

07-~~01~~⁴⁵-91

NM NIAGARA MOHAWK NINE MILE POINT NUCLEAR STATION

EDC NO. **2 E 1 0 1 3 0** REV

8/88
NEL-050
ENGINEERING DESIGN CHANGE

DOCUMENTS CHANGED

C=TO BE INCORPORATED
H=NOT TO BE INCORPORATED
I=NOT TO BE INCORPORATED, NOT TO BE POSTED

1.560-229-004	DISC	STAT	1.560-229-018	DISC	STAT
1.560-229-007	2E	C	1.560-229-019	2E	C
1.560-229-010	2E	C	1.560-229-021	2E	C
1.560-229-017	2E	C	1.560-229-026	2E	C

DESCRIPTION OF CHANGE

CHANGE TYPE HARDWARE/INSTALLATION
 DOCUMENTATION ONLY

LABELING CHANGES AND DRAWING CHANGES TO CLARIFY LABELS ON Uninterruptible Power Supplies FOR CLARIFICATION AND CONSISTANCY. AND TO REFLECT AS BUILT CONDITIONS. **FOR INFORMATION ONLY**

RECEIVED
MAR 23 1990

SOURCE OF CHANGE

CODE
N12200

APPROVED MOD AS-BUILT UPDATE DESIGN IMPLEMENTATION PROBLEM FIELD NONCONFORMANCE/UNSAT LICENSING CONCERN OTHER

REFERENCE DOCUMENTS MOD NO. NA PR NO. 08758 PR# 7680,7494,7551

SYSTEM ID. VBA, VBB SAFETY CLASS SR, NSR, G

EQ YES... EQA# NO BY/DATE A. Attali/3-14-90 SQ YES... SQA# NA BY/DATE 3-12-90

LICENS IMPACT YES... LIST NA-091 NO NA MEL YES... SEE PAGE 2 NO

ASME YES... ANII NA PE N/A DATE: _____

RDO	PREPARED	PHONE/DATE	CHECKED/DATE	APPROVED/DATE
	A. Freeland	x7223/12-14-89	E. Edwards 3-17-90	A. K. Jones 3/23/90
INTERDISC. CONC.	NA		INTERDISC. CONC. NA	
ACCEPTED/DATE	NA		QA CONCURRENCE/DATE NA	
MOD HOLD FILE/DATE	NA		RELEASED/DATE <u>3-23-90</u>	

RDD COMPANY/DISCIPLINE
NIAGARA MOHAWK / ELECTRICAL

IMPLEMENTATION PREREQUISITES: NO YES..DO AFTER OR CONCURRENT WITH EDCs

~~9304290244~~

FOR INFORMATION ONLY

11/11/11

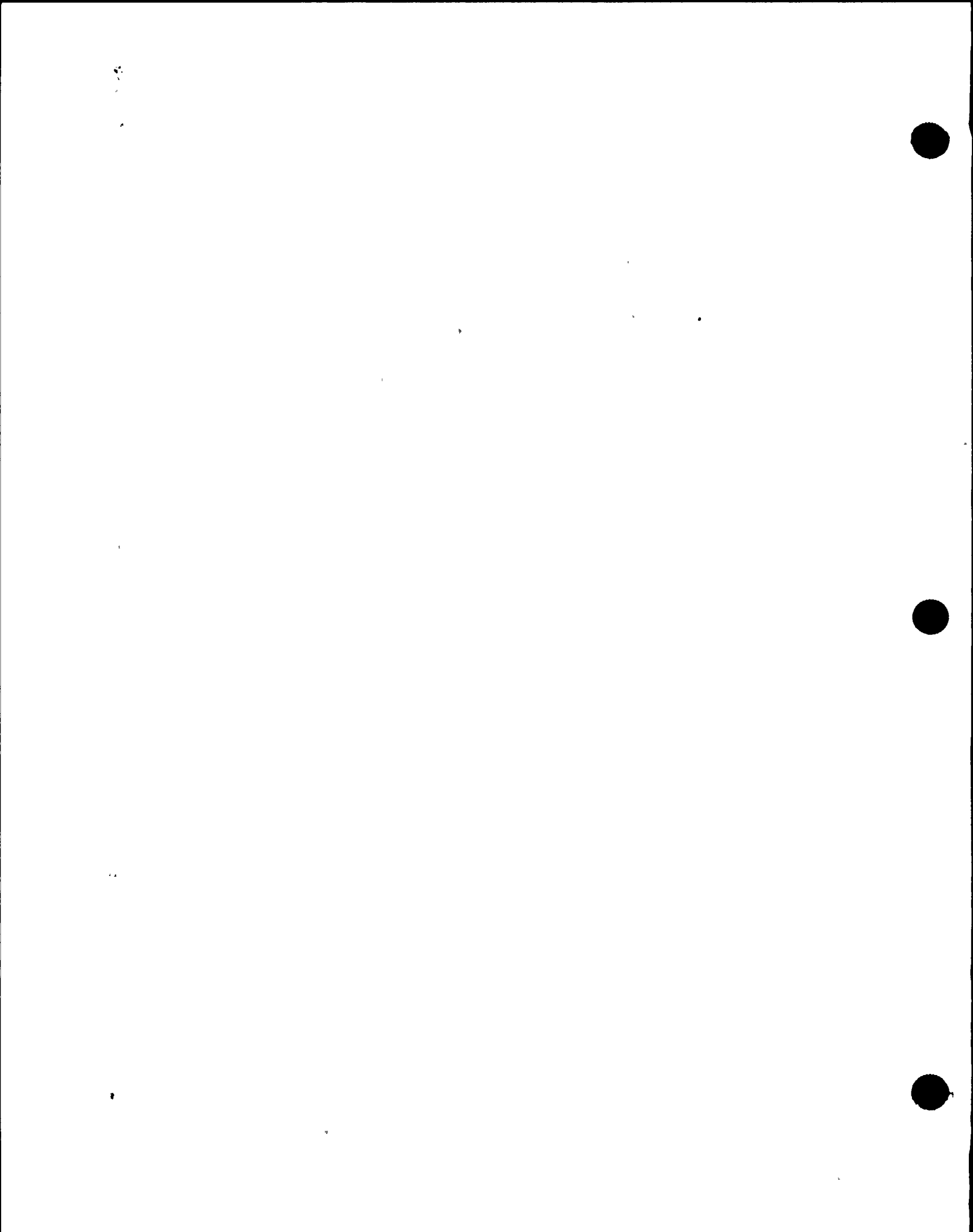
ENGINEERING DESIGN CHANGE
NEL-050
8/88

DOCUMENTS CHANGED

C=TO BE INCORPORATED
 N=NOT TO BE INCORPORATED
 I=NOT TO BE INCORPORATED, NOT TO BE POSTED

	DISC	STAT		DISC	STAT
1.560-229-027	2E	C	1.560-229-008	2E	C
1.560-229-028	2E	C	1.560-229-024	2E	C
1.560-229-029	2E	C	NZE209001PWSUP001	2E	C
1.560-229-013	2E	C	NZE209001PWSUP002	2E	C
MEL 2VBA * UPS 2A		SR	NZE356001PWSUP001	2E	C
2VBA * UPS 2B		SR	1.560-229-0085 ³⁻²³⁻⁷⁰	2E	C

- 2VBB-UPS 3A NSR
- 2VBB-UPS 3B NSR
- 2VBB-UPS 1A NSR
- 2VBB-UPS 1B NSR
- 2VBB-UPS 1C NSR
- 2VBB-UPS 1D NSR
- 2VBB-UPS 1G G4



8/88

HEL-050

ENGINEERING DESIGN CHANGE

SWEGNO: 1.560-229-004

FROM:

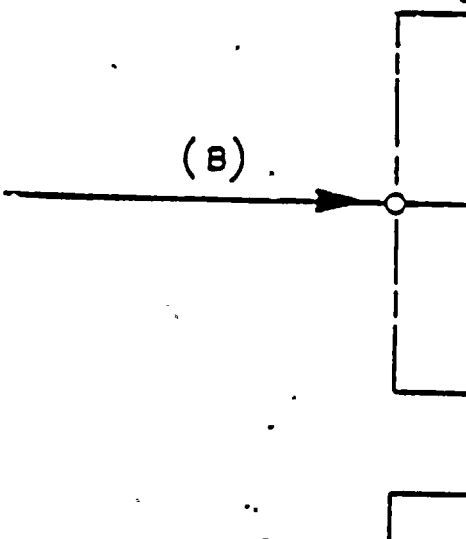
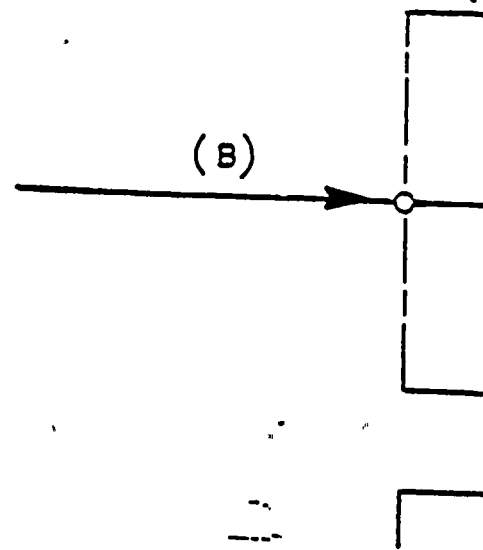
AC BYPASS SOURCE

575 VAC ± 10%
60HZ + 10%, - 5%
3Ø, 3WIRE

TO:

MAINTENANCE SOURCE

575 VAC ± 10%
60HZ + 10%, - 5%
3Ø, 3WIRE



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SNECNO: 1.560-229-004

ENGINEERING DESIGN CHANGE
NEL-050
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FROM:

(B) AC ALTERNATE LINE INPUT TO BYPASS SECTION
(3) PHASES
(1) GROUND

(C) AC INPUT TO VOLTAGE REGULATOR
(3) PHASES
(1) NEUTRAL
(1) GROUND

(D) UPS AC OUTPUT TO CRITICAL LOAD
(3) PHASES
(1) NEUTRAL
(1) GROUND

(E) AC ALTERNATE LINE OUTPUT FROM BYPASS SECTION
(3) PHASES
(1) NEUTRAL
(1) GROUND

TO:

(B) AC ALTERNATE LINE INPUT TO MAINTENANCE SECTION
(3) PHASES
(1) GROUND

(C) AC INPUT TO VOLTAGE REGULATOR
(3) PHASES
(1) NEUTRAL
(1) GROUND

(D) UPS AC OUTPUT TO CRITICAL LOAD
(3) PHASES
(1) NEUTRAL
(1) GROUND

(E) AC ALTERNATE LINE OUTPUT FROM MAINTENANCE SECTION
(3) PHASES
(1) NEUTRAL
(1) GROUND

10/10/10

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8/88

HEL-050

ENGINEERING DESIGN CHANGE

SWECNO: 1.560-229-004

Notes section:

FROM:

- 5. CRITICAL LOAD CABLES TO BE RUN IN SEPARATE CONDUIT FROM AC SOURCE AND BYPASS SOURCE.

TO:

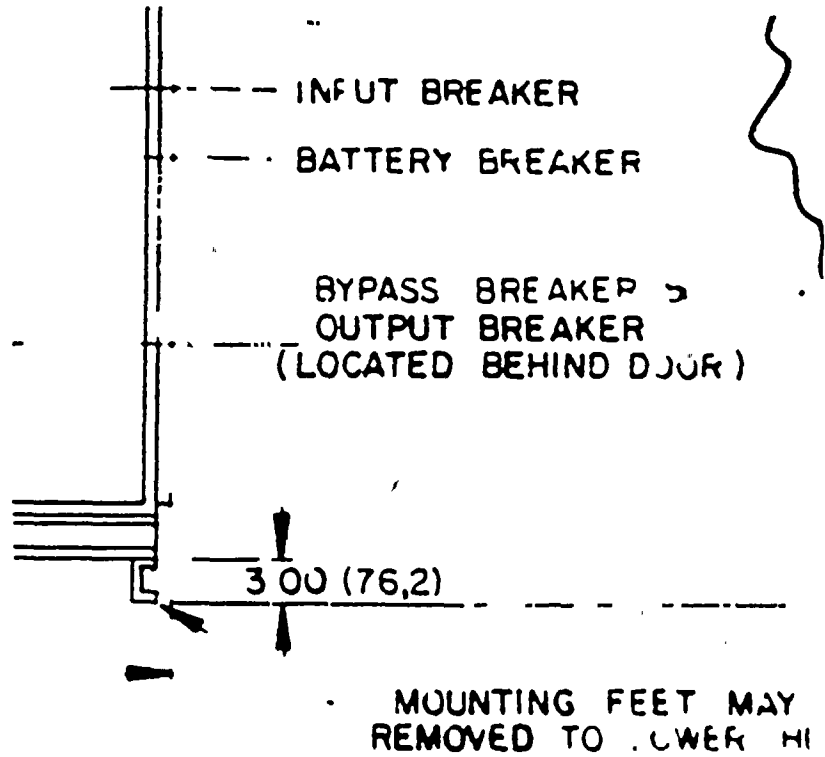
- 5. CRITICAL LOAD CABLES TO BE RUN IN SEPARATE CONDUIT FROM AC SOURCE AND **MAINTENANCE SOURCE**

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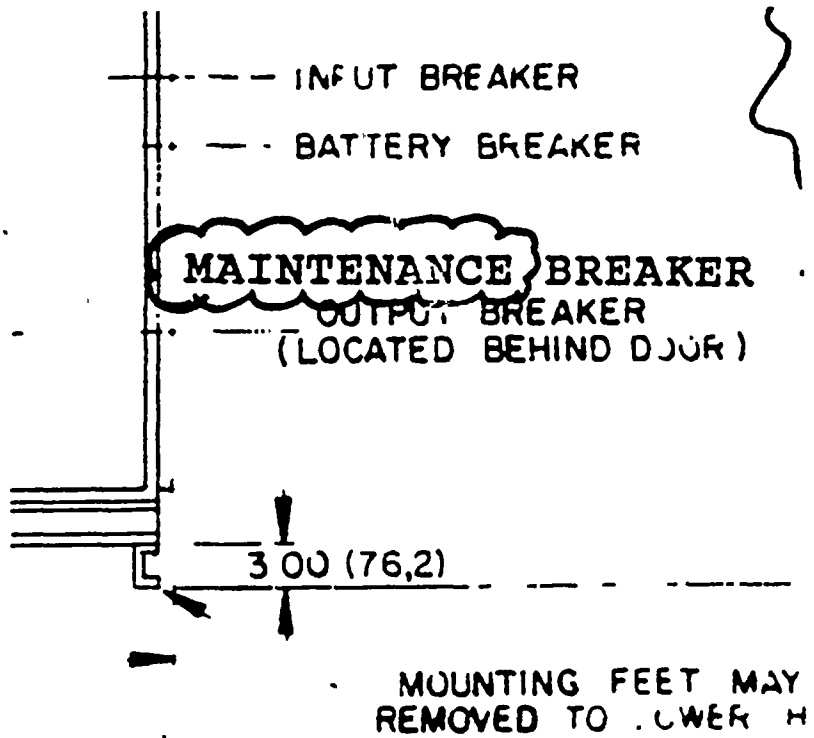


SWECNO 1.560-229-005

FROM:



TO:



ENGINEERING DESIGN CHANGE
HEL-050
8/88

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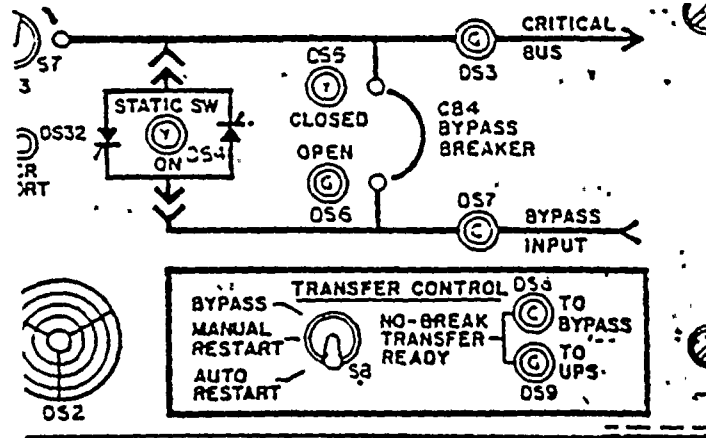


HEL-050 8/88

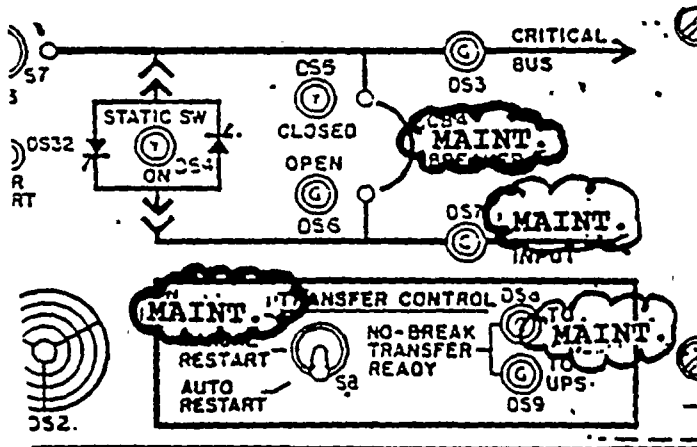
ENGINEERING DESIGN CHANGE

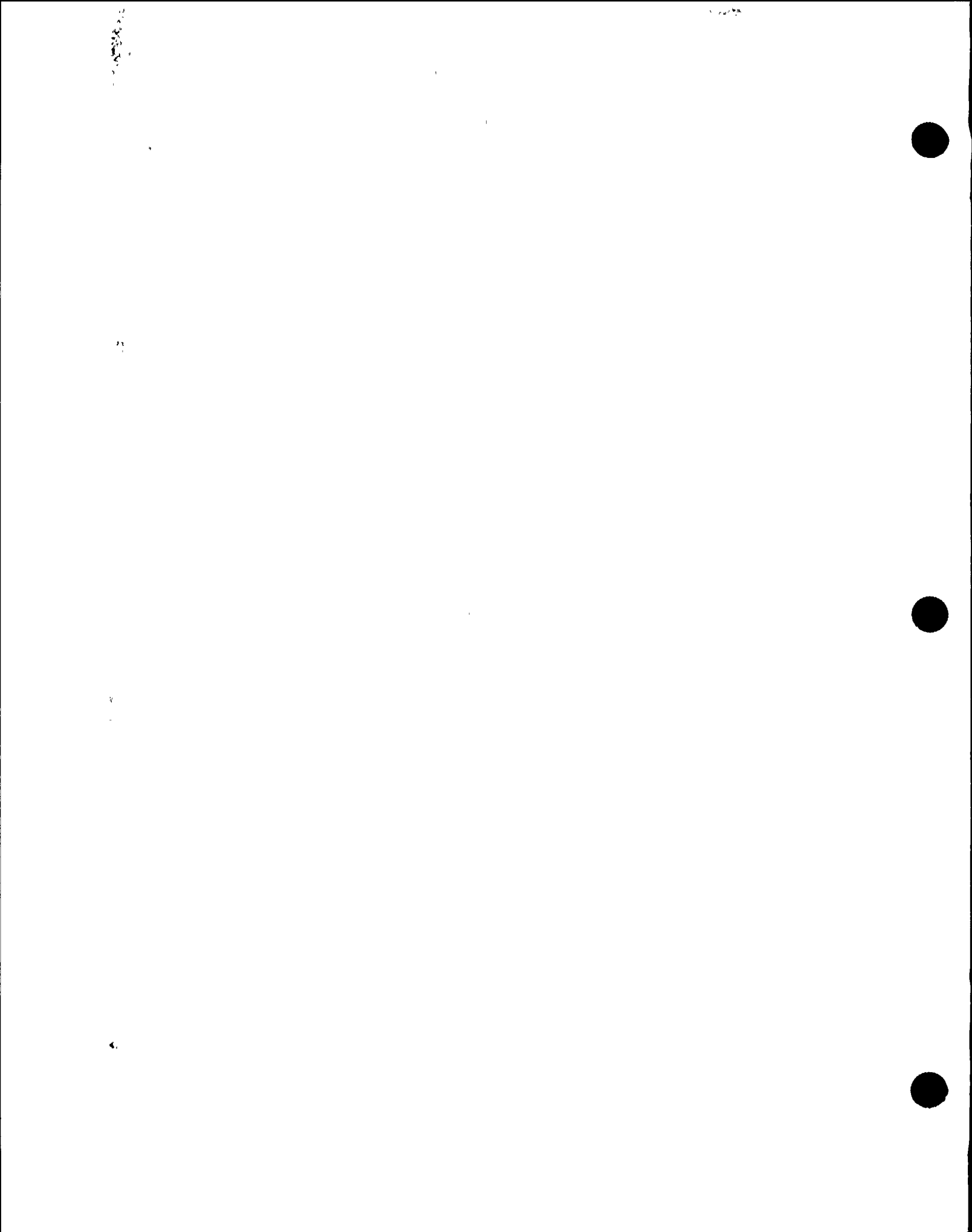
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FROM:



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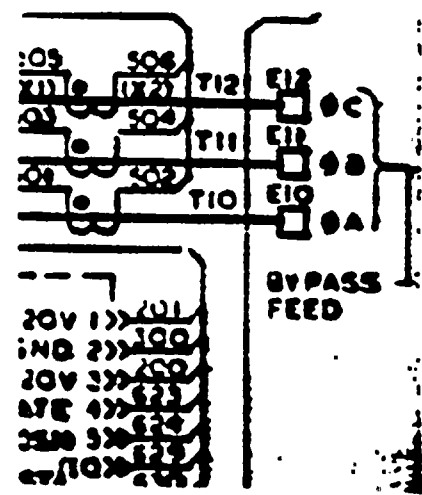


SWECNO: 1.560-229-008

HEL-050

ENGINEERING DESIGN CHANGE

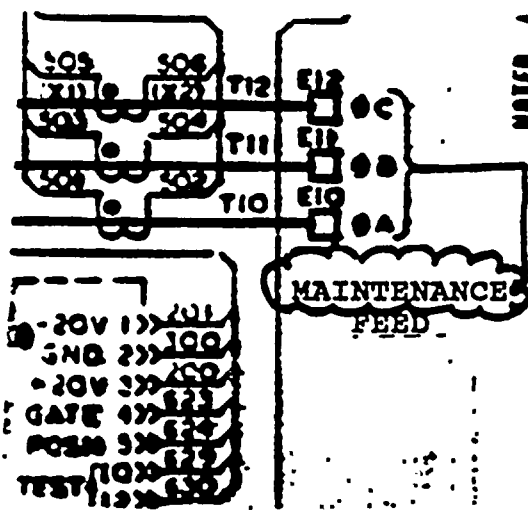
FROM:



NOTED A

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RE	RE	RE	RE

TO:



NOTED A

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RE	RE	RE	RE

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SWELND: 1.560-229-010

FROM:

	AC BYPASS FEED TO NPS (SEE NOTE 1 and 2 SHEET 1)		
	A-B-C PHASE ROTATION REQUIRED)		
		INVERTED	
Phase A		E10 (BYPASS 0A)	Located under top of
Phase B		E11 (BYPASS 0B)	entry plate.

TO:

	MAINTENANCE FEED TO NPS (SEE NOTE 1 and 2 SHEET 1)		
	A-B-C PHASE ROTATION REQUIRED)		
		INVERTED	
Phase A		E10 (BYPASS 0A)	Located under top of
Phase B		E11 (BYPASS 0B)	entry plate.

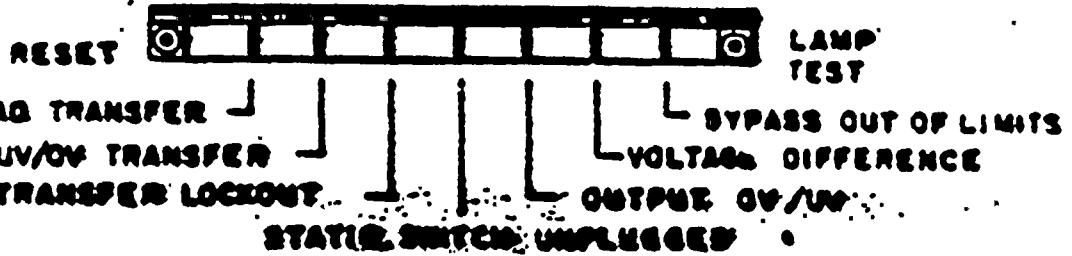
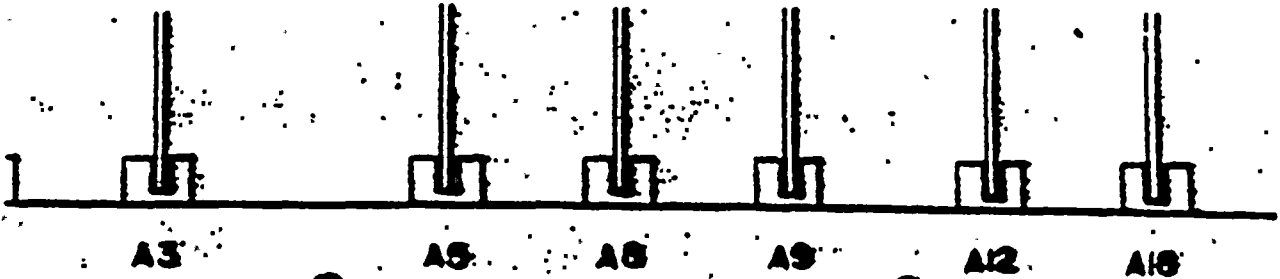
8/88 HEL-050 ENGINEERING DESIGN CHANGE

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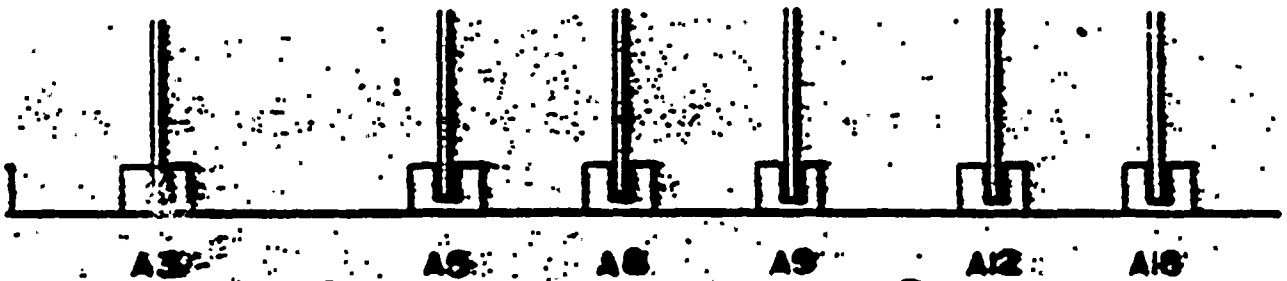


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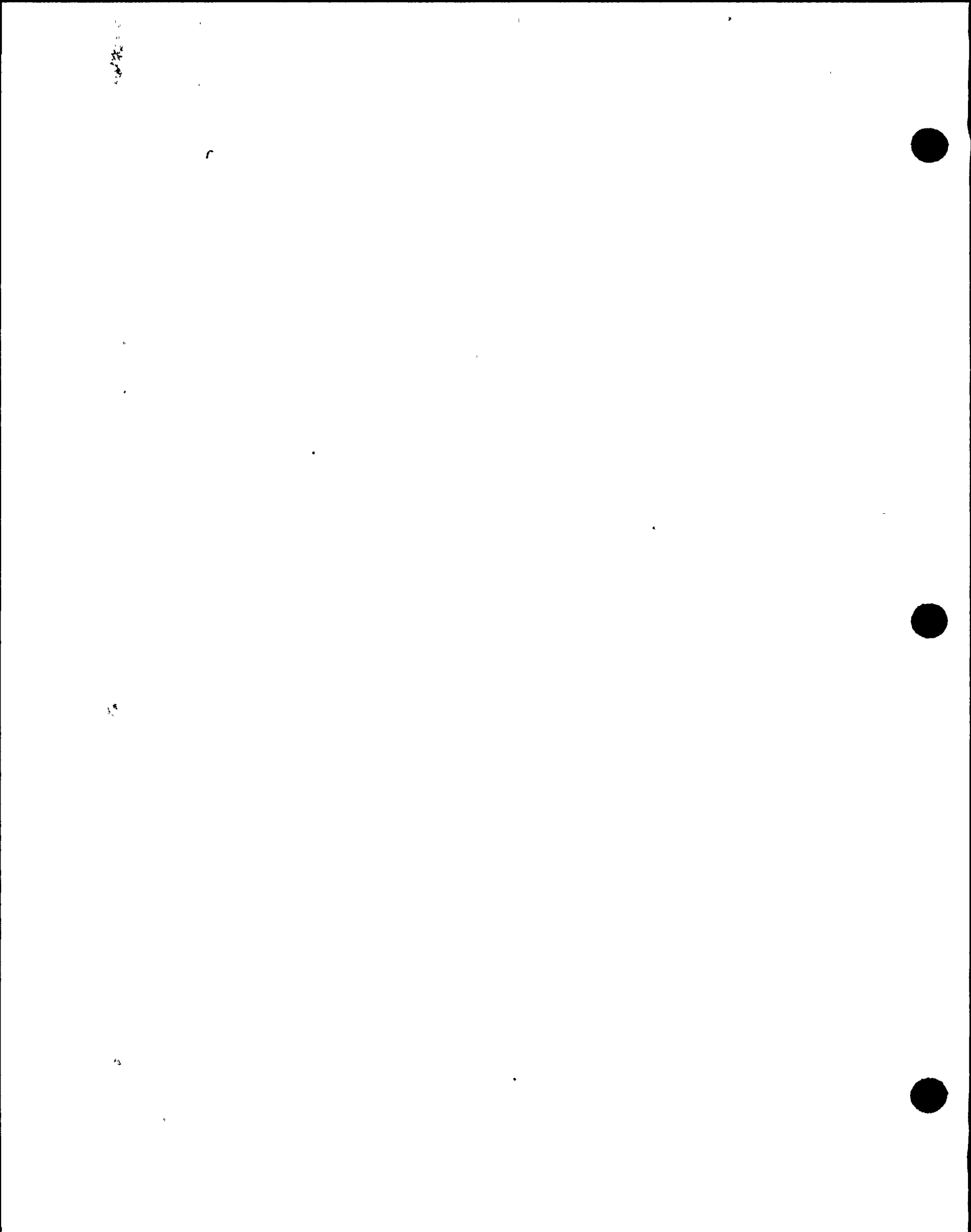
FROM:



TO:



ENGINEERING DESIGN CHANGE HEL-050

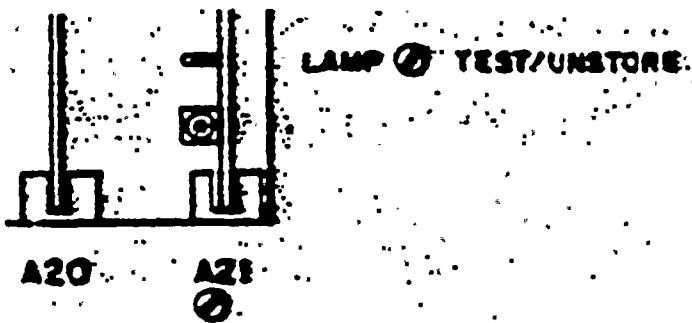


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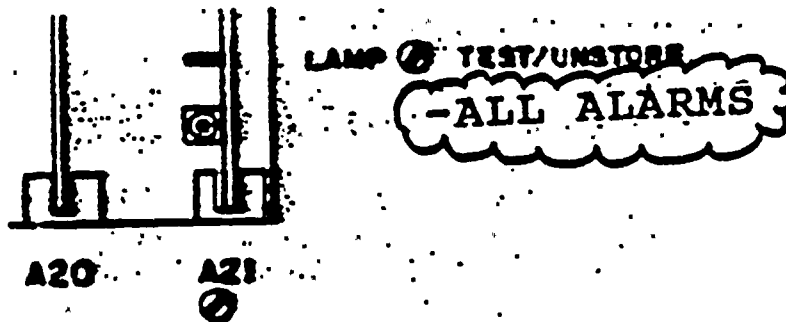
REL-050

ENGINEERING DESIGN CHANGE

FROM:



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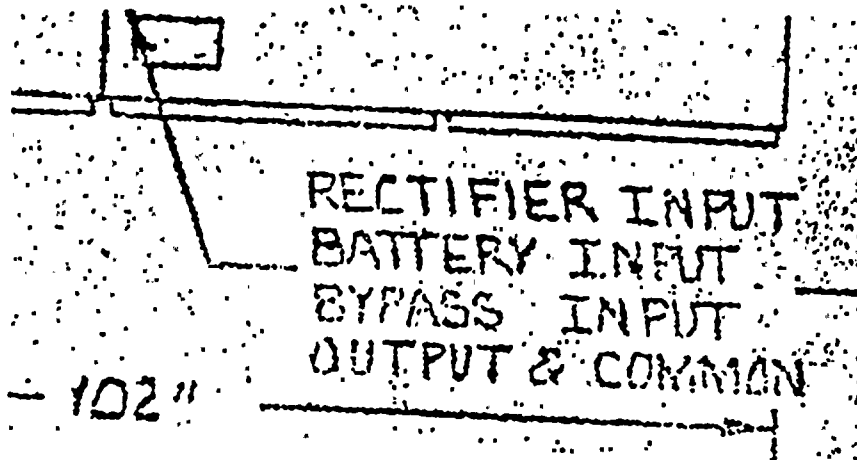
8/88

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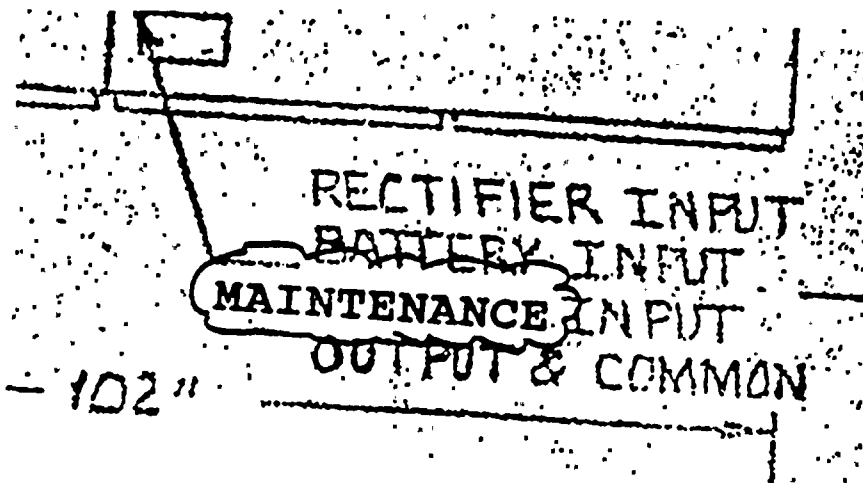
ENGINEERING DESIGN CHANGE

SWECNO: 1.560-229-017

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HEL-050
ENGINEERING DESIGN CHANGE

SWECNO: 1.560-229-017

NOTES SECTION:

FROM:

- B. 120 VAC, 60 AMP, 10, 60 Hz. 150 LUG SIZE
- 4. BYPASS INPUT POWER:
 - A. 575 VAC 68 AMP SERVICE (PLUS XFMR. INZUS
 - B. 2-PIN TERMINAL BLOCK TB4 WILL ACCEPT TWO LUG, TYPE YA-2N.

TO:

- B. 120 VAC, 60 AMP, 10, 60 Hz. 150 LUG SIZE
- 4. MAINTENANCE INPUT POWER
 - A. 575 VAC 68 AMP SERVICE (PLUS XFMR. INZUS
 - B. 2-PIN TERMINAL BLOCK TB4 WILL ACCEPT TWO LUG, TYPE YA-2N.

FROM:

- 10. MANUAL BYPASS SWITCH:
 - ELECTRO SWITCH 2 POSITION 107601K-2AS MAKE BEFORE BREAK

TO:

- 10. MANUAL MAINTENANCE SWITCH:
 - ELECTRO SWITCH 2 POSITION 107601K-2AS MAKE BEFORE BREAK

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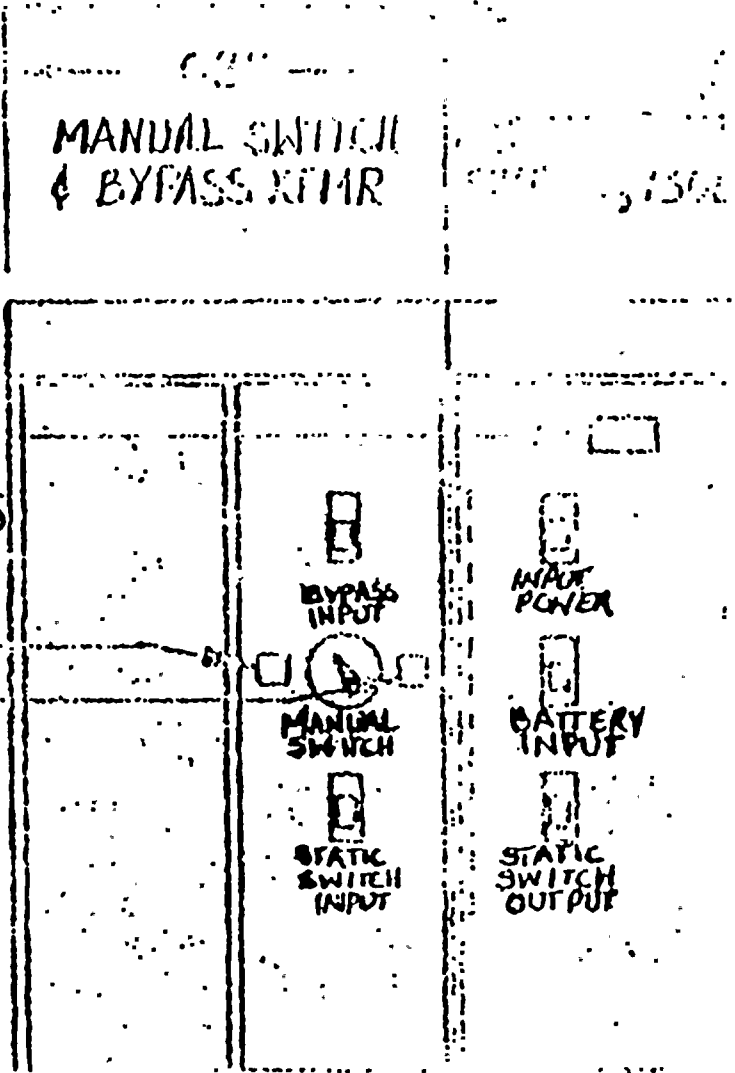
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SW ENO: 1560-229-017
FROM:

EDC
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OF
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NAME PLATE/EQUIP ID #
AND DESIGN CHARACTERISTICS
AS SHOWN BELOW

BYPASS
UPS

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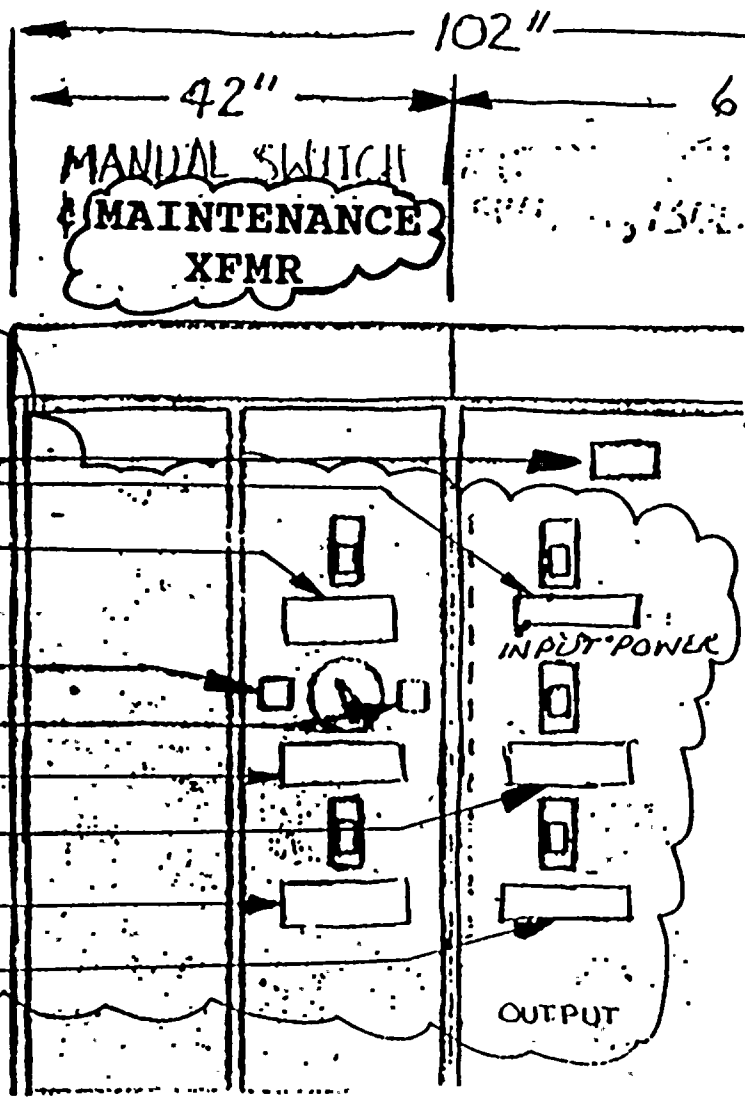
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TO: SWECND: 1560-229-017

NAMEPLATE/EQUIP. ID# AND DESIGN CHARACTERISTICS AS SHOWN BELOW

- CB-51 NORMAL AC INPUT
- CB-1 MAINTENANCE INPUT
- MAINTENANCE
- UPS
- S-5 MANUAL SWITCH
- CB-52 BATTERY INPUT
- CB-2 STATIC SWITCH INPUT
- CB-53 STATIC SWITCH OUTPUT



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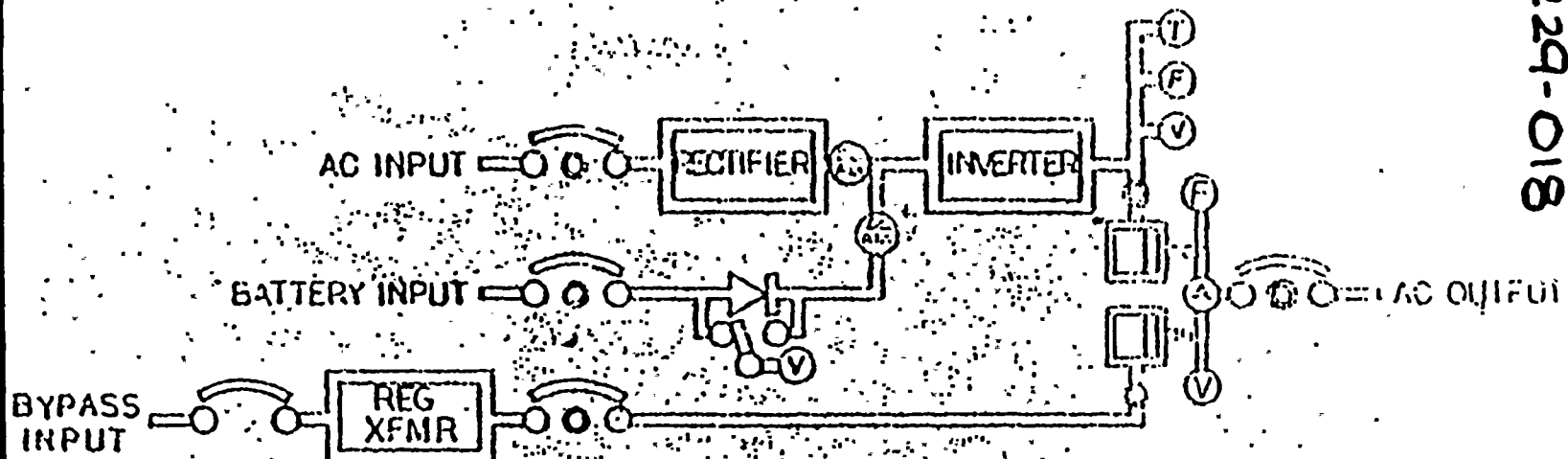


ENGINEERING DESIGN CHANGE HEL-050 8/88

FROM:
SWEENO: 1.560-229-018

EDC NO.	2
REV	1
	0
	1
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REV	

SYMBOL NO. 55-32-387



- | | |
|---------------------|------------------------|
| ○ SYNC LOSS | ○ OVERLOAD |
| ○ INVERTER VOLTAGE | ○ REVERSE TRANSFER |
| ○ INVERTER OVERTEMP | ○ FAN FAIL |
| ○ FUSE BLOWN | ○ RECTIFIER AC LOSS |
| ○ LOW BATTERY | ○ BATTERY DRAIN/CHARGE |
| ○ LOW DC BUSS | ○ RECTIFIER DC GROUND |
| ○ LAMP TEST | ○ DIODE FAIL |

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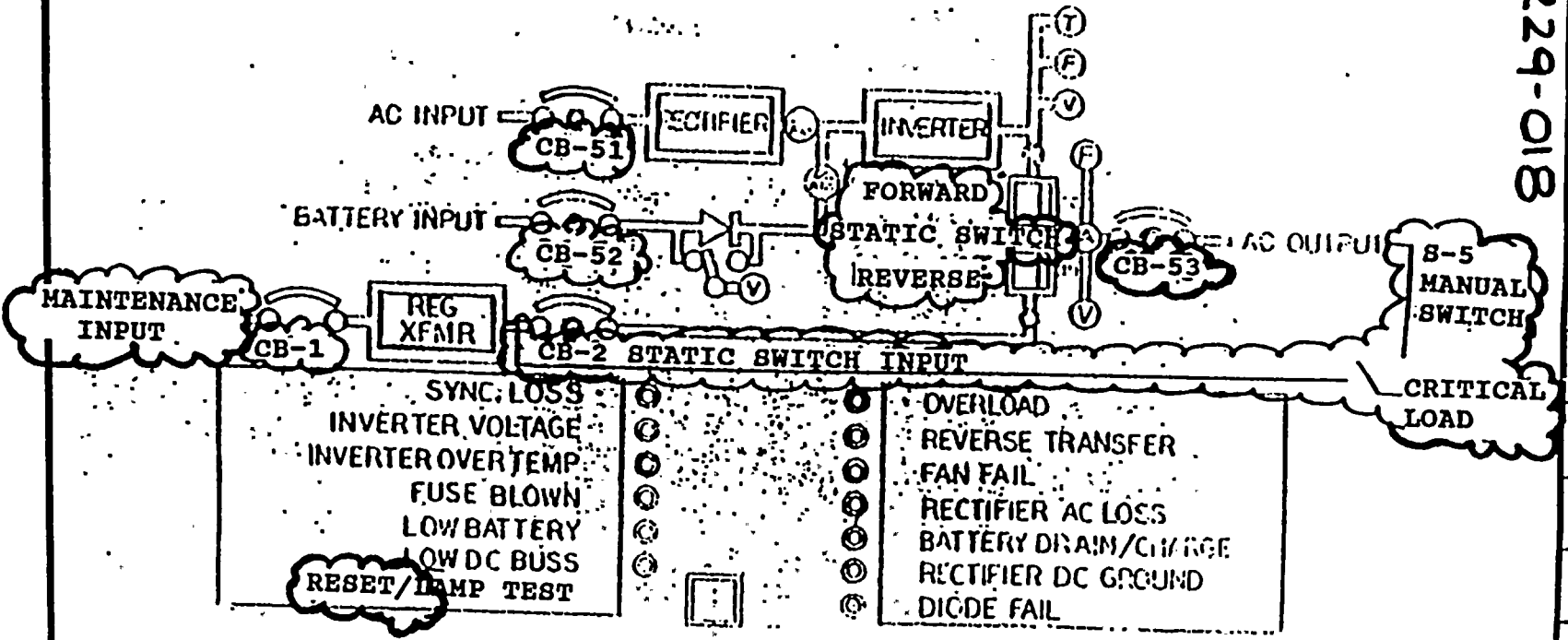
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SWECD NO: 1.560-229-018
TR:

EDC NO.	2
REV	1
	0
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SYMBO NO. 55-32-387



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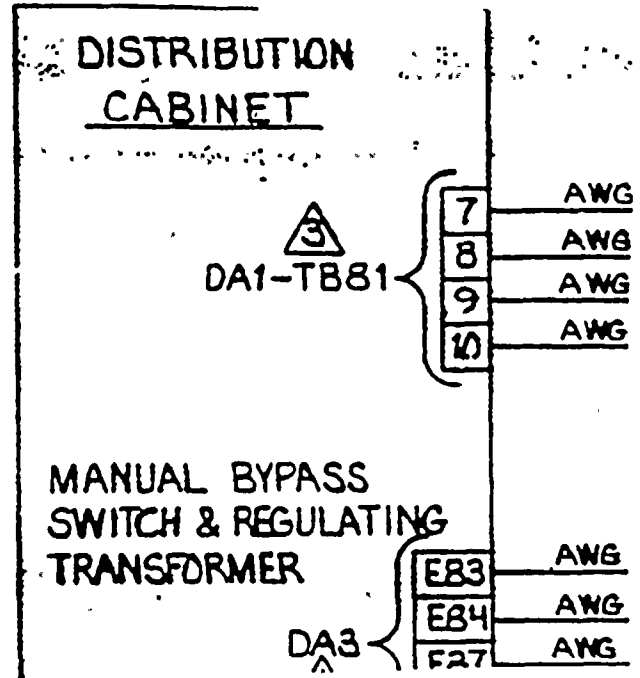
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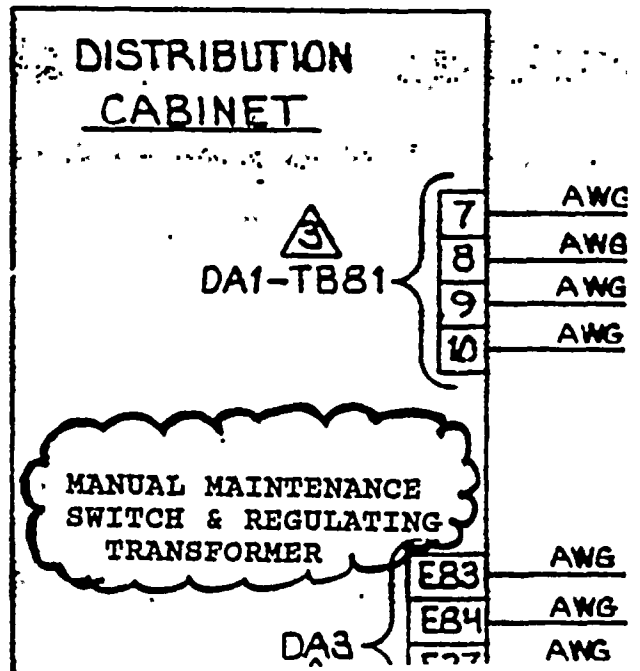


SWECNO: 1.560-229-019 AREA C4

FROM:



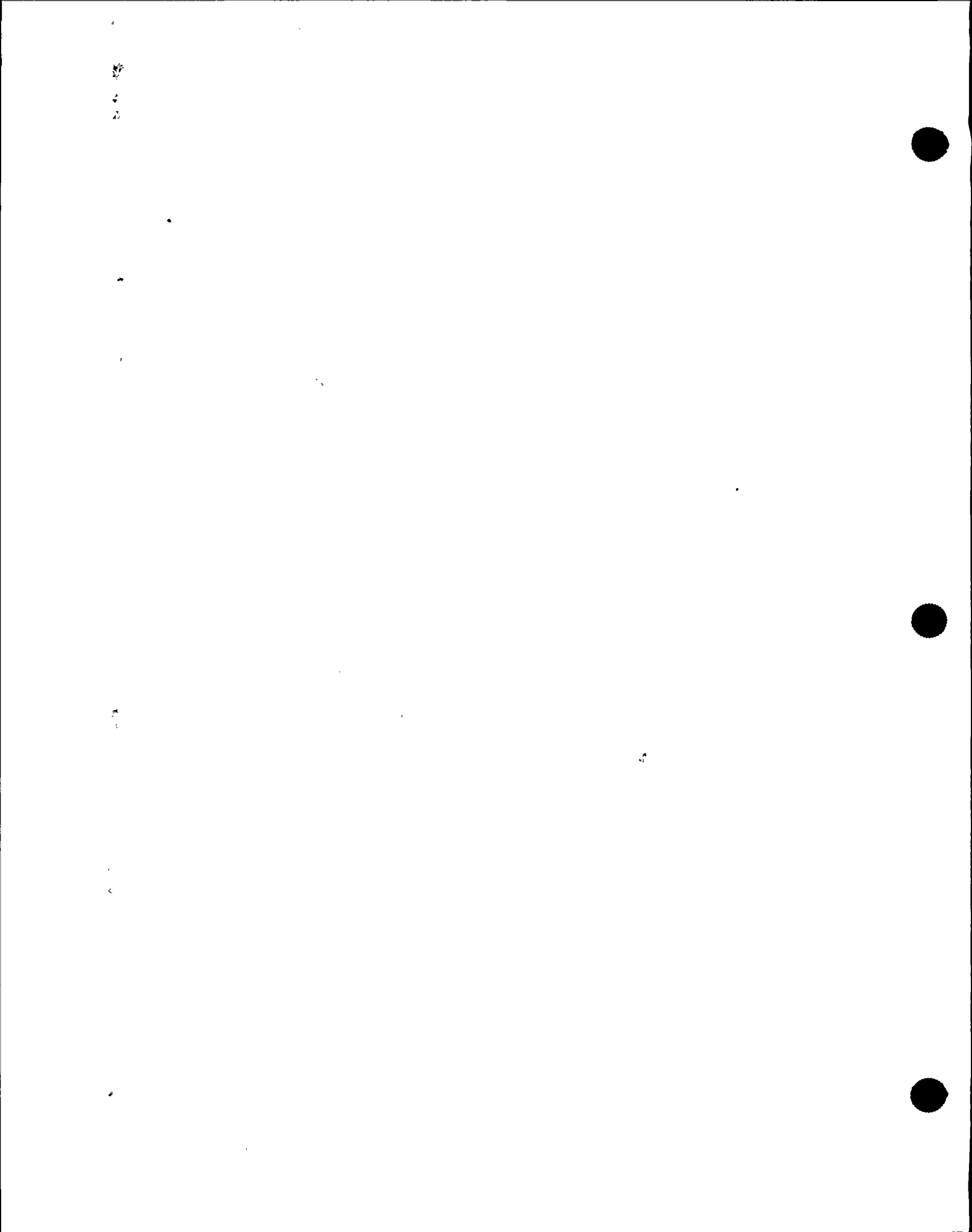
TO:



8/88

HEL-050

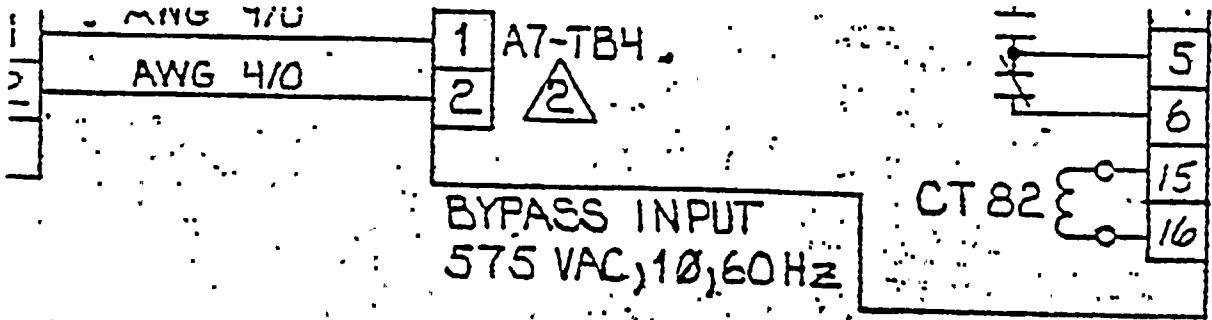
ENGINEERING DESIGN CHANGE



8/88
HEL-050
ENGINEERING DESIGN CHANGE

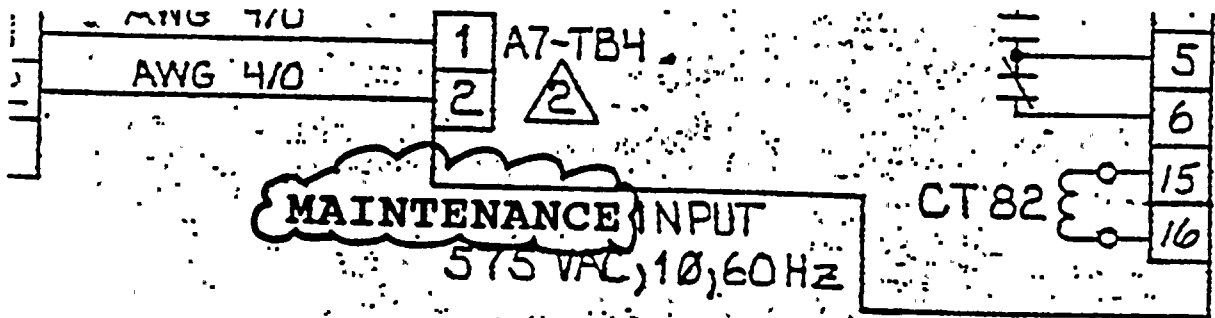
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FROM:



DETAIL "A"

TO:



DETAIL "A"

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SWECNO: 1.560-229-021

FROM:

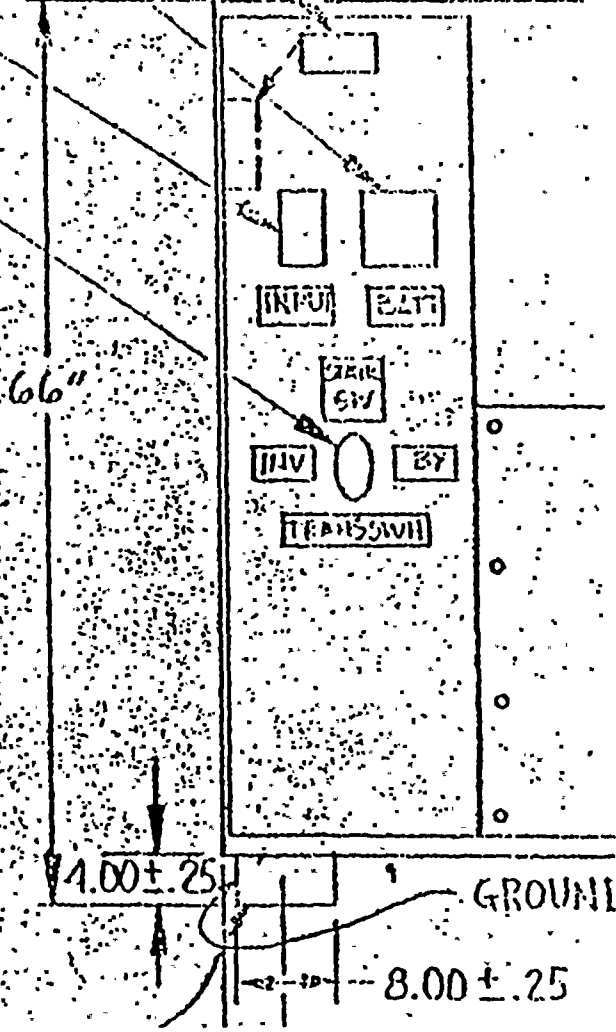
8/88

HEL-050

ENGINEERING DESIGN CHANGE

AC INPUT CKT BRKR
GE TYPE THEDI36050

3 POSITION MANUAL
BYPASS SWITCH ELECTRO
SW TYPE 107-304-LD-38



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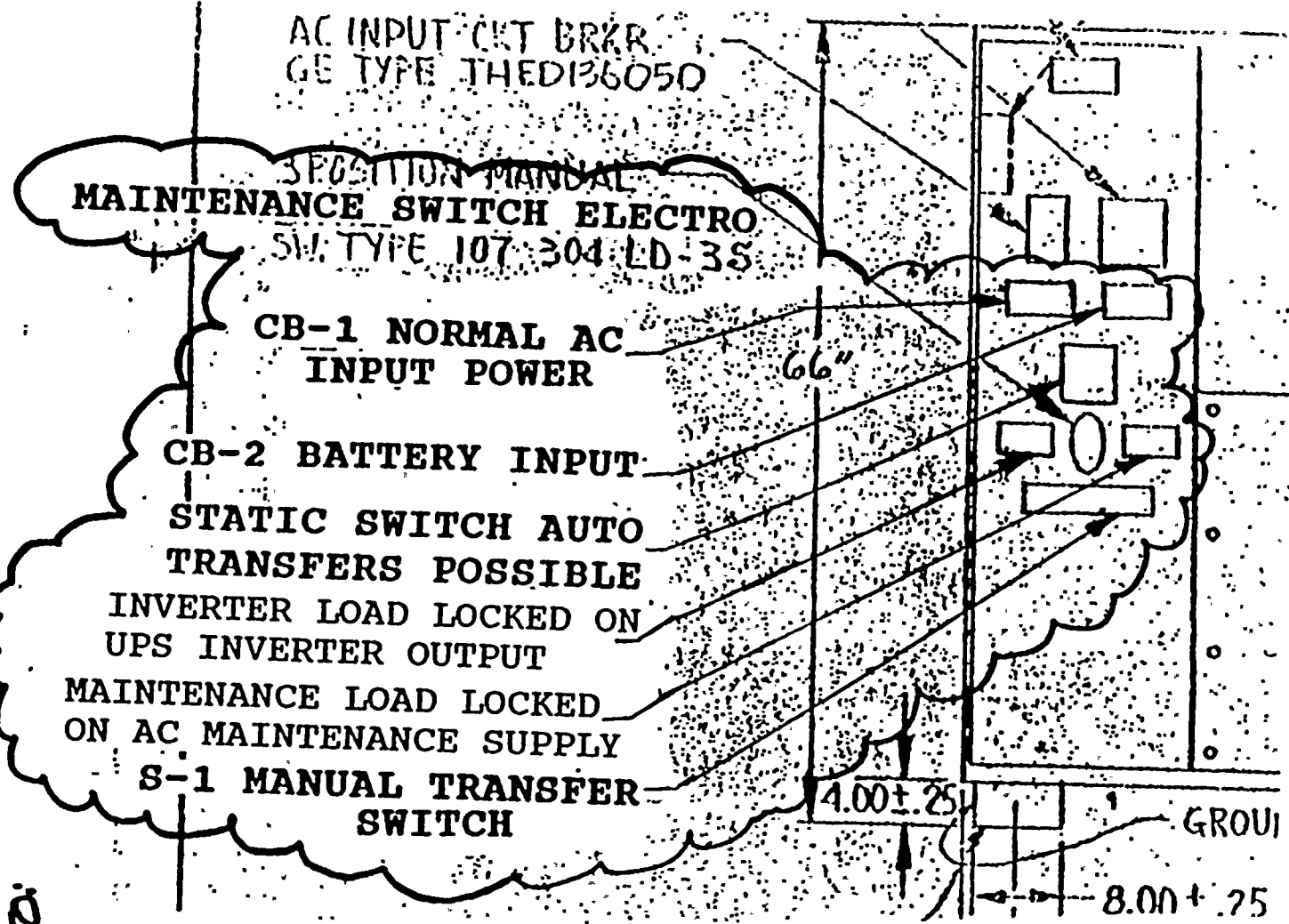
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SWECNO: 1.560-229-021

TD:

ENGINEERING DESIGN CHANGE
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ENGINEERING DESIGN CHANGE
HEL-050 8/88

SWECNO: 1.560-229-021

NOTES SECTION

FROM:

- 4. BYPASS INPUT POWER FROM PLC:
 - A. 120 VAC, 110 AMP, 10, 60HZ. RATED TO SUPPLY SHORT CIRCUIT FOR 20 MS.
 - B. CONNECT TO 2-PIN TERMINAL BLOCK TB4. BUSSMAN

- 11. STATIC TRANSFER SWITCH
 - A. BYPASS POLE PROTECTED BY A 600 AMP FUSE.
 - B. INVERTER POLE PROTECTED BY A 100 AMP FUSE
- 12. MANUAL BYPASS SWITCH, 3 POSITION.
- 13. BYPASS TRANSFORMER: SUPPLIED SEPARATELY (SEE DRAWING)
- 14. EXTERNAL WIRING CONNECTED TO TERMINAL BLOCK TB5 GE TYPE CRISI 82, MARKED 1-34.

TO:

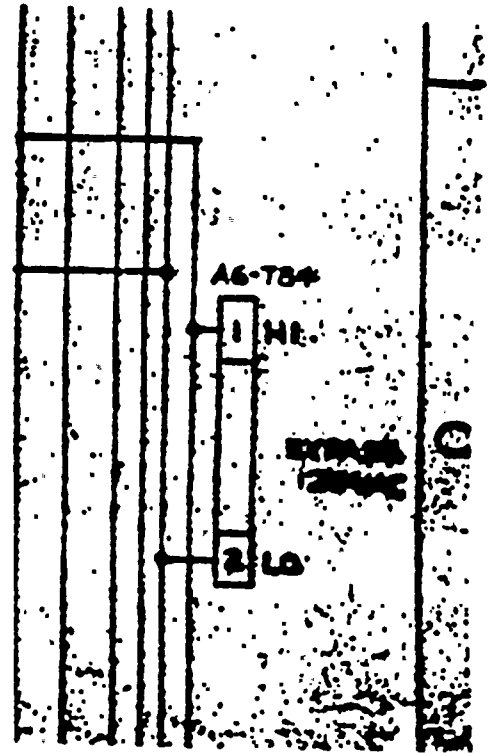
- 4. ~~TYPE 3580 MARKED 1-2~~
MAINTENANCE INPUT POWER FROM PLC:
 - A. 120 VAC, 110 AMP, 10, 60HZ. RATED TO SUPPLY SHORT CIRCUIT FOR 20 MS.
 - B. CONNECT TO 2-PIN TERMINAL BLOCK TB4. BUSSMAN

- 11. ~~STATIC TRANSFER SWITCH~~
MAINTENANCE POLE PROTECTED BY A 600A FUSE -
- 12. ~~MANUAL BYPASS SWITCH, 3 POSITION.~~
MANUAL MAINTENANCE SWITCH, 3 POSITION
- 13. ~~BYPASS TRANSFORMER: SUPPLIED SEPARATELY (SEE DRAWING)~~
MAINTENANCE XFMR SUPPLIED SEPARATELY (SEE DRAWING)
- 14. ~~EXTERNAL WIRING CONNECTED TO TERMINAL BLOCK TB5~~
EXTERNAL WIRING CONNECTED TO TERMINAL BLOCK TB5
GE TYPE CRISI 82, MARKED 1-34.

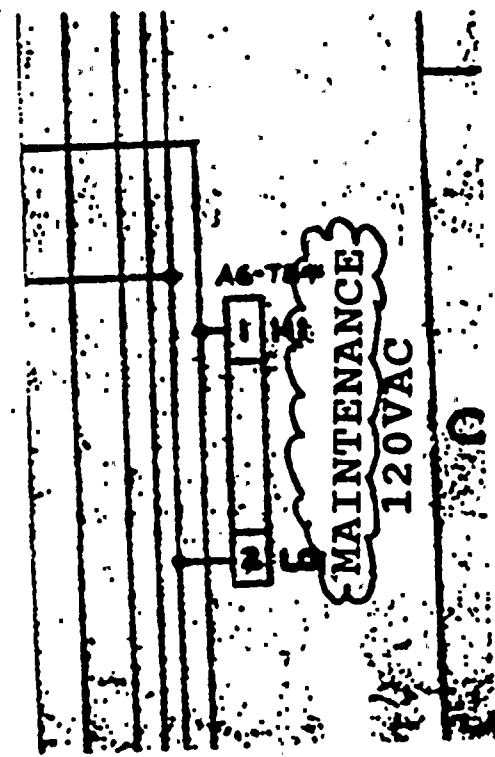
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SWECNO: 1.560-229-024

FROM:



TO:



ENGINEERING DESIGN CHANGE HEL-050 8/88

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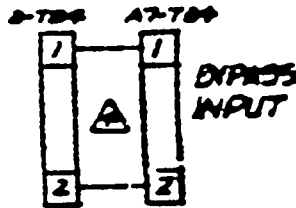
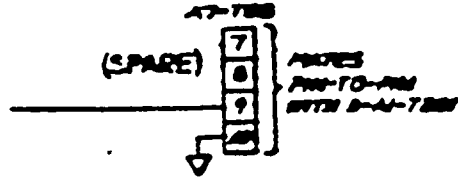


8/88

ENGINEERING DESIGN CHANGE

SWECNO: 1.560-229-026

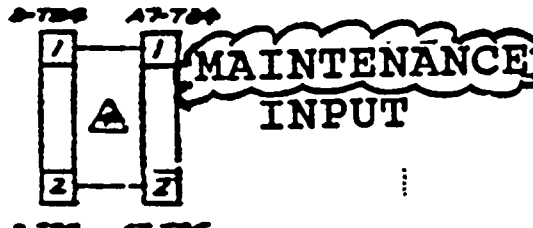
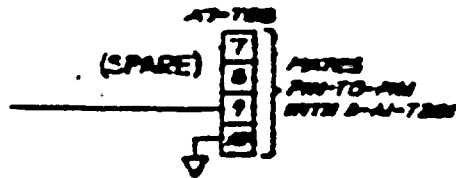
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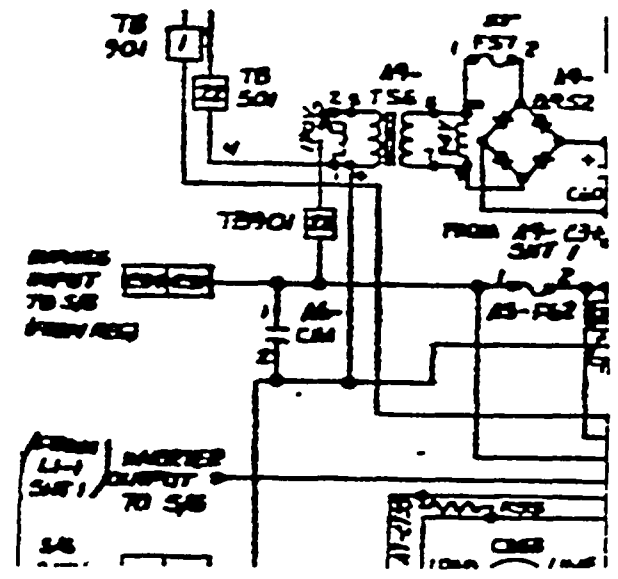
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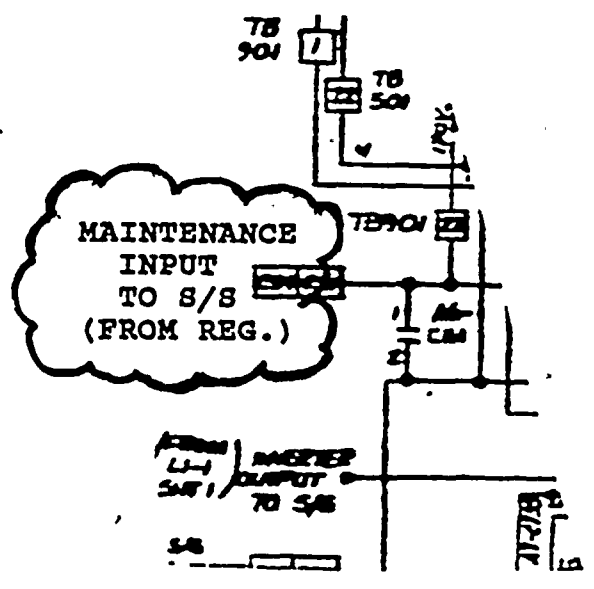
ENGINEERING DESIGN CHANGE HEL-050 8/88

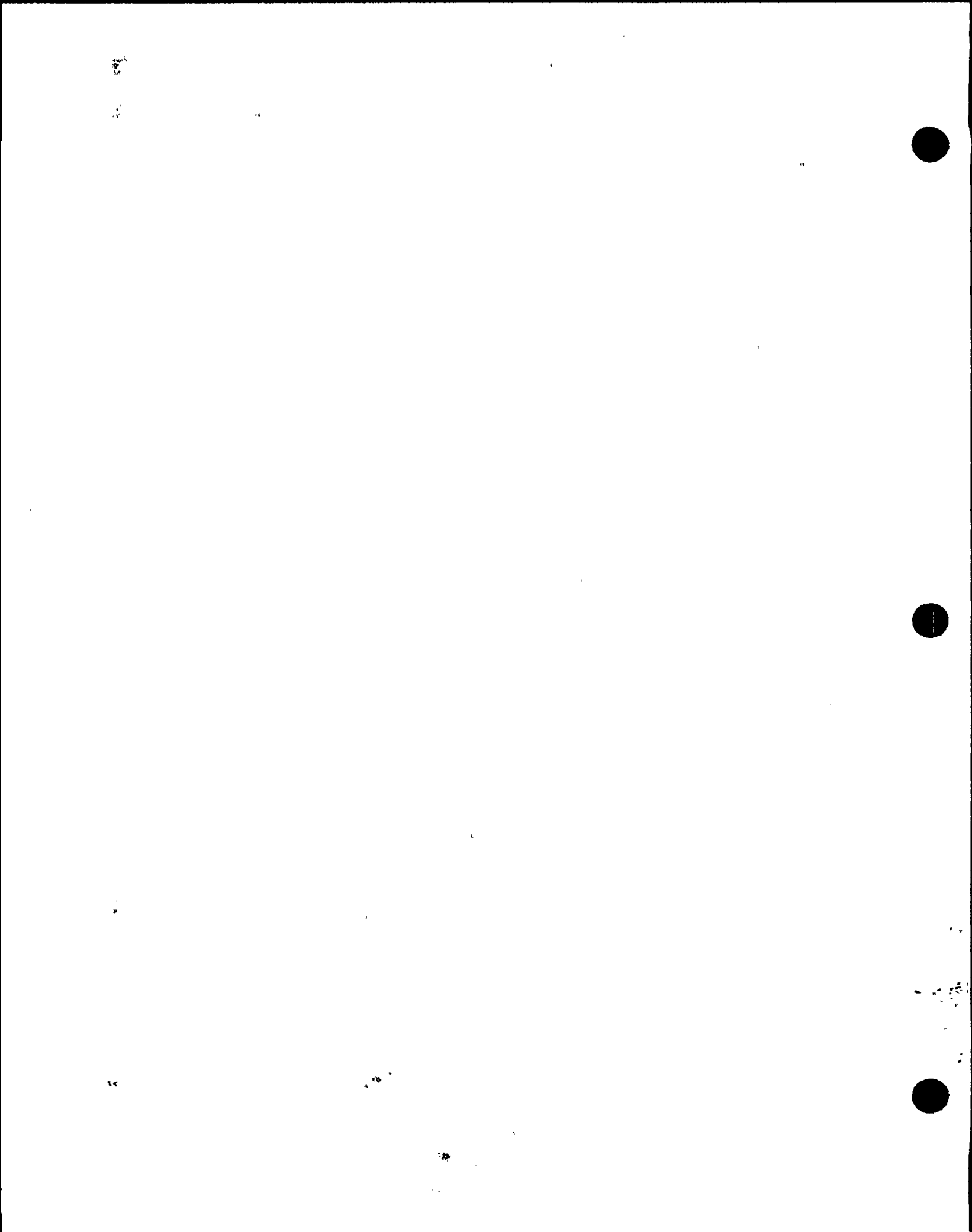
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FROM:



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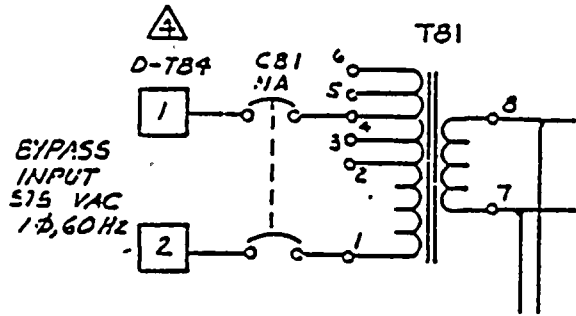
8/88

ENGINEERING DESIGN CHANGE
NEL-050

SWELNO: 1-560-229-027

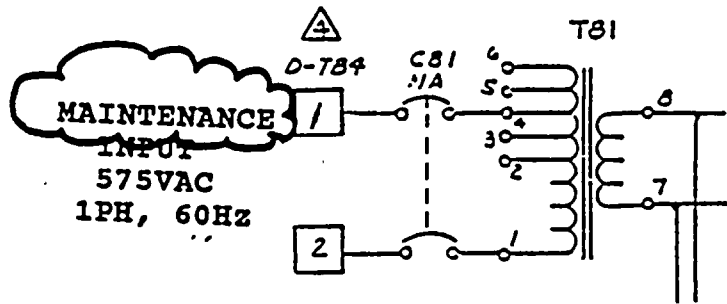
FROM:

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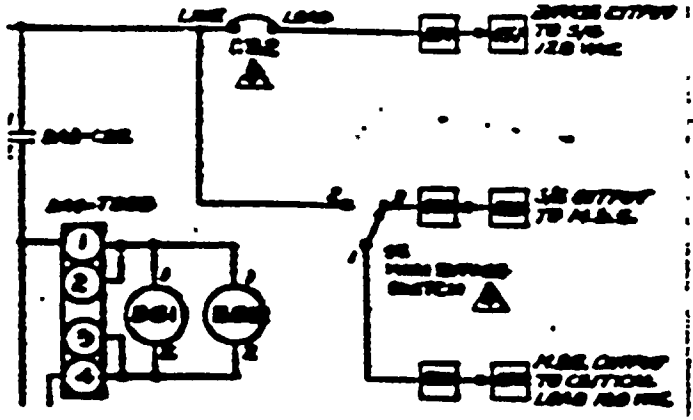
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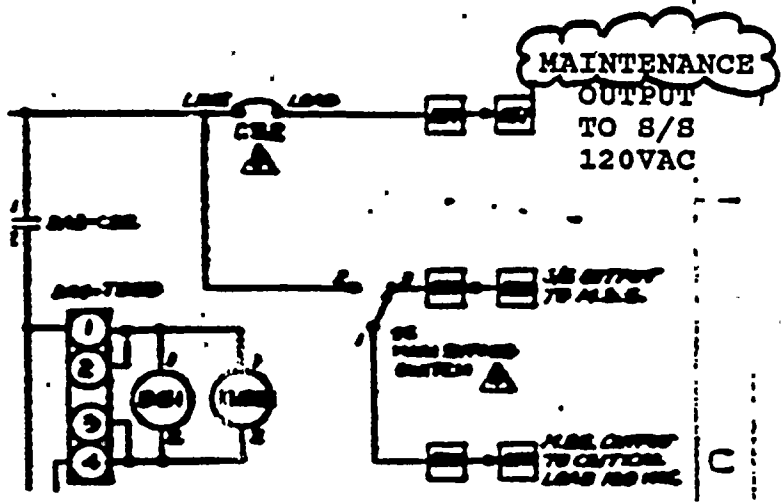
8/88
HEL-050
ENGINEERING DESIGN CHANGE

SWECNO: 1.560-229-027

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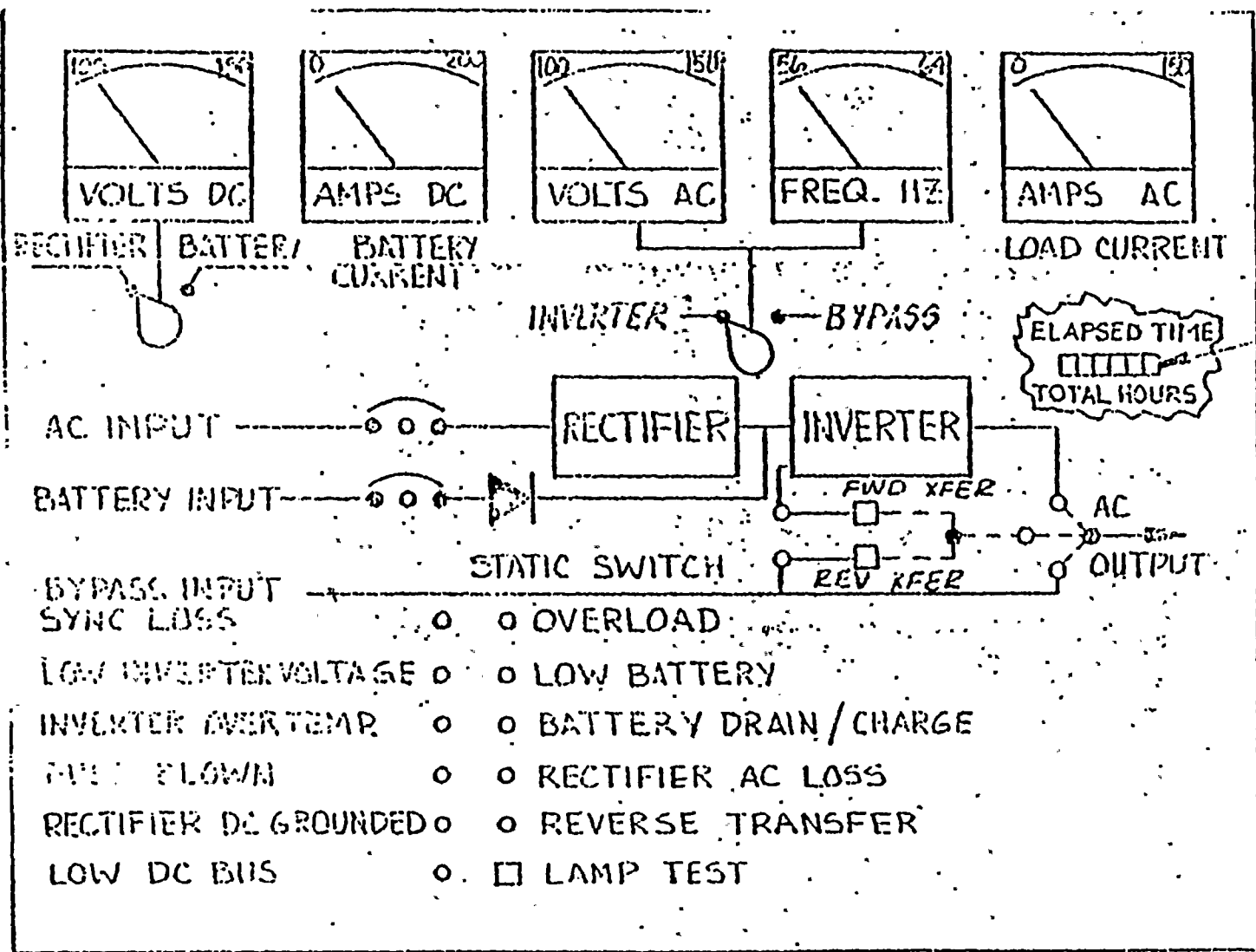


SYMBOL NO. 55-32-387

ENGINEERING DESIGN CHANGE HEL-050 8/88

313-369 N08-88
N I MOHAWK NINE MILE POINT NUCLEAR STATION

FROM:
SWELENO: 1.560-229-028



CONTROL PANEL

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SYMBOL NO. 55-32-387

ENGINEERING DESIGN CHANGE

NEL-050

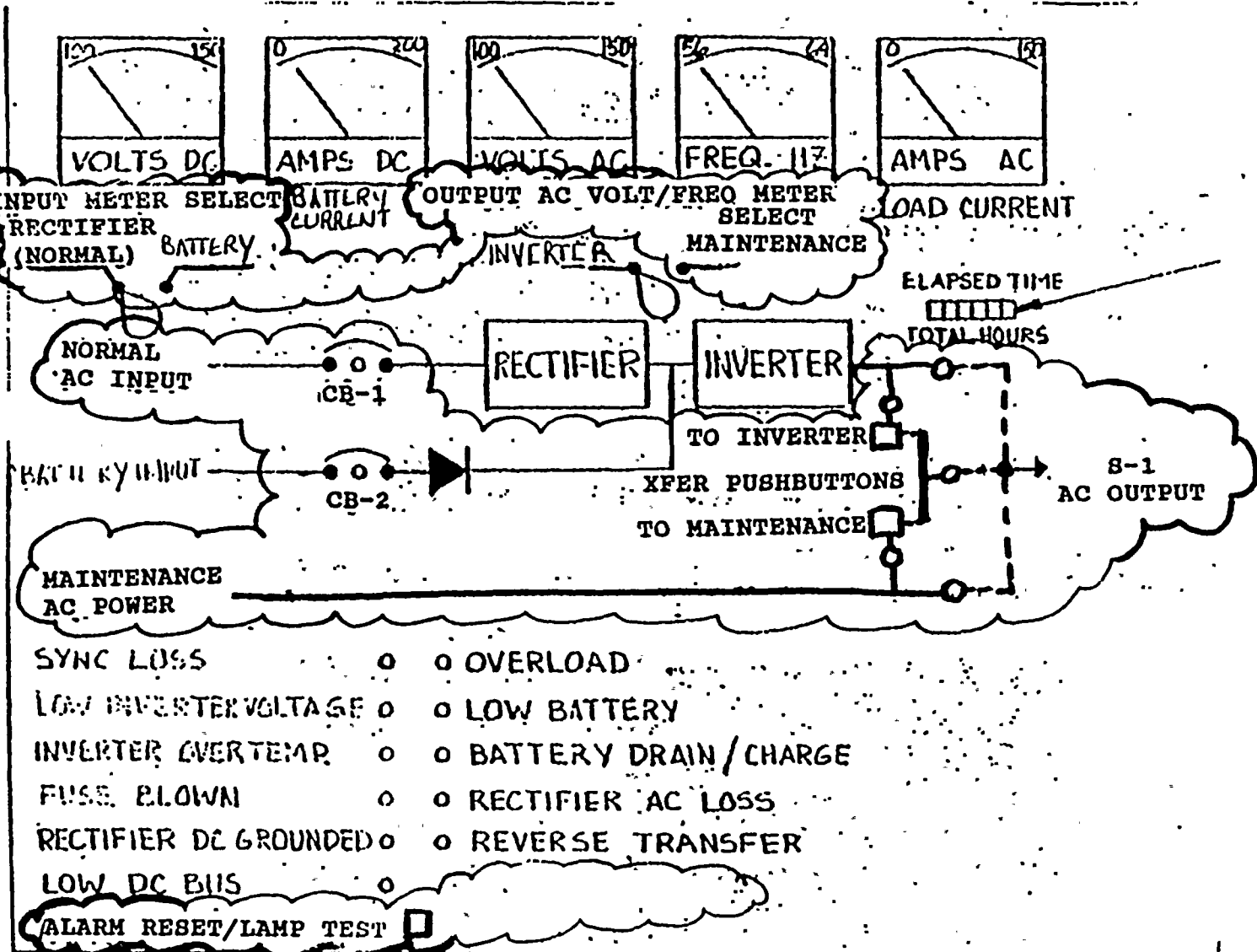
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313-369 NOS-88
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M MOHAWK
 NINE MILE POINT
 NUCLEAR STATION

SMECNO: 1.560-229-028
 TO:

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3	0
	REV

PAGE 29
 OF 33



CONTROL PANEL

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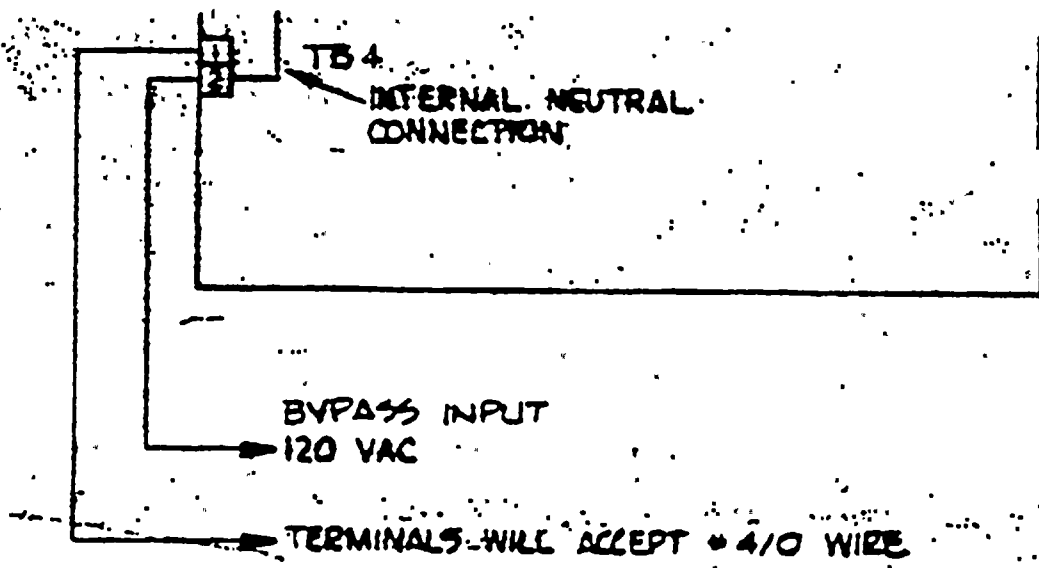
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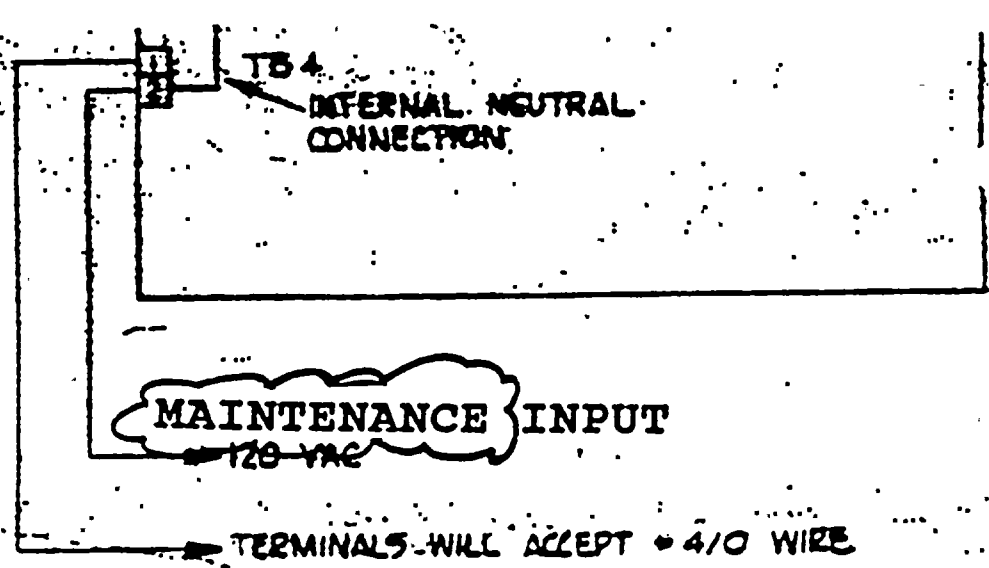
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NEL-050
ENGINEERING DESIGN CHANGE

SNECNO: 1.560-229-029

FROM:



TO:



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8/88
NEL-050
ENGINEERING DESIGN CHANGE

NAMEPLATES SHOULD BE MADE ON
BLACK PLATES WITH WHITE CORE.

