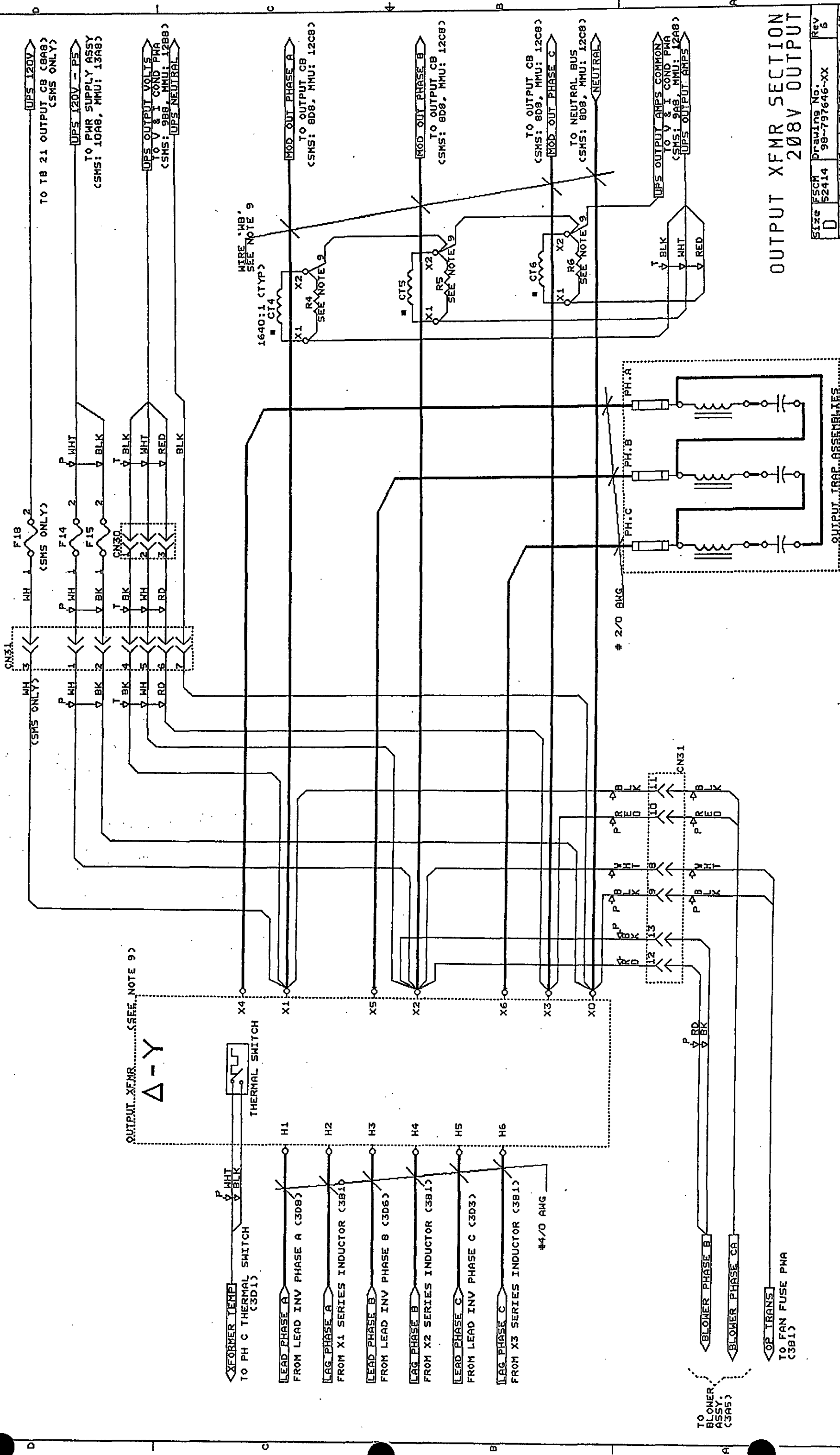
PWR POLE PH A

DC BUS (-) (2C1)  
F6 MTR (2D1)  
F6 MTR (2D1)



**BLOWER WIRING**

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	9703643	17-97	AC
2	RECONNECT CN31-XFMR	9704734	15-97	AC
5	CHG CN32 PIN 10	9713371		



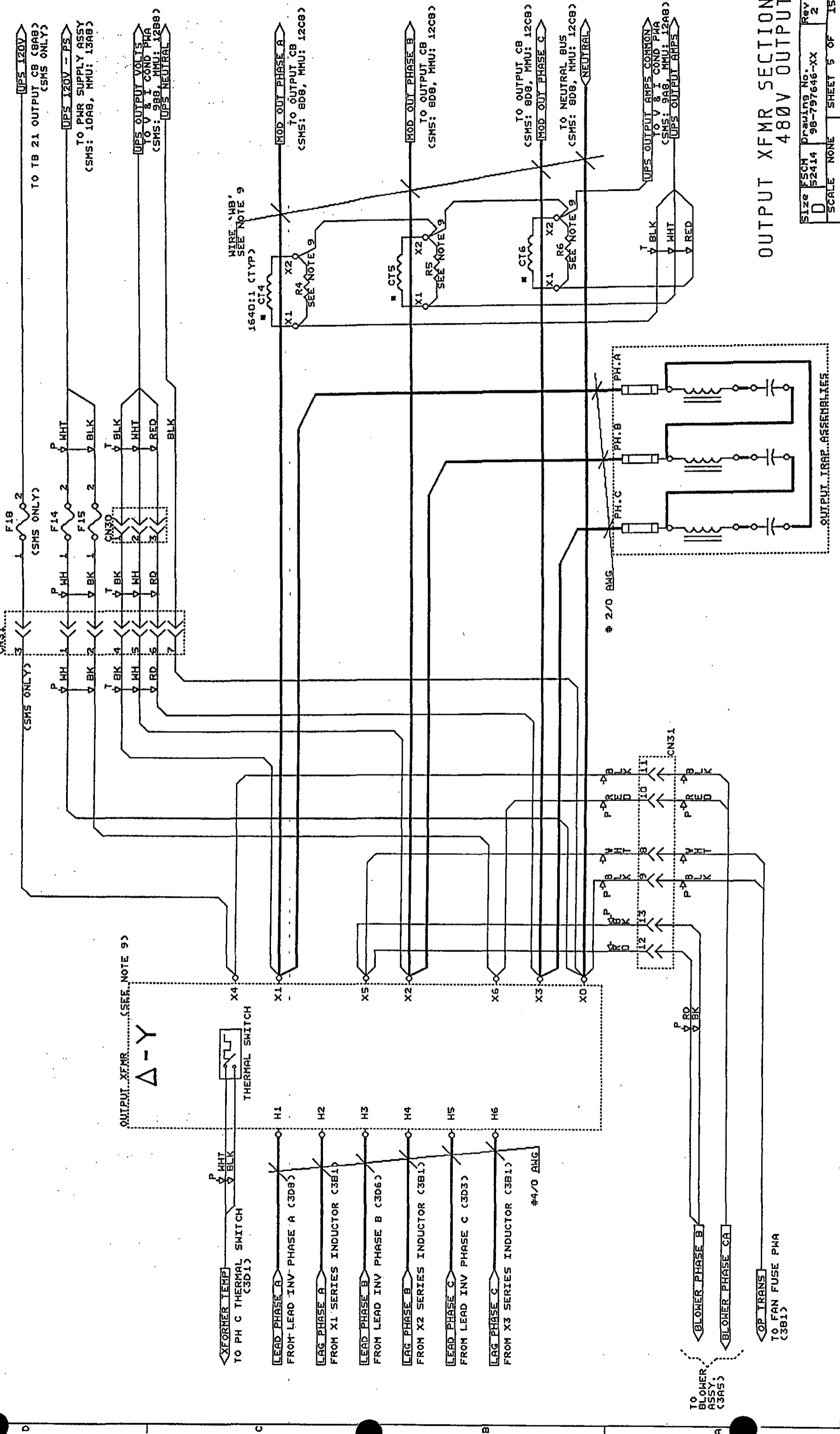
OUTPUT XFMR SECTION  
208V OUTPUT

Size	FSCM	Drawing No.	Rev
D	52414	98-797646-XX	6
SCALE	NONE	SHEET	4 OF 15



REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	9703643-17	37 AC	
2	RECONNECT CN31-13	970473		

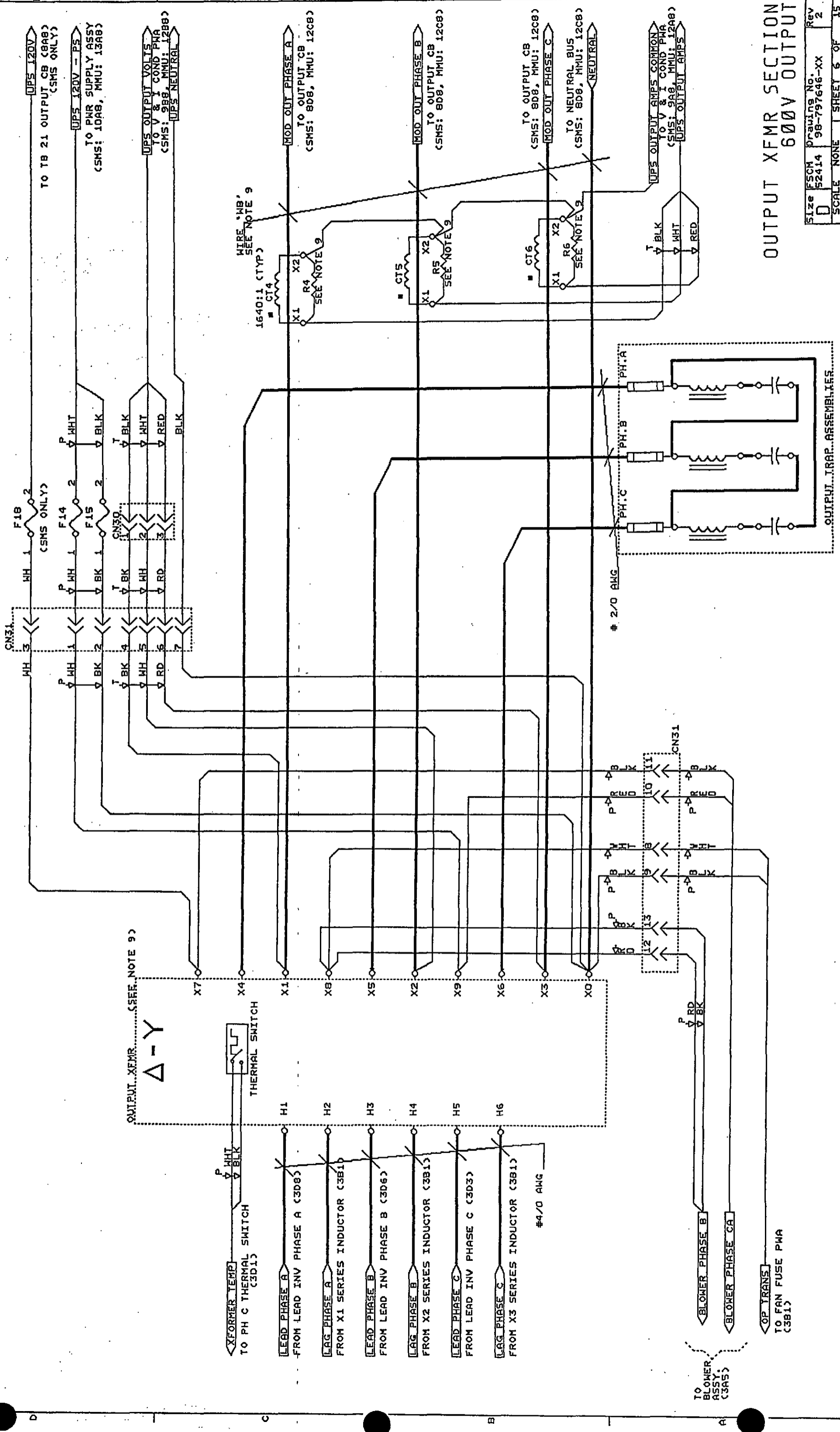
REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	9703643-17	37 AC	
2	RECONNECT CN31-13	970473		



OUTPUT XFMR SECTION  
480V OUTPUT

Size FSCM Drawing No. 98-797646-XX Rev 2  
SCALE NONE SHEET 5 OF 15

REVISIONS			
LTR DESCRIPTION	ECO NO.	DATE	APPD
1 NEW RELEASE	9703643	17-97	AC
2 RECONNECT CN31-XFMR	270473		



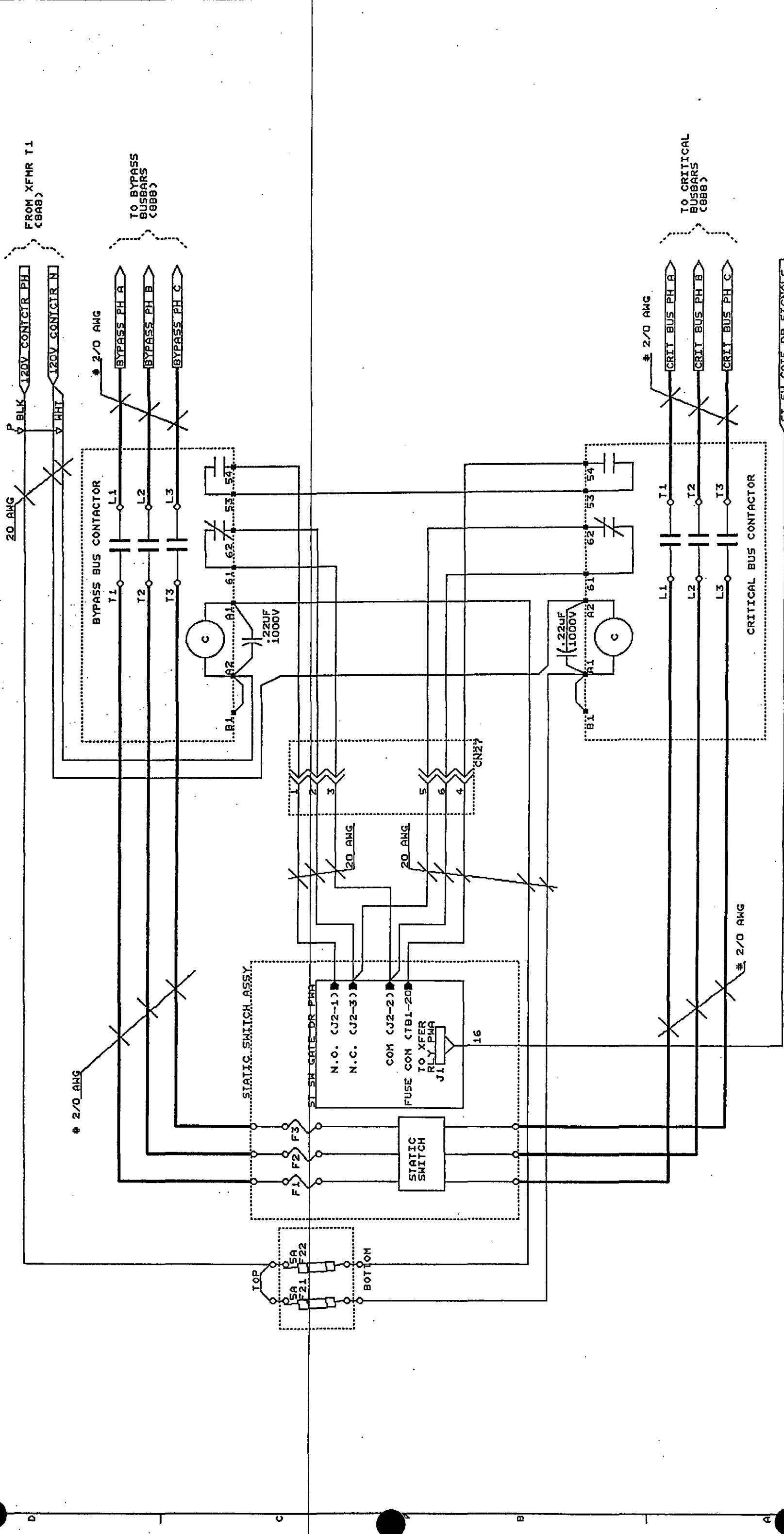
OUTPUT XFMR SECTION  
600V OUTPUT

Size	FSCM	Drawing No.	Rev
D	52414	98-797646-XX	2
SCALE	NONE	SHEET	6 OF 15

SMS ONLY  
(02-797646-6X)

REVISIONS	
LTR	DESCRIPTION
1	NEW RELEASE
2	REVISE DRAWING
3	REVISE DRAWING

ECO NO.	DATE	APPD
970364		
971529		



FROM J2 XFMR RELAY PMA (9C8)

SMS ONLY

Size	FSCM	Drawing No.	Rev
D	52414	98-797646-XX	5
Scale	NONE	Sheet	7 of 15

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	970364		
3	CHANGE C1 0.22UF CAP TO 1.0UF	971147	080697	AC
8	CHANGE 11 X LOC	980684		

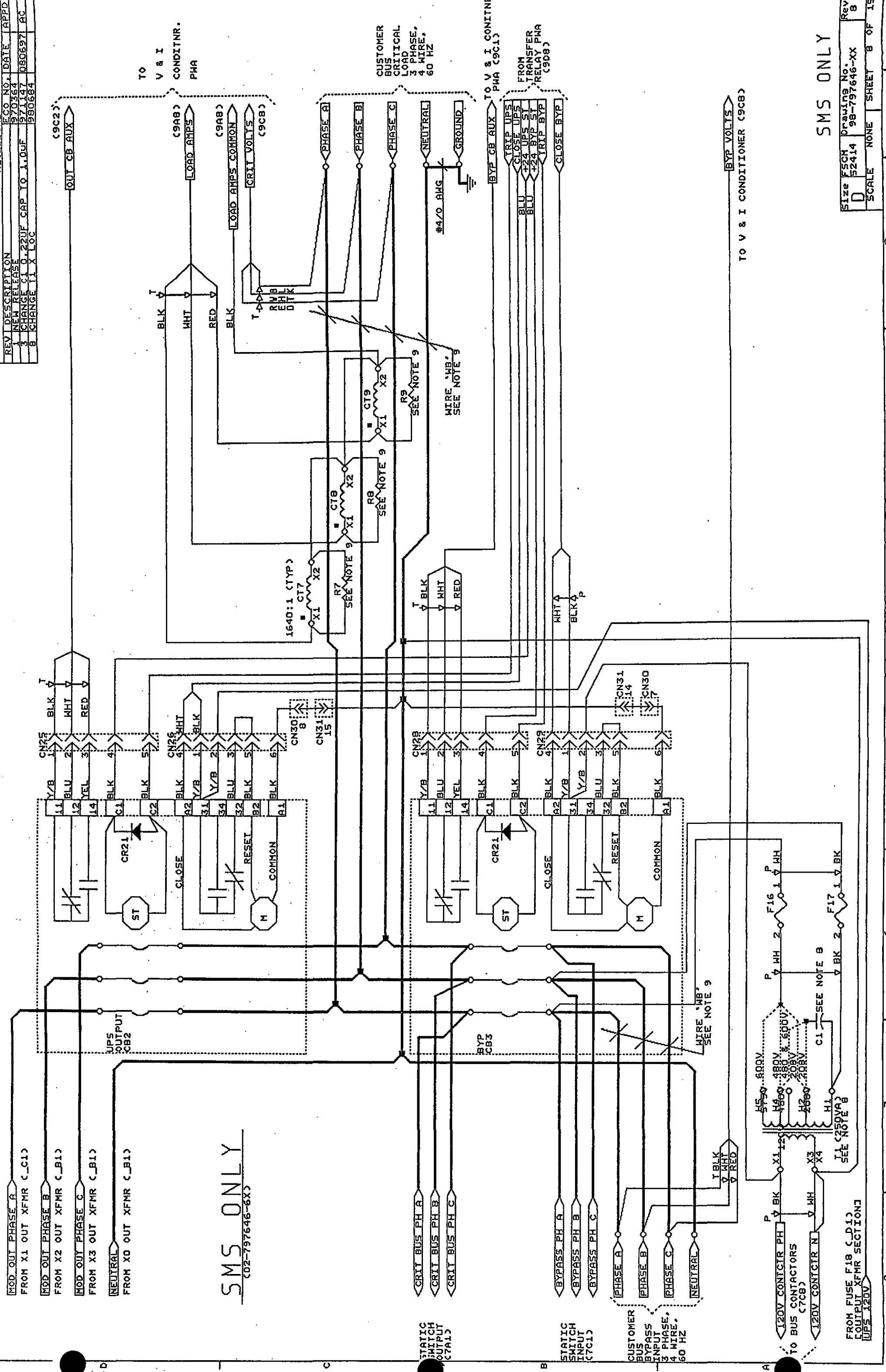
MOD OUT PHASE A  
FROM X1 OUT XFMR (C1)

MOD OUT PHASE B  
FROM X2 OUT XFMR (B1)

MOD OUT PHASE C  
FROM X3 OUT XFMR (B1)

NEUTRAL  
FROM X0 OUT XFMR (B1)

**SMS ONLY**  
C02-797646-6X3



TO  
V & I  
CONDITNR.  
PHA

CUSTOMER  
BUS  
CRITICAL  
LOAD  
3 PHASE,  
4 WIRE,  
60 HZ

TO V & I CONDITNR  
PMA (9C1)

FROM  
TRANSFER  
RELAY PMA  
(9D8)

TO V & I CONDITIONER (9C8)

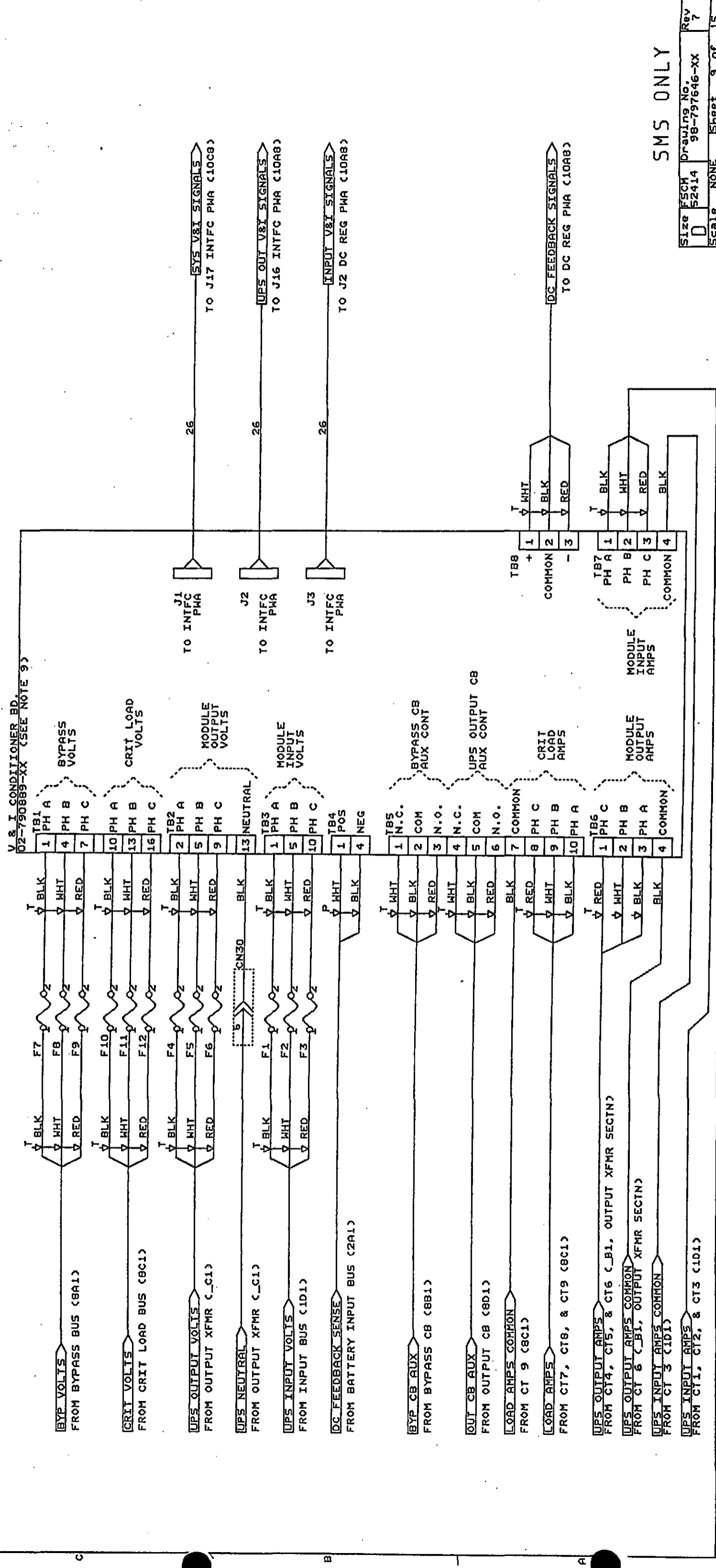
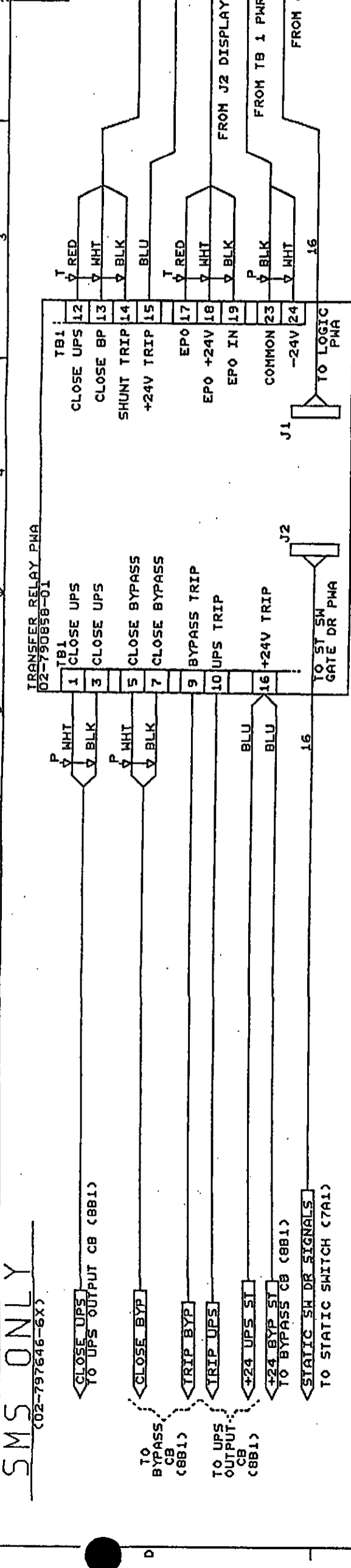
**SMS ONLY**

Size	F5CM	Drawing No.	98-797646-XX	Rev	8
SCALE	NONE	SHEET	8	OF	15

FROM FUSE F18 (D1)  
OUTPUT XFMR SECTION  
UPS 120V

SMS ONLY  
02-797646-6X

REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	970364	03/17/97	AC
5	REV DRAWING	971529	11/26/97	AC
7	REV DRAWING	980264		

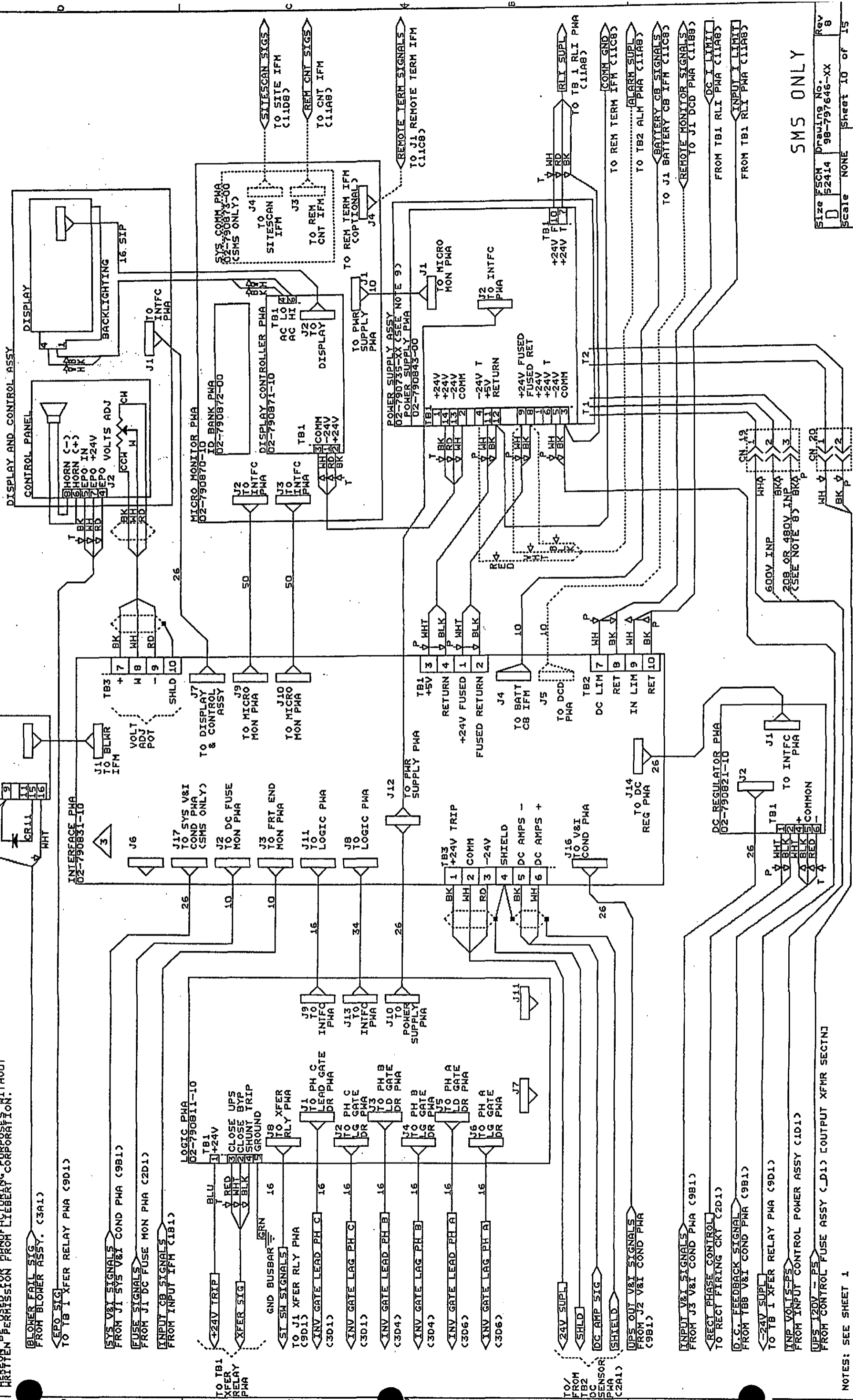


SMS ONLY

SMS ONLY  
(02-797646-6X)

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REV	DESCRIPTION	ECO NO.	DATE	APPROV
1	NEW RELEASE	970364		
5	UPDATE DRAWING	971529	112697	AC
8	REMOVE C69A-B CAP	980684		



SMS ONLY

Size	FSCM	Drawing No.	Rev
0	52414	98-797646-XX	8
Scale	NONE	Sheet	10 of 15

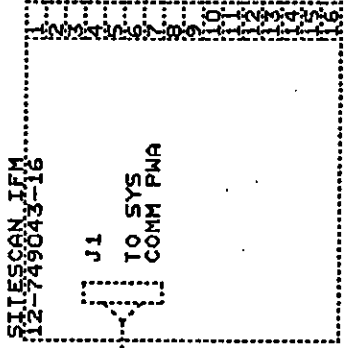
NOTES: SEE SHEET 1

SMS ONLY  
(02-797646-6X)

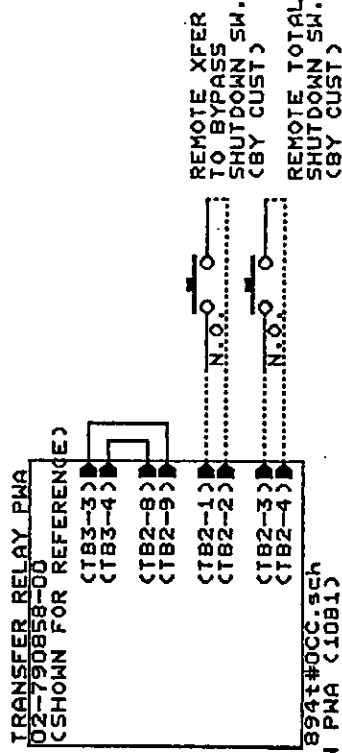
EXTERNAL CONNECTIONS

SITESCAN/SITEMASTER INTF  
(OPTION)

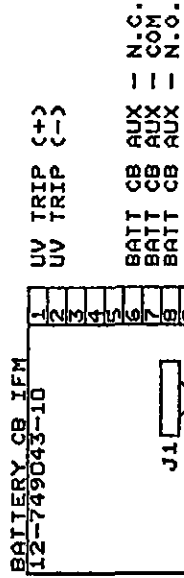
I+/R+ SMS  
I-/R- SMS



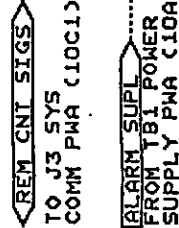
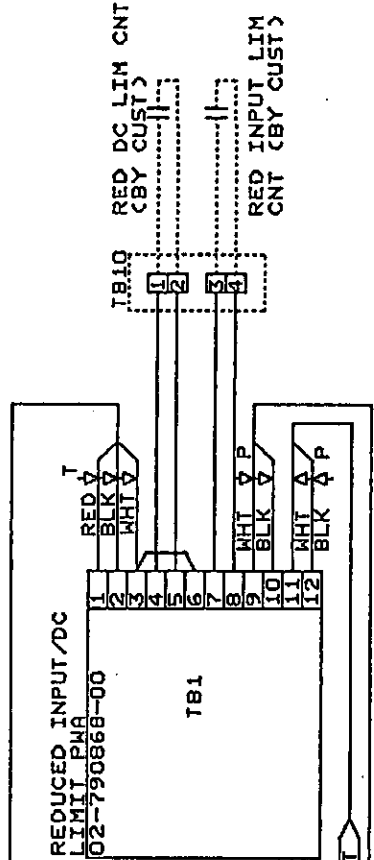
REMOTE EMERGENCY OFF



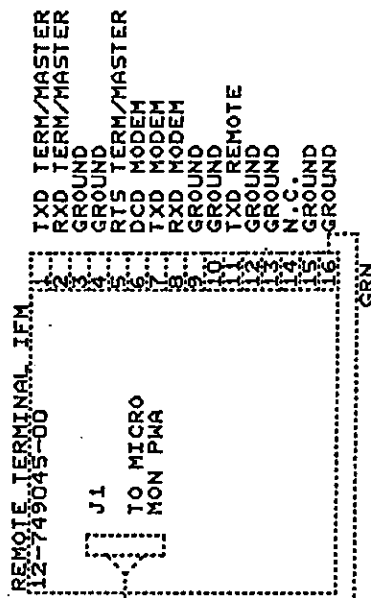
BATT CKT BRKR INTF



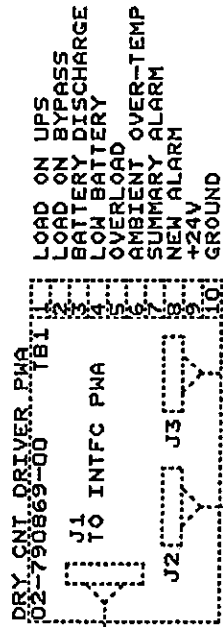
REDUCED I LIMIT



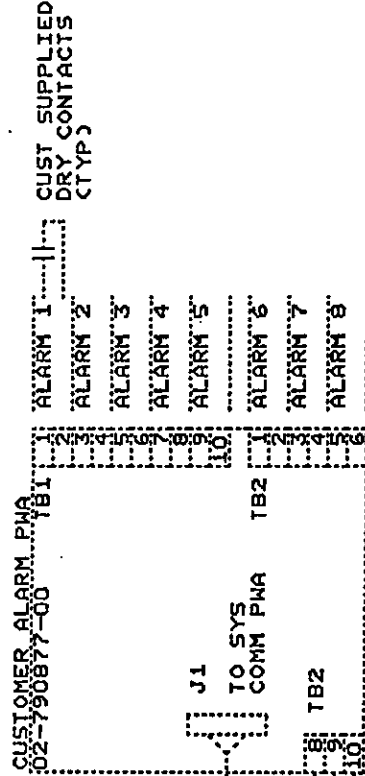
REMOTE TERMINAL INTF  
(OPTION)



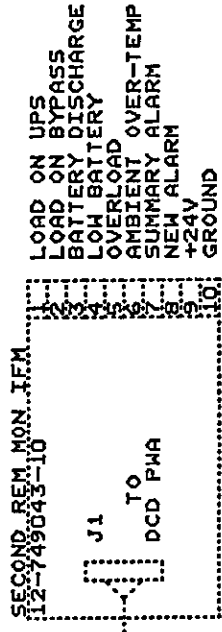
REMOTE MONITOR INTF  
(OPTION)



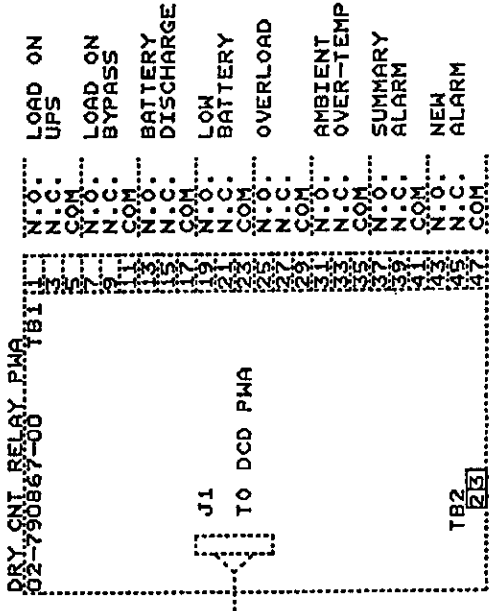
CUSTOMER ALARMS INTF  
(OPTION)



2ND. REMOTE MONITOR INTF  
(OPTION)



REMOTE DRY CONTACTS INTF  
(OPTION)



SMS ONLY

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	970364	031497	
8	REV COLOR WIRE	980684		

Size	FSCM	Drawing No.	Rev
0	52414	98-797646-XX	8
Scale	NONE	Sheet 11 of 15	

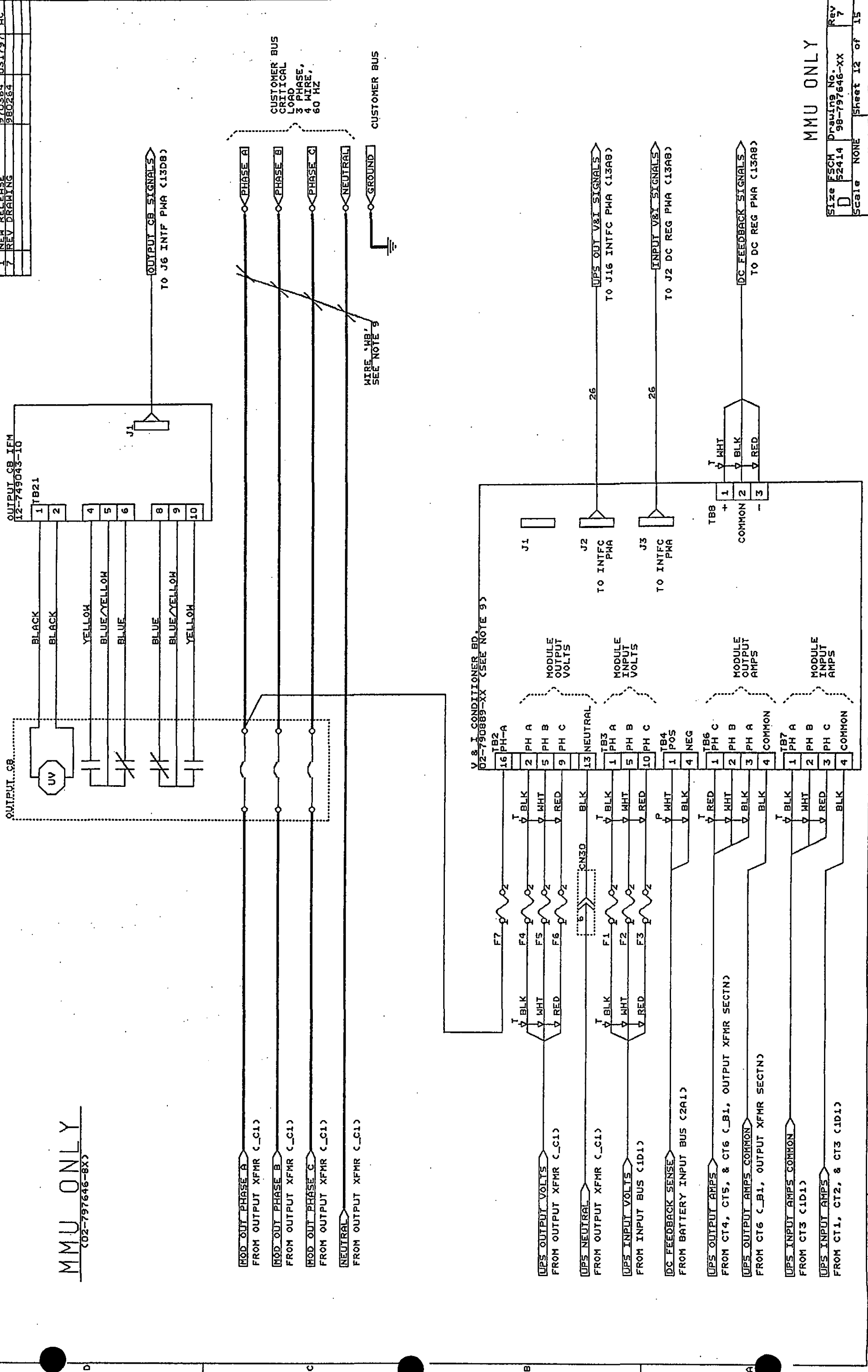


# MMU ONLY

(02-797646-8X)

REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	970364	031797	AC
7	REV DRAWING	980264		

REVISIONS	
1	NEW RELEASE
7	REV DRAWING

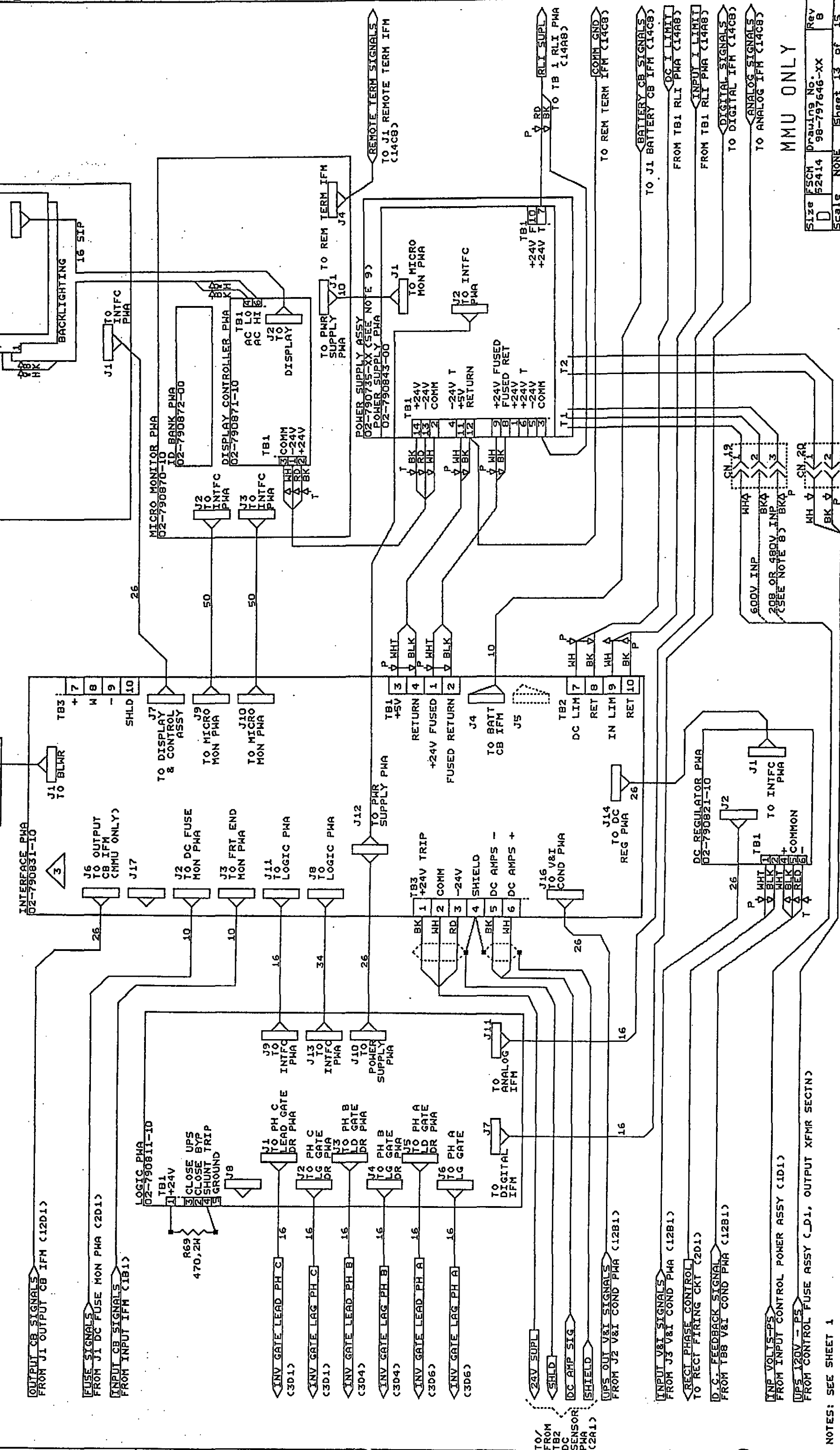


MMU ONLY

Size	F5CH	Drawing No.	98-797646-XX	Rev	7
Scale	NONE	Sheet	12	of	15

LT#	DESCRIPTION	ECO NO.	DATE	APPROV
1	NEW RELEASE	970364	03/17/97	AC
2	REMOVE CONNECTION TO GND BUSBAR	970473		
3	UPDATE DRAWING	971529	11/26/97	AC
4	REMOVE CR12	980884		

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**MMU ONLY**

02-797646-8X

**MMU ONLY**

Size FSCM Drawing No. 52414 98-797646-XX Rev B

Scale NONE Sheet 13 of 15

NOTES: SEE SHEET 1

# MMU ONLY

(02-797646-BX)

## EXTERNAL CONNECTIONS

REVISIONS			
LTR	DESCRIPTION	ECO NO.	DATE
1	NEW RELEASE	970364	
2	UPDATE DRAWING	971529	112697
3	REV WIRE COLOR	980684	

REMOTE TERM  
INTERFACE  
(OPTION)

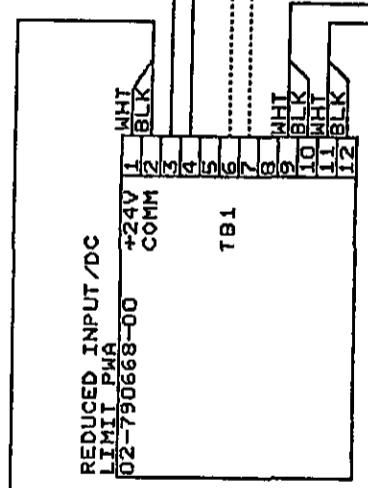
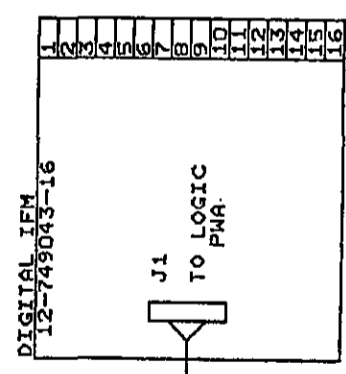
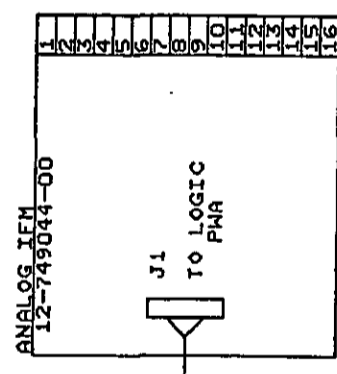
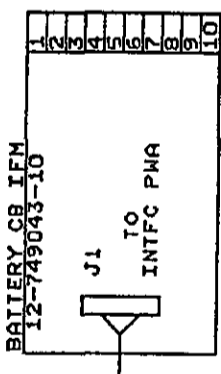
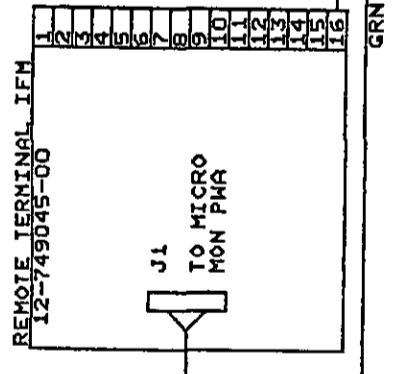
BATT  
CKT  
BRKR  
INTFC

SCC  
ANALOG  
INTFC

SCC  
DIGITAL  
INTFC

REDUCED I LIMIT

REDUCED DC LIMIT SIGNAL  
TO SYS CAB  
REDUCED INPUT LIMIT SIGNAL  
TO SYS CAB (OPTION)



← REMOTE TERM SIGNALS  
TO J4 MICRO MON PMA (13B1)

← COMM GND  
TO TB1 PWR SUPPLY PMA (13B1)

← BATTERY CB SIGNALS  
TO J4 INTFC PMA (13A1)

← ANALOG SIGNALS  
TO J11 LOGIC PMA (13B1)

← DIGITAL SIGNALS  
TO J7 LOGIC PMA (13B1)

← RLY SUPL  
TO TB1 PWR SUPPLY PMA (13B1)

← INPUT I LIMIT  
DC I LIMIT  
TO TB2 INTFC PMA (13A1)

MMU ONLY

Size	FSCM	Drawing No.	Rev
D	52414	98-797646-XX	8
Scale	NONE	Sheet	14 of 15

# CONFIGURATION

## JUMPER SELECT CHART

3

### COMPONENT SELECT CHART

COMPONENT	FUNCTION	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N
WIRE 'HA'	INPUT CB	SMS, 375 KVA 480/208V .8PF 02-797646-61	SMS, 375 KVA 480/208V .8PF 02-797646-63	SMS, 375 KVA 480/208V .8PF 02-797646-64	SMS, 375 KVA 480/208V .8PF 02-797646-65	SMS, 375 KVA 480/208V .8PF 02-797646-66	SMS, 375 KVA 480/208V .8PF 02-797646-67	SMS, 375 KVA 480/208V .8PF 02-797646-68	SMS, 375 KVA 480/208V .8PF 02-797646-69	SMS, 375 KVA 480/208V .8PF 02-797646-70	SMS, 375 KVA 480/208V .8PF 02-797646-71	SMS, 375 KVA 480/208V .8PF 02-797646-72	SMS, 375 KVA 480/208V .8PF 02-797646-73
WIRE 'HB'	OUTPUT, BYPASS & CRITICAL LOAD POWER WIRING	4 x 4/0 AWG	4 x 4/0 AWG	4 x 4/0 AWG	4 x 4/0 AWG	4 x 4/0 AWG	4 x 4/0 AWG	4 x 4/0 AWG	4 x 4/0 AWG	4 x 4/0 AWG	4 x 4/0 AWG	4 x 4/0 AWG	4 x 4/0 AWG
R1, R2, R3	BURDEN RESISTORS INPUT CURRENT CT's	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS
R4, R5, R6	BURDEN RESISTORS INVERTER OUTPUT CURRENT CT's	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS
R7, R8, R9	UPS OUTPUT CURRENT CT's (SEMS ONLY)	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS	5.1 OHMS
V & I CONDING. BD	POWER SUPPLY ASSEMBLY	02-790889-02	02-790889-03	02-790889-04	02-790889-05	02-790889-06	02-790889-07	02-790889-08	02-790889-09	02-790889-10	02-790889-11	02-790889-12	02-790889-13
INPUT ASSEMBLY	INPUT	02-790735-01	02-790735-02	02-790735-03	02-790735-04	02-790735-05	02-790735-06	02-790735-07	02-790735-08	02-790735-09	02-790735-10	02-790735-11	02-790735-12
AUTOXFMR	OUTPUT	02-769	02-769	02-769	02-769	02-769	02-769	02-769	02-769	02-769	02-769	02-769	02-769
TRANSFORMER	INPUT	02-769541-00	02-769541-01	02-769541-02	02-769541-03	02-769541-04	02-769541-05	02-769541-06	02-769541-07	02-769541-08	02-769541-09	02-769541-10	02-769541-11
CNTL XFMR	OUTPUT	12-749052-00	12-749052-01	12-749052-02	12-749052-03	12-749052-04	12-749052-05	12-749052-06	12-749052-07	12-749052-08	12-749052-09	12-749052-10	12-749052-11

REVISIONS

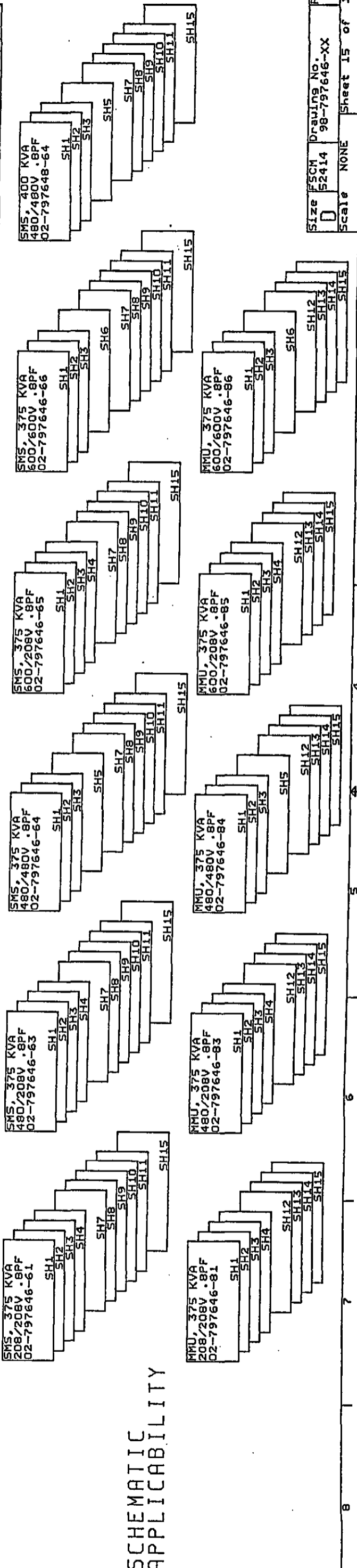
NO.	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	970364	3-17-94	AC
2	ADD 648-84 INFO	970473		
4	ADD 648-84 INFO	971338		

PINS TO BE CONNECTED

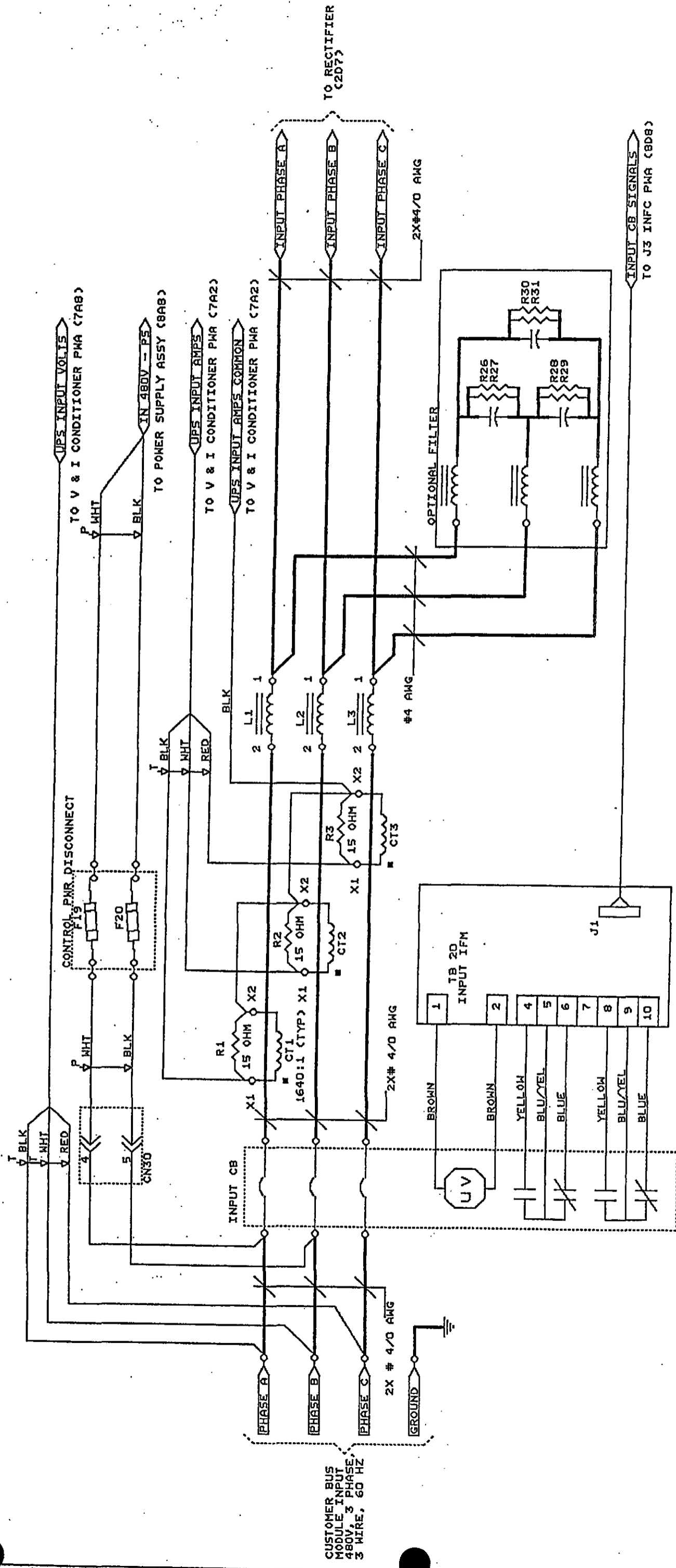
HEADER OR JUMPER	FUNCTION	PINS TO BE CONNECTED
H1-6	SYSTEM SEL	1-2
H13	XSTR/SCR SELECT	XSTR (1-2)
H4-H6	PROTECT ENABLE	2-3
H1	AUX DELAY	1-2,3-4,7-8
H7	LINE SYNC	2-3 (INT-SMS)
H8, H10-H12	FREQ. SELECT	1-2 (EXT-MMU)
H9	FAULT XFR INHABIT	1-2

### CONNECTION CHART

COMPONENT	SIGNAL NAME	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N
CONNECTOR CN12	INP VOLTS-PS	SMS, 375 KVA 480/208V .8PF 02-797646-61	SMS, 375 KVA 480/208V .8PF 02-797646-63	SMS, 375 KVA 480/208V .8PF 02-797646-64	SMS, 375 KVA 480/208V .8PF 02-797646-65	SMS, 375 KVA 480/208V .8PF 02-797646-66	SMS, 375 KVA 480/208V .8PF 02-797646-67	SMS, 375 KVA 480/208V .8PF 02-797646-68	SMS, 375 KVA 480/208V .8PF 02-797646-69	SMS, 375 KVA 480/208V .8PF 02-797646-70	SMS, 375 KVA 480/208V .8PF 02-797646-71	SMS, 375 KVA 480/208V .8PF 02-797646-72	SMS, 375 KVA 480/208V .8PF 02-797646-73
XFRMR T1	F16-2 WHT	02-769541-00	02-769541-01	02-769541-02	02-769541-03	02-769541-04	02-769541-05	02-769541-06	02-769541-07	02-769541-08	02-769541-09	02-769541-10	02-769541-11
	CAP C1	12-749052-00	12-749052-01	12-749052-02	12-749052-03	12-749052-04	12-749052-05	12-749052-06	12-749052-07	12-749052-08	12-749052-09	12-749052-10	12-749052-11



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REVISIONS			
LTR DESCRIPTION	ECO NO. DATE APPD		
1	NEW RELEASE		

REVISION STATUS OF SHEETS	
SHT	REV
1	1
2	1
3	1
4	1
5	1
6	1
7	1
8	1
9	1

7. NUMBERS IN PARENTHESIS AFTER DESTINATIONS INDICATE (PAGE AND ZONE).
  6. CONNECT GROUND WIRES TO GROUND BUS, SHT 6, ZN C-1.
  5. CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.
  4. ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WHT. UNLESS OTHERWISE SPECIFIED.
  3. SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT 9).
  2. ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.
  1. ALL CONTROL WIRE TO BE #20 AWG, MIN 600V.
- NOTES: UNLESS OTHERWISE SPECIFIED

CONTRACT NO. UPS

DRAWN JC 3-6-96

CHECK DES APPD

PT J APPD

Size FSCM Drawing No. 52414 98-79648-64 Rev 1

Title LIEBERT

Schematic/Wiring Diagram

AP648T SMS

480V IN, 480/277V OUT, 60 HZ

REV. NO.	DATE	DESCRIPTION
1		NEW RELEASE

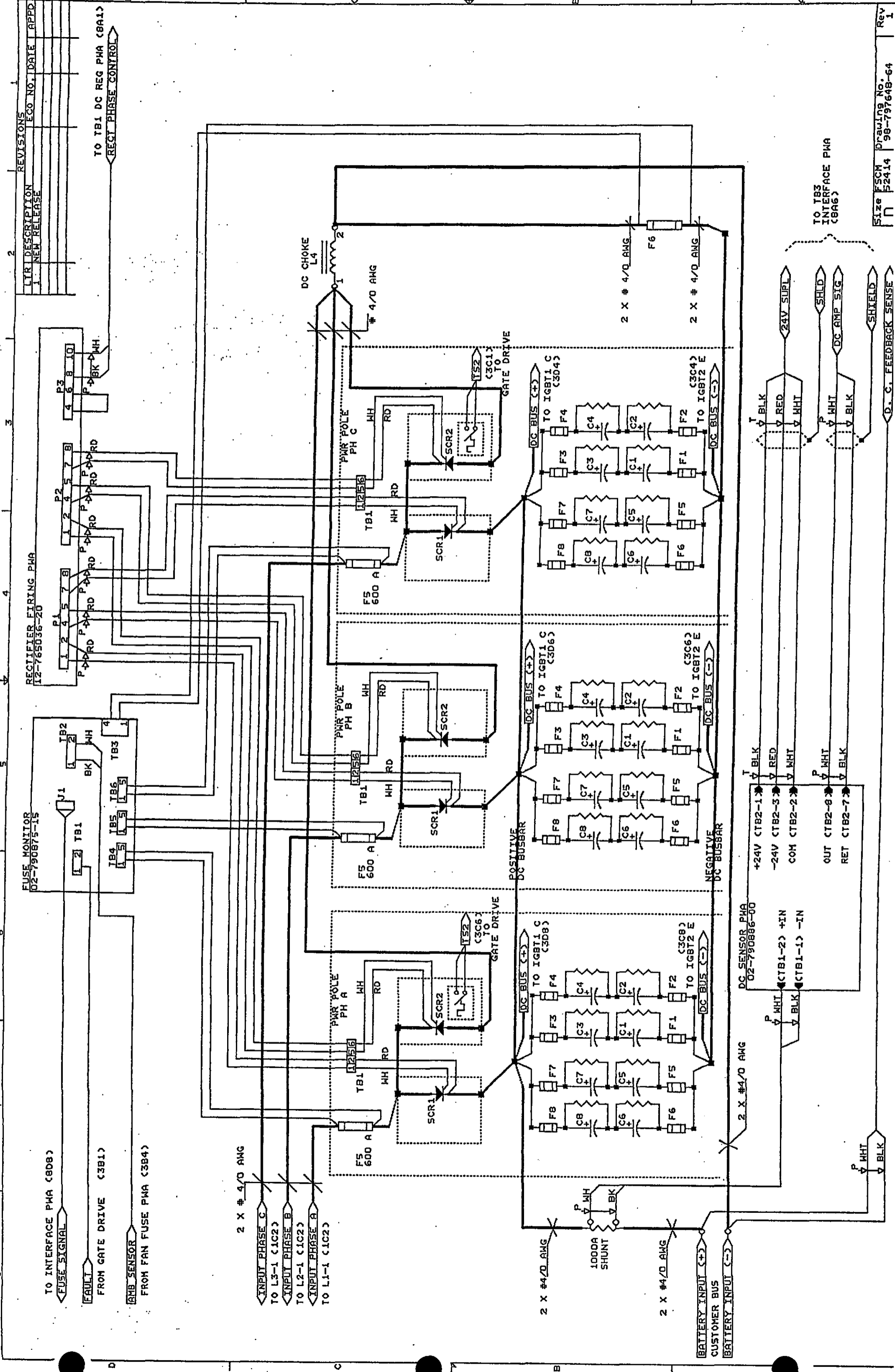
REV. NO.	DATE	DESCRIPTION
1		NEW RELEASE

REV. NO.	DATE	DESCRIPTION
1		NEW RELEASE

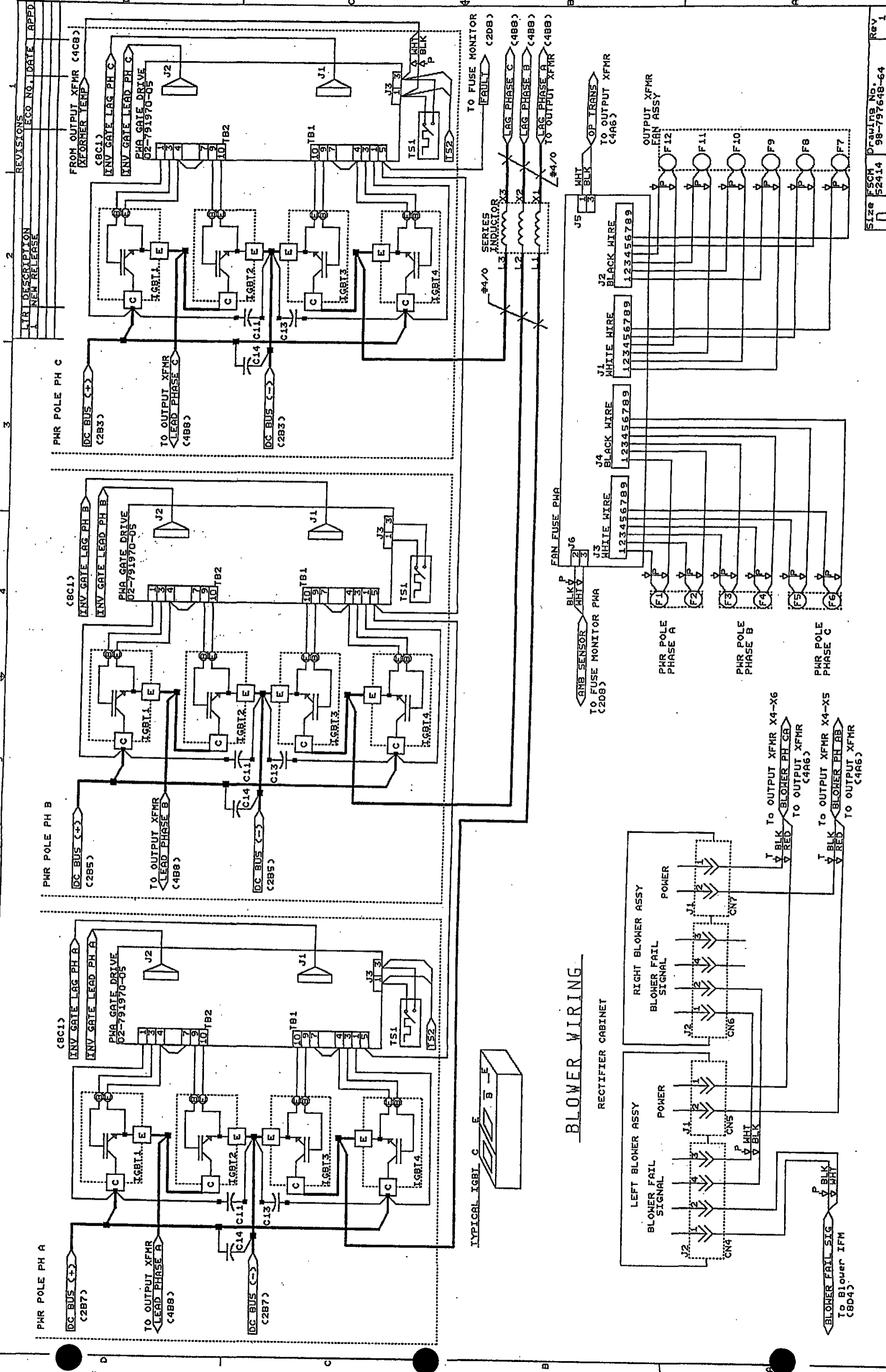
REV. NO.	DATE	DESCRIPTION
1		NEW RELEASE

TO TB3 INTERFACE PMA (8A6)

Size FSCM Drawing No. 52414 98-797648-64 Rev 1



TO INTERFACE PMA (8D8)  
 FUSE SIGNAL  
 FAULT  
 FROM GATE DRIVE (3B1)  
 FROM FAN FUSE PMA (3B4)  
 AMB SENSOR  
 INPUT PHASE C TO L3-1 (C1C2)  
 INPUT PHASE B TO L2-1 (C1C2)  
 INPUT PHASE A TO L1-1 (C1C2)  
 2 X # 4/0 AWG  
 2 X # 4/0 AWG  
 1000A SHUNT  
 BATTERY INPUT (+)  
 CUSTOMER BUS  
 BATTERY INPUT (-)  
 2 X # 4/0 AWG  
 POSITIVE DC BUSBAR  
 NEGATIVE DC BUSBAR  
 DC BUS (+)  
 DC BUS (-)  
 TO IGBT1 C (3D8)  
 TO IGBT2 E (3C8)  
 TO IGBT1 C (3D6)  
 TO IGBT2 E (3C6)  
 TO IGBT1 C (3D4)  
 TO IGBT2 E (3C4)  
 DC BUS (+)  
 DC BUS (-)  
 GATE DRIVE (C3C6)  
 GATE DRIVE (C3C4)  
 GATE DRIVE (C3C1)  
 2 X # 4/0 AWG  
 2 X # 4/0 AWG  
 DC CHOKES L4  
 # 4/0 AWG  
 DC SENSOR PMA (02-790886-00)  
 +24V (CTB2-1)  
 -24V (CTB2-3)  
 COM (CTB2-2)  
 OUT (CTB2-6)  
 RET (CTB2-7)  
 +IN (CTB1-2)  
 -IN (CTB1-1)  
 +24V SUPL  
 SHLD  
 DC AMP SIG  
 SHIELD  
 D.C. FEEDBACK SENSE



REVISIONS

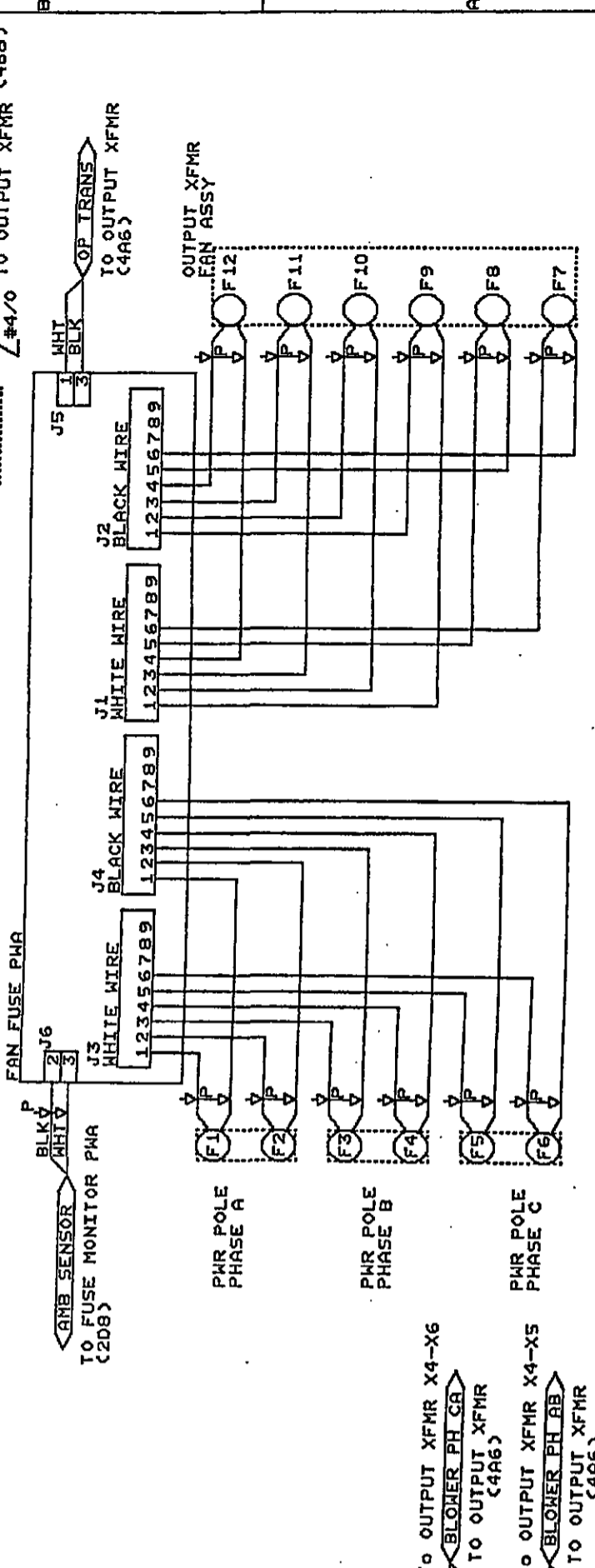
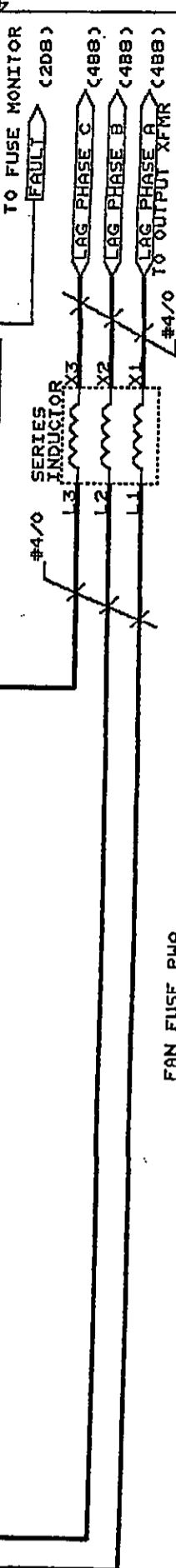
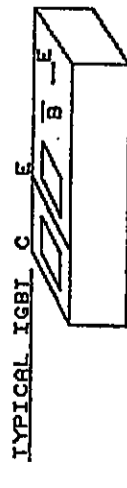
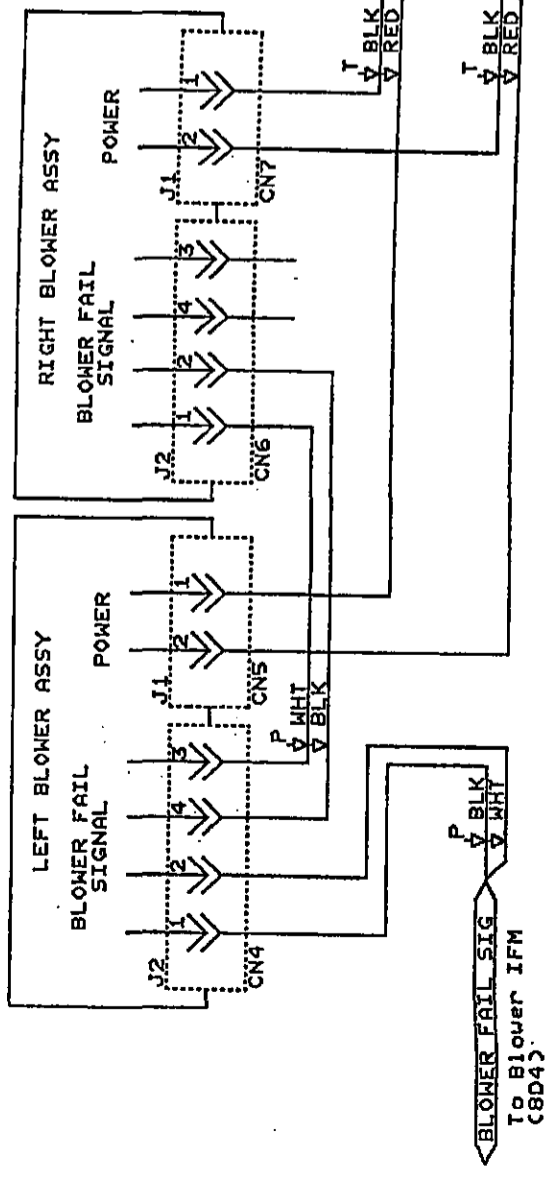
NO.	DESCRIPTION	DATE	APPD.
1	NEW RELEASE		

ECO NO. DATE APPD.

NO.	DESCRIPTION	DATE	APPD.
1	NEW RELEASE		

**BLOWER WIRING**

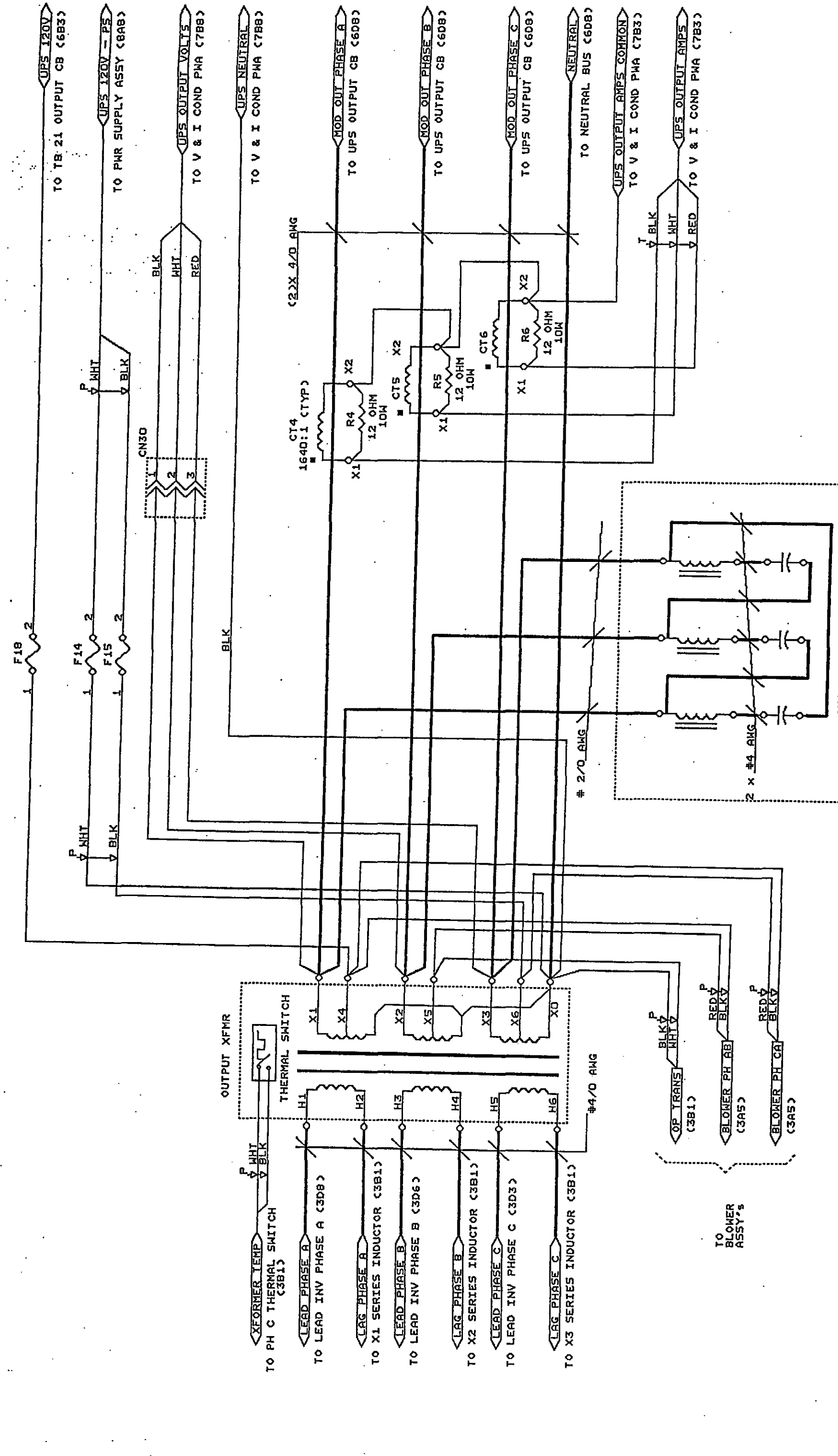
RECTIFIER CABINET





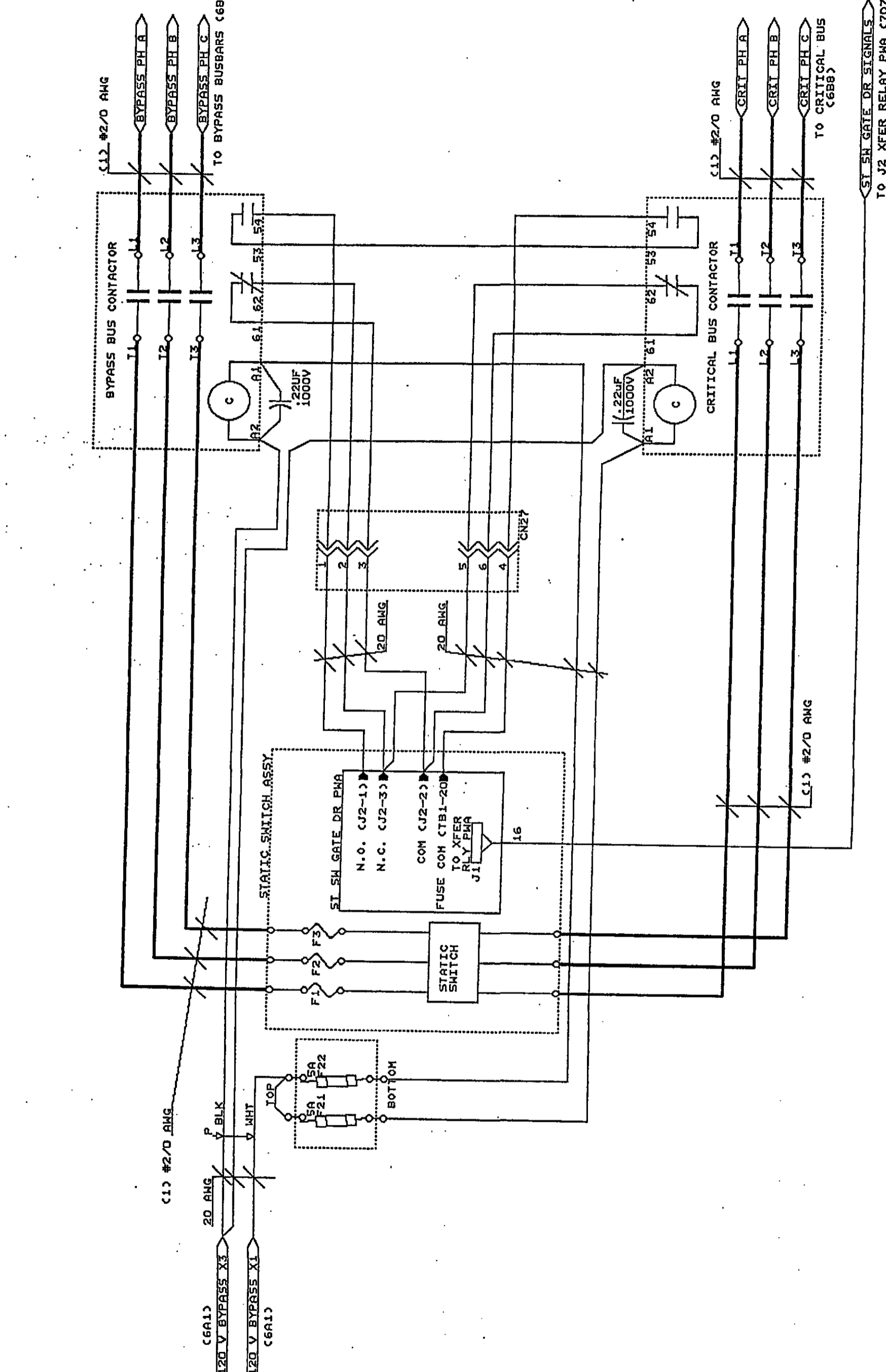
REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE			

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE			



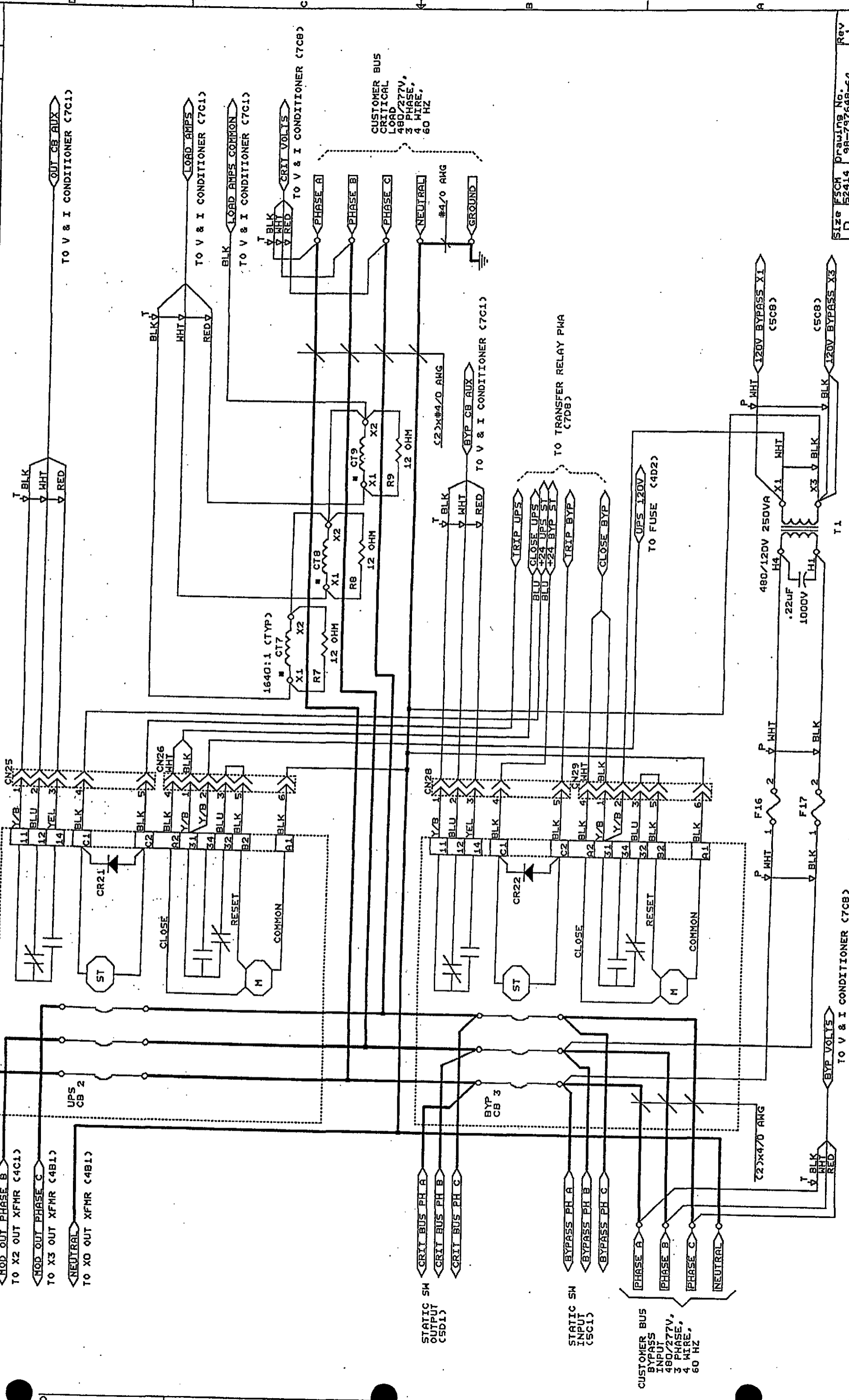
REV. NO.	DATE	APPROV.
1		
2		
3		
4		
5		

REVISIONS	DESCRIPTION	ECO NO.	DATE	APPROV.
1	NEW RELEASE			



REVISIONS	DESCRIPTION	ECO NO	DATE	APPRO
1	NEW RELEASE			

ZONE	TR	DESCRIPTION	ECO NO	DATE	APPRO



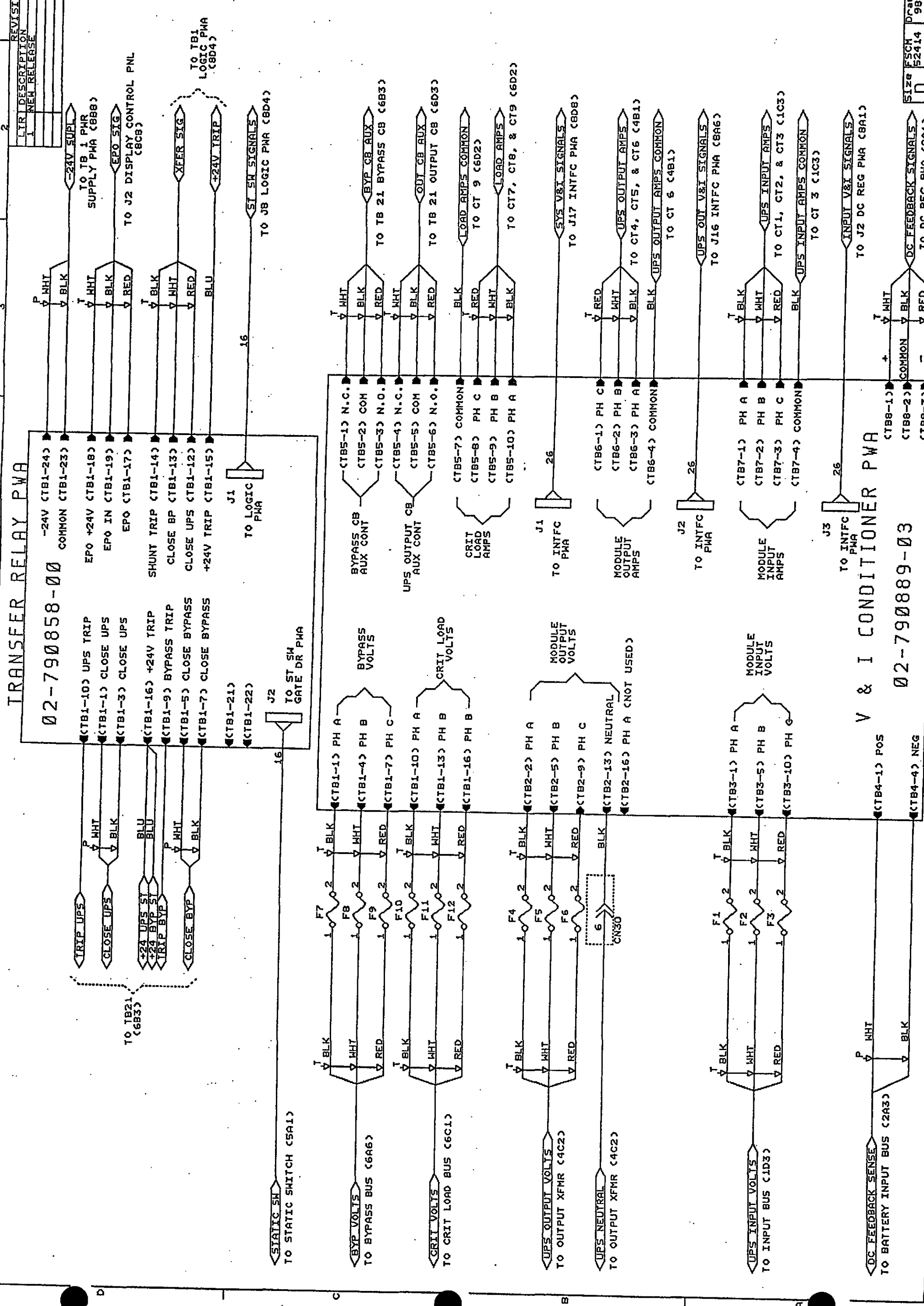
Size FSCH Drawing No. 98-797648-64 Rev 1

TO V & I CONDITIONER (7C8)

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE			

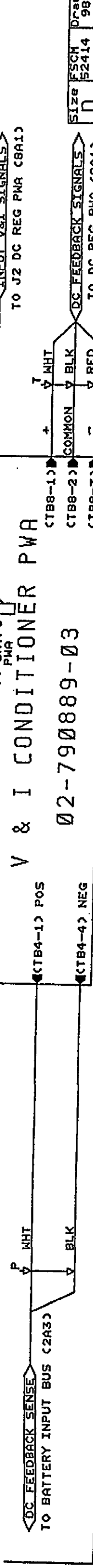
# TRANSFER RELAY PWA

02-790858-00

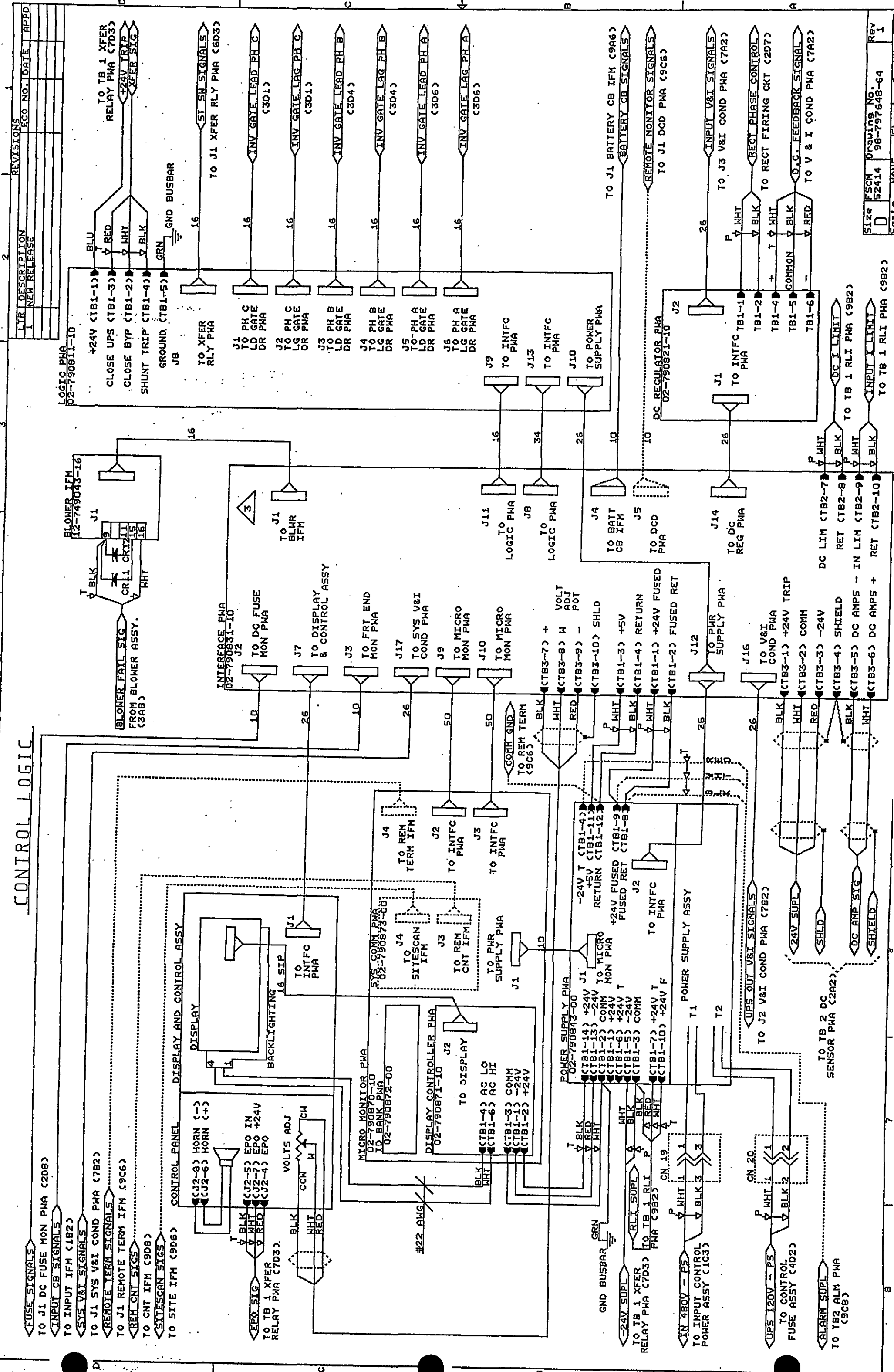


# V & I CONDITIONER PWA

02-790889-03



CONTROL LOGIC



REV	DESCRIPTION	ECO NO.	DATE	APPD
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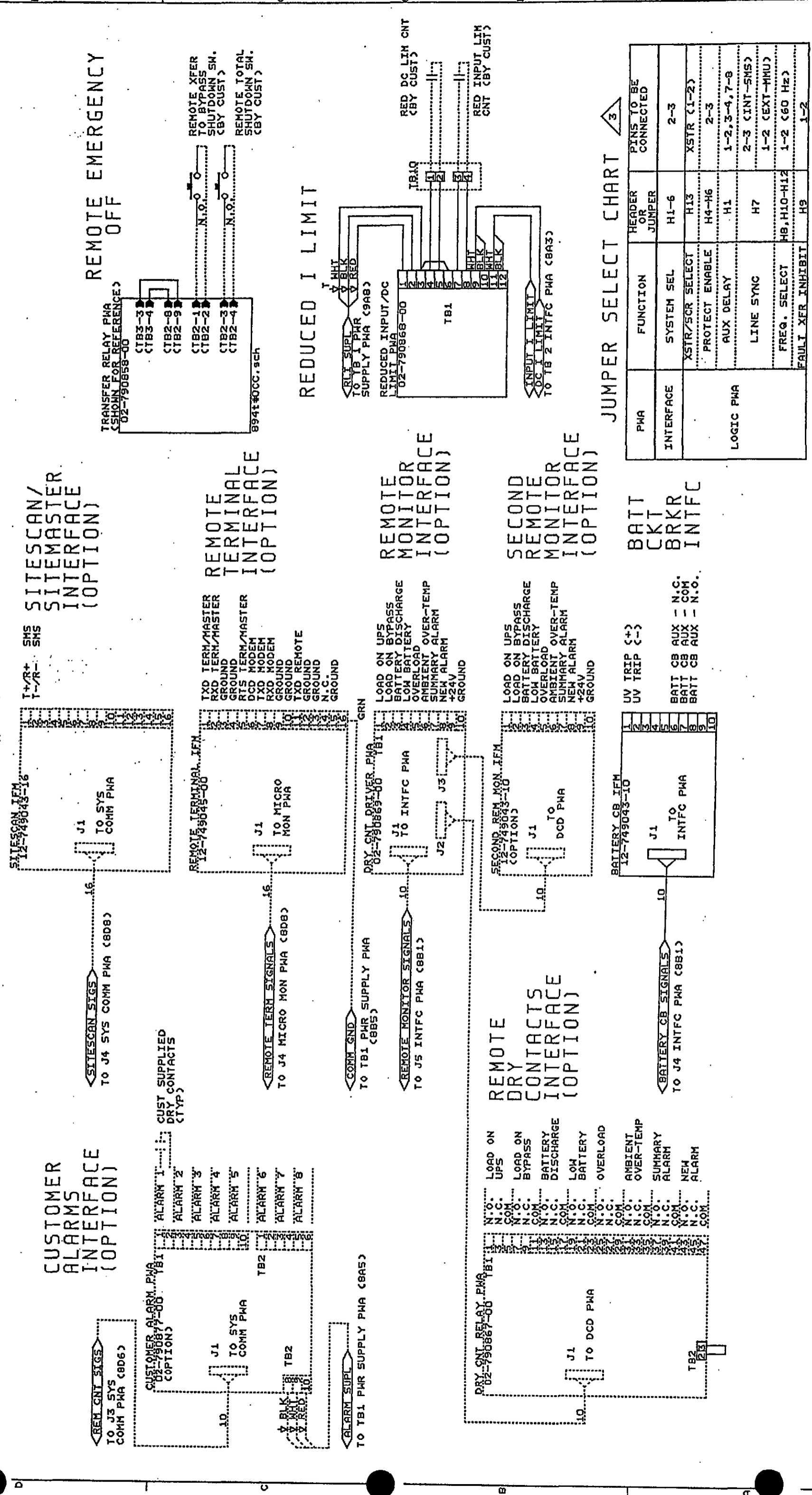
Size FSCM Drawing No. 52414 98-797648-64 Rev 1

TO TB 2 DC SENSOR PMA (C2A2)

LTR	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE			

REV	DESCRIPTION	DATE
1	NEW RELEASE	

# EXTERNAL CONNECTIONS

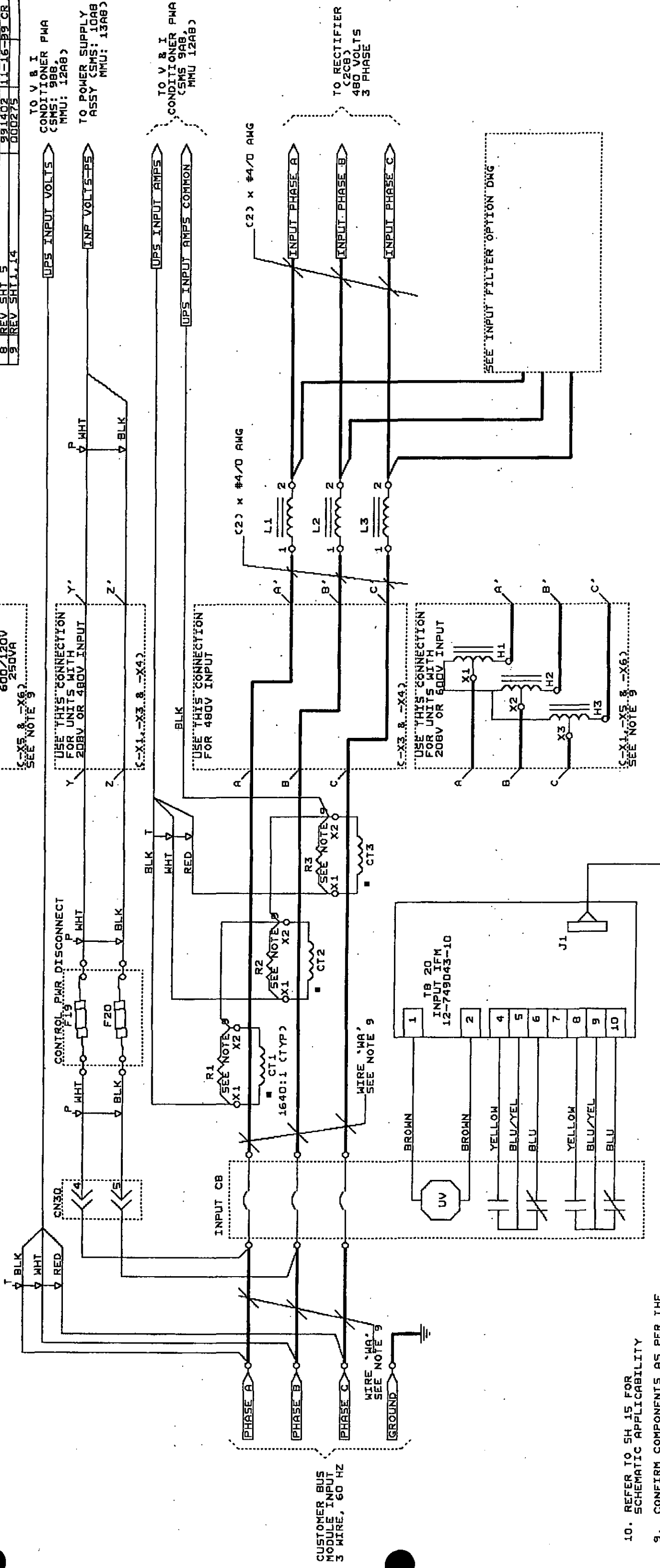


## JUMPER SELECT CHART

PMA	FUNCTION	HEADER OR JUMPER	PINS TO BE CONNECTED
INTERFACE	SYSTEM SEL	H1-6	2-3
	XSTR/SCR SELECT	H13	XSTR (1-2)
	PROTECT ENABLE	H4-H6	2-3
LOGIC PMA	AUX DELAY	H1	1-2, 3-4, 7-8
	LINE SYNC	H7	2-3 (INT-SMS)
	FREQ. SELECT	H8, H10-H12	1-2 (EXT-MMU), 1-2 (60 Hz)
	FAULT XFR INHIBIT	H9	1-2

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REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	970364	03/19/74	AC
2	REV SHT 2, 3, 4, 5, 6, 15	970473	04/16/74	AC
3	REV SHT 2, 3, 4, 5, 6, 16	970560	04/21/74	AC
4	REV SHT 13	971165	09/16/74	AC
5	REV SHT 9, 10	971474	12/05/74	AC
6	REV SHT 9, 12, 14	980264	03/13/78	LM
7	REV SHT 10, 11, 13, 14	980672	08/20/78	DA
8	REV SHT 5	981402	11/16/78	CR
9	REV SHT 1, 14	000275		



TO V B I  
CONDITIONER PMA  
(SMS: 98B,  
MMU: 12AB)

TO POWER SUPPLY  
ASSY (SMS: 10AB  
MMU: 13AB)

TO V B I  
CONDITIONER PMA  
(SMS 9AB,  
MMU 12AB)

TO RECTIFIER  
(C2CB)  
480 VOLTS  
3 PHASE

TO J3 INFC PMA  
(SMS: 10DB, MMU: 13DB)

REVISION STATUS OF SHEETS									
SHT	1	2	3	4	5	6	7	8	9
SHT 1	1	1	1	1	1	1	1	1	1
SHT 2	1	1	1	1	1	1	1	1	1
SHT 3	1	1	1	1	1	1	1	1	1
SHT 4	1	1	1	1	1	1	1	1	1
SHT 5	1	1	1	1	1	1	1	1	1
SHT 6	1	1	1	1	1	1	1	1	1
SHT 7	1	1	1	1	1	1	1	1	1
SHT 8	1	1	1	1	1	1	1	1	1
SHT 9	1	1	1	1	1	1	1	1	1
SHT 10	1	1	1	1	1	1	1	1	1
SHT 11	1	1	1	1	1	1	1	1	1
SHT 12	1	1	1	1	1	1	1	1	1
SHT 13	1	1	1	1	1	1	1	1	1
SHT 14	1	1	1	1	1	1	1	1	1
SHT 15	1	1	1	1	1	1	1	1	1

CONTRACT NO. UPS

TITLE  
SCHEMATIC/WIRING DIAGRAM  
AP651T SMS & MMU  
208, 480 & 600VAC

DES APPD 030697

PROJ. APPD 031197

JBC 031197

APPROVED

Size 52414

Drawing No. 98-797651-XX

Rev 9

Scale NONE

Sheet 1 of 15

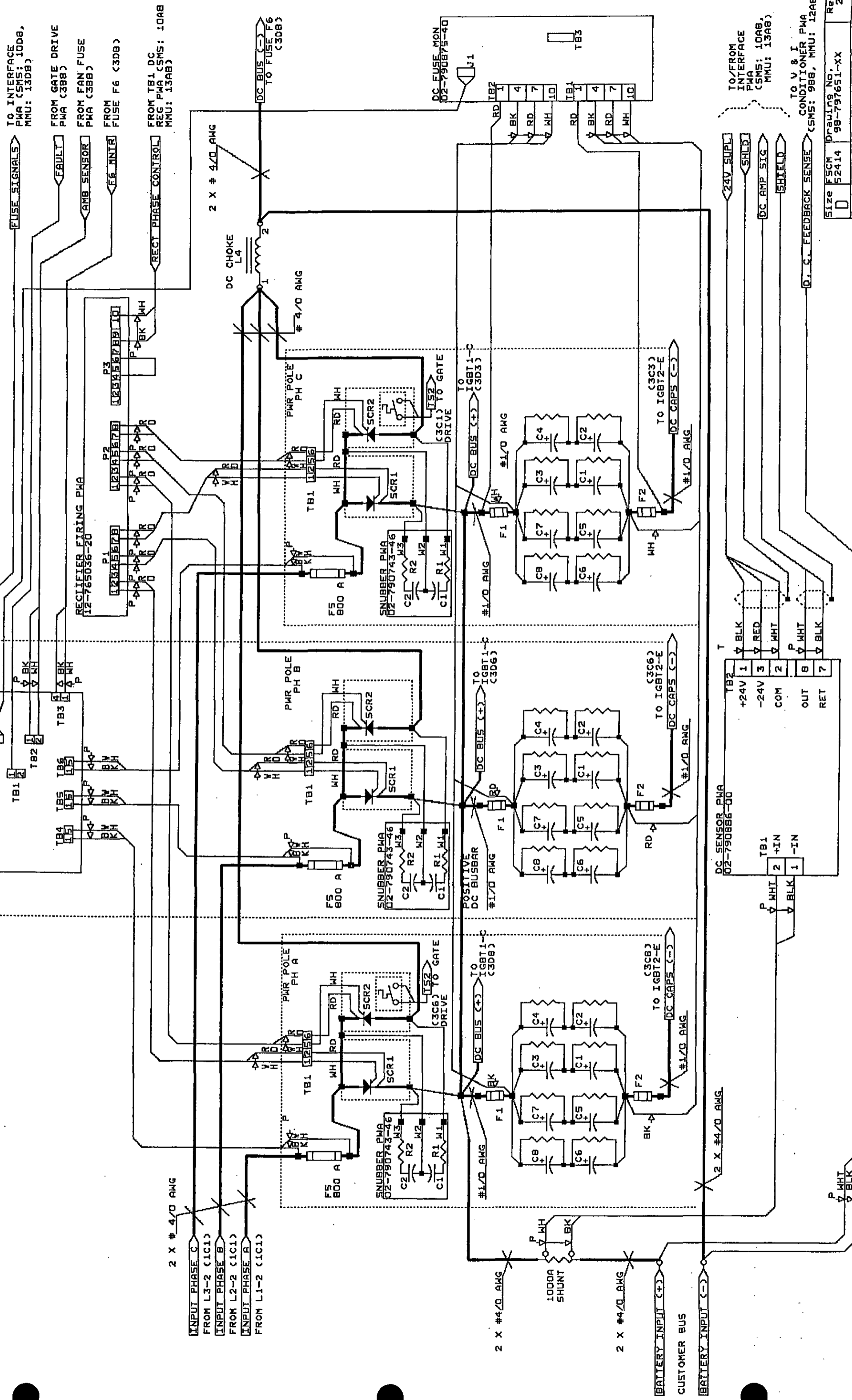
LIBERT

- REFER TO SH 15 FOR SCHEMATIC APPLICABILITY
- CONFIRM COMPONENTS AS PER THE COMPONENT SELECT CHART (SH 15)
- CONNECT WIRES AS PER THE CONNECTION CHART (SH 15)
- NUMBERS IN PARENTHESIS AFTER DESTINATIONS INDICATE (PAGE AND ZONE).
- CONNECT GROUND WIRES TO GROUND BUS SMS: SHT 8, ZN C-1; MMU: SHT 12, ZN C-1
- CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.
- ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WHT. UNLESS OTHERWISE SPECIFIED.
- SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT 15).
- ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.
- ALL CONTROL WIRE TO BE #20 AWG, MIN 600V. UNLESS OTHERWISE SPECIFIED.