NAME PLATES SHOULD BE ATTACHED
WITH ADHESIVE.

FIELD TO ADJUST DIMENSIONS OF
NAMEPLATE AND LETTERING TO
PARTICULAR FIELD CONDITIONS.

WHEN REPLACING A NAMEPLATE
WHERE POSSIBLE REMOVE EXISTING
NAMEPLATE OR LABEL.



AFFECTED VENDOR MANUALS:

N2E20900IPWSUP001, N2E20900IPWSUP002, N2E35600IPWSUP001

INSERT AFTER TABLE OF CONTENTS THE FOLLOWING:

REFERENCES TO "BYPASS" MAY ALSO BE REFERRED TO AS "MAINTENANCE" TO CORRESPOND WITH LABELING CHANGES IN THE FIELD PER EDC 2E10130.

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ELECTRICAL CHECKLIST FOR POTENTIAL AFFECT ON DESIGN DOCUMENTS

CHECKLIST NUMBER = ECL 2-90000
 EDC NO. & REV. = 2E10130

PREPARED BY: A. Heald / Date 2-8-90
 CHECKED BY: E. Lapierre / Date 3-12-90

The following items will be addressed prior to issue of electrical design documents:

- | | | |
|--|--------------------------------------|-------------------------------------|
| 1. Parent document revision checked | <input checked="" type="radio"/> YES | <input type="radio"/> NO |
| 2. Open documents against parent document checked | <input checked="" type="radio"/> YES | <input type="radio"/> NO |
| 3. Parent document responsible discipline code checked | <input checked="" type="radio"/> YES | <input type="radio"/> NO |
| 4. Parent document update category checked | <input checked="" type="radio"/> YES | <input type="radio"/> NO |
| 5. FSAR text reviewed for changes | <input checked="" type="radio"/> YES | <input type="radio"/> NO |
| 6. FSAR tables reviewed for changes | <input checked="" type="radio"/> YES | <input type="radio"/> NO |
| 7. FSAR FIGS. reviewed for changes | <input checked="" type="radio"/> YES | <input type="radio"/> NO |
| 8. FMEA FSAR affected | <input checked="" type="radio"/> YES | <input checked="" type="radio"/> NO |
| 9. Technical Specification reviewed for changes | <input checked="" type="radio"/> YES | <input type="radio"/> NO |
| 10. 50.59 checklist or Safety evaluation completed | <input checked="" type="radio"/> YES | <input type="radio"/> NO |
| 11. Restricted equipment list reviewed <i>addition of labeling only.</i> | YES | <input checked="" type="radio"/> NO |

If any answer to questions 1 thru 11, "NO", please explain

8. FMEA not affected

- | | | |
|--|--------------------------------------|-------------------------------------|
| 12. Appendix 'B' determination required | YES | <input checked="" type="radio"/> NO |
| 13. Vendor drawings affected <i>change via EDC</i> | <input checked="" type="radio"/> YES | <input type="radio"/> NO |
| 14. Vendor instruction manual affected <i>change via EDC</i> | <input checked="" type="radio"/> YES | <input type="radio"/> NO |
| 15. Bill of material drawing affected TAKEN CARE OF | YES | <input checked="" type="radio"/> NO |
| 16. Wiring drawing affected | YES | <input checked="" type="radio"/> NO |
| 17. Panel layout drawing affected | YES | <input checked="" type="radio"/> NO |
| 18. Panel Bill of material drawing affected | YES | <input checked="" type="radio"/> NO |

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19. Electrical single line drawing affected	YES	(NO)
20. ESK's affected	YES	(NO)
21. LSK's affected	YES	(NO)
22. P&ID affected	YES	(NO)
23. Protective relay setting drawing affected	YES	(NO)
24. Annunciator elementary diagram affected	YES	(NO)
25. Annunciator window engraving affected	YES	(NO)
26. Human factors manual review/change required	YES	(NO)
27. System descriptions affected	YES	(NO)
28. Engineering specifications affected	YES	(NO)
29. Installation specifications affected	YES	(NO)
30. Electrical penetration assembly drawing affected	YES	(NO)
31. Any A.C. electrical load added/changed	YES	(NO)
32. Any electrical calc. affected	YES	(NO)
33. Any D.C. loads added/changed to batteries	YES	(NO)
34. Battery load calc. affected	YES	(NO)
35. Any loads added/changed to diesels	YES	(NO)
36. Diesel loading calc. affected	YES	(NO)
37. Any non 1E loads supplied from class 1E buses	YES	(NO)
38. Isolation devices considered for non 1E loads	YES	(NO)
39. Any cable added/changed/deleted	YES	(NO)
40. Cable schedule affected	YES	(NO)
41. Any raceway added/changed/deleted	YES	(NO)
42. Raceway schedule affected	YES	(NO)
43. Any new load added to the ESK control circuit	YES	(NO)
44. Control transformer rating affected	YES	(NO)



- | | | |
|--|-----|------|
| 45. Control circuit fuse rating affected | YES | (NO) |
| 46. Starter size affected | YES | (NO) |
| 47. Minimum cable size for starter affected | YES | (NO) |
| 48. Motor overload heater affected | YES | (NO) |
| 49. VBS load list affected | YES | (NO) |
| 50. PGCC fuse list affected | YES | (NO) |
| 51. Motor overload heater list affected | YES | (NO) |
| 52. Parts procurement required for Unit 2 simulator | YES | (NO) |
| 53. Critical drawings affected | YES | (NO) |
| 54. GE PGCC wire list affected | YES | (NO) |
| 55. Remote shutdown panel affected | YES | (NO) |
| 56. Isolator data base affected | YES | (NO) |
| 57. LOOP diagram affected | YES | (NO) |
| 58. TLD affected | YES | (NO) |
| 59. Set point data sheet (SPDS) changed | YES | (NO) |
| 60. Set point calculation performed/changed | YES | (NO) |
| 61. LOOP calibration report (LCR) affected | YES | (NO) |
| 62. PMS computer I/O List (IHC-4) affected | YES | (NO) |
| 63. Radwaste computer I/O List (LWS-120) affected | YES | (NO) |
| 64. Annunciator data base (IHS-20) affected | YES | (NO) |
| 65. ERF/SPDS/EOP impacted | YES | (NO) |
| 66. R.G. 1-97 impacted | YES | (NO) |
| 67. Site engineering notification required for red lining of critical drawings (Non-Mod. EDC's only) | YES | (NO) |

If any answer to questions 25 thru 67 'Yes', please resolve before issuing design documents.

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NZE20900IPWSUP001

DESCRIPTION OF CHANGE

CHANGE TYPE: HARDWARE/INSTALLATION, DOCUMENTATION ONLY

MODIFICATION PNZY87MX037 requires UPS/PLC to be modified to include fuse blown indication and transient suppression. THIS modification will VOID EDCR C47372A.

FOR INFORMATION ONLY

TO REFLECT THE CHANGES TO THE UPS/PLC THE MANUAL WILL BE UPDATED PER THIS EDC.

J.U. NO. 12101

OCT 01 1988

STONE & WEBSTER

CONTROLLED

LFO12

SOURCE OF CHANGE

- APPROVED MOD, DESIGN IMPLEMENTATION PROBLEM, LICENSING CONCERN, FIELD NONCONFORMANCE/UNSA, AS-BUILT UPDATE, DESIGN ENHANCEMENT

REFERENCE MOD No. PNZY87MX037 DOCUMENTS PR No. NA

SYSTEM ID VBA SAFETY CLASS SR

EQ: YES, NO, SEISMIC: YES, NO, MEL: NO, YES... SEE PAGE 2, LICENSING: YES, NO, ASME: NO, YES..ANII

PREPARED BY ANGELA FREEDLAND 9/28/88 PHONE/DATE 7223/82988 APPROVED BY K. J. IVE/JRB 9/30/88

ACCEPTED BY/DATE NA SA CONCURRENCE/DATE N/A

MOD - CLO FILE/DATE NA RELEASED BY/DATE NTF 2-88-041-REV.0 10-1-88

IMPLEMENTATION PREREQUISITES: NO YES -- DO AFTER OR CONCURRENT

WITH EDCS

NINE MILE POINT NUCLEAR STATION

ENGINEERING DESIGN CHANGE (EDC)

CODE N12200

NIAGARA MOHAWK ELECTRICAL

RECORD TYPE 02.40

N20349

FOR INFORMATION ONLY

DOCUMENT IS CHANGED IN ONE TIME ONLY CHANGE TO BE POSTED CONT'D-PAGE

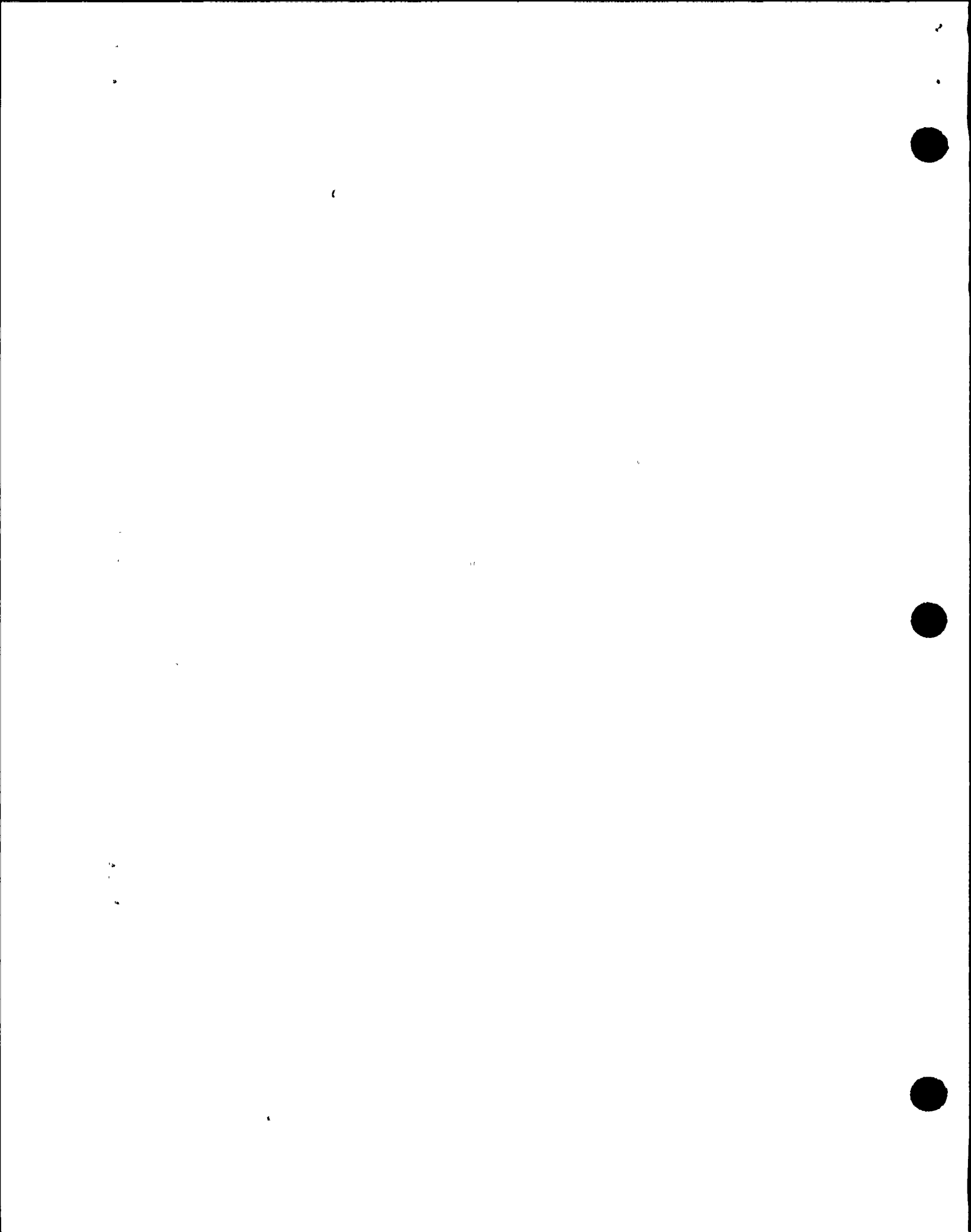
ENGINEERING DESIGN CHANGE (EDC)

MEL:

2VBA*UPSZA
2VBA*LIPSZB

SEE PO 64836 TO REFERENCE
QUALIFICATION REPORT
COFC'S

NINE MILE POINT NUCLEAR STATION



FROM:

EDC 2E10007
PAGE 3 OF 50

3-9

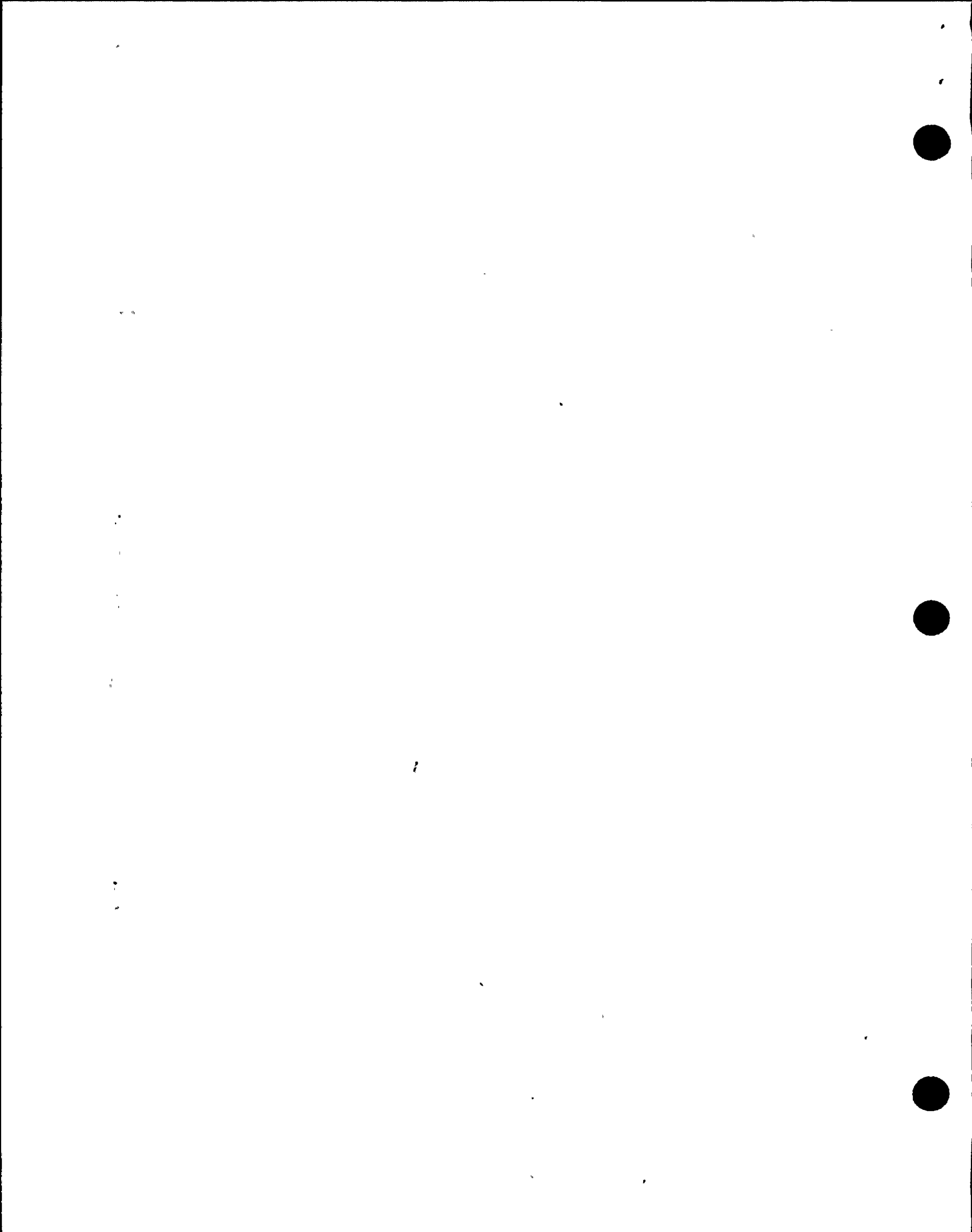
LIST OF DRAWINGS

a. Schematic Diagrams & Assembly Drawings

Installation Drawings	543-514-70
Overall Schematic	543-625-60
Inverter Panel Schematic	643-523-60
DC-DC Converter Schematic	6490008, 5490008
SS Drive Board Schematic	642-106-60, 642-106-40
SCR Gate Drive Board Schematic	6490009, 5490009
Alarm Logic Schematic	6490006, 5490006
Charger "A" Logic Schematic	6490018, 5490018
Charger "D" Logic Schematic	6490019, 5490019
Static Switch Logic Schematic	6490002, 5490002
Oscillator PCB ± 5 Hz Fixed Schematic	643-119-60, 643-119-40
PWM Analog Logic Schematic	6490030, 5490030
10 3 Bridge PWM Logic Schematic	6490014, 5490014
10 3 Bridge PWM Drive Board Schematic	6490001, 5490001
Fuse Sense Board Schematic	6430002, 5430002
Fuse Sense Board Schematic	528-137-61, 628-137-41
Lamp Board Schematic	643-628-60, 643-628-40
Card Cage Backplane	6490024, 5490015
Transducer Schematic	6490016, 5490016
Current Transducer Board Schematic	6430008, 5430008
Relay Drive Board Schematic	633-270-60, 633-270-40
Line Regulator Control Schematic	548-100-60, 643-100-40
S.T. Drive Board Schematic	548-101-60, 648-101-40

b. Panel Assembly Drawings

Top Assembly	543-625-40
Inverter Panel Assembly	643-523-40
Inverter Panel Assembly	643-524-40
UPS Cabinet Assembly	543-623-40
Charger Static Switch Panel	5431086-02
I/O Panel Assembly	5431003
Distribution Cabinet Assembly	643-607-40
Distribution Chassis Assembly	643-607-40
UPS Chassis Assembly	643-624-40
Right Side Plate Assembly	5431249
Left Door Assembly	643-523-40
Right Door Assembly	643-519-40
Right Door Assembly	643-556-40
DC-DC Conv Assembly	5491011
Filter Panel Assembly	5321074
Right Door Plate Assembly	643-530-40
Card Cage Assembly	5491009
13 Ripple Filter Panel Assembly	5431081-02
Heatsink Panel Assembly	643-383-40



TO:

3-9 LIST OF DRAWINGS

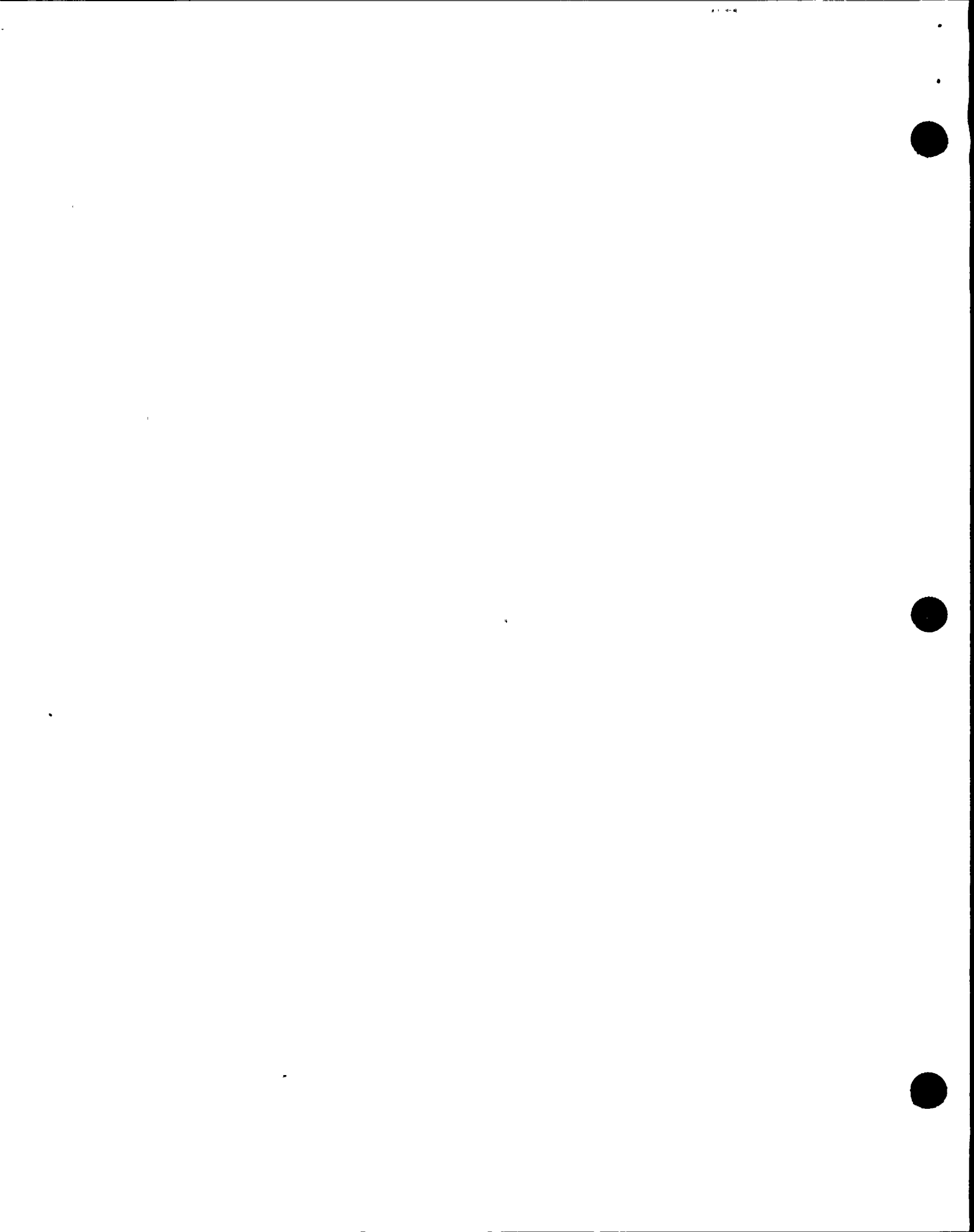
a. Schematic Diagrams & Assembly Drawings

Installation Drawings	543-514-70
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SCR Gate Drive Board Schematic	6490009, 5490009
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Charger "D" Logic Schematic	6490019, 5490019
Static Switch Logic Schematic	6490002, 5490002
Oscillator PCB ±.5Hz Fixed Schematic	643-119-60, 643-119-40
PWM Analog Logic Schematic	6490030, 5490030
10 3 Bridge PWM Logic Schematic	6490014, 5490014
10 3 Bridge PWM Drive Board Schematic	6490001, 5490001
Fuse Sense Board Schematic	6430002, 5430002
Fuse Sense Board Schematic	628-137-61, 628-137-41
Lamp Board Schematic	643-628-60, 643-628-40
Card Cage Backplane	6490024, 5490015
Transducer Schematic	6490016, 5490016
Current Transducer Board Schematic	6430008, 5430008
Relay Drive Board Schematic	633-270-60, 633-270-40
Line Regulator Control Schematic	648-100-60, 648-100-40
S.T Drive Board Schematic	648-101-60, 648-101-40

b. Panel Assembly Drawings

Top Assembly	543-625-40
Inverter Panel Assembly	643-523-40
Inverter Panel Assembly	643-524-40
UPS Cabinet Assembly	643-623-40
Charger Static Switch Panel	5431086-02
I/O Panel Assembly	5431003
Distribution Cabinet Assembly	643-630-40
Distribution Chassis Assembly	643-107-40
UPS Chassis Assembly	643-624-40
Right Side Plate Assembly	5431249
Left Door Assembly	643-520-40
Right Door Assembly	643-519-40
Right Door Assembly	643-516-40
DC-DC Conv Assembly	5491011
Filter Panel Assembly	5311074
Right Door Plate Assembly	643-530-40
Card Cage Assembly	5491009
1% Ripple Filter Panel Assembly	5431081-02
Heatsink Panel Assembly	643-383-40

(Continued on pg. 3-22a)

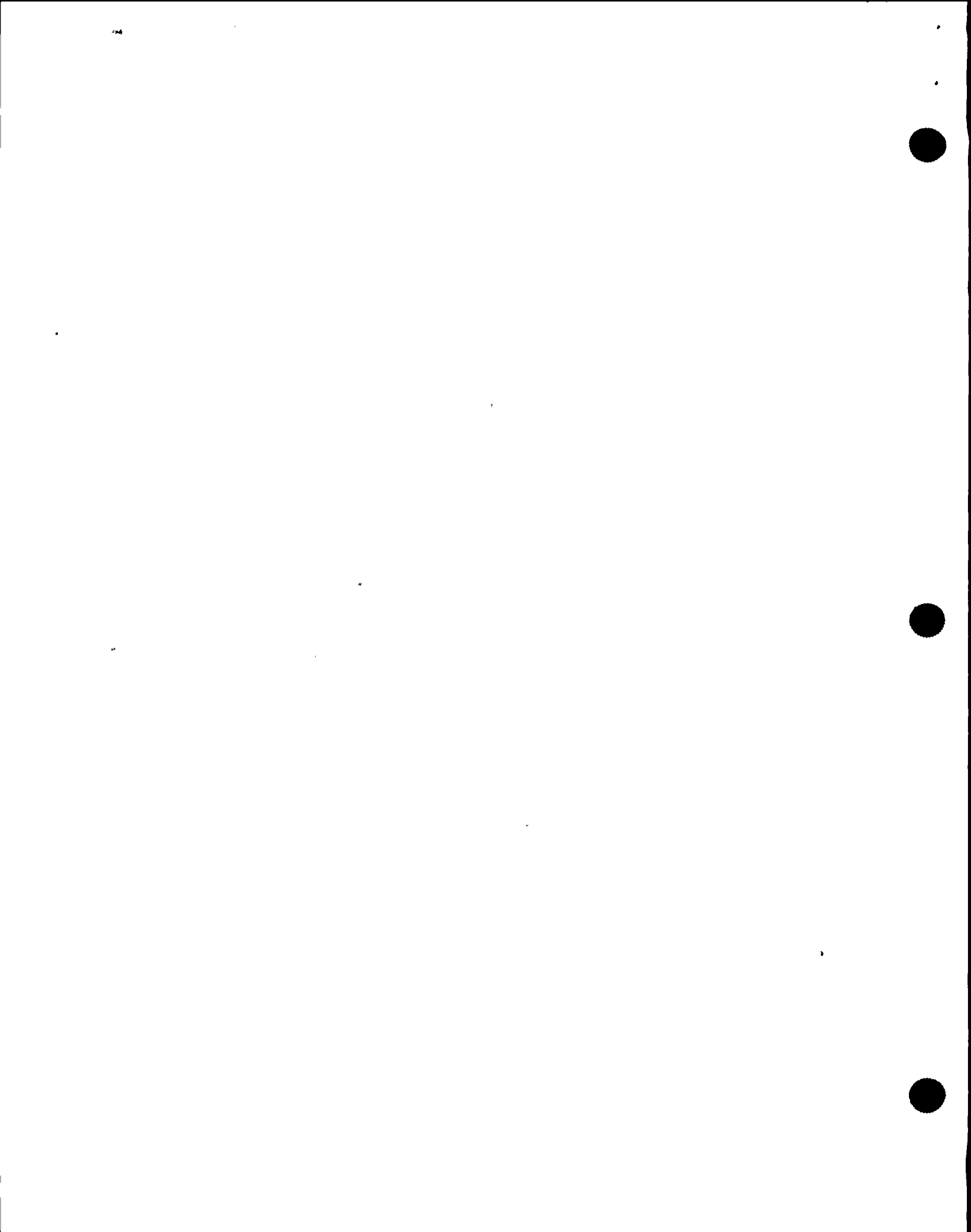


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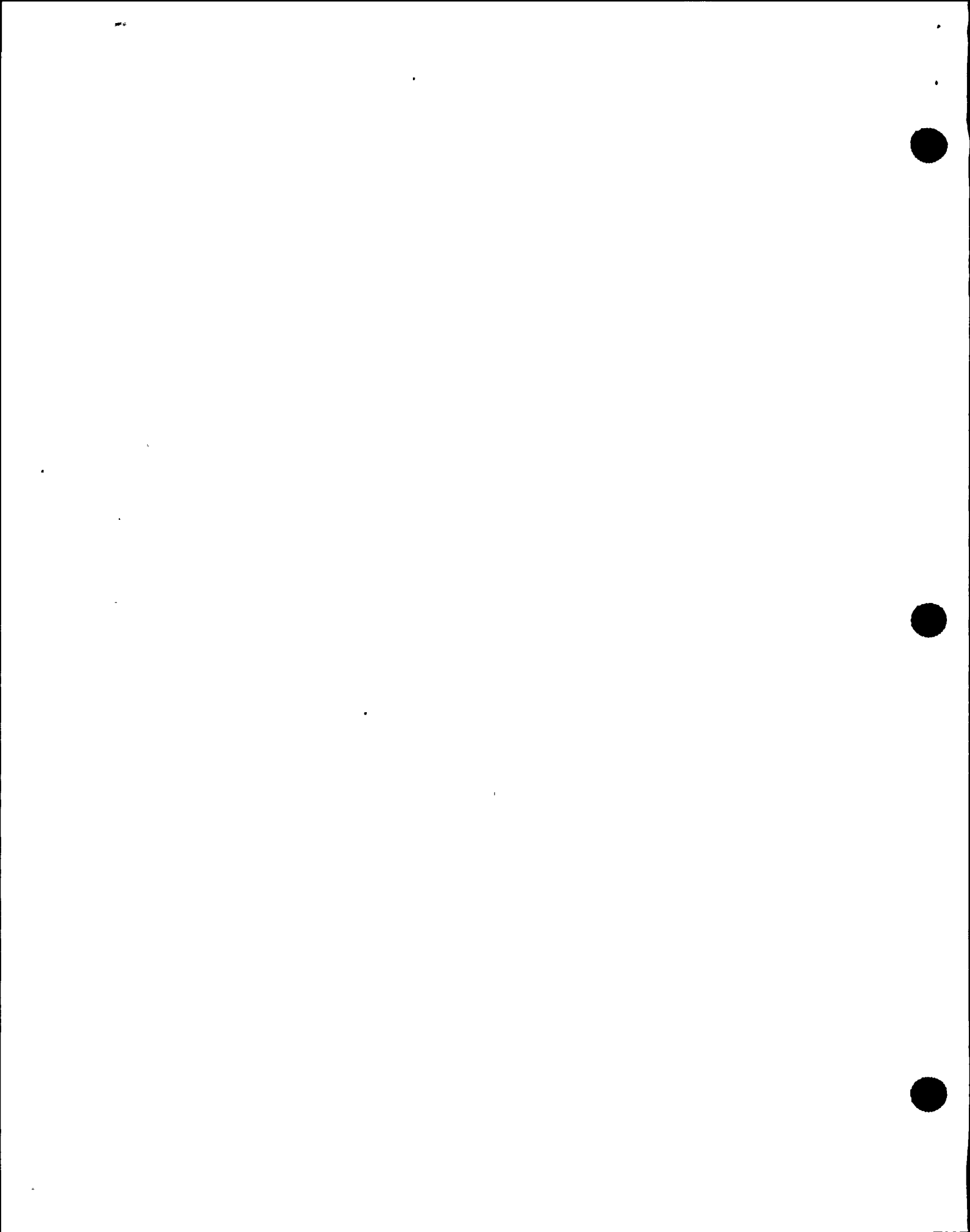
3-9 LIST OF DRAWINGS (Continued)

NIGHT PLATE	943-381-20
BRACKET-CAPACITOR	9481055
FUSE LAMP BOARD ASSY	5430050
FUSE LAMP SCHEMATIC	6430050
WIRE LIST	1443-625-50

3-22a



REPLACE DRAWING	543-625-60	REVISION F	(SHEETS 1-3)
WITH	543-625-60	REVISION J	(SHEETS 1-3)
REPLACE DRAWING	648-100-60	REVISION C	
WITH	648-100-60	FEVISION E	
REPLACE DRAWING	648-100-40	REVISION E	
WITH	648-100-40	REVISION G	
REPLACE DRAWING	643-563-40	REVISION C	
WITH	5431249	REVISION C	

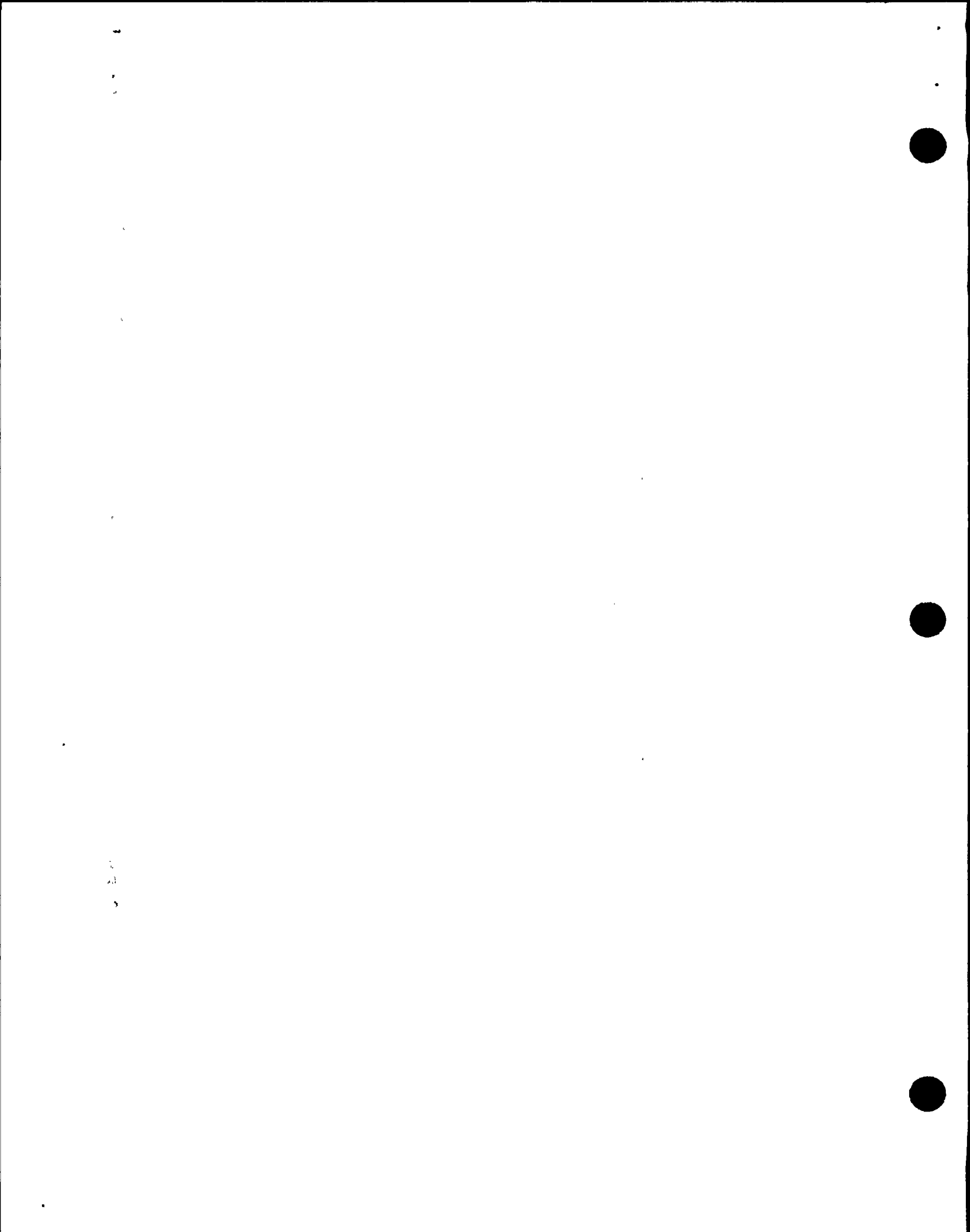


ADD DRAWINGS

RIGHT PLATE	943-381-20	REVISION E
BRACKET CAPACITOR	9481055-01	REVISION A
FUSE LAMP BOARD ASSY	5430050-01	REVISION C
FUSE LAMP SCHEMATIC	6430050-01	REVISION A
WIRE LIST	543-625-50	

ADD INSTRUCTIONS

WORK INSTRUCTIONS FOR THE UPS/PLC MODIFICATIONS
UPS 253-1-106



WORK INSTRUCTIONS FOR THE UPS/PLC MODIFICATIONS
UPS 253-1-106

insure that all parts and necessary documentation are on hand. Read and understand the instructions fully prior to starting any work and insure all questions are answered.

The following is a list of all related parts and drawings:

Ref.	Description	Part No.	Qty.
DA1-J85	Fuse Blown Lamp Board	5430050-01	1 (Rev. C)
	Molex Connector Pins	109-010-6X	3 (ON BOARD)
	Socket	856-309-11	1 (ON BOARD)
DA1-C86	Capacitor .47uf-400V	822-474-04	1
	Bracket - Capacitor	9481055-01	1

Control Box J, 648-100-40 (ECN 6310 - Rev. G)

C44	Capacitor .1uf-500V	821-5GA-P1	1
CR2	Zener Diode 12V	843-474-2X	1
	RELAY - 48VDC	861-1YA-25	1
	Document Title		

(SEE LETTER
PAGE 12 THIS
EDC)

Overall Schematic UPS 235-1-106	543-625-60 (Rev. J)
Right Side Plate Assy UPS 253-1-106	5431249-01 *ECN PENDING
Right Plate Dist. UPS 235-1-106	943-381-20 (Rev. E)
Control Card Modification (ECN 6310)	648-100-40 (Rev. G)
Control Card Schematic	648-100-60 (Rev. E)
Appropriate Wire List	543-625-50
Bracket - Capacitor	9481055-01 (Rev. A)
Lamp Board Assembly	5430050-01 (Rev. C)
Lamp Board Schematic	6430050-01 (Rev. A)

*Red-line attached

Assembly Instructions

Open the door of the distribution cabinet after insuring that all power is completely terminated into the unit and rechecking any possible input feeds with a volt meter.

Using Figure 4-1 as a guide, drill the appropriate holes in the right side plate assembly for placement of the fuse blown lamp board. Utilizing the drawing on Figure 4-1 and the right side plate assembly drawing, install the fuse blown lamp board with the appropriate hardware as indicated. After installation of the assembly, check to insure that the LED is properly positioned to indicate visually in the unit. Recheck all screws and hardware to insure they are all secure as required for proper operation.

Wiring Instructions

Right Side Plate Assembly:

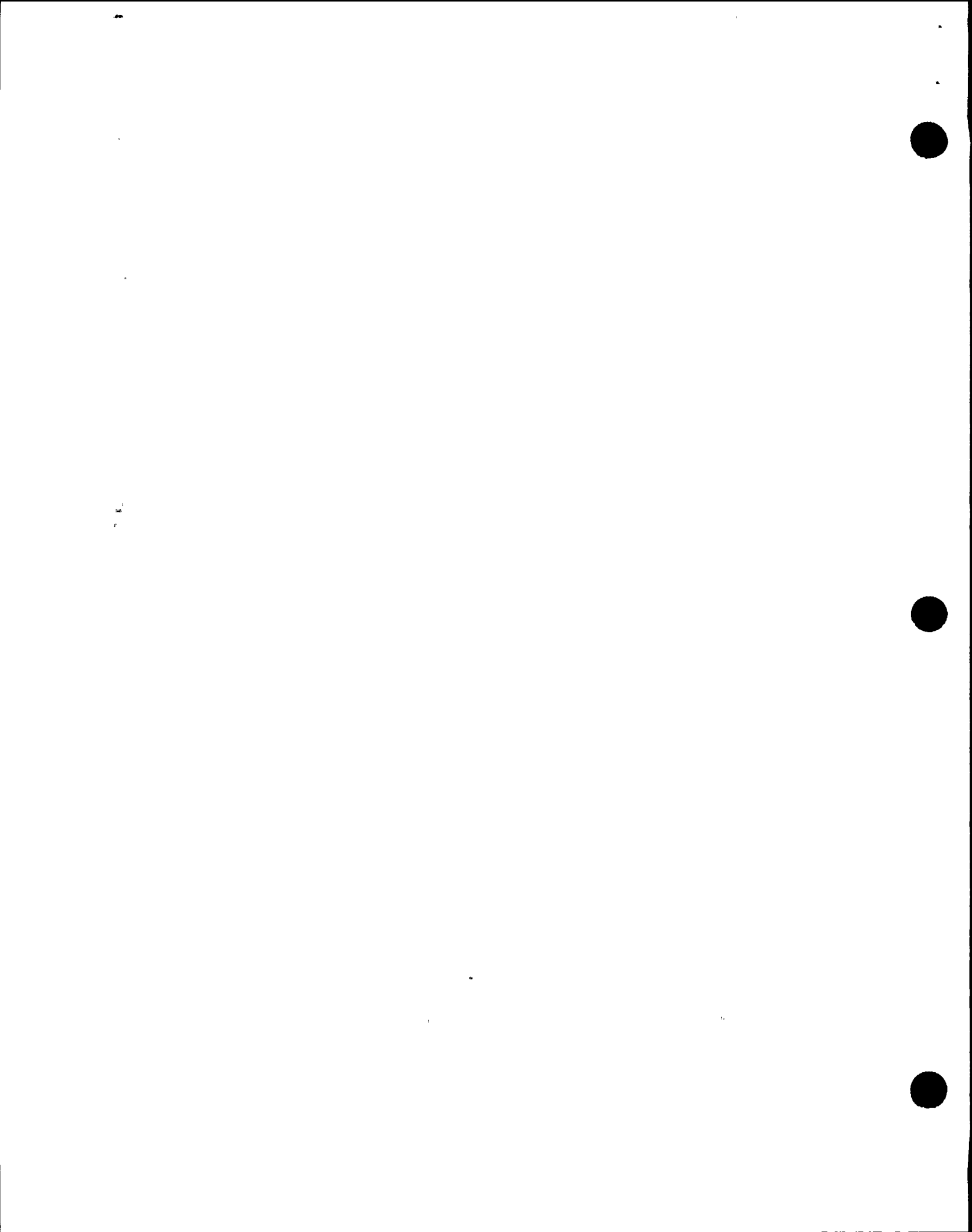
On the right side plate assembly drawing you will find the indication of placement for the DA1-C86 capacitor. Solder one end of the capacitor to the DA1-J81 connector on pin 16 or T being sure to install some insulating sleeve material over any bare lead wire. It is important to minimize excess lead length to insure minimal possible movement in case of vibration. Again insuring that any bare lead wire is covered, attach an appropriately sized ring lug connector to the other end and secure it to the indicated chassis mount screw. Install the capacitor mounting bracket as shown on the assembly drawing, utilizing some form of approved insulating material to minimize movement within the clamp. Label the wiring as indicated in the appropriate wire list.

Fuse Blown Lamp Board:

Connect the following points with the proper wire size and hardware using the wire list as the numbering guide. DA1-J81-22 on the control board connects to the DA1-J81-7 terminal on the fuse blown lamp board, DA1-J85-1 connects to the DA1-TB86-10 terminal with the DA1-J85-3 connection terminated at the DA1-TB86-8 terminal.

Control Card Modification:

The control card in each unit must be modified to accept the new diode and capacitor added to allow proper operation. Referring to ECN 6310, place the C44 capacitor and CR31 diode as shown in the literature. Be sure that any residual solder or other contaminants are removed from both sides of the printed circuit board prior to attempting to use it.



EDC
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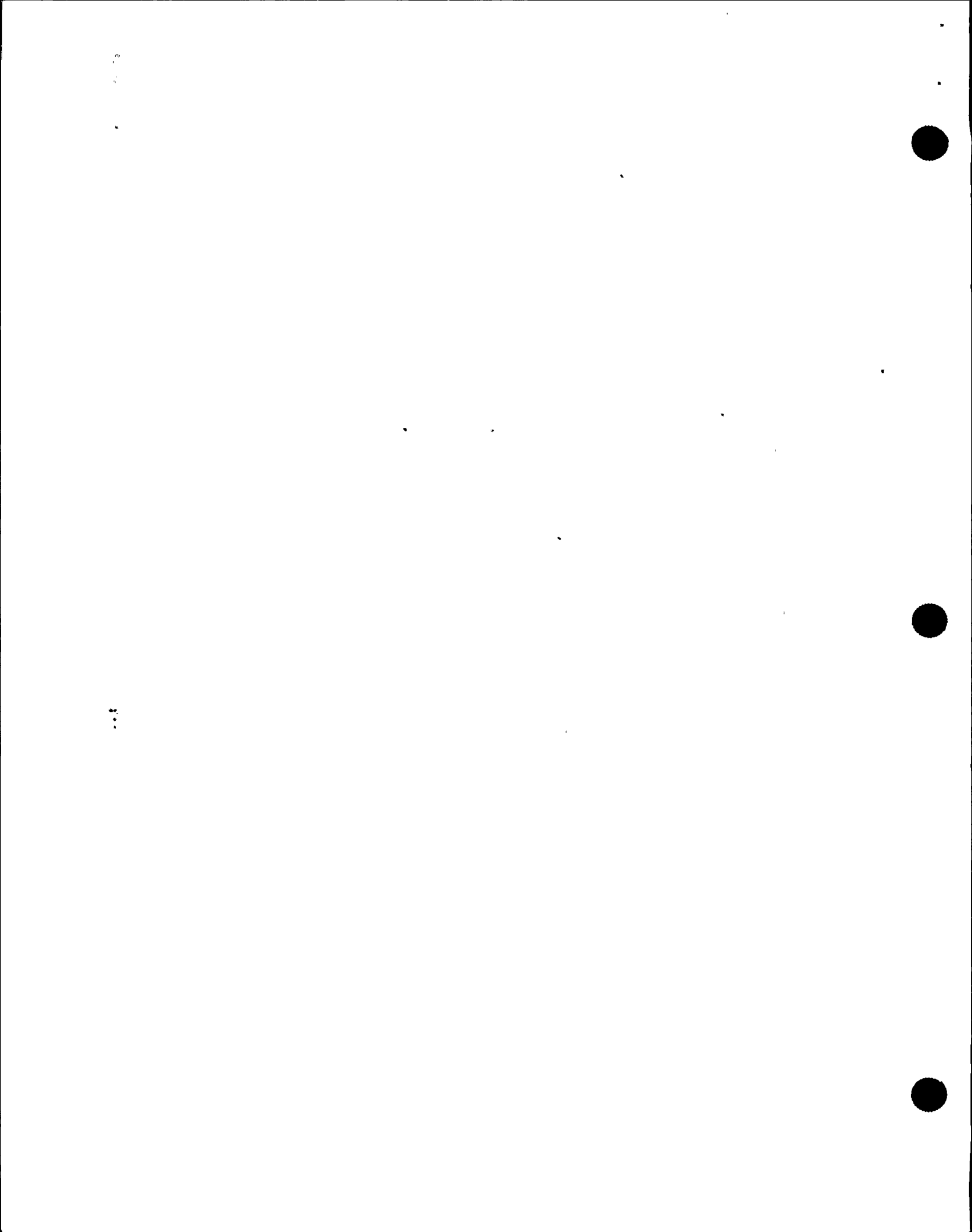
Relay Wiring Verification:

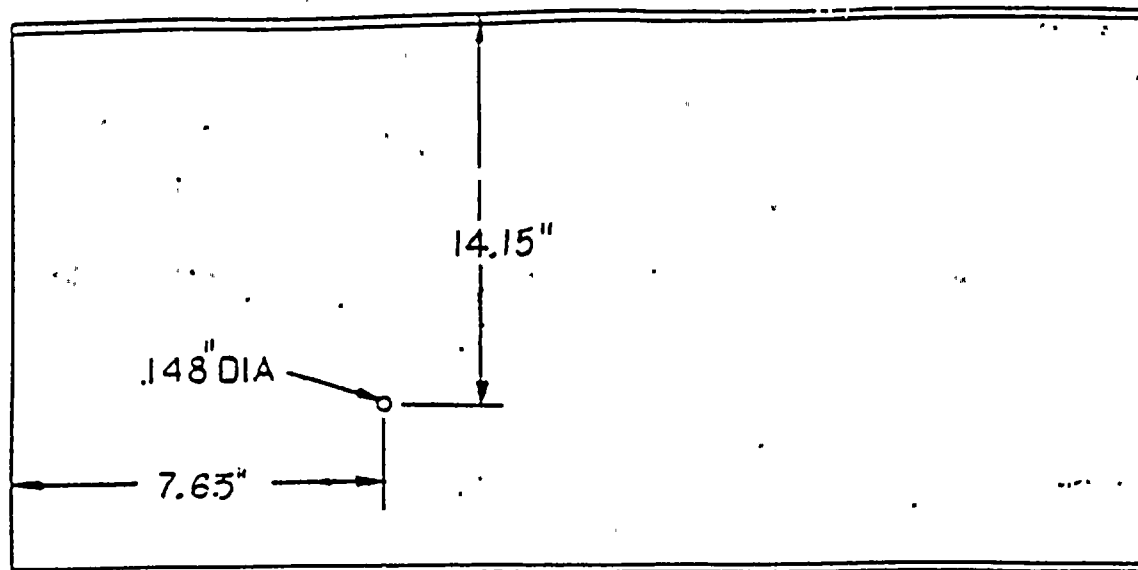
The DA1-K1 relay wiring should be checked to verify that it is per the wire list. This should have DA1-K1-1 connected to C83(+), DA1-K1-4 to C83(-), DA1-K1-15 to DA1-TB81-16 and DA1-K1-14 to DA1-TB81-2. Place all wires as listed and remove any not indicated as shown.
(SEE LETTER PG 12 THIS EDC)

Testing:

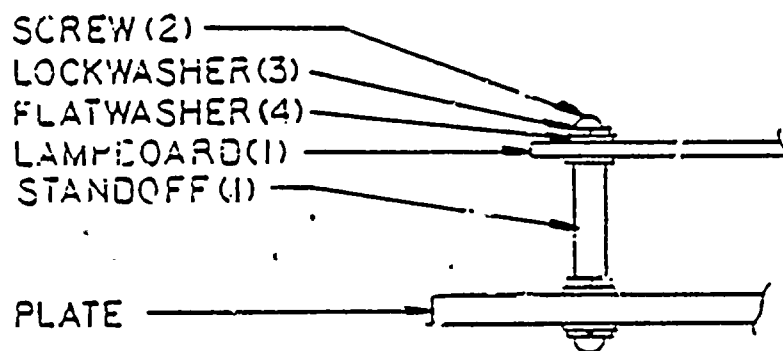
Verify complete operation of the modification by a full operational test of the PLC system. This should include full range tap changes, rapid voltage fluctuations, fuse failure simulations and any load testing felt necessary by the site engineer.

Please insure any questions or concerns are completely answered prior to any work being started. Elgar will provide, at an additional cost, technical assistance on site if requested.



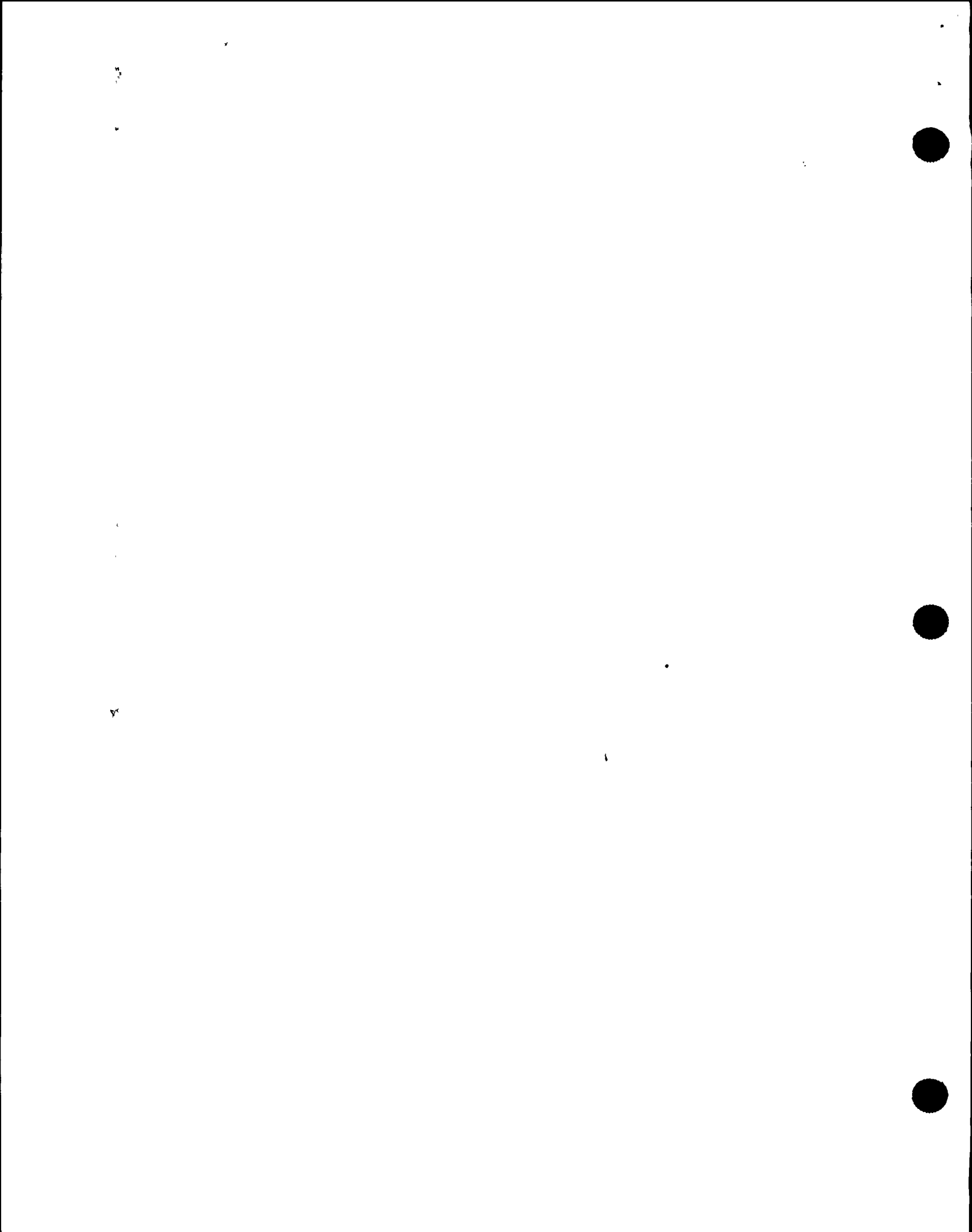


.148 DIA HOLES FOR LAMP BOARD MOUNT



LAMP BOARD MOUNTING

FIGURE 4-1



ETC
NO. 2E10007

PAGE 12 OF 50

ELGAR
10 Brown Deer Road
San Diego, California 92121
Telephone (619) 450-0085
Telex 211063

September 21, 1988

Niagara Mohawk Power Corp.
Nine Mile Point Unit 2
Lake Road
Lycoming, New York 13093

Attention: Ed Dunn

In analysis of the UPS/PLC Modification now being implemented at your site, it was found that the 24VDC relay (Elgar P/N 861-1Y4-70) could sometimes stay energized on a fuse fall condition. This was determined to be due to a 5 to 6 VDC residual voltage on the coil which is above the 2 to 3 volt drop out point.

To eliminate this condition, we have changed to a 48VDC relay (Elgar P/N 861-1Y4-25) of similar type. The pickup voltage of 20VDC is met by the minimum 24VDC on the coil with a good fuse and the 10VDC drop out assures opening with the 5 to 6 VDC residual voltage.

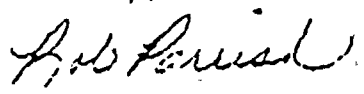
Due to the identical size and type as the original relay, there is no effect on the qualification.

To install the new relay, simply remove the retaining spring, unplug the relay from the socket and then replace the spring. All wiring and markings remain the same.

Please modify your parts list to reflect the new relay part number in your documentation.

If you need further assistance, feel free to contact Elgar for any questions you may have.

Sincerely,



Rob Parrish
Customer Service Engineering Manager

ELGAR



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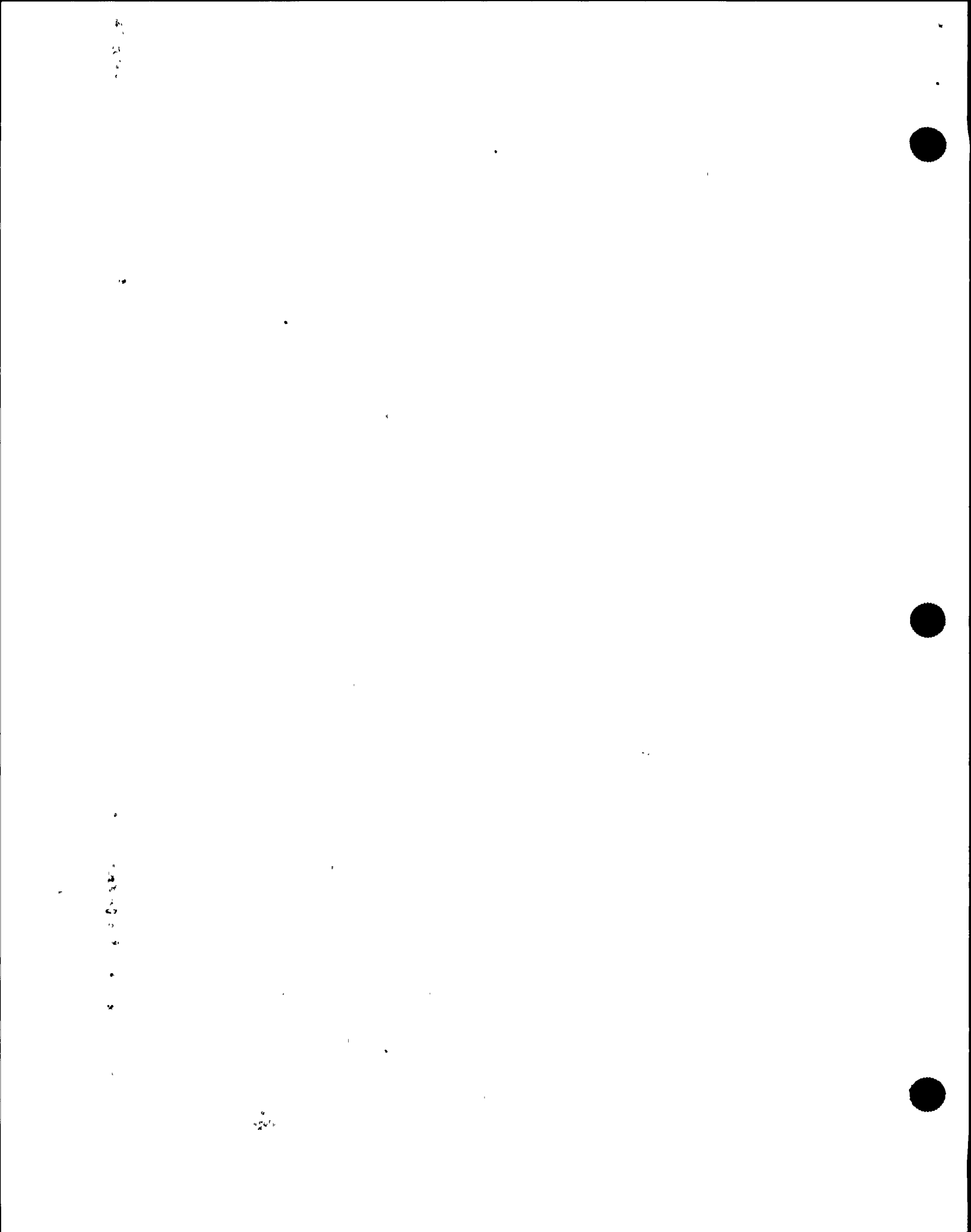
9

10

11
12
13
14
15







NUCLEAR SAFETY RELATED

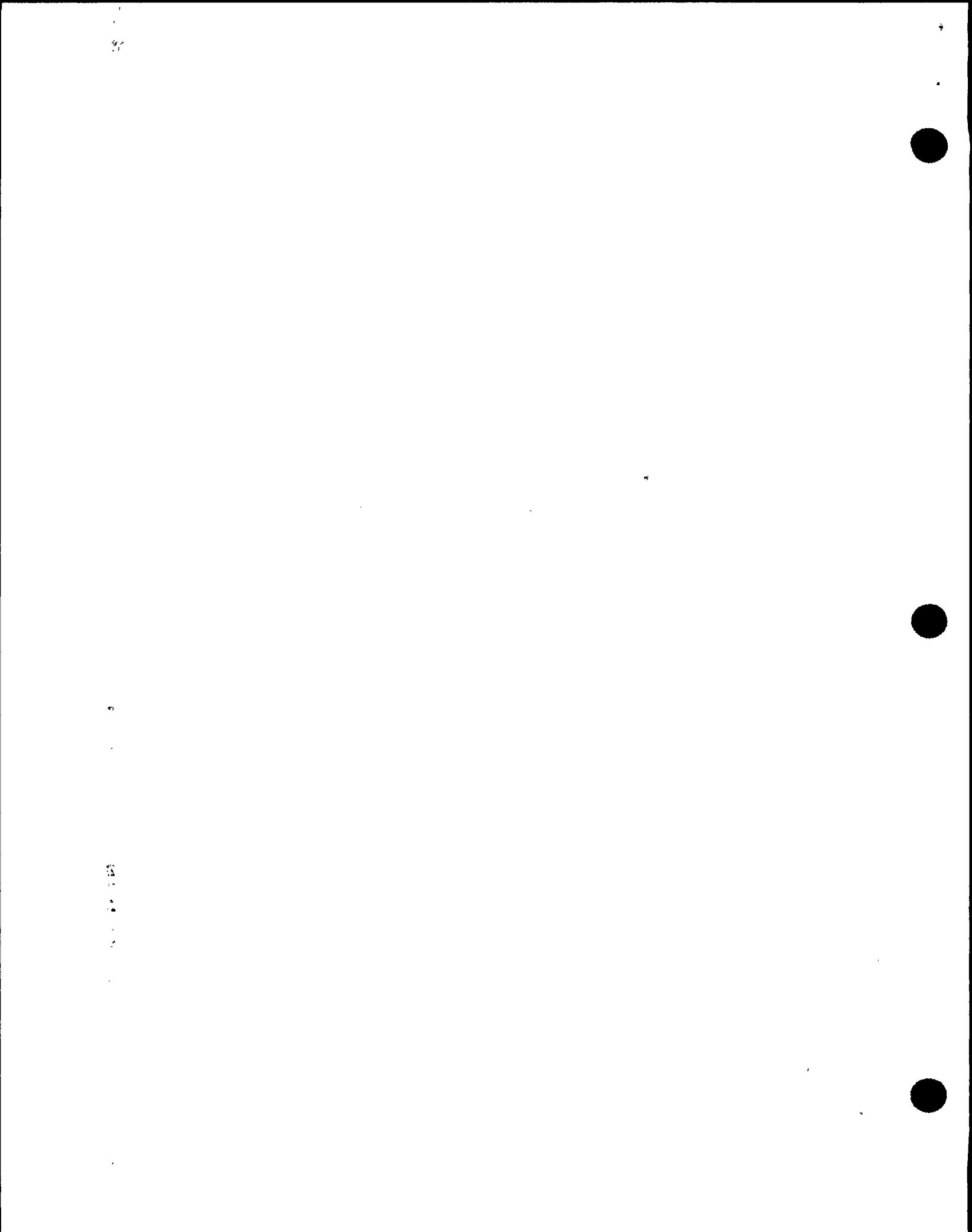
ASBY. PART NO. 543112421		TITLE RIGHT SIDE PLATE ASSEMBLY				SHT. 1 OF 4		REV. C	EIRICH
DRAWN A EIRICH		DATE 8-9-		PROJ. ENG. Olef Lind		DATE 8-19-86			
CHECKED		DATE		QA-REL. C. J. ...		DATE 8-14-86			

REVISIONS.

REV.	ASBY. DASH NO.								DESCRIPTION	DRAFTER	CHECKED	APPROVED	DATE
	01	02	03	04	05	06	07	08					
A									RIGHT SIDE PLATE ASSEMBLY	EIRICH	SEAD	Olef Lind	8-19-86
B	X								ECN 6475	FJR	CRP	FELIX	9-3-87
C	X								ECN 6650	FELIX	CRP	H. H.	4-11-88

ITEM NO.	ASBY. DASH NO.								ASSEMBLY DESCRIPTION	REMARKS
	01	02	03	04	05	06	07	08		
1	X								RIGHT SIDE PLATE ASSEMBLY	UPC 257-1-106
2		X								
3			X							
4				X						
5					X					
6						X				
7							X			
8								X		

257-1-106
 PAGE 14 OF 20



SINGLE LEVEL PARTS LIST

MATERIAL ITEM NO.	DESCRIPTION	UM	LEAD TIME	ITEM TYPE	GROSS REQMT
431249-01	C RIGHT SIDE PLATE ASSY S	EA	0.0	6	

LEVEL	MATERIAL ITEM NO.	DESCRIPTION	ITEM TYPE	SEQ NO.	UM	QTY PER
01	943-381-20	E/N RIGHT SIDE PLATE	S 4	09	EA	1
	REFERENCE DESIG					
02	648-100-40	G/N REG CONTROL BD ASS	S 4	10	EA	1
	REFERENCE DESIG	J81				
01	N822105-58	CAP FILM 600V 5%	S 4	11	EA	1
	REFERENCE DESIG	C84				
01	822-105-58	1/600V 5% ZA2G105J 1M8	A 4	11	EA	2
	REFERENCE DESIG	C84,85				
02	991-191-90	A CONTROL TRANSFORMER	S 4	12	EA	2
	REFERENCE DESIG	T84,T85				
01	N893601-18	TBL 601 18P 20A 1100V	S 4	13	EA	2
	REFERENCE DESIG	T881,T886				
01	893-MS1-18	STRIP MS601-18 KULKA	A 4	14	EA	2
	REFERENCE DESIG					

SINGLE LEVEL PARTS LIST

MATERIAL ITEM NO.	DESCRIPTION	UM	LEAD TIME	ITEM TYPE	GROSS REQMT
5431249-01	C RIGHT SIDE PLATE ASSY S	EA	0.0	6	

LEVEL	MATERIAL ITEM NO.	DESCRIPTION	ITEM TYPE	SEQ NO.	UM	QTY PER
01	N858313-02	FUSE SLO-BLO	S 4	15	EA	5
	REFERENCE DESIG	F82-F86				
01	N853342-10	FUSE HOLDER	S 4	16	EA	5
	REFERENCE DESIG	XF82-XF86				
01	943-376-20	FUSE BRACKET DIST	S 4	17	EA	1
	REFERENCE DESIG					
01	N847990-3X	BRIDGE FWB 30A 200V	S 4	18	EA	1
	REFERENCE DESIG	BR81				
01	N826142-82	CAP ELEC 1400/100	S 4	19	EA	1
	REFERENCE DESIG	C83				
01	109-458-97	DONT USE:SEE 896-CMC-22	S 4	20	EA	1
	REFERENCE DESIG					
J1	943-490-20	EDGE CONN BRKT	S 4	21	EA	2
	REFERENCE DESIG					

h

v
2

h

v
2

h



NO. 2 E I P O O 7

SINGLE LEVEL PARTS LIST PAGE 18 50

SHEET 3 OF 4

MATERIAL ITEM NO. 431249-01 DESCRIPTION C RIGHT SIDE PLATE ASSY S UH EA LEAD TIME 0.0 ITEM TYPE 6 GROSS REQMT

LEVEL	MATERIAL ITEM NO.	DESCRIPTION	ITEM TYPE	SEQ NO.	UH	QTY PER
01	109-TC8-S8 REFERENCE DESIG	SUPPORT CB .5"HH6SCW NY	A	4	22	EA 2
01	856-88D-S2 REFERENCE DESIG	CONN 22/44 EYELET	A	4	23	EA 1
01	N8611Y4- 20 25* REFERENCE DESIG K1	RELAY 4 POLE 2 AMP	S	4	24	EA 1
01	N86127E-15 REFERENCE DESIG	RELAY SOCKET	S	4	25	EA 1
01	861-20C-25 REFERENCE DESIG	20C250 HOLD DOWN SPRING	A	4	26	EA 1
02	5430050-01 REFERENCE DESIG	A FUSE LAMP	S	4	27	EA 1
01	822-474-04 REFERENCE DESIG C85	CAP WRAPPIL 5% 40CV .47	A	4	28	EA 1

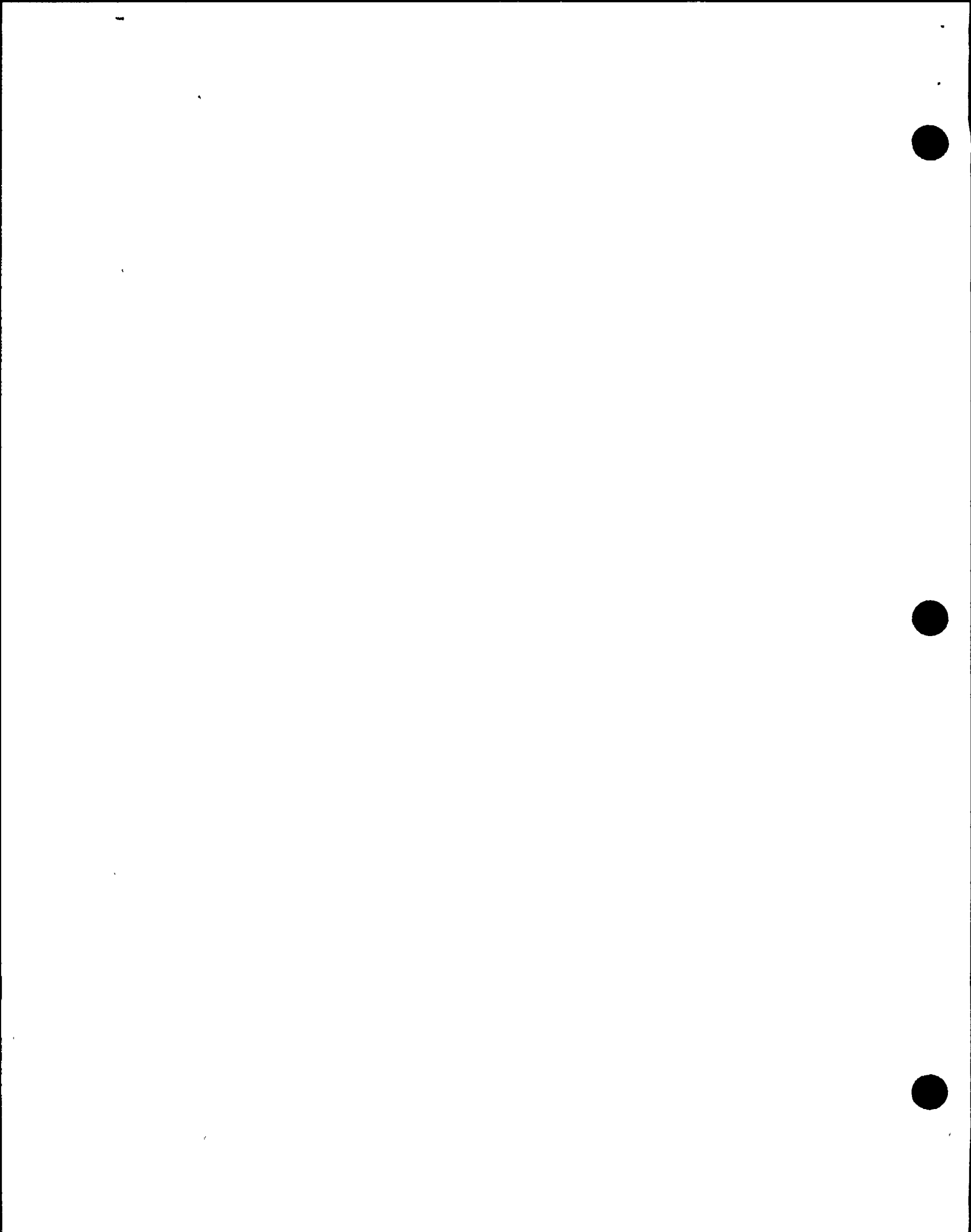
*CHANGE PER LETTER PAGE 12 THIS EDC

SINGLE LEVEL PARTS LIST

MATERIAL ITEM NO. 5431249-01 DESCRIPTION C RIGHT SIDE PLATE ASSY S UH EA LEAD TIME 0.0 ITEM TYPE 6 GROSS REQMT

LEVEL	MATERIAL ITEM NO.	DESCRIPTION	ITEM TYPE	SEQ NO.	UH	QTY PER
01	9481055-01 REFERENCE DESIG	A BRACKET-CAPACITOR	S	4	29	EA 1
01	109-400-8X REFERENCE DESIG	SPACER 1/4X1/4 CL 8	A	4	30	EA 2

END OF REPORT : :



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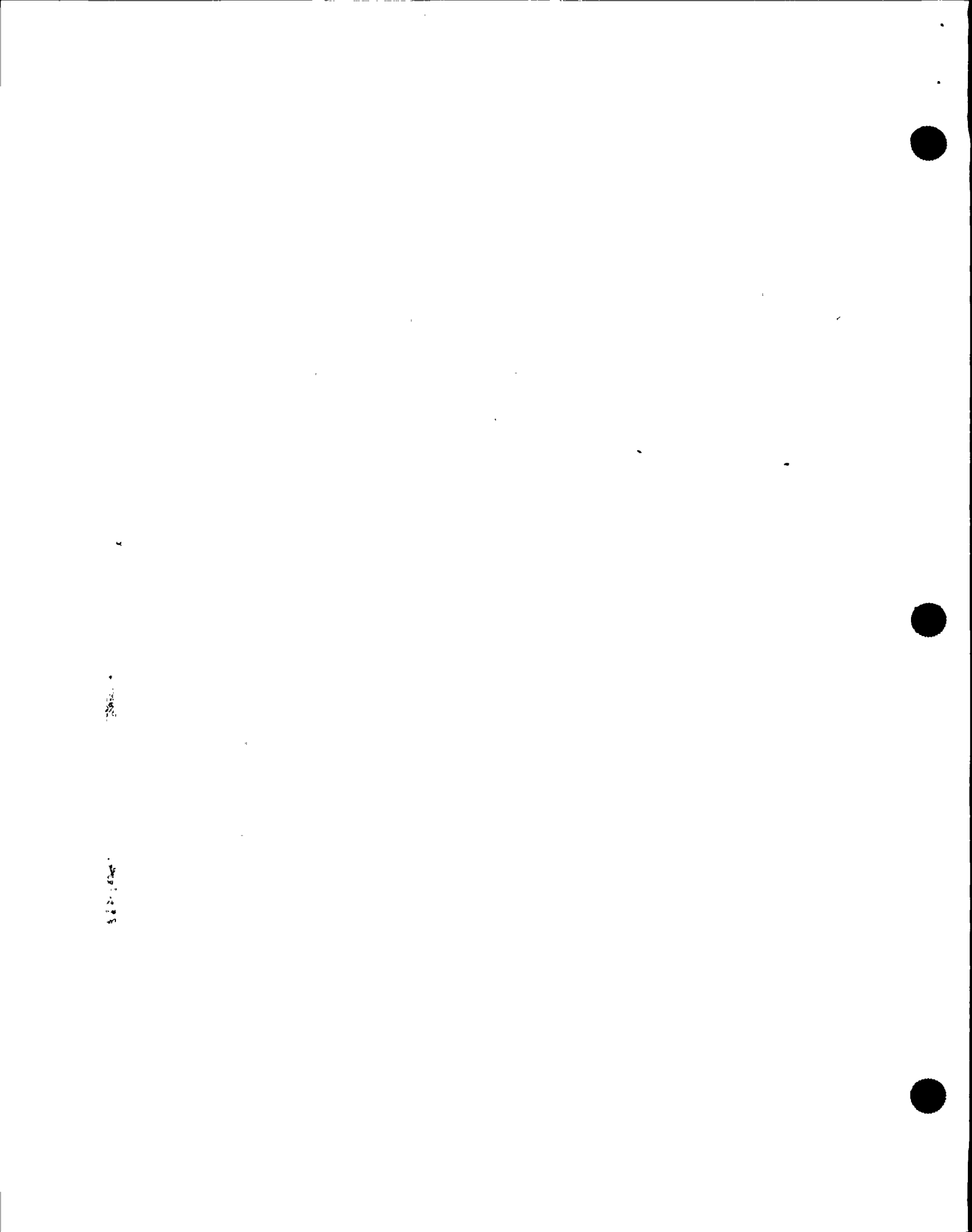
6

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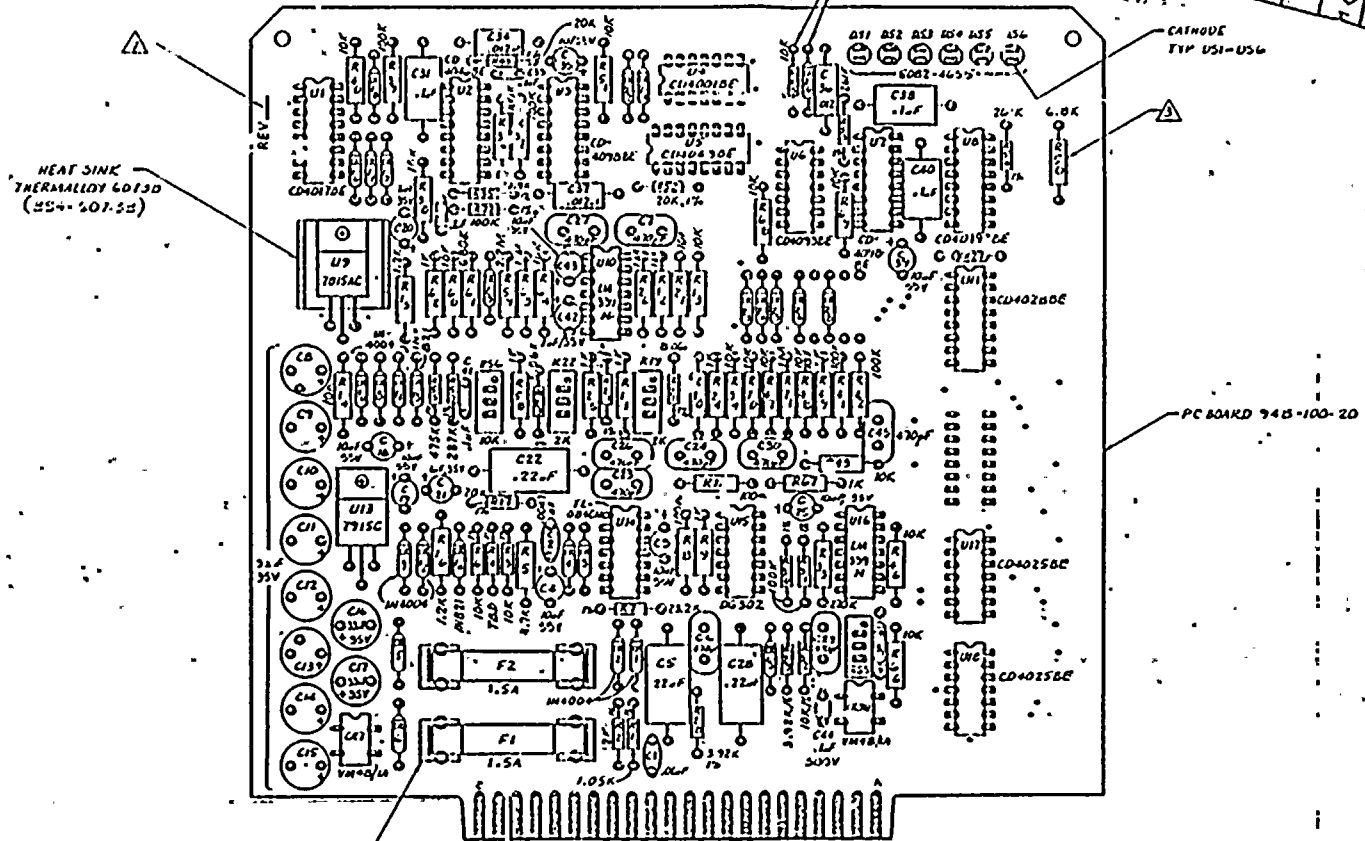




REV	DATE	BY	CHKD	APP'D
1	12/13/50
2
3
4
5

EDC NO. ZEM000E

PAGE 22 OF 30



- FUSE (M20 141-85)
- 2 PLACES
FUSE CLIP (254-252-67)
KEYSTONE CAT. NO. 3550
4 PLACES

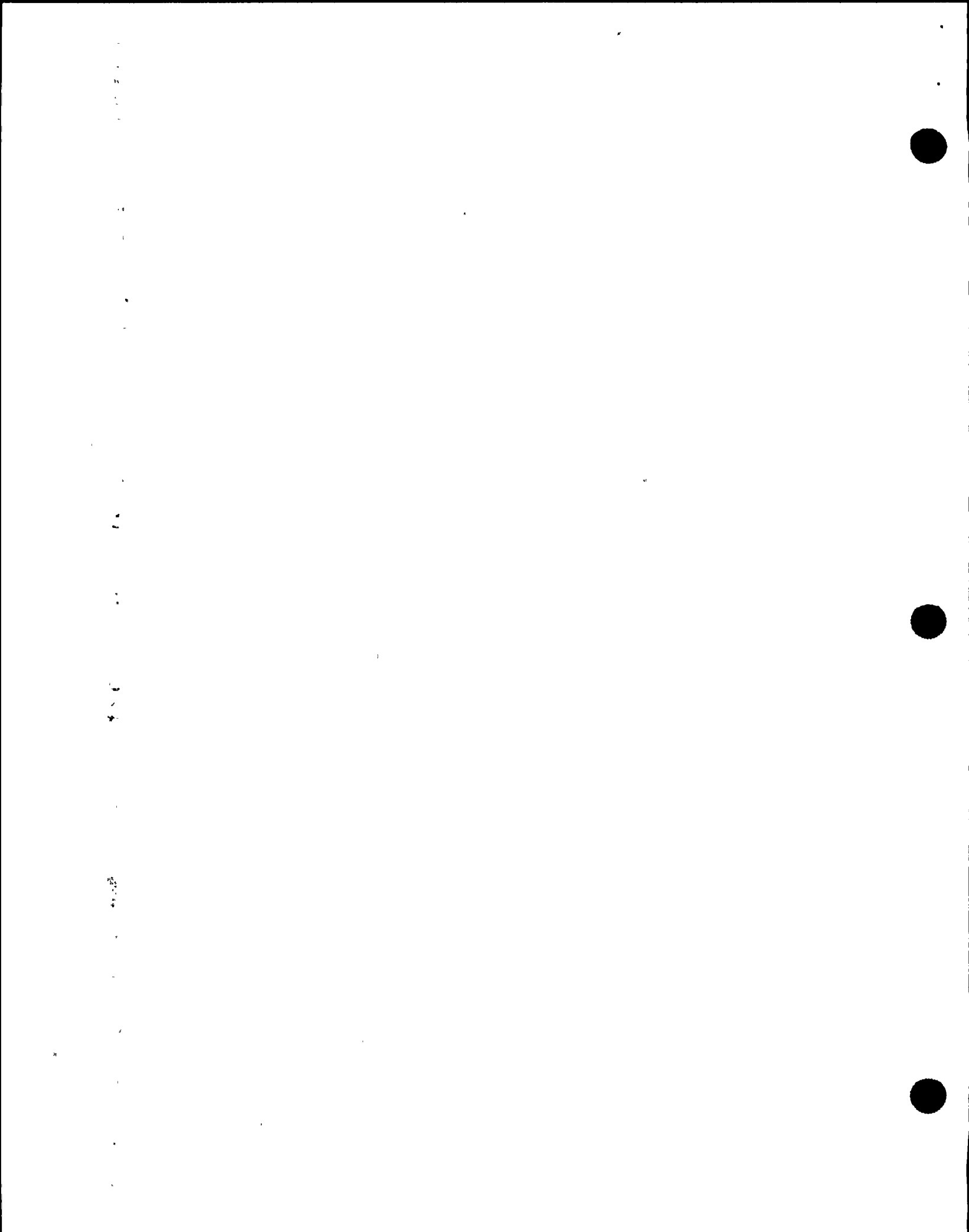
- NOTES:
1. UNMARKED DIODES ARE 1N714.
 2. WIRE SCHEMATIC SEE DWG 94B-100-20.
 3. 1/2W RESISTOR LEAD SPACING IS .60".
 4. DIODE AND 1% RESISTOR LEAD SPACING IS .50".

5. CONFORMAL COAT PER ELGAR 571C 1005029.
6. IDENTIFY APPLICABLE DASH NO. / REV.

NUCLEAR SAFETY RELATED

FOR PARTS LIST SEE PL

WHEN THE SPECIFICATIONS SPECIFIED THEREIN ARE IN CONFLICT WITH THE SPECIFICATIONS ON THE DRAWING, THE SPECIFICATIONS SHALL PREVAIL. UNLESS INDICATED OTHERWISE ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED DIMENSIONS IN PARENTHESES ARE DIMENSIONS OF THE PARTS UNLESS OTHERWISE SPECIFIED DIMENSIONS IN PARENTHESES ARE DIMENSIONS OF THE PARTS		CONTROL NO. PART NAME FOR APPROVAL DATE APPROVED DATE CHECKED DATE DRAWN DATE DESIGNED DATE	DECAR PC ASSY- LINE REGULATOR CONTROL
NEXT ASSY USED ON APPLICATION PARTS LIST DATE DRAWN DATE CHECKED DATE APPROVED DATE	CLEAN: 540001A	DATE D 25965 DRAWING NO. 94B-100-10 SCALE 1:1 SHEET 22 OF 30	REV. G

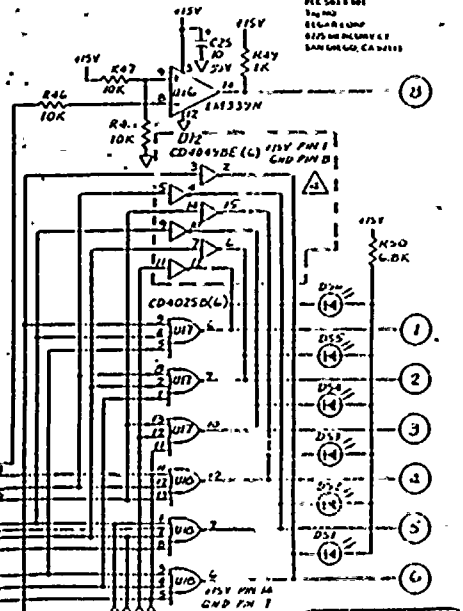
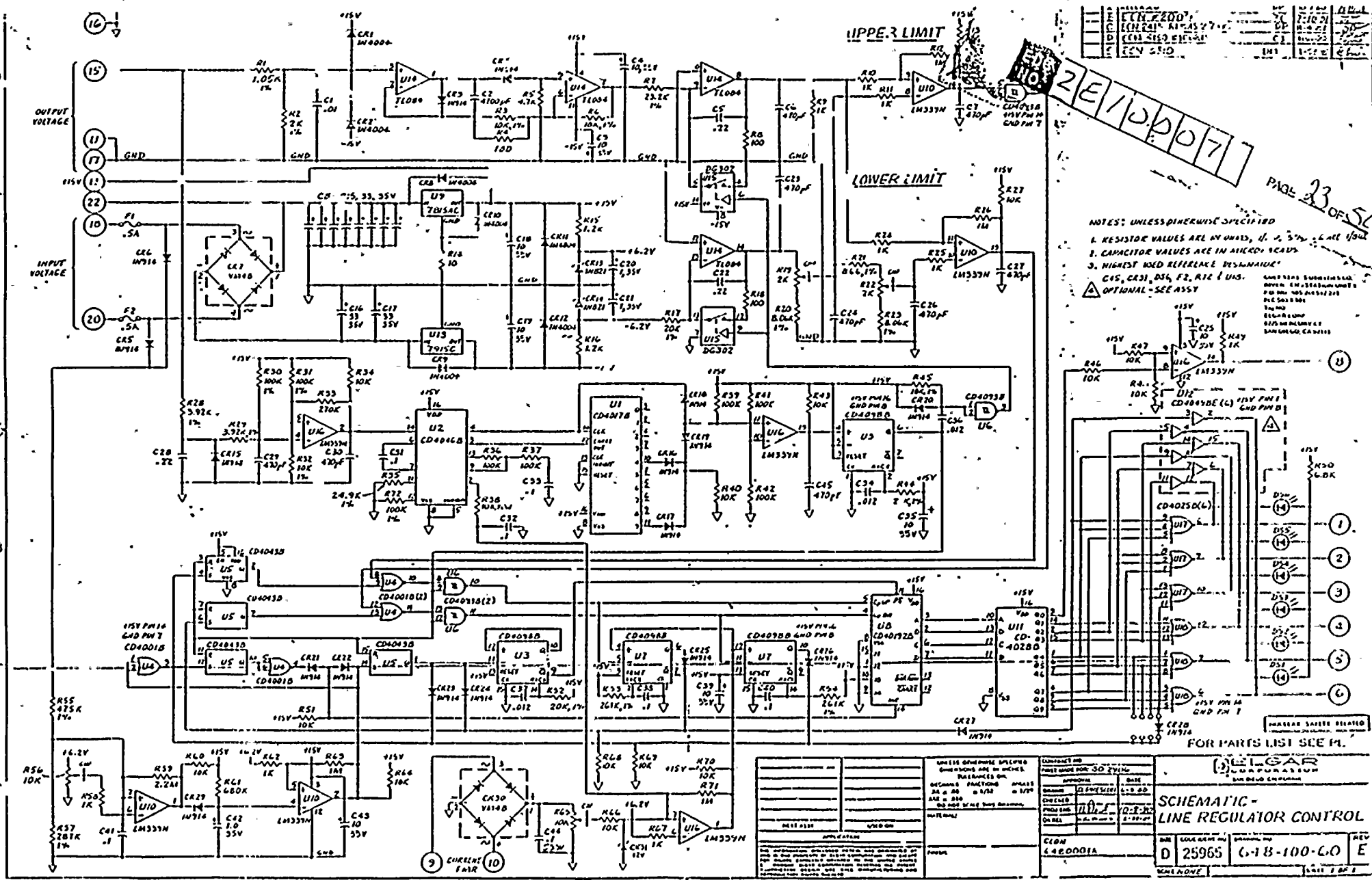


REV	DATE	BY	CHKD
1	12-10-71	...	...
2	1-2-72	...	...
3	1-2-72	...	...
4	1-2-72	...	...
5	1-2-72	...	...

2E10007

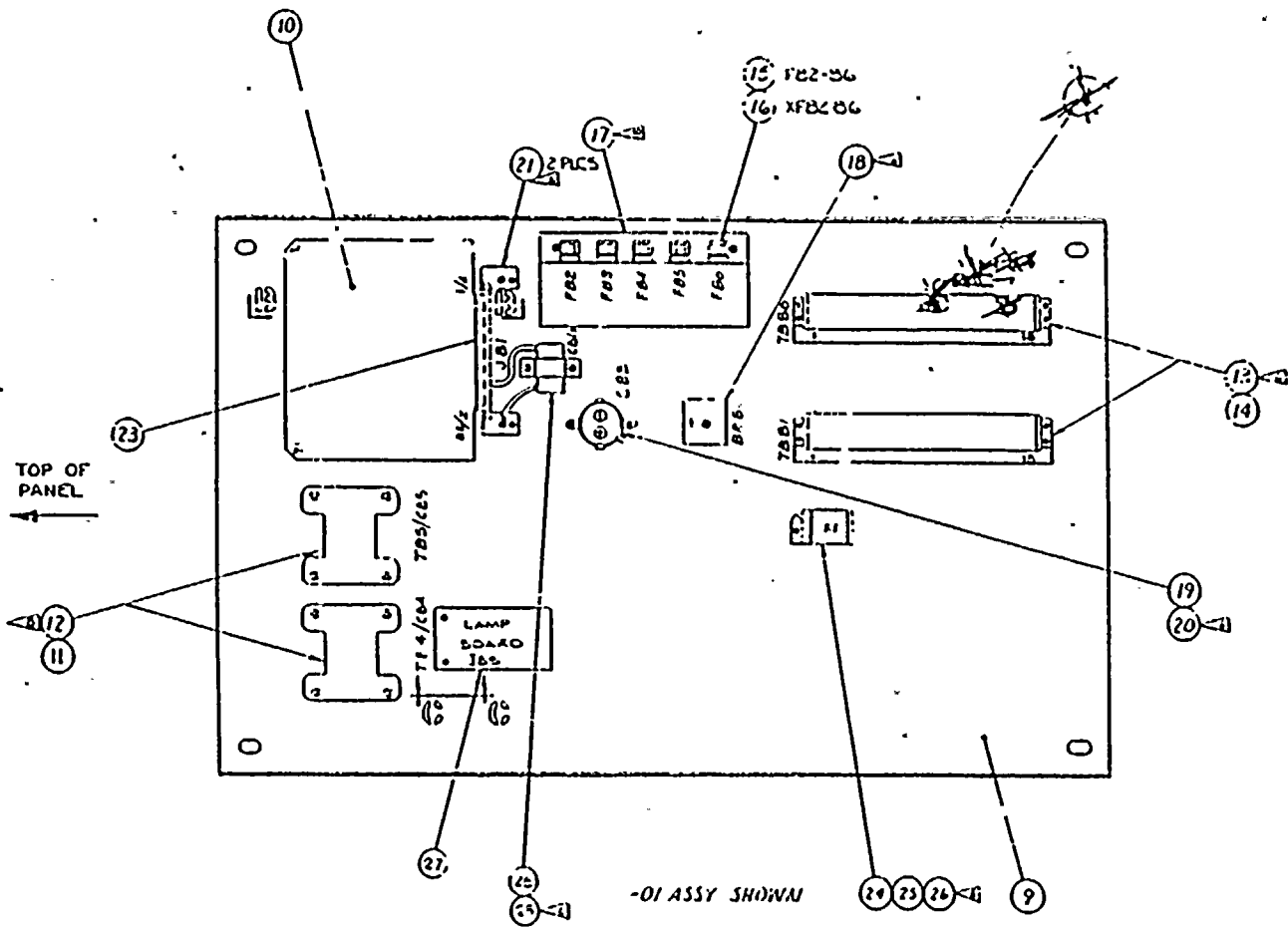
PAGE 23 OF 52

- NOTES: UNLESS OTHERWISE SPECIFIED
1. RESISTOR VALUES ARE IN OHMS, 10^3 , 10^4 , 10^5 , 10^6 ARE IN Ω , K , M ARE IN Ω , K , M ARE IN Ω .
 2. CAPACITOR VALUES ARE IN MICROSECONDS.
 3. HIGHEST USED REFERENCE DESIGNATION.
- C45, C46, C56, F2, R12, 1 UNLS.
 Δ OPTIONAL - SEE ASSY

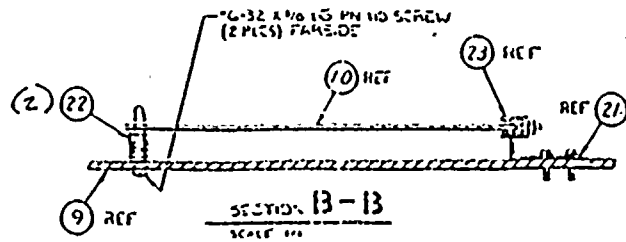
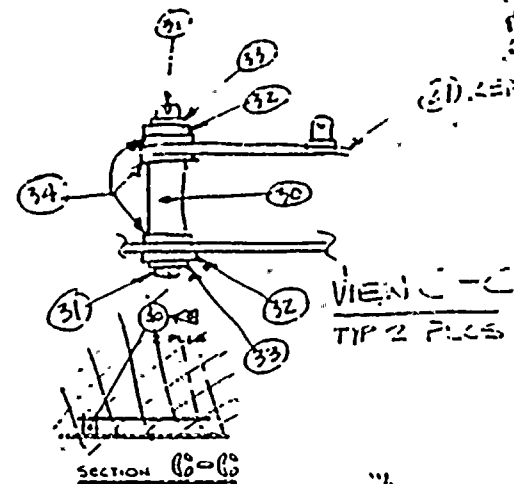


APPROVED FOR RELEASE DATE 12-10-71 BY [Signature] CHECKED [Signature] DRAWN [Signature] DESIGNED [Signature]		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES DECIMAL FRACTIONS ARE IN 16ths ANGLES ARE IN DEGREES DIMENSIONS ARE TO UNLESS OTHERWISE SPECIFIED		CHECKED BY [Signature] DATE 1-2-72 APPROVED BY [Signature] DATE 1-2-72	
TITLE: LINE REGULATOR CONTROL PROJECT: [Blank]		DRAWING NO: D 25965 REV: E		SCALE: NONE SHEET: 2 OF 2	





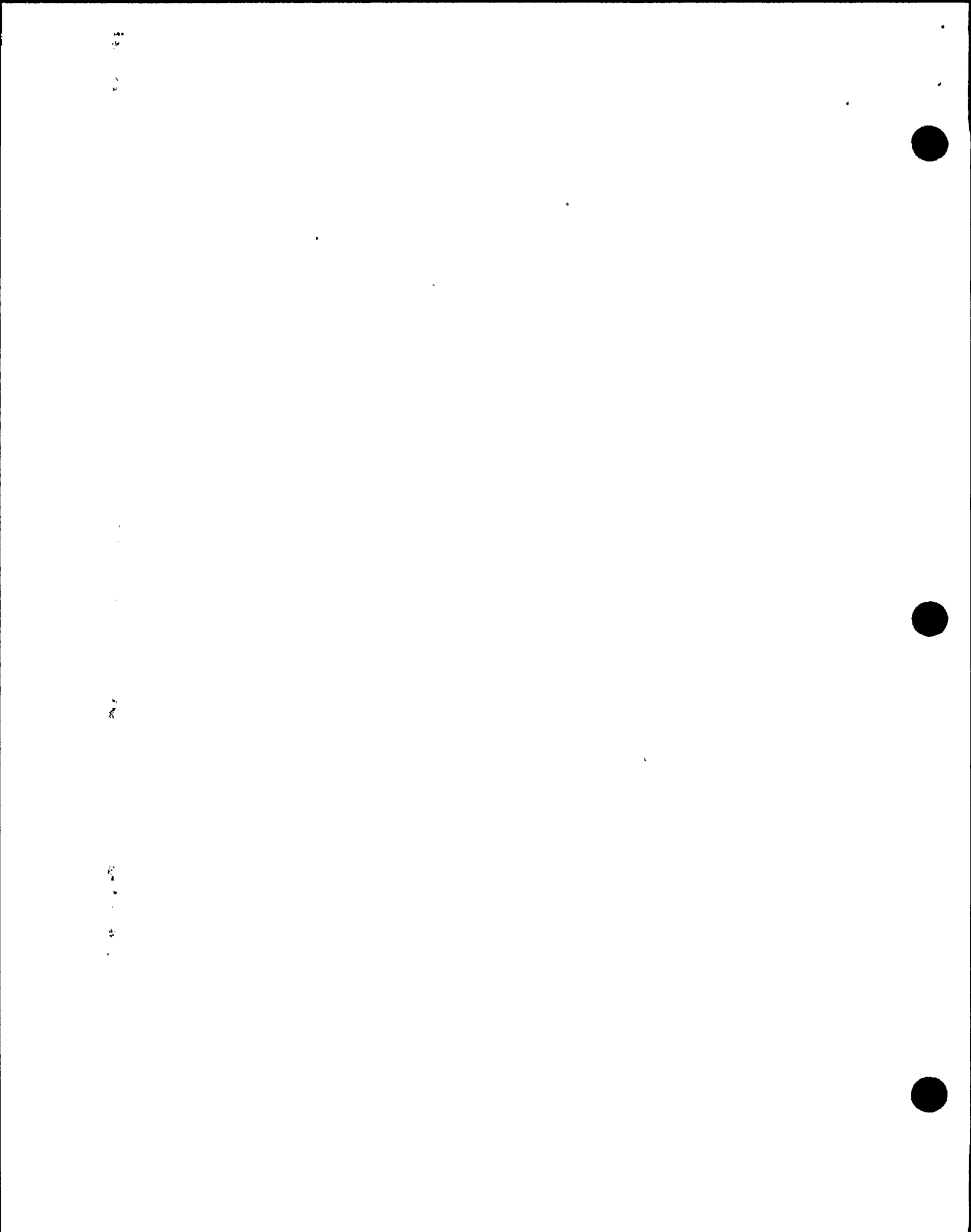
NOTES:
 1. USE SELF-TAPPING (ROLOX) SCREWS AS PER THE FOLLOWING SYMBOLS:
 ▲ C-32
 ▲ D-32
 ▲ WD-32



NUCLEAR SAFETY RELATED

DRAWING TITLE RIGHT SIDE PLATE ASSY. DISTRIBUTION CABINET		DRAWING NO. 5431219	
DESIGNED BY W. J. ...		CHECKED BY ...	
DATE ...		PROJECT NO. ...	
DRAWN BY ...		APPROVED BY ...	
PART NO. ...		QUANTITY ...	
MATERIAL ...		FINISH ...	
MANUFACTURER ...		INSPECTION ...	


PAGE 21 OF 21



NOTES:

1. USE ONLY TEFZEL WIRE.
2. RING-TONGUE (W/NYLON) LUGS.
3. BRADY "B-361" MARKERS ON ALL WIRES (BOTH ENDS).
4. NO SPICES ALLOWED.
5. NO "DEAD-ENDED" WIRES.
- 6.
7. NO "TIE CORD".
- 8.
9. NO "VINYL TUBING".
10. NO "WHITE NUTS".
11. NO "ESNA NUTS".
12. BLACK INK LABELS.
13. NO "CHANGE TAPE" LABELS.
14. GLASS TAPE ALL ROUND CAPS.
15. ROUTE SIGNAL WIRES TO RIGHT SIDE OF UNIT AND POWER WIRES TO LEFT SIDE OF UNIT.
16. KEEP SIGNAL WIRES AWAY FROM POWER WIRES & LARGE MAG'S (AS MUCH AS PRACTICAL).

PRODUCTION LEADS & SUPERVISORS SHALL INSURE THAT A COPY OF THIS PRODUCTION AID IS ATTACHED TO EVERY SECTION OF NUCLEAR RELATED WIRELISTS BEFORE THEY ARE DISTRIBUTED TO WIRES!

		SPECIAL PRODUCTION NOTES FOR NUCLEAR RELATED UNITS	
TOLERANCE AND NOTE UNLESS NOTED FRACTIONS 1/16 DECIMALS .0005 AND .001 ANGLES 1/2°		NATIONAL UPS 253-1-106	
DRAFT	FINISH	TOLERANCE	SCALE
CHECK	DATE	PRICE ALLOW	TYPE NUCLEAR
APPROVALS		SHEET 1 OF 1	543-625-50

Vertical text or markings along the left edge of the page, possibly bleed-through from the reverse side.



WIRE NO

REF WIRE NO

COLOR

K

2 E 1 0 0 0 7
FROM TO

COMING

PAGE 25 OF 50
REMARKS

3

DISTRIBUTION UPS
CABINET CABINET

SIGNAL

9.	NX			D-A1-TB81-2	A5-TB501-2
1	NX	16		D-A1-TB81-7	A7-TB3-7
2	A	16		↑ 8	A7-TB3-8
3		16		↓ 9	A7-TB3-9
4		16		D-A1-TB81-10	A7-TB3-10
10		16		D-A1-TB81-16	A5-TB501-16

POWER

5		4/0		D-A3-E83	A4-E53
6		4/0		↑ E84	A2-E51
7	↓	4/0		↓ E87	A7-E54
8	NX	4/0		D-A3-E88	A3-E52

11	NX	4/0		D A5-C1(+) BUSS BAR	L51-2
12	NX	4/0		D A5-C16(+) BUSS BAR	A5-C57(+) BUSS BAR
13	NX	4/0		D A5-L1-B-2	A5-C57(+) BUSS BAR
14	NX	4/0		D-TB4-1	A7-TB4-1
15	NX	4/0		D-TB4-2	A7-TB4-2
16	NX	4/0		D-TB5-1	A7-TB5-1

ADDITIONAL REMARKS:
NX-WIRE NOT CROSS REF'd.



TITLE WIRE LIST INTERCHASSIS
INTERCONNECT
MODEL: UPS253-1-106

DRAWN

CHECK

DESIGN

DWG NO

543-625-50

REV

I

SHT

OF

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5

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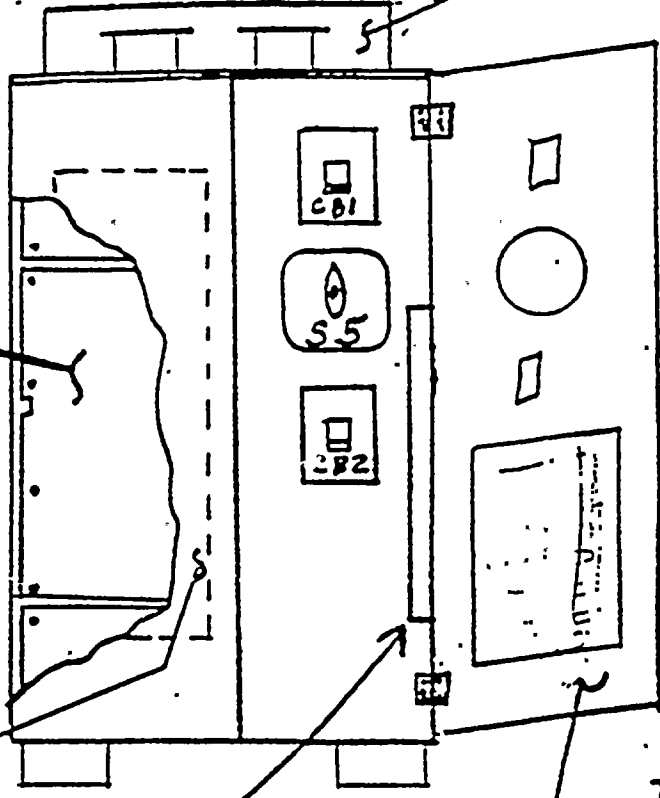
D-A3
HEAT SINK
ASSY

D-A5
190 RIPPLE PANEL
(BEHIND LEFT
FRONT COVER)

D-A1
RT. SIDE PLATE
ASSEMBLY

D-A2
RT. DOOR ASSY
(SHOWN OPEN)

(NO WIRING TO
D-A2 ASSY)



	UPS 253-1-106
(Faint, illegible text)	DISTRIBUTION CABINET
(Faint, illegible text)	<i>Notion Related</i>
SHT 1 OF 1	543-625-50

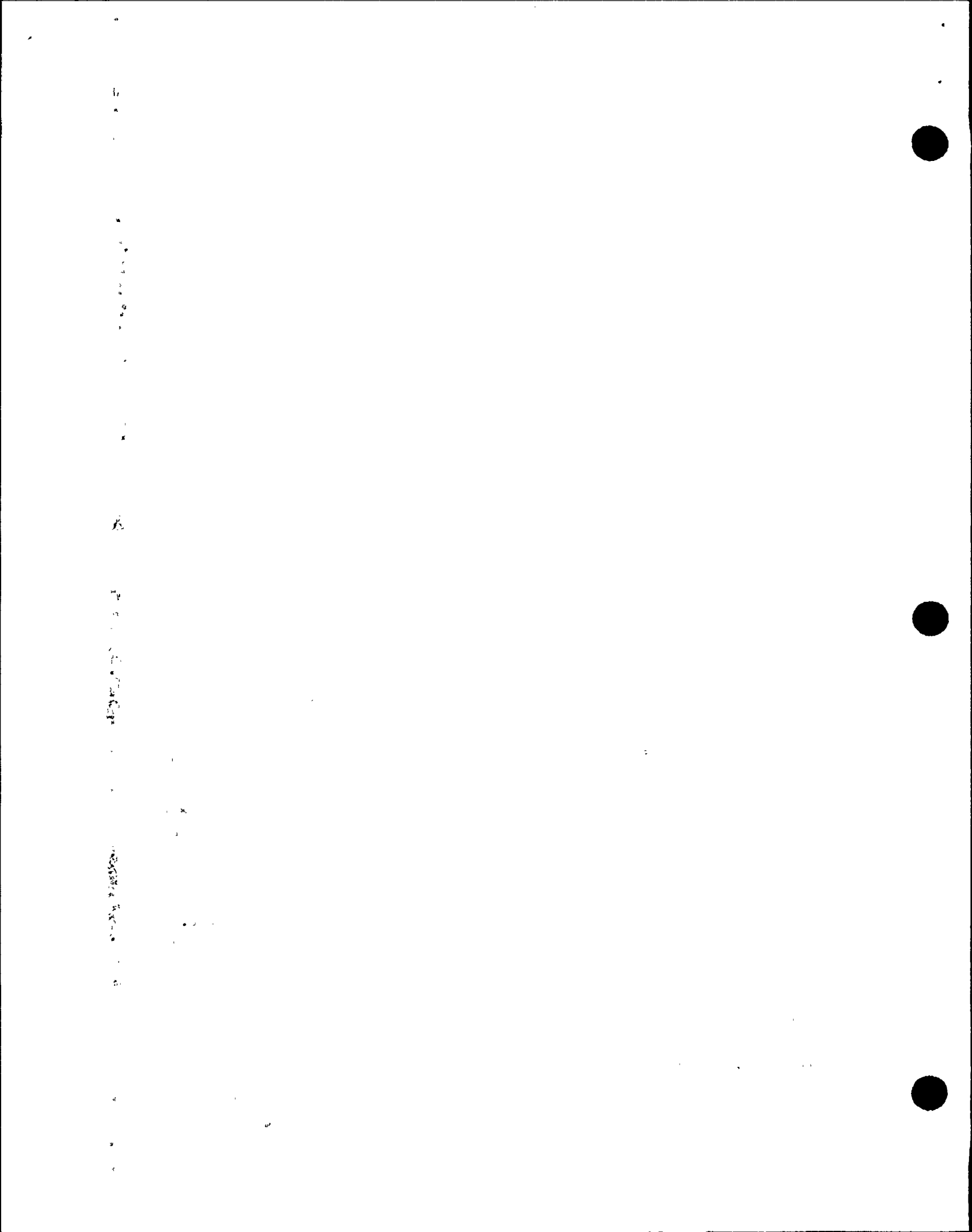
WIRE NO	REF WIRE NO	COLOR	SIZE	CONDUCTOR	FROM	TO	REMARKS
					(643-563-4X) D-A 1		
1			16		TB86-1	J81-1	
2			16		^ 2	J81-2	
3			16		3	J81-3	
4			16		4	J81-4	
5			16		5	J81-5	
6			16		6	J81-6	
7			16		7	J81-8	
8	NX	UNK JUMPER	SELF		8	TB86-9	
9			16		8	C83 (+)	
10			16		9	BR81 (+)	
11	NX	UNK JUMPER	SELF		10	TB86-11	
12			16		10	C83 (-)	
13			16		11	BR81 (-)	
14			16		11	T84-6	
15			16		12	T84-1	
16			16		13	F83-1	
17			16		13	F84-1	
18			16		14	T85-1	
19			16		15	F82-1	
20			16		16	J81-9	
21			16		17	J81-10	
22			16		18	T84-4	
					v		
24			16		TB86-18	F82-2	
50	NX		16		TB81-2	K1-14	
49	NX		16		TB81-16	K1-15	
	17		16		F84-1	TB86-13	
26			6		F84-2	TB81-4	
	16		16		F83-1	TB86-13	
28			16		F83-2	T85-4	
	19		16		F82-1	TB86-15	
	24		16		F82-2	TB86-18	
31			16		BR81-AC-1	T84-9	
32			16		BR81-AE-2	T84-8	
	10		16		BR81 (+)	TB86-9	
	31		16		BR81 (-)	TB86-11	
33			SELF		C86-1	CHASSIS END	SLEEVE W/TEFLON

ADDITIONAL REMARKS:
 WIRE NOT CROSS REF'D.
 SEE ALL WHT TEFZEL WIRE



TITLE: WIRE LIST D-A1
 MODEL: UPS 2534-106

DRAWN		DWG NO	543-625-50	REV	M
CHECK		SHT 1 OF 2			
DESIGN					



2 E 1 0 0 0 7

REVISIONS 28 OF 5

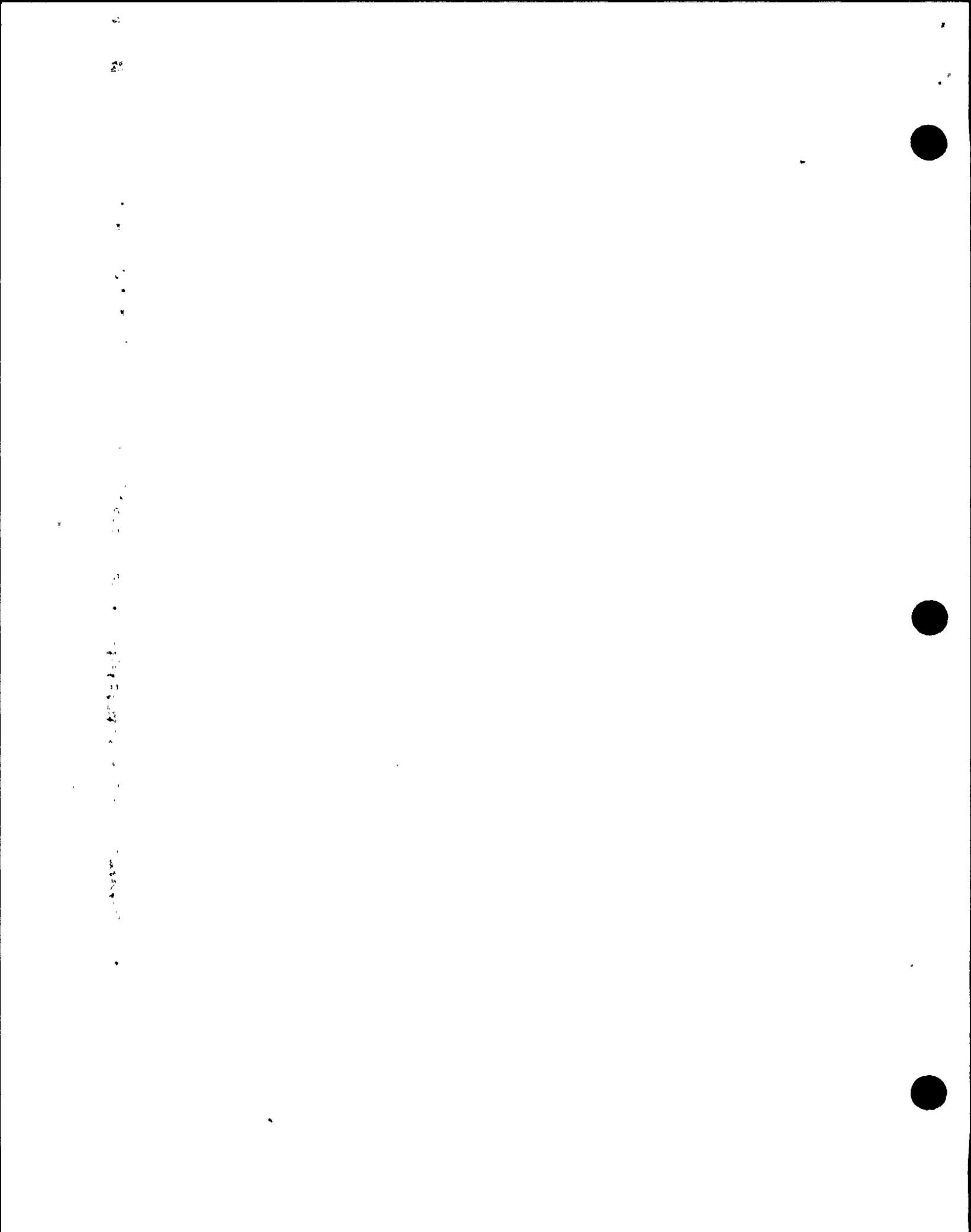
WIRE NO	REF WIRE NO	COLOR	SIZE	DESCRIPTION	TERMINATION	OTHER
47	NX		16	C83(+)	K1-1	✓
	9		16	C83 (+)	T886-8	
	12		16	C83 (-)	T886-10	
48	NX		16	C83 (-)	K1-4	✓
	1		16	J81-1	T886-1	
	2		16	A 2	T886-2	
	3		16	3	T886-3	
	4		16	4	T886-4	
	5		16	5	T886-5	
	6		16	6	T886-6	
	7		16	8	T886-7	
	20		16	9	T886-16	
	21		16	10	T886-17	
35			16		T85-6	
36			16		T84-6	
37			16		T85-5	
38			16	Y 18	T84-7	
39			16	J81-20	T84-5	
40	NX		16	J85-1	T886-10	✓
41	NX		16	J85-3	T886-8	✓
	18		16	T85-1	T886-14	
42	NX		16	↑ 2	T85-3	
	28		16	4	F83-2	
	37		16	Y 5	J81-17	
	35		16	T85-6	J81-15	
44	NX		16	J85-7	J81-22	✓
43	NX		16	T84-1	T84-2	
	15		16	T84-1	T886-12	
45	NX		16	A 3	T84-4	
	22		16	4	T886-18	
	39		16	5	J81-20	
	36		16	6	J81-16	
	38		16	7	J81-18	
	32		16	Y 8	BR81-AC-2	
	31		16	T84-9	BR81-AC-1	
	14		16	T84-6	T886-11	
	26		16	T881-4	F84-2	
46	NX		SELF	J81-T	C86-2	✓ SLEEVE W/TEFLON

ADDITIONAL REMARKS:
USE ALL WHT TEFZEL WIRE.



TITLE WIRE LIST D-A1
MODEL: UPS 253-1-106

DRAWN	DATE	REV
CHECK		M
DESIGN	SHT 2 OF 2	



WIRE NO	REF WIRE NO	COLOR	SIZE	FROM	TO	REMARKS
47	NX		16	C83(+)	K1-1	
	9		16	C83 (+)	TB86-8	
	12		16	C83 (-)	TB86-10	
48	NX		16	C83 (-)	K1-4	
	1		16	J81-1	TB86-1	
	2		16	^ 2	TB86-2	
	3		16		TB86-3	
	4		16		TB86-4	
	5		16		TB86-5	
	6		16		TB86-6	
	7		16		TB86-7	
	20		16		TB86-16	
	21		16		TB86-17	
35			16		T85-6	
36			16		T84-6	
37			16		T85-5	
38			16	v 18	T84-7	
39			16	J81-20	T84-5	
40	NX		16	J85-1	TB86-10	
41	NX		16	J85-3	TB86-8	
	18		16	T85-1	TB86-14	
42	NX		16	^ 2	T85-3	
	28		16		F83-2	
	37		16	v 5	J81-17	
	35		16	T85-6	J81-15	
44	NX		16	J85-7	J81-22	
43	NX		16	T84-1	T84-2	J
	12		16	T84-1	TB86-12	
45	NX		16	^ 3	T84-4	J
	22		16		TB86-18	
	35		16		J81-20	
	36		16		J81-16	
	30		16		J81-18	
	32		16	v 8	BR81-AL-2	
	31		16	T84-9	BR81-AL-1	
	14		16	T84-6	TB86-11	I
	26		16	TB81-4	F84-2	
46	NX		SELF	J81-T	C86-2	SLEEVE W/TEFLON

ADDITIONAL REMARKS:
 USE ALL WHT TEFZEL WIRE.



TITLE WIRE LIST D-A1
 MODEL: UPS 253-1-106

DRAWN	DESIGN	DWG NO	REV
CHECK			- M
		SHT 2 OF 2	

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WIRE NO	REF WIRE NO	COLOR	SIZE	FROM	TO	REMARKS
1	NX		SELF	TB282-1	SCR81-G	TWIST
2	↑		↑	2	SCR81-K	
3			↓	3	SCR82-G	TWIST
4			SELF	4	SCR82-K	
5			16	7	SCR81-K	
6			16	8	SCR81-A	
7			SELF	9	SCR83-G	TWIST
8			↑	10	SCR83-K	
9			↓	11	SCR84-G	TWIST
10			SELF	12	SCR84-K	
11			16	15	SCR83-K	
12			16	TB282-16	SCR83-A	
14			SELF	TB283-1	SCR85-G	TWIST
15			↑	2	SCR85-K	
16			↓	3	SCR86-G	TWIST
17			SELF	4	SCR86-K	
18			16	7	SCR85-K	
19			16	8	SCR85-A	
20			SELF	9	SCR87-G	TWIST
21			↑	10	SCR87-K	
22			↓	11	SCR88-G	TWIST
23			SELF	12	SCR88-K	
24			16	15	SCR87-K	
25			16	TB283-16	SCR87-A	
27			SELF	TB284-1	SCR89-G	TWIST
28			↑	2	SCR89-K	
29			↓	3	SCR90-G	TWIST
30			SELF	4	SCR90-K	
31			16	7	SCR89-K	
32			16	8	SCR89-A	
33			SELF	9	SCR91-G	TWIST
34			↑	10	SCR91-K	
35			↓	11	SCR92-G	TWIST
36			SELF	12	SCR92-K	
37			16	15	SCR91-K	
38	NX		16	TB284-16	SCR91-A	

ADDITIONAL REMARKS:
 WIRE NOT CROSS REF'D.
 USE ALL WHT TEFZEL WIRE.



TITLE WIRE LIST D-A3
 MODEL: UPS253-1-106

DRAWN	DATE	543-625-50	REV
CHECK			
DESIGN		SHT 1 OF 7	

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NO 2E1P0017

WIRE NO	REF WIRE NO	COLOR	SIZE	WIRE	FROM	TO	WIRE
47			8		SCR81-A	SCR82-K	
	47		↑		SCR82-K	SCR81-A	
48			↓		SCR83-A	SCR84-K	
	48		8		SCR84-K	SCR83-A	
50			8		SCR85-A	SCR86-K	
	50		8		SCR86-K	SCR85-A	
51			8		SCR87-A	SCR88-K	
	51		8		SCR88-K	SCR87-A	
52			4		SCR88-A	SCR89-K	
	52		4		SCR89-K	SCR88-A	
53			8		SCR89-A	SCR90-K	
	53		8		SCR90-K	SCR89-A	
54			8		SCR91-A	SCR92-K	
	54		8		SCR92-K	SCR91-A	
56			4		E87	F81-2	THRU CT82
57			10		F87	C81-2	
58			10		F87	C82-2	
60			10		RV81	SCR86-K	
61			10		RV82	SCR88-K	
	57		10		C81-2	E87	
	58		10		C82-2	F87	
	56		4		F81-2	E87	THRU CT82
	60		10		SCR86-K	RV81	
	61		10		SCR88-K	RV82	

ADDITIONAL REMARKS:



TITLE WIRE LIST D-A3

MODEL: UPS 253-1-106

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WIRE NO	REF WIRE NO	COLOR	SIZE	COMM	FROM	TO	REMARKS
					RIPPLE FILTER ASSY 5431081-02 (D-A5)		
1			16		T8501-1	P501-1	
2			16		T8501-2	P501-2	
4	NX		16		R1-A-1	R1-B-1	
5	NX		16		R1-A-2	R1-B-2	
7	NX		10		R1-B-1	C1(+) BUSS BAR	
8	NX		10		R1-B-2	C1(-) BUSS BAR	
	1		16		P501-1	T8501-1	
	2		↑		↑ 2	T8501-2	
12	NX				E1	C1A(+)	
14	↑				E2	C1B(+)	
15					E3	C1C(+)	
16					E4	C1D(+)	
17					E5	C1E(+)	
18					E6	C1F(+)	
19					E7	C1G(+)	
20					E8	C1H(+)	
21					E9	C1I(+)	
22					E10	C1J(+)	
23					E11	C1K(+)	
24					E12	C1L(+)	
25					E13	C1M(+)	
26					E14	C1N(+)	
27					E15	C1O(+)	
28	∇		∇		∇ E16	C1P(+)	
29	NX		16		P501-E41	C1(+) BUSS BAR	
31	NX		10		FUSE TO CAPTIVE PIPERS SHOWN ON ASSY TRY G.		
33			2/0		C1(+) BUSS BAR	L1-A-1	
	33		2/0		L1-A-1	C1(+) BUSS BAR	
35	NX		2/0		L1-A-2	L1-B-1	

ADDITIONAL REMARKS:



TITLE WIRE LIST D-A5

MODEL: WPS 253-1-106

DRAWN	
CHECKED	
DESIGN	

DWG NO 543-625-50- I
SHT 1 OF 1

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253-1-106-071
 WIRE LIST & REEDED

WIRE NO	REF WIRE NO	COLOR	SIZE	CHUCK	FROM	TO	REMARKS
					"SELF WIRING" (DISTRIBUTION CABINET)		
1	NX	*	SELF		TB1-3	CB1-AUX-2-NO	
2	A	*	↑		4	CB1-AUX-2-NC	
3		WHT			5	CB1-AUX-2-ARM	
4		*			6	CB1-AUX-1-NO	
5		*			↓ 7	CB1-AUX-1-NC	
6		WHT			TB1-8	CB1-AUX-1-ARM	
9		*			TB2-3	CB2-AUX-2-NO	
10		*			↑ 4	CB2-AUX-2-NC	
11		WHT			5	CB2-AUX-2-ARM	
12		*			6	CB2-AUX-1-NC	
13	↓	*	↓		7	CB2-AUX-1-NO	
14	NX	WHT	SELF		TB2-8	CB2-AUX-1-ARM	

ADDITIONAL REMARKS:
 NX- WIRE NOT CROSS REF'd.
 + See sheet 2 of 2
 FOR wire color.



TITLE: WIRE LIST C/B WIRING
 DIST- CABINET
 MODEL: UPS 253-1-106
 DWS NO: 543-625-50
 SHT 1 OF 2

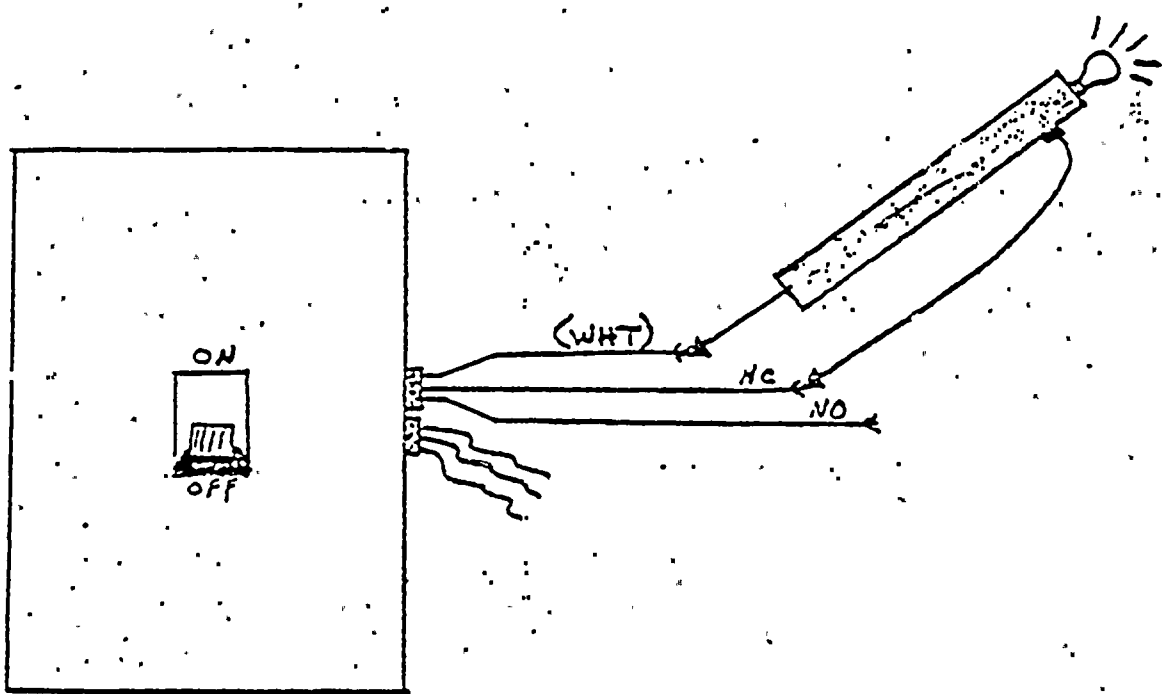
DRAFT
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STEP	PROCEDURE
1	PLACE SWB IN <u>OFF</u> POSITION.
2	CONNECT TEST LAMP TO THE <u>'WHITE'</u> WIRE.
3	TRY THE OTHER TWO WIRES UNTIL ONE LIGHTS THE TEST LAMP SWLB. THIS IS THE <u>"NO"</u> WIRE.
4 (IF NEC.)	REPEAT STEP 2 and 3 for each additional set of AUX wires

NOTE: THE WHITE WIRE MAY BE CALLED "ARM", "TAP", or "WIPER".



		CIRCUIT BREAKER "AUXILIARY" WIRING TEST PROCEDURE	
*DIMENSIONS AND NOTES UNLESS NOTED FRACTIONS 1/16, 1/8, 3/16, 1/2, 5/8, 3/4, 7/8 DECIMALS .001, .002, .003, .005, .010, .015, .020, .030, .040, .050, .060, .070, .080, .090, .100, .125, .150, .175, .200, .250, .300, .350, .400, .450, .500, .550, .600, .650, .700, .750, .800, .850, .900, .950, 1.000 ANGLES 15°, 30°, 45°, 60°, 75°, 90°, 105°, 120°, 135°, 150°, 165°, 180°		MATERIAL UPS 253-1-106 (DISTRIBUTION CABINET) C/R WIRING ("SELF")	
DATE	12/1/80	DESIGN	SHT 2 OF 2
R. Schuler		12/1/80	

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WIRE NO	REF WIRE NO	COLOR	SIZE	CONDUCTORS	TERMINALS	REMARKS
1			16		DAI-TB81-4	DA4-TB88-4
2			16		DAI-TB86-1	DA3-P81-9
3			16		2	DA3-P84-8
4			16		3	DA3-P83-9
5			16		4	DA3-P83-8
6			16		5	DA3-P82-9
7			16		6	DA3-P82-8
8			16		7	DA3-P83-4
9			16		8	DA3-P82-2
10			16		8	DA3-P83-2
11			16		9	DA3-P84-2
12			16		10	DA3-P82-5
13			16		10	DA3-P83-5
14			16		11	DA3-P84-5
15			16		12	DA3-F81-1
16			16		13	DA3-C82-1
17			16		14	DA3-C82-2
18			16		15	DA3-C81-1
19			16	✓	16	DA3-CT82-2
20			16		DAI-TB86-17	DA3-CT82-1
21			16		DAI-TB81-2	DA5-TB501-2
22			16		7	D-TB1-7
23			16		8	D-TB1-8
24			16		9	D-TB2-7
25			16	✓	10	D-TB2-8
9			16		DAI-TB81-16	DA5-TB501-1
12			16		DA3 P82-2	DAI-TB86-8
7			16		↑	5 DAI-TB86-10
6			16		↓	8 DAI-TB86-6
10			16		P82-9	DAI-TB86-5
8			16		P83 2	DAI-TB86-8
13			16		↑	4 DAI-TB86-7
5			16		↓	5 DAI-TB86-10
4			16		8	DAI-TB86-4
11			16		P83-9	DAI-TB86-3
14			16		P84-2	DAI-TB86-9
3			16		↑	5 DAI-TB86-11
2			16	✓	8	DAI-TB86-2
					DA3-P84-9	DAI-TB86-1

TWIST

ADDITIONAL REMARKS:



WIRE LIST DIST. CABINET SIGNAL INTERCONNECT MODEL: UPS 253-1-106

DATE	
CHECK	
DESIGN	

SWG NO 543-625-50-1A
SHT 1 OF 3

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WIRE NO	REF WIRE NO	COLOR	SIZE	FROM	TO	REMARKS
	20		16	DA3-CT82-1	D AI-TB86-17	TWIST
	19		16	↑ CT82-2	D AI-TB86-16	
	15		16	F81-1	D AI-TB86-12	
	18		16	C81-1	D AI-TB86-15	
	16		16	C82-1	D AI-TB86-13	
	17		16	C82-2	D AI-TB86-14	
30			16	C82-2	DA4-TB88-1	
31			10	C81-1	T81-8	
32			10	C81-2	T81-7	
33			10	C82-1	T83-2	
35			10	SCR81-A	T82-4	
36			10	SCR84-K	T82-3	
37			10	SCR85-A	T82-5	
38			10	SCR86-A	T82-6	
39			10	SCR87-A	T83-5	
40			10	SCR89-A	T83-4	
41			10	Y-SCR91-A	T83-3	
42			10	DA3-SCR92-A	T83-6	
30			16	DA4-TB88-1	DA3-C82-2	
			16	DA4-TB88-4	DA1-TB81-4	
25			16	DA5-TB501-1	D AI-TB81-16	
26			16	DA5-TB501-2	D AI-TB81-2	
21			16	D-TB1-7	DA1-TB81-7	
22			16	↑ TB1-8	DA1-TB81-8	
23			16	↓ TB2-7	DA1-TB81-9	
24			16	D-TB2-8	DA1-TB81-10	
32			10	T81-7	DA3-C81-2	
31			10	T81-8	DA3-C81-1	

ADDITIONAL REMARKS:

SELGAR
CORPORATION

WIRE LIST SIGNAL
INTERCONNECT
MODEL: 11PS253-1-101

DATE: _____
SPEC: _____
SHT 2 OF 3

3WG NO
543-625-50-1A
SHT 2 OF 3

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DISTRIBUTION CABINET

WIRE NO	REF WIRE NO	COLOR	SIZE	FROM	TO	REMARKS
			4/0	S5-1	DA3-E88	
2			4/0	S5-2	T82-2	
3			4/0	S5-3	DA3-E83	
6			4	CBI-A-LINE	D-TB4-1	
7			4	CBI-A-LOAD	T81-4	
	14		4	CBI-B-LINE	D-TB4-2	I
5			4	CBI-B-LOAD	T81-1	I
8			4/0	CB2 A-LINE	T83-2	
9			4/0	CB2-A-LOAD	DA3-E84	
11			4/0	DA3-E87	D-TB5-2	
	3		4/0	DA3-E83	S5-3	
	9		4/0	DA3-E84	CB2-A-LOAD	
	1		4/0	DA3-E88	S5-1	
12			4/0	DA3-E87	T81-4	
	6		4	D-TB4-1	CBI-A-LINE	
14			4	D-TB4-2	CBI-B-LINE	
	11		4/0	D-TB5-2	DA3-E87	
	5		4	T81-1	CBI-B-LOAD	
	7		4	A-4	CBI-A-LOAD	
	12		4/0	V 7	DA3-E87	
17			4/0	T81 8	T82-1	
	17		4/0	T82-1	T81-8	
19			4/0	T82-2	T83-1	
	19		4/0	T83-1	T82-2	
	8		4/0	T83-2	CB2-A-LINE	
	2		4/0	T83-2	S5-2	

ADDITIONAL REMARKS:

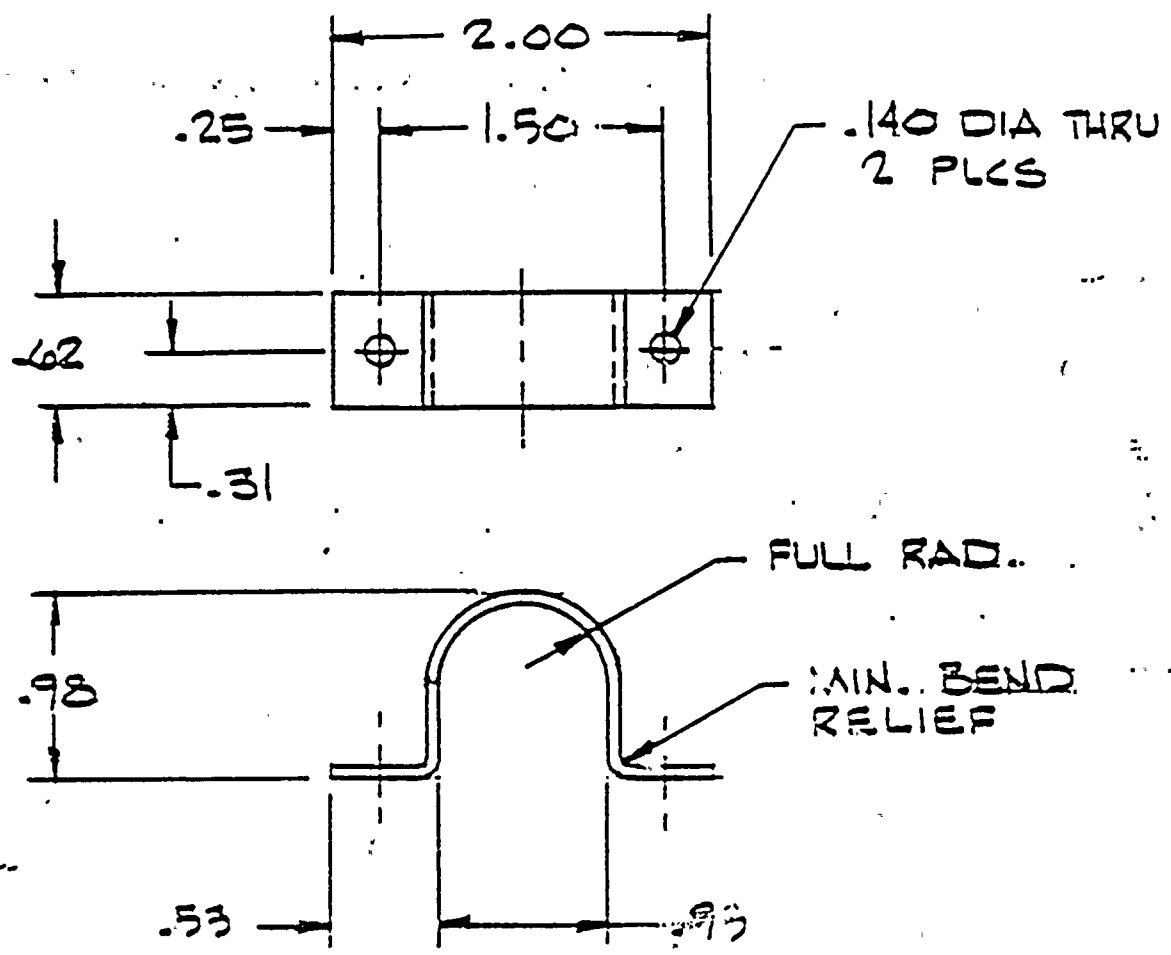


WIRE LIST DIST. CAB. POWER INTERCONNECT MODEL: UPS 253-1-106

DRAFT		DWG NO	543-625-50	REV	I
CHECK		SHT | OF |			
DESIGN					



APPLICATION		NO. 25965		REVISIONS		PAGE 40 OF 50	
NEXT ASSY.	USED ON	DESCRIPTION	DATE	APPROVED			
		A ENG. REL. EO #1831	10-1-87	R.F.			



- ⚠ FINISH: USE ELGAR SPEC. 1005019-02
- ⚠ MATL: 16 GA (.0598) COLD ROLLED STEEL.
- 1. DEBURK & BREAK ALL SHARP EDGES & CORNERS.

NOTES:

NUCLEAR SAFETY RELATED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:	CONTRACT NO.	
	FIRST MADE FOR:	
	APPROVAL	DATE
	DRAWN <i>RAMIREZ</i>	9-87
	CHECKED <i>T. HAYWARD</i>	10-5
DECIMALS FRACTIONS ANGLES	PROJ ENG <i>R. S. SPESH</i>	9-87
.XX = .03 = 1/32 = 1/2°	QA-REL <i>D. R. DAW</i>	10-87
.XXX = .010	NOT SCALE THIS DRAWING	

ELGAR

BRACKET - CAPACITOR

SCALE	CODE IDENT. NO.	DRAWING NO.	REV
1/1	A 25965	9481055-01	A
SHEET		1 OF 1	

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ASSY. PART NO. 5430050-1	TITLE C. FUSE LAMP ASSY (A5) 1 1 5	SHT. 1 OF 9 SHT. 7-9 ^{1/2} C SIZE	REV. C
DRAWN RAMIREZ	DATE 10-19-86	PROJ. ENG. R. PERISA	DATE 2-11-87
CHECKED E. LLEWELLYN	DATE 2-11-87	QA-REL. D. RUSSELL	DATE 4-6-87

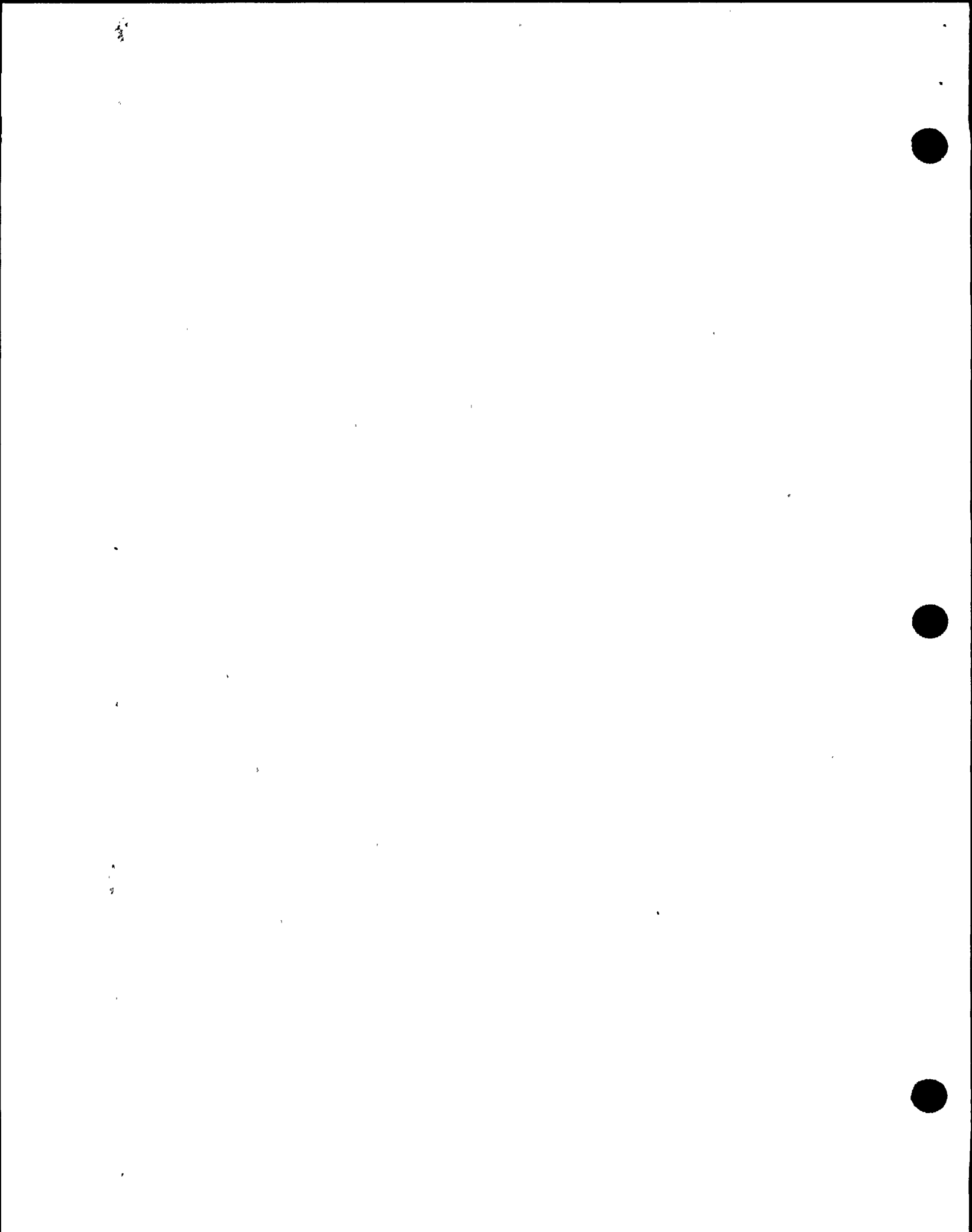
REVISIONS

REV.	ASSY. DASH NO.								DESCRIPTION	DRAFTER	CHECKED	APPROVED	DATE
	01	02	03	04	05	06	07	08					
A	*	*	*						ENG: RELEASE 1829	RAMIREZ	CRP	CRP	2-11-87
B	*	*	*						ECN 6382	FJR	CRP	CRP	4-6-87
C	*	*	*						ECN 6725	FEL	CRP	FEL	5-2-87

ITEM NO.	ASSY. DASH NO.								ASSEMBLY DESCRIPTION	REMARKS
	01	02	03	04	05	06	07	08		
1	X								FUSE LAMP	
2		X							FUSE LAMP	
3			X						FUSE LAMP	
4				X						
5					X					
6						X				
7							X			
8								X		

2010001

PAGE 11 OF 12



SINGLE LEVEL PARTS LIST

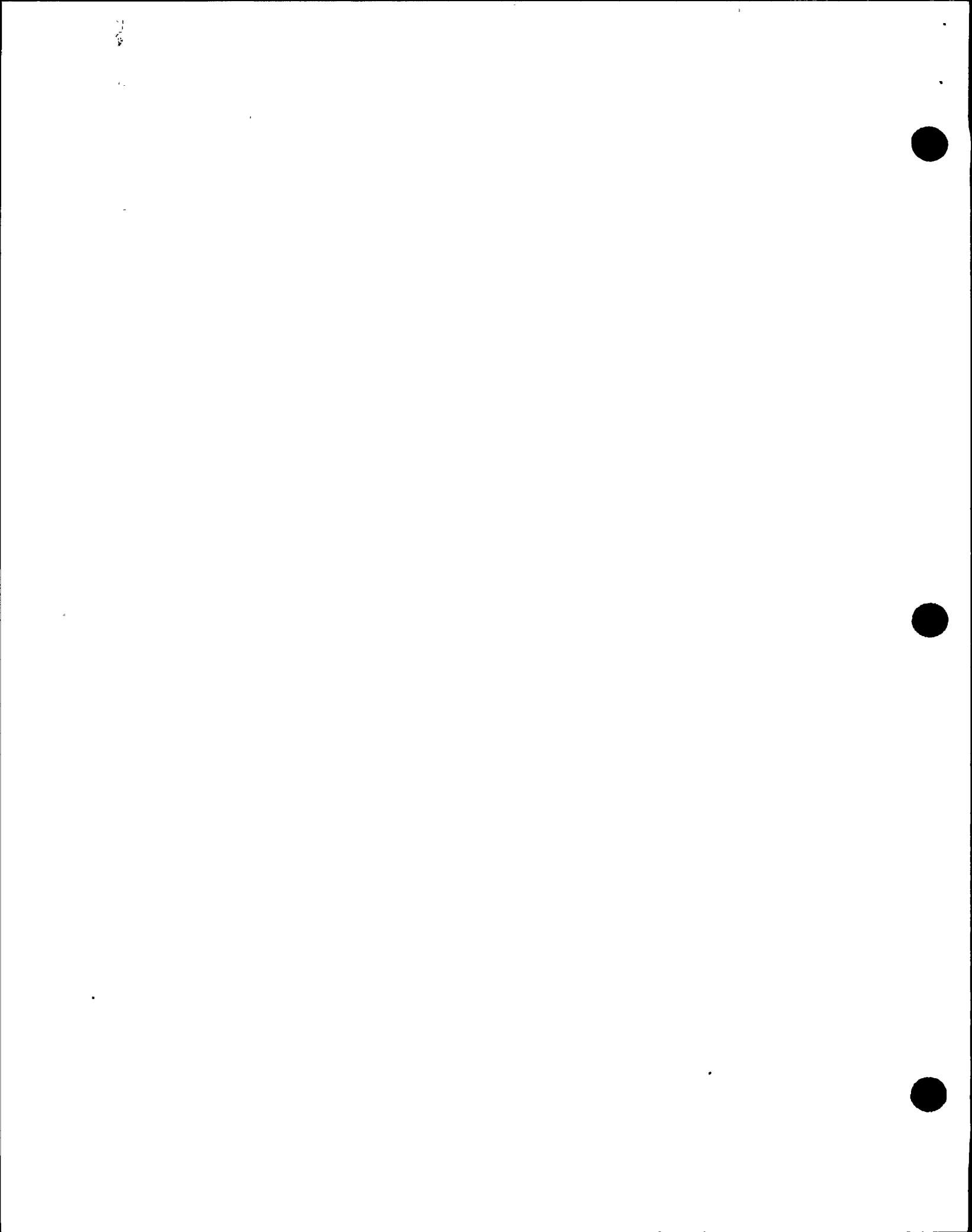
MATERIAL ITEM NO.	DESCRIPTION	UM	LEAD TIME	ITEM TYPE	GROSS REQMT
00050-01	C FUSE LAMP	S EA	10.0	4	

LEVEL	MATERIAL ITEM NO.	DESCRIPTION	ITEM TYPE	SEQ. NO.	UM	QTY PER
01	9430050-01	8 PCB FUSE LAMP	S 4	09	EA	1
	REFERENCE DESIG					
01	6430050-01	A SCHEM DIAG-FUSE LAMP	S 6	10	EA	
	REFERENCE DESIG REF					
01	N823106-71	CAP TANT 10UF 50V	S 4	11	EA	2
	REFERENCE DESIG C1,C2					
01	N845400-4X	DIODE 1A 400V	S 4	12	EA	2
	REFERENCE DESIG CR1,CR2					
01	N848558-03	LAMP AMBER LED	S 4	13	EA	1
	REFERENCE DESIG DS1					
01	856-109-12	09-72-1091 MOLEX 9P HEA	A 4	14	EA	1
	REFERENCE DESIG J1					
01	N803182-05	RES 1W 5% 1.8K	S 4	15	EA	1
	REFERENCE DESIG R1					

SINGLE LEVEL PARTS LIST

MATERIAL ITEM NO.	DESCRIPTION	UM	LEAD TIME	ITEM TYPE	GROSS REQMT
5430050-01	C FUSE LAMP	S EA	10.0	4	

LEVEL	MATERIAL ITEM NO.	DESCRIPTION	ITEM TYPE	SEQ. NO.	UM	QTY PER
01	N849782-4R	REG S.G. 3TERM T066	S 4	16	EA	1
	REFERENCE DESIG U1					
01	894-616-6C	T066 HTSK 6166C	A 4	17	EA	1
	REFERENCE DESIG					
01	110DA04-08	SCREW 6-32 PPH 1/2	A 4	18	EA	2
	REFERENCE DESIG					
01	111DA04-01	WASHER #6 FLAT	A 4	19	EA	2
	REFERENCE DESIG					
01	111DE04-01	WASHER #6 INT TOOTH STA	A 4	20	EA	2
	REFERENCE DESIG					
01	112DB04-01	NUT #6-32 STD HEX	A 4	21	EA	2
	REFERENCE DESIG					
	856-309-11	09-50-3091 MOLEX 9P SOC	A 4	22	EA	1
	REFERENCE DESIG P1					

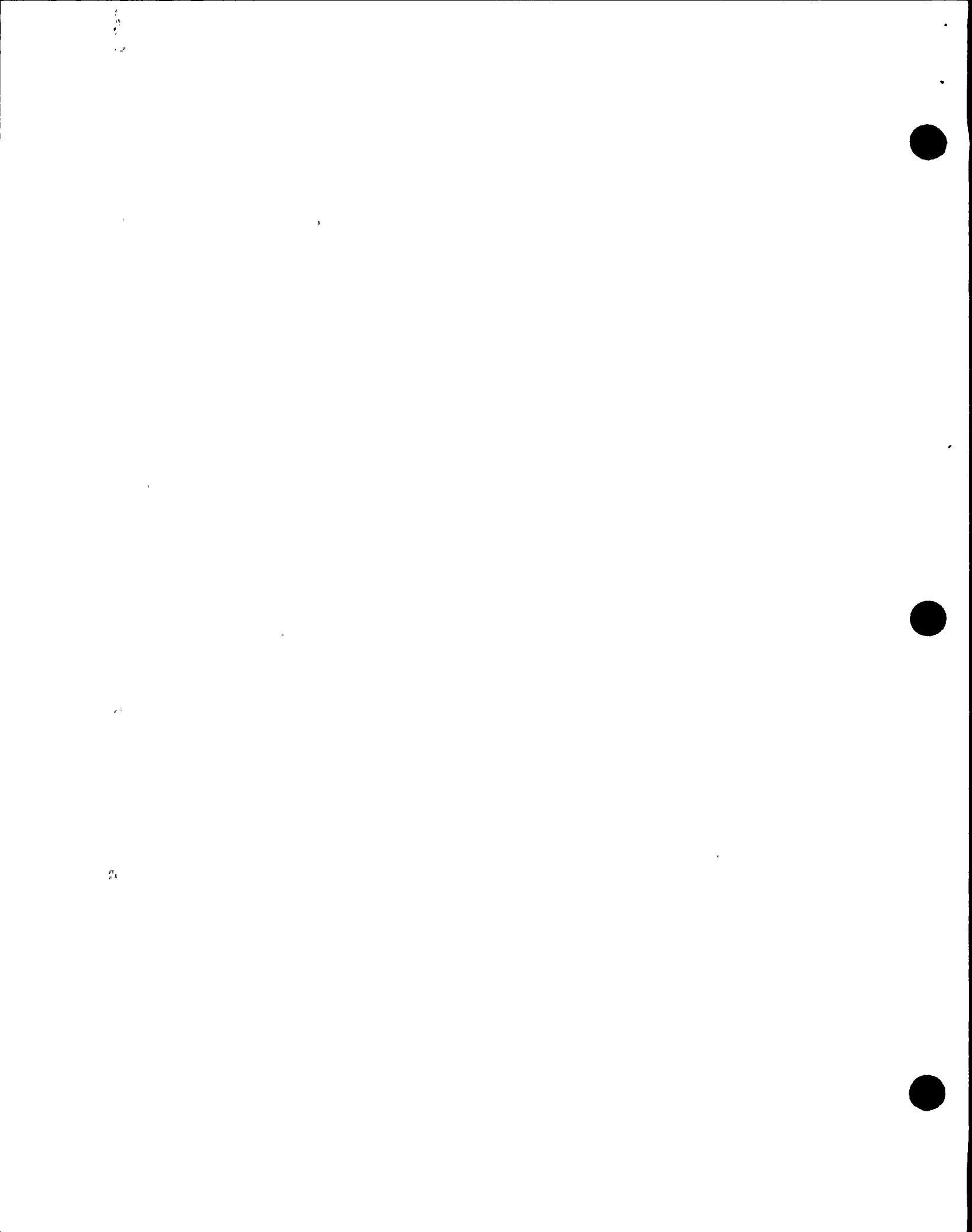


MATERIAL
 ITEM NO.
 30050-01

DESCRIPTION	UM	LEAD TIME	ITEM TYPE	GROSS REQMT
C FUSE LAMP	S EA	10.0	4	

LEVEL	MATERIAL ITEM NO.	DESCRIPTION	ITEM TYPE	SER NO.	UM	QTY PER
01	109-010-6X REFERENCE DESIG	TERMINAL MOLEX	A 4	23	EA	3
01	1131216-99 REFERENCE DESIG	WIRE MS 16 300V WHT	A 4	24	EA	30

END OF REPORT : :



MATERIAL ITEM NO.	DESCRIPTION	UM	LEAD TIME	ITEM TYPE	GROSS REQMT
30050-02	C FUSE LAMP ASSY	S	10.0	4	

LEVEL	MATERIAL ITEM NO.	DESCRIPTION	ITEM TYPE	SEQ NO.	UM	QTY PER
01	9430050-01 REFERENCE DESIG	B PCB FUSE LAMP	S	4	09 EA	1
01	6430050-01 REFERENCE DESIG	A SCHEM DIAG-FUSE LAMP	S	6	10 EA	
01	N823106-71 REFERENCE DESIG	CAP TANT 10UF 50V	S	4	11 EA	2
01	N845400-4X REFERENCE DESIG	DIODE 1A 400V	S	4	12 EA	2
01	N848558-03 REFERENCE DESIG	LAMP AMBER LED	S	4	13 EA	1
01	856-109-12 REFERENCE DESIG	09-72-1091 MOLEX 9P HEA	A	4	14 EA	1
01	N803182-05 REFERENCE DESIG	RES 1W 5% 1.8K	S	4	15 EA	1

SINGLE LEVEL PARTS LIST

MATERIAL ITEM NO.	DESCRIPTION	UM	LEAD TIME	ITEM TYPE	GROSS REQMT
5430050-02	C FUSE LAMP ASSY	S	10.0	4	

LEVEL	MATERIAL ITEM NO.	DESCRIPTION	ITEM TYPE	SEQ NO.	UM	QTY PER
01	N849782-4R REFERENCE DESIG	REG S.G. 3TERM T066	S	4	16 EA	1
01	894-616-6C REFERENCE DESIG	T066 HTSK 6166C	A	4	17 EA	1
01	110DA04-08 REFERENCE DESIG	SCREW 6-32 PPH 1/2	A	4	18 EA	2
01	111DA04-01 REFERENCE DESIG	WASHER #6 FLAT	A	4	19 EA	2
01	111DE04-01 REFERENCE DESIG	WASHER #6 INT TOOTH STA	A	4	20 EA	2
01	112DB04-01 REFERENCE DESIG	NUT #6-32 STD HEX	A	4	21 EA	2
01	856-309-11 REFERENCE DESIG	09-50-3091 MOLEX 9P SOC	A	4	22 EA	1

100



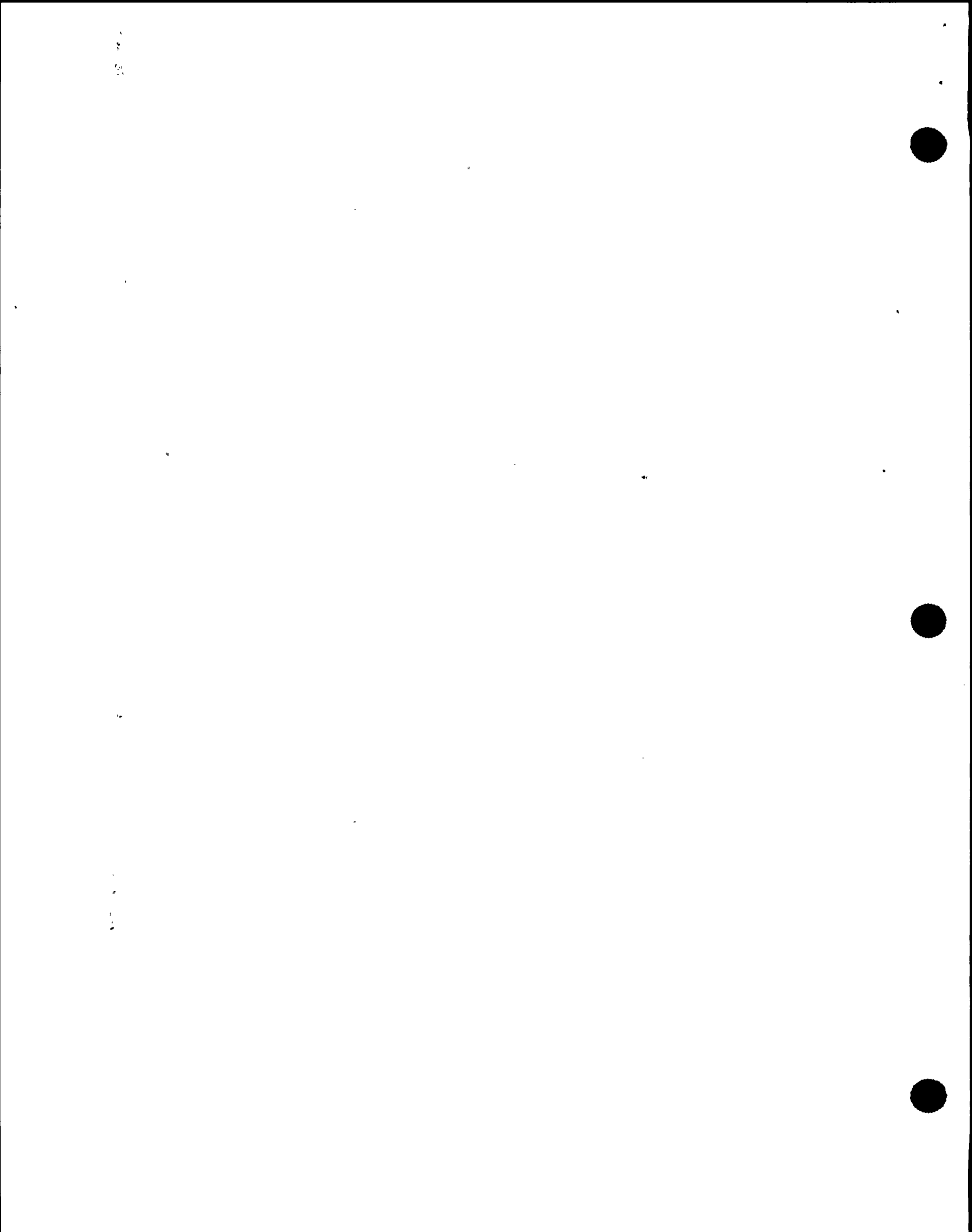
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SINGLE LEVEL PARTS LIST

MATERIAL ITEM NO.	DESCRIPTION	UM	LEAD TIME	ITEM TYPE	GROSS REGMT
430050-02	C FUSE LAMP ASSY	S EA	10.0	4	

LEVEL	MATERIAL ITEM NO.	DESCRIPTION	ITEM TYPE	SEQ NO.	UM	QTY PER
01	109-010-6X REFERENCE DESIG	TERMINAL MOLEX	A 4	23	EA	3
01	1131216-99 REFERENCE DESIG	WIRE MS 16 600V WIT	A 4	24	EA	30

END OF REPORT : :



MATERIAL ITEM NO. 9430050-03 DESCRIPTION C FUSE LAMP ASSY UM S EA LEAD TIME 10.0 ITEM TYPE 4 GROSS REQMT

LEVEL	MATERIAL ITEM NO.	DESCRIPTION	ITEM TYPE	SEQ NO.	UM	QTY PER
01	9430050-01	8 PCB FUSE LAMP	S	4	09 EA	1
	REFERENCE DESIG					
01	6430050-01	A SCHEM DIAG-FUSE LAMP	S	6	10 EA	
	REFERENCE DESIG REF					
01	N823106-71	CAP TANT 10UF 50V	S	4	11 EA	2
	REFERENCE DESIG C1,C2					
01	N845400-4X	DIODE 1A 400V	S	4	12 EA	2
	REFERENCE DESIG CR1,CR2					
01	856-109-12	09-72-1091 MOLEX 9P HEA	A	4	13 EA	1
	REFERENCE DESIG J1					
01	N849782-4R	REG S.G. 3TERM T066	S	4	14 EA	1
	REFERENCE DESIG U1					
01	894-616-6C	T066 HTSK 6166C	A	4	15 EA	1
	REFERENCE DESIG					

SINGLE LEVEL PARTS LIST

MATERIAL ITEM NO. 5430050-03 DESCRIPTION C FUSE LAMP ASSY UM S EA LEAD TIME 10.0 ITEM TYPE 4 GROSS REQMT

LEVEL	MATERIAL ITEM NO.	DESCRIPTION	ITEM TYPE	SEQ NO.	UM	QTY PER
01	110DA04-08	SCREW 6-32 PPH 1/2	S	4	16 EA	2
	REFERENCE DESIG					
01	111DA04-01	WASHER #6 FLAT	A	4	17 EA	2
	REFERENCE DESIG					
01	111DE04-01	WASHER #6 INT TOOTH STA	A	4	18 EA	2
	REFERENCE DESIG					
01	112DB04-01	NUT #6-32 STD HEX	A	4	19 EA	2
	REFERENCE DESIG					
01	1131216-99	WIRE MS 16 600V WHT	A	4	20 EA	30
	REFERENCE DESIG					
01	109-010-6X	TERMINAL MOLEX	A	4	21 EA	3
	REFERENCE DESIG					

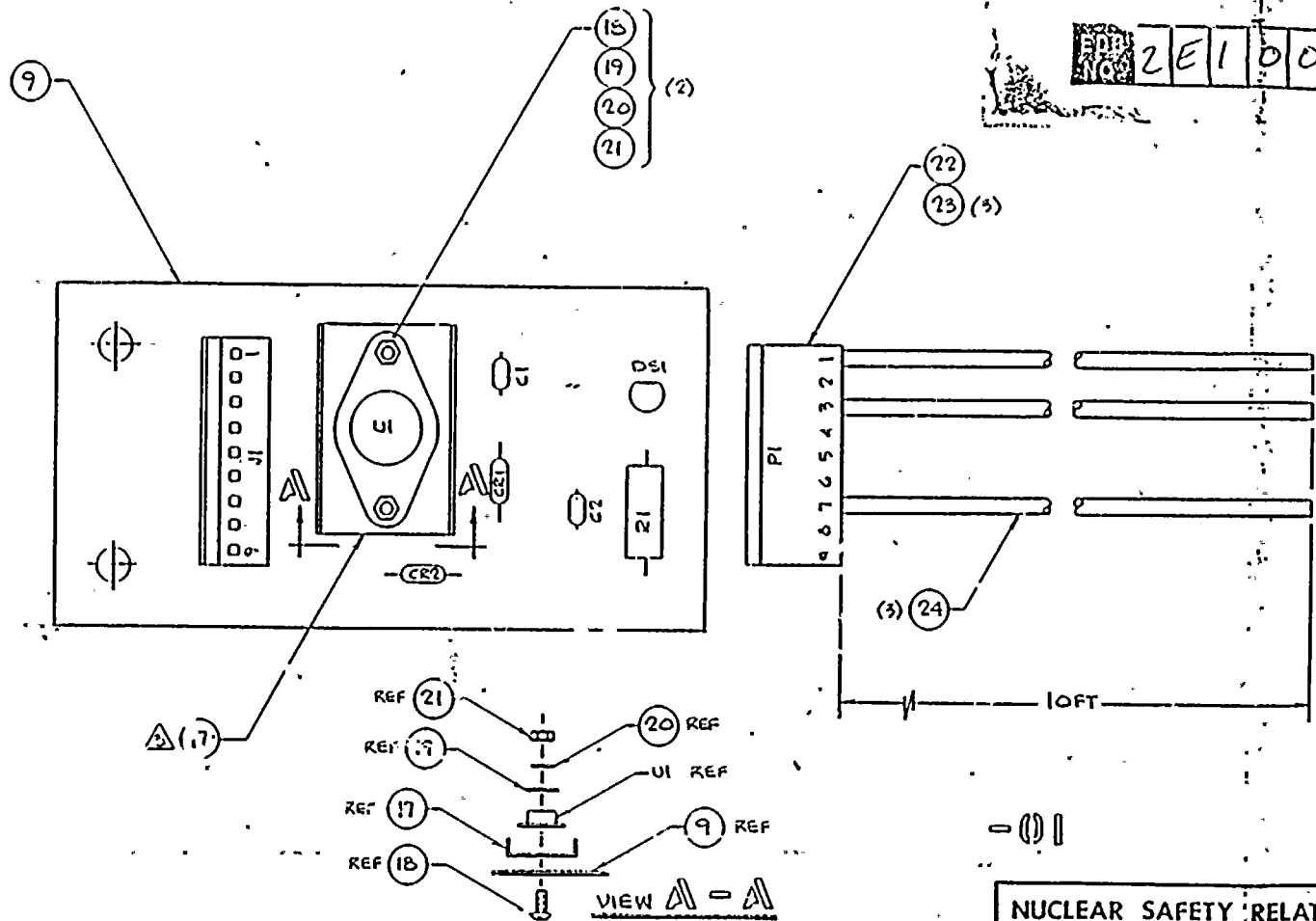
END OF REPORT : :



ZONE	LIB	DESCRIPTION	DATE	APPROVED
		SEE SHIT 1		

FOR NO. 2E1000P

PAGE 47 OF 50



- ▲ APPLY HEATSINK COMPOUND TO THE BOTTOM OF UI, BEFORE INSTALLING TO HEAT-SINK.
- ▲ CO-FORMAL CO: FEN ELGAR SPC. 1005029.
- 1. FOR SCHEMATIC SEE DNG. 6430050-01.