LTR	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	970364	5-14-97	AC
2	REPLACE F1-B WITH F1-2	970473		

REV	DESCRIPTION	DATE
1	TO INTERFACE PWA (SMS: 10DB, MMU: 13DB)	
2	FROM GATE DRIVE PWA (38B)	
3	FROM FAN FUSE PWA (38B)	
4	FROM FAN FUSE F6 (308)	
5	FROM TB1 DC REG PWA (SMS: 10AB, MMU: 13AB)	



TO/FROM	INTERFACE	PWA	(SMS: 10AB, MMU: 13AB)
TO	INTERFACE	PWA	(SMS: 10AB, MMU: 13AB)
TO	V & I	CONDITIONER PWA	(SMS: 98B, MMU: 12AB)

TO	FROM	WIRE	WIRE
+	24V SUPPL	BLK	1
-	24V SUPPL	RED	3
+	DC AMP SIG	WHT	2
+	DC AMP SIG	WHT	8
-	DC AMP SIG	WHT	7
-	DC AMP SIG	WHT	6
-	DC AMP SIG	WHT	5
-	DC AMP SIG	WHT	4
-	DC AMP SIG	WHT	3
-	DC AMP SIG	WHT	2
-	DC AMP SIG	WHT	1

TO	FROM	WIRE	WIRE
+	DC SENSOR PWA	WHT	2
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1

TO	FROM	WIRE	WIRE
+	DC SENSOR PWA	WHT	2
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1

TO	FROM	WIRE	WIRE
+	DC SENSOR PWA	WHT	2
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
-	DC SENSOR PWA	WHT	1
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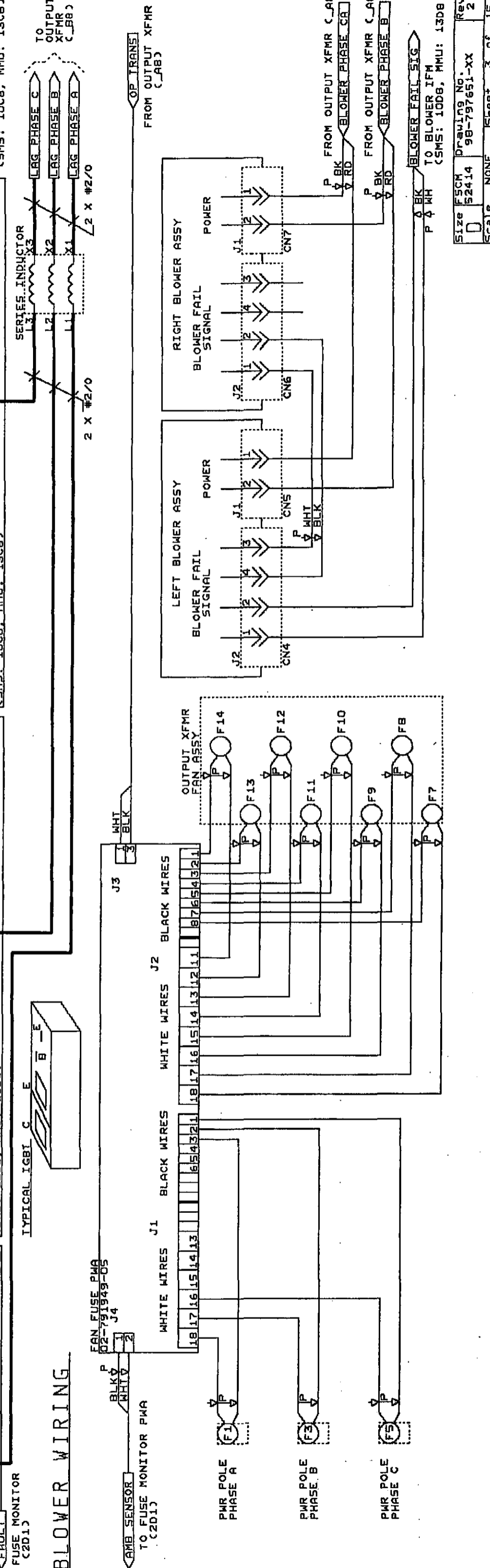
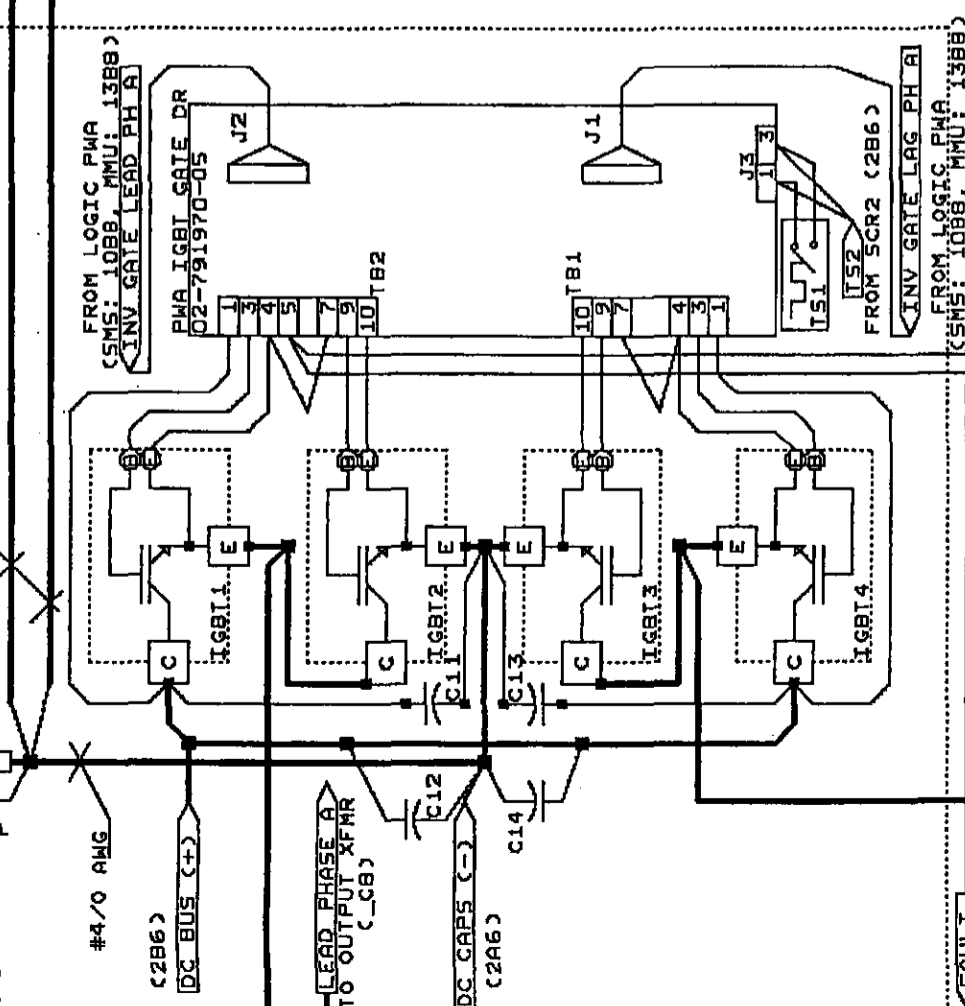
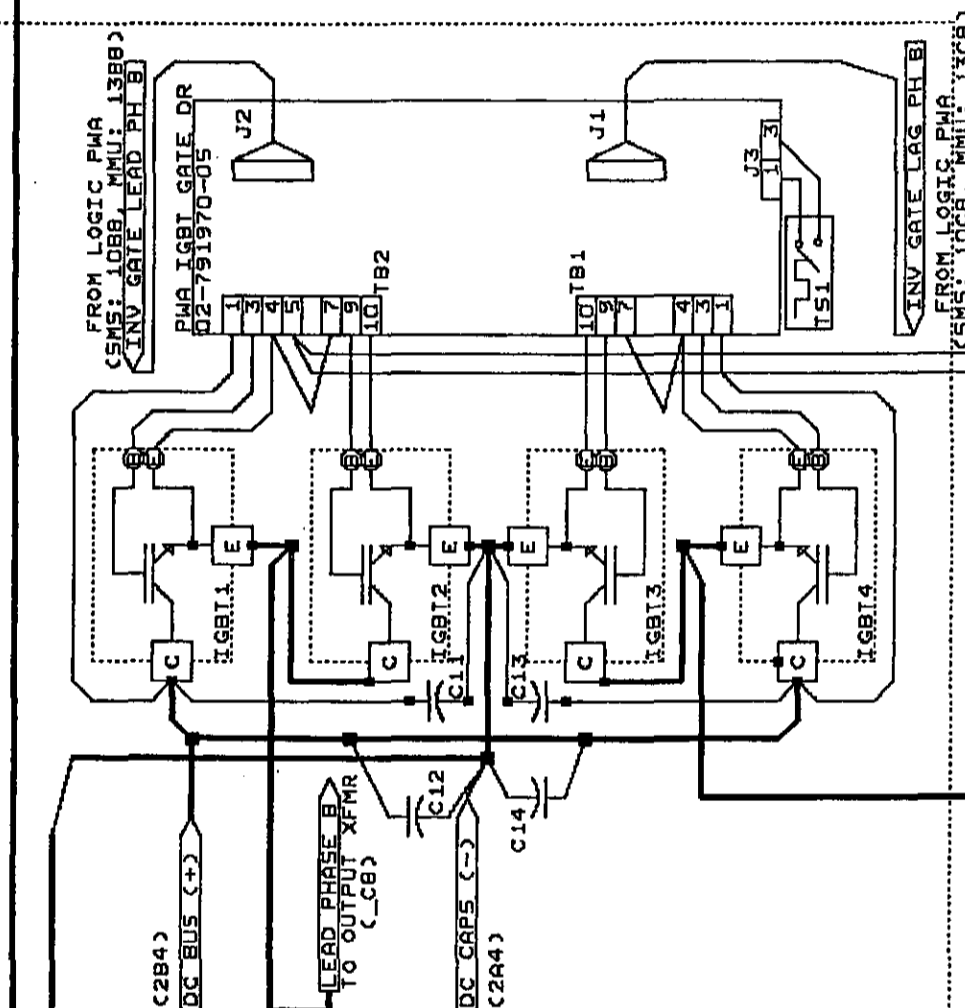
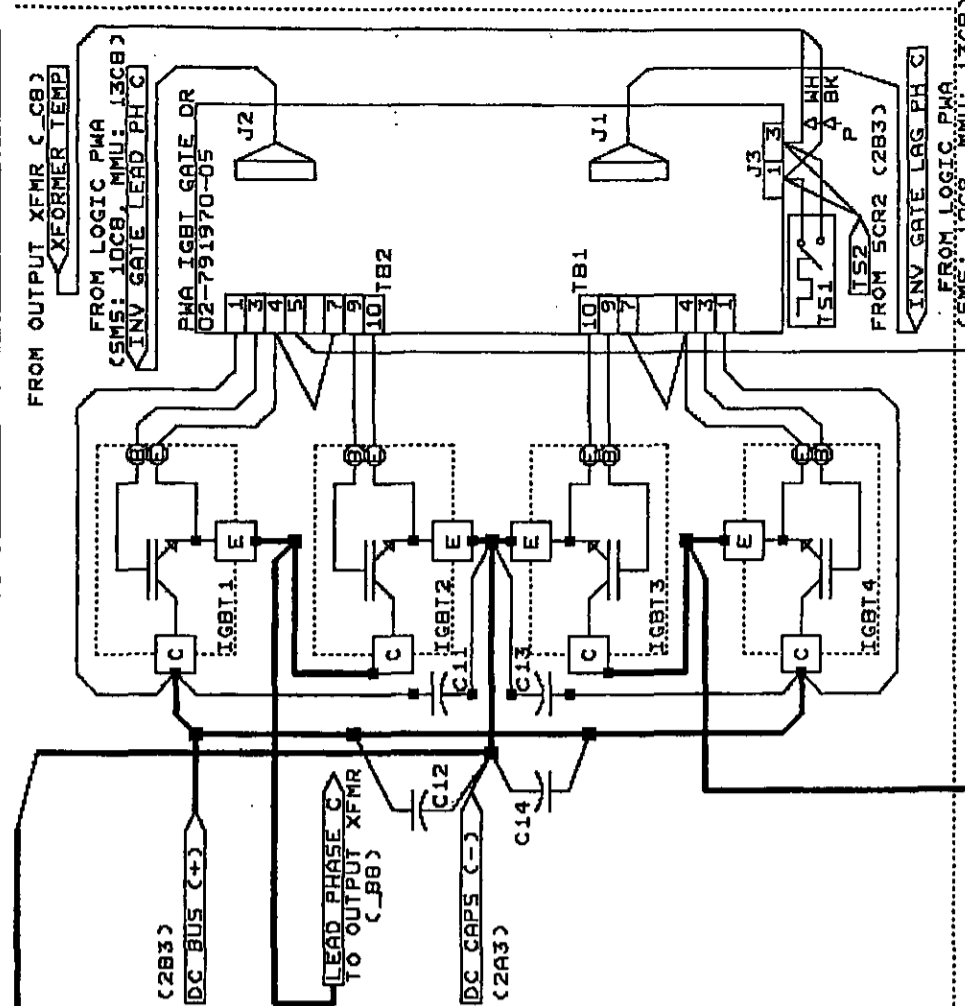
REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	970364	3-17-97	AC
2	UPDATE	970473		

PWR POLE PH C

PWR POLE PH B

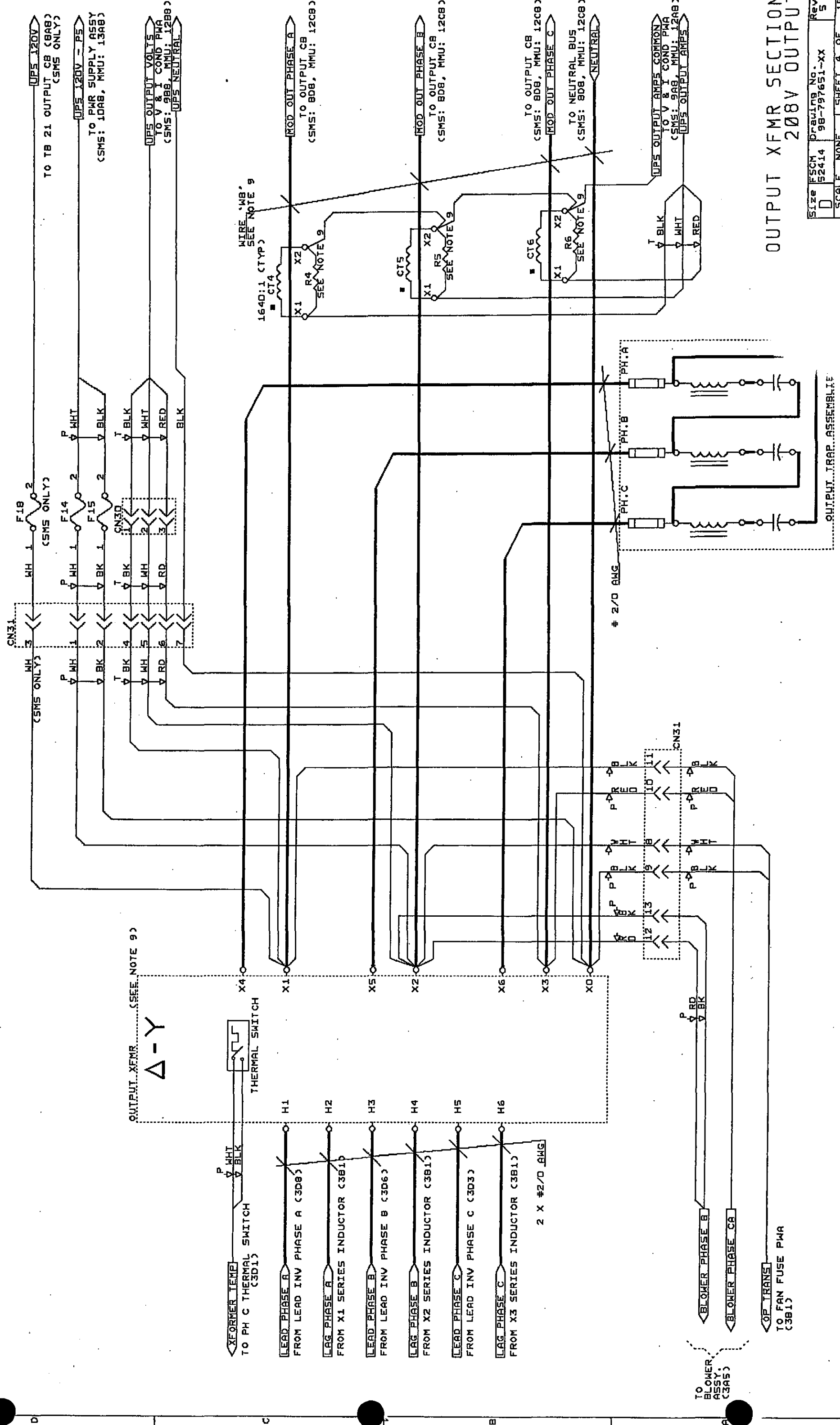
PWR POLE PH A

DC BUS (-) (2C1)  
F6 MNTR BKA P  
(2D1)



REV	DESCRIPTION	ECN NO.	DATE	APPR
1	NEW RELEASE	970364	3-17-97	AC
2	UPDATE	970473	9-16-97	AC
3	CHG CNS2 PIN 10	971371		

REV	DESCRIPTION	ECN NO.	DATE	APPR
1	NEW RELEASE	970364	3-17-97	AC
2	UPDATE	970473	9-16-97	AC
3	CHG CNS2 PIN 10	971371		

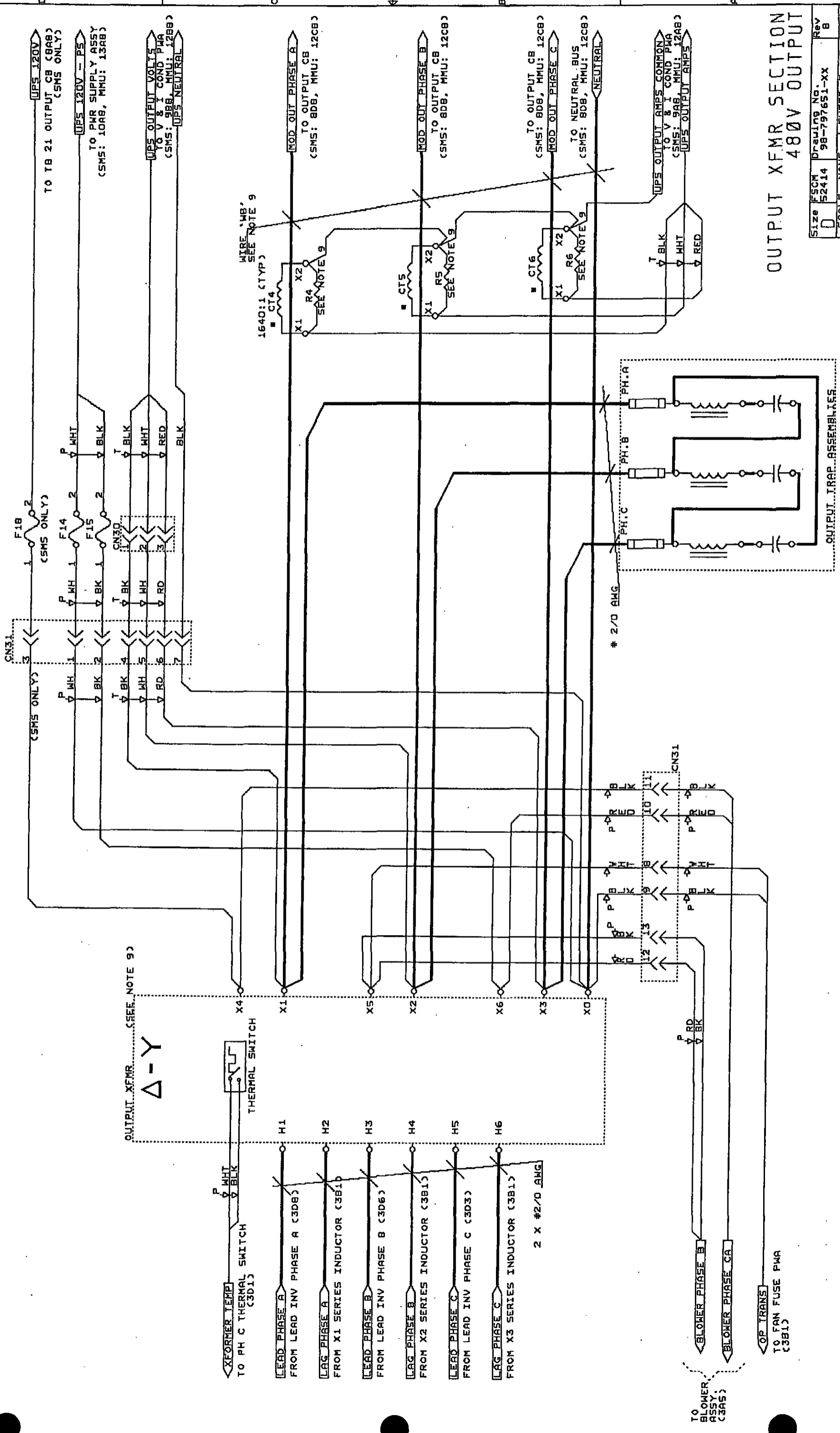


OUTPUT XFMR SECTION  
208V OUTPUT

Size	F5CM	Drawing No.	98-797651-XX	Rev	5
SCALE	NONE	SHEET	4	OF	15

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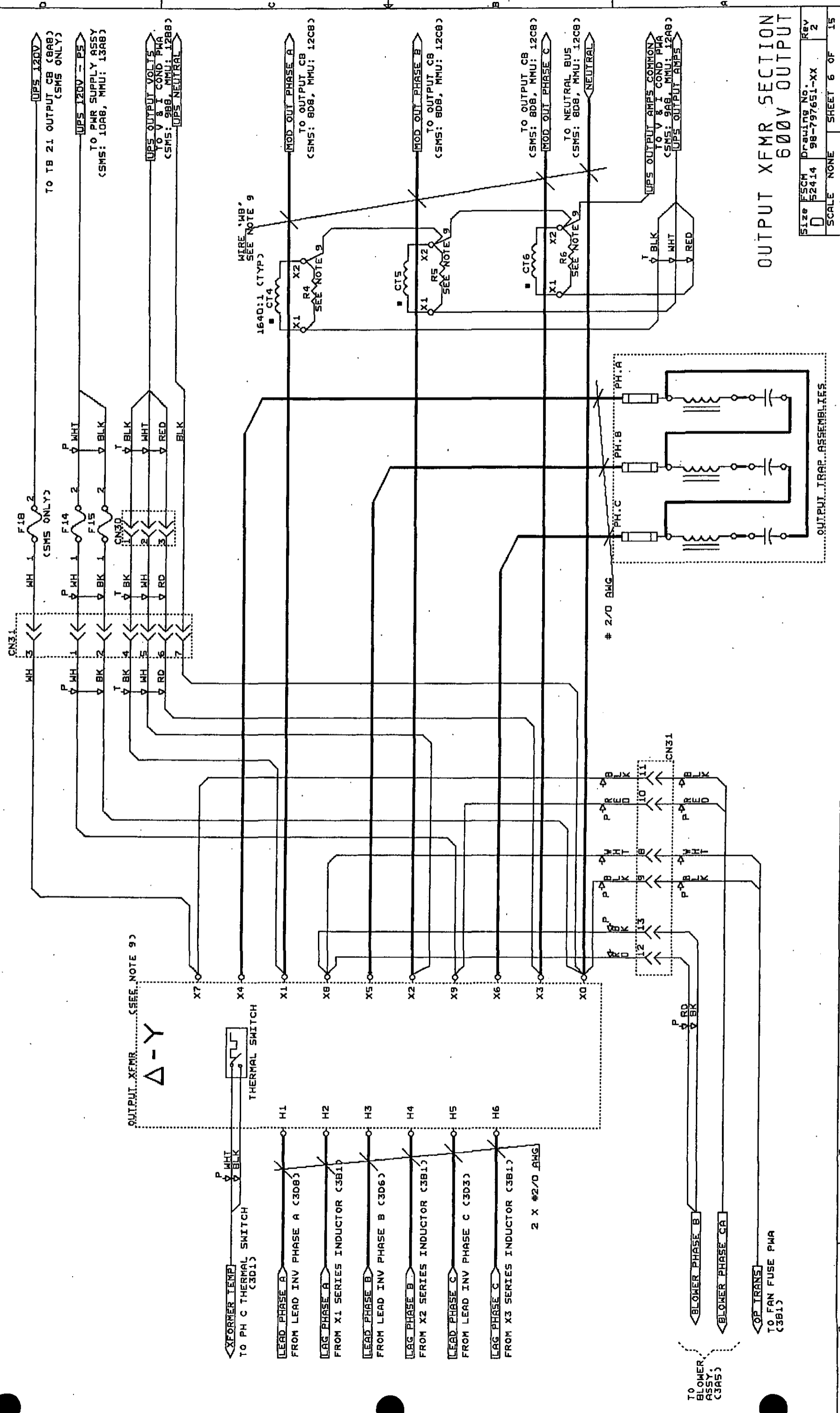
REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	970364	3-17-97	AC
2	RECONNECT CN31-13	970473	041597	AC
8	CHGD WIRE GAGE	991402		



# OUTPUT XFMR SECTION 480V OUTPUT

Size	F5CH	Drawing No.	98-797651-XX	Rev	B
SCALE	NONE	SHEET	5	OF	15

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	970364	3-17-87	AC
2	RECONNECT CN31	970473		

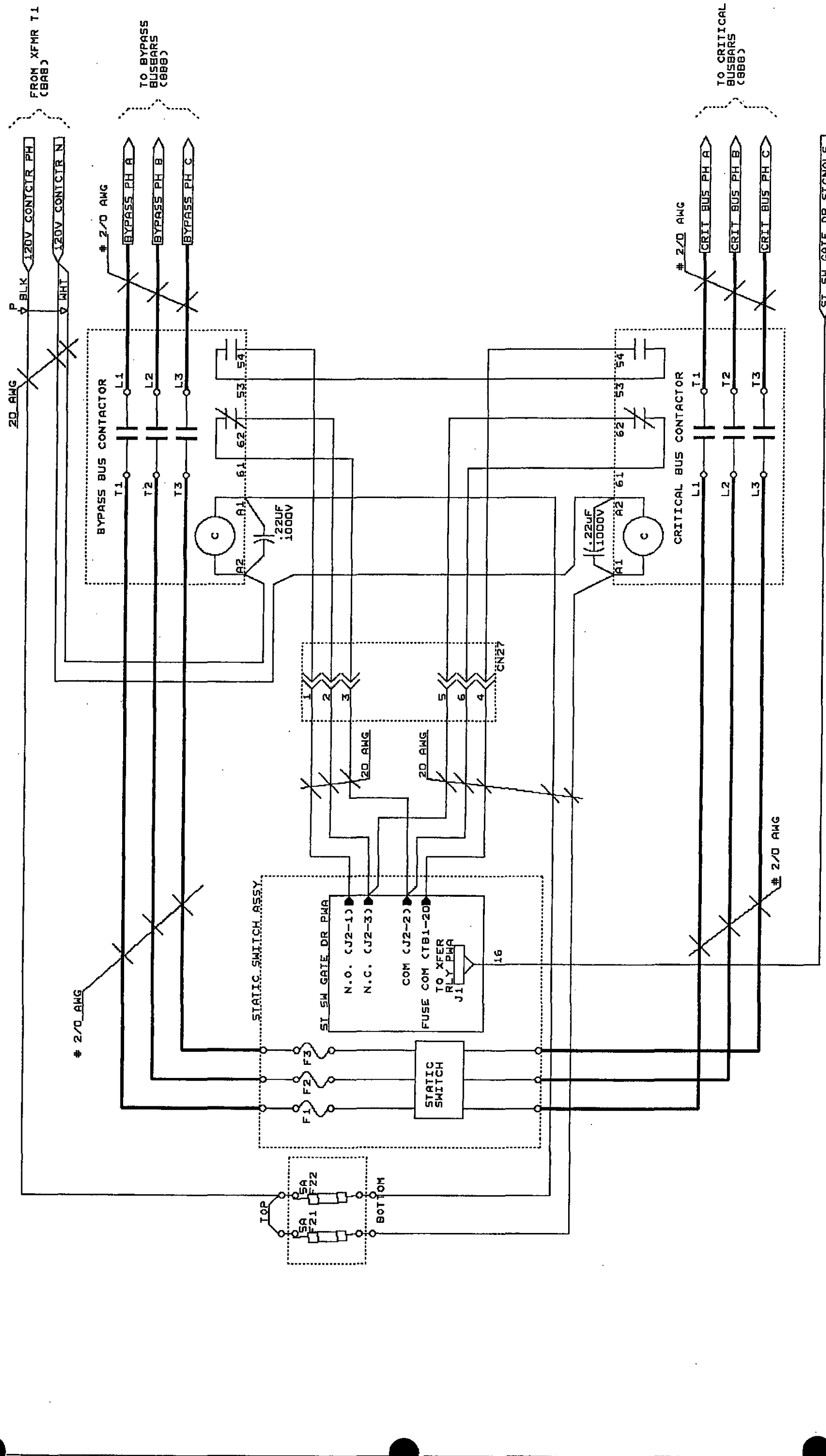


OUTPUT XFRM SECTION  
600V OUTPUT

Size	FSCM	Drawing No.	Rev
0	52414	98-797651-XX	2
SCALE	NONE	SHEET	6 OF 15

SMS ONLY  
C02-797651-6X3

REVISIONS			
LTR	DESCRIPTION	ECO NO.	DATE
1	NEW RELEASE	970364	APPD



FROM J2 SW GATE DR SIGNALS  
FROM J2 XFER RELAY PWA (9C8)

SMS ONLY

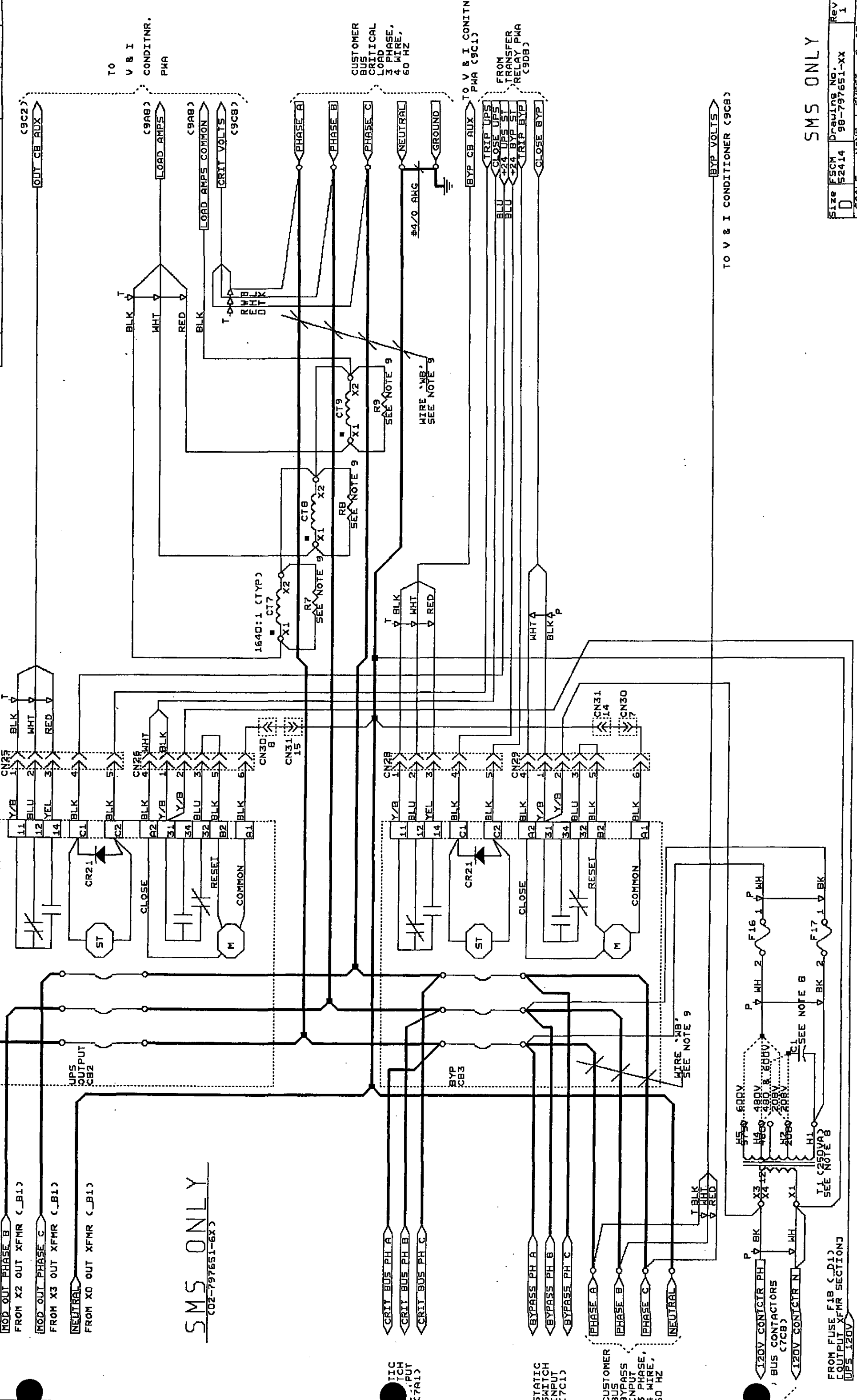
Size	F5CM	Drawing No.	98-797651-XX	Rev	1
Scale	NONE	Sheet	7	of	15

REVISIONS		ECO NO.	DATE	APPD
LTR DESCRIPTION	1	970364		
NEW RELEASE				

MOD OUT PHASE A	FROM X1 OUT XFMR (C1)
MOD OUT PHASE B	FROM X2 OUT XFMR (B1)
MOD OUT PHASE C	FROM X3 OUT XFMR (B1)
NEUTRAL	FROM X0 OUT XFMR (B1)

MOD OUT PHASE A	FROM X1 OUT XFMR (C1)
MOD OUT PHASE B	FROM X2 OUT XFMR (B1)
MOD OUT PHASE C	FROM X3 OUT XFMR (B1)
NEUTRAL	FROM X0 OUT XFMR (B1)

**SMS ONLY**  
CO2-797651-6X3



TO V & I  
CONDITNR.  
PWA

CUSTOMER  
BUS  
CRITICAL  
LOAD, PHASE,  
3 WIRE,  
60 HZ

TO V & I CONITNR  
PWA (9C1)

FROM TRANSFER  
RELAY PWA  
(9DB)

TO V & I CONITNR  
PWA (9C1)

TO V & I  
CONDITNR (9CB)

FROM FUSE FIB (D1)  
OUTPUT XFMR SECTIONJ  
UPS 120V

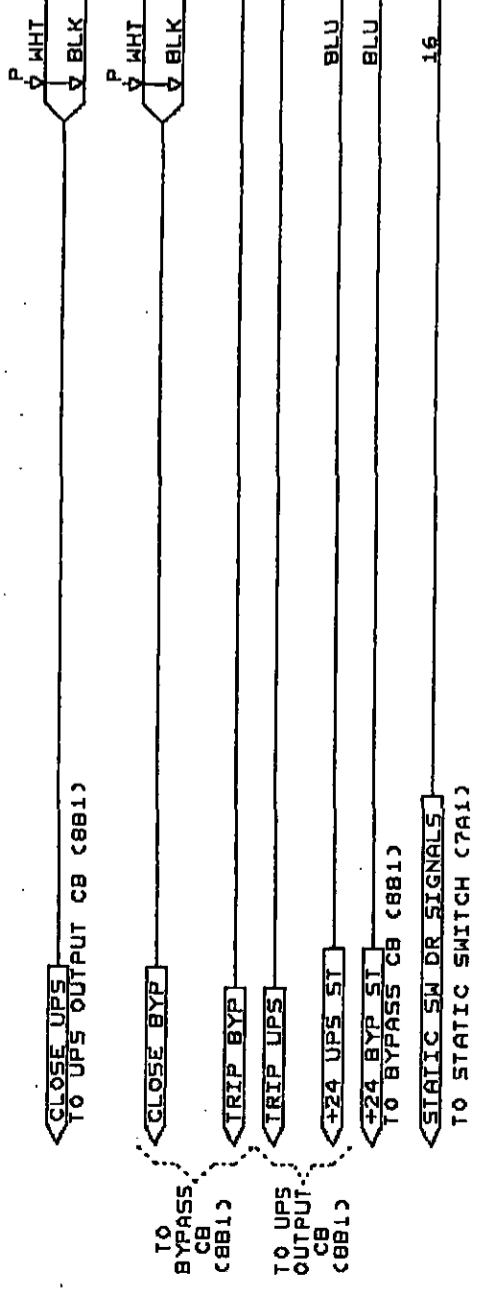
SMS ONLY

Size	FSCM	Drawing No.	Rev
0	52414	98-797651-xx	1
SCALE	NONE	SHEET	8 OF 15

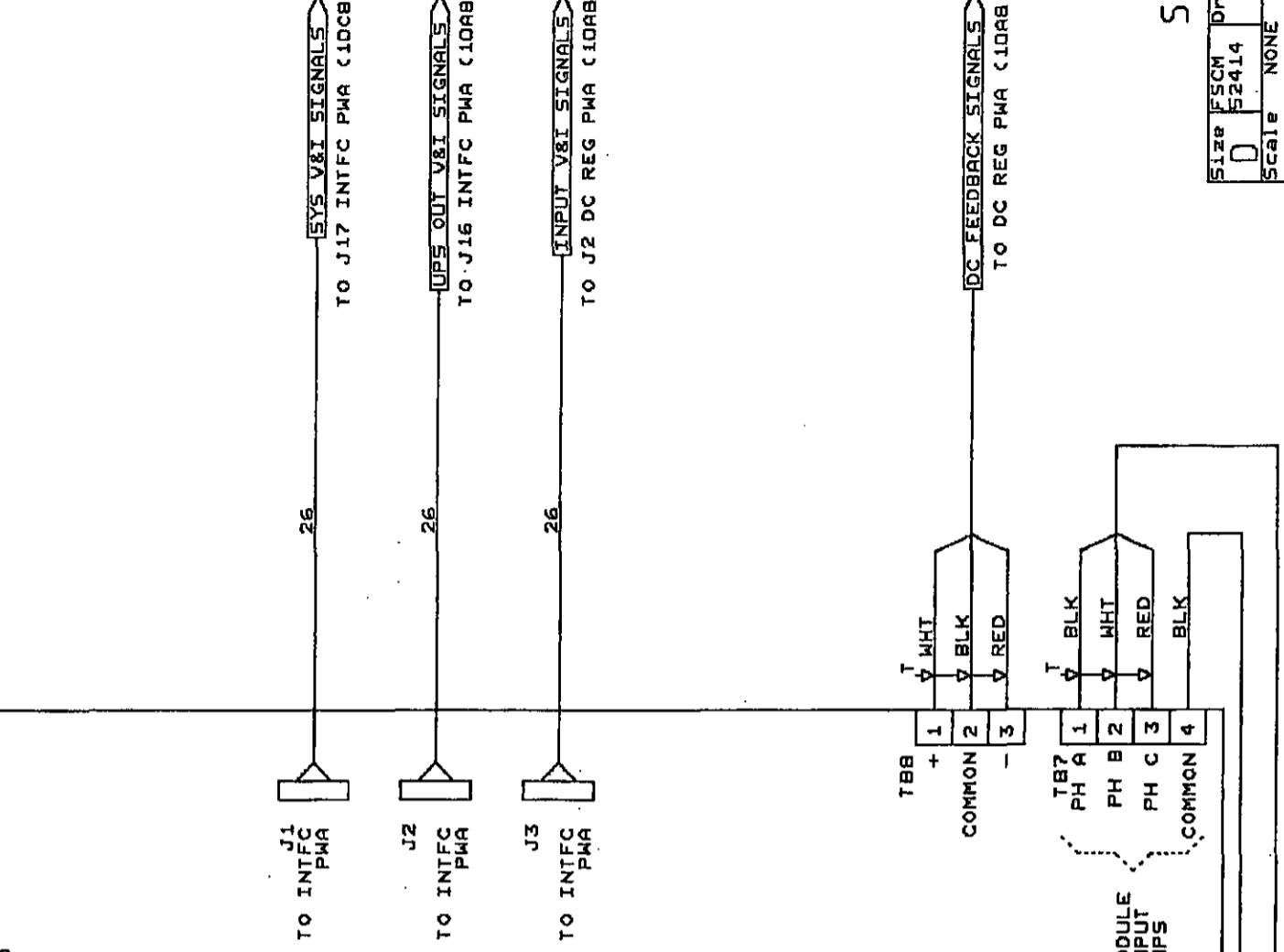
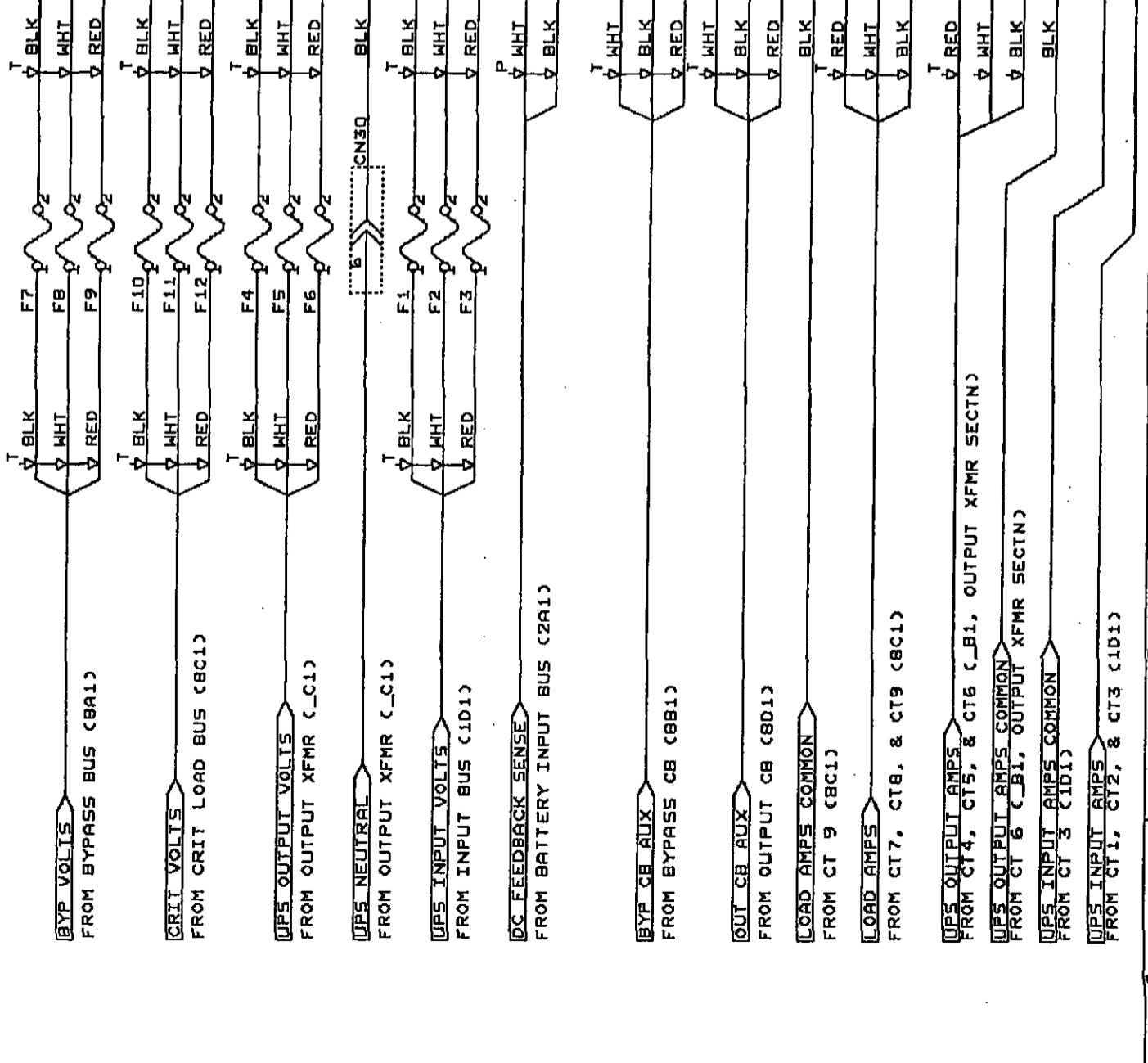


REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	970364	091787	AC
2	REV DRAWING	971474	120597	AC
3	REV DRAWING	980264		

TRANSFER RELAY PWA  
02-790858-01



V & I CONDITIONER BD.  
02-790889-XX (SEE NOTE 9)



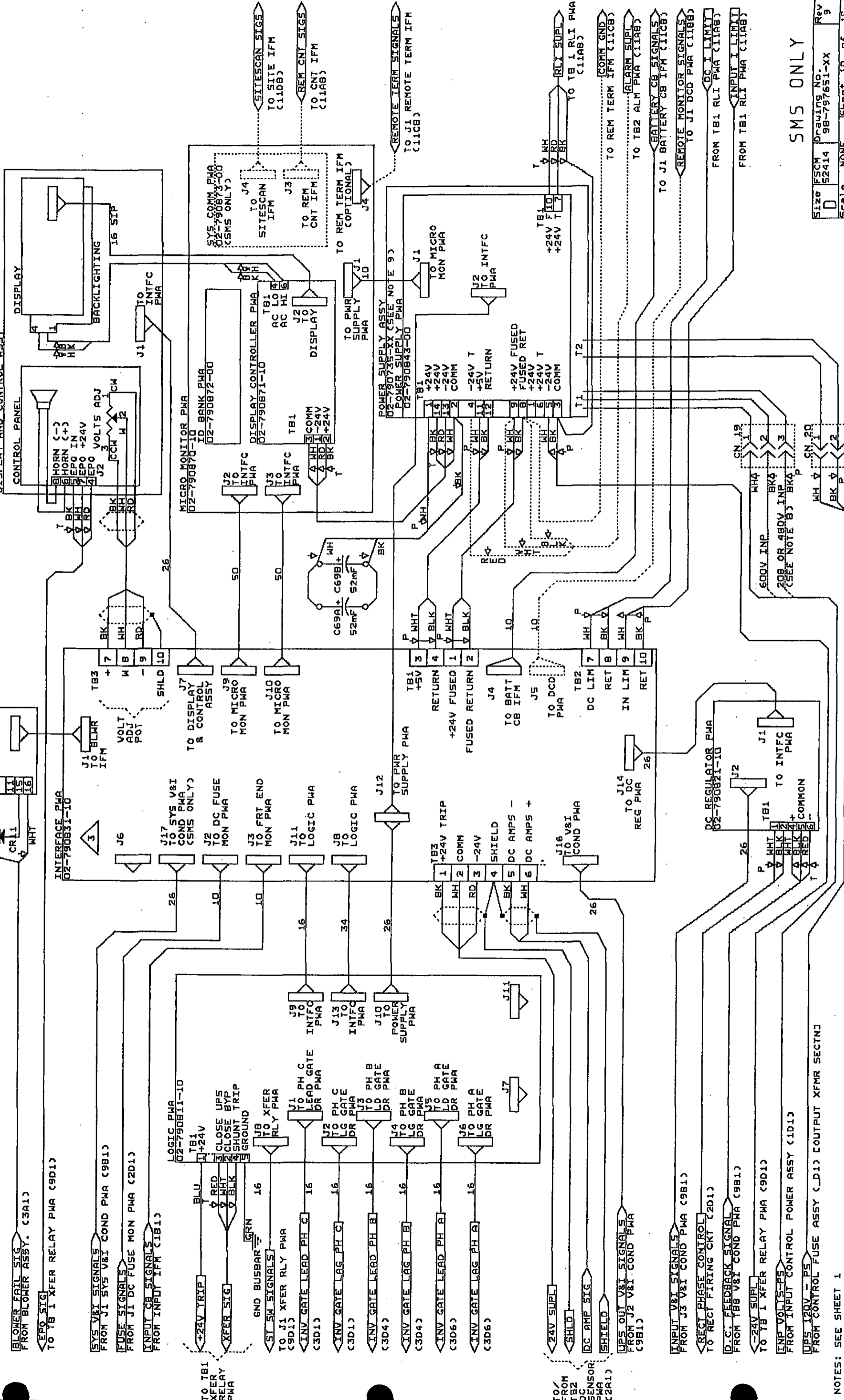
**SMS ONLY**  
 CO2-797651-6X

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REV	DESCRIPTION	ECO NO	DATE	APPRO
1	NEW RELEASE	970364	031787	AC
2	ADD CAGE CODES & B. REMV CR12	970560	042497	AC
3	ADD GND PWR SUPPLY, CHGD RLY SUPPL	990677	08-20-99	DA
4	ADD REM PWR SUPPLY GND AGAIN	000275		

REV	DESCRIPTION	ECO NO	DATE	APPRO
1	NEW RELEASE	970364	031787	AC
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**SMS ONLY**  
 Size: ESDM Drawing No. 98-797651-XX Rev 9  
 Scale: NONE Sheet 10 of 15

NOTES: SEE SHEET 1

# SMS ONLY

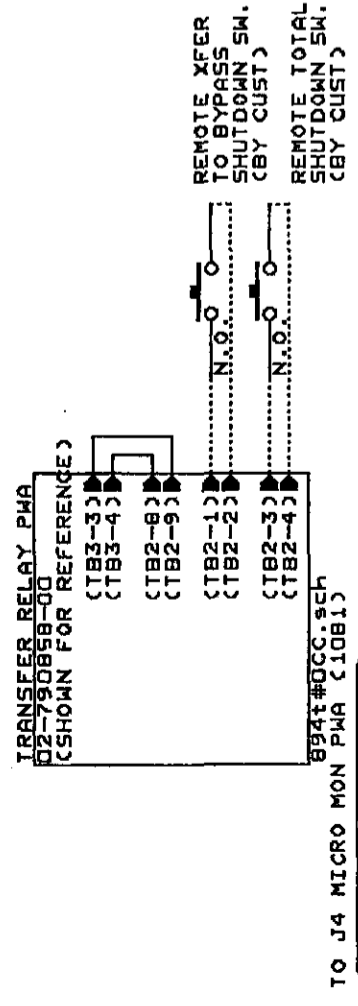
## EXTERNAL CONNECTIONS

## SITESCAN/SITEMASTER INTF (OPTION)

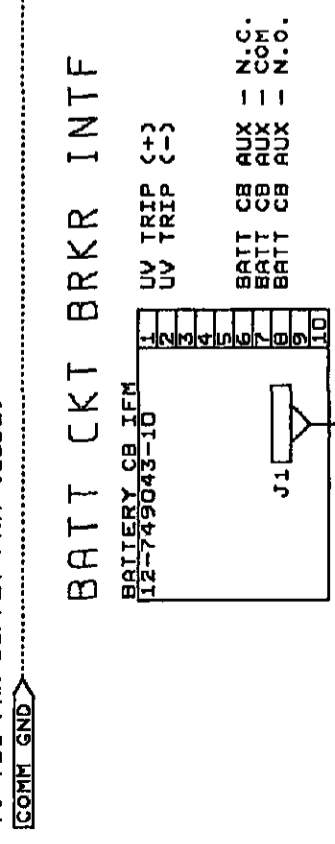
LTR DESCRIPTION	ECO NO.	DATE	APPD
1 NEW RELEASE	970364	3/17/93	
2 REV. RLI SUPL	990677		



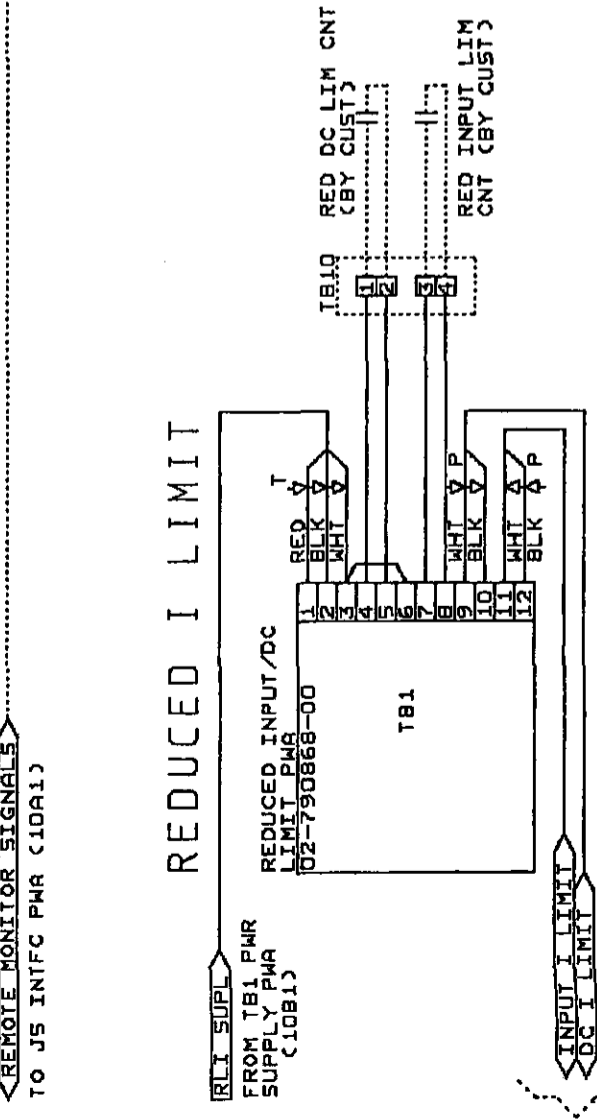
## REMOTE EMERGENCY OFF



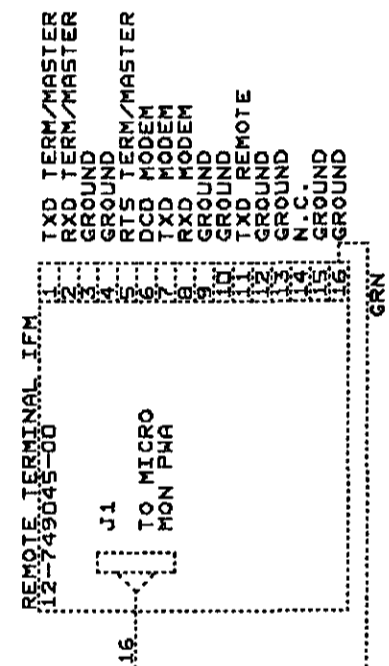
## BATT CKT BRKR INTF



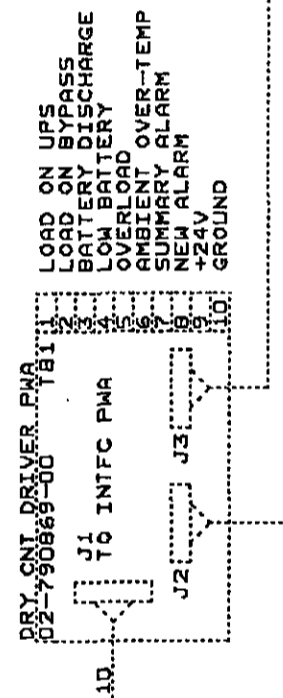
## REDUCED I LIMIT



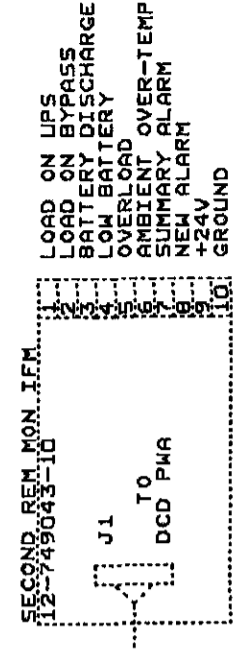
## REMOTE TERMINAL INTF (OPTION)



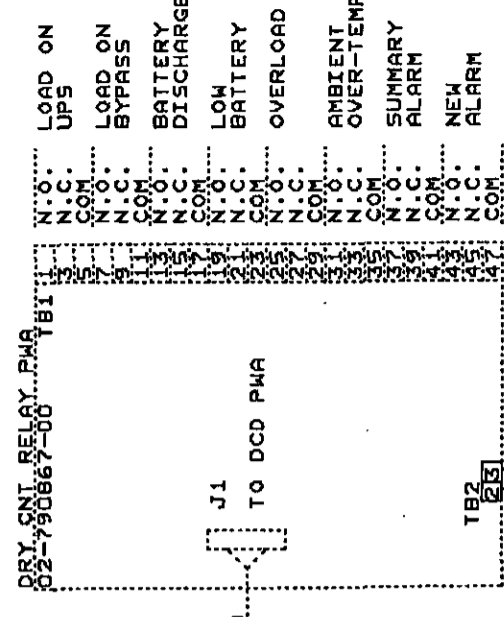
## REMOTE MONITOR INTF (OPTION)



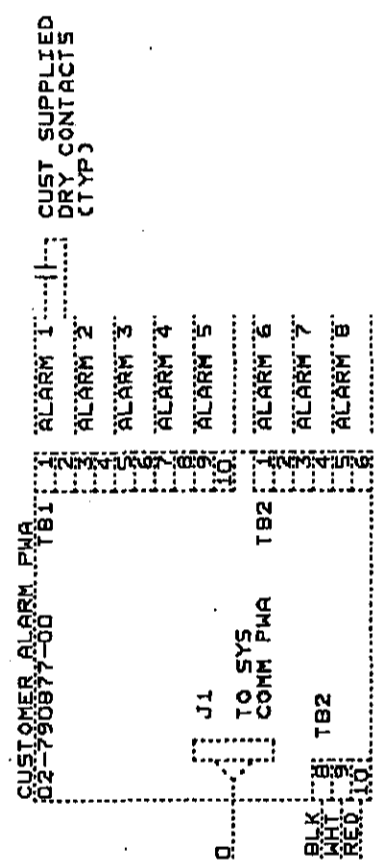
## 2ND. REMOTE MONITOR INTF (OPTION)



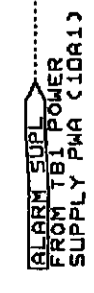
## REMOTE DRY CONTACTS INTF (OPTION)



## CUSTOMER ALARMS INTF (OPTION)



## REM CNT SIGS

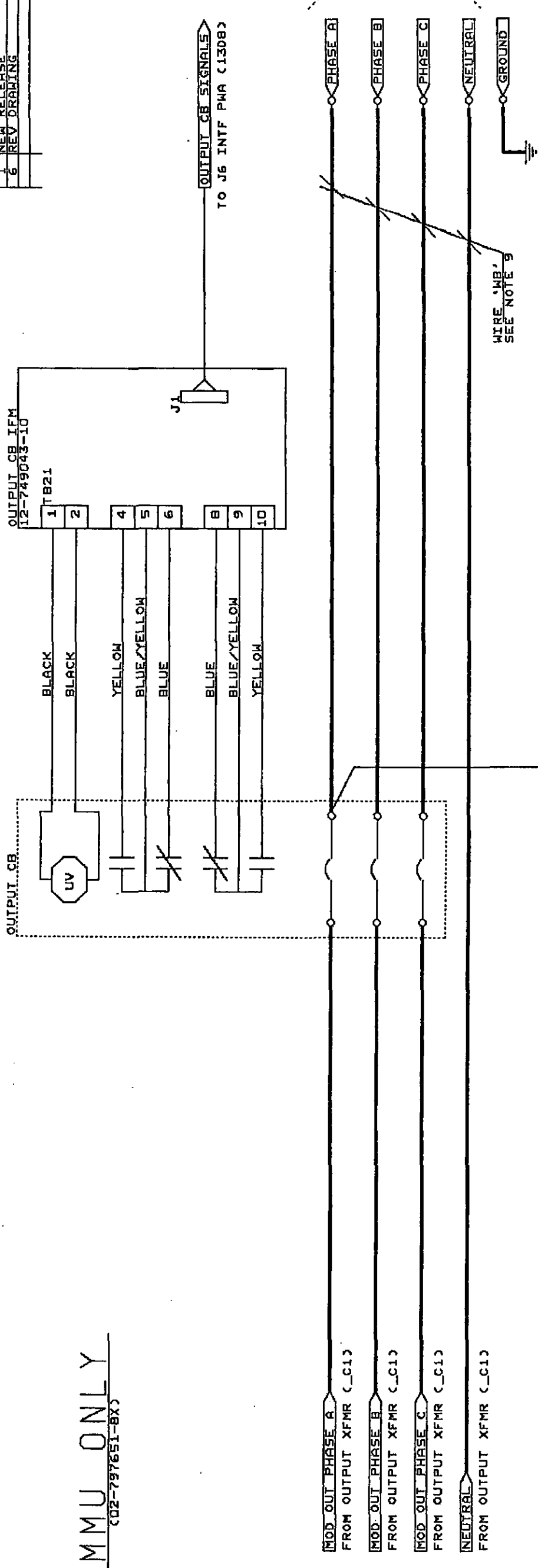


SMS ONLY

# MMU ONLY

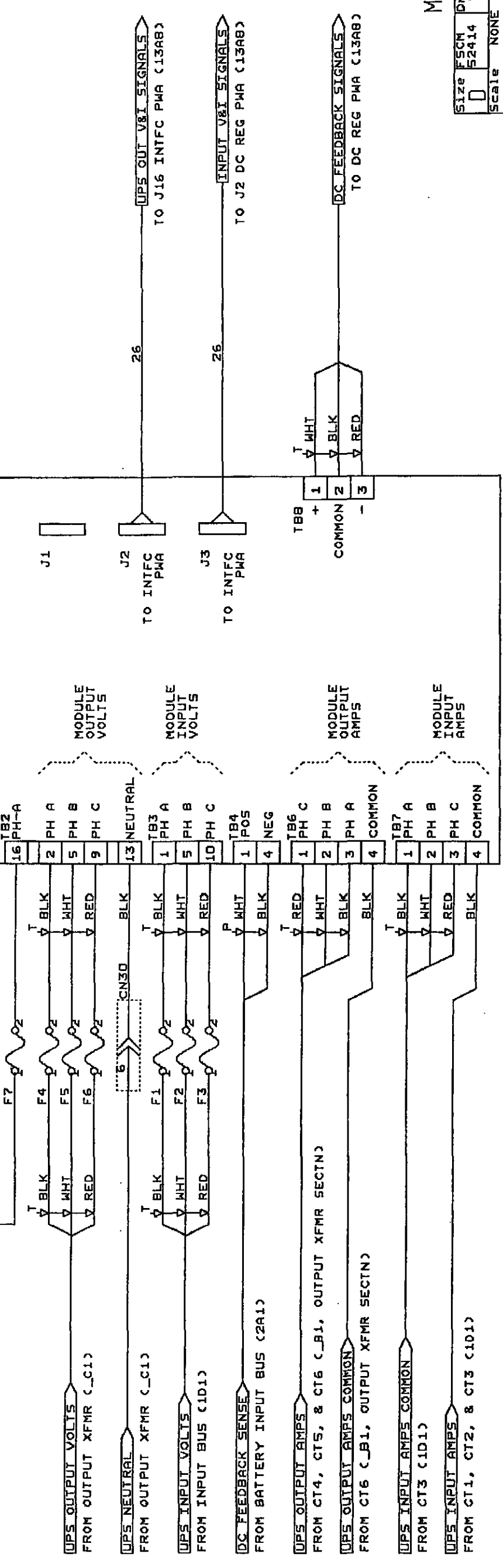
(02-797651-BX)

REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	970364	031797	AC
6	REV DRAWING	980264		



## V & I CONDITIONER BD.

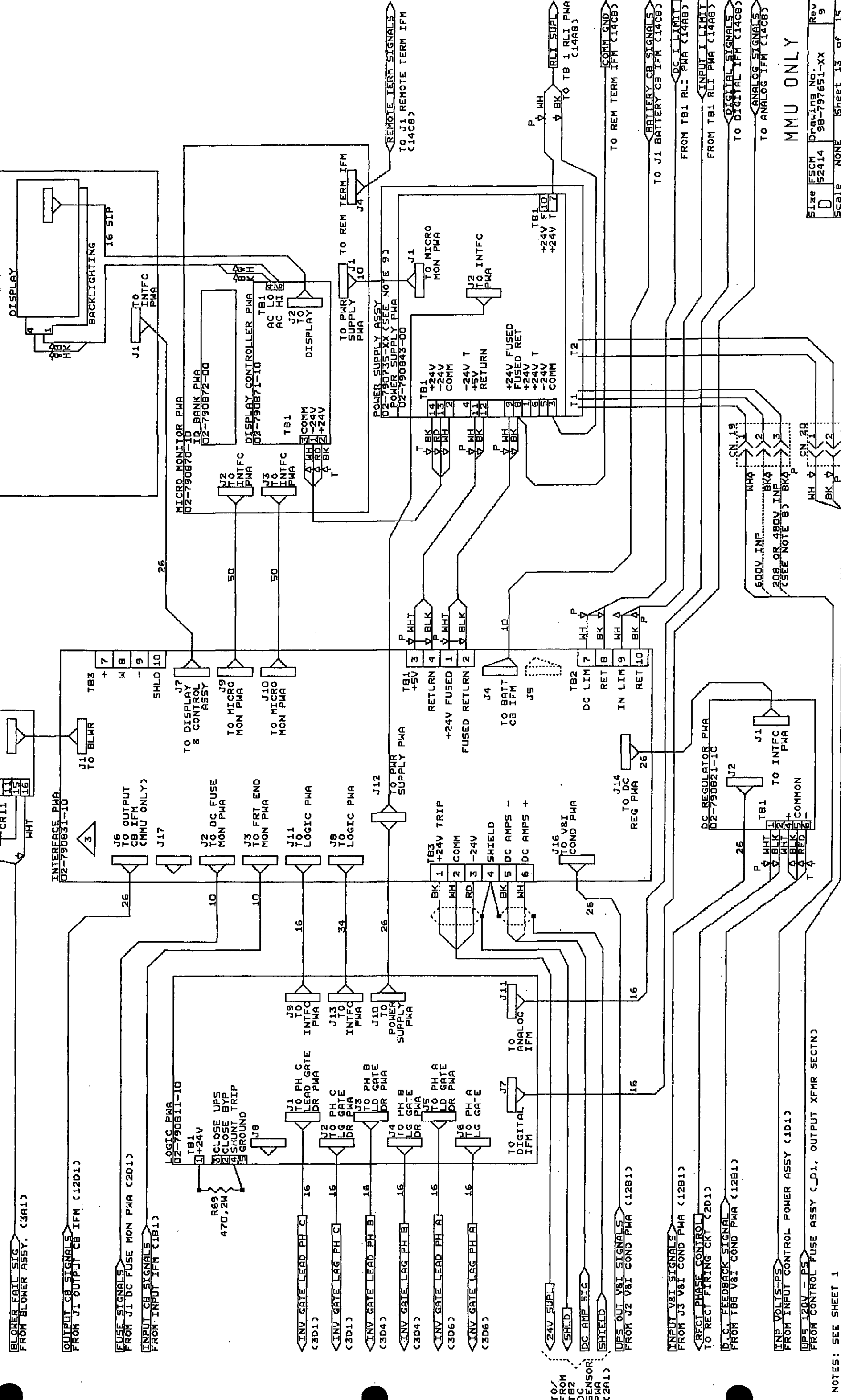
02-790889-XX (SEE NOTE 9)



MMU ONLY

REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	970364		
2	REMOVE GND CONNECTION	971155	091897	AC
3	GND PWR SUPPLY	990657	8-20-99	DA
4	REM PWR SUPPLY GND AGAIN	000275		

REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	970364		
2	REMOVE GND CONNECTION	971155	091897	AC
3	GND PWR SUPPLY	990657	8-20-99	DA
4	REM PWR SUPPLY GND AGAIN	000275		

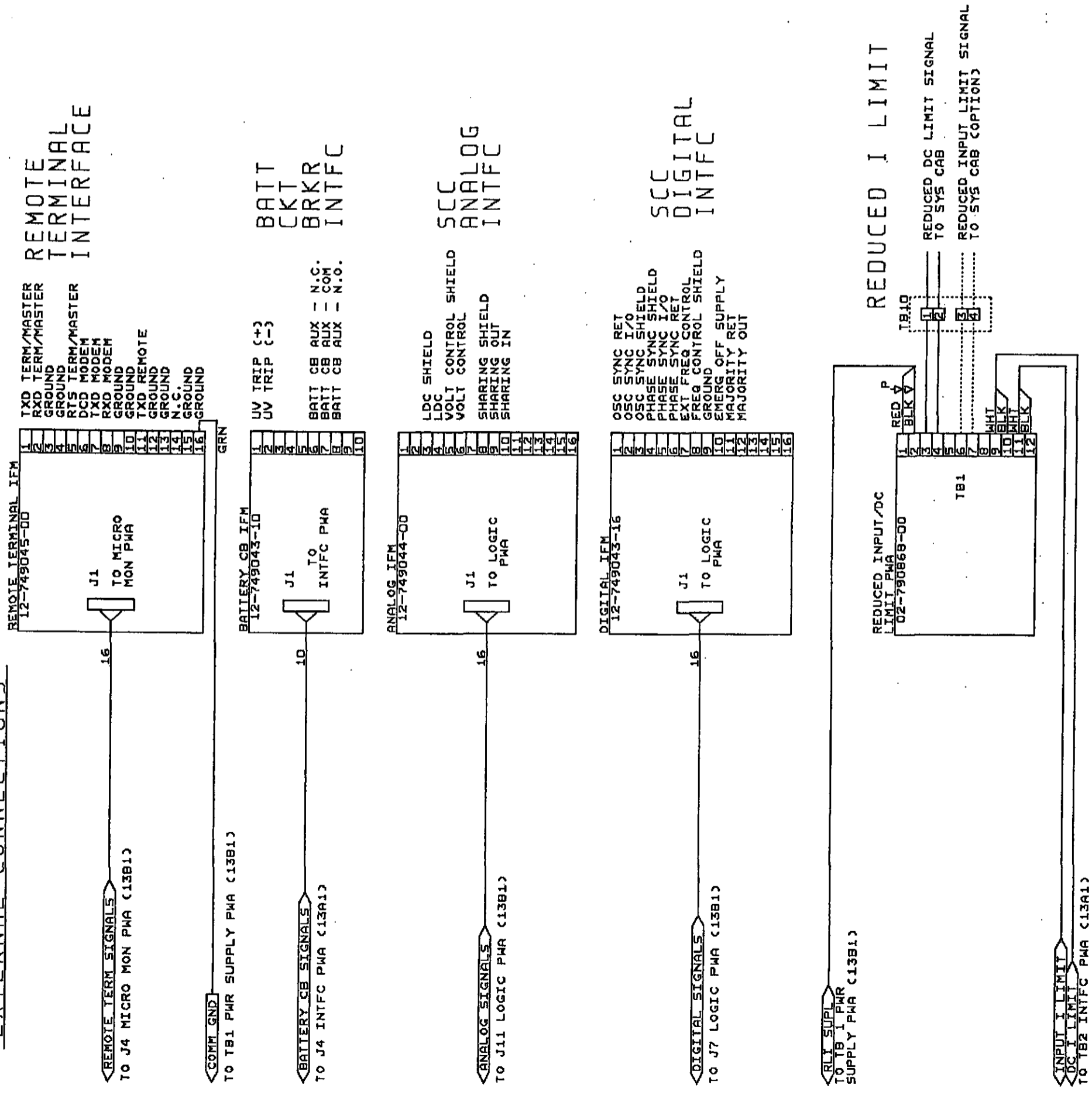


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NOTES: SEE SHEET 1

MMU ONLY  
 (02-797651-8X)  
 EXTERNAL CONNECTIONS

REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	970364	03/797	AC
2	REV DRAWING	990264	3/13/99	LM
3	REV RLT SUPL	990677	8-20-99	DA
9	UPDATE	000275		



MMU ONLY

Size	FSCM	Drawing No.	Rev
0	52414	98-797651-XX	9
Scale	NONE	Sheet 14 of 15	

# CONFIGURATION

## JUMPER SELECT CHART

3

### COMPONENT SELECT CHART

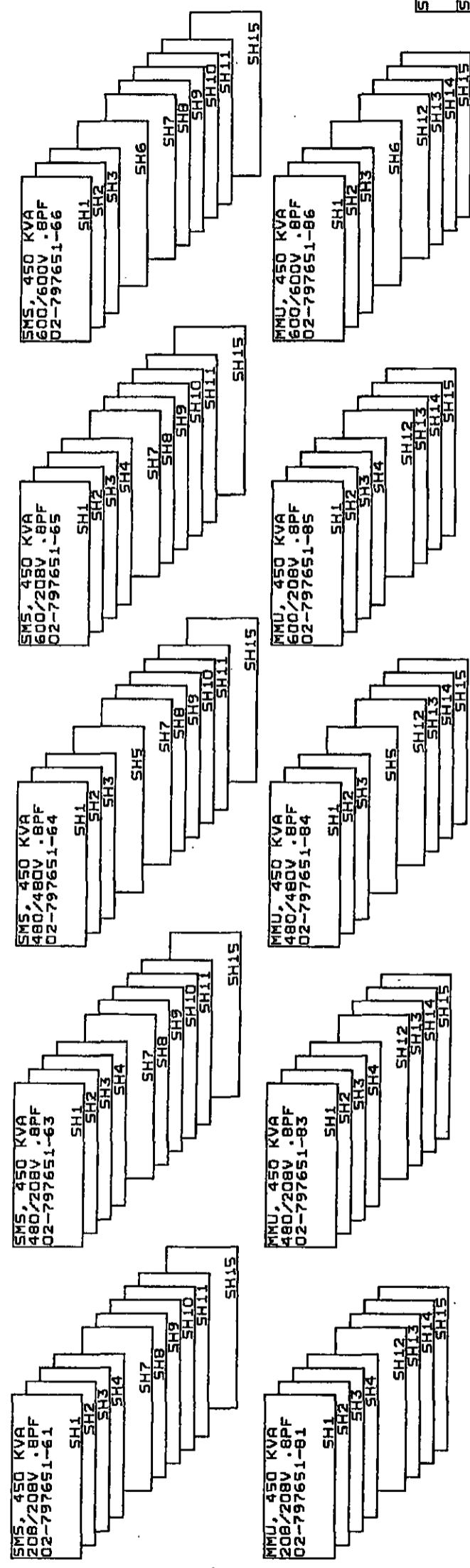
COMPONENT	FUNCTION	GAGE/VALUE/P/N											
		RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N
WIRE 'WA'	INPUT CB POWER WIRING	4 x 4/0 AWG	2 x 4/0 AWG	2 x 2/0 AWG	4 x 4/0 AWG	4 x 4/0 AWG	2 x 2/0 AWG	2 x 4/0 AWG	2 x 4/0 AWG	480/208V .8PF	450 KVA	MMU, 450 KVA	2 x 2/0 AWG
WIRE 'WB'	OUTPUT, BYPASS & CRITICAL LOAD POWER WIRING	4 x 4/0 AWG	4 x 4/0 AWG	2 x 2/0 AWG	4 x 4/0 AWG	4 x 4/0 AWG	2 x 2/0 AWG	4 x 4/0 AWG	4 x 4/0 AWG	480/208V .8PF	450 KVA	MMU, 450 KVA	2 x 2/0 AWG
R1, R2, R3	BURDEN RESISTORS	5.1 OHMS	12 OHMS	15 OHMS	5.1 OHMS	5.1 OHMS	15 OHMS	12 OHMS	12 OHMS	480/208V .8PF	450 KVA	MMU, 450 KVA	15 OHMS
R4, R5, R6	BURDEN RESISTORS	5.1 OHMS	12 OHMS	15 OHMS	5.1 OHMS	5.1 OHMS	15 OHMS	12 OHMS	12 OHMS	480/208V .8PF	450 KVA	MMU, 450 KVA	15 OHMS
R7, R8, R9	BURDEN RESISTORS	5.1 OHMS	12 OHMS	15 OHMS	5.1 OHMS	5.1 OHMS	15 OHMS	12 OHMS	12 OHMS	480/208V .8PF	450 KVA	MMU, 450 KVA	15 OHMS
CONDTR, BD	POWER SUPPLY ASSEMBLY	02-790889-03	02-790889-04	02-790889-05	02-790889-06	02-790889-07	02-790889-08	02-790889-09	02-790889-10	02-790889-11	02-790889-12	02-790889-13	02-790889-14
INPUT	ASSEMBLY	02-790735-01	02-790735-02	02-790735-03	02-790735-04	02-790735-05	02-790735-06	02-790735-07	02-790735-08	02-790735-09	02-790735-10	02-790735-11	02-790735-12
OUTPUT	ALTOXFMR	02-769	-	02-769	-	02-769	-	02-769	-	02-769	-	02-769	-
TRANSFORMER	CNTL XFMR	02-769	-	02-769	-	02-769	-	02-769	-	02-769	-	02-769	-
T2		-	-	12-749052-00	-	-	-	12-749052-00	-	-	-	12-749052-00	-

PMA INTERFACE	FUNCTION	HEADER OR JUMPER	PINS TO BE CONNECTED
LOGIC PMA	XSTR/SCR SELECT	H13	XSTR (1-2)
	PROTECT ENABLE	H4-H6	2-3
	AUX DELAY	H1	1-2, 3-4, 7-8
LOGIC PMA	LINE SYNC	H7	2-3 (INT-SMS)
	FREQ. SELECT	H9, H10-H12	1-2 (EXT-MMU)
	FAULT XFR INHIBIT	H9	1-2

REVISIONS	ECO NO.	DATE	REPPD
1	NEW RELEASE	970364	

### CONNECTION CHART

COMPONENT	SIGNAL NAME	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N
CONNECTOR CN19	[INF VOLTS-PS] BLK	PIN 3	PIN 2	PIN 3	PIN 3	PIN 2	PIN 3	PIN 2	PIN 2
XFRMR T1 (SMS ONLY)	F16-2 WHT	TERMNL H2	TERMNL H2	TERMNL H4	TERMNL H4	TERMNL H5	-	-	-
	GAP G1	TERMNL H2	TERMNL H2	TERMNL H4	TERMNL H4	TERMNL H4	-	-	-



### SCHEMATIC APPLICABILITY

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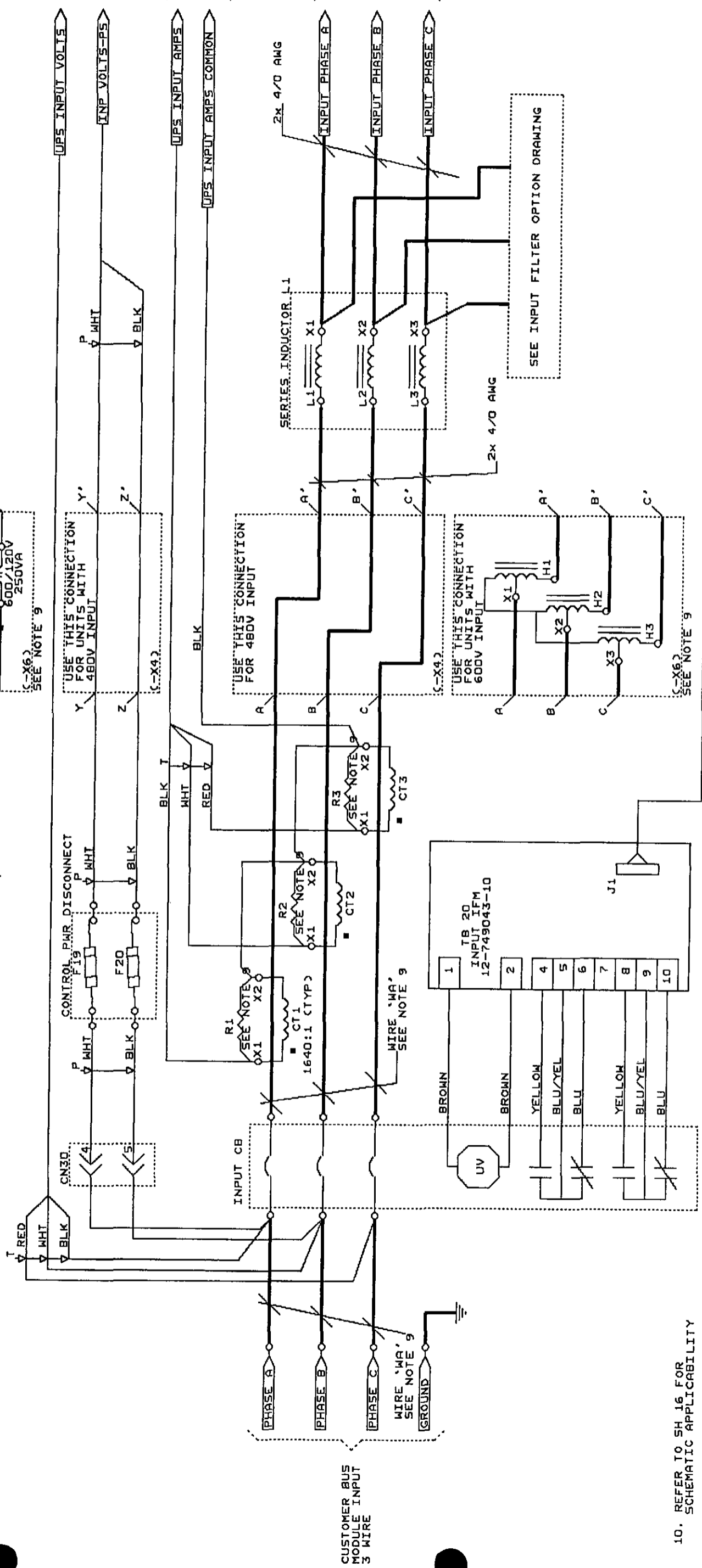
REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	980403	042398	LM
2	REV SHT 1, 3	981656	112098	LM
3	REV SHT 8, 11, 14	990672	8-20-99	DA
4	REV SHT 1, 10, 15	000275		

TO V & I  
CONDITIONER PWA  
(SMS: 10BB,  
MMU: 1388)

TO POWER SUPPLY  
ASSY (SMS: 11AB  
MMU: 14AB)

TO V & I  
CONDITIONER PWA  
(SMS: 10AB,  
MMU: 1388)

TO 6 PULSE  
RECTIFIER  
SECTION  
(2CB3)



- REFER TO SH 16 FOR SCHEMATIC APPLICABILITY
  - CONFIRM COMPONENTS AS PER THE COMPONENT SELECT CHART (SH 16)
  - CONNECT WIRES AS PER THE CONNECTION CHART (SH 16)
  - NUMBERS IN PARENTHESIS AFTER DESTINATIONS INDICATE (PAGE AND ZONE).
  - CONNECT GROUND WIRES TO GROUND BUS  
SMS: SHT 11, ZN C-1.; MMU: SHT 14, ZN C-1
  - CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.
  - ALL SINGLE CONDUCTOR CONTROL WIRING TO BE SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT 16).
  - ALL WIRING TO BE UL/CSA APPROVED  
PER 78-749901-00.
  - ALL CONTROL WIRE TO BE #20 AWG, MIN 600V.
- NOTES: UNLESS OTHERWISE SPECIFIED

SHT	1	2	3	4
REV	1	1	1	1
SHT	2	1	2	1
SHT	3	1	1	2
SHT	4	1	1	1
SHT	5	1	1	1
SHT	6	1	1	1
SHT	7	1	1	1
SHT	8	1	1	3
SHT	9	1	1	4
SHT	10	1	1	4
SHT	11	1	3	4
SHT	12	1	1	4
SHT	13	1	1	4
SHT	14	1	3	4
SHT	15	1	1	4
SHT	16	1	1	4

# INPUT SECTION (6-PULSE)

CONTRACT NO. **UPS**

Drawn: RR 101692  
 Check: RR 040998  
 Des Appd: RR  
 Proj Appd: RR 041598  
 Approved: RR

Size: FSCM 52414  
 Drawing No: 98-797656-XX  
 Rev: 4

Scale: NONE  
 Sheet 1 of 16

**LIEBERT**

Title: SCHEMATIC/WIRING DIAGRAM  
 500KVA 1-UPS, 6- & 12-PULSE  
 AP656-AP659, 50 & 60HZ



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REVISIONS

LTR	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	980403		

TO INTERFACE PMA (SMS: 1108, MMU: 1408)

FROM GATE DRIVE PMA (588)

FROM FAN FUSE PMA (588)

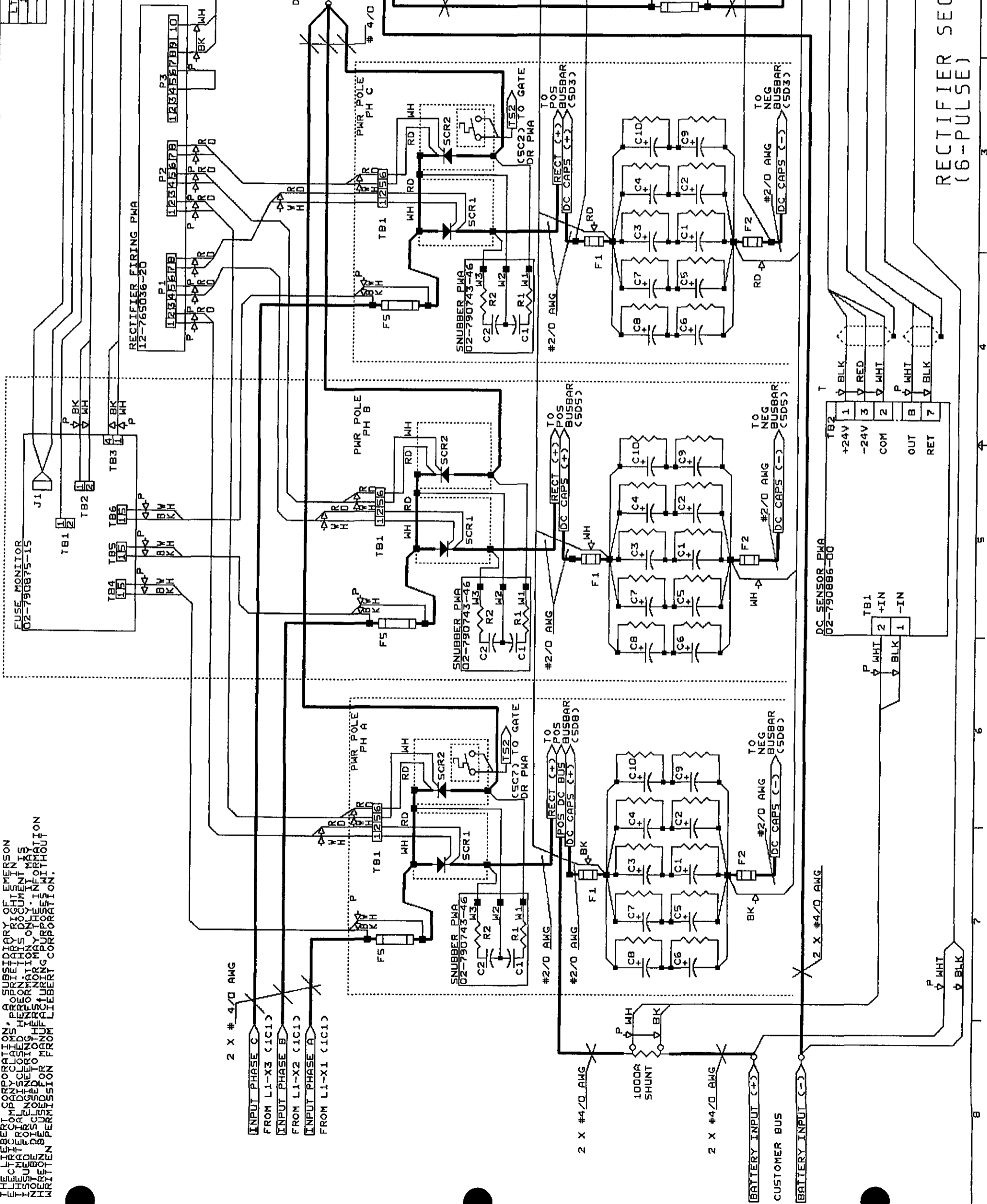
FROM DC REC PMA (SMS: 11AB, MMU: 14AB)

FUSE SIGNALS

FAULT

AMB SENSOR

RECT PHASE CONTROL



RECTIFIER SECTION (6-PULSE)

TO V & I CONDITIONER PMA (SMS: 1088, MMU: 13AB)

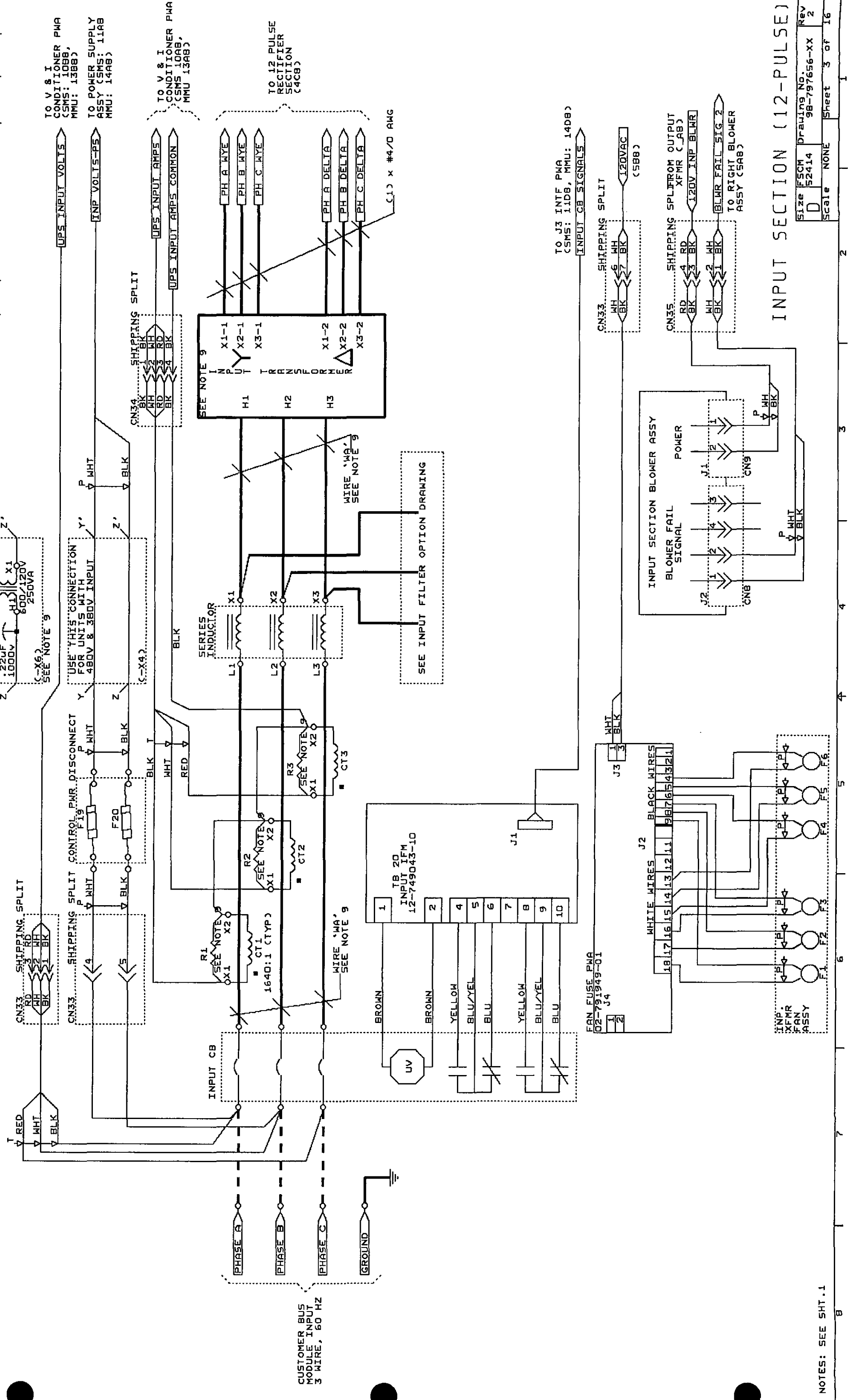
TO/FROM INTERFACE PMA (SMS: 11AB, MMU: 14AB)

Size FSCM Drawing No. 52414 98-797656-XX Rev 1

Scale NONE Sheet 2 of 16

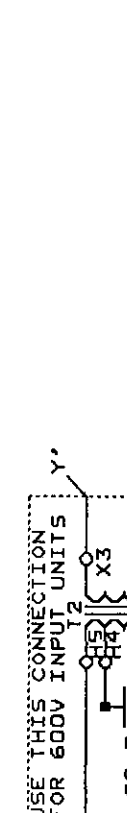
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REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	980403	042398	LM
2	REMOVE INPUT FILTER	981656		



USE THIS CONNECTION FOR 600V INPUT UNITS

USE THIS CONNECTION FOR UNITS WITH 480V & 380V INPUT



TO V & I CONDITIONER PWA (CSMS: 10BB, MMU: 13BB)

TO POWER SUPPLY ASSY (CSMS: 11AB, MMU: 14AB)

TO V & I CONDITIONER PWA (CSMS: 10AB, MMU: 13AB)

TO 12 PULSE RECTIFIER SECTION (4CB)

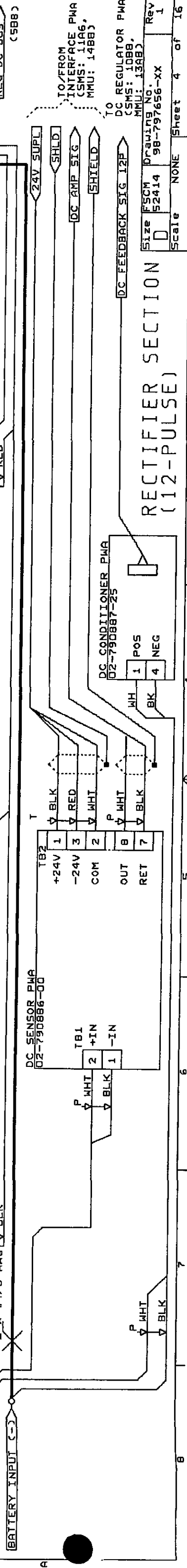
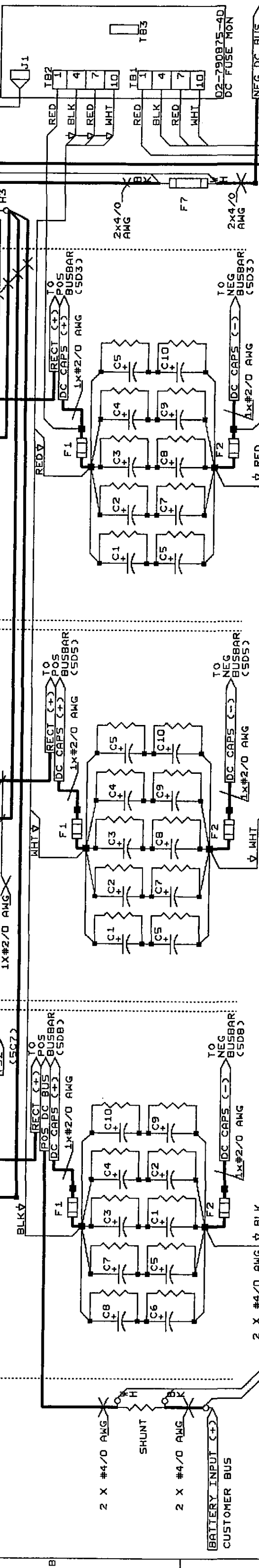
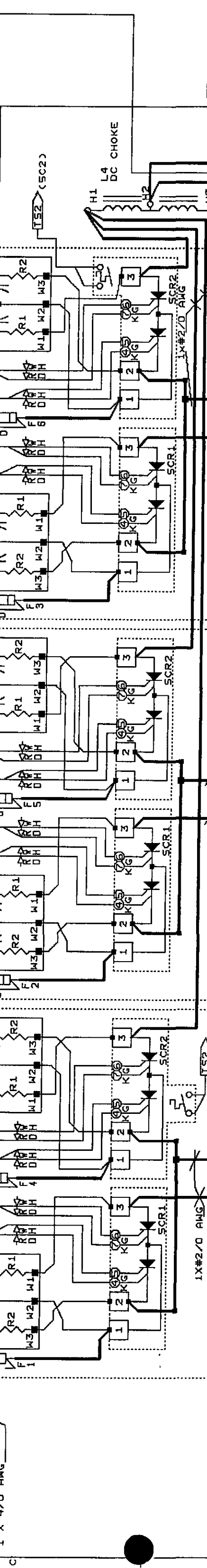
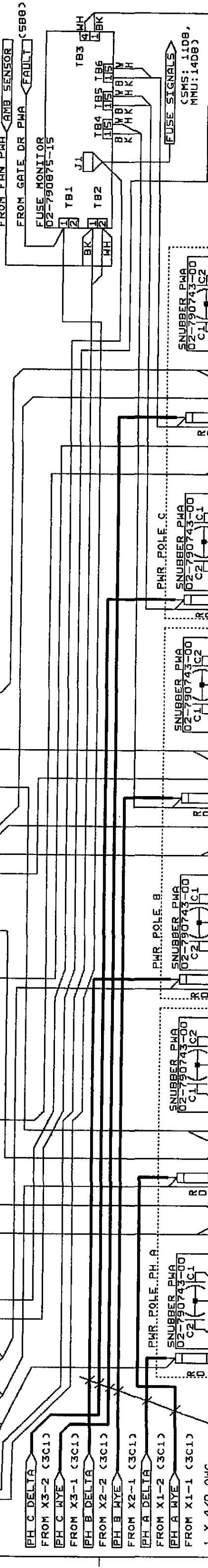
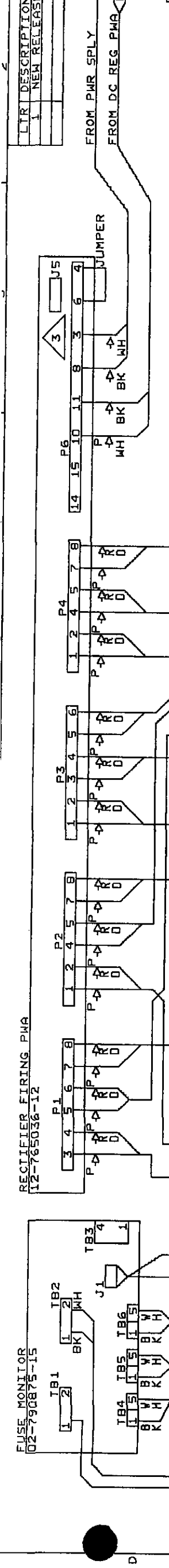
NOTES: SEE SHT. 1

**INPUT SECTION (12-PULSE)**

Size	FSCM	Drawing No.	Rev
D	52414	98-797656-XX	2
Scale	NONE	Sheet	3 of 16

REVISIONS

LIR DESCRIPTION	ECO NO/DATE	APPD
1 NEW RELEASE	980403	



# RECTIFIER SECTION (12-PULSE)

Scale NONE Sheet 4 of 16

Size F5CM Drawing No. 98-797656-XX Rev 1  
DC Regulator PWA (SMS: 108B, MMU: 138B)  
DC Interface PWA (SMS: 11A6, MMU: 148B)

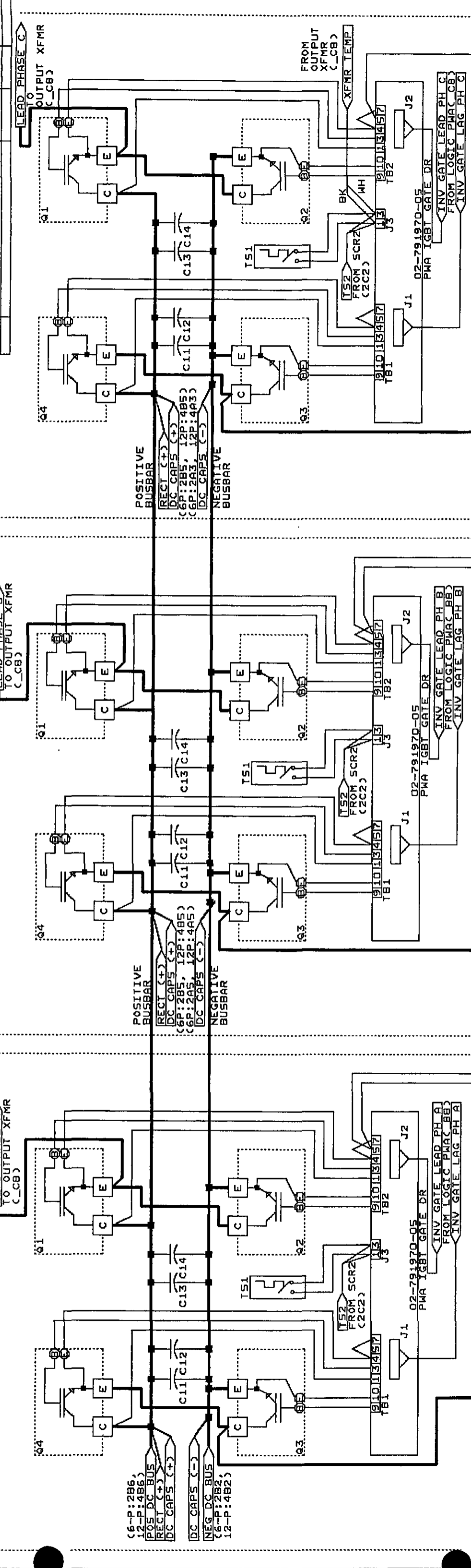
REVISIONS

LTR	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE		980403	

PWR POLE PH C

PWR POLE PH B

PWR POLE PH A



TO FUSE MONITOR (6-P: 2DB, 12-P: 4DB)

**BLOWER WIRING**

TO 120VAC

TO FAN FUSE PWA (3A1) (12-P ONLY)

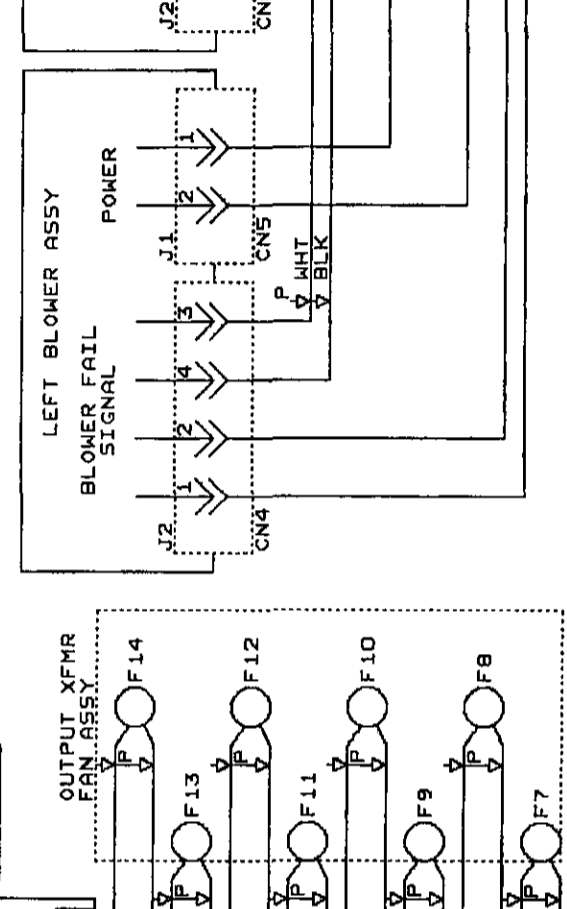
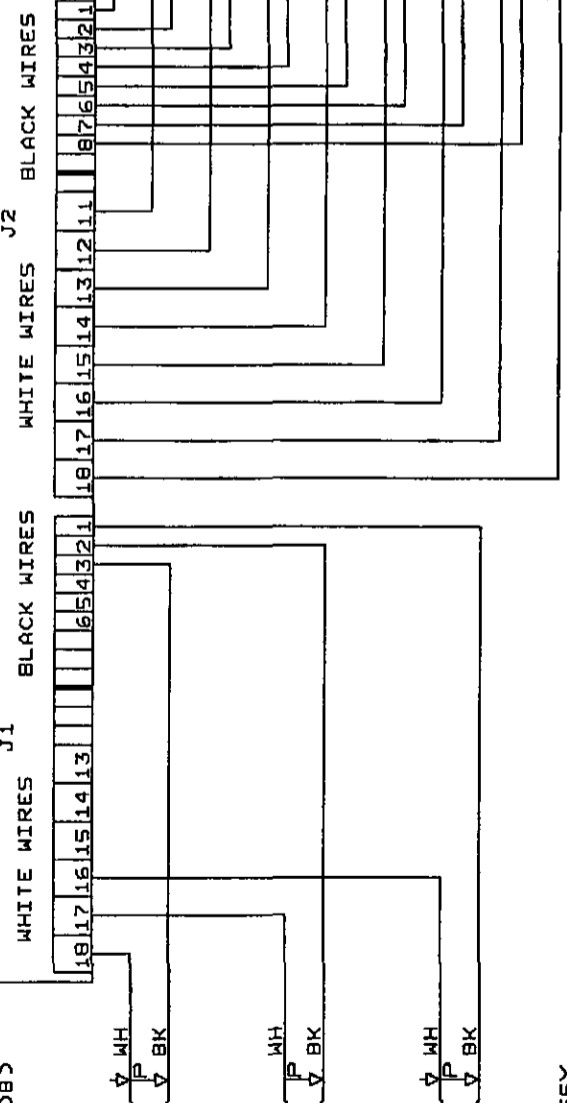
AMBI SENSOR (BLK) (WHT)

TO FUSE MONITOR PWA (6-P: 2DB, 12-P: 4DB)

PWR POLE PHASE A (F1)

PWR POLE PHASE B (F3)

PWR POLE PHASE C (F5)



FROM INPUT BLOWER ASSY (12-P ONLY)

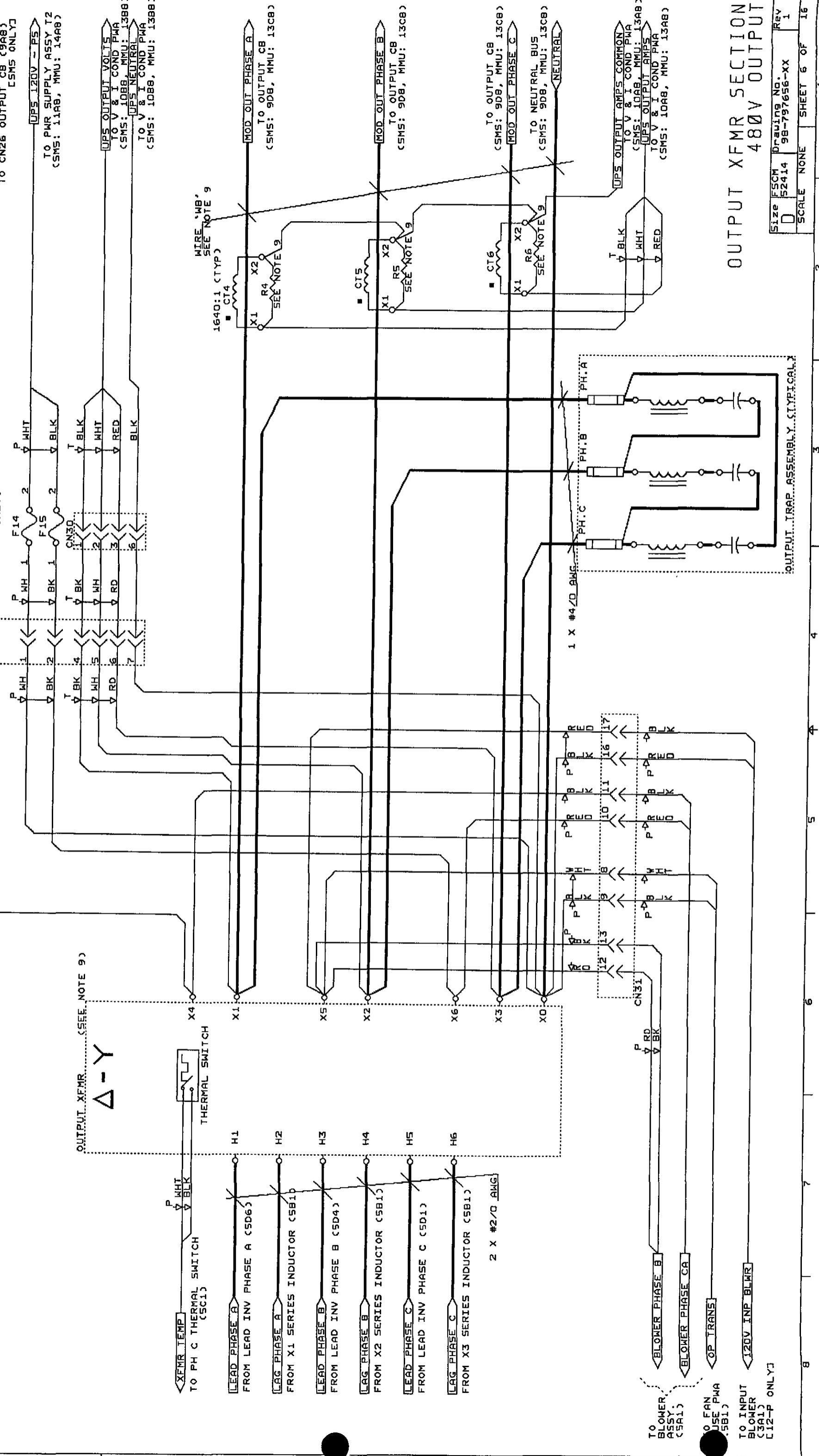
BLWR FAIL SIG 2

Size FSCM Drawing No. 98-797656-XX Rev 1

Scale NONE Sheet 5 of 16

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	980403		

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	980403		

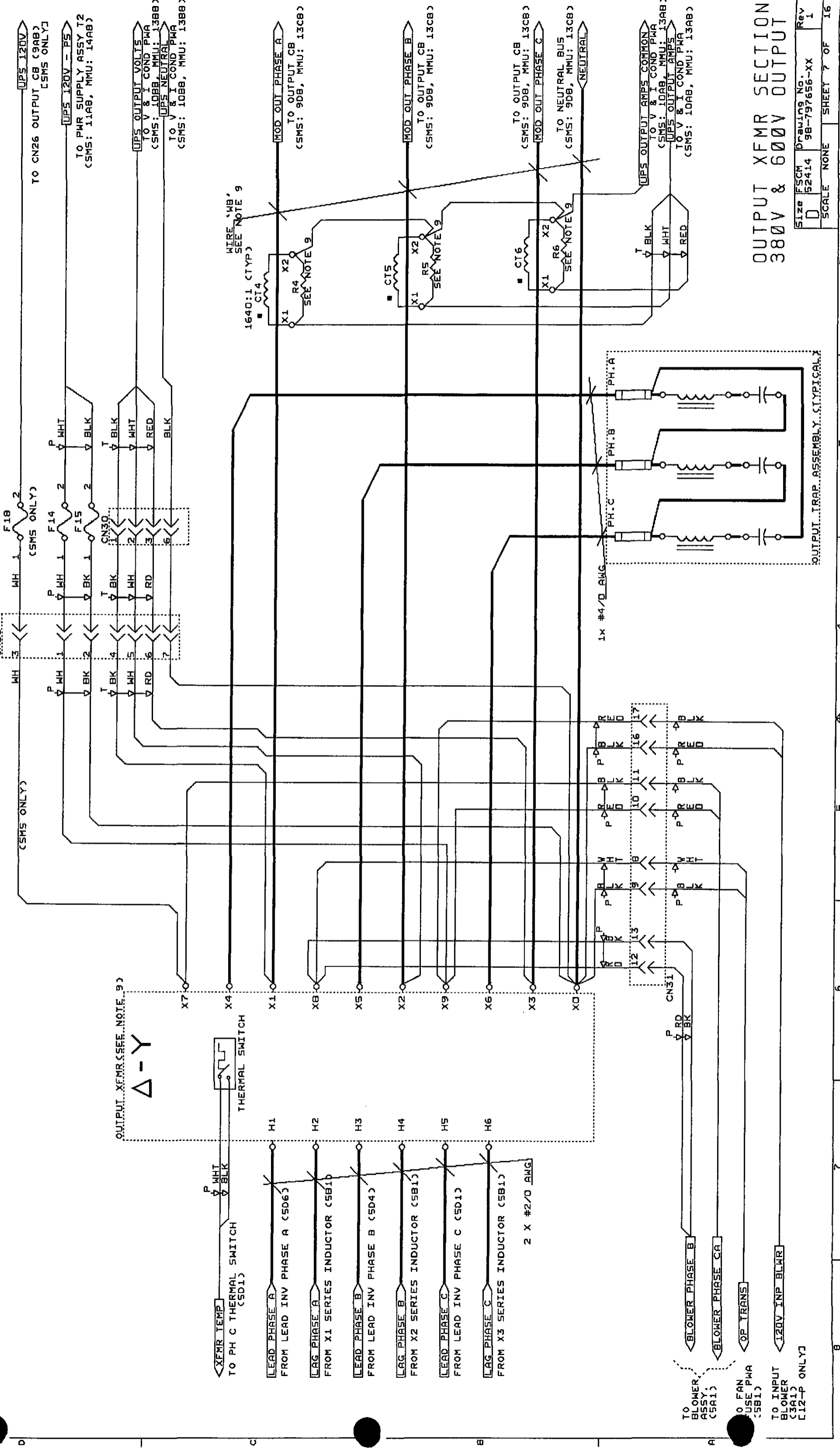


**OUTPUT XFMR SECTION**  
**480V OUTPUT**

Size	FSCM	Drawing No.	Rev
D	52414	98-797656-XX	1
SCALE	NONE	SHEET	6 OF 16

REV. NO.	DATE	APPD
1	NEW RELEASE	

DESCRIPTION	ECO NO.	DATE	APPD
LTR DESCRIPTION	980403		
1	NEW RELEASE		



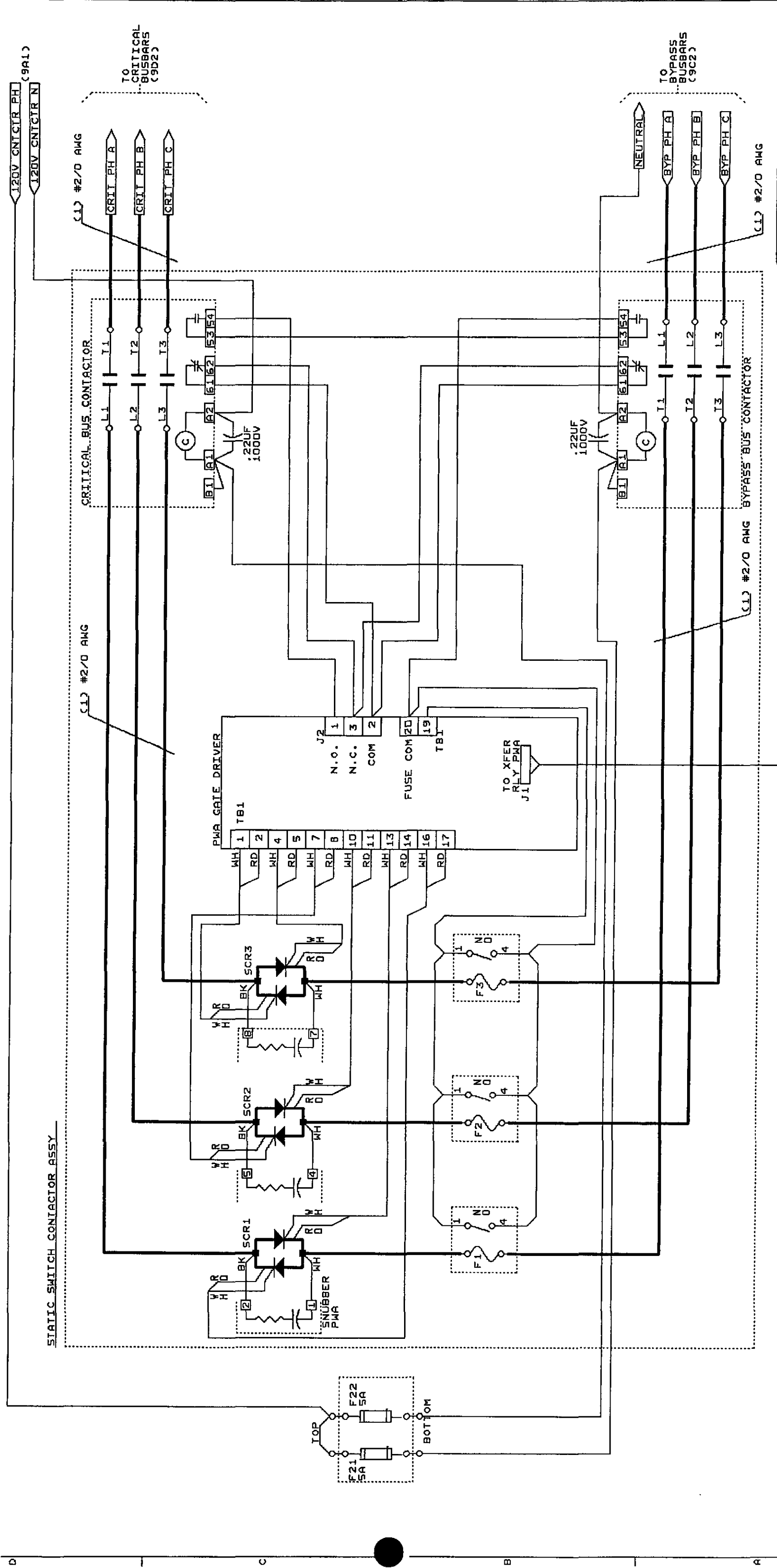
**OUTPUT XFMR SECTION**  
**380V & 600V OUTPUT**

Size	FSCM	Drawing No.	Rev
D	52414	98-797656-XX	1
SCALE	NONE	SHEET	7 OF 16

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ZONETR	DESCRIPTION	ECO NO	DATE	APPROV
1	NEW RELEASE	980403	4-23	BBM
3	REV. CONTACTORS WIRING	990677		



ST SW GATE DR SIGNALS  
FROM J2 XFER RELAY PMA  
(10C7)

SMS ONLY

Size	FSCM	Drawing No.	Rev
D	52414	98-797656-XX	5
Scale	NONE	Sheet	B of 16

MOD OUT PHASE A  
FROM X1 OUT XFMR (C1)

MOD OUT PHASE B  
FROM X2 OUT XFMR (B1)

MOD OUT PHASE C  
FROM X3 OUT XFMR (B1)

NEUTRAL  
FROM X0 OUT XFMR (B1)

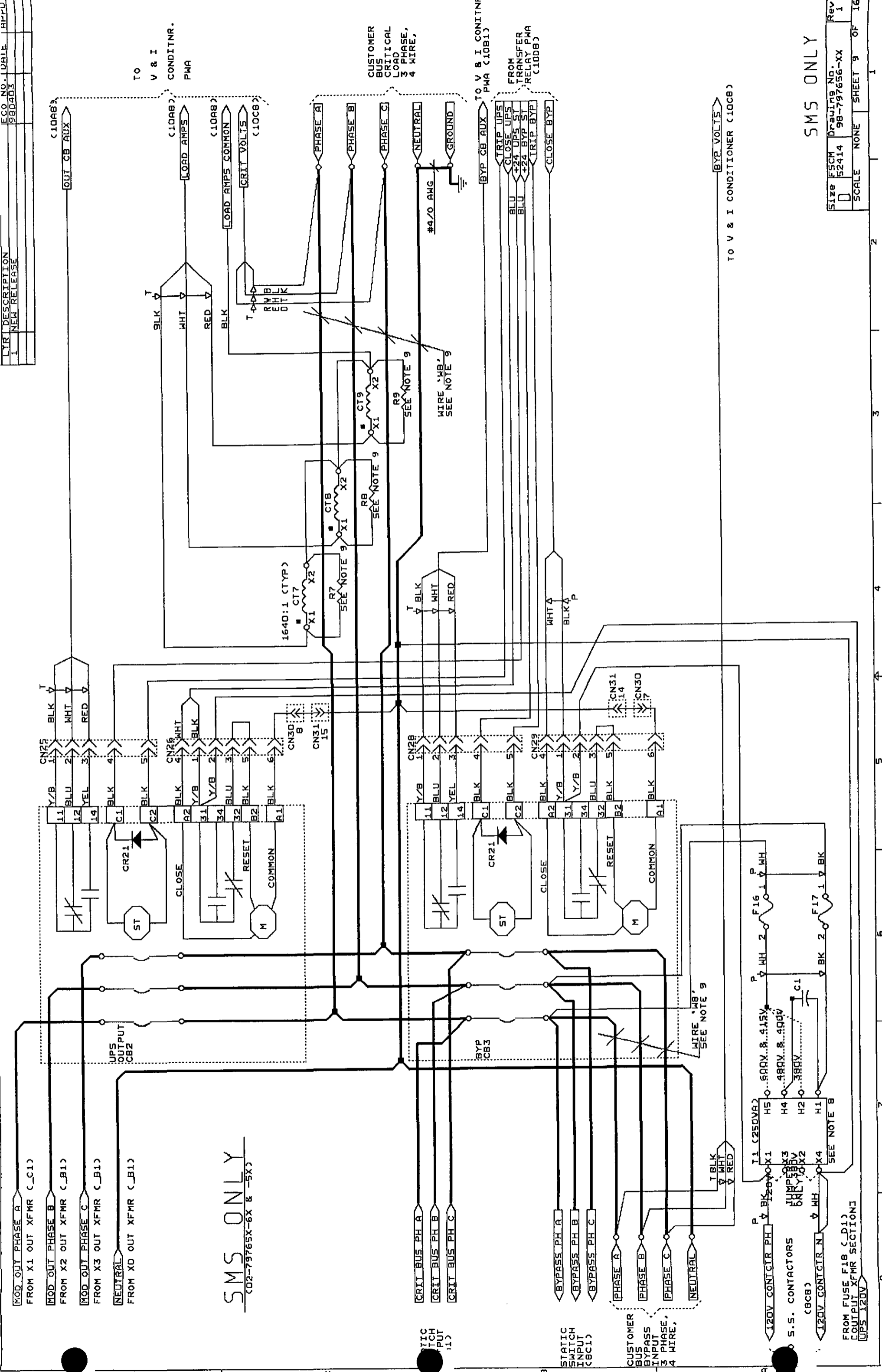
**SMS ONLY**  
(02-79765X-6X & -5X)

STATIC SWITCH INPUT (1)

STATIC SWITCH INPUT (BC1)

CUSTOMER BUS BYPASS INPUT 3 PHASE, 4 WIRE,

FROM FUSE F18 (D1)  
OUTPUT XFMR SECTION  
UPS 120V

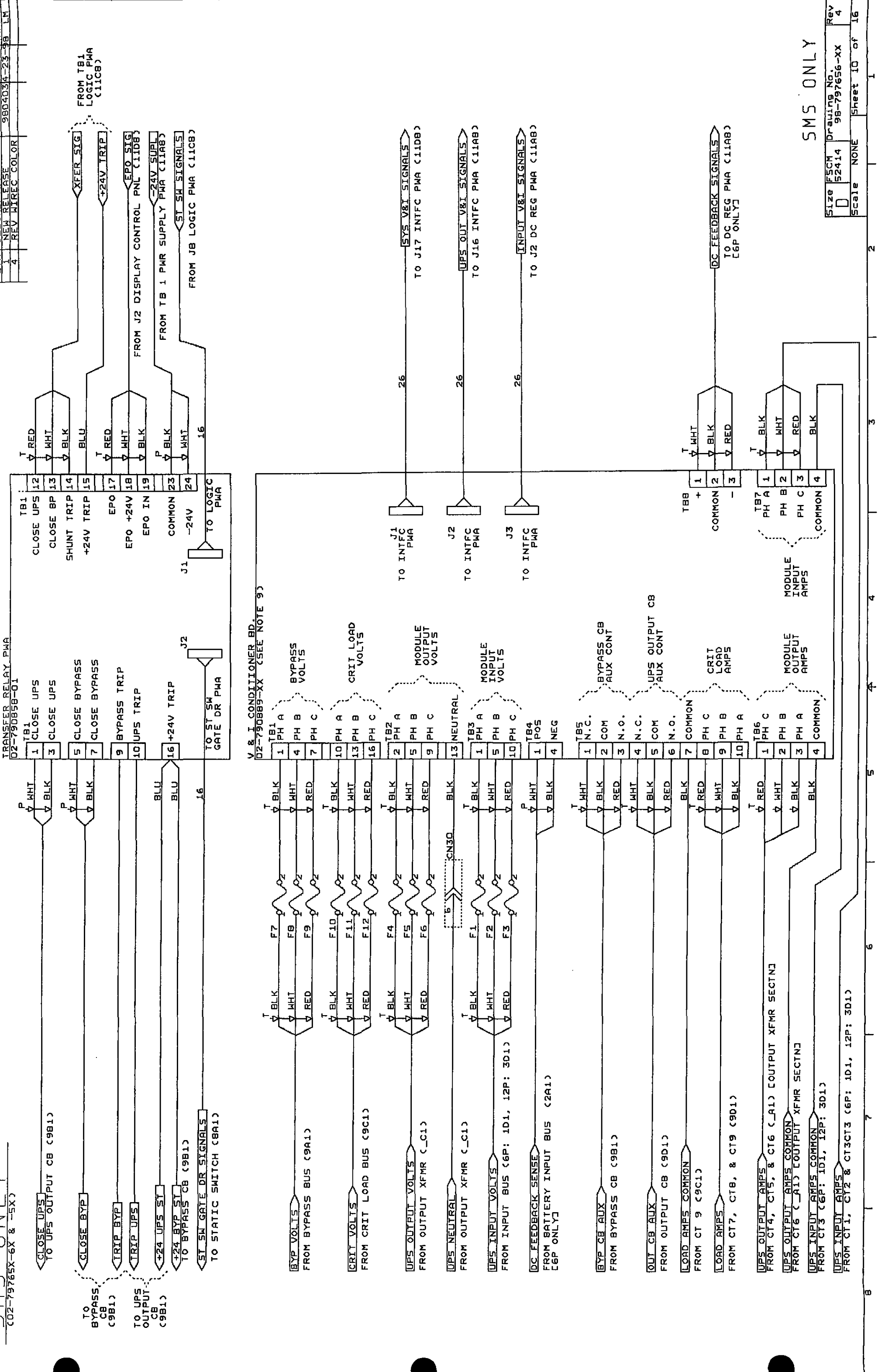


TO V & I CONDITIONER (10CB)

SMS ONLY

Size	F5CM	Drawing No.	98-797656-XX	Rev	1
SCALE	NONE	SHEET	9	OF	16

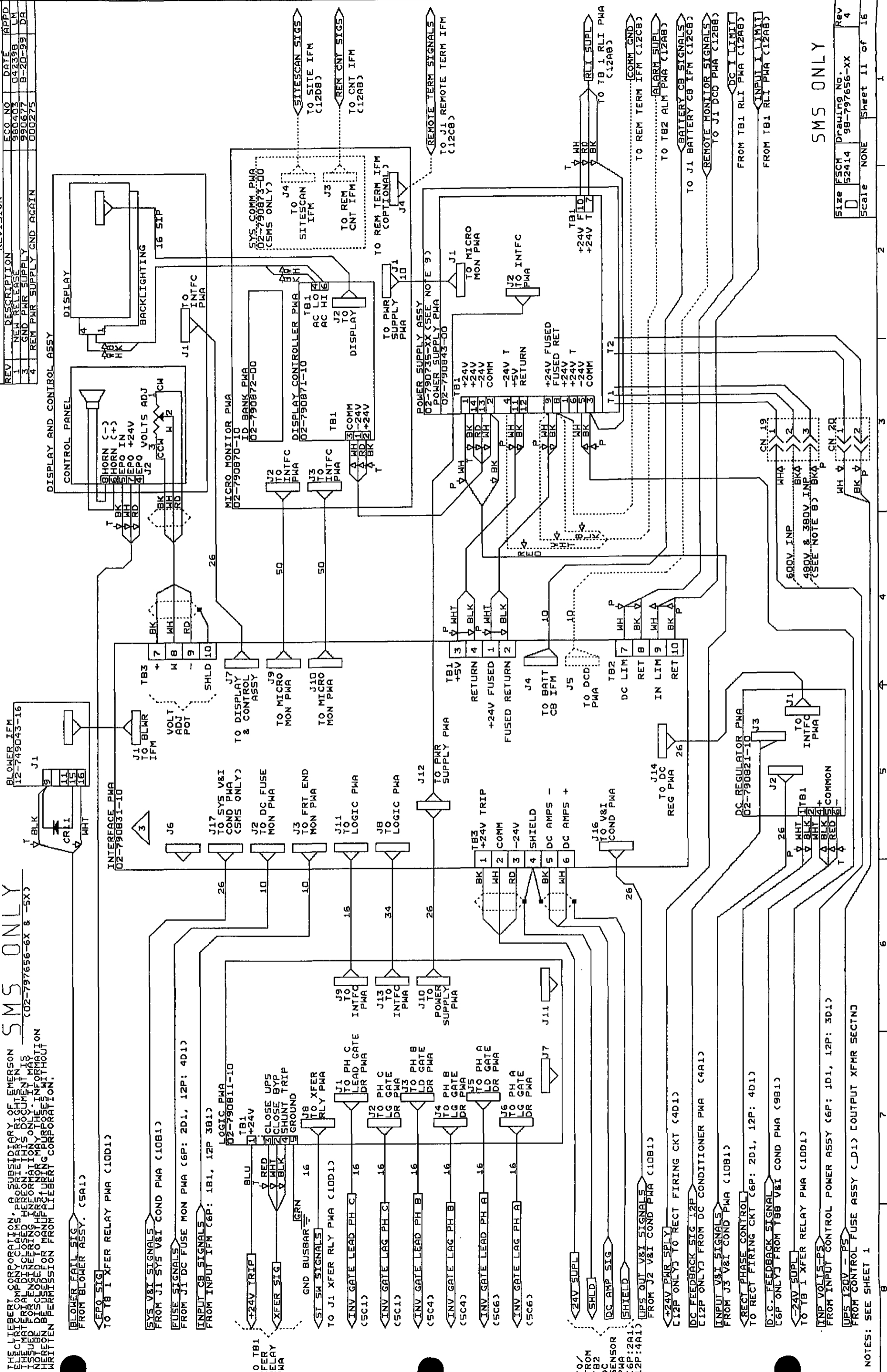




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SMS ONLY  
C02-797656-6X & -5X

REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	980403	04/23/98	LM
3	GND PWR SUPPLY	990677	8-20-99	DA
4	REM PWR SUPPLY GND AGAIN	000275		



NOTES: SEE SHEET 1

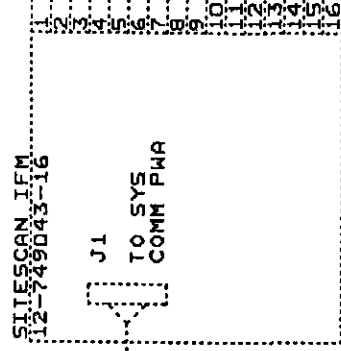
SMS ONLY

Size	F5CH	Drawing No.	98-797656-XX	Rev	4
Scale	NONE	Sheet	11 of 16		

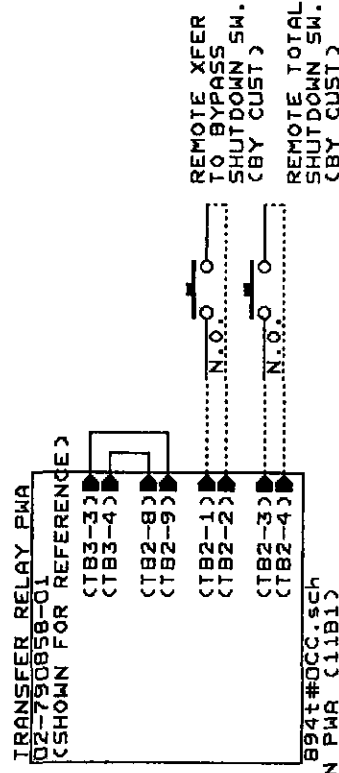
EXTERNAL CONNECTIONS

SITESCAN/SITEMASTER INTF (OPTION)

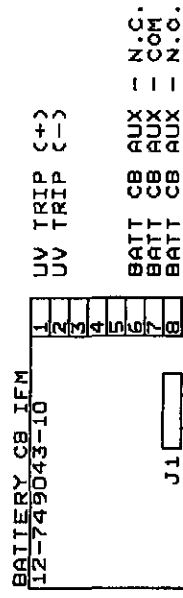
T+/R+ SMS  
T-/R- SMS



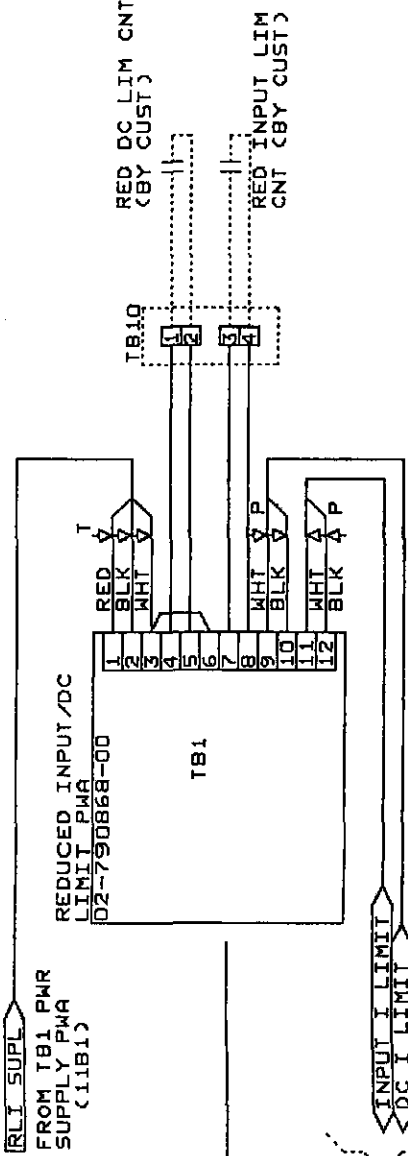
REMOTE EMERGENCY OFF



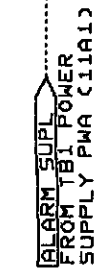
BATT CKT BRKR INTF



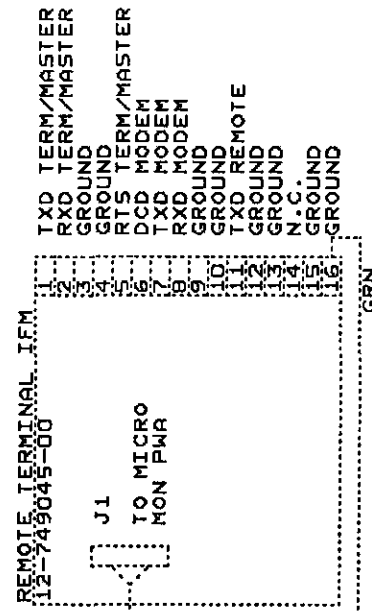
REDUCED I LIMIT



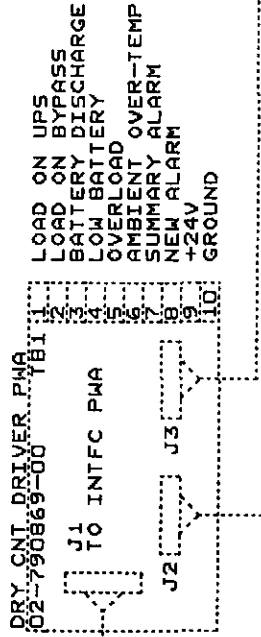
ALARM SUPPLY FROM TB1 POWER SUPPLY PWA (11A1)



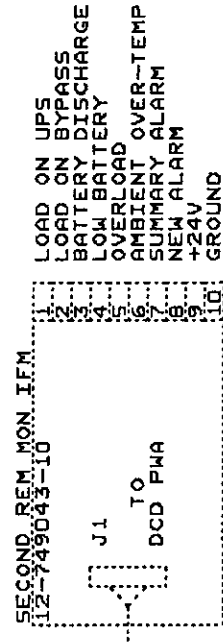
REMOTE TERMINAL INTF (OPTION)



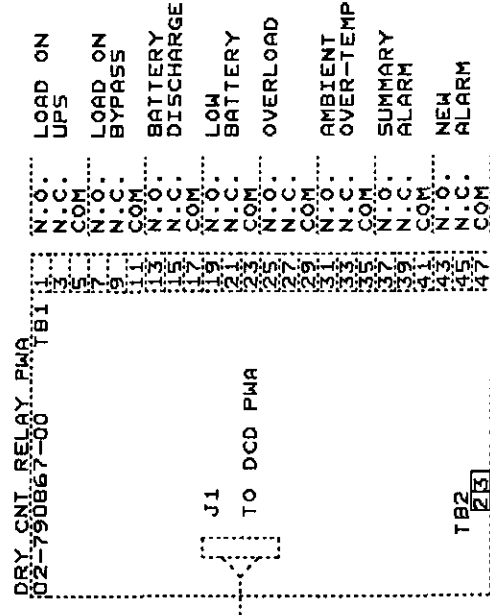
REMOTE MONITOR INTF (OPTION)



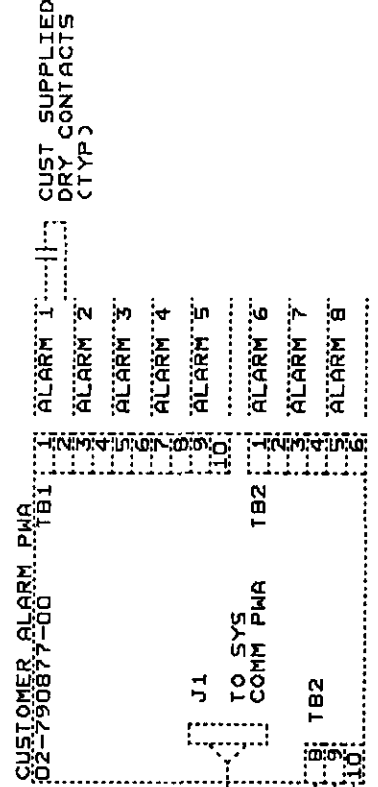
2ND. REMOTE MONITOR INTF (OPTION)



REMOTE DRY CONTACTS INTF (OPTION)



CUSTOMER ALARMS INTF (OPTION)

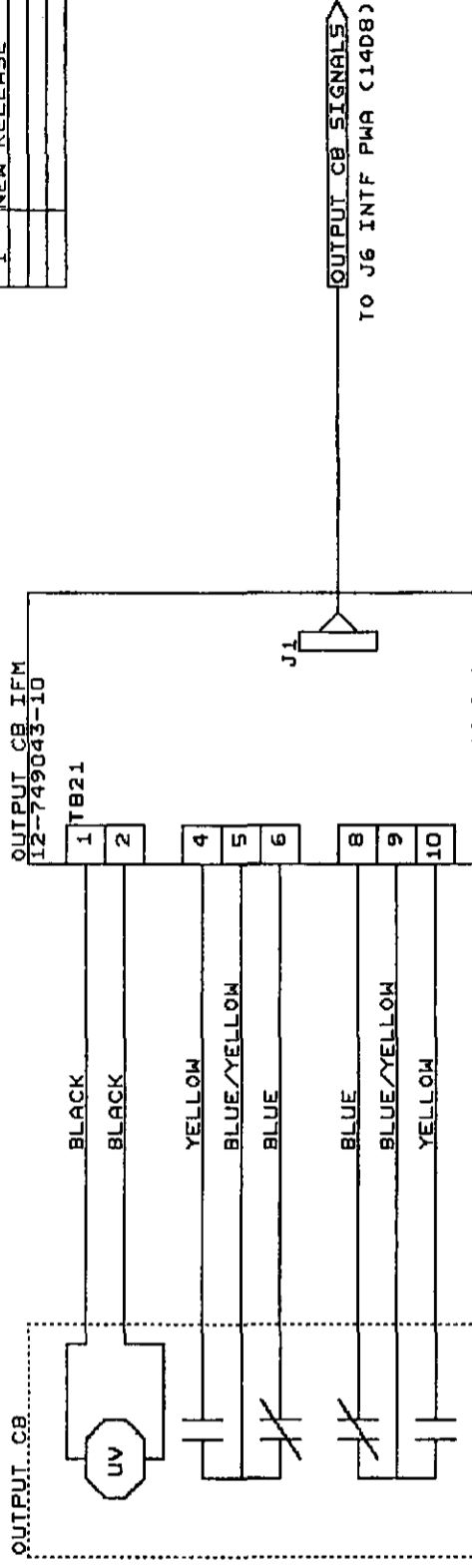


LTR	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	280403		

Size	FSCM	Drawing No.	Rev
D	52414	98-797656-XX	1
Scale	NONE	Sheet	12 of 16

# MMU ONLY

(02-79765X-7X & -8X)



MOD OUT PHASE A  
FROM OUTPUT XFMR (\_C1)

MOD OUT PHASE B  
FROM OUTPUT XFMR (\_B1)

MOD OUT PHASE C  
FROM OUTPUT XFMR (\_B1)

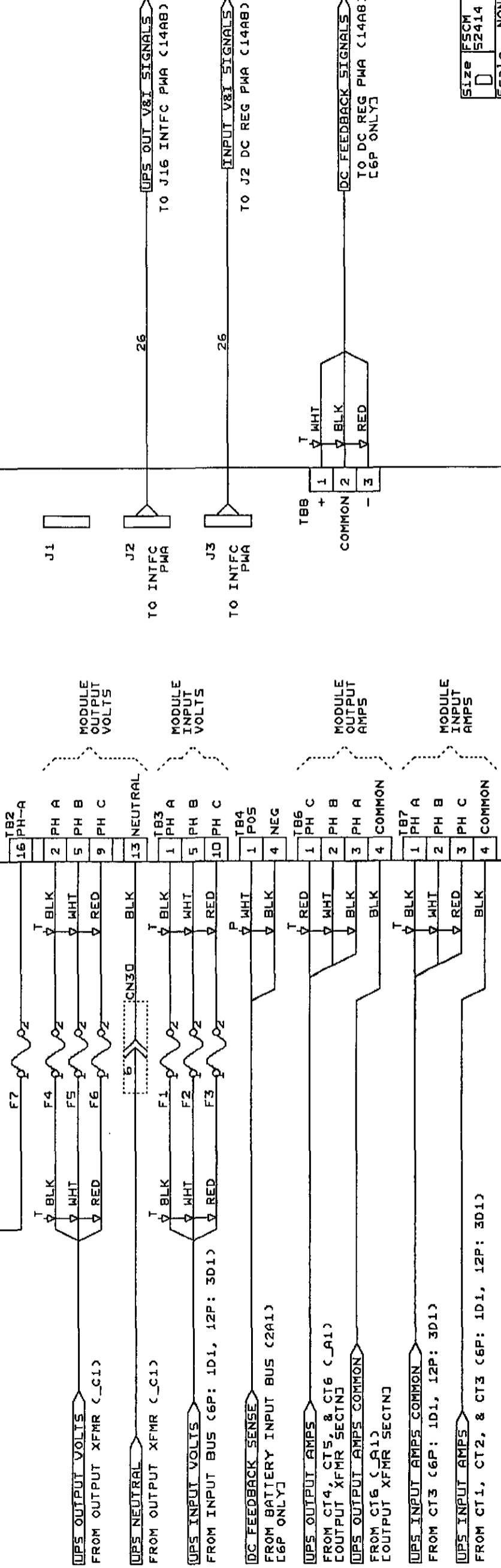
NEUTRAL  
FROM OUTPUT XFMR (\_B1)

CUSTOMER BUS  
CRITICAL  
LOAD  
3 PHASE,  
4 WIRE,  
60 HZ

WIRE 'WB',  
SEE NOTE 9

CUSTOMER BUS

## V & I CONDITIONER BD. (02-790889-XX (SEE NOTE 9))



UPS OUTPUT AMPS  
FROM CT4, CT5, & CT6 (\_A1)  
COUTPUT XFMR SECTN3

UPS OUTPUT AMPS COMMON  
FROM CT6 (\_A1)  
COUTPUT XFMR SECTN3

UPS INPUT AMPS COMMON  
FROM CT3 (6P: 1D1, 12P: 3D1)

UPS INPUT AMPS  
FROM CT1, CT2, & CT3 (6P: 1D1, 12P: 3D1)

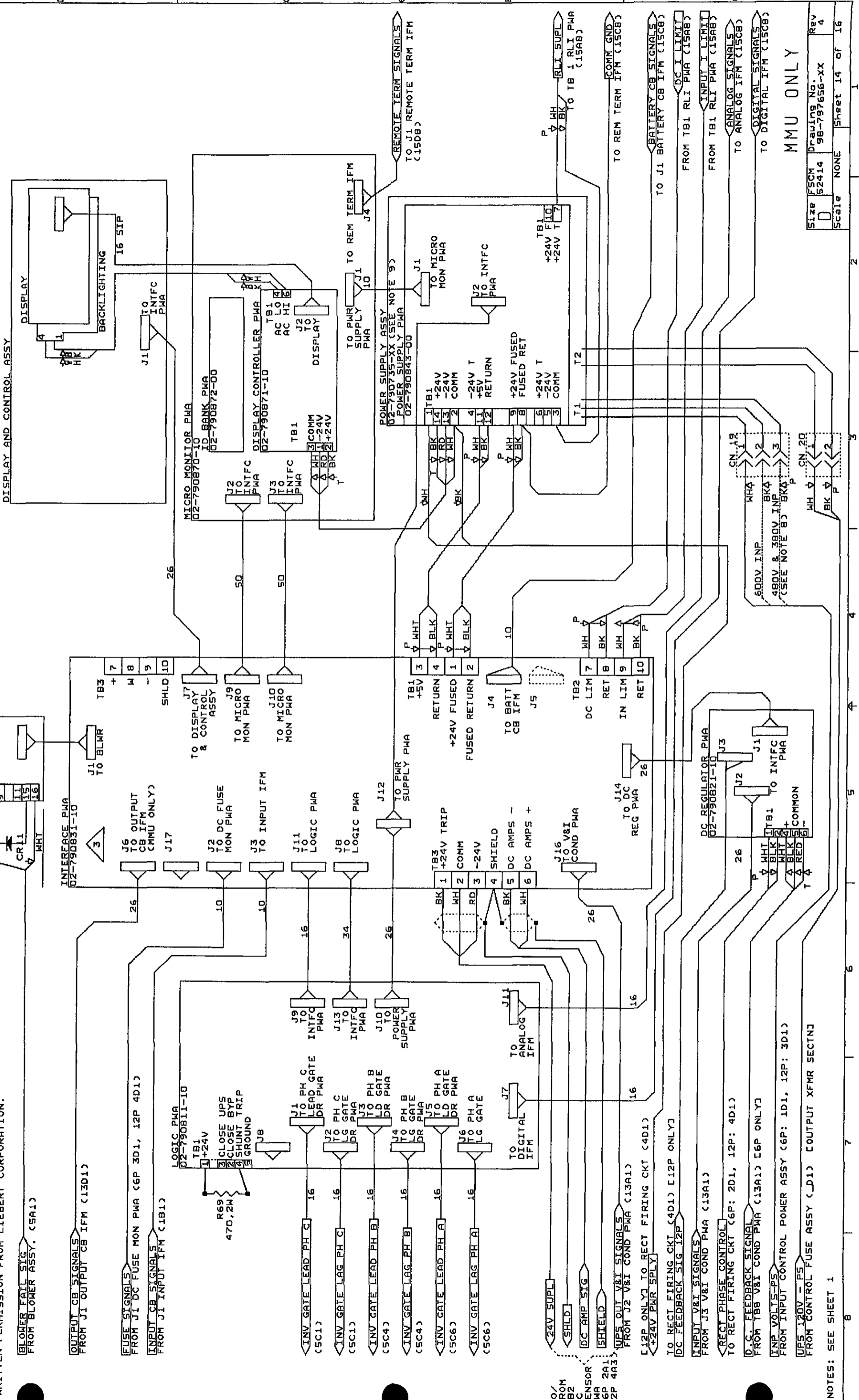
# MMU ONLY

REVISIONS			
LTR	DESCRIPTION	ECO NO.	DATE
1	NEW RELEASE	980403	

REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	980403	4/23/80	LM
2	GND PWR SUPPLY	990677	8-20-99	DA
3	REM PWR SUPPLY GND AGAIN	000275		
4				

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MMU ONLY

Size FSCM Drawing No. 52414 98-797656-XX Rev 4

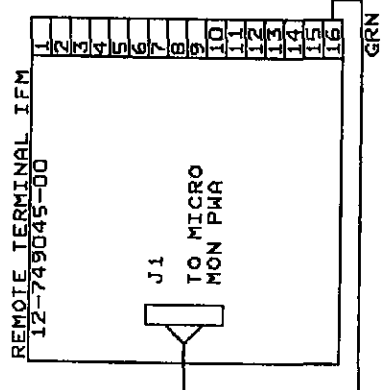
Scale NONE Sheet 14 of 16

NOTES: SEE SHEET 1

EXTERNAL CONNECTIONS

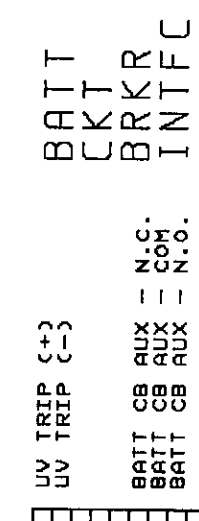
REVISIONS			
LTR	DESCRIPTION	ECO NO.	DATE
1	NEW RELEASE	980403	4-23-98LM
4	UPDATE	000275	

REMOTE TERMINAL INTERFACE



- TXD TERM/MASTER
- RXD TERM/MASTER
- GROUND
- RTS TERM/MASTER
- DCD MODEM
- TXD MODEM
- RXD MODEM
- GROUND
- TXD REMOTE
- GROUND
- GROUND
- N.C.
- GROUND
- GROUND

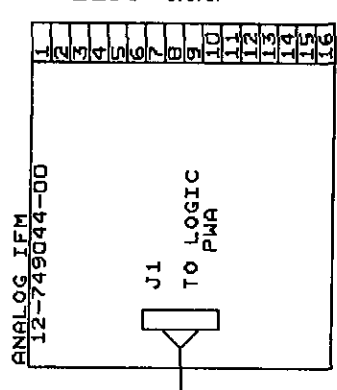
TO TB1 PWR SUPPLY PWA (14B1)



- UV TRIP (+)
- UV TRIP (-)
- BATT CB AUX - N.C.
- BATT CB AUX - COM
- BATT CB AUX - N.O.

TO TB1 PWR SUPPLY PWA (14B1)

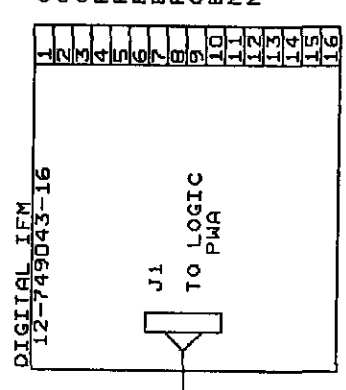
SCC ANALOG INTFC



- LDC SHIELD
- LDC
- VOLT CONTROL SHIELD
- VOLT CONTROL
- SHARING SHIELD
- SHARING OUT
- SHARING IN

TO J11 LOGIC PWA (14A1)

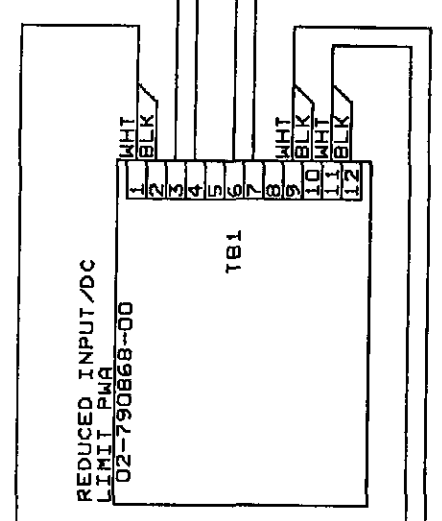
SCC DIGITAL INTFC



- OSC SYNC RET
- OSC SYNC I/O
- PHASE SYNC SHIELD
- PHASE SYNC I/O
- PHASE SYNC RET
- EXT FREQ CONTROL
- FREQ CONTROL SHIELD
- EMERG OFF SUPPLY
- MAJORITY RET
- MAJORITY OUT

TO J7 LOGIC PWA (14A1)

REDUCED I LIMIT



- REDUCED DC LIMIT SIGNAL TO SYS CAB
- REDUCED INPUT LIMIT SIGNAL TO SYS CAB (OPTION)

TO TB1 PWR SUPPLY PWA (14B1)

TO TB2 INTFC PWA (14A1)

# CONFIGURATION

## JUMPER SELECT CHART

3

PWA	FUNCTION	HEADER OR JUMPER	PINS TO BE CONNECTED
INTERFACE PWA	SYSTEM SEL	H1-6	1-2
LOGIC PWA	XSTR/SCR SELECT	H13	XSTR (1-2)
	PROTECT ENABLE	H4-H6	2-3 (4-5)
	AUX DELAY	H7	2-3 (4-5)
	LINE SYNC	H7	1-2 (EXT-SMS)
	FREQ. SELECT	H8, H10-H12	1-2 (60 HZ) 2-3 (50 HZ)
RECTFR FIRING	FREQ. SELECT	H9	1-2 (60 HZ) 2-3 (50 HZ)
		J5	

## COMPONENT SELECT CHART

COMPONENT	FUNCTION	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N
WIRE 'MA'	INPUT CB POWER WIRING	2 x 4/0 AWG	3 x 4/0 AWG	3 x 2/0 AWG	3 x 4/0 AWG	2 x 4/0 AWG	2 x 4/0 AWG	2 x 4/0 AWG	3 x 4/0 AWG	3 x 2/0 AWG	2 x 4/0 AWG	2 x 4/0 AWG	3 x 2/0 AWG
WIRE 'MB'	OUTPUT, BYP & CRITICAL LOAD POWER WIRING	2 x 4/0 AWG	3 x 4/0 AWG	2 x 4/0 AWG	2 x 4/0 AWG	2 x 4/0 AWG	2 x 4/0 AWG	2 x 4/0 AWG	2 x 4/0 AWG	2 x 4/0 AWG	2 x 4/0 AWG	2 x 4/0 AWG	2 x 4/0 AWG
R1, R2, R3	BURDEN RESTRS. INPUT CURRENT CT's	10 OHMS	8 OHMS	10 OHMS	12 OHMS	10 OHMS	10 OHMS	10 OHMS	10 OHMS	9.1 OHMS	10 OHMS	10 OHMS	10 OHMS
R4, R5, R6	BURDEN RESTRS. INVERTER OUTP. CURRENT CT's	10 OHMS	8 OHMS	10 OHMS	12 OHMS	10 OHMS	10 OHMS	10 OHMS	10 OHMS	10 OHMS	10 OHMS	10 OHMS	10 OHMS
R7, R8, R9	BURDEN RESTRS. UPS OUTP. CUR. CT's (SMS ONLY)	10 OHMS	8 OHMS	10 OHMS	12 OHMS	10 OHMS	10 OHMS	10 OHMS	10 OHMS	10 OHMS	10 OHMS	10 OHMS	10 OHMS
V & I CONDTR. BD	POWER SPLY. ASSEMBLY	02-790889-03	02-790889-11	02-790889-03	02-790889-03	02-790889-05	02-790889-03	02-790889-03	02-790889-03	02-790889-03	02-790889-11	02-790889-03	02-790889-03
INPUT AUTO/ISO XFMR		02-790735-00	02-790735-05	02-790735-05	02-790735-00	02-790735-00	02-790735-00	02-790735-00	02-790735-00	02-790735-00	02-790735-05	02-790735-00	02-790735-00
OUTPUT TRANSFORMER		02-769604-00	02-769656-51	02-769656-51	02-769656-52	02-769656-51	02-769656-51	02-769656-51	02-769656-51	02-769656-51	02-769656-51	02-769656-51	02-769656-51
CTRL XFMR T1		02-769604-00	02-769656-58	02-769656-58	02-769656-58	02-769656-58	02-769656-58	02-769656-58	02-769656-58	02-769656-58	02-769656-58	02-769656-58	02-769656-58
NTL XFMR T1		12-749052-00	12-749052-01	12-749052-00	12-749052-00	12-749052-00	12-749052-00	12-749052-00	12-749052-00	12-749052-00	12-749052-00	12-749052-00	12-749052-00

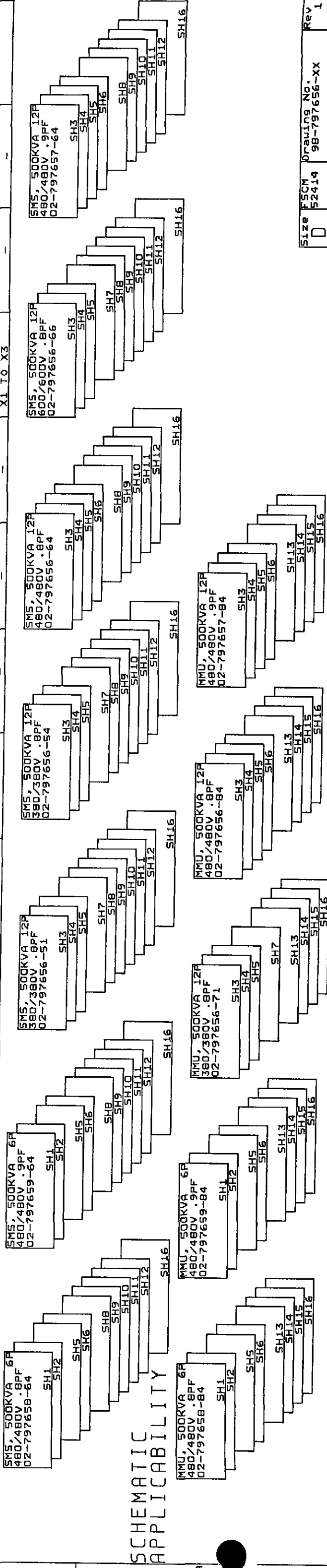
## CONNECTION CHART

COMPONENT	SIGNAL NAME	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N
CONNECTOR CN19	INP VOLTS-PS	02-797658-64	02-797656-51	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54
XFMR T1 (SMS ONLY)	F16-2 WHT JUMPERS	02-797658-64	02-797656-51	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54

## CONNECTION

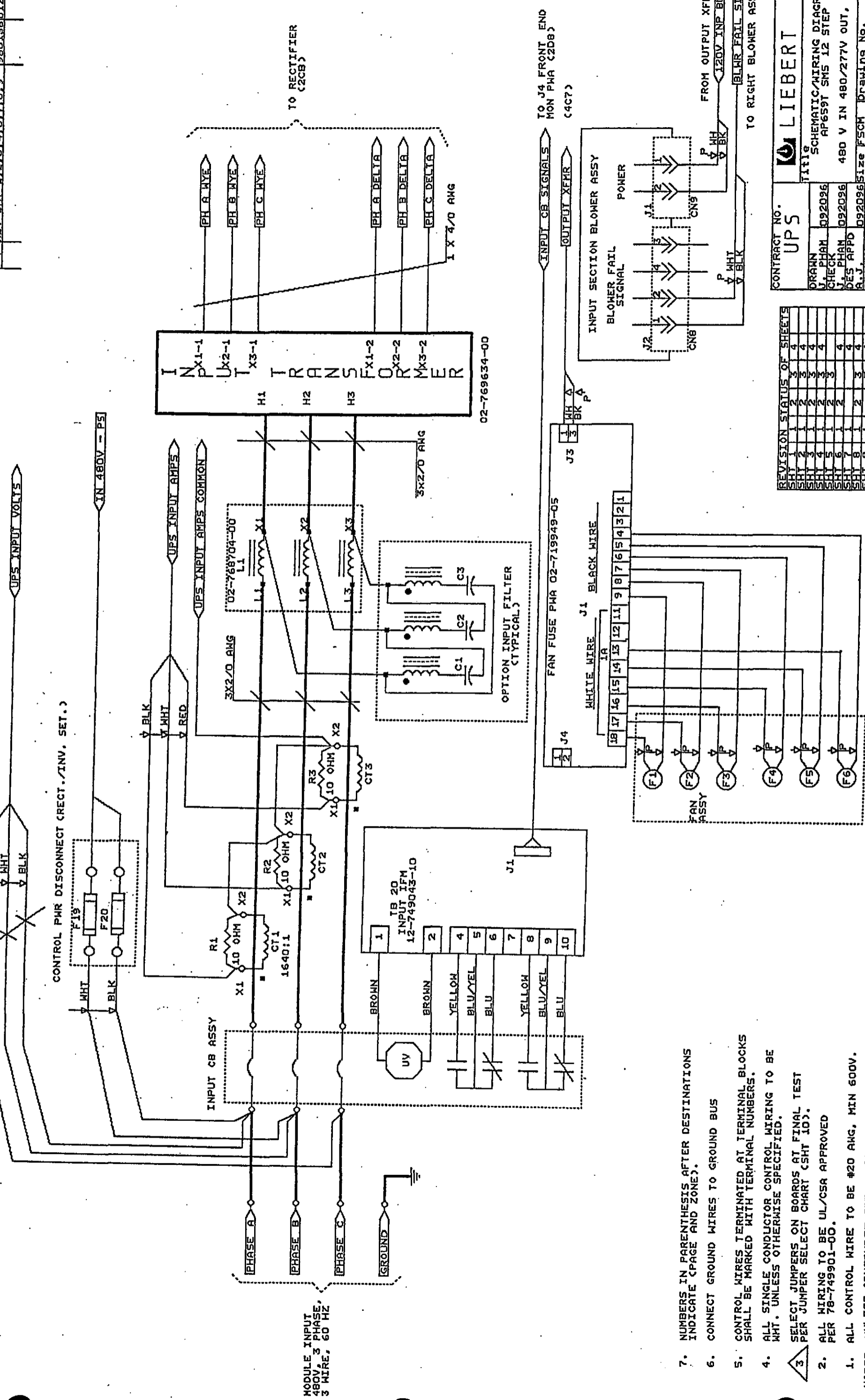
COMPONENT	SIGNAL NAME	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N
CONNECTOR CN19	INP VOLTS-PS	02-797658-64	02-797656-51	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54
XFMR T1 (SMS ONLY)	F16-2 WHT JUMPERS	02-797658-64	02-797656-51	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54	02-797656-54

## SCHEMATIC APPLICABILITY



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REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	960896	092096	AC
2	REV SHT 1.2.3.4.5.6.8	971363	092597	AC
3	REV SHT 1.2.3.4.5.8.9	971537	110797	AC
4	REV SHT 1.2.3.4.6.7.8.9	980136	012998	



1. ALL CONTROL WIRE TO BE #20 AWG, MIN 600V.
2. ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.
3. SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT 10).
4. ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WHT. UNLESS OTHERWISE SPECIFIED.
5. CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.
6. CONNECT GROUND WIRES TO GROUND BUS
7. NUMBERS IN PARENTHESIS AFTER DESTINATIONS INDICATE GAUGE AND ZONE.

REVISION STATUS OF SHEETS	1	2	3	4
SHT 1	1	2	3	4
SHT 2	1	2	3	4
SHT 3	1	2	3	4
SHT 4	1	2	3	4
SHT 5	1	2	3	4
SHT 6	1	2	3	4
SHT 7	1	2	3	4
SHT 8	1	2	3	4
SHT 9	1	2	3	4

CONTRACT NO. UPS

TITLE SCHEMATIC/WIRING DIAGRAM  
AP659T SMS 12 STEP

480 V IN 480/277V OUT, 60HZ

LIBERT

DRN: J. PHAM 092096  
CHK: J. PHAM 092096  
DES: J. PHAM 092096  
APP: J. PHAM 092096

Size: F5CH Drawing No. 52414 98-797657-64  
Rev: 4

APPROVED: [Signature] Scale: NONE Sheet 1 of 9



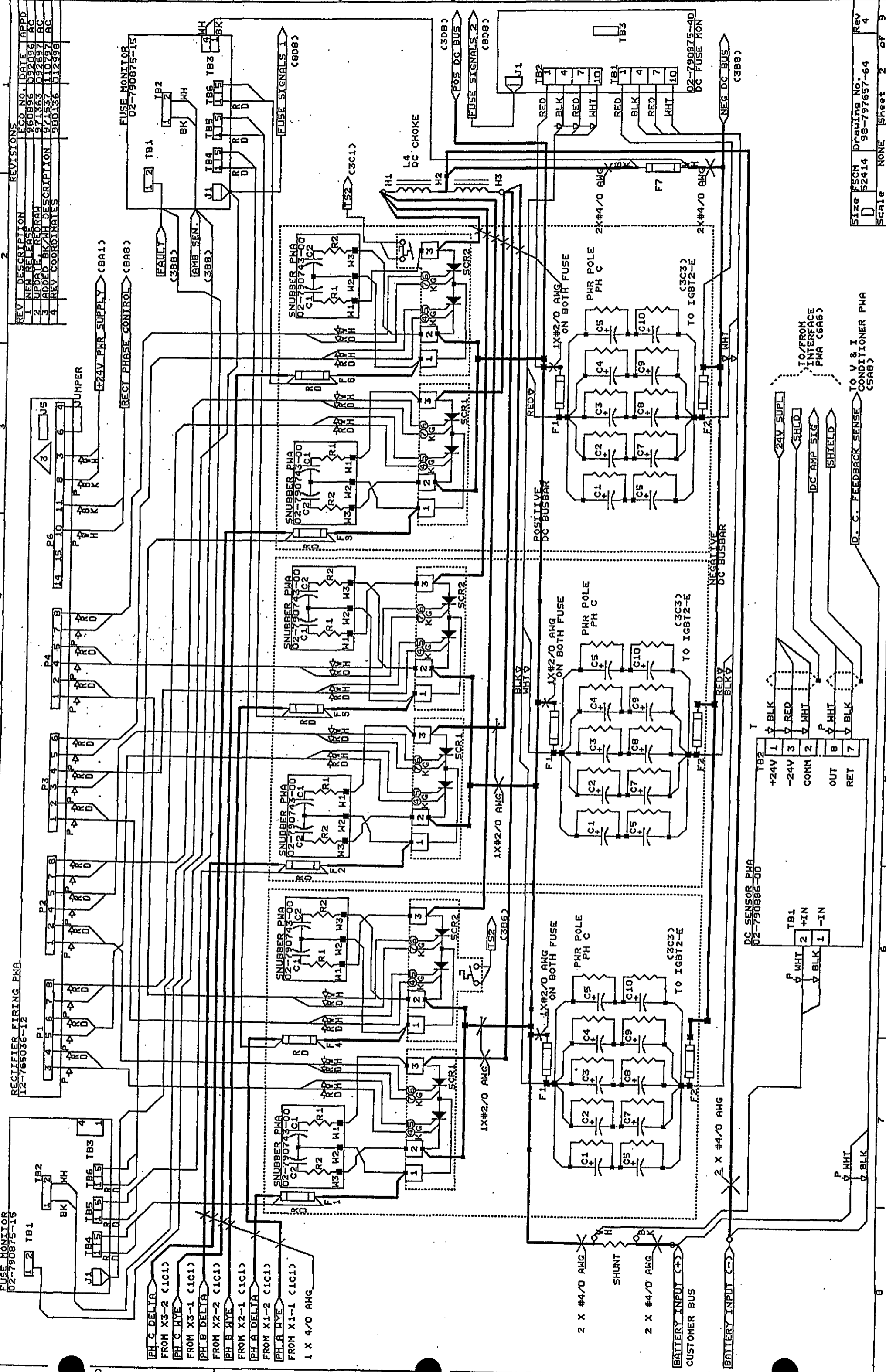
REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	960896	092096	AC
2	UPDATE, REGRAM	971363	092697	AC
3	ADDED BK/WH DESCRIPTION	971537	110797	AC
4	REV COORDINATES	980136	012998	

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	960896	092096	AC
2	UPDATE, REGRAM	971363	092697	AC
3	ADDED BK/WH DESCRIPTION	971537	110797	AC
4	REV COORDINATES	980136	012998	

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	960896	092096	AC
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1	NEW RELEASE	960896	092096	AC
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1	NEW RELEASE	960896	092096	AC
2	UPDATE, REGRAM	971363	092697	AC
3	ADDED BK/WH DESCRIPTION	971537	110797	AC
4	REV COORDINATES	980136	012998	



Size FSCM Drawing No. 52414 98-797657-64 Rev 4

Scale NONE Sheet 2 of 9

TO V & I CONDITIONER PMA (55A8)

TO FROM INTERFACE PMA (66A6)

D. C. FEEDBACK SENSE

24V SUPPLY

SHLD

DC AMP SIG

SHIELD

BATTERY INPUT (+) CUSTOMER BUS

T	1	2	3	4	5	6	7	8	9
TB2	+24V	-24V	COMM	OUT	RET				

T	1	2	3	4	5	6	7	8	9
TB1	+IN	-IN							

T	1	2	3	4	5	6	7	8	9
TB3	RED	BLK	RED	WHT	RED	BLK	WHT	RED	WHT

T	1	2	3	4	5	6	7	8	9
TB3	RED	BLK	RED	WHT	RED	BLK	WHT	RED	WHT

T	1	2	3	4	5	6	7	8	9
TB3	RED	BLK	RED	WHT	RED	BLK	WHT	RED	WHT

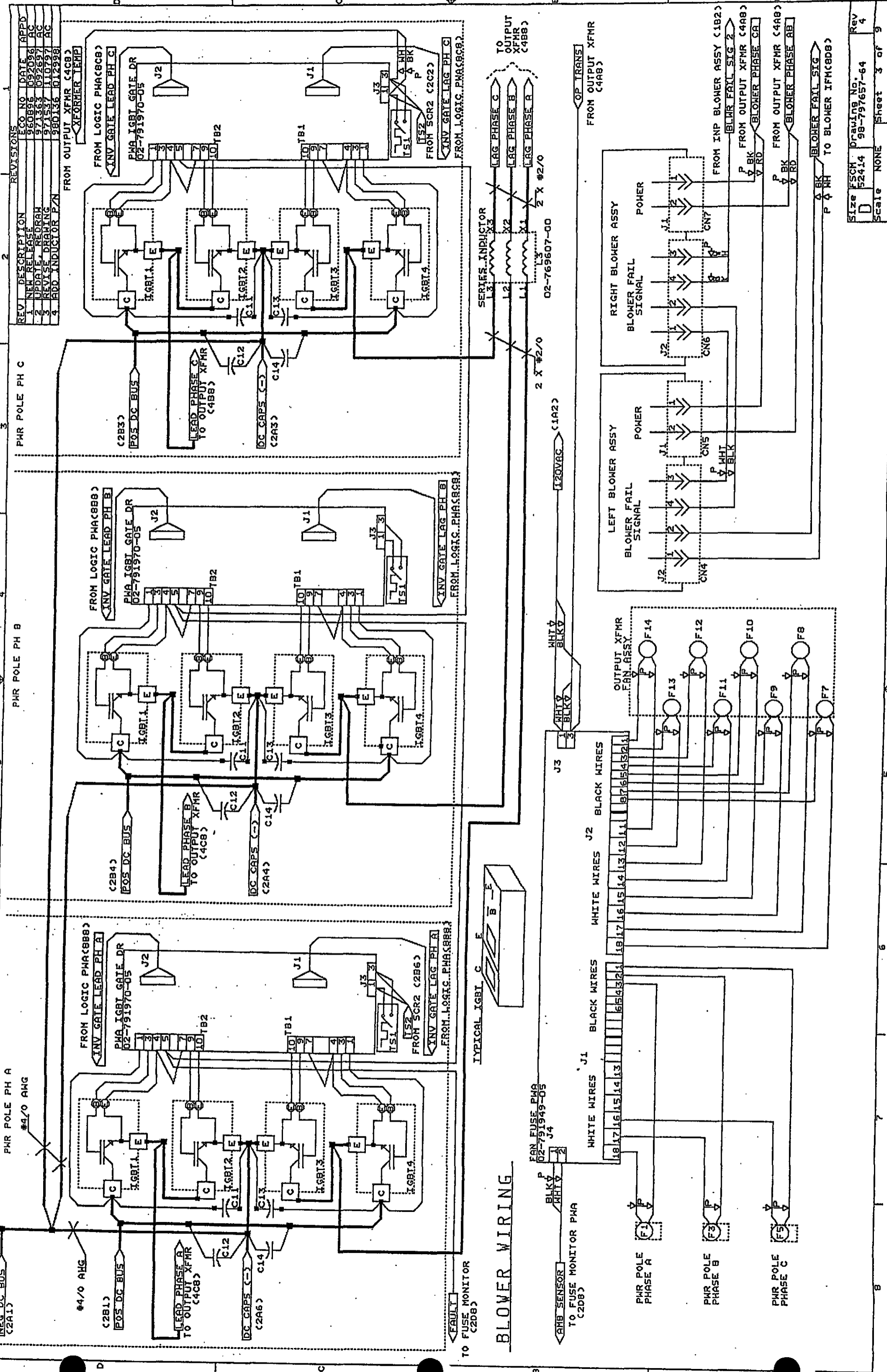
T	1	2	3	4	5	6	7	8	9
TB3	RED	BLK	RED	WHT	RED	BLK	WHT	RED	WHT

T	1	2	3	4	5	6	7	8	9
TB3	RED	BLK	RED	WHT	RED	BLK	WHT	RED	WHT

T	1	2	3	4	5	6	7	8	9
TB3	RED	BLK	RED	WHT	RED	BLK	WHT	RED	WHT

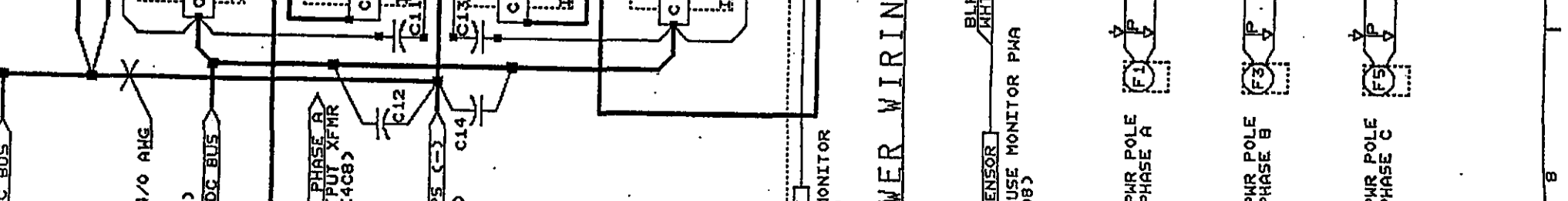
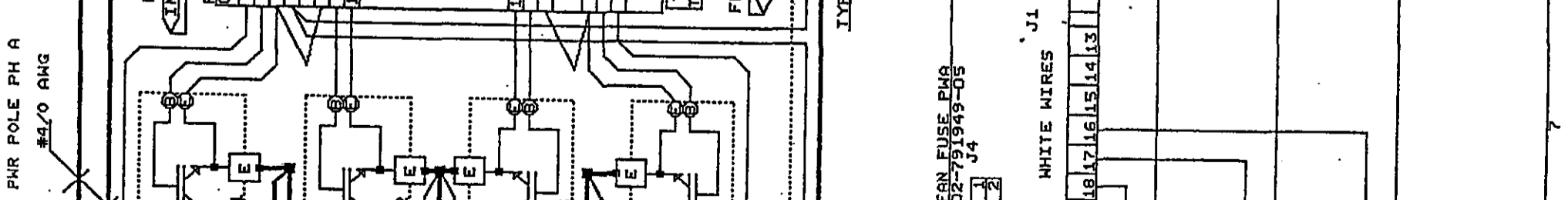
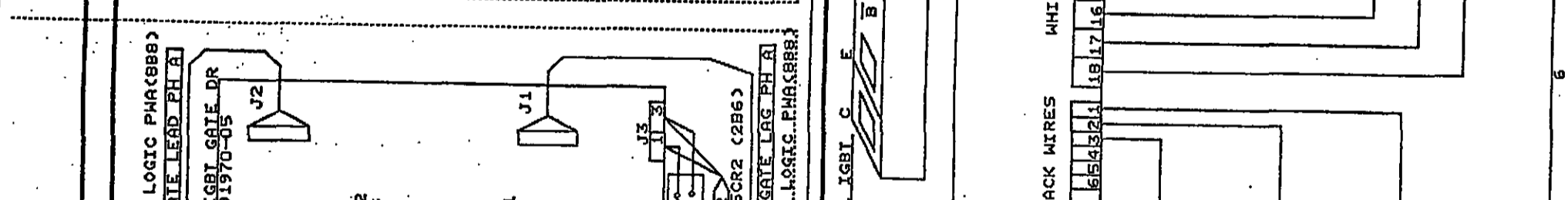
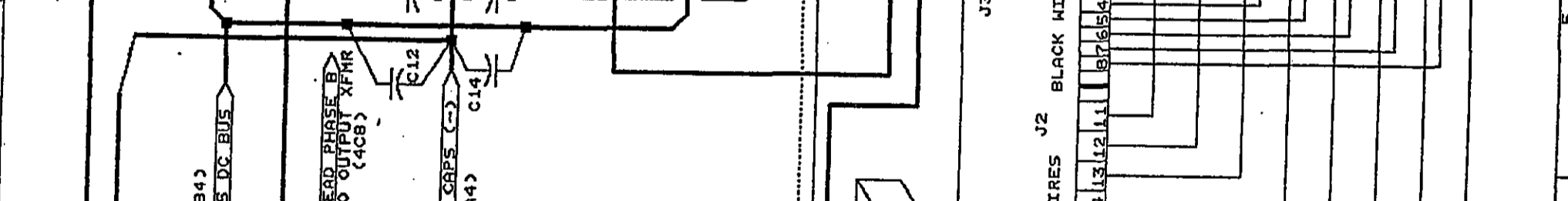
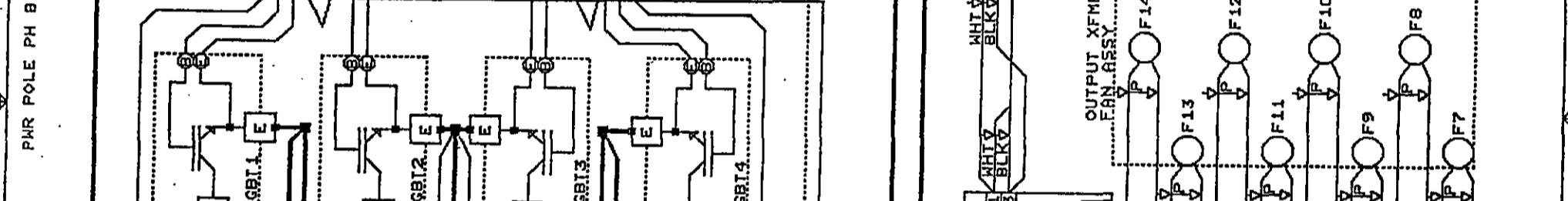
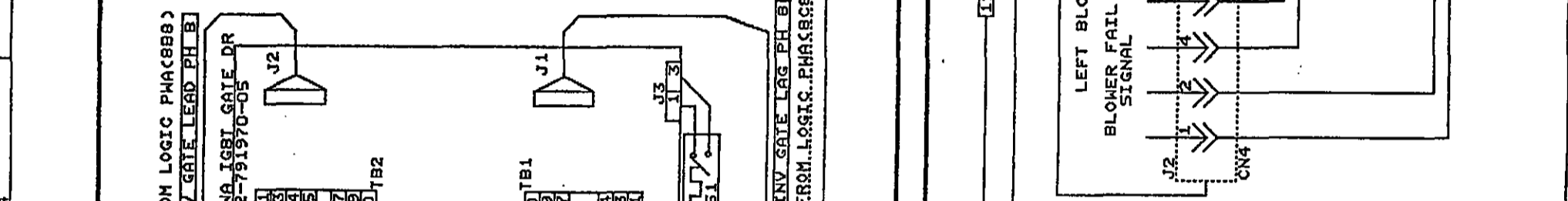
T	1	2	3	4	5	6	7	8	9
TB3	RED	BLK	RED	WHT	RED	BLK	WHT	RED	WHT

T	1	2	3	4	5	6	7	8	9
TB3	RED	BLK	RED	WHT	RED	BLK	WHT	RED	WHT



REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	960896	092096	AC
2	UPDATE, REDRAW	971363	092697	AC
3	REVISE DRAWING	971537	110797	AC
4	ADD INDUCTOR P/N	980136	012998	

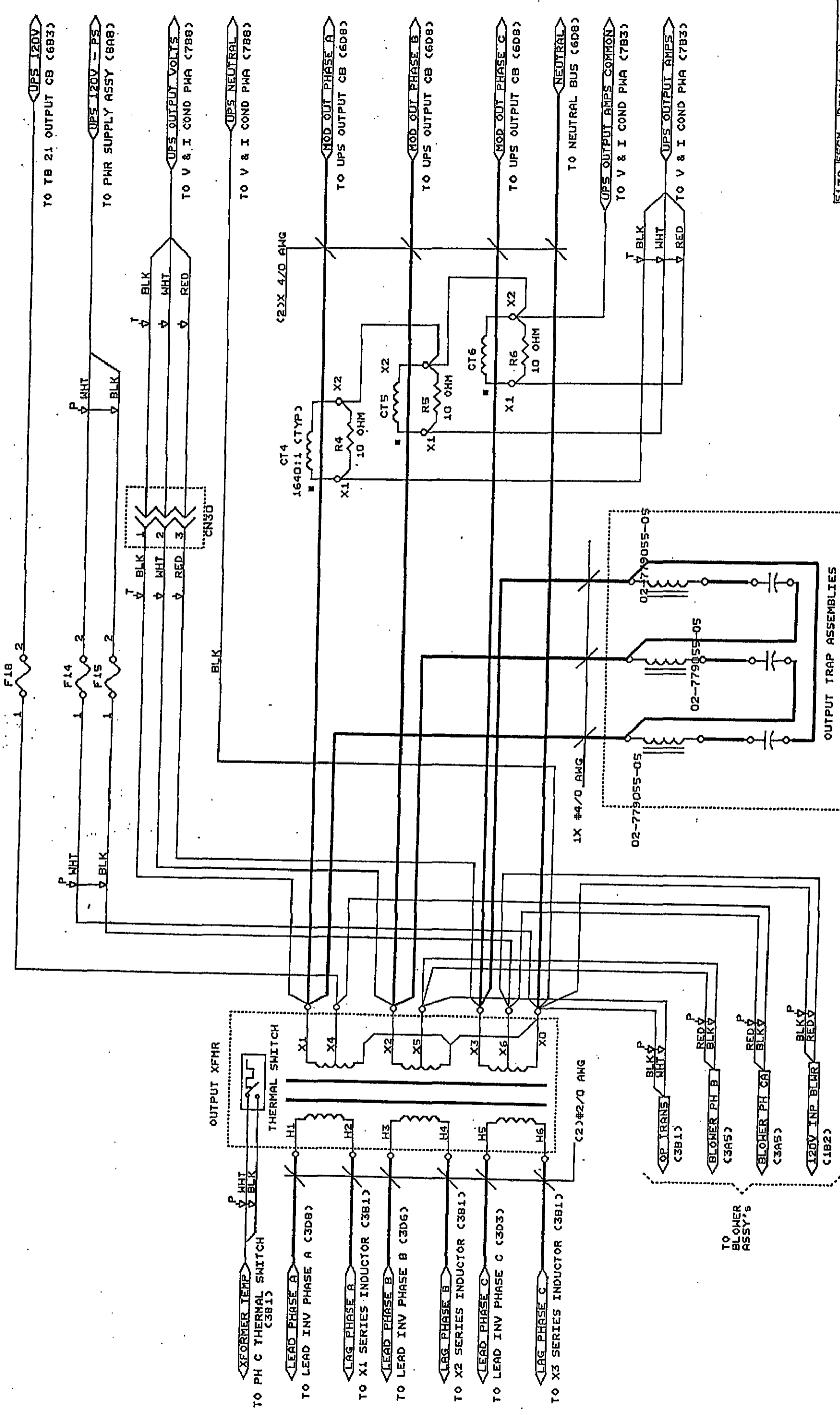
REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	960896	092096	AC
2	UPDATE, REDRAW	971363	092697	AC
3	REVISE DRAWING	971537	110797	AC
4	ADD INDUCTOR P/N	980136	012998	



REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	960896	092096	AC
2	UPDATE, REDRAW	971363	092697	AC
3	REVISE DRAWING	971537	110797	AC
4	ADD INDUCTOR P/N	980136	012998	

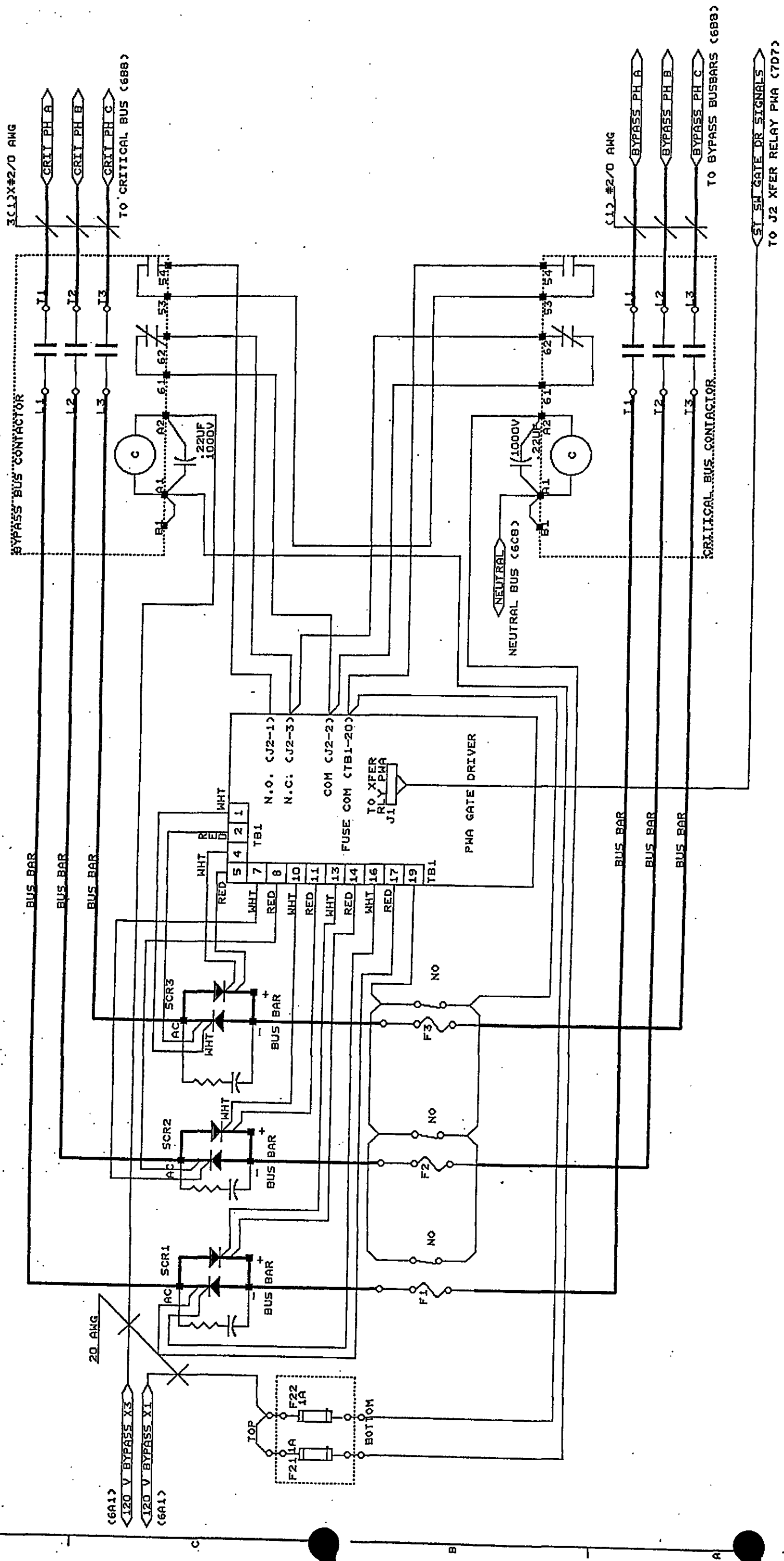
Size FSCM Drawing No. 98-797657-64 Rev 4  
Scale NONE Sheet 3 of 9

REV	DESCRIPTION	ECO NO	DATE	APPD
A	PROTOTYPE			
1	NEW RELEASE	260896092096		AC
2	REVISE WIRE PANEL	271363092697		AC
3	ADD CONNECTOR	271537110797		AC
4	CHANGE R4.5.6 VALUE	280136612998		

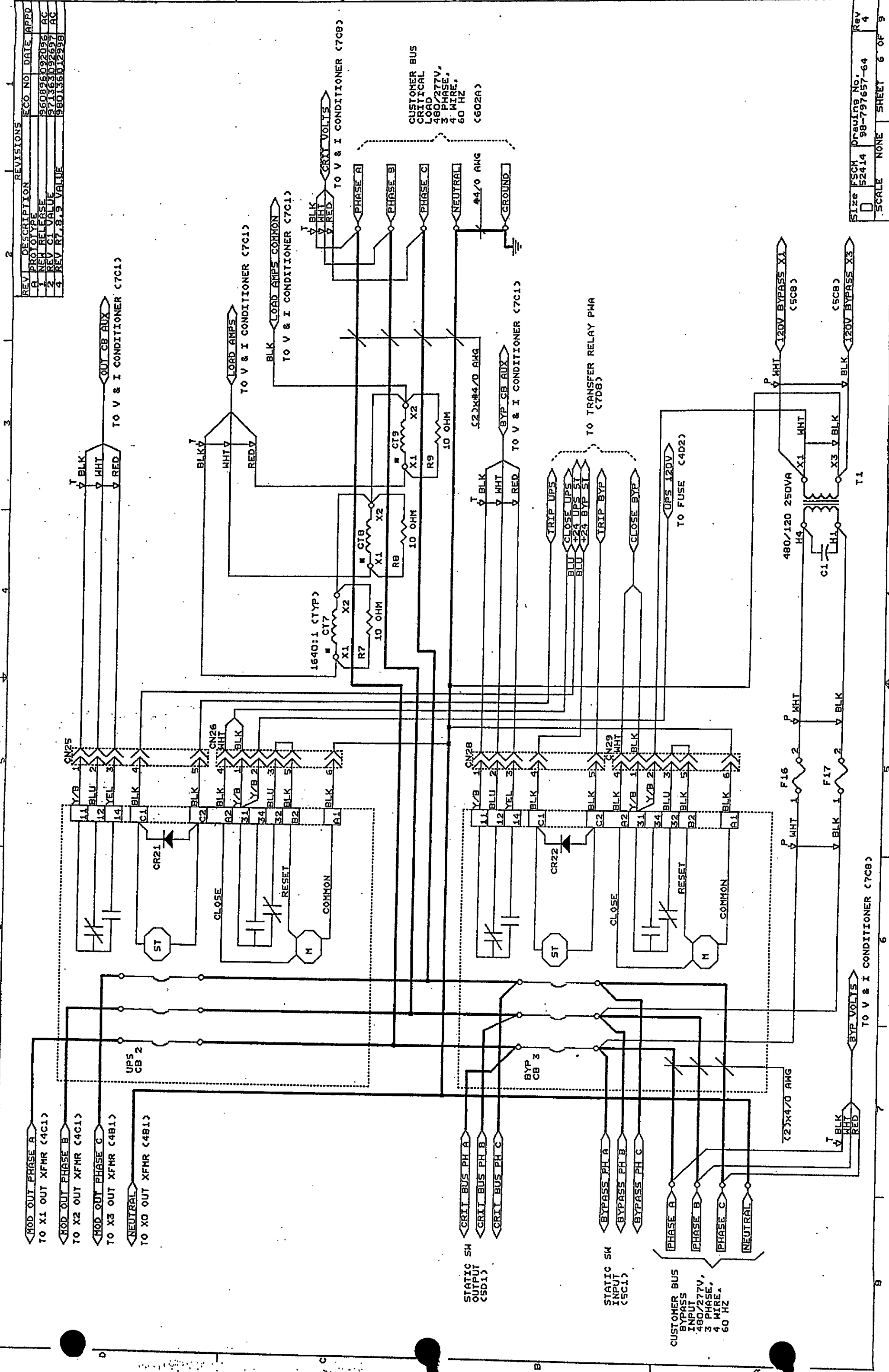


# STATIC SWITCH CONTACTOR ASSY

ZONE/REV	DESCRIPTION	ECO NO	DATE	APPRO
1	PROTOTYPE			
2	NEW RELEASE	960896	92096	
3	REVISE DRG	971363	9-26-97	AC
4	REVISE DRG	971537		



REV	DESCRIPTION	ECO NO	DATE	APPD
1	PROTOTYPE			
2	NEW RELEASE	960826092096		AC
3	REV C1 VALUE	971363092697		AC
4	REV R7, B, 9 VALUE	980136012998		



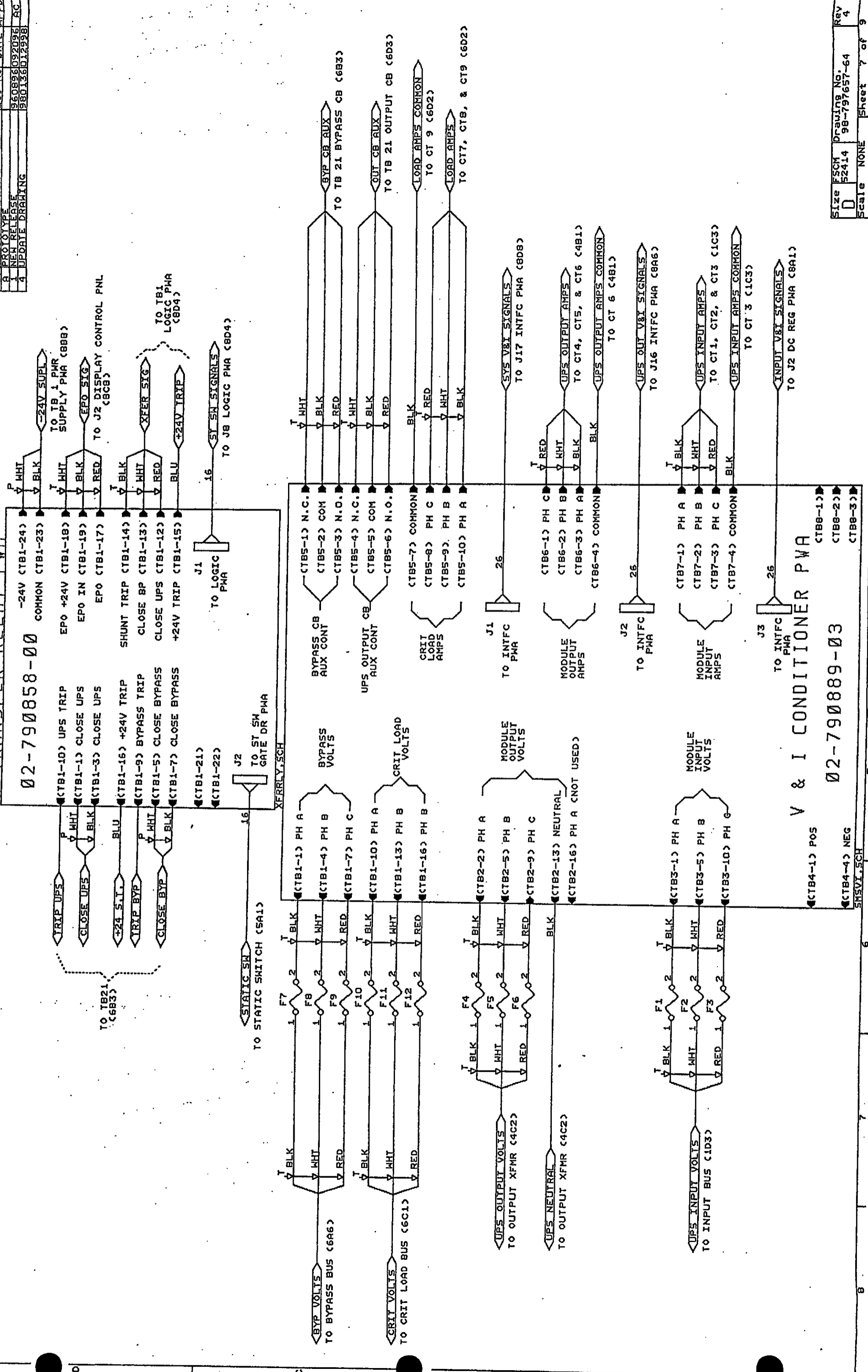
CUSTOMER BUS  
CRITICAL  
LOAD  
480/277V,  
3 PHASE,  
4 WIRE,  
60 HZ  
(602A)

CUSTOMER BUS  
BYPASS  
INPUT  
480/277V,  
3 PHASE,  
4 WIRE,  
60 HZ

# TRANSFER RELAY PWA

Ø2-790858-00

REV	DESCRIPTION	ECO NO	DATE	APPD
1	PROTOTYPE			
2	NEW RELEASE	960826	092096	AC
3	UPDATE DRAWING	980136	012998	



# V & I CONDITIONER PWA

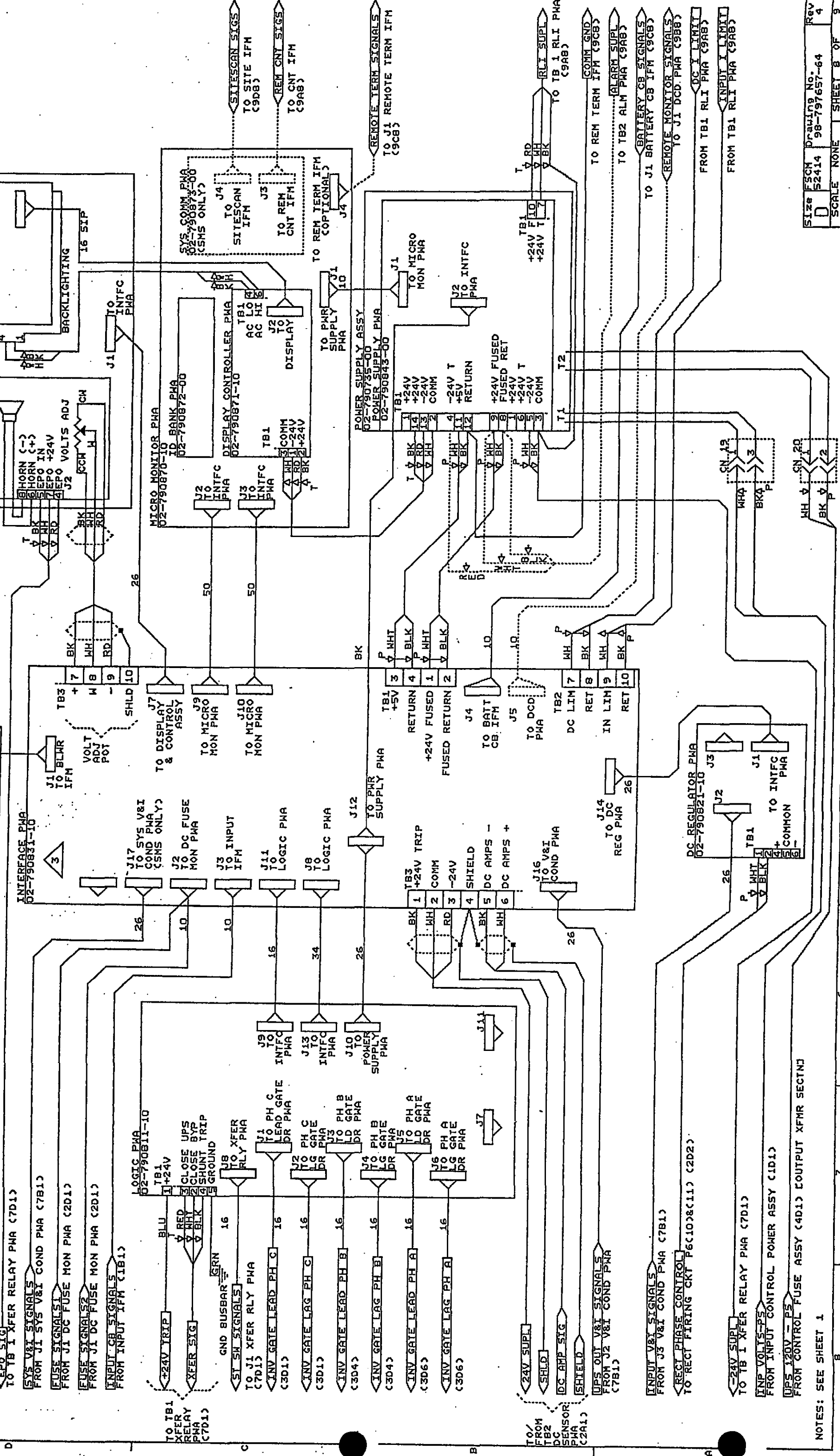
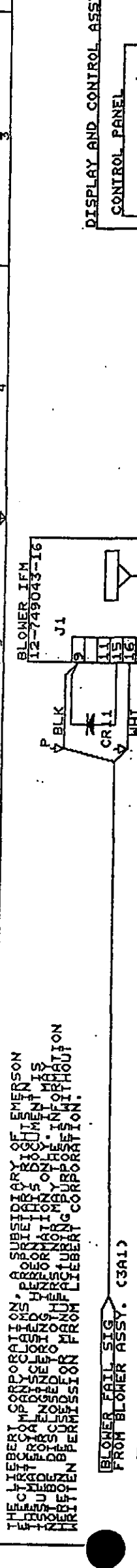
Ø2-790889-03

REV	DESCRIPTION	ECO NO	DATE	APPD
1	PROTOTYPE			
2	NEW RELEASE	960826	092096	AC
3	UPDATE DRAWING	980136	012998	

Size	FSCM	Drawing No.	Rev
D	52414	98-797657-64	4
Scale	NONE	Sheet	7 of 9

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REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	920892	092096	AC
2	DATE RELEASE	371363	092697	AC
3	REV DRAWING	971537	110797	AC
4	REV DRAWING	980136	012998	

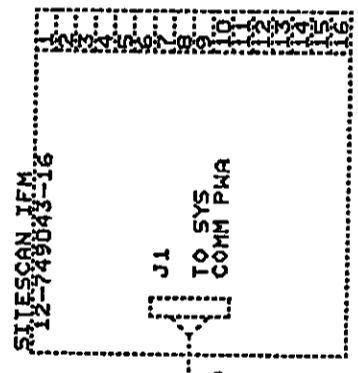




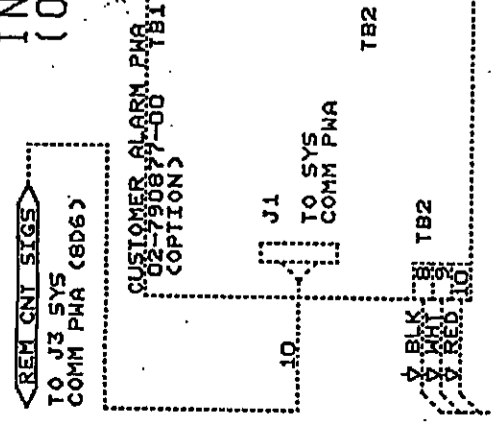
# EXTERNAL CONNECTIONS

SITESCAN/  
SITEMASTER  
INTERFACE  
(OPTION)

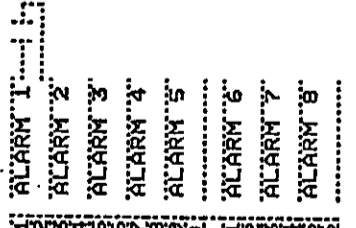
T+R+ SMS  
T-R- SMS



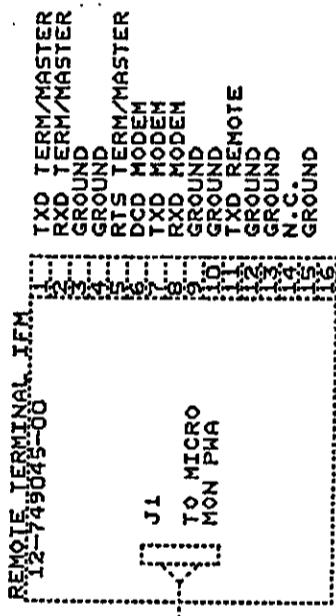
CUSTOMER  
ALARMS  
INTERFACE  
(OPTION)



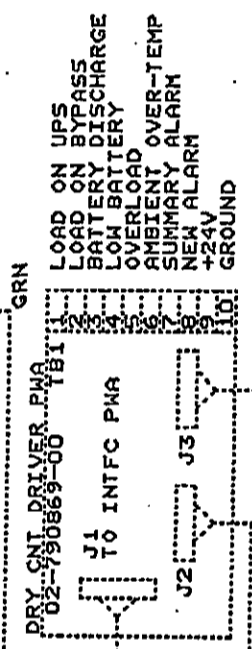
CUST SUPPLIED  
DRY CONTACTS  
(TYP)



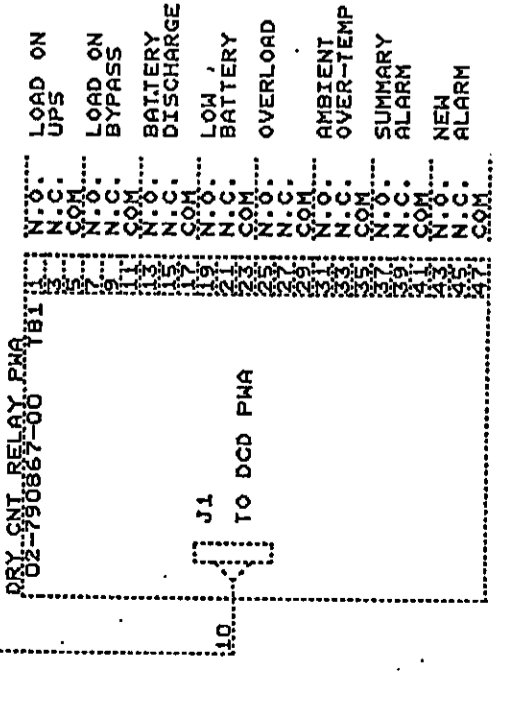
REMOTE TERMINAL  
INTERFACE  
(OPTION)



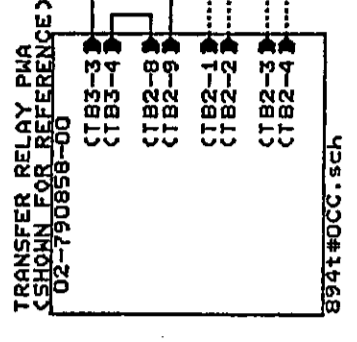
REMOTE MONITOR  
INTERFACE  
(OPTION)



REMOTE  
DRY CONTACTS  
INTERFACE  
(OPTION)



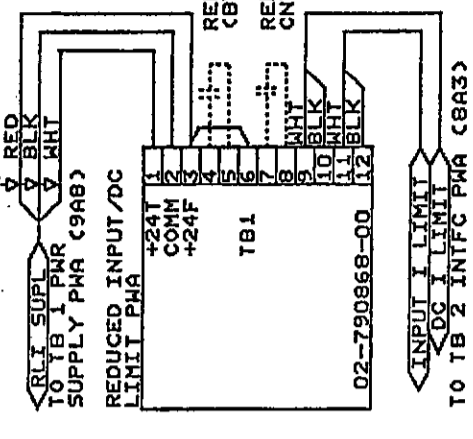
REMOTE EMERGENCY  
OFF



REMOTE XFER  
TO BYPASS  
SHUTDOWN SM.  
(C BY CUST)

REMOTE TOTAL  
SHUTDOWN SM.  
(C BY CUST)

REDUCED I LIMIT



JUMPER SELECT CHART

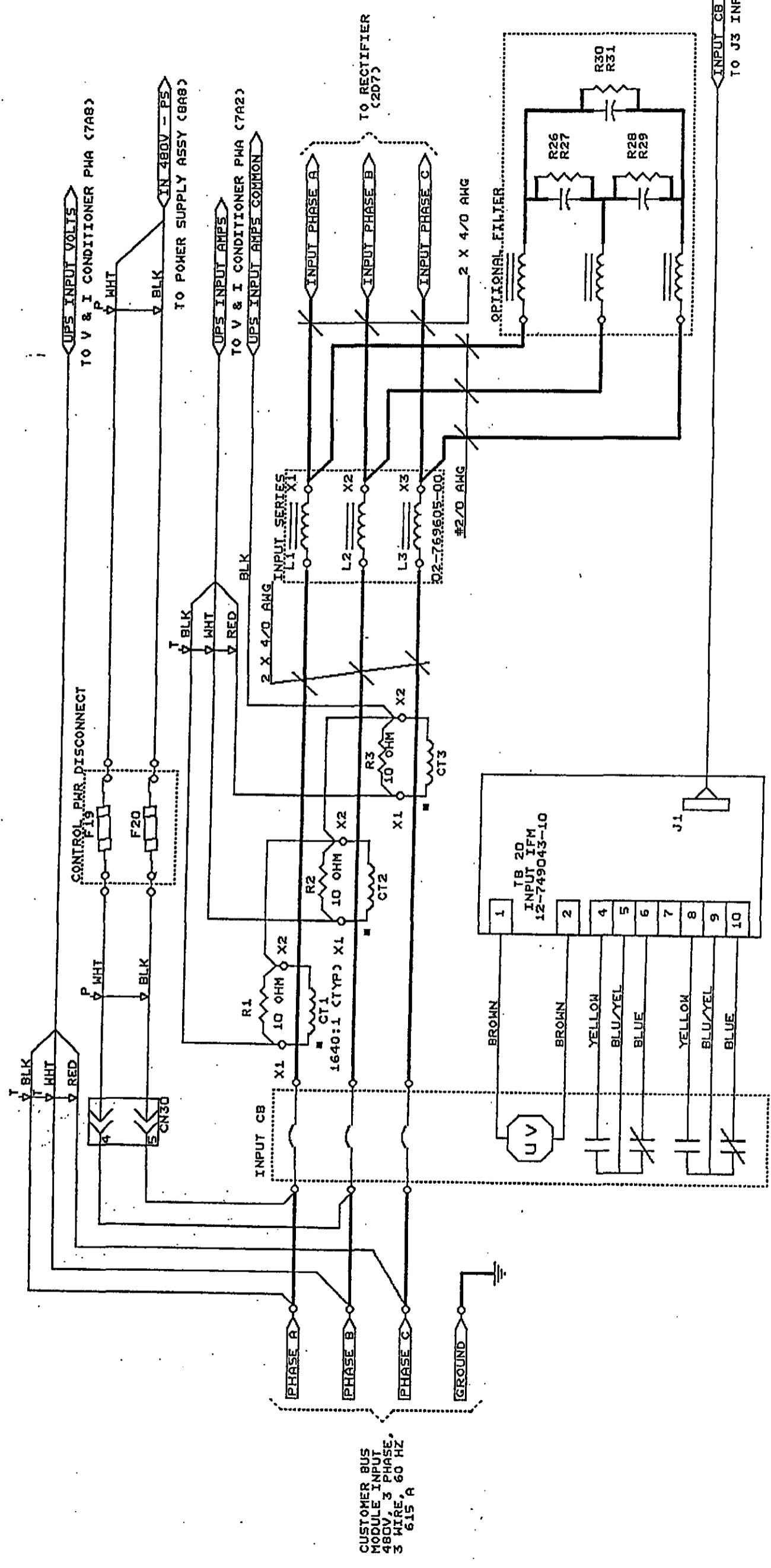
PMA	FUNCTION	HEADER OR JUMPER	PINS TO BE CONNECTED
INTERFACE	SYSTEM SEL	HI-6	2-3
LOGIC BD			

REV	DESCRIPTION	ECO NO	DATE	APPD
A	PROTOTYPE			
1	NEH RELEASE	960896	092096	AC
3	REV DRAWING	971537	110797	AC
4	REV JUMPER SELECT CHART	980356	012998	



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REV	DESCRIPTION	ECO NO	DATE	APP
1	PROTOTYPE			
2	NEW RELEASE	960926	092096	AC
3	REV SHI 1-8	961308	011497	AC
4	REV SHI 2	971123	041697	AC
5	REV SHI 6.8	971165	080497	AC
6	REV SHI 1.2.3.4.5.6.9.971653		100597	



ADD JUMPER WHEN USING LX9 AUX. CONTACT.

- NUMBERS IN PARENTHESIS AFTER DESTINATIONS INDICATE (PAGE AND ZONE).
- CONNECT GROUND WIRES TO GROUND BUS, SHT 6, ZN C-1.
- CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.
- ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WHT. UNLESS OTHERWISE SPECIFIED.
- SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT 9).
- ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.
- ALL CONTROL WIRE TO BE #20 AWG, MIN 600V.

REVISION STATUS OF SHEETS				
SHT 1	1	1	1	1
SHT 2	1	2	3	4
SHT 3	1	2	3	5
SHT 4	1	2	3	5
SHT 5	1	2	3	5
SHT 6	1	2	3	4
SHT 7	1	2	3	4
SHT 8	1	2	3	4
SHT 9	1	1	1	5

CONTRACT NO. **AP600**

DRAIN AJ 041896

CHECK AJ 021896

DES APPD AJ 091896

PROJ APPD AJ 52414

APPROVED AJ 091896

Title **LIEBERT**

SCHEMATIC/WIRING DIAGRAM

480V IN, 480/277V OUT, 60 HZ

6581

FSCM Drawing No. 98-797658-64

Size 0

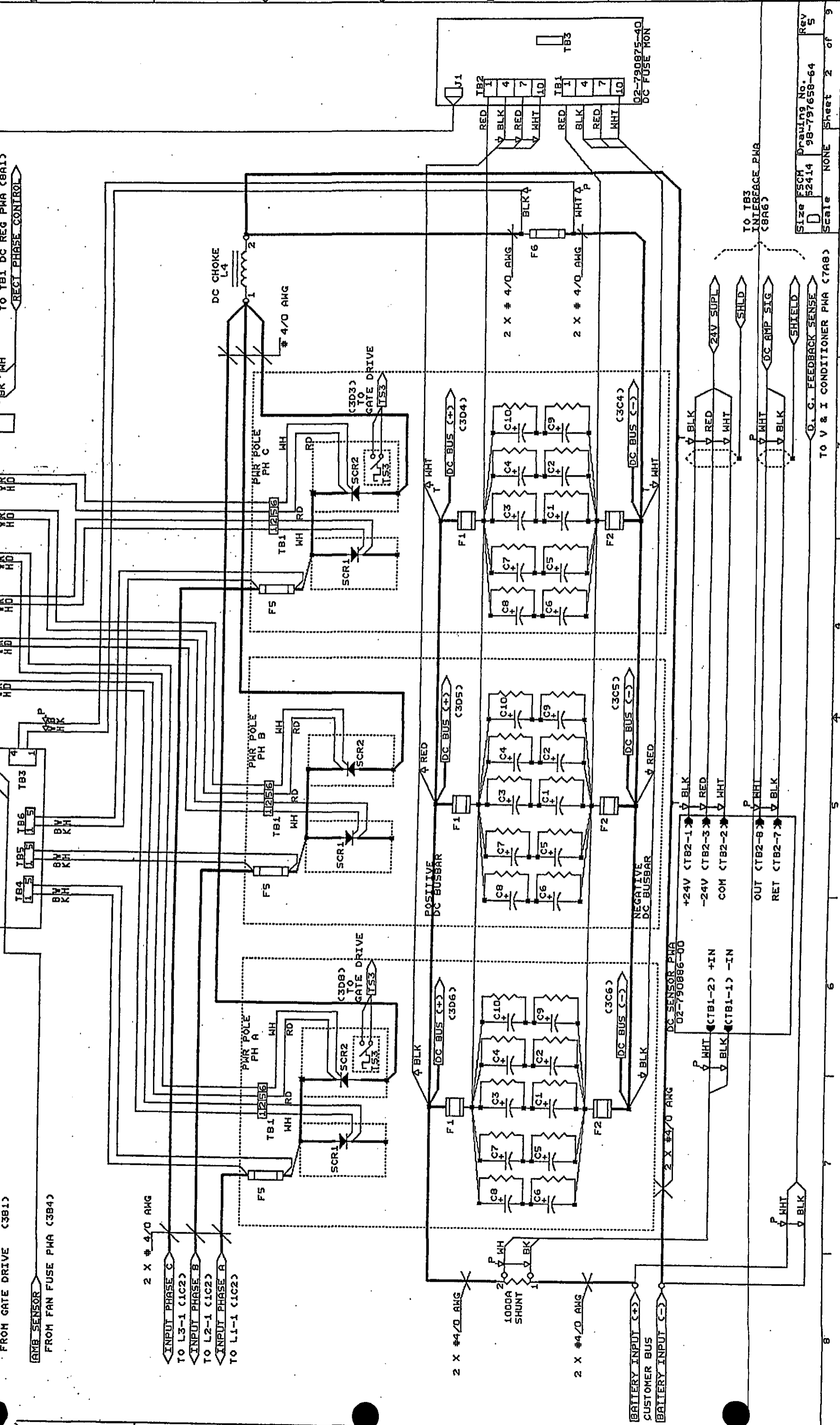
Scale NONE

Sheet 1 of 9

REV	DESCRIPTION	ECO NO	DATE	APPD
A	PROTOTYPE			
1	NEW RELEASE	930826	092026	AC
2	CHANGE RECT. FIRING PMA	961308	011497	AC
3	CHANGE F1-F10 FOR F1-F2	971123	080997	AC
5	UPDATE DRAWING	971653	100597	

REV	DESCRIPTION	ECO NO	DATE	APPD
A	PROTOTYPE			
1	NEW RELEASE	930826	092026	AC
2	CHANGE RECT. FIRING PMA	961308	011497	AC
3	CHANGE F1-F10 FOR F1-F2	971123	080997	AC
5	UPDATE DRAWING	971653	100597	

REV	DESCRIPTION	ECO NO	DATE	APPD
A	PROTOTYPE			
1	NEW RELEASE	930826	092026	AC
2	CHANGE RECT. FIRING PMA	961308	011497	AC
3	CHANGE F1-F10 FOR F1-F2	971123	080997	AC
5	UPDATE DRAWING	971653	100597	



TO INTERFACE PMA (808)  
 FUSE SIGNAL  
 FAULT  
 FROM GATE DRIVE (3B1)  
 FROM FAN FUSE PMA (3B4)  
 AMBI SENSOR  
 TO L3-1 (1C2)  
 TO L2-1 (1C2)  
 TO L1-1 (1C2)

TO TB1 DC REG PMA (8A1)  
 RECT PHASE CONTROL

DC CHOKE L4  
 # 4/0 AWG  
 PAR POLE PH C  
 PAR POLE PH B  
 PAR POLE PH A  
 TO L3-1 (1C2)  
 TO L2-1 (1C2)  
 TO L1-1 (1C2)

DC BUS (+) (C3D4)  
 DC BUS (-) (C3C4)  
 DC BUS (+) (C3D5)  
 DC BUS (-) (C3C5)  
 DC BUS (+) (C3D6)  
 DC BUS (-) (C3C6)

2 X #4/0 AWG  
 1000A SHUNT  
 2 X #4/0 AWG  
 BATTERY INPUT (+)  
 CUSTOMER BUS  
 BATTERY INPUT (-)

DC SENSOR PMA (C3D6)  
 DC FUSE MON (C3D4)  
 TO TB3 INTERFACE PMA (8A6)

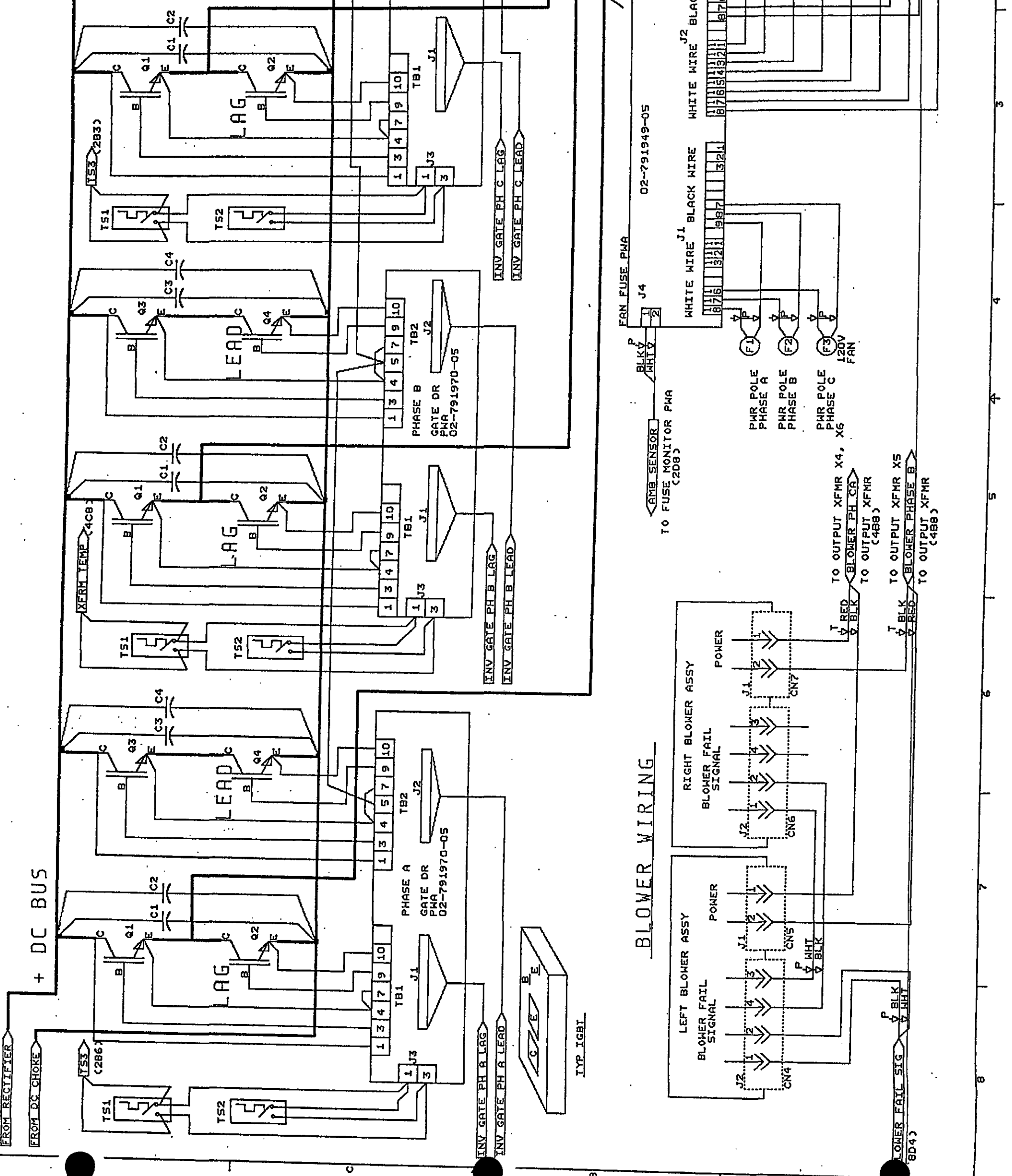
TO V & I CONDITIONER PMA (7A8)  
 D. C. FEEDBACK SENSE  
 SHIELD  
 DC AMP SIG  
 SHIELD  
 24V SUPL  
 SHLD

TO TB3 INTERFACE PMA (8A6)  
 24V SUPL  
 SHLD  
 DC AMP SIG  
 SHIELD

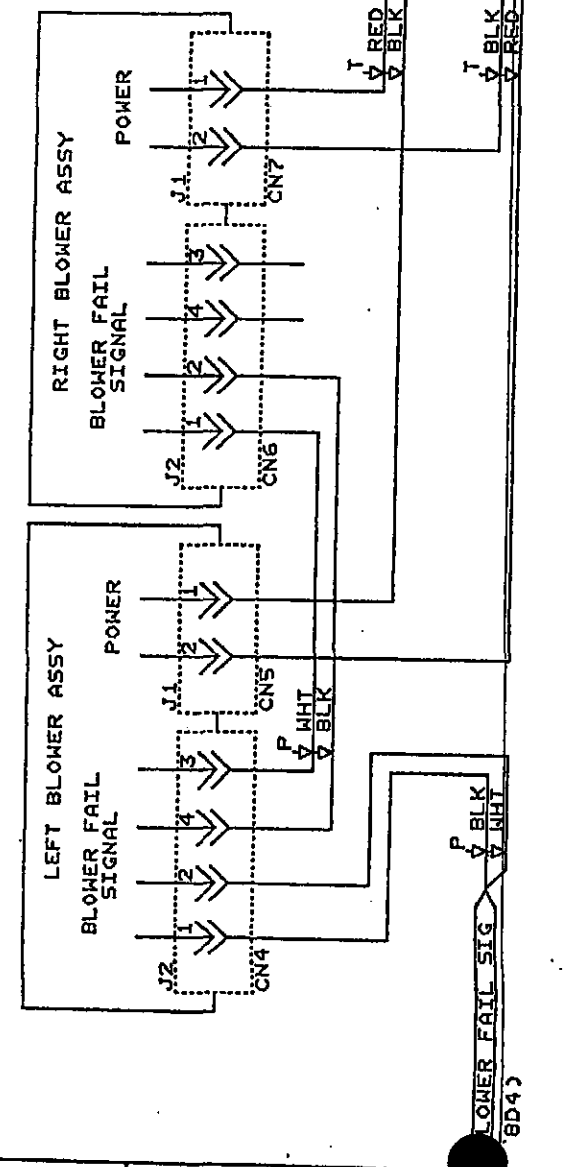
TO TB3 INTERFACE PMA (8A6)  
 24V SUPL  
 SHLD  
 DC AMP SIG  
 SHIELD

TO TB3 INTERFACE PMA (8A6)  
 24V SUPL  
 SHLD  
 DC AMP SIG  
 SHIELD

REV	DESCRIPTION	ECC NO	DATE	APPD
1	PROTOTYPE			
2	NEE RELEASE	960896092096	AC	
3	ADD 15 WIRE, REV FAN FUSE	961308011497	AC	
4	ADD SERIES IND P/N	971653100597		

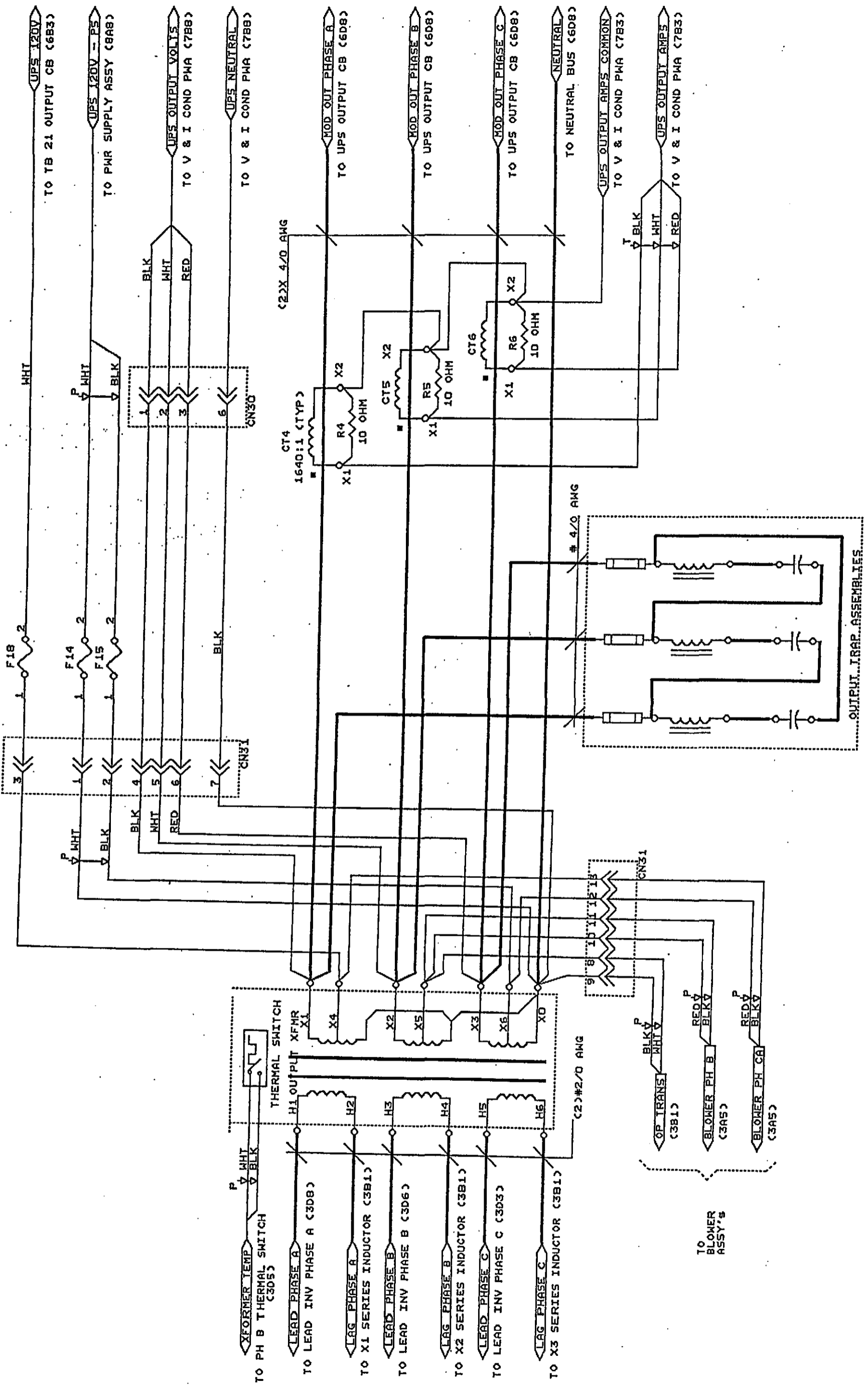


**BLOWER WIRING**



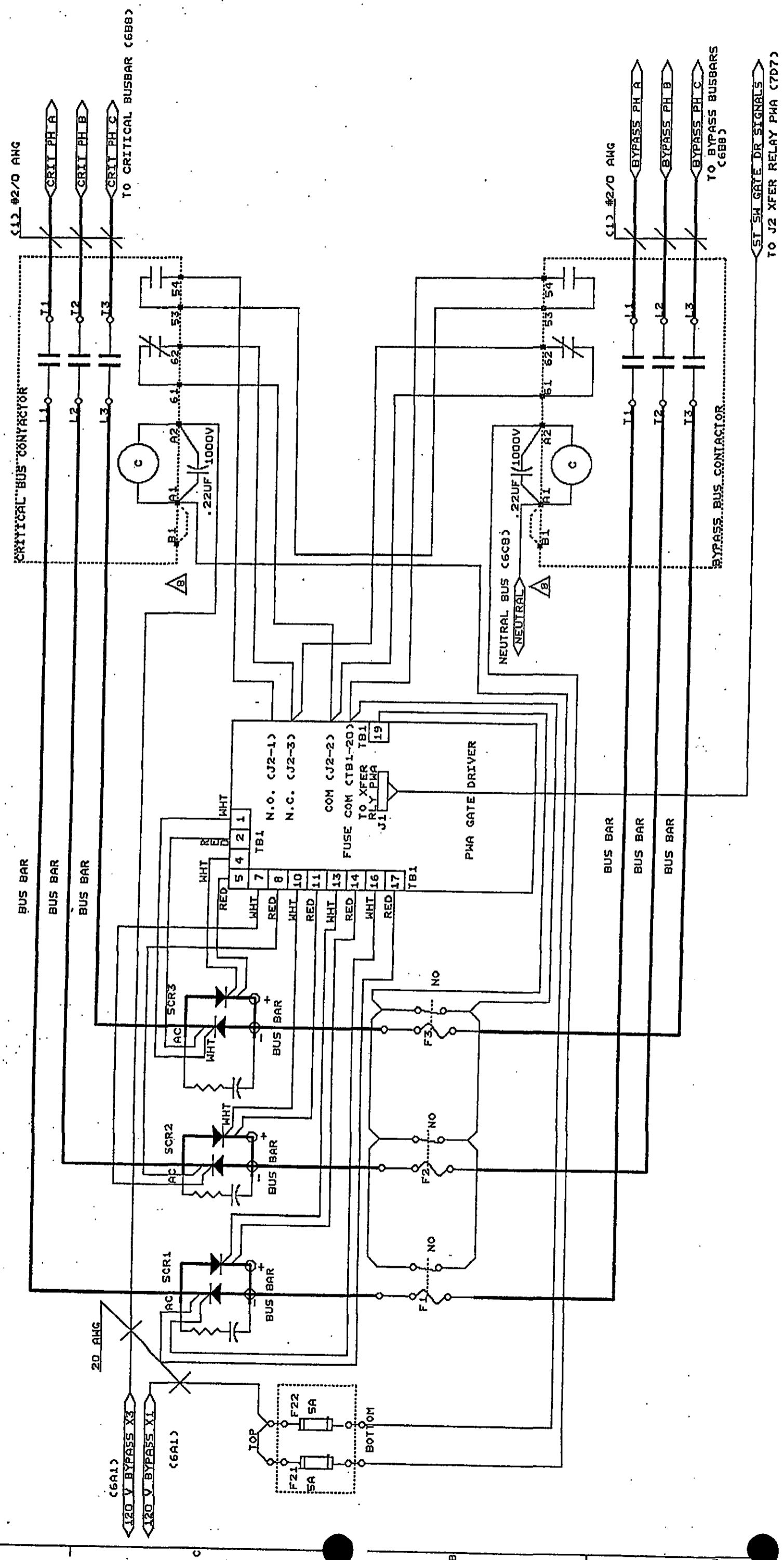
SIZE	FSCM	DRAWING No	REV
0	52414	98-797658-64	5
SCALE	NONE		

REV	DESCRIPTION	ECO NO	DATE	APPD
1	PROTOTYPE			
2	NEW RELEASE	960825	02/20/96	PC
3	ADD CN31	961308	01/14/97	AC
5	CHANGE R4-R6 VALUE	971653	10/05/97	



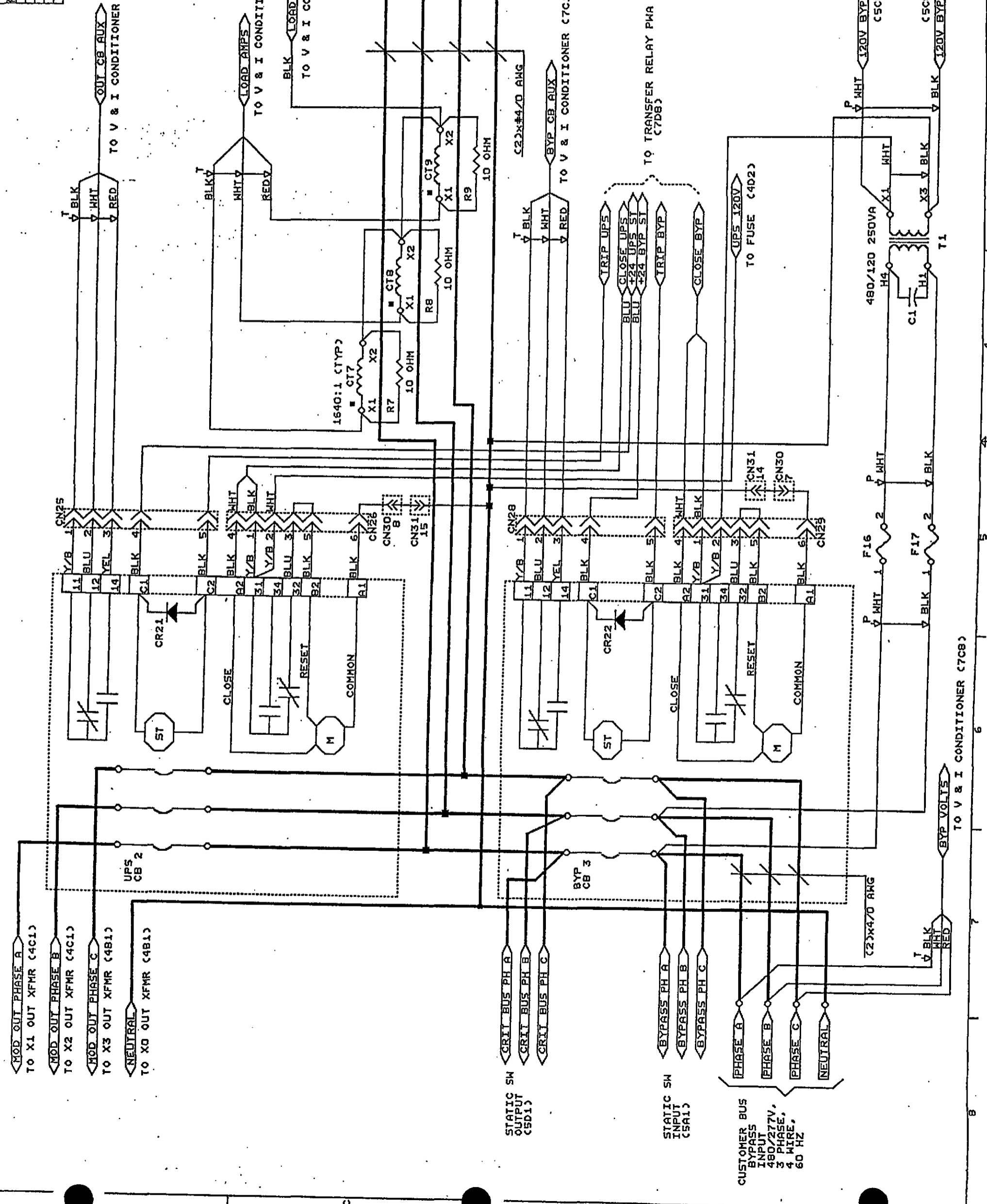
REV	DESCRIPTION	ECO NO	DATE	APPD
1	PROTOTYPE			
2	NEW RELEASE	960896	092096	AC
3	ADD NOTE B	961308	011497	AC
4	REVISE DRAWING	971653	100597	

# STATIC SWITCH CONTACTOR ASSY



Size	FSCM	Drawing No.	98-797658-64	Rev	5
Scale	NONE	Sheet	5 of 9		

REV	DESCRIPTION	ECO NO	DATE	APPD
A	PROTOTYPE			
1	NEW RELEASE	960896	092096	AC
2	ADD NOTE ON CRIT BUS	961308	011497	AC
4	REVISE C1 VALUE	971165	080497	AC
5	CHANGE R7-R9 VALUE	971165	100597	



CUSTOMER BUS  
CRITICAL  
LOAD  
(OUTPUT)  
480/277V,  
3 PHASE,  
4 WIRE,  
60 HZ  
(602A)

CUSTOMER BUS  
BYPASS  
INPUT  
480/277V,  
3 PHASE,  
4 WIRE,  
60 HZ

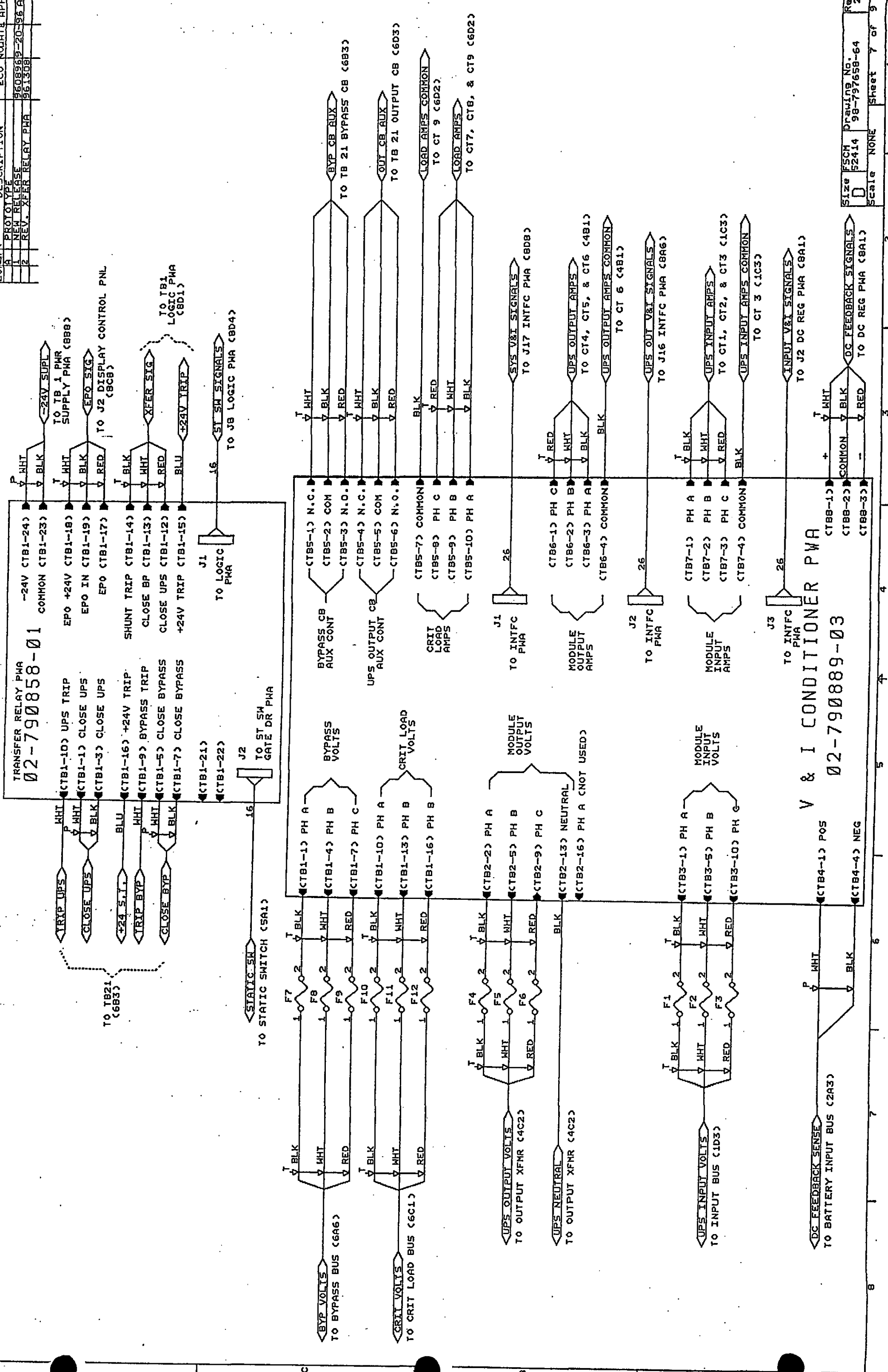
STATIC  
OUTPUT  
(CR22)

STATIC  
INPUT  
(CR21)

Size	F5CH	Drawing No.	98-797658-64	Rev	5
SCALE	NONE	SHEET	6	OF	9

ZONE	REVISIONS	DESCRIPTION	ECO NO	DATE	APPROV
A	1	PROTOTYPE			
B	1	NEW RELEASE	960896	9-20-96	AC
C	2	REV. XFER RELAY PWA	961308		

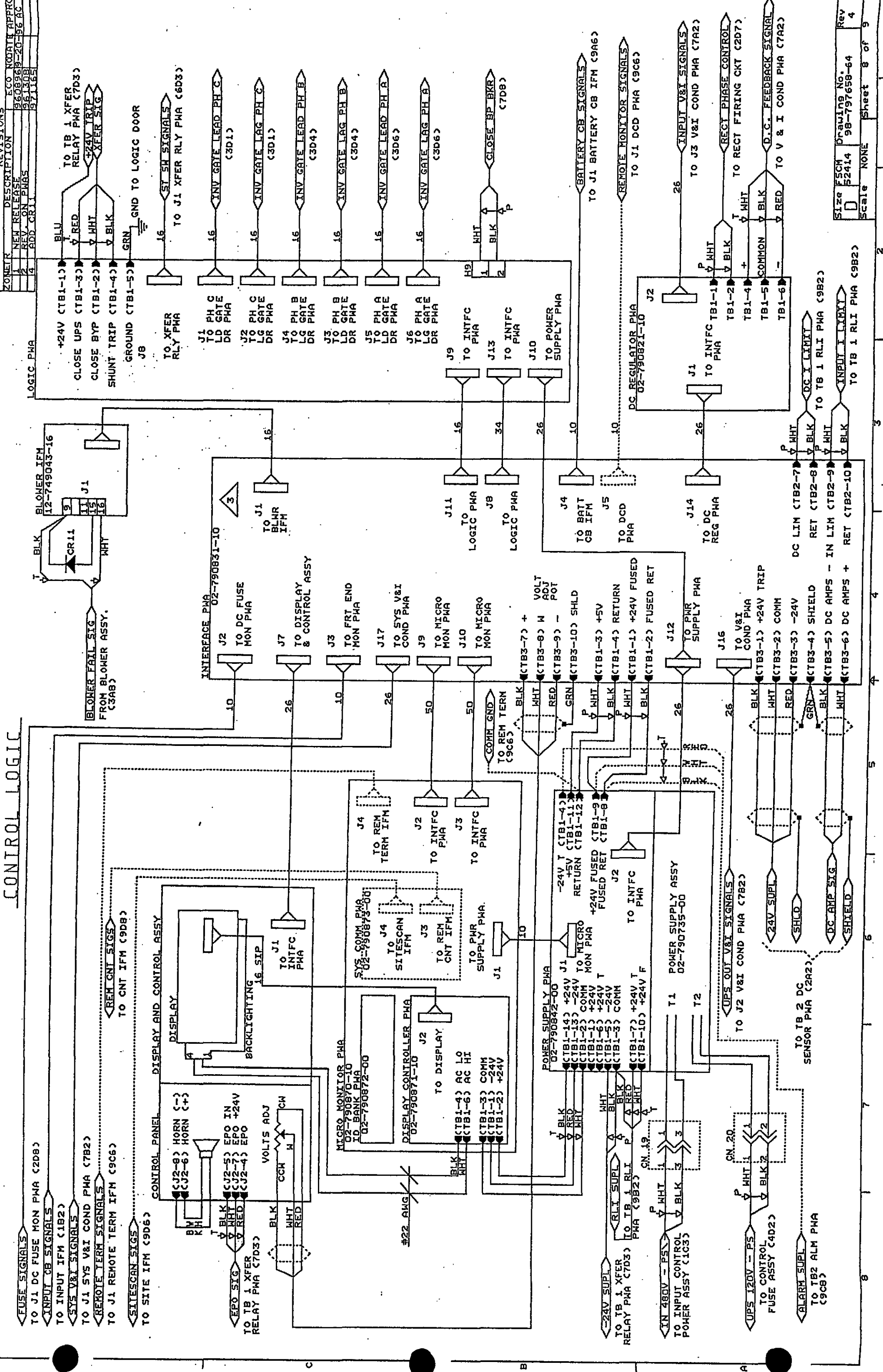
TRANSFER RELAY PWA  
02-790858-01



V & I CONDITIONER PWA  
02-790889-03

Size	D	FSCM	52414	Drawing No.	98-797658-64	Rev	2
Scale	NONE	Sheet		7 of 9			

# CONTROL LOGIC



REV	DESCRIPTION	DATE	BY
1	NEW RELEASE	960896	9-20-96 AC
2	REV ON PMS	961308	
3	ADD CR11	971165	

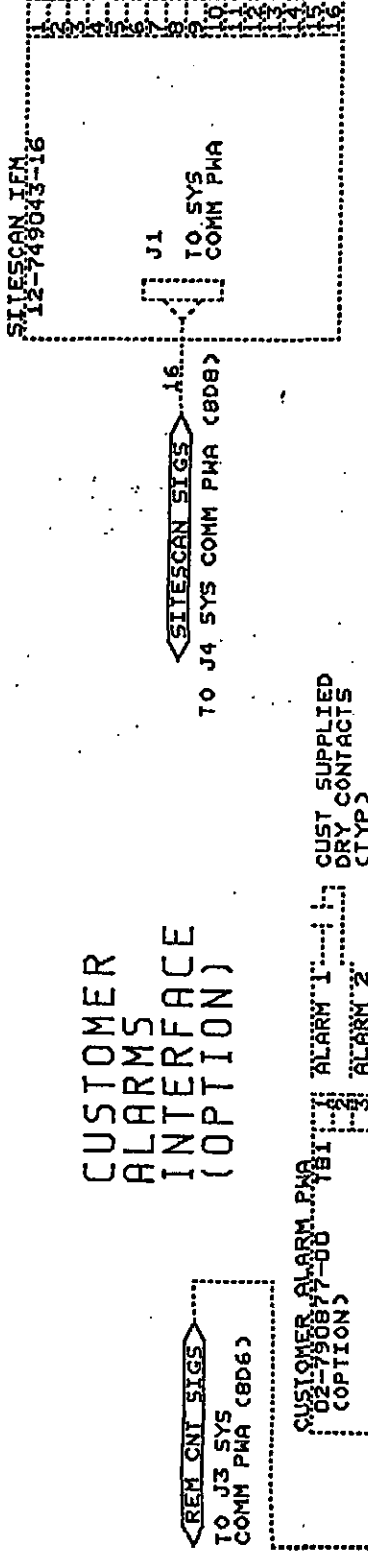
ZONE/REV	DESCRIPTION	DATE	BY
1	NEW RELEASE	960896	9-20-96 AC
2	REV ON PMS	961308	
3	ADD CR11	971165	