NOTES: UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS FRACTIONS ANGLES $\pm .03$ $\pm 1/32$ $\pm 1/2^\circ$ ALL $\pm .010$ DO NOT SCALE THIS DRAWING		CONTRACT NO. FIRST MADE FOR:	
MATERIAL		APPROVAL DATE DRAWN: KANIZEE 10-23-61 CHECKED: S. L. B. 2-11-62 PROJ ENG: S. L. B. 10-23-61 QA REL: T. B. C. 1-1-62	
NEXT ASSY. USED C. APPLICATION		NUCLEAR SAFETY RELATED ELGAR ASSEMBLY FUSE LAMP	
THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF ELGAR CORPORATION AND IS TO BE USED ONLY FOR THE PURPOSES SPECIFIED HEREIN. NO PARTS THEREOF ARE TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.		SIZE: C CODE IDENT. NO: 25965 DRAWING NO: 5430050 SCALE: 1/1	REV: C SHEET 7 OF 5

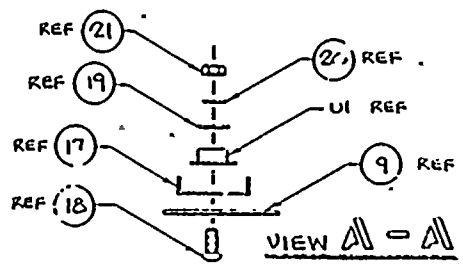
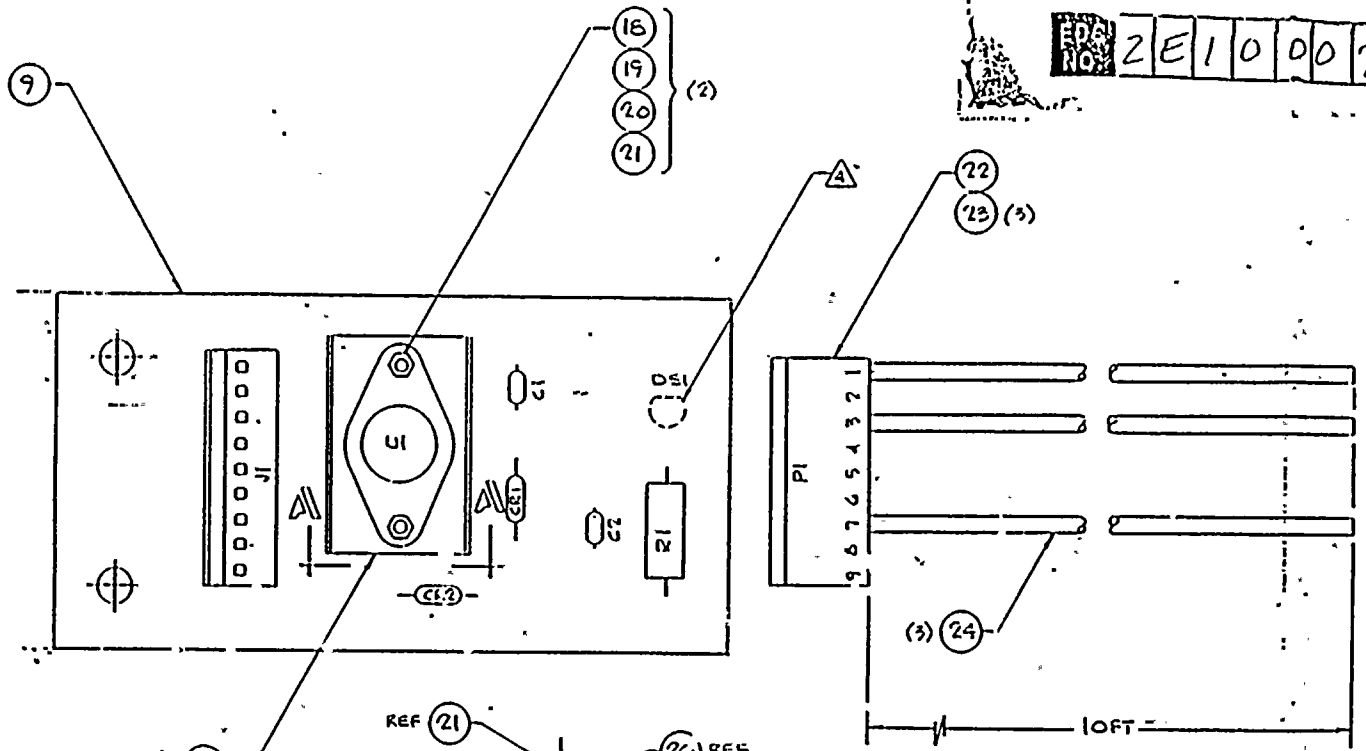
True Jany 1



ZONE	ITER	DESCRIPTION	DATE	APPROVED
		SEE SHIT 1		

EDA No.	2	E	1	0	0	0	7
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PAGE 48 OF 50



- ⚠ INSTALL LED (DS1) FROM CIRCUIT SIDE.
- ⚠ APPLY HEATSINK COMPOUND TO THE BOTTOM OF UI, BEFORE INSTALLING TO HEATSINK.
- ⚠ CONFORMAL COAT PER ELGAR SPEC. 1005029.
- 1. FOR SCHEMATIC SEE DWG. 6430050-01.

NOTES: UNLESS OTHERWISE SPECIFIED

DATE	BY	DESCRIPTION

MEET ASSY.	UI 0 GW
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON:
DECIMALS FRACTIONS ANGLES
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CONTRACT NO		FIRST MADE FOR	
APPROVAL		DATE	
DRAWN	KANIERZ	10-23-57	
CHECKED	SEC 73	2-11-57	
PROJ ENG	SEC 73	10-19-57	
DATE	2-11-57		

NUCLEAR SAFETY RELATED

ELGAR

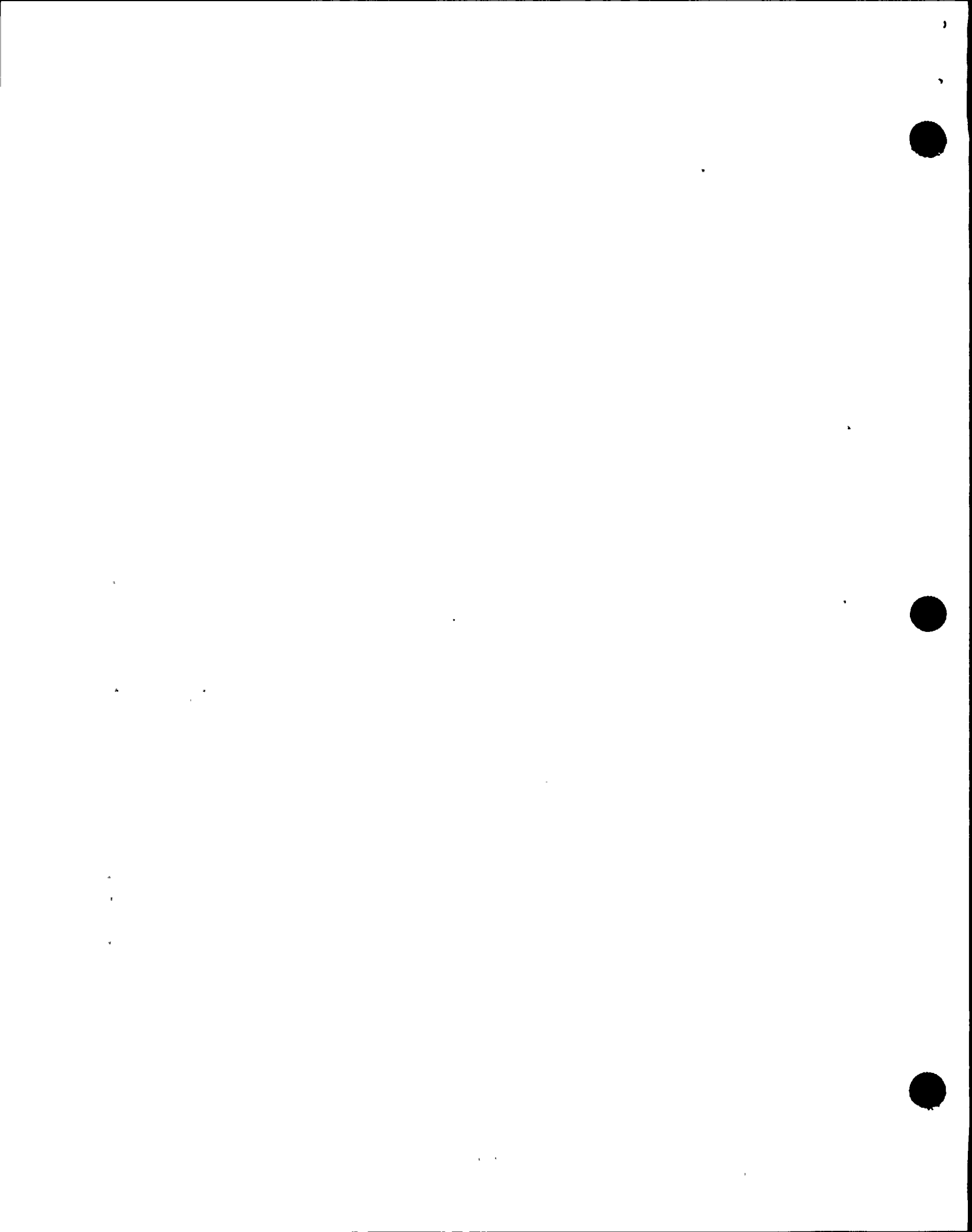
ASSEMBLY FUSE LAMP

SIZ	CODE IDENT NO	DRAWING NO	REV
C	25965	5430050	C

SCALE 2/1 SHEET 8 OF 9

5430050

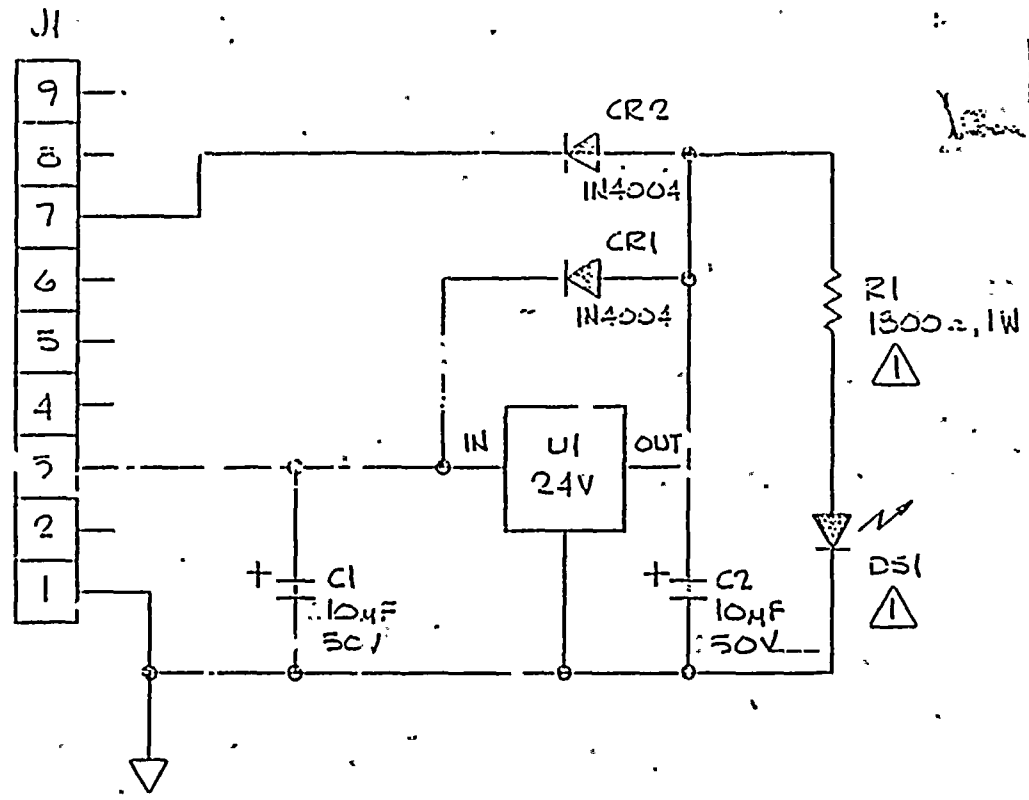




REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	ENG RELEASE	2-11-87	EJZ/231

2E10007

PAGE 50 OF 50

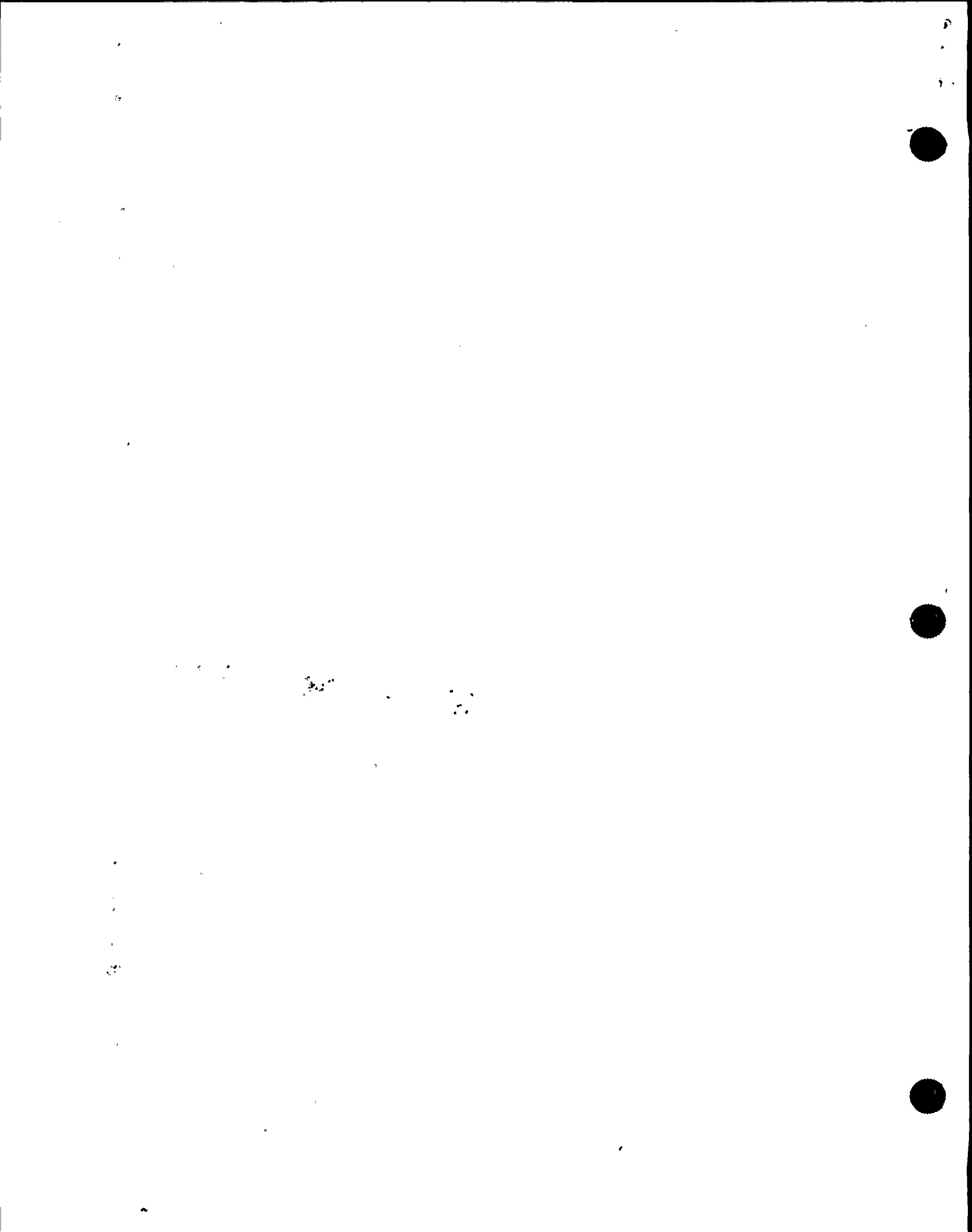


NUCLEAR SAFETY RELATED

⚠ R1 AND DSI ARE FOR ASSEMBLY - 71 AND - C2 OF DWG 5430050 ONLY.

NOTES:

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES - TOLERANCES ON: DECIMALS FRACTIONS ANGLES XX ± 0.01 ± 1/32 ± 1/2° XXX ± 0.10		CONTRACT NO. FIRST MADE FOR: APPROVAL DATE DRAWN: ZSAM/232 10-80 CHECKED: E.F. CARL 2-11-87 PROJ ENG: L.B. 10 2-27-87 QA REL: DR/232 1-6-87					
5430050						SCHEMATIC DIAGRAM - FUSE LAMP	
NEXT ASSY.	USED ON	DO NOT SCALE THIS DRAWING		SIZE	CODE IDENT. NO.	DRAWING NO.	RI
APPLICATION		MATERIAL:		B	25965	6430050	1
<small>The information disclosed herein was originated by and is the property of ELGAR CORPORATION and except for rights expressly granted to the UNITED STATES GOVERNMENT ELGAR CORPORATION reserves all patent PROPRIETARY DESIGN USE SALE MANUFACTURING AND REPRODUCTION RIGHTS THEREIN</small>		FINISH:		SCALE	NONE		SHEET 1 OF 1



RECORD OF REVISIONS

DOCUMENT TITLE: Operation & Maintenance Instructions & Parts Catalog for Elgar Uninterruptible Power System

NMPC FILE NUMBER: NRE20900IPWSUP001 FILE SEQUENCE NUMBER: N20349

REV. NO.	REVISION SUMMARY/REMARKS	REISSUE	INSERT	SUPERSEDES	ISSUE DATE	INIT.
00	New Issue			INST 015605002F G	11/21/86	(MIL)
00	Resolved discrepancy sheet			MICROFILMED-	10/27/88	(MS)
01	UPDATE PER ND-170 Replace Drawing 643-56340 with 5431249			REV φ	06/11/90	gmu

FOR INFORMATION ONLY

RECEIVED
JO NO: 12187

JUL 14 1987

CAUTION: WHEN USING SPARE PARTS
LISTS, CHECK WITH VENDOR PRIOR TO
ORDERING TO VERIFY PART NUMBERS.

DOCUMENT USER:
CONSULT DCIS TO
OBTAIN LATEST
APPLICABLE DOCUMENT
INFORMATION.

VENDOR DRAWINGS CONTAINED WITHIN THIS
DOCUMENT ARE CONSIDERED FOR INFORMATION
ONLY. DOCUMENT USER MUST CONSULT THE
DOCUMENT CONTROL SYSTEM TO OBTAIN
LATEST DOCUMENT INFORMATION.

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RESPONSIBLE NMPC LEAD ENGINEER James Bunyan
NMPC NO. N2E20900IPWSUP001
FILE SEQUENCE NO. N30349

VMRP NO. 1150
INITIALS JB

PROBLEMS IDENTIFIED: Manual has been determined to be illegible.

RESOLUTION:

THE ILLEGIBLE PORTIONS OF THIS MANUAL CONSIST OF VENDOR DWG'S ONLY. SINCE THESE DWG'S ARE FOR INFO ONLY (PER ND-170), LEGIBILITY ~~WAS~~ IS NOT A CONCERN. THEREFORE, THIS MANUAL IS ACCEPTABLE FOR ISSUANCE AS IS.

J. Kirkpatrick
10-10-88

NOTE: All problems described on this sheet have been identified by SSDC personnel as those which require Engineering Resolution.

Submitted by: Kelly Sawyer Date 2-23-88
SITE SERVICES DOCUMENT CONTROL

Continued on attachments: Yes No Page 1 of 1

100-100000

VENDOR MANUAL DESCRIPTION

COMPUTER DATA ENTRY

Tracking No: T20097
NMP1 Manual No. N2E20900-IPV-SUP-001
Parent Manual No: N20349 Unit No.: 2
SR/Q/NSR: SR Approval Date: 11 EQ List:
Vendor: FLGAR (E20900) Manf. No. (NPRDS):
Comp. Name: UNINTERUPTIBLE POWER SUPPLY EQ Type (NPRDS):
T/M Name: Rev. No.:
Model No: UPS 253-1-106 Doc. No.: 5431249 Rev. Date: 8/14/86
Equip S/N: SEE PARENT MANUAL Spec No.: N/A P.O. No.: E035A
Modification No.: N/A

**Systems:
VBA

**Eps:
2 VBA x UPS 2A
2 VBA x UPS 2B

**Reference Maintenance Procedures:
N2-EPM-GEN-RF635 N2-EPM-GEN-9Y638 N2-EPM-GEN-W665

**Reference Drawings:
SEE PARENT MANUAL

Manual Applicability:
SEE PARENT MANUAL

Comments/Reason for Change:
ADD/REPLACE DRAWINGS TO PARENT MANUAL

** Add additional sheets as required.

Dist: NMP1 Configuration Management
NMP1 Materials Management
NMP2 Maintenance Department

0169T

ND-170-1
Rev. 1 08/87
Form Revised 11/10/87



VENDOR MANUAL PACKAGE TRANSMITTAL SHEET

TRACKING NO. T20097 DATE 10/29/88
 TITLE OPERATIONS/MAINTAINANCE MANUAL & PARTS CATALOG
 VENDOR DOC. NO. UPS 253-1-106 UNIT NO. 2
 APPROVER: _____

RECOMMENDED REVIEWERS:			RECOMMENDED REVIEWS (ATTACH. NO 170-4 SECTION/PARAGRAPH)
	<u>YES</u>	<u>NO</u>	
MECHANICAL MAINTENANCE:	_____	<input checked="" type="checkbox"/>	_____
ELECTRICAL MAINTENANCE:	<input checked="" type="checkbox"/> _____	_____	_____
I & C:	<input checked="" type="checkbox"/> _____	_____	_____
OPERATIONS:	_____	<input checked="" type="checkbox"/>	_____
LEAD MECHANICAL DESIGN:	_____	<input checked="" type="checkbox"/>	_____
LEAD ELECTRICAL DESIGN:	<input checked="" type="checkbox"/> _____	_____	_____
LEAD STRUCTURAL DESIGN:	_____	<input checked="" type="checkbox"/>	_____
EQUIPMENT QUALIFICATION:	<input checked="" type="checkbox"/> _____	_____	_____
LICENSING:	_____	<input checked="" type="checkbox"/>	_____
OTHER: _____	_____	_____	_____

NUMBER OF COPIES TO BE MADE: 4

PREPARED BY: JOE KIRKPATRICK
 Responsible Engineer

For Review For Approval

Reason for proposed revision (if applicable):

REPLACED DWG. NO. 643-563-40 WITH DWG. NO.
5431249 SH. 1 THRU 4 (REF NCR 2-87-0056)

Comments:

SEND OUT FOR REVIEW ONLY THOSE
CHANGES PER THIS REVISION

VENDOR MANUAL REVIEW AND COMMENT SHEET

TRACKING NO. T20097 TITLE: OPERATIONS/MAINTAINANCE MANUAL & PARTS CATALOG

VENDOR DOC. NO. UPS 253-1-106 UNIT NO. 2

MANUAL REVIEWED AGAINST: _____

	<u>YES</u>	<u>NO</u>	<u>N/A</u>
Procurement Document	()	()	(<input checked="" type="checkbox"/>)
Technical Manual Review Sheet (Attachment ND-170-4)	(<input checked="" type="checkbox"/>)	()	()
NSR to SR Upgrade	()	()	(<input checked="" type="checkbox"/>)
EQ Report	()	()	(<input checked="" type="checkbox"/>)
Standards _____	()	()	(<input checked="" type="checkbox"/>)
Maintenance Procedures	()	()	(<input checked="" type="checkbox"/>)
Other Technical Reports	()	()	(<input checked="" type="checkbox"/>)

Reviewer's comments: (Attach additional pages as required)

Reviewer's Signature Date

Comment Resolution (Vendor contacted [Yes] [No])

Comments resolved accept as is

A. Greenland 5-16-90
Responsible Engineer Date



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TECHNICAL MANUAL REVIEW FORM

Tracking No.: T20097

Technical Manual Title: OPERATIONS/MAINTAINANCE MANUAL &

Vendor Doc. No.: UPS PARTS CATALOG 253-1-106 Vendor: ELGAR

Legible: Yes () No ()
(material presented is clear, concise and logical?)

SECTION I (MANUAL)

Information Adequate (if no is answered, explanation is required in comment section at end of form.)

	<u>YES</u>	<u>NO</u>	<u>N/R-N/A</u>
A. Equipment Technical Data:	(<input checked="" type="checkbox"/>)	()	()
B. Equipment Description:	(<input checked="" type="checkbox"/>)	()	()
C. Installation Instructions:	()	()	(<input checked="" type="checkbox"/>)
D. Operating Instructions			
1. Starting Instructions:	()	()	(<input checked="" type="checkbox"/>)
2. Operating Instructions incl. precautions and critical point to observe:	()	()	(<input checked="" type="checkbox"/>)
3. Tabulation of operating parameter:	()	()	(<input checked="" type="checkbox"/>)
4. Shutdown Instructions:	()	()	(<input checked="" type="checkbox"/>)
5. Characteristic Curves:	()	()	(<input checked="" type="checkbox"/>)
E. Troubleshooting Guidelines:	()	()	(<input checked="" type="checkbox"/>)
F. Maintenance Instructions:	()	()	(<input checked="" type="checkbox"/>)
G. Tests & Inspection:	()	()	(<input checked="" type="checkbox"/>)
H. Spare/Renewal Parts:	(<input checked="" type="checkbox"/>)	()	()
J. Special Tools:	()	()	(<input checked="" type="checkbox"/>)
K. Storage Requirements:	()	()	(<input checked="" type="checkbox"/>)

DOCUMENTS REVIEWED: _____

SECTION II (PROCEDURE)

A. Exceptions (if yes - are attached)	()	(<input checked="" type="checkbox"/>)	()
B. Procedure Requirements			
1. New Procedure	()	()	(<input checked="" type="checkbox"/>)
2. Revise old procedure	()	()	(<input checked="" type="checkbox"/>)

COMMENTS: accept as is

Reviewed By: A. Greenland Date: 5-16-90



EXCEPTIONS INDEX SHEET

Document Title: OPERATIONS/MAINTAINANCE MANUAL
AND PARTS CATALOG

NMPC Manual Number: N2E20900IPWSUP001 Vendor Manual Number: LPS 253-1-106

<u>Exception Number</u>	<u>Procedure Number</u>	<u>Exception</u>	<u>Resolution</u>	<u>Page No./Location In Manual</u>
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0169T

ND-170-5
Rev. 1 08/87
Form Revised 10/87



RECORD OF REVISIONS SHEET

Document Title: OPERATIONS / MAINTENANCE MANUAL
AND PARTS CATALOG

NMPC Manual Number: N2E20900IPWS4P001 Vendor Manual No. UPS 253-1-106

Revision Number	Revision Summary	Date Revision Entered	Entered by (Initials)
01	REPLACED DWG. NO 643-563-40 WITH DWG. NO. 5431249 SH.1-4	10/29/88	JCK



NMPC TECHNICAL MANUAL REVIEW & APPROVAL RECORD

NMPC Manual No. N2E20900 IPWSUPOO1

Vendor: ELGAR

Technical Manual Title: OPERATIONS / MAINTAINANCE
MANUAL AND PARTS LIST

NMPC Manual Revision 01 Date: 10/29/88

Prepared by: JOE C. KIRKPATRICK Date: 10/29/88

Approved: _____ Date: _____
Non-Safety Related (Maint.)
Only

Concurred: * J. C. Kirkpatrick Date: 5/18/90
(Maint.)

Concurred: * A. J. Lane Date: 6/8/90
(Elec.) F&C

Concurred: * Paul Miller for H&D Date: 5/22/90
(Eq.)

Concurred: N. Kabacoff Date: 5/16/90
(Elec.)

Concurred: _____ Date: _____
(Mech.)

Concurred: _____ Date: _____
(Struct.)

Approved: A. K. Golka Date: 6/11/90
(Mech./Elec./Struct.)

Submitted to Nuclear Engineering Document Control 6/29/90/gmu
Date/Initials

File: _____

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603241 / VI / 1A51 67-060-0000 H

NUCLEAR SAFETY RELATED

ASSY PART NO. 543112121	TITLE FLIGHT SIDE PLATE ASSEMBLY	SHT. 1 OF 4 SHT. 4 IS 2 SIZE	REV. B	ELGAR
DRAWN A. EIRICH	DATE 8.9.86	PROJ.. ENG. Olaf Lund	DATE 8.14.86	
CHECKED	DATE	QA-REL. C. J. ...	DATE 8.14.86	

00026

REVISIONS													
REV.	ASSY. DASH NO.								DESCRIPTION	DRAFTER	CHECKED	APPROVED	DATE
	01	02	03	04	05	06	07	08					
1										EIRICH	SEAD	Olaf Lund	8.14.86
B										FJR	CRP	FELIX	9.3.87

ITEM NO.	ASSY. DASH NO.								ASSEMBLY DESCRIPTION	REMARKS
	01	02	03	04	05	06	07	08		
1	X								FL - SIDE PLATE ASSEMBLY	UPC 253-1-106
2		X								
3			X							
4				X						
5					X					
6						X				
7							X			
8								X		

DOCUMENT USER:
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I.O. NO. 12187
OCT 26 '87
STONE & W. B. S. R.
ENG. CORP.
CONTROL LEVEL



SINGLE LEVEL PARTS LIST

MATERIAL ITEM NO.	DESCRIPTION	UM	LEAD TIME	ITEM TYPE	GROSS REQMT	
5431249-01	B RIGHT SIDE PLATE ASSY S	EA	0.0	6		
LEVEL	MATERIAL ITEM NO.	DESCRIPTION	ITEM TYPE	SEQ NO.	UM	QTY PER
01	943-381-20 REFERENCE DESIG	D/N RIGHT SIDE PLATE	S	4	09 EA	1
02	648-100-40 REFERENCE DESIG	G/N REG CONTROL BD ASS	S	4	10 EA	1
01	N822105-58 REFERENCE DESIG	CAP FILM 600V 5%	S	4	11 EA	1
01	822-105-58 REFERENCE DESIG	1/600V 5% ZA2G105J 1MB	A	4	11 EA	2
02	991-191-90 REFERENCE DESIG	A CONTROL TRANSFORMER	S	4	12 EA	2
01	N893601-18 REFERENCE DESIG	TBL 601 18P 20A 1100V	S	4	13 EA	2
01	893-MS1-18 REFERENCE DESIG	STRIP MS601-18 KULKA	A	4	14 EA	2

RECEIVED
J. O. NO. 12187

OCT 26 '87

S. ONE & W. ...
ENG. CC P.
CONTROL LEVEL

SINGLE LEVEL PARTS LIST

MATERIAL ITEM NO.	DESCRIPTION	UM	LEAD TIME	ITEM TYPE	GROSS REQMT	
5431249-01	B RIGHT SIDE PLATE ASSY S	EA	0.0	6		
LEVEL	MATERIAL ITEM NO.	DESCRIPTION	ITEM TYPE	SEQ NO.	UM	QTY PER
01	N858313-02 REFERENCE DESIG	FUSE SLO-BLO	S	4	15 EA	5
01	N858342-10 REFERENCE DESIG	FUSE HOLDER	S	4	16 EA	5
01	943-376-20 REFERENCE DESIG	FUSE BRACKET DIST	S	4	17 EA	1
01	N847990-3X REFERENCE DESIG	BRIDGE FWB 30A 200V	S	4	18 EA	1
01	N826142-82 REFERENCE DESIG	CAP ELECT 1400/100	S	4	19 EA	1
01	109-458-97 REFERENCE DESIG	DONT USE:SEE 896-CMC-22	S	4	20 EA	1
	943-490-20 REFERENCE DESIG	EDGE CONN BRKT	S	4	21 EA	2



SINGLE LEVEL PARTS LIST

MATERIAL ITEM NO.	DESCRIPTION	UM	LEAD TIME	ITEM TYPE	GROSS REQMT
1249-01	B RIGHT SIDE PLATE ASSY S	EA	0.0	6	

LEVEL	MATERIAL ITEM NO.	DESCRIPTION	ITEM TYPE	SEQ NO.	UM	QTY PER
01	109-TCB-S8 REFERENCE DESIG	SUPPORT CB .5"HH6SCW NY	A	4	22 EA	2
01	856-8BD-S2 REFERENCE DESIG	CONN 22/44 EYELET	A	4	23 EA	1
01	N8611Y4-70 REFERENCE DESIG	RELAY 4 POLE 2 AMP	S	4	24 EA	1
01	N86127E-15 REFERENCE DESIG	RELAY SOCKET	S	4	25 EA	1
01	861-20C-25 REFERENCE DESIG	20C250 HOLD DOWN SPRING	A	4	26 EA	1

END OF REPORT : :

111

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OCT 26 '87

STONE & WEBSTER
ENG. CORP.
CONTROL LEVEL _____

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MANUAL APPLICABILITY CHECKLIST

VMRP 11.50 for 0750 6/17/87

N2 VENDOR CODE E20900 COMPONENT CAT. FPWSUP

VENDOR NAME Elgar

MANUAL TITLE Operations & Maintenance Instructions & Parts Catalog
For Elgar Uninterruptible Power System

MANUAL NUMBER UPS 253-1-106 REVISION _____
634-258-90/9 82

P.O. NUMBER E035A PARENT MANUAL NUMBER _____

MODEL NUMBERS
253-1-106 _____

APPLICABLE COMPIDS
2VBA*UAS2A _____

2VBA*UAS2B _____

REFERENCE DRAWINGS (FILE NO/DWG NO/REV/SHEET) 1560229017/543-514-70/1/1
1560229018/543-514-70/4/1-2 1643-523-60/1/1

1560229019/543-514-70/4/1-3 16490008/1

1510229025/543-625-60/1/1 15490008/1/5

1510229027/543-625-60/1/2 1642-106-60/

1510229027/543-625-60/1/3 1642-106-40/ (cont)

SECTIONS NOT APPLICABLE Manual is specific to the applicable

Comp ID's

LEGIBLE: YES () NO (X) CONTINUATION SHEET: YES (X) NO ()

MARGINAL QUALITY ORIGINAL

COMMENTS The MEL lists Elgar as Vendor/MFR

DCIS Revision G has no impact on applicability. Review LTR 6/17/87

COMPLETED BY Larry Thompson
Responsible Engineer

DATE 11/19/86

REVIEWED BY Fred Y. Reese
Engineering Supervisor

DATE 11/21/86

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MANUAL APPLICABILITY CHECKLIST

CONTINUATION SHEET

1150 6/17/87
VMRP 075-9

N2 VENDOR CODE E20900 COMPONENT CAT. IPWSUP

Reference Drawings (Cont.) Sh. 1 of 22 FR 6/17/87

6490009	1	643-628-60	
6490009	2	643-628-40	4
5490009	5	6490024	
5490009	4	5490015	4
5490009	?	6490016	1
6490006	?	5490016	4
5490006	4	6430008	
6490018	1	5430008	4
5490018	5	633-270-60	
6490019	1	633-270-40	
5490019	5	648-100-60	
6490002	1	648-100-40	
5490002	5	648-101-60	
643-119-62		648-101-40	
643-119-40		543-625-40	1
6490030?		543-625-40	2
5490030	5	643-523-40	
6490014		643-524-40	
5490014	4	643-623-40	1
6490001		5431086	2
5490001		5431003	3
6430002		643-530-4X	1
5430002	5	643-530-4X	2
628-137-61		643-607-40	
628-137-4X		643-624-40	

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MANUAL APPLICABILITY CHECKLIST

CONTINUATION SHEET

VMRP 1150
~~6759~~ *4/17/51*

N2 VENDOR CODE E 20900

COMPONENT CAT. IPWSUP

Reference Drawings (Cont.) Sh. 2 of 32 *4/17/51*

	643-563-40				6490006	?
	643-520-40				5490006	4
	643-519-40				6490018	
	643-556-40				5490018	
	5491011				6490019	
	5321074		4		5490019	5
	5491009		4		6490002	
	5431081		3		5490002	5
	643-383-40				643-119-62	
1560229017	543-514-70	H			643-119-40	
1560229018	543-514-70		2		6490030	
1560229019	543-514-70		3		5490030	5
1560229025	543-625-60	E	1		6490014	?
1560229026	543-625-60	E	2		5490014	4
1560229027	543-625-60	E	3		6490001	
	643-523-60				5490001	4
	6490008				6430002	
	5490008				5430002	3
	642-126-60				628-137-61	
	642-100-40				628-137-4X	
	6490009		1		643-628-60	
	6490009		2		643-628-40	
	5490009		5		6490024	
	5490009		4		5490015	4
	5490009		?		6490016	

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STONE & WEBSTER ENGINEERING CORPORATION				SUPPLIER'S DOCUMENT DATA FORM			
NINE MILE POINT NUCLEAR STATION - UNIT 2 NIAGARA MOHAWK POWER CORPORATION J.O. 12177				RESPONSIBLE ENGINEER (E1) (16) S. TSOMBARIS		RESP. DISP (E1) (17) E	
SUPERSEDES SWEC FILE NO. (E1) (1) TYPE | | | | | | | | | | ID NO | | | | | | | | | | REV.				REVIEW REQUIREMENTS: (R.E1) (18) REVIEW REQUIRED <input checked="" type="checkbox"/> REVIEW NOT REQUIRED <input type="checkbox"/>			
REMARKS (E1) (2) (CODES OR SPECIAL REQUIREMENTS) MANUAL REVISION				REVIEWER (E1) (19) J.W. VERLAQUE		DATE TO REVIEW (C) (20) MON DAY YR 10/9/26/86	
P.O. NUMBER (C) (3) E035A		DOCUMENT TYPE (E1) (4) INST		RELEASED FOR (R.E2) (21) RETURN TO SUPPLIER <input type="checkbox"/> ENG. & DESIGN <input checked="" type="checkbox"/> FABRICATION <input type="checkbox"/>		DIRECTIONS TO SITE (R.E2) (22) FOR CONSTRUCTION <input checked="" type="checkbox"/> NOT FOR CONSTRUCTION <input type="checkbox"/>	
MFR'S DOC. NO. (E1) (5) (INCLUDE DOC. REV OR DATE) UPS 253-1-106 INSTRUCTION MANUAL				DOCUMENT STATUS (R.E2) (23) <input checked="" type="checkbox"/> APP — APPROVED/ACCEPTABLE FOR USE <input type="checkbox"/> AAR — APPROVED AS REVISED <input type="checkbox"/> UNA — UNACCEPTABLE <input type="checkbox"/> BLT — AS-BUILT <input type="checkbox"/> FIO — FOR INFORMATION ONLY			
MFR'S NAME (C) (6) ELGAR CORPORATION							
S & W EQUIP. I.D. CODE (E1) (7) 2|V|B|A|X|U|P|S|2|A|B		COMPONENT TYPE (E1) (8) UPS					
MFG EQUIP I.D. (E1) (9) N/A		AREA DESIGNATION (10) CODES (E1) 4 | | | |					
7,8,9 & 10 CONTINUED ON ATTACHMENT(S) YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		MFG. CODE (E1) (11) E20900		REVIEWER'S DATE STAMP (E1) (24) NOTED SEP 30 1986 L.W. VERLAQUE			
DATE REC'D (12) MON DAY YR 10/9/26/86		MAX DAYS IN REVIEW (13) 1 | 0		RESPONSIBLE ENGINEER'S DATE STAMP (E2) (ISSUE DATE) (25) NOTED OCT 14 1986 S. TSOMBARIS			
FUNCTION TITLE (E1) (14) MANUAL REVISION BLOWN FUSE INDICATING SYSTEM				RESUBMITTAL REQ'D (E2) (26) YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		RESUB. REQ. DATE (E2) (27) MON DAY YR N/A | | |	
SWEC FILE NO. (E1) (15) TYPE | | | | | | | | | | ID NO. | | | | | | | | | | REV				TRANSMITTAL DATE (C) (28) 11/01/17/86		TRANSMITTAL NUMBER (C) (29) T-90,642	
(C) DOCUMENT CONTROL (R) REVIEWER (E1) RESPONSIBLE ENG. PRIOR TO REVIEW (E2) RESPONSIBLE ENG. AFTER REVIEW							
ADDITIONAL REVIEWERS (E1): (30) J. PASKO							
REVIEWER'S COMMENTS (R): (31) No Comments J.W. Verlaque 11/30/86							
Page 26 3-2							
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3-22							
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4-12							

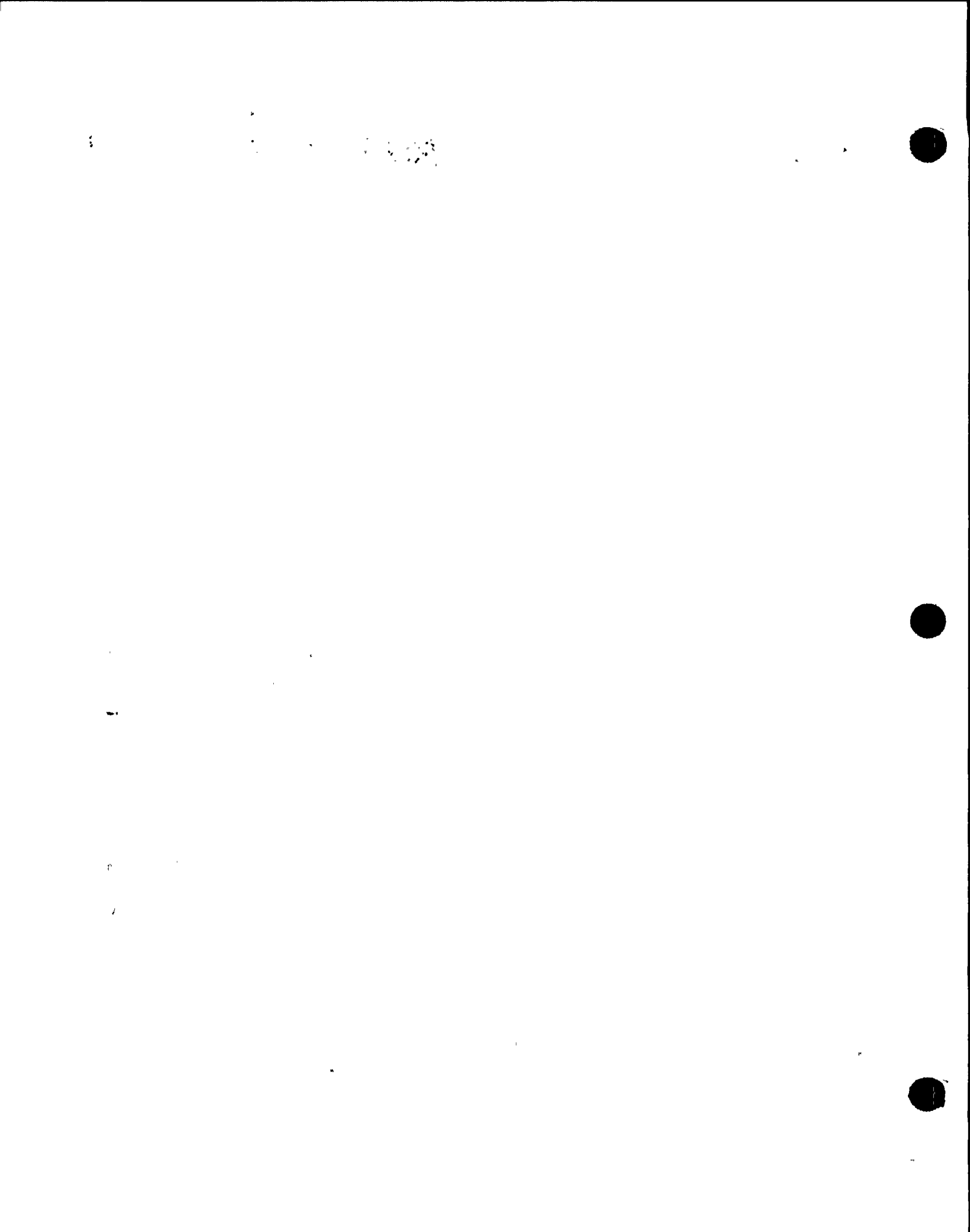
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STONE & WEBSTER ENGINEERING CORPORATION				SUPPLIER'S DOCUMENT DATA FORM			
NINE MILE POINT NUCLEAR STATION - UNIT 2 NIAGARA MOHAWK POWER CORPORATION J.O. 12177				RESPONSIBLE ENGINEER (E1) (16) R. DAS		RESP. DISP (E1) (17) E	
SUPERSEDES SWEC FILE NO. (E1) (1) TYPE ID NO REV. INST 0115601-5002 B				REVIEW REQUIREMENTS: (R.E1) (18) REVIEW REQUIRED <input type="checkbox"/> REVIEW NOT REQUIRED <input checked="" type="checkbox"/>			
REMARKS (E1) (2) (CODES OR SPECIAL REQUIREMENTS) N/A				REVIEWER (E1) (19) N/A		DATE TO REVIEW (C) (20) MON DAY YR	
P.O. NUMBER (C) (3) E035A		DOCUMENT TYPE (E1) (4) INST		RELEASED FOR (R.E2) (21) RETURN TO SUPPLIER <input type="checkbox"/> ENG. & DESIGN <input checked="" type="checkbox"/> FABRICATION <input type="checkbox"/>		DIRECTIONS TO SITE (R.E2) (22) FOR CONSTRUCTION <input checked="" type="checkbox"/> NOT FOR CONSTRUCTION <input type="checkbox"/>	
MFR'S DOC. NO. (E1) (5) (INCLUDE DOC. REV. OR DATE) UPS-253-1-106				DOCUMENT STATUS (R.E2) (23) <input checked="" type="checkbox"/> APP - APPROVED/ACCEPTABLE FOR USE <input type="checkbox"/> AAR - APPROVED AS REVISED <input type="checkbox"/> UNA - UNACCEPTABLE <input type="checkbox"/> BLT - AS-BUILT <input type="checkbox"/> FIO - FOR INFORMATION ONLY			
MFR'S NAME (C) (6) ELGAR							
S & W EQUIP. I.D. CODE (E1) (7) 2VBA*UPS2A		COMPONENT TYPE (E1) (8) UPS					
MFG EQUIP I.D. (E1) (9) N/A		AREA DESIGNATION (10) CODES (E1) NA | | |					
7,8,9 & 10 CONTINUED ON YES <input checked="" type="checkbox"/> ATTACHMENT(S) NO <input type="checkbox"/>		MFG. CODE (E1) (11) E20900		REVIEWER'S DATE STAMP (R) (24) NOTED JUN 02 1985 R.K. DAS			
DATE REC'D (12) MON DAY YR 016 012 86		MAX DAYS IN REVIEW (13) 1 | 0		RESPONSIBLE ENGINEER'S DATE STAMP (E2) (ISSUE DATE) (25) NOTED JUN 02 1985 R.K. DAS			
FUNCTION TITLE (E1) (14) OPERATION & MAINTENANCE MANUAL				RESUBMITTAL REQ'D (E2) (26) YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>		RESUB. REQ. DATE (E2) (27) N/A | MON DAY YR	
SWEC FILE NO. (E1) (15) TYPE ID NO REV. INST 0115601-5002 F				TRANSMITTAL DATE (C) (28) 016 214 86		TRANSMITTAL NUMBER (C) (29) T-89,162	
(C) DOCUMENT CONTROL (R) REVIEWER (E1) RESPONSIBLE ENG. PRIOR TO REVIEW (E2) RESPONSIBLE ENG. AFTER REVIEW							
ADDITIONAL REVIEWERS (E1): (30)							
REVIEWER'S COMMENTS (R): (31) DOCUMENTS INST 01.560-5002C (REF TF-7615 DATED 2/6/85) & INST 01.560-5002D (REF TF-9705 DATED 5/20/85) ARE APPROVED & HAVE NOW BEEN INCORPORATED INTO THIS DOCUMENT. INST 01.560-5002E (REF TF10051 DATED 6/27/85) IS APPROVED & HAS ALSO BEEN INCORPORATED INTO THIS DOCUMENT.							

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CONTROLLED

ELGAR CORPORATION

9250 Brown Deer Road
San Diego, California 92121

Telephone: (619) 450-0085
Telex: 211063

FOR INFORMATION ONLY

Stone & Webster Engineering J.O. No. 12177 Spec. No. <u>NMP2-F035A</u>	
RELEASED FOR:	DIRECTIONS TO SITE:
RETURN TO SUPPLIER <input type="checkbox"/>	FOR CONSTRUCTION <input checked="" type="checkbox"/>
ENG & DESIGN <input checked="" type="checkbox"/>	NOT FOR CONSTRUCTION <input type="checkbox"/>
FABRICATION <input type="checkbox"/>	
<input checked="" type="checkbox"/> APP - Approved Acceptable For Use	
<input type="checkbox"/> AAR - Approved As Revised	
<input type="checkbox"/> UNA - Unavailable	
<input type="checkbox"/> BLT - As Built	
<input type="checkbox"/> FIO - For Information Only	
Date: <u>10/27/83</u>	
By: <u>[Signature]</u>	

September 10, 1986

Stone & Webster Engineering Corporation
Cherry Hill Operations Center
3 Executive Campus
Cherry Hill, New Jersey 08034

VENDOR DRAWINGS CONTAINED WITHIN THIS DOCUMENT ARE CONSIDERED FOR INFORMATION ONLY. DOCUMENT USER MUST CONSULT THE DOCUMENT CONTROL SYSTEM TO OBTAIN LATEST DOCUMENT INFORMATION.

Attention: Bill Concannon
5G

Subject: Manual Revisions
Blown Fuse Indicating System

Reference: P.O. NMP2-FPO-27305

**DOCUMENT USER:
CONSULT DCS TO
OBTAIN LATEST
APPLICABLE DOCUMENT
INFORMATION.**

Enclosed herewith are revisions to UPS 253-1-106 Instruction Manual.

Please insert the changes within your existing manuals.

Very truly yours,

Susan Reeves

Susan Reeves
Contract Administrator

ELGAR

A Subsidiary of Onan Corporation

FOR THE YEAR 1901





Stone & Webster Engineering	
I.O. No. 12177	
Spec. No. <u>NMP2-EO35A</u>	
RELEASED FOR:	DIRECTIONS TO SITE:
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<input checked="" type="checkbox"/> APP - Approved Acceptable For Use <input type="checkbox"/> AAR - Approved As Revised <input type="checkbox"/> UTA - Unacceptable <input type="checkbox"/> BLT - As-Built <input type="checkbox"/> FIO - For Information Only	
Date	<u>11/14/83</u>
By	<u>[Signature]</u>

INSTRUCTION MANUAL NOTED NOV 14 1983 & MOD
 OPERATIONS - MAINTENANCE INSTRUCTIONS
 AND
 PARTS CATALOG
 FOR
 ELGAR UNINTERRUPTIBLE POWER SYSTEM (UPS)
 MODEL UPS 253-1-106

CONTRACTOR
 ELGAR CORPORATION
 8225 MERCURY COURT
 SAN DIEGO, CALIFORNIA 92111

Stone & Webster Engineering	
I.O. No. 12177	
Spec. No. <u>NMP2-EO35A</u>	
RELEASED FOR:	DIRECTIONS TO SITE:
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ENG & DESIGN <input checked="" type="checkbox"/>	NOT FOR CONSTRUCTION <input checked="" type="checkbox"/>
FABRICATION <input type="checkbox"/>	
<input checked="" type="checkbox"/> APP - Approved Acceptable For Use <input type="checkbox"/> AAR - Approved As Revised <input type="checkbox"/> UTA - Unacceptable <input type="checkbox"/> BLT - As-Built <input type="checkbox"/> FIO - For Information Only	
Date	<u>11/14/83</u>
By	<u>[Signature]</u>

DOCUMENT USER:
 CONSULT DCIS TO
 OBTAIN LATEST
 APPLICABLE DOCUMENT
 INFORMATION.

UPS 253-1-106

VENDOR DRAWINGS CONTAINED WITHIN THIS DOCUMENT ARE CONSIDERED FOR INFORMATION ONLY. DOCUMENT USER MUST CONSULT THE DOCUMENT CONTROL SYSTEM TO OBTAIN LATEST DOCUMENT INFORMATION. Exide/Mohawk Contract NMP2-EO35A

1980 11 20 10 30 AM

WARRANTY

Elgar Corporation warrants each instrument it manufactures to be free from defects in material and workmanship. The corporation's obligation under this warranty is limited to servicing the instrument and replacing defective parts. This warranty is effective for one year after delivery of the instrument to the original purchaser. Defects caused by improper operating conditions, misuse, negligence, or the alteration or removal of the nameplate, will void the warranty. Elgar Corporation shall in no circumstance be liable for any direct or consequential loss or damage of any nature resulting from the malfunction of the instrument. This warranty is effective in lieu of any or all other obligations or liabilities on the part of Elgar Corporation, its agents, or representatives.

DO NOT RETURN THE UNIT FOR REPAIR WITHOUT AUTHORIZATION FROM ELGAR CORPORATION. Unauthorized returns found to be within specifications will result in a \$50.00 inspection fee, plus two-way freight charges.

Unless specifically noted in the Purchase Order or Maintenance Agreement, Elgar's warranty is F.O.B. the Elgar Service Center nearest the installation site, and serviceman's travel and expenses or transportation costs will be billed to the customer at cost.



ELGAR CORPORATION . . . THE BEST SOURCE OF POWER
8225 Mercury Court, San Diego, California 92111
Phone 619-565-1155, TWX 910-335-1246



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SECTION I INSTALLATION

1-1 UNPACKING.

a. The UPS is packed and shipped in accordance with Exide-Mohawk Spec. NMP2-E035A. Upon receipt, the UPS should be carefully unpacked and inspected for visible damage (i.e., dents, bulges in metal structure, broken switches/meters faces, etc.). Report any damage to the carrier and to Elgar Corporation.

1-2 INSTALLATION.

a. The UPS has been designed for floor mounting and is to be welded to imbedded floor channels. Physical dimensions and mounting information are depicted in the Installation Drawing 543-514-70, Sheet 1.

1-3 ELECTRICAL HOOK-UP.

a. Once mounting has been completed, it will be necessary to complete interface connections between the UPS Cabinet and the Distribution Cabinet. All cabling and hardware for this interface is provided by the Contractor. Refer to Installation Drawing 543-514-70, Sheet 3 for detailed connection.

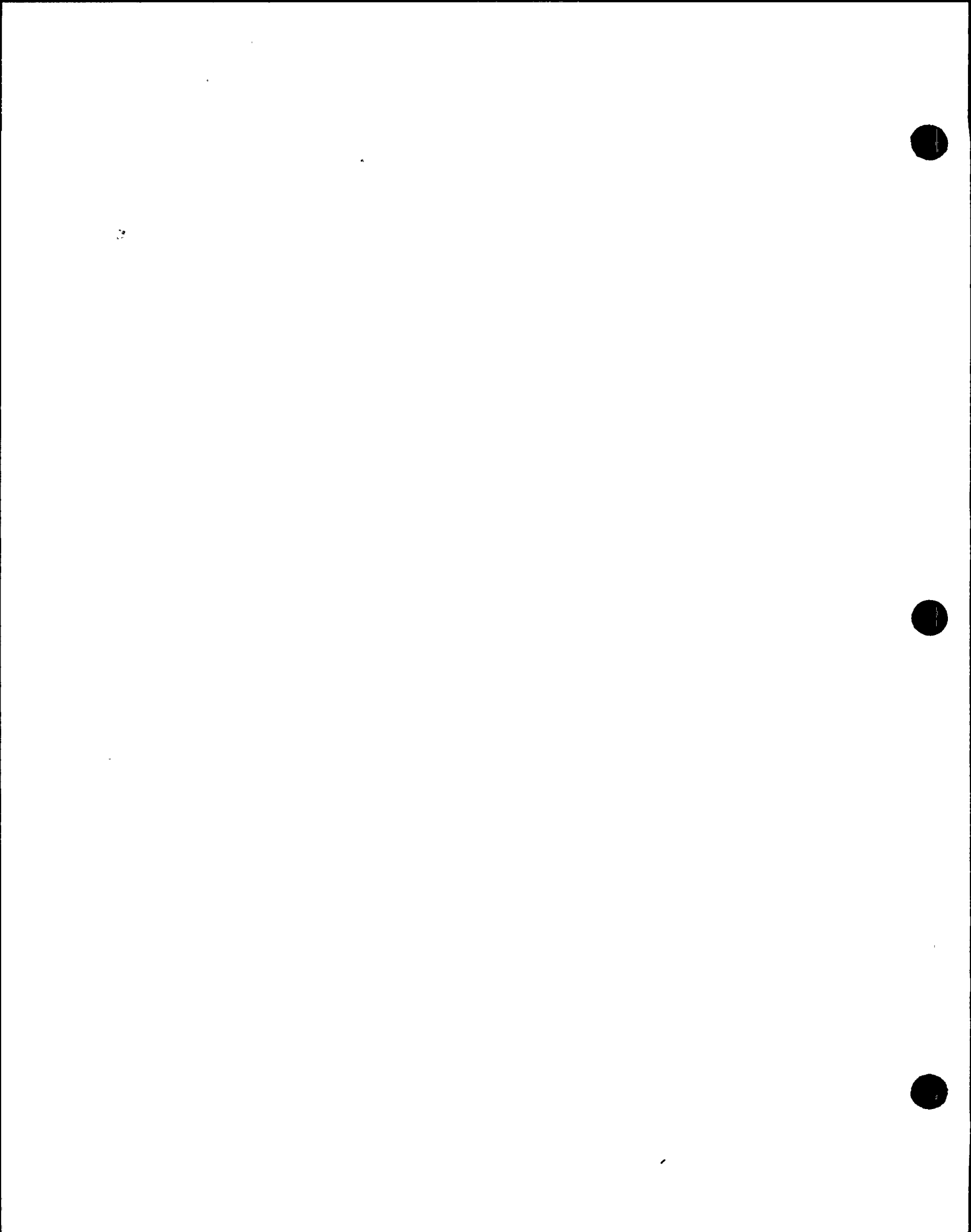
b. AC Input, Battery Input, AC Output, Bypass Input, and ground terminal connections are made at the Input Panel located on the left inside wall of the UPS cabinet. See drawing 543-514-70 Sheet 1 for locations of these terminal blocks. Proper phase rotation and DC polarity must be observed to prevent damage to the Rectifier and Battery, respectively. The ground terminal shall be terminated in accordance with local electrical codes.

1-4 PRE-OPERATIONAL CHECKS.

a. Prior to energizing the UPS, a careful check must be made on the following:

1) Use a phase meter or oscilloscope and verify proper phase rotation to the 575 VAC 3-phase input terminal block.

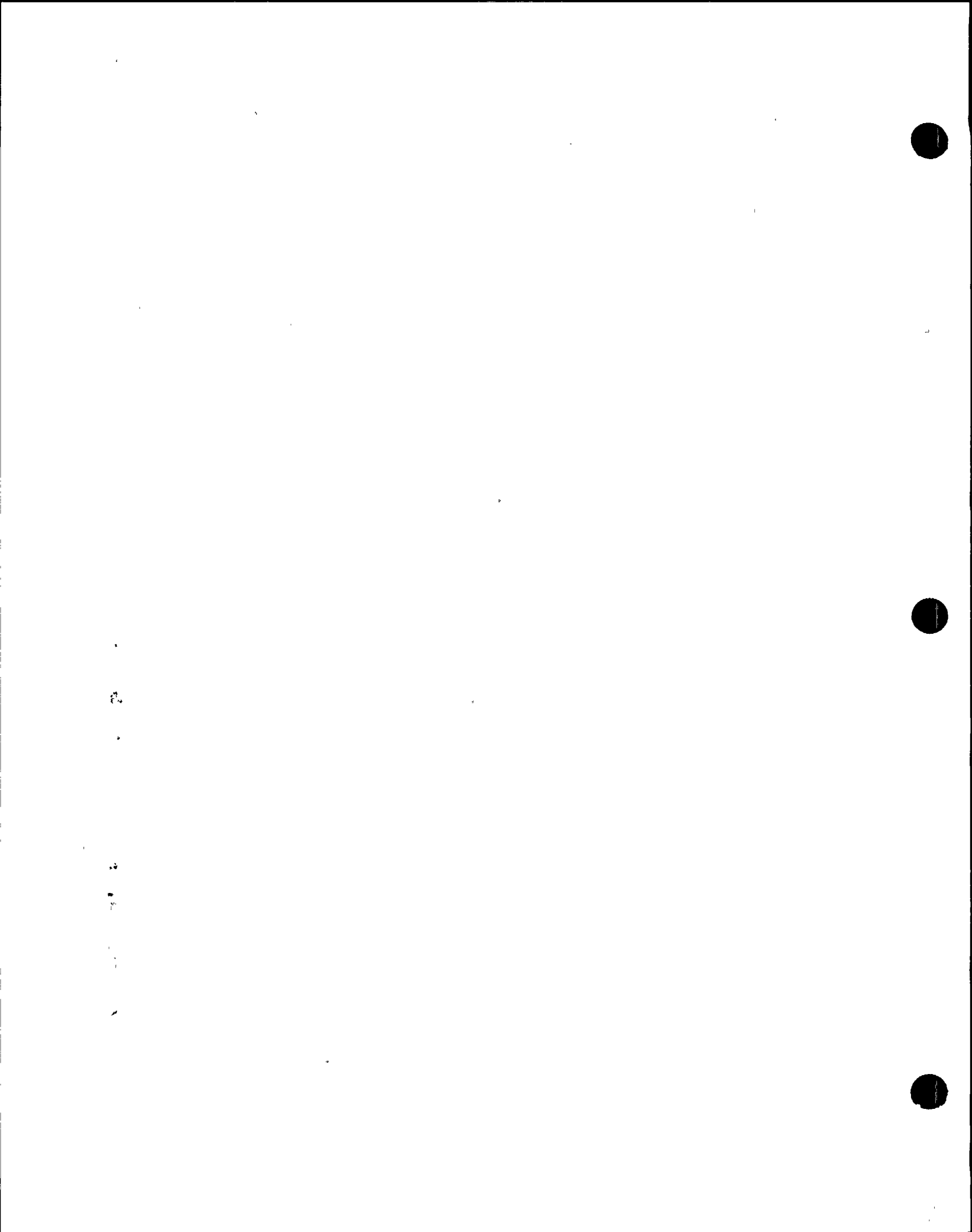
2) Use a digital voltmeter and make certain that proper polarity is apparent on the DC input terminals.



Once items 1) and 2) are verified, the UPS may be energized by following Section II operation procedures.

1-5 STORAGE

a. Extended storage prior to installation and prolonged idle periods after installation requirements are identical. The UPS should be covered with plastic to protect against dust and moisture and stored in an environment where temperatures do not exceed -20°C to 70°C . All electrolytic and large AC capacitors have a predetermined shelf life of 5 years. If the unit remains in storage beyond 5 years from date of receipt, it will be necessary to replace these devices. Capacitors requiring replacement are identified in the Spare Parts List, Section IV.



E035A/VII/INST 01.060 5002C

ELGAR CORPORATION
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September 12, 1984

Stone & Webster Engineering Corporation
3 Executive Campus
P.O. Box 5200
Cherry Hill, New Jersey 08034

Attention: Russell Dowiot

Subject: Purchase Order No. NMP2-E035A
Uninterruptible Power Supplies
Nine Mile Point Nuclear Station - Unit 2
UPS 253-1-106
Bolting Hardware

Reference: a) Telex J. Kappas/S. Pritzl dated August 31, 1984
b) Telecon G. Doscher/R. Dowiot dated Sept. 11, 1984

Elgar's response to both reference a), and b), is as follows:

The enclosed Elgar drawing #543-625-40, Sheet 2 of 2, Section A-A, may be used as a reference for this task. The bolting hardware should be 6 each 7/6 - 14x1". These bolts may be commercial grade with no specific torque specifications.

Please be advised that these bolts are used only to locate the cabinets in relation to each other and do not make a significant contribution to the seismic stability of the system.

Very truly yours,

Susan Pritzl
RECEIVED
By NO. 12187

Susan Pritzl
Contract Administrator

FEB 07 1985

SP/ad

**STONE & WEBSTER
ENG. CORP.
CONTROL LEVEL 1**

Enclosure

Stone & Webster Engineering	
J.O. No. 12177	Spec. No. E035A
RELEASED FOR:	DIRECTIONS TO SITE:
RETURN TO SUPPLIER <input type="checkbox"/>	FOR CONSTRUCTION <input checked="" type="checkbox"/>
ENG & DESIGN <input type="checkbox"/>	NOT FOR CONSTRUCTION <input type="checkbox"/>
FABRICATION NA <input type="checkbox"/>	
<input checked="" type="checkbox"/> APP - Approved/Acceptable For Use <input type="checkbox"/> AAR - Approved As Revised <input type="checkbox"/> UNA - Unacceptable <input type="checkbox"/> BLT - As - Built <input type="checkbox"/> FIO - For Information Only	
Date	Si Modi / JDS "telon"
By	algs

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An Onan/McGraw-Edison Company



SECTION II OPERATION

2-1 GENERAL DESCRIPTION

a. The UPS has been designed for use as a continuous source of AC power using an external battery as a backup power source. The Battery is coupled to the UPS through isolation diodes and is not charged by the UPS. (See Figure 2-1).

2-2 PHYSICAL DESCRIPTION

a. The UPS is housed in two all-steel cabinets. The larger cabinet contains a Rectifier, an Inverter and a Static Switch. The smaller cabinet contains a Bypass Line Voltage Regulator and Manual Switch. Hinged doors allow access to internal components. The UPS can be mounted against a wall without obstructing internal access. Physical dimensions of the UPS appear in the Installation drawing 543-514-70, Sheet 1.

2-3 PERFORMANCE SPECIFICATIONS

a. Performance specifications for the UPS appear in Table 2-1.

2-4 ENVIRONMENTAL CONDITIONS

a. When packed for storage, the UPS is capable of long-term storage without damage. Storage temperatures should be between -20°C and 70°C .

b. When operated indoors, in an ambient temperature range from 0° to 50°C , the UPS will meet or exceed the specifications given in Table 2-1. The relative humidity may be as much as 95% without condensation.

2-5 CONTROLS

a. Listed below is a description of the operator controls for the UPS. Refer to Installation Drawing 543-514-70 Sheet 1.

1) AC INPUT POWER CIRCUIT BREAKER (CB51). This is a non-automatic circuit breaker which applies three-phase AC power to the UPS.

2) BATTERY INPUT CIRCUIT BREAKER (CB52). This is a non-automatic circuit breaker which connects the Battery to the UPS. The Rectifier must be operating before this switch is closed. This switch has a U.V. release feature which is connected to the DC bus. Approximately, 100VDC must be present on the DC bus to allow breaker closure.

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TABLE 2-1. UPS 253-1-106 PERFORMANCE SPECIFICATIONS

Nominal AC input voltage 575V.

Nominal input frequency 60Hz.

Maximum AC input voltage deviation +10%

Maximum AC input frequency deviation +10%, -5%.

AC input configuration 3 phase ungrounded Wye.

Rated AC output voltage 120 VAC single phase.

Maximum AC output voltage deviation $\pm 2\%$ with respect to input voltage deviation.

Rated output 25,000 volt ampères maximum with respect to rated output voltage and input voltage deviations.

Nominal output frequency 60 Hz.

Maximum output frequency deviation $\pm .01\%$ when UPS is operating with internal frequency reference.

Maximum output frequency deviation $\pm .5$ Hz with UPS operating with an external (bypass) frequency reference. Phase accuracy maintained to ± 5 electrical degrees with a .01 Hz or less, relative to the external reference.

Maximum relative harmonic content 5% THD of the output voltage.

Maximum relative single harmonic 3%.

Maximum time required for output voltage to return with $\pm 2\%$ nominal for 100% load variation is 50ms.

Maximum output voltage deviation for a 100% load variation 15% over $\frac{1}{2}$ cycle when evaluated using the Peak-to-Peak method.

Overload capacity 125% for an indefinite period of time resulting in a maximum output voltage variation of $\pm 10\%$ of nominal.

DC input voltage range 103VDC to 142VDC for supplying 100% of rated load.

Minimum external DC voltage input for 100% rated load (1.0 pf) 101 VDC with a resulting output variation of less than 10% of nominal.

Internal DC supply (Rectifier) output range 105VDC to 142VDC.

Static Switch Transfer time 4.1ms maximum after initiation for Inverter Fault (crash transfer).

Internal power line conditioner input nominal AC supply 575 volts AC. $\pm 10\%$

Internal power line conditioner output voltage 120VAC. $\pm 3\%$

Internal power line conditioner output rating 25,000VA.



MARGINAL QUALITY ORIGINAL

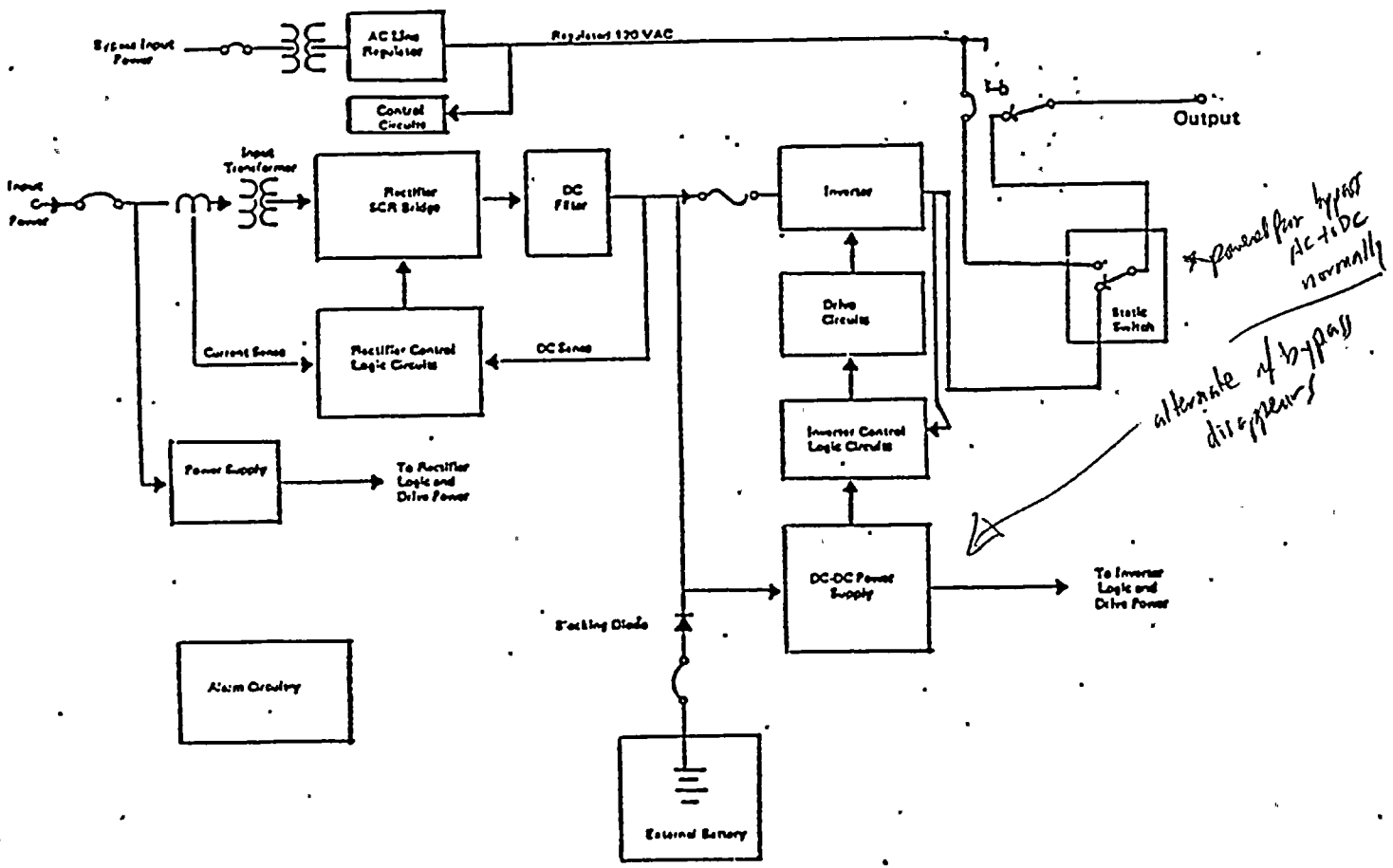
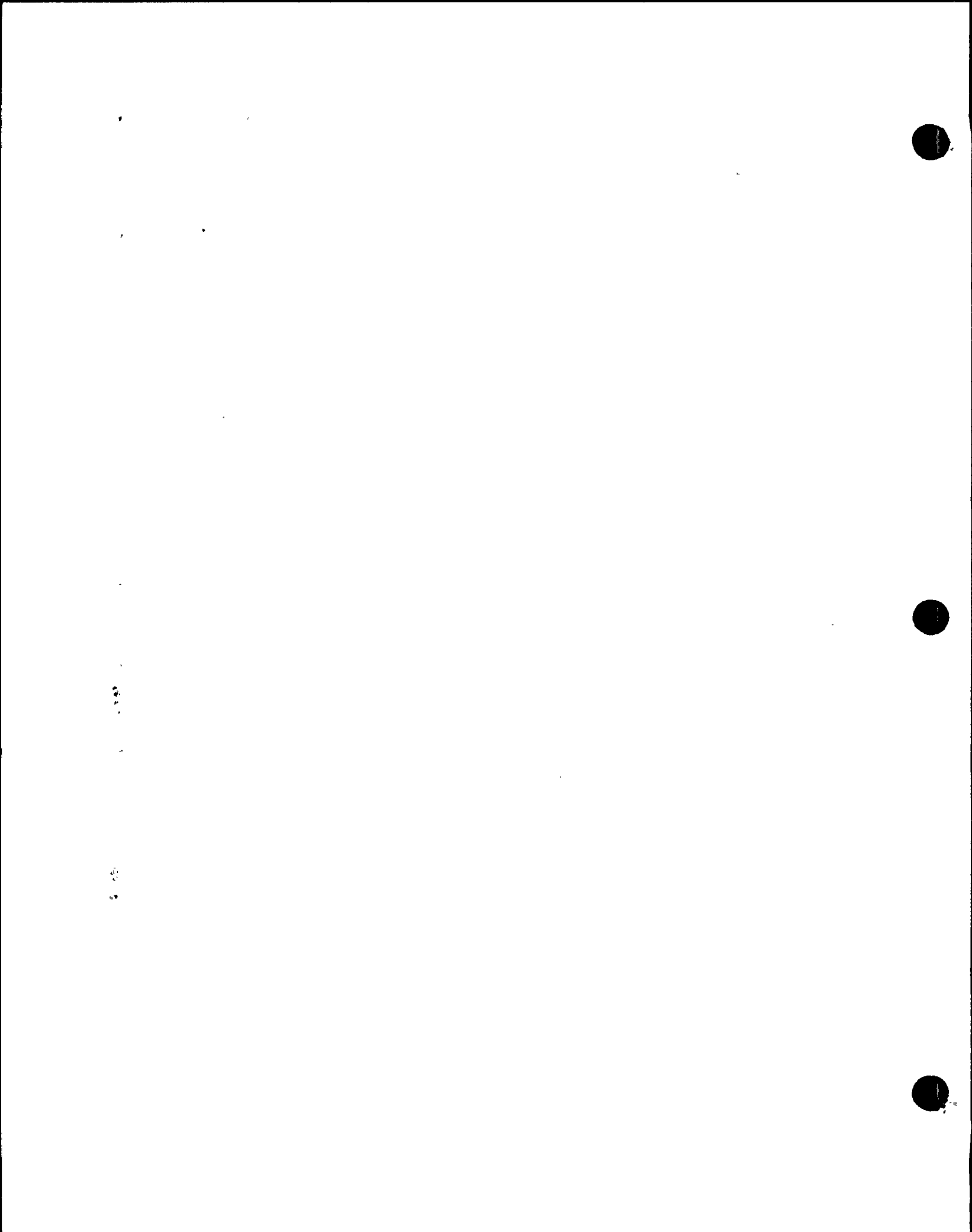


Figure 2-1. Block Diagram UPS 253-1-106



3) BYPASS INPUT CIRCUIT BREAKER (CB1) in Distribution Cabinet. This breaker connects single phase AC power to the line regulator.

4) STATIC SWITCH INPUT CIRCUIT BREAKER (CB2) in Distribution Cabinet. This breaker makes bypass power from the line regulator available to the Static Switch.

5) MANUAL SWITCH (S5). This switch manually switches the load between two power sources:

Position 1. Bypass direct.

Position 2. Bypass or Inverter power transmitted through the Static Switch.

The switch is make-before-break so the load sees no interruption during switching.

6) STATIC SWITCH INVERTER CONTROL PUSHBUTTON (S102). Transfers the load to the Inverter.

7) STATIC SWITCH BYPASS CONTROL PUSHBUTTON (S101). Transfers the load to the Bypass line.

2-6 INDICATORS

a. Listed below is a description of the UPS indicator meters and lamps. Refer to Drawing 543-514-70, Sheet 2.

b. Meters

1) AC OUTPUT VOLTAGE (M55). Static Switch output and Inverter output voltages can be monitored by switching VOLTMETER SELECT SWITCH (S52).

2) AC OUTPUT CURRENT (M56). Monitors the total AC load current after the Manual Switch.

3) AC OUTPUT FREQUENCY (M54). Static Switch output frequency and Inverter frequency can be monitored by switching VOLTMETER SELECT SWITCH (S52).

4) DC VOLTAGE (M51). Rectifier Output Voltage and Battery Input Voltage can be monitored by switching VOLTMETER SELECT SWITCH (S51).

5) DC RECTIFIER CURRENT (M53). Monitors DC current being drawn by the Inverter.

6) DC BATTERY CURRENT (M52). Monitors DC current supplied by the Battery.

7) ELAPSED TIME (M57). Monitors Inverter operation time in hours and minutes.



c. Lamps

- 1) SYNC LOSS (DS102) indicates when Inverter and Bypass line are not synchronized.
- 2) INVERTER VOLTAGE (DS 103) Indicates abnormally low voltage at the output of the Inverter.
- 3) INVERTER OVERTEMP (DS104) Indicates abnormally high temperature in the Inverter.
- 4) FUSE BLOWN (DS105) Indicates when one or more of the UPS protection fuses are blown.
- 5) LOW BATTERY (DS106) Indicates when Battery voltage is abnormally low.
- 6) LOW DC BUSS (DS107) Indicates when DC Buss voltage is abnormally low.
- 7) OVERLOAD (DS113) Indicates when output current is abnormally high.
- 8) REVERSE TRANSFER (DS112) Indicates critical load is on Bypass.
- 9) FAN FAIL (DS115) Indicates one or more of the UPS fans have failed.
- 10) RECTIFIER AC LOSS (DS109) Indicates loss of AC Input voltage.
- 11) BATTERY DRAIN/CHARGE (DS110) Indicates current flowing to or from the battery.
- 12) RECTIFIER DC GROUND (DS111) Indicates ground fault to DC Buss positive or negative.
- 13) DIODE FAIL (DS114) Indicates one or both of the Battery isolation diodes has failed.
- 14) AC INPUT (DS119) Indicates CB51 is closed.
- 15) BATTERY INPUT (DS120) Indicates CB52 is closed.
- 16) BYPASS(DS121) Indicates CB2 is closed.
- 17) AC OUTPUT (DS123) Indicates CB53 is closed.
- 18) DS117 Indicates Static Switch is in Inverter condition.
- 19) DS118 Indicates Static Switch is in Bypass condition.

2-7 OPERATION PROCEDURE-INITIAL START-UP

- a. Turn all circuit breakers to the "OFF" position.
- b. Turn the Manual Switch to the "BYPASS" position.
- c. Place Voltmeter Select Switch (S52) in "Output" position.
- d. At this point, the load may be energized with Bypass power by turning "ON" the Bypass Input circuit breaker CB1. Turn "ON" Static Switch Input circuit breaker CB2, this supplies Bypass power to the Static Switch. Turn "ON" Static Switch Output circuit breaker CB53. Observe that the output voltage is 120 VAC.
- e. Place Voltmeter Select Switch (S51) in "Rectifier" position, and S52 in Inverter position. Turn "ON" the AC Input Power circuit breaker. Observe that the DC Voltage meter increases to 125 VDC. Once this level is reached, the inverter should start and generate 120 VAC output voltage. The Static Switch should be in the "Bypass" position (DS 118 is lit). The Inverter should sync to the Bypass Line within 15 seconds and the Loss Of Sync Lamp should go out. The Static Switch should remain in the "Bypass" position.
- f. Place S51 in "Battery" position. Turn "ON" the Battery Input circuit breaker. Observe Battery voltage indication at approximately 120 VDC. Note: Should Battery Input circuit breaker trip on closure, reset and turn on. A trip of this switch will result if the Rectifier output is below 100VDC or whenever the DC bus is below 100 VDC.
- g. Turn the Manual Switch to the "UPS" position. The load is now being supplied with Bypass power through the Static Switch.
- h. Determine that the Loss of Sync lamp is out and then push the STATIC SWITCH INVERTER TRANSFER pushbutton. (S102) The Static Switch will now transfer the load to the Inverter. Operation of the Static Switch is automatic from this point on. (See Static Switch Theory of Operation, Section III.)

2-8 OPERATING PROCEDURE SHUT-DOWN

- a. Shut-down of the Inverter with the critical load on Bypass power through the Manual Switch and Bypass Line Regulator.
 - 1) Ensure Loss of Sync lamp is out and then push the Static Switch Bypass Transfer pushbutton (S101).
 - 2) The Inverter can now be turned OFF without disturbing the load by turning OFF the Battery Input circuit breaker and then turning OFF the AC input circuit breaker.
 - 3) To shut down the Static Switch, turn the Manual Switch to the Bypass position and turn OFF the Static Switch Input circuit breaker. Turn OFF the Static Switch Output circuit breaker.



b. Shut-down of the Bypass Line Regulator, with the critical load on Inverter power through the Static Switch.

1) Ensure the Static Switch Inverter Position lamp is lit (DS117), and Manual Switch is in UPS position. Turn off the Static Switch Input circuit breaker.

2) Turn OFF the Bypass Input circuit breaker, the UPS Cabinet is now isolated from Bypass Power.



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SECTION III MAINTENANCE

3-1 INTRODUCTION

a. This section contains preventive and corrective maintenance information along with disassembly/assembly instructions as needed. Also included is a list of special tools and test equipment required for maintenance and a troubleshooting chart to aid in circuit analysis.

WARNING

Isolate all test equipment from power ground using an isolator plug, or, in the case of an oscilloscope, use a "differential" type amplifier. Failure to comply will result in severe damage to the Inverter.

Extreme care should be exercised when working on the Inverter as long as any potential is applied to the unit. Even with the input circuit breaker turned off and the Manual Switch in the Bypass position, power potentials may be present at the breaker/switch terminals and capacitors will maintain a residual charge.

3-2 DISASSEMBLY/ASSEMBLY

WARNING

When removing or installing hardware, it is advisable to use a protective cover over any components where hardware could fall in or onto.

a. Repair of a static UPS requires minimal manual dexterity, as normal failures are limited to fans, fuses, capacitors and lamps. No repair should be undertaken by any individual who is not familiar with standard electrical/electronic safety precaution.

b. Fan Replacement. There are two fans located on top of the Distribution cabinet and five fans located on top of the UPS cabinet. Two personnel are required to remove and replace a fan on either unit utilizing the following steps:



1) Distribution Cabinet.

- a) Remove all power to UPS and Bypass Line Regulator, tag external breakers.
- b) Remove top air deflector.
- c) Remove fan base mounting bolts (6).
- d) Disconnect fan power leads (2).
- e) Remove fan.
- f) Install fan.
- g) Connect fan power leads (2).
- h) Install fan base mounting bolts (6).
- i) Install top air deflector.
- j) Restore power and energize UPS.

2) Rectifier/Inverter Cabinet

- a) Place the Manual Switch in the Bypass position
- b) Turn off the Battery Input breaker.
- c) Turn off the AC Input Breaker.
- d) Follow Distribution cabinet steps b) through j).

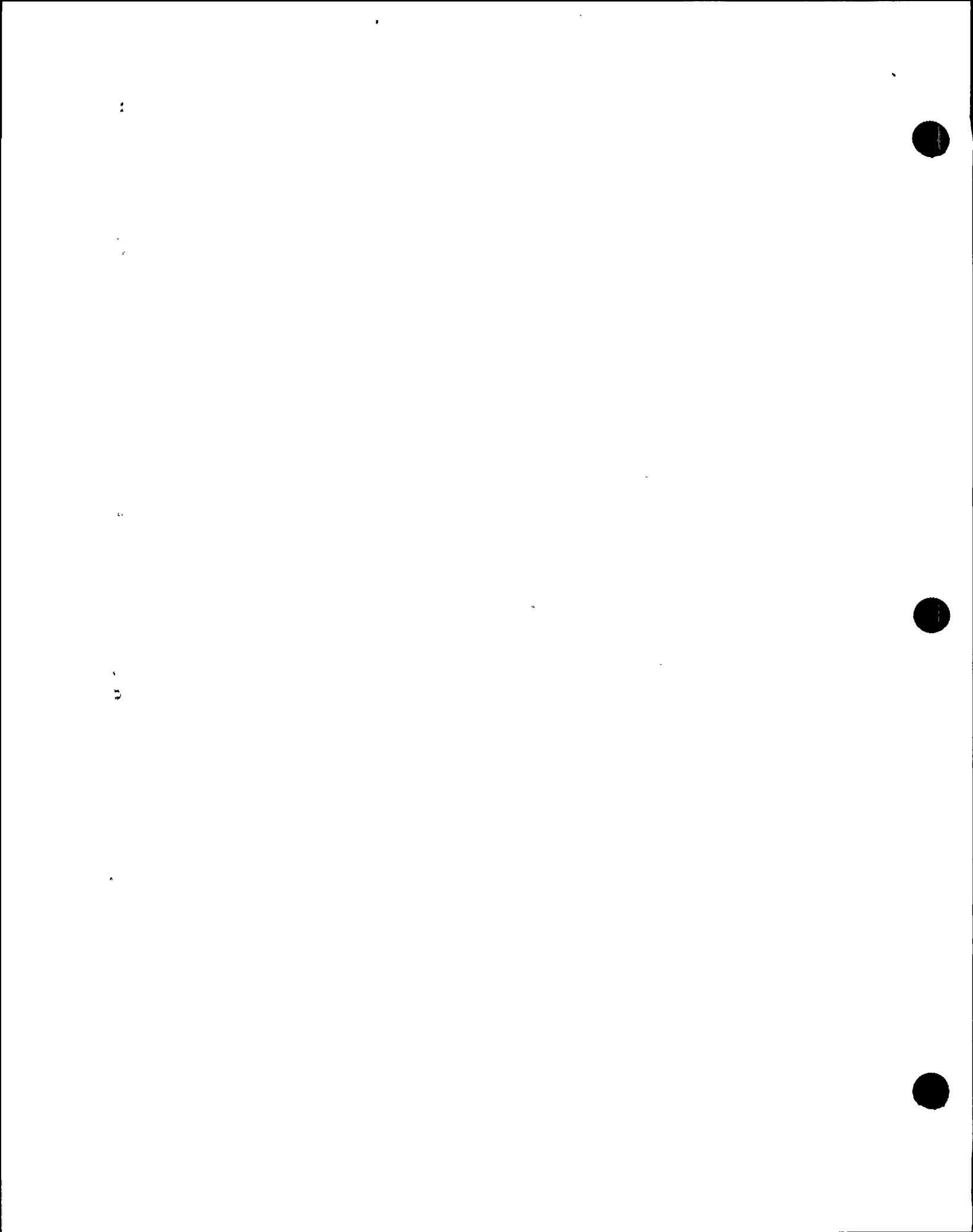
c. Fuse Replacement. Visually check Fuse Sense boards located in the Distribution and UPS Cabinets for a red light to indicate general area of open fuse. Secure all power to UPS and Distribution Sections. Use an ohmmeter in indicated area to determine the open fuse and replace in accordance with standard electrical procedures.

CAUTION

Prior to replacing fuses, use an analog or digital voltmeter to insure that no voltage is present on the fuse terminals or surrounding work area.

d. Capacitor Replacement. The following capacitors require replacement at 9 year intervals to preserve the 40 year equipment life:

<u>Cab Location</u>	<u>Ckt Sym No</u>	<u>Purpose</u>	<u>Quantity</u>	<u>Reference Drawing</u>
UPS	A2C1A & B	Commutation	2	643-523-40
UPS	A2C2A & B	Commutation	2	643-523-40
UPS	A3C1-C2	Commutation	2	643-524-40
UPS	A4C1-C2	Commutation	2	643-524-40
UPS	A5C57A-T	DC Filter	20	5321074-01
UPS	A5C1A-H	AC Filter	8	5321074-01
UPS	A5C2A-G	AC Filter	7	5321074-01
UPS	A6C51-56	PF Correction	6	5431086-02
UPS	A6C61-62	S/S Preload	2	5431086-02
UPS	A9C59-60	S/S Logic Filter	2	643-630-40
UPS	A9C3	DC/Dc Conv Filter	1	643-630-40
Dist	DA3C81-82	AC Filter	2	643-383-40
Dist	DA1C83	Bypass Line Regulator Filter	1	5431249-01
Dist	DA5C1A-P	1% Ripple Filter	16	5431081-02



e. The following procedures should be followed in replacement of capacitors.

1) Prior to attempting replacement of these devices, insure that all power is secured to the UPS. Verify by measuring all input/output terminals (reference DWG. 543-507-70 SHT 3) with a digital or analog voltmeter.

2) Use an approved shorting device and short across each capacitor or capacitor bank to insure the removal of all electrical potentials. Verify 0 volts with meter.

3) Once all potentials are removed and verified, replacement of these capacitors can be accomplished. Tools required:

- a) #1 6 inch Phillips Screwdriver.
- b) 1/4 x 6 inch slotted screwdriver.
- c) 1/4" nutdriver set.
- d) 3/8" socket set.
- e) One roll Permacel P-212.
- f) One roll 1 inch masking tape or equivalent.

4) Using the above list, commence removal of all capacitor terminal hardware connected to A2C1A & B and C2A & B commutation capacitors. [Use 1" masking tape (or equivalent) to mark electrical leads for proper reconnection after new capacitors are installed.]

5) Loosen the edge mounted holding clamps until capacitor(s) can be removed. Once removed, mark the old capacitor in some fashion to identify it as an old component, to be discarded.

6) Install new capacitor(s) and tighten edge mounted holding clamps.

7) Reconnect capacitor terminals to the appropriate leads, as previously identified in step 4.

NOTE: 1. Every effort should be made to prevent dropping mounting hardware in the unit.
2. Tighten capacitor terminals until no movement of electrical connections are observed. Do not over tighten as damaged to the capacitor may occur..

8) Proceed to A3C1 and C2. Repeat steps 4 through 7:

9) Proceed to A4C1 and C2. Repeat steps 4 through 7.

10) Proceed to A5C57A through T.

11) Remove all capacitor terminal hardware. Use 1" masking tape (or equivalent) to identify bus bars and electrical connections for the future installation. Also note polarity marking to insure functional replacement.

12) Loosen base mounted holding clamp and remove capacitor. Once removed, mark the old capacitor in some fashion to identify it as an old component to be discarded.

11-11-11



13) Prior to installing new capacitor(s), wrap the bottom and lower 2 inches of each capacitor with one layer of silicone glued glass tape. (Permacel P-212 or equivalent.)

14) Install new capacitors. Observe vertical terminal alignment and polarity markings noted in step 11. Tighten base mounted holding clamp.

15) Reinstall bus bars and electrical connections as previously identified in step 11. Tighten firmly with 6" screwdriver.

16) Proceed to A6C51-56 and C61-62. Repeat steps 4 through 7.

17) Proceed to A9C59-60 and C3. Repeat steps 11 through 15.

18) Proceed to Distribution cabinet A3C81-82. Repeat steps 4 through 7.

19) Proceed to Distribution cabinet A5C1A-P. Repeat steps 11 through 15.

3-3 PREVENTIVE MAINTENANCE

a. Preventive maintenance consists of cleaning and inspection of the unit for obviously damaged parts or printed circuit boards. Special attention should be given to inspecting for overheated parts and loose terminals.

b. The following preventive maintenance schedule is the minimum required to insure reliable operation:

1) Monthly
M-1 Clean Air Filter
M-2 Inspect unit for obvious overheating of components.

2) Quarterly
Q-1 Thoroughly clean inside of unit. Make sure power is secured and use non-metallic vacuum wands.
Q-2 Check large power wiring terminal connections for tightness. Tighten as necessary.
Q-3 Measure Inverter output voltage (120VAC $\pm 2\%$). If out of tolerance, refer to the alignment procedures, 3-7.
Q-4 Measure Rectifier output voltage (125VDC). If out of tolerance, refer to the alignment procedures, 3-7.

NOTE: In order to maintain the 40 year life qualification, it will be necessary to replace all fans on a two year cycle and all oil filled and electrolytic capacitors on a 9 year cycle. Each of these items are denoted in the spare parts listing contained in Section IV. Procedure for replacement is provided in Section 3-2.

3-4 CORRECTIVE MAINTENANCE

a. Actual fault finding and repair of the UPS should be performed by individuals with a strong electronics background. The remainder of this section is provided to assist in repair efforts. Factory assistance is typically available from Elgar Corporation on a 24 hour response time basis. For technical assistance contact:



Elgar Service Department
9250 Brown Deer Rd.
San Diego, CA 92121
Phone: 619 450-0085
Toll Free: 800 854-2213
TWX: 910 335-1246

3-5 THEORY OF OPERATION

a. General Description.

1) The UPS consists of four sections - a Rectifier section, an Inverter section, a Static Switch section, and a Bypass Line Regulator-Distribution section. A separate battery bank is mounted separately from the UPS and powers the Inverter when Rectifier AC power fails. (Refer to Block Diagram, Figure 2-1.)

2) AC input power is supplied to the Rectifier section through input circuit breaker (CB51). A portion of this power is routed to a Rectifier Power Supply, which provides filtered 27 volts required by the Rectifier logic and drive circuits. Input voltage is supplied to a main power input transformer whose secondary windings supply voltage to an SCR Rectifier Bridge. By controlling the SCR firing of this bridge, the DC bus voltage can be precisely regulated at 125 volts. A Battery circuit breaker (CB52) allows the external battery to be electrically disconnected.

3) The inverter section consists of an SCR inverter, an AC output transformer, an output filter, and control logic. The Inverter converts DC bus voltage to AC power. The Inverter section consists of three SCR bridges and associated commutation circuitry that converts DC power to multiple pulse AC power. An output filter then reduces the harmonics, and supplies a fundamental sine wave voltage to the Inverter output.

4) The Bypass Line Regulator section takes 575 volt, single-phase power and transforms it to 120 volts then regulates this voltage to provide constant AC voltage. This Bypass voltage is used as an "Alternate Supply" to the Inverter AC supply.

5) The Static Switch section consists of a double-throw SCR switch which switches the load between the Regulated Bypass supply and the Inverter output supply.

b. RECTIFIER OPERATION (Refer to schematic 543-625-60 Sht 2)

1) Closing the input power circuit breaker, CB51, applies AC power to an input isolation transformer, T51, and to an auxiliary 27 volt logic power supply. The secondary windings of T51 supply power to a standard six-phase SCR phase-controlled bridge rectifier. The DC output of this rectifier is filtered and supplied to the DC bus. The DC bus supplies power to operate the Inverter but is prevented from supplying power to the Battery by Isolation Diodes CR51 & CR52. Closing the Battery circuit breaker, CB52, connects the Battery through the isolation diodes to the DC Bus.

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2) The voltage of the DC bus is controlled by logic circuitry which is located on two PC boards in the card cage. This logic circuitry supplies gate drive signals to the 12 SCRs in the bridge rectifier in such a manner as to supply the desired DC voltage to the bus.

3) Rectifier Logic (Refer to board assemblies 5490018 and 5490019). The Rectifier logic boards regulate the DC bus voltage by varying the firing angle of the 12 SCRs in the rectifier bridge. The more the firing signal is delayed with reference to the input line, the lower the DC output. The bus voltage is held constant for normal conditions and the total bus current is held constant for rectifier overload conditions. The Rectifier logic board assembly, 5490018 (refer to schematic 6490018) contains analog control functions such as voltage and current control. The Rectifier logic board assembly 5490019 (refer to schematic 6490019) contains digital logic and timing functions that are used to control the drive to the SCRs in the rectifier bridge.

4) Rectifier Gate Drive Boards (Refer to schematic 6490009-01). These board assemblies (assembly drawing 5490009-01, one board assembly for three SCRs) are mounted right on the rectifier bridge SCR heatsinks and supply SCR gate drive power to the individual SCRs in response to signals received from the Rectifier Logic [Digital] board assembly.

c. INVERTER OPERATION (Refer to schematic 543-625-60 Sht 1)

1) Input DC power is fed to three schematically identical, single-phase, SCR, power inverter assemblies. The output of each of these inverters is a single-phase, two pulse (per half cycle) quasi-square wave power signal. This output is used to drive a power summing transformer (T1, T2, T3). The AC output wave form from each inverter is phased differently from each of the others (see Power Timing Diagram, Figure 3-1). These three waveforms are added together at the summing transformer secondaries to form a multi-stepped, notched waveform which approximates a sine wave at 60 Hz and 120 volts AC. The waveform is then filtered by a low-pass, trap-type filter (L1, L3, C1, C2) which removes the higher-order harmonics and filters the stepped waveform down to a clean sine wave. This filtered AC voltage becomes the Inverter output. Voltage regulation of this output sine wave is accomplished by varying the pulse width of each pulse of the "2 pulse" single-phase inverters. (See Power Timing Diagram, Figure 3-1.) Inverter output frequency is held at a constant 60 Hz by a low-level precision oscillator (located on a separate oscillator assembly) or it is varied to enable synchronization of the output voltage with some alternate, or bypass, AC power source.

2) Drive power for the SCRs in the three power inverter assemblies come from one of the printed circuit boards located in a card cage assembly. Auxiliary, low voltage, DC power utilized by the logic printed circuit boards in the card cage assembly comes from a DC to DC Converter assembly which takes its power directly from the Inverter Input DC bus.

3) Each of the three Power Inverter bridge assemblies operates identically (except for phasing) so only one of these will be discussed here. (See schematic 643-523-60)



MARGINAL QUALITY ORIGINAL

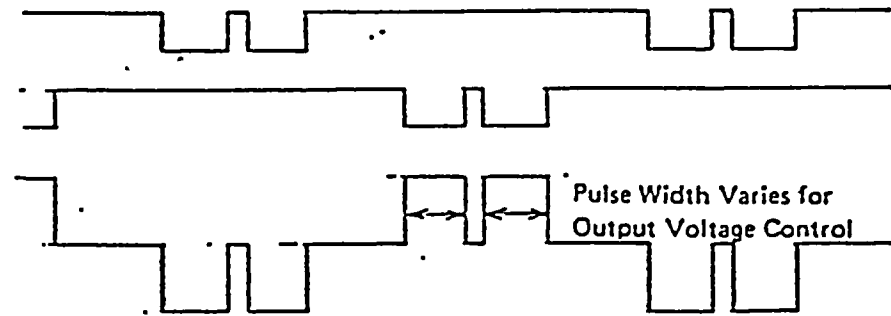
E3 OUTPUT
(Ref. to Bus)

E4 OUTPUT
(Ref. to Bus)

E3, Ref. E4
OUTPUT -
INVERTER
ASSY A2

E3, Ref. E4
OUTPUT -
INVERTER
ASSY A3

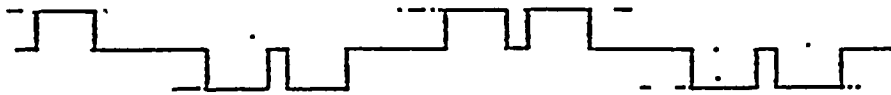
E3, Ref. E4
OUTPUT -
INVERTER
ASSY A4



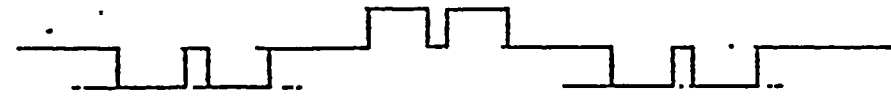
SWITCHING SECTION
OUTPUT (Left)

SWITCHING SECTION
OUTPUT (Right)

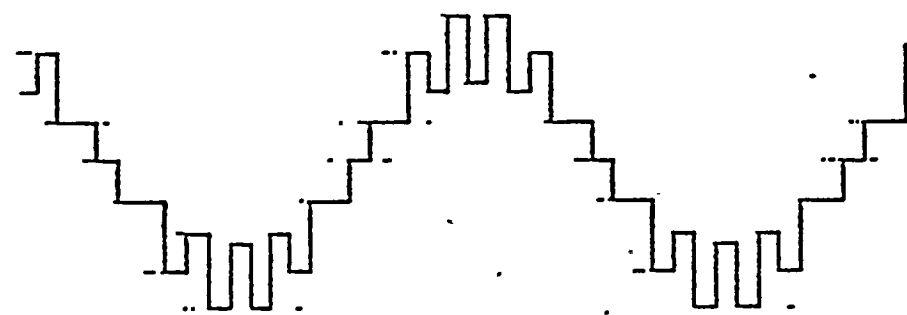
TOTAL 10 BRIDGE
OUTPUT TO T1
(Left Section & Right Section)



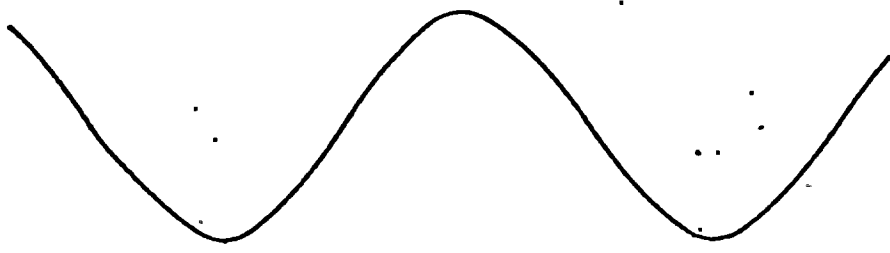
TOTAL 10 BRIDGE
OUTPUT TO T2



TOTAL 10 BRIDGE
OUTPUT TO T3



UNFILTERED
INVERTER
OUTPUT VOLTAGE



FILTERED
INVERTER
OUTPUT VOLTAGE

- NOTE:
1. All waveforms are 60 Hz.
 2. Waveforms are for sequence reference only. Voltage amplitudes vary with DC bus and load conditions.

Figure 3-1. Power Timing Diagram



Vertical text on the left side of the page, possibly a page number or header.

4) The SCR Inverter is connected in a bridge configuration with two basic switching sections composed of four SCRs (two "mains" and two "coms"), two feedback or "free-wheeling" diodes, two commutation (com) chokes and a commutation (com) capacitor. (See Figure 3-2 and schematic 643-523-60.) The output of this switching section (one of the two bridge outputs) is at the point where the main SCRs are connected together and is switched between the plus bus potential and the minus bus potential by alternately switching the two main SCRs ON and OFF.

5) Assuming that the top main SCR3 is ON and the bottom main SCR4 is OFF, SCR3 is commutated OFF by "gating" SCR1 ON. This forces current supplied by the previously charged capacitor, C1, through diode CR1, reverse biasing SCR3 and thus allowing it to recover forward voltage blocking ability. Shortly after SCR3 is commutated OFF, SCR4 is gated ON. This action switches the bridge section's output from plus bus potential to minus bus potential. This also causes the com capacitor's charge to reverse polarity, thus setting up requirements for the next commutation of SCR4 which is accomplished by gating ON bottom-com SCR2. Shortly after SCR4 is commutated OFF, SCR3 is again gated ON and the circuit is now back to the original state. (See Commutation Timing Diagram, Figure 3-2.) SCRs 1 and 2 are self-commutating and turn OFF as soon as C1 is fully charged in one direction.

6) Inverter Analog Logic Board Assembly 5490030 (Refer to schematic 6490030). The function of the Analog Board is to process analog signals such as Inverter Output voltage and current, logic supply voltage, and to generate appropriate signals for control of the Inverter output voltage. Fault signals such as fast inverter current overload, Inverter DC input undervoltage, and open fuse or low logic supply voltage are also processed by this board assembly. A fast-acting fault circuit comprised of U5 and U7 is used to shut off the Inverter very rapidly in case one of these conditions should occur.

7) Inverter PWM Logic Board Assembly 5490014 (Refer to schematic 6490014). This board generates the special waveforms required by the Inverter drive circuitry and also controls the Inverter start-up and shut-down sequencing.

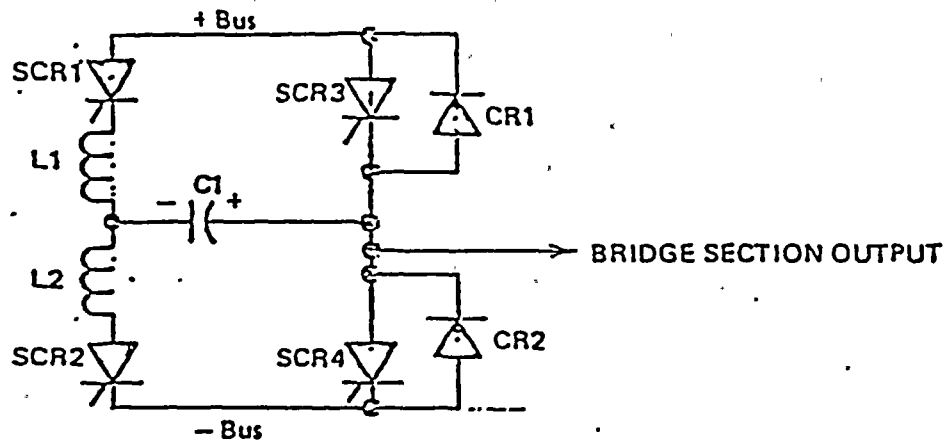
8) Inverter Drive Logic Board Assembly 5490001 (Refer to schematic 6490001). The Drive Logic PC Board accepts basic PWM signals from the PWM Logic Board, processes them and supplies drive power for the SCRs in the three power bridges.

9) Alarm Board Assembly 5490006 (Refer to schematic 6490006). The function of the Alarm Board is simply to accept sensing information from various points in the Inverter or from other boards in order to detect abnormal operating conditions. These conditions are then alarmed through control panel lamps.

10) Oscillator Board Assembly 64-119-41 (refer to schematic 643-119-60). An oscillator board has two basic functions. The first is to supply an AC signal to the PWM Logic Board to be used as the basic Inverter frequency and phase reference. The second function is to detect the frequency and phase reference. The second function is to detect the frequency of the Bypass, or alternate, source of power and to supply a signal to the Oscillator circuitry when this frequency deviates from a preset tolerance.



ONE BRIDGE SECTION (1/2 BRIDGE)



PWM LOGIC SIGNAL

MAIN SCR3 VOLTAGE, ANODE - Ref. Cathode

COMMUTATION CURRENT PULSE - C1

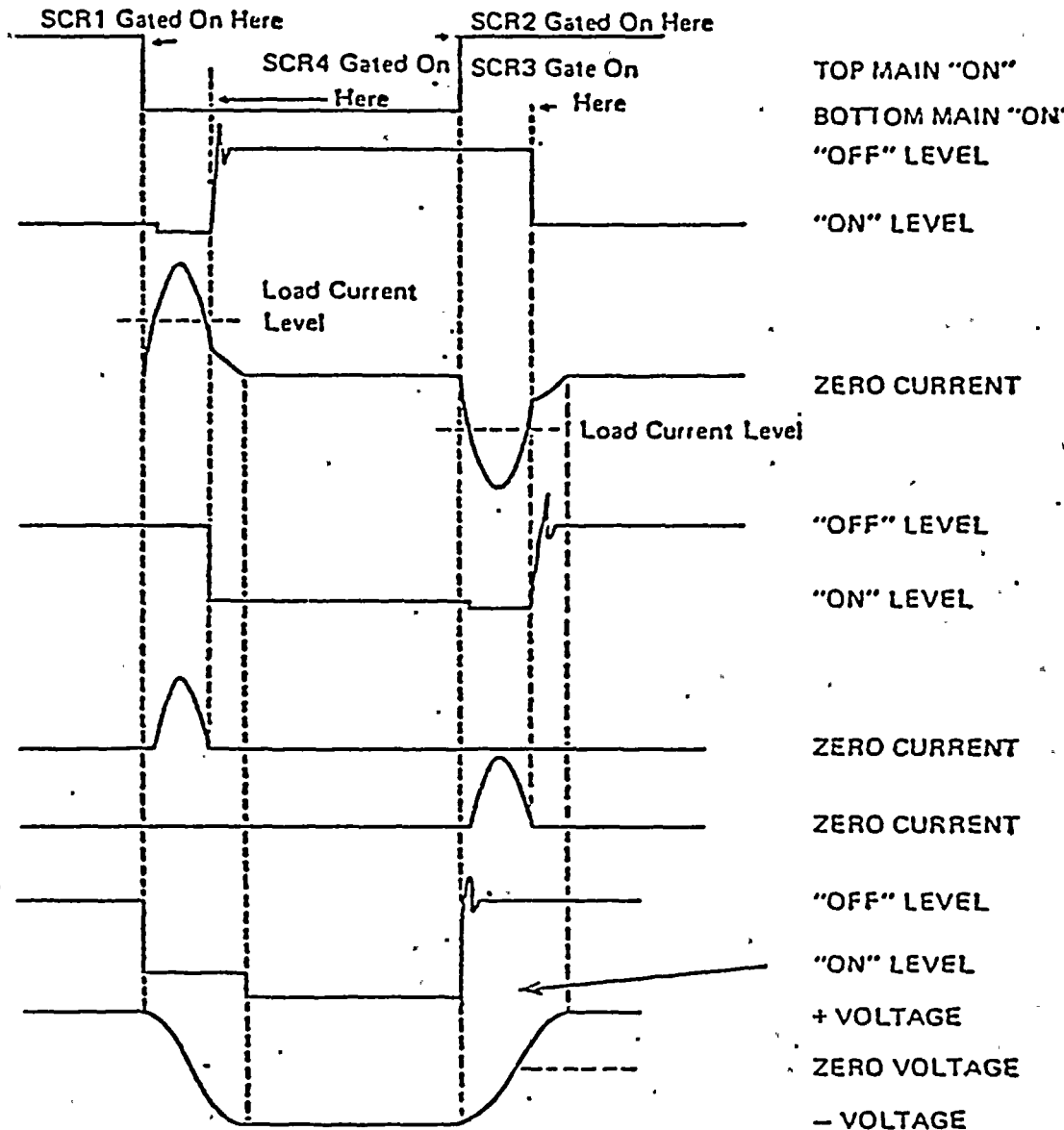
MAIN SCR4 VOLTAGE ANODE - Ref. Cathode

DIODE CURRENT CR1

DIODE CURRENT CR2

COM SCR1 VOLTAGE ANODE - Ref. Cathode

CAPACITOR C1 VOLTAGE RIGHT SIDE - Ref. Left



NOTE: 1. Waveforms are for sequencing reference only. Voltage and current amplitudes vary with DC bus and load conditions.

Figures 3-2. Commutation Timing Diagram

11) DC to DC Converter Board Assembly 5490008 (Refer to schematic 6490008). The purpose of this assembly is to convert 125 volt DC power to isolated, low voltage power which is needed to power the Logic and Inverter Drive circuitry. Two DC outputs are available from the converter:

- | | |
|-------------------|--------|
| a) Line regulated | +25VDC |
| b) Line regulated | -25VDC |

This converter is a quasi-square wave, switching type that compensates for input DC line voltage changes by PWM (Pulse Width Modulation) control of the square wave duty cycle.

d. STATIC SWITCH

1) The Static Switch (SS) is an electronic solid state assembly which is used to transfer the critical load, without interruption, from the Inverter to the Bypass line, or back again from Bypass to Inverter. The basic switch consists of two back-to-back, SCR pairs connected in a single-pole, double-throw switch configuration. (See Figure 3-3 and schematic 543-625-60 Sht 2.

2) One pair of SCRs is gated ON to connect the load to the UPS, and the other pair of SCRs is gated ON to connect the load to Bypass. The SCRs are gated ON by means of a rectified high frequency drive circuit, which is controlled by a Static Switch (SS) control logic circuit, (board assembly 5490002 and schematic 6490002).

3) The switch is controlled either automatically or manually. If the switch is in the Inverter position, circuits on the SS logic board will cause the switch to transfer to the Bypass position automatically in the event of an UPS failure or overload. The load can be switched to either source of power manually by pushing either the SS Inverter or Bypass control buttons on the UPS control panel. A crash transfer feature is present to allow for no power outage to critical load in the event of a short in the inverter.

4) Static Switch Gate Drive Board Assembly 5490009-02 (Refer to schematic 6490009-02). This board is mounted on the Static Switch heatsink assembly and contains two complete drive circuits - one for each back-to-back SCR pair in the switch. There are four gate drive transformers on the board, one for each SCR. These transformers are driven at 50 kHz and supply gate current to the SCRs through the secondary circuitry. Two sense circuits sense voltage across each SCR pair and sends a signal back to the SS Logic Board indicating when that switch pair has recovered (or turned OFF).

e. BYPASS LINE REGULATOR OPERATION

1) The voltage regulator consists of three elements:

- A step-down isolation transformer.
- Regulating transformers and their associated tap switches.
- An analog-to-digital converter control system.



The input transformer steps down the 575 VAC line to 120 VAC for correction by the regulating transformers. Voltage regulation is achieved by measuring the system output voltage and selecting taps on the regulating transformers to keep the output within regulation limit. Rather than being continuously variable, regulation is obtained with nine discrete tap ratios that change in accordance with the control system signals.

2) The control system is comprised of a tracking or servo-type of analog-to-digital converter. The output voltage is continuously monitored and steps an up-down counter in the direction that will balance the output voltage with an accurate internal reference voltage.

3-6 TROUBLESHOOTING

a. Troubleshooting procedures are discussed in Tables 3-1, 3-2, and 3-3.

3-7 ALIGNMENT PROCEDURES

a. Once it has been determined that the UPS is operating, it may be necessary to align the unit. Only two field calibrations exist for this unit and are detailed below:

1) Rectifier output adjust.

a) Turn "ON the AC Input Switch.

b) Observe that the Rectifier output increases and stabilizes at approximately 140 VDC.

c) Use a multimeter and measure the DC voltage across the DC filter caps located on the A5 filter panel in the UPS Cabinet. (See drawing 643-623-40 sheet 1 and 2 for filter panel location.) This level should be 140VDC \pm 1 volt.

d) Adjust R15 on the Charger Logic A (5490018) circuit board for 140VDC.

2) Inverter output adjust.

a) With the Static Switch in the Inverter position, measure the Inverter output at the breaker located on the UPS cabinet. This level should be 120VAC.

b) Adjust R2 on the PWM, Analog Logic (5490030) circuit board for 120VAC out.

CAUTION

Although other adjustments are accessible, care should be taken to prevent turning the wrong potentiometer as these are factory set and require specialized test procedures and facilities to align.

WARNING

Lethal potentials are present any time the UPS doors are open during UPS operations. Observe all safety precautions for working on live circuits.



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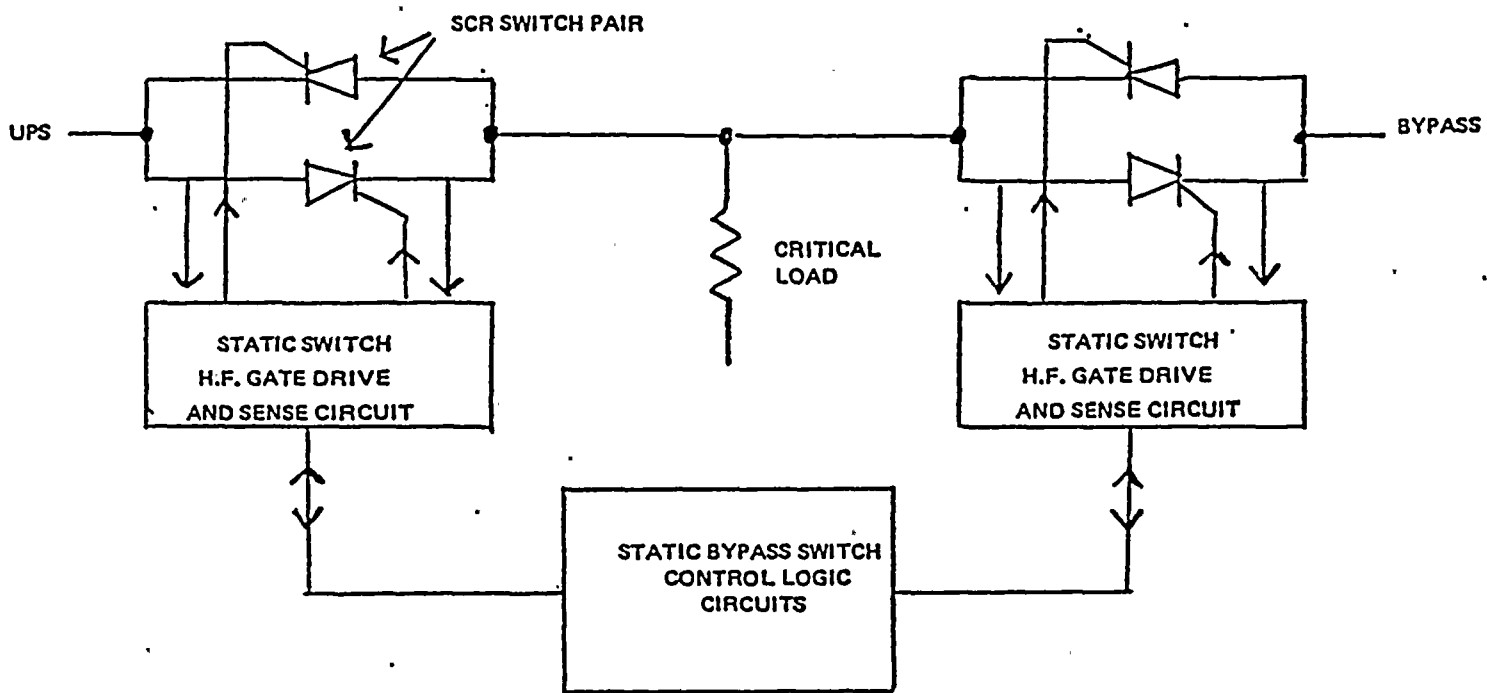
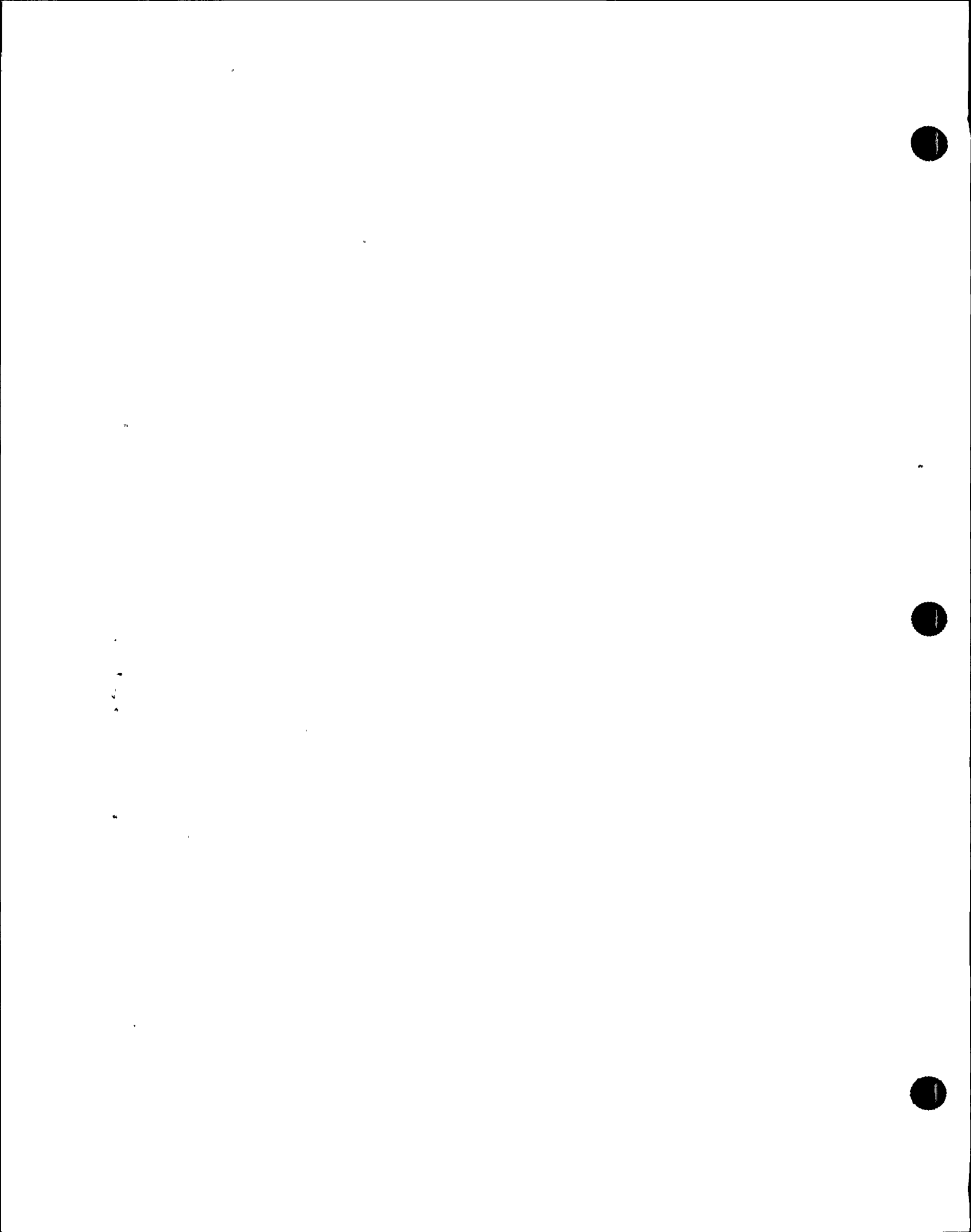


Figure 3-3. Static Switch Block Diagram



INVERTER SCR GATE

REFERENCE
PWM LOGIC
SIGNAL

TYPICAL "LOWER"
MAIN SCR GATE
WAVEFORM
SCR4 or 8 on schematic
643-523-60

TYPICAL "LOWER" COMM
SCR GATE WAVEFORM
SCR 2 or 6 on schematic
643-523-60

TYPICAL "UPPER"
MAIN SCR GATE
WAVEFORM
SCR 3 or 7 on schematic
643-523-60

TYPICAL "UPPER" COMM
SCR GATE WAVEFORM

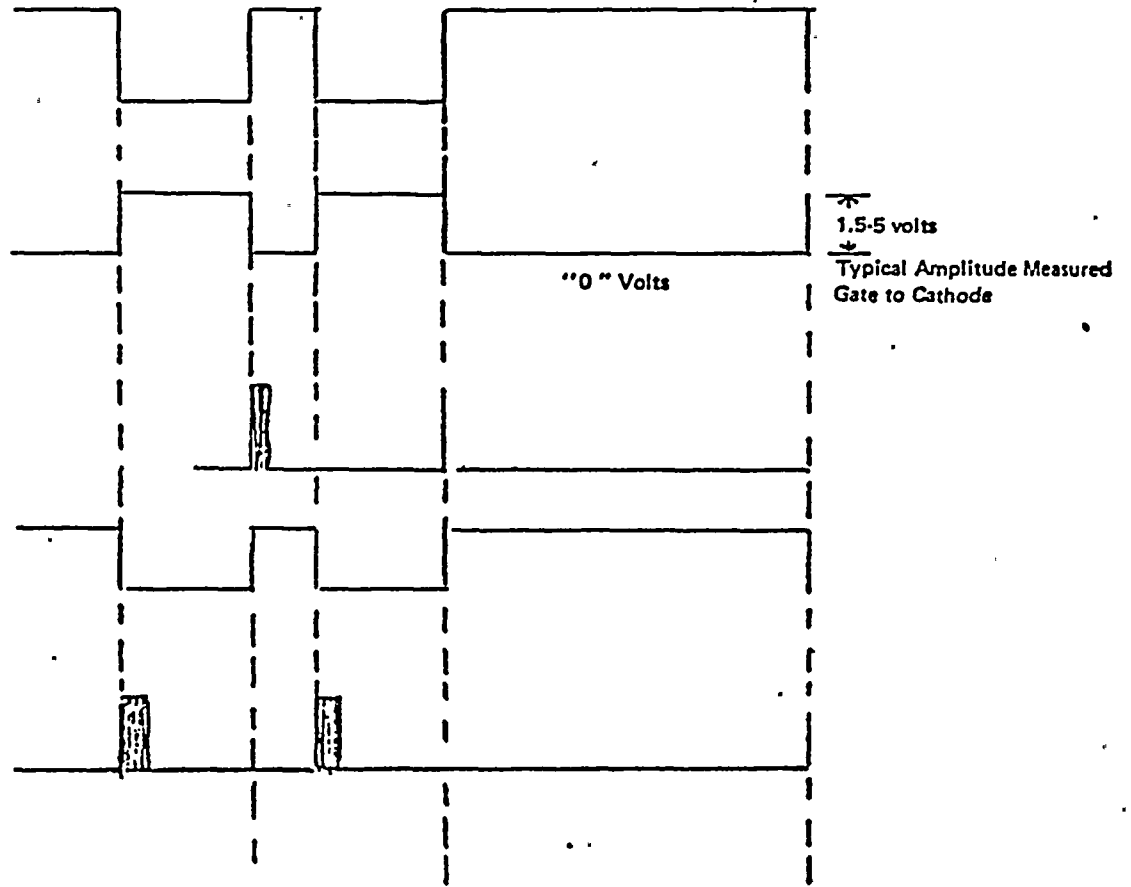
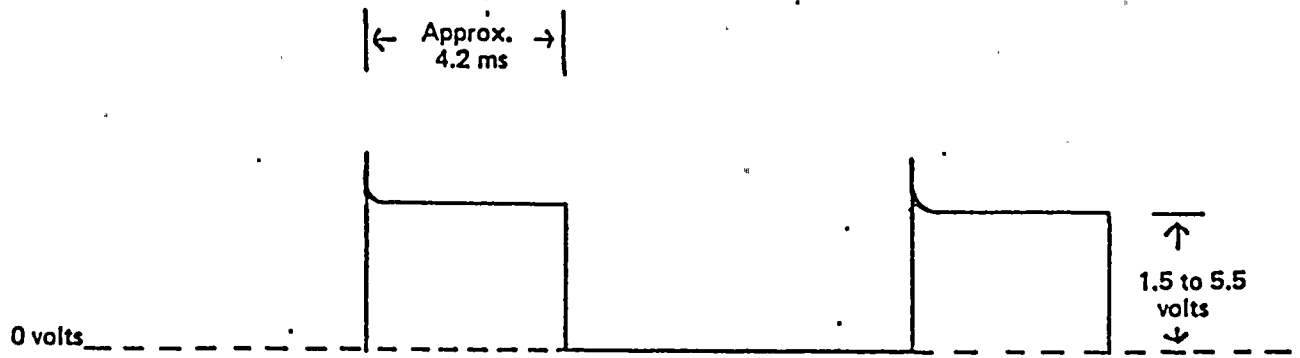


Figure 3-4. Typical Gate Drive Waveforms



RECTIFIER SCR GATE



STATIC SWITCH GATE

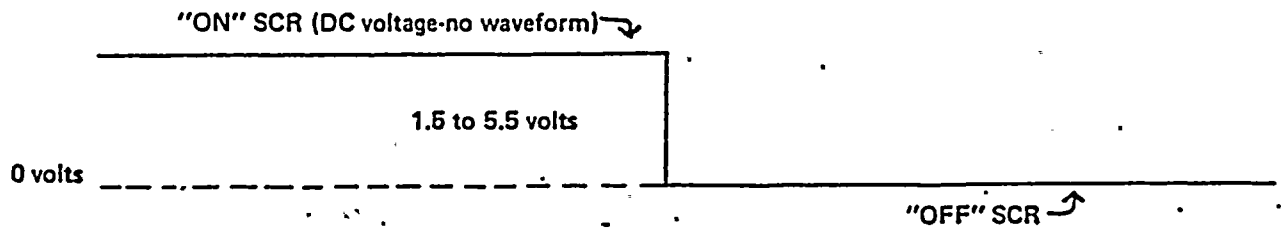


Figure 3-5. Gate Waveforms



TABLE 3-1. TROUBLESHOOTING CHART - INVERTER

Problem	Probable Cause	Remedy
<p>DC fuse F1(A2), F1(A3), F1(A4) blows when unit is turned on or while operating.</p>	<p>Shorted SCR, feedback diode commutating capacitor, AC output filter capacitor.</p>	<p>Turn unit off. Allow DC bus to discharge to zero volts. Discharge all commutation capacitors. Test suspected components with an ohmmeter turned to the low ohms (Rx1) scale. In checking for AC output filter capacitor shorts, it will be necessary to disconnect some of the wiring to the summing transformers or series filter choke (L2) as the windings will make everything appear as a short to the DC operating ohmmeter.</p>
	<p>Faulty components on one of the Inverter Logic Boards, 5490030, 5490014, 5490001.</p>	<p>Turn unit off. Remove and replace all three Inverter Logic boards. If unit now operates properly, one of the Logic boards is faulty and can be found by process of elimination.</p>
	<p>Faulty Inverter bridge SCR gate (internal SCR gate lead open) or faulty gate drive component. Gate Drive Assy 549009-03 located on A2, A3, A4.</p>	<p>Turn unit off. Remove DC fuses F1(A2), F1(A3), F1(A4). Turn unit on and check for proper gate drive wave forms. (See Fig. 3-4, Gate Troubleshooting Chart for Inverter Problems). An improper wave form will indicate a possible faulty SCR in the bridge section being tested or a faulty gate drive component.</p>
	<p>Shorted summing transformer, auto-transformer or AC filter choke.</p>	<p>Turn unit off. On Analog Logic board assembly (5490030) short R28 (either end) to logic common which can be found on the board at CR 18 anode near input pin Z. Turn unit on. It should now operate phased all the way off-- that is, generating no output voltage. If the unit now operates in this mode without blowing DC fuses, it indicates that there is some kind of fault (shorted transformer, etc.) in the AC portion of the output circuitry. If the DC fuse still blows, look for the problem on the primary or SCR bridge side of the summing transformer.</p>



TABLE 3-1. TROUBLESHOOTING CHART - INVERTER

Problem	Probable Cause	Remedy
Output voltage is lower or higher than 120VAC.	Output voltage adjustment on Inverter Analog Logic board is not correct. (5490030).	Adjust the output voltage. The adjustment is located on the Analog Logic board. See alignment procedure section 3-7.
Excessive ripple on DC bus. This could also cause the Inverter to malfunction.	Rectifier faulty	Turn unit off. Remove and replace both Rectifier Logic boards. If unit now operates properly, one of the logic boards is faulty and can be found by process of elimination. Also see Table.3-2.
D.C. input bus voltage is not correct.	Voltage should be 125VDC.	Adjust the rectifier voltage. The adjustment is located on the Rectifier A Logic board. See alignment procedure Section 3-7.
Improper logic supply voltages. See DC voltage chart. See Table 3-4.	Faulty DC-DC Converter board.	Replace board assembly.

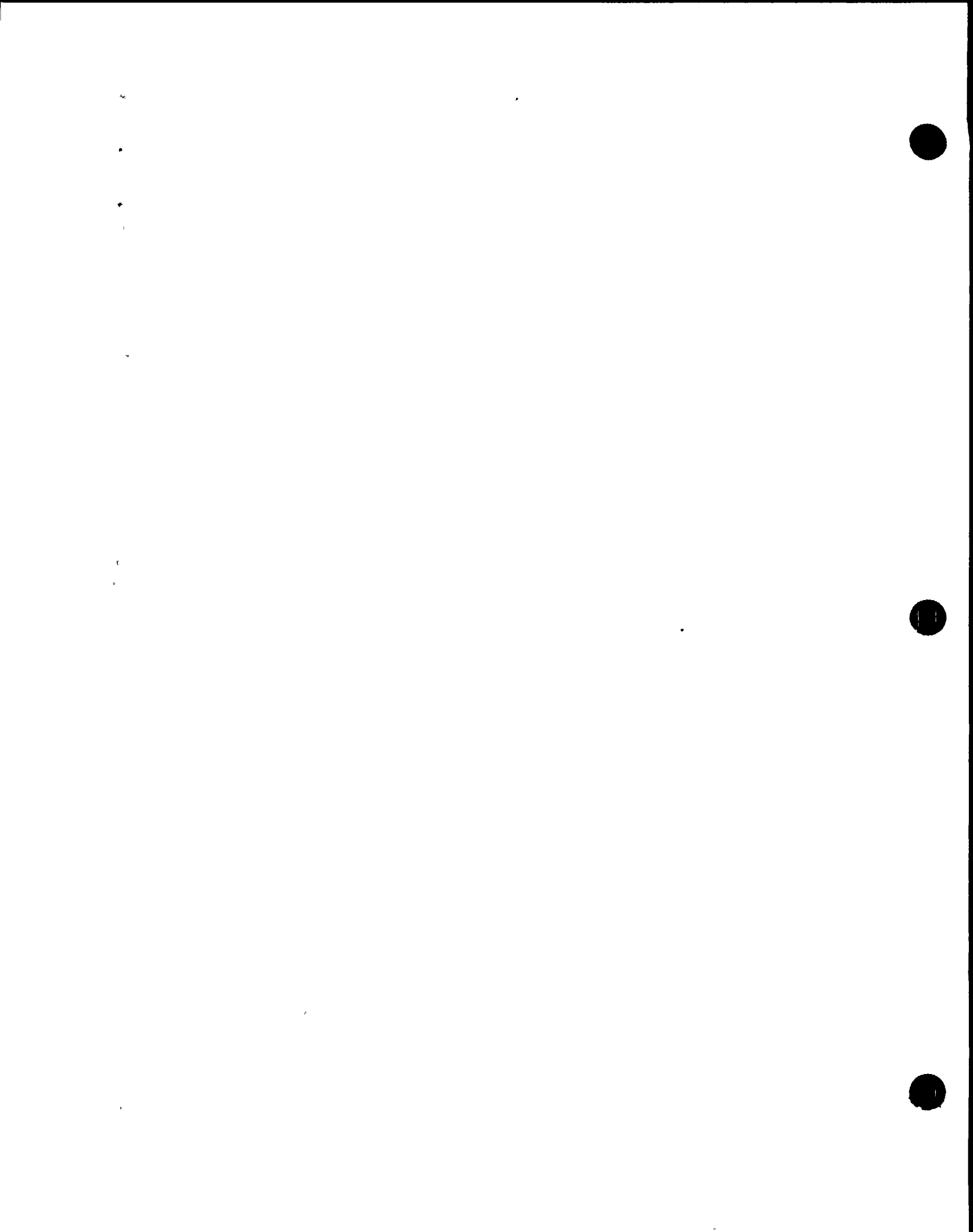


TABLE 3-2. TROUBLESHOOTING CHART - RECTIFIER

Problem	Probable Cause	Remedy
<p>Battery Circuit breaker trips-- Rectifier appears otherwise normal.</p>	<p>Faulty breaker undervoltage release.</p>	<p>Turn unit off. Replace BATTERY Circuit Breaker, CB52.</p>
<p>Excessive ripple on DC bus.(This could also cause the Inverter to malfunction).</p>	<p>SCR on charger heatsink assembly not gating properly. Faulty gate drive component on assembly 5490009-01.</p>	<p>Check for proper gate drive waveforms (Figure 3-4 & 3-5). An improper waveform will indicate a possible faulty SCR or faulty gate drive component.</p>
	<p>Faulty Rectifier logic A or D board, 5490018 or 5490019.</p>	<p>Turn unit off. Remove and replace Rectifier logic A board or D board.</p>
	<p>Fuse open to one or more capacitors in C57. Fuse open lamp on front panel lit.</p>	<p>Turn unit off. Allow DC bus to discharge to zero volts. Test fuses with an ohmmeter turned to low ohms scale (Rx1). Test DC capacitors in same manner. Replace defective capacitors using information in Section 3-2.e.11. Replace blown fuses.</p>

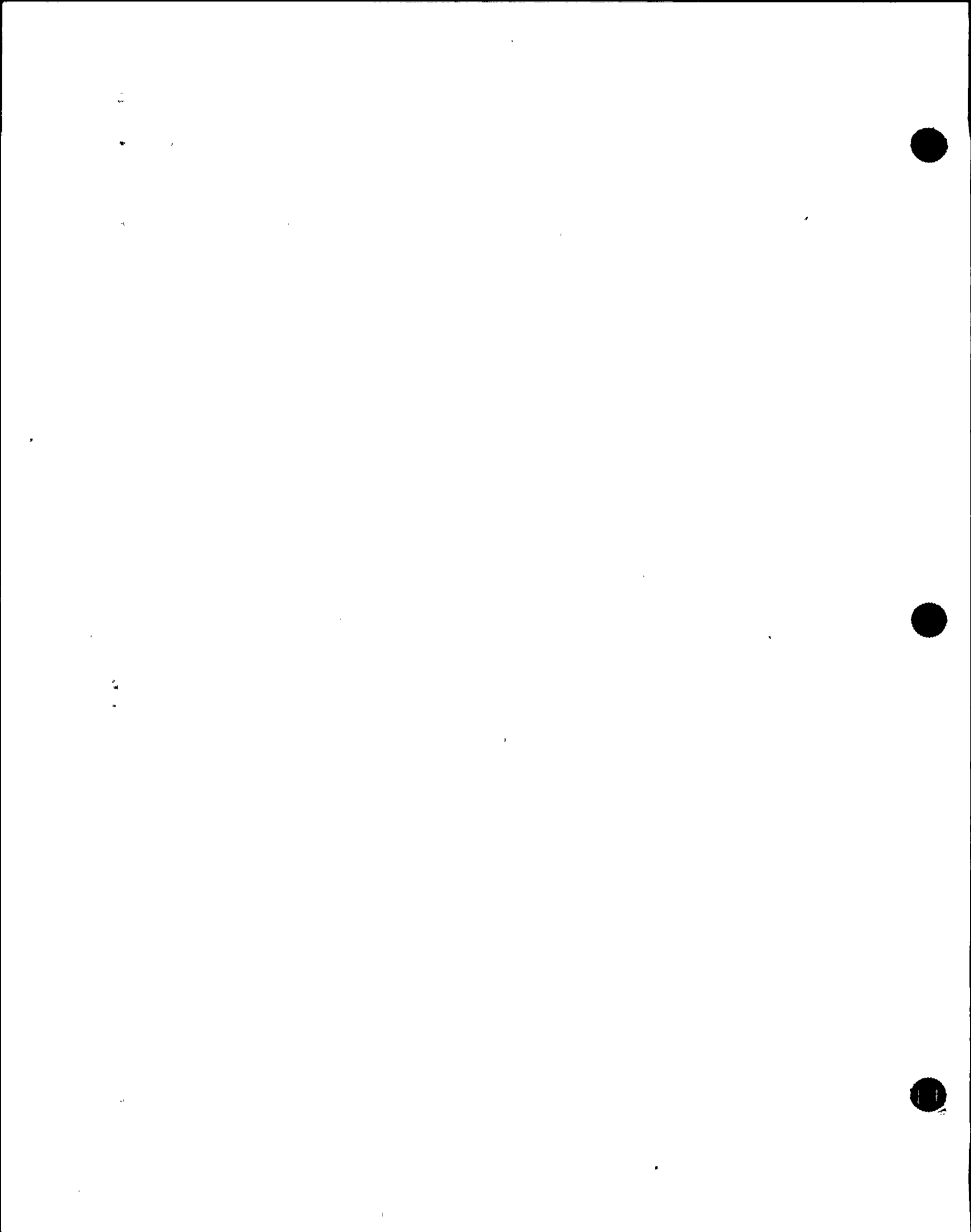


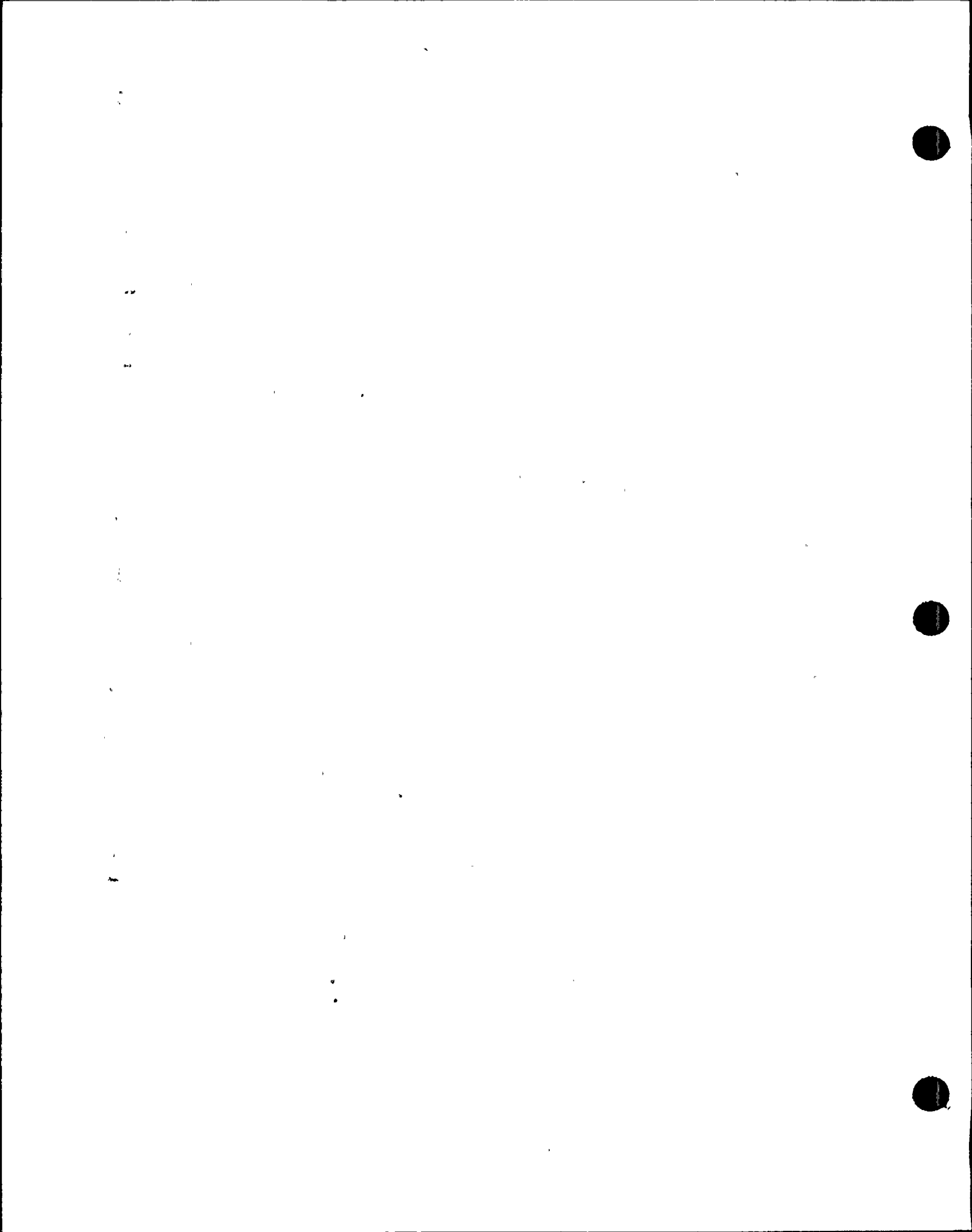
TABLE 3-3. TROUBLESHOOTING CHART - STATIC SWITCH

Problem	Probable Cause	Remedy
<p>UPS will not transfer to Inverter.</p>	<p>Pin 17 on SS control logic 5490002, not going "low" when Inverter transfer button depressed.</p> <p>Faulty component on SS control board.</p> <p>UPS output voltage too high or too low.</p>	<p>Check for zero voltage to pin 17 on SS control logic board when button is depressed.</p> <p>Replace SS logic board, 5490002.</p> <p>Adjust output to proper voltage. See alignment procedure Section 3-7.</p>
<p>UPS will transfer but immediately re-transfers by itself.</p>	<p>Faulty SS logic board, 5490002</p>	<p>Replace.</p>
<p>Unit does not transfer in static mode. (Transfers with an output voltage interruption.)</p>	<p>Faulty Static Switch SCR gate drive board. 5490009-02.</p>	<p>Replace</p>
<p>Unit blows DC fuse on transfer.</p>	<p>Faulty sensor on gate drive board, 5490009-02.</p>	<p>Replace.</p>



TABLE 3-4. DC VOLTAGE CHART

Test Point	Reference	Voltage
C/C Backplane TB 102, pin 4,5	Logic Common TB 102, pins 1,2,3	+[25-28] VDC
C/C Backplane TB 102, pin 6	Logic Common TB 102, pins 1,2,3	-[25-28] VDC

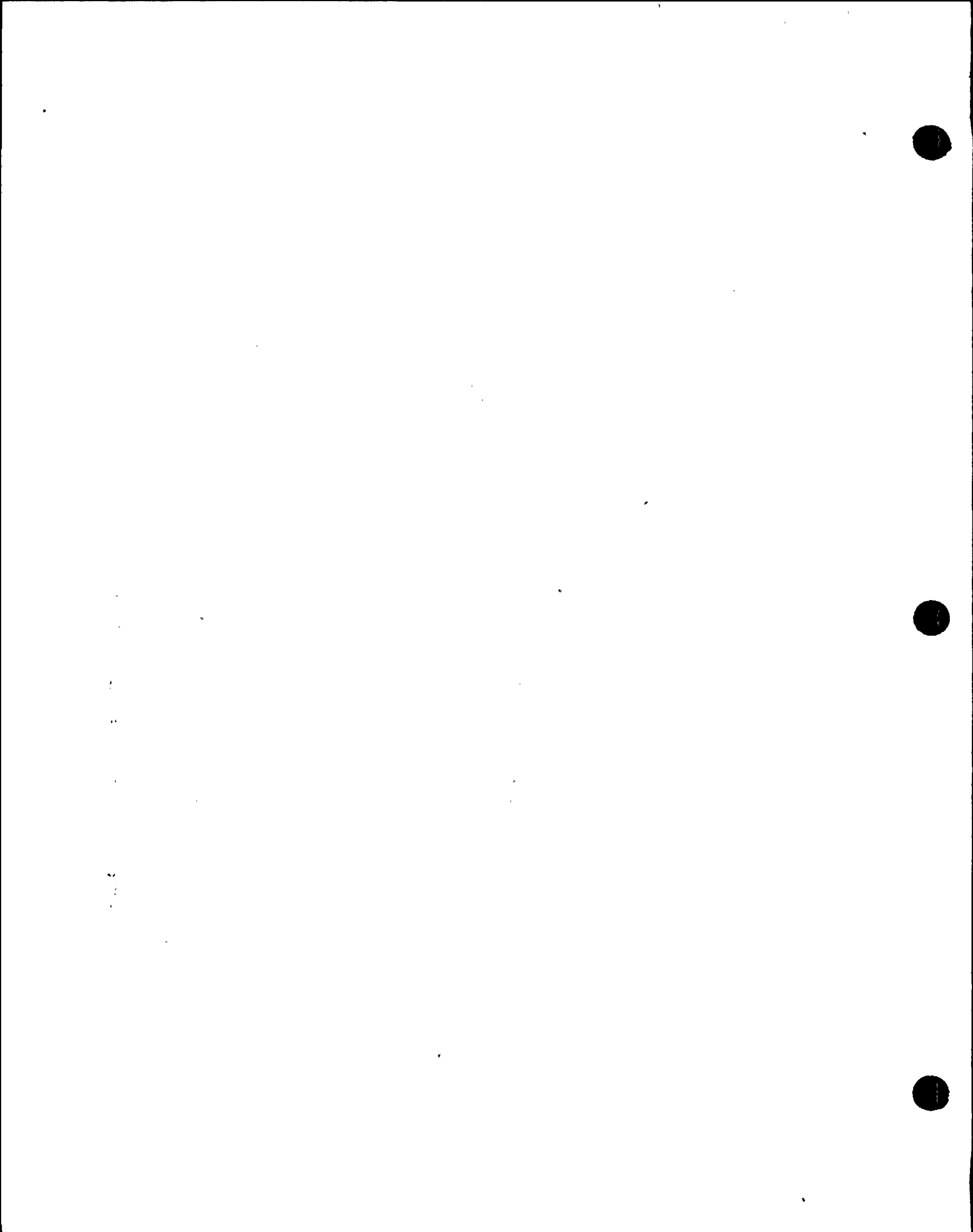


3-8 RECOMMENDED TEST EQUIPMENT

a. The following is a list of recommended test equipment. Substitutes may be used provided that similarity exists between the substitute and the item recommended.