Size	FSCM	Drawing No.	Rev
D	52414	98-797658-64	4
Scale	NONE	Sheet	8 of 9

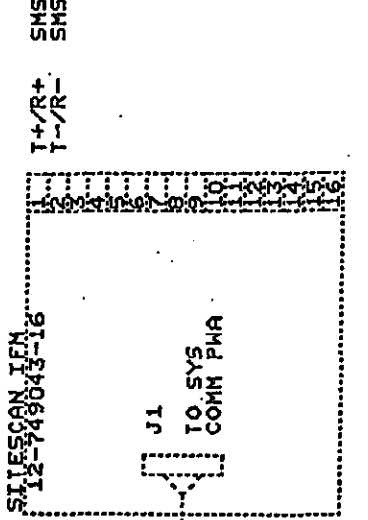


EXTERNAL CONNECTIONS

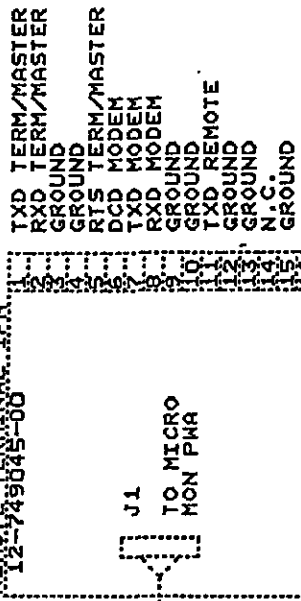
CUSTOMER ALARMS INTERFACE (OPTION)



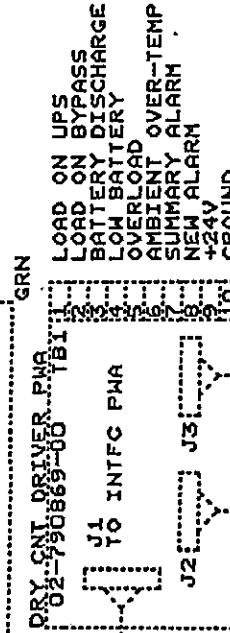
SITESCAN/ SYSTEM INTERFACE (OPTION)



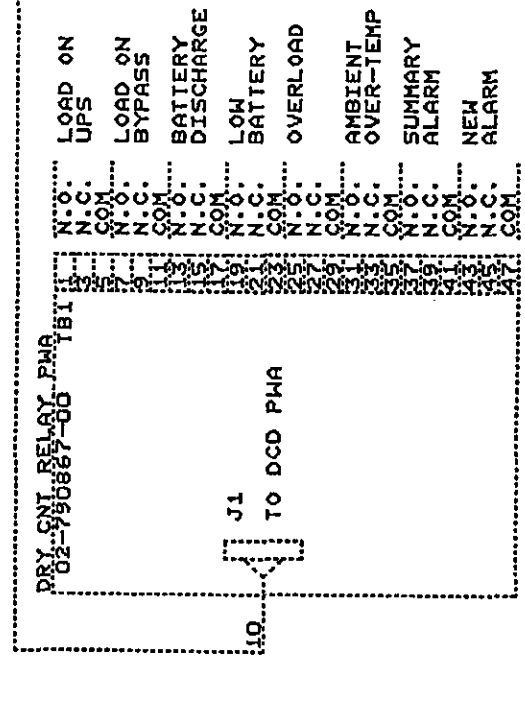
REMOTE TERMINAL INTERFACE (OPTION)



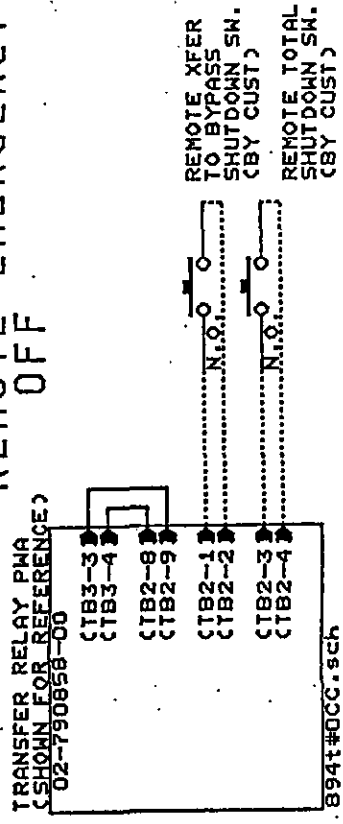
REMOTE MONITOR INTERFACE (OPTION)



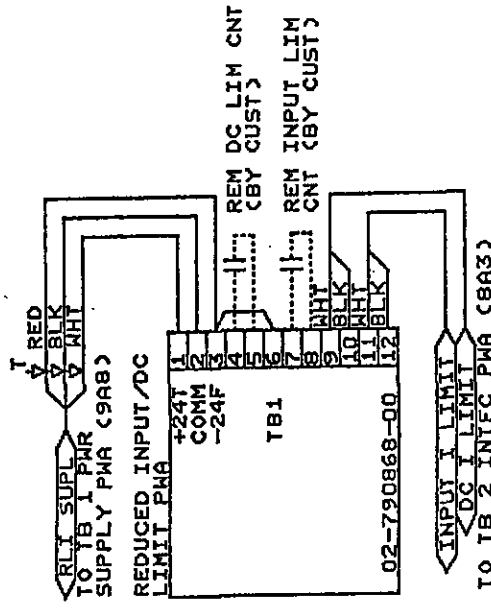
REMOTE DRY CONTACTS INTERFACE (OPTION)



REMOTE EMERGENCY OFF



REDUCED I LIMIT

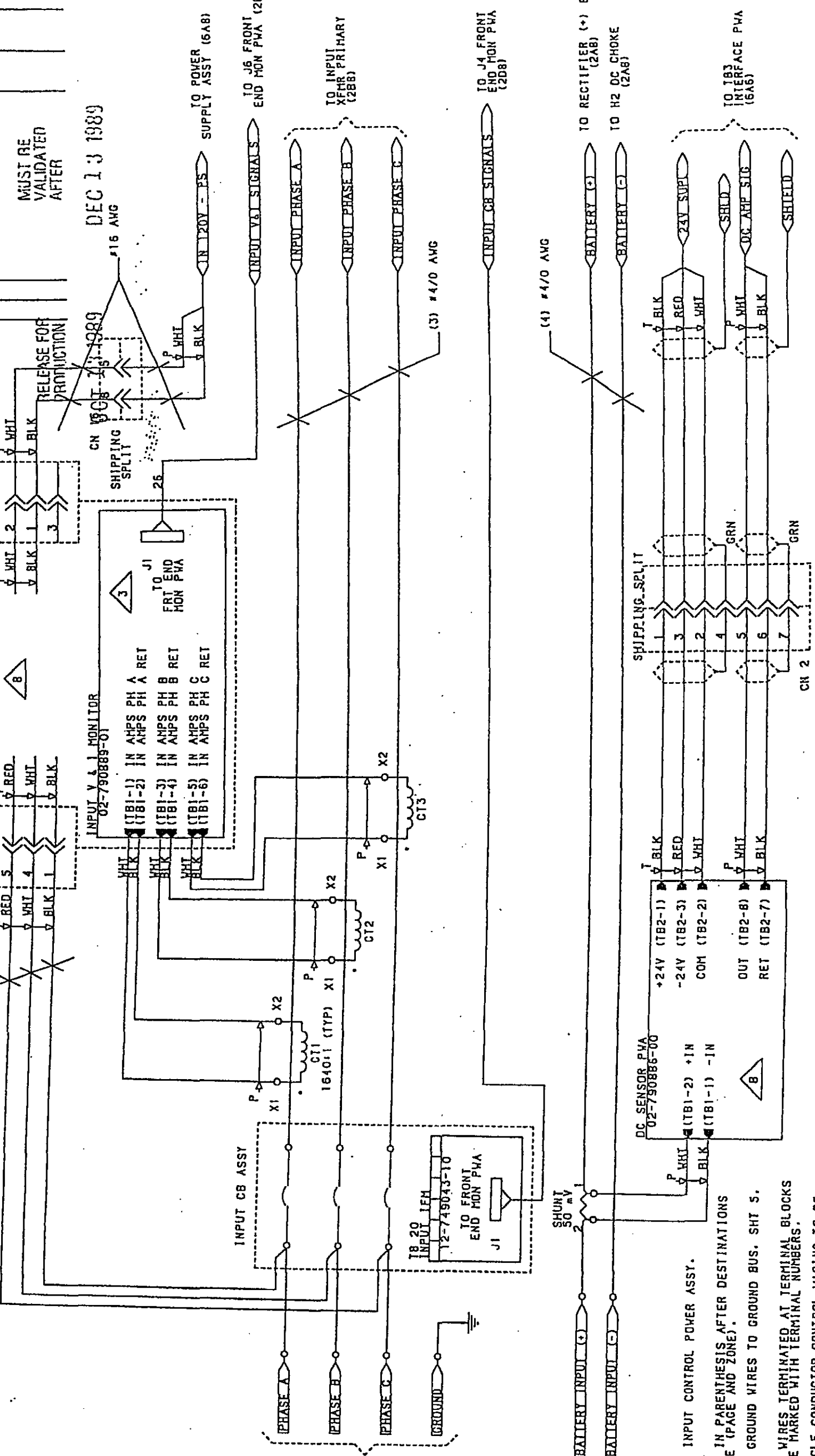


JUMPER SELECT CHART

PMA	FUNCTION	HEADER OR JUMPER	PINS TO BE CONNECTED
INTERFACE	SYSTEM SEL	H1-6	2-3
SS SCR MON	VOLTAGE SEL	H1-6	2-4

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INPUT WIRING



REVISION STATUS OF SHEETS

NO.	DATE	BY	REASON
1			
2			
3			
4			
5			
6			
7			
8			

- 8. PART OF INPUT CONTROL POWER ASSY.
- 7. NUMBERS IN PARENTHESIS AFTER DESTINATIONS INDICATE (PAGE AND ZONE).
- 6. CONNECT GROUND WIRES TO GROUND BUS. SHT 5, ZN 8-1.
- 5. CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.
- 4. ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WHT. UNLESS OTHERWISE SPECIFIED.
- 3. SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT 7).
- 2. ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.
- 1. ALL CONTROL WIRE TO BE #20 AVG. MIN 600V. NOTES: UNLESS OTHERWISE SPECIFIED

ZONE	NO.	DESCRIPTION	DATE	BY
A	1	NEW RELEASE	02/22/93	EA
A	2	REVISED SHT 5 & 7	02/22/93	EA

REVISIONS

DATE: DEC 13 1989

MUST RE VALIDATED AFTER

TO POWER SUPPLY ASSY (6A8)

TO J6 FRONT END MON PWA (208)

TO INPUT XFMR PRIMARY (288)

TO J4 FRONT END MON PWA (208)

TO RECTIFIER (+) BUS (2A8)

TO H2 DC CHOKE (2A8)

TO TB3 INTERFACE PWA (6A6)

CONTACT NO. UPS

EMERSON INDUSTRIAL CONTROLS

TITLE: SCHEMATIC WIRING DIAGRAM

AP669 MMH

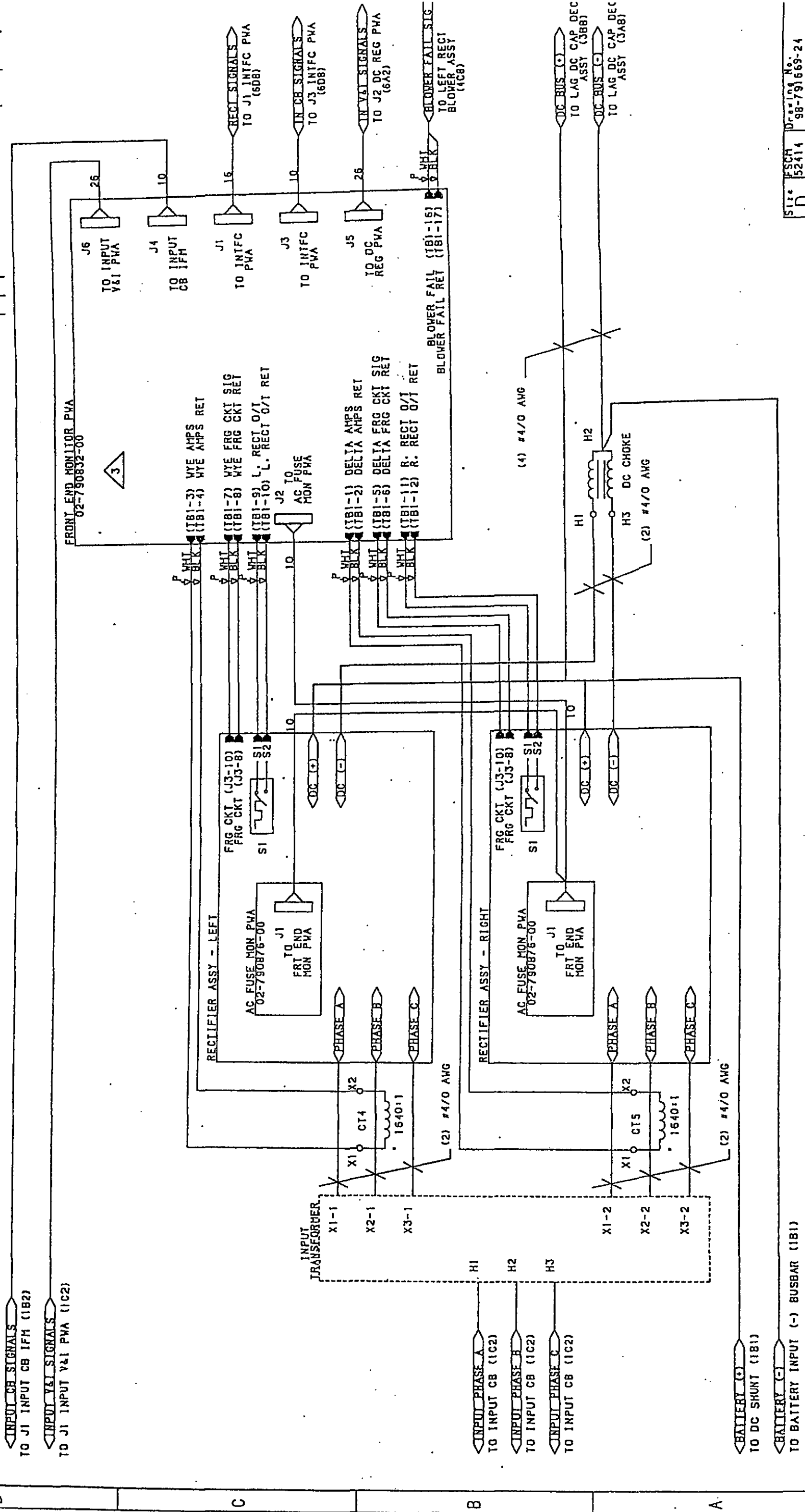
480V IN, 480/277V OUT, 60 HZ

Scale: NONE

Sheet 1 of 2

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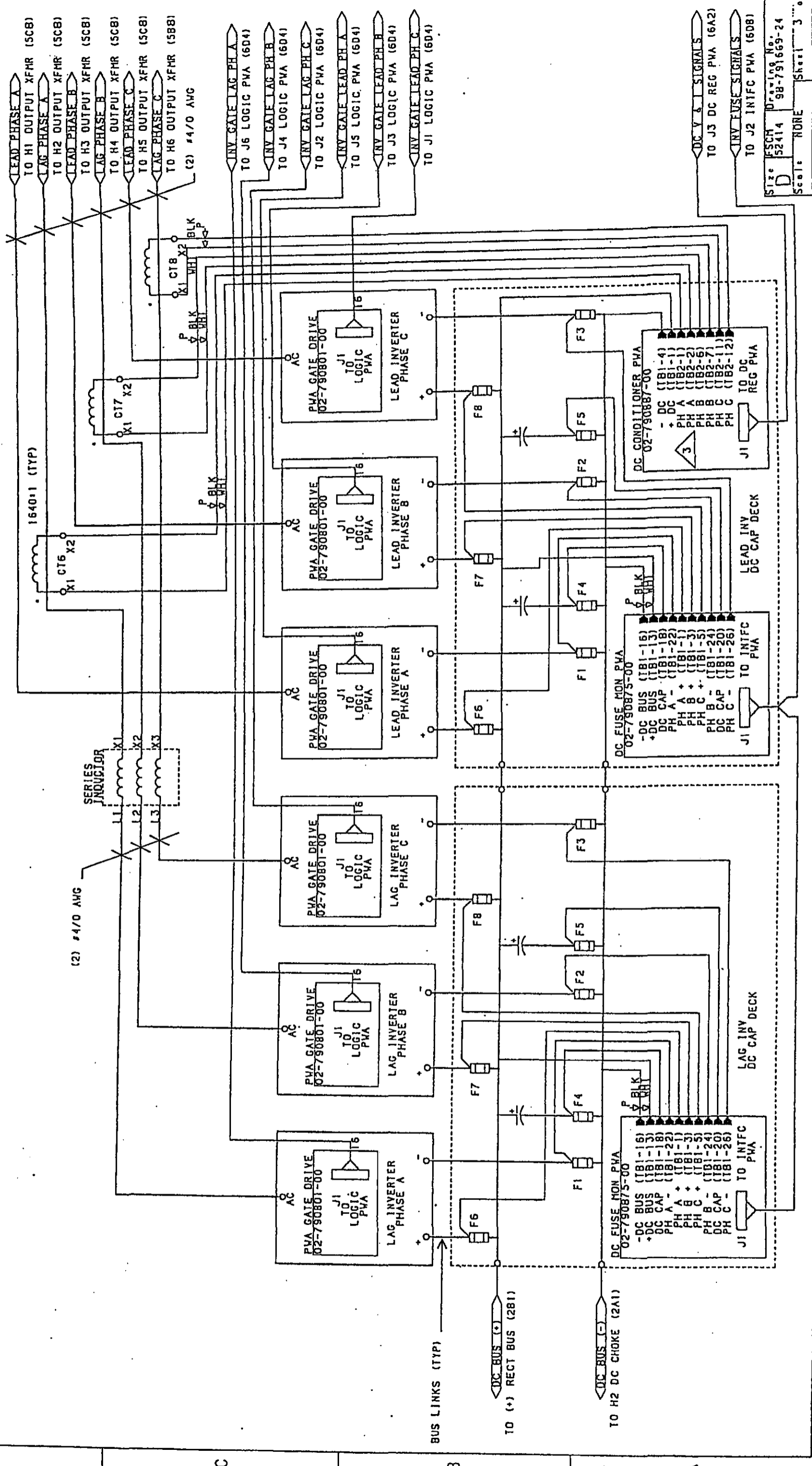
# RECTIFIER WIRING



8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

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THE AIR FORCE CONTRACTS DIVISION OF  
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CONTRACT DIVISION OF ENGINEER ELECTRIC CO.

# INVERTER WIRING



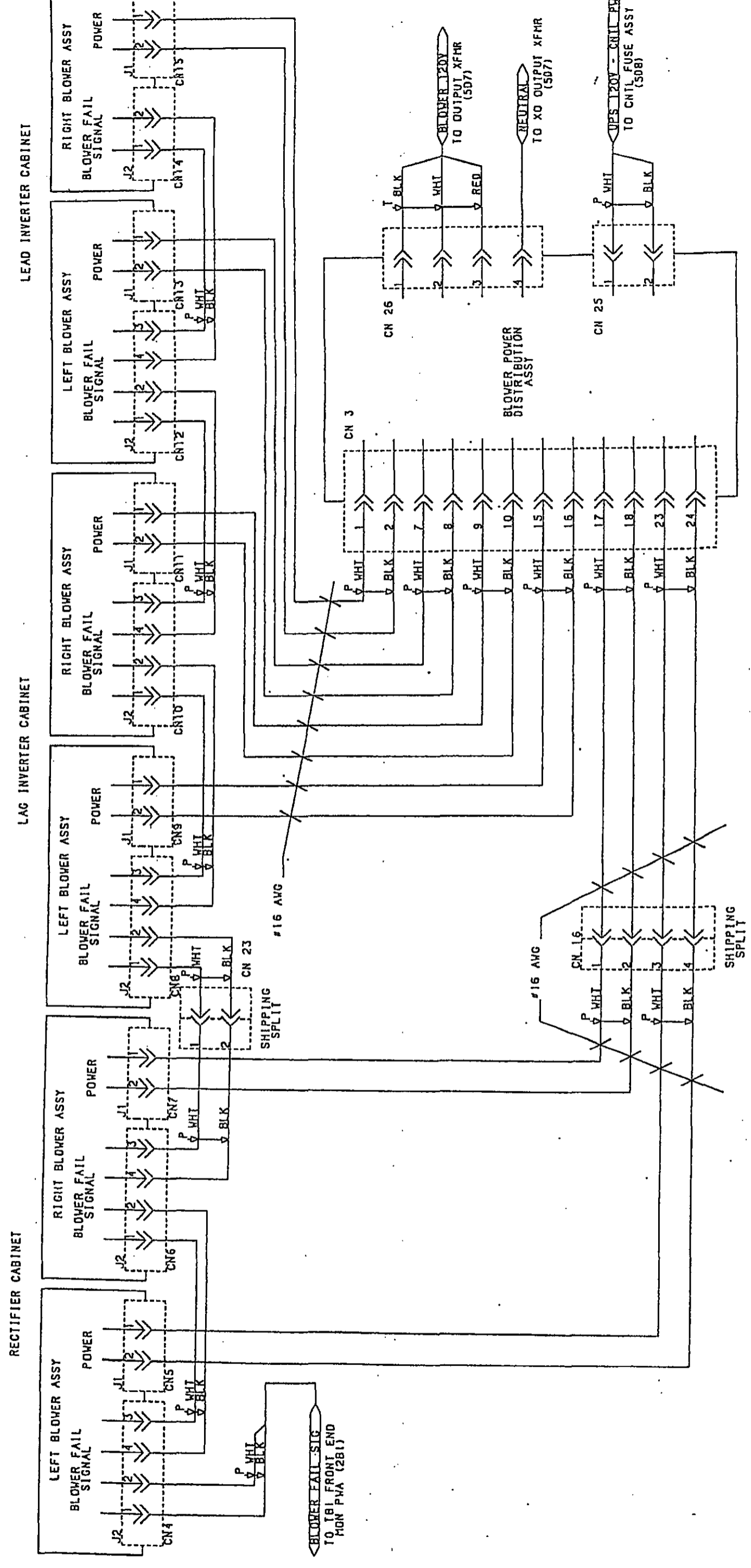
EDM	APP	RC	REV	RELEASE	DESCRIPTION	ECO NO.	DATE	APPROB
					REV RELEASE	225273	11-22-59	EA

Size: JFSCH  
Drawing No.: 98-791669-24  
Scale: NONE  
Sheet 3 of 3

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 CONTROL DIVISION OF GENERAL ELECTRIC CO.

ZONE	REV	DESCRIPTION	ED BY	DATE
		NEW RELEASE		

# BLOWER WIRING

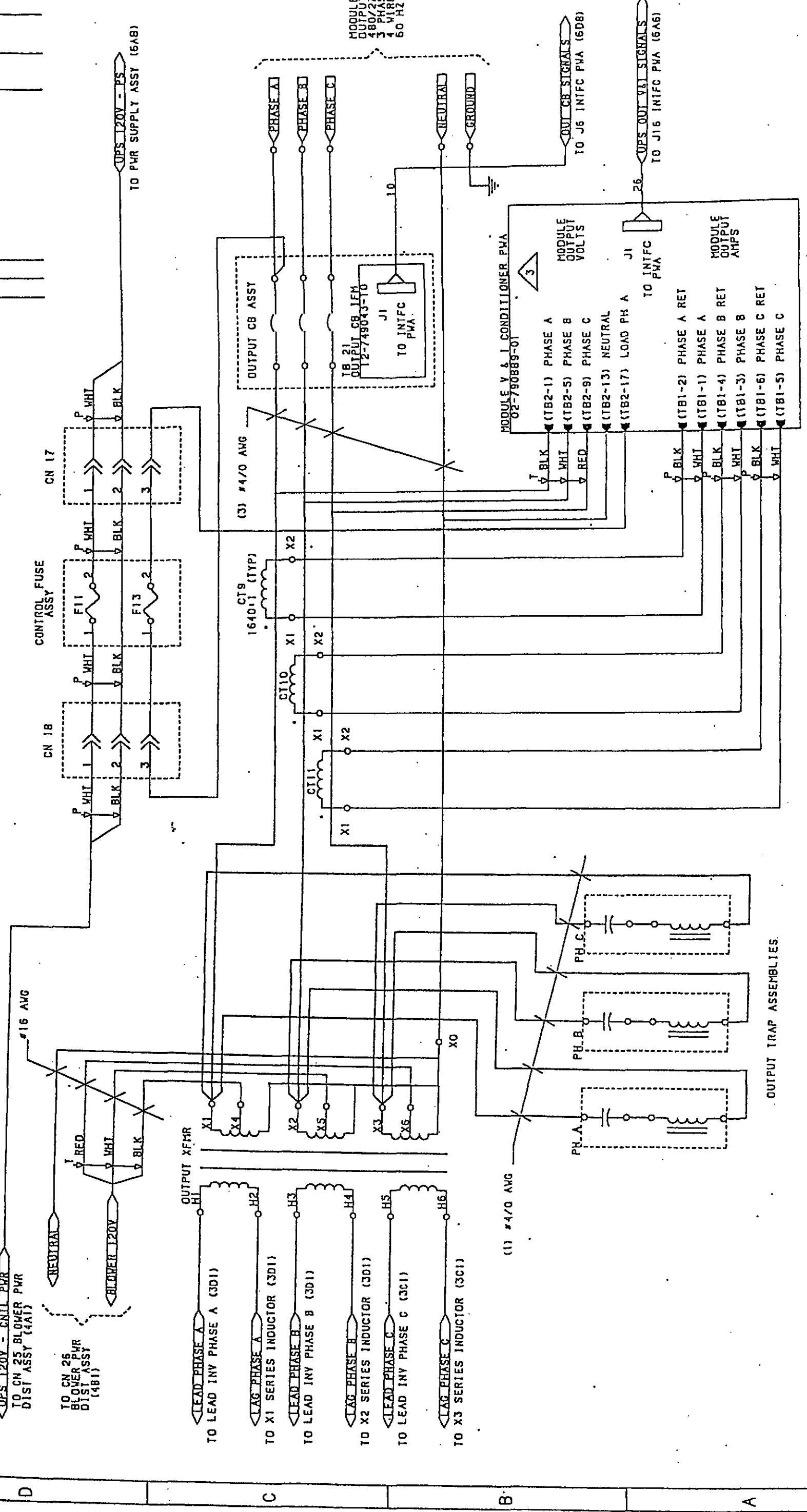


Size	ESCH	Drawing No.	
	52414	98-79169-24	
Scale	NONE	Sheet	4 of 7

THE ENGINEERING DIVISION OF THE WESTINGHOUSE ELECTRIC CORPORATION HAS REVIEWED THIS DRAWING AND HAS FOUND IT TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND THE NATIONAL FIRE ALARM AND SIGNAL CODE. IT IS HEREBY PERMITTED TO BE USED FOR THE PURPOSES INTENDED BY THE DRAWING. THE ENGINEERING DIVISION OF WESTINGHOUSE ELECTRIC CO.

# MODULE OUTPUT WIRING

REV. NO.	DATE	BY
1	11/17/69	WJZ
2	1/17/70	WJZ
3	1/17/70	WJZ
4	1/17/70	WJZ
5	1/17/70	WJZ
6	1/17/70	WJZ
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8	1/17/70	WJZ
9	1/17/70	WJZ
10	1/17/70	WJZ
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48	1/17/70	WJZ
49	1/17/70	WJZ
50	1/17/70	WJZ



MODULE OUTPUT  
 280/277V  
 3 PHASE  
 4 WIRE  
 60 HZ

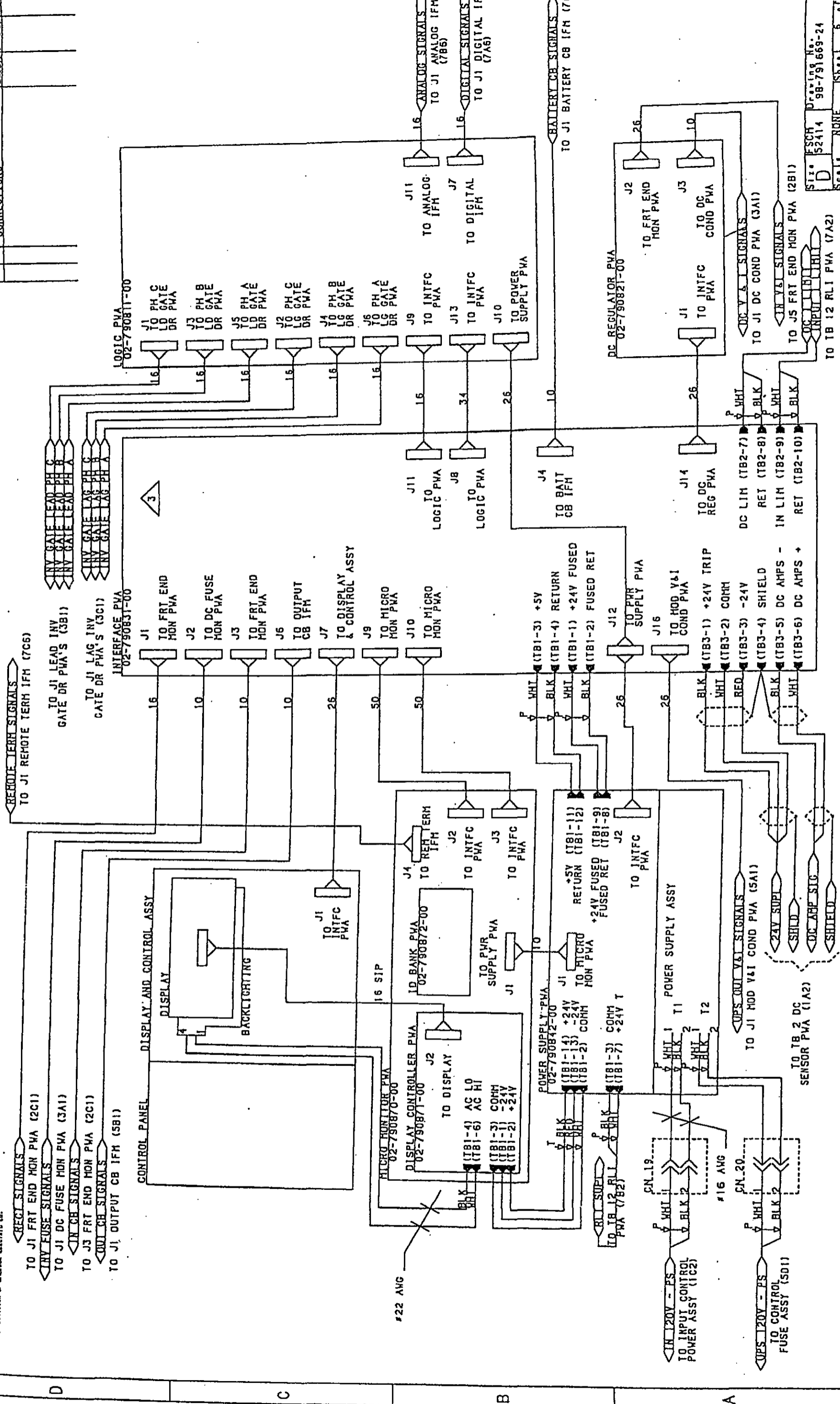
Size	ESCH 52414	Drawing No.	98-791669-24
Scale	NONE	Sheet	5 of 7

1	2	3	4	5	6	7	8
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# CONTROL LOGIC

CONTRACT NO.	REVISION	DATE	BY
625272	REVISED PWR SUPPL CONNECTIONS	10-2-81	EA
	REVISED PWR SUPPL		
	CONNECTIONS		



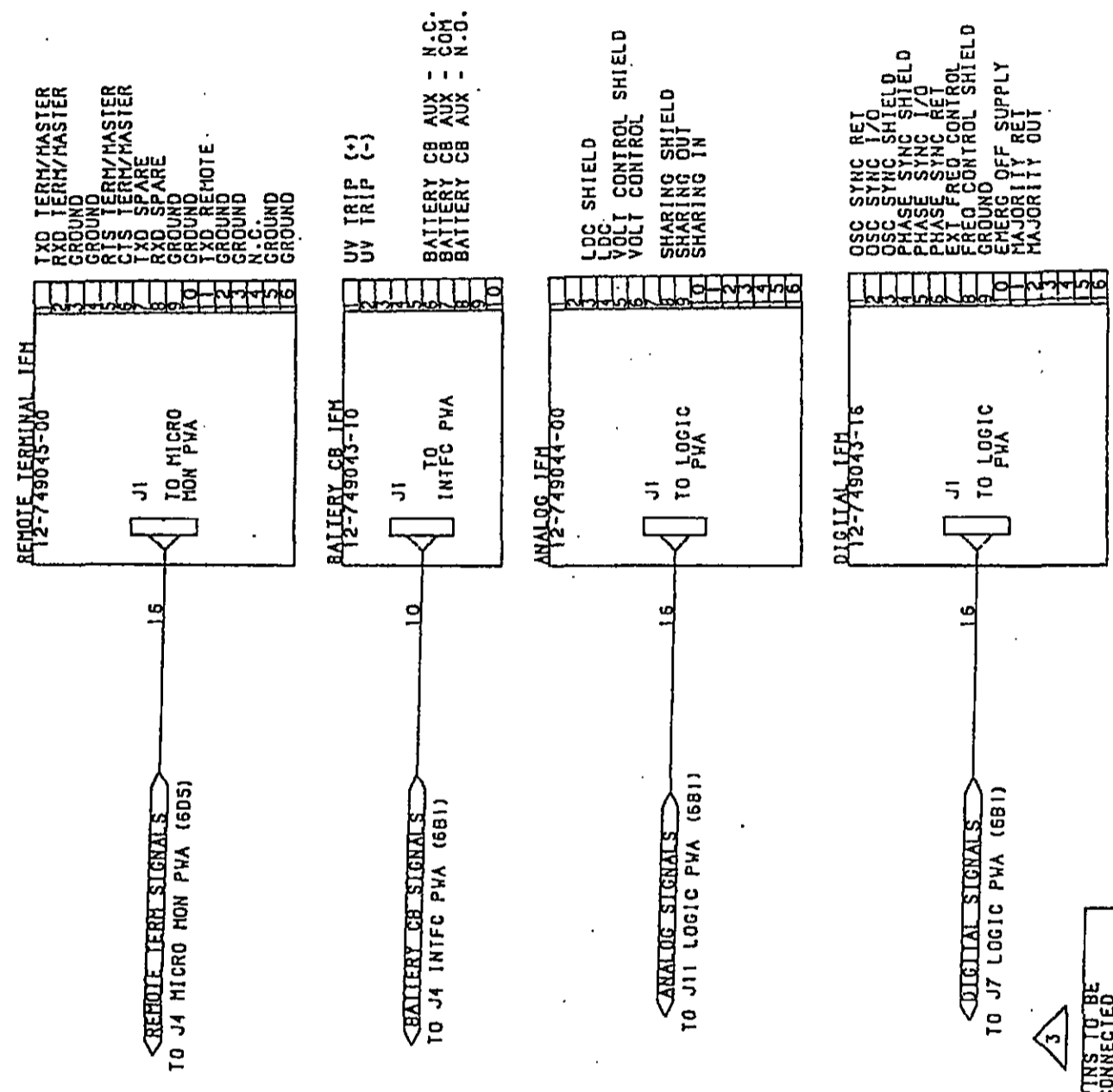
Size: ESCH 52414  
 Drawing No. 98-791669-24  
 Scale: NONE  
 Sheet 6 of 7

1	2	3	4	5	6	7	8
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DATE	REV	DESCRIPTION	REVISIONS
12-17-82	A	REVISED RL CONNS	
12-17-82	NC	NEW RELEASE	
12-17-82	NC	NEW RELEASE	
12-17-82	NC	NEW RELEASE	
12-17-82	NC	NEW RELEASE	

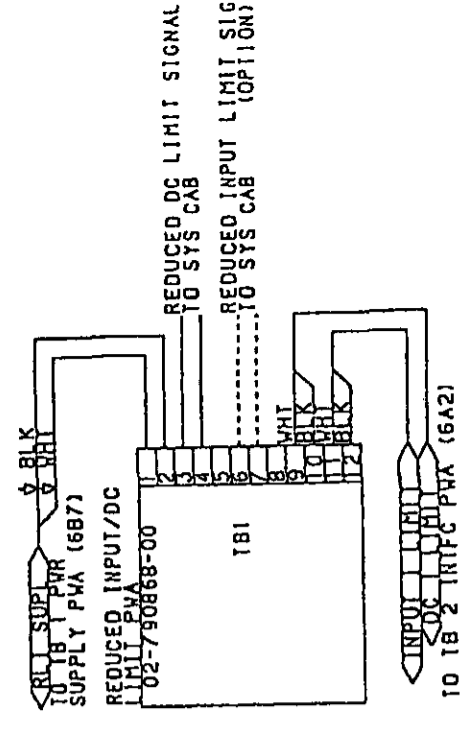
## EXTERNAL CONNECTIONS



## JUMPER SELECT CHART

PWA	FUNCTION	HEADER OR JUMPER	PINS TO BE CONNECTED
MOD INPUT V&T	VOLTAGE SEL	W1	1-10
MOD OUTPUT V&T	BURDEN SEL	W3-5	1-2, 9-10, 11-12
DC CONDITIONER	VOLTAGE SEL	W1	1-10
	BURDEN SEL	W3-5	1-2, 9-10, 11-12
FRONT END MOD	BURDEN SEL	J1, 4, 7	
INTERFACE	SYSTEM SEL	HT-2	3-4
		HT-6	1-2

## REDUCED I LIMIT



Size	FSCM	Drawing No.
D	52414	98-791669-24
Scale	NONE	Sheet 7 of



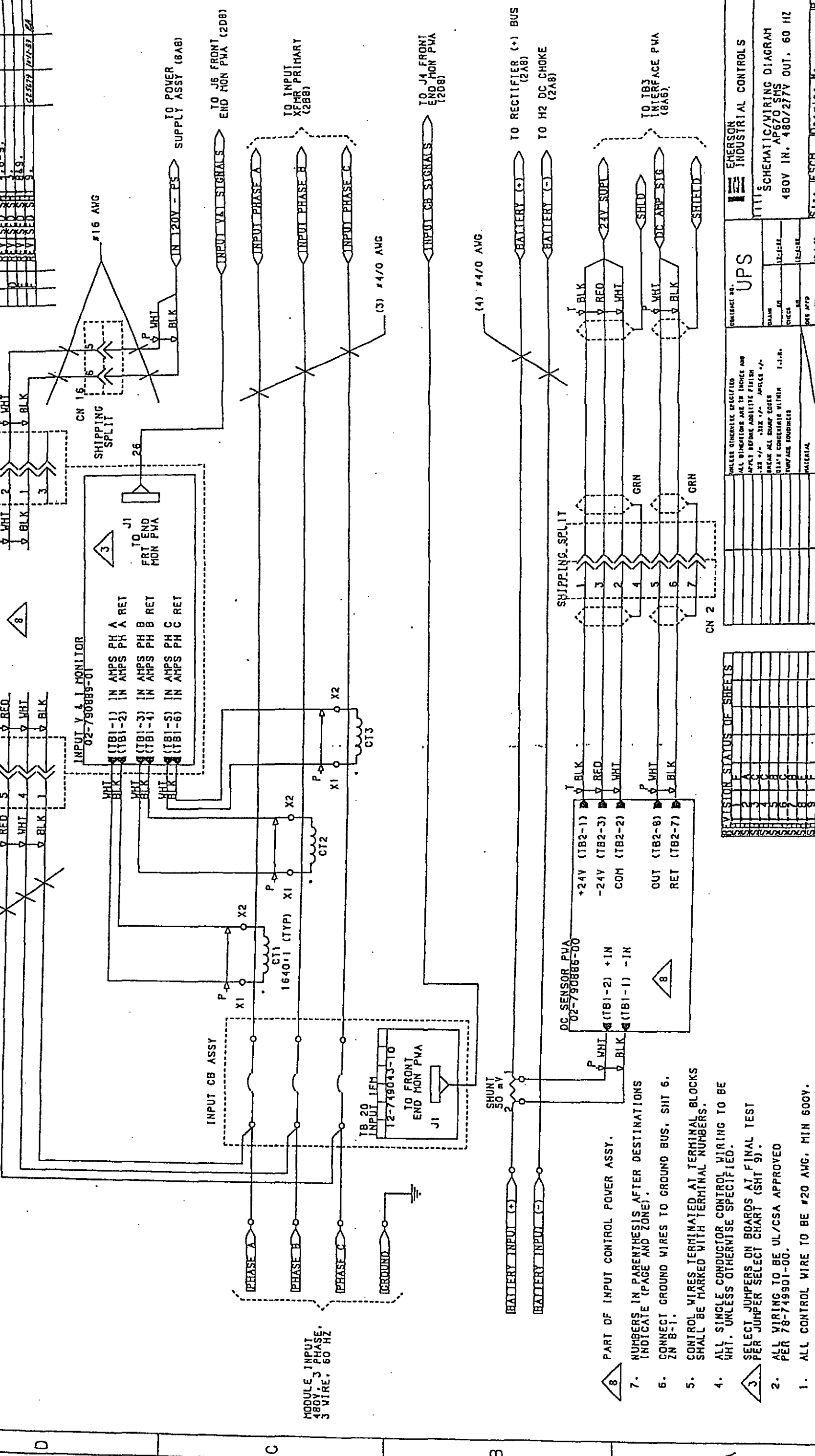
NO.	DESCRIPTION	REV. NO.	DATE	APPROVED
A	NEW RELEASE			
B	ADDED NOTE 8			
C	REVISED SHT 3-6, 8, 9			
D	CORRECTED CN 24 PINS			
E	RELABELLED COMMS			
F	REVISED SHT 1-8-9			
G	REVISED SHT 3			
H	REVISED SHT 8, 9			
I	REVISED SHT 9			

UNLESS OTHERWISE SPECIFIED  
ALL DIMENSIONS ARE IN INCHES AND  
APPLY UNLESS OTHERWISE SPECIFIED  
BREAK ALL SHARP EDGES  
DRAWN BY: [ ]  
CHECKED BY: [ ]  
DATE APPROVED: [ ]  
PART APPROVED: [ ]  
APPROVED: [ ]

REVISION STATUS OF SHEETS

NO.	DESCRIPTION	DATE
1		
2		
3		
4		
5		
6		
7		
8		
9		

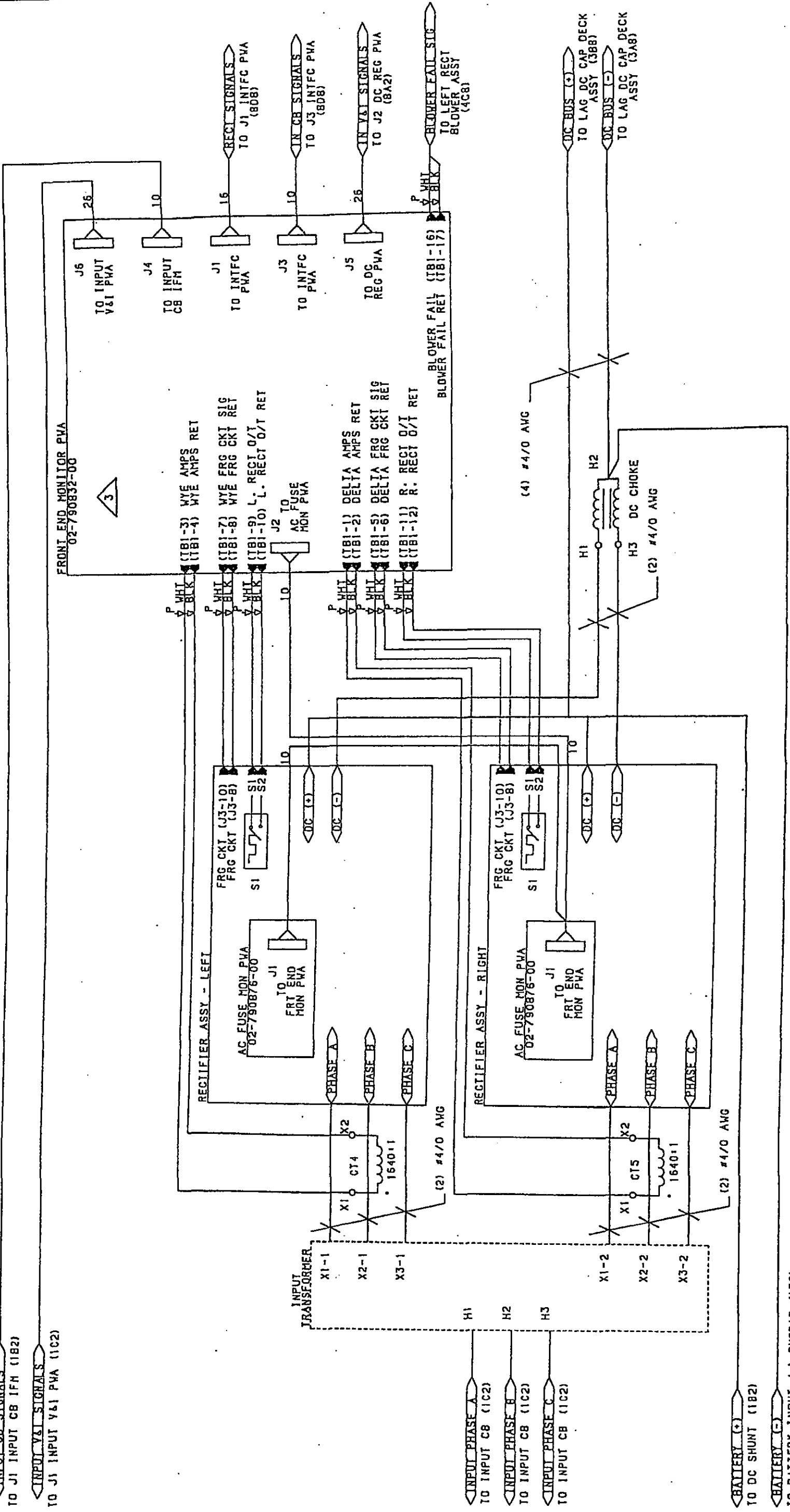
EMERSON INDUSTRIAL CONTROLS DIVISION OF  
EMERSON ELECTRIC CO. SALES PROMOTIONAL OFFICE IN  
1200 FOLK ST. LOWELL, MASS. 01850  
THIS DOCUMENT IS THE PROPERTY OF EMERSON ELECTRIC CO.  
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- MODULE INPUT  
480V 3 PHASE  
3 WIRE, 60 HZ
- 8 PART OF INPUT CONTROL POWER ASSY.
- NUMBERS IN PARENTHESIS AFTER DESTINATIONS INDICATE (PAGE AND ZONE).
  - CONNECT GROUND WIRES TO GROUND BUS, SHT 6, ZN B-1.
  - CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.
  - ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WHT. UNLESS OTHERWISE SPECIFIED.
  - SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT 9).
  - ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.
  - ALL CONTROL WIRE TO BE #20 AWG, MIN 600V. NOTES: UNLESS OTHERWISE SPECIFIED

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 THE GENERAL ELECTRIC COMPANY HAS REVIEWED THIS  
 DRAWING FOR CONFORMANCE WITH THE REQUIREMENTS  
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 BEEN DETERMINED THAT THIS DRAWING IS IN  
 ACCORDANCE WITH THE REQUIREMENTS LISTED.  
 THE ENGINEER INDUSTRIAL CONTROLS DIVISION  
 HAS REVIEWED THIS DRAWING FOR CONFORMANCE  
 WITH THE REQUIREMENTS LISTED.

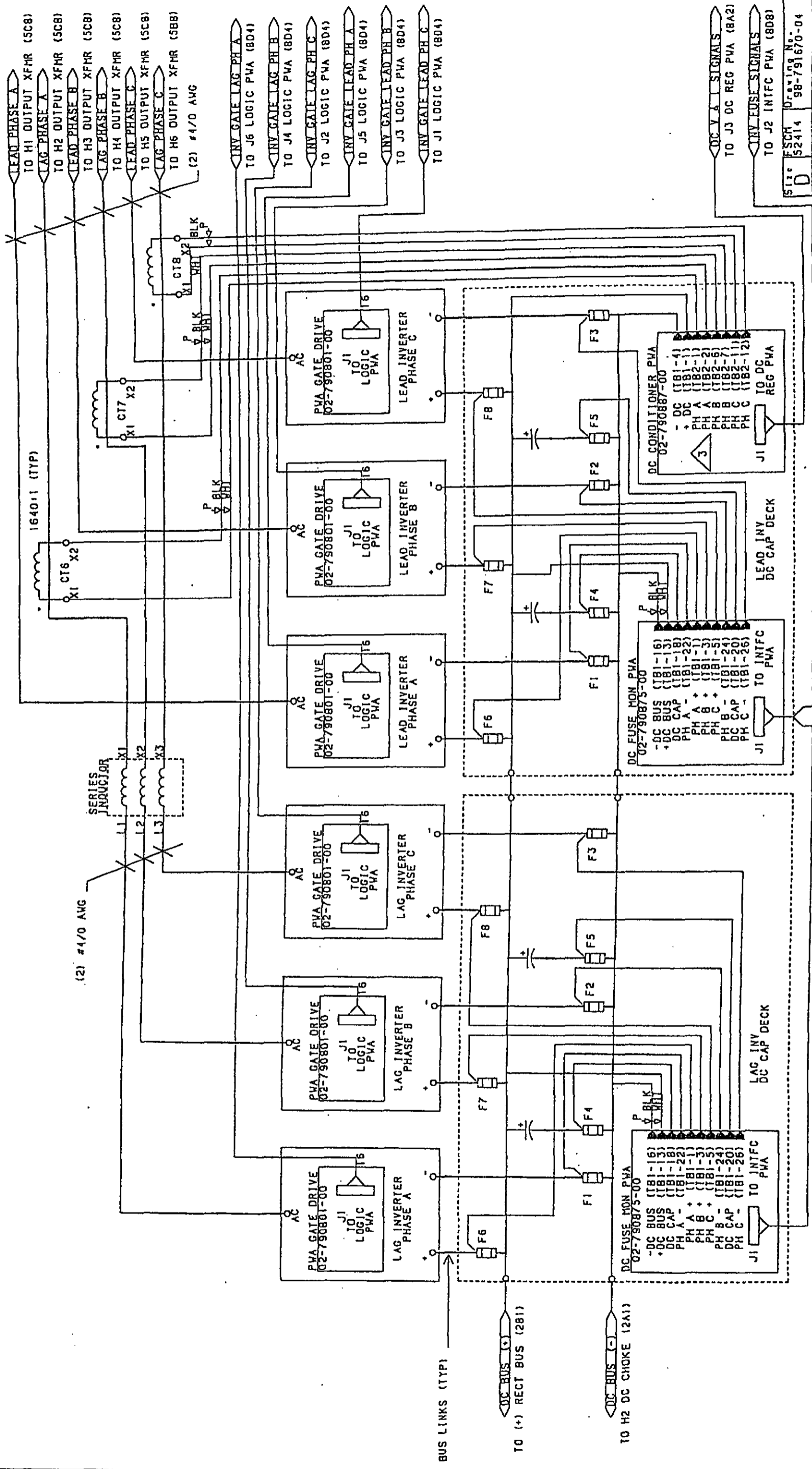
# RECTIFIER WIRING



REV	DESCRIPTION	DATE	BY	CHKD
1	REV RELEASE	02/26/77	...	...
2	REVISED	12/26/77	...	...

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# INVERTER WIRING



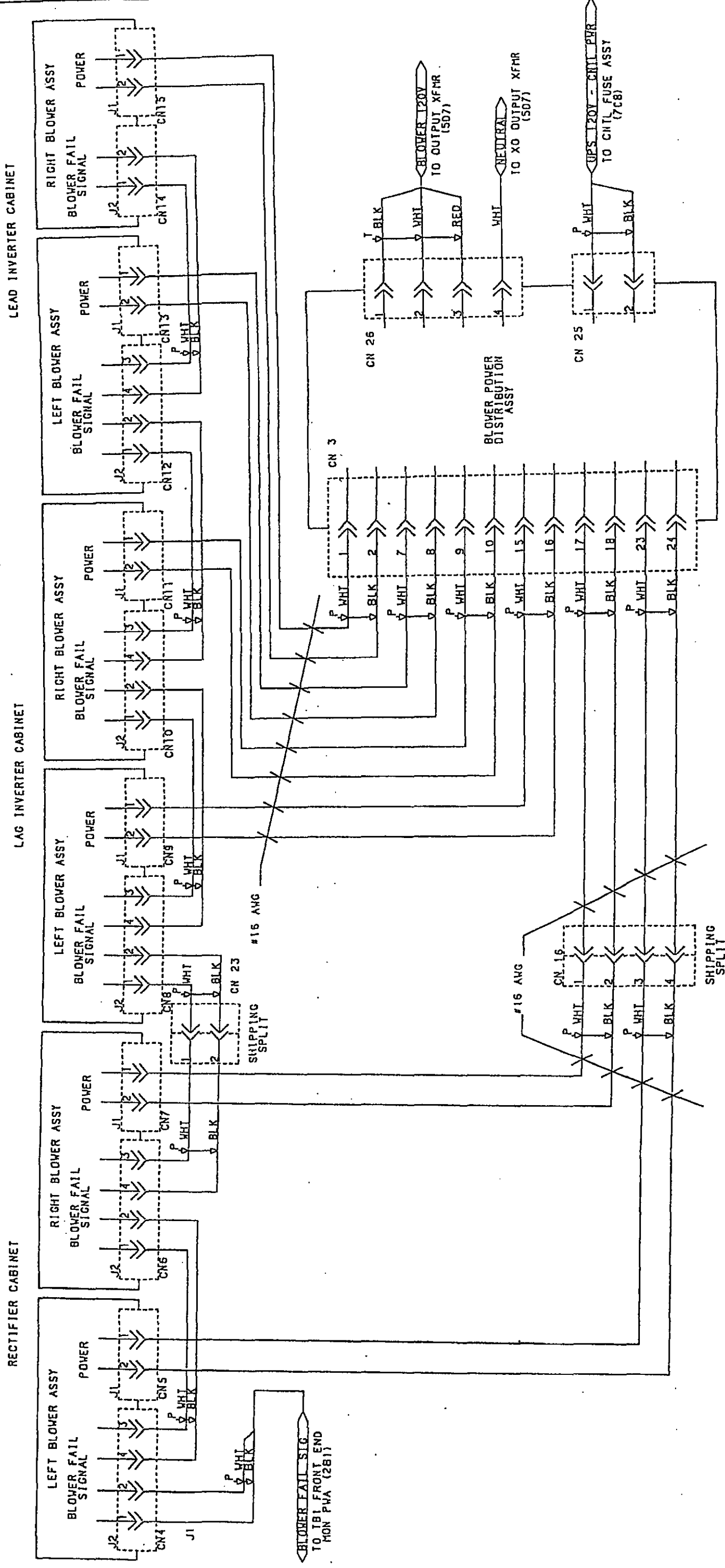
REV.	DATE	DESCRIPTION
1		NEW RELEASE
2		REVISED
3		MOVED PRTH CTS TO LAG
4		CABLES
5		CORRECTED DC CONN
6		TERM NUMBERS.

Scale: NONE  
 Drawing No.: 98-791670-04  
 Rev: C  
 Sheet 3 of 9

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 GENERAL ELECTRIC COMPANY.

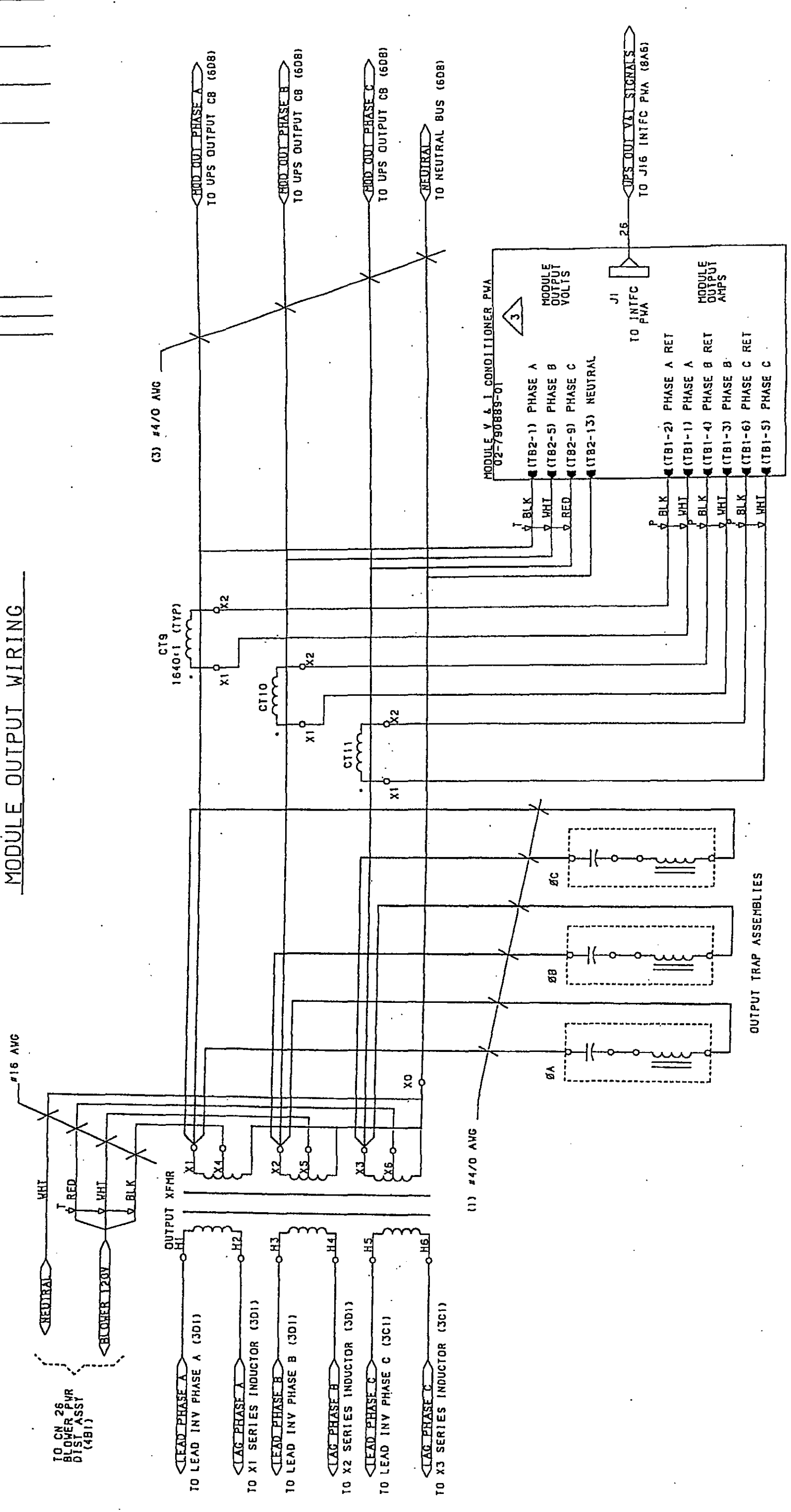
# BLOWER WIRING

REV.	DATE	DESCRIPTION	BY	CHKD.	APP. NO.	DATE
1		NEW RELEASE				
2		REVISED				
3		CORRECTED CN PINS				
4		RELABELED CONNS				



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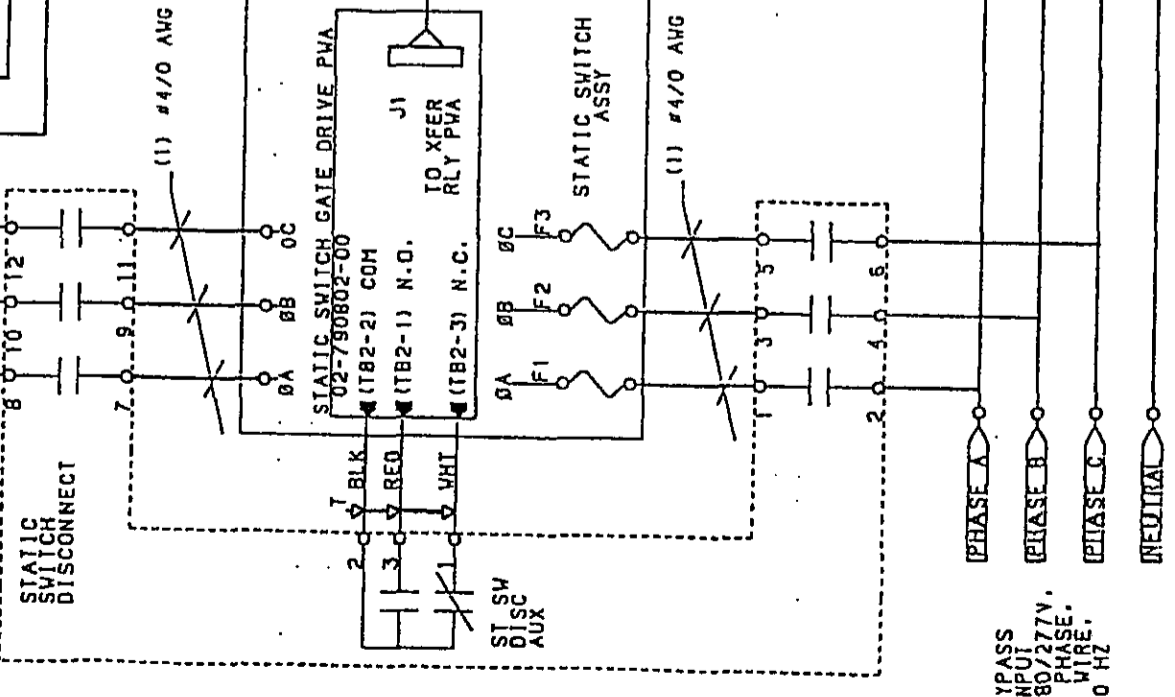
# MODULE OUTPUT WIRING



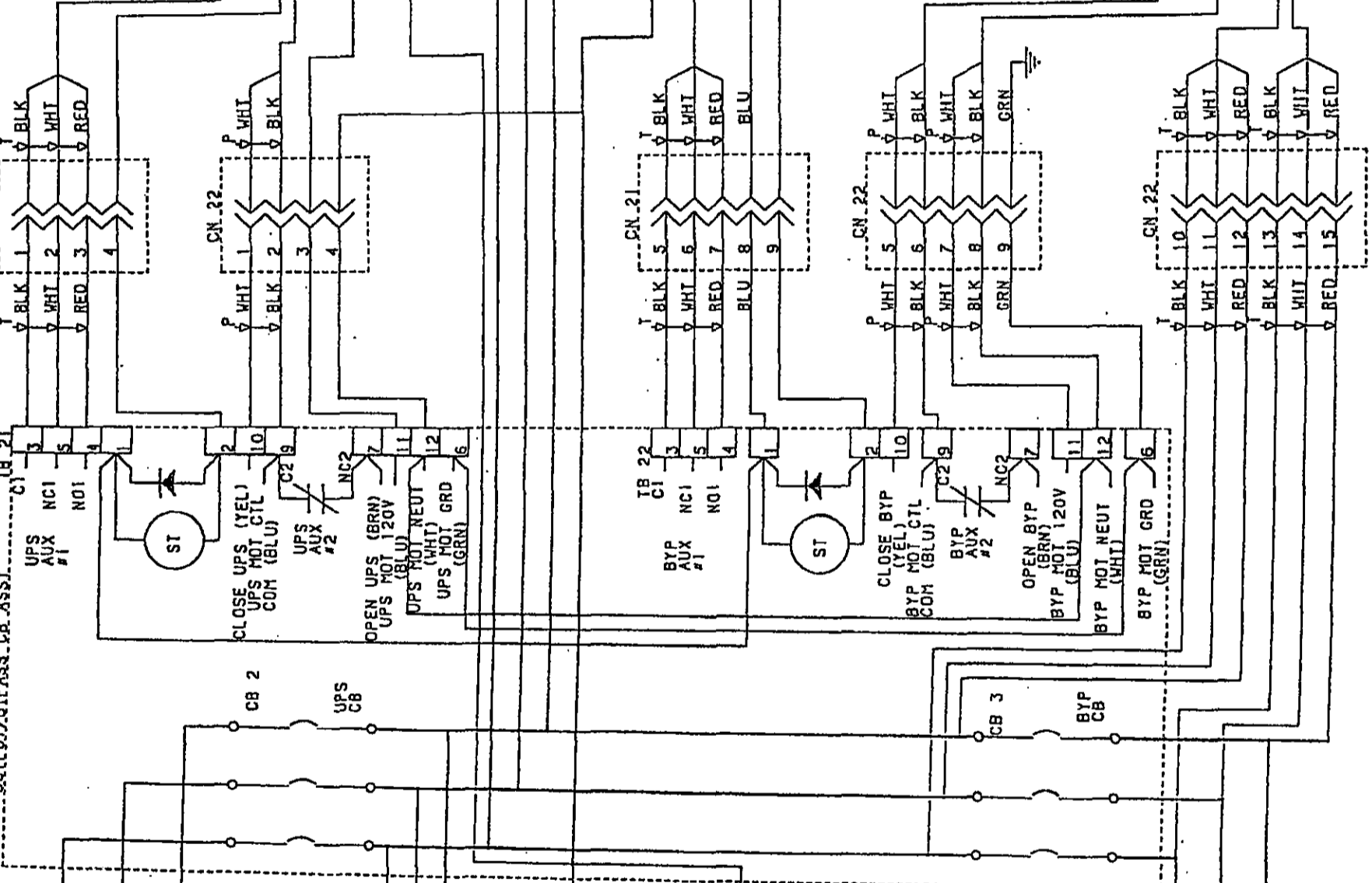
TIME	REVISION	DESCRIPTION	ECN NO.	DATE	APPROVED
	A	REV RELEASE			
	B	REV RELEASE			
	C	REV RELEASE			
	D	REV RELEASE			
	E	REV RELEASE			
	F	REV RELEASE			
	G	REV RELEASE			
	H	REV RELEASE			
	I	REV RELEASE			
	J	REV RELEASE			
	K	REV RELEASE			
	L	REV RELEASE			
	M	REV RELEASE			
	N	REV RELEASE			
	O	REV RELEASE			
	P	REV RELEASE			
	Q	REV RELEASE			
	R	REV RELEASE			
	S	REV RELEASE			
	T	REV RELEASE			
	U	REV RELEASE			
	V	REV RELEASE			
	W	REV RELEASE			
	X	REV RELEASE			
	Y	REV RELEASE			
	Z	REV RELEASE			

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TO X1 OUT XFMR (SC1)  
 TO X2 OUT XFMR (SC1)  
 TO X3 OUT XFMR (SC1)  
 NEUTRAL  
 TO X0 OUT XFMR (S81)



UPS/BYPASS POWER WIRING



DATE	BY	DESCRIPTION	ECO. NO.	DATE	APPROVED
10-12-82	EA	NEW RECEIVED STATIC SW CORRECTED & UPDATED CABLING & WIRING LABELLED ST SV PHASES			
		RELABELLED CONNS			

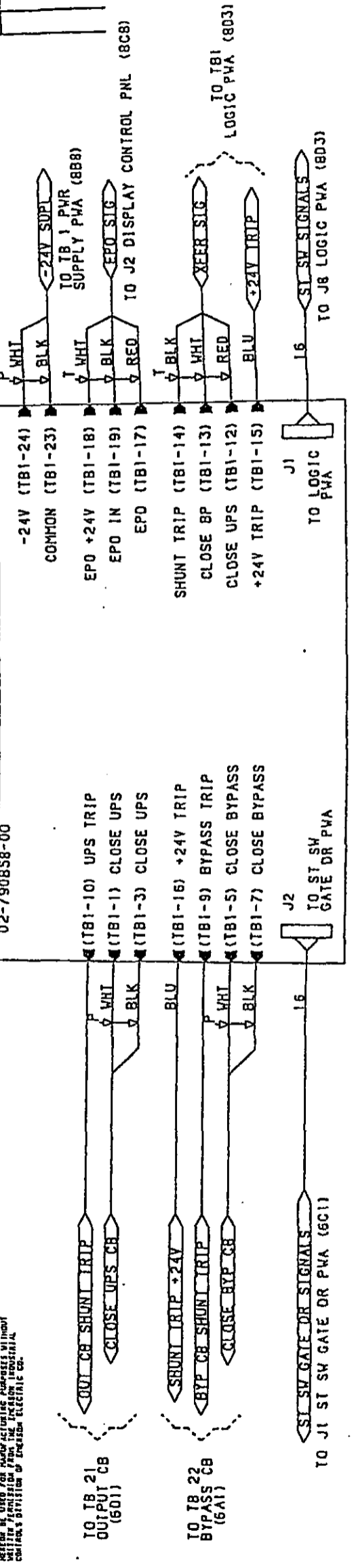
CRITICAL LOAD  
 480/277V,  
 3 PHASE,  
 4 WIRE,  
 60 HZ

SIZE: FSCD 52414  
 No. 98-791670-04  
 Scale: NONE  
 Sheet 6 of 9

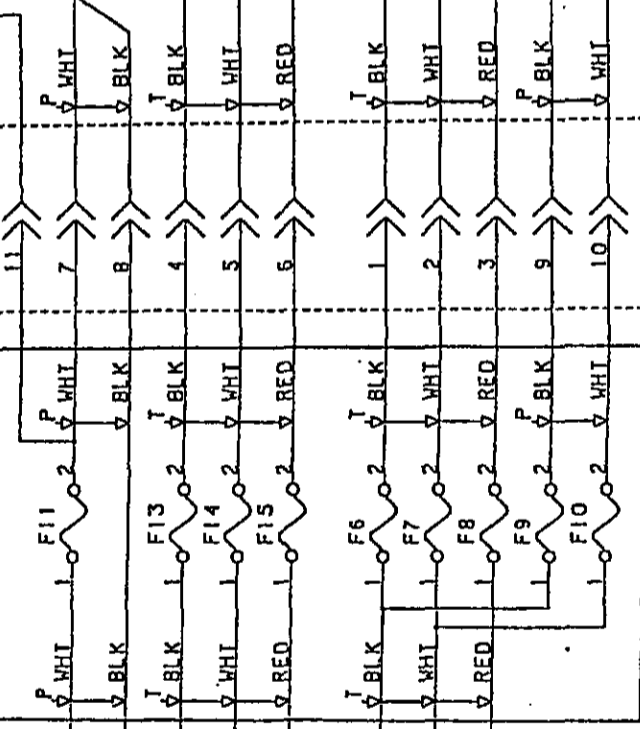
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TRANSFER RELAY PWA  
02-790858-00

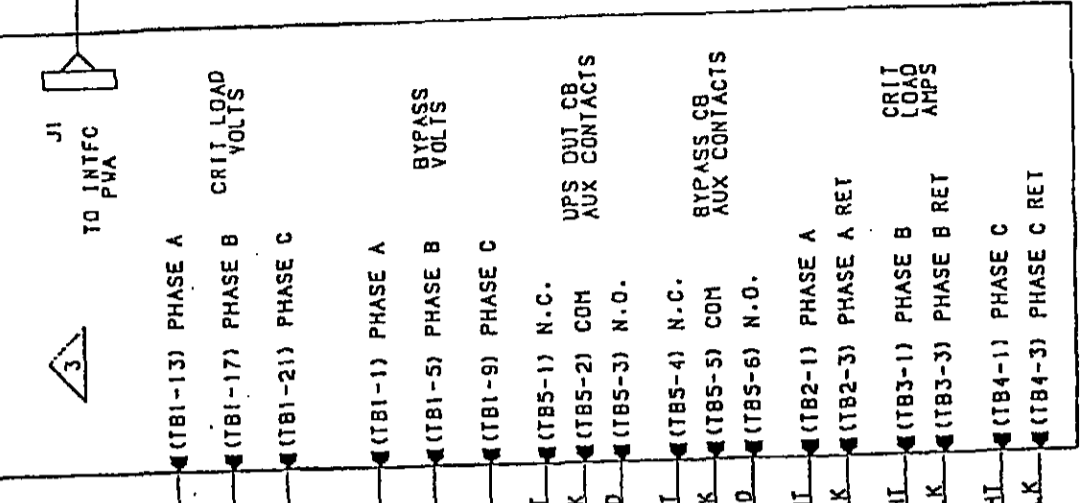
UPS/BYPASS CONTROL WIRING



CONTROL FUSE ASSY



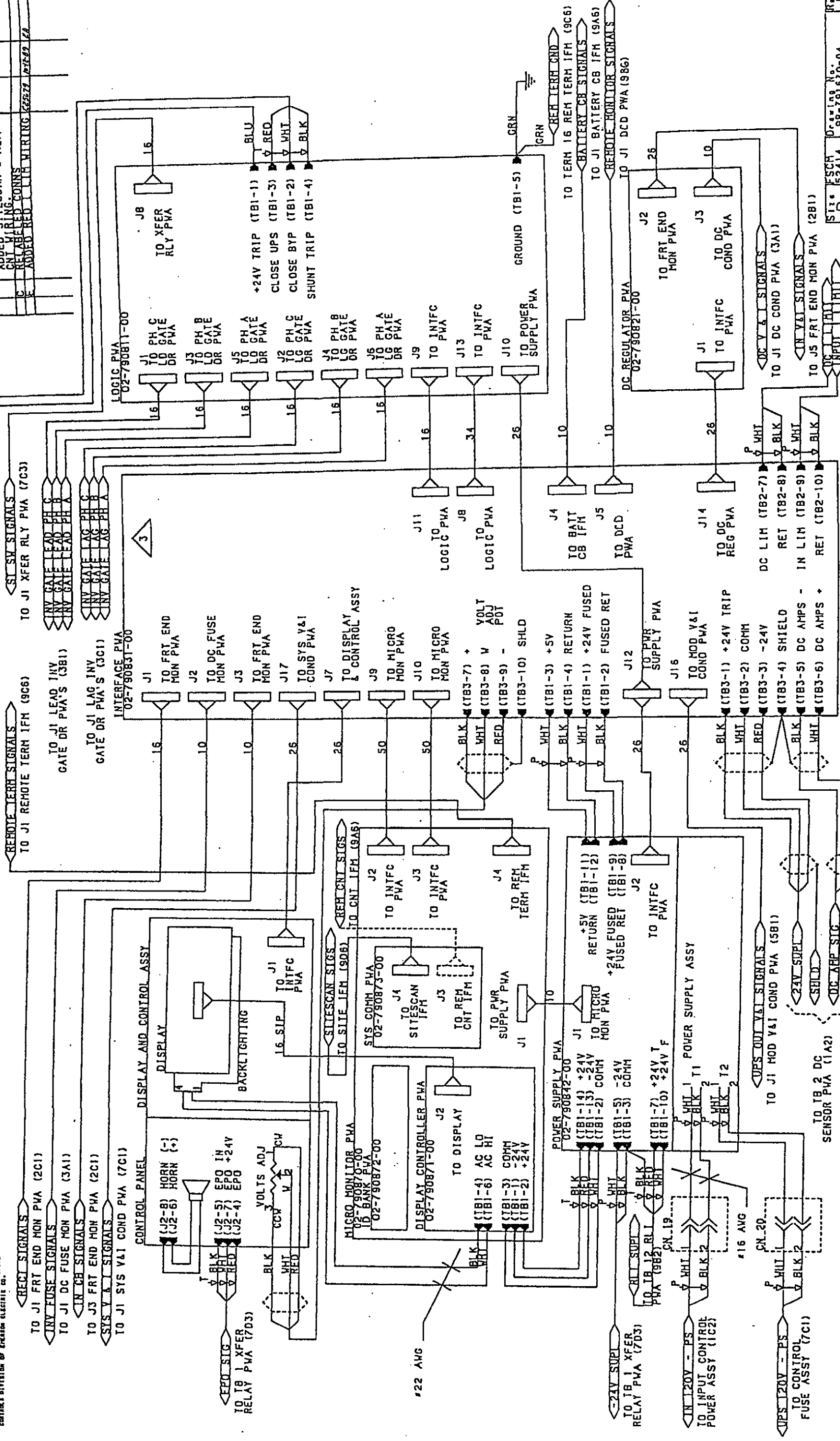
SYS V & I CONDITIONER PWA  
02-790889-02



REV	DESCRIPTION	DATE	APP'D
1	NEW RELEASE		
2	REVISED V&I TERM NO'S		
3	RELABELED CONNS	02/22/93	EA

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 GEORGE EASTMAN BUILDING, ROCHESTER, NY 14642.

# CONTROL LOGIC



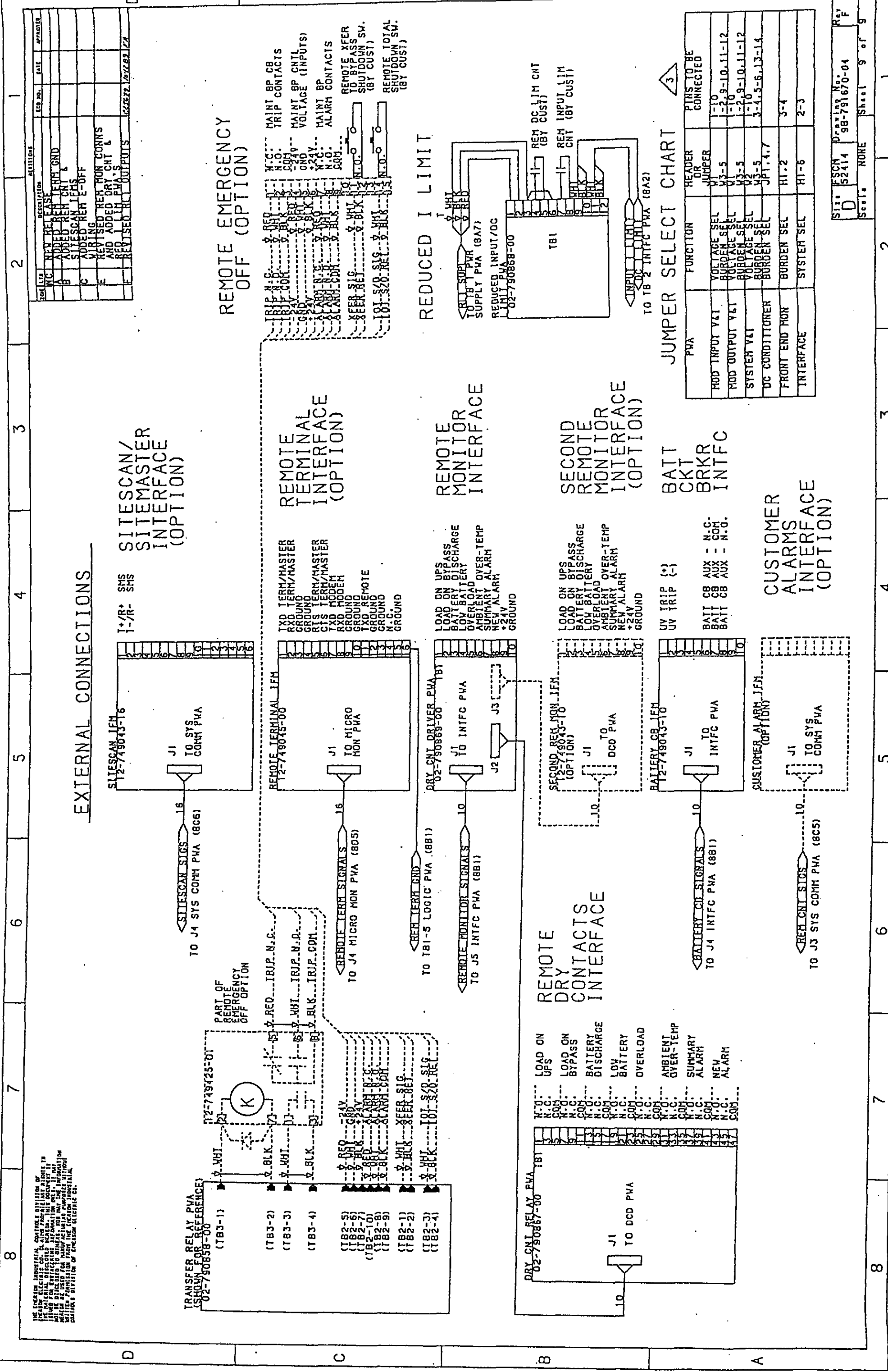
CODE	DATE	DESCRIPTION	REV.
A	02-790811-00	NEW RELEASE	
B	02-790811-00	ADDED RELAY TERM GND	
C	02-790811-00	REMOVED INTFC SIGNALS	
D	02-790811-00	ADDED SITESCAN & REM CNT WIRING	
E	02-790811-00	RELABELED CONNS	
F	02-790811-00	ADDED RED WIRING	

REV	DATE	DESCRIPTION
1	02-790811-00	INITIAL ISSUE
2	02-790811-00	ADDED RELAY TERM GND
3	02-790811-00	REMOVED INTFC SIGNALS
4	02-790811-00	ADDED SITESCAN & REM CNT WIRING
5	02-790811-00	RELABELED CONNS
6	02-790811-00	ADDED RED WIRING

REVISIONS

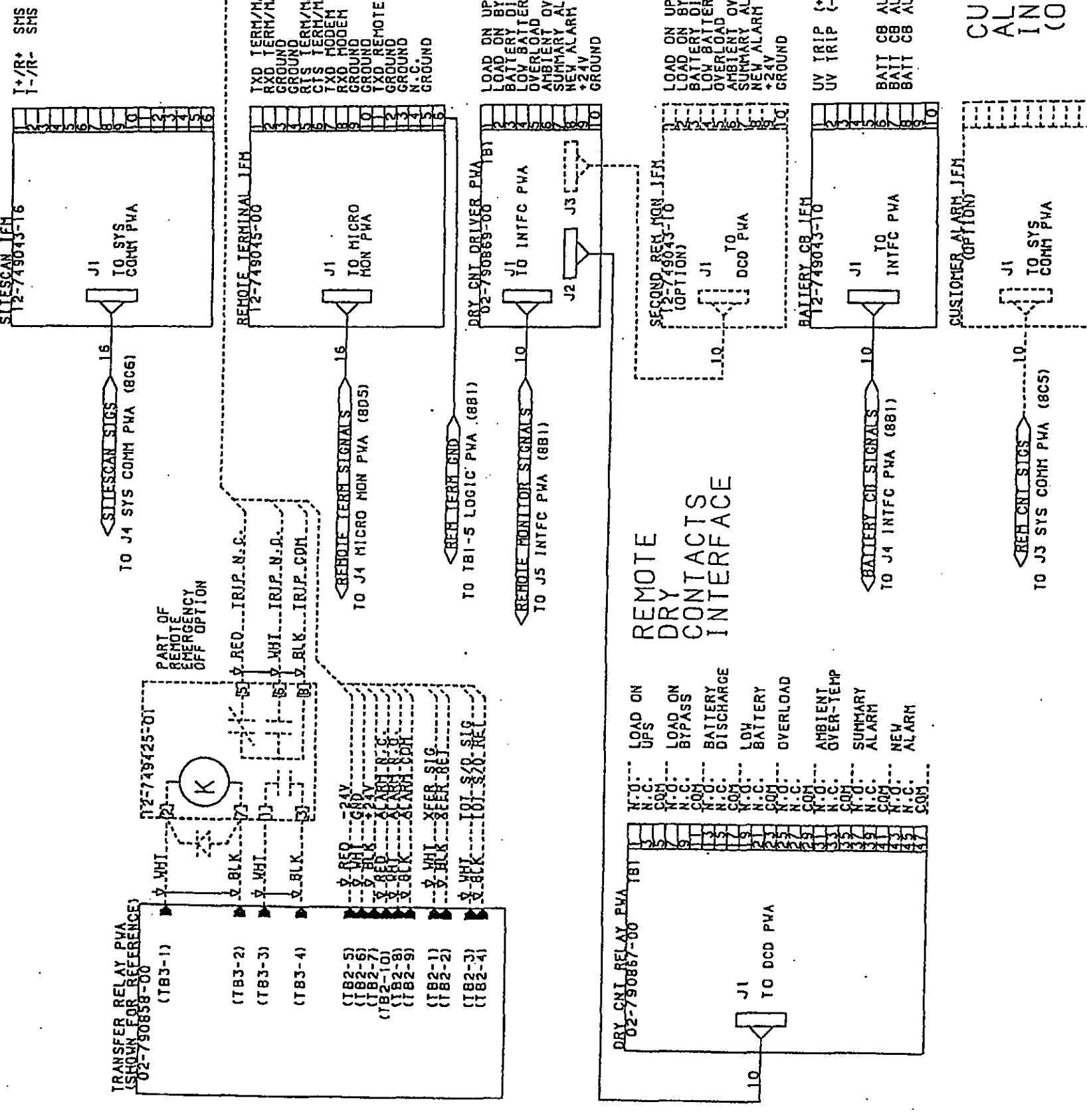
NO. DATE DESCRIPTION



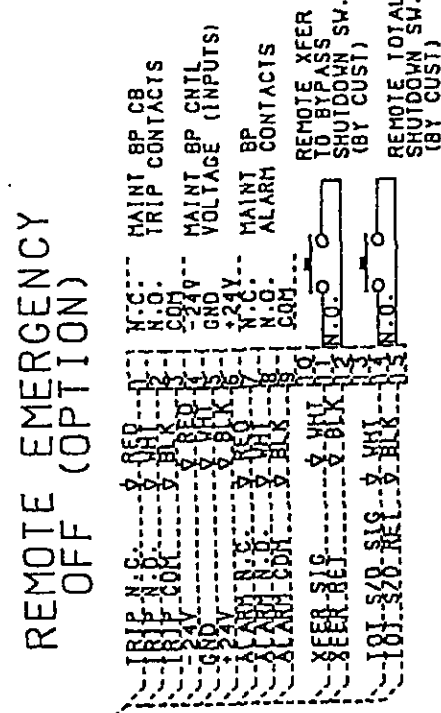


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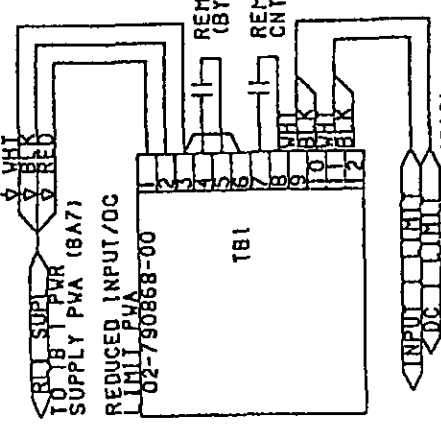
## EXTERNAL CONNECTIONS



REV	DATE	DESCRIPTION
1		NEW RELEASE
2		ADDED REM TERM GND
3		ADDED REM INT
4		SITESCAN LEM
5		ADDED REM E-OFF
6		REVISIONS
7		REVISED REM CONNS
8		AND DRY CNT &
9		AND DRY PWA'S
10		REVISED REM CONNS
11		REVISED REM CONNS
12		REVISED REM CONNS
13		REVISED REM CONNS
14		REVISED REM CONNS
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100		REVISED REM CONNS



### REDUCED I LIMIT



### JUMPER SELECT CHART

PWA	FUNCTION	HEADER OR JUMPER	POINTS TO BE CONNECTED
MOD INPUT V&T	VOLTAGE SEL	V1	-10
MOD OUTPUT V&T	BURDEN SEL	V3-5	-2, 9-10, 11-12
SYSTEM V&T	VOLTAGE SEL	V1-5	-2, 9-10, 11-12
DC CONDITIONER	BURDEN SEL	V3-5	3-4, 5-6, 13-14
FRONT END MON	BURDEN SEL	JPT. 4, 7	3-4
INTERFACE	SYSTEM SEL	H1-6	2-3

Site ESCH Drawing No. D 52414 98-791670-04 Rev F  
Scale NONE Sheet 9 of 9

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REV.	DESCRIPTION	DATE
1	NEW RELEASE	971130
2	CHG FAN PWA ON SH	971130
3	ADD NOTE 11, REV SHTS	980203
4	REV SH 1-9	981017
5	REV SH 11-3, 4, 5, 6, 7, 11	990879
6	REV SH 11-3, 4, 5, 6, 7, 11	991139
7	REV SH 11-3, 4, 5, 6, 7, 11	991139
8	REV SH 11-3, 4, 5, 6, 7, 11	000022
9	REV SH 11-3, 4, 5, 6, 7, 11	000214
10	REV SH 11-3, 4, 5, 6, 7, 11	000214

CONDITIONER P (SMS: 1088, MMU: 1388)

TO V A I  
CONDITIONER P  
(SMS: 10AB, MMU: 13AB)

TO POWER SUPPLY ASSY (SMS: 11AB, MMU: 14AB)

UPS INPUT VOLTS  
UNP VOLTS-PS  
TO POWER SUPPLY ASSY (SMS: 11AB, MMU: 14AB)

UPS INPUT AMPS  
UPS INPUT AMPS COMMON

TO RECTIFIER (12 PULSE)  
6 PULSE 3C

WIRE 'WA' SEE NOTE 9

INPUT PHASE A  
INPUT PHASE B  
INPUT PHASE C

INDUCTOR ASSY (5 PULSE ONLY)  
6 PULSE ONLY  
SEE INPUT FILTER OPTION DWG

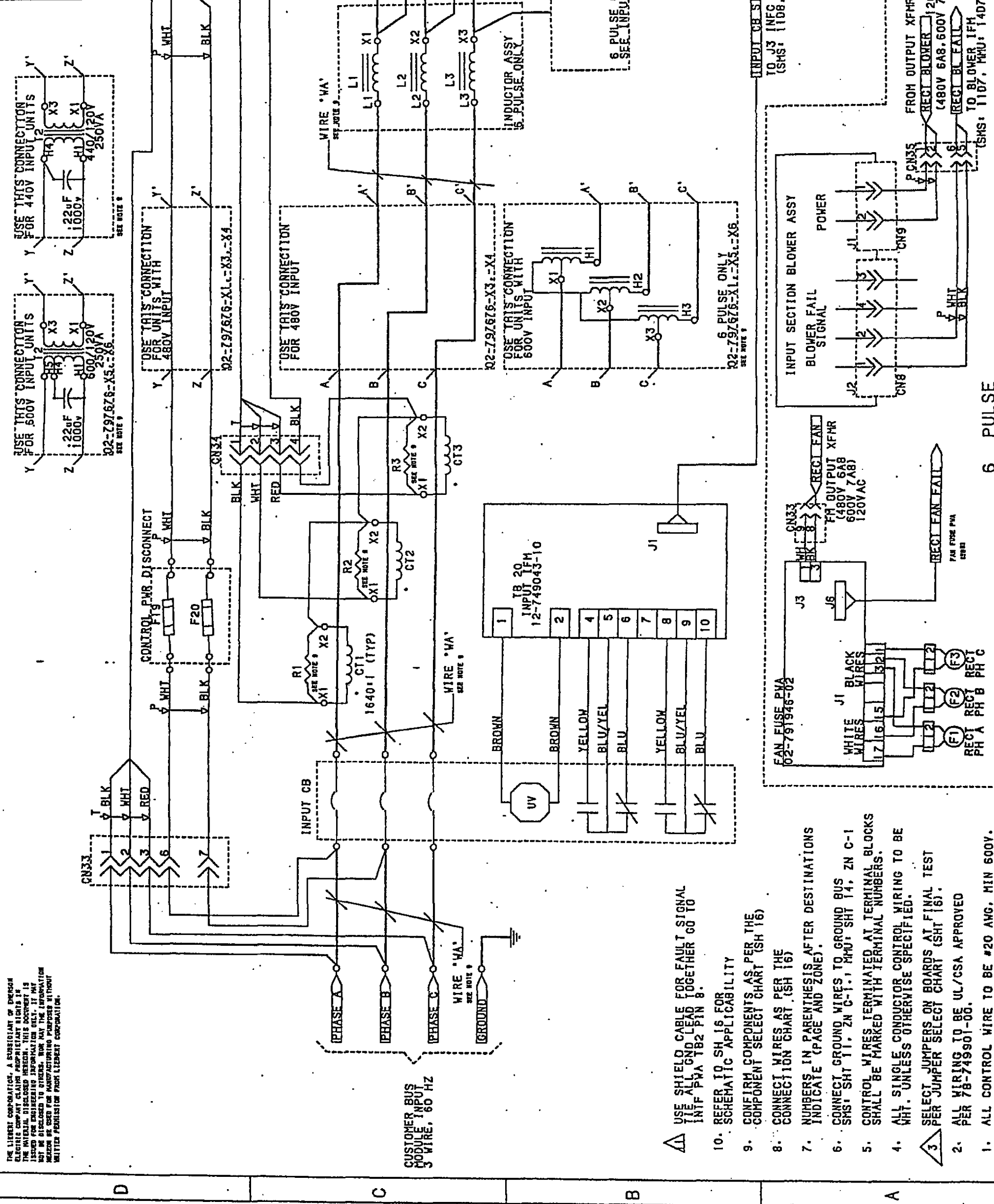
6 PULSE ONLY  
TO J3 INFC PWA (SMS: 1108, MMU: 1408)

INPUT CB SIGNALS  
TO J3 INFC PWA (SMS: 1108, MMU: 1408)

INPUT SECTION BLOWER ASSY  
BLOWER FAIL SIGNAL  
POWER

FROM OUTPUT XFMR  
RECT BLOWER (20VAC)  
(480V 6A8, 600V 7A8)  
RECT BL FAIL  
TO BLOWER IFM (SMS: 1107, MMU: 1407)

FAN FUSE PWA 02-787946-02  
J3  
J6  
J1  
J2  
J4  
J5  
J7  
J8  
J9  
J10



- USE SHIELD CABLE FOR FAULT SIGNAL. TIE ALL GND LEAD TOGETHER GO TO INFC PWA TB2 PIN 8.
- REFER TO SH 16 FOR SCHEMATIC APPLICABILITY.
- CONFIRM COMPONENTS AS PER THE COMPONENT SELECT CHART (SH 16).
- CONNECT WIRES AS PER THE CONNECTION CHART (SH 16).
- NUMBERS IN PARENTHESES AFTER DESTINATIONS INDICATE (PAGE AND ZONE).
- CONNECT GROUND WIRES TO GROUND BUS SMS: SH 11, ZN C-1, MMU: SH 14, ZN C-1.
- CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.
- ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WHT, UNLESS OTHERWISE SPECIFIED.
- SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SH 16).
- ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.
- ALL CONTROL WIRE TO BE #20 AWG, MIN 600V. NOTES: UNLESS OTHERWISE SPECIFIED.

REV.	STATUS OF SHEETS	1	2	3	4	5	6	7	8	9	10
1	NEW										
2	REVISED										
3	REVISED										
4	REVISED										
5	REVISED										
6	REVISED										
7	REVISED										
8	REVISED										
9	REVISED										
10	REVISED										

**LIEBERT**

CONTRACT NO. UPS

DRAWN BY J. CHEN 8-18-97

CHECKED

DESIGNED BY J.C.

PROJECT J.C.

APPROVED

TITLE: SCHEMATIC/WIRING DIAGRAM 750KVA T-UPS AP676-AP679

DATE: 8/28/97

SIZE: D

DRAWING NO.: 98-797676-XX

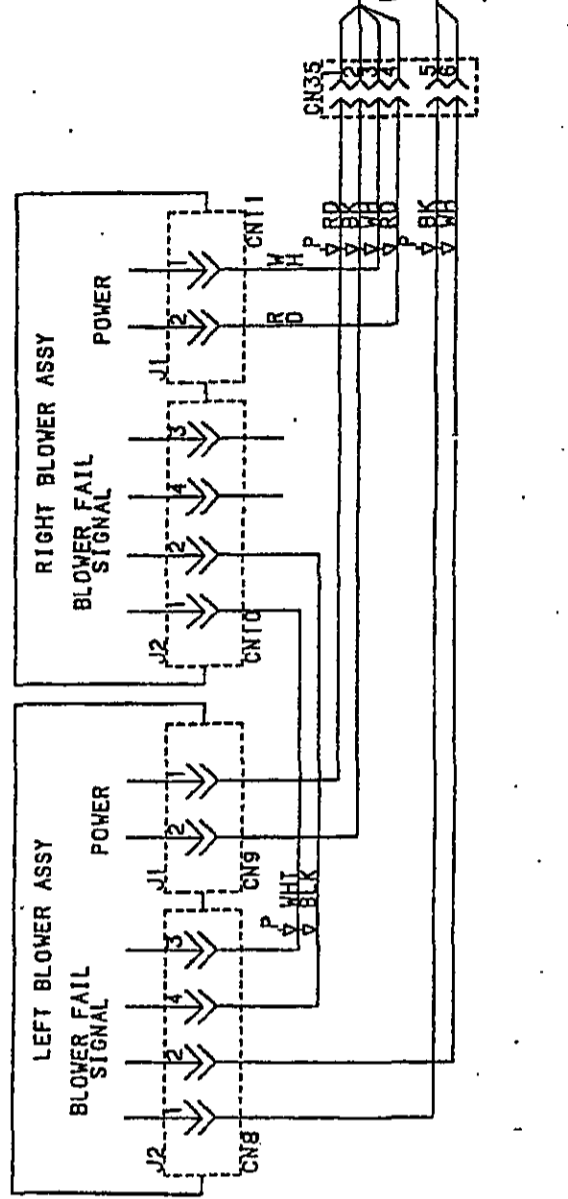
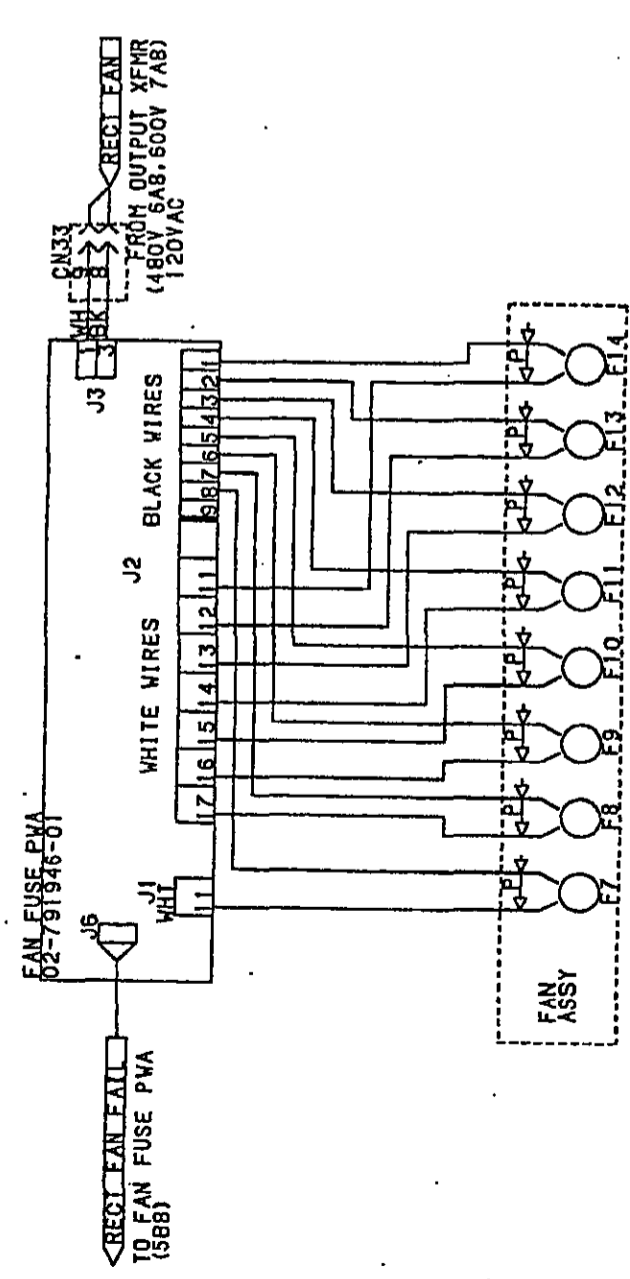
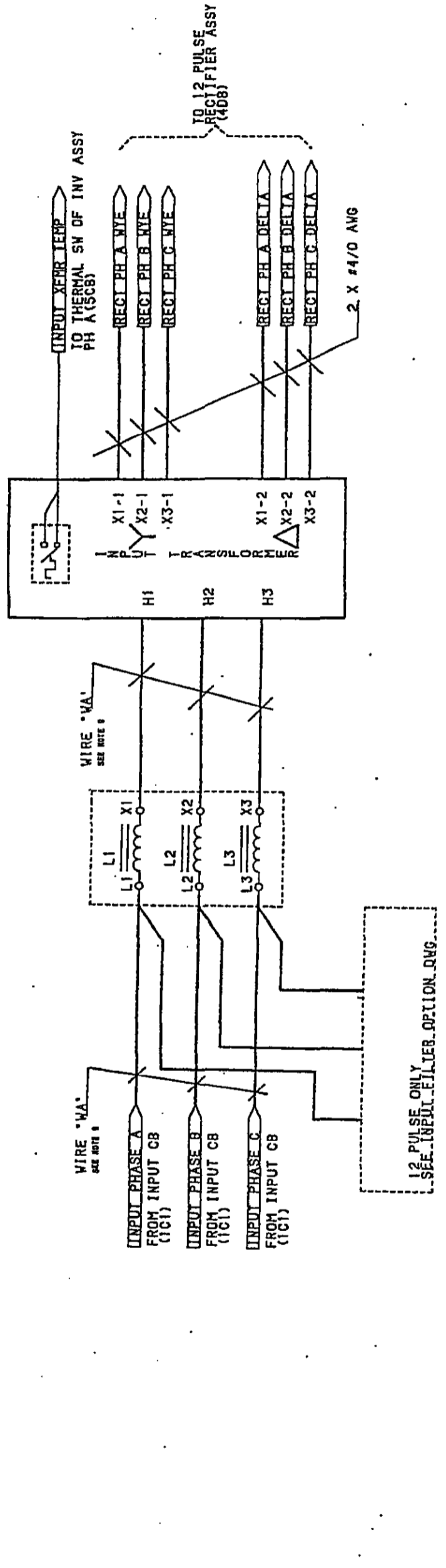
SHEET: 1 of 1

6 PULSE

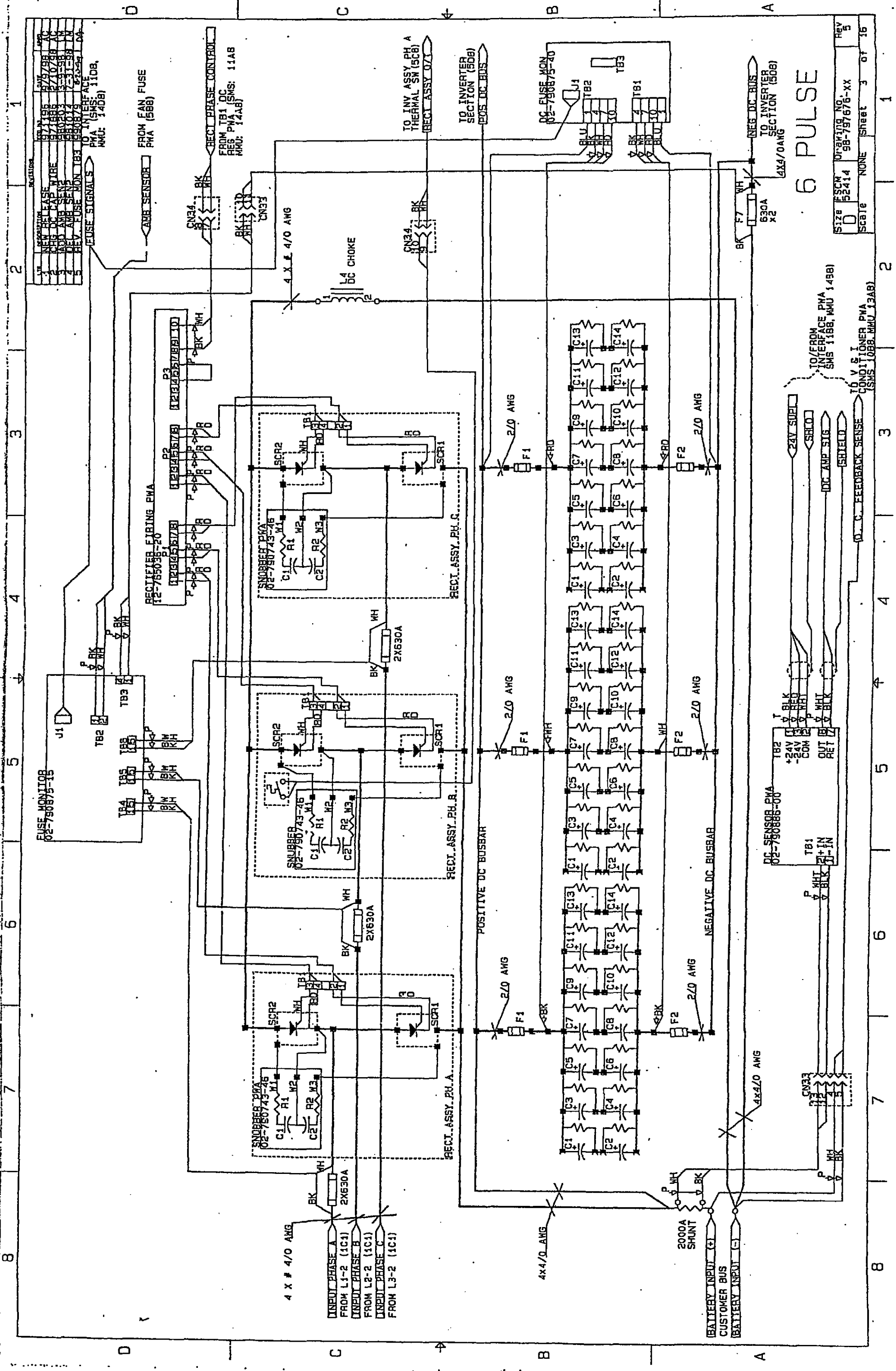
# 12 PULSE ONLY

AP676

REV.	DESCRIPTION	DATE	BY
1	REV. RELEASE	8/6/97	AA
2	ADD CN33	8/7/98	AA
3	ADD CN33	2/10/98	AA
4	ADD ALB. SEN2	9-9-98	AA
5	ADD ALB. SEN2	980203	AA
6	CHG INPUT TRAP	981014	AA
7	CHG CN33 TO 120V	8-20-99	AA
8	REF FLTR DETAIL	000275	AA
9	CHG CN33 B & 9	018331	AA



# 12 PULSE



FUSE MONITOR  
02-790875-15

RECTIFIER EXCITING PWA  
12-789058-20

SNUBBER PWA  
02-790743-26

SNUBBER PWA  
02-790743-26

SNUBBER PWA  
02-790743-26

DC FUSE MON  
02-790875-20

DC SENSOR PWA  
02-790885-00

# 6 PULSE

REV	DESCRIPTION	DATE	BY
1	NEW RELEASE	2/15/98	AK
2	CHG DC CAP WIRE	2/10/98	AK
3	ADD AMP SENS	3-9-98	M
4	DEL AMP SENS	7-31-98	M
5	REV. FUSE MON TB3	8-23-98	DA

Size	ESCM	Drawing No.	Rev
0	52414	98-797675-XX	5
Scale	NONE	Sheet	3 of 16

TO/FROM INTERFACE PWA  
SMS 1188, MMU 1498)

TO V & I  
CONDITIONER PWA  
(SMS 1088, MMU 13AB)

TO V & I  
CONDITIONER PWA  
(SMS 1088, MMU 13AB)

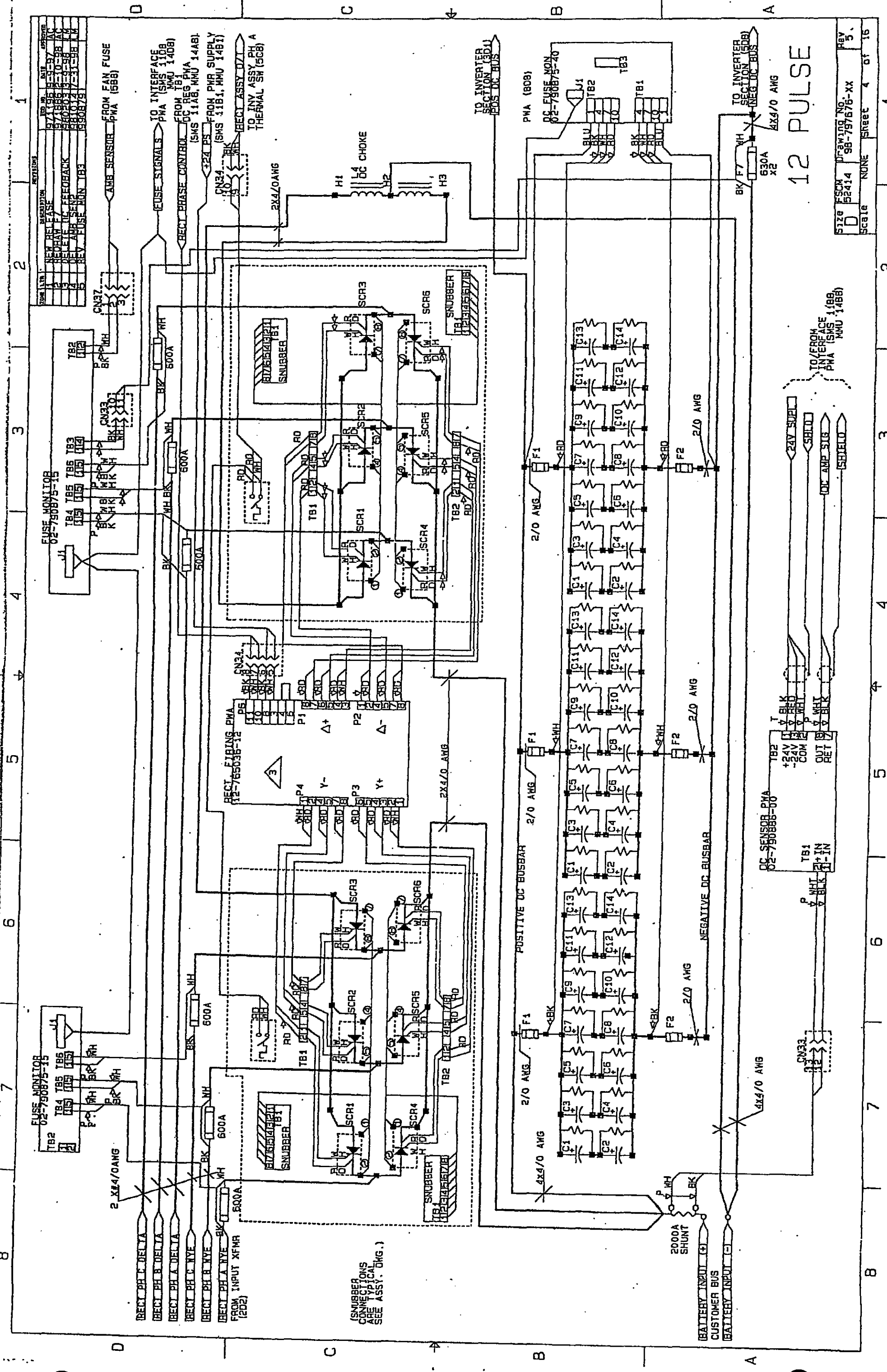
TO V & I  
CONDITIONER PWA  
(SMS 1088, MMU 13AB)

TO V & I  
CONDITIONER PWA  
(SMS 1088, MMU 13AB)

TO V & I  
CONDITIONER PWA  
(SMS 1088, MMU 13AB)

TO V & I  
CONDITIONER PWA  
(SMS 1088, MMU 13AB)

TO V & I  
CONDITIONER PWA  
(SMS 1088, MMU 13AB)

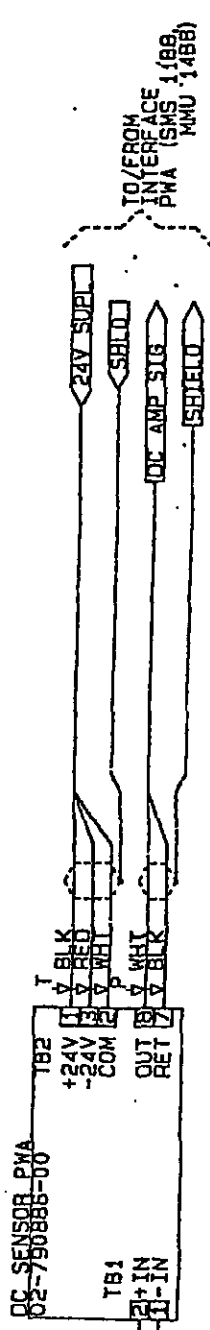


REV	DATE	DESCRIPTION	APPROVED
1	971196	NEW RELEASE	AC
2	971886	REPAIR P7	AC
3	980203	DELETE DC FEEDBACK	AC
4	981014	DEL AMB SENS	AC
5	980879	REV FUSE MON TB3	AC

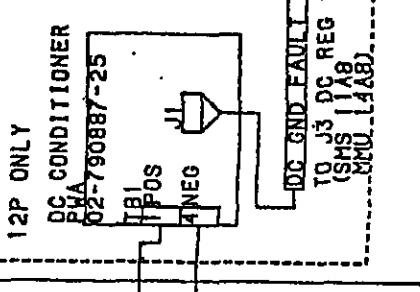
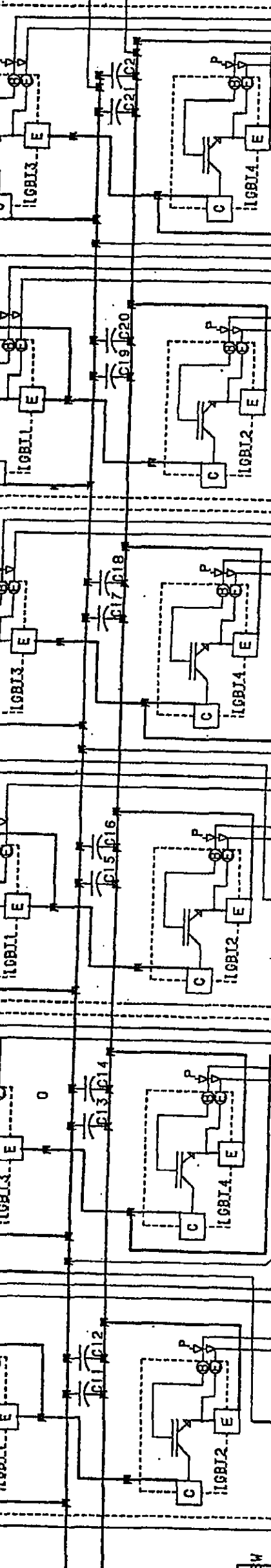
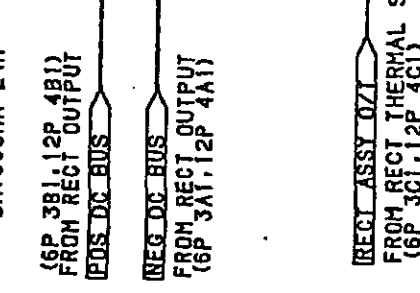
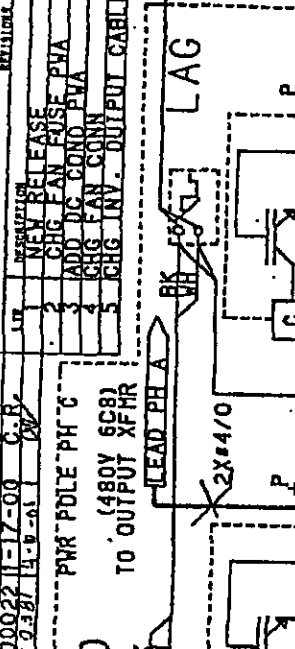
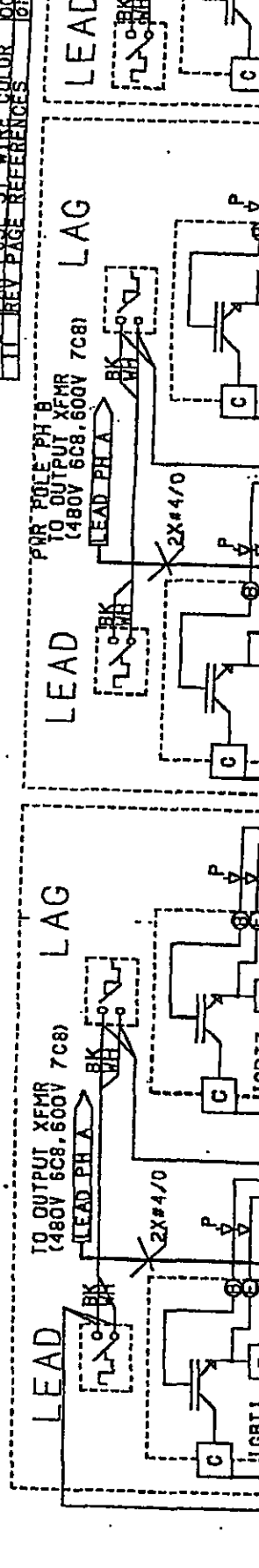
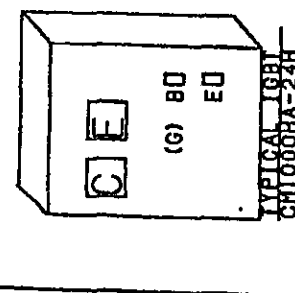
# 12 PULSE

SIZE	FSCN	DRAWING NO.	REV
D	52414	98-797676-XX	5
SCALE	NONE	SHEET 4	OF 16

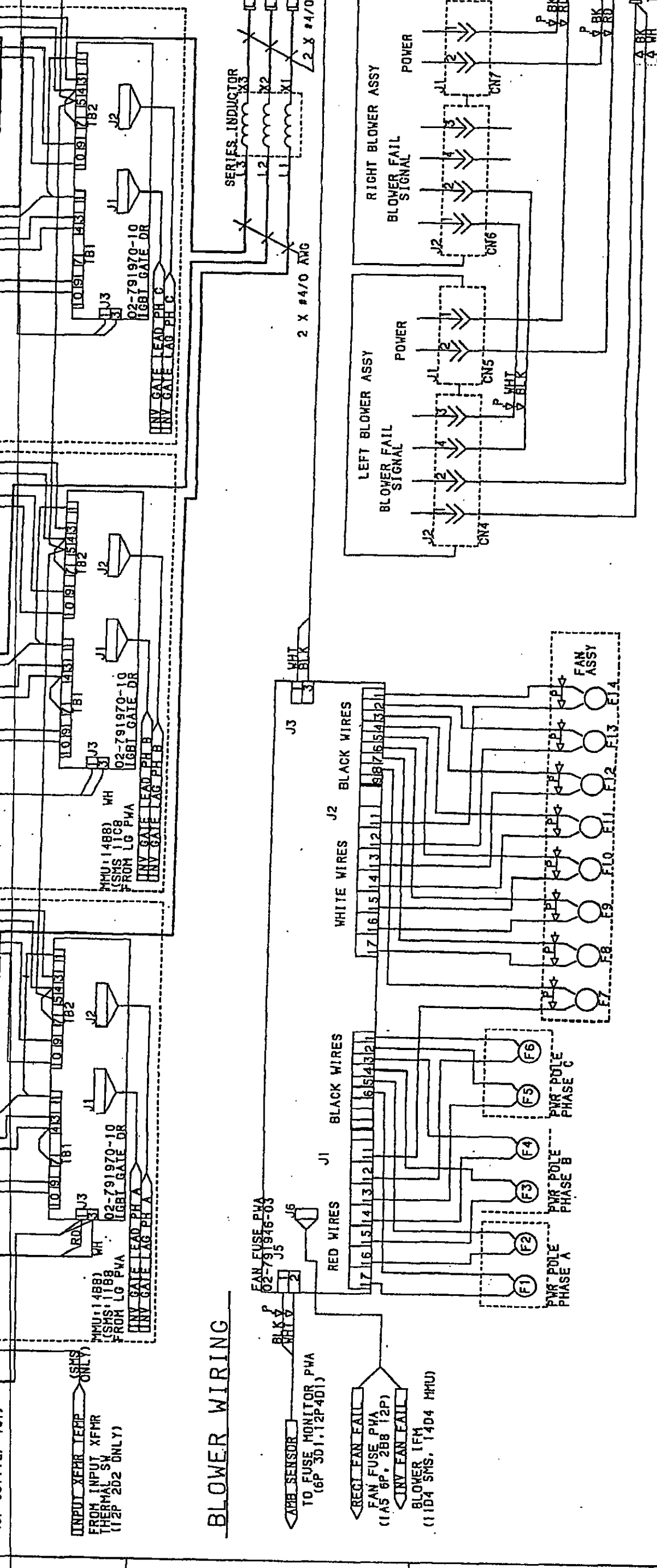
(SNUBBER CONNECTIONS ARE TYPICAL. SEE ASSY. DWG.)