TABLE 3-5. RECOMMENDED TEST EQUIPMENT

Name	Manufacturer and Model Number	Characteristics
Logic PC Board Extender 88 pin	Elgar P/N 5430003	Pin-to-Pin extension Leads
Multimeter	Simpson Electric Co. Model 260	20,000 ohms/volt, AC/DC/OHMS ranges
Differential Voltmeter	John Fluke Mfg. Co.. Model 931	RMS Volts range to 1000 VAC
Oscilloscope	Tektronix, Inc. Model 561	Dual beam trace
Differential Preamplifier	Tektronic, Inc. Model 2A63	Plug-in Module
Probe A	Tektronix, Inc.	X10 Probe, DC Coupling
Probe B	Tektronix, Inc.	X10 Probe, DC Coupling
Resistive Load	Commercial	Capable of dissipating rated power
Frequency Counter	Commercial	10-100Hz range



3-9 LIST OF DRAWINGS

a. Schematic Diagrams & Assembly Drawings

Installation Drawings	543-514-70
Overall Schematic	543-625-60
Inverter Panel Schematic	643-523-60
DC-DC Converter Schematic	6490008, 5490008
SS Drive Board Schematic	642-106-60, 642-106-40
SCR Gate Drive Board Schematic	6490009, 5490009
Alarm Logic Schematic	6490006, 5490006
Charger "A" Logic Schematic	6490018, 5490018
Charger "D" Logic Schematic	6490019, 5490019
Static Switch Logic Schematic	6490002, 5490002
Oscillator PCB \pm .5Hz Fixed Schematic	643-119-60, 643-119-40
PWM Analog Logic Schematic	6490030, 5490030
10 3 Bridge PWM Logic Schematic	6490014, 5490014
10 3 Bridge PWM Drive Board Schematic	6490001, 5490001
Fuse Sense Board Schematic	6430002, 5430002
Fuse Sense Board Schematic	628-137-61, 628-137-41
Lamp Board Schematic	643-628-60, 643-628-40
Card Cage Backplane	6490024, 5490015
Transducer Schematic	6490016, 5490016
Current Transducer Board Schematic	6430008, 5430008
Relay Drive Board Schematic	633-270-60, 633-270-40
Line Regulator Control Schematic	648-100-60, 648-100-40
S.T. Drive Board Schematic	648-101-60, 648-101-40

b. Panel Assembly Drawings

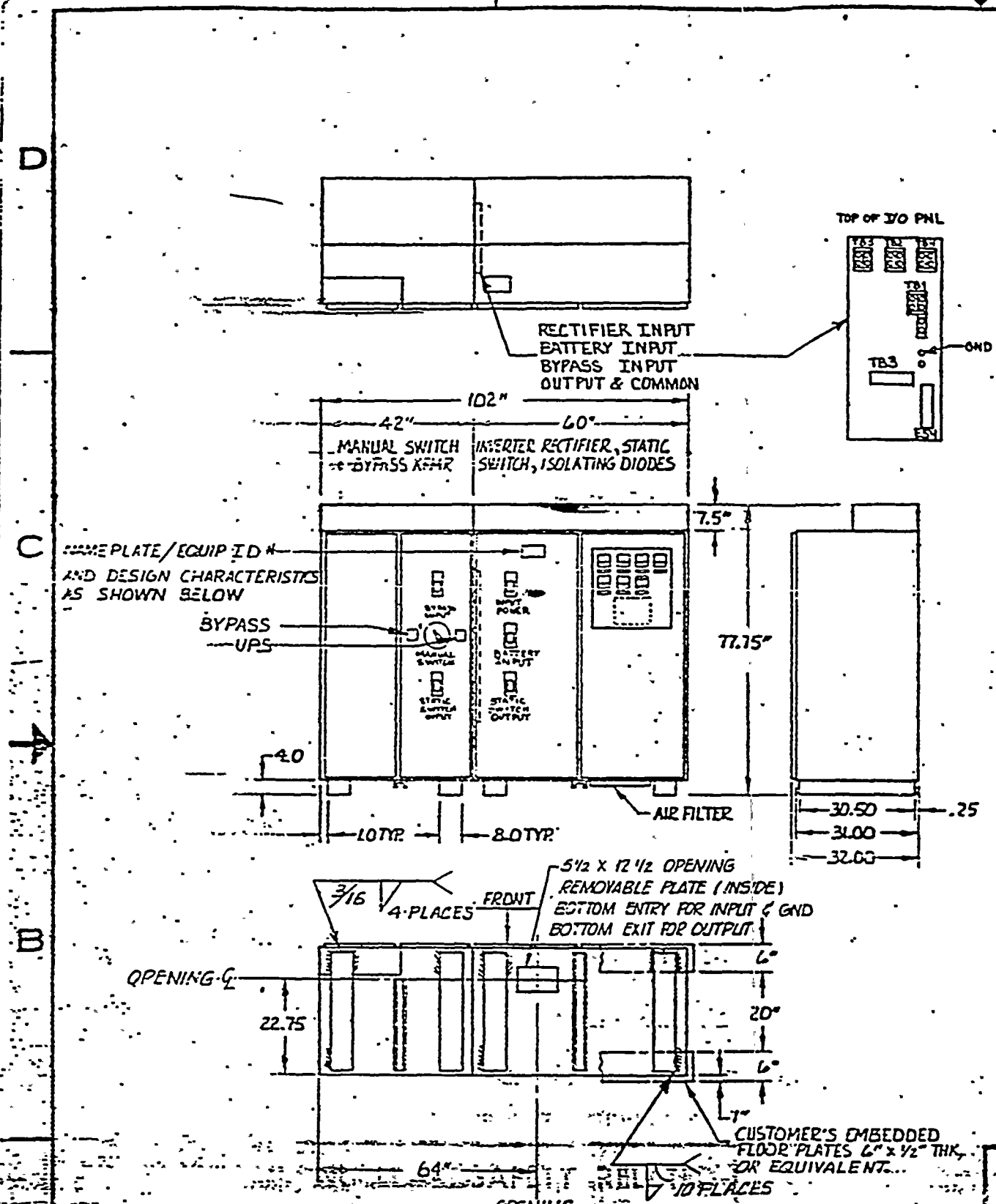
Top Assembly	543-625-40
Inverter Panel Assembly	643-523-40
Inverter Panel Assembly	643-524-40
UPS Cabinet Assembly	643-623-40
Charger Static Switch Panel	5431086-02
I/O Panel Assembly	5431003
Distribution Cabinet Assembly	643-630-40
Distribution Chassis Assembly	643-607-40
UPS Chassis Assembly	643-624-40
Right Side Plate Assembly	5431249
Left Door Assembly	643-520-40
Right Door Assembly	643-519-40
Right Door Assembly	643-556-40
DC-DC Conv Assembly	5491011
Filter Panel Assembly	5321074
Right Door Plate Assembly	643-530-40
Card Cage Assembly	5491009
1 $\frac{1}{2}$ Ripple Filter Panel Assembly	5431081-02
Heatsink Panel Assembly	643-383-40

11

11



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		ENG. RELEASE	ST. 1-28-81	S. SEDO
B		ECN 1672	J.M. 2-5-81	S. SEDO
C		ECN 1917	PC 5-19-81	SEDV
D		JDC # 234 SH. 1 REVISE NOTES; SH. 2 ADD INDICATORS; SH. 3 ADDED DESCRIPTION FOR TB 3.	12/1/81	
E		PER ECN 2714	L.L. 3-24-82	
F		ECN 3048	MRS 5-9-82	
CONT. ON SHEET 2				



- NOTES:**
- RECTIFIER AC INPUT POWER:
 - 575 VAC, 3Ø, 60 HZ, 75 AMP SERVICE (PLUS XFMR. INRUSH)
 - 3-PIN TERMINAL BLOCK TB1 WILL ACCEPT TWO HOLE BURNDY LUG, TYPE YA-2N.
 - BATTERY DC INPUT POWER:
 - 125 VDC, 313 AMPS MAX.
 - 2-PIN TERMINAL BLOCK TB2 WILL ACCEPT TWO HOLE BURNDY LUG, TYPE YA-2N.
 - OUTPUT POWER:
 - RATED POWER: 25 KVA.
 - 120 VAC, 208 AMP, 1Ø, 60 HZ. TB3 LUG SIZE IS SAME AS NOTE 4B.
 - BYPASS INPUT POWER:
 - 575 VAC 68 AMP SERVICE (PLUS XFMR. INRUSH), 1Ø, 60 HZ
 - 2-PIN TERMINAL BLOCK TB4 WILL ACCEPT TWO HOLE BURNDY LUG, TYPE YA-2N.
 - GROUNDING:

GROUNDING STUDS LOCATED RIGHT CENTER OF I/O PANEL, WILL ACCEPT TWO HOLE BURNDY LUG, TYPE YA-2N.
 - COOLING:

FORCED CONVECTION VENTS TOP & BOTTOM OF ENCLOSURE
 - HEAT REJECTION:

18,000 BTU/HZ.
 - WEIGHT:

APPROXIMATELY 4400*
 - COLOR:

LIGHT GREY-ANSI NO. 61
 - MANUAL BYPASS SWITCH:

ELECTRO SWITCH 2" POSITION 107601A-2A\$ MAKE-BEFORE BREAK-
- (NOTES CONT. ON SHT 2)

NUCLEAR SAFETY RELATED

Three Mile Point Nuclear Station - Unit 2
 Niagara Mohawk Power Corporation
 J.O. No. 12177, P.O. No. NMP2-E035A

PURCHASE ORDER NO. NMP2-E035A
 UNINTERRUPTIBLE POWER SUPPLIES
 SW. MARK NOS 2VBA* UPS 2A
 2VBA* UPS 2B

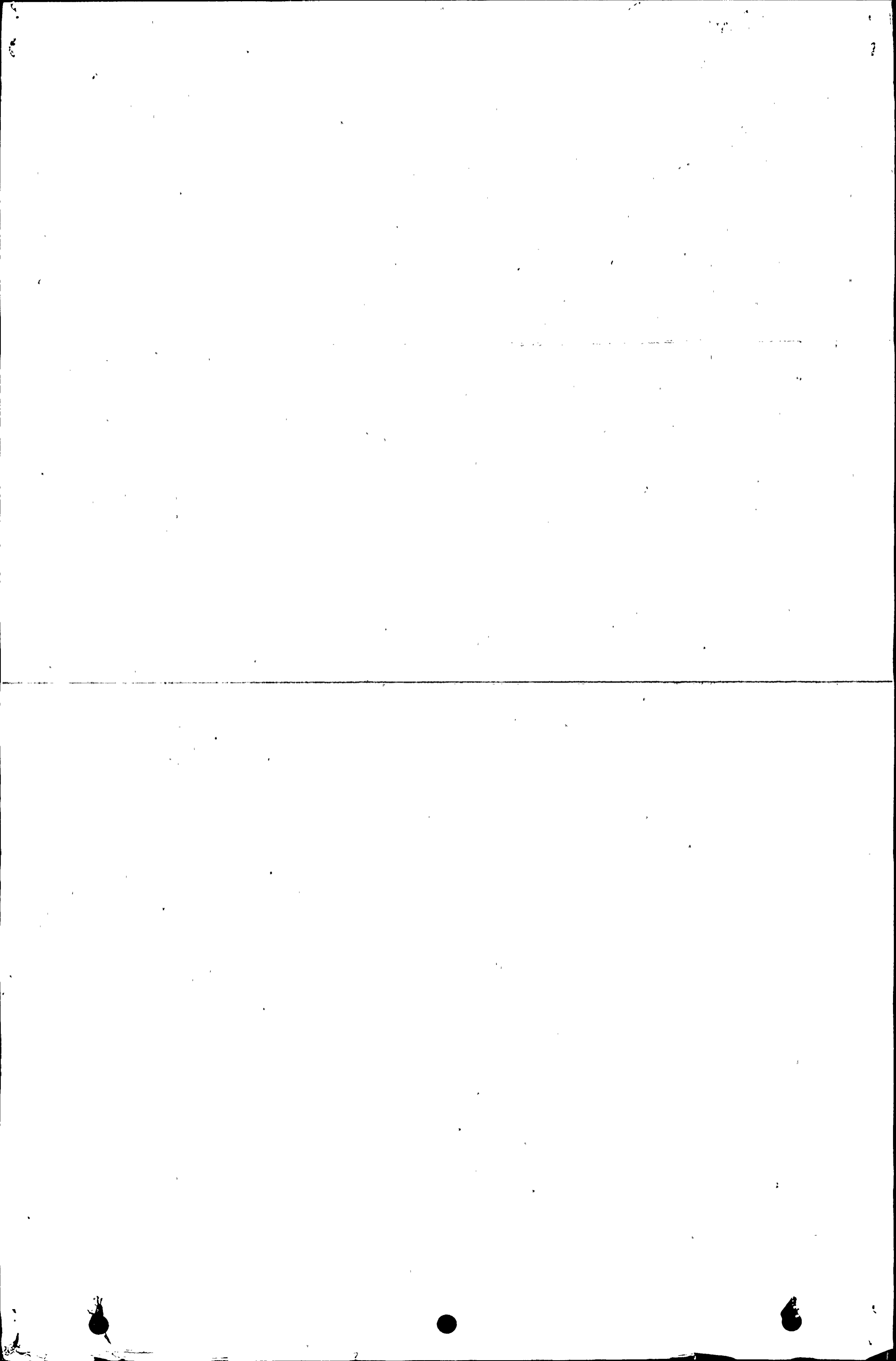
J.O. NO. 12177			
EQUIPMENT TAG #	SERVICE	NAME PLATE	COLOR
2VBA * UPS 2A	CAT I	BLK. CORE ON GRN. SURFACE	
2VBA * UPS 2B	CAT I	BLK. CORE ON YEL. SURFACE	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON	CONTRACT NO.
DECIMALS FRACTIONS ANGLES	FIRST MADE FOR: 510-2093-2
XX = .03 = 1/32 = 3/20	APPROVAL DATE
XXX = .010	DRAWN: TOOTHAC/EI-28-81
DO NOT SCALE THIS DRAWING	CHECKED: [Signature]
	PROJ ENG: [Signature]
	QA-REL: [Signature]
	CLON: 543-507-70
	SIZE CODE CONT. NO. DRAWING NO. REV
	C 25965 543-514-70 L

ELGAR CORPORATION
 SAN DIEGO, CALIFORNIA

INSTALLATION DRAWING
 UPS 253-1-106

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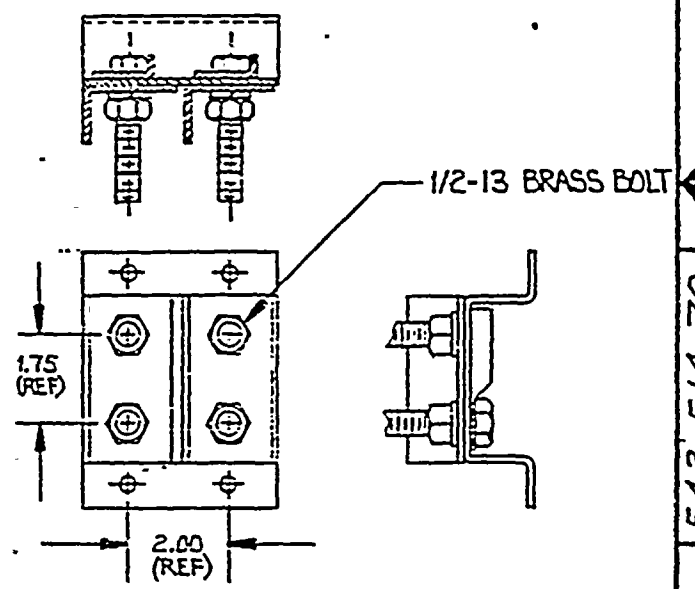
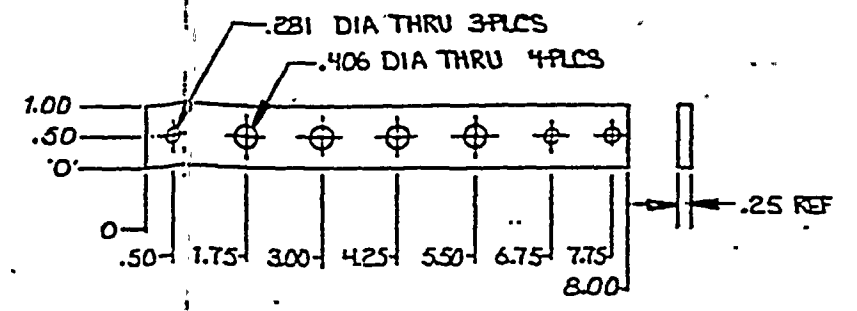
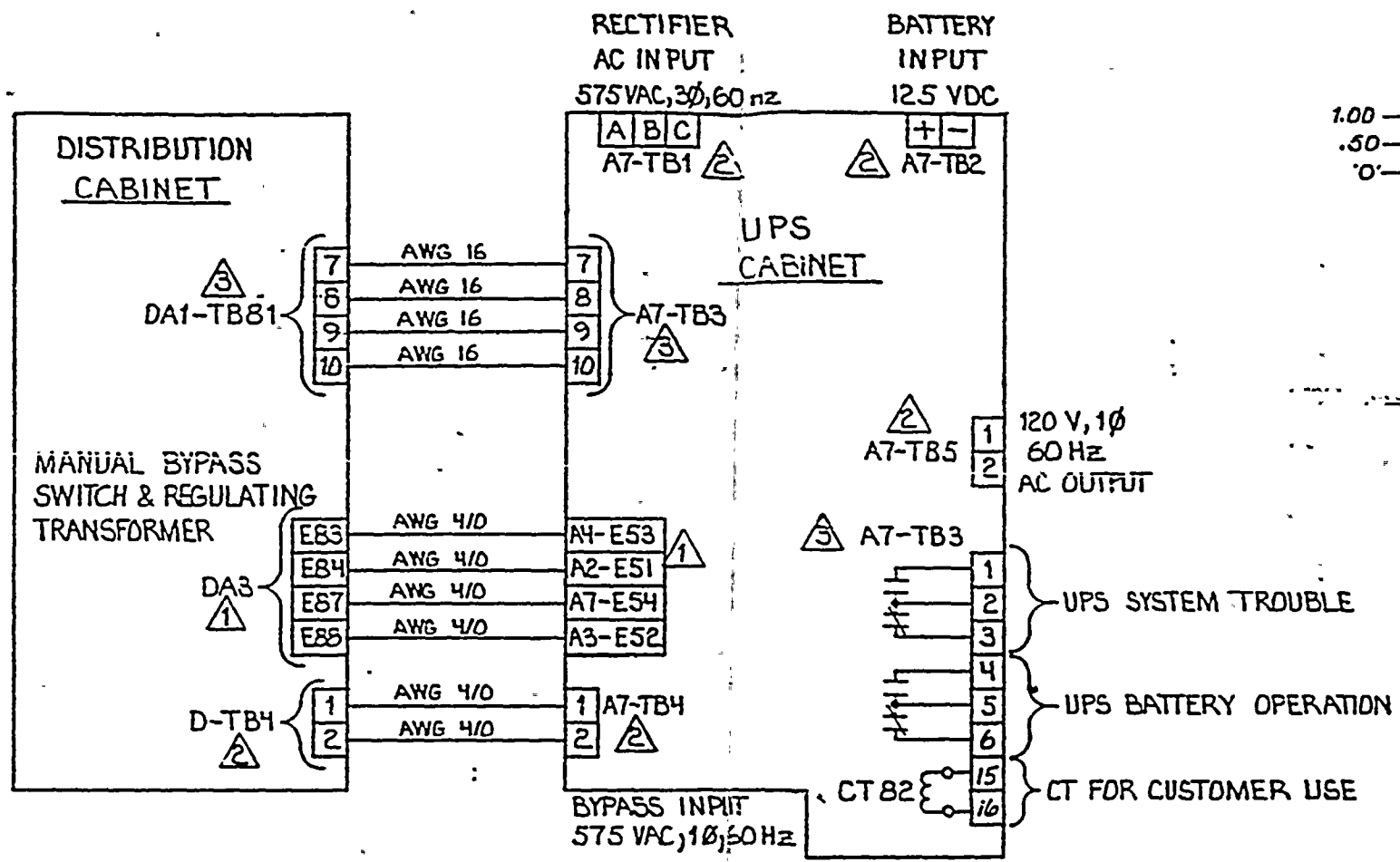
4

3

2

1

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		



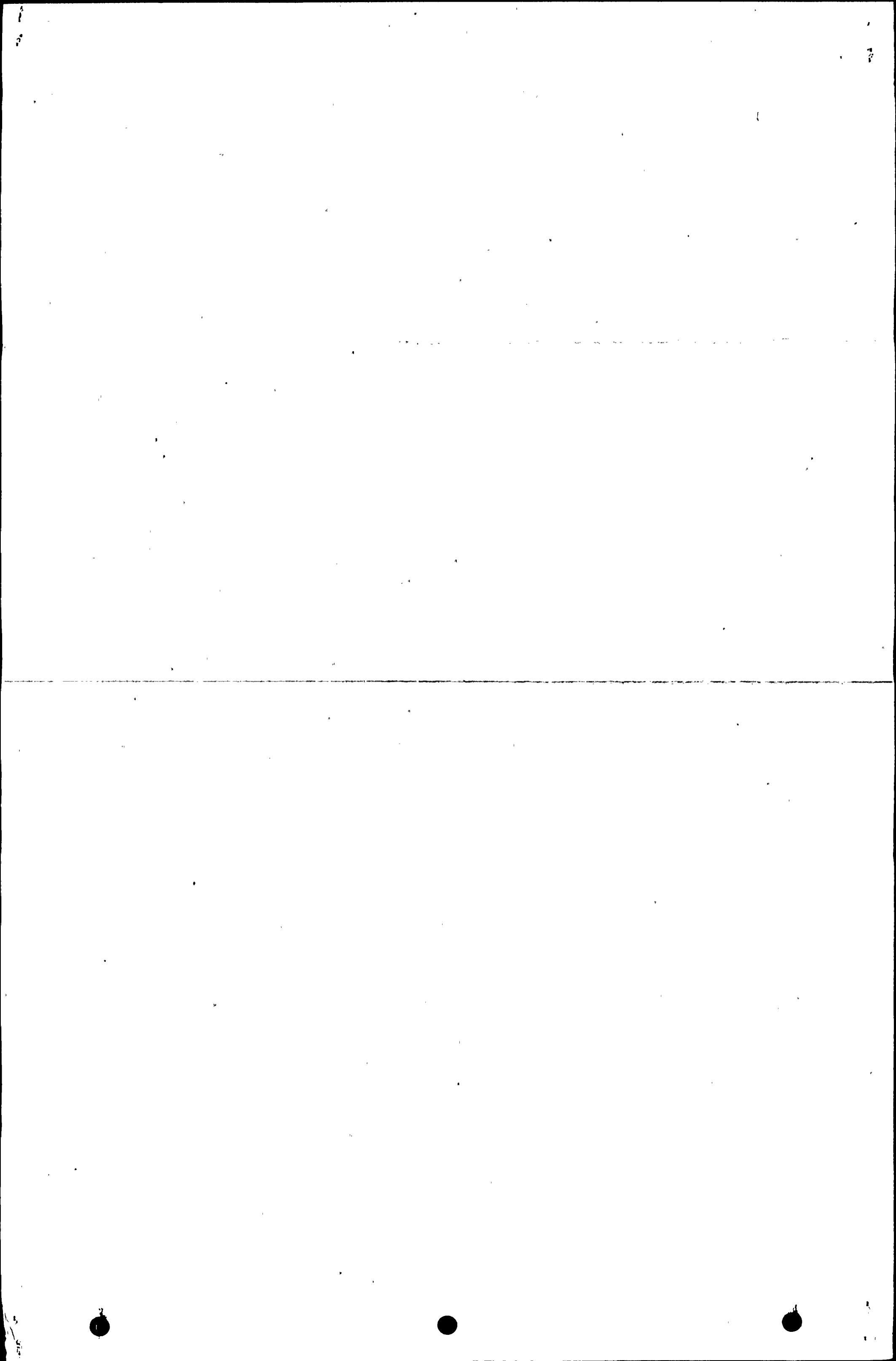
- NOTES:
- 1. BUSS BAR — SEE DETAIL 'A'
 - 2. TERMINAL BLOCK — SEE DETAIL 'B'
 - 3. TERMINAL BLOCK — KULKA 601 SERIES

NUCLEAR SAFETY RELATED

Nine Mile Point Nuclear Station - Unit 2
 Niagara Mohawk Power Corporation
 J.O. No. 12177, P.O. No. NMP2-E035A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS FRACTIONS ANGLES XX = .03 = 1/32 = 1/20 XXX = .010 DO NOT SCALE THIS DRAWING		CONTRACT NO. FIRST-MADE FOR: 543-514-70		 INSTALLATION DWG UPS 253-1-106	
MATERIAL:		APPROVAL DATE			
NEXT ASSY. USED ON		DRAWN: M. [Signature] 11-13-82		SIZE CODE IDENT. NO. DRAWING NO. REV	
FINISH:		CHECKED: [Signature] 11-13-82		C 25965 543-514-70 L	
THE INFORMATION CONTAINED HEREIN WAS ORIGINATED BY AND IS THE PROPERTY OF GELGAR CORPORATION AND EXCEPT FOR RIGHTS EXPRESSLY GRANTED TO THE UNITED STATES GOVERNMENT, GELGAR CORPORATION RESERVES ALL PATENT, PROPRIETARY, DESIGN, USE, SALE, MANUFACTURING AND REPRODUCTION RIGHTS THEREIN.		QA-REL: [Signature] 11-13-82		SCALE: 7/8 SHEET 3 of 3	

543-514-70

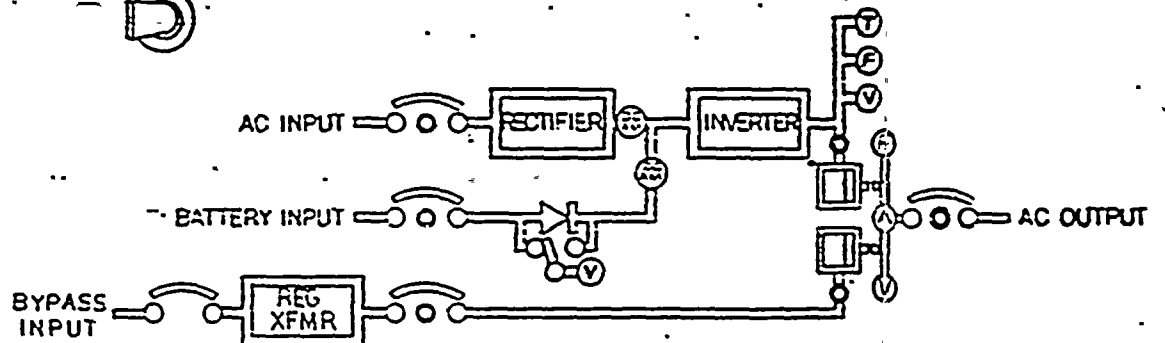
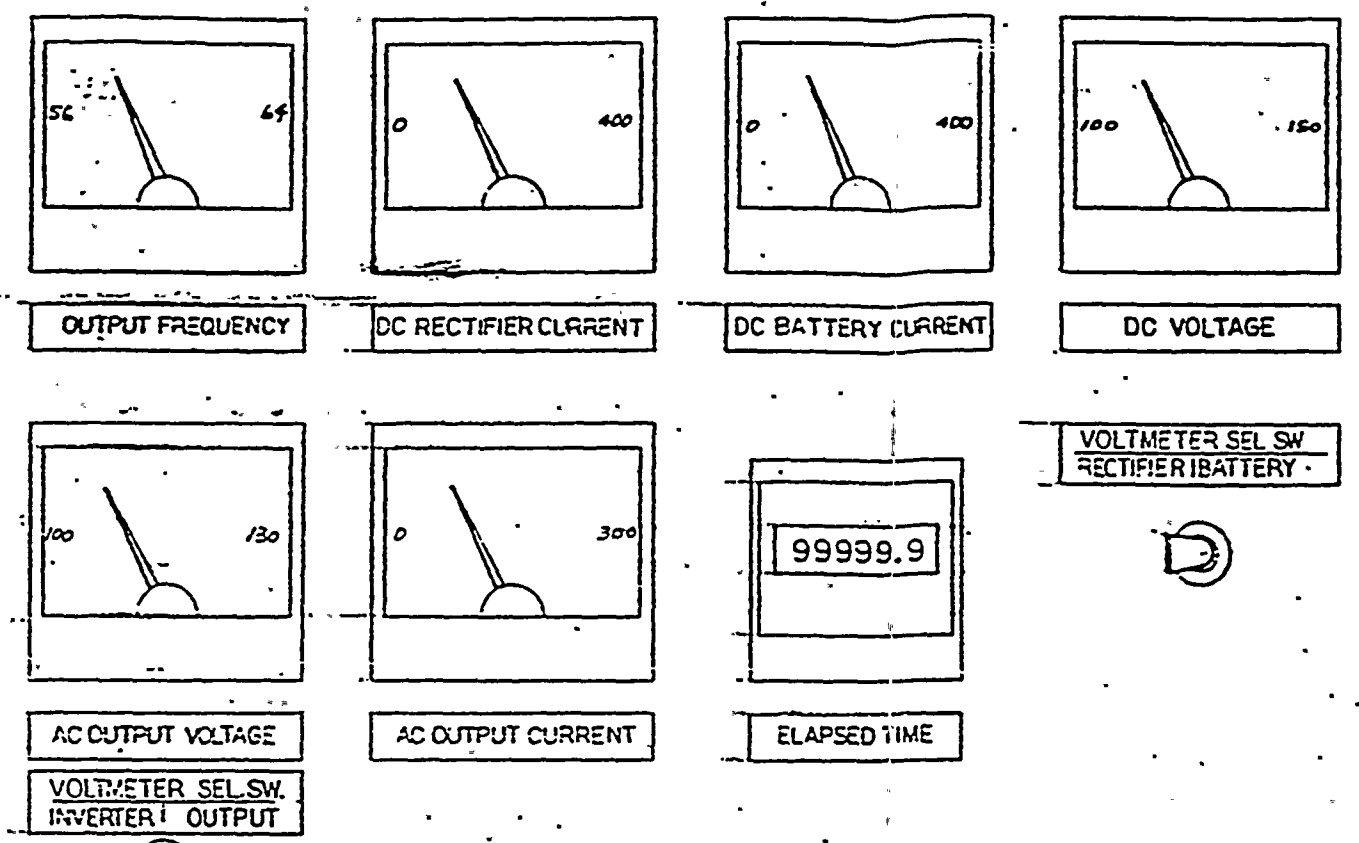


REVISIONS			
ZONE/LTR	DESCRIPTION	DATE	APPROVED
G	DDC 631 CHGD. M53 TO 0-400	E.D. 10-16-82	[Signature]
H	ECN 3281	IRS	[Signature]
J	ECN 3313	J.W. 11-16-82	[Signature]
K	DDC 715 ADDED DETAIL NOTES TO ABS AND PARTWORK ON SHT-2	12-2-92 E.D.	[Signature]
L	DDC 872. SH 1. REDES. FUSE-BEVEL FOR EGIN.	5-16-93	[Signature]

NOTES: (CONTINUED)

II. CIRCUIT BREAKERS: (OR EQUAL)

	TYPE	PART #	INTERRUPTING CAPABILITIES	CONTINUOUS RATING
CB2	J600	TJJ426300	42,000 AAC	300 AAC
CB53	"	"	" " "	" "
CB51	E 150	THED136090	18,000 AAC	90 AAC
CB52	J600	TJJ426400	FUSED FOR 200,000 AMP	51 RATED 600 AMP
CB1	J600	TJJ426400	42,000 AAC	400 AAC

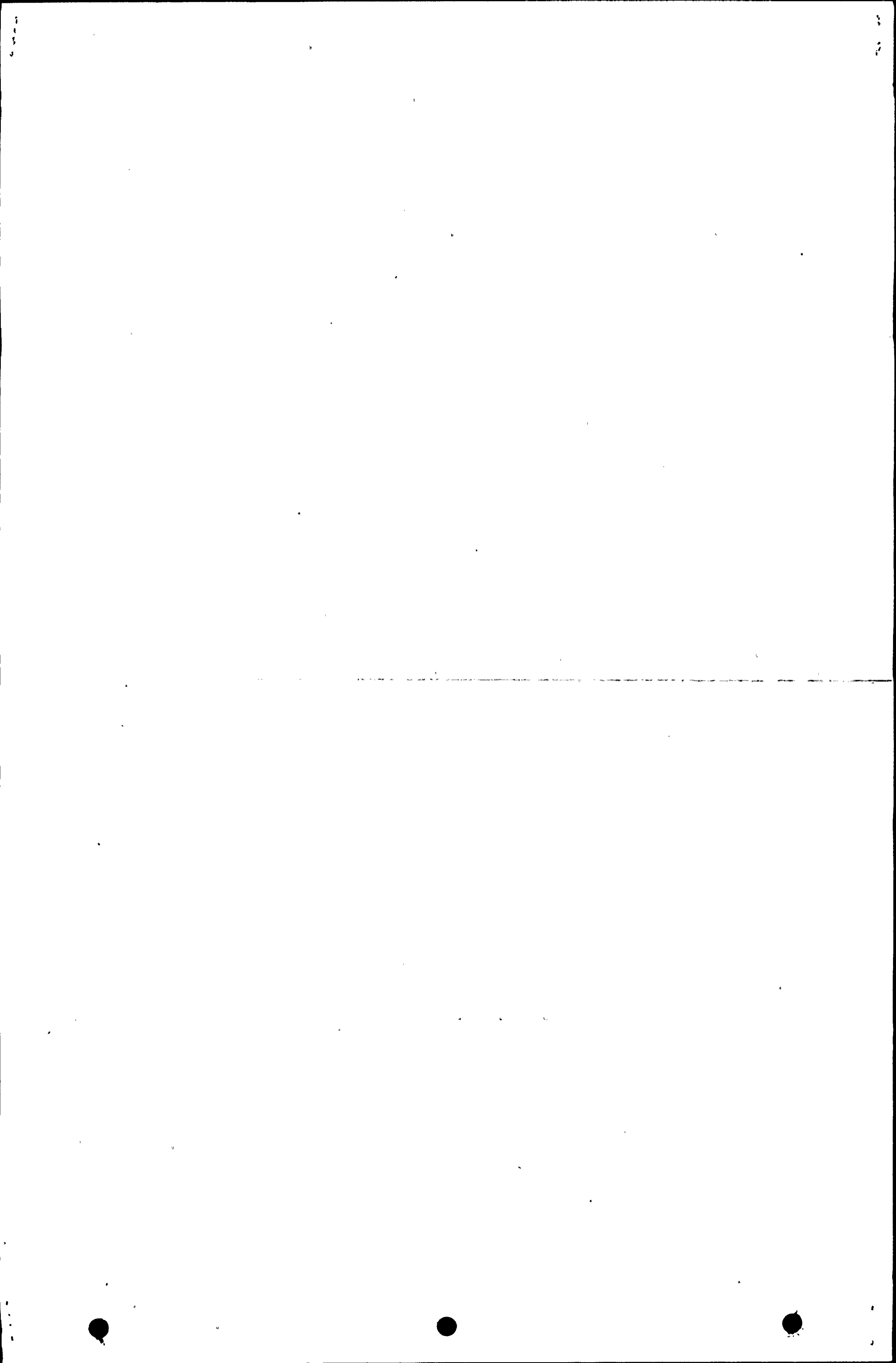


- | | |
|---------------------|------------------------|
| ○ SYNC. LOSS | ○ OVERLOAD |
| ○ INVERTER VOLTAGE | ○ REVERSE TRANSFER |
| ○ INVERTER OVERTEMP | ○ FAN FAIL |
| ○ FUSE BLOWN | ○ RECTIFIER AC LOSS |
| ○ LOW BATTERY | ○ BATTERY DRAIN/CHARGE |
| ○ LOW DC BUSS | ○ RECTIFIER DC GROUND |
| ○ LAMP-TEST | ○ DIODE FAIL |

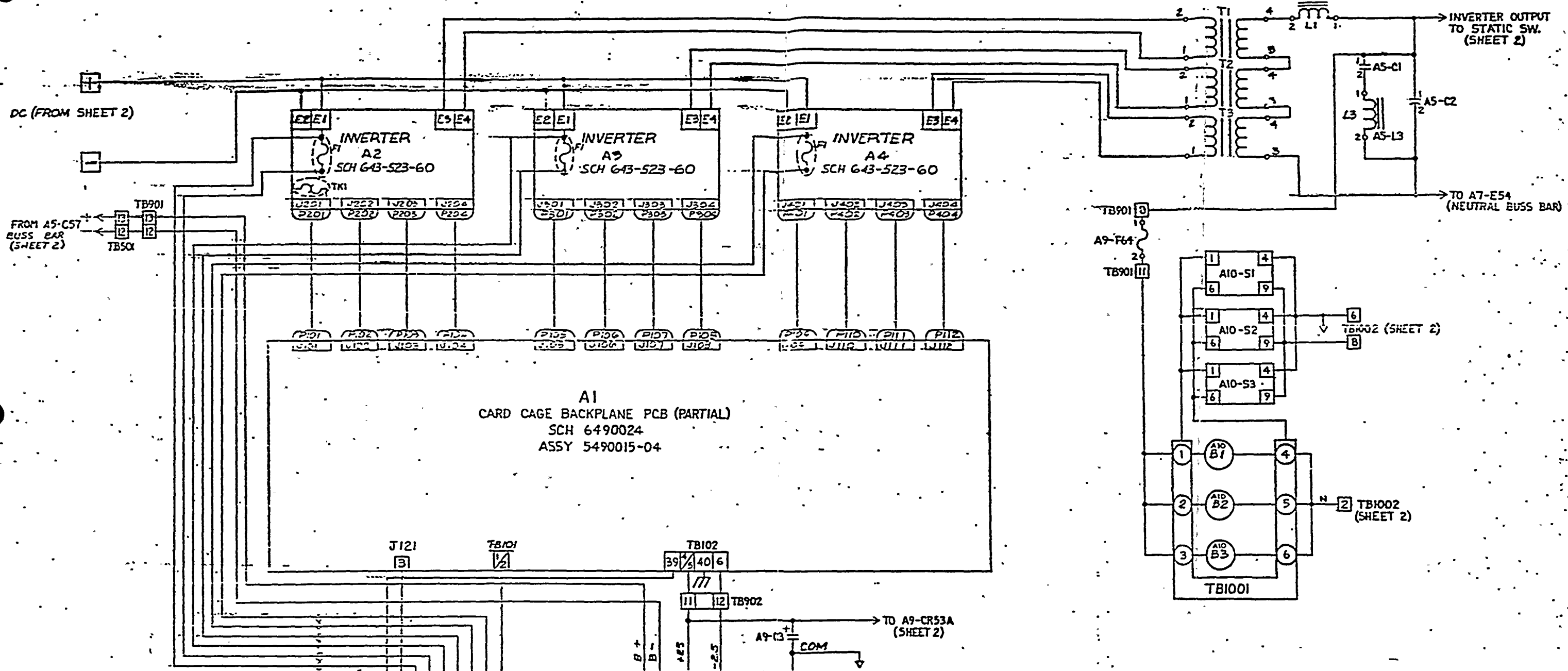
NUCLEAR SAFETY RELATED

Niagara Mohawk Nuclear Station - Unit 2
 Niagara Mohawk Power Corporation
 P.O. No. 12177, P.O. No. NMP2-E035A

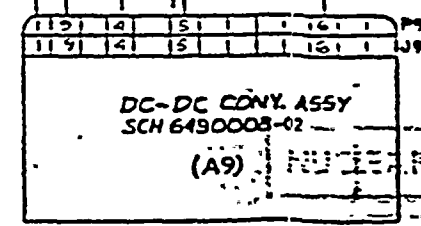
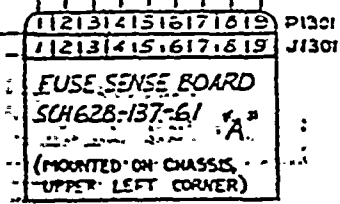
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS FRACTIONS ANGLES XX = .03 = 1/32 = 1/2° XXX = .010 DO NOT SCALE THIS DRAWING		CONTRACT NO FIRST MADE FOR: S/O 1093-2		APPROVAL DATE	
NEXT ASSY.		DRAWN IT00THACRE11-28-81		INSTALLED DATE	
USED ON		CHECKED [Signature]		PROJECT NO. 543-514-70	
APPLICATION		PROJ ENG [Signature]		QA-REL [Signature]	
MATERIAL		FINISH		SCALE: 1/2"	
THE INFORMATION DISCLOSED HEREIN WAS ORIGINATED BY AND IS THE PROPERTY OF ELGAR CORPORATION AND EXCEPT FOR RIGHTS EXPRESSLY GRANTED TO THE UNITED STATES GOVERNMENT, ELGAR CORPORATION RESERVES ALL PATENT PROPRIETARY DESIGN USE, SALE, MANUFACTURING AND REPRODUCTION RIGHTS THEREIN.		DRAWING NO 543-514-70		REV L	
		SHEET 2 OF 3			



ZONE	LTR	DESCRIPTION	DATE	APPROVED	ZONE	DESCRIPTION	DATE	APPROVED
A		ENG RELEASE						
B		ECN # 2200	11-2-62					
C		REVISED & RECALCULATED ECN # 2200	11-2-62					
D		ECN # 2912	5-2-62					



- VARISTERS ACROSS EACH SCR
- CHARGER SNUBBERS
- SCR54-A - 7 TB1
 - SCR56-K - 8 TB1 (REF J602)
 - SCR55-K - 7 TB2
 - SCR54-K - 8 TB2
 - SCR51-K - 7 TB1
 - SCR53-A - 8 TB1 (REF J601)
 - SCR52-A - 7 TB2
 - SCR51-A - 8 TB2
 - SCR57-K - 7 TB1
 - SCR59-A - 8 TB1 (REF J603)
 - SCR58-A - 7 TB2
 - SCR57-A - 8 TB2
 - SCR60-A - 7 TB1
 - SCR62-K - 8 TB1 (REF J604)
 - SCR61-K - 7 TB2
 - SCR60-K - 8 TB2

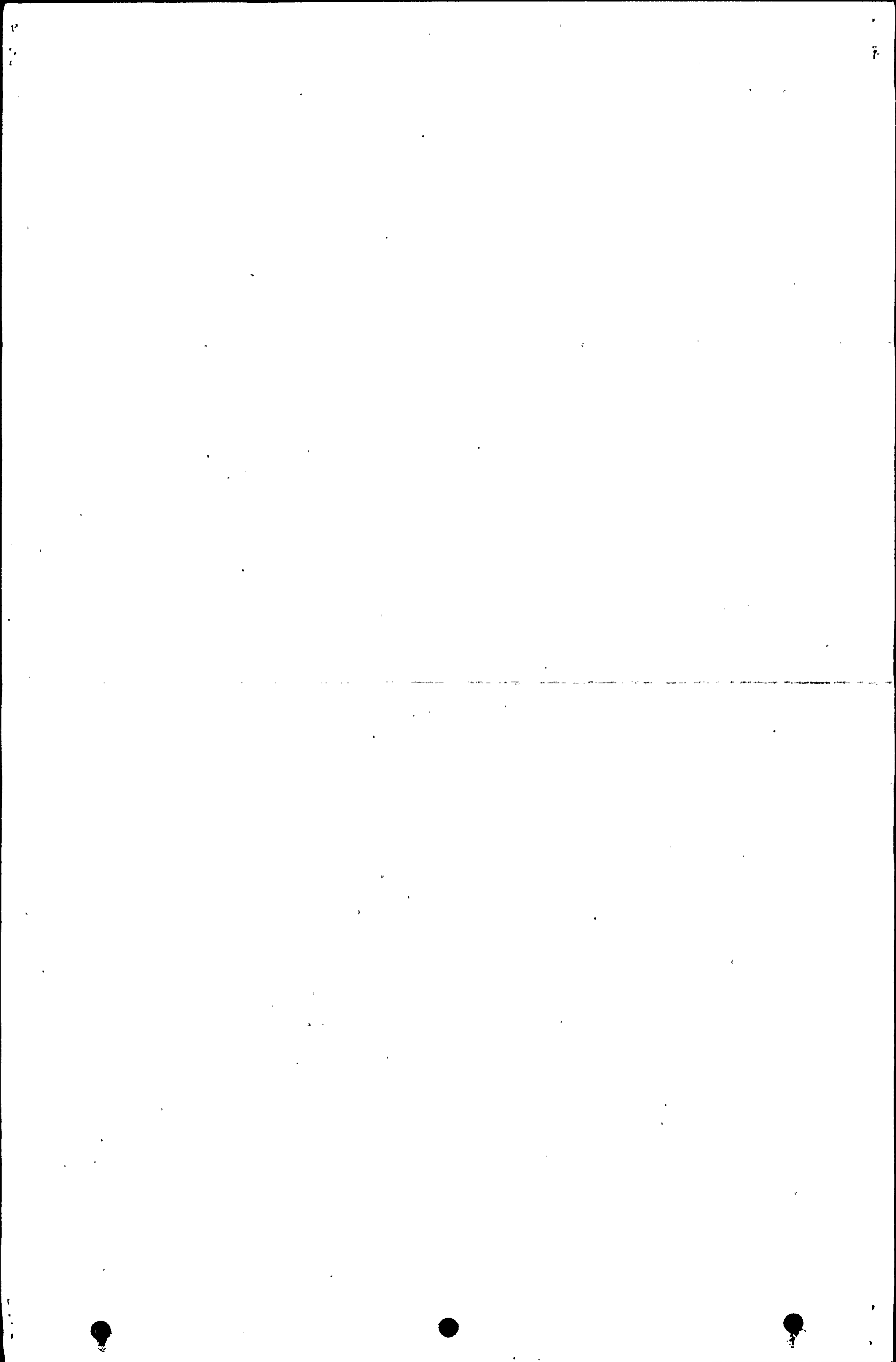


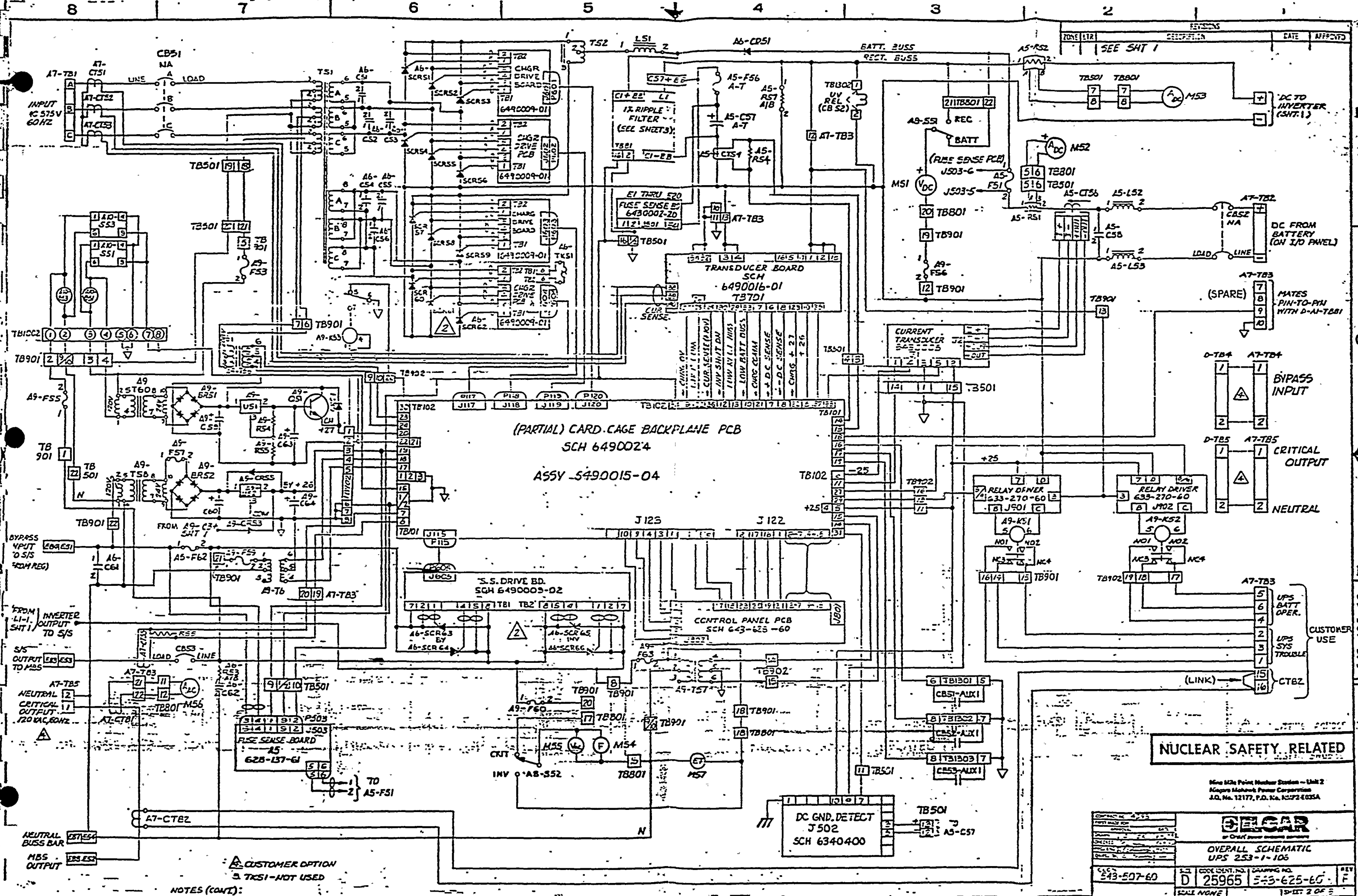
NUCLEAR SAFETY RELATED

Miss. State Point Nuclear Station - Unit 2
Morgans Electric Power Corporation
J.O. No. 12177, P.O. No. 1242-ECRBA

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS FRACTIONS ANGLES		CONTRACT NO. FIRST MADE FOR 25-2593			
3X ± 0.015 ± 0.002 ± 1/2°		APPROVAL DATE		OVERALL SCHEMATIC UPS 253-1-106 (INVERTER SECTION)	
DO NOT SCALE THIS DRAWING		DRAWN BY		CLON 543-507-60 SIZE CODE DENT NO. DRAWING NO. REV D 25965 543-625-60 F	
MATERIAL		CHECKED BY		SCALE NONE	
NEXT ASSY. USED ON		PROJECT NO.		SHEET 1 OF 2	
APPLICATION		DATE			

NOTES: UNLESS OTHERWISE SPECIFIED





NOTES (CONT):
 A CUSTOMER OPTION
 B TK51-NOT USED

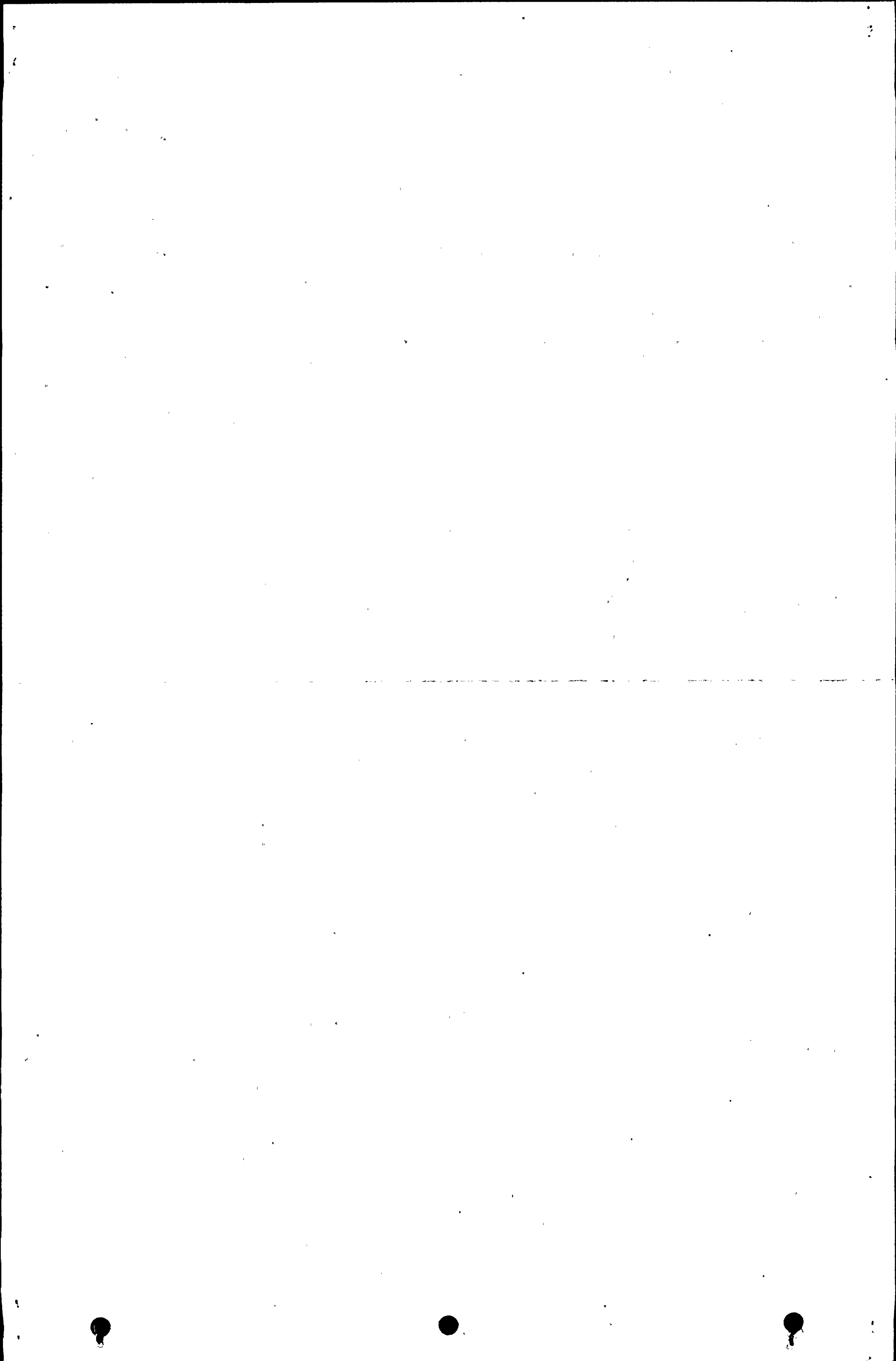
NUCLEAR SAFETY RELATED

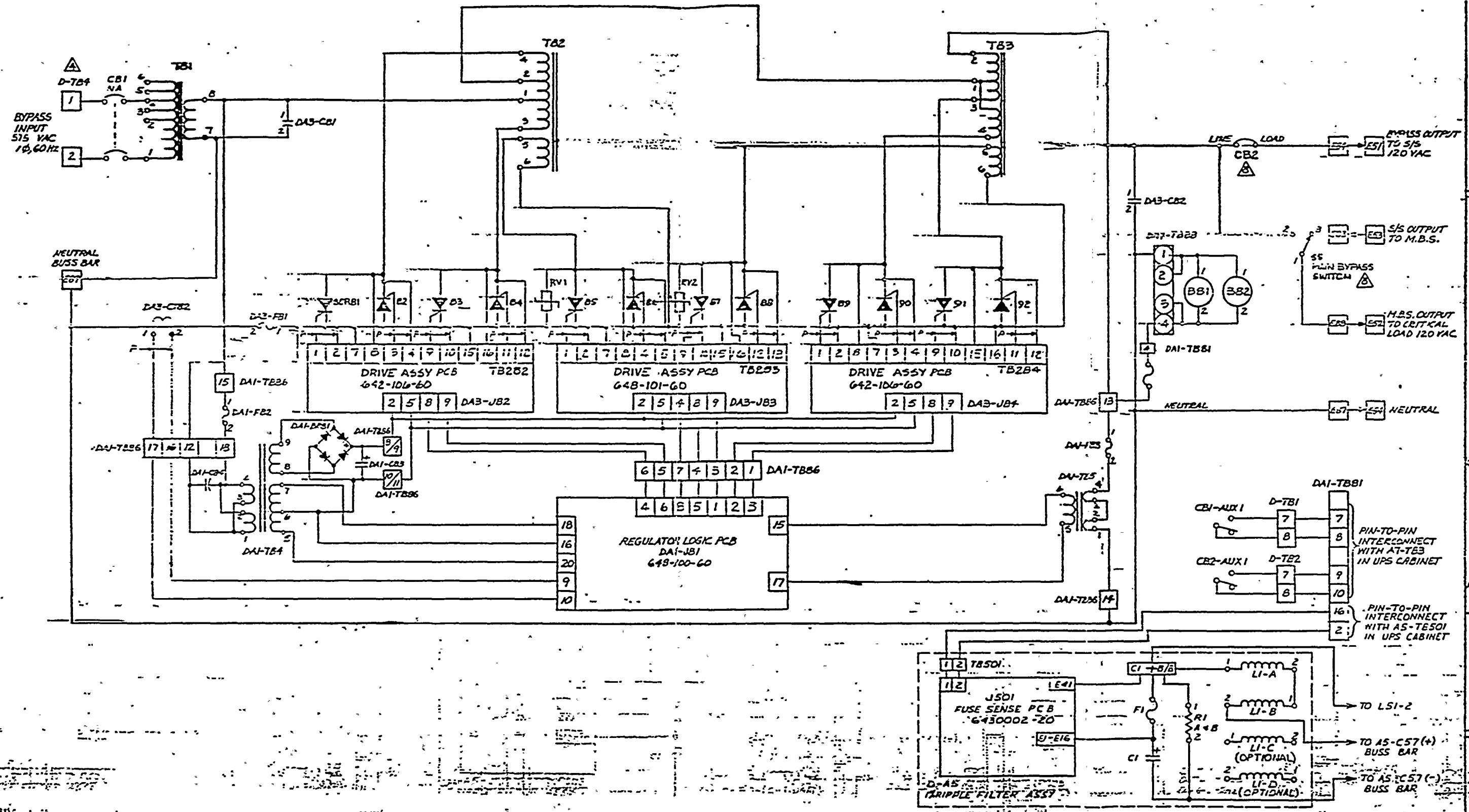
Westinghouse Electric Corporation
 J.O. No. 12177, P.O. No. A372-EG35A



OVERALL SCHEMATIC
 UPS 253-1-105

CLC# 543-507-60	REV D	CODE IDENT. NO. 25965	DRAWING NO. 543-625-60	REV F
SCALE NONE		SHEET 2 OF 5		





⚠ CB2 and SS SHOWN IN "NORMAL OPERATING POSITION."
 7. SCR'S AND RY'S ARE ON THE "DA3" PANEL.
 8. ESX NUMBERS ARE BUSS BARS IN THE "UPS" CABINET.
 9. ESX NUMBERS ARE BUSS BARS IN "DIST" CABINET.

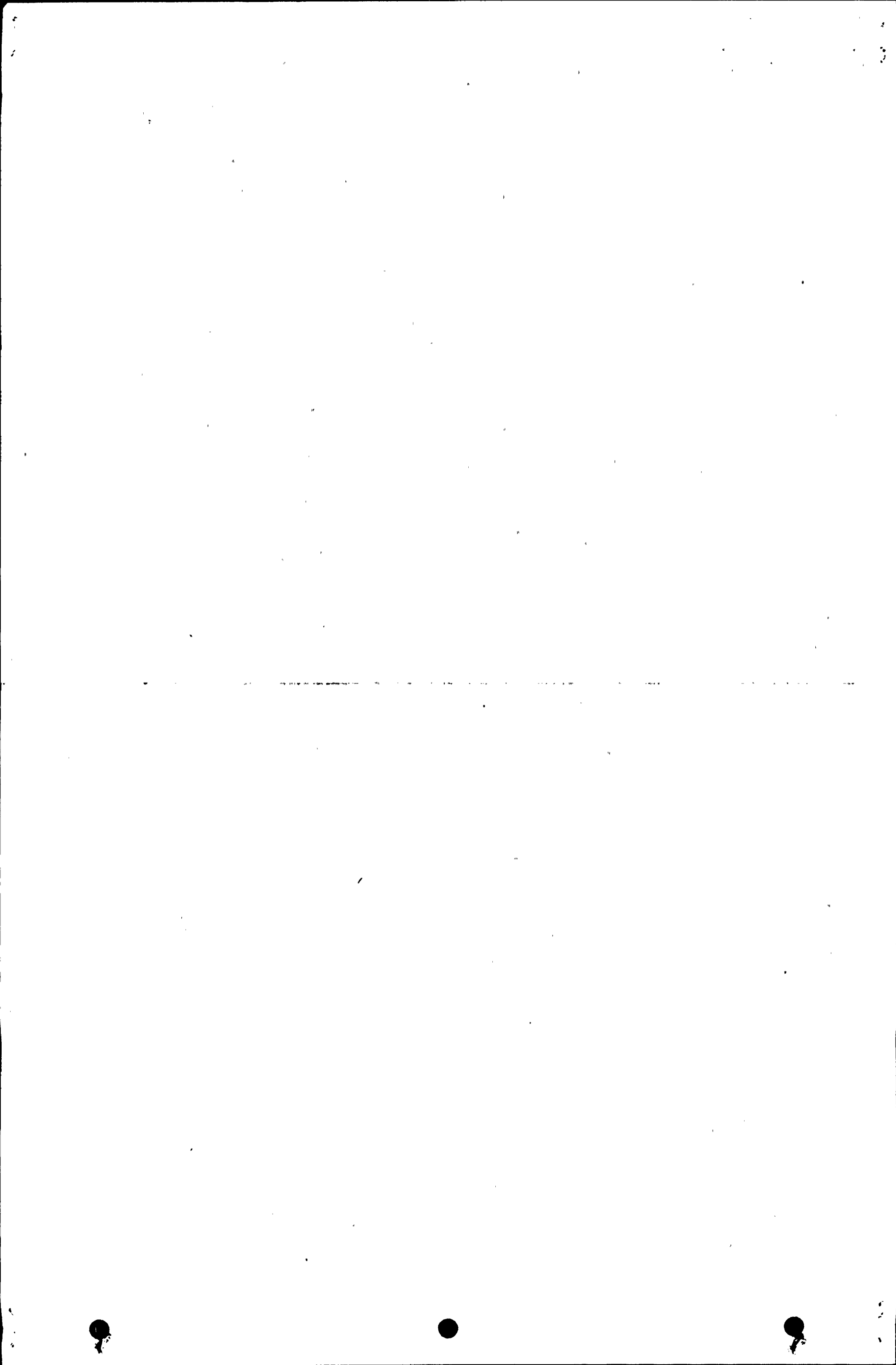
NUCLEAR SAFETY RELATED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON		CONTRACT NO. 543-507-60		FIRST MADE FOR S.O. 4093	
DECIMALS	FRACTIONS	ANGLES	APPROVAL	DATE	
± 0.010	± 1/32	± 1/16	DRN	10/1/72	
± 0.005	± 1/64	± 1/32	CHKD		
± 0.002	± 1/128	± 1/64	WRNG		
± 0.001	± 1/256	± 1/128	APP'D		
± 0.0005	± 1/512	± 1/256	CARL		
DO NOT SCALE THIS DRAWING					
MATERIAL		SCALE		DRAWING NO.	
		NONE		543-625-60	
APPLICATION		SIZE		CODE	
		D		25965	
		DRAWING NO.		543-625-60	
		REV		F	
		SCALE		NONE	
		SHEET		3 OF 8	

DELGAR
 An Eaton Company
 OVERALL SCHEMATIC-UPS253-1-IC6
 (BYPASS REGULATION SECTION)

King Lake Plant, Lakeview Station - Unit 2
 Nuclear Electric Power Corporation
 J.O. No. 12177, P.O. No. 12772 (USA)

NOTES (CONT):



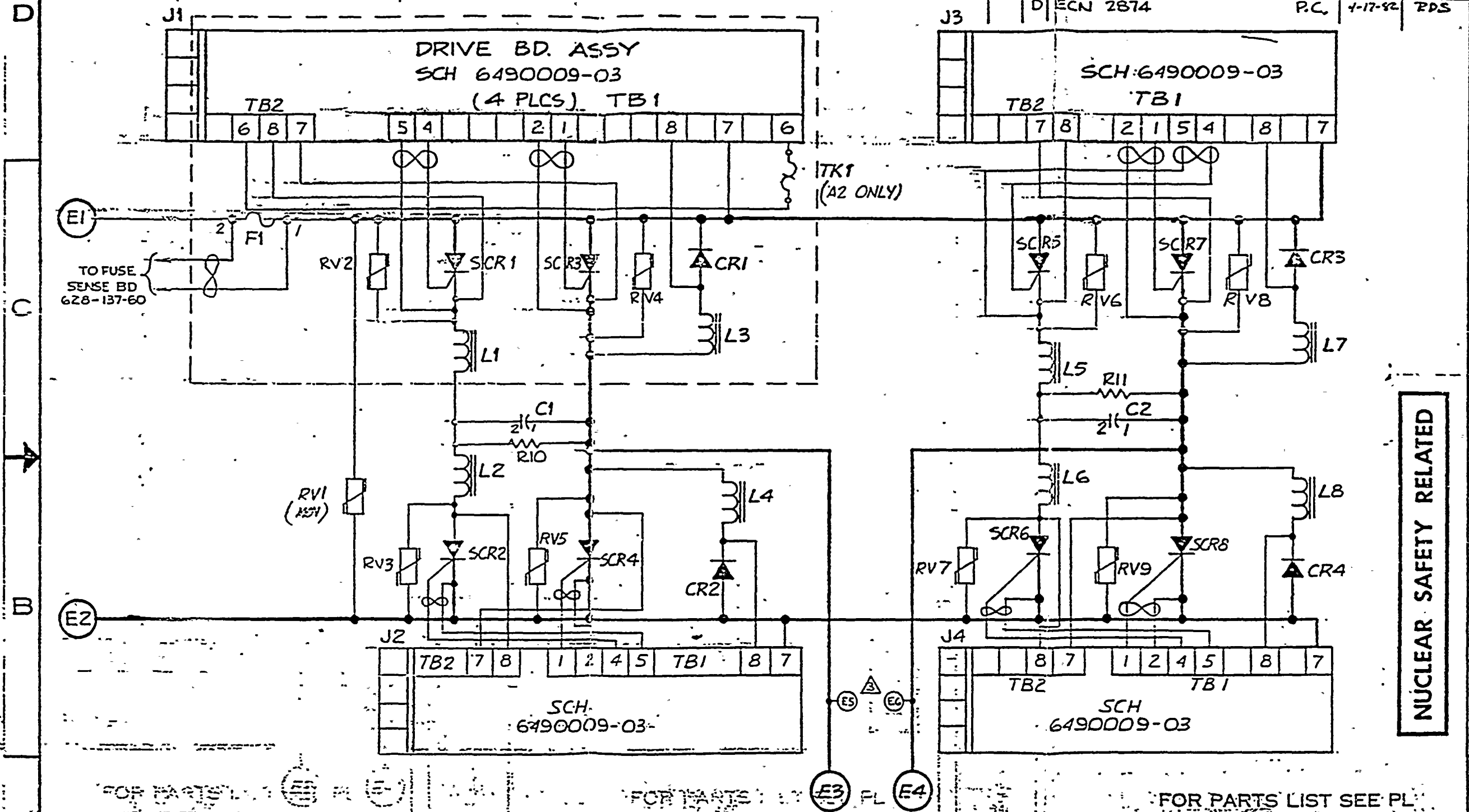
4

3

2

1

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		ENG. RELEASED #17, 2-7-81	2/7/81	J.C.
B		PER ECN 2484	P.C. 1/1/82	J.C.
C		PER ECN 2621	LIPTAK282 2-11-82	J.C.
D		ECN 2874	P.C. 4-17-82	RDS



▲ 12KVA PANELS ONLY
 2. COMM. SCRS ARE 1, 2, 5, 6
 1. MAIN SCRS ARE 3, 4, 7, 8
 NOTES: UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:	
DECIMALS	FRACTIONS ANGLES
.XX = .03	= 1/32 = 1/2°
.XXX = .010	
DO NOT SCALE THIS DRAWING	
MATERIAL:	
FINISH:	
APPLICATION	
NEXT ASSY.	USED ON
GENERAL USE	

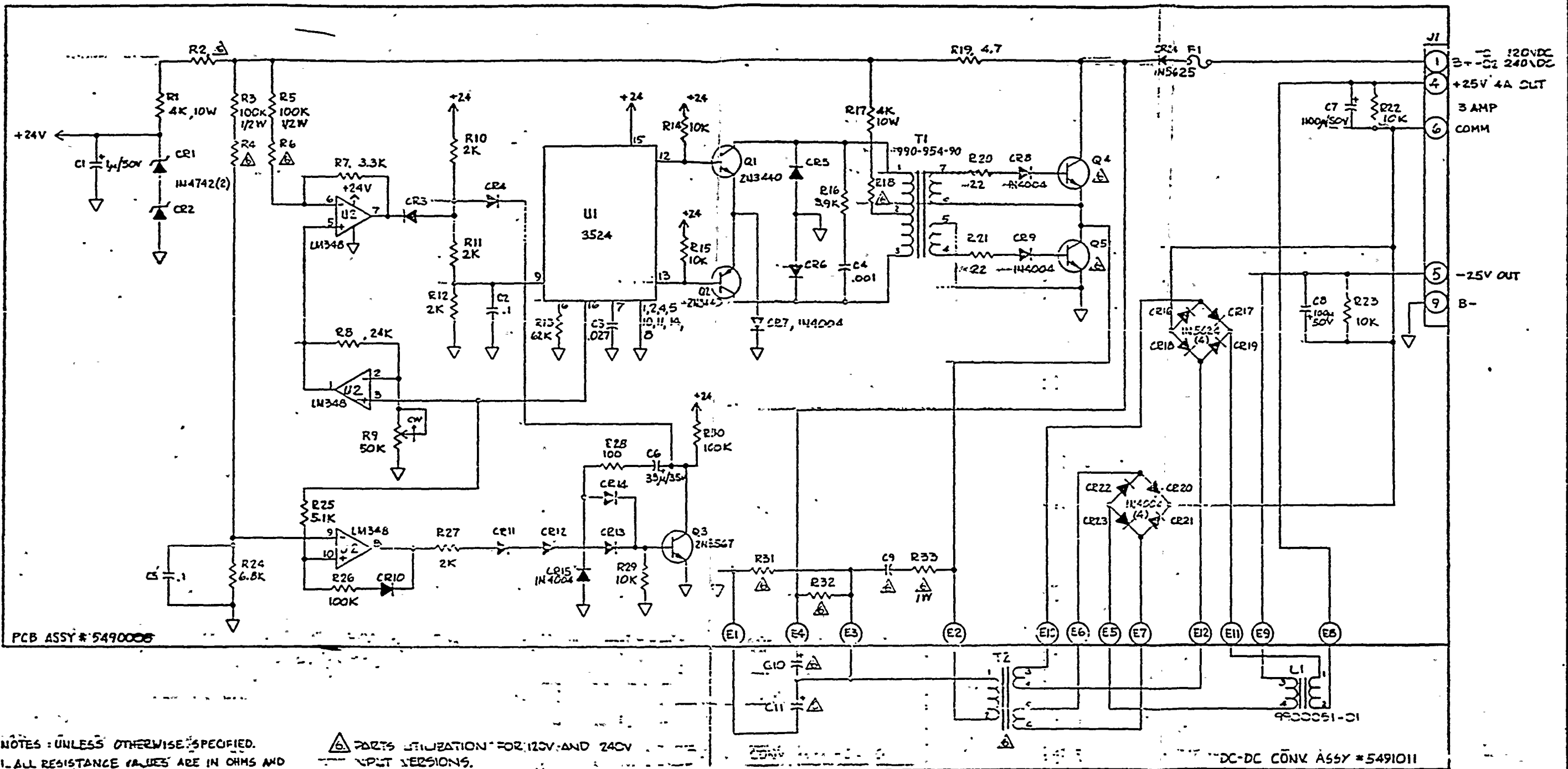
CONTRACT NO.	
FIRST MADE FOR: S/D 4178	
APPROVAL	DATE
DRAWN: R. Binh	2-7-81
CHECKED:	
PROJ ENG:	
QA-REL:	1/11/82
CLON 643-203-6X	

 ELGAR CORPORATION SAN DIEGO, CALIFORNIA			
INVERTER PANEL SCHEMATIC			
SIZE	CODE IDENT. NO.	DRAWING NO.	REV
C	25965	643-523-60	D
SCALE ~			SHEET 1 OF 1

NUCLEAR SAFETY RELATED

643-523-60

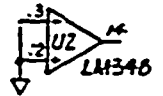
ZONE	LIB	DESCRIPTION	DATE	APPROVED
A	ELG	CEL		
B	ELG	CEL		
C	ELG	# 2595	7.27.72	RFS
D	ELG	# 2595	1.6.72	RFS



PCB ASSY # 5490008

DC-DC CONV ASSY # 5491011

- NOTES: UNLESS OTHERWISE SPECIFIED.
- ALL RESISTANCE VALUES ARE IN OHMS AND RESISTORS ARE 1/4W 5%.
 - ALL DIODES ARE 1N914.
 - ALL CAPACITANCE VALUES ARE IN MICROFARADS.
 - LAST USED REFERENCE DESIGNATORS:
- | | | | | |
|------|-----|----|-----|----|
| C1 | E12 | J1 | R33 | U2 |
| CR24 | F1 | Q5 | T1 | L1 |
- UNUSED PORTION OF IC



PARTS UTILIZATION FOR 120V AND 240V INPUT VERSIONS.

REF DES	-02- (240VDC)	-01- (120VDC)
R2	4K, 10W	5.5K, 1/2W
R4	100K, 1/2W	10K, 1/2W
R5	100K, 1/2W	10K, 1/2W
R7	3.3K	24K
R8	24K	5.1K
R9	50K	6.8K
R10	2K	2K
R11	2K	2K
R12	2K	2K
R13	2K	2K
R14	10K	10K
R15	10K	10K
R16	3.9K	3.9K
R17	4K, 10W	4.7K
R19	4.7K	4.7K
R20	100K	100K
R21	10K	10K
R22	10K	10K
R23	10K	10K
R24	10K	10K
R25	5.1K	5.1K
R26	100K	100K
R27	2K	2K
R28	100	100
R29	10K	10K
R30	100K	100K
R31	10K	10K
R32	10K	10K
R33	10K	10K

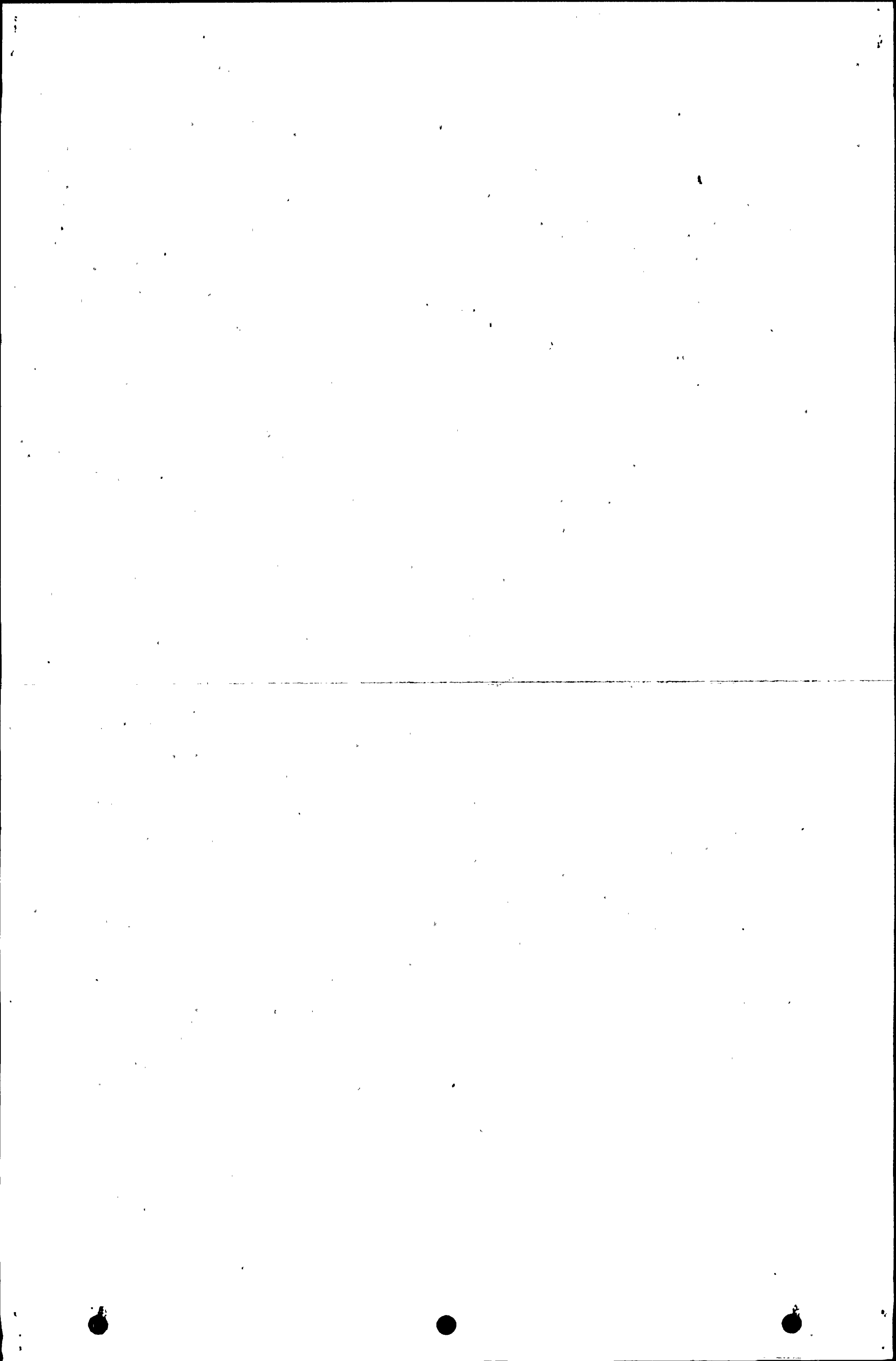
MARGINAL QUALITY ORIGINAL

NUCLEAR SAFETY RELATED

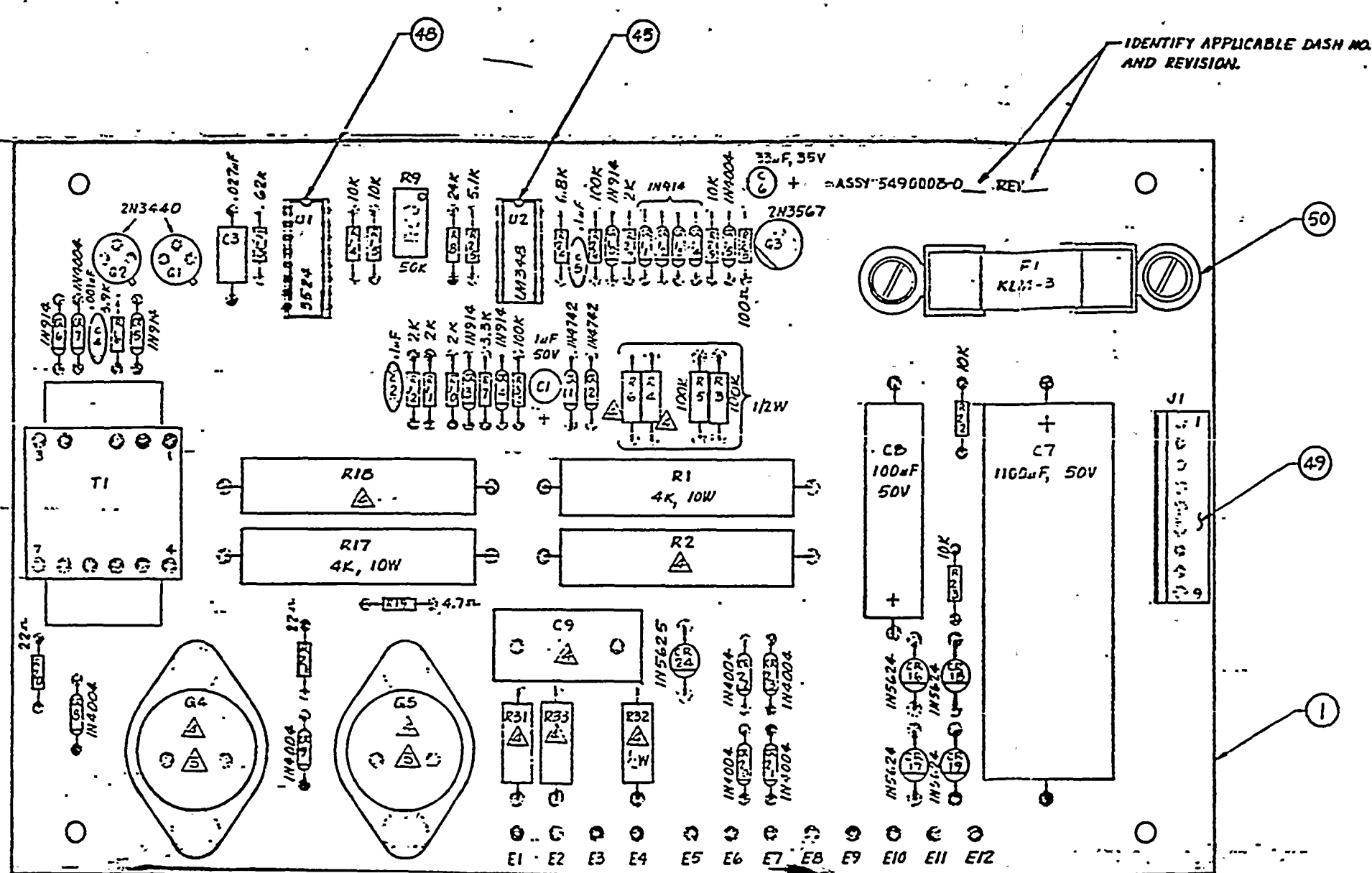
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ON:		CONTRACT NO. # 5491011	
DECIMALS	FRACTIONS	ANGLES	DATE
±0.1	±1/16	±0.5°	11-23-81
±0.2	±1/8	±1.0°	DESIGNED BY: [Signature]
±0.5	±1/4	±2.0°	ISSUED BY: [Signature]
±1.0	±1/2	±3.0°	DATE: 7-27-72
±2.0	±3/4	±4.0°	SCALE: 1:1
±3.0	±1	±5.0°	
±4.0	±1 1/4	±6.0°	
±5.0	±1 1/2	±7.0°	
±6.0	±1 3/4	±8.0°	
±7.0	±2	±9.0°	
±8.0	±2 1/4	±10.0°	
±9.0	±2 1/2	±11.0°	
±10.0	±2 3/4	±12.0°	
±11.0	±3	±13.0°	
±12.0	±3 1/4	±14.0°	
±13.0	±3 1/2	±15.0°	
±14.0	±3 3/4	±16.0°	
±15.0	±4	±17.0°	
±16.0	±4 1/4	±18.0°	
±17.0	±4 1/2	±19.0°	
±18.0	±4 3/4	±20.0°	
±19.0	±5	±21.0°	
±20.0	±5 1/4	±22.0°	
±21.0	±5 1/2	±23.0°	
±22.0	±5 3/4	±24.0°	
±23.0	±6	±25.0°	
±24.0	±6 1/4	±26.0°	
±25.0	±6 1/2	±27.0°	
±26.0	±6 3/4	±28.0°	
±27.0	±7	±29.0°	
±28.0	±7 1/4	±30.0°	
±29.0	±7 1/2	±31.0°	
±30.0	±7 3/4	±32.0°	
±31.0	±8	±33.0°	
±32.0	±8 1/4	±34.0°	
±33.0	±8 1/2	±35.0°	
±34.0	±8 3/4	±36.0°	
±35.0	±9	±37.0°	
±36.0	±9 1/4	±38.0°	
±37.0	±9 1/2	±39.0°	
±38.0	±9 3/4	±40.0°	
±39.0	±10	±41.0°	
±40.0	±10 1/4	±42.0°	
±41.0	±10 1/2	±43.0°	
±42.0	±10 3/4	±44.0°	
±43.0	±11	±45.0°	
±44.0	±11 1/4	±46.0°	
±45.0	±11 1/2	±47.0°	
±46.0	±11 3/4	±48.0°	
±47.0	±12	±49.0°	
±48.0	±12 1/4	±50.0°	
±49.0	±12 1/2	±51.0°	
±50.0	±12 3/4	±52.0°	
±51.0	±13	±53.0°	
±52.0	±13 1/4	±54.0°	
±53.0	±13 1/2	±55.0°	
±54.0	±13 3/4	±56.0°	
±55.0	±14	±57.0°	
±56.0	±14 1/4	±58.0°	
±57.0	±14 1/2	±59.0°	
±58.0	±14 3/4	±60.0°	
±59.0	±15	±61.0°	
±60.0	±15 1/4	±62.0°	
±61.0	±15 1/2	±63.0°	
±62.0	±15 3/4	±64.0°	
±63.0	±16	±65.0°	
±64.0	±16 1/4	±66.0°	
±65.0	±16 1/2	±67.0°	
±66.0	±16 3/4	±68.0°	
±67.0	±17	±69.0°	
±68.0	±17 1/4	±70.0°	
±69.0	±17 1/2	±71.0°	
±70.0	±17 3/4	±72.0°	
±71.0	±18	±73.0°	
±72.0	±18 1/4	±74.0°	
±73.0	±18 1/2	±75.0°	
±74.0	±18 3/4	±76.0°	
±75.0	±19	±77.0°	
±76.0	±19 1/4	±78.0°	
±77.0	±19 1/2	±79.0°	
±78.0	±19 3/4	±80.0°	
±79.0	±20	±81.0°	
±80.0	±20 1/4	±82.0°	
±81.0	±20 1/2	±83.0°	
±82.0	±20 3/4	±84.0°	
±83.0	±21	±85.0°	
±84.0	±21 1/4	±86.0°	
±85.0	±21 1/2	±87.0°	
±86.0	±21 3/4	±88.0°	
±87.0	±22	±89.0°	
±88.0	±22 1/4	±90.0°	
±89.0	±22 1/2	±91.0°	
±90.0	±22 3/4	±92.0°	
±91.0	±23	±93.0°	
±92.0	±23 1/4	±94.0°	
±93.0	±23 1/2	±95.0°	
±94.0	±23 3/4	±96.0°	
±95.0	±24	±97.0°	
±96.0	±24 1/4	±98.0°	
±97.0	±24 1/2	±99.0°	
±98.0	±24 3/4	±100.0°	
±99.0	±25	±101.0°	
±100.0	±25 1/4	±102.0°	

SCHEMATIC DIAGRAM DC-DC CONVERTER

SIZE	CODE	IDENT NO.	ORIGIN NO.	REV
D	25965	6490008		D
SCALE: 1:1				SHEET: 1/1

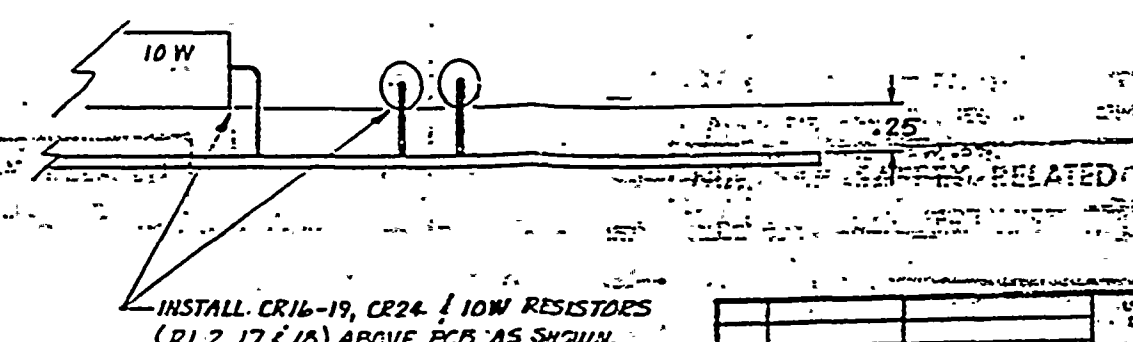


REVIEWS			
DATE	DESCRIPTION	DATE	APPROVED
-	SEE 5-1 - A SIZE		



REF DES	-02 (240V)	-01 (120V)
R2	4K, 10W	5.5K, 1/2W
E4	100K, 1/2W	100K, 1/2W
E6	100K, 1/2W	100K, 1/2W
R15	4K, 10W	5.5K, 1/2W
R31	100K, 1W	57K, 1/2W
R32	100K, 1W	57K, 1/2W
R33	100K, 1W	55K, 1W
C9	.05 200V	.1 200V
G4	MJ10007	6060
G5	MJ10007	6060

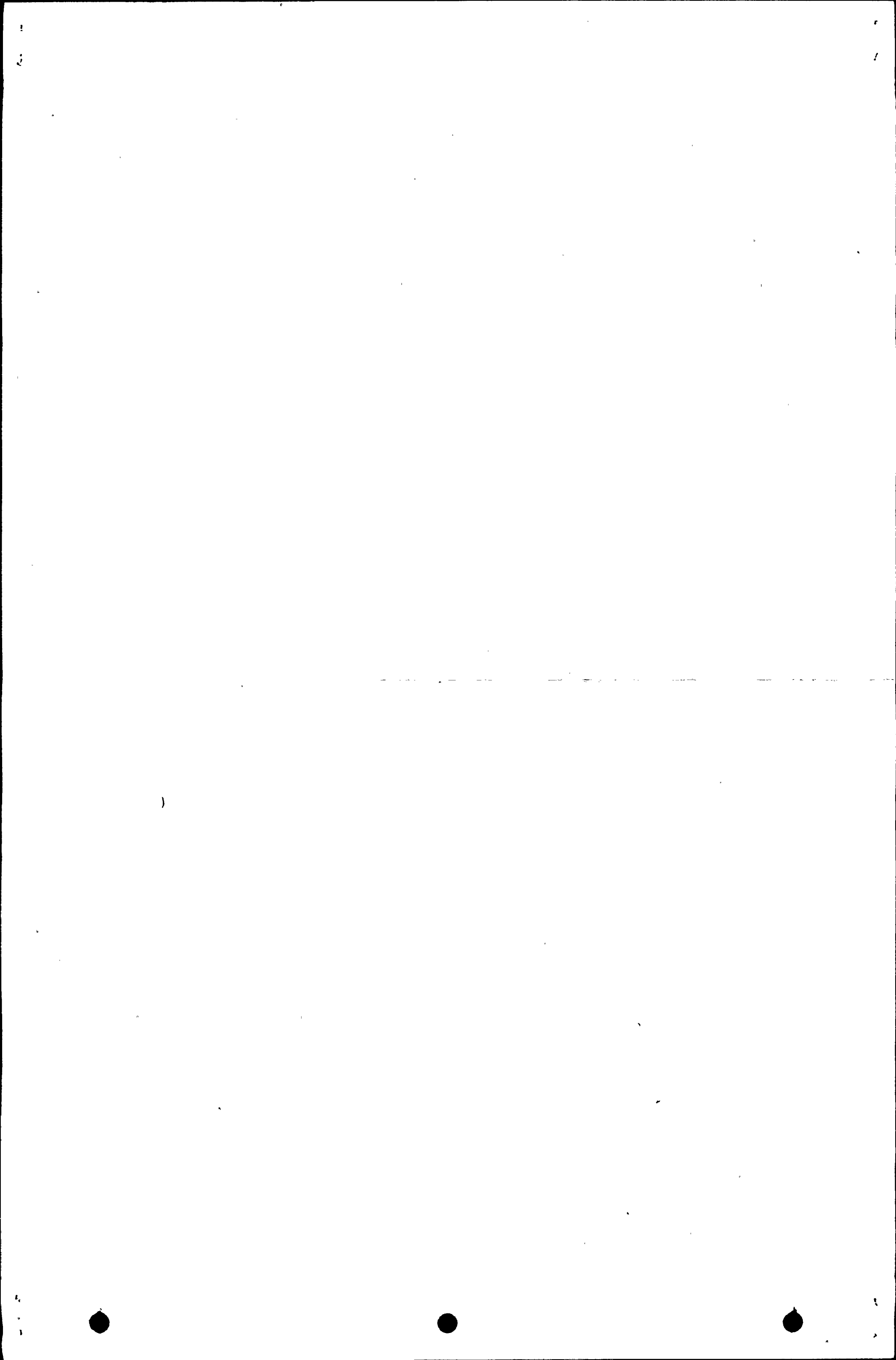
-01 ASSY, CONFORMAL COAT
 -02 ASSY, STD



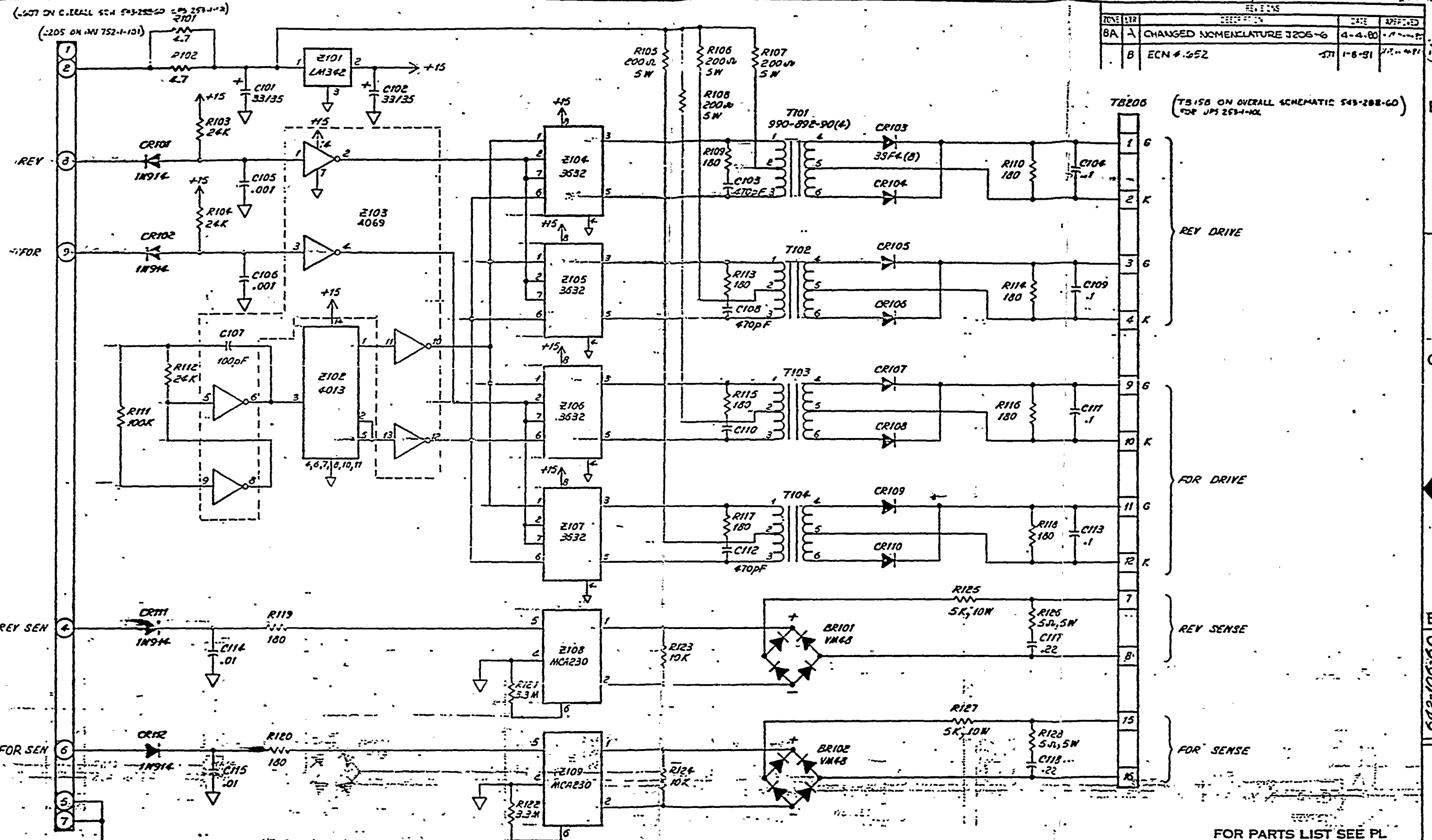
- NOTES:
- FOR SCHEMATIC SEE DRG 649000.
 - FOR -01 ASSY CONFORMAL COAT PER ELGAR SPEC 100529.
 - I.C. SOCKETS TO BE USED ON -02 ASSY ONLY
- I.C. SOCKETS WILL BE INSTALLED
- | ITEM | DESCRIPTION | ELGAR P/N | QTY |
|------|------------------|-----------|-----|
| 1 | 14 PIN IC SOCKET | 849-0P-14 | 1 |
| 2 | 18 PIN IC SOCKET | 849-0P-18 | 1 |
- ▲ PARTS UTILIZATION PER -01 (0V) AND -02 (240V) VERSIONS - SEE CHART
- ▲ MOUNT WITH ONE STEEL WASHER, EACH END.

NUCLEAR SAFETY RELATED
 FOR PARTS LIST SEE PL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: DECIMALS FRACTIONS ANGLES .XX ± .03 ± 1/32 ± 1/2° .XXX ± .010 ± 1/64 ± 1/2° DO NOT SCALE THIS DRAWING		CONTRACT NO. PART MADE FOR APPROVAL DATE DRAWN BY CHECKED BY PROJ. ENG. BY DATE	
THE INFORMATION CONTAINED HEREIN WAS PREPARED BY AND IS THE PROPERTY OF ELGAR CORPORATION AND IS LOANED TO YOUR COMPANY UNDER A LICENSE FROM ELGAR CORPORATION. NO REPRODUCTION OR DISSEMINATION OF THIS INFORMATION IS PERMITTED WITHOUT THE WRITTEN PERMISSION OF ELGAR CORPORATION.		ELGAR P C ASSY- DC-DC CONVERTER	
SIZE CODE IDENT. NO. DRAWING NO. REV D 25965 5490008 C		SCALE: 1" = 1"	



REVISIONS				
ZONE	STR	DESCRIPTION	DATE	APPROVED
BA	A	CHANGED NOMENCLATURE J206-6	4-4-60	
B	B	ECN # 652	1-8-81	



NOTES: UNLESS OTHERWISE SPECIFIED.
 1. ALL RESISTORS ARE .1/2 W, 5%, CARBON COMP.
 2. INTERCONNECTS PIN TO PIN WITH J157 ON BLACKPLANE (CARD CAGE) ASSY SCHEMATIC 643-353-60 (UPS 253-1-101 ONLY).

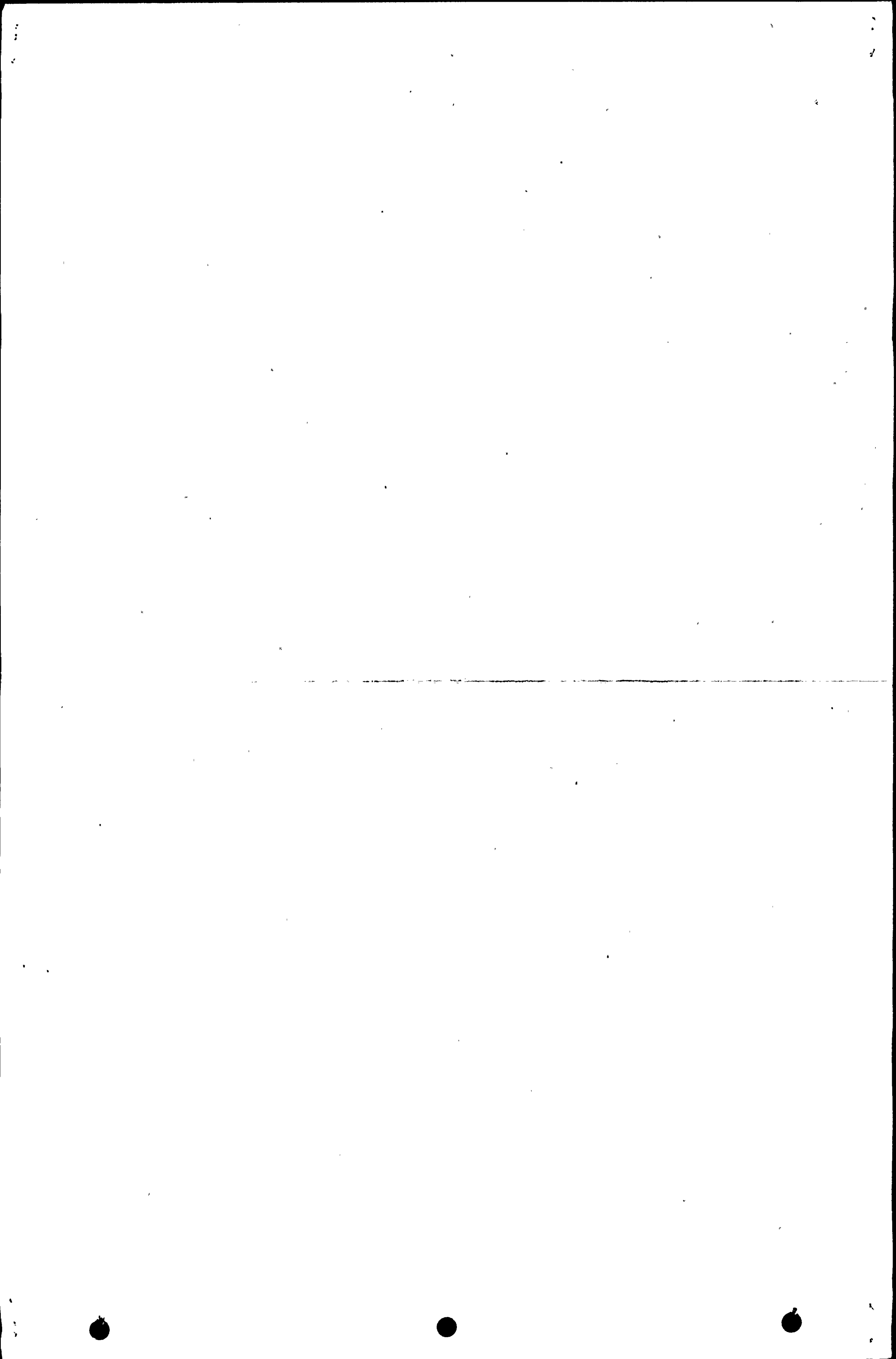
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES IN:		DRAWN: MCDIST 1-10-70	
DECIMALS	FRACTIONS	ANGLES	CHECKED: G. C. WILSON 1-11-70
.XX ± .01	XX ± 1/32	± 1.25	DESIGNED BY: L. S. 3-77
XXX ± .010	XX ± 1/64	± 1.25	DATE: 1-15-77
XXXX ± .015	XX ± 1/32	± 1.25	SCALE: AS SHOWN
XXXX ± .020	XX ± 1/16	± 1.25	APPROVAL:
XXXX ± .030	XX ± 1/8	± 1.25	DATE:
XXXX ± .040	XX ± 3/16	± 1.25	APPROVED:
XXXX ± .050	XX ± 1/4	± 1.25	DATE:
XXXX ± .060	XX ± 5/16	± 1.25	APPROVED:
XXXX ± .070	XX ± 3/8	± 1.25	DATE:
XXXX ± .080	XX ± 7/16	± 1.25	APPROVED:
XXXX ± .090	XX ± 1/2	± 1.25	DATE:
XXXX ± .100	XX ± 5/8	± 1.25	APPROVED:
XXXX ± .110	XX ± 3/4	± 1.25	DATE:
XXXX ± .120	XX ± 7/8	± 1.25	APPROVED:
XXXX ± .130	XX ± 1	± 1.25	DATE:
XXXX ± .140	XX ± 1 1/8	± 1.25	APPROVED:
XXXX ± .150	XX ± 1 1/4	± 1.25	DATE:
XXXX ± .160	XX ± 1 3/8	± 1.25	APPROVED:
XXXX ± .170	XX ± 1 1/2	± 1.25	DATE:
XXXX ± .180	XX ± 1 3/4	± 1.25	APPROVED:
XXXX ± .190	XX ± 1 7/8	± 1.25	DATE:
XXXX ± .200	XX ± 2	± 1.25	APPROVED:
XXXX ± .210	XX ± 2 1/8	± 1.25	DATE:
XXXX ± .220	XX ± 2 1/4	± 1.25	APPROVED:
XXXX ± .230	XX ± 2 3/8	± 1.25	DATE:
XXXX ± .240	XX ± 2 1/2	± 1.25	APPROVED:
XXXX ± .250	XX ± 2 3/4	± 1.25	DATE:
XXXX ± .260	XX ± 2 7/8	± 1.25	APPROVED:
XXXX ± .270	XX ± 3	± 1.25	DATE:
XXXX ± .280	XX ± 3 1/8	± 1.25	APPROVED:
XXXX ± .290	XX ± 3 1/4	± 1.25	DATE:
XXXX ± .300	XX ± 3 3/8	± 1.25	APPROVED:
XXXX ± .310	XX ± 3 1/2	± 1.25	DATE:
XXXX ± .320	XX ± 3 3/4	± 1.25	APPROVED:
XXXX ± .330	XX ± 3 7/8	± 1.25	DATE:
XXXX ± .340	XX ± 4	± 1.25	APPROVED:
XXXX ± .350	XX ± 4 1/8	± 1.25	DATE:
XXXX ± .360	XX ± 4 1/4	± 1.25	APPROVED:
XXXX ± .370	XX ± 4 3/8	± 1.25	DATE:
XXXX ± .380	XX ± 4 1/2	± 1.25	APPROVED:
XXXX ± .390	XX ± 4 3/4	± 1.25	DATE:
XXXX ± .400	XX ± 4 7/8	± 1.25	APPROVED:
XXXX ± .410	XX ± 5	± 1.25	DATE:
XXXX ± .420	XX ± 5 1/8	± 1.25	APPROVED:
XXXX ± .430	XX ± 5 1/4	± 1.25	DATE:
XXXX ± .440	XX ± 5 3/8	± 1.25	APPROVED:
XXXX ± .450	XX ± 5 1/2	± 1.25	DATE:
XXXX ± .460	XX ± 5 3/4	± 1.25	APPROVED:
XXXX ± .470	XX ± 5 7/8	± 1.25	DATE:
XXXX ± .480	XX ± 6	± 1.25	APPROVED:
XXXX ± .490	XX ± 6 1/8	± 1.25	DATE:
XXXX ± .500	XX ± 6 1/4	± 1.25	APPROVED:

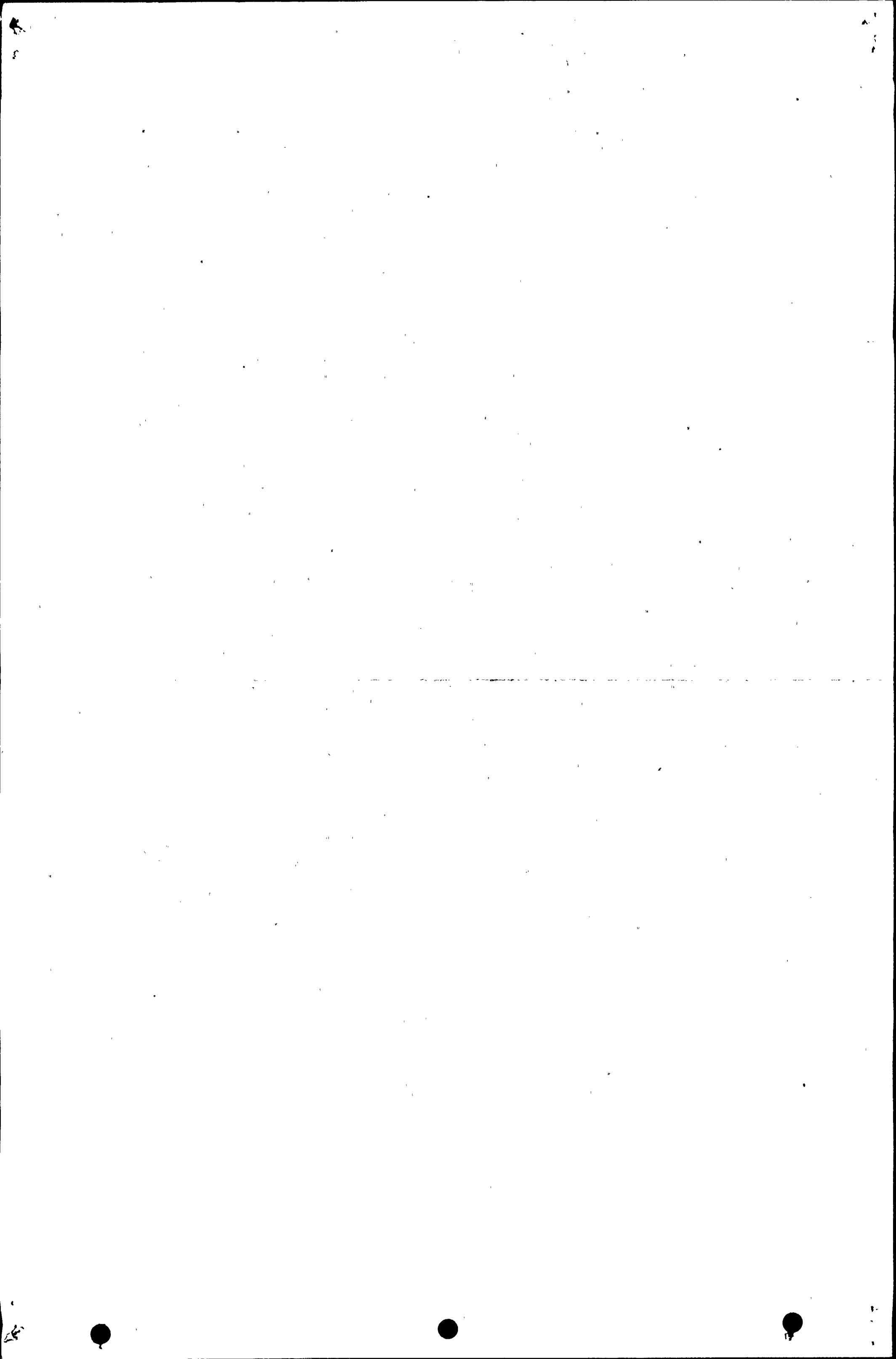
FOR PARTS LIST SEE PL



SS DRIVE BD

REV	DESCRIPTION	DATE	BY
D	25965	642-106-60	B





8

7

6

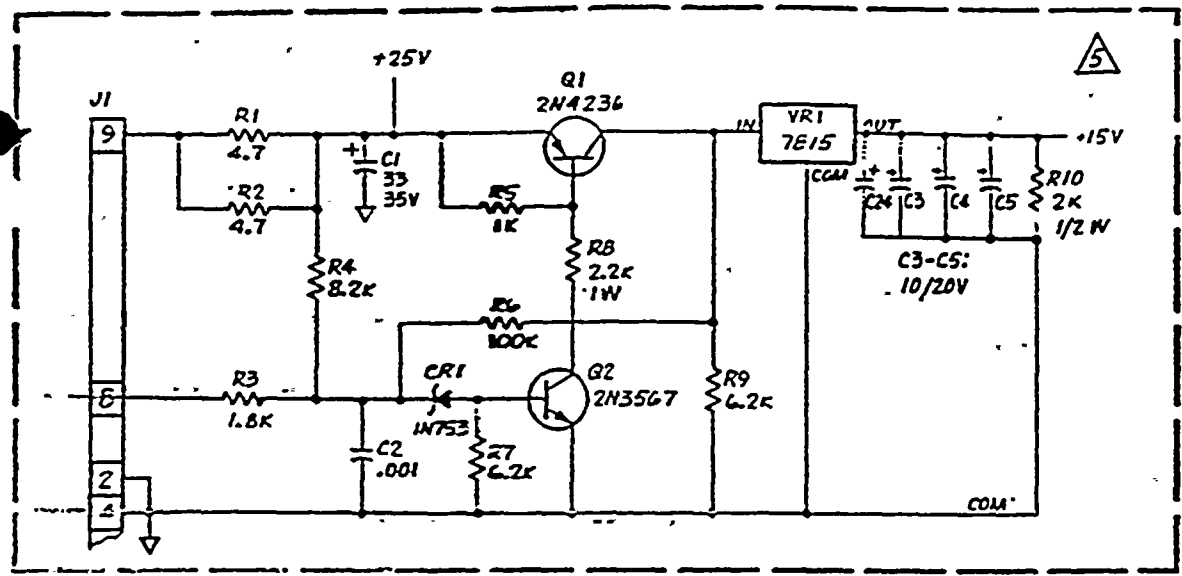
5

4

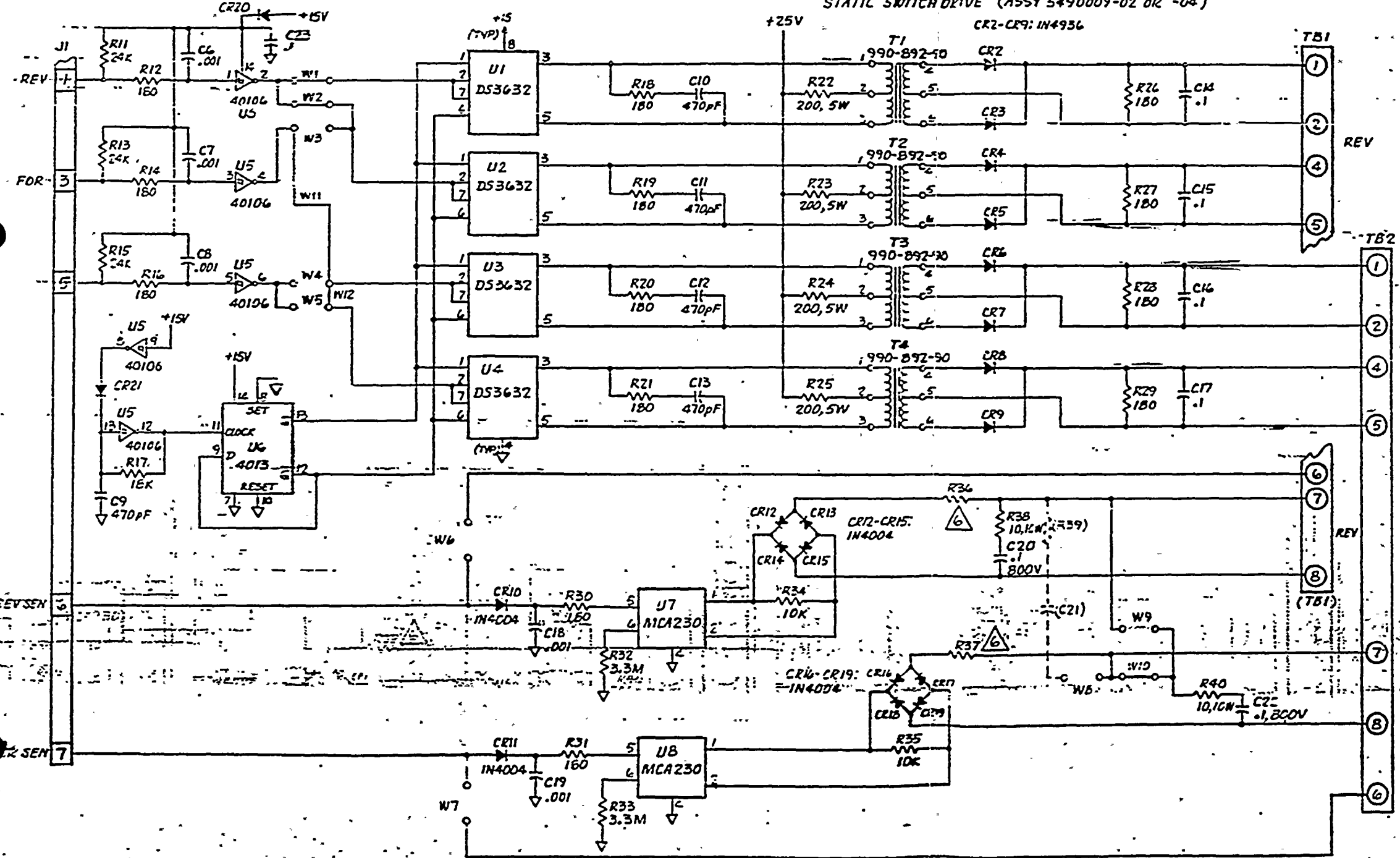
3

2

1



-02 AND -04 ASSY SCHEM A
 STATIC SWITCH DRIVE (ASSY 5490009-02 OR -04)



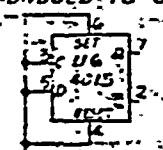
REV	DESCRIPTION	DATE	APPROVED
1	ENG. 2 E.L.		
2	ECN 2909	P.C. 6-2-52	

NUCLEAR SAFETY RELATED

- 1. NOTES: UNLESS OTHERWISE SPECIFIED RESISTOR VALUES ARE IN OHMS.
- 2. CAPACITOR VALUES ARE IN MICROFARADS.
- 3. RESISTORS ARE 1/4W 5%.
- 4. IC VCC & GND PINS

IC	REF DESIG	+15V	GND
DS3632	U1, 2, 3, 4	3	4
4013	U6	14	7
40106	U5	14	7
MCA230	U7, 8	NA	NA

- 5. CIRCUIT REQUIRED FOR ALL ASSEMBLIES.
- 6. RES & CAP VALUES* (-02 & -04 ASSY ONLY)
 -02 ASSY: 5K, 10W
 -04 ASSY: 12K, 10W
- 7. UNUSED IC CIRCUIT:



8. HIGHEST USED REFERENCE DESIGNATORS:
 C23, CR21, J1, G2, R40, T4, TB2, U8, VRI & W10.

SELGAR
 SC-EMATIC
 SCP DRIVE BOARD

SIZE	25965	6490009
SCALE		SHEET 1 OF 2

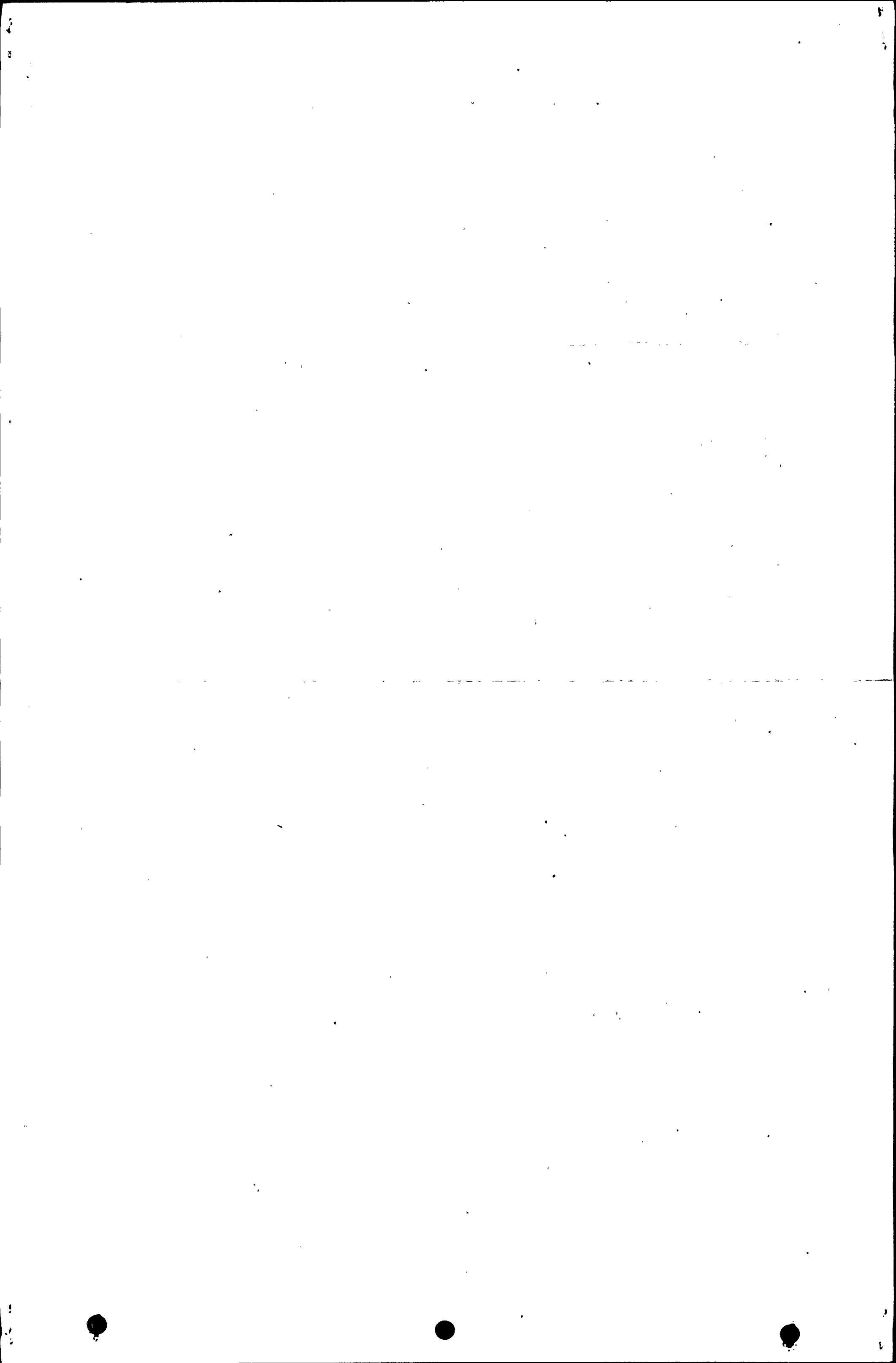
D

C

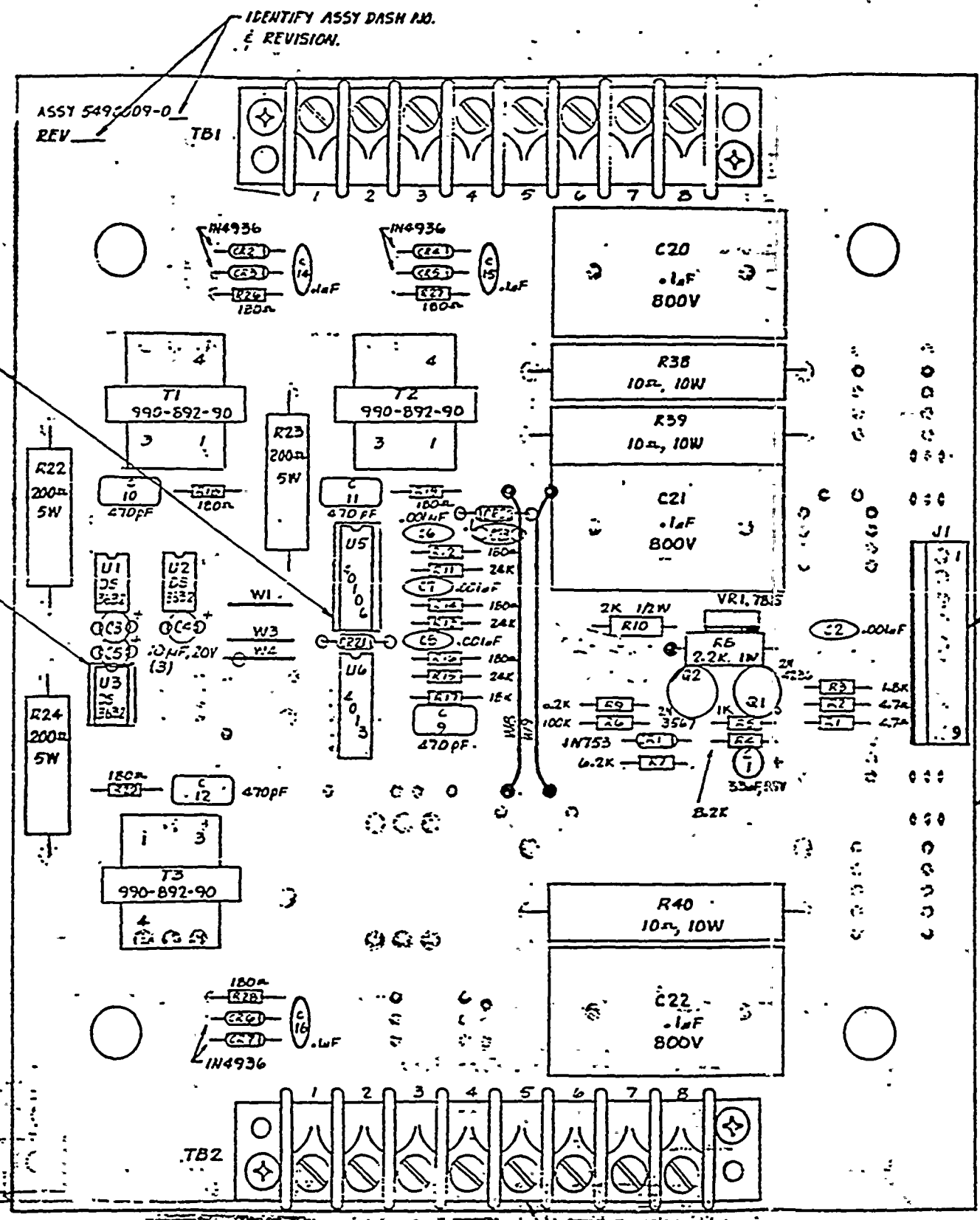
B

6490009

A



REVISIONS			
REV	DATE	DESCRIPTION	APPROVED
A		ENCL. CEM.	
		SEE SH. FOR C-SS.	



INSTALL 5W & 10W
RESISTORS ABOVE PCB
THE APPROX. DISTANCE
SHOWN.

(2) 80

(3) 81

65

1

-01 ASSY CONFORMAL COAT (SEE SHTS 2-4 OF P/L)
-05 ASSY, STD (SEE SHTS 5-7 OF P/L)

NUCLEAR-SAFETY-RELATED

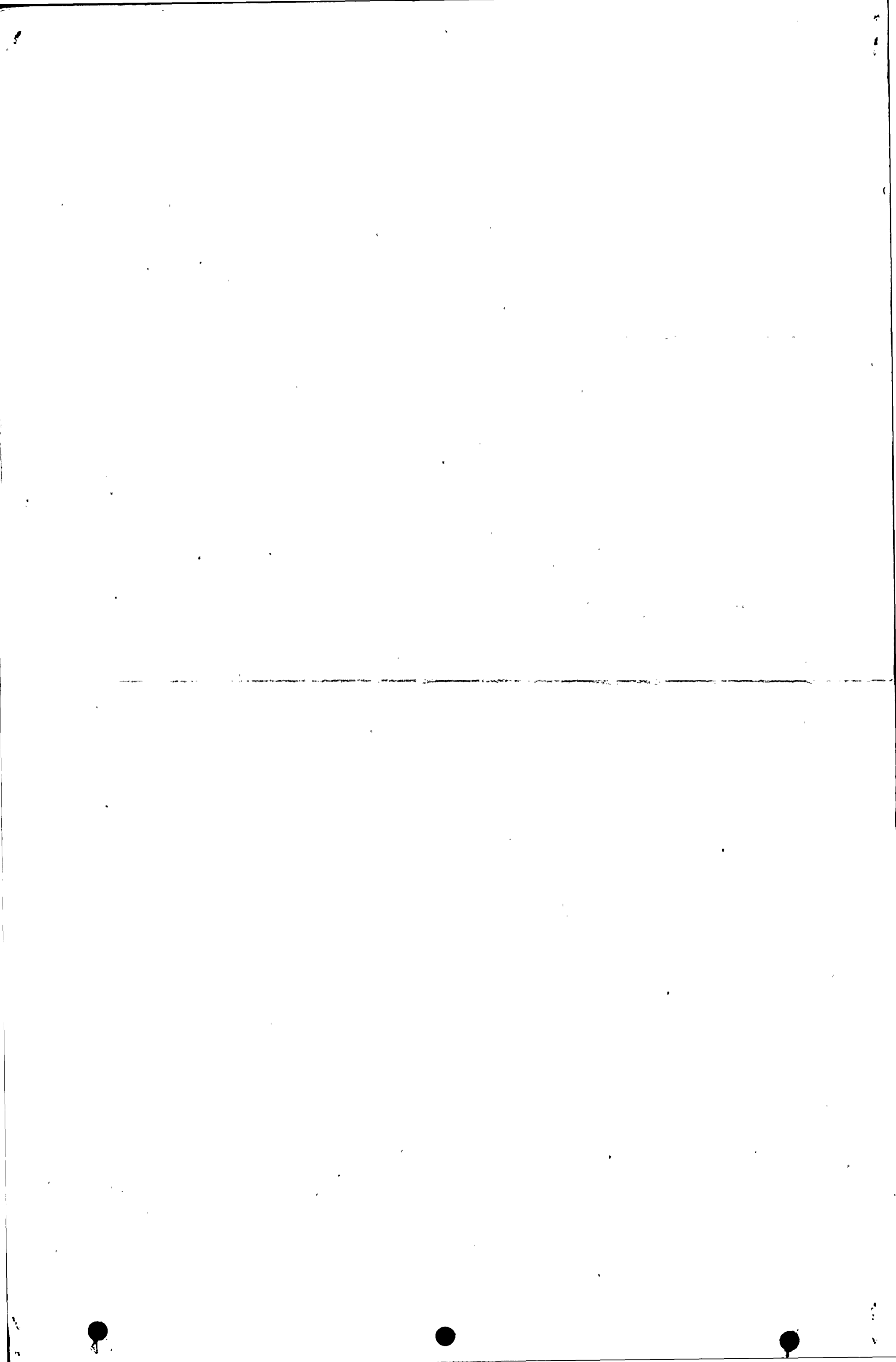
- NOTES:
- FOR SCHEMATIC SEE DWG 6490009.
 - 01 ASSY TO BE CONFORMAL COATED PER MILGAR SPEC 1000025.
 - 05 ASSY TO HAVE IC SOCKETS ONLY.

ITEM	DESCRIPTION	QTY	ENTY
1	14 PIN IC SOCKET	849-09-14	2
2	5 PIN IC SOCKET	849-09-21	3

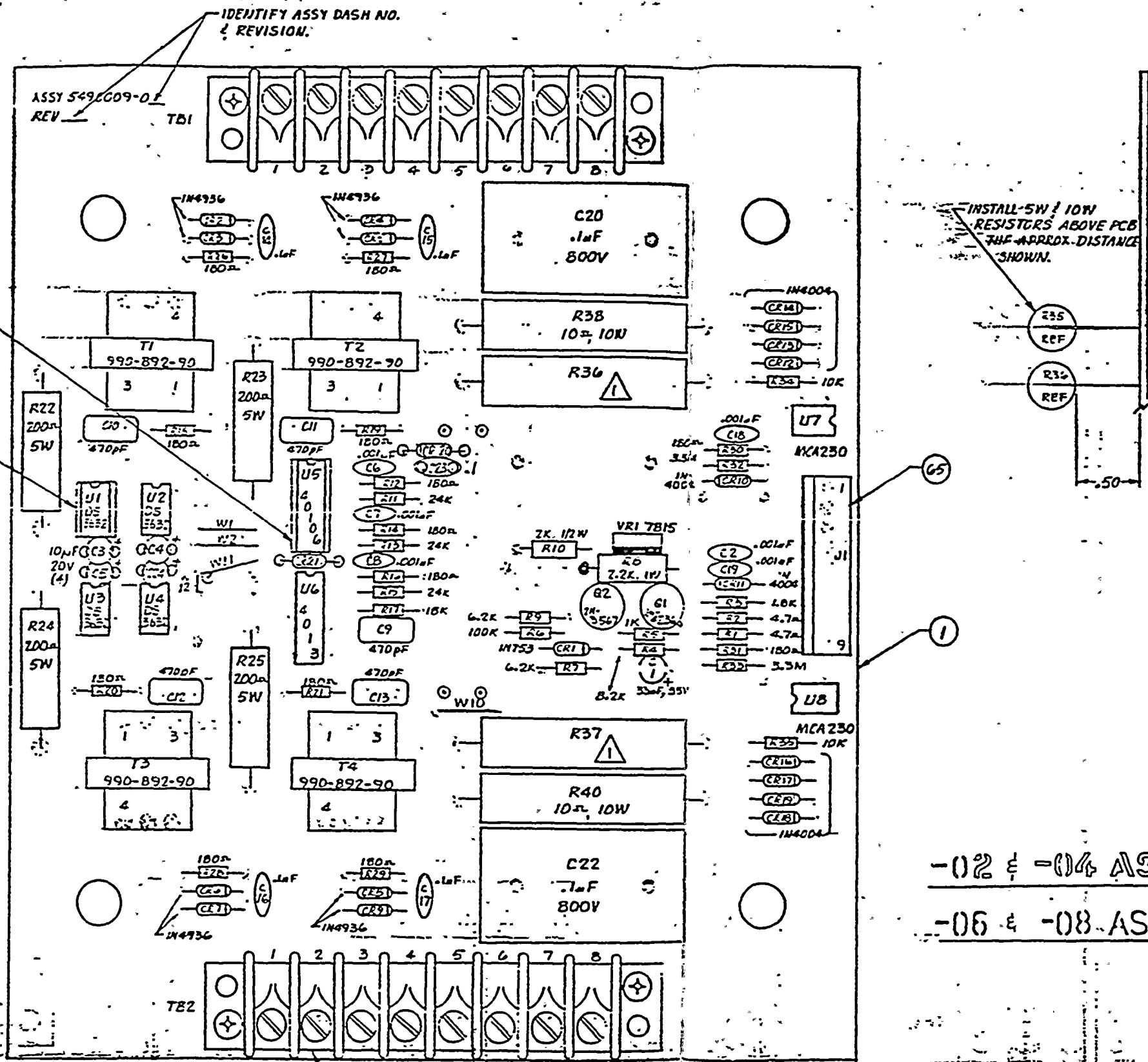
76 (2)
77 (2)
78 (2)
2 PLACES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:		CONTRACT NO.		FIRST PRICE FOR:	
DECIMALS	FRACTIONS	ANGLE	APPROX.	DATE	
XX ± .01	1/32	± 1/2			
XXX ± .010					
DO NOT SCALE THIS DRAWING					
MATERIAL:		DRAWN		CHECKED	
NEXT ASSY.		USED ON		MATERIAL	
APPLICATION		DATE		SCALE	
THE INFORMATION CONTAINED HEREIN IS UNCLASSIFIED BY 60320 UCBAW/STW/STW ON 03-28-2011 AND IS IN THE PUBLIC DOMAIN. IT IS THE PROPERTY OF THE U.S. GOVERNMENT. LEGAL COPYRIGHT REMAINS AS APPLICABLE. PROPRIETARY, TRADE, SERVICE, OR MANUFACTURING AND REPRODUCTION RIGHTS RESERVED.		DRAWING NO.		REV	
		D 25965		5490009	
		SCALE		SHEET 5 OF 5	

PC ASSY- SCR
SCR DRIVE BOARD



REVISIONS			
NO.	DESCRIPTION	DATE	APPROVED
1	EN 32 ZE	P.C	
SEE SHTS 2-4, 5-7			



-02 & -04 ASSY, Δ CONFORMAL COAT (SEE SHTS 2-4 OF P/L)
 -06 & -08 ASSY, Δ STD (SEE SHTS 5-7 OF P/L)

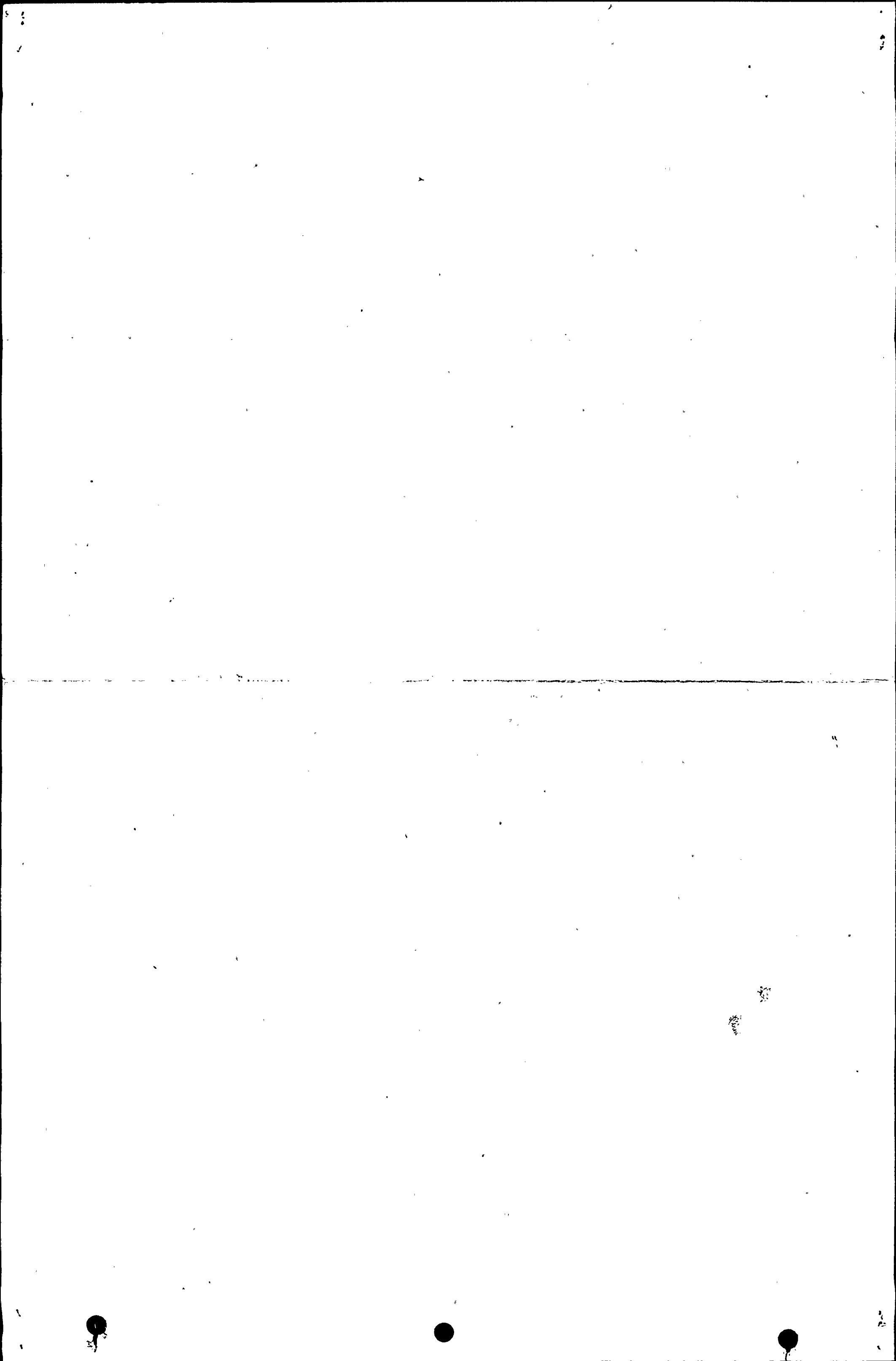
- NOTES:
- Δ R36 & R37 VALUES ARE:
 - 02 & -04 ASSY: 5K, 10W
 - 06, -04 ASSY: 12K, 10W
 - 2. FOR SCHEMATIC SEE DNG 649009.
 - 3. -02 & -04 ASSY TO BE CONFORMAL COATED PER ELGAR SPEC 1005023.
 - 4. -06 & -08 TO HAVE IC SOCKETS ONLY.

ITEM	DESCRIPTION	QTY	REMARKS
1	14 PIN IC SOCKET	1	849-0014
2	5 PIN IC SOCKET	2	849-0014

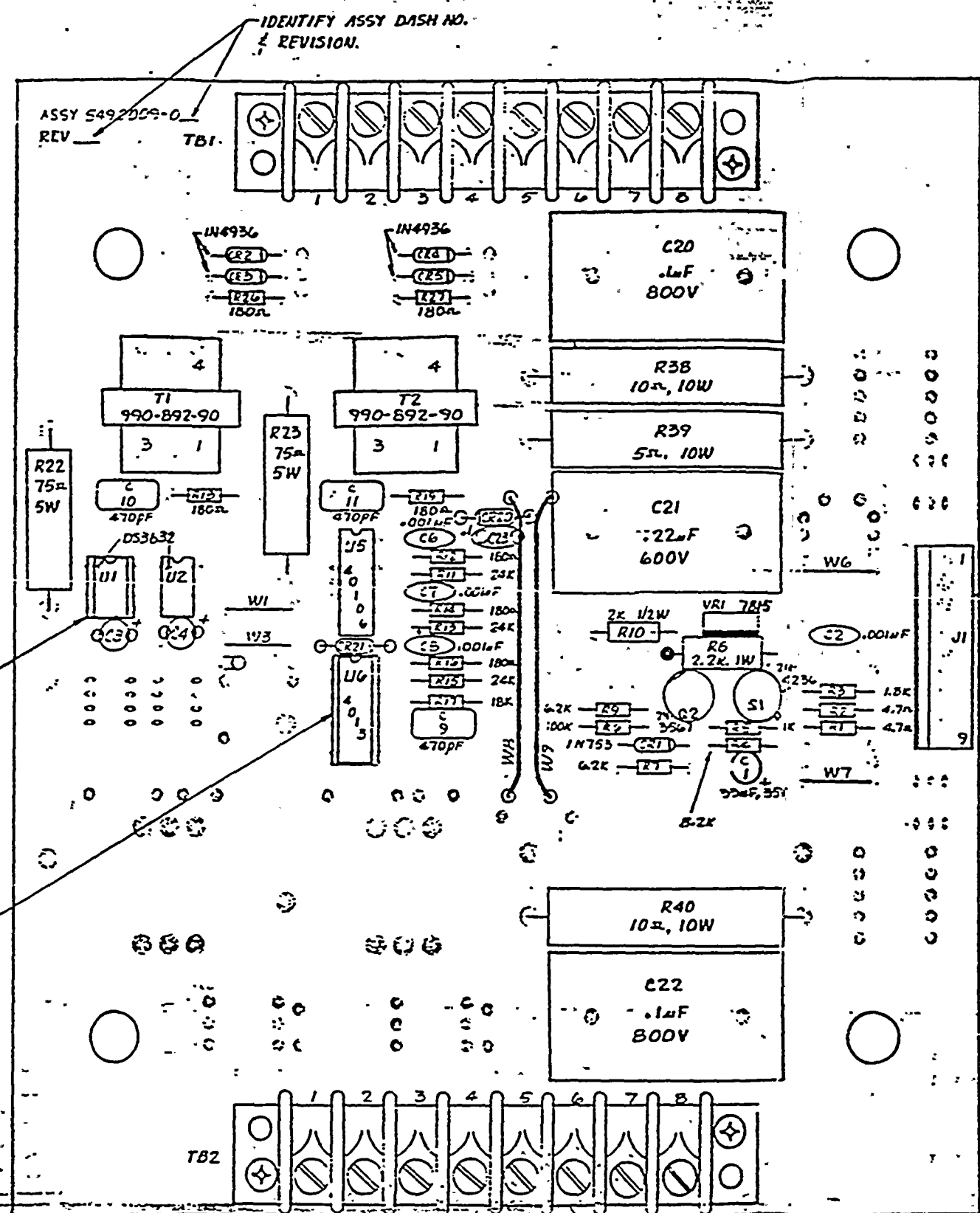
- 66
 - 76 (2)
 - 77 (2)
 - 78 (2)
- 2 PLACES

NUCLEAR SAFETY RELATED

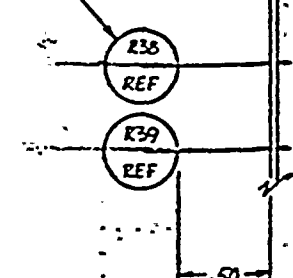
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:		DRAWING NO.	
DECIMALS	FRACTIONS	DATE	REV
.XX ± .005	1/32 ± 1/64		
.XXX ± .010	1/16 ± 1/32		
DO NOT SCALE THIS DRAWING			
MATERIAL:		PART NO.	
NEXT ASSY.		DATE	
APPLICATION		SCALE	
THE INFORMATION CONTAINED HEREIN IS UNCLASSIFIED AND IS THE PROPERTY OF ELGAR COMPANY. IT IS TO BE CONTAINED IN THE PROPERTY OF ELGAR COMPANY. IT IS TO BE CONTAINED IN THE PROPERTY OF ELGAR COMPANY. IT IS TO BE CONTAINED IN THE PROPERTY OF ELGAR COMPANY.		PRICE	
		25965	
		549009	
		SCALE	



DATE	REV	DESCRIPTION	DATE	APPROVED
	1	ENG 2 REL.	7.2	
		SEE SHT. ECR C-66		



INSTALL 5W & 10W RESISTORS ABOVE PCB THE APPROX DISTANCE SHOWN.



-03 ASSY CONFORMAL COAT-(SEE SHTS 2-4 OF P/L)

-07 ASSY STD (SEE SHTS 5-7 OF P/L)

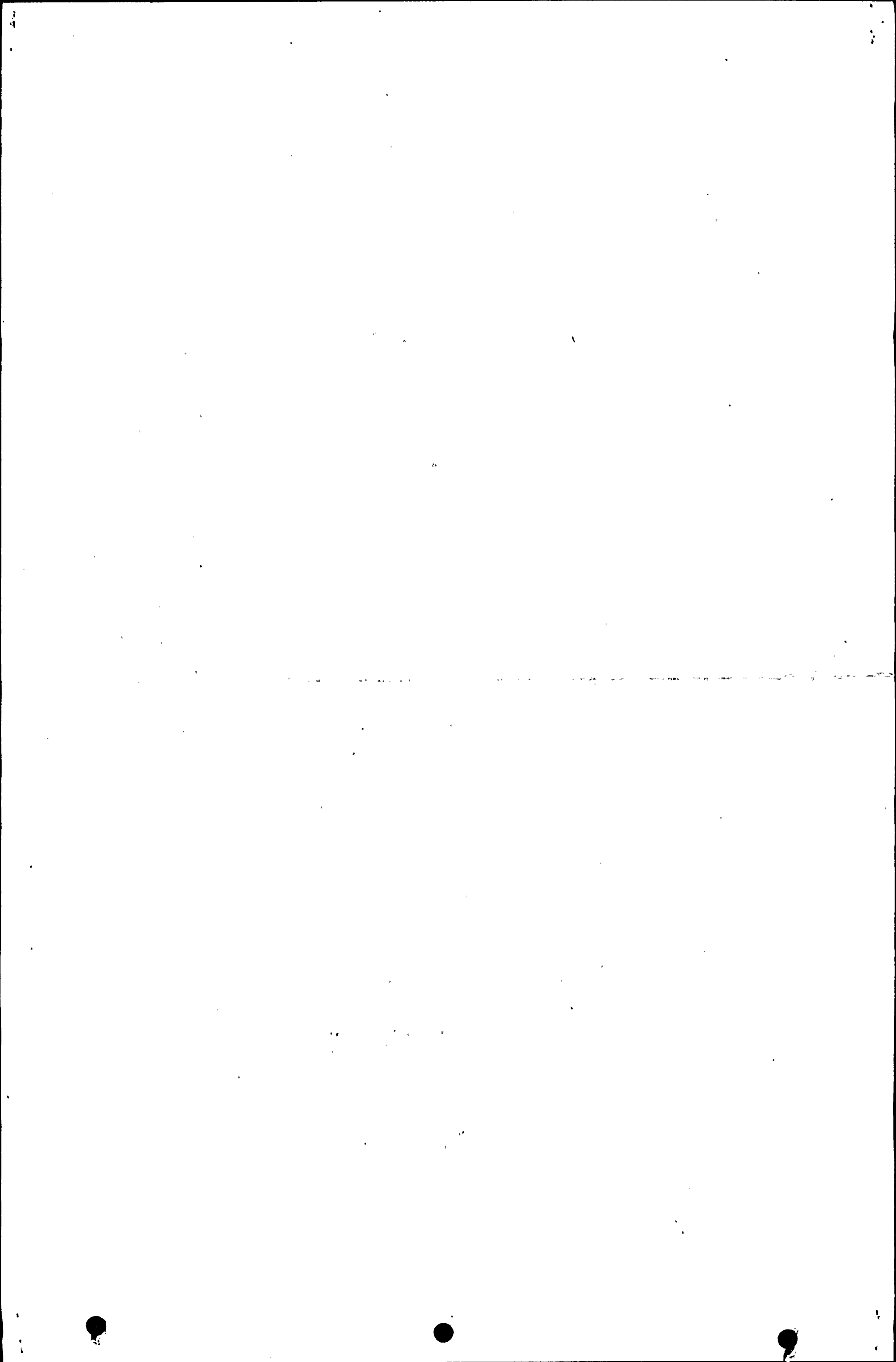
- NOTES
- FOR SCHEMATIC SEE DRG 6490009.
 - 03 ASSY TO BE CONFORMAL COATED PER SPEC: 1025029
 - 07 TO HAVE IC SOCKETS ONLY.

ITEM	DESCRIPTION	QUANTITY	CONT.
1	14 PIN IC SOCKET 849-2P-24	2	
2	14 PIN IC SOCKET 848-2P-24	2	

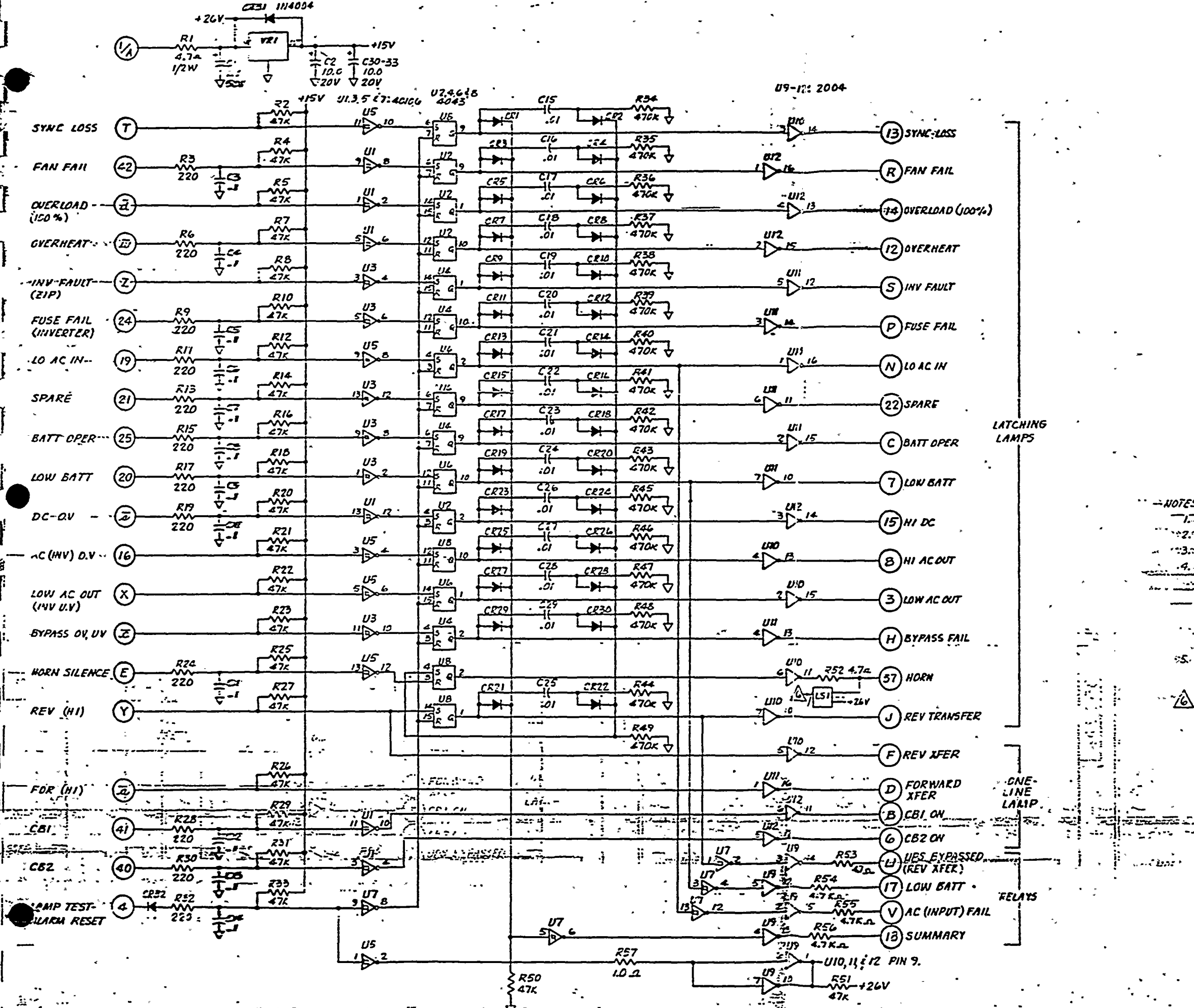
- 2 PAGES
- 66
 - 76 (2)
 - 77 (2)
 - 78 (2)

NUCLEAR SAFETY RELATED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: DECIMALS FRACTIONS ANGLES XX ± .03 ± 1/32 ± 1/16 XXX ± .010 ± 1/64 ± 1/32 DO NOT SCALE THIS DRAWING		CONTRACT NO. FIRST MADE FOR:	
MATERIAL:		APPROVAL: _____ DATE: _____ DRAWN: _____ CHECKED: _____ INSP/ENG: _____ QAREL: _____	
NEXT ASSY. USED ON:		P C ASSY- SCR DRIVE BOARD	
APPLICATION:		SIZE: D CODE IDENT. NO: 25965 DRAWING NO: 5490009 REV: 3	
THE INFORMATION CONTAINED HEREIN WAS OBTAINED BY THE INFORMATION SYSTEMS DIVISION OF THE ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION AND IS BEING FURNISHED TO YOU FOR YOUR INFORMATION ONLY. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.		SCALE: 1:1	



REV	DATE	APPROVED
1	ENG 2 66	
2	ECN 2396 CHAIR-54-56 TO 4.7KΩ	



LATCHING LAMPS

ONE-LINE LAMP

FELAYS

- NOTES: UNLESS OTHERWISE SPECIFIED
 1. RESISTOR VALUES ARE IN OHMS.
 2. CAPACITOR VALUES ARE IN MICROFARADS.
 3. UNMARKED DIODES ARE IN914.
 4. IC VOLTAGE & GND PINS:

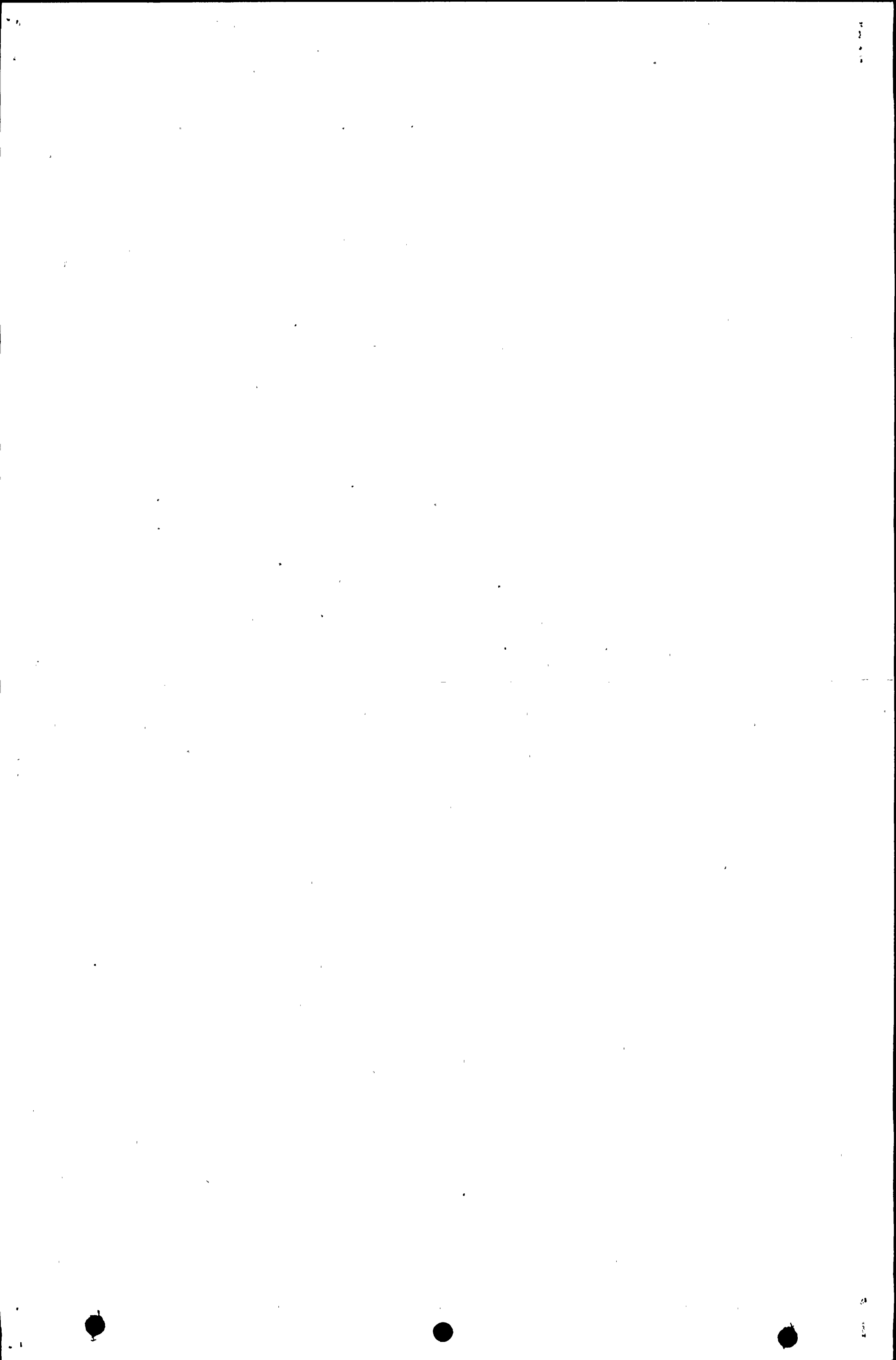
IC TYPE	REF DESIGNATOR	+15V	GND	UNUSED
2004	U9-12	1	8	
4043	U2, 4, 6, 8	5, 16	8	
40106	U1, 3, 5, 7	14	7	

5. LAST-USED REFERENCE DESIGNATOR:
 C33, CR32, LS1, R57 & U12.
 6. OPTIONAL COMPONENT.

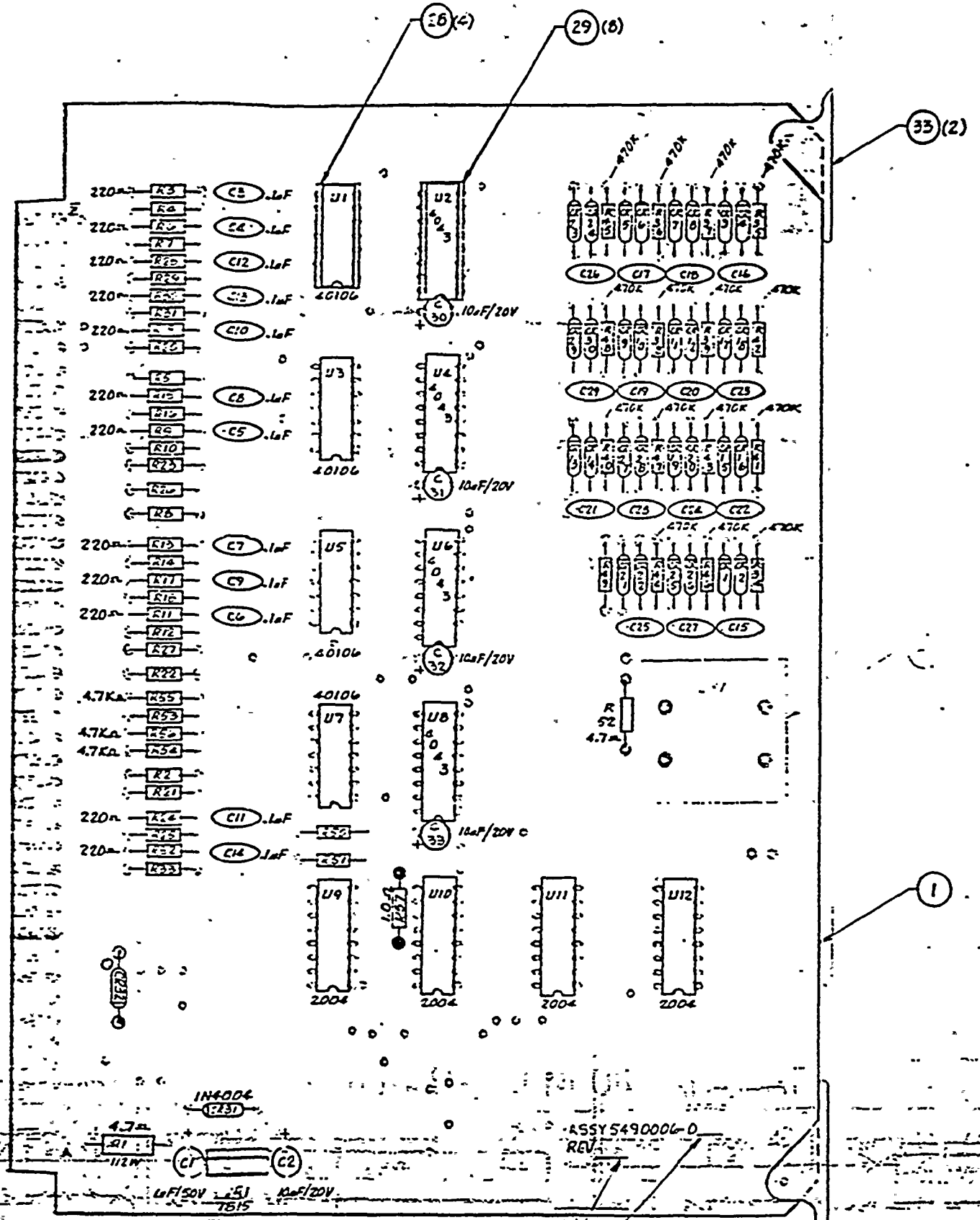
NUCLEAR SAFETY RELATED

CELGAR
 SCHEMATIC
 AL 9453 6612
 D 25965 649506
 SCALE: 1" = 1"

6490006



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
		SEE 541, A SIDE.		



-01 ASSY, CONFORMAL COAT

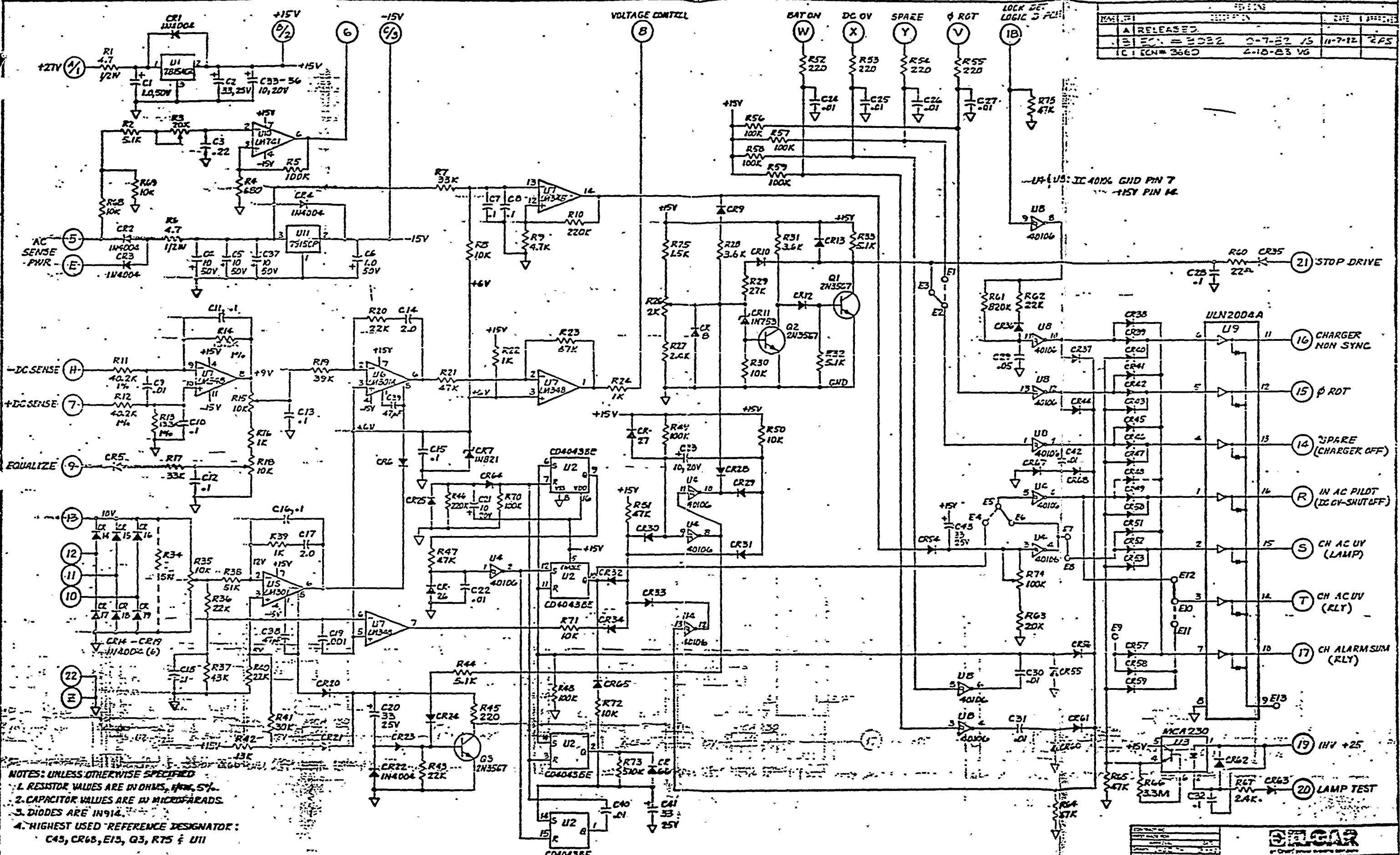
NUCLEAR SAFETY RELATED

- NOTES:
1. FOR SCHEMATIC, SEE DWG 6490006.
 2. UNMARKED RESISTORS ARE 47K, ITEM 7.
 3. UNMARKED DIODES ARE IN7914, ITEM 21.
 4. UNMARKED CAPACITORS ARE .01uF, ITEM 5.
 5. FOR -01 ASSY CONFORMAL COAT PER ELSGAR SPEC 005029.

IDENTIFY APPLICABLE DASH NO. AND REVISION.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON		CONTRACT NO. POST MADE FOR			
DECIMALS	FRACTIONS	ANGLES	APPROVAL		
XX ± .XX	XX ± 1/32	XX ± 1/16	DRAWN	12-28-61	PC ASSY-ALARM LOGIC
XX ± .010	XX ± 1/64	XX ± 1/32	CHECKED		
DO NOT SCALE THIS DRAWING		MATERIAL		REV. C	
NETV ASSY	USED ON	APP. DATE		D D 25965 5490006	
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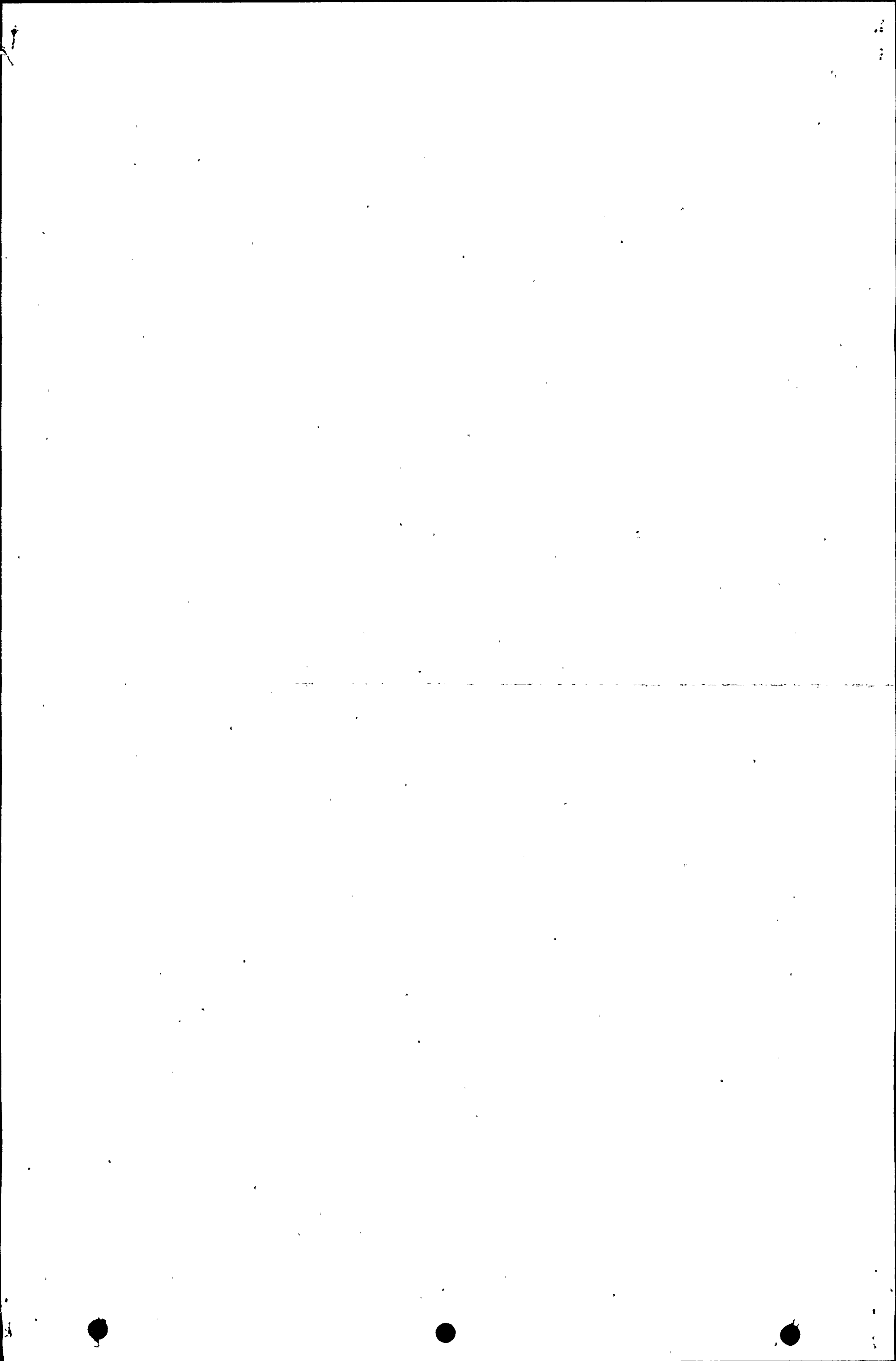
REV.	DESCRIPTION	DATE	BY
1	RELEASED		
2	REVISED	11-7-82	RS
3	REVISED	11-7-82	RS
4	REVISED	11-7-82	RS
5	REVISED	11-7-82	RS
6	REVISED	11-7-82	RS
7	REVISED	11-7-82	RS
8	REVISED	11-7-82	RS
9	REVISED	11-7-82	RS
10	REVISED	11-7-82	RS
11	REVISED	11-7-82	RS
12	REVISED	11-7-82	RS
13	REVISED	11-7-82	RS
14	REVISED	11-7-82	RS
15	REVISED	11-7-82	RS
16	REVISED	11-7-82	RS
17	REVISED	11-7-82	RS
18	REVISED	11-7-82	RS
19	REVISED	11-7-82	RS
20	REVISED	11-7-82	RS
21	REVISED	11-7-82	RS
22	REVISED	11-7-82	RS



NOTES: UNLESS OTHERWISE SPECIFIED
 1. RESISTOR VALUES ARE IN OHMS, UNLESS OTHERWISE SPECIFIED.
 2. CAPACITOR VALUES ARE IN MICROFARADS.
 3. DIODES ARE IN914.
 4. HIGHEST USED REFERENCE DESIGNATOR:
 C45, CR68, E13, G3, R75 & U11

NUCLEAR SAFETY RELATED

SCHEMATIC - CHARGER LOGIC 'A'	
25965	24300-B
SCALE	1/2" = 1"



REV	DATE	BY	APP
A	RELEASE		
B	20-000000 10-7-52 13		

4 STEEL WASHER
4 PLACES (2/SCREEN)

4-40 x 7/16" SCREW (2)

INSTALL WITH LEADS AS SHOWN.