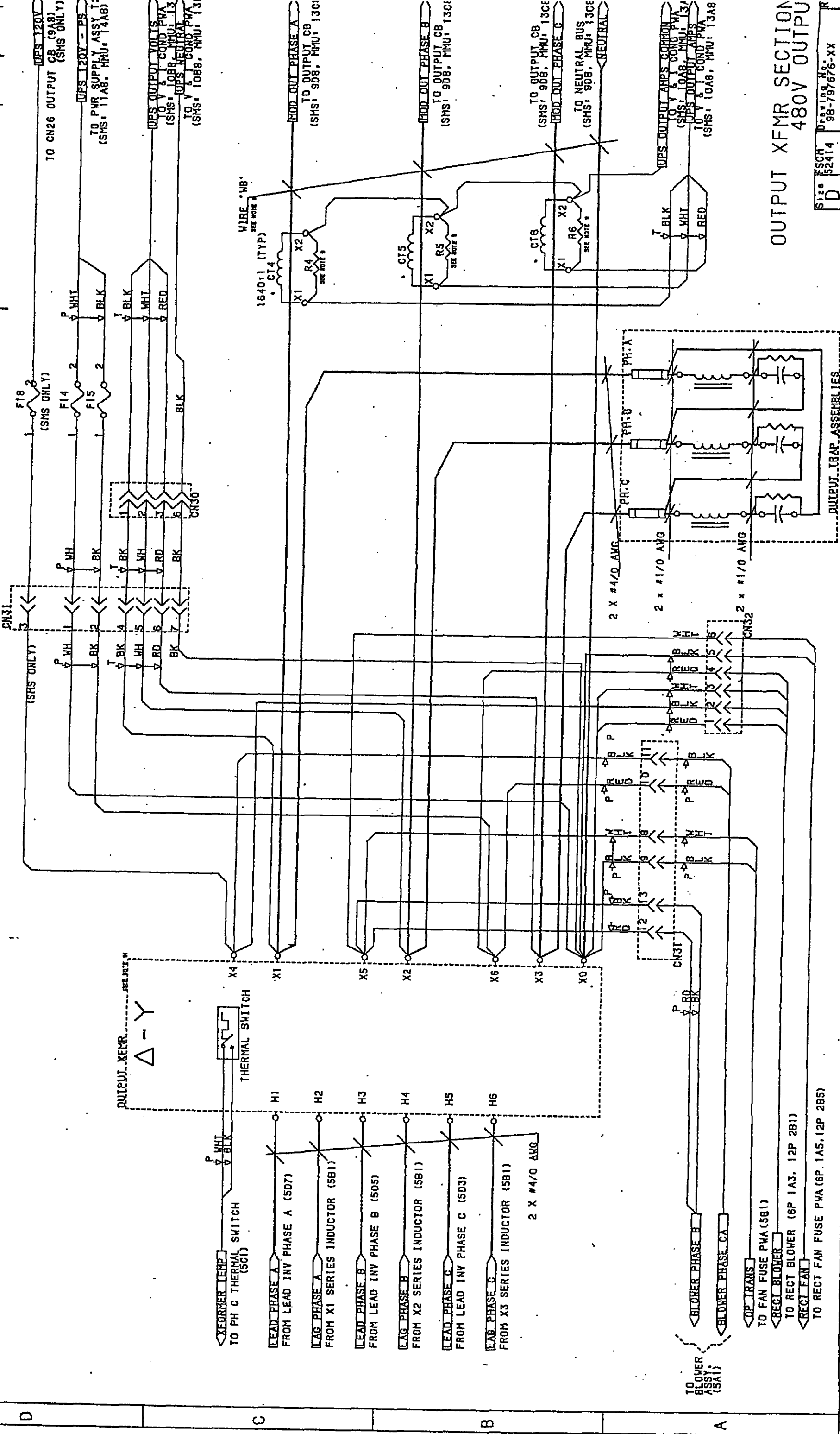
REV	DATE	BY	CHK	APP	DESCRIPTION
1	981017	...	...	...	...
2	981017	...	...	...	...
3	981017	...	...	...	...
4	981017	...	...	...	...
5	981017	...	...	...	...
6	981017	...	...	...	...
7	981017	...	...	...	...
8	981017	...	...	...	...
9	981017	...	...	...	...
10	981017	...	...	...	...



**BLOWER WIRING**



REV	DESCRIPTION	DATE
1	NEW RELEASE	971196 9-9-97
2	CHG CN32	971886 2-10-98
3	CHG CN32 CONN	990879 6-20-99
4	DELETE PINS 4&5 CN30	012288 4-16-01



UPS 120V  
TO CN26 OUTPUT CB (9A8)  
(SMS ONLY)

UPS 120V - PS  
TO PHR SUPPLY ASSY T  
(SMS, 11A8, MMU, 14A8)

UPS OUTPUT VOLTS  
TO V L COND PWA  
(SMS, 10B8, MMU, 13)

TO V L COND PWA  
(SMS, 10B8, MMU, 13)

TO V L COND PWA  
(SMS, 10B8, MMU, 13)

TO V L COND PWA  
(SMS, 10B8, MMU, 13)

TO V L COND PWA  
(SMS, 10B8, MMU, 13)

TO V L COND PWA  
(SMS, 10B8, MMU, 13)

TO V L COND PWA  
(SMS, 10B8, MMU, 13)

TO V L COND PWA  
(SMS, 10B8, MMU, 13)

TO V L COND PWA  
(SMS, 10B8, MMU, 13)

TO V L COND PWA  
(SMS, 10B8, MMU, 13)

TO V L COND PWA  
(SMS, 10B8, MMU, 13)

TO V L COND PWA  
(SMS, 10A8, MMU, 13A8)

TO V L COND PWA  
(SMS, 10A8, MMU, 13A8)

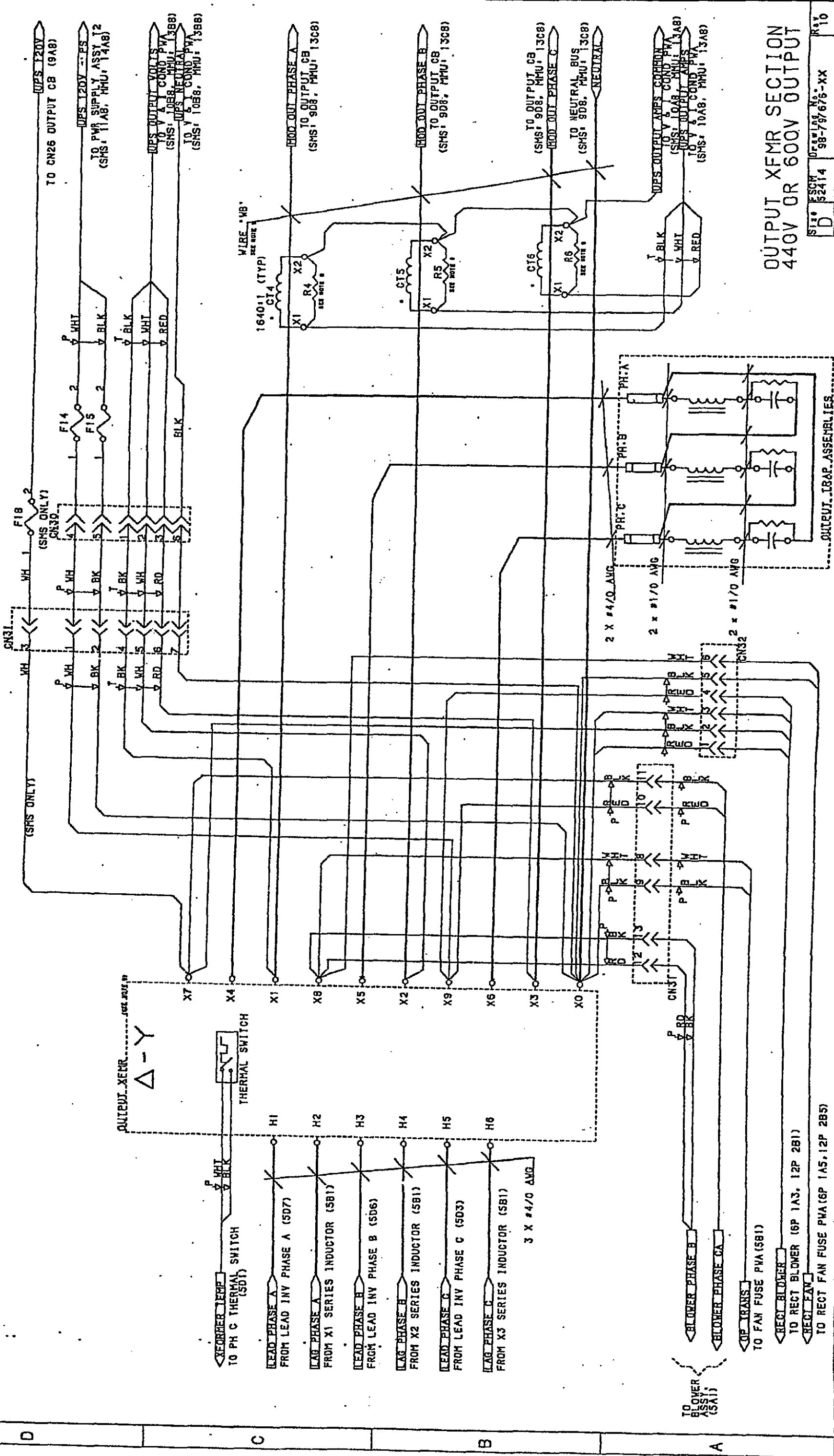
TO V L COND PWA  
(SMS, 10A8, MMU, 13A8)

TO V L COND PWA  
(SMS, 10A8, MMU, 13A8)

OUTPUT XFMR SECTION  
480V OUTPUT



DATE	9-9-97
BY	AC
REVISION	1
DESCRIPTION	NEW RELEASE
DATE	2-10-98
BY	DA
REVISION	2
DESCRIPTION	CHG CN32 CONN
DATE	8-20-99
BY	DA
REVISION	3
DESCRIPTION	TO ADD 440V
DATE	5-12-03
BY	DA
REVISION	4
DESCRIPTION	



OUTPUT XFMR SECTION  
440V OR 600V OUTPUT

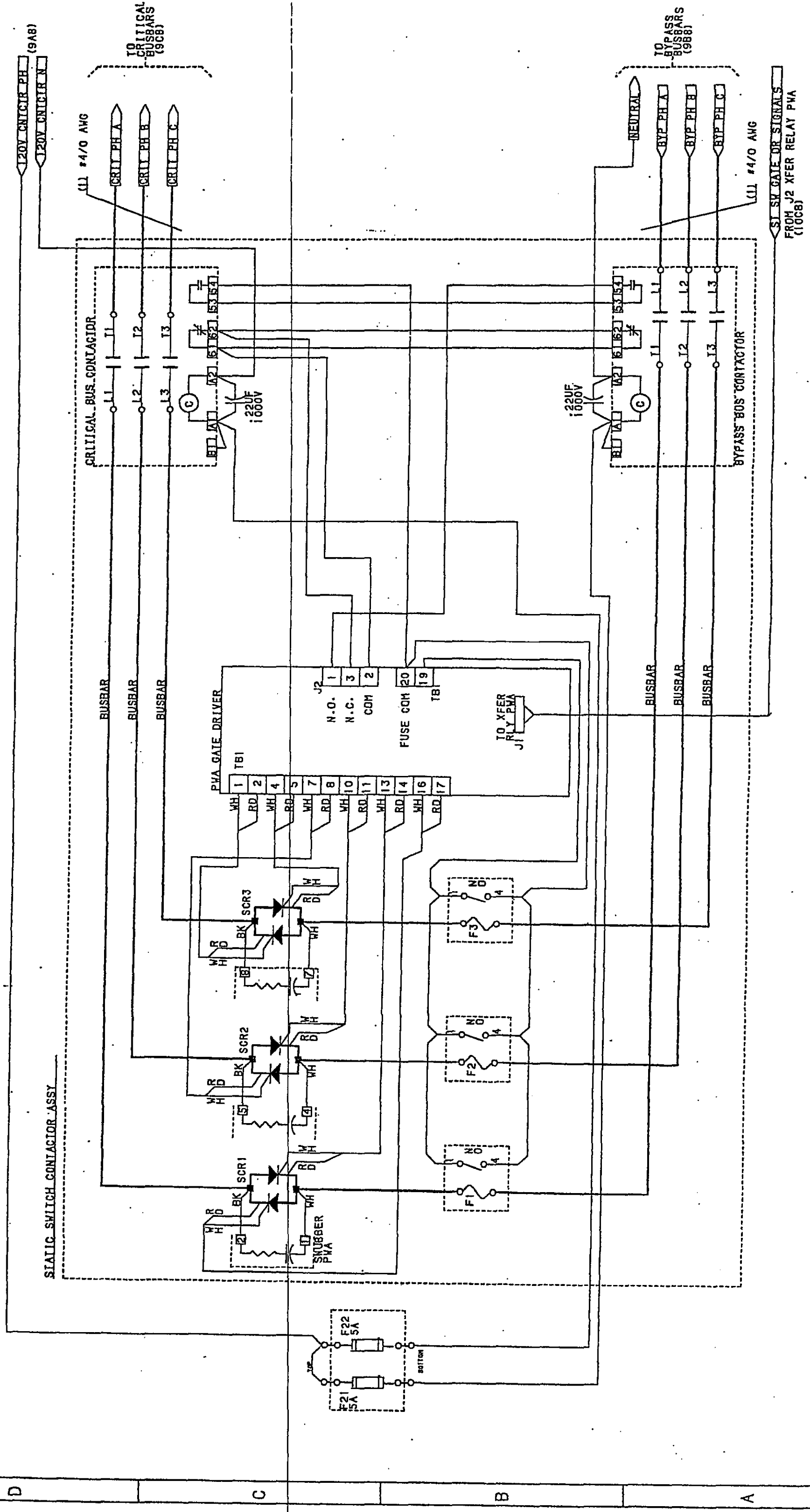
SCALE	NONE
SHEET	7 OF 16
REV	10
DATE	98-79/676-XX
BY	DA
DESCRIPTION	CHG PWA
DATE	5-12-03
BY	DA
REVISION	4
DESCRIPTION	



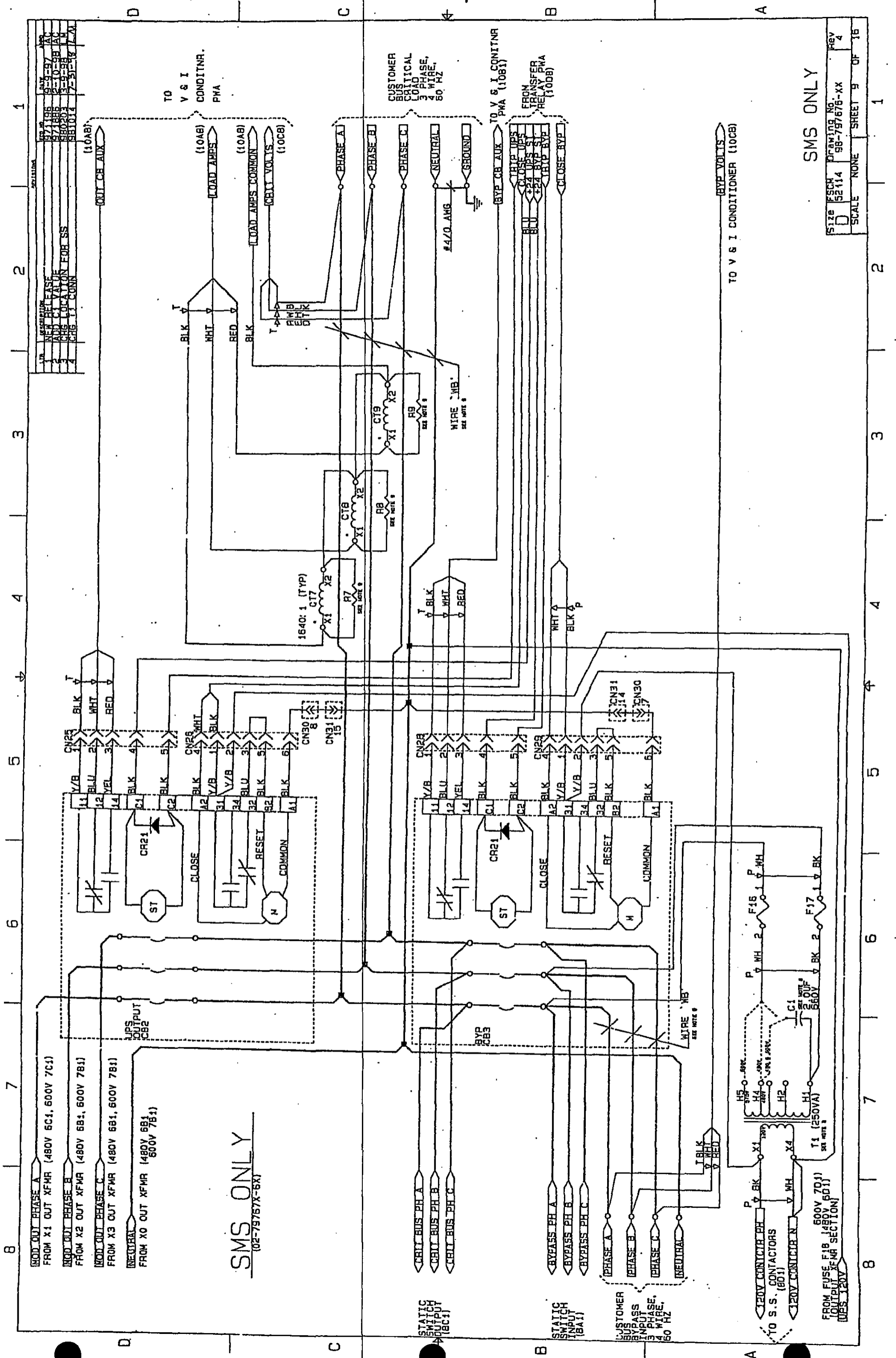
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SMS ONLY

NO.	DESCRIPTION	DATE
1	NEW RELEASE	9-9-97
2	CHG F21, F22	8-10-98
3	REV IN/OUT CONN	8-10-98
4	REV J2	7-31-98
11	REV J2 ID CONTACTORS	9-10-01



SMS ONLY

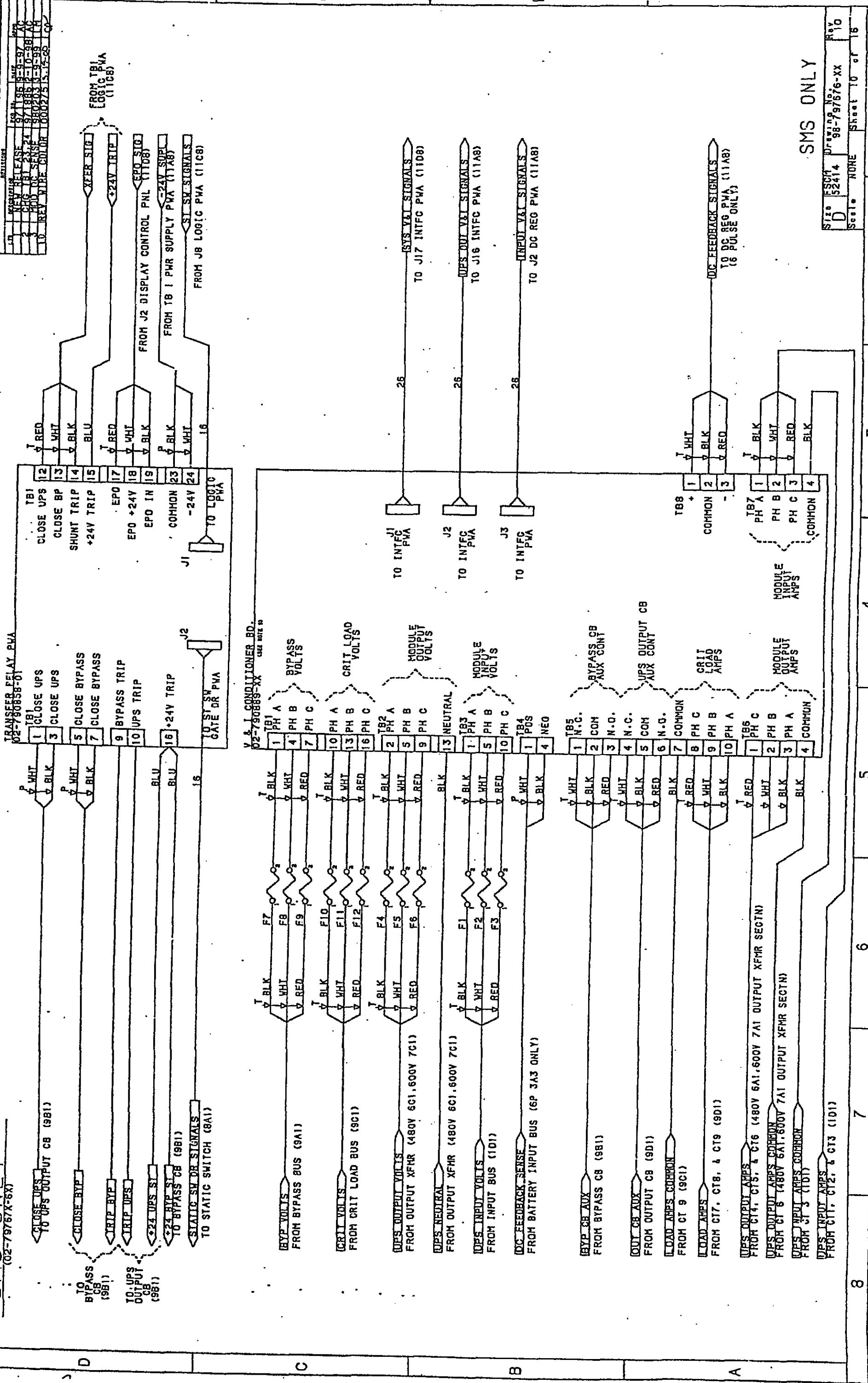


**SMS ONLY**  
(02-79767X-6X)

**SMS ONLY**

Size	F5CH	Drawing No.	REV
	52114	98-797676-XX	4
SCALE	NONE	SHEET	9 OF 16

SMS ONLY  
(02-79767X-5X)



TRANSFER RELAY PWA  
02-790858-01

V & I CONDITIONER BD.  
02-790889-XX  
SEE NOTE 19

SMS ONLY

Size D  
ESCR Drawing No 98-797676-XX  
Scale NONE  
Sheet 10 of 16

8

7

6

5

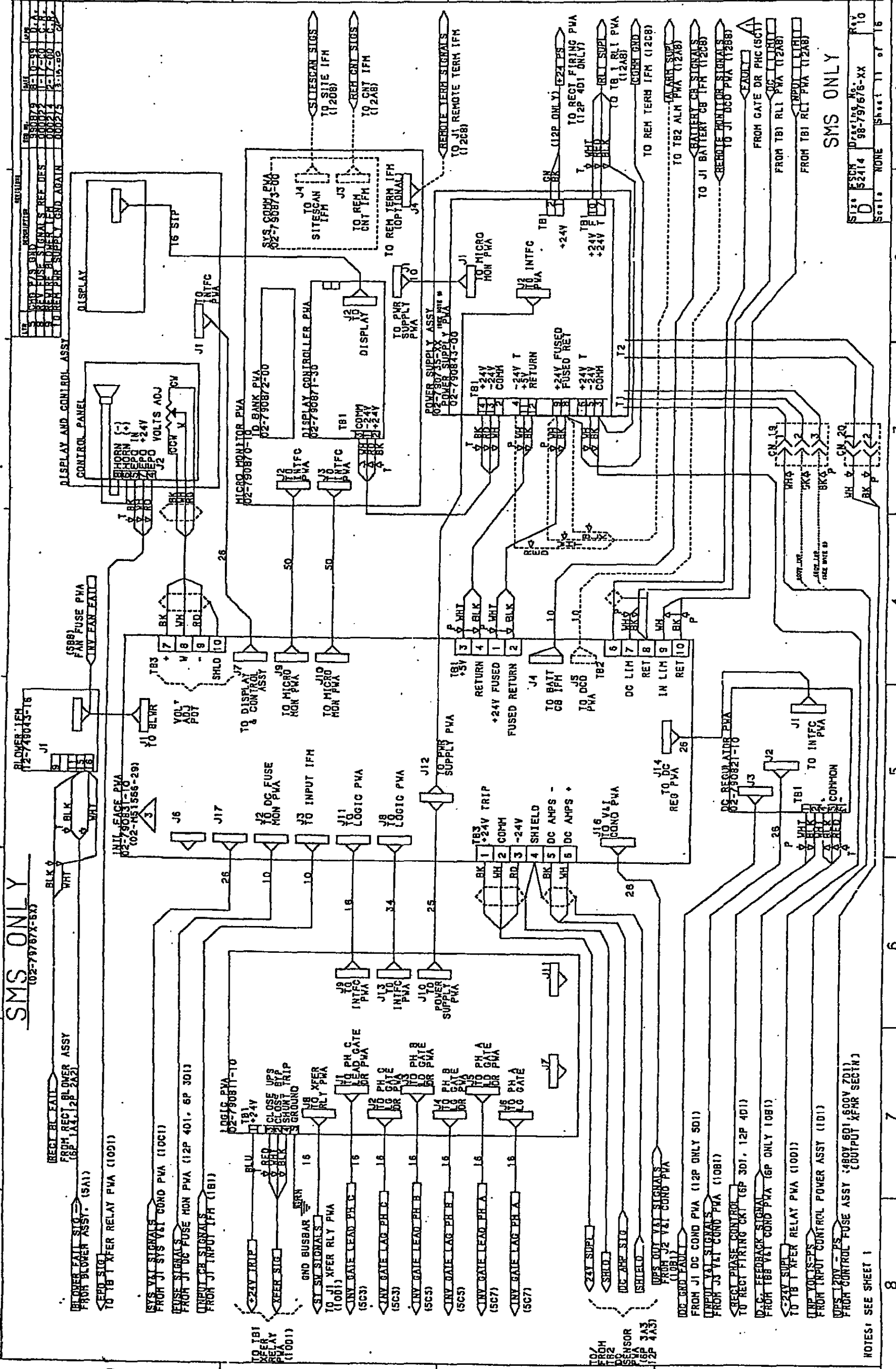
4

3

2

1

SMS ONLY



SMS ONLY

REV	DATE	BY	CHK	APP	DESC
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4	000000	000000	000000	000000	000000
5	000000	000000	000000	000000	000000
6	000000	000000	000000	000000	000000
7	000000	000000	000000	000000	000000
8	000000	000000	000000	000000	000000
9	000000	000000	000000	000000	000000
10	000000	000000	000000	000000	000000

Size: E, F, G, H, J, K, L, M, N, P, Q, R, S, T, U, V, W, X, Y, Z  
 Scale: NONE  
 Sheet 11 of 16

TO J1 REMOTE TERM IFM (1208)  
 TO J2 INTFC PWA (1208)  
 TO J3 DC COND PWA (1081)  
 TO J4 INTFC PWA (1208)  
 TO J5 DC COND PWA (1081)  
 TO J6 INTFC PWA (1208)  
 TO J7 DC COND PWA (1081)  
 TO J8 INTFC PWA (1208)  
 TO J9 DC COND PWA (1081)  
 TO J10 INTFC PWA (1208)  
 TO J11 DC COND PWA (1081)  
 TO J12 INTFC PWA (1208)  
 TO J13 DC COND PWA (1081)  
 TO J14 INTFC PWA (1208)  
 TO J15 DC COND PWA (1081)  
 TO J16 INTFC PWA (1208)  
 TO J17 DC COND PWA (1081)

TO J1 REMOTE TERM IFM (1208)  
 TO J2 INTFC PWA (1208)  
 TO J3 DC COND PWA (1081)  
 TO J4 INTFC PWA (1208)  
 TO J5 DC COND PWA (1081)  
 TO J6 INTFC PWA (1208)  
 TO J7 DC COND PWA (1081)  
 TO J8 INTFC PWA (1208)  
 TO J9 DC COND PWA (1081)  
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 TO J13 DC COND PWA (1081)  
 TO J14 INTFC PWA (1208)  
 TO J15 DC COND PWA (1081)  
 TO J16 INTFC PWA (1208)  
 TO J17 DC COND PWA (1081)

TO J1 REMOTE TERM IFM (1208)  
 TO J2 INTFC PWA (1208)  
 TO J3 DC COND PWA (1081)  
 TO J4 INTFC PWA (1208)  
 TO J5 DC COND PWA (1081)  
 TO J6 INTFC PWA (1208)  
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 TO J8 INTFC PWA (1208)  
 TO J9 DC COND PWA (1081)  
 TO J10 INTFC PWA (1208)  
 TO J11 DC COND PWA (1081)  
 TO J12 INTFC PWA (1208)  
 TO J13 DC COND PWA (1081)  
 TO J14 INTFC PWA (1208)  
 TO J15 DC COND PWA (1081)  
 TO J16 INTFC PWA (1208)  
 TO J17 DC COND PWA (1081)

TO J1 REMOTE TERM IFM (1208)  
 TO J2 INTFC PWA (1208)  
 TO J3 DC COND PWA (1081)  
 TO J4 INTFC PWA (1208)  
 TO J5 DC COND PWA (1081)  
 TO J6 INTFC PWA (1208)  
 TO J7 DC COND PWA (1081)  
 TO J8 INTFC PWA (1208)  
 TO J9 DC COND PWA (1081)  
 TO J10 INTFC PWA (1208)  
 TO J11 DC COND PWA (1081)  
 TO J12 INTFC PWA (1208)  
 TO J13 DC COND PWA (1081)  
 TO J14 INTFC PWA (1208)  
 TO J15 DC COND PWA (1081)  
 TO J16 INTFC PWA (1208)  
 TO J17 DC COND PWA (1081)

TO J1 REMOTE TERM IFM (1208)  
 TO J2 INTFC PWA (1208)  
 TO J3 DC COND PWA (1081)  
 TO J4 INTFC PWA (1208)  
 TO J5 DC COND PWA (1081)  
 TO J6 INTFC PWA (1208)  
 TO J7 DC COND PWA (1081)  
 TO J8 INTFC PWA (1208)  
 TO J9 DC COND PWA (1081)  
 TO J10 INTFC PWA (1208)  
 TO J11 DC COND PWA (1081)  
 TO J12 INTFC PWA (1208)  
 TO J13 DC COND PWA (1081)  
 TO J14 INTFC PWA (1208)  
 TO J15 DC COND PWA (1081)  
 TO J16 INTFC PWA (1208)  
 TO J17 DC COND PWA (1081)

TO J1 REMOTE TERM IFM (1208)  
 TO J2 INTFC PWA (1208)  
 TO J3 DC COND PWA (1081)  
 TO J4 INTFC PWA (1208)  
 TO J5 DC COND PWA (1081)  
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 TO J7 DC COND PWA (1081)  
 TO J8 INTFC PWA (1208)  
 TO J9 DC COND PWA (1081)  
 TO J10 INTFC PWA (1208)  
 TO J11 DC COND PWA (1081)  
 TO J12 INTFC PWA (1208)  
 TO J13 DC COND PWA (1081)  
 TO J14 INTFC PWA (1208)  
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 TO J17 DC COND PWA (1081)

NOTES: SEE SHEET 1

SMS ONLY

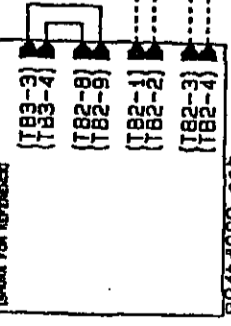
102-79767X-BX1

EXTERNAL CONNECTIONS

<SITESCAN SIGS>  
TO J4 SYS COMM PWA (11C1)

REMOTE EMERGENCY OFF

TRANSFER RELAY PWA  
02-790858-01  
(REFER TO INSTRUCTIONS)



REMOTE XFER TO BYPASS SHUTDOWN SW. (BY CUST)  
REMOTE TOTAL SHUTDOWN SW. (BY CUST)

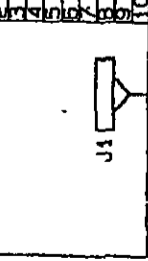
BATT 0VDC Sch  
TO J4 MICRO MON PWA (11B1)

<REMOTE TERM SIGNALS>

COMM GND  
TO TB1 P/S PWA (11B1)

BATT CKT BRKR INTF

BATTERY CB JEM  
12-748043-10



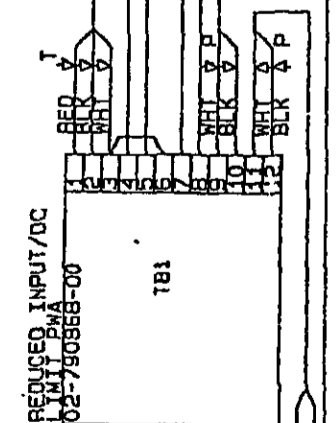
UV TRIP (+)  
UV TRIP (-)

BATT CB AUX - N.C.  
BATT CB AUX - COM  
BATT CB AUX - N.O.

<BATTERY CB SIGNALS>  
TO J4 INTFC PWA (11A1)

<REMOTE MONITOR SIGNALS>  
TO J5 INTFC PWA (11A1)

REDUCED I LIMIT



RED SUPPLY PWR FROM TB1 PWR SUPPLY PWA (11B1)

<REDUCED INPUT/DC LIMIT PWA>  
02-790858-00

<RED DC LIM CNT (BY CUST)>

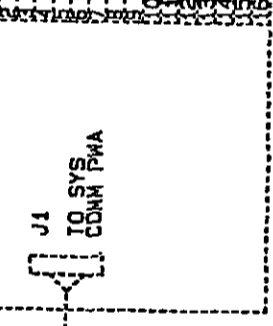
<RED INPUT LIM CNT (BY CUST)>

<REM CNT SIGS>  
TO J3 SYS COMM PWA (11C1)

<ALARM SUPPLY PWA (11A1)>

SITESCAN/SITEMASTER INTF (OPTION)

SITESCAN JEM  
12-748043-16

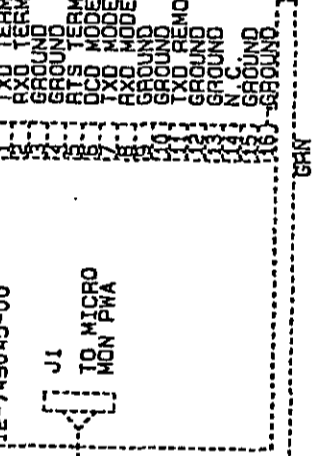


I+/R+ SMS  
I-/R- SMS

TO SYS COMM PWA

REMOTE TERMINAL INTF (OPTION)

REMOTE TERMINAL JEM  
12-748045-00

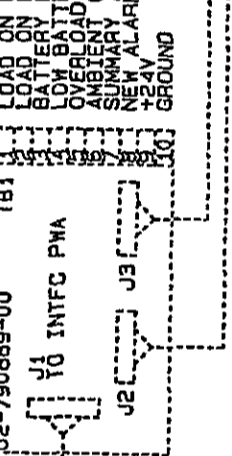


TXD TERM/MASTER  
RXD TERM/MASTER  
GROUND  
RTS TERM/MASTER  
CTS TERM/MASTER  
TXD MODEM  
RXD MODEM  
GROUND  
TXD REMOTE  
RXD REMOTE  
GROUND  
N.C.  
GROUND

TO MICRO MON PWA

REMOTE MONITOR INTF (OPTION)

DRY CNT DRYVER. PWA  
02-790869-00

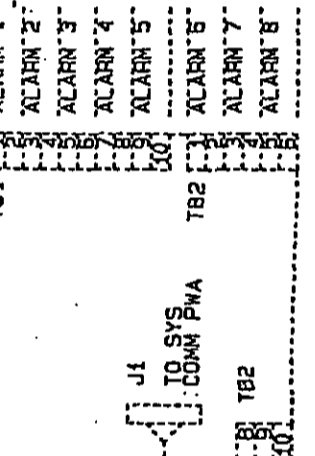


LOAD ON UPS  
LOAD ON BYPASS  
BATTERY DISCHARGE  
LOW BATTERY  
OVERLOAD  
AMBIENT OVER-TEMP  
SUMMARY ALARM  
+24V GROUND

TO INTFC PWA

CUSTOMER ALARMS INTF (OPTION)

CUSTOMER ALARM PWA  
02-790877-00



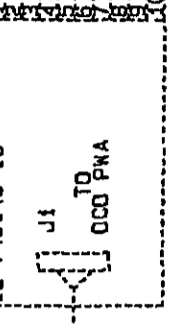
ALARM 1  
ALARM 2  
ALARM 3  
ALARM 4  
ALARM 5  
ALARM 6  
ALARM 7  
ALARM 8

TO SYS COMM PWA

BLK  
RED

2ND REMOTE MONITOR INTF (OPTION)

SECOND REM MON JEM  
12-748043-10

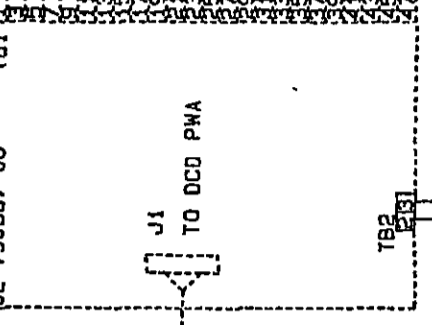


LOAD ON UPS  
LOAD ON BYPASS  
BATTERY DISCHARGE  
LOW BATTERY  
OVERLOAD  
AMBIENT OVER-TEMP  
SUMMARY ALARM  
+24V GROUND

TO PWA

REMOTE DRY CONTACTS INTF (OPTION)

DRY CNT RELAY PWA  
02-790867-00



N.C.  
COM  
N.C.  
COM  
N.C.  
COM  
N.C.  
COM  
N.C.  
COM  
N.C.  
COM  
N.C.  
COM  
N.C.  
COM  
N.C.  
COM  
N.C.  
COM  
N.C.  
COM  
N.C.  
COM

TO OCD PWA

SMS ONLY

SIZE	D
IFSCM	52414
DRAWING NO.	98-797676-XX
REV	5
SCALE	NONE
SHEET	12 OF 16

# MMU ONLY

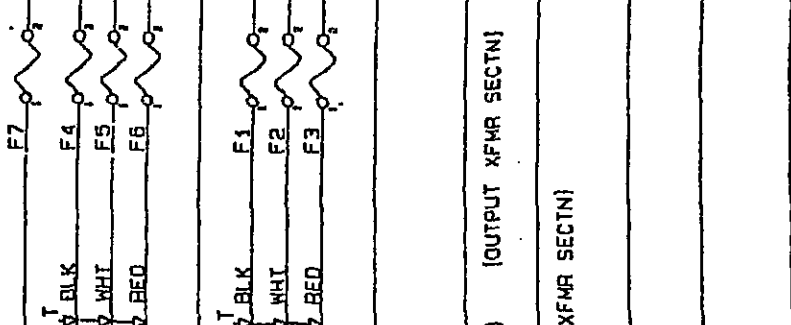
(02-79767X-8X)

- MOD\_OUT\_PHASE\_A FROM OUTPUT XFMR (480V 5C1, 600V 7C1)
- MOD\_OUT\_PHASE\_B FROM OUTPUT XFMR (480V 5B1, 600V 7B1)
- MOD\_OUT\_PHASE\_C FROM OUTPUT XFMR (480V 5B1, 600V 7B1)
- NEUTRAL FROM OUTPUT XFMR (480V 5B1, 600V 7B1)

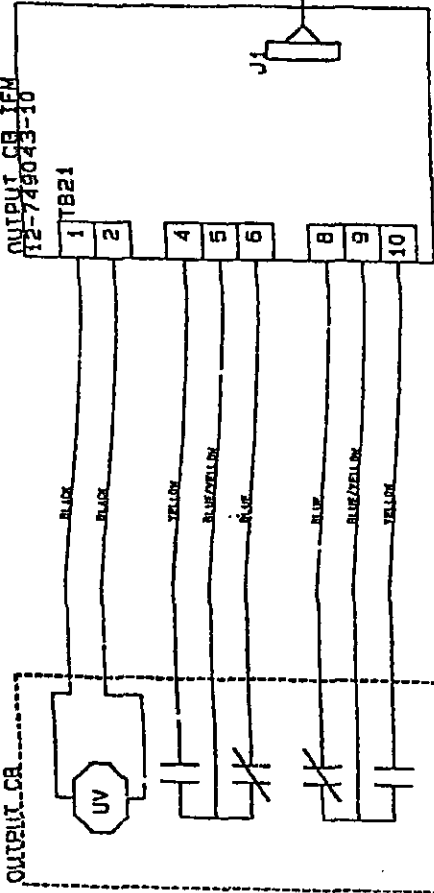
# V.S.I. CONDITIONER AD.

02-790889-XX  
SEE NOTE 9

- T82 PH-A 16 PH A
- PH A 2 PH A
- PH B 5 PH B
- PH C 9 PH C
- NEUTRAL 13 NEUTRAL
- T83 PH A 1 PH A
- PH B 5 PH B
- PH C 10 PH C
- T84 POS 1 POS
- NEG 4 NEG
- T85 PH C 1 PH C
- PH B 2 PH B
- PH A 3 PH A
- COMMON 4 COMMON
- T87 PH A 1 PH A
- PH B 2 PH B
- PH C 3 PH C
- COMMON 4 COMMON



- UPS OUTPUT VOLTS FROM OUTPUT XFMR (480V 5C1, 600V 7C1)
- UPS NEUTRAL FROM OUTPUT XFMR (480V 5C1, 600V 7C1)
- UPS INPUT VOLTS FROM INPUT BUS (101)
- DC FEEDBACK SENSE FROM BATTERY INPUT BUS (6P 3A3 ONLY)
- UPS OUTPUT AMPS FROM CT4, CT5, & CT6 (480V 5A1, 600V 7A1) (OUTPUT XFMR SECTN)
- UPS INPUT AMPS COMMON FROM CT6 (480V 5A1, 600V 7A1) (OUTPUT XFMR SECTN)
- UPS INPUT AMPS FROM CT1, CT2, CT3 (101)
- UPS INPUT AMPS COMMON FROM CT3 (101)



OUTPUT CB SIGNALS TO J6 INTF PWA (1408)

WIRE 'KB' SEE NOTE 9

CUSTOMER BUS CRITICAL LOAD 3 PHASE, 4 WIRE, 60 HZ

CUSTOMER BUS

DC FEEDBACK SIGNALS TO DC REG PWA (5P ONLY 14A8)

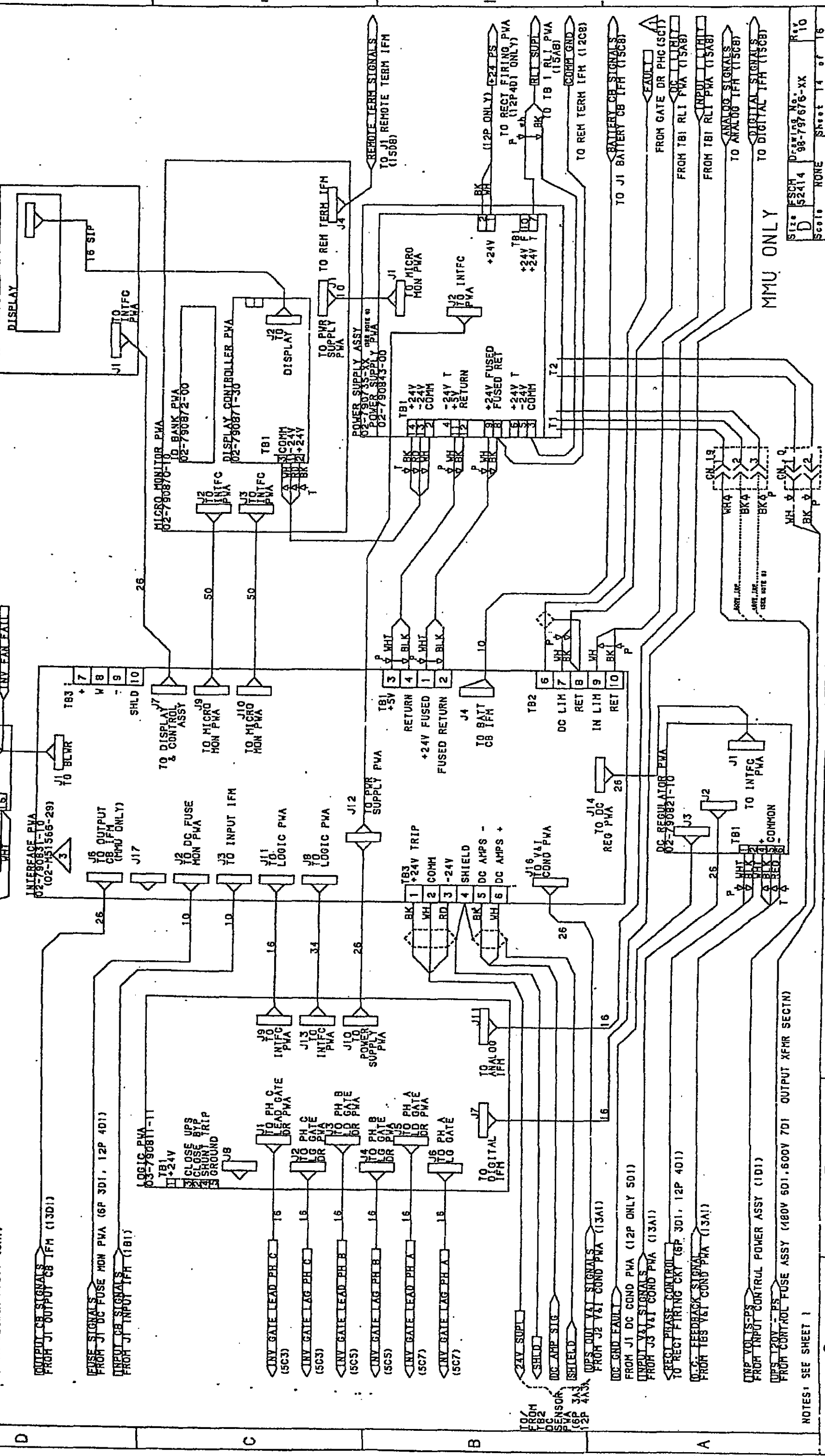
MMU ONLY

SIZE 5.5x7.5  
REV 3  
DATE 10-10-98  
BY 971985  
APP 971985  
REV 9-8-97  
BY 971985  
APP 971985  
REV 2-10-98  
BY 971985  
APP 971985  
REV 3-2-98  
BY 971985  
APP 971985

SCALE NONE SHEET 13 of 16

**MMU ONLY**

REV	DATE	BY	CHKD	APPD
1	11-98	9-9-97		
2	12-98	2-10-98		
3	12-98	3-9-98		
4	12-98	7-31-98		
5	12-98	12-17-00		
6	12-98	3-3-00		



MMU ONLY

NOTES: SEE SHEET 1

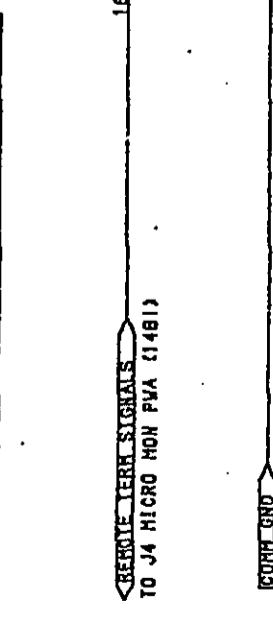
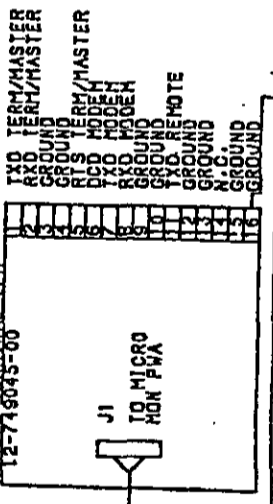
MMU ONLY

(02-79767X-8X)

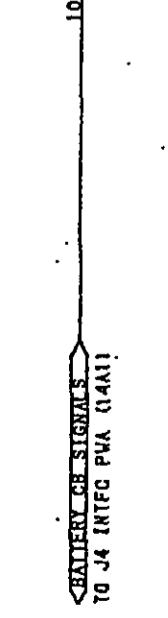
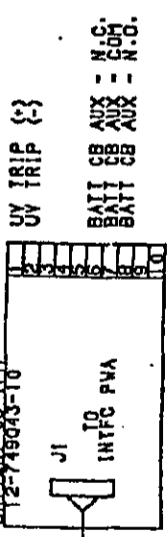
EXTERNAL CONNECTIONS

REV	DESCRIPTION	DATE	BY
1	NEW RELEASE	8/1/88	MMU
2	CHG TITLE ON BL	8/1/88	MMU
3	CHG ASS'Y CND	8/1/88	MMU
4	CHG ASS'Y CND	8/1/88	MMU
5	CHG ASS'Y CND	8/1/88	MMU
6	CHG ASS'Y CND	8/1/88	MMU
7	CHG ASS'Y CND	8/1/88	MMU
8	CHG ASS'Y CND	8/1/88	MMU
9	CHG ASS'Y CND	8/1/88	MMU
10	UPDATE	8/1/88	MMU

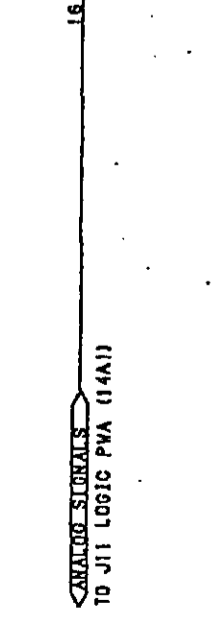
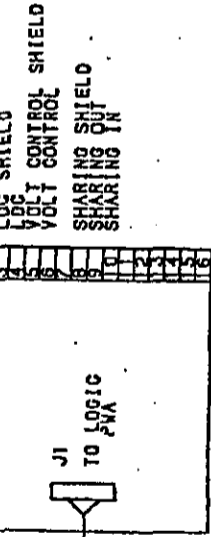
REMOTE TERMINAL INTERFACE



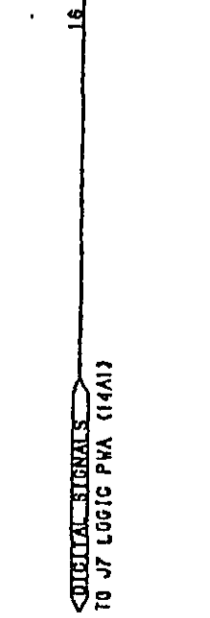
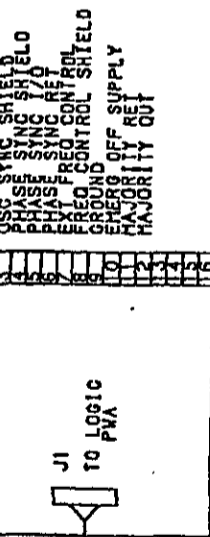
BATT CKT BRKR INTFC



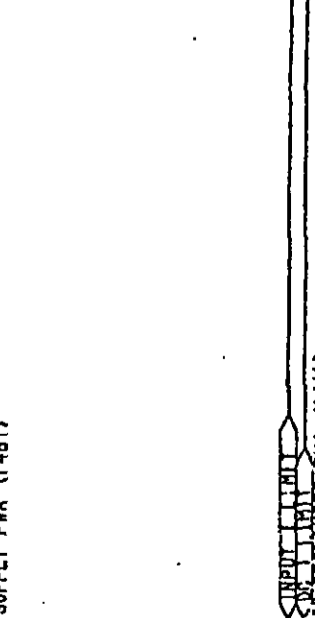
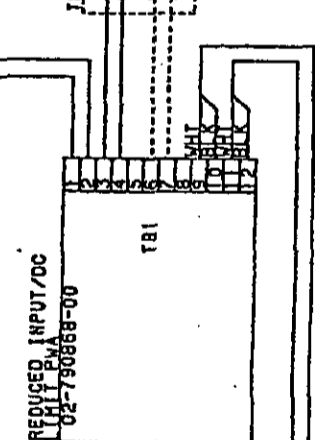
SCC ANALOG INTFC



SCC DIGITAL INTFC



REDUCED I LIMIT



MMU ONLY

Scale	NONE	Sheet	15 of 16
Part No.	52414	Doc No.	98-797678-XX
Rev	D	Rev	10



CONFIGURATION

JUMPER SELECT CHART



PWA	FUNCTION	HEADER OR JUMPER	PINS TO BE CONNECTED
INTERFACE	SYSTEM SEL	H1-6	1-2
LOGIC PWA	XSTR/SCR SELECT	H13	XSTR (1-2)
	PROTECT ENABLE	H4-H6	2-3
	AUX DELAY	H1	1-2, 3-4, 7-8
	LINE SYNC	H7	2-3 (INT-SMS)
	FREQ. SELECT	H9, H10-H12	1-2 (EXT-PMU)
	FAULT XFR INHIBIT	H9	1-2

COMPONENT SELECT CHART

COMPONENT	FUNCTION	GAGE VALUE / P/N		RATING / P/N	RATING / P/N	RATING / P/N	RATING / P/N	RATING / P/N	RATING / P/N
		RATING / P/N	RATING / P/N						
WIRE 'WA'	INPUT CB POWER WIRING	3 X 4/0 AWG	3 X 4/0 AWG	SRS, 750 KVA 480/480V .8PF 02-791676-64	SRS, 750 KVA 480/480V .8PF 02-791676-64	SRS, 750 KVA 480/480V .8PF 02-791676-64	SRS, 750 KVA 480/480V .8PF 02-791676-64	SRS, 750 KVA 480/480V .8PF 02-791676-64	SRS, 750 KVA 480/480V .8PF 02-791676-64
WIRE 'WB'	OUTPUT, BYPASS & CRITICAL LOAD POWER WIRING	3 X 4/0 AWG	3 X 4/0 AWG	SRS, 750 KVA 480/480V .8PF 02-791676-64	SRS, 750 KVA 480/480V .8PF 02-791676-64	SRS, 750 KVA 480/480V .8PF 02-791676-64	SRS, 750 KVA 480/480V .8PF 02-791676-64	SRS, 750 KVA 480/480V .8PF 02-791676-64	SRS, 750 KVA 480/480V .8PF 02-791676-64
R1, R2, R3	BURDEN RESISTORS	6.2 OHMS	6.2 OHMS	6.2 OHMS	6.2 OHMS	6.2 OHMS	6.2 OHMS	6.2 OHMS	6.2 OHMS
R4, R5, R6	BURDEN RESISTORS	6.2 OHMS	6.2 OHMS	6.2 OHMS	6.2 OHMS	6.2 OHMS	6.2 OHMS	6.2 OHMS	6.2 OHMS
R7, R8, R9	BURDEN RESISTORS	6.2 OHMS	6.2 OHMS	6.2 OHMS	6.2 OHMS	6.2 OHMS	6.2 OHMS	6.2 OHMS	6.2 OHMS
CONDTR, BD	POWER SUPPLY ASSEMBLY	02-790889-03	02-790889-05	02-790889-03	02-790889-05	02-790889-03	02-790889-05	02-790889-03	02-790889-05
INPUT XFMR	INPUT CURRENT CT'S	02-790735-00	02-790735-00	02-790735-00	02-790735-00	02-790735-00	02-790735-00	02-790735-00	02-790735-00
OUTPUT TRANSFORMER	OUTPUT CURRENT CT'S (SMS ONLY)	02-791676-62	02-791676-62	02-791676-62	02-791676-62	02-791676-62	02-791676-62	02-791676-62	02-791676-62
CRNL XFMR		02-761678-59	02-761678-70	02-761678-59	02-761678-70	02-761678-59	02-761678-70	02-761678-59	02-761678-70
		12-749052-00	12-749052-00	12-749052-00	12-749052-00	12-749052-00	12-749052-00	12-749052-00	12-749052-00

CONNECTION CHART

COMPONENT	SIGNAL NAME	CONNECTION			
		RATING / P/N	RATING / P/N	RATING / P/N	RATING / P/N
CONNECTOR CN19	LINE VOLTAGES	SRS, 750 KVA 480/480V .8PF 02-791676-64	SRS, 750 KVA 480/480V .8PF 02-791676-64	SRS, 750 KVA 480/480V .8PF 02-791676-64	SRS, 750 KVA 480/480V .8PF 02-791676-64
XFRRR	FT6-2 WRT	PIN 3	PIN 2	PIN 3	PIN 2
	GAP CI	TERMINL H4	TERMINL H5	TERMINL H4	TERMINL H4

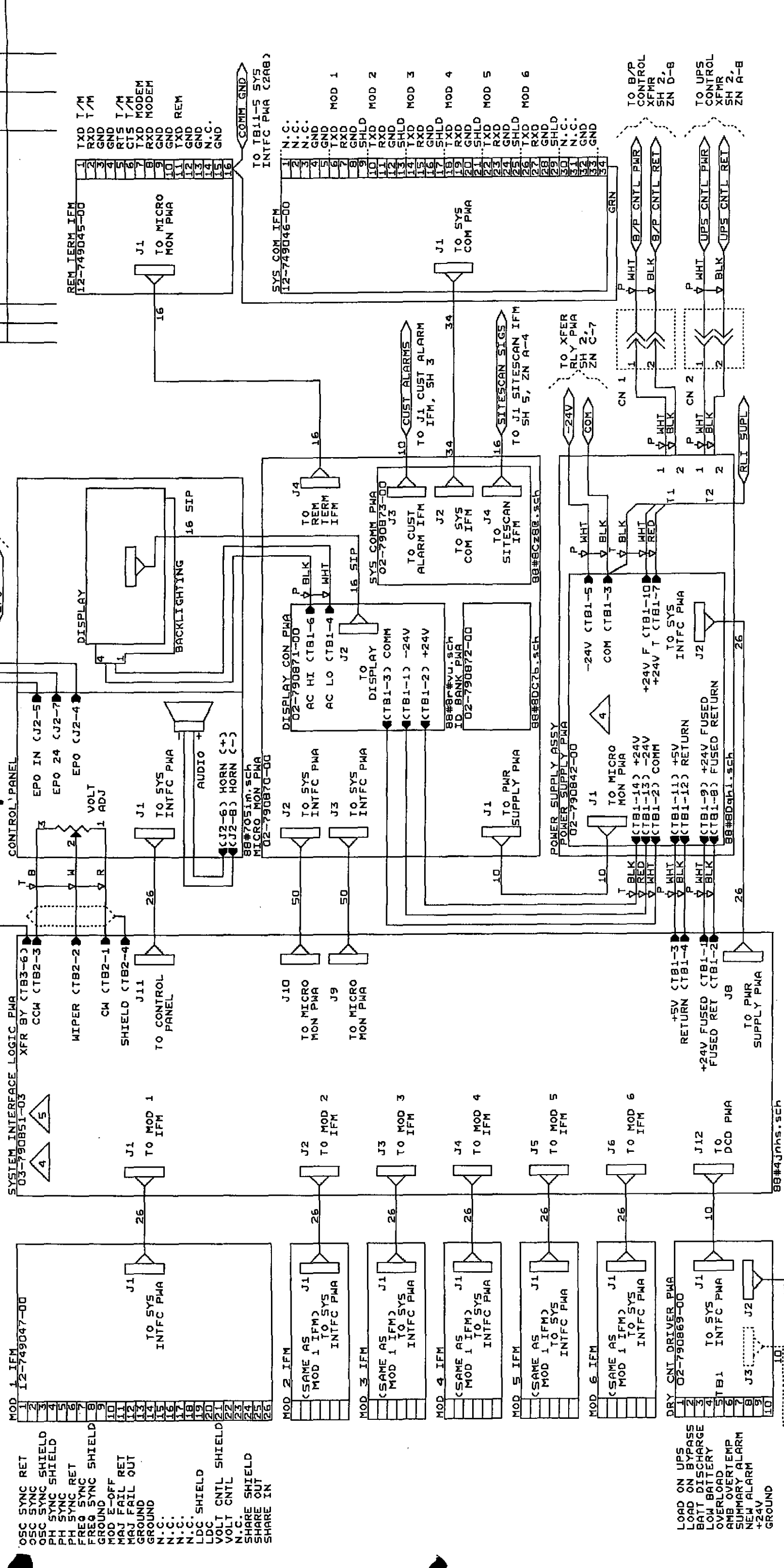
SCHEMATIC APPLICABILITY

PARTS NO.	SPECIFICATION															
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16
02-791676-64	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
02-791676-66	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
02-791676-67	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
02-791676-68	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
02-791676-69	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
02-791676-70	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
02-791676-71	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
02-791676-72	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
02-791676-73	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
02-791676-74	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
02-791676-75	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
02-791676-76	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
02-791676-77	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
02-791676-78	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

REV	DESCRIPTION	DATE	BY
1	REV RELEASE	3/15/78	AK
2	CHG RESISTOR	2/10/78	AK
3	CHG RESISTOR	10-20-78	AK
4	ADD 440V	3-10-80	AK

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 THE EMERSON INDUSTRIAL CONTROLS DIVISION OF EMERSON ELECTRIC CO.  
 IS NOT RESPONSIBLE FOR THE DESIGN OR CONSTRUCTION OF THIS IN-  
 STALLED EQUIPMENT. THE USER SHOULD CONSULT THE EMERSON  
 LITERATURE FOR THE PROPER INSTALLATION AND MAINTENANCE  
 PROCEDURES. THE EMERSON INDUSTRIAL CONTROLS DIVISION OF  
 EMERSON ELECTRIC CO. IS NOT RESPONSIBLE FOR THE DESIGN OR  
 CONSTRUCTION OF THIS IN-INSTALLED EQUIPMENT.

ZONE 1  
 NC NEW RELEASE  
 A REV SHT 2, 3 AND 4  
 B  
 C2573 70-31  
 C2599 81-26  
 900640  
 ECO NO DATE APPROVE  
 1989 RA  
 1990 RA



REVISION STATUS	
SHT 1	NC A B
SHT 2	NC A B
SHT 3	NC A B
SHT 4	NC A B
SHT 5	NC NC B

REVISION STATUS	
SHT 1	NC A B
SHT 2	NC A B
SHT 3	NC A B
SHT 4	NC A B
SHT 5	NC NC B

TO DC I LIM RLY PWA, SHT 5, ZN B-6	EMERSON COMPUTER POWER
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN INCHES AND APPLY BEFORE ADDITIVE ANGLES +/- .XX +/- .XXX +/- .XXX +/- .XXX	EMERSON COMPUTER POWER
BREAK ALL SHARP EDGES	SCHEMATIC/WIRING DIAGRAM
SURFACE ROUGHNESS	SYSTEM CONTROL CABINET
MATERIAL	IN EXTERNAL SWITCHGEAR
SCCC-4000	840-4000A
SCCC-3000	
SCCC-2500	
SCCC-2000	
SCCC-1600	
SCCC-1280	
SCCC-800	
98-790509-80CC-640	
NEXT ASSY USED ON FINISH APPLICATION	

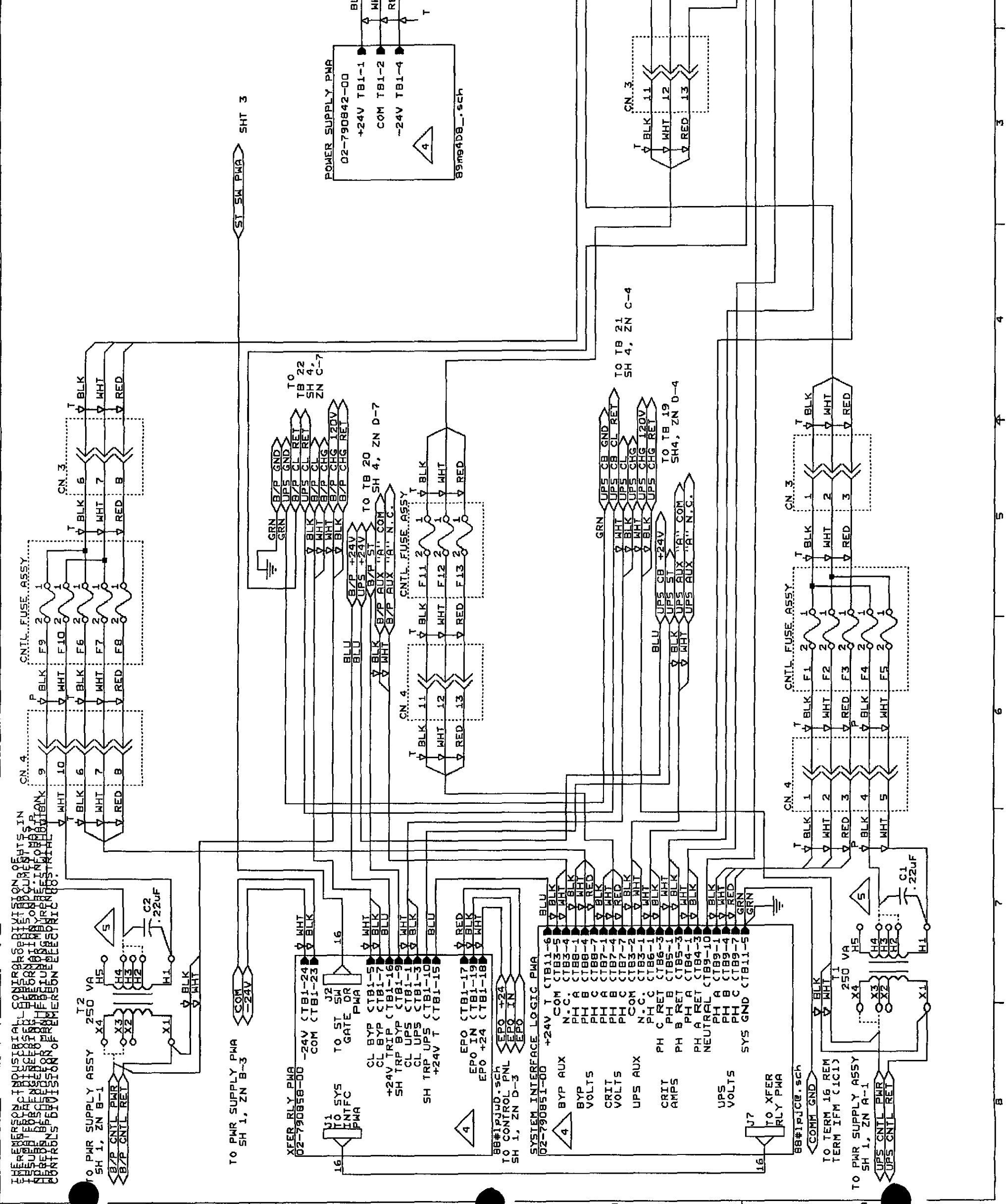
SEE TABULATION BLOCK ON SHEET 3 FOR JUMPER, CABLE, AND TAP SELECTION.

PART SHOWN ON MORE THAN ONE SHEET.

ALL POWER AND CONTROL WIRING TO BE UL/CSA APPROVED PER SPEC 78-749901-00.

ALL UNSPECIFIED CONTROL WIRING TO BE WHITE.

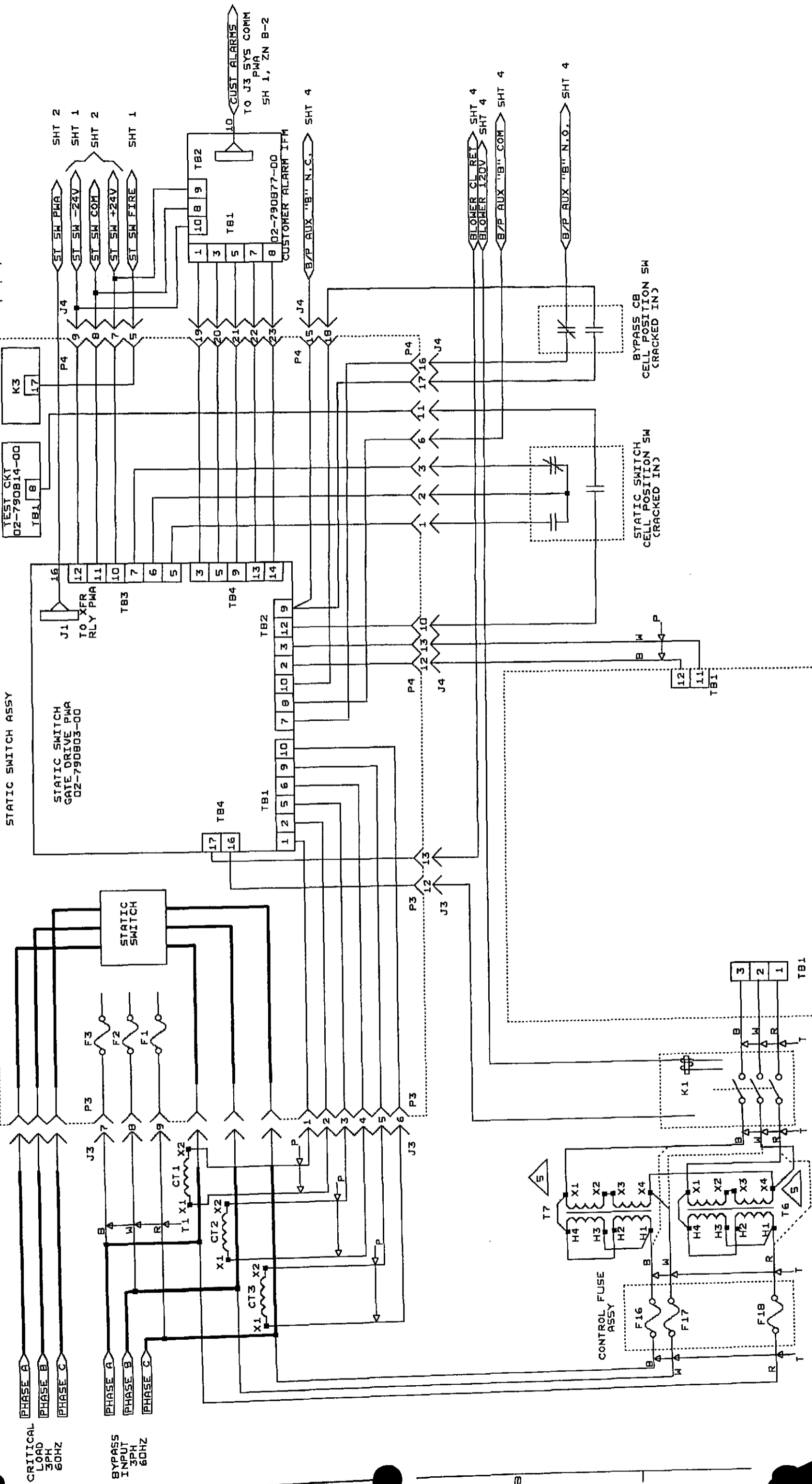
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NC	NEW RELEASE	C2573	20-31	
A	DEL BLOWER CL RET	C2599	B-26	RA
B		900640	199D	RA



Size	FSCM	Drawing No.	Rev
D	52414	98-790509-00	B
Scale	NONE	Sheet	2 of 5

ZONETR	DESCRIPTION	ECO. MOD/RE APP/NOV
NC	NEW RELEASE	C257320-31 RA
A	ADD WIRE COLOR	1989
B	ADD 02-790877-00	C259981-28 RA
		1990 RA
		900640

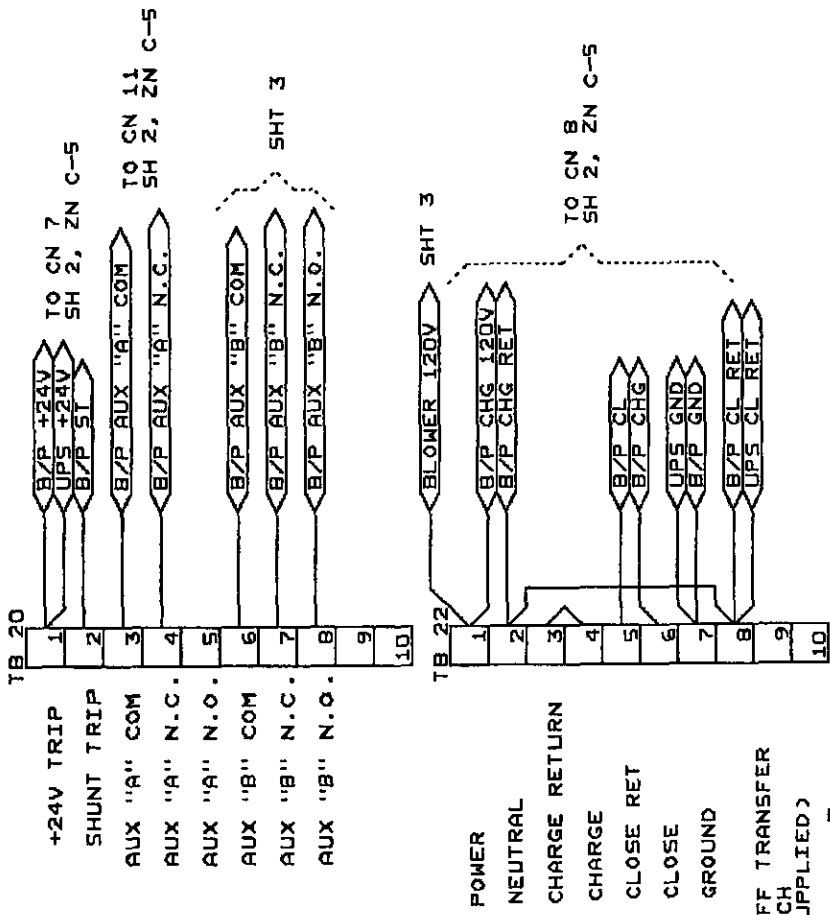
THE MERSON INDUSTRIAL CONTROL DIVISION OF GEORGE EASTMAN CORPORATION HAS BEEN ELECTRICALLY REDESIGNED TO BE A NON-FLAMMABLE TYPE OF ALARM CONTROL DIVISION OF MERSON ELECTRIC CORPORATION.



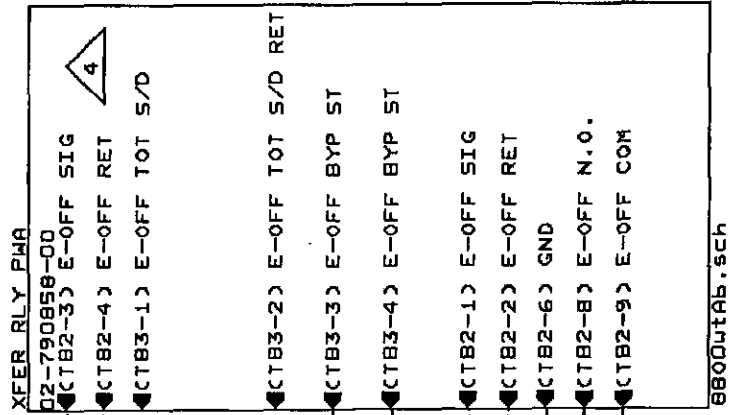
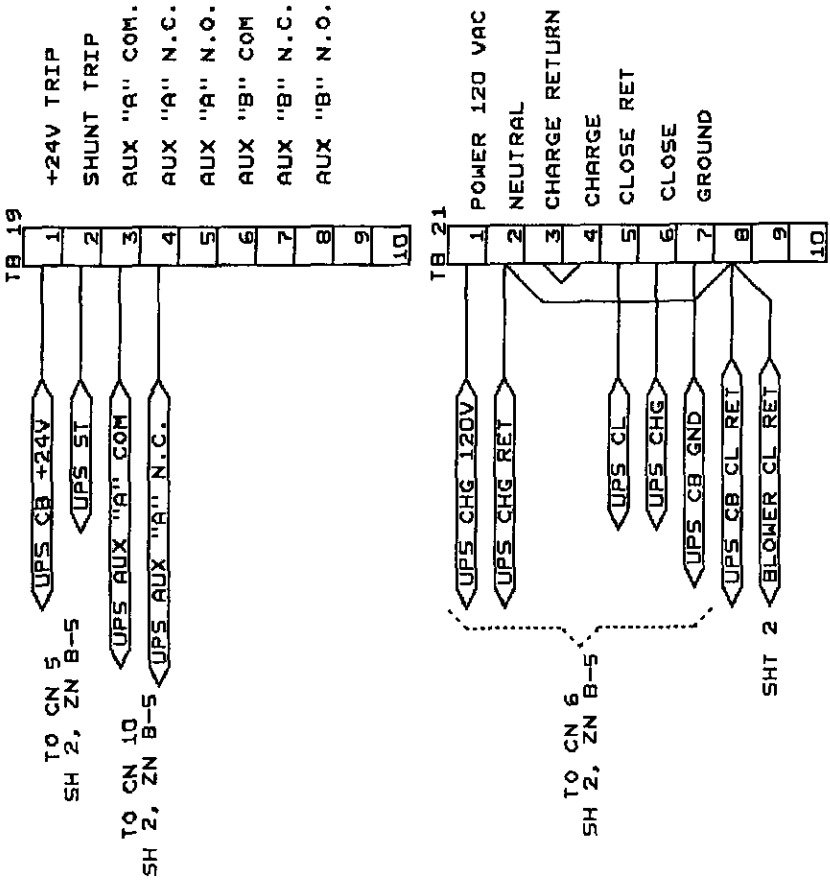
Size	52414	Drawing No.	98-790509-00	Rev	B
Scale	NONE	Sheet	3 of 5		

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### BYPASS CIRCUIT BREAKER CONNECTIONS



### UPS CIRCUIT BREAKER CONNECTIONS



EMERGENCY OFF TOTAL SHUTDOWN (OPTION)

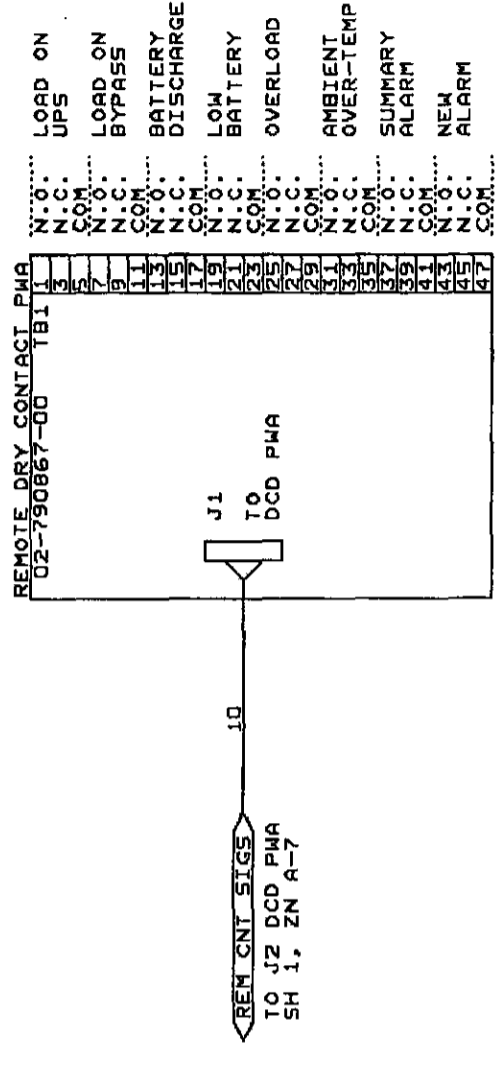
### TABULATION BLOCK 5

SYSTEM CONTROL CABINET	SYSTEM VOLTAGE	SYSTEM INTERFACE LOGIC PWR	VOLTAGE HEADER PINS TO BE CONNECTED (CH4, H7, H8)	LOGIC PWR HEADER PINS TO BE CONNECTED (CH1, H2, H3)	CONTROL CONNECTIONS	REQUIRED CONTROL CT RATIO	CONTROL
SCCC-640	208/120V	NO JUMPERS	1-2, 3-4, 5-6	1-2, 5-6, 11-12	H18H2 X18X4 H18H3 X18X3	1000:1A	REMOVE INSTALL
SCCC-800	208/120V	NO JUMPERS	1-2, 3-4, 5-6	1-2, 9-10, 11-12	H18H2 X18X4 H18H3 X18X3	1600:1A	REMOVE INSTALL
SCCC-1200	208/120V	NO JUMPERS	1-2, 3-4, 5-6	1-2, 9-10, 11-12	H18H2 X18X4 H18H3 X18X3	2500:1A	REMOVE INSTALL
SCCC-1600	208/120V	NO JUMPERS	1-2, 3-4, 5-6	1-2, 5-6, 11-12	H18H2 X18X4 H18H3 X18X3	2500:1A	REMOVE INSTALL
SCCC-2000	208/120V	NO JUMPERS	1-2, 3-4, 5-6	1-2, 5-6, 11-12	H18H2 X18X4 H18H3 X18X3	3000:1A	REMOVE INSTALL
SCCC-2500	208/120V	NO JUMPERS	1-2, 3-4, 5-6	1-2, 5-6, 7-8	H18H2 X18X4 H18H3 X18X3	2500:1A	REMOVE INSTALL
SCCC-3000	208/120V	NO JUMPERS	1-2, 3-4, 5-6	1-2, 5-6, 7-8	H18H2 X18X4 H18H3 X18X3	3000:1A	REMOVE INSTALL
SCCC-4000	208/120V	NO JUMPERS	1-2, 3-4, 5-6	1-2, 5-6, 7-8	H18H2 X18X4 H18H3 X18X3	4000:1A	REMOVE INSTALL

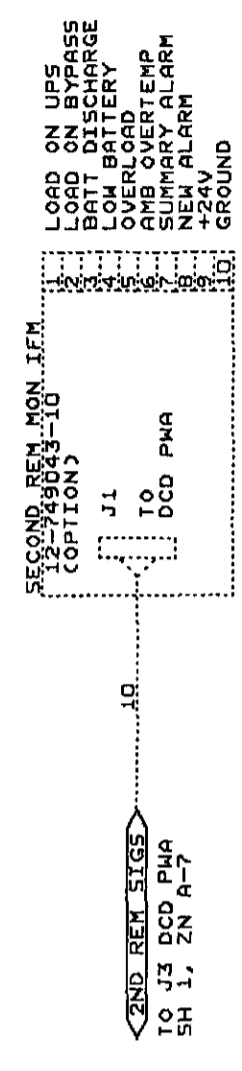
ZONETR	DESCRIPTION	ECO NO	DATE	APPROVED
NC	NEW RELEASE	C257320-31	1989	RA
A	REV TB22 & TB21	C25988-28	1990	RA
B		900640		

THE PERSONNEL DIVISION OF WESTINGHOUSE ELECTRIC CORPORATION  
 THE PERSONNEL DIVISION OF WESTINGHOUSE ELECTRIC CORPORATION  
 THE PERSONNEL DIVISION OF WESTINGHOUSE ELECTRIC CORPORATION  
 THE PERSONNEL DIVISION OF WESTINGHOUSE ELECTRIC CORPORATION

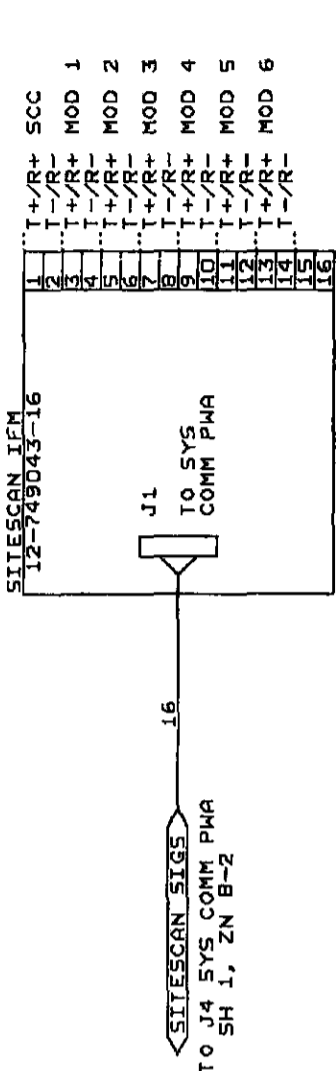
REVISIONS	ECO NO DATE APPROVED
NC NEW RELEASE	C257320-31 1989
B	900640



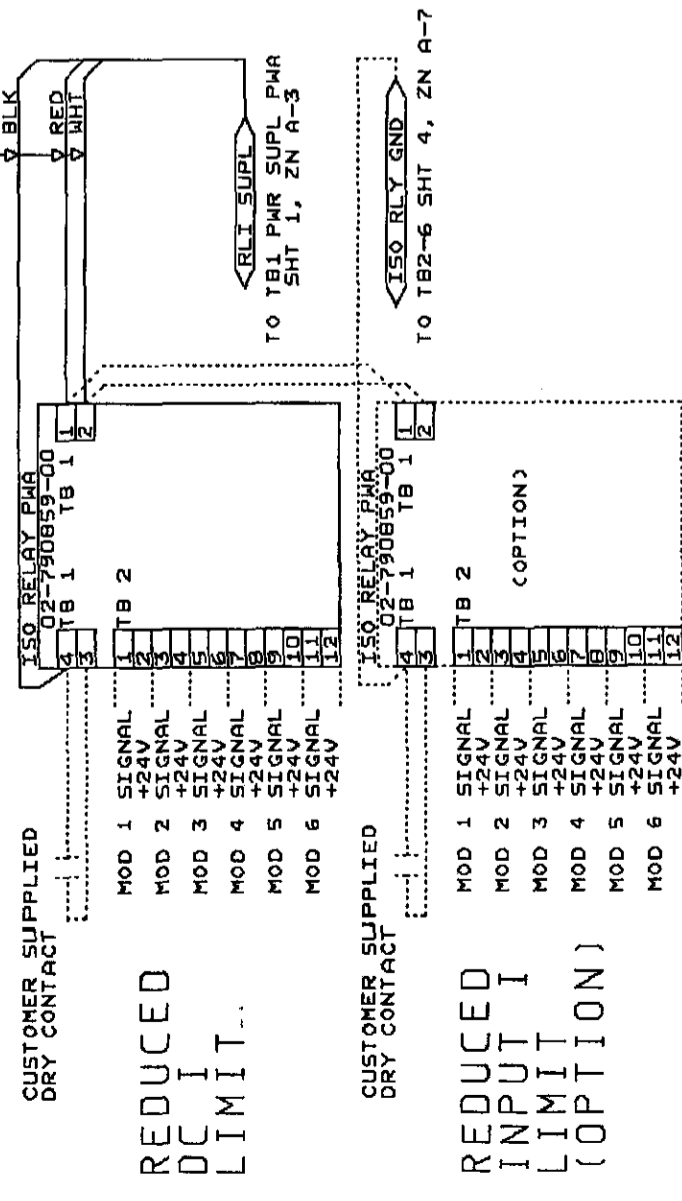
REMOTE DRY CONTACT INTERFACE



SECOND REMOTE MONITOR INTERFACE (OPTION)



SITESCAN/SITEMASTER INTERFACE (OPTION)

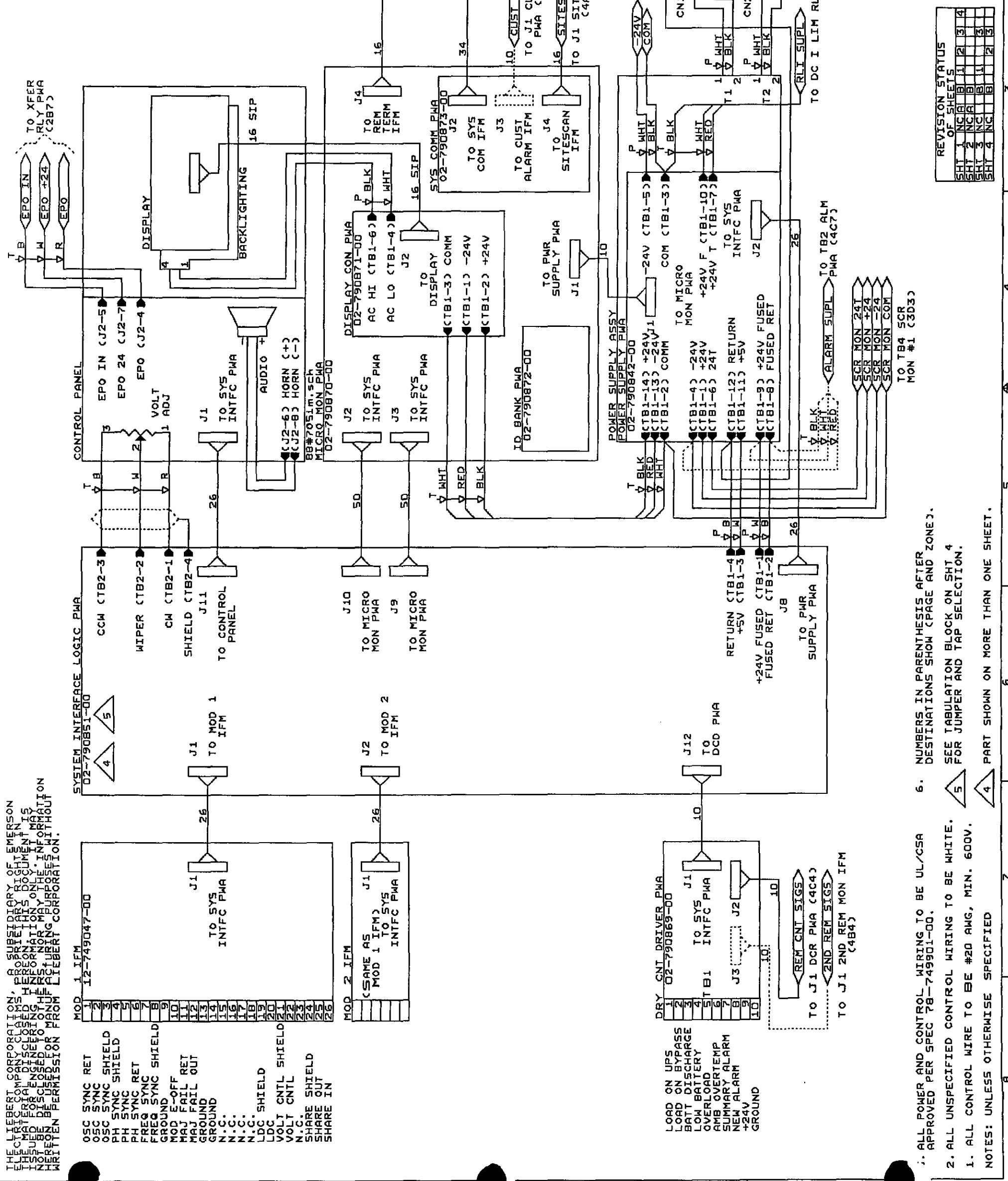


REDUCED DC INPUT LIMIT

REDUCED INPUT LIMIT (OPTION)

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REV	DESCRIPTION	ECO NO	DATE	APPD
NC	NEW RELEASE	900438	072590	SN
A	REV SHT 2	900708	100290	SN
B	REV SHT 2, 3, 4	900897	110290	SN
1	REV SHT 3	910033	021131	SN
2	REV SHT 4	930693	021131	TP
3	REV SHT 3, 4	950458	060895	DE
4	REV SHT 1	980152	020398	



MOD 1 IFM	MOD 2 IFM
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26

OSC SYNC RET  
OSC SYNC SHIELD  
PH SYNC SHIELD  
PH SYNC RET  
FREQ SYNC  
FREQ SYNC SHIELD  
GROUND  
MOD E-OFF  
MAJ FAIL RET  
MAJ FAIL OUT  
GROUND  
N.C.  
N.C.  
N.C.  
LDC SHIELD  
VOLT CNTL SHIELD  
VOLT CNTL  
N.C.  
SHARE SHIELD  
SHARE OUT  
SHARE IN

CONTRACT NO.	UPS	Title
071890		SCHEMATIC/WIRING DIAGRAM
071890		SYSTEM CONTROL CABINET
071890		480-960A
071890		Size 52414
071890		FSCM Drawing No. 98-790517-10
071890		Scale NONE
071890		Sheet 1 of 4

REVISION STATUS	OF SHEETS
SHT 1	NC
SHT 2	NC
SHT 3	NC
SHT 4	NC

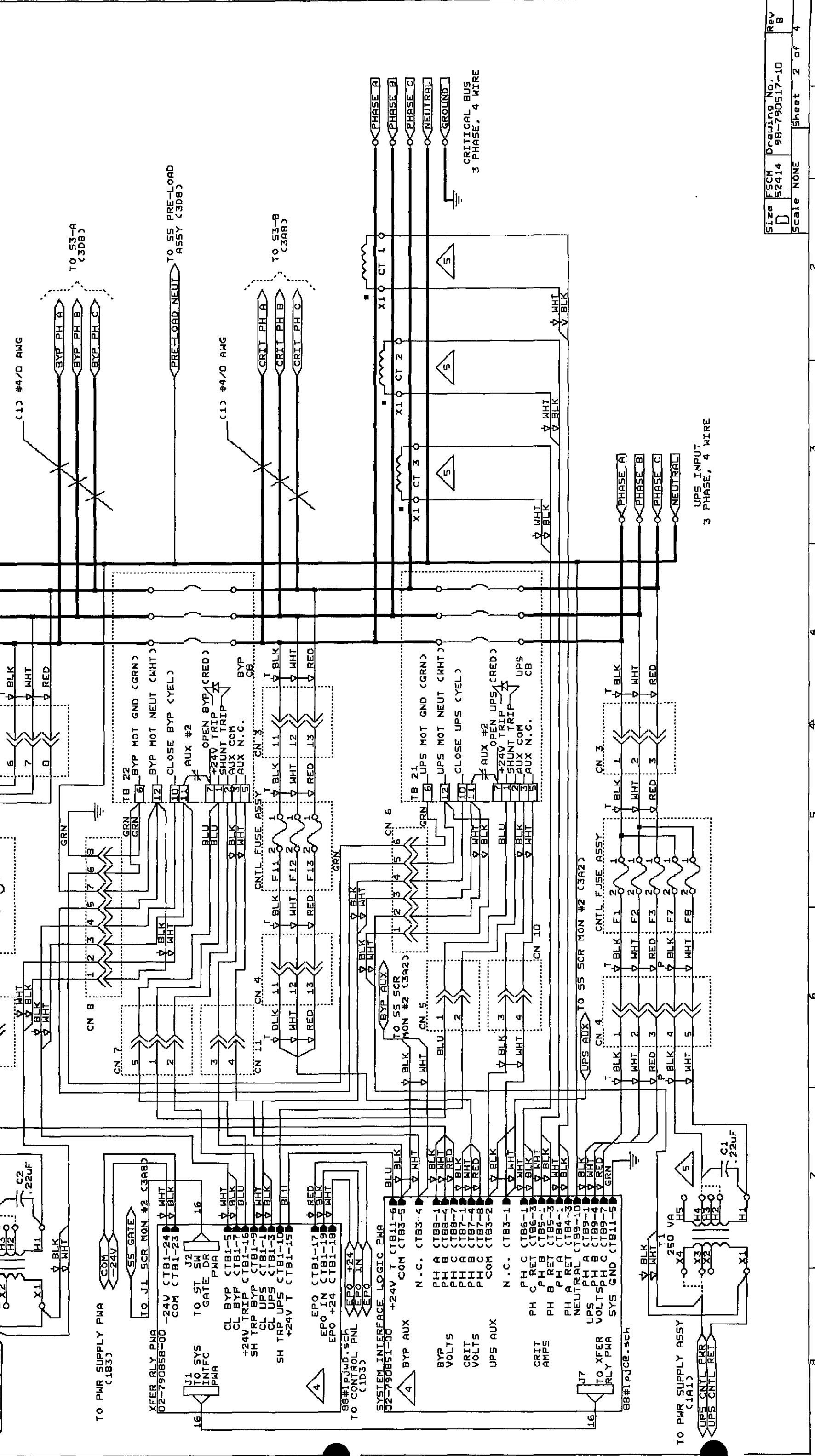
REVISION STATUS	OF SHEETS
SHT 1	NC
SHT 2	NC
SHT 3	NC
SHT 4	NC

1. ALL POWER AND CONTROL WIRING TO BE UL/CSA APPROVED PER SPEC 78-749901-00.  
2. ALL UNSPECIFIED CONTROL WIRING TO BE WHITE.  
1. ALL CONTROL WIRE TO BE #20 AWG, MIN. 600V.  
NOTES: UNLESS OTHERWISE SPECIFIED

6. NUMBERS IN PARENTHESIS AFTER DESTINATIONS SHOW (PAGE AND ZONE).  
5. SEE TABULATION BLOCK ON SHT 4 FOR JUMPER AND TAP SELECTION.  
4. PART SHOWN ON MORE THAN ONE SHEET.

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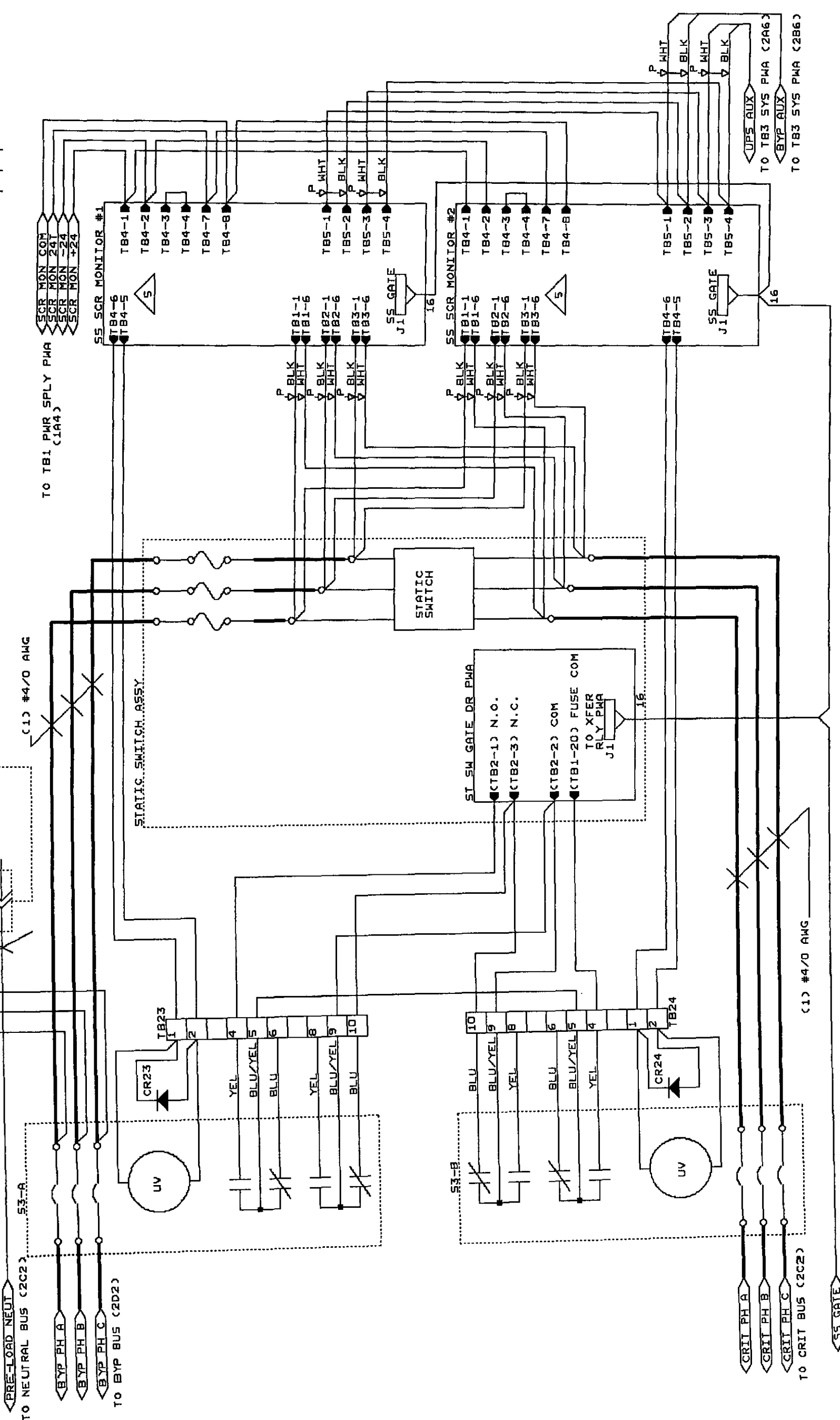
ZONE/REV	DESCRIPTION	ECO NO/DATE APPROVED
NC	NEW RELEASE	900438-25 90 SN
A	FUSE NO. CHANGED	9007080-2 90 SN
B	ADDED REF. DIODE TO CB	900897





ZONETR	DESCRIPTION	ECO NO	DATE	APPROV
1	PRELOAD WIRING WAS #20	910033	2-11-91	SN
3	CORRECT MODULE NAMES	950458		SN
				SN
				SN
				SN

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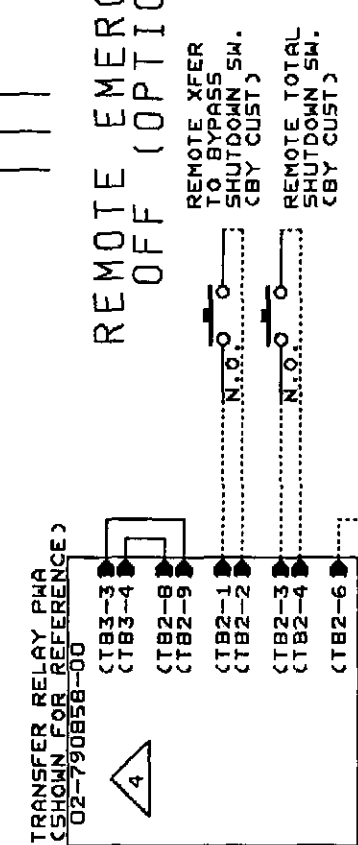


TO J2 XFER RLY PWA (2C7)

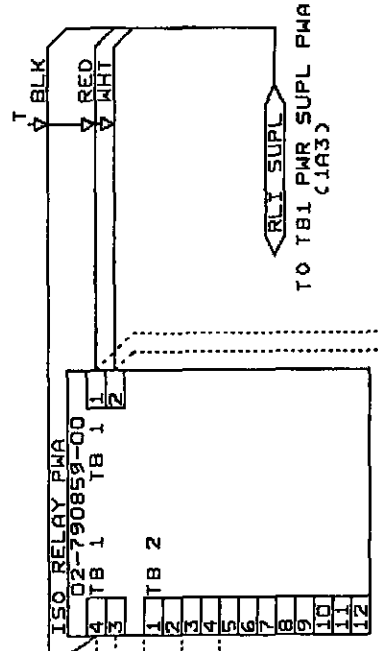
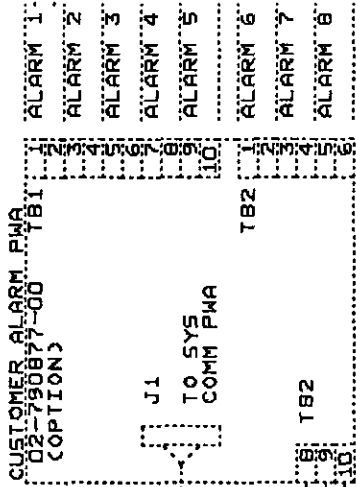
EMERSON CORPORATION, A SUBSIDIARY OF EMERSON ELECTRIC COMPANY, HAS THE HONOR OF DESIGNING AND MANUFACTURING THE UPS SYSTEMS FOR THE LIBERTY CORPORATION. THE COMPANY'S DOCUMENT IS THE PROPERTY OF EMERSON ELECTRIC CORPORATION AND IS LOANED TO YOU BY PERMISSION FROM EMERSON ELECTRIC CORPORATION. IT IS TO BE RETURNED TO EMERSON ELECTRIC CORPORATION UPON REQUEST.

REVISIONS	ECO NO.	DATE APPROV
1	NEW RELEASE	9004307-25-90 SN
2	REVISED TAB BLK	90089711-2-90 SN
3	REVISED TAB BLOCK	93069316-3-93 JP
4	ADD TB2 REMOTE, CHART	950458

### REMOTE EMERGENCY OFF (OPTION)



### CUSTOMER ALARMS INTERFACE (OPTION)

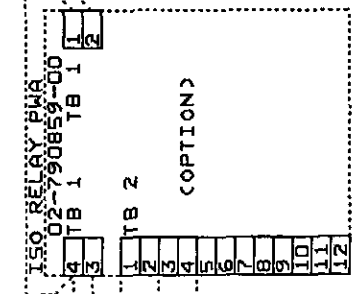


CUSTOMER SUPPLIED DRY CONTACT

MOD 1 SIGNAL +24V

MOD 2 SIGNAL +24V

REDUCED DC I LIMIT

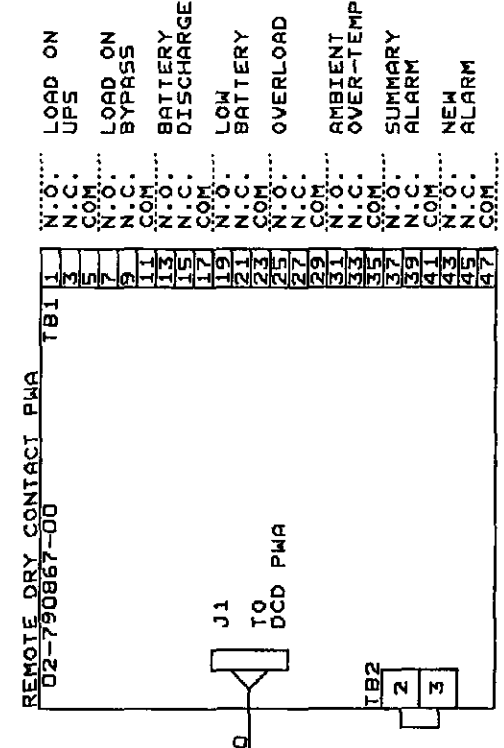


CUSTOMER SUPPLIED DRY CONTACT

MOD 1 SIGNAL +24V

MOD 2 SIGNAL +24V

REDUCED INPUT I LIMIT (OPTION)



REMOTE DRY CONTACT INTFC

LOAD ON UPS

LOAD ON BYPASS

BATTERY DISCHARGE

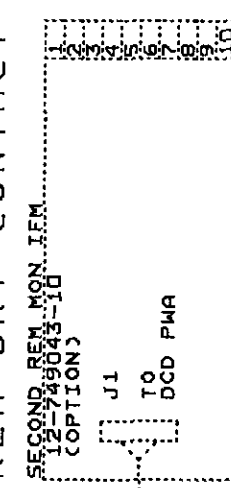
LOW BATTERY

OVERLOAD

AMBIENT OVER-TEMP

SUMMARY ALARM

NEW ALARM



SECOND REMOTE MONITOR INTERFACE (OPTION)

LOAD ON UPS

LOAD ON BYPASS

BATT DISCHARGE

LOW BATTERY

OVERLOAD

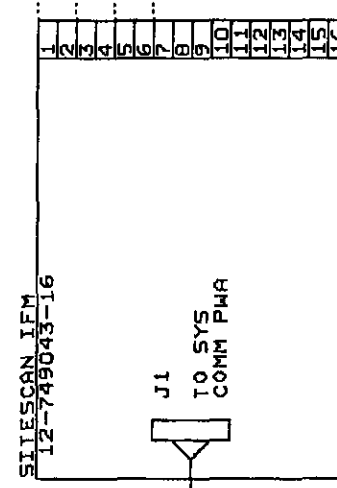
AMB OVERTEMP

SUMMARY ALARM

NEW ALARM

+24V

GROUND



SITESCAN IFM INTERFACE (OPTION)

TO J4 SYS COMM PMA (1B2)

TO J3 DCD PMA (1A7)

TO J2 DCD PMA (1A7)

TO J1 TO DCD PMA

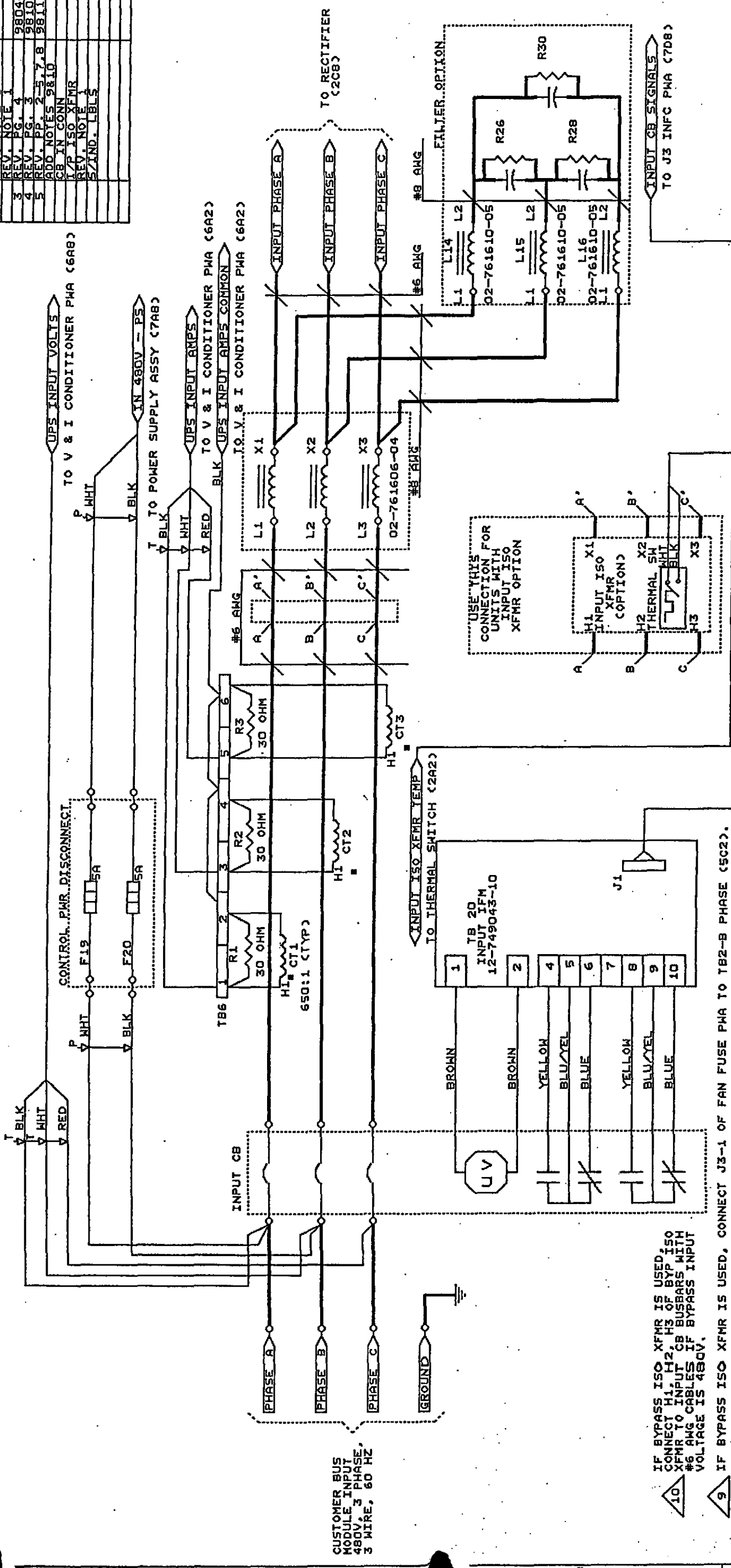
TO J1 TO SYS COMM PMA

### JUMPER AND TAP SELECTION CHART

SYSTEM CONTROL CABINET	SYSTEM VOLTAGE	SYSTEM INTERFACE VOLTAGE TO HEADERS TO BE CONNECTED (CH4, H7, H9)	CT BURDEN	SYSTEM INTERFACE LOGIC PMA HEADERS TO BE CONNECTED (CH1, H2, H3)	CONTROL XFMR (1&T2) TAP CONNECTIONS (PRI SEC)	CURRENT XFMR (CT1-3) TAP CONNECTIONS (X1 - X6)	SS SCR MON PMA VOLTAGE HEADER PINS TO BE CONNECTED (CH1 - H6)
5CCP-480	208/120V	NO JUMPERS	1-2, 3-4, 5-6	1-2, 9-10, 11-12	H1 & H2 X1 & X4 H1 & H4 X1 & X3	X1 & X2	3-4
5CCP-640	480/277V	NO JUMPERS	1-2, 5-6, 11-12	1-2, 5-6, 11-12	H1 & H2 X1 & X4 H1 & H4 X1 & X3	X1 & X2	3-4
5CCP-800	208/120V	NO JUMPERS	1-2, 3-4, 5-6	1-2, 9-10, 11-12	H1 & H2 X1 & X4 H1 & H4 X1 & X3	X1 & X3	3-4
5CCP-960	480/277V	NO JUMPERS	1-2, 3-4, 5-6	1-2, 5-6, 7-8	H1 & H2 X1 & X4 H1 & H4 X1 & X3	X1 & X2	3-4
5CCP-560	208/120V	NO JUMPERS	5-6, 11-12, 13-14	5-6, 11-12, 13-14	H1 & H2 X1 & X4 H1 & H4 X1 & X3	X1 & X3	3-4

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REV. NO.	DATE	DESCRIPTION
1	4-24-98	NEW RELEASE
2	7-1-98	REV SHEETS 3, 6
3	7-1-98	FILTER OPTION AND LABELS
4	7-10-98	ADD TB2
5	7-23-98	REV. F19 & F20
6		REV. NOTE B
7		REV. NOTE 1
8		REV. PG. 4
9		REV. PG. 3
10		REV. PP. 2-5, 7, 8
11		ADD NOTES 9810
12		CB IN CONN
13		1/P ISO XFMR
14		REV. NOTE 1
15		5/IND. LBL'S



10. IF BYPASS ISO XFMR IS USED, CONNECT H1, H2, H3 OF BYP ISO XFMR TO INPUT CB BUSBARS WITH #6 AWG CABLES IF BYPASS INPUT VOLTAGE IS 480V.
9. IF BYPASS ISO XFMR IS USED, CONNECT J3-1 OF FAN FUSE PMA TO TB2-B PHASE (5C2).
8. LABEL ALL FUSE REFERENCE DESIGNATORS AFTER INSTALLATION.
7. NUMBERS IN PARENTHESIS AFTER DESTINATIONS INDICATE (PAGE AND ZONE).
6. CONNECT GROUND WIRES TO GROUND BUS, SHT 5, ZN C-1.
5. CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.
4. ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WHT, UNLESS OTHERWISE SPECIFIED.
3. SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT 8).
2. ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.
1. ALL CONTROL WIRE TO BE #20 AWG, MIN 600V. NOTES: UNLESS OTHERWISE SPECIFIED

REV. NO.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		

CONTRACT NO. UPS

DRWN T.S. 2-17-98

CHECK

DES APPD

PROJ OFFD

APPROV J

Scale NONE

Sheet 1 of 8

Size F50H

Drawing No. 98-797606-64

Rev 5

TITLE

LIBERT

SCHEMATIC/WIRING DIAGRAM

AP606T SMS

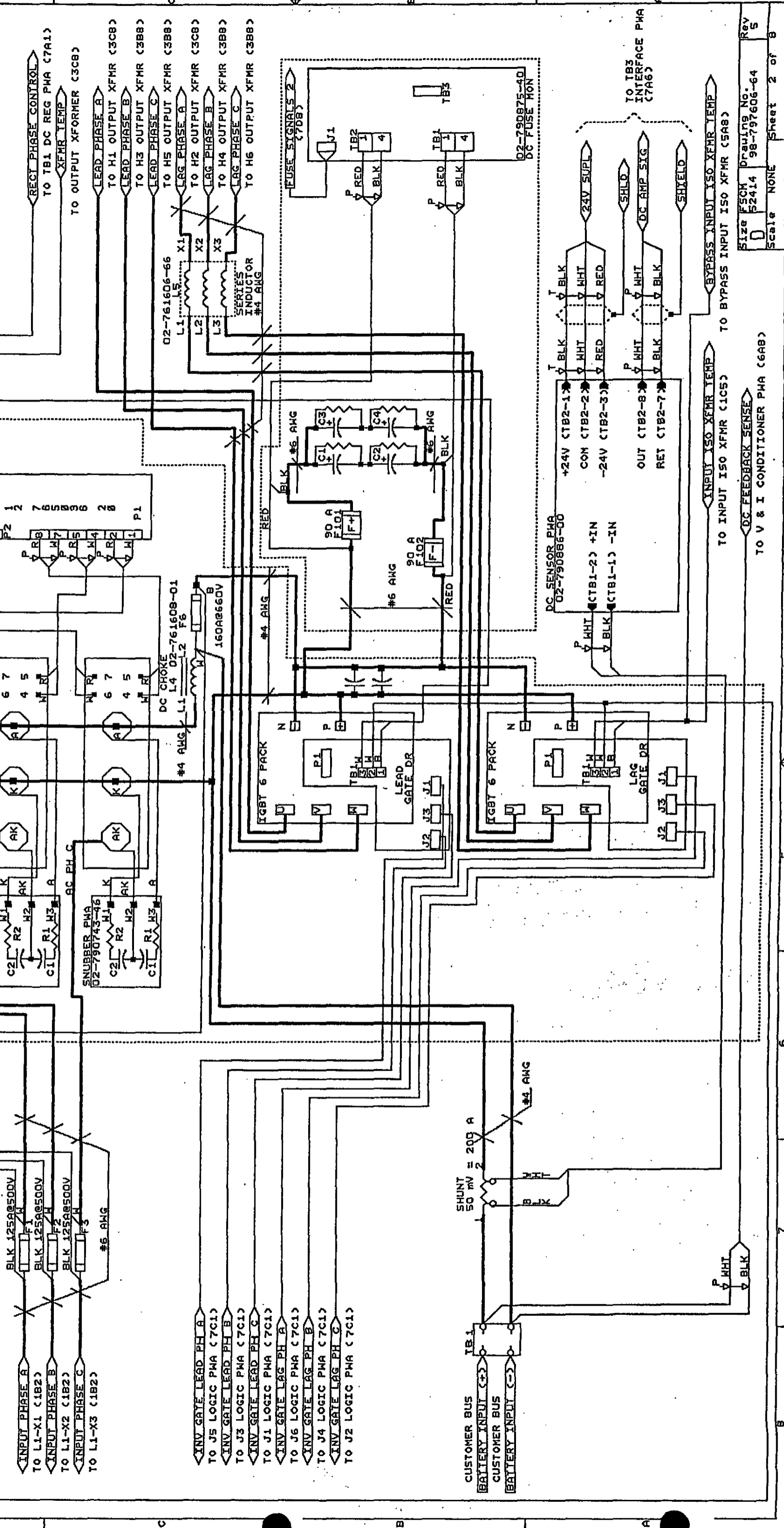
480V IN, 480/277V OUT, 60 HZ

65 KVA

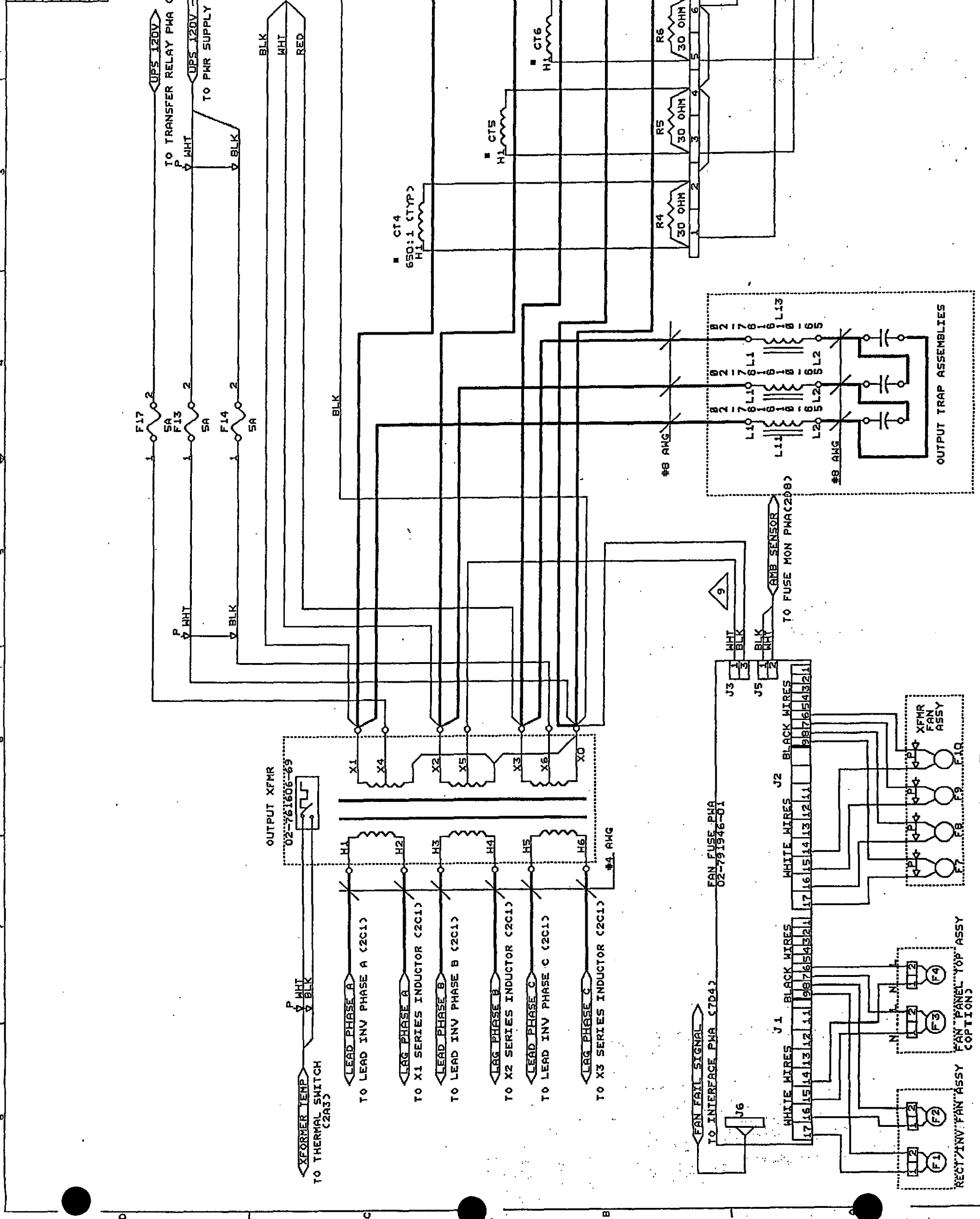
REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	980444	4-24-98	LM
2	DC CHK FSE CON	980675	7-1-98	L.M.

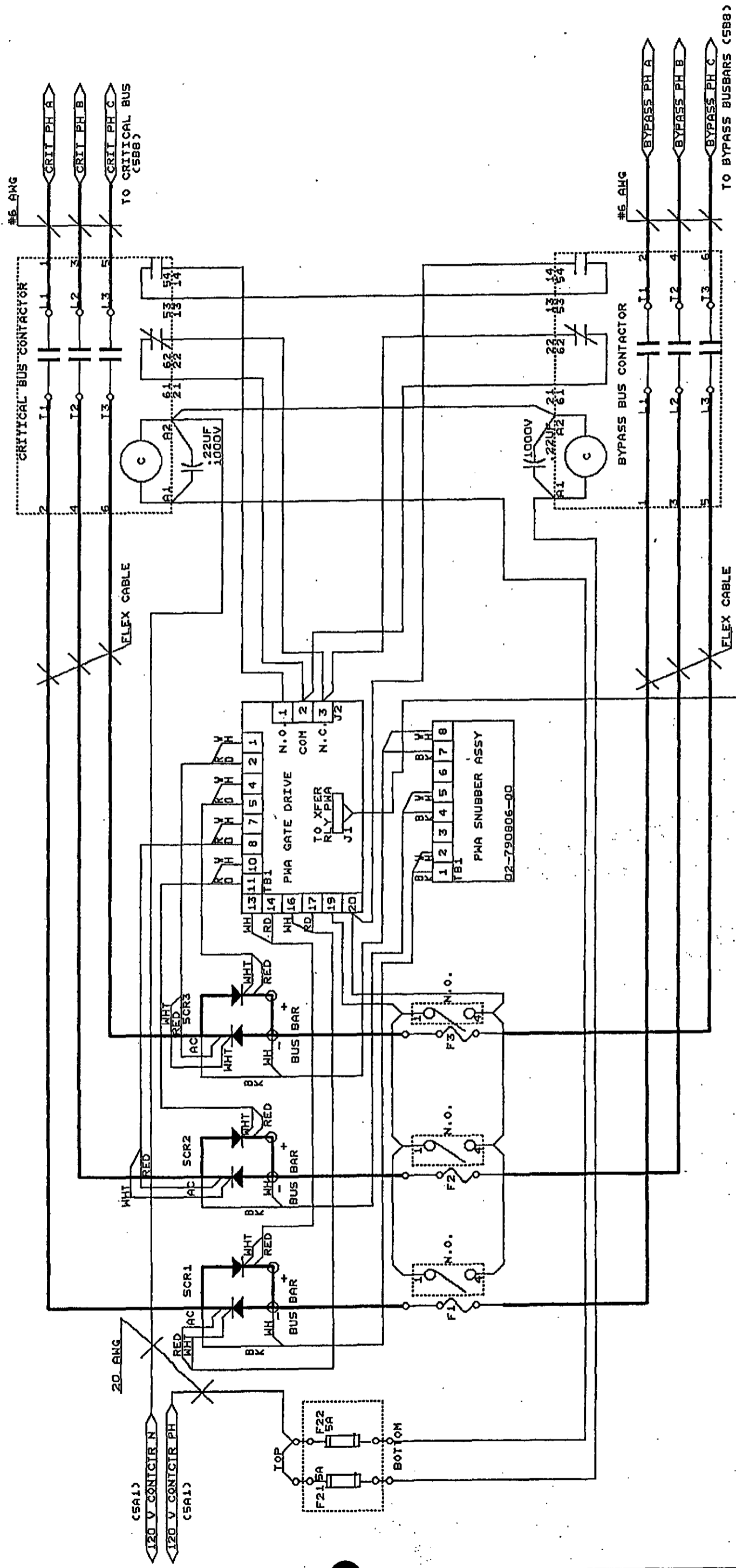
REV	DESCRIPTION	ECO NO.	DATE	APPD
1	ADD TB1			
2	REV FUSE LBL			
3	REV FUSE LBL			
4	REV FUSE LBL			
5	REV FUSE LBL			
6	REV FUSE LBL			
7	REV FUSE LBL			
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97	REV FUSE LBL			
98	REV FUSE LBL			
99	REV FUSE LBL			
100	REV FUSE LBL			



REVISIONS			
LTR	DESCRIPTION	ECO NO.	DATE
1	NEW RELEASE	980444	4-24-98
2	TRAP R/S	980675	7-10-98
	REV FAN ASSY		
	ADD FB		
4	REM FILTER RES	981034	7-23-98
5	FAN FUSE PMA	981190	
	BYP XFMR XO		



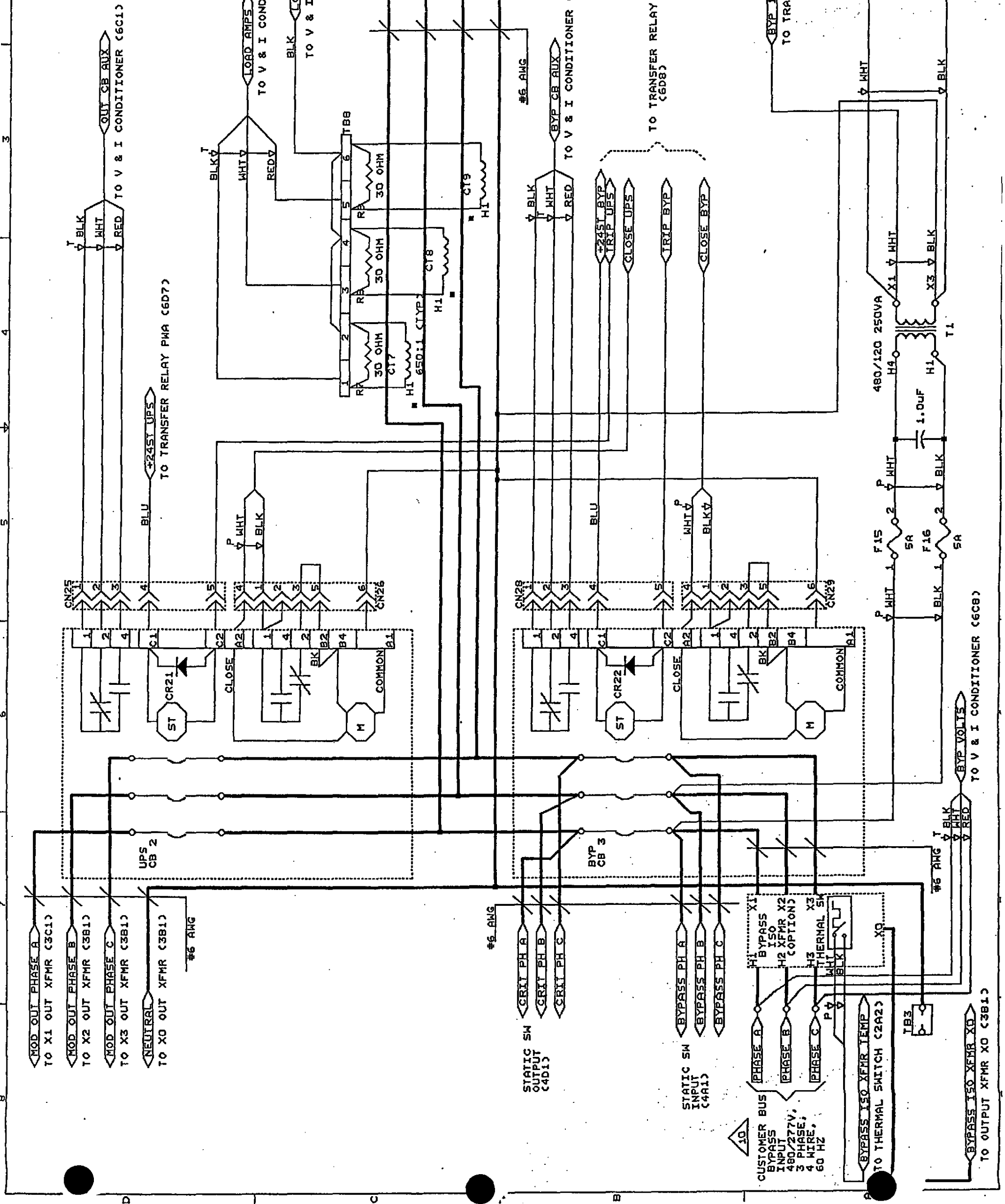
STATIC SWITCH CONTACTOR ASSY



ZONE	LR	DESCRIPTION	ECO NO.	DATE	APPRO
1		NEW RELEASE	980444	5/22/98	L.M.
2		FSE ARE CLRS	980675	7-1-98	L.M.
		CONTRACTOR LBL'S			
		SH CRIT&BYP			
3		GATE DRV CONN	980448	7-10-98	L.M.
5		REV CYCTR LBL	981190		

Size	F5CN	Drawing No.	98-797606-64	Rev	5
Scale	NONE	Sheet	4 of 8		

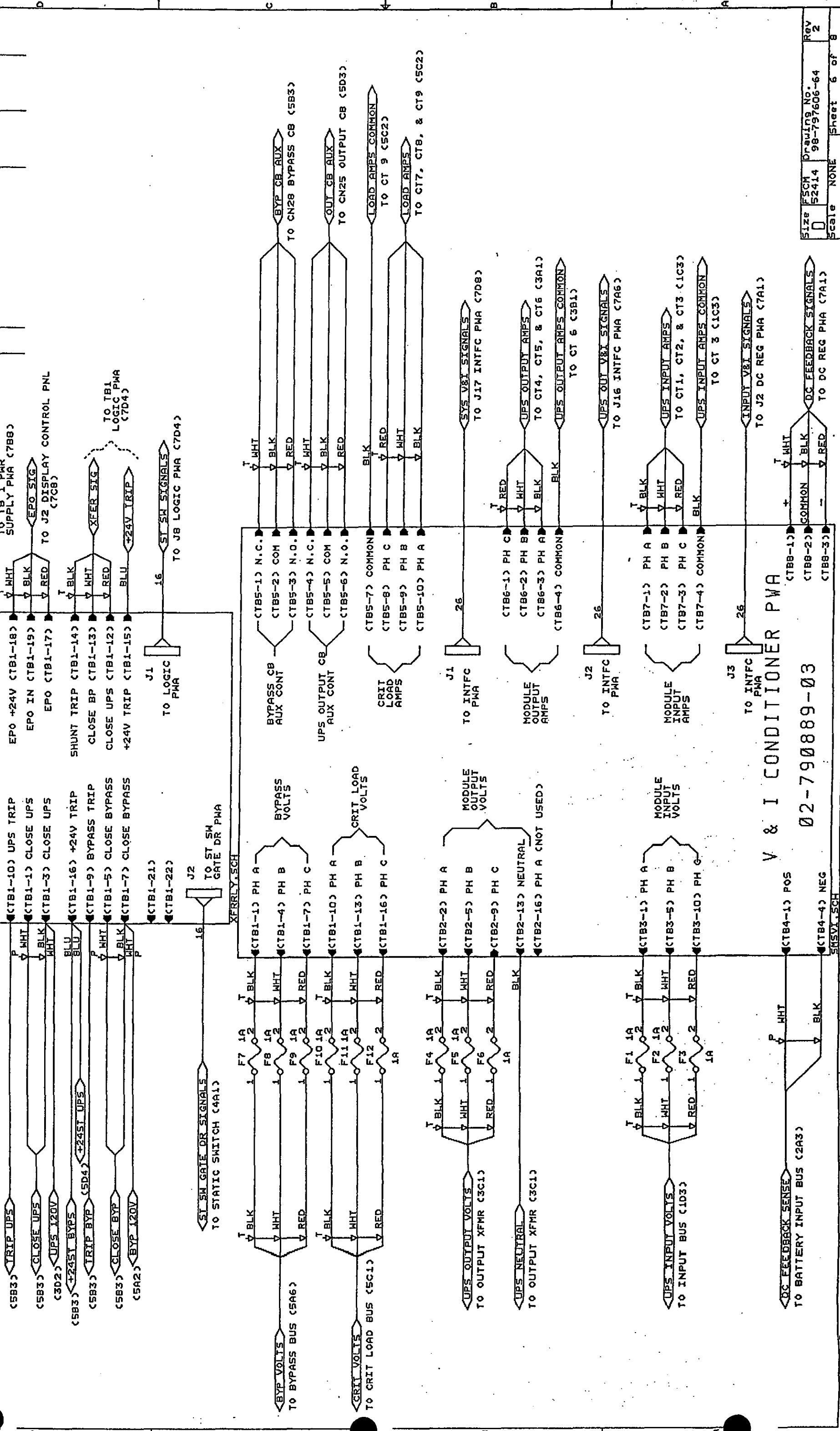
REVISIONS		ECO NO.	DATE	APPD
LTR DESCRIPTION		980444	6/22/98	L.M.
1	NEW RELEASE	980675	7-1-98	L.M.
2	REM P ON CN1L XFMR			
3	CN1L XFMR C=0.22UF			
4	ADD TB8 CONNS.			
5	ADD TB2 & TB3			
6	REM CN30/CN31			
7	BYP ISO XFMR			



Size	FSCM	Drawing No.	Rev
D	52414	98-797606-64	5
Scale	NONE	Sheet	5 of 8

# TRANSFER RELAY PWA

## Ø2-79Ø858-Ø1



REV.	DESCRIPTION	ECO NO.	DATE	APPRO.
1	NEW RELEASE	28Ø444	6/22/98	L.M.
2	REV. 1Ø1-16 LBL ON VØI	98Ø675		

Size	Ø	FSCM	Ø2-79Ø889-Ø3	Drawing No.	Ø2
Scale	NONE				

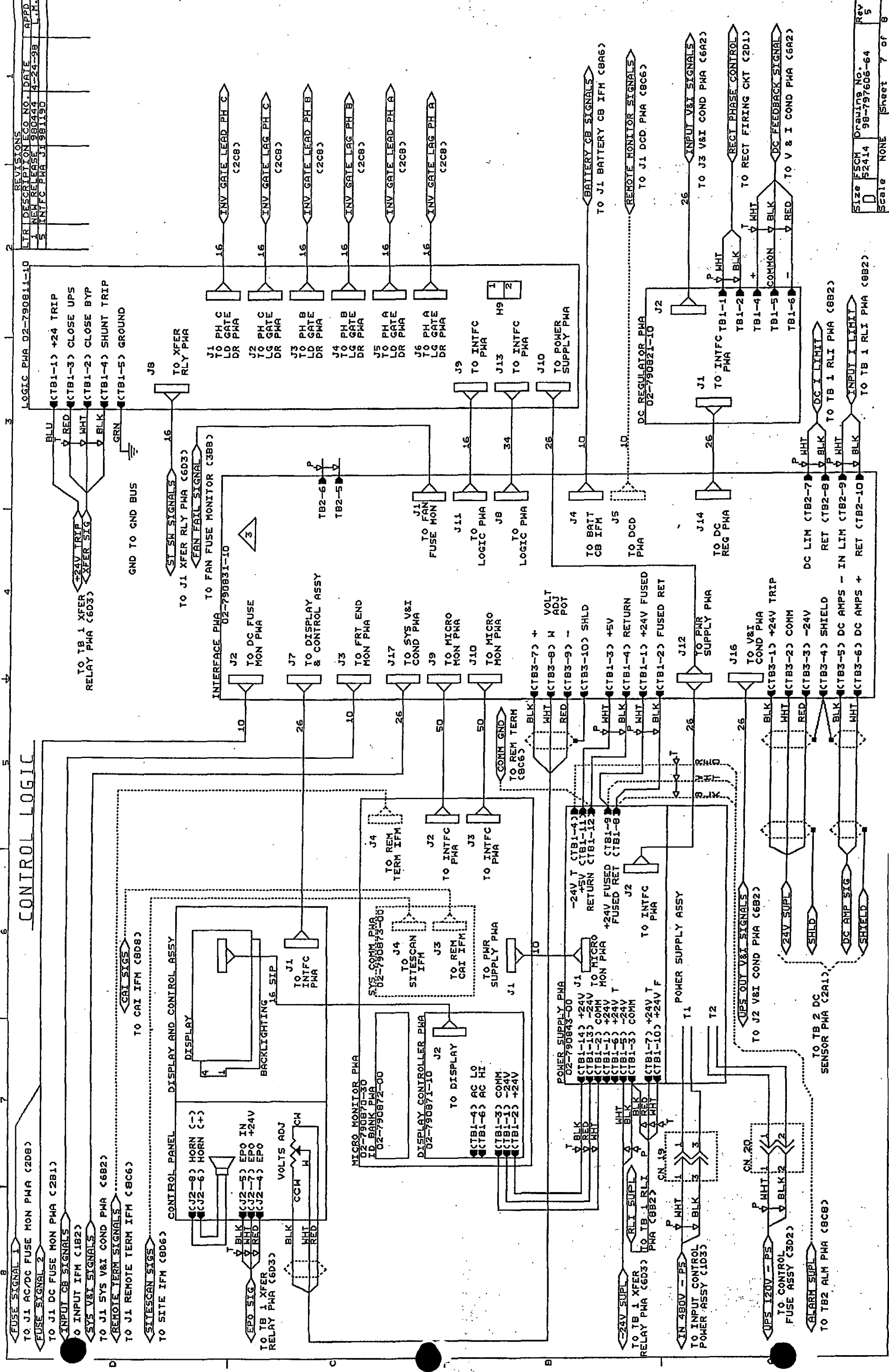
### V & I CONDITIONER PWA

## Ø2-79Ø889-Ø3

Sheet	6 of 8
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# CONTROL LOGIC

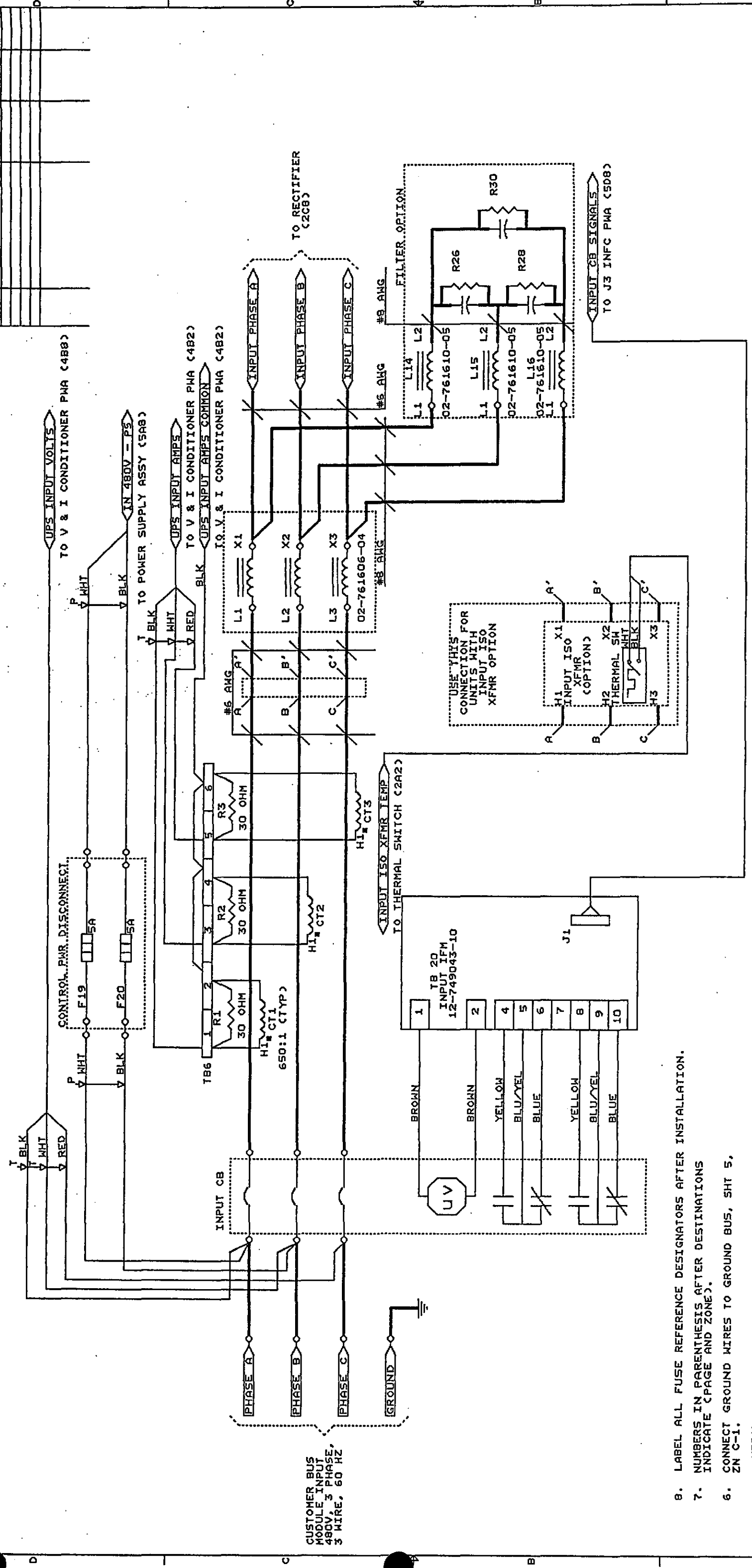


REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	980444	4-24-98	L.M.
2	INTFC PMA J19819D			
3				
4				
5				



REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	381103	8-5-98	L.M.
2	REV. NOTE	381190		
3	REV. NOTE			
4	REV. NOTE			
5	REV. NOTE			
6	REV. NOTE			
7	REV. NOTE			
8	REV. NOTE			
9	REV. NOTE			
10	REV. NOTE			

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**CONTRACT NO. UPS**

**DRANN T.S. 4-2-98**

**CHECK**

**DES APPD**

**PROJ APPD** Drawing No. 98-797606-84 Rev 2

**T.S./A. HUSSAIN 7/31/98** Scale NONE Sheet 1 of 6

**APPROVED**

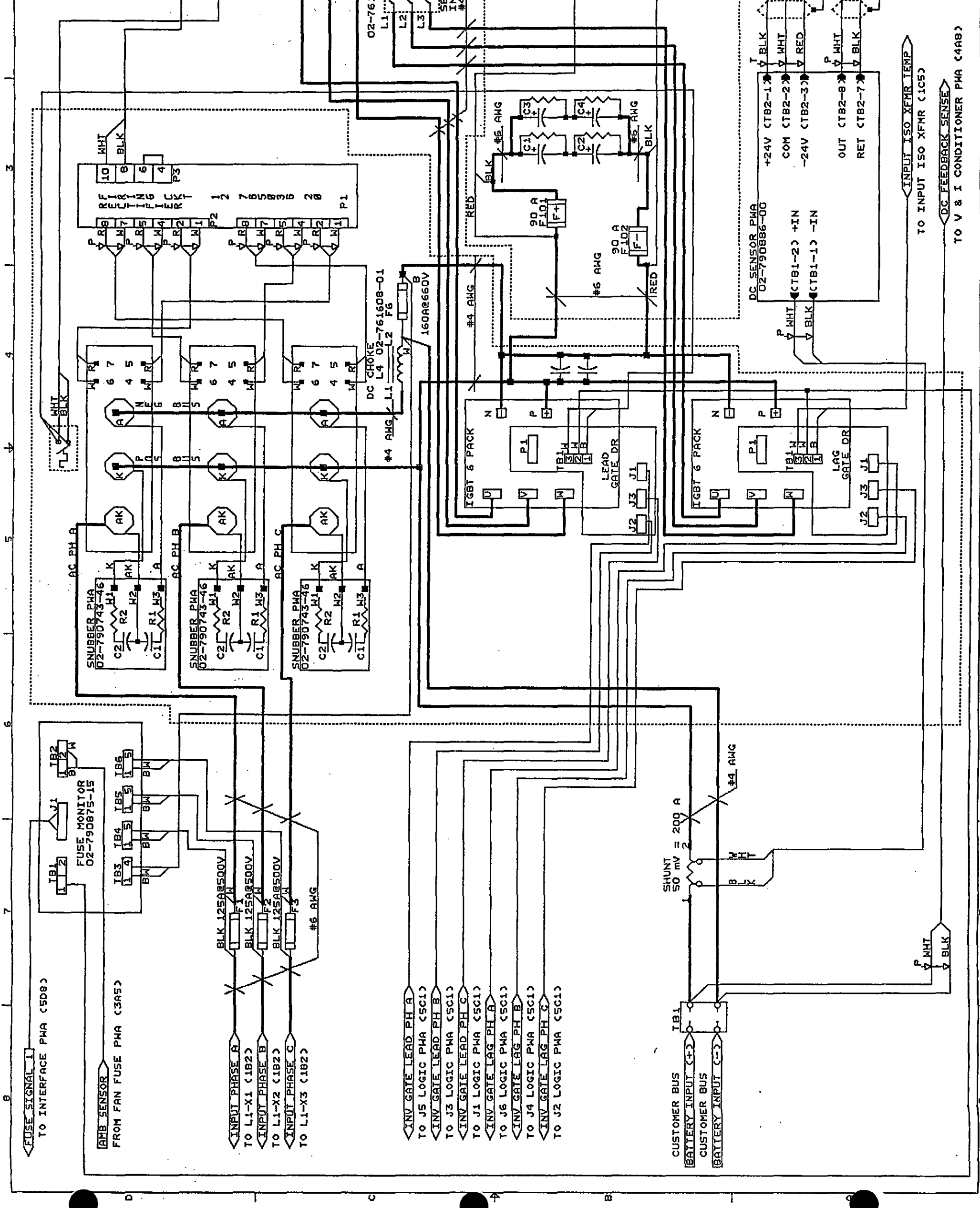
**LIEBERT**

Title SCHEMATIC/WIRING DIAGRAM  
480V IN, 480/277V OUT, 60 HZ  
65 KVA

SHT	1	2	3	4	5	6
REV	1	1	1	1	1	1
DATE						
BY						
CHKD						
APPD						
REV						
DATE						
BY						
CHKD						
APPD						
REV						
DATE						
BY						
CHKD						
APPD						

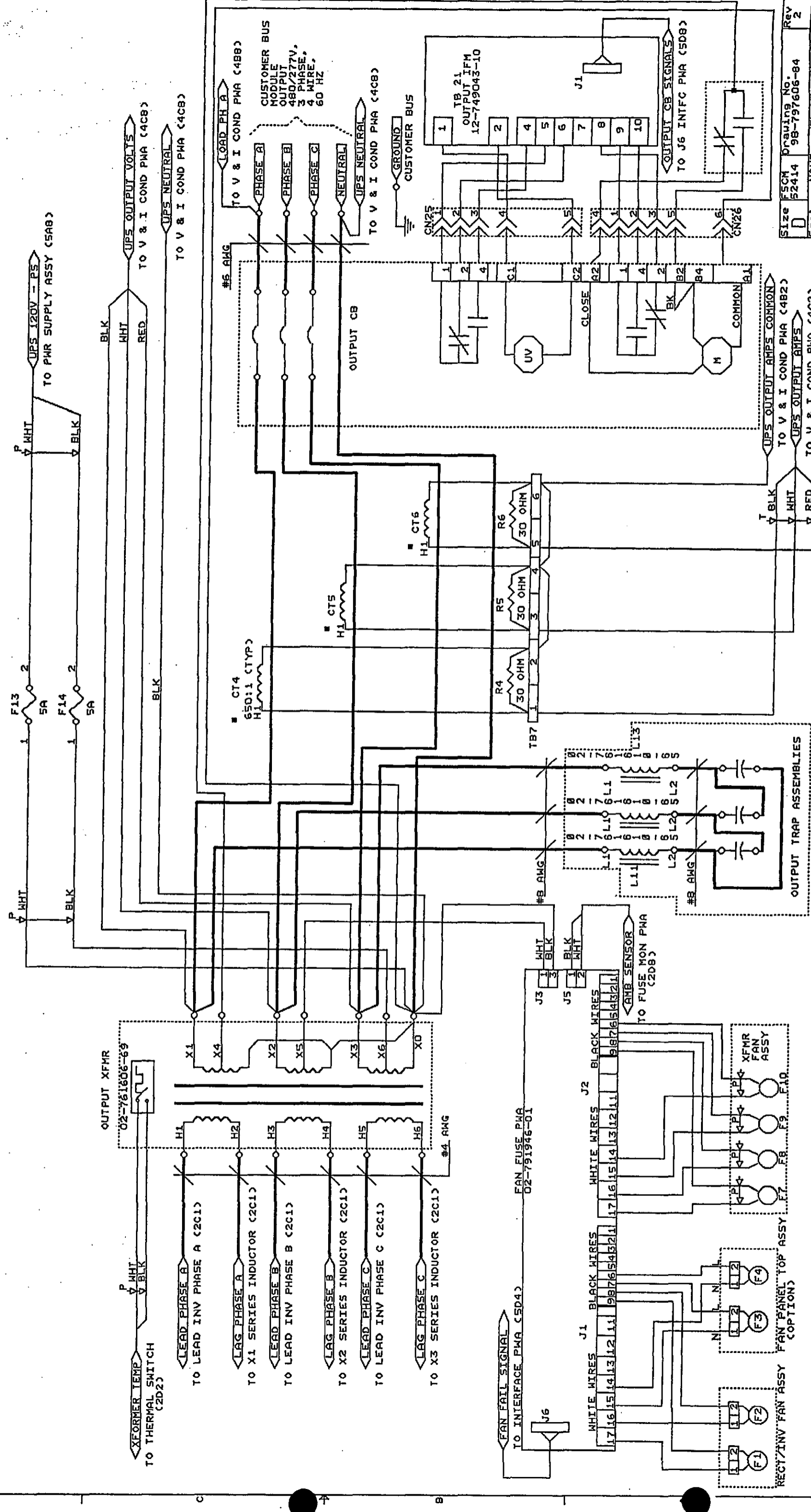
8. LABEL ALL FUSE REFERENCE DESIGNATORS AFTER INSTALLATION.  
7. NUMBERS IN PARENTHESIS AFTER DESTINATIONS INDICATE (PAGE AND ZONE).  
6. CONNECT GROUND WIRES TO GROUND BUS, SHT 5, ZN C-1.  
5. CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.  
4. ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WHT. UNLESS OTHERWISE SPECIFIED.  
3. SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT 8).  
2. ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.  
1. ALL CONTROL WIRE TO BE #20 AWG, MIN 600V. NOTES: UNLESS OTHERWISE SPECIFIED

REVISIONS			
LTR	DESCRIPTION	ECO NO.	DATE
1	NEW RELEASE	981105	8-5-98
2	DC COP	981190	L.M.
	CHOKES P/N		
	SZ/IND LBL		
	XFMR TEMPS		



FUSE SIGNAL 1			
TO	INTERFACE PMA (508)	DATE	APPD
1	NEW RELEASE	981105	8-5-98
2	DC COP	981190	L.M.
	CHOKES P/N		
	SZ/IND LBL		
	XFMR TEMPS		

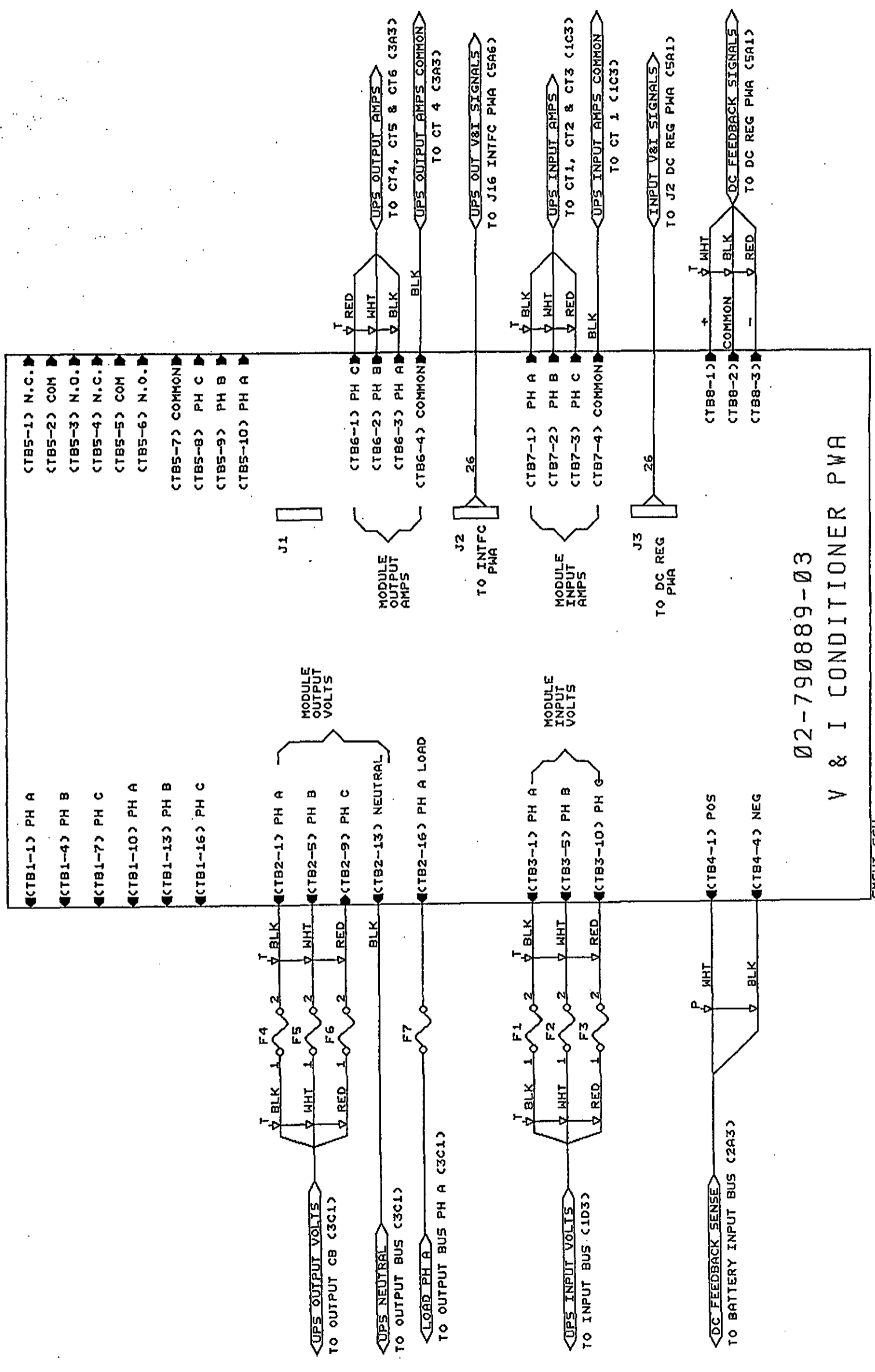
REVISIONS			
LTR	DESCRIPTION	ECO NO.	DATE
1	NEW RELEASE	981105	8-3-98
2	FAN FUSE PMA	981190	L.M.



REVISIONS			
LTR	DESCRIPTION	ECO NO.	DATE
1	NEW RELEASE	981105	8-3-98
2	FAN FUSE PMA	981190	L.M.

ZONE	LTR	DESCRIPTION	ECO NO.	DATE	APPD
	1	NEW RELEASE	981105		

REVISIONS	



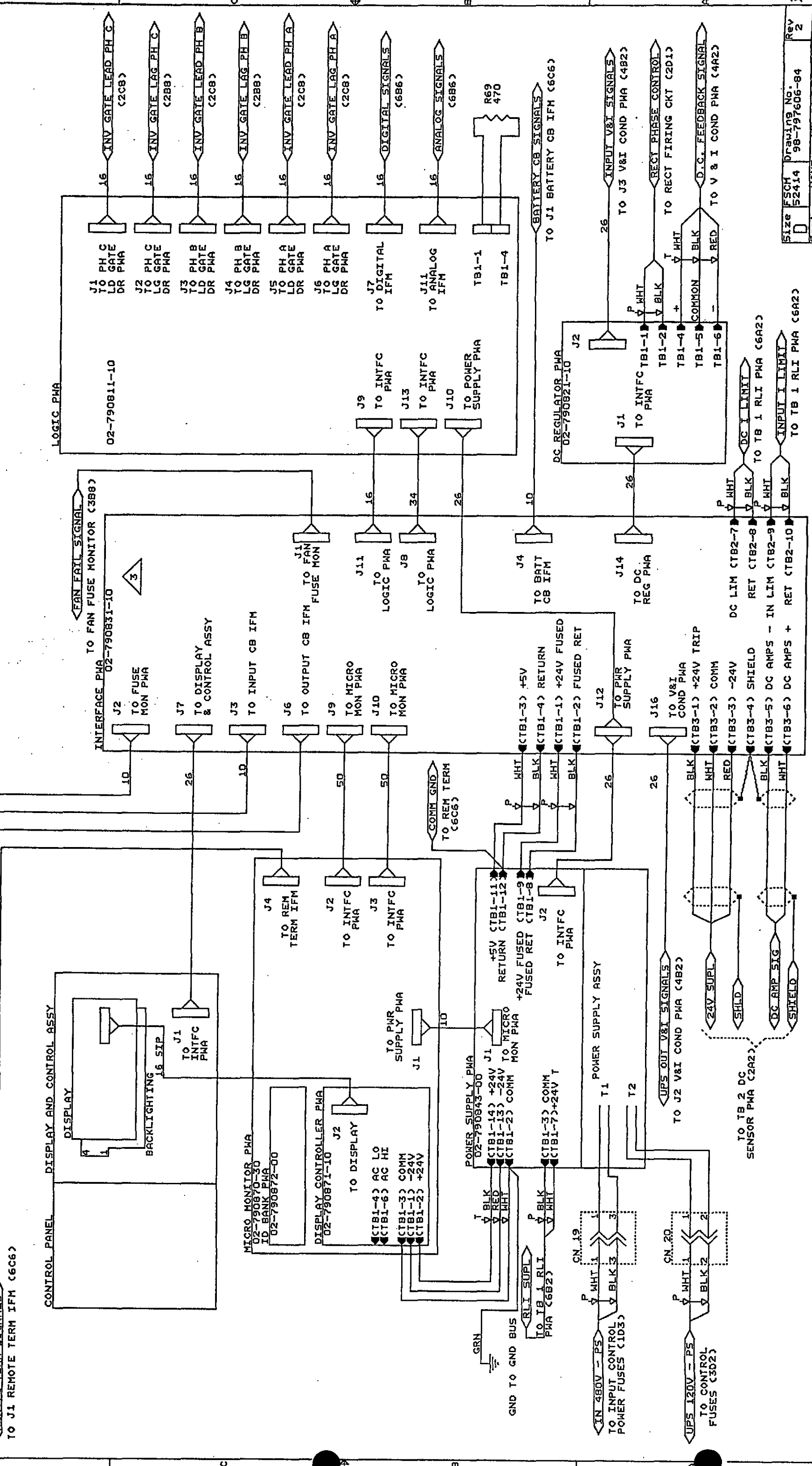
Ø2-790889-03  
V & I CONDITIONER PWA

SMSVI.SCH

ZONE	LTR	DESCRIPTION	ECO NO.	DATE	APPROV
	1	NEW RELEASE	981105	8-5-98	L.M.
	2	INTFC PMA J1	981190		

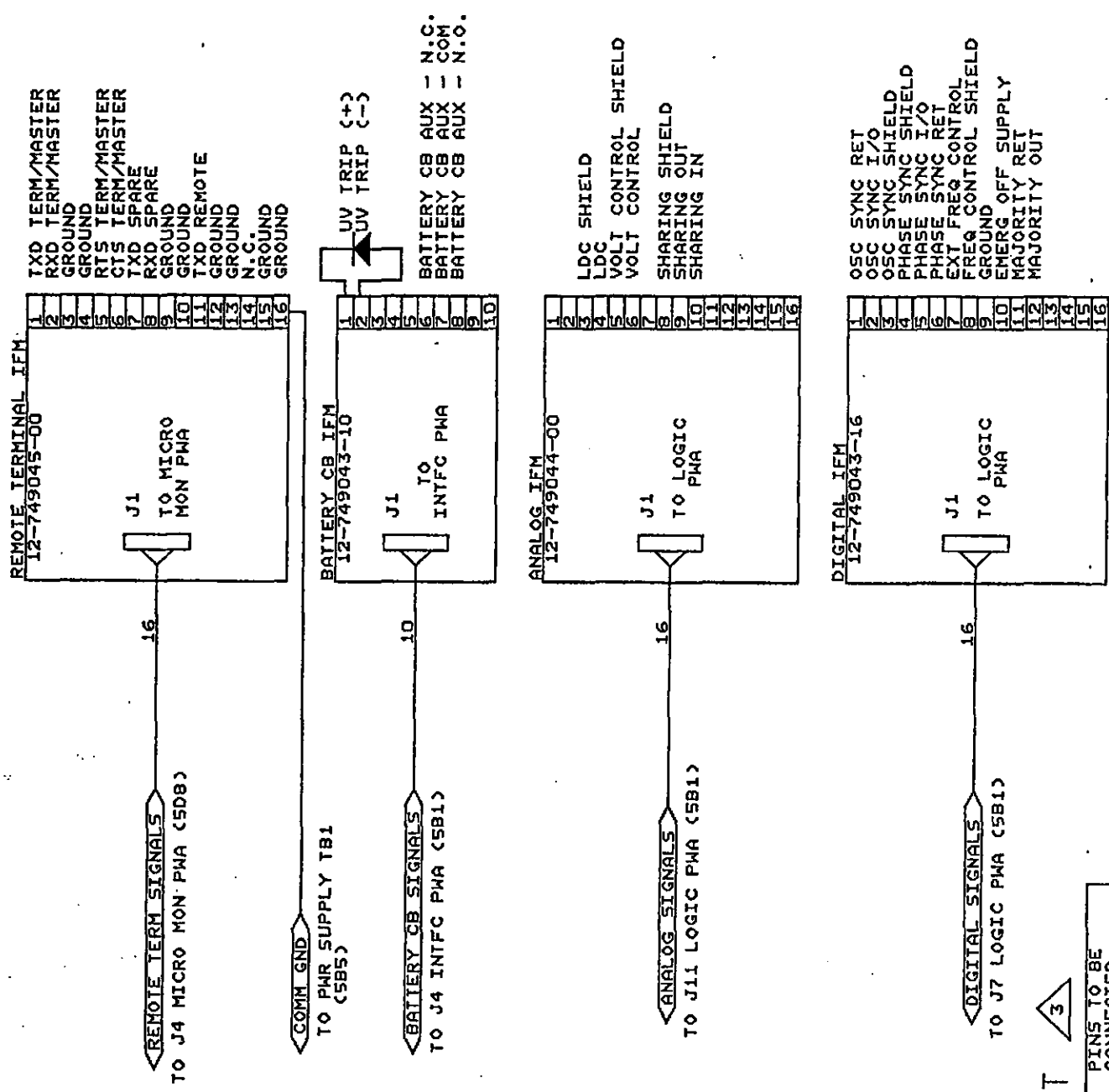
REV	DESCRIPTION	DATE	BY	CHKD
1	REVISED			
2	REVISED			

CONTROL LOGIC



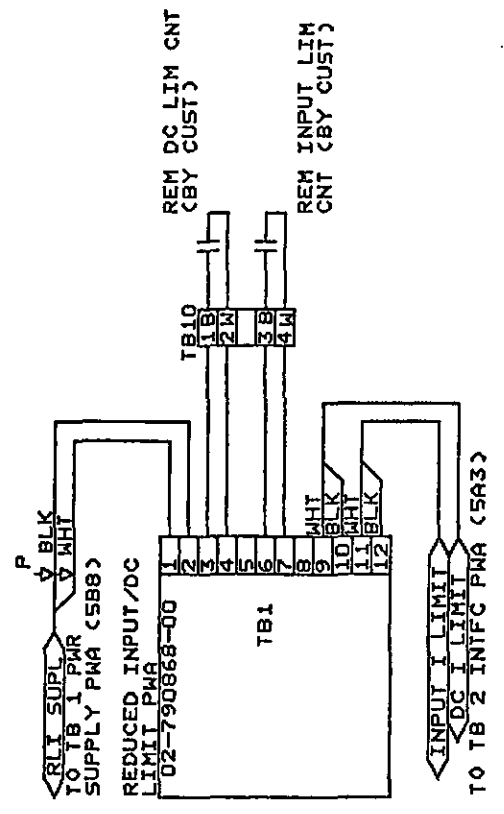
Size FSCH Drawing No. 52414 98-797606-84 Rev 2  
Scale NONE Sheet 5 of 6

# EXTERNAL CONNECTIONS



## REMOTE TERMINAL INTERFACE

## REDUCED I LIMIT



## JUMPER SELECT CHART

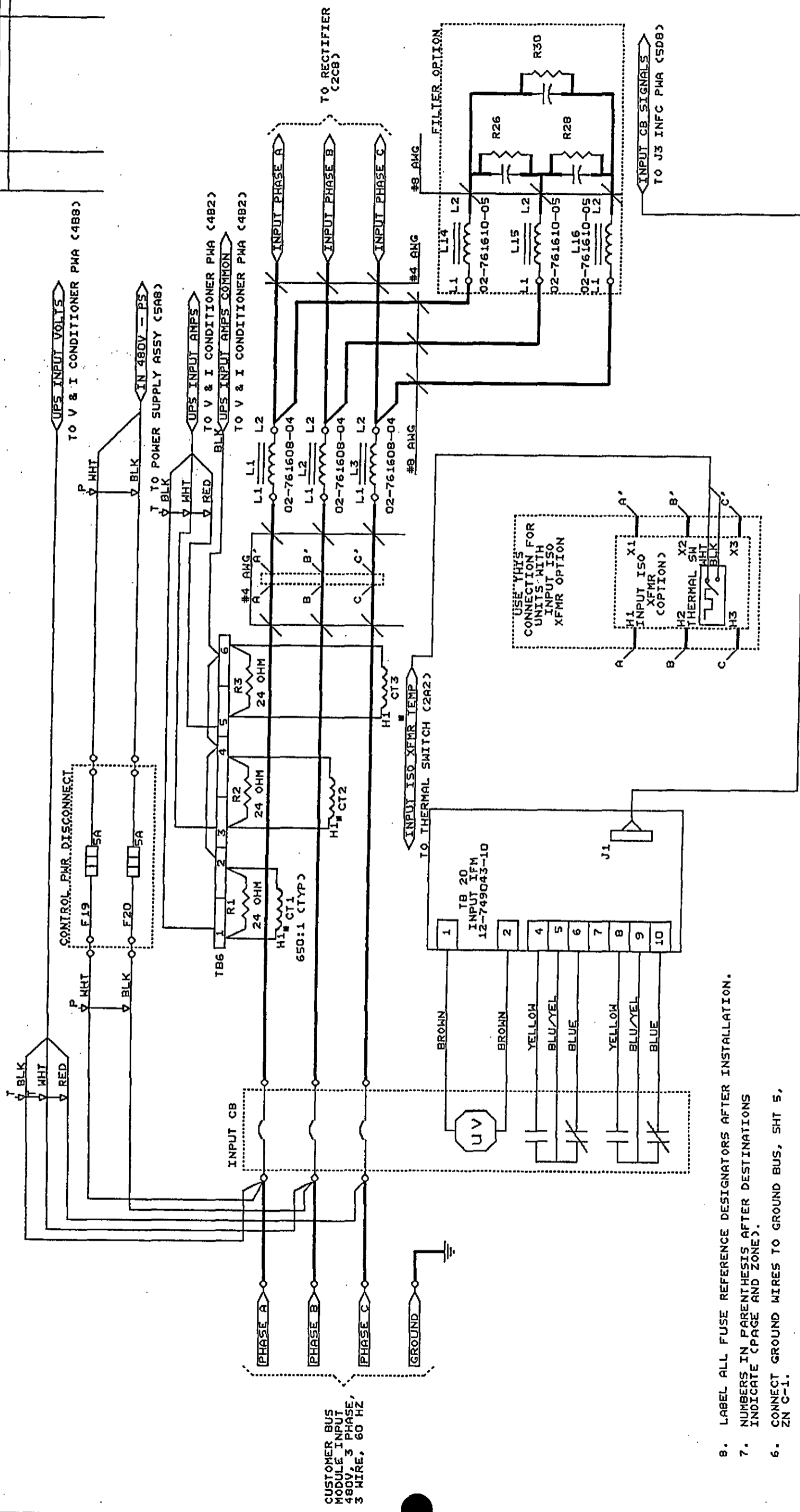
PMA	FUNCTION	HEADER OR JUMPER	PINS TO BE CONNECTED
INTERFACE	SYSTEM SEL	H1-6	2-3
	TRANSISTOR/SCR	H13	1-2 (TRANSISTOR)
	PROTECT ENABLE	H4-H6	2-3
LOGIC PMA	AUX DELAY	H1	1-2 2-3 7-8
	FREQ. SELECT	H8, H10, H11, H12	1-2 (60 HZ)
	SYNC	H7	1-2 EXT
	FAULT TRANSFER INHIBIT	H9	1-2

REVISIONS				
LTR DESCRIPTION	ECO NO.	DATE	APPD	
1	NEW RELEASE	981105	8-5-98	L.M.
2	BATT CB AFM	981190		



THE LIBERT CORPORATION, A SUBSIDIARY OF EMERSON ELECTRIC COMPANY, HAS BEEN AWARDED THE CONTRACT FOR THE SUPPLY AND INSTALLATION OF UPS SYSTEMS TO THE U.S. AIR FORCE. THE U.S. AIR FORCE HAS AWARDED THE CONTRACT TO THE LIBERT CORPORATION FOR THE SUPPLY AND INSTALLATION OF UPS SYSTEMS TO THE U.S. AIR FORCE.

REV. NO.	DATE	APPD
1	8-5-98	L.M.
2	2, 3, 5, 6	981190
REV. NOTE 1		
CB IN CONN		
INPUT ISO XFMR		



REVISION STATUS OF SHEETS	
SHT 1	1
SHT 2	1
SHT 3	1
SHT 4	1
SHT 5	1
SHT 6	1

8. LABEL ALL FUSE REFERENCE DESIGNATORS AFTER INSTALLATION.
7. NUMBERS IN PARENTHESIS AFTER DESTINATIONS INDICATE (PAGE AND ZONE).
6. CONNECT GROUND WIRES TO GROUND BUS, SHT 5, ZN C-1.
5. CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.
4. ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WHT. UNLESS OTHERWISE SPECIFIED.
3. SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT 8).
2. ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.
1. ALL CONTROL WIRE TO BE #20 AWG, MIN 600V. UNLESS OTHERWISE SPECIFIED

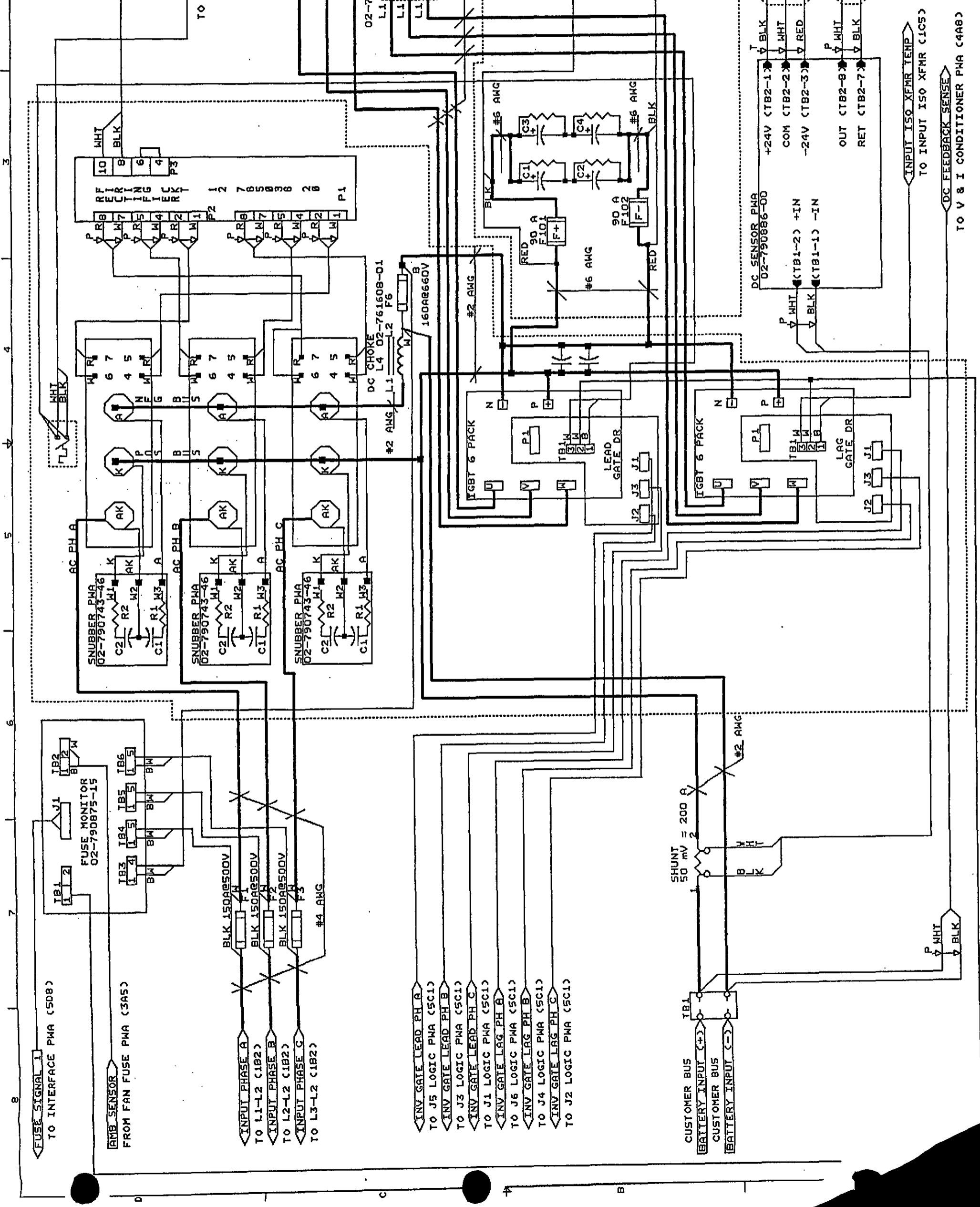
CONTRACT NO. UPS

LIBERT

Title: SCHEMATIC/WIRING DIAGRAM  
 480V IN, 480/277V OUT, 60 HZ  
 80 KVA

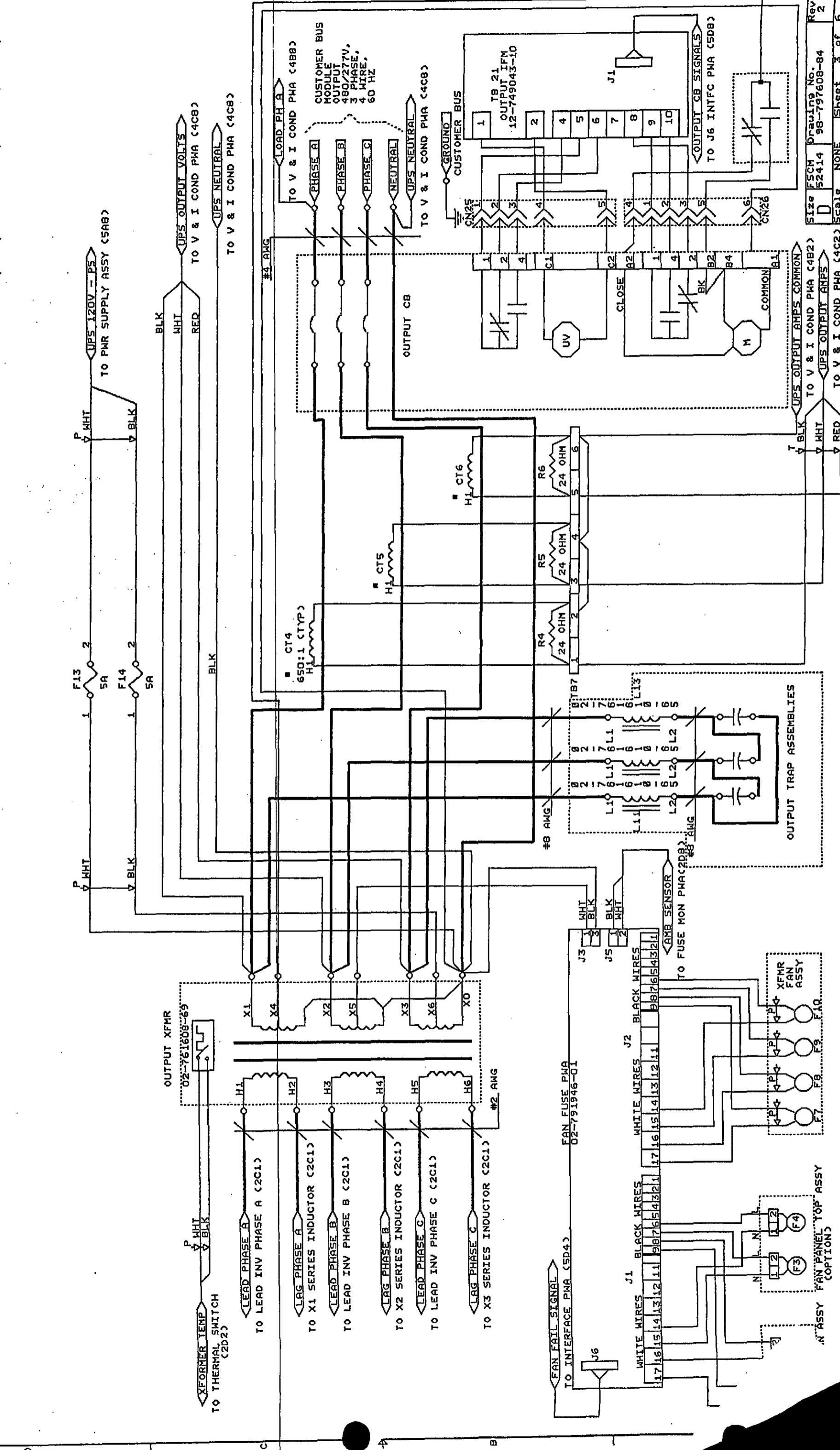
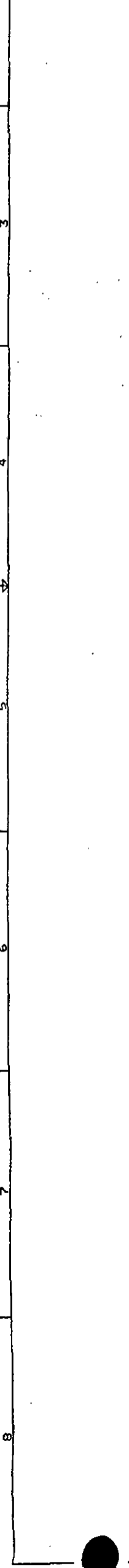
Drawn: T.S. 4-2-98  
 Check: T.S./A.  
 Des Appd: DES APPD  
 Proj Appd: PROJ APPD  
 I.S./A.: I.S./A.  
 Size: FSCM 52414  
 Drawing No.: 98-797608-84  
 Rev: 2

REV	DESCRIPTION	ECO NO.	DATE	APPD.
1	NEW RELEASE	281105	8-5-98	L.M.
2	FUSE VALUES	981190		
	XFMR TEMPS			
	DC CAP AMG			



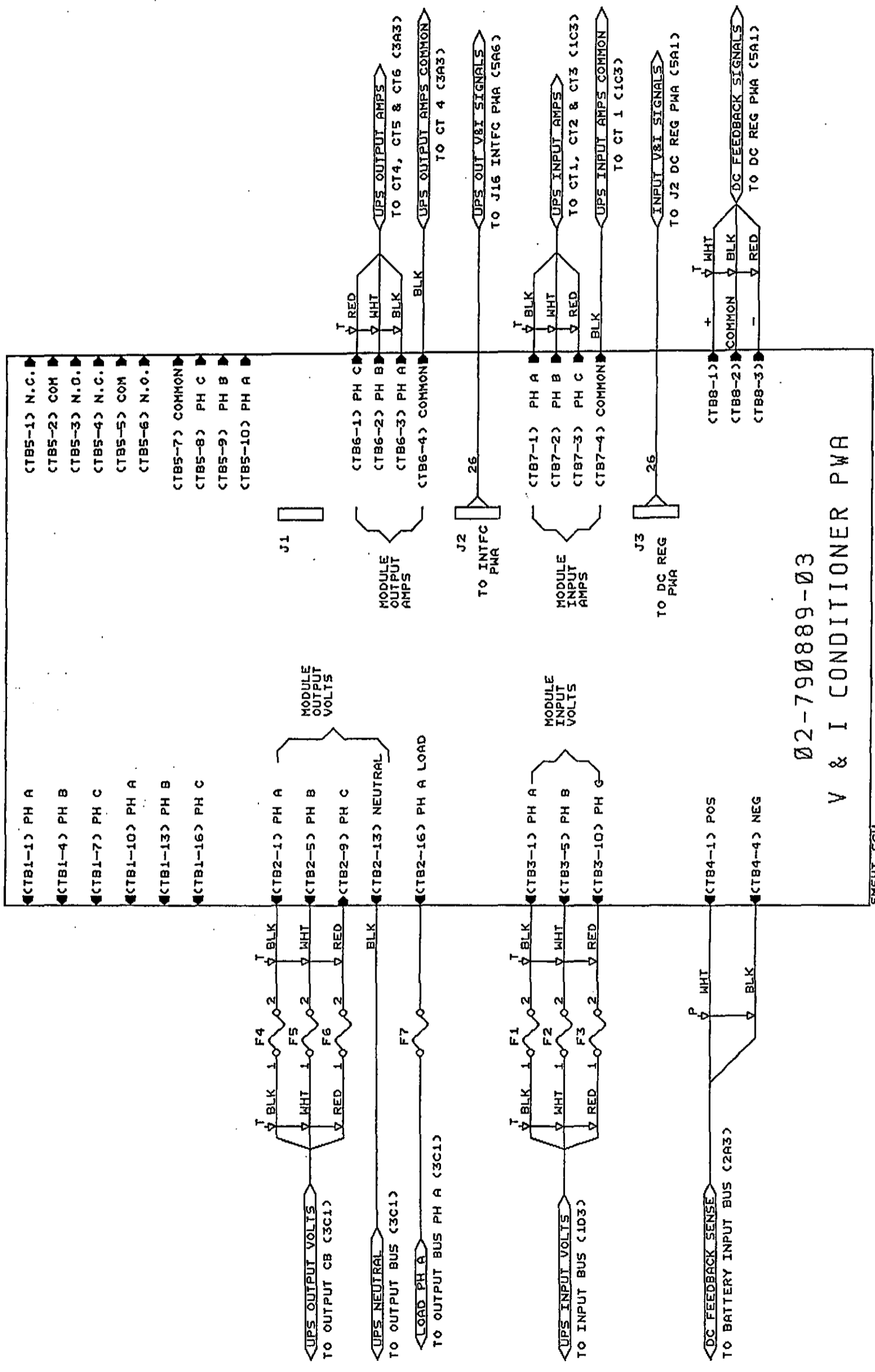
REV	DESCRIPTION	ECO NO.	DATE	APPD.
1	NEW RELEASE	281105	8-5-98	L.M.
2	FUSE VALUES	981190		
	XFMR TEMPS			
	DC CAP AMG			

REVISIONS			
LTR	DESCRIPTION	ECO NO.	DATE
1	NEW RELEASE	981105	8-5-98
2	FAN FUSE PMA	981190	L.M.



ZONE	LT/R	DESCRIPTION	ECO NO	DATE	APPD
1		NEW RELEASE	981105		

REVISIONS	ECO NO	DATE	APPD
2			



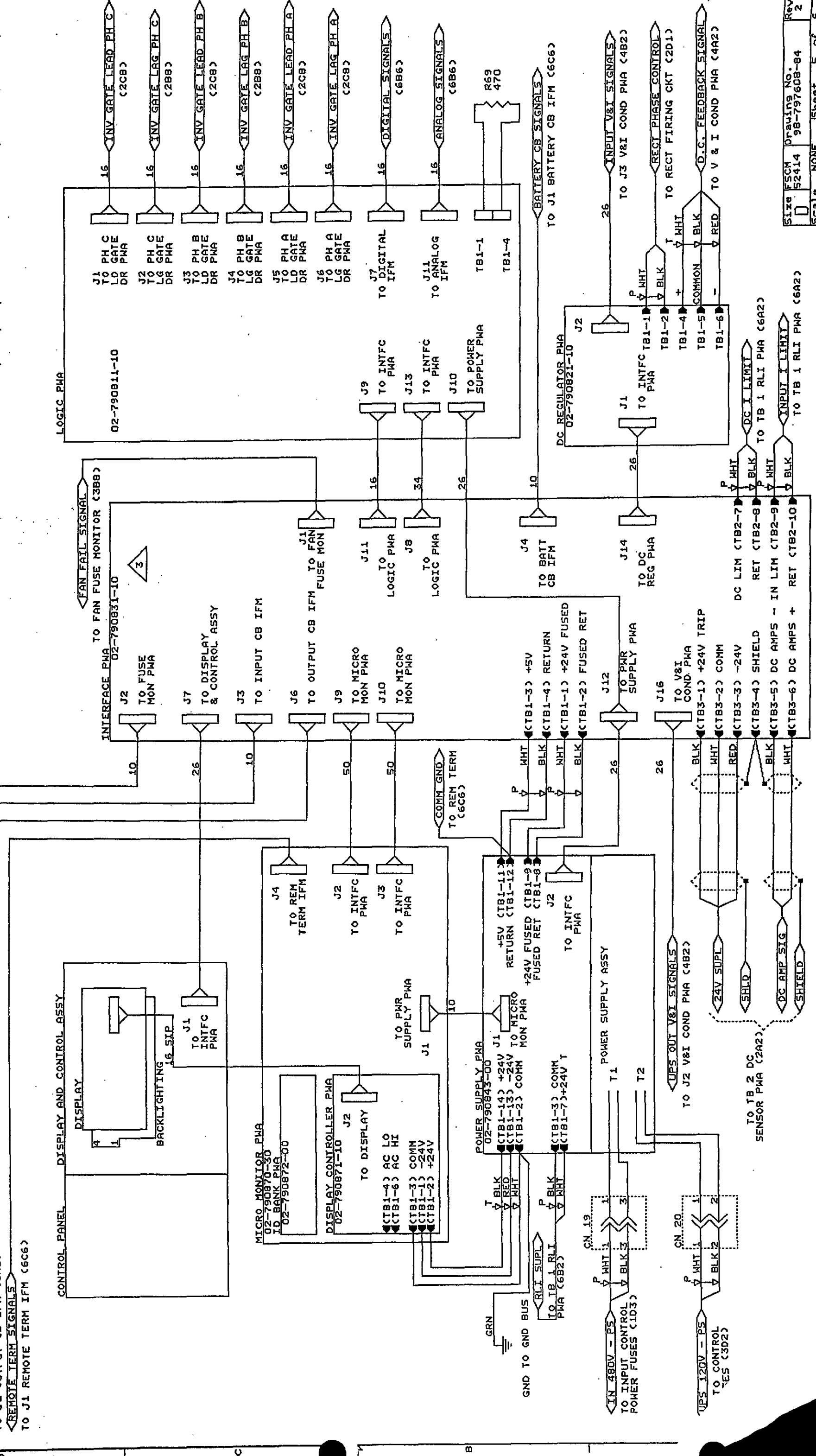
Ø2-790889-03  
V & I CONDITIONER PWA

SMSVI.SCH

ZONE	LT/R	DESCRIPTION	ECO NO.	DATE	APPD
1		NEW RELEASE	981105	8-5-98	L.M.
2		INTFC PMA J1	981190		

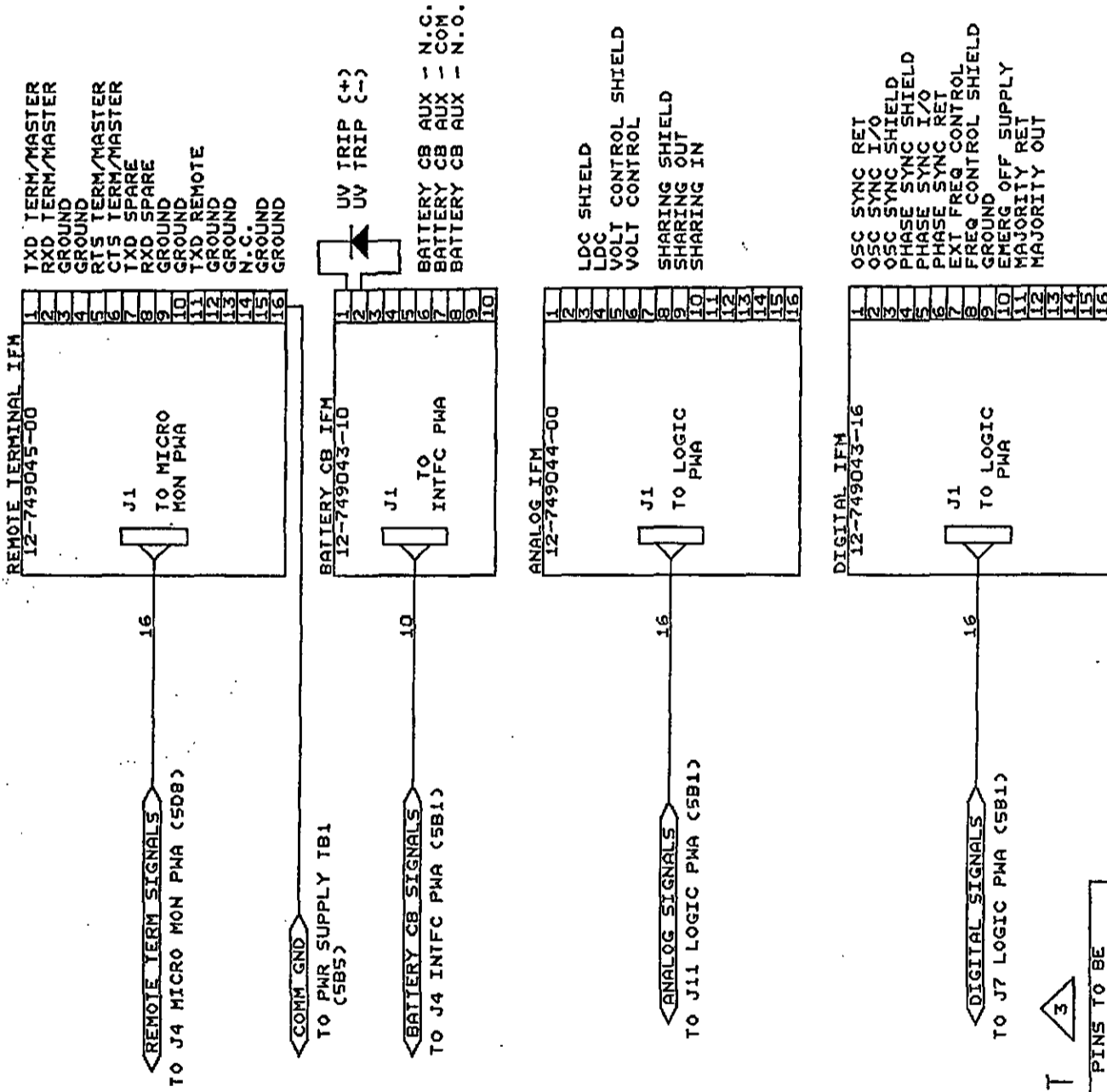
REV	NO.	DESCRIPTION	DATE
1			
2			

CONTROL LOGIC



Size: E52414  
 Drawing No.: 98-797608-84  
 Rev: 2  
 Scale: NONE  
 Sheet: 5 of 6

# EXTERNAL CONNECTIONS

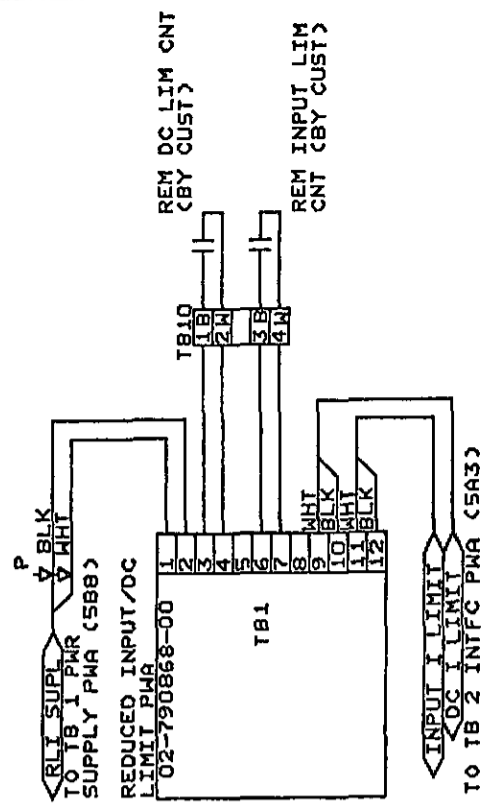


## JUMPER SELECT CHART

PMA	FUNCTION	HEADER OR JUMPER	PINS TO BE CONNECTED
INTERFACE	SYSTEM SEL	H1-6	2-3
	TRANSISTOR/SCR	H13	1-2 (TRANSISTOR)
LOGIC PMA	PROTECT ENABLE	H4-H6	2-3
	AUX DELAY	H1	1-2, 2-3, 7-8
	FREQ. SELECT	H8, H10, H11, H12	1-2 (60 HZ)
	FAULT TRANSFER INHIBIT	H7	1-2 EXT
		H9	1-2

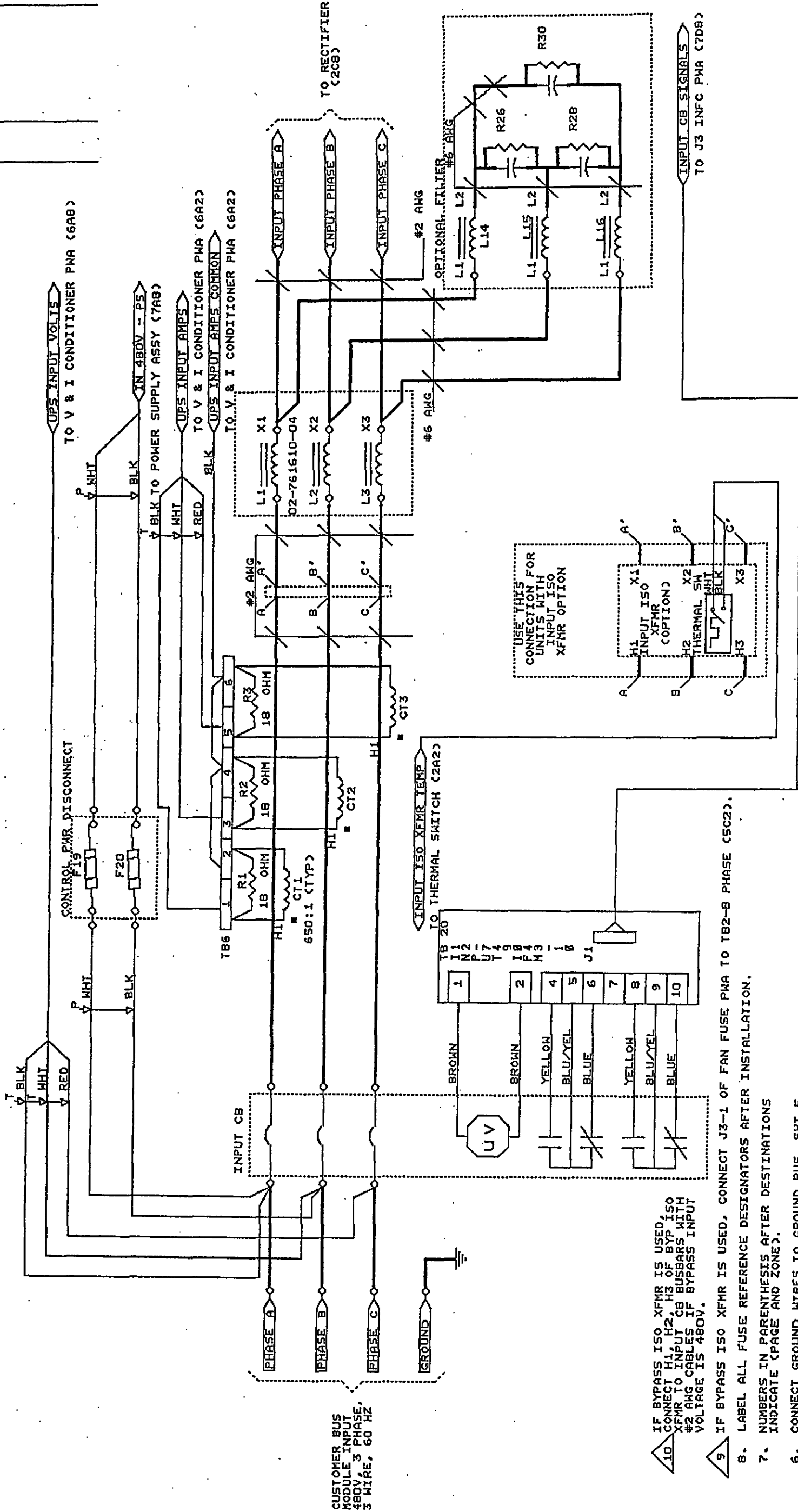
# REMOTE TERMINAL INTERFACE

## REDUCED I LIMIT



REVISIONS			
LTR	DESCRIPTION	ECO NO.	DATE
1	NEW RELEASE	281102	8-5-98
2	BATT CB IFM	281120	L.N.H.

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10. IF BYPASS ISO XFMR IS USED, CONNECT H1, H2, H3 OF BYP ISO XFMR TO INPUT CB BUSBARS WITH #2 AWG CABLES IF BYPASS INPUT VOLTAGE IS 480V.

9. IF BYPASS ISO XFMR IS USED, CONNECT J3-1 OF FAN FUSE PWA TO TB2-B PHASE (5C2).

8. LABEL ALL FUSE REFERENCE DESIGNATORS AFTER INSTALLATION.

7. NUMBERS IN PARENTHESIS AFTER DESTINATIONS INDICATE PAGE AND ZONE.

6. CONNECT GROUND WIRES TO GROUND BUS, SHT 5, ZN C-1.

5. CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.

4. ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WHT. UNLESS OTHERWISE SPECIFIED.

3. SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT B).

2. ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.

1. ALL CONTROL WIRE TO BE #20 AWG, MIN 600V. NOTES: UNLESS OTHERWISE SPECIFIED

REVISIONS

LT#	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	980703	6-12-98	LM
2	REV SHT 4, 5	981597		

REVISION STATUS OF SHEETS

SHT	1	2	3	4	5	6	7	8
1	1	2	3	4	5	6	7	8

CONTRACT NO. UPS

TITLE: SCHEMATIC/WIRING DIAGRAM  
AP610T SMS  
480V IN, 480/277V OUT, 60 HZ

DRWN: J. CHEN 6-10-98  
CHKD: J. CHEN  
DES: APPD  
PROJ: APPD 6-11-98  
APP: JVED

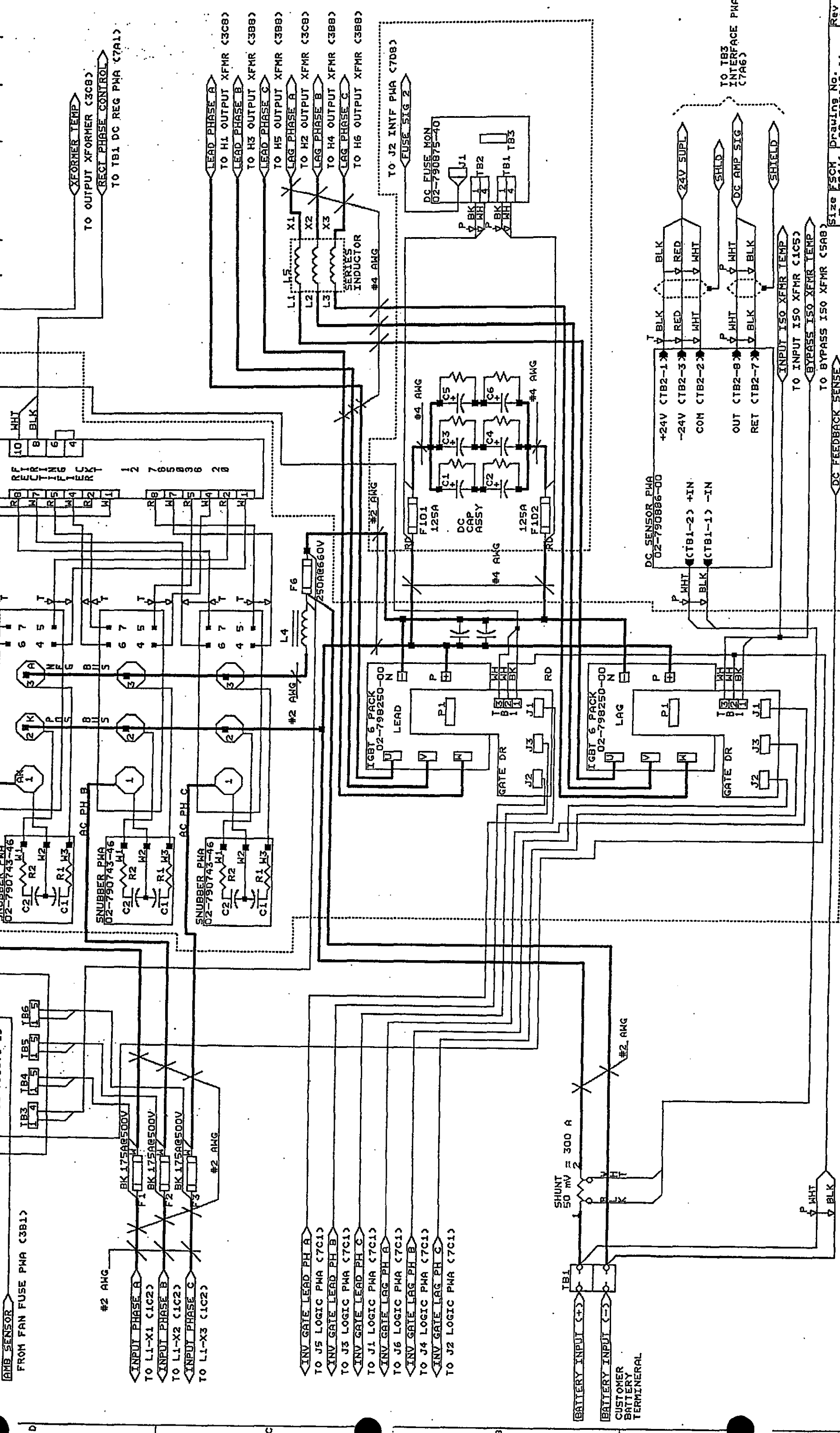
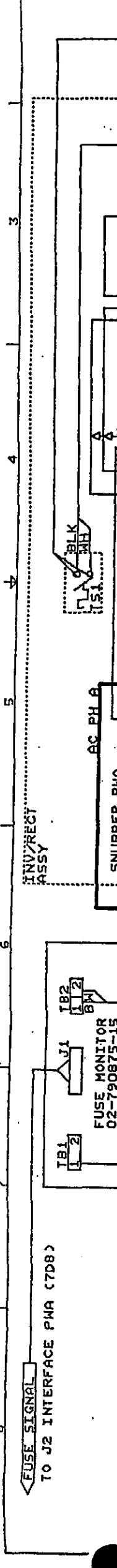
Size: FSCM 52414  
Drawing No.: 98-797610-64  
Rev: 2

Scale: NONE

Sheet 1 of 8

LIEBERT

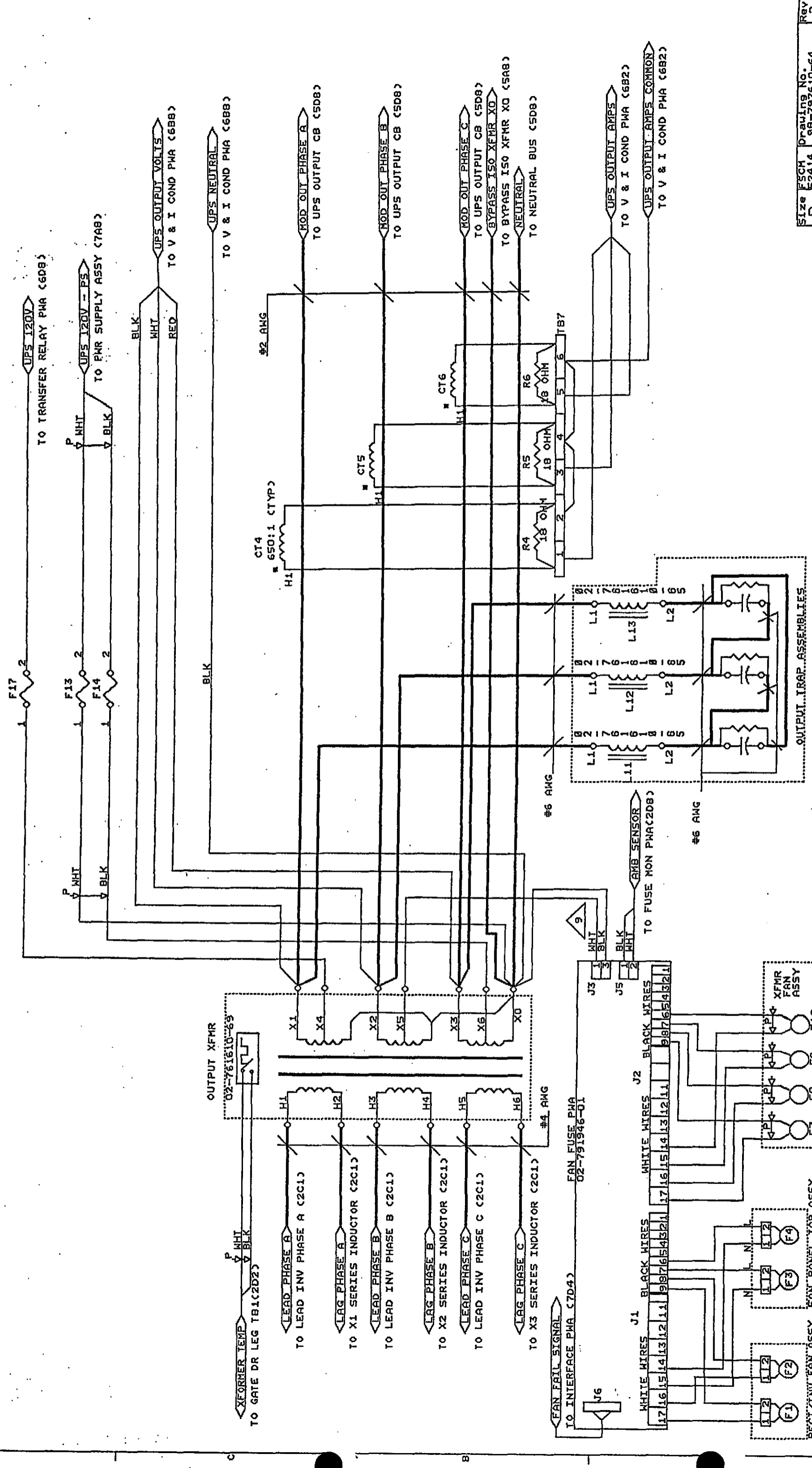
REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	980703	8-12-98	LM
2	CHG FUSE MON	981597		





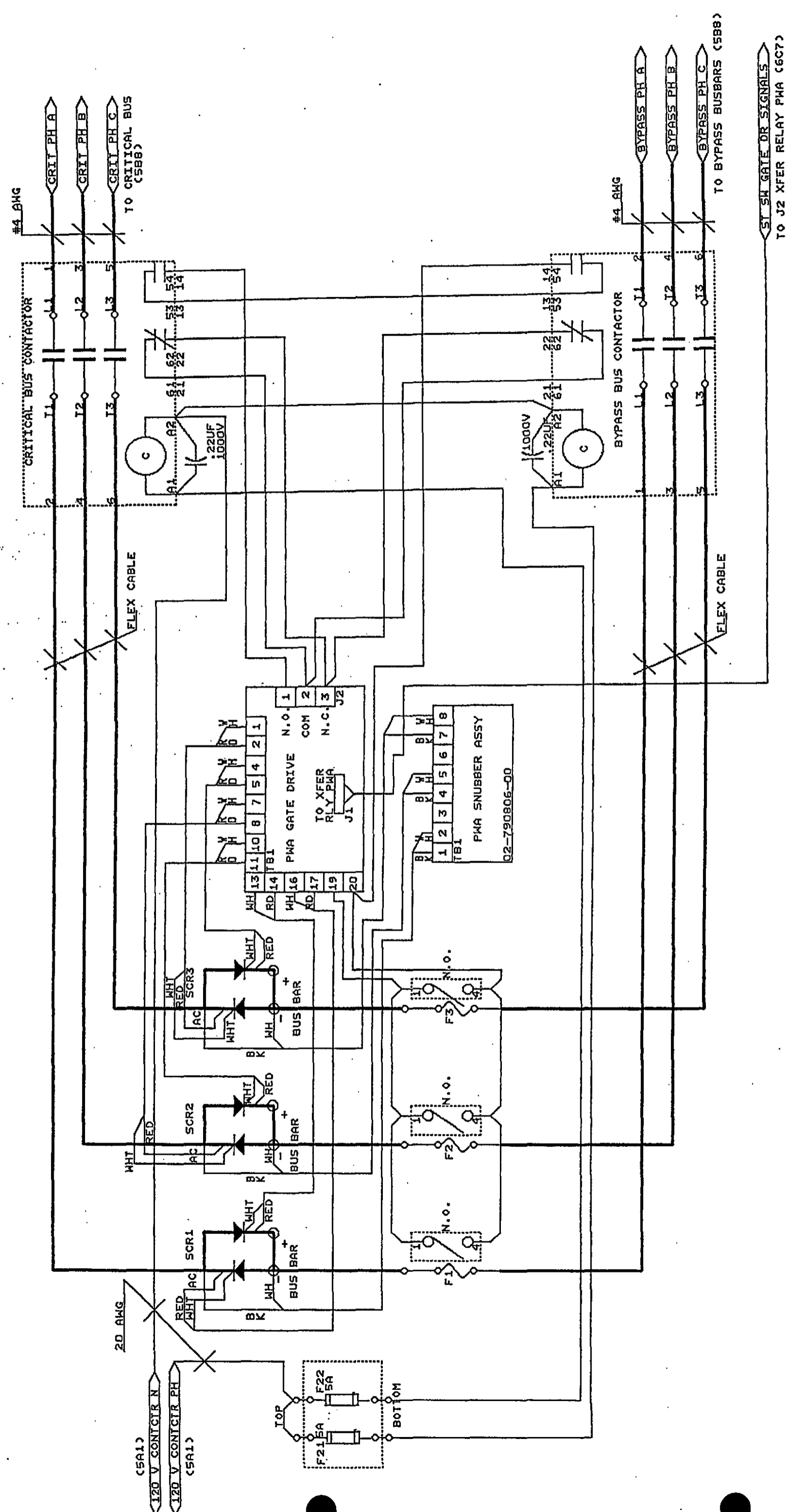
REV	DESCRIPTION	DATE	BY	CHKD
1	NEW RELEASE	8-12-98	L.M.	
2	FAN FUSE PMA	981597		
	BYP 150 XFMR XO			

REV	DESCRIPTION	DATE	BY	CHKD
1	NEW RELEASE	8-12-98	L.M.	
2	FAN FUSE PMA	981597		
	BYP 150 XFMR XO			

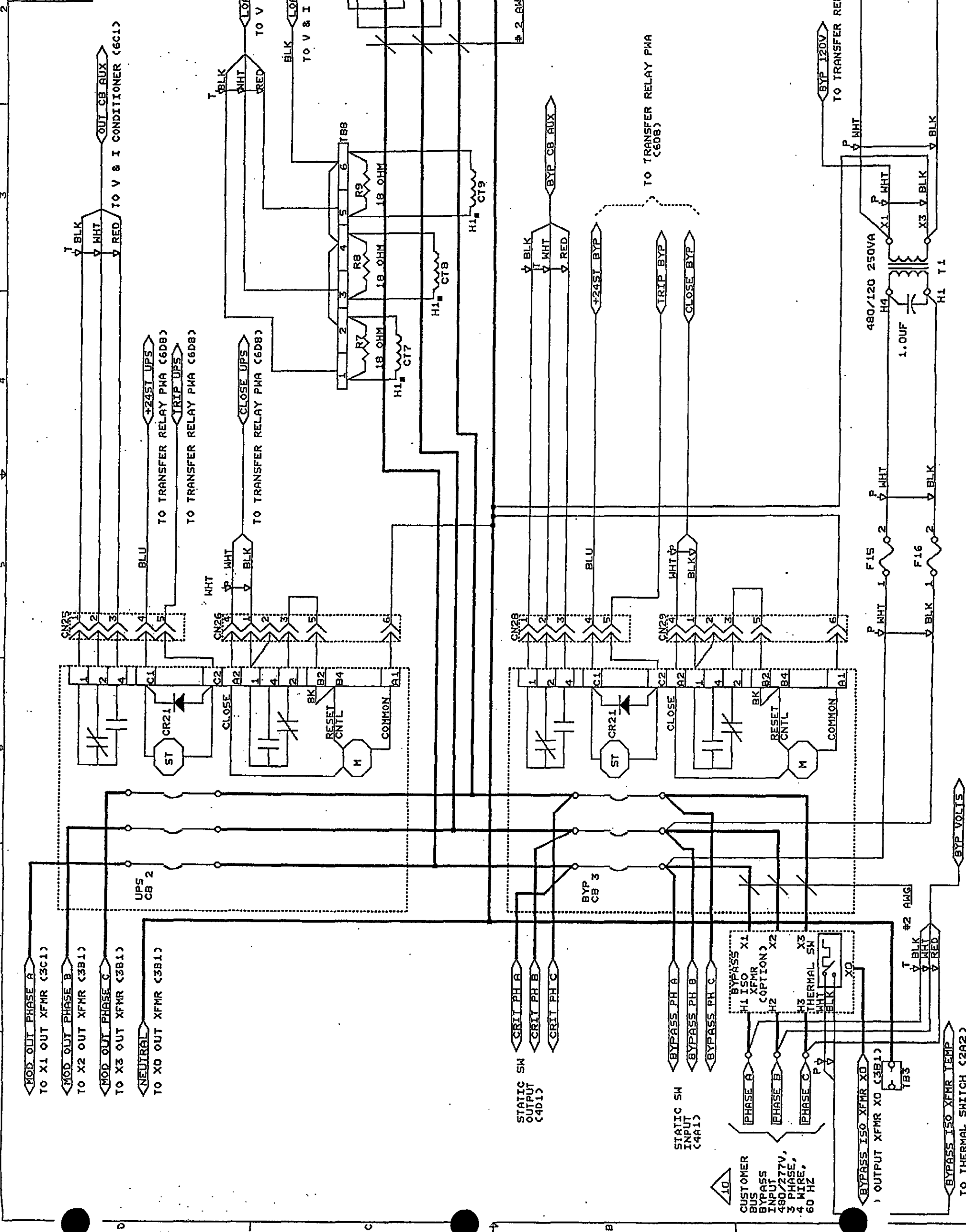


ZONE	LTR	DESCRIPTION	ECO NO	DATE	APPROVED
1		NEW RELEASE	280703	6-12-98	LM
2		SM CTR LABEL	281597		
		FLEX CABLE			
		N.O. MICROSWITCH			
		SM REPDES (4CB)			

STATIC SWITCH CONTACTOR ASSY



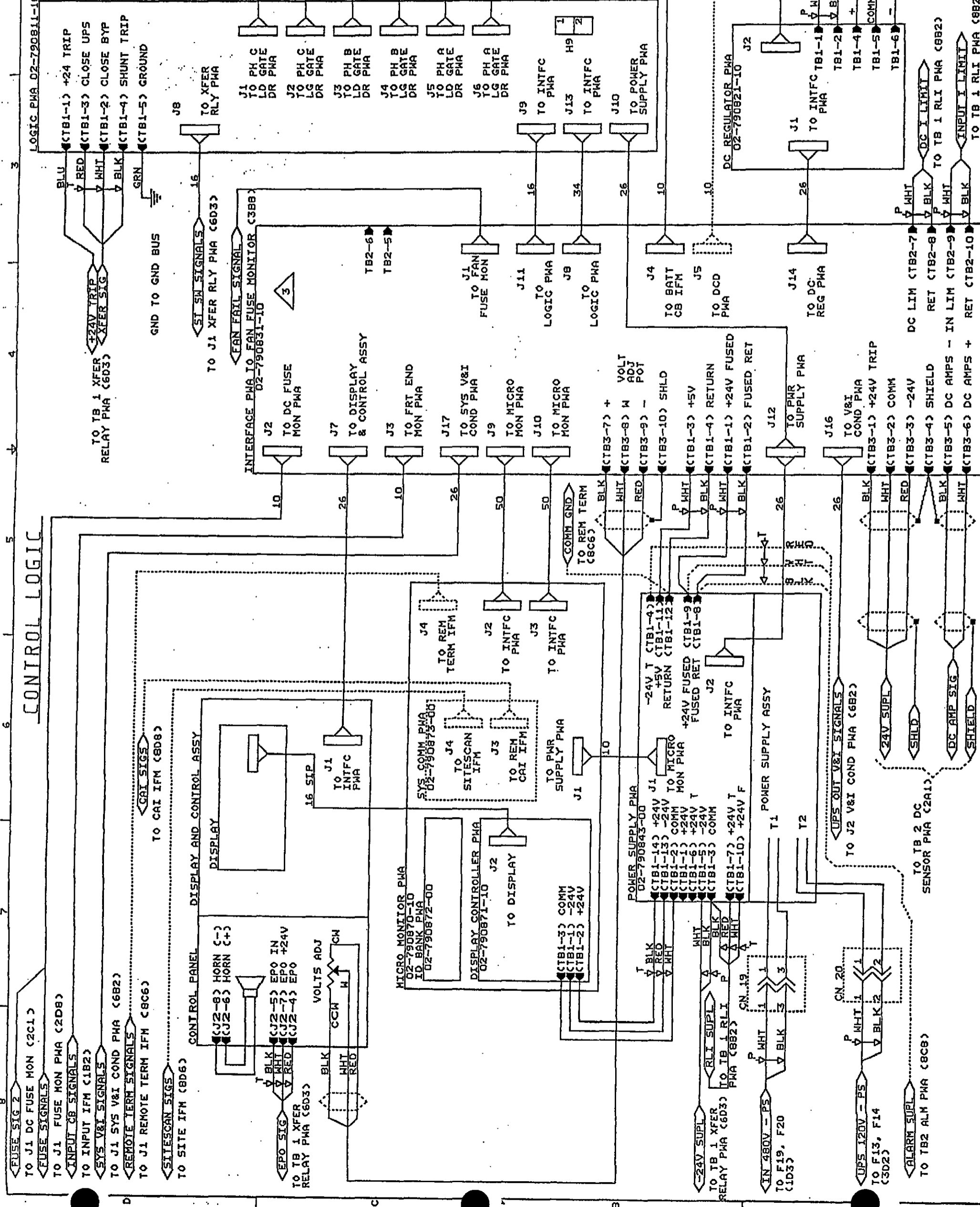
REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	980703	6-12-98	LM
2	REV PIN 2 ON CN 26	981597		
	CN 26 & CN 29			
	BYP 150 XFMR			
	REM CN30/CN31			



CUSTOMER TERMINAL LOAD  
 CRITICAL LOAD  
 480/277V,  
 3 PHASE,  
 4 WIRE,  
 60 HZ



REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	980703	6-12-98	L.M.
2	INTFC PWA	281527		

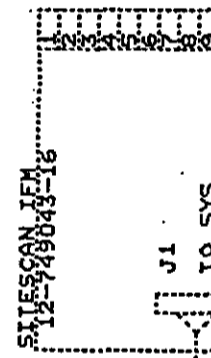


CONTROL LOGIC

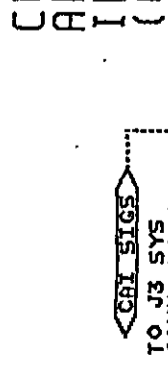
REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	980703	6-12-98	LM
2	ADD DIODE ON BATT IFM	981597		

EXTERNAL CONNECTIONS

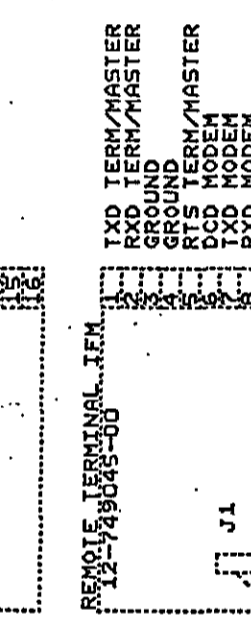
SITESCAN/MASTER INTERFACE (OPTION)



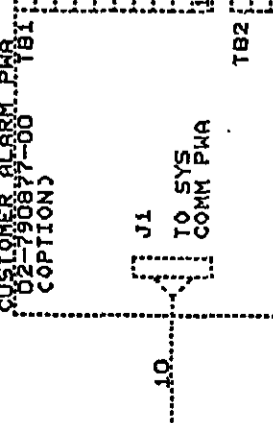
CUSTOMER ALARMS INTERFACE (OPTION)



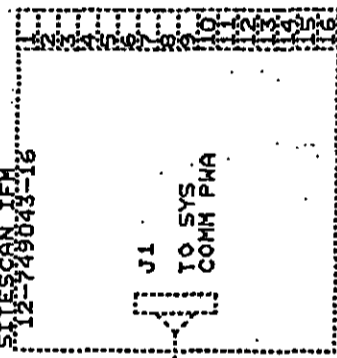
REMOTE TERMINAL INTERFACE (OPTION)



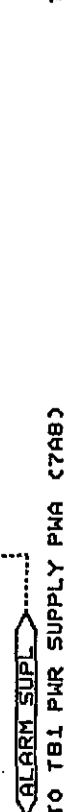
ALARM 1  
ALARM 2  
ALARM 3  
ALARM 4  
ALARM 5  
ALARM 6  
ALARM 7  
ALARM 8



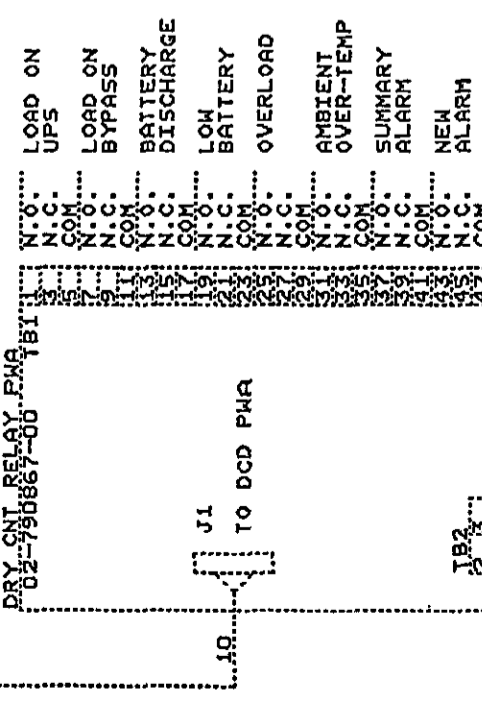
T+/R+ SMS  
T-/R- SMS



TO TB1 PWR SUPPLY PMA (7B5)

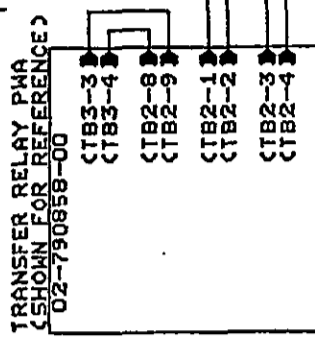


REMOTE DRY CONTACTS INTERFACE (OPTION)



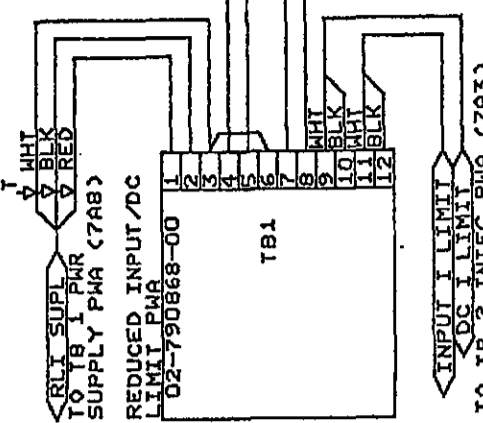
LOAD ON UPS  
LOAD ON BYPASS  
BATTERY DISCHARGE  
LOW BATTERY  
OVERLOAD  
AMBIENT OVER-TEMP  
SUMMARY ALARM  
NEW ALARM

REMOTE EMERGENCY OFF

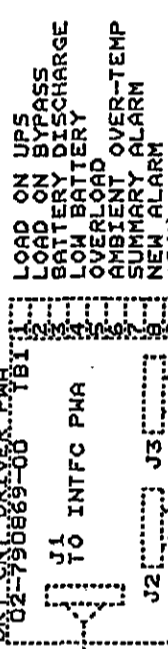


REMOTE XFER TO BYPASS SHUTDOWN SM (BY CUST)  
REMOTE TOTAL SHUTDOWN SM (BY CUST)

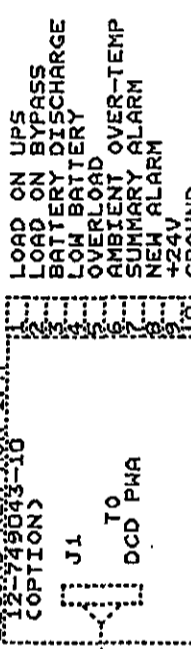
REDUCED I LIMIT



REMOTE MONITOR INTERFACE (OPTION)



SECOND REMONITOR INTERFACE (OPTION)



BATT CKT BRKR INTFC

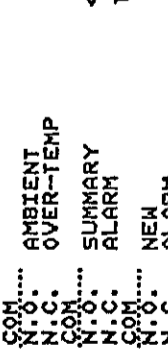
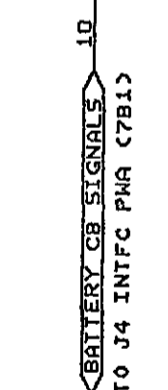
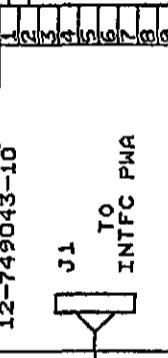


UV TRIP (+)  
UV TRIP (-)  
BATT CB AUX - N.C.  
BATT CB AUX - COM  
BATT CB AUX - N.O.

TO J4 INTFC PMA (7B1)



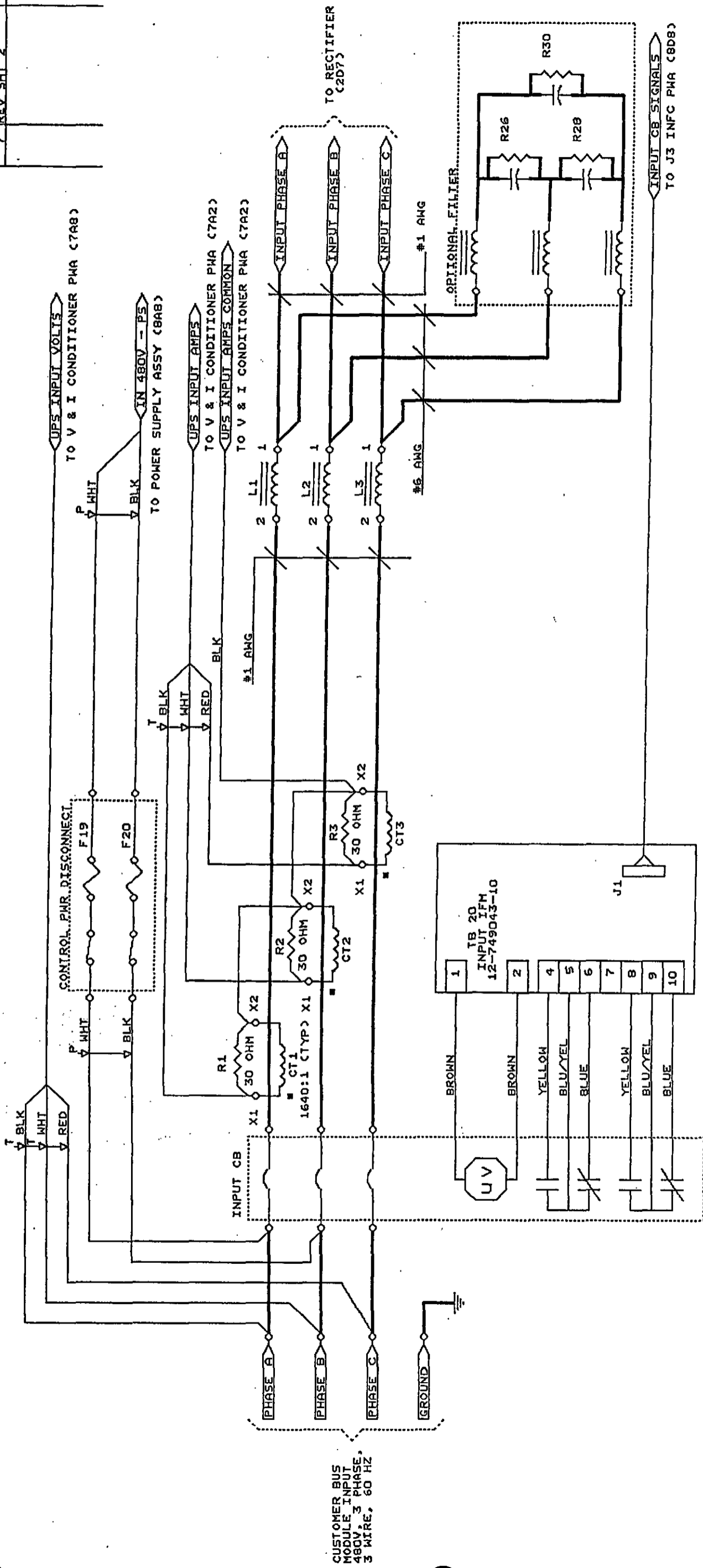
TO TB1 PWR SUPPLY PMA (7B5)



JUMPER SELECT CHART

PMA	FUNCTION	HEADER OR JUMPER	PINS TO BE CONNECTED
INTERFACE	SYSTEM SEL	H1-6	2-3
LOGIC PMA	TRANSISTOR/SCR	H13	1-2 (TRANSISTOR)
	PROJECT ENABLE	H4-H6	2-3
	AUX DELAY	H1	1-2 2-3 7-8
	FREQ. SELECT	H8, H10, H11, H12	1-2 (60 HZ)
	FAULT TRANSFER INHIBIT	H7	2-3 INT
		H9	1-2

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CUSTOMER BUS  
MODULE INPUT  
480V 3 PHASE,  
3 WIRE, 60 HZ

7. NUMBERS IN PARENTHESIS AFTER DESTINATIONS INDICATE (PAGE AND ZONE).
6. CONNECT GROUND WIRES TO GROUND BUS, SHT 6, ZN C-1.
5. CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.
4. ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WRT. UNLESS OTHERWISE SPECIFIED.
3. SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT 9).
2. ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.
1. ALL CONTROL WIRE TO BE #2D AWG, MIN 600V. NOTES: UNLESS OTHERWISE SPECIFIED

REVISION STATUS OF SHEETS						
SHT 1	1	2	3	4	5	6
SHT 2	1	2	3	4	5	7
SHT 3	1	2	3	4	5	7
SHT 4	1	2	3	4	5	7
SHT 5	1	2	3	4	5	7
SHT 6	1	2	3	4	5	7
SHT 7	1	2	3	4	5	7
SHT 8	1	2	3	4	5	7
SHT 9	1	2	3	4	5	7

REVISIONS			
LTR	DESCRIPTION	ECO	NO. DATE
1	NEW RELEASE	940779	12-15-94
2	REV SHT 2	950017	12-13-94
3	REV SHT 2, 3, 5-8	950429	5-22-95
4	REV SHT 2, 6, 8	951069	12/4/95
5	REV SHT 1, 2, 6, 9	960274	2-15-96
6	REV SHT 1, 8, 9	970524	5-15-97
7	REV SHT 2	971000	

CONTRACT NO. UPS

Title: SCHEMATIC/WIRING DIAGRAM  
AP621T SMS  
480V IN, 480/277V OUT, 60 HZ

DRAWN CT 11-16-94

CHECK

DES APPD

PROJ APPD

APPROVED JC

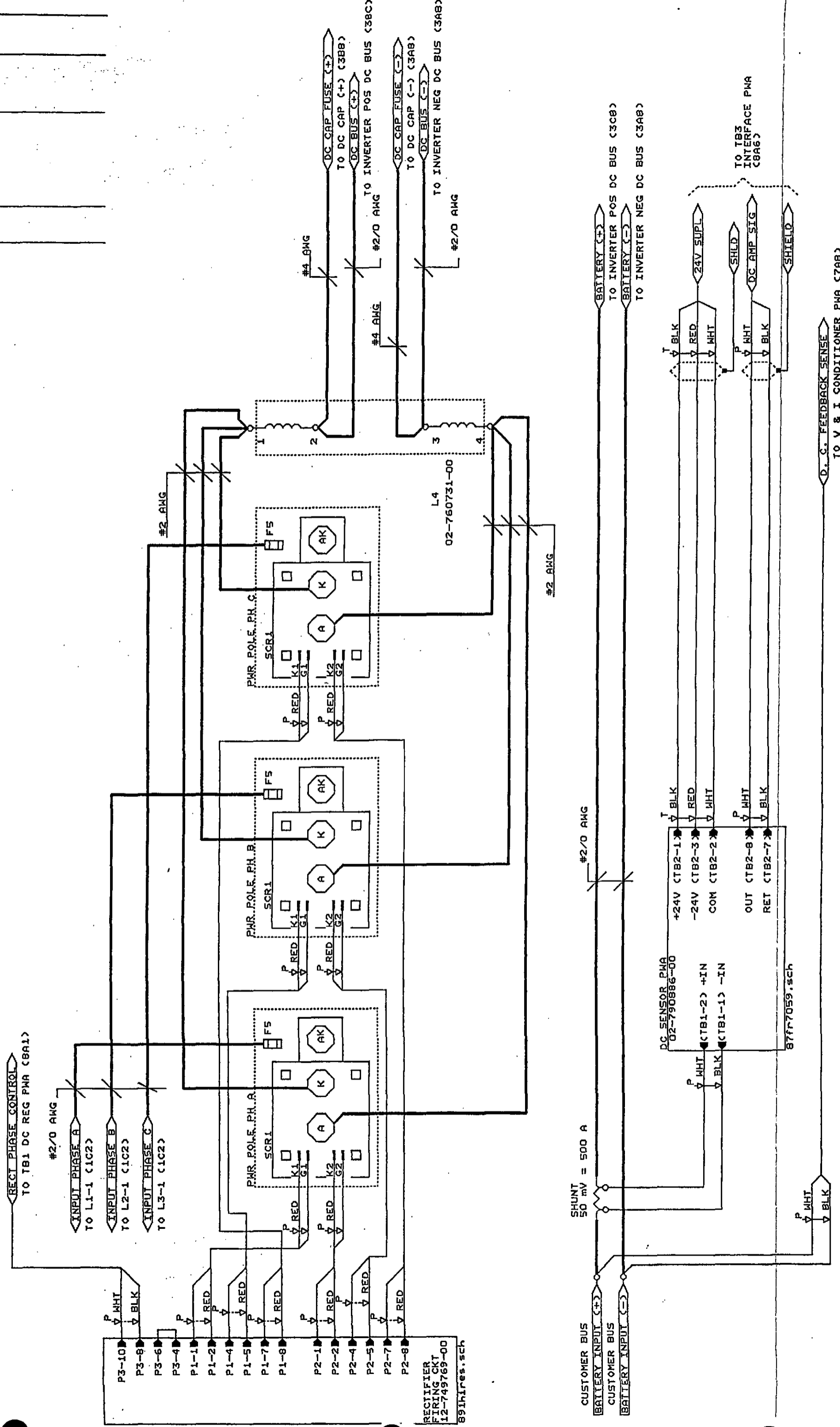
Size FSCM Drawing No. 52414 98-797621-64 Rev 7

Scale NONE

Sheet 1 of 9

LIEBERT

REV. NO.	DESCRIPTION	ECO NO.	DATE	APPD.
1	NEW RELEASE			



Size	FSCM	Drawing No.	Rev
B	52414	98-791621-64	1
SCALE	NONE	SHEET	2 OF 10

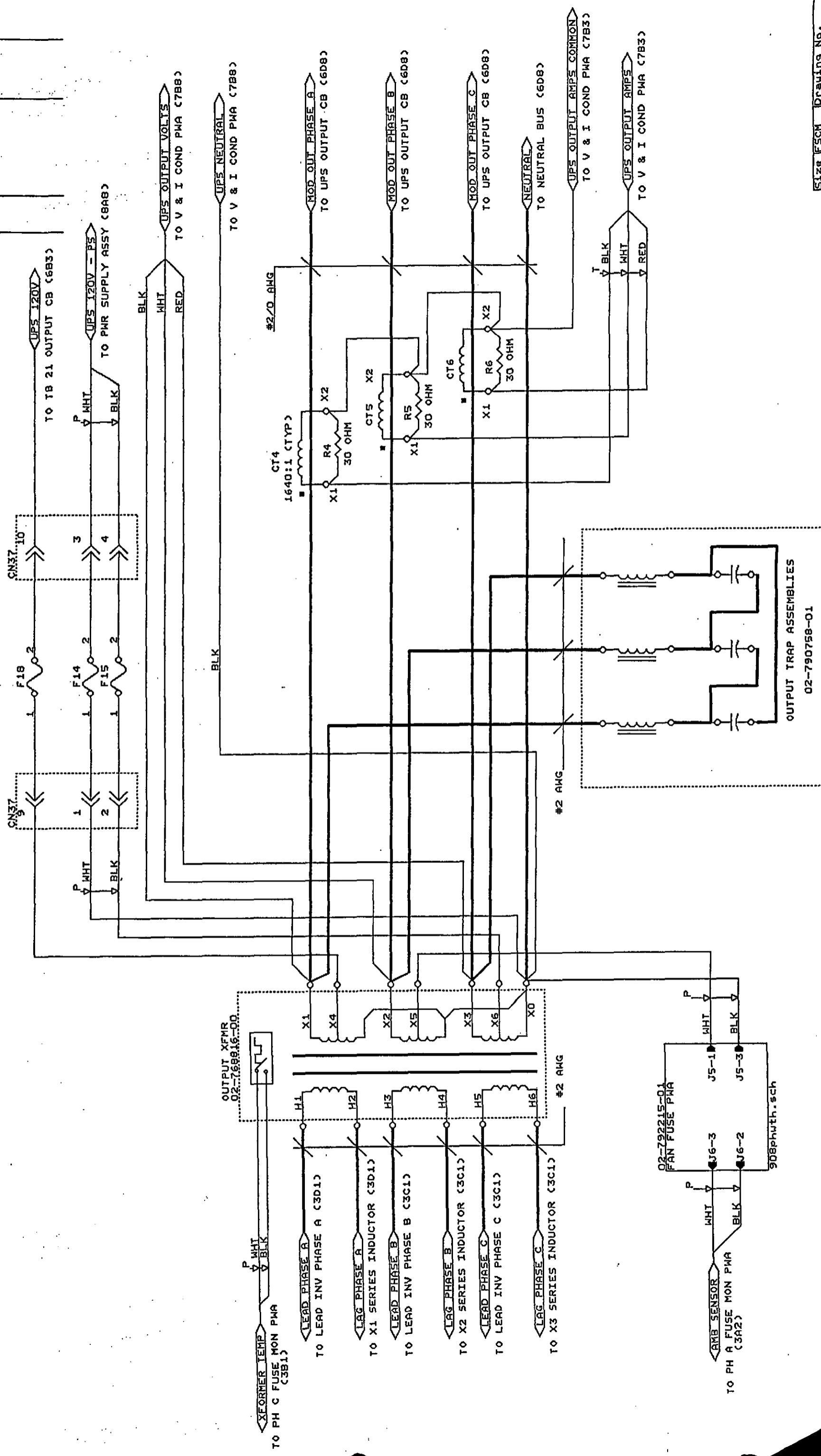
D. C. FEEDBACK SENSE  
TO V & I CONDITIONER PMA (7AB)

CUSTOMER BUS  
BATTERY INPUT (+)  
CUSTOMER BUS  
BATTERY INPUT (-)  
SHUNT  
50 mV = 500 A  
DC SENSOR PMA  
02-790886-00  
+24V (CTB2-1)  
-24V (CTB2-3)  
COM (CTB2-2)  
OUT (CTB2-8)  
RET (CTB2-7)  
T BLK  
RED  
WHT  
P WHT  
BLK  
87fr7059.sch  
TO TB3  
INTERFACE PMA  
(8A6)

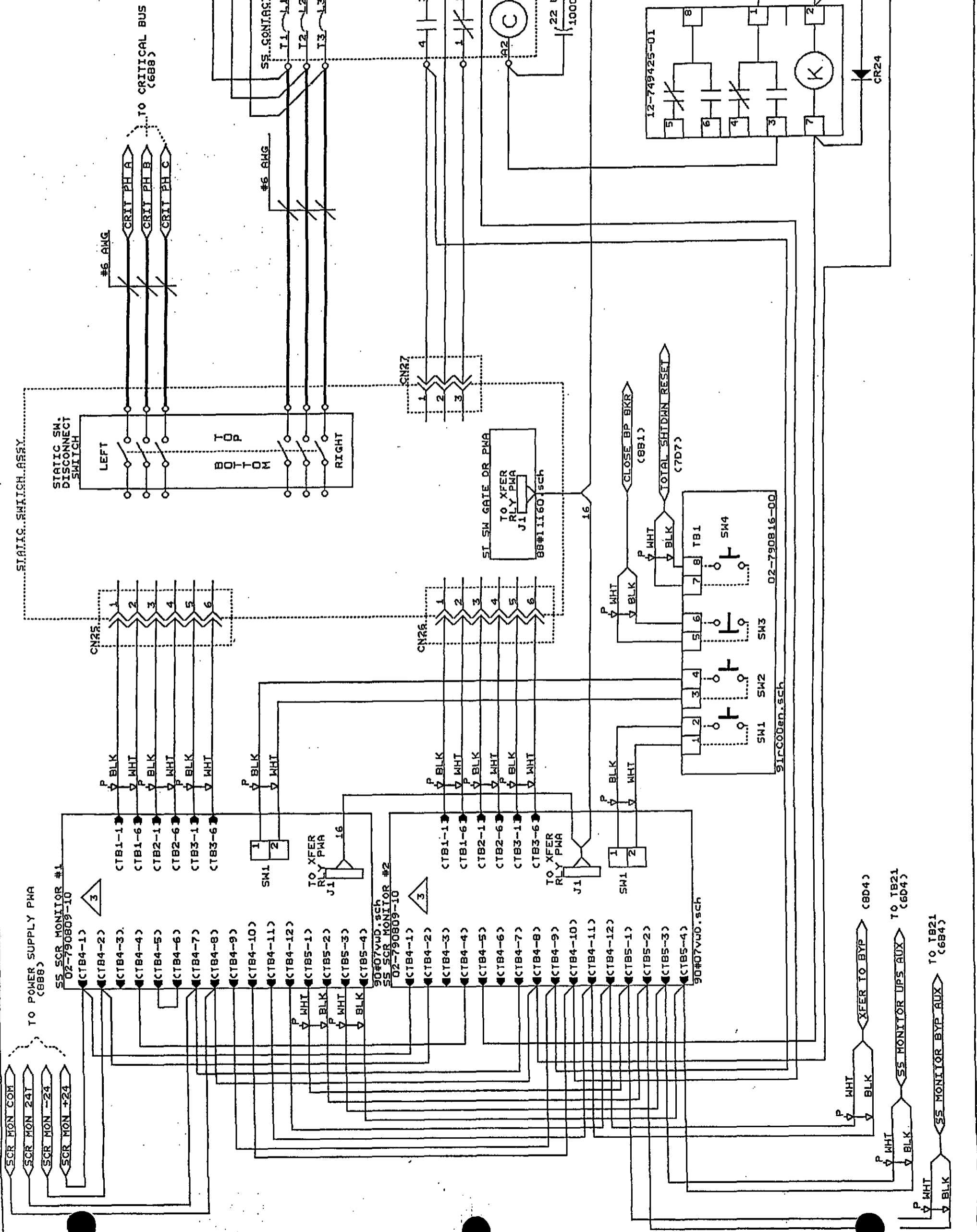




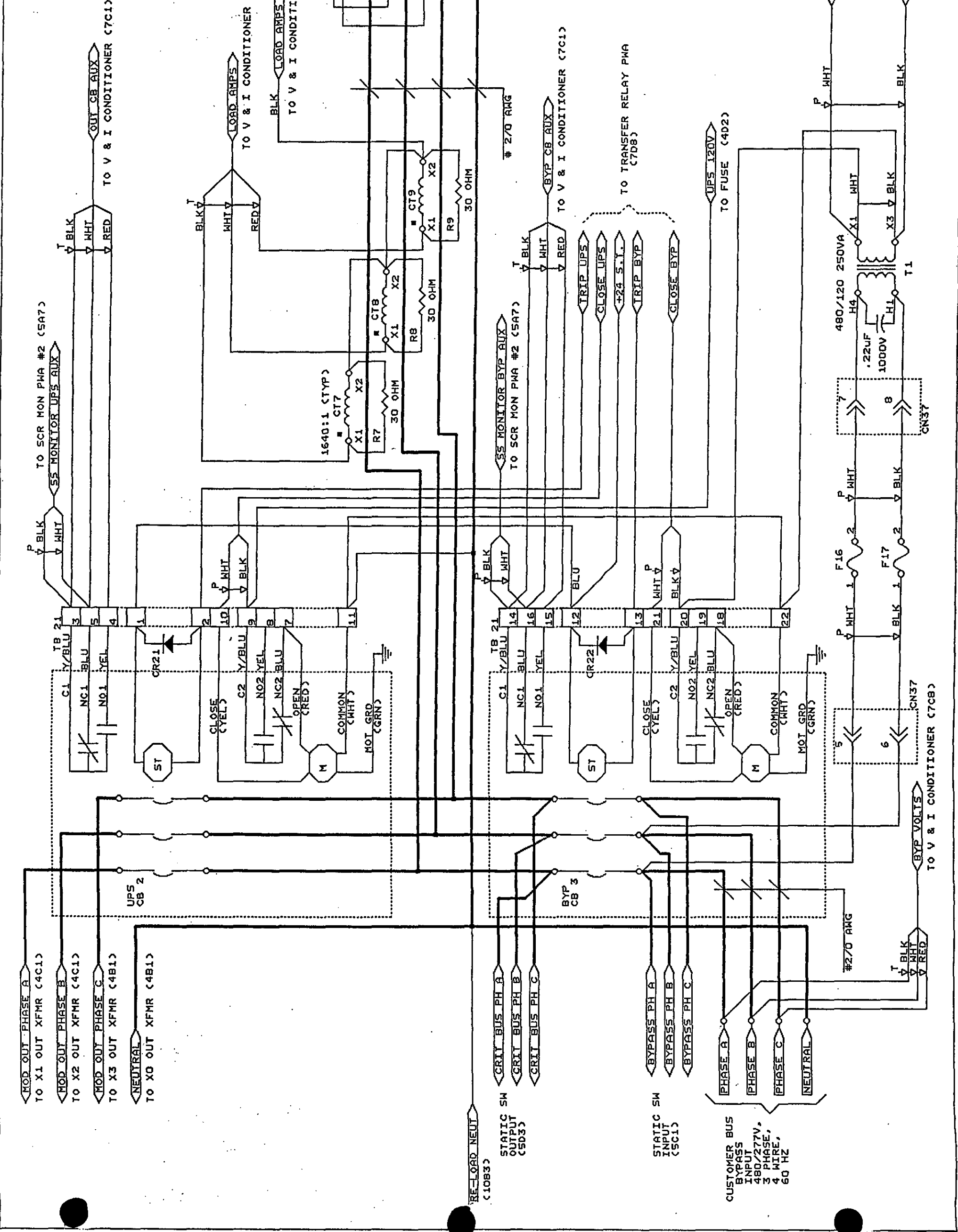
REV	DESCRIPTION	ECO NO.	DATE	APP
1	NEW RELEASE	910442	6-25-91	SN
3	ADD CN37	920009		



LTR	DESCRIPTION	E.C.O. NO.	DATE	APPRO
1	NEW RELEASE	910442	6/25/91	SN
2	LABELLED PWA	910891	10-28-91	SN
3	SWITCH AND CONTACTOR	920009	2-20-92	SN
4	SS MON CONN LABEL TB21 TO TB21	920086		



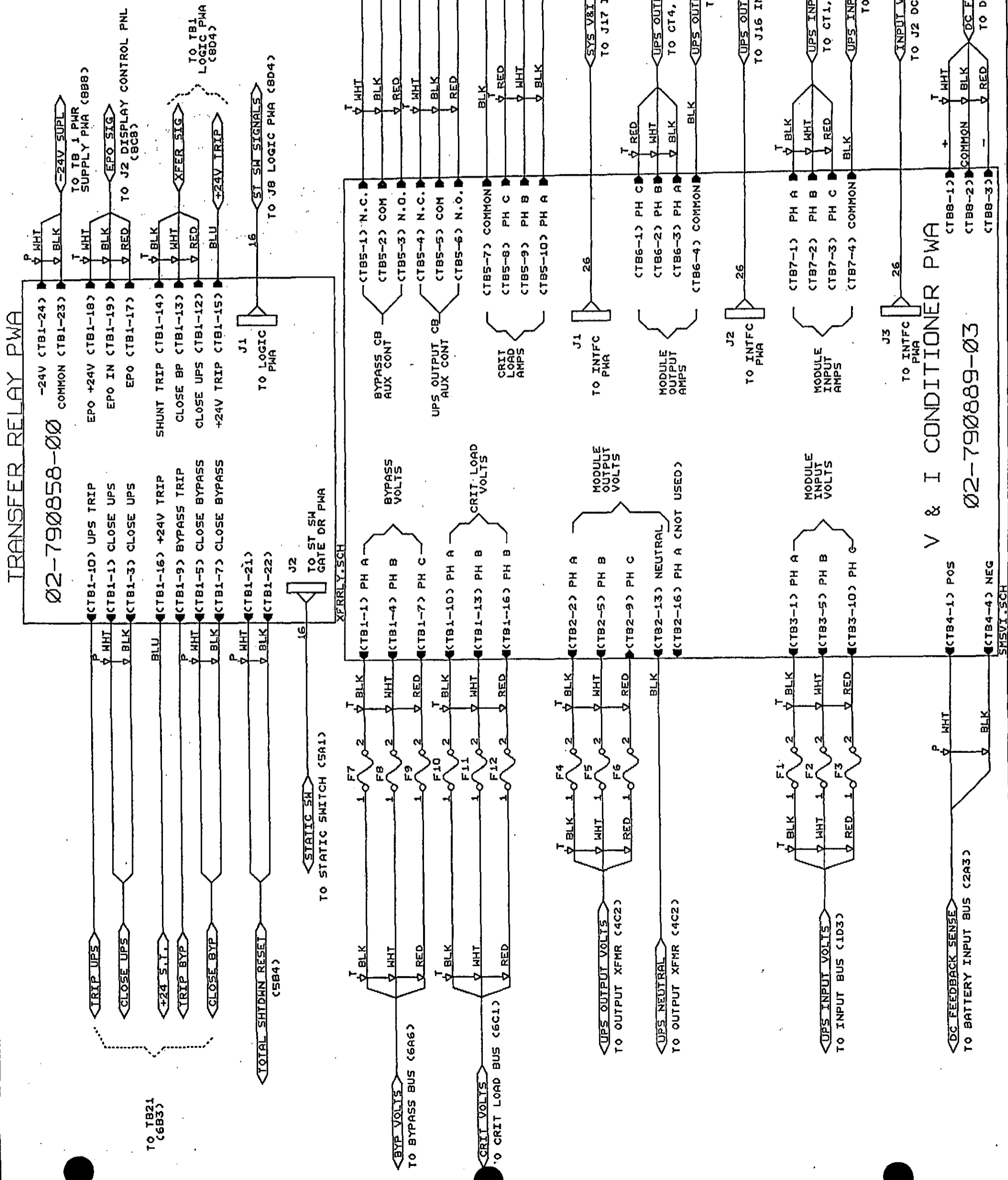
REV	DESCRIPTION	ECO NO.	DATE	APPROV
1	NEW RELEASE	910442	6/25/91	SN
2	LABELLED T1 & ADD NEUTRAL	910891	10-28-91	SN
3	TB21 CONN LOCATION CHG REMOVED GND & NEUTRAL WIRE ADD CN37	920009		



LTR	DESCRIPTION	ECO NO.	DATE	APPD.
1	NEW RELEASE	910342	6-25-91	SN
3	REMOVED CONN	920009		
	TO B22, XFR			
	RLY PMA			

# TRANSFER RELAY PWA

02-790858-00



# V & I CONDITIONER PWA

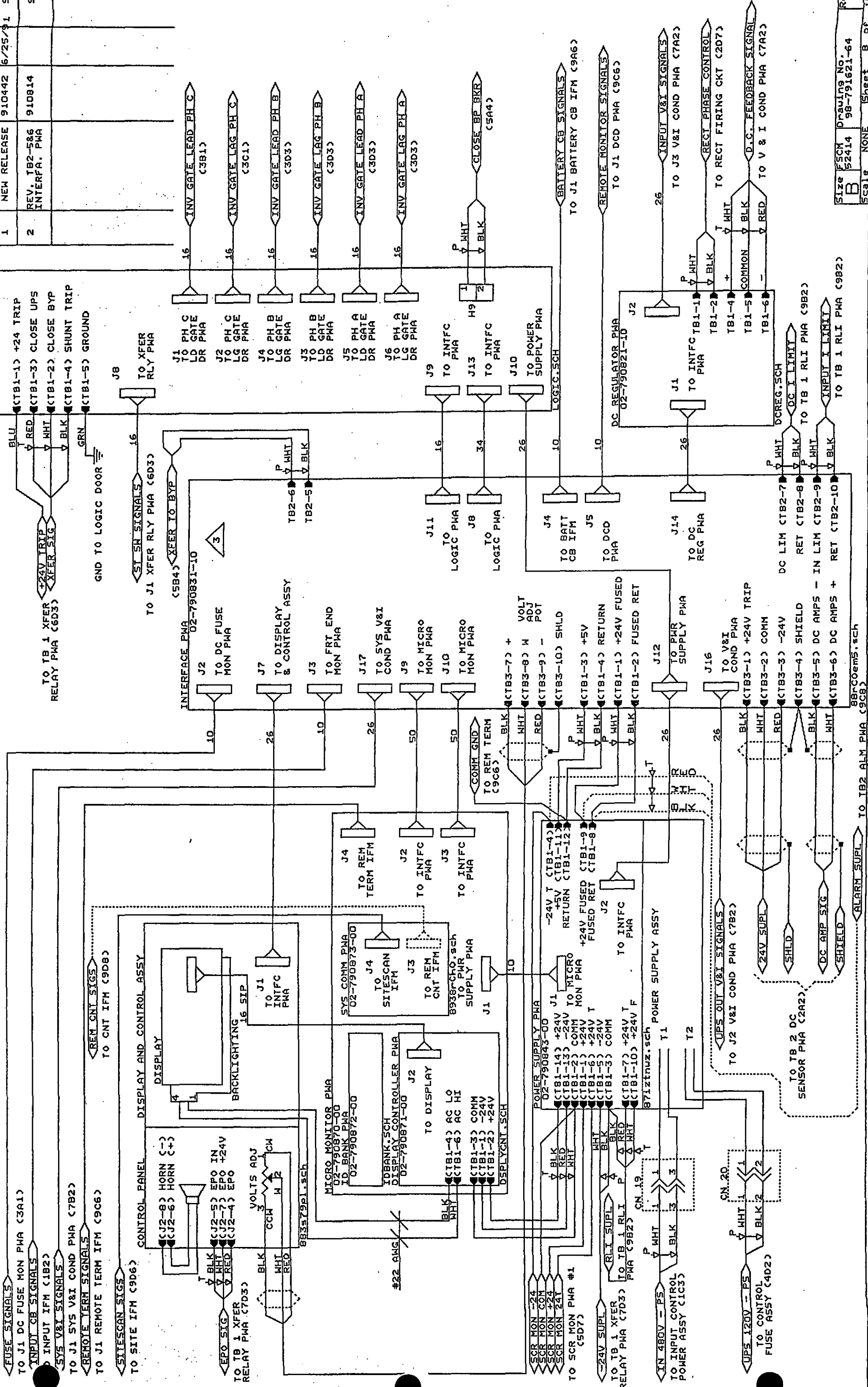
02-790889-03

Size	F5CH	Drawing No.	Rev
B	52414	98-791621-64	3

Scale NONE Sheet 7 of 10

# CONTROL LOGIC

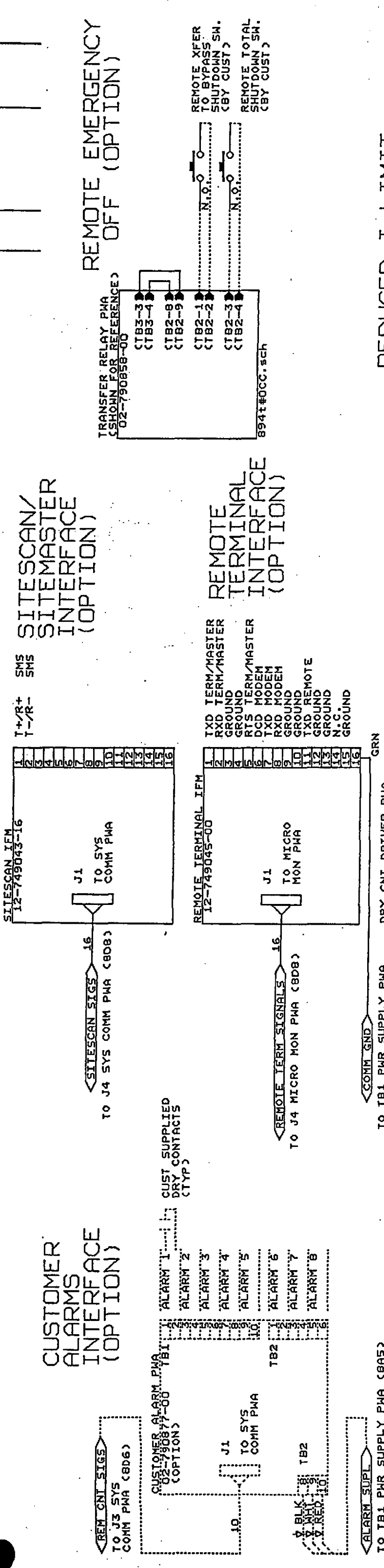
REV. NO.	DATE	DESCRIPTION
1	6/25/91	NEW RELEASE
2	910814	REV. TB2-5&6 INTERFA. PMA



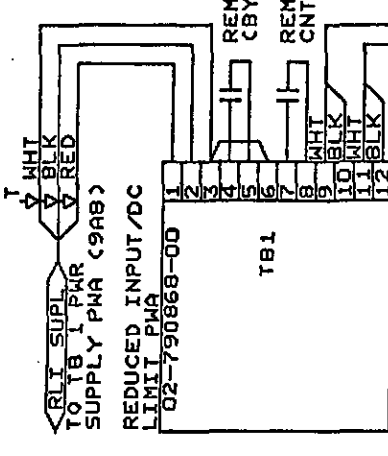
LTR	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE			

REVISIONS	ECO NO.	DATE	APPD

**EXTERNAL CONNECTIONS**



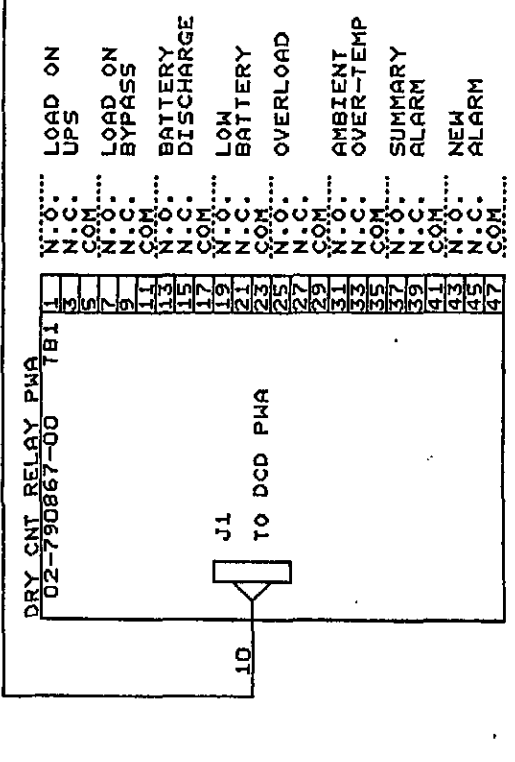
**REDUCED I LIMIT**



**JUMPER SELECT CHART**

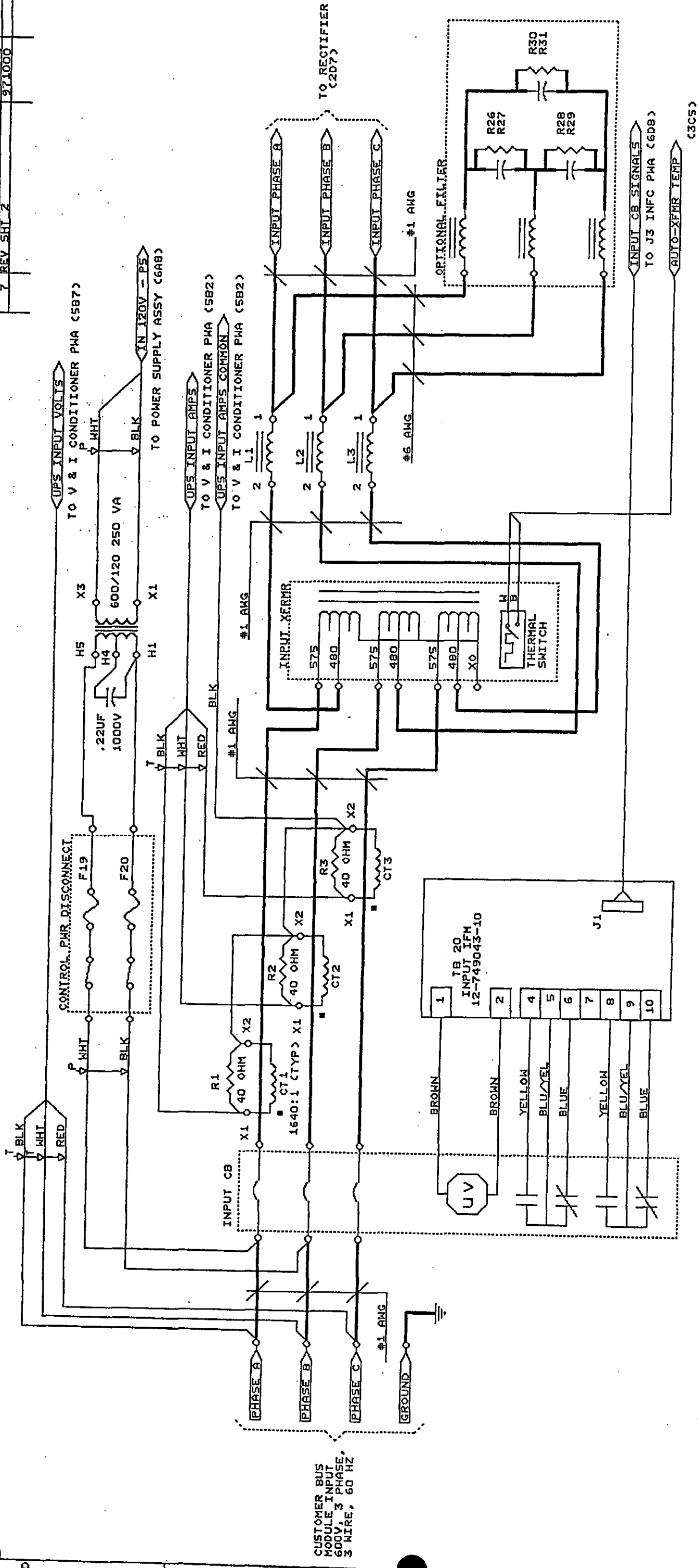
PMA	FUNCTION	HEADER OR JUMPER	PINS TO BE CONNECTED
INTERFACE	SYSTEM SEL	H1-6	2-3
SS SCR MON	VOLTAGE SEL	H1-6	2-4

**REMOTE DRY CONTACTS INTERFACE**



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REVISIONS	
LTR DESCRIPTION	ECO NO. DATE
1 NEW RELEASE	950195 7/10/95
2 REV SHT 1-3	950433 5-23-95
3 REV SHT 2, 6, 7	951069 12-4-95
4 REV SHT 1, 6	960899 8-15-96
5 REV SHT 1, 6	960953 9-23-96
6 REV SHT 4	970821 9-23-96
7 REV SHT 2	971000 9-23-96



CUSTOMER BUS MODULE INPUT 600V, 3 PHASE, 3 WIRE, 60 HZ

- NUMBERS IN PARENTHESIS AFTER DESTINATIONS INDICATE (PAGE AND ZONE).
- CONNECT GROUND WIRES TO GROUND BUS, SHT 6, ZN C-1.
- CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.
- ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WHT, UNLESS OTHERWISE SPECIFIED.
- SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT 9).
- ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.
- ALL CONTROL WIRE TO BE #20 AWG, MIN 600V. NOTES: UNLESS OTHERWISE SPECIFIED

REVISION STATUS OF SHEETS							
SHT	1	2	3	4	5	6	7
SHT 1							
SHT 2							
SHT 3							
SHT 4							
SHT 5							
SHT 6							
SHT 7							

CONTRACT NO. UPS

LIBERT

Title  
SCHEMATIC/WIRING DIAGRAM  
AP6211 MMH  
600V IN, 600/347V OUT, 60 HZ

DES APPD  
PROJ APPD  
DATE  
9/16/95

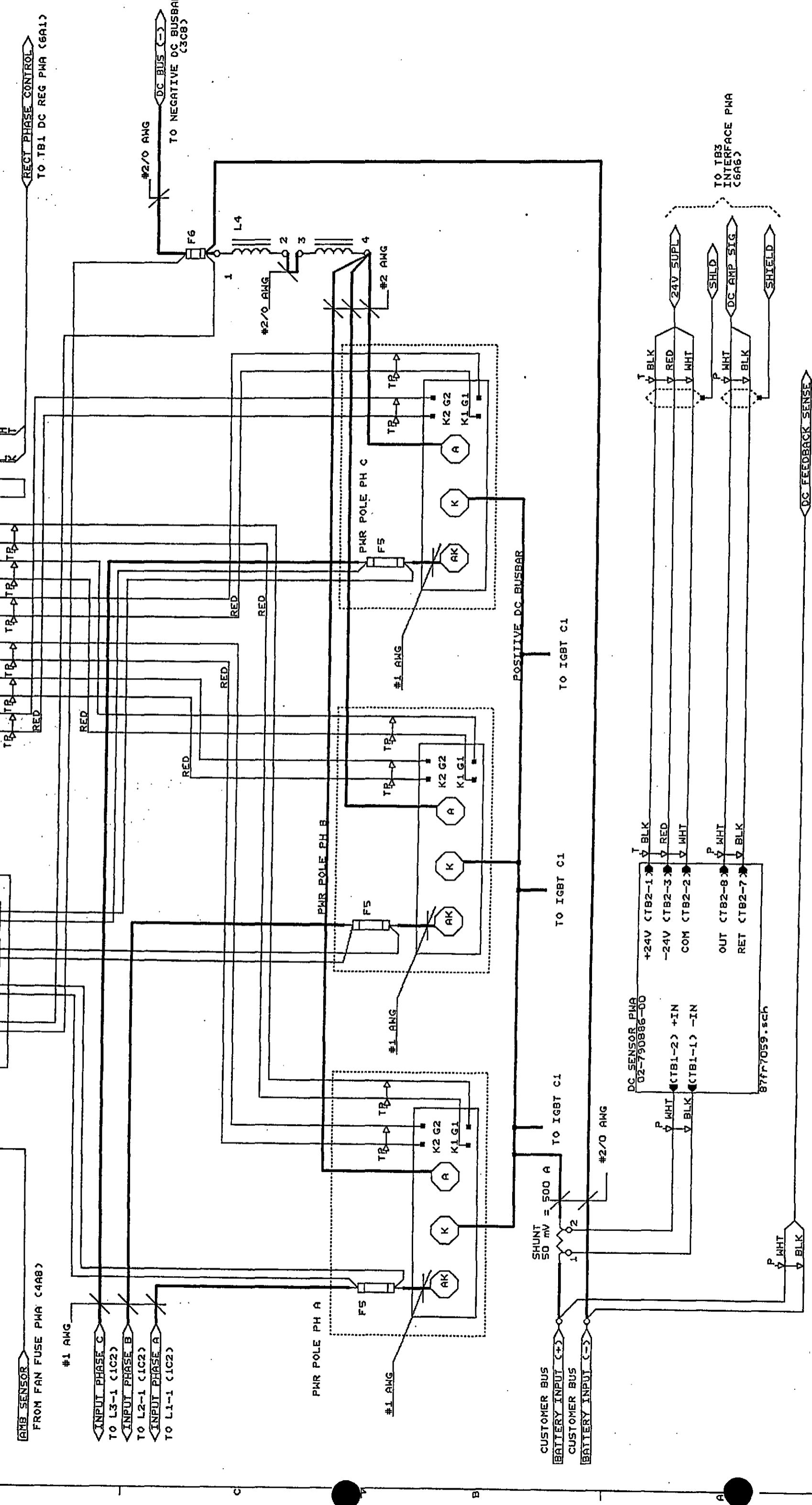
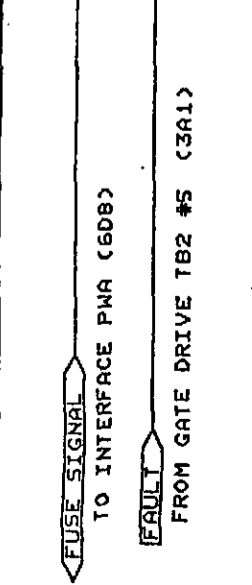
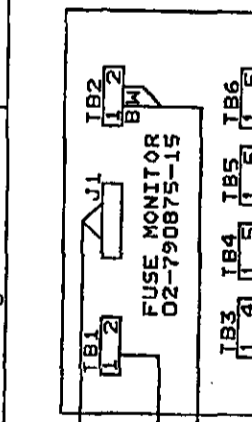
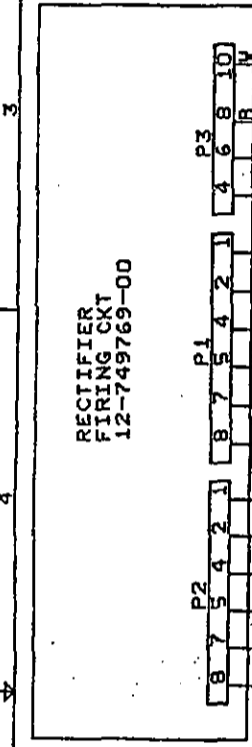
Size FSCM  
52414

Drawing No.  
98-797621-86

Rev  
7



REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	950195	3/10/95	DE
2	ADD WIRE SIZE	950439	5-25-95	DE
3	ADD TERM NO.	951069		
7	ADD JUMPER	971000		



REVISIONS		
LT	DESCRIPTION	ECO NO/DATE APPD
1	NEW RELEASE	950195B/10/95 DE
2	ADD WIRES SIZE	950439

- INV GATE LAG PH A  
TO J6 LOGIC PMA (6C1)
- INV GATE LEAD PH A  
TO J5 LOGIC PMA (6C1)
- INV GATE LAG PH B  
TO J4 LOGIC PMA (6C1)
- INV GATE LEAD PH B  
TO J3 LOGIC PMA (6C1)
- INV GATE LAG PH C  
TO J2 LOGIC PMA (6C1)
- INV GATE LEAD PH C  
TO J1 LOGIC PMA (6D1)

- #2 AWG  
LEAD PHASE A  
TO H1 OUTPUT XFMR C4C8
- LAG PHASE A  
TO H2 OUTPUT XFMR C4C8
- LEAD PHASE B  
TO H3 OUTPUT XFMR C4C8
- LAG PHASE B  
TO H4 OUTPUT XFMR C4B8
- LEAD PHASE C  
TO H5 OUTPUT XFMR C4B8
- LAG PHASE C  
TO H6 OUTPUT XFMR C4B8

TO OUTPUT XFMR C4C8  
XFORMER TEMP

TO POSITIVE DC BUSBAR

TO POSITIVE DC BUSBAR

TO POSITIVE DC BUSBAR

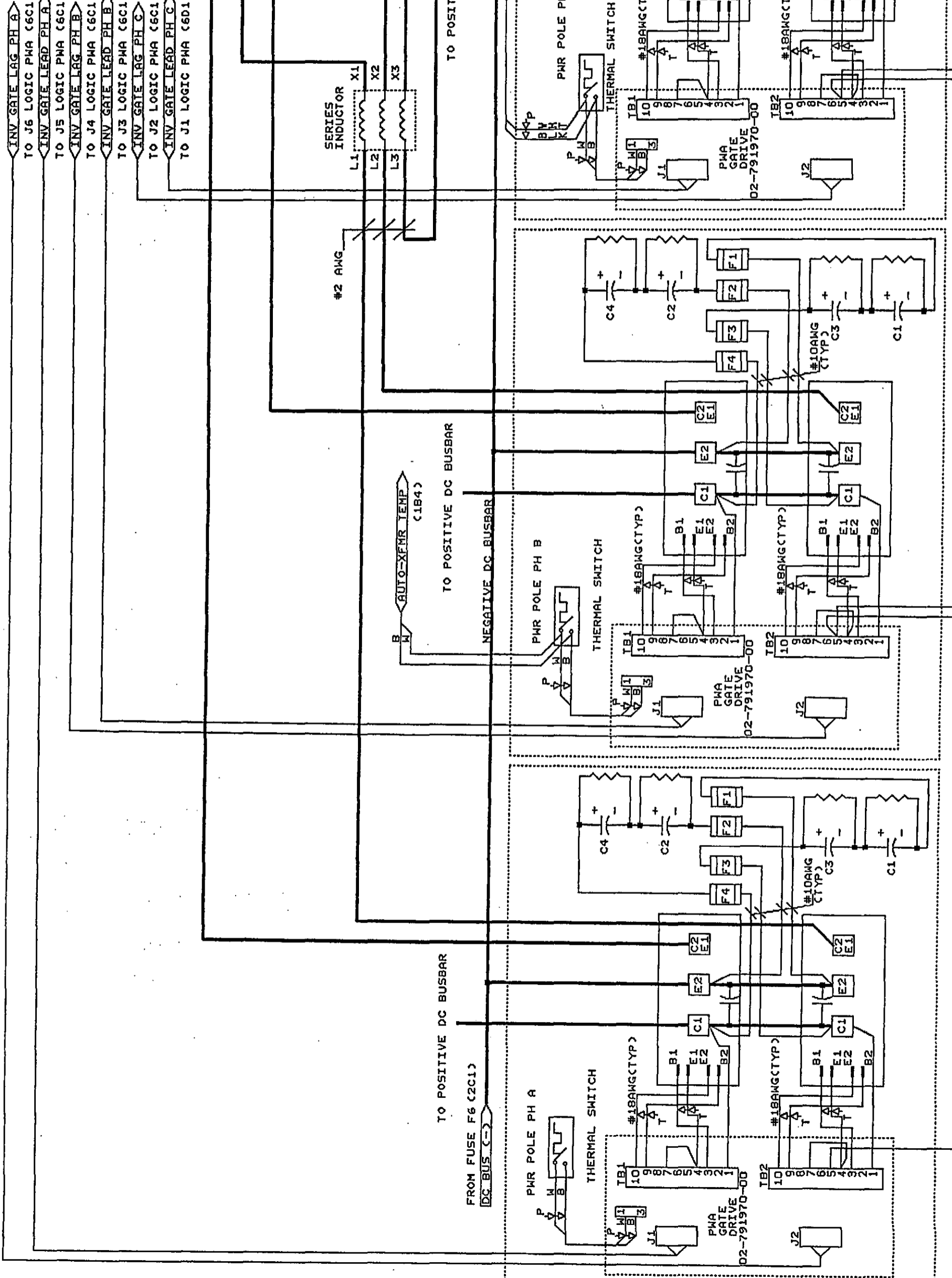
FROM FUSE F6 (2C1)  
DC BUS (-)

AUTO-XFMR TEMP  
(1B4)

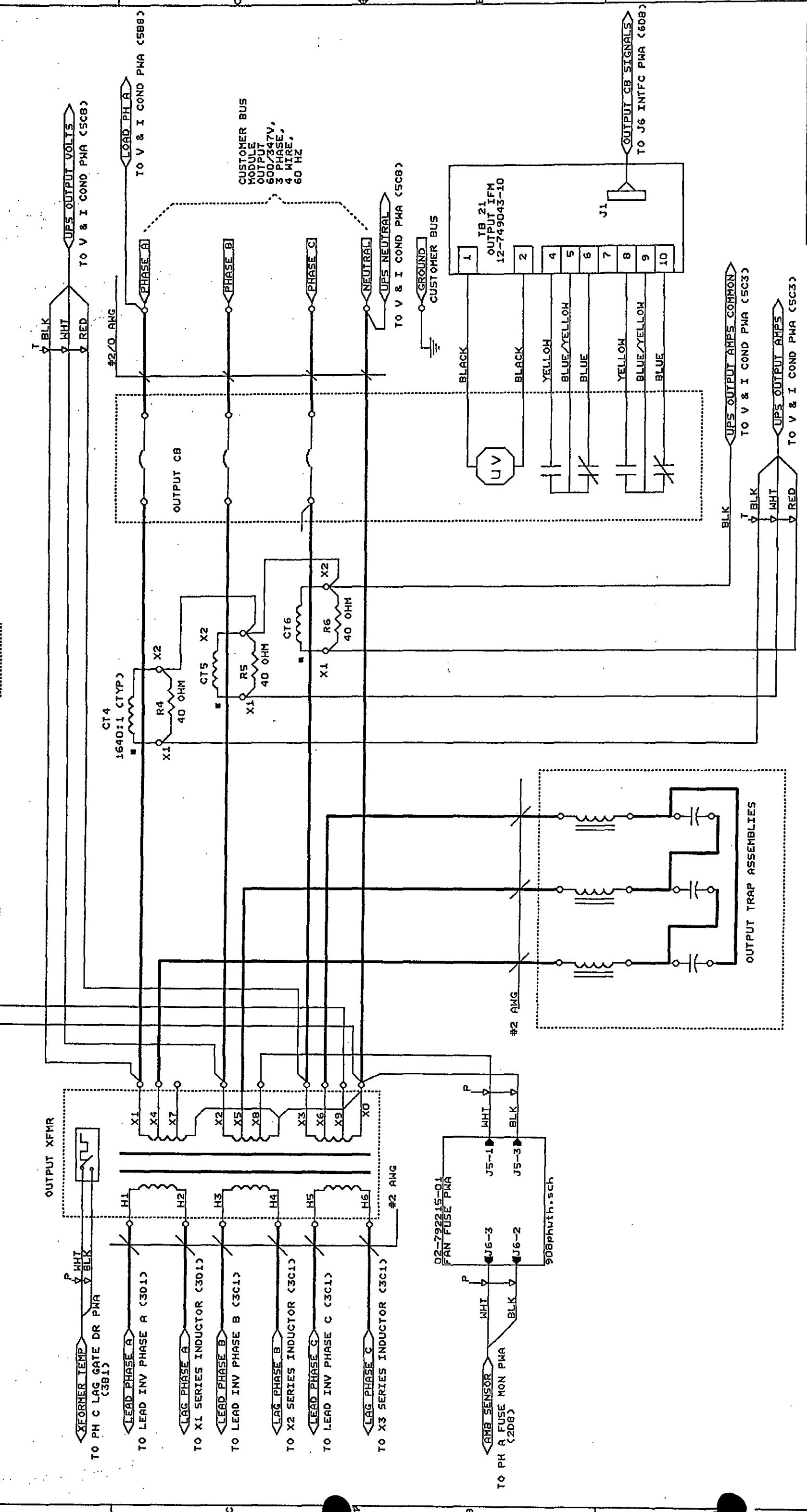
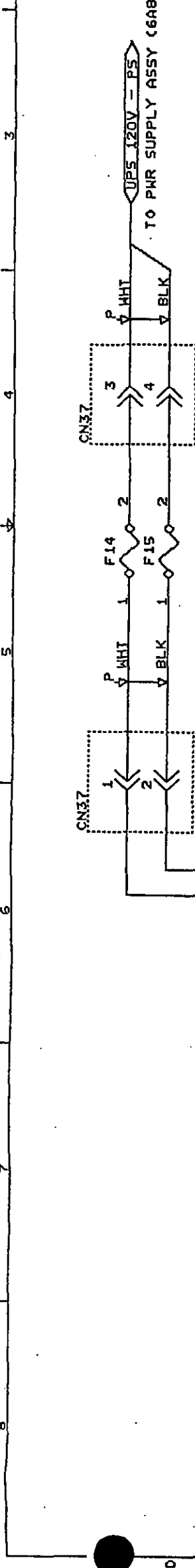
NEGATIVE DC BUSBAR

FAULT

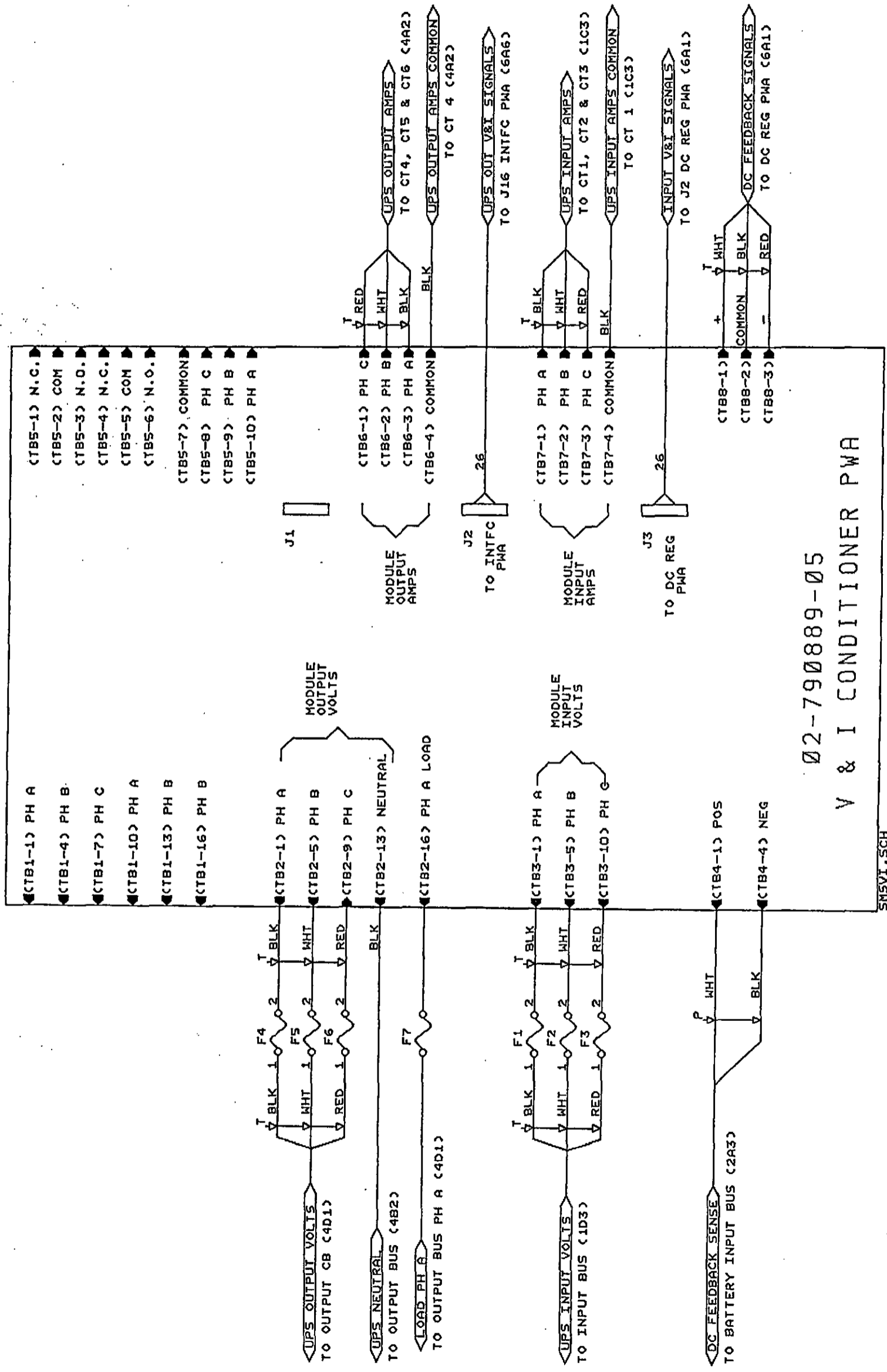
TO FUSE MONITOR 02-790875-15 (2D8)



REVISIONS		ECO NO.	DATE	APPD
1	NEW RELEASE	950195	3-10-95	DE
6	REV VOL SENSING	970821		



REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE			

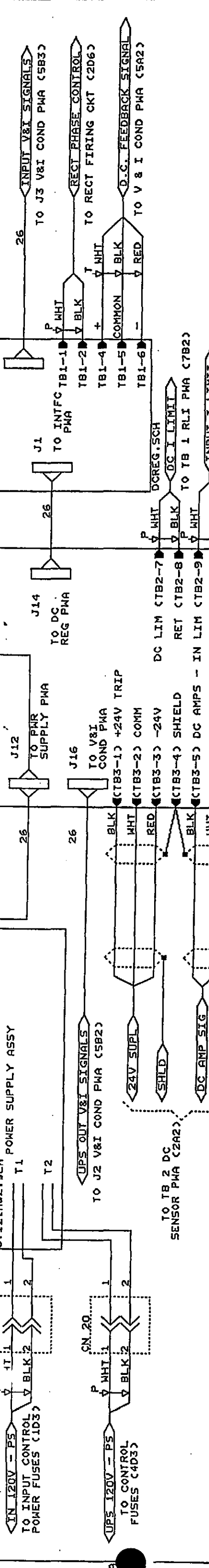
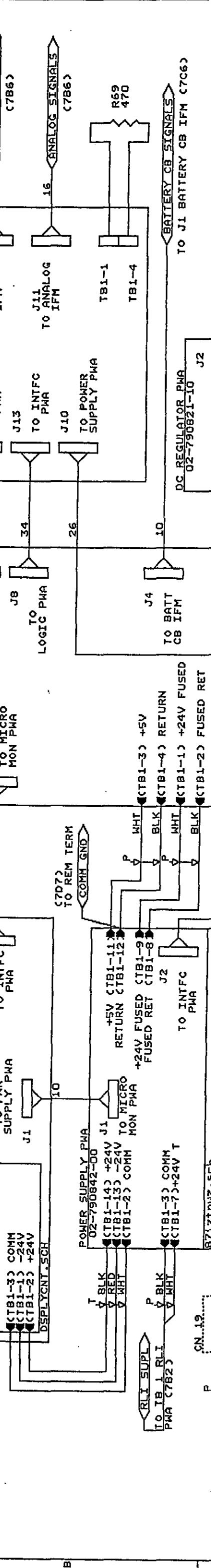
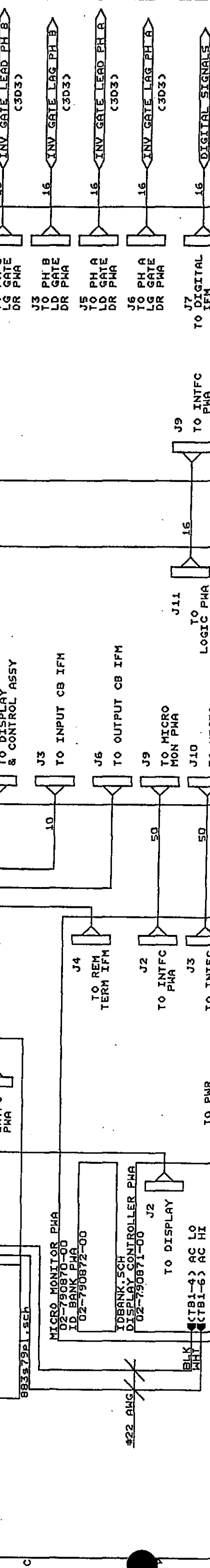
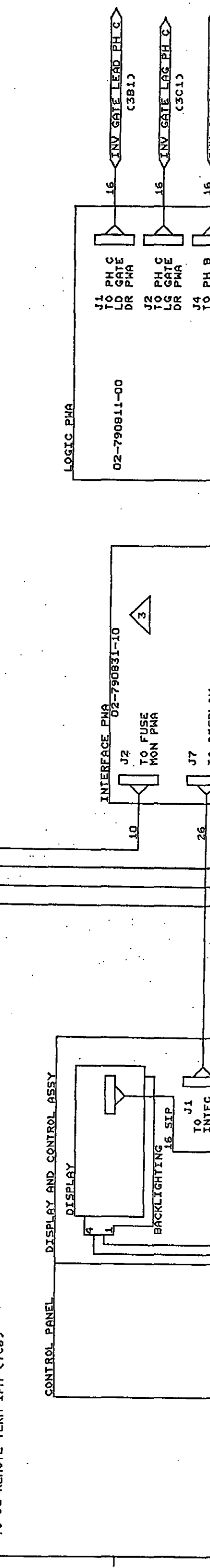
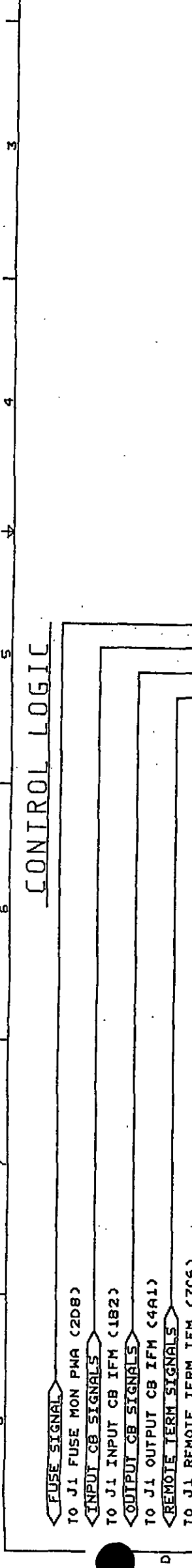


Ø2-790889-05  
V & I CONDITIONER PWA

SMSVI.SCH

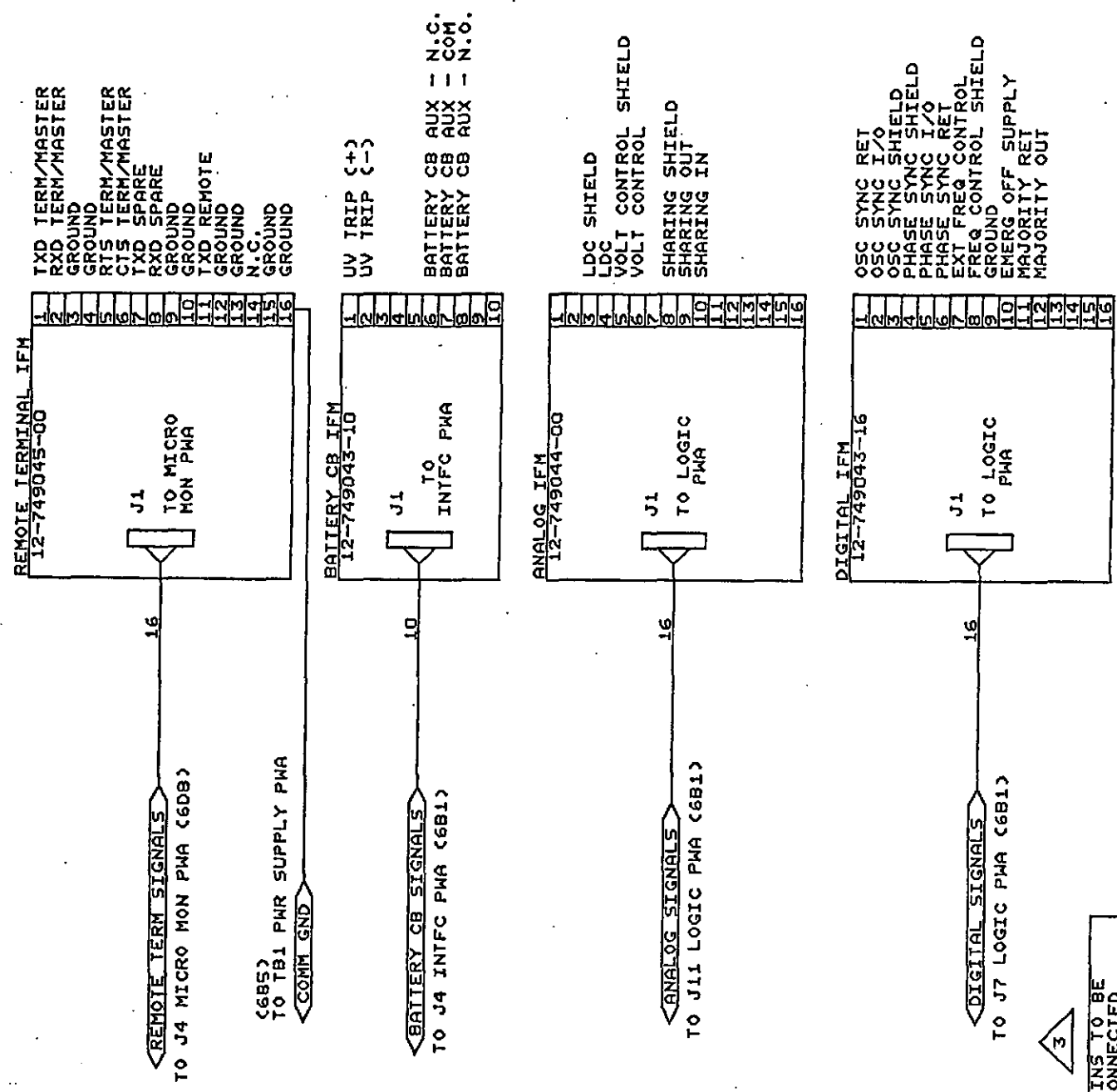
# CONTROL LOGIC

ZONETR	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	950125	7-10-93	DE
2	ADD REM TERM	951069	12-4-95	DE
3	ADD REM TERM	951069	12-4-95	DE
4	ADD GND WIRE	960899	8-15-96	DE
5	ADD R69	960953		



# EXTERNAL CONNECTIONS

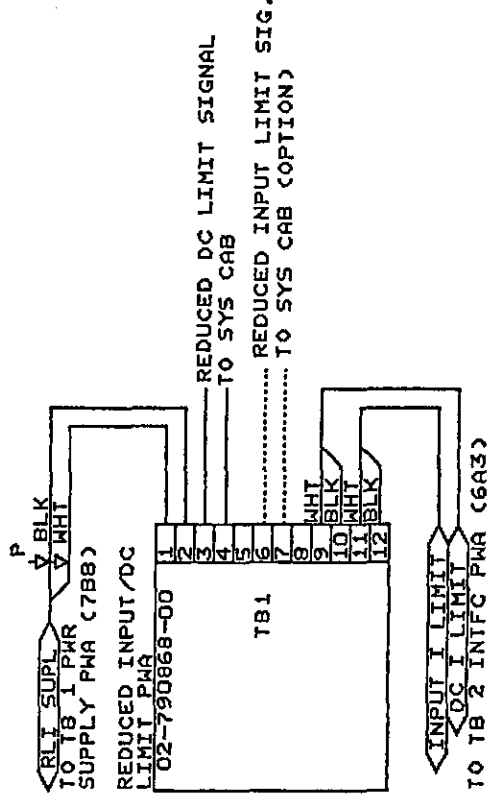
## REMOTE TERMINAL INTERFACE



### JUMPER SELECT CHART

PWR	FUNCTION	HEADER OR JUMPER	PINS TO BE CONNECTED
INTERFACE	SYSTEM SEL	H1-6	1-2

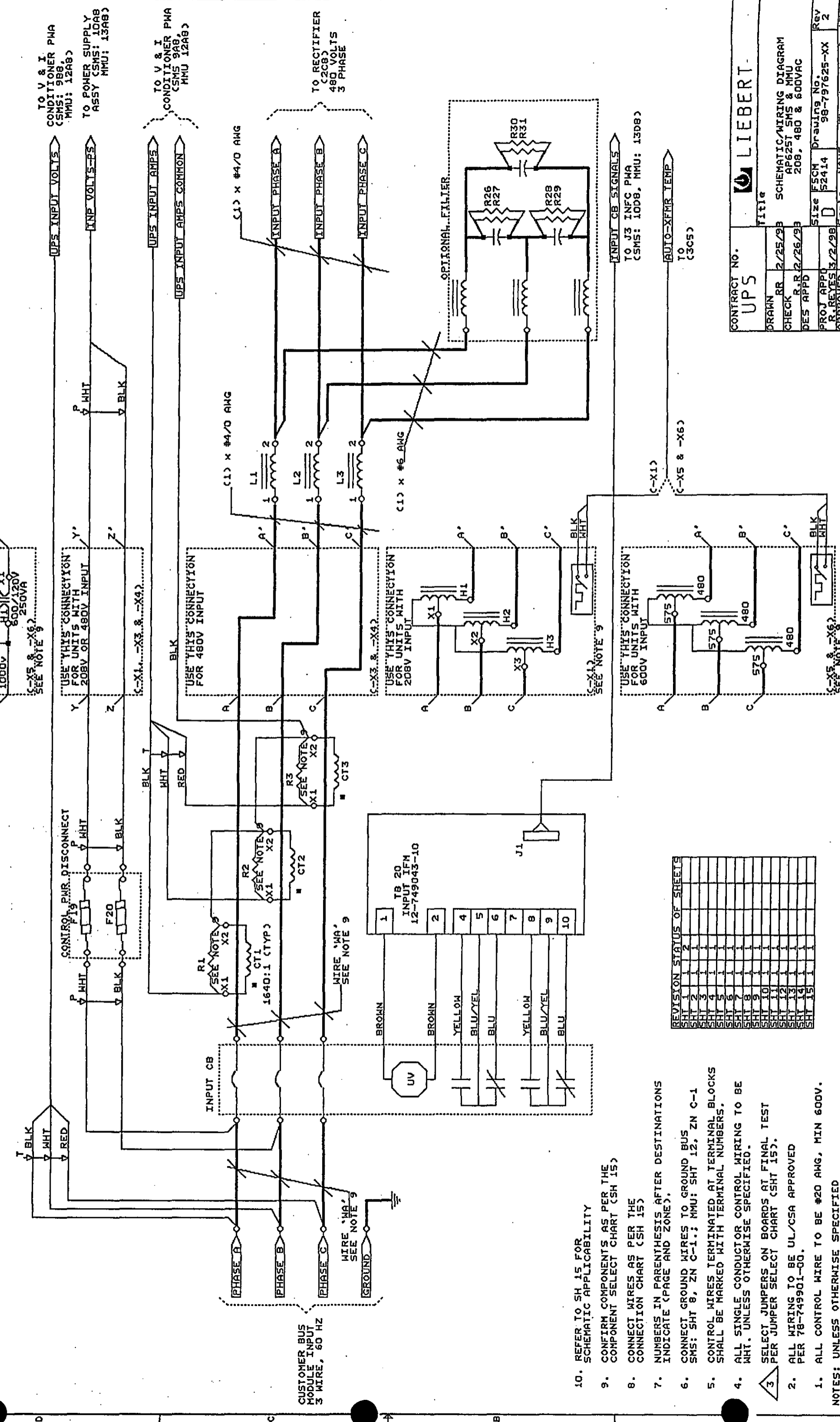
### REDUCED I LIMIT



LYR	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	950195	3-10-95	DE
3	ADD REM TERM	951069	12-4-95	DE
4	ADD GND WIRE	960899		

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	980296	3-11-98	L.M.
2	UPDATED SHT. 1	980403		

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10. REFER TO SH 15 FOR SCHEMATIC APPLICABILITY

9. CONFIRM COMPONENTS AS PER THE COMPONENT SELECT CHART (SH 15)

8. CONNECT WIRES AS PER THE CONNECTION CHART (SH 15)

7. NUMBERS IN PARENTHESIS AFTER DESTINATIONS INDICATE (PAGE AND ZONE).

6. CONNECT GROUND WIRES TO GROUND BUS SMS: SHT 8, ZN C-1.; MMU: SHT 12, ZN C-1

5. CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.

4. ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WHT. UNLESS OTHERWISE SPECIFIED.

3. SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT 15).

2. ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.

1. ALL CONTROL WIRE TO BE #20 AWG, MIN 600V. UNLESS OTHERWISE SPECIFIED

REVISION	STATUS	OF SHEETS
SHT 1	1	1
SHT 2	1	1
SHT 3	1	1
SHT 4	1	1
SHT 5	1	1
SHT 6	1	1
SHT 7	1	1
SHT 8	1	1
SHT 9	1	1
SHT 10	1	1
SHT 11	1	1
SHT 12	1	1
SHT 13	1	1
SHT 14	1	1
SHT 15	1	1

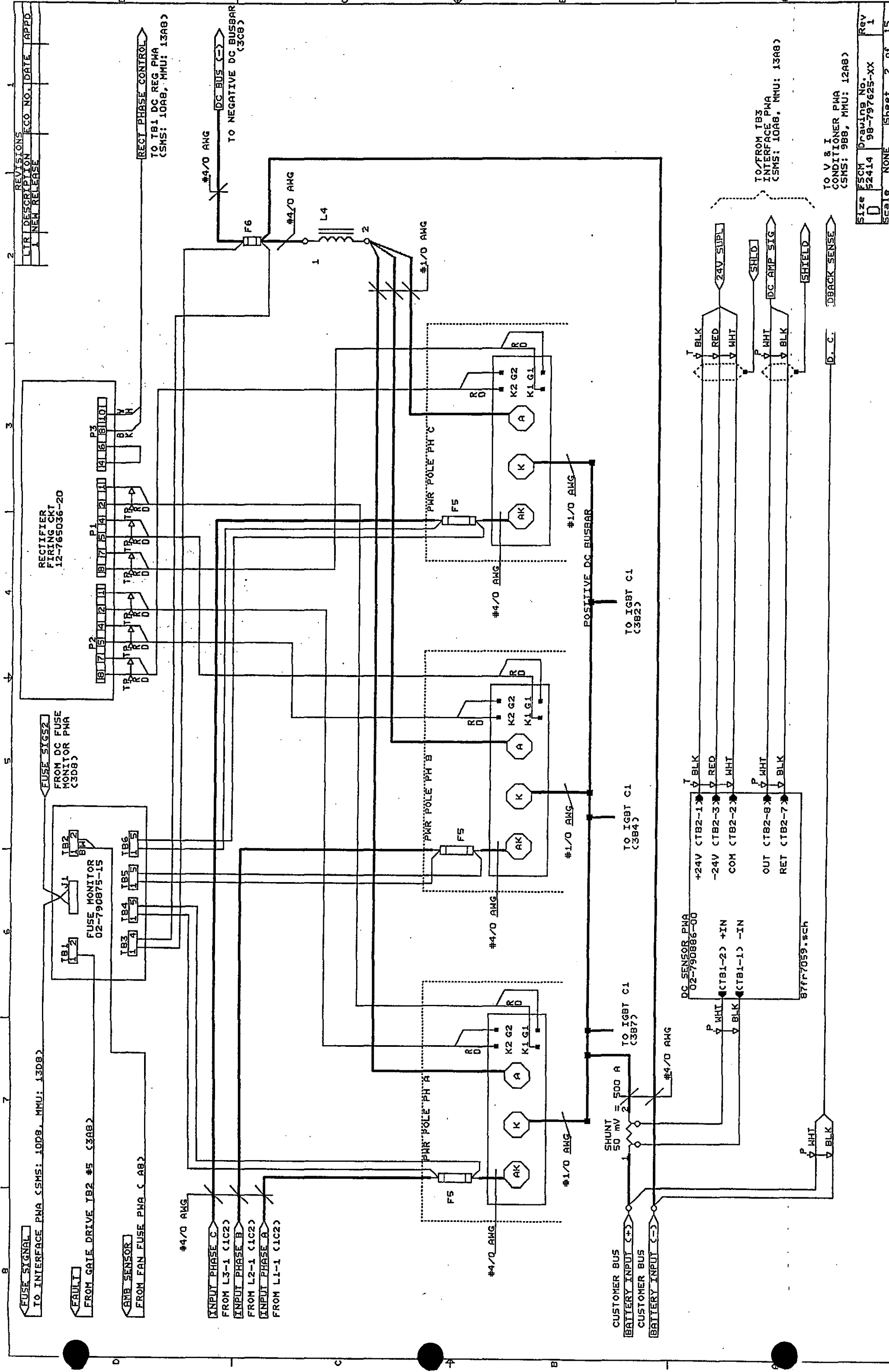
CONTRACT NO. UPS

LIBERT

Title  
 DRAWN RR 2/25/98  
 CHECK R.R. 2/26/98  
 DES APPD  
 PROJ APPD  
 REVISES 3/2/98  
 APPROVED

Size FSCM Drawing No. 52414  
 98-797625-XX  
 Rev 2

Scale NONE Sheet 1 of 15



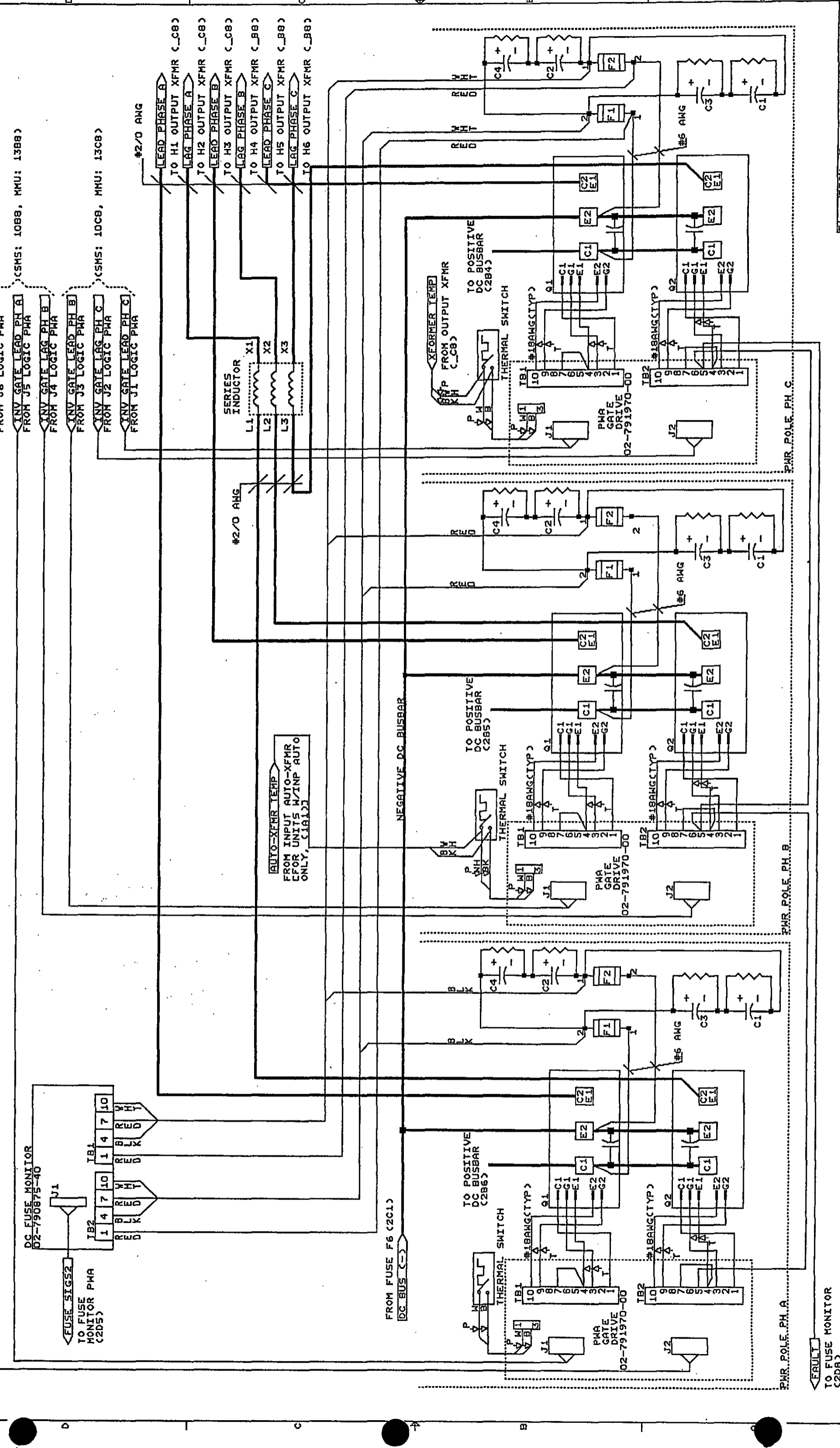
REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE			

FUSE SIGNAL TO INTERFACE PMA (SMS: 1008, MMU: 1308)  
 FAULT FROM GATE DRIVE IB2 #5 (3A8)  
 DC SENSOR FROM FAN FUSE PMA (A8)  
 FUSE MONITOR FROM DC FUSE MONITOR PMA (3D8)  
 RECTIFIER FIRING CKT 12-765036-20  
 RECT PHASE CONTROL TO TB1 DC REG PMA (SMS: 10A8, MMU: 13A8)  
 DC NEGATIVE DC BUSBAR (3C8)

TO V & I CONDITIONER PMA (SMS: 988, MMU: 12A8)  
 TO FROM TB3 INTERFACE PMA (SMS: 10A8, MMU: 13A8)

TO IGBT C1 (3B2)  
 TO IGBT C1 (3B4)  
 TO IGBT C1 (3B7)  
 SHUNT 50 mV = 500 A  
 CUSTOMER BUS BATTERY INPUT (+)  
 CUSTOMER BUS BATTERY INPUT (-)  
 DC SENSOR PMA 02-790886-00  
 +24V (TB2-1)  
 -24V (TB2-3)  
 COM (TB2-2)  
 OUT (TB2-8)  
 RET (TB2-7)  
 87FC7059.sch  
 D.C.  
 DBACK SENSE





DC FUSE MONITOR  
 02-790875-40

J1

IB1 1 4 7 10  
 R B L K D  
 V W H Y

IB2 1 4 7 10  
 R B L K D  
 V W H Y

FUSE SIGS2  
 TO FUSE  
 MONITOR PMA  
 (225)

SERIES  
 INDUCTOR

L1 X1  
 L2 X2  
 L3 X3

#2/0 AWG

LEAD PHASE A  
 TO H1 OUTPUT XFMR (C8)

LAG PHASE A

TO H2 OUTPUT XFMR (C8)

LEAD PHASE B

TO H3 OUTPUT XFMR (C8)

LAG PHASE B

LEAD PHASE C

TO H4 OUTPUT XFMR (B8)

LAG PHASE C

LEAD PHASE C

TO H5 OUTPUT XFMR (B8)

LAG PHASE C

LEAD PHASE C

TO H6 OUTPUT XFMR (B8)

LAG PHASE C

AUTO-XFMR TEMP  
 FROM INPUT AUTO-XFMR  
 FOR UNITS W/INP AUTO  
 ONLY, (1A12)

NEGATIVE DC BUSBAR

TO POSITIVE  
 DC BUSBAR  
 (285)

THERMAL SWITCH

IB1 #18ANG(TYP)  
 10 9 8 7 6 5 4 3 2 1

IB2 #18ANG(TYP)  
 10 9 8 7 6 5 4 3 2 1

PMR GATE  
 DRIVE  
 02-791970-00

J1

J2

PMR POLE PH. B

FROM FUSE F6 (2C1)  
 DC BUS (-)

TO POSITIVE  
 DC BUSBAR  
 (286)

THERMAL SWITCH

IB1 #18ANG(TYP)  
 10 9 8 7 6 5 4 3 2 1

IB2 #18ANG(TYP)  
 10 9 8 7 6 5 4 3 2 1

PMR GATE  
 DRIVE  
 02-791970-00

J1

J2

PMR POLE PH. A

TO POSITIVE  
 DC BUSBAR  
 (284)

THERMAL SWITCH

IB1 #18ANG(TYP)  
 10 9 8 7 6 5 4 3 2 1

IB2 #18ANG(TYP)  
 10 9 8 7 6 5 4 3 2 1

PMR GATE  
 DRIVE  
 02-791970-00

J1

J2

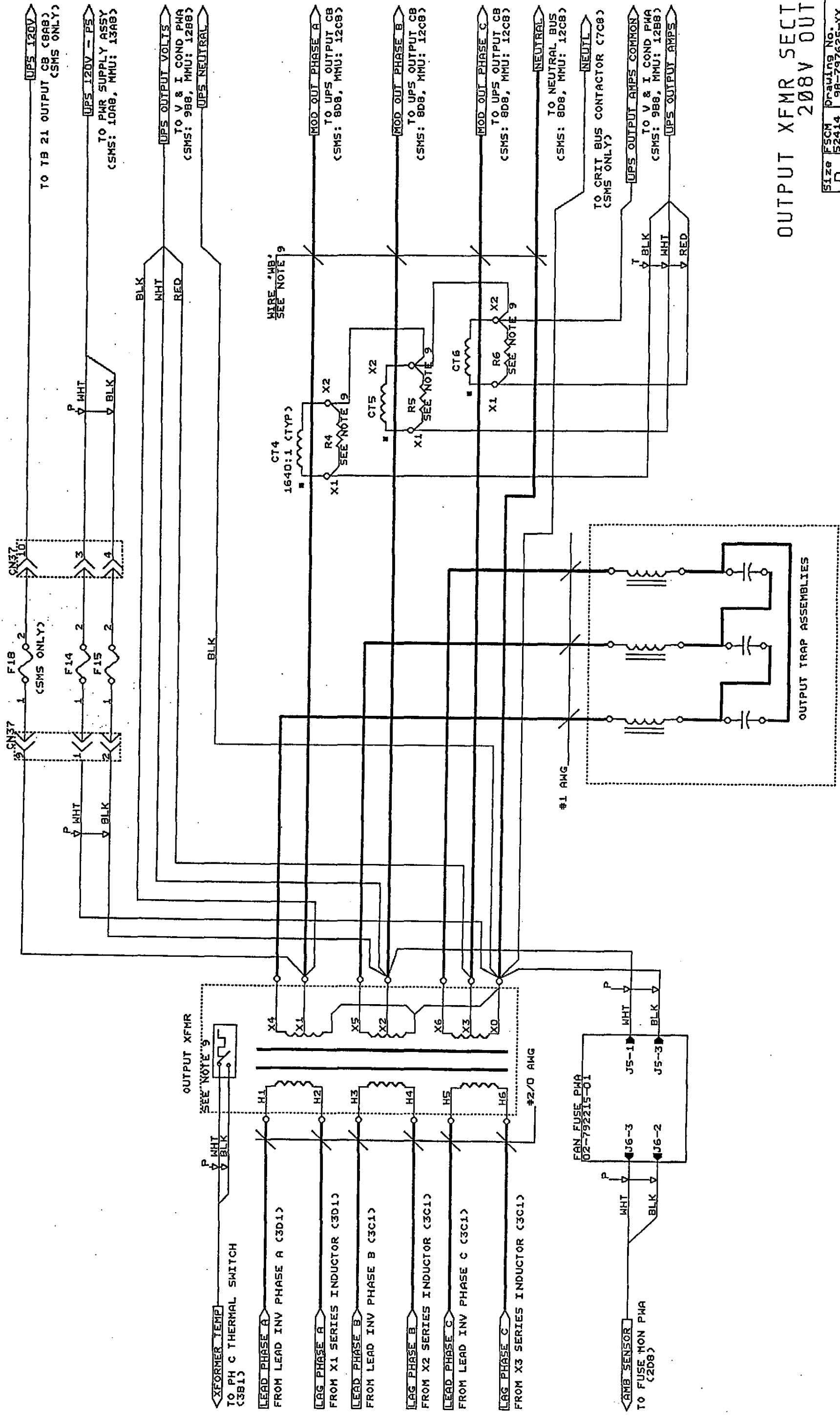
PMR POLE PH. C

TO FUSE MONITOR  
 (228)

FAULT

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REV. NO.	DATE	APPD.
1	NEW RELEASE	
LTR DESCRIPTION		

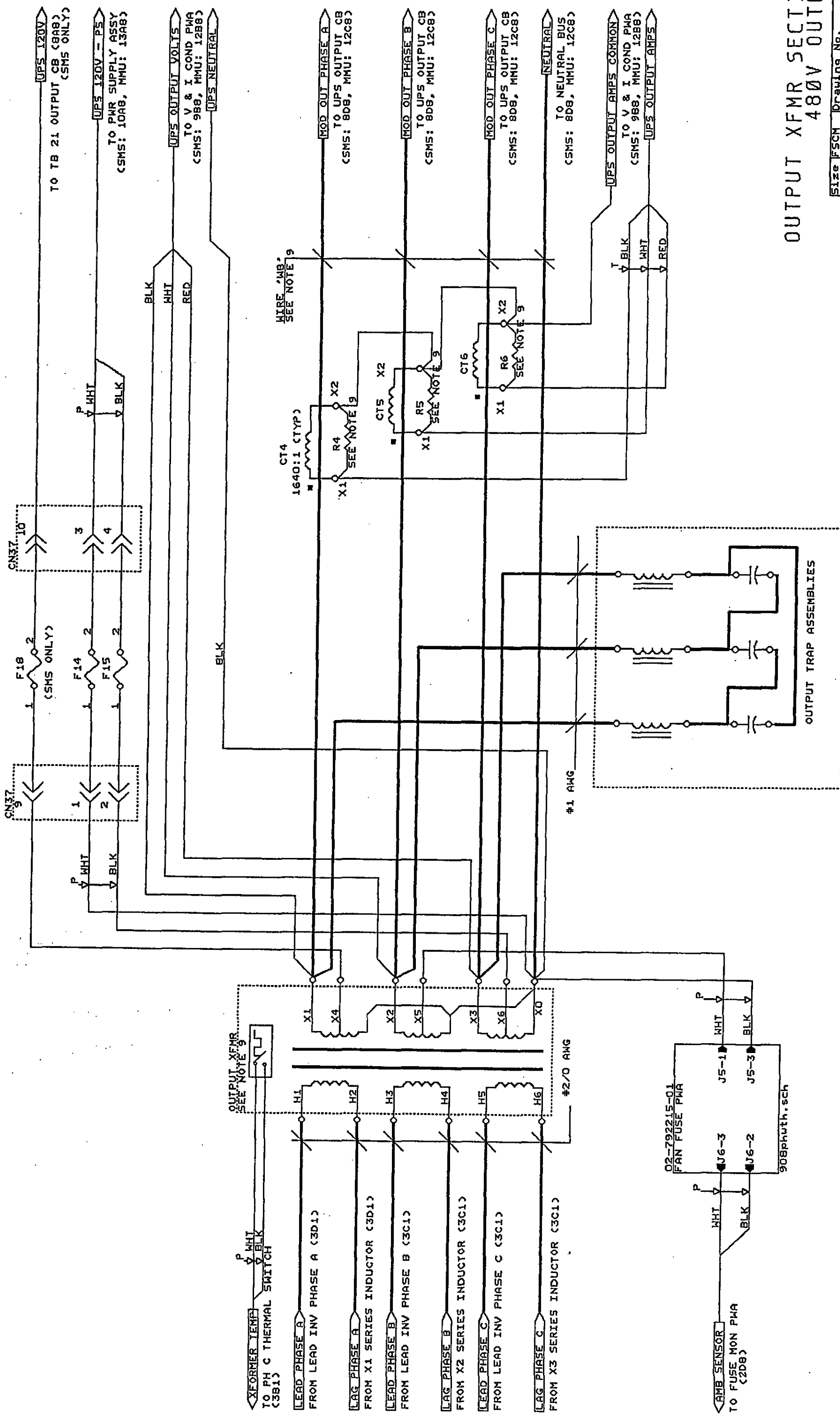


OUTPUT XFMR SECTION  
208V OUTPUT

Size	FSCM	Drawing No.	Rev
D	52414	98-797625-XX	1
Scale	NONE	Sheet	4 of 15

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REV. NO.	DATE	APPD.
1	NEW RELEASE	

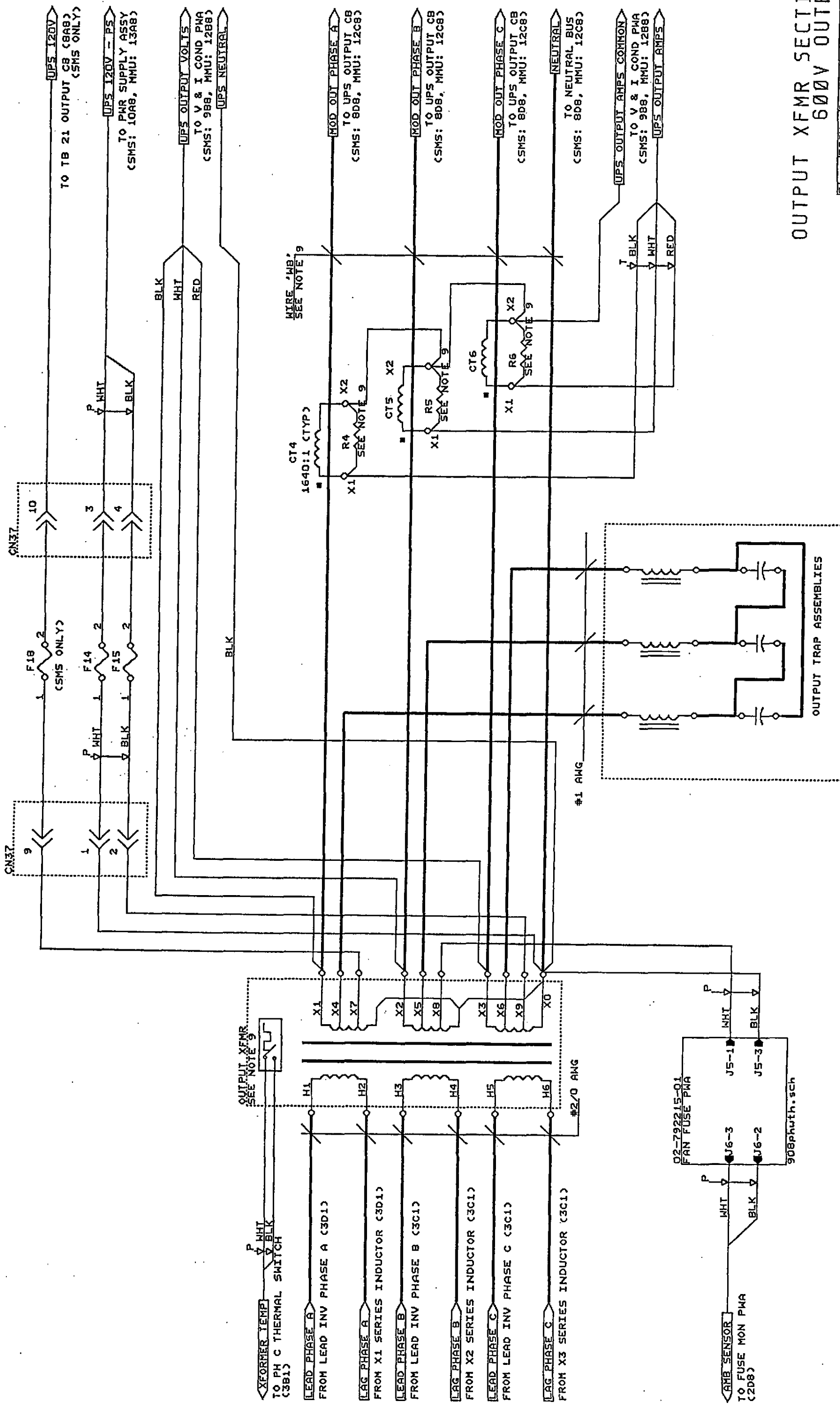


OUTPUT XFMR SECTION  
480V OUTPUT

Size	D	Scale	NONE
FSCH	52414	Drawing No.	98-797625-XX
Rev	1	Sheet	5 of 15

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REV. NO.	DATE	APPD.
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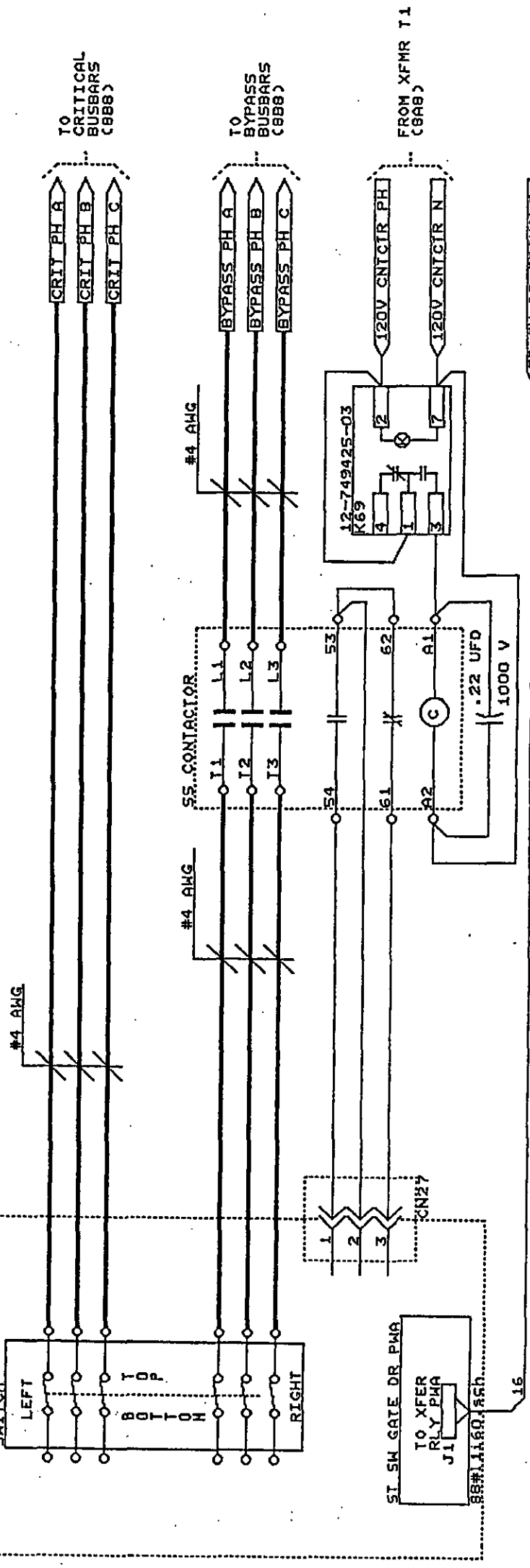
OUTPUT XFMR SECTION  
600V OUTPUT

Size	F5CH	Drawing No.	Rev
	D	52414	98-797625-XX
Scale	NONE	Sheet	6 of 15

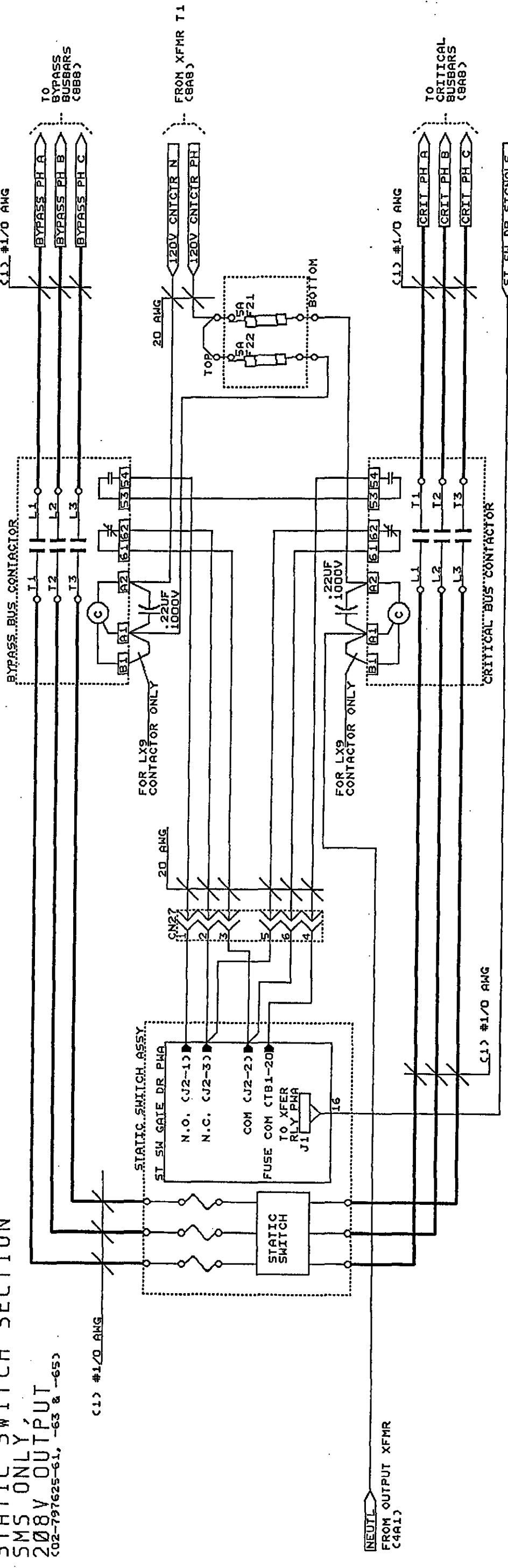
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### STATIC SWITCH SECTION SMS ONLY, 480V & 600V OUTPUT (02-797625-64 & -66)

REV.	DESCRIPTION	ECO NO.	DATE	APPD.
1	NEW RELEASE			



### STATIC SWITCH SECTION SMS ONLY, 208V OUTPUT (02-797625-61, -63 & -65)



TO J2 XFER RELAY PMA (9C8)

SMS ONLY

REV	DESCRIPTION	ECO NO.	DATE	APPD
2	LIR DESCRIPTION			
1	NEW RELEASE			

MOD OUT PHASE A  
FROM X1 OUT XFMR C\_01)

MOD OUT PHASE B  
FROM X2 OUT XFMR C\_B1)

MOD OUT PHASE C  
FROM X3 OUT XFMR C\_B1)

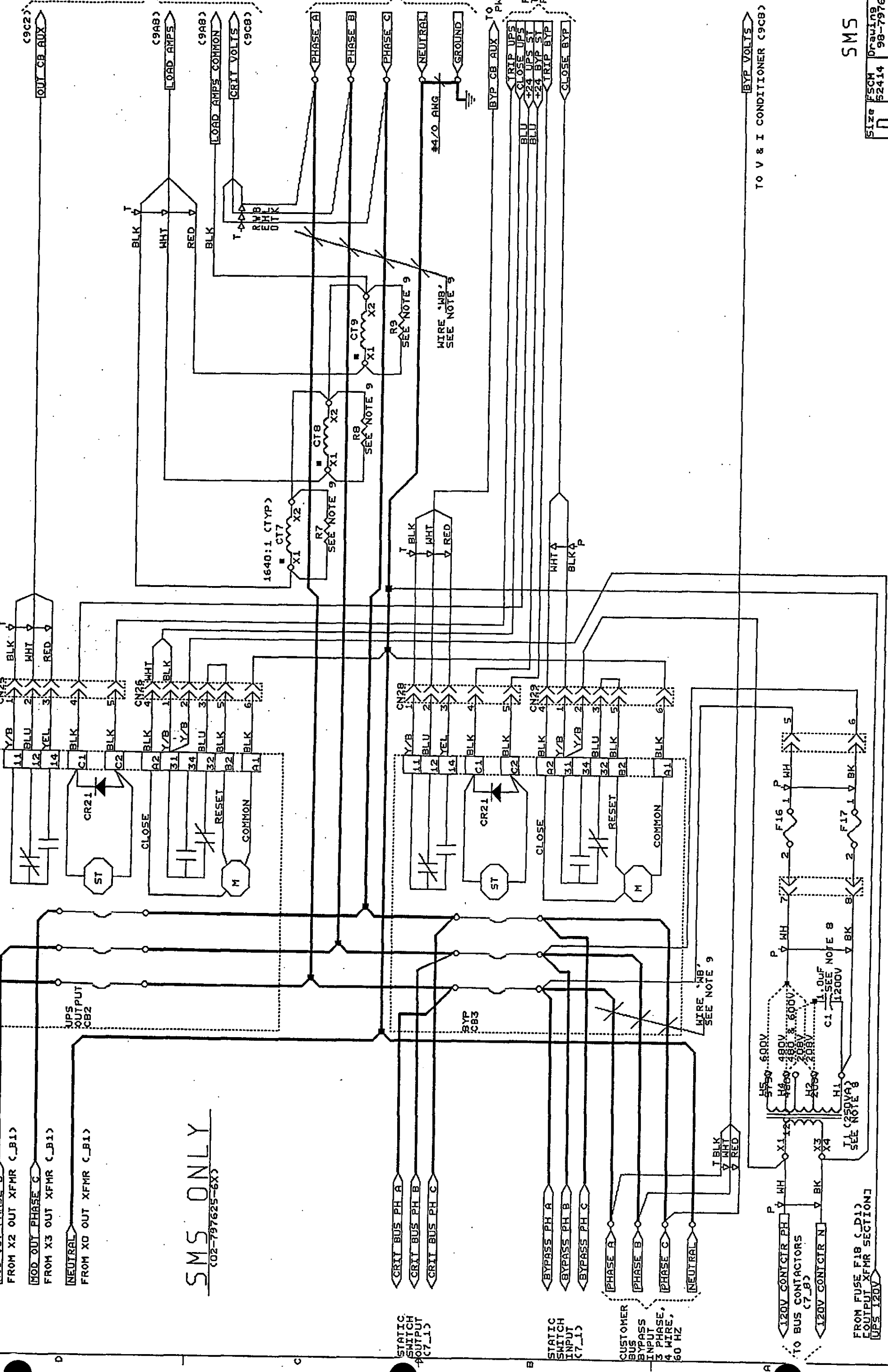
NEUTRAL  
FROM X0 OUT XFMR C\_B1)

**SMS ONLY**  
(02-797625-6X)

CRIT BUS PH A  
CRIT BUS PH B  
CRIT BUS PH C

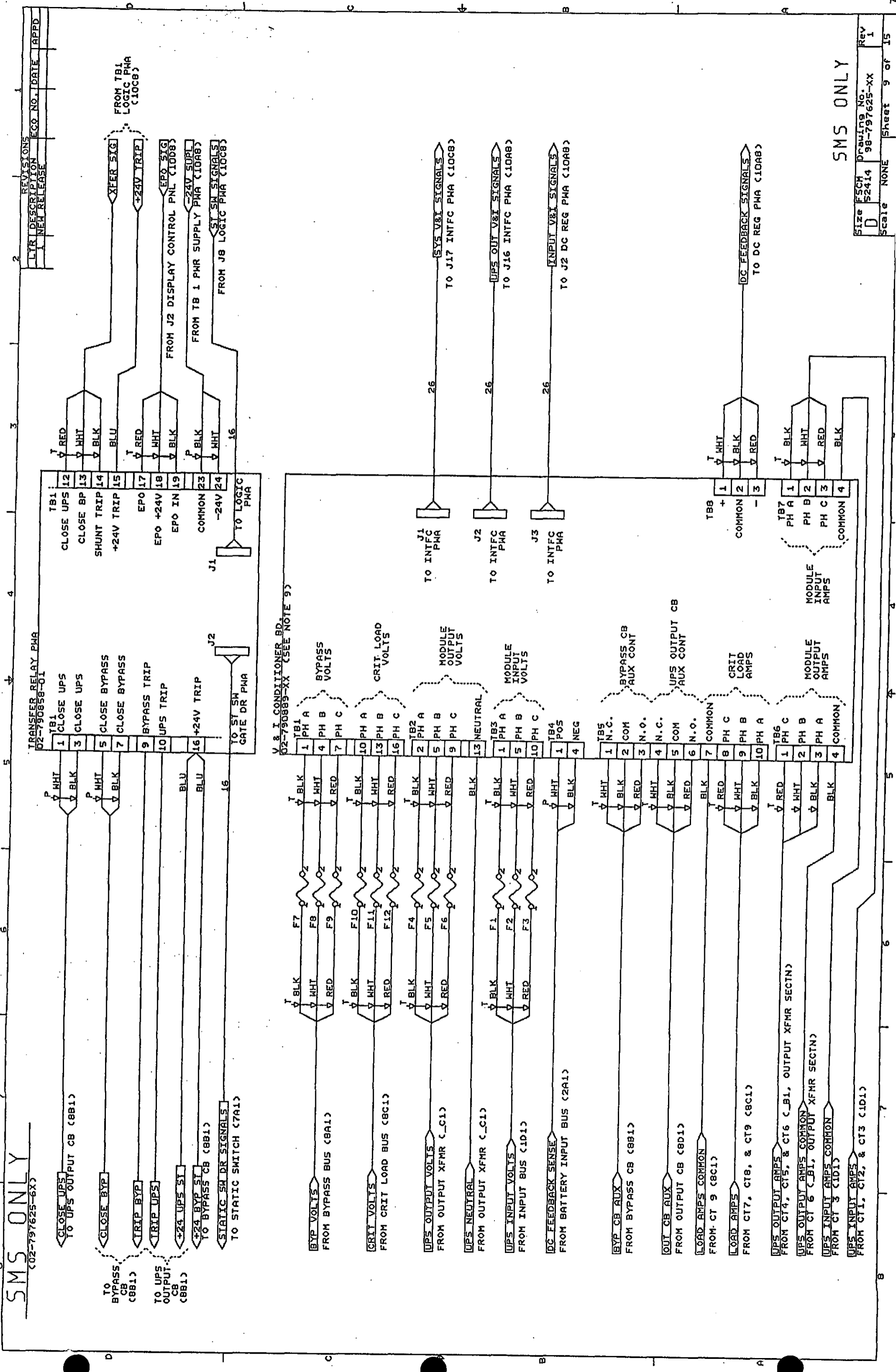
BYPASS PH A  
BYPASS PH B  
BYPASS PH C

PHASE A  
PHASE B  
PHASE C  
NEUTRAL



FROM FUSE F16 (D1)  
OUTPUT XFMR SECTION  
UPS 120V

SMS ONLY  
(02-797625-6X)



REVISIONS

LTR	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE			

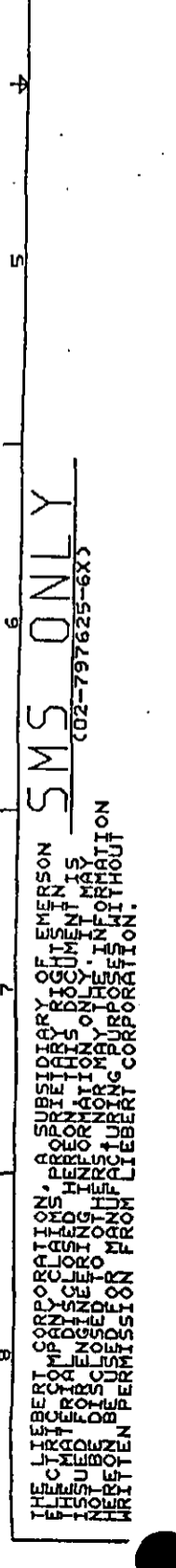
V & I CONDITIONER BD.  
02-790889-XX (SEE NOTE 9)

SMS ONLY

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE			

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**SMS ONLY**  
 (02-797625-6X)



NOTES: SEE SHEET 1

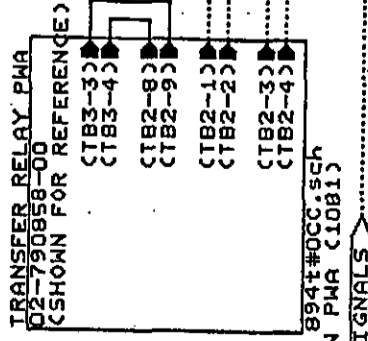


**SMS ONLY**  
(02-797625-6X)

**EXTERNAL CONNECTIONS**

TO J4 SYS COMM PWA (10C1)

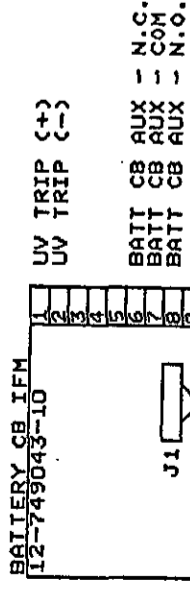
**REMOTE EMERGENCY OFF**



TO J4 MICRO MON PWA (10B1)

TO TB1 PWR SUPPLY PWA (10B1)

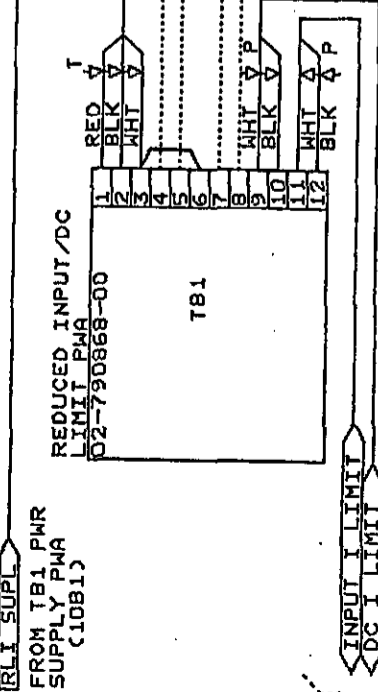
**BATT CKT BRKR INTF**



TO J4 INTFC PWA (10A1)

TO J5 INTFC PWA (10A1)

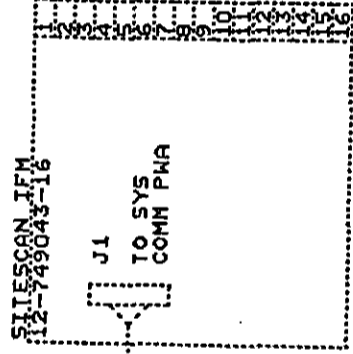
**REDUCED I LIMIT**



TO J3 SYS COMM PWA (10C1)

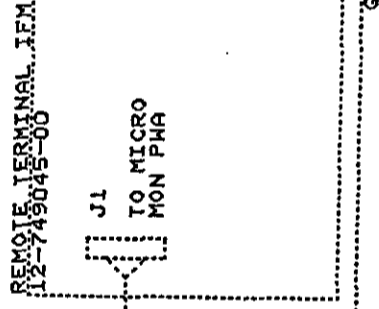
ALARM SUPPLY FROM TB1 POWER SUPPLY PWA (10A1)

**SITESCAN/SITEMASTER INTF (OPTION)**

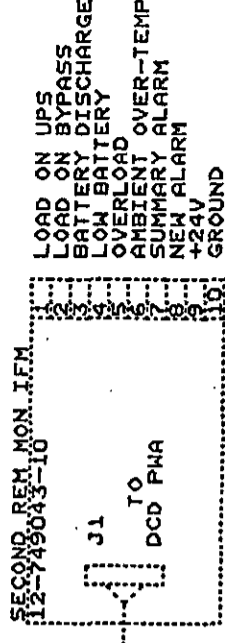


T+/R+ SMS  
T-/R- SMS

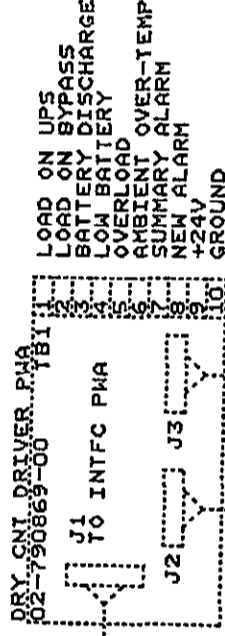
**REMOTE TERMINAL INTF (OPTION)**



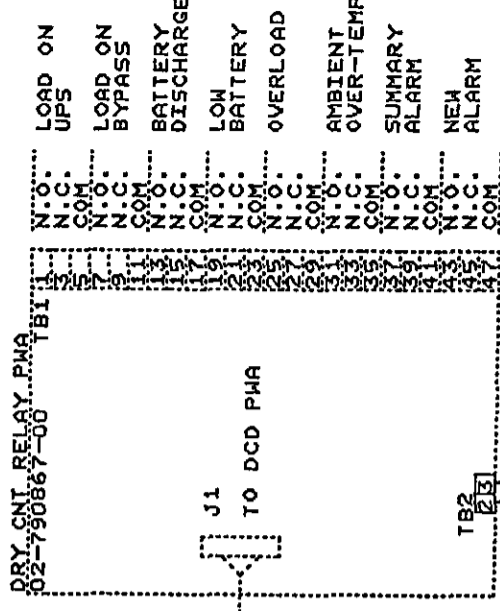
**2ND. REMOTE MONITOR INTF (OPTION)**



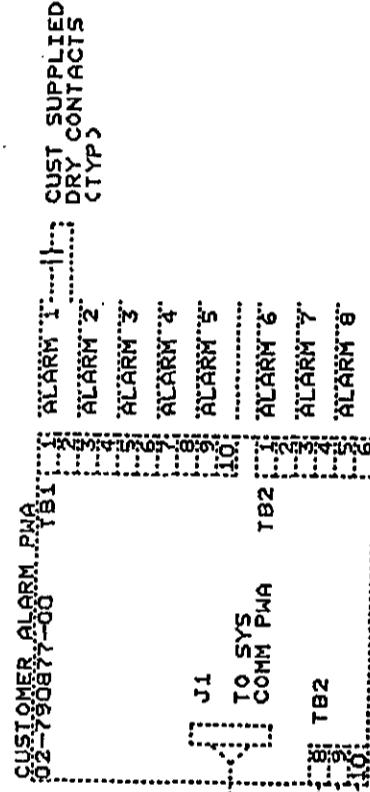
**REMOTE MONITOR INTF (OPTION)**



**REMOTE DRY CONTACTS INTF (OPTION)**



**CUSTOMER ALARMS INTF (OPTION)**



**SMS ONLY**

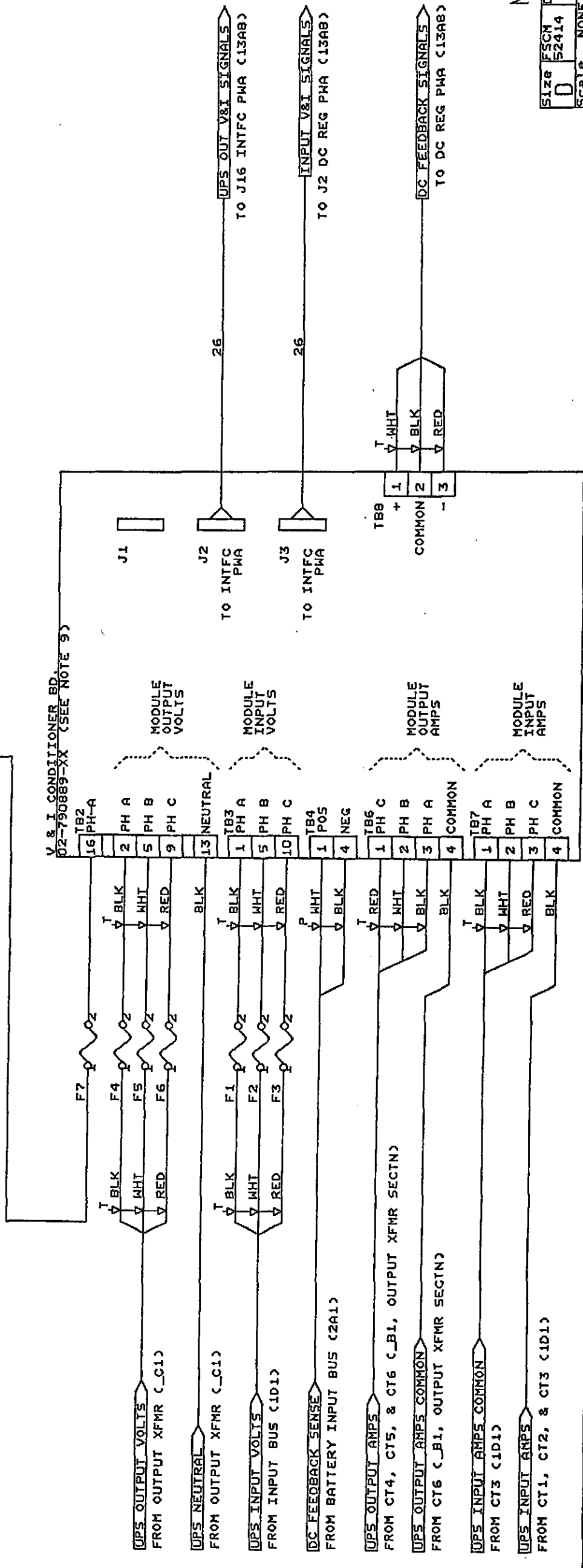
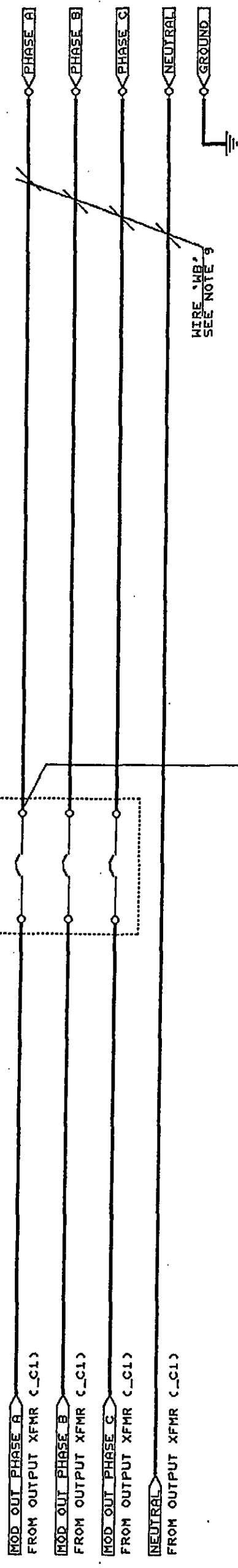
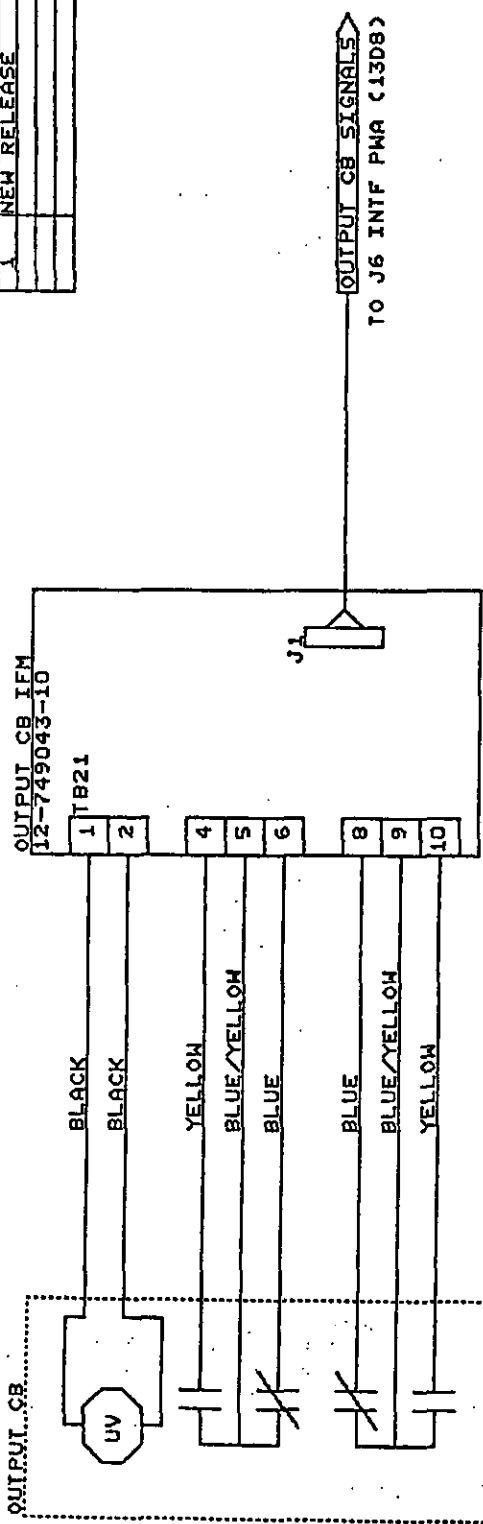
Size FSCM 52414  
Drawing No. 98-797625-XX  
Rev 1

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# MMU ONLY

C02-797625-8X3

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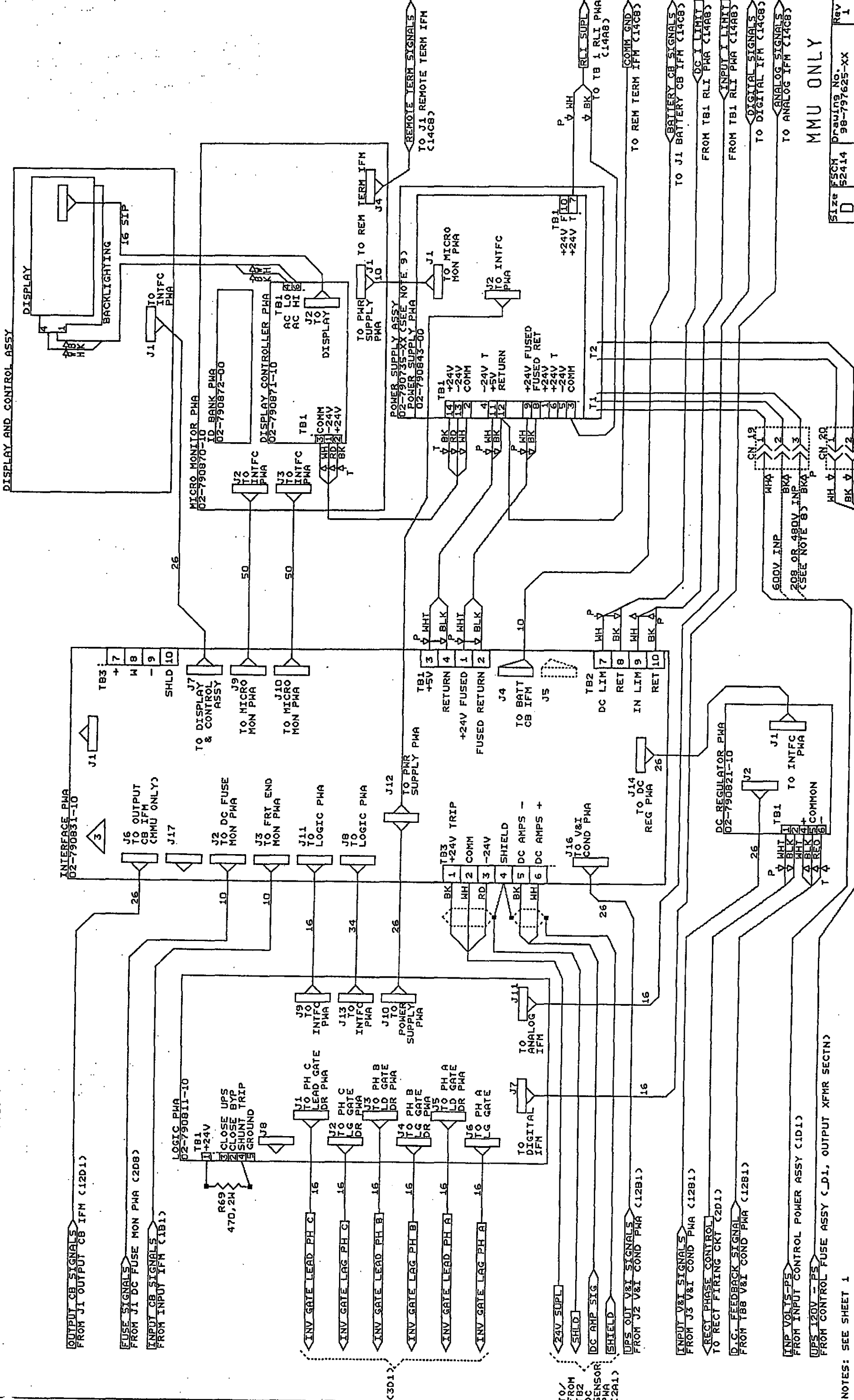
# MMU ONLY

Size	FSCH	Drawing No.	Rev
D	52414	98-797625-XX	1
Scale	NONE	Sheet 12 of 15	

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REV. NO.	DESCRIPTION	DATE	APPD.
1	NEW RELEASE		

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8



NOTES: SEE SHEET 1  
 FROM CONTROL FUSE ASSY (C1D1), OUTPUT XFMR SECTN)  
 INP VOLTS-PS  
 FROM INPUT CONTROL POWER ASSY (C1D1)  
 D.C. FEEDBACK SIGNAL  
 FROM TB8 V&I COND PMA (C2B1)  
 RECT PHASE CONTROL  
 TO RECT FIRING CKT (C2D1)  
 FROM J3 V&I COND PMA (C2B1)  
 UPS OUT V&I SIGNALS  
 FROM J2 V&I COND PMA (C2B1)  
 SHIELD  
 DC AMP SIG  
 TO/ FROM TB2  
 DC SENSOR PMA (C2A1)

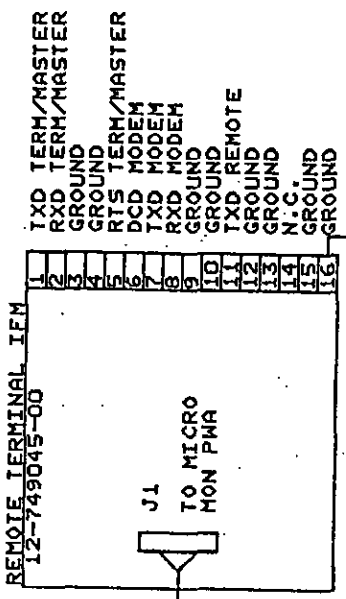
MMU ONLY  
 Drawing No. 98-797625-XX  
 Size D  
 Scale NONE  
 Sheet 13 of 15

# MMU ONLY

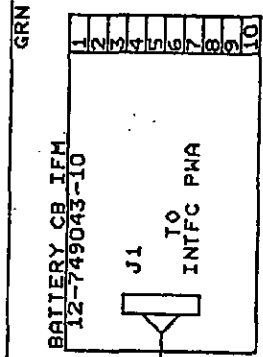
## EXTERNAL CONNECTIONS

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE			

REMOTE TERMINAL INTERFACE (OPTION)

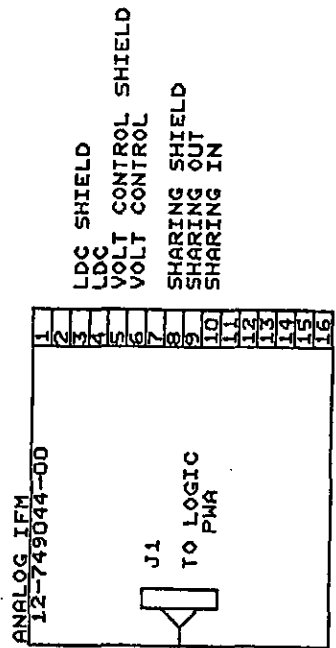


TO J4 MICRO MON PMA (1381)



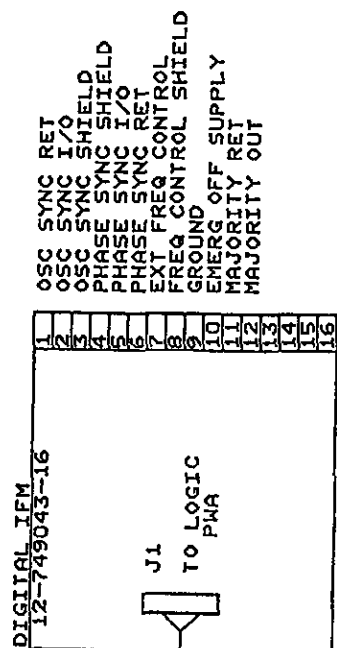
TO J4 INTFC PMA (13A1)

SCC ANALOG INTERFACE



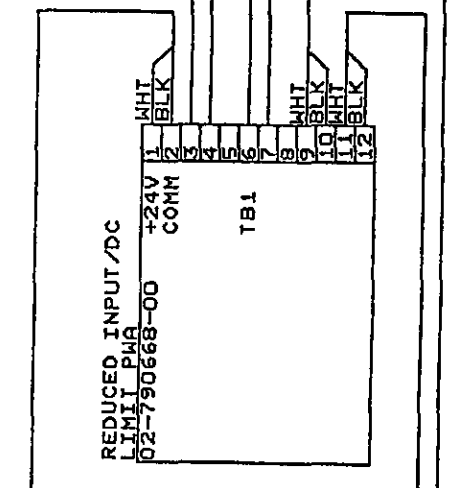
TO J11 LOGIC PMA (1381)

SCC DIGITAL INTERFACE



TO J7 LOGIC PMA (1381)

REDUCED I LIMIT



TO TB1 PMR SUPPLY PMA (1381)

INPUT LIMIT DC LIMIT TO TB2 INTFC PMA (13A1)

MMU ONLY

Size	FSCN	Drawing No.	Rev
D	52414	98-797625-XX	1
Scale	NONE	Sheet	14 of 15

CONFIGURATION

JUMPER SELECT CHART

3

PMA	FUNCTION	HEADER OR JUMPER	PINS TO BE CONNECTED
INTERFACE	SYSTEM SEL	H1-6	1-2
LOGIC PMA	XSTR/SCR SELECT	H13	XSTR (1-2)
	PROTECT ENABLE	H4-H6	2-3
	AUX DELAY	H1	1-2, 3-4, 7-8
	LINE SYNC	H7	2-3 (INT-SMS)
	FREQ. SELECT	H8, H10-H12	1-2 (EXT-MMU)
	FAULT_XFR INHIBIT	H9	1-2

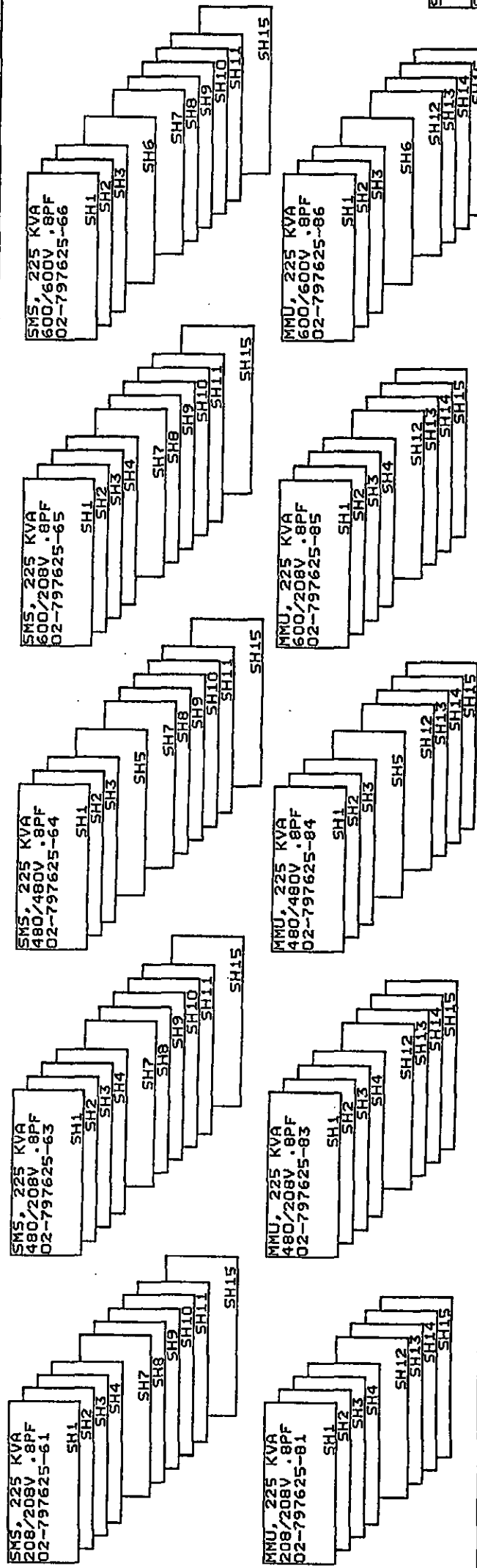
COMPONENT SELECT CHART

COMPONENT	FUNCTION	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N
WIRE 'WA'	INPUT CB POWER WIRING	2 x 4/0 AMG	1 x 4/0 AMG	1 x 4/0 AMG	2 x 4/0 AMG	1 x 4/0 AMG	1 x 4/0 AMG	1 x 4/0 AMG	1 x 4/0 AMG	1 x 4/0 AMG	1 x 4/0 AMG	1 x 4/0 AMG
WIRE 'WB'	OUTPUT, BYPASS & CRITICAL LOAD POWER WIRING	2 x 4/0 AMG	2 x 4/0 AMG	2 x 4/0 AMG	2 x 4/0 AMG	2 x 4/0 AMG	2 x 4/0 AMG	2 x 4/0 AMG	2 x 4/0 AMG	2 x 4/0 AMG	2 x 4/0 AMG	2 x 4/0 AMG
R1, R2, R3	BURDEN RESISTORS	10 OHMS	20 OHMS	20 OHMS	25 OHMS	10 OHMS	10 OHMS	10 OHMS	10 OHMS	20 OHMS	25 OHMS	25 OHMS
R4, R5, R6	BURDEN RESISTORS	10 OHMS	10 OHMS	10 OHMS	25 OHMS	10 OHMS	10 OHMS	10 OHMS	10 OHMS	10 OHMS	10 OHMS	25 OHMS
R7, R8, R9	BURDEN RESISTORS	8 OHMS	8 OHMS	8 OHMS	25 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS
V & I CONDTR., BD POWER SUPPLY ASSEMBLY	INVERTER OUTPUT	02-790889-09	02-790889-04	02-790889-10	02-790889-05	02-790889-09	02-790889-09	02-790889-04	02-790889-03	02-790889-10	02-790889-05	02-790889-05
INPUT	UPS OUTPUT CURRENT	02-790735-01	02-790735-00	02-790735-00	02-790735-00	02-790735-01	02-790735-01	02-790735-00	02-790735-00	02-790735-00	02-790735-00	02-790735-00
OUTPUT	UPS OUTPUT CURRENT	02-769477-00			02-768865-00	02-769477-00	02-769477-00			02-768865-00	02-768865-00	02-768865-00
TRANSFORMER CNTL XFMR T2		02-769479-00	02-769479-00	02-769479-00	02-768942-00	02-769479-00	02-769479-00	02-769479-00	02-769479-00	02-769479-00	02-769479-00	02-768942-00
					12-749052-00					12-749052-00	12-749052-00	12-749052-00

CONNECTION CHART

COMPONENT	SIGNAL NAME	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N	RATING/P/N
CONNECTOR CN19	INP VOLTS-PS	02-797625-61	02-797625-63	02-797625-63	02-797625-65	02-797625-65	02-797625-65	02-797625-65	02-797625-65	02-797625-65	02-797625-65	02-797625-65
XFRMR T1	F16-2 WHT	02-797625-61	02-797625-63	02-797625-63	02-797625-65	02-797625-65	02-797625-65	02-797625-65	02-797625-65	02-797625-65	02-797625-65	02-797625-65
	CAP C1	02-797625-61	02-797625-63	02-797625-63	02-797625-65	02-797625-65	02-797625-65	02-797625-65	02-797625-65	02-797625-65	02-797625-65	02-797625-65

SCHEMATIC APPLICABILITY



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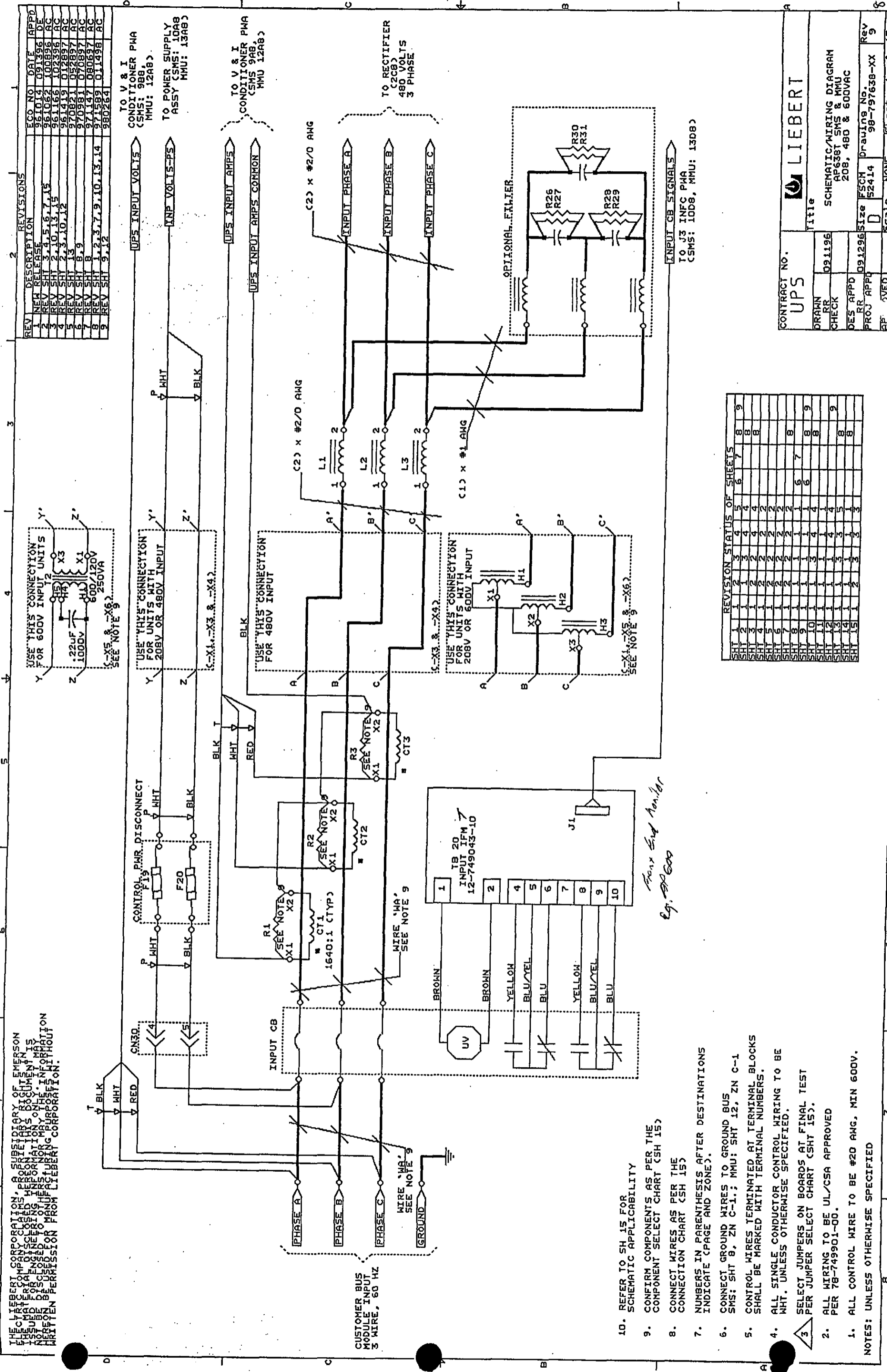
REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	961014	091396	DE
2	REV SHY 3.4.5.6.7.15	961062	100898	AC
3	REV SHY 2.10.13.15	961166	102358	AC
4	REV SHY 2.3.10.12	961419	012897	AC
5	REV SHY 13	970821	052897	AC
6	REV SHY 8.9	970981	070897	AC
7	REV SHY 8	971147	080697	AC
8	REV SHY 1.2.3.7.9.10.13.14	971589	011498	AC
9	REV SHY 9.12	980264		

TO V & I  
CONDITIONER PMA  
(SMS: 988,  
MMU: 12AB)

TO POWER SUPPLY  
ASSY (SMS: 10AB,  
MMU: 13AB)

TO V & I  
CONDITIONER PMA  
(SMS: 9AB,  
MMU: 12AB)

TO RECTIFIER  
(C2CB)  
480 VOLTS  
3 PHASE



SHT	1	2	3	4	5	6	7	8	9
REV	1	1	1	1	1	1	1	1	1
REV	2	2	2	2	2	2	2	2	2
REV	3	3	3	3	3	3	3	3	3
REV	4	4	4	4	4	4	4	4	4
REV	5	5	5	5	5	5	5	5	5
REV	6	6	6	6	6	6	6	6	6
REV	7	7	7	7	7	7	7	7	7
REV	8	8	8	8	8	8	8	8	8
REV	9	9	9	9	9	9	9	9	9
REV	10	10	10	10	10	10	10	10	10
REV	11	11	11	11	11	11	11	11	11
REV	12	12	12	12	12	12	12	12	12
REV	13	13	13	13	13	13	13	13	13
REV	14	14	14	14	14	14	14	14	14
REV	15	15	15	15	15	15	15	15	15

- REFER TO SH 15 FOR SCHEMATIC APPLICABILITY
- CONFIRM COMPONENTS AS PER THE COMPONENT SELECT CHART (SH 15)
- CONNECT WIRES AS PER THE CONNECTION CHART (SH 15)
- NUMBERS IN PARENTHESES AFTER DESTINATIONS INDICATE (PAGE AND ZONE).
- CONNECT GROUND WIRES TO GROUND BUS  
SMS: SHT 8, ZN C-1.; MMU: SHT 12, ZN C-1
- CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.
- ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WHT. UNLESS OTHERWISE SPECIFIED.
- SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT 15).
- ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.
- ALL CONTROL WIRE TO BE #20 AWG, MIN 600V. NOTES: UNLESS OTHERWISE SPECIFIED

CONTRACT NO. UPS

LIBERT

DRAIN RR CHECK DES APPD PROJ APPD

091196

091296

AP638T SMS & MMU 208, 480 & 600VAC

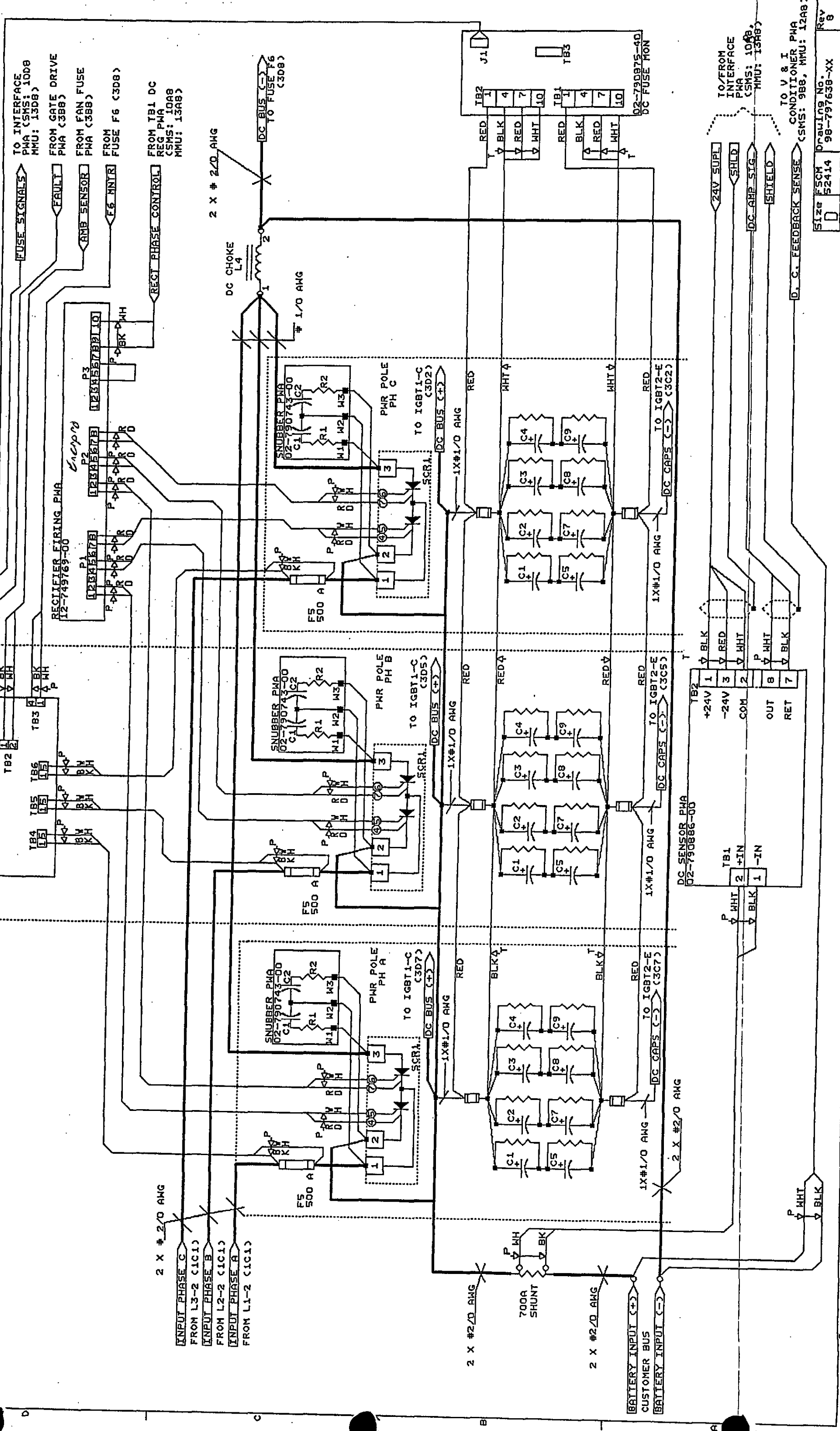
Size 52414

Drawing No. 98-797638-XX

Rev 9

From End Analog  
Eg. AP600

REV.	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	961014	091396	DE
2	REV. SHUNT VALUE	961166	102396	AC
3	REV. FUS. MNTN. TB3 CONNGTN.	961419	012397	AC
4	REV. FUS. MNTN. TB3 CONNGTN.	961419	012397	AC
5	REDRAW PAGE	971589	112697	

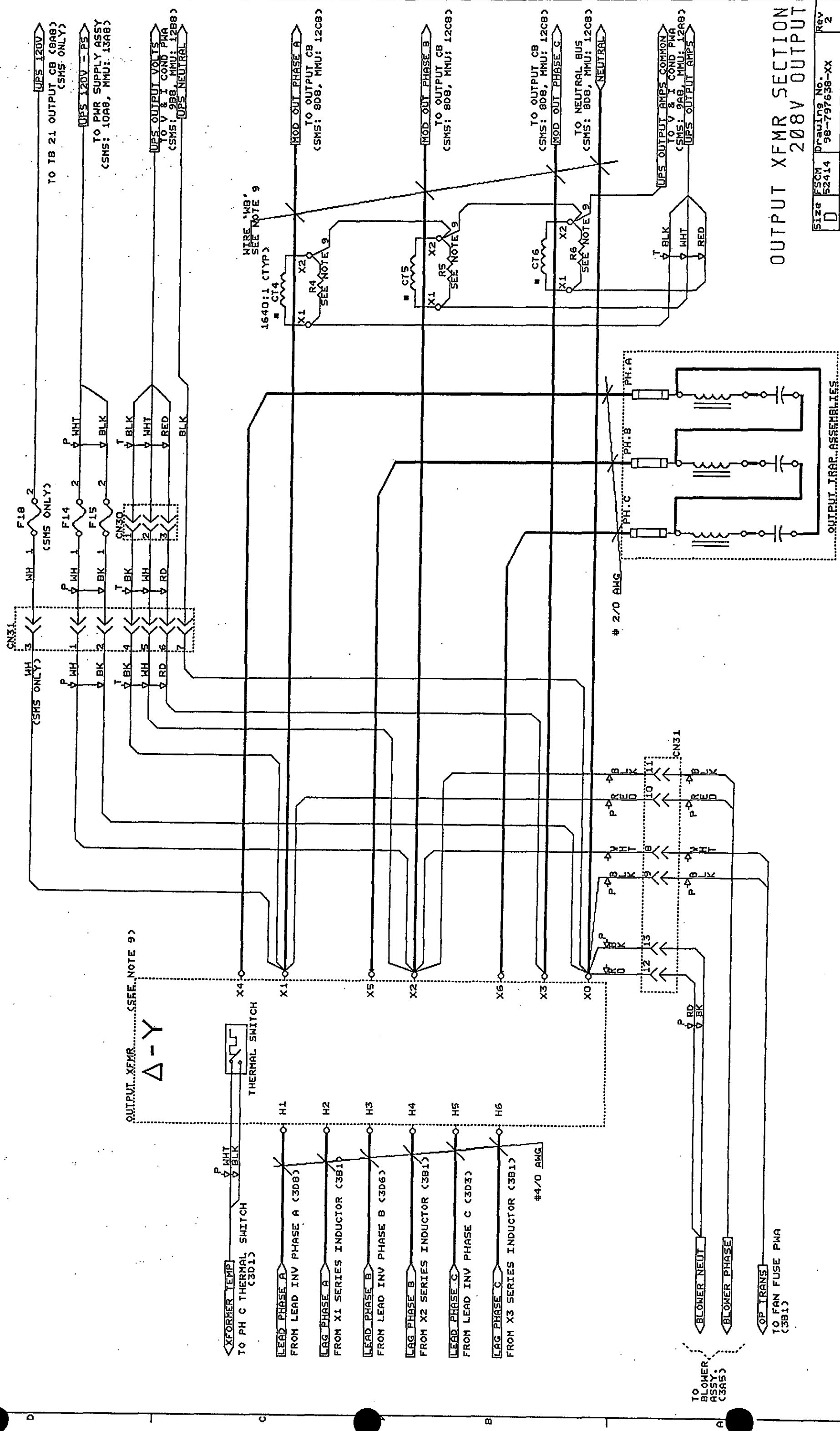


TO INTERFACE PMA (SMS: 1008 MMU: 1308)  
 FROM GATE DRIVE PMA (388)  
 FROM FAN FUSE PMA (388)  
 FROM F6 MNTN FUSE F6 (308)  
 FROM TB1 DC REG PMA (SMS: 1008 MMU: 1308)  
 RECT PHASE CONTROL  
 FUSE SIGNALS  
 FAULT  
 AMB SENSOR  
 F6 MNTN  
 TO V & I CONDITIONER PMA (SMS: 988, MMU: 1208)  
 D. C. FEEDBACK SENSE  
 TO/ FROM INTERFACE PMA (SMS: 1008, MMU: 1308)  
 24V SUPPL  
 SHLD  
 DC AMP SIG  
 SHIELD  
 TB2  
 +24V 1  
 -24V 3  
 COM 2  
 OUT 8  
 RET 7  
 TB1  
 +IN 2  
 -IN 1  
 TB3  
 1  
 2  
 3  
 4  
 7  
 10  
 TB1  
 1  
 4  
 7  
 10  
 TB2  
 1  
 4  
 7  
 10  
 DC FUSE MON  
 02-790875-40





REVISIONS	
1	ECO NO. DATE APPD NEW RELEASE 961014 9-13-96 E.
2	REV BLOWER CONNECTION 961062

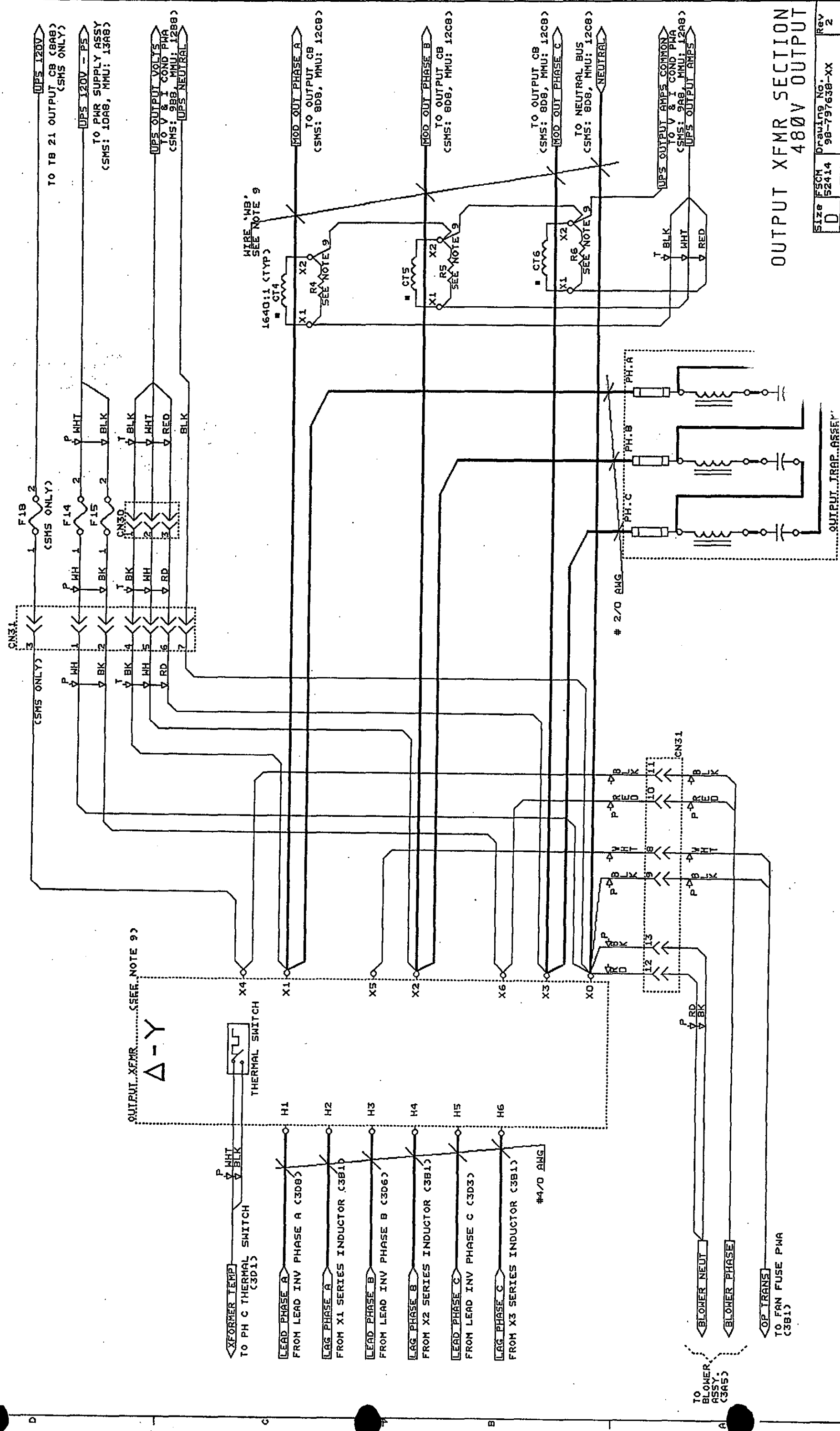


OUTPUT XFMR SECTION  
208V OUTPUT

Size	F5CM	Drawing No.	98-797638-XX	Rev	2
SCALE	NONE	SHEET	4 OF		15

REV NO.	DATE	APPD
1	961014	9-13-98.E.
2		

DESCRIPTION  
NEW RELEASE  
REV BLOWER CONNECTION 961062

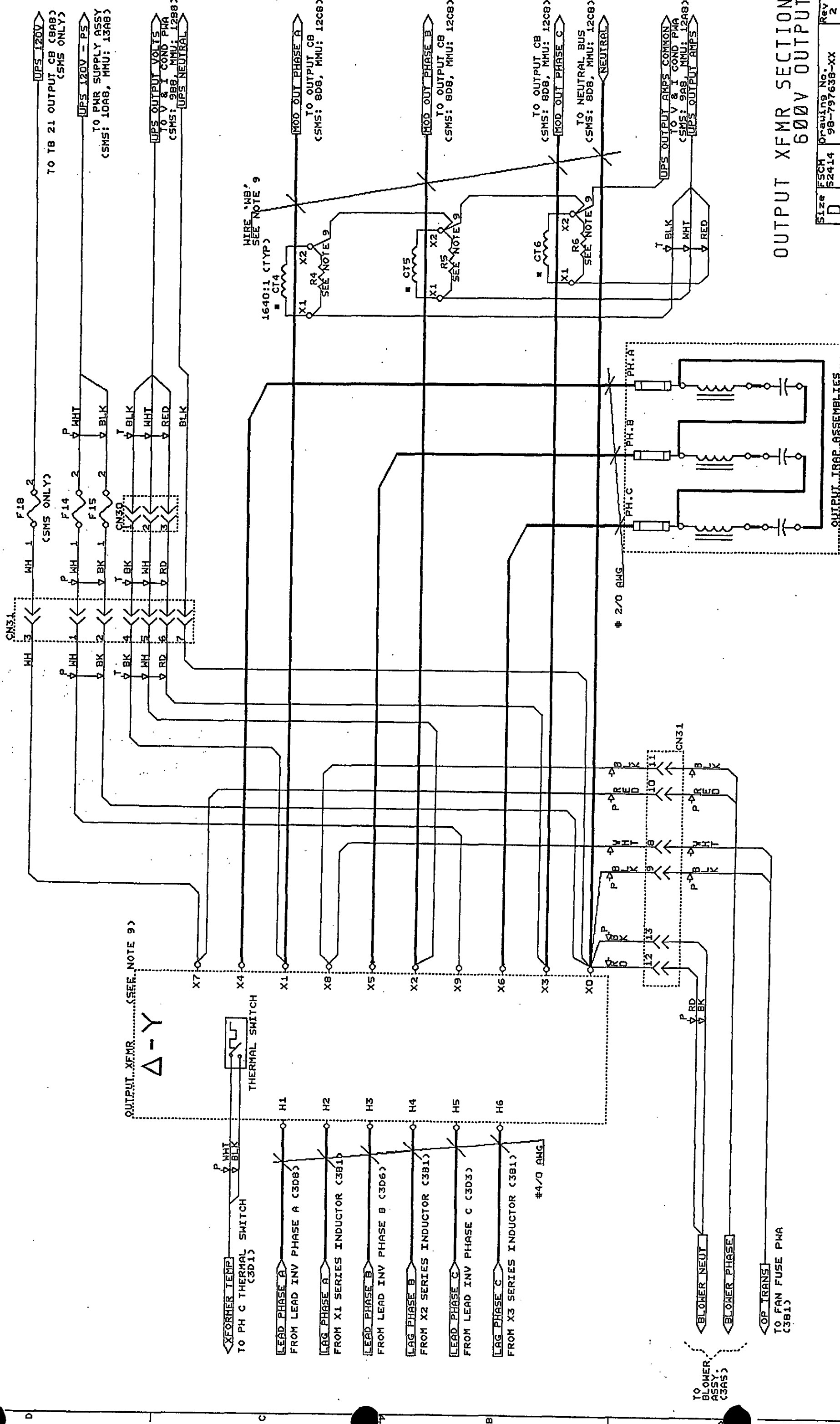


OUTPUT XFMR SECTION  
480V OUTPUT

Size	FSCM	Drawings No.	Rev
D	52414	98-797638-XX	2

SCALE NONE | SHEET 5 OF 15

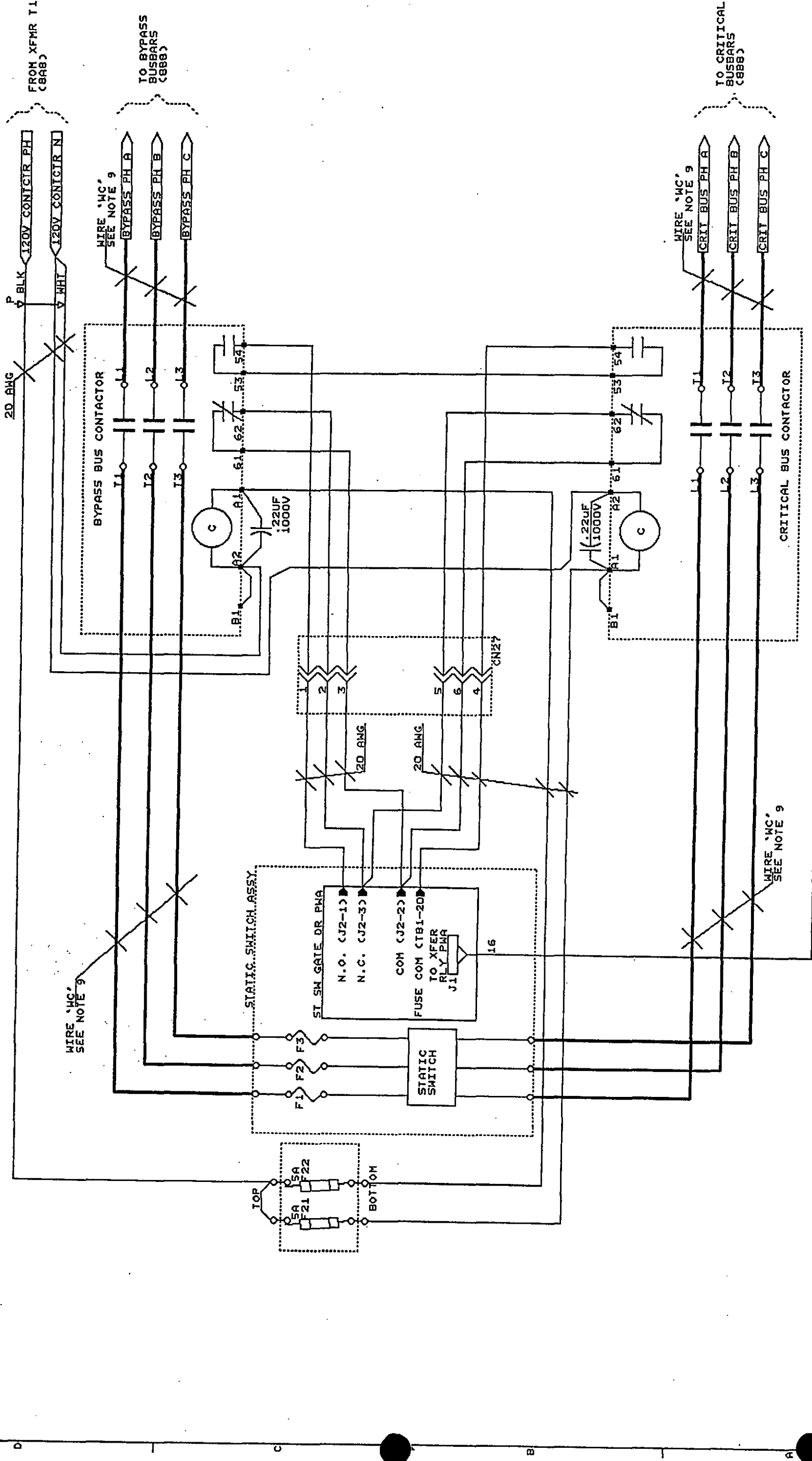
REVISIONS	
1	LTR DESCRIPTION
2	ECO NO. DATE
3	REV RELEASE
4	REV BLOWER CONNECTION
5	REV BLOWER CONNECTION



OUTPUT XFMR SECTION  
600V OUTPUT

SMS ONLY  
 (02-797638-6X)

LYR	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	961014	091396	D.F.
2	CHANGED 'MB' TO 'MC'	961062	100896	
8	REV DRAWING	971589	112697	

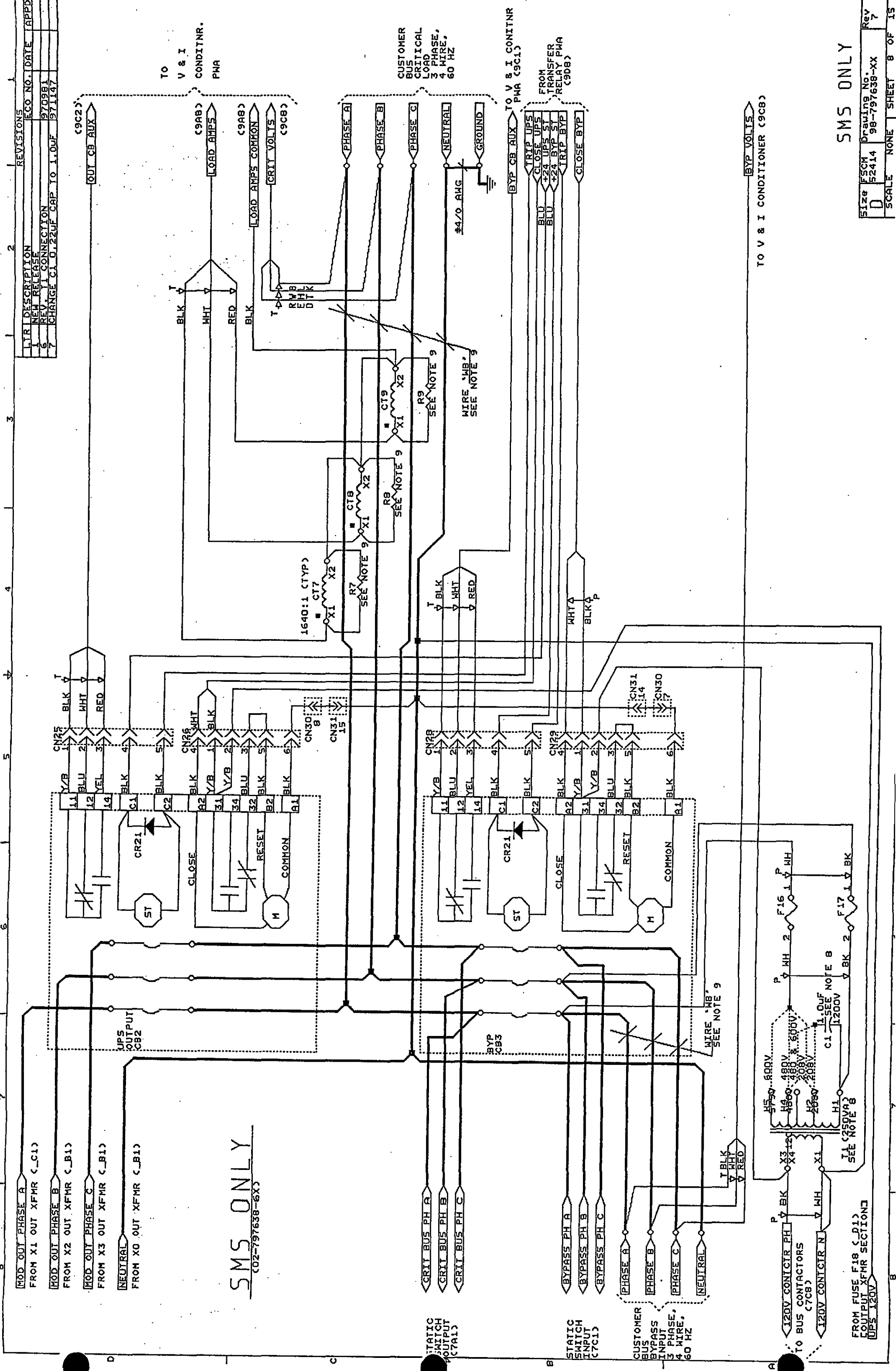


FROM J7  
 ST SW GATE DR SIGNALS  
 AY PMA (9C8)

SMS ONLY

Size	FSCM	Drawing No.	Rev
D	52414	98-797638-XX	8
Scale	NONE	Sheet	7 of 15

REV	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE			
2	REV. 11 CONNECTION	9709B1		
3	CHANGE CL 0.22UF CAP TO 1.0UF	971147		



MOD OUT PHASE A  
FROM X1 OUT XFMR (C1)

MOD OUT PHASE B  
FROM X2 OUT XFMR (C1)

MOD OUT PHASE C  
FROM X3 OUT XFMR (C1)

NEUTRAL  
FROM X0 OUT XFMR (C1)

**SMS ONLY**  
(02-797638-6X)

STATIC SWITCH INPUT (C7A1)

STATIC SWITCH BYPASS INPUT (C7C1)

CUSTOMER BUS BYPASS INPUT 3 PHASE, 4 WIRE, 60 HZ

120V CONICTR PH A  
TO BUS CONTACTORS (C7C8)

120V CONICTR N  
TO BUS CONTACTORS (C7C8)

FROM FUSE F18 (D1)  
OUTPUT XFMR SECTION UPS 120V

TO V & I CONDITNR. PMA

CUSTOMER BUS CRITICAL LOAD 3 PHASE, 4 WIRE, 60 HZ

TO V & I CONITNR PMA (C9C1)

FROM TRANSFER RELAY PMA (9DB)

TO V & I CONDITIONER (C9B)

SMS ONLY

Size	FSCM	Drawing No.	Rev
D	52414	98-797638-XX	7

SCALE NONE | SHEET 8 OF 15

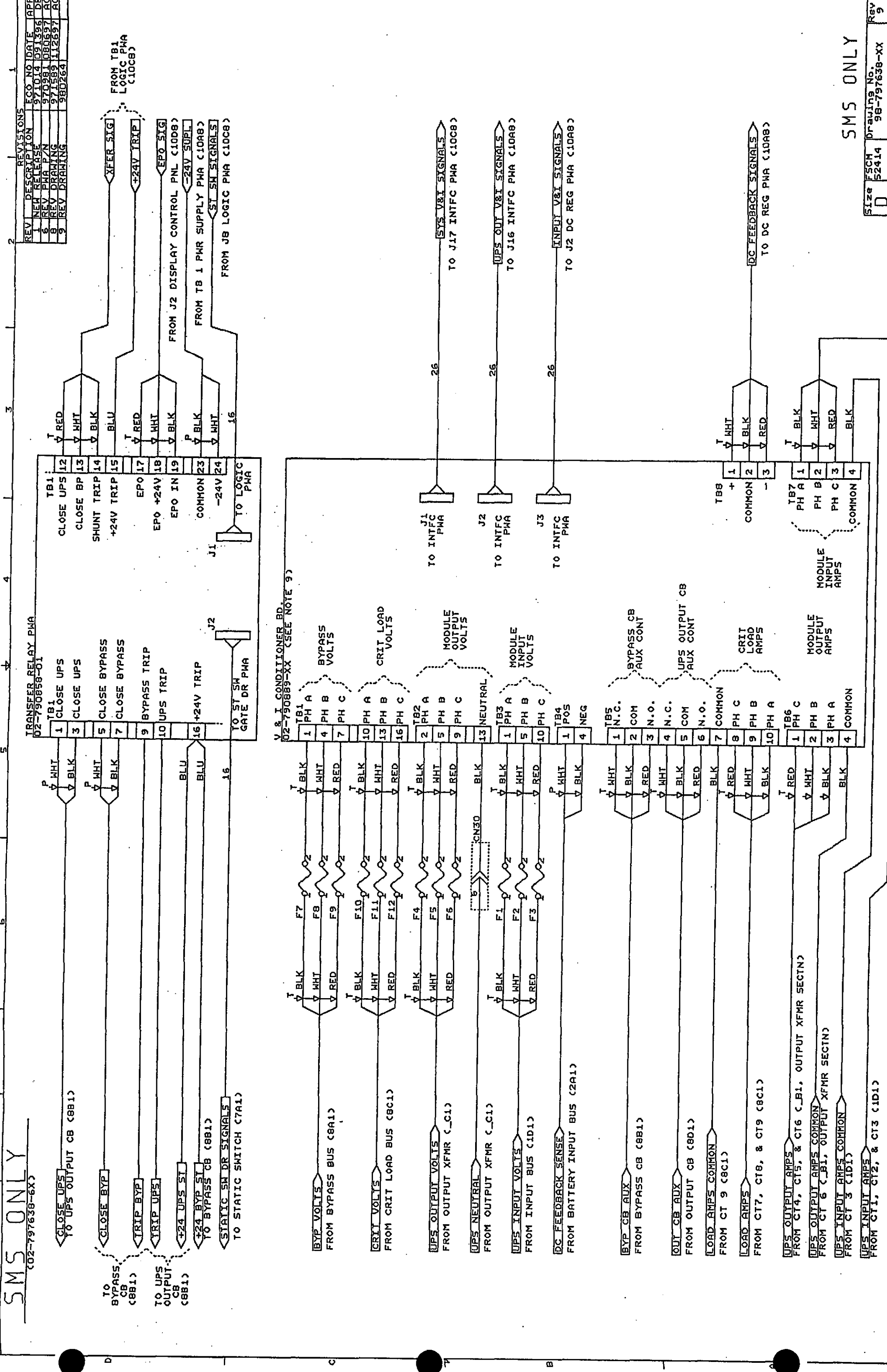
SMS ONLY  
(02-797638-6X)

TRANSFER RELAY PMA  
02-790889-01

REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	27014	091396	DE
2	REV PMA P/N	970981	080697	AC
3	REV DRAWING	971589	112697	AC
4	REV DRAWING	980264		

FROM TB1  
LOGIC PMA  
(10C8)

FROM J2 DISPLAY CONTROL PNL (10D8)  
FROM TB1 PWR SUPPLY PMA (10A8)  
FROM JB DR LOGIC PMA (10C8)

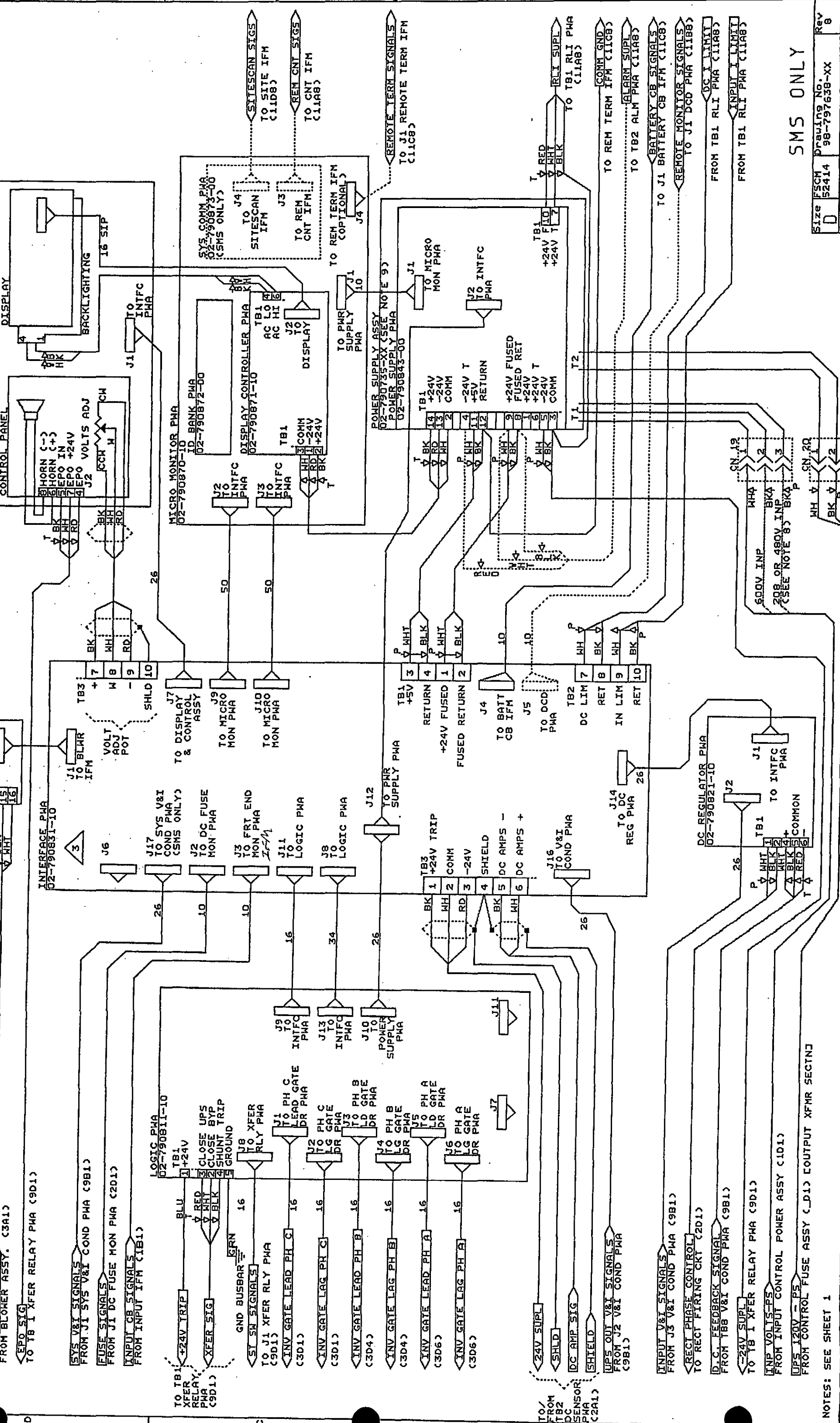


SMS ONLY

Size D FSCH 52414  
Drawing No. 98-797638-XX  
Rev 9

TR	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	961014	091396	DE
2	REV DISPLAY CONNECTION	961166	102396	AC
3	REV DISPLAY CONNECTION	961419	012897	AC
4	REV DRAWING	971589	112897	

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NOTES: SEE SHEET 1

SMS ONLY

Size FSCM Drawing No. 98-797638-XX Rev 8

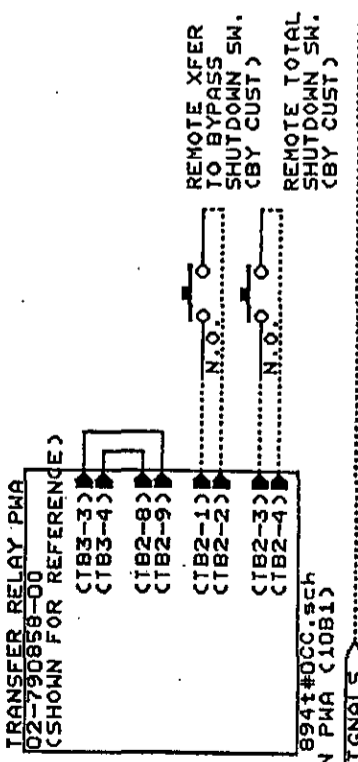
Scale NONE Sheet 10 of 15

SMS ONLY

EXTERNAL CONNECTIONS

SITESCAN SIGS  
TO J4 SYS COMM PMA (10C1)

REMOTE EMERGENCY OFF

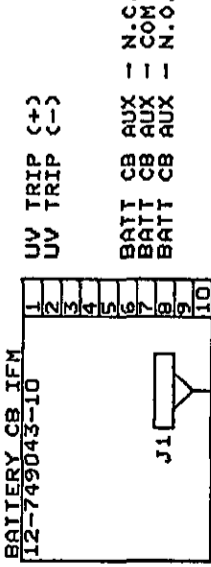


TO J4 MICRO MON PMA (10B1)

REMOTE TERM SIGNALS  
TO TB1 PMA SUPPLY PMA (10B1)

COMM GND  
TO TB1 PMA SUPPLY PMA (10B1)

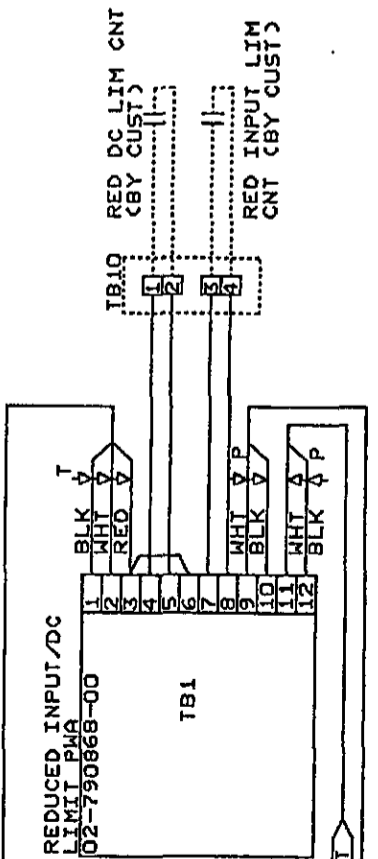
BATT CKT BRKR INTF



BATTERY CB SIGNALS  
TO J4 INTFC PMA (10A1)

REMOTE MONITOR SIGNALS  
TO J5 INTFC PMA (10A1)

REDUCED I LIMIT



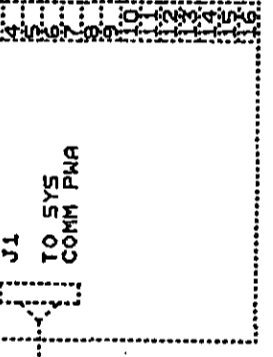
RLY SUPPL  
FROM TB1 PMA SUPPLY PMA (10B1)

TO J3 SYS COMM PMA (10C1)

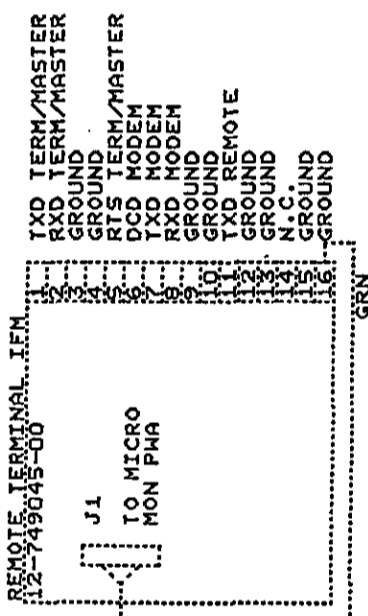
ALARM SUPPL  
FROM TB1 POWER SUPPLY PMA (10A1)

SITESCAN/SITEMASTER INTF (OPTION)

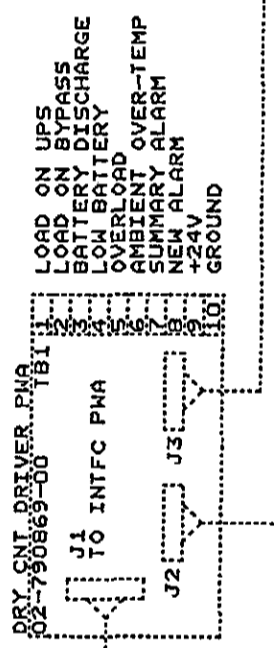
SITESCAN IFM  
12-749043-16



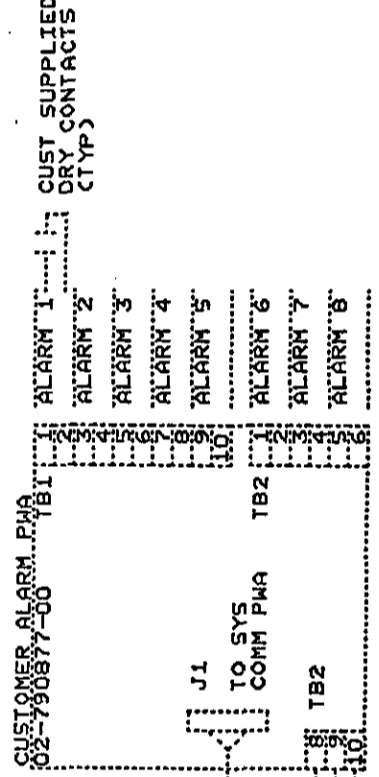
REMOTE TERMINAL INTF (OPTION)



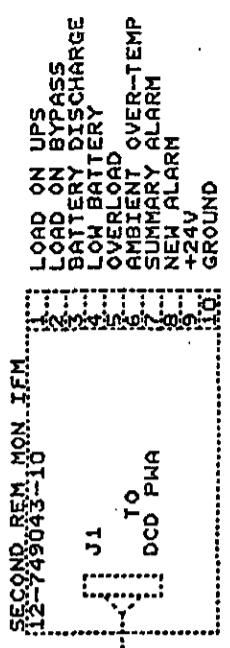
REMOTE MONITOR INTF (OPTION)



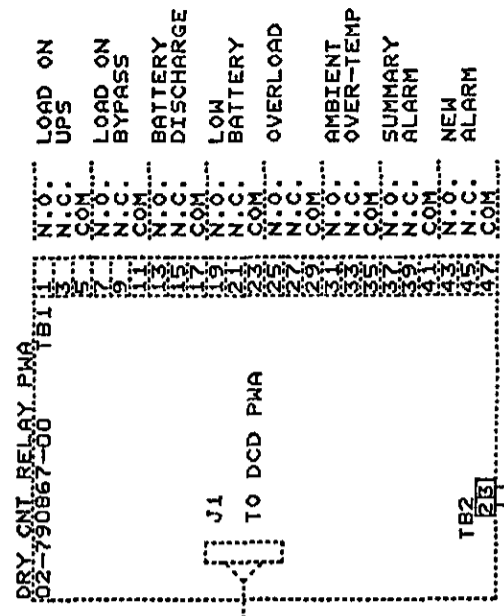
CUSTOMER ALARMS INTF (OPTION)



2ND. REMOTE MONITOR INTF (OPTION)



REMOTE DRY CONTACTS INTF (OPTION)



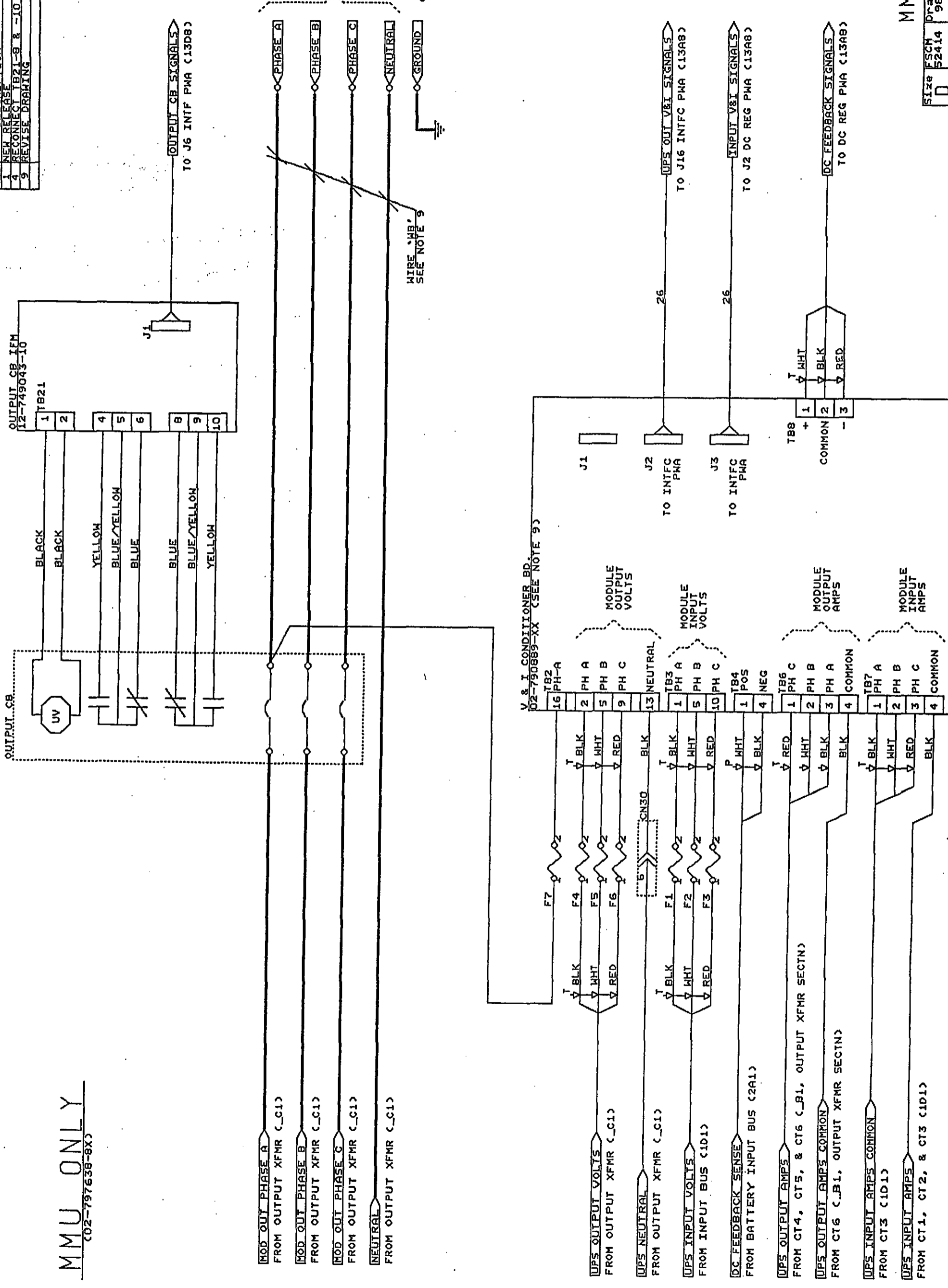
SMS ONLY



# MMU ONLY

C02-797638-8X

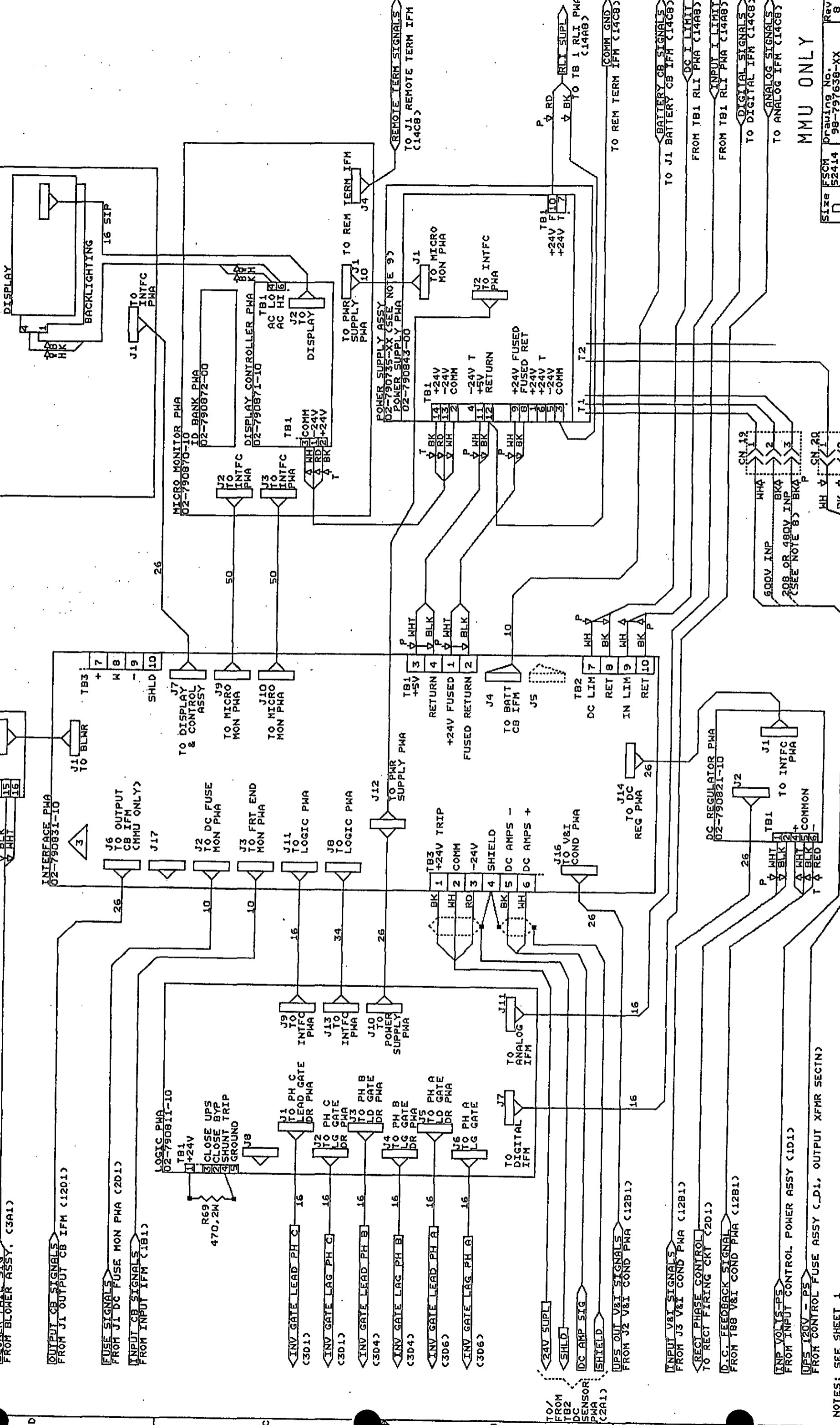
REV	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	961014	091396	DE
4	RECONNECT TB21-8 & -10	961419	012297	AC
9	REVISE DRAWING	980264		



MMU ONLY

TR	DESCRIPTION	ECO NO	DATE	APPD
1	NEW RELEASE	961014	091396	BEPD
2	REV DISPLAY CONNECTION	961166	102396	AC
3	REMOVE GND WIRE	970821	052897	AC
4	REV DRAWING	971597	112697	

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NOTES: SEE SHEET 1

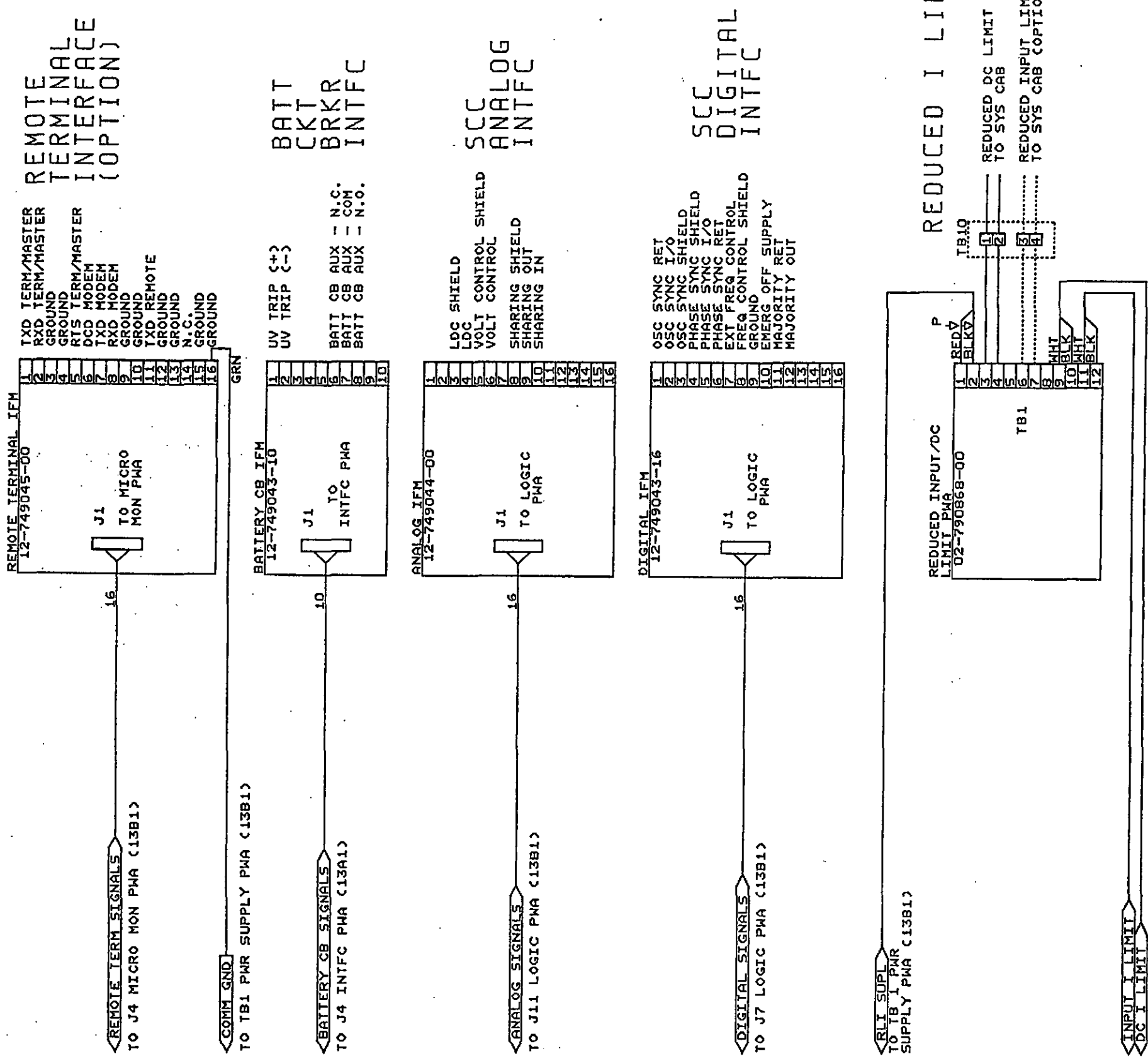
MMU ONLY

Size FSCM Drawing No. 98-797638-XX Rev 8

# EXTERNAL CONNECTIONS

MMU ONLY

REVISIONS			
LT#	DESCRIPTION	ECO NO.	DATE
1	NEW RELEASE	961014	091396
2	REV DRAWTING	971589	112697



REMOTE TERMINAL INTERFACE (OPTION)

BATT CKT BRKRR INTFC

SCC ANALOG INTFC

SCC DIGITAL INTFC

REMOVED I LIMIT

REDUCED DC LIMIT SIGNAL TO SYS CAB  
REDUCED INPUT LIMIT SIGNAL TO SYS CAB (OPTION)

MMU ONLY

Size	FSCM	Drawing No.	Rev
D	52414	98-797638-XX	B
Scale	NONE	Sheet	14 of 15

# CONFIGURATION

## JUMPER SELECT CHART

3

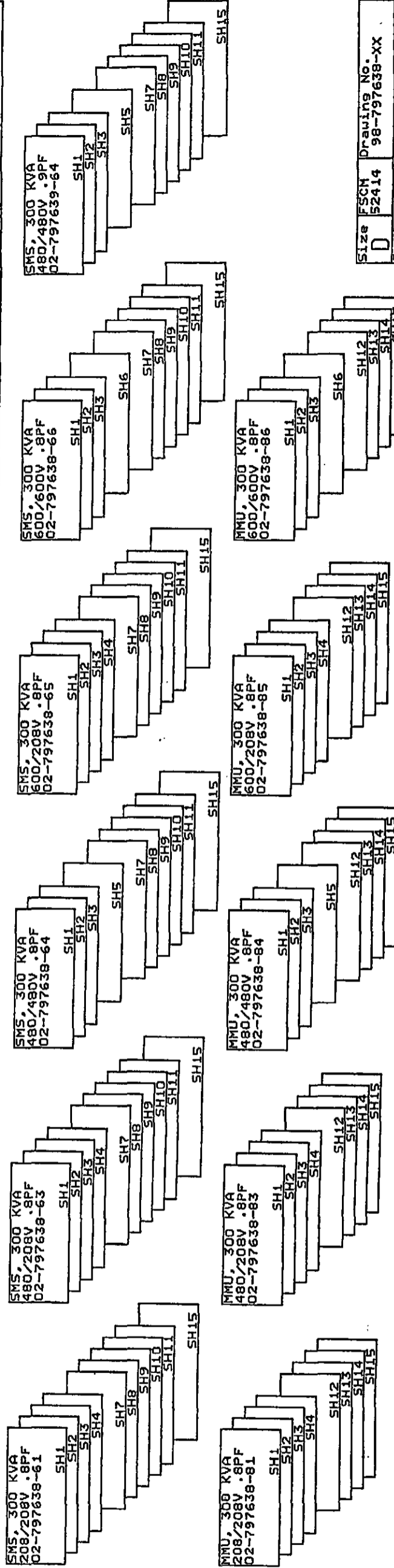
### COMPONENT SELECT CHART

COMPONENT	FUNCTION	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N
WIRE 'MA'	INPUT CB POWER WIRING	3 x 4/0 AWG	2 x 2/0 AWG	2 x 2/0 AWG	3 x 4/0 AWG	2 x 2/0 AWG	2 x 2/0 AWG	2 x 2/0 AWG	2 x 2/0 AWG	2 x 2/0 AWG	2 x 2/0 AWG	2 x 2/0 AWG	2 x 2/0 AWG
WIRE 'MB'	OUTPUT, BYPASS & CRITICAL LOAD POWER WIRING	3 x 4/0 AWG	2 x 2/0 AWG	2 x 2/0 AWG	3 x 4/0 AWG	2 x 2/0 AWG	2 x 2/0 AWG	2 x 2/0 AWG	2 x 2/0 AWG	2 x 2/0 AWG	2 x 2/0 AWG	2 x 2/0 AWG	2 x 2/0 AWG
WIRE 'MC'	STATIC SWITCH (SMS ONLY, SHT. 7)	1 x 1/0 AWG	1 x 1/0 AWG	1 x 1/0 AWG	1 x 1/0 AWG	1 x 1/0 AWG	1 x 1/0 AWG	1 x 1/0 AWG	1 x 1/0 AWG	1 x 1/0 AWG	1 x 1/0 AWG	1 x 1/0 AWG	1 x 1/0 AWG
R1, R2, R3	BURDEN RESISTORS INPUT CURRENT CT's	8 OHMS	15 OHMS	15 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS
R4, R5, R6	BURDEN RESISTORS INVERTER OUTPUT CURRENT CT's	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS
R7, R8, R9	UPS OUTPUT CURRENT CT's	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS	8 OHMS
V & I CONDTR. BD POWER SUPPLY ASSEMBLY		02-790889-09	02-790889-09	02-790889-09	02-790889-09	02-790889-09	02-790889-09	02-790889-09	02-790889-09	02-790889-09	02-790889-09	02-790889-09	02-790889-09
INPUT AUTOXMR		02-790735-01	02-790735-00	02-790735-00	02-790735-00	02-790735-00	02-790735-00	02-790735-00	02-790735-00	02-790735-00	02-790735-00	02-790735-00	02-790735-00
OUTPUT TRANSFORMER		02-769527-00	02-769527-00	02-769527-00	02-769527-00	02-769527-00	02-769527-00	02-769527-00	02-769527-00	02-769527-00	02-769527-00	02-769527-00	02-769527-00
CNTL XFMR T2		02-769526-00	02-769526-00	02-769526-00	02-769526-00	02-769526-00	02-769526-00	02-769526-00	02-769526-00	02-769526-00	02-769526-00	02-769526-00	02-769526-00

### CONNECTION CHART

COMPONENT	SIGNAL NAME	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N	RATING/ P/N
CONNECTOR CN19	INP VOLTS-PS	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61
XFRMR T1	F16-2 MHT	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61
	CAP .22UF	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61	02-797638-61

### SCHEMATIC APPLICABILITY

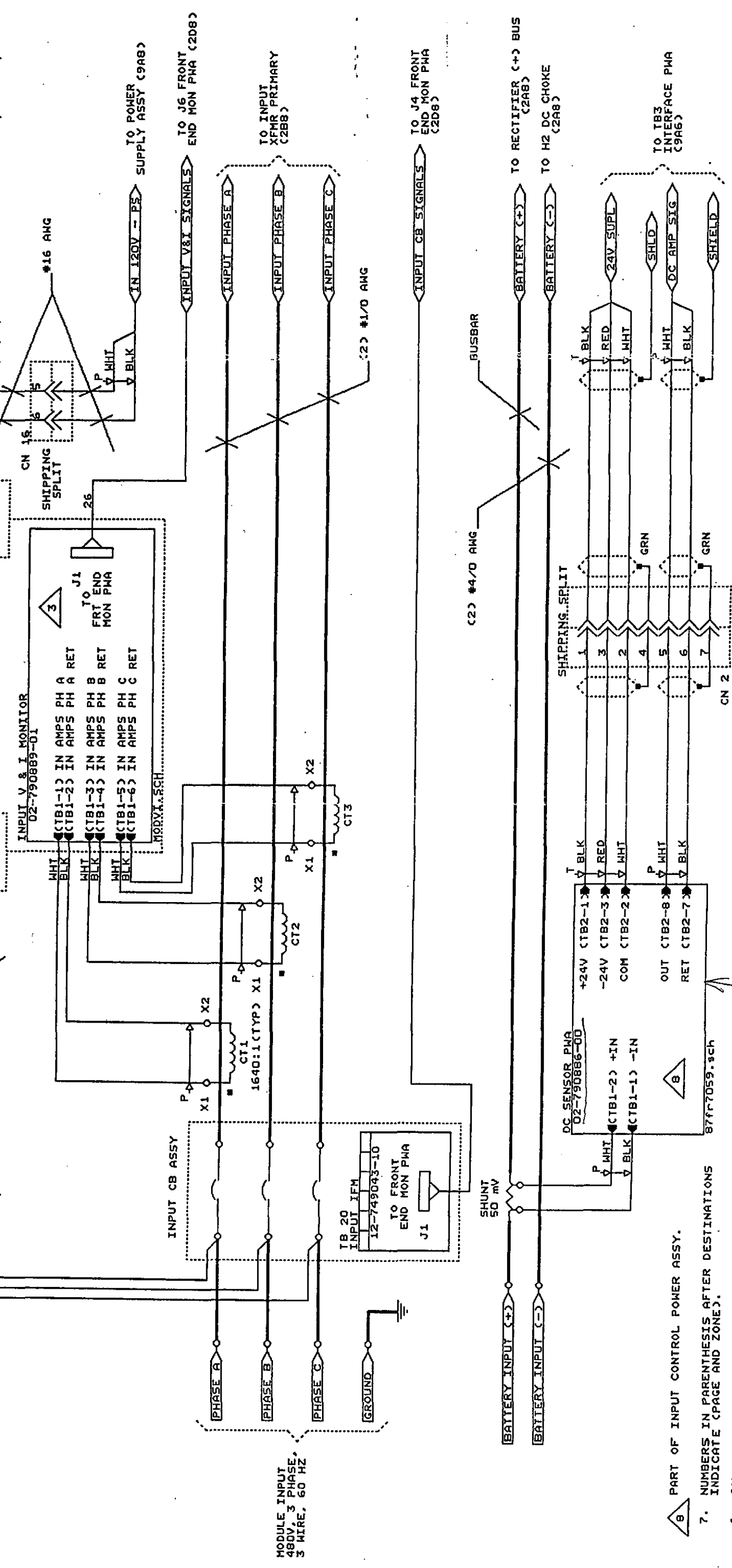


LTR	DESCRIPTION	ECO NO.	DATE	APPD
1	NEW RELEASE	961014	9-13-96	E.
2	REV. COMPONENT SEL. CHART	961062		
3	ADD 639-64 INFO.			

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# INPUT WIRING

ZONETR	DESCRIPTION	ECO NO.	DATE	APP'D
NC	NEW RELEASE	900173	5-31-90	SN
A	REVISED SHEET 6	900292	7-23-90	SN
B	REVISED SHT 1, 6 & 9	900570	8-27-90	SN
C	REVISED SHT 6, 8 & 10	900897		
1	(+) BUS WAS (3) 4/0 AMG	910033		
	(-) BUS WAS (4) 1/0 AMG			
	REVISED SHT 2, 4 & 6			



Adjust gain & Offset.

7. NUMBERS IN PARENTHESIS AFTER DESTINATIONS INDICATE CPAGE AND ZONE).
6. CONNECT GROUND WIRES TO GROUND BUS, SHT 7, ZN B-1.
5. CONTROL WIRES TERMINATED AT TERMINAL BLOCKS SHALL BE MARKED WITH TERMINAL NUMBERS.
4. ALL SINGLE CONDUCTOR CONTROL WIRING TO BE WHT, UNLESS OTHERWISE SPECIFIED.
3. SELECT JUMPERS ON BOARDS AT FINAL TEST PER JUMPER SELECT CHART (SHT 10).
2. ALL WIRING TO BE UL/CSA APPROVED PER 78-749901-00.
1. ALL CONTROL WIRE TO BE #20 AMG, MIN 600V. NOTES: UNLESS OTHERWISE SPECIFIED

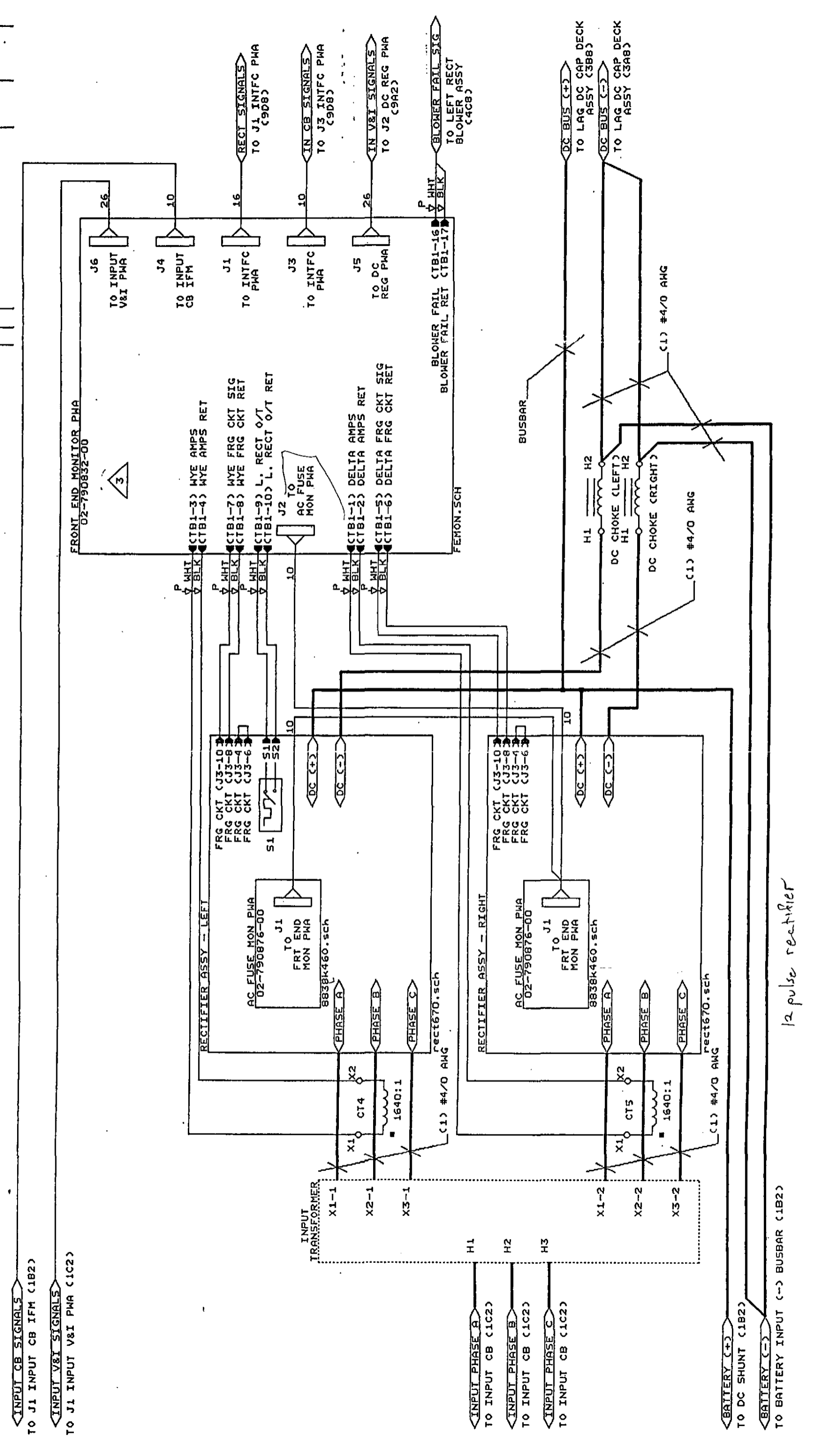
REVISION STATUS OF SHEETS		
SHT	NC	REV
SHT 1	NC	A
SHT 2	NC	B
SHT 3	NC	C
SHT 4	NC	
SHT 5	NC	
SHT 6	NC	A
SHT 7	NC	B
SHT 8	NC	C
SHT 9	NC	
SHT 10	NC	

CONTRACT NO.		UPS	
DRAWN	KM	DATE	5-25-90
CHECK	SI	DATE	5-25-90
DES APP'D		DATE	
PROJ APP'D		DATE	
APPROVED		DATE	
EMERSON COMPUTER POWER DIVISION		Title: SCHEMATIC/WIRING DIAGRAM	
		AP640 SMS	
		480V IN, 480/277V OUT, 60 HZ	
Size	D	Scale	NONE
Sheet	1	of	10

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# RECTIFIER WIRING

ZONE/REV	DESCRIPTION	ECO NO.	DATE	APPROV
1	NEW RELEASE (+) BUS W/AS (3) 4/0 AMG (2) 1/0 AMG.	900175	5-31-90	SN

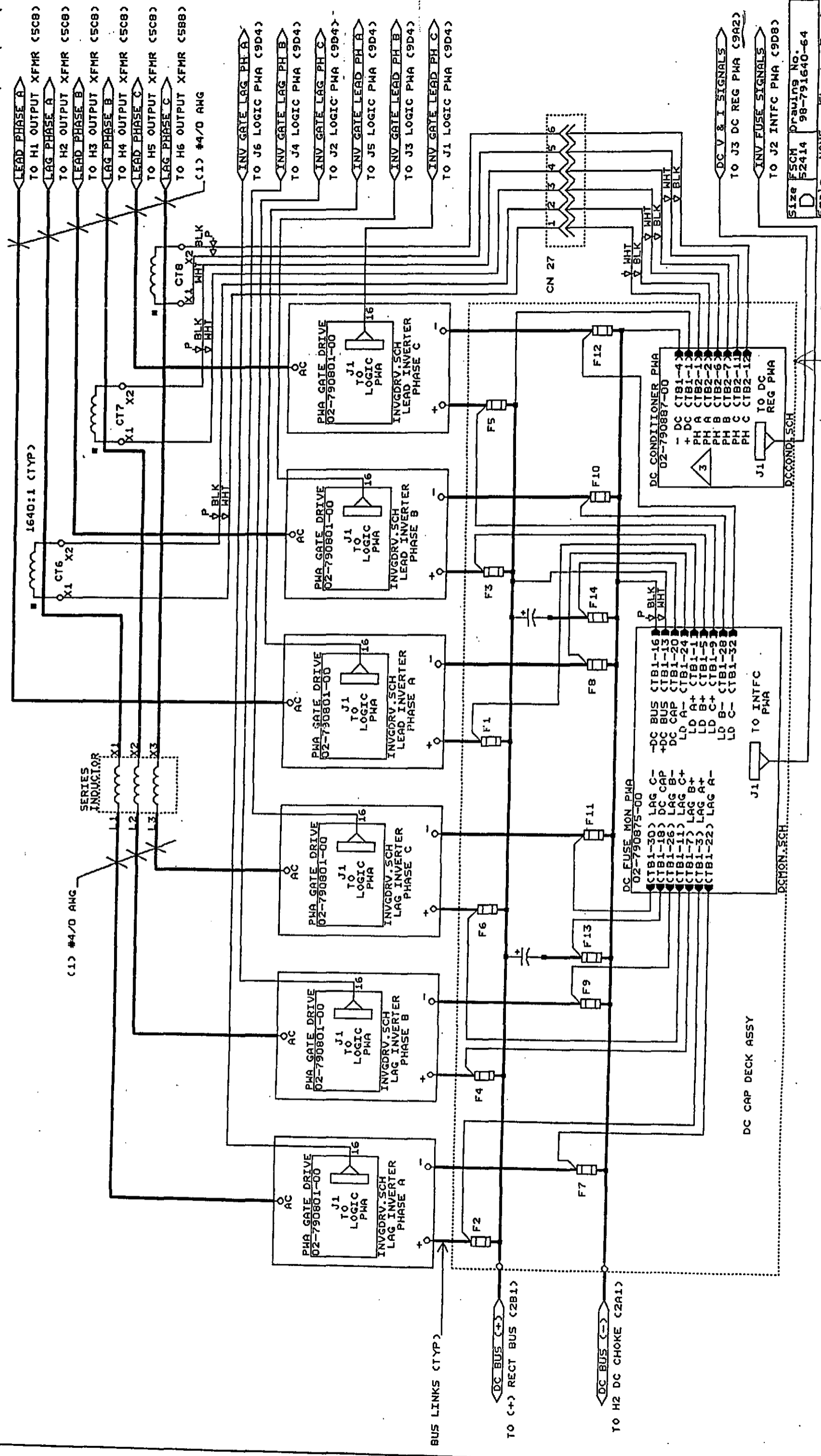


12 pulse rectifier

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REVISIONS	DESCRIPTION	DATE	APPROVED
1	NCI NEW RELEASE	2001-5-31	5N

# INVERTER WIRING



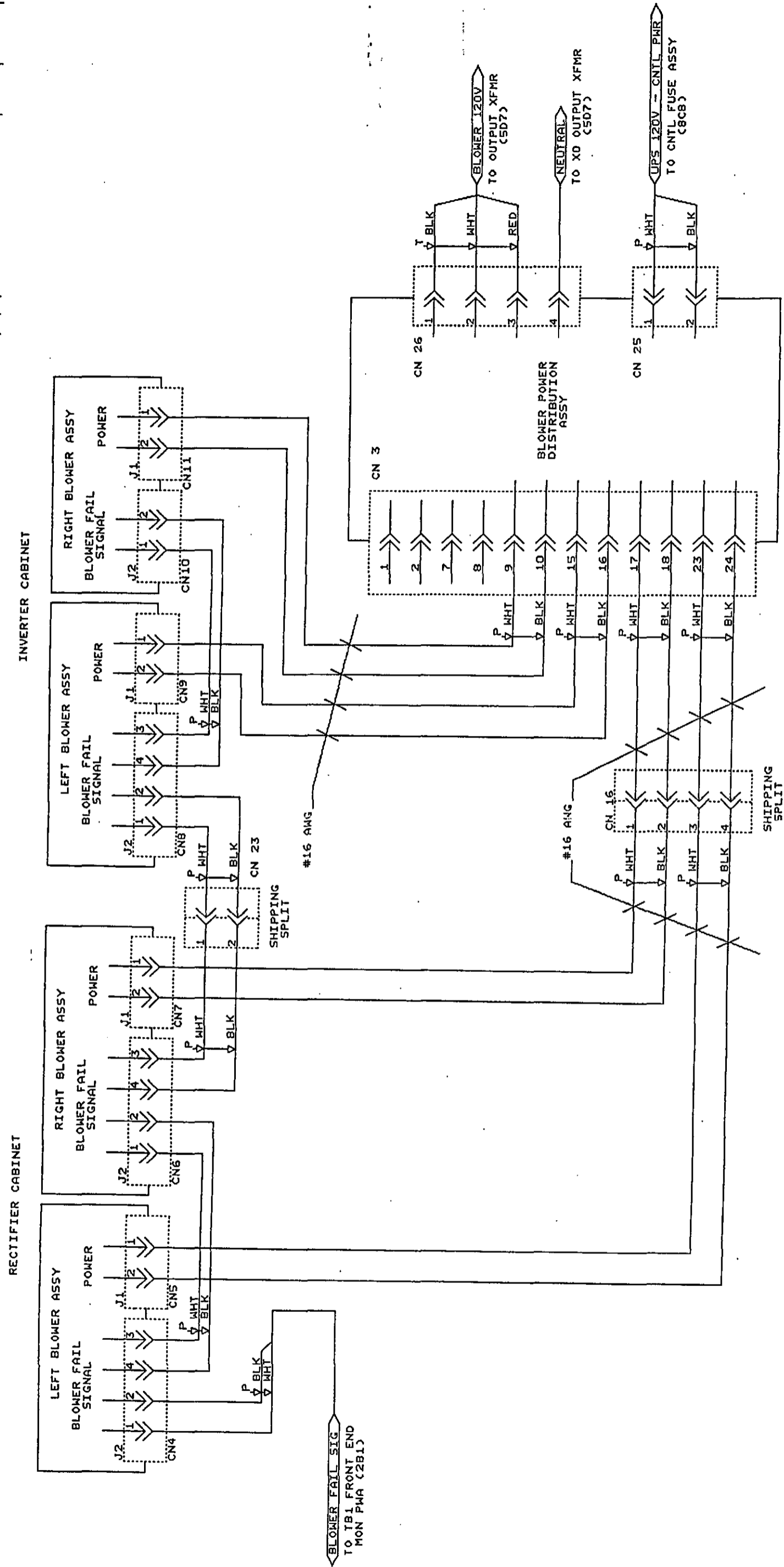
*Volts 100V  
Rec. 100V*

Size	FSCM	Drawing No.	Rev
D	52414	98-791640-64	NC
Scale	NONE	Sheet	3 of 10

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# BLOWER WIRING

ZONE	DESCRIPTION	ECO NO.	DATE	APPROVE
1	NEW RELEASE	900175	85-31-90	SN
2	CN3-9, 10, 15, & 16 WERE 9100332-11-91			SN
3	CN3-1, 2, 7, & 8, RESPT.			SN
4	CHG WIRE COLOR			SN
5	LEFT BLOWER ASSY.			SN

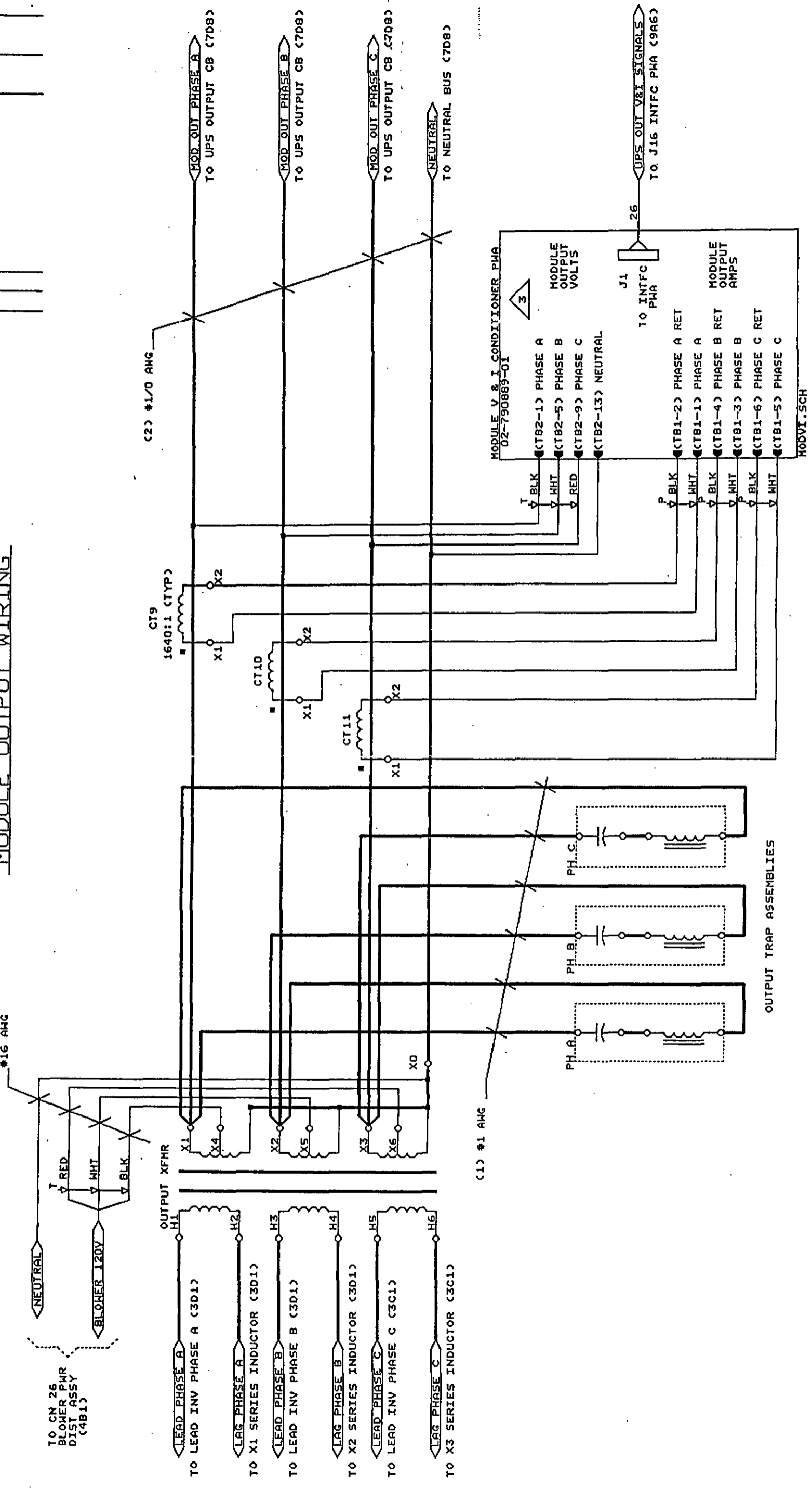




ZONE	REVISIONS	DESCRIPTION	ECO NO	DATE	APPROVED
NC	NEW RELEASE		900175	31-90	SN

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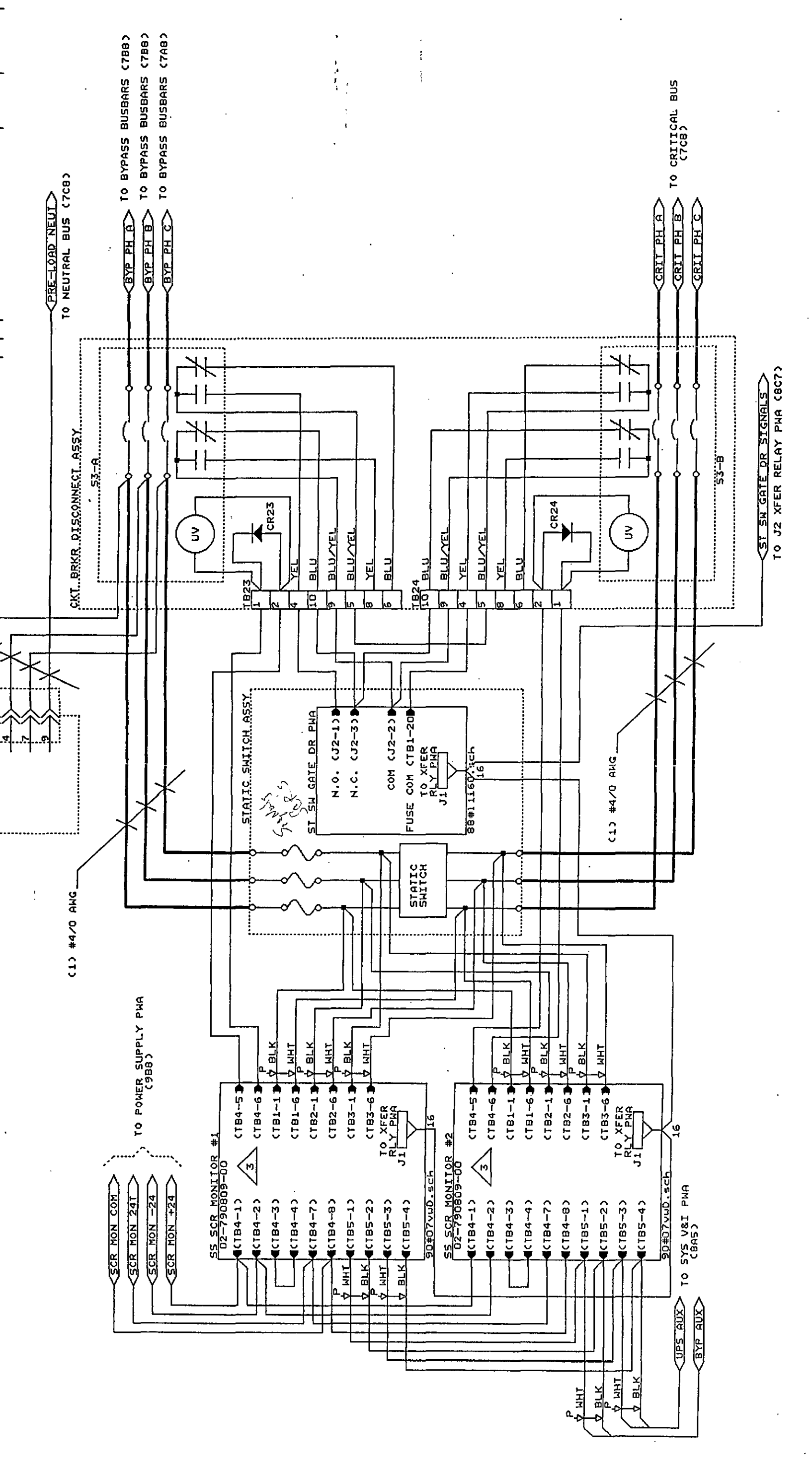
# MODULE OUTPUT WIRING



Size	FSCM	Drawing No.	Rev
D	52414	98-791640-64	NC
Scale	NONE	Sheet	5 of 10

ZONE#	DESCRIPTION	ECO NO.	DATE	APPR
1	NEW RELEASE	900173	5-31-90	SN
2	CORRECTED CR24	900282	7-23-90	SN
3	CHANGED TB2 TO J2 ON ST SH GATE DR PMA	900570	8-27-90	SN
4	ADDED NOTE 3	900897		
5	PRELOAD WIRING HAS #20 AIR	910033		

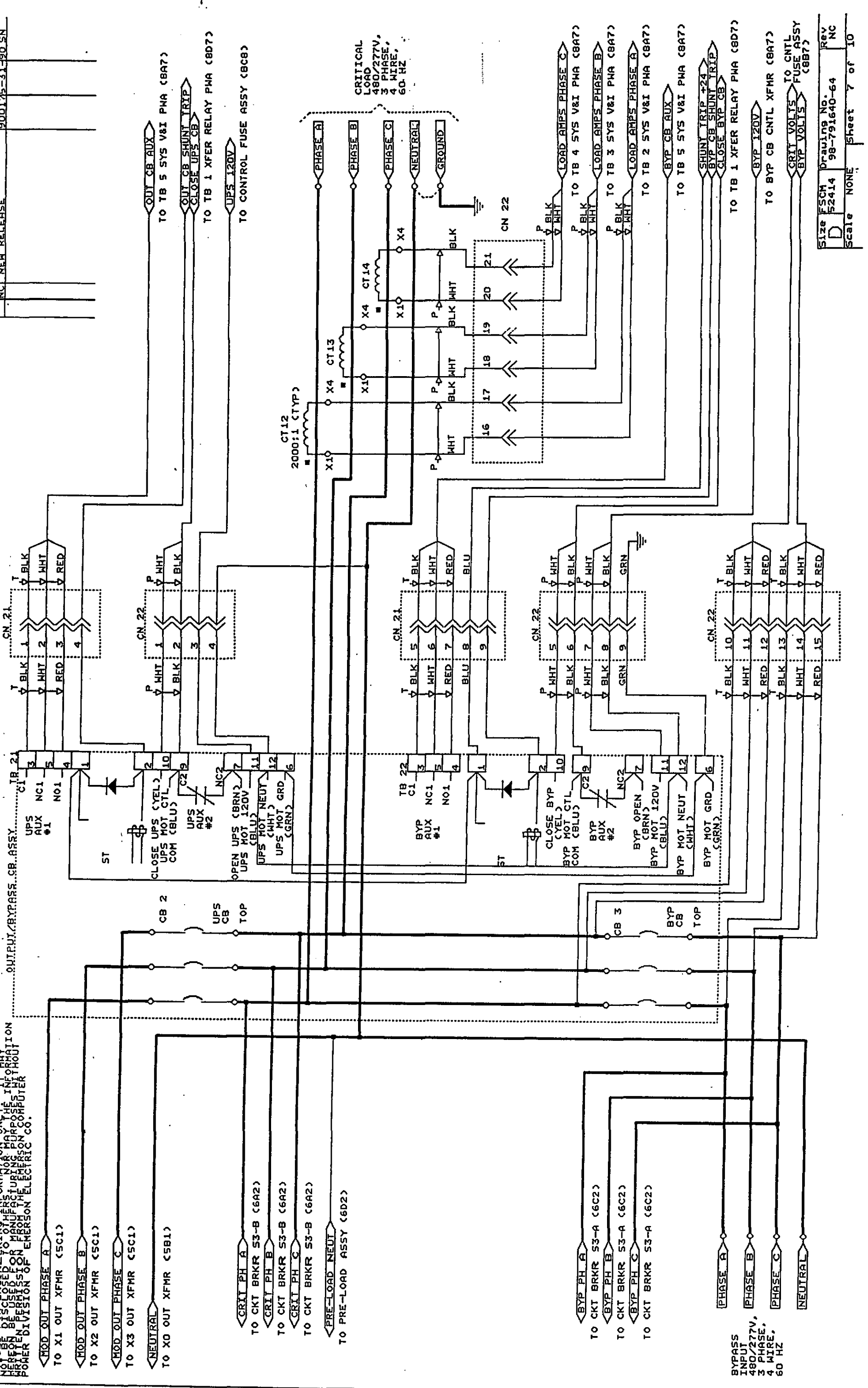
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**UPS/BYPASS POWER WIRING**

REVISIONS	DESCRIPTION	ECO NO/DATE APPROVED
ZONEIR	NO NEW RELEASE	900125-31-20 EN



CRITICAL LOAD  
480/277V,  
3 PHASE,  
4 WIRE,  
60-HZ

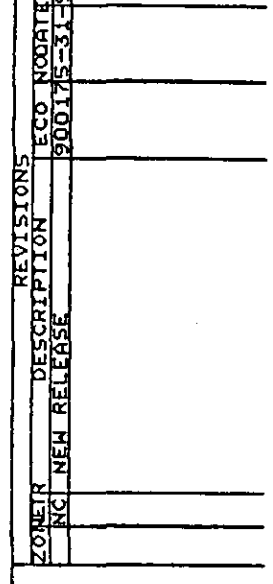
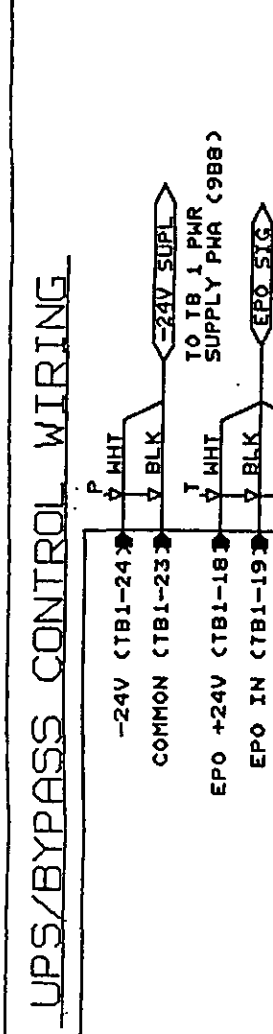
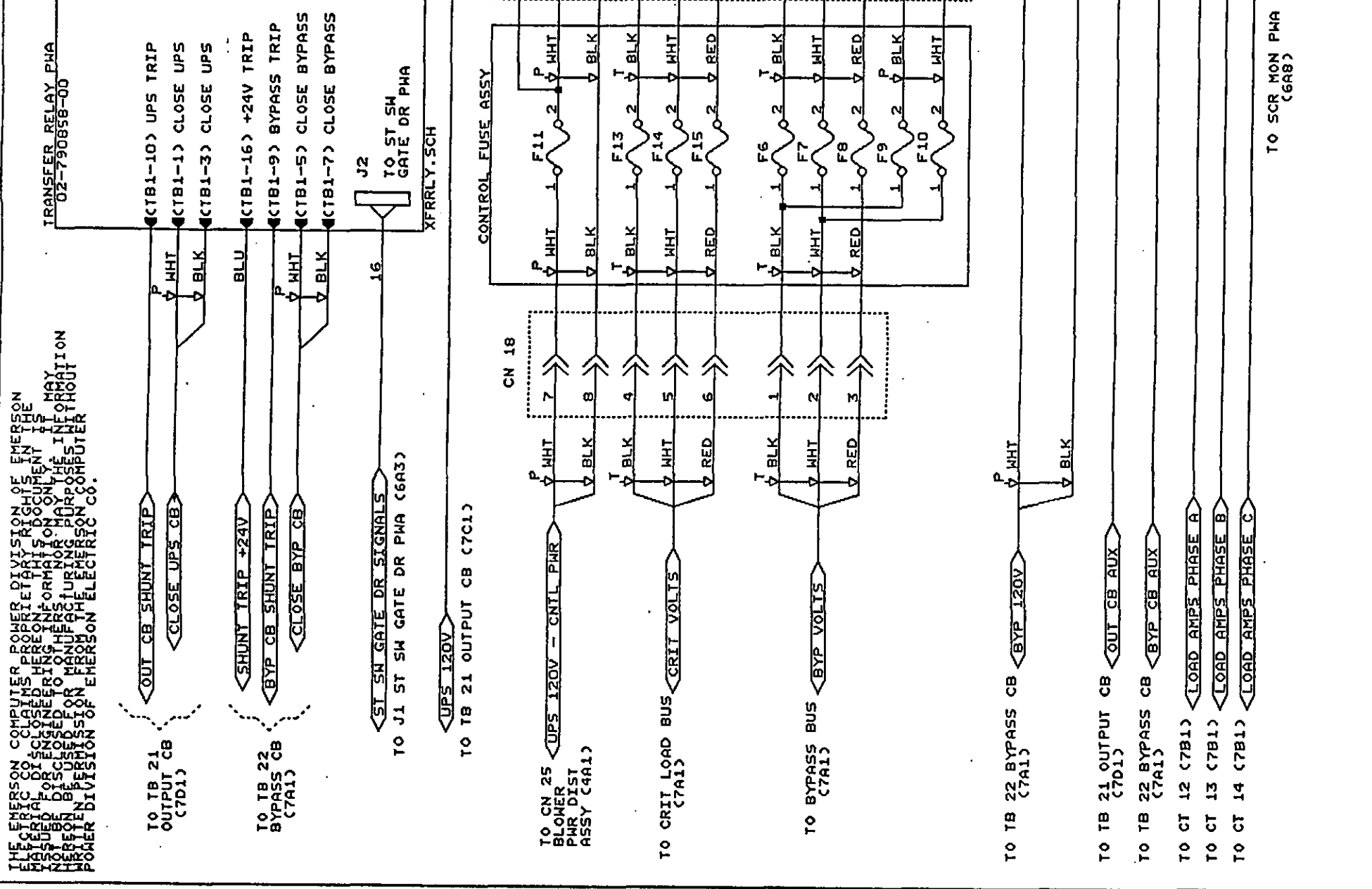
BYPASS INPUT  
480/277V,  
3 PHASE,  
4 WIRE,  
60 HZ

Size F50M	Drawing No.	Rev
52414	98-791640-64	NC
Scale NONE	Sheet 7 of 10	

REVISIONS	DESCRIPTION	ECO NO/DATE APPROVED
1	NC NEW RELEASE	900175-31-90 SN

# UPS/BYPASS CONTROL WIRING

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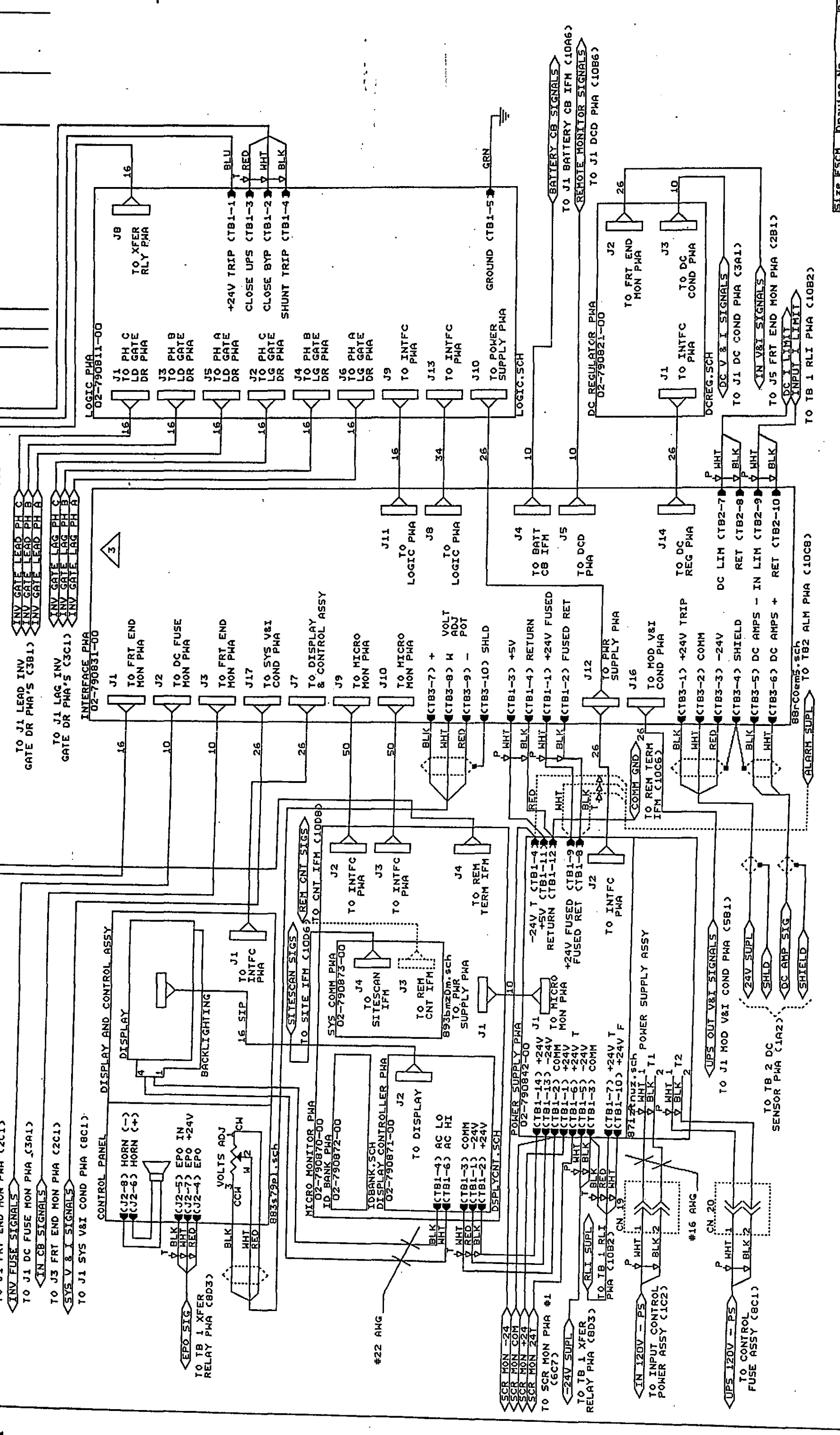


Size FSCM Drawing No. 98-791640-64 Rev NC  
Scale NONE Sheet 8 of 10

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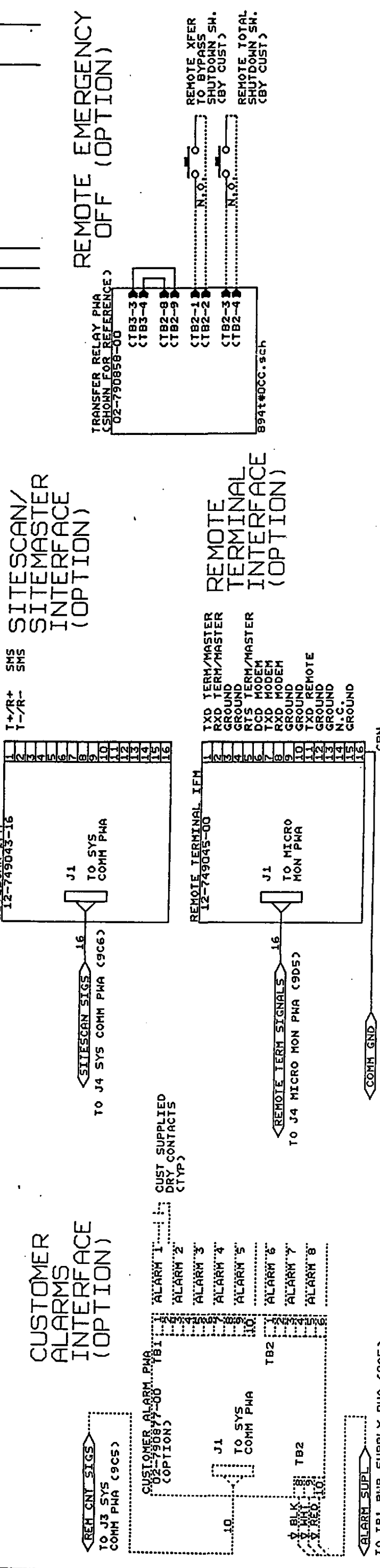
# CONTROL LOGIC

ZONE/R	DESCRIPTION	ECO NO.	DATE	APPROVED
NC	NEW RELEASE	900175	5-31-90	SN
B	REF: TB12 TO TB1 RLY PMA	900570		



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# EXTERNAL CONNECTIONS



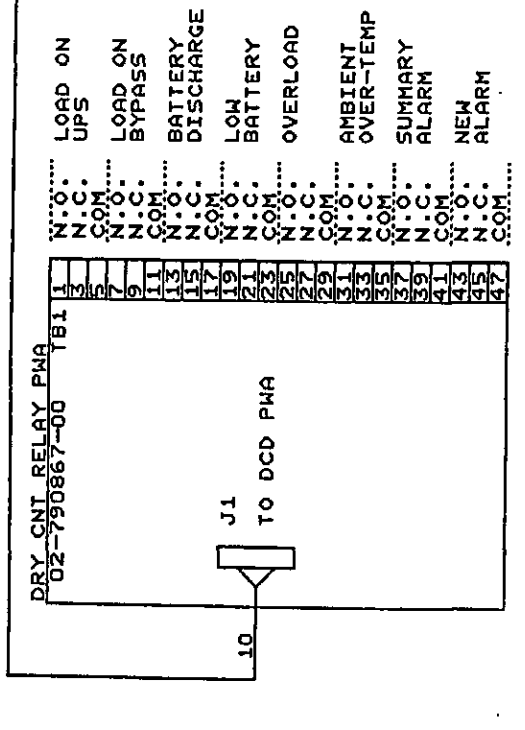
SITESCAN/ SITE MASTER INTERFACE (OPTION)

REMOTE TERMINAL INTERFACE (OPTION)

REDUCED I LIMIT

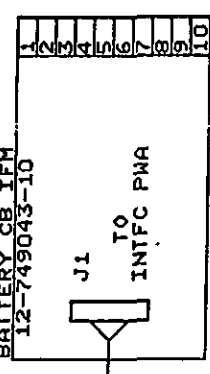
REMOTE DRY CONTACTS INTERFACE

BATT CKT BRKR INTFC



LOAD ON UPS  
 UPS BYPASS  
 BATTERY DISCHARGE  
 LOW BATTERY  
 OVERLOAD  
 AMBIENT OVER-TEMP  
 SUMMARY ALARM  
 NEW ALARM

UV TRIP (+)  
 UV TRIP (-)  
 BATT CB AUX - N.C.  
 BATT CB AUX - COM  
 BATT CB AUX - N.O.



TO TB 2 INTFC PMA (9A2)

## JUMPER SELECT CHART

PMA	FUNCTION	HEADER OR JUMPER	PINS TO BE CONNECTED
MOD INPUT V&I	VOLTAGE SEL	M1	1-10
	BURDEN SEL	M3-5	3-4, 9-10, 11-12
MOD OUTPUT V&I	VOLTAGE SEL	M1	1-10
	BURDEN SEL	M3-5	3-4, 9-10, 11-12
SYSTEM V&I	VOLTAGE SEL	M2	1-10
	BURDEN SEL	M3-5	3-4, 5-6, 11-12
DC CONDITIONER	BURDEN SEL	JPI, 4, 7	
FRONT END MON	BURDEN SEL	H1, 2	3-4
INTERFACE	SYSTEM SEL	H1-6	2-3
SS SCR MON	VOLTAGE SEL	H1-6	2-4