NO EXCESSIVE FORCE
(2)

34
2 PLACES

41

22 AWG
JUMPER WIRE-
SLEEVED,
4 PLACES

42 (3 PLCS)

HEAT SINK SIDE
(REF)

2

43 (2 PLCS)

IC1 SHOWN

NOTES - UNLESS OTHERWISE SPECIFIED

- 1. DIMS ARE IN IN.
- 2. FOR SCHEMATIC SEE DRG 5490018
- 3. DO NOT INSTALL COMPONENTS - SPACE RESERVED FOR FUTURE USE (2 PLACES)
- 4. IC1 ASSY TO BE CONFORMAL COATED PER ELSAR SPEC 1000009. AS TO SOCKETS:
- 5. O2 ASSY TO HAVE IC SOCKETS

-01 ASSY, CONFORMAL COAT Δ

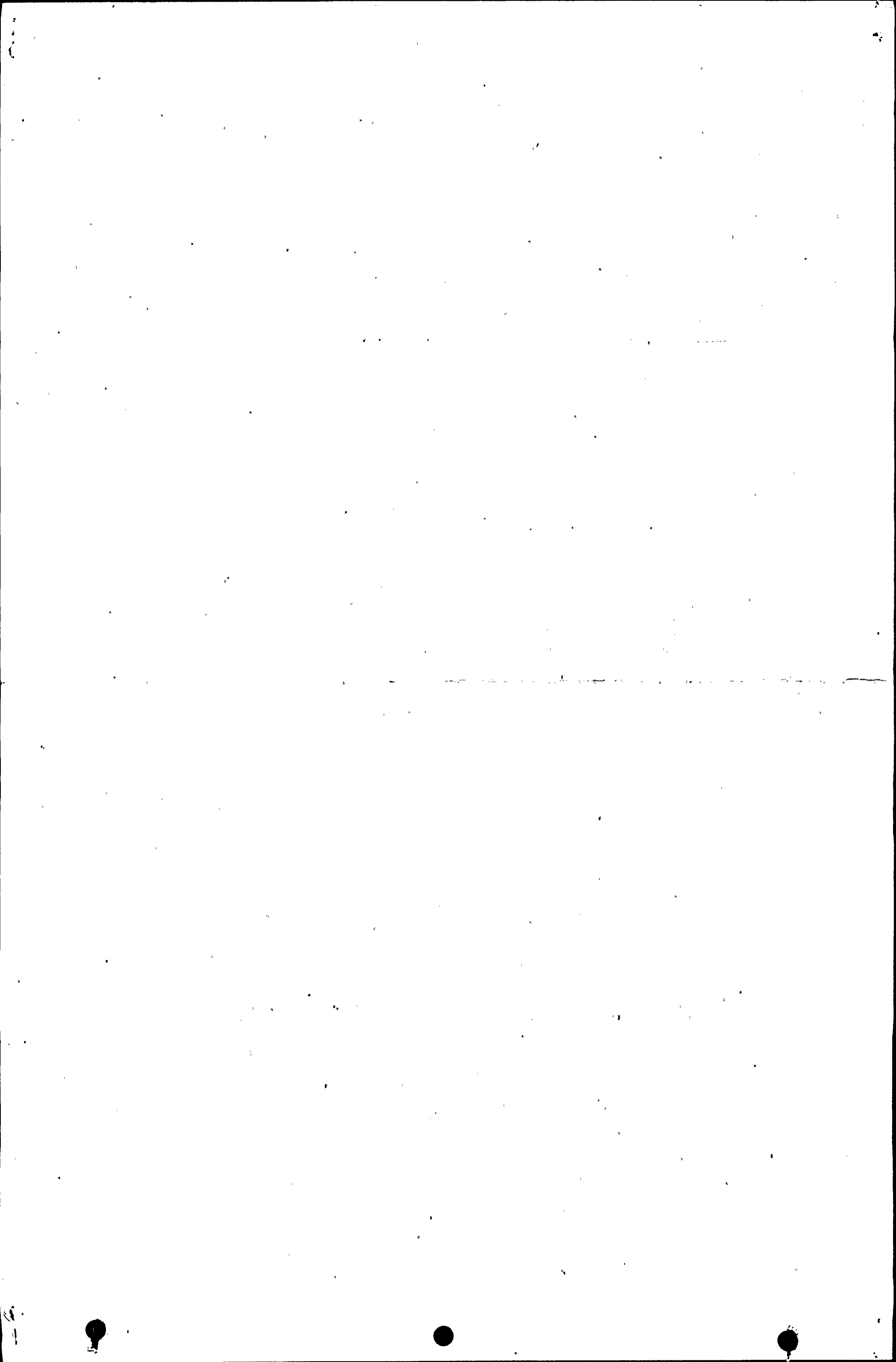
-02 ASSY, STD ASSY Δ

MARGINAL QUALITY ORIGINAL

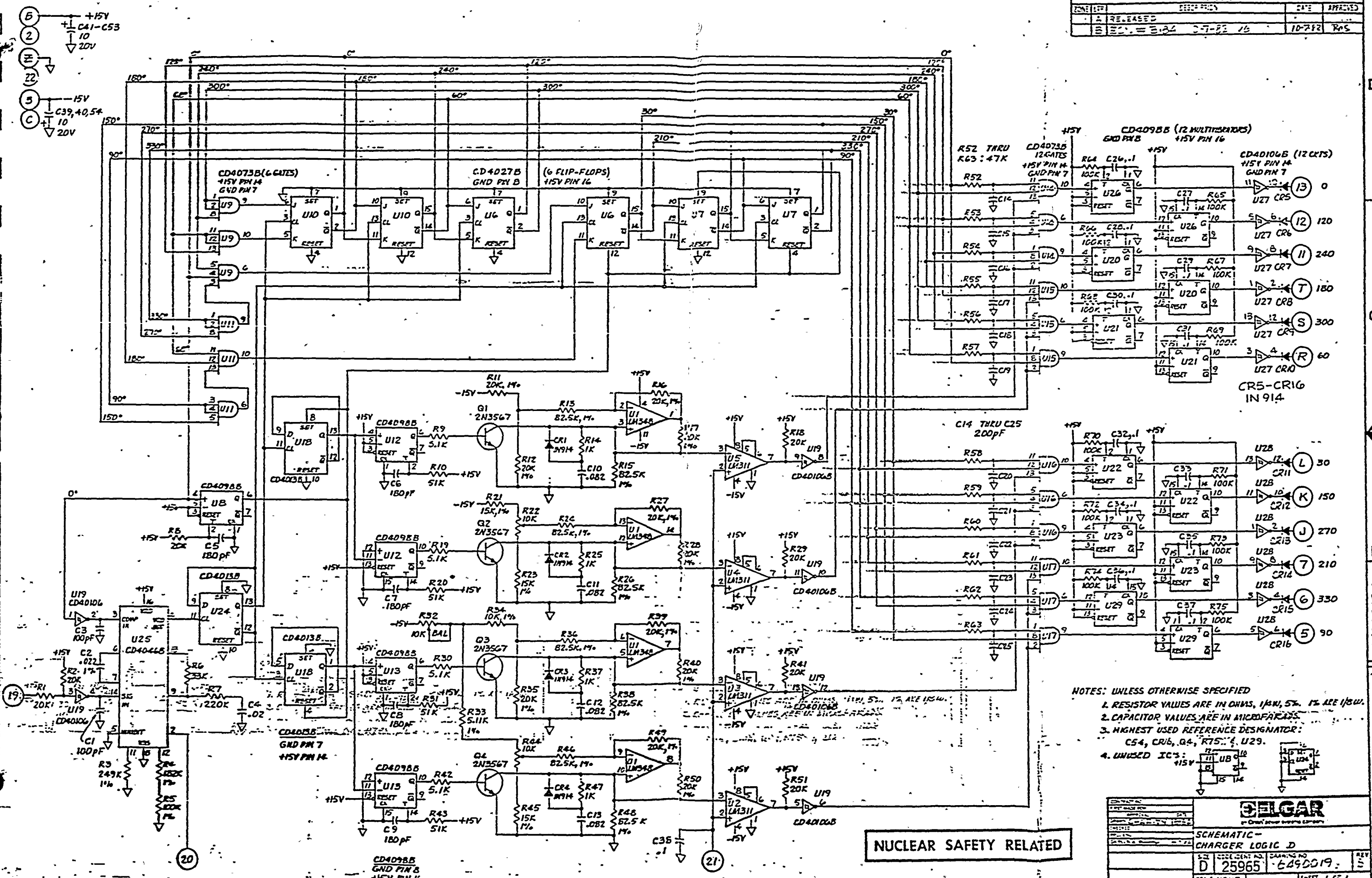
NUCLEAR SAFETY RELATED

FOR PARTS LIST SEE PL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES UNLESS OTHERWISE SPECIFIED			
DECIMALS	FRACTIONS	PC ASSY - CHARGER LOGIC A	
XX ± .01	XX ± 1/32	D 25965 5490018	
XXX ± .005	XXX ± 1/64	SCALE: 1:1	
DO NOT SCALE THIS DRAWING		DATE: 10-7-52	
MATERIAL		DRAWING NO. 5490018	
PART NO.		REV. NO.	
DESCRIPTION		DATE	
QUANTITY		BY	
APPROVED		CHECKED	
DATE		DATE	



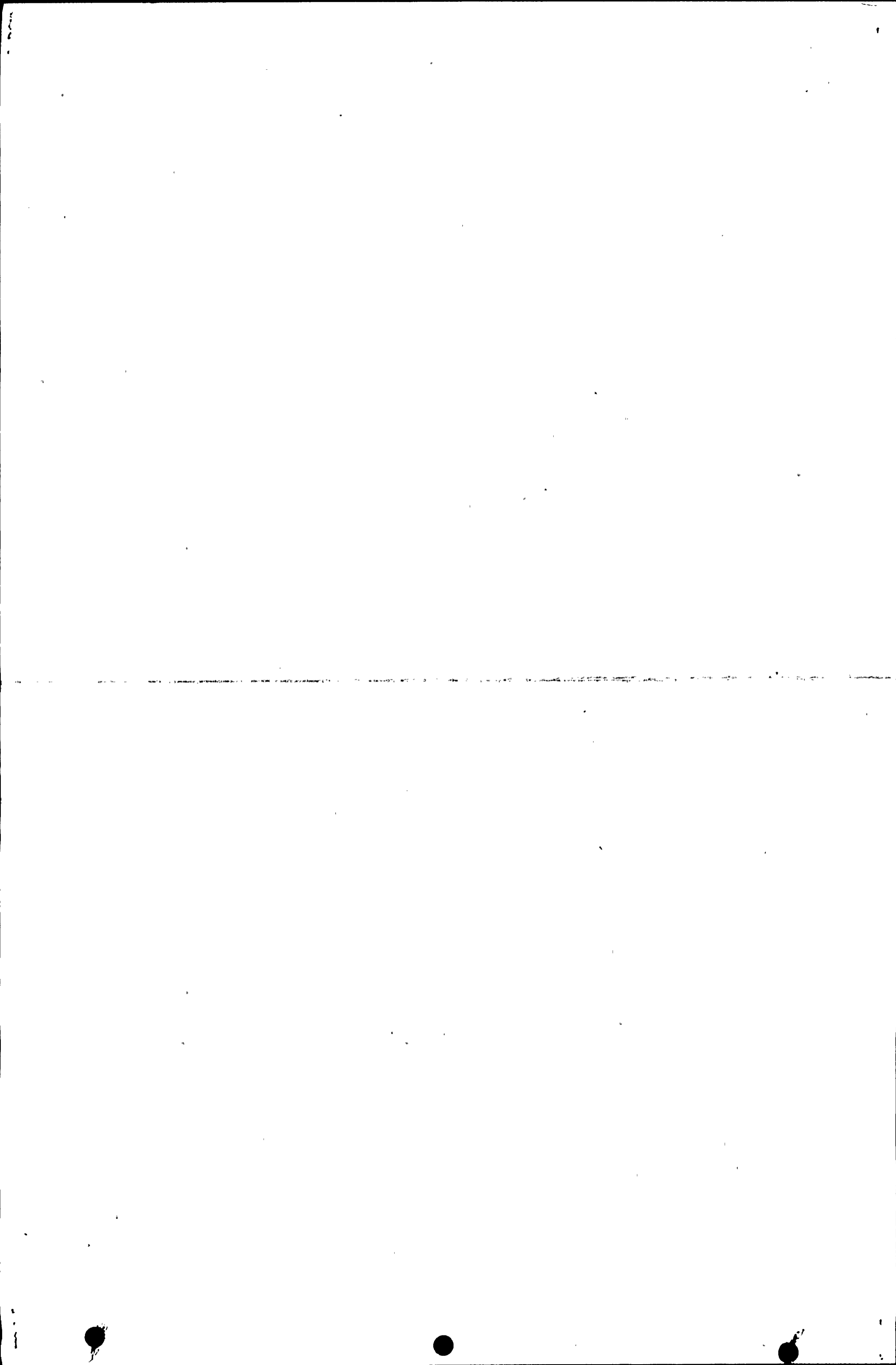
REV'S	DATE	APPROVED
1	10-7-72	ROS
2	10-7-72	ROS



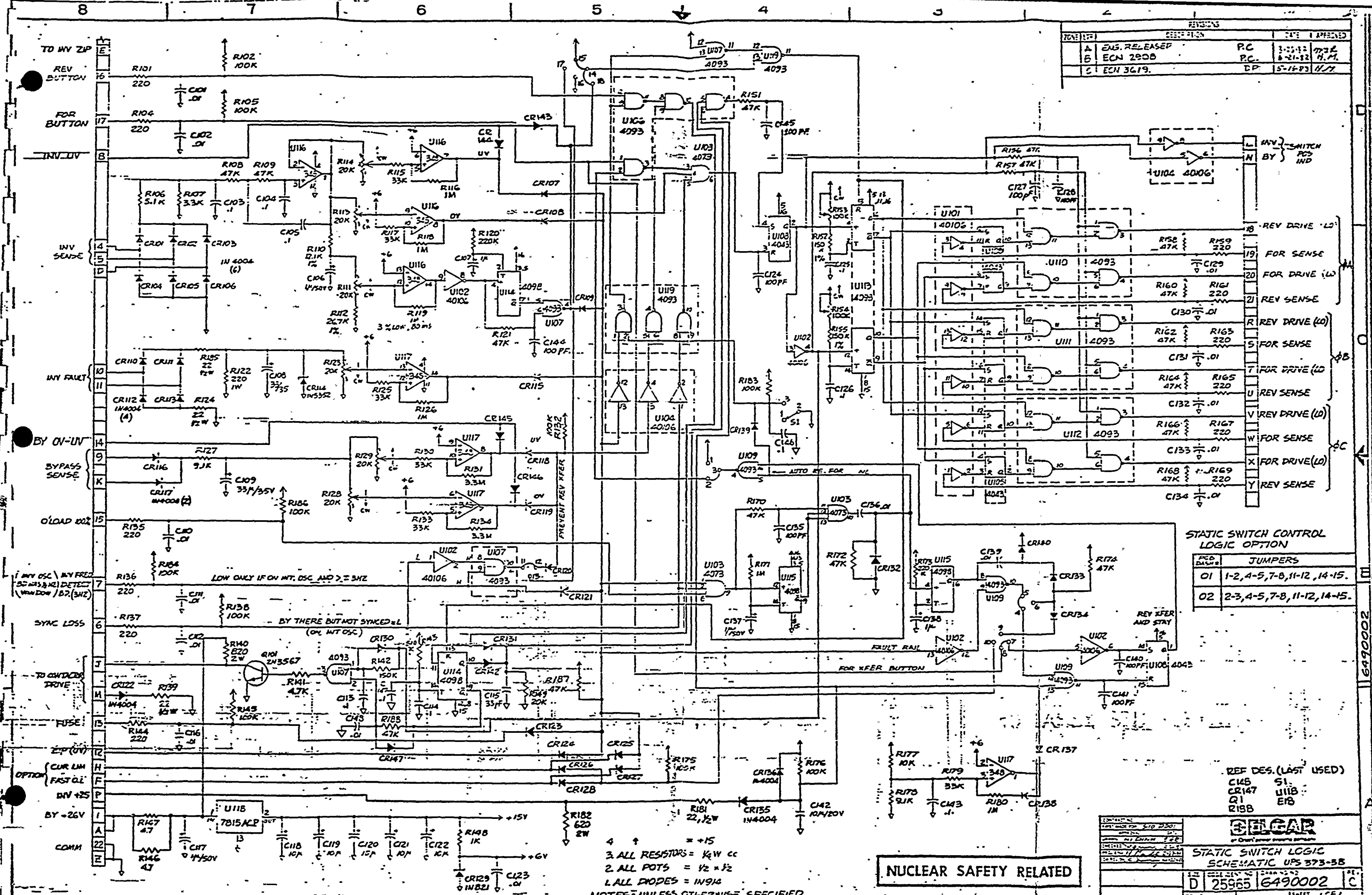
NOTES: UNLESS OTHERWISE SPECIFIED
 1. RESISTOR VALUES ARE IN OHMS, 1K, 10K, 100K, 1M, 5K, 1% ARE 1/8W.
 2. CAPACITOR VALUES ARE IN MICROFARADS.
 3. HIGHEST USED REFERENCE DESIGNATOR:
 C54, CR16, Q4, R75, U29.
 4. UNUSED IC'S:
 U10, U11, U12, U13, U14, U15, U16, U17, U18, U19, U20, U21, U22, U23, U24, U25, U26, U27, U28, U29, U30, U31, U32, U33, U34, U35, U36, U37, U38, U39, U40, U41, U42, U43, U44, U45, U46, U47, U48, U49, U50, U51, U52, U53, U54, U55, U56, U57, U58, U59, U60, U61, U62, U63, U64, U65, U66, U67, U68, U69, U70, U71, U72, U73, U74, U75, U76, U77, U78, U79, U80, U81, U82, U83, U84, U85, U86, U87, U88, U89, U90, U91, U92, U93, U94, U95, U96, U97, U98, U99, U100, U101, U102, U103, U104, U105, U106, U107, U108, U109, U110, U111, U112, U113, U114, U115, U116, U117, U118, U119, U120, U121, U122, U123, U124, U125, U126, U127, U128, U129, U130, U131, U132, U133, U134, U135, U136, U137, U138, U139, U140, U141, U142, U143, U144, U145, U146, U147, U148, U149, U150, U151, U152, U153, U154, U155, U156, U157, U158, U159, U160, U161, U162, U163, U164, U165, U166, U167, U168, U169, U170, U171, U172, U173, U174, U175, U176, U177, U178, U179, U180, U181, U182, U183, U184, U185, U186, U187, U188, U189, U190, 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NUCLEAR SAFETY RELATED

SELGAR
 SCHEMATIC - CHARGER LOGIC D
 D 25965 6490019
 SCALE NONE 1 OF 1



REVISIONS		DATE	APPROVED
A	ENS. RELEASE	P.C.	3-25-82
B	ECN 2908	P.C.	8-21-82
C	ECN 3619	D.P.	5-16-83



STATIC SWITCH CONTROL LOGIC OPTION

JUMPER	JUMPERS
01	1-2, 4-5, 7-8, 11-12, 14-15.
02	2-3, 4-5, 7-8, 11-12, 14-15.

REF DES. (LAST USED)

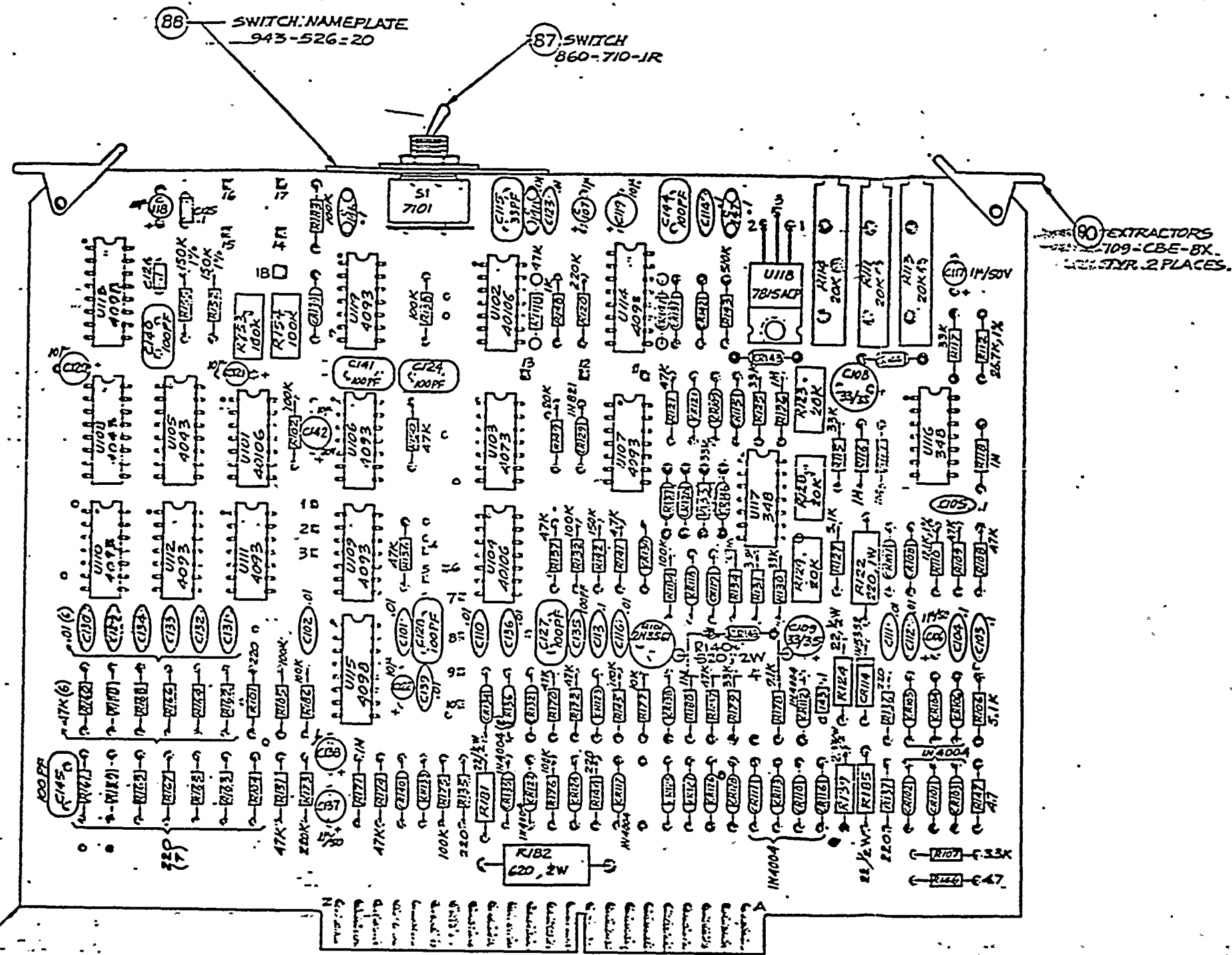
CR15	S1
CR147	U11B
Q1	E18
R18B	

4 ALL RESISTORS = 1/2 W CC
 3 ALL RESISTORS = 1/4 W CC
 2 ALL POTS = 1/2 W 1/2
 1 ALL DIODES = 1N914
 NOTES: UNLESS OTHERWISE SPECIFIED.

NUCLEAR SAFETY RELATED

EDGAR
 STATIC SWITCH LOGIC
 SCHEMATIC UPS 375-5B
 25965 649002
 15-LET 15-1

REVISIONS			
DATE	DESCRIPTION	BY	APPROVED
A	ENG. R. DEL	P.C.	3-2-72
B	ECN 2908 SEE SHEET 1 FOR CURRENT REV. LTR.	P.C.	6-21-72



STATIC SWITCH CONTROL
LOGIC OPTION.

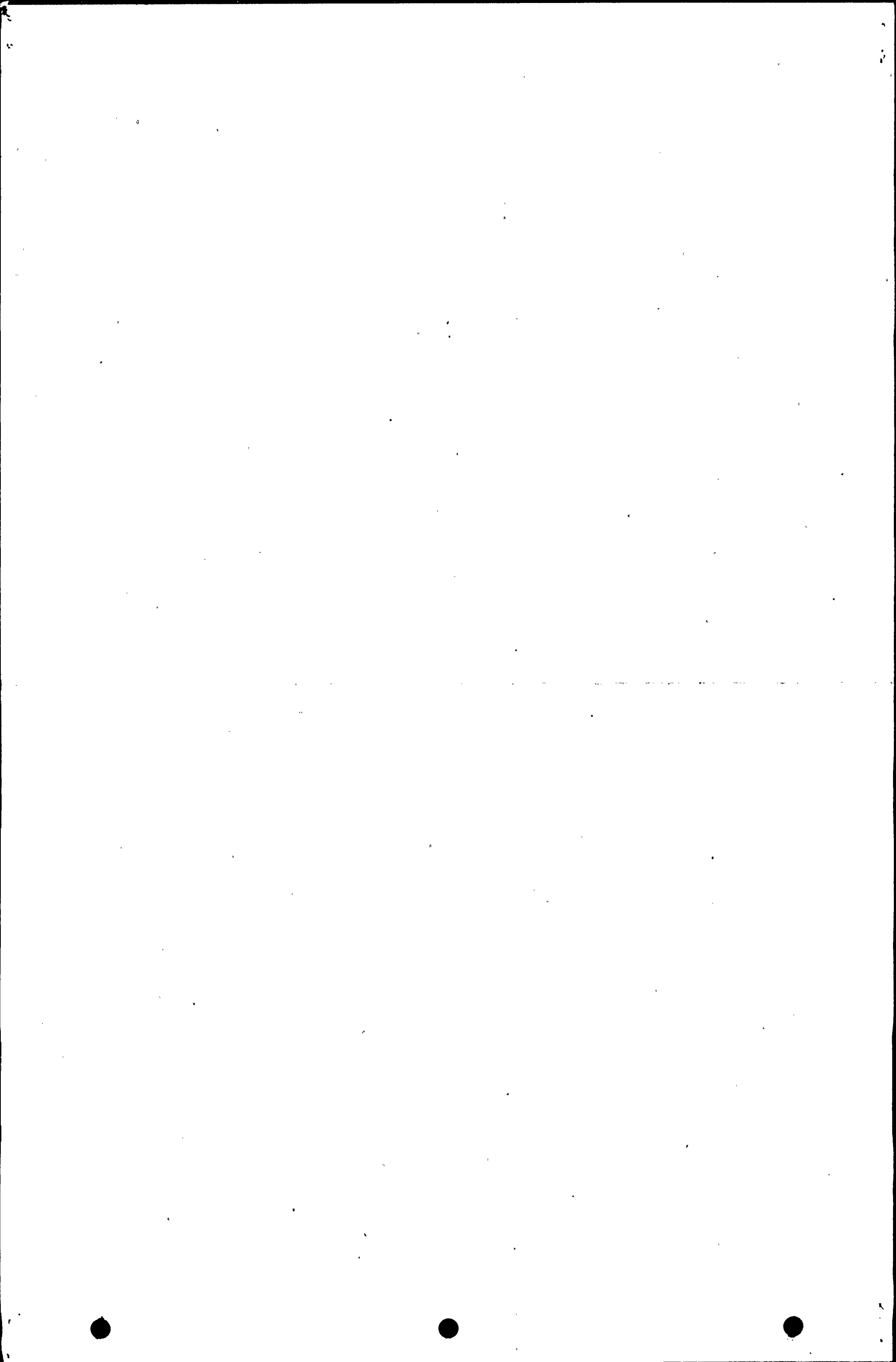
JUMPER	VALUES
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02	2-3, 4-5, 7-8, 11-12, 14-15

NUCLEAR SAFETY RELATED

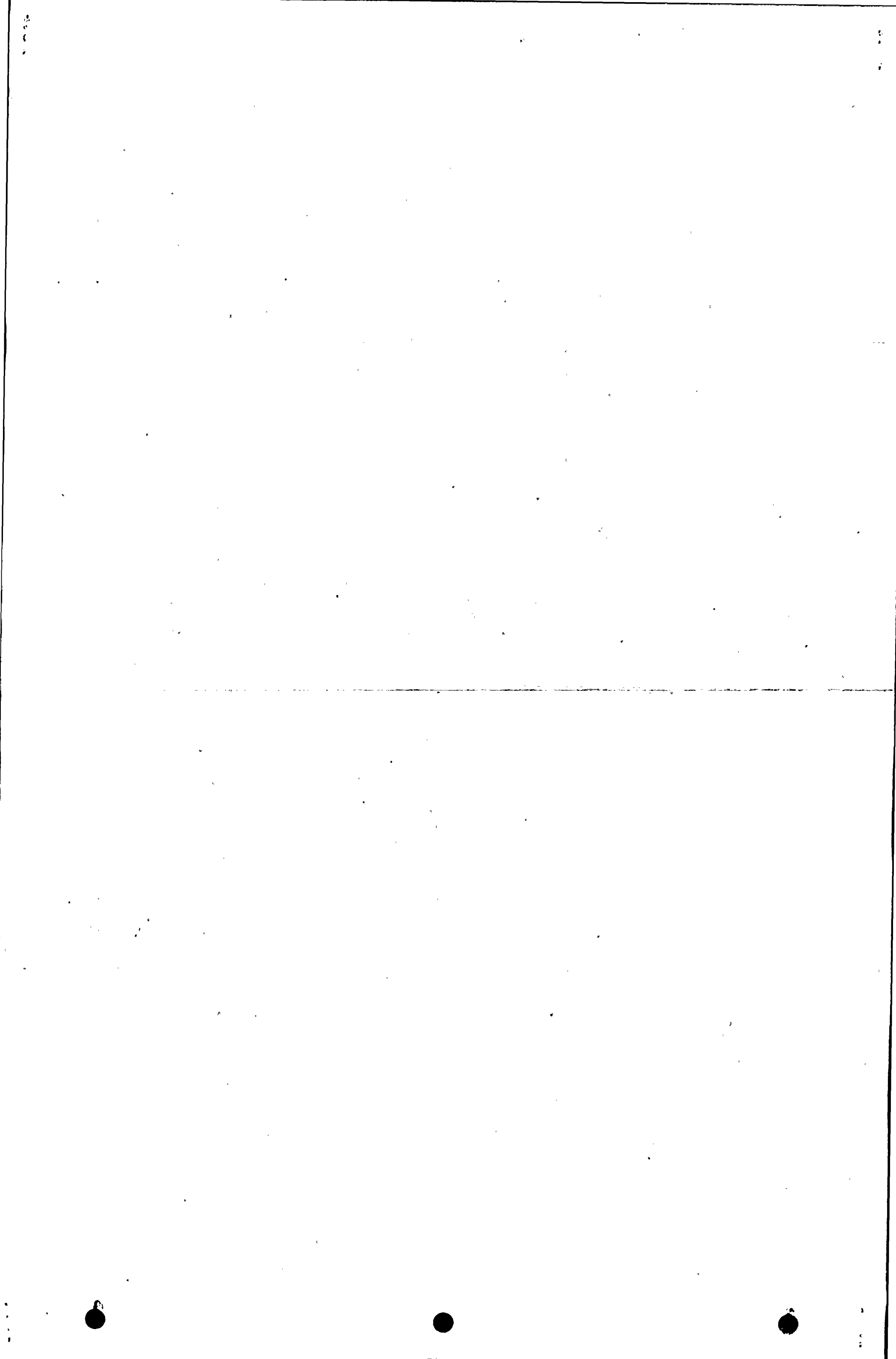
FOR PARTS LIST SEE PL

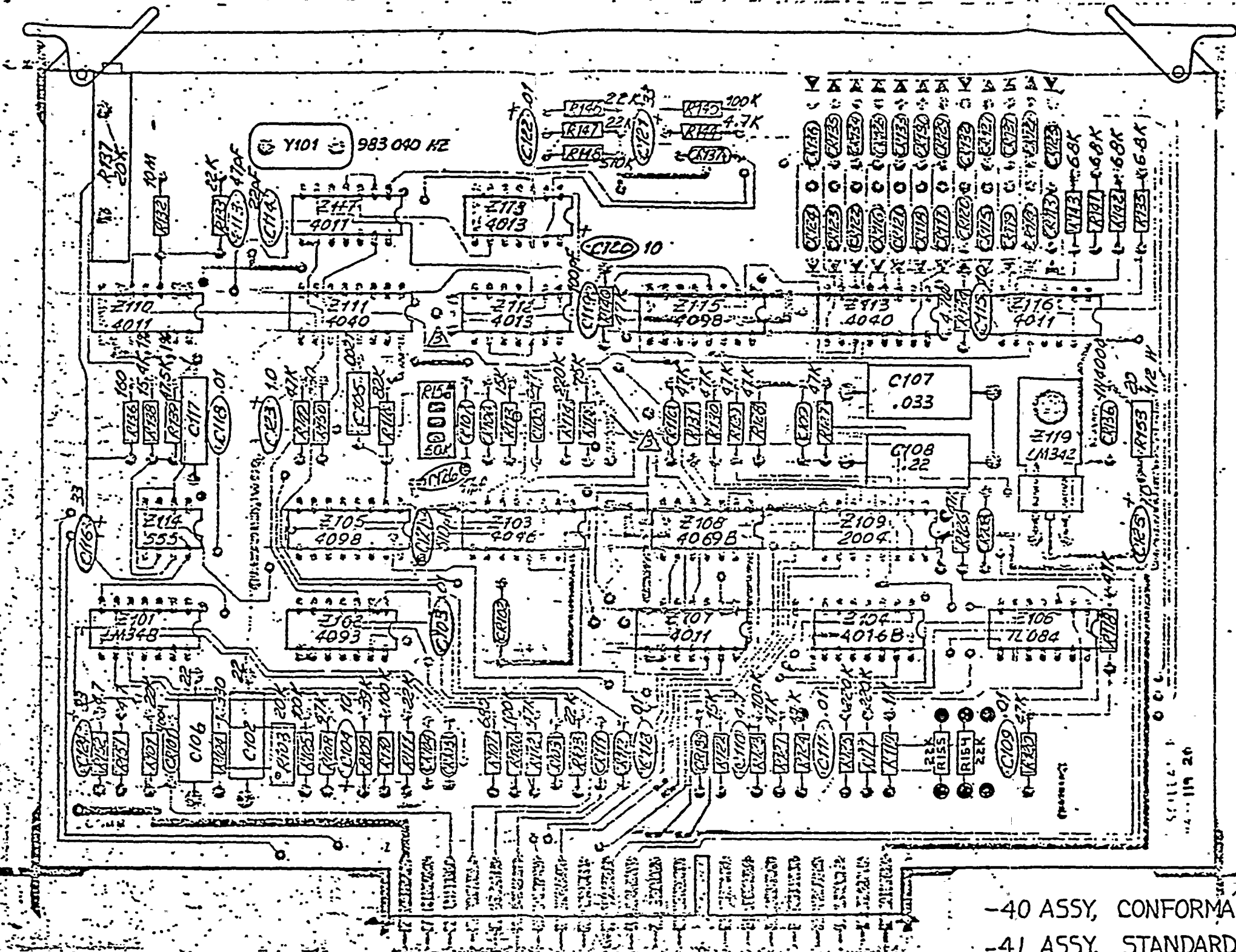
3. ASSY TO BE CONFORMAL COATED USING ELGAR SPEC NO 1005029, NO IC SOCKETS.
 2. ALL RESISTORS ARE 1/4 W
 1. ALL DIODES ARE IN914
- NOTES: UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:		CONTRACT NO. 1001	
DECIMALS	FRACTIONS	ANGLES	DATE
XX ± .01	± 1/32	± 1/2°	
XXX ± .010			
DO NOT SCALE THIS DRAWING		DRAWN BY: J. W. B. 10-24-71	
MATERIAL:		CHECKED BY: J. W. B. 10-24-71	
NEXT ASSY.	USED ON	APPROVED BY: J. W. B. 10-24-71	
APPLICATION:		DATE: 10-24-71	
FINISH:		SCALE: 2-1	
<small>THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF ELGAR CORPORATION. ANY REUSE OR REPRODUCTION OF THIS INFORMATION WITHOUT THE WRITTEN PERMISSION OF ELGAR CORPORATION IS PROHIBITED. ELGAR CORPORATION MAKES NO WARRANTY, REPRESENTATION OR AGREEMENT REGARDING THE ACCURACY, COMPLETENESS OR SUITABILITY OF THIS INFORMATION. ELGAR CORPORATION SHALL NOT BE LIABLE FOR DAMAGES OF ANY KIND ARISING FROM THE USE OF THIS INFORMATION.</small>		SIZE: D	CODE: 25965
		DRAWING NO: 5490002	D
		SHEET 5 OF 5	



REV	DATE	BY	CHKD
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2	11-22-62	WJG	WJG
3	12-10-62	WJG	WJG
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5	2-15-63	WJG	WJG
6	3-15-63	WJG	WJG
7	4-15-63	WJG	WJG
8	5-15-63	WJG	WJG
9	6-15-63	WJG	WJG
10	7-15-63	WJG	WJG
11	8-15-63	WJG	WJG
12	9-15-63	WJG	WJG
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223	4-15-81	WJG	WJG
224	5-15-81	WJG	WJG
225	6-15-81	WJG	WJG
226	7-15-81	WJG	WJG
227	8-15-81	WJG	WJG
228	9-15-81	WJG	WJG
229	10-15-81	WJG	WJG
230	11-15-81	WJG	WJG
231	12-15-81	WJG	WJG
232	1-15-82	WJG	WJG
233	2-15-82	WJG	WJG
234	3-15-82	WJG	WJG
235	4-15-82	WJG	WJG
236	5-15-82	WJG	WJG
237	6-15-82	WJG	WJG
238	7-15-82	WJG	WJG
239	8-15-82	WJG	WJG
240	9-15-82	WJG	WJG
241	10-15-82	WJG	WJG
242	11-15-82	WJG	WJG
243	12-15-82	WJG	WJG
244	1-15-83	WJG	WJG
245	2-15-83	WJG	WJG
246	3-15-83	WJG	WJG
247	4-15-83	WJG	WJG
248	5-15-83	WJG	WJG
249	6-15-83	WJG	WJG
250	7-15-83	WJG	WJG
251	8-15-83	WJG	WJG
252	9-15-83	WJG	WJG
253	10-15-83	WJG	WJG
254	11-15-83	WJG	WJG
255	12-15-83	WJG	WJG
256	1-15-84	WJG	WJG
257	2-15-84	WJG	WJG
258	3-15-84	WJG	WJG
259	4-15-84	WJG	WJG
260	5-15-84	WJG	WJG
261	6-15-84	WJG	WJG
262	7-15-84	WJG	WJG
263	8-15-84	WJG	WJG</





REV	DESCRIPTION	DATE	APPROVED
A	SEE ECN # 905, REL 1	6-13-79	M. G. ST
B	ECN # 2073	7-30-81	S. E. ST
C	ECN 2790	5-5-82	M. G. ST

-40 ASSY, CONFORMAL COAT Δ
 -41 ASSY, STANDARD \triangle

- NOTES: UNLESS OTHERWISE SPECIFIED.
1. RAISE ALL DIODES ON MATRIX, 1/8" OFF BOARD.
 2. ALL RESISTORS ARE 1/4 W, 5% CARBON COMP.
 3. BUSS WIRE JUMPER.
 4. ALL CAPACITORS ARE MICROFARADS.
 5. ALL DIODES ARE IN914.
 6. IC SOCKETS WILL BE INSTALLED - 41 ASSY ONLY
- | ITEM | DESCRIPTION | ELGAR PIN | QNTY. |
|------|------------------|------------|-------|
| 1 | 14 PIN IC SOCKET | 849-DIP-14 | 11 |
| 2 | 16 PIN IC SOCKET | 849-DIP-16 | 6 |
7. CONFORMAL COAT PER ELGAR SPEC 1005029. (-40 ASSY ONLY).
 8. FOR SCHEMATIC SEE DWG 643-119-6X.
 9. IDENTIFY APPLICABLE DASH NO & REV.

MARGINAL QUALITY ORIGINAL
 NUCLEAR SAFETY RELATED

CONTRACT NO.		FIRST MADE FOR:	
APPROVAL	DATE	APPROVAL	DATE
DRAWN	CTG	11-30-78	
CHECKED	G. Davis	11-30-78	
PROJ ENG.	V. J. S. / K.	11-30-78	
QA-REL	A. C. / D.	13-13-78	

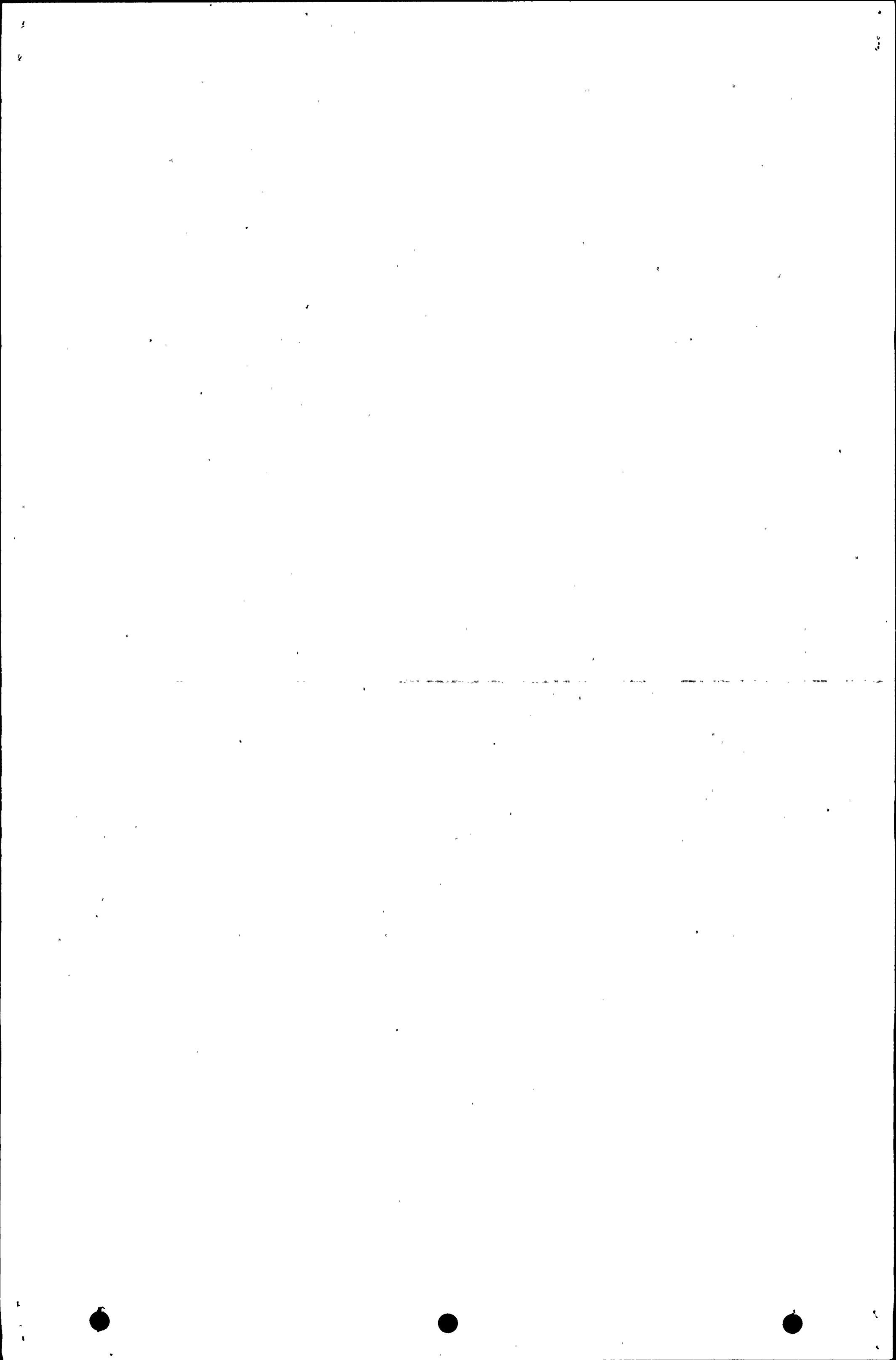
FOR PARTS LIST SEE PL

ELGAR CORPORATION
 SAN DIEGO, CALIFORNIA

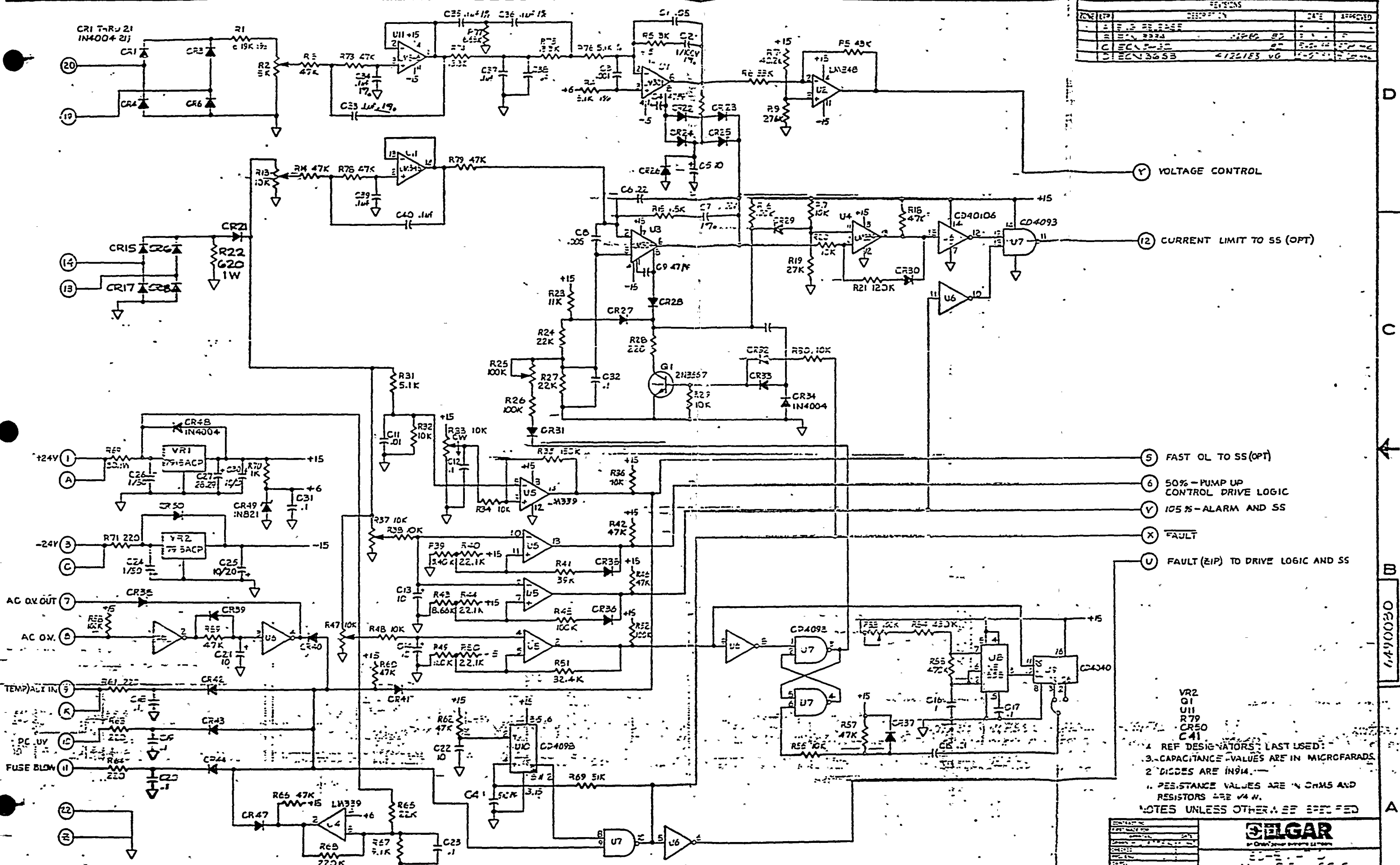
OSCILLATOR PCB ASSY
 ±.5 HZ FIXED

SIZE	CODE	IDENT NO	DRAWING NO	REV
C.	25965		643-119-40	C

SCALE 2/11 SHEET 1 OF 1



REV	DATE	DESCRIPTION	BY	CHKD
1	11-22-66	ISSUED	...	...
2	12-22-66	...	...	...
3	...	...	...	...
4	...	...	...	...



- (5) FAST OL TO SS (OPT)
- (6) 50% - PUMP UP CONTROL DRIVE LOGIC
- (Y) 105% - ALARM AND SS
- (X) FAULT
- (U) FAULT (ZIP) TO DRIVE LOGIC AND SS

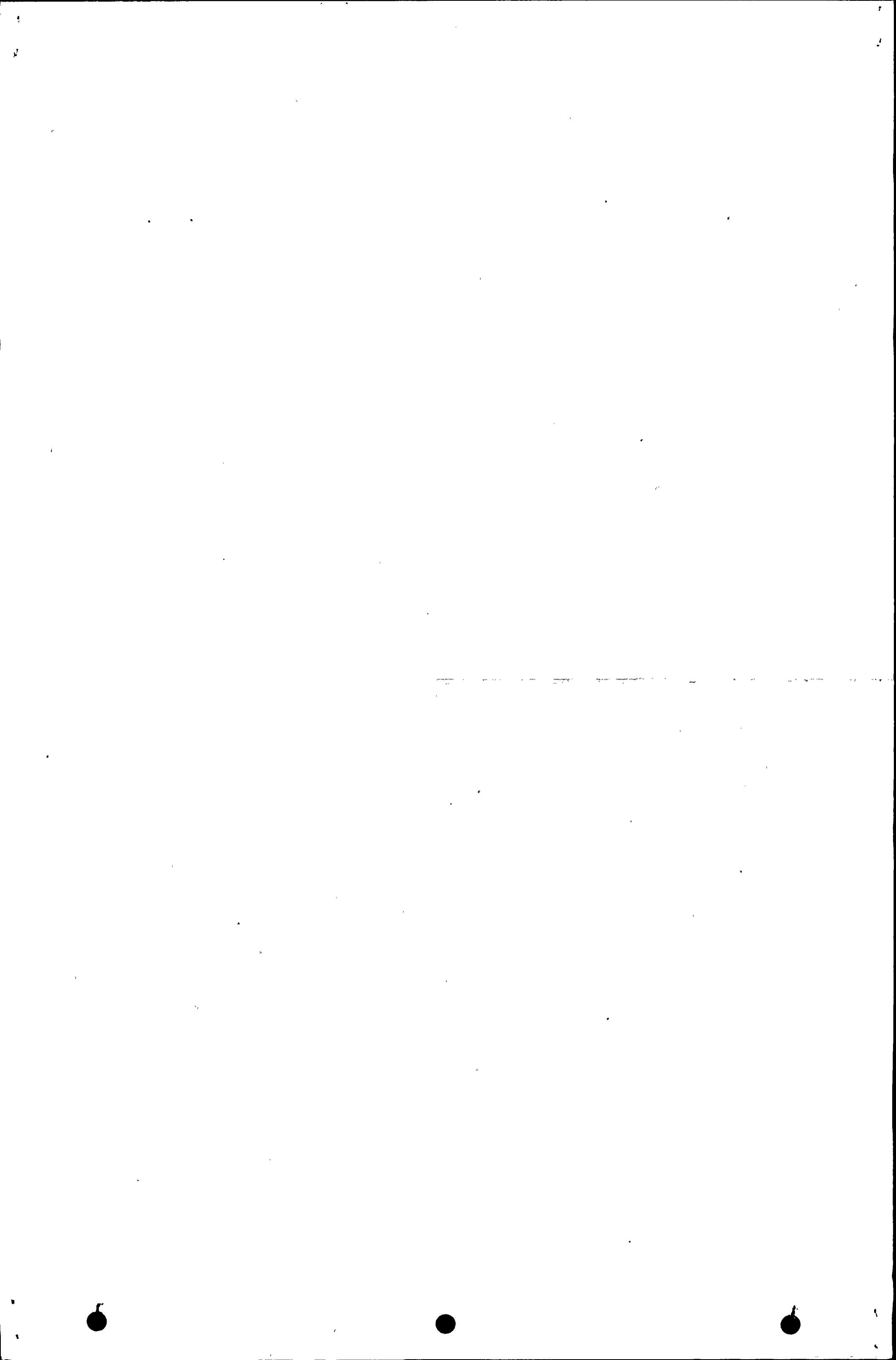
VR2
G1
U11
R79
CR50
C41

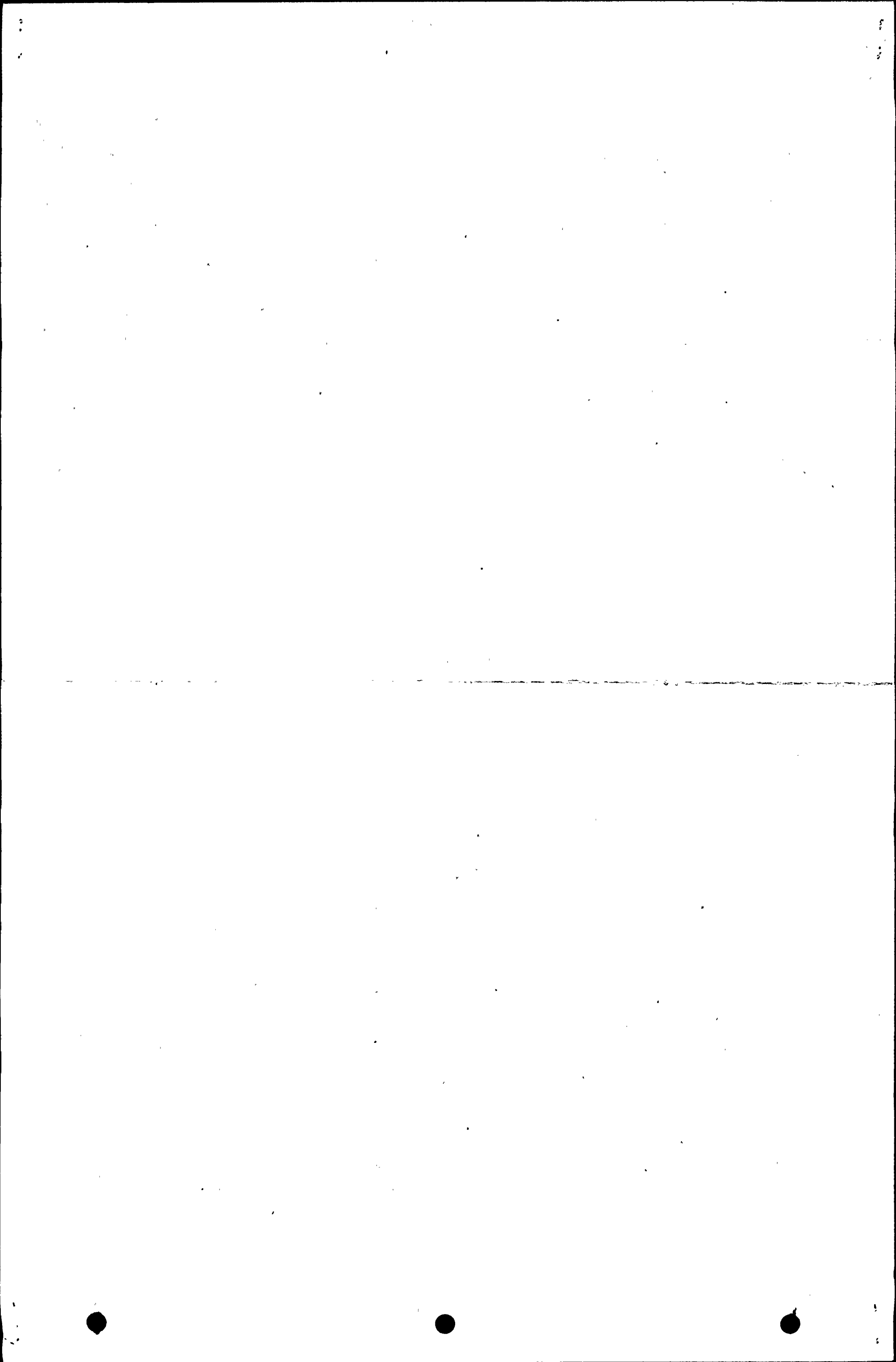
4 REF DESIGNATORS LAST USED:
3. CAPACITANCE VALUES ARE IN MICROFARADS
2. DIMS ARE IN INCHES
1. RESISTANCE VALUES ARE IN OHMS AND RESISTORS ARE 1/4 W.
NOTES UNLESS OTHERWISE SPECIFIED

NUCLEAR SAFETY RELATED

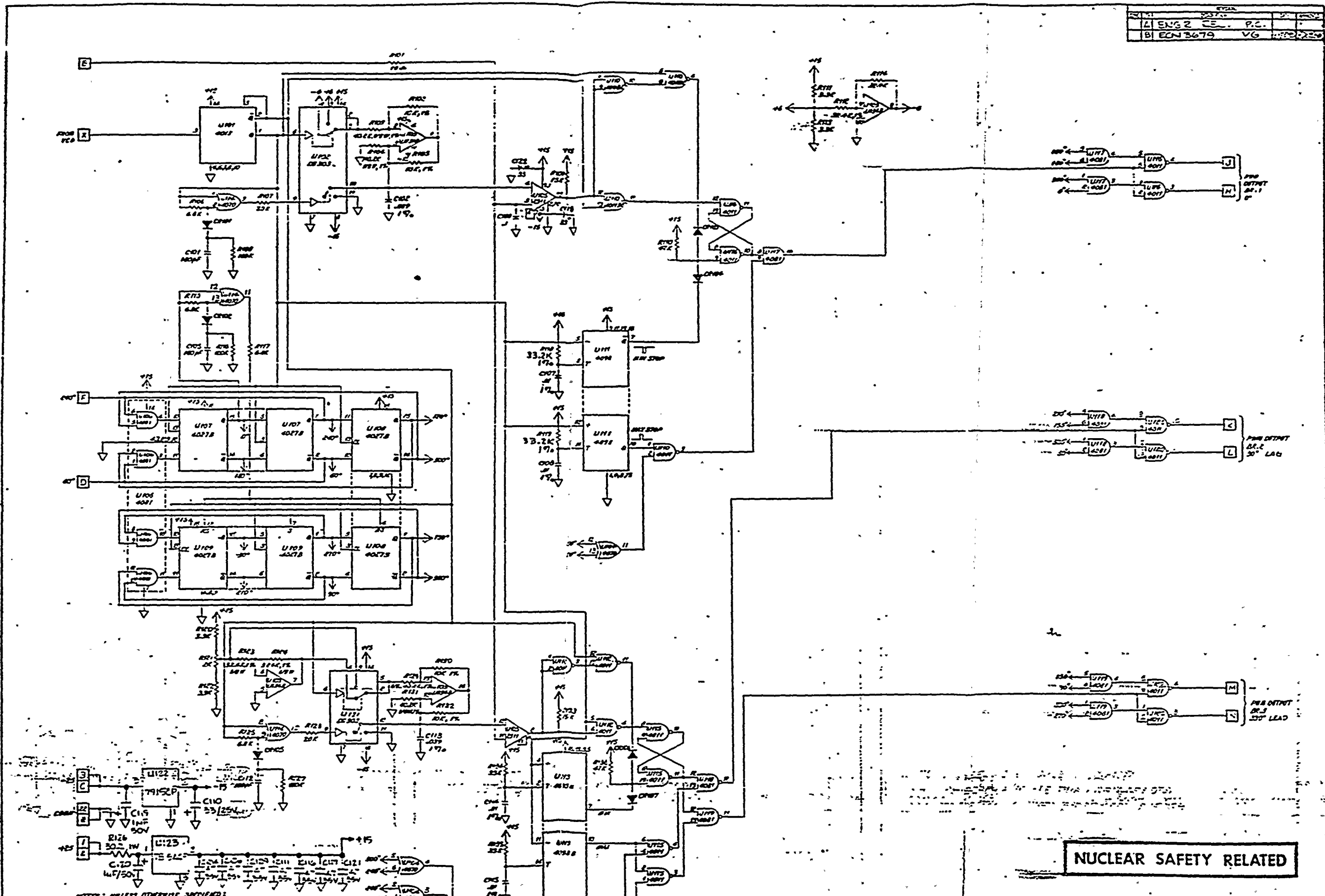
CELGAR an Orkin Group Company			
DATE	REV	SCALE	BY
D 25965	1	1:1	...

1490030





REV	DATE	BY	CHKD
1	ENG 2	CE	P.C.
2	ECN 3679	VG	10/20/70



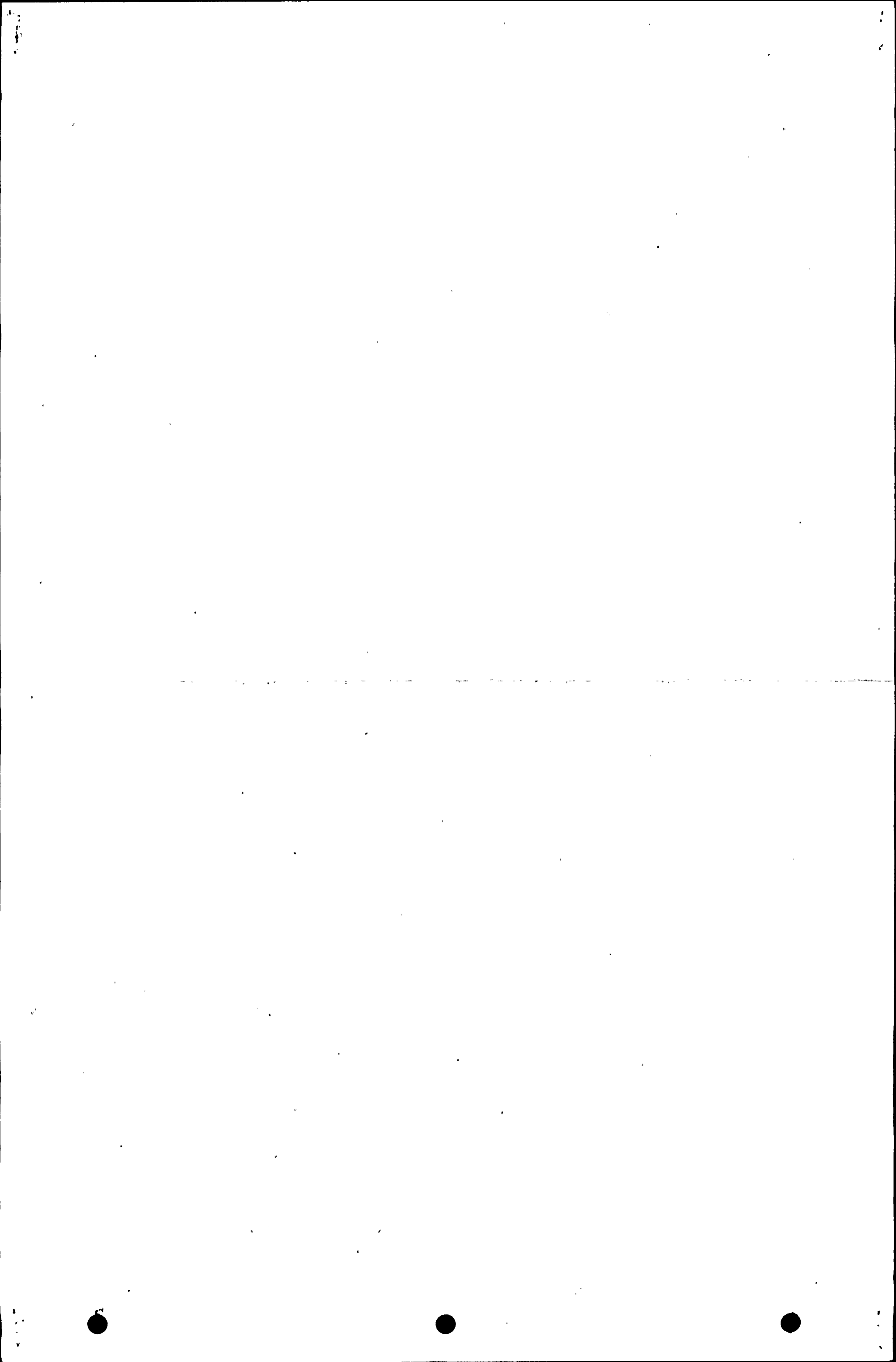
- NOTES: UNLESS OTHERWISE SPECIFIED:
1. ALL DIODES ARE 1N914.
 2. ALL RESISTORS ARE 1/4 W. 5% CARBON COMP.
 3. CAPACITANCES ARE IN MICRO FARADS.
 4. LIKE WAVING ANGLES (150°) CONNECT TOGETHER.
 5. FOR DISCONNECTION BOND EXTERIOR MOUNTING CAPS ONLY.
 6. REF DES - LAST USED: C122, C123, R126, U123.

MARGINAL QUALITY ORIGINAL

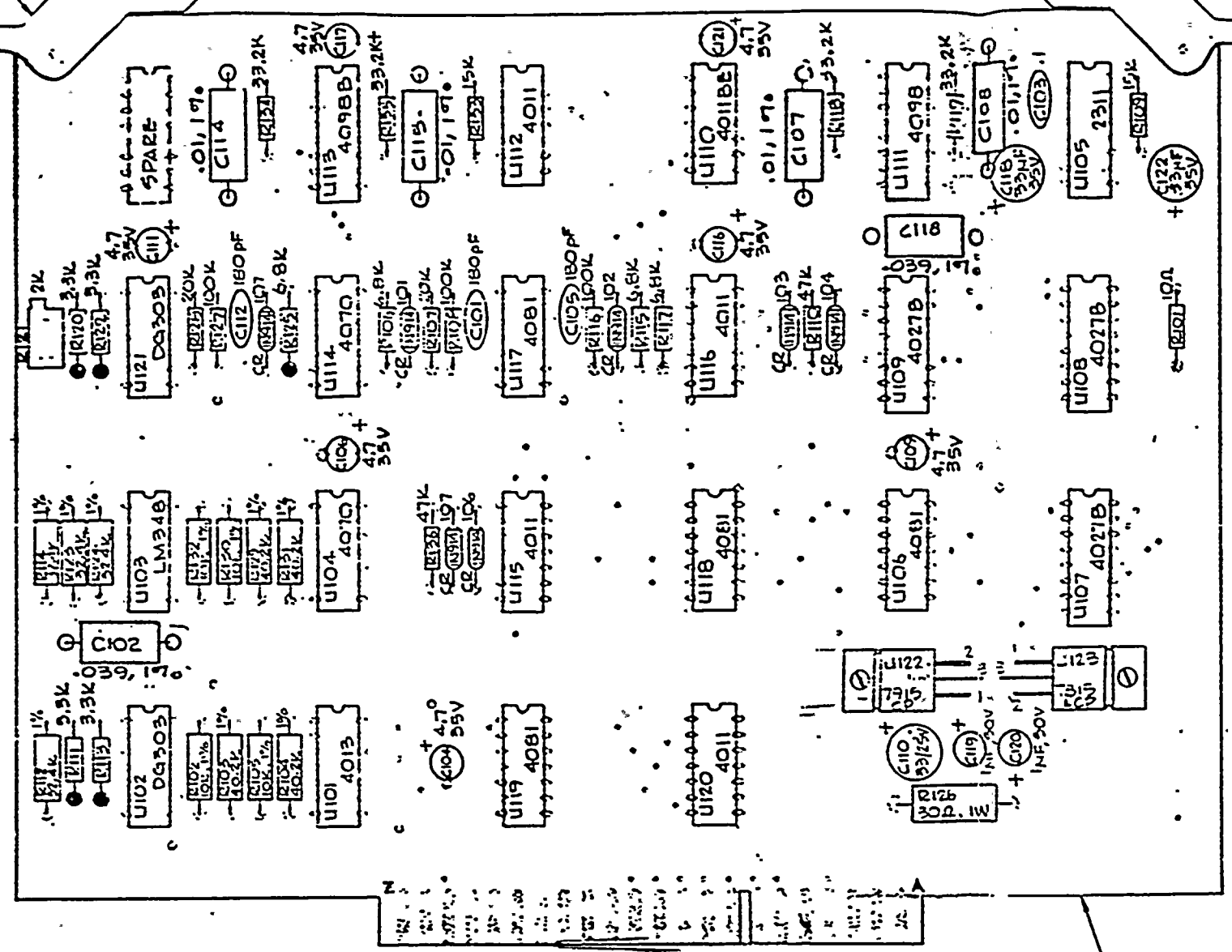
NUCLEAR SAFETY RELATED

FOR PARTS LIST SEE PL.

GELAR CORPORATION	
IC BRIDGE	
PNM LOGIC	
QTY	REV
1	25955
1	6430014
	B



A ENS'D ZEL.
 B SEE SH. 1
 C SEE SH. 1
 D



1. -J1 ASSY TO BE CONFORMAL COATED USING ELGAR 4PEC 005023. NO IC SOCKETS USED.

- 2. CAPACITANCES ARE IN MICROFARADS.
- 3. ALL RESISTORS ARE 1/4W, 5%, CARBON COMP.
- 4. ALL CODES ARE MARK.

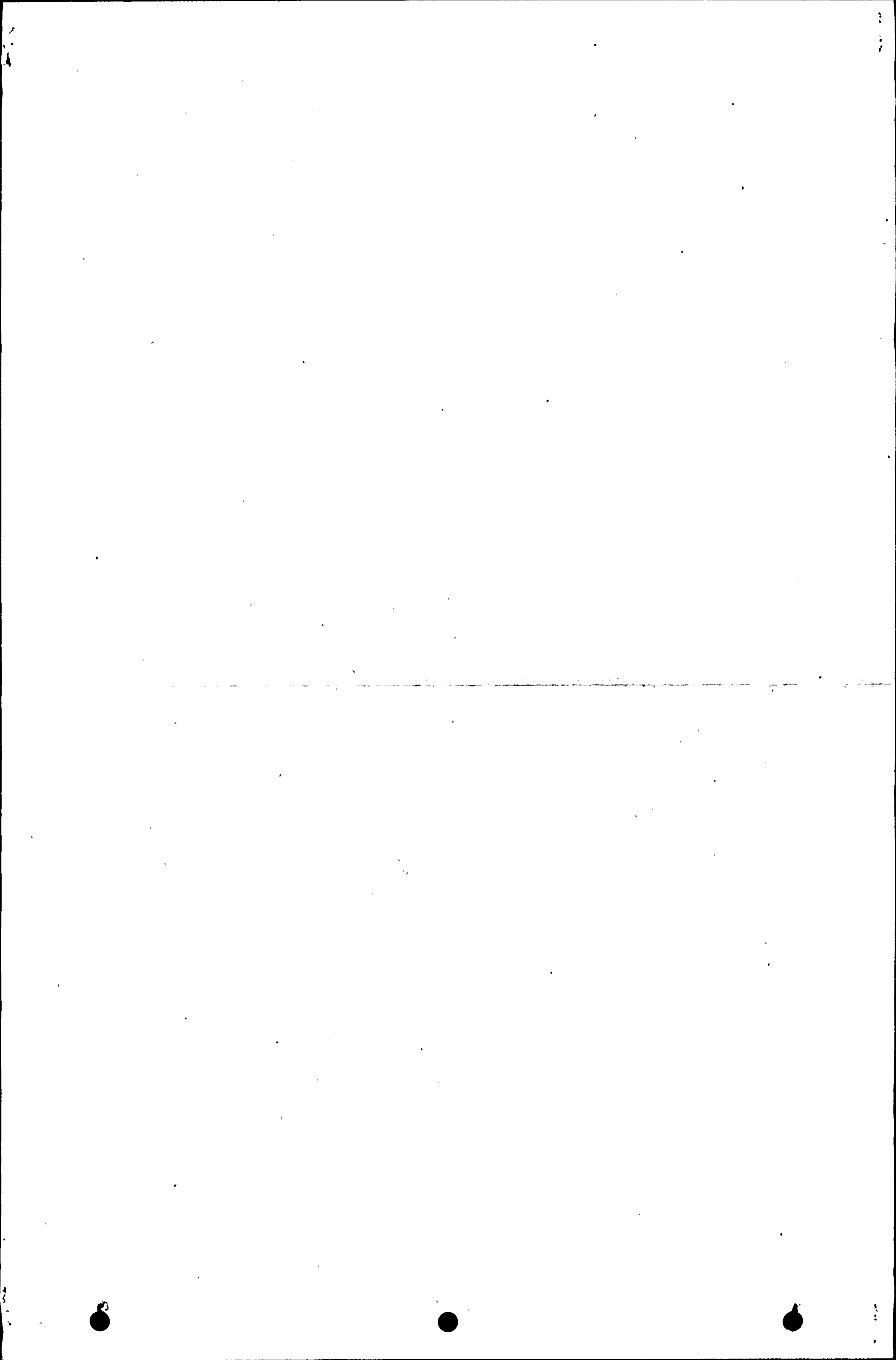
NOTES: (UNLESS OTHERWISE SPECIFIED)

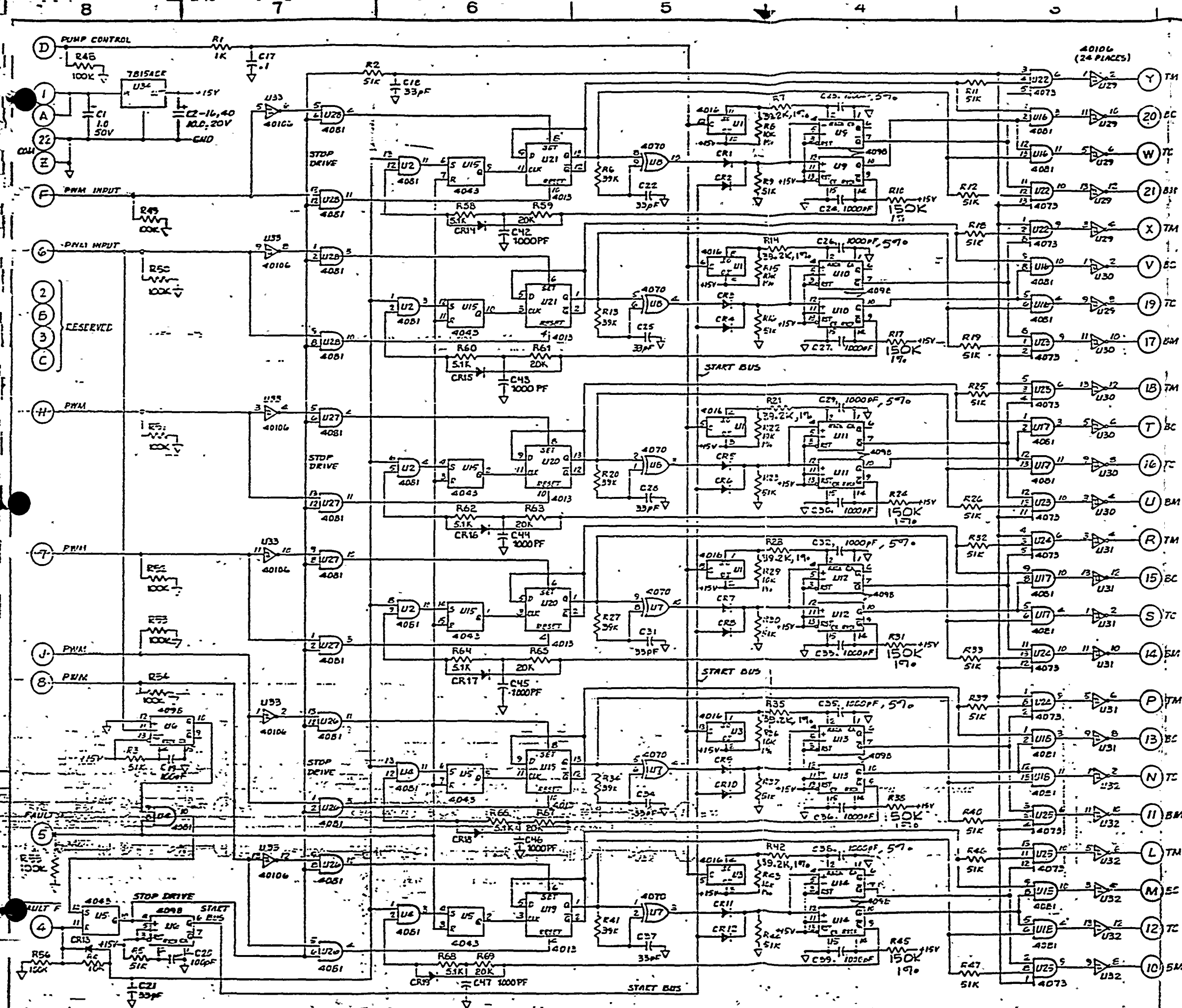
NUCLEAR SAFETY RELATED

S.O. 4178
 CHARITY 1-BZ
 ASSY.
 103 BRIDGE, 2WM LOGIC

5490014 REV D

5490014

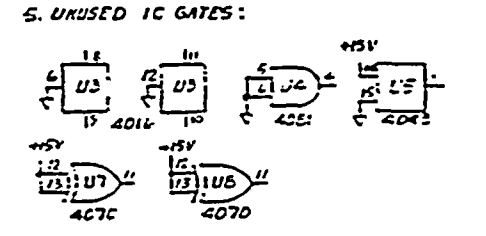




REV	DESCRIPTION	DATE	APPROVED
A	ENG 2 DEL	05-24-72	
B	EN 2908	05-24-72	
C	EN 3227	05-24-72	
D	EN 3536	05-24-72	
E	EN 3751	05-24-72	

- NOTES: UNLESS OTHERWISE SPECIFIED
1. RESISTOR VALUES ARE IN OHMS, 5%.
 2. CAPACITOR VALUES ARE IN MICROFARADS.
 3. DIODES ARE TYPE IN4148.
 4. IC VOLTAGE (GND PINS):

IC TYPE	REFERENCE DESIGNATOR	PIN#	PINS TO GND
ICD4013	U19, 20, 21	1, 4, 7	
ICD4016	U1, 3	1, 4, 7	
ICD4043	U2, 15	1, 4, 7	
ICD4070	U7, 8	1, 4, 7	
ICD40131	U22, 23, 24, 25	1, 4, 7	
ICD40132	U2, 4, 14, 17, 18, 26, 27, 28	1, 4, 7	
ICD4091	U3, 9, 10, 11, 12, 13, 16	1, 4, 7	
ICD4016	U23, 25, 21, 32, 33	1, 4, 7	



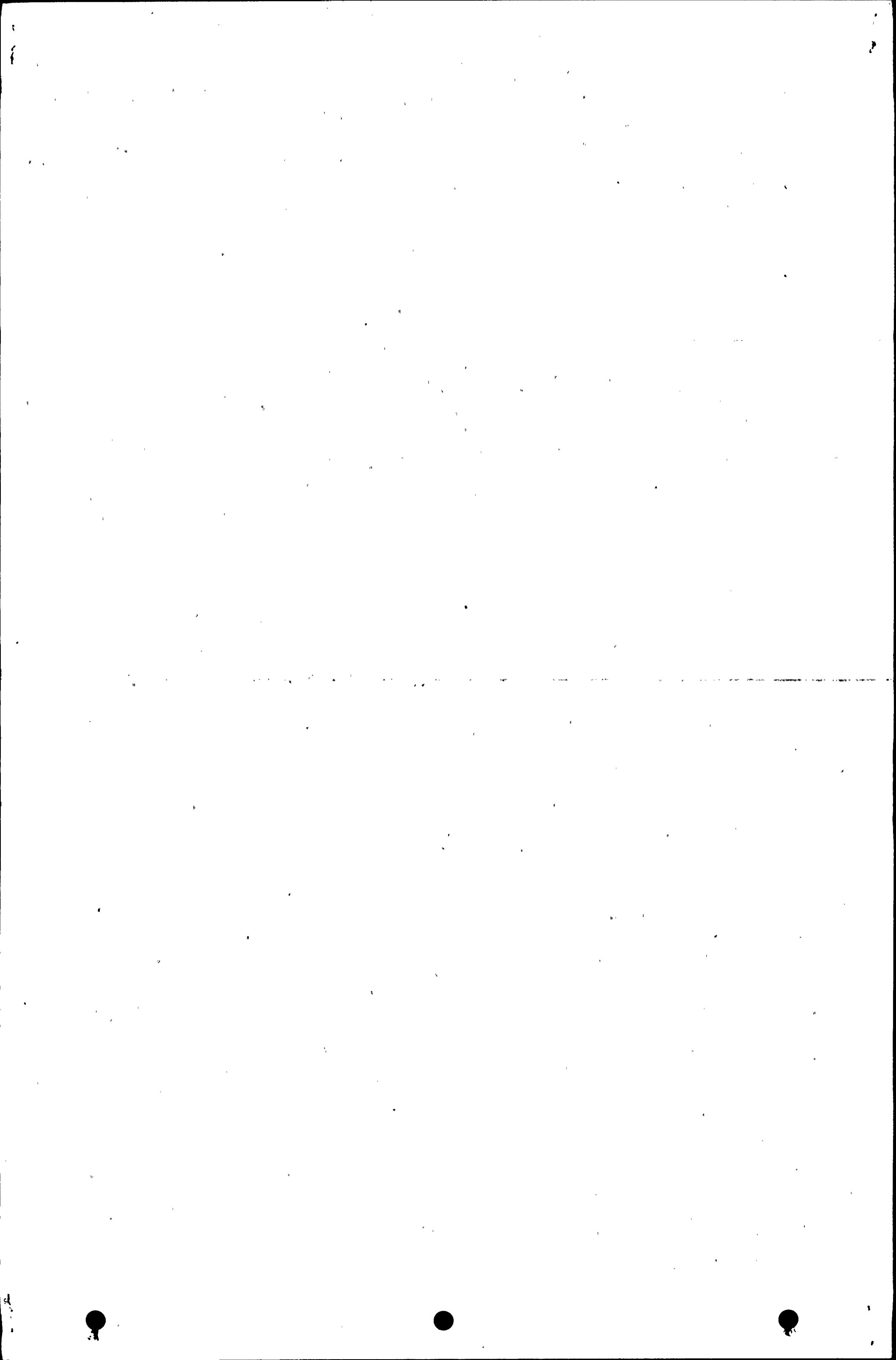
6. HIGHEST USED REFERENCE DESIGNATOR: C47, CR19, R69, U34

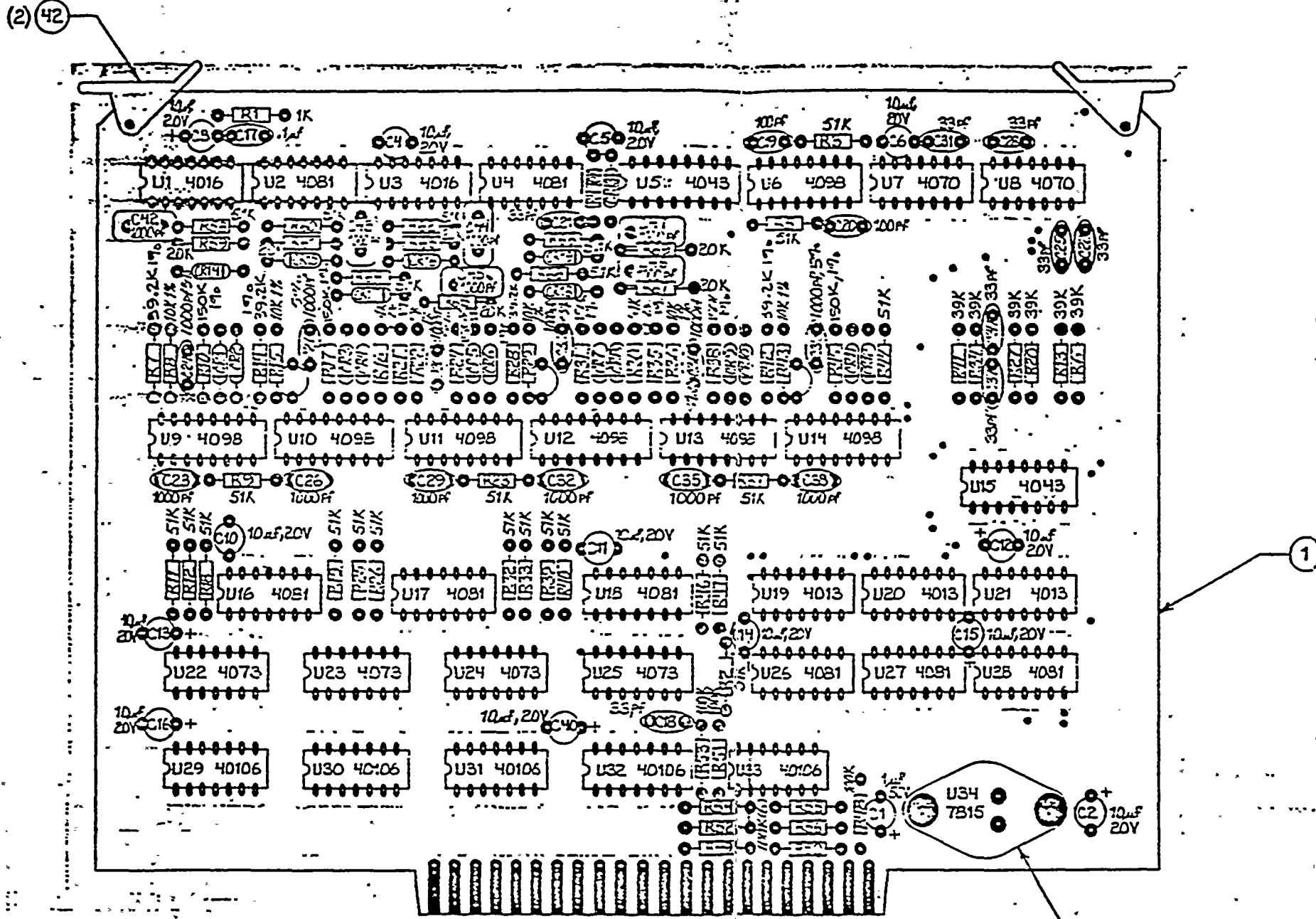
NUCLEAR SAFETY RELATED

DELGAR
SCHEMATIC DRIVER LOGIC

SIZE: D 25965 DRAWING NO: 6450001 REV: 1

SCALE: NONE 15-LET 1 OF 1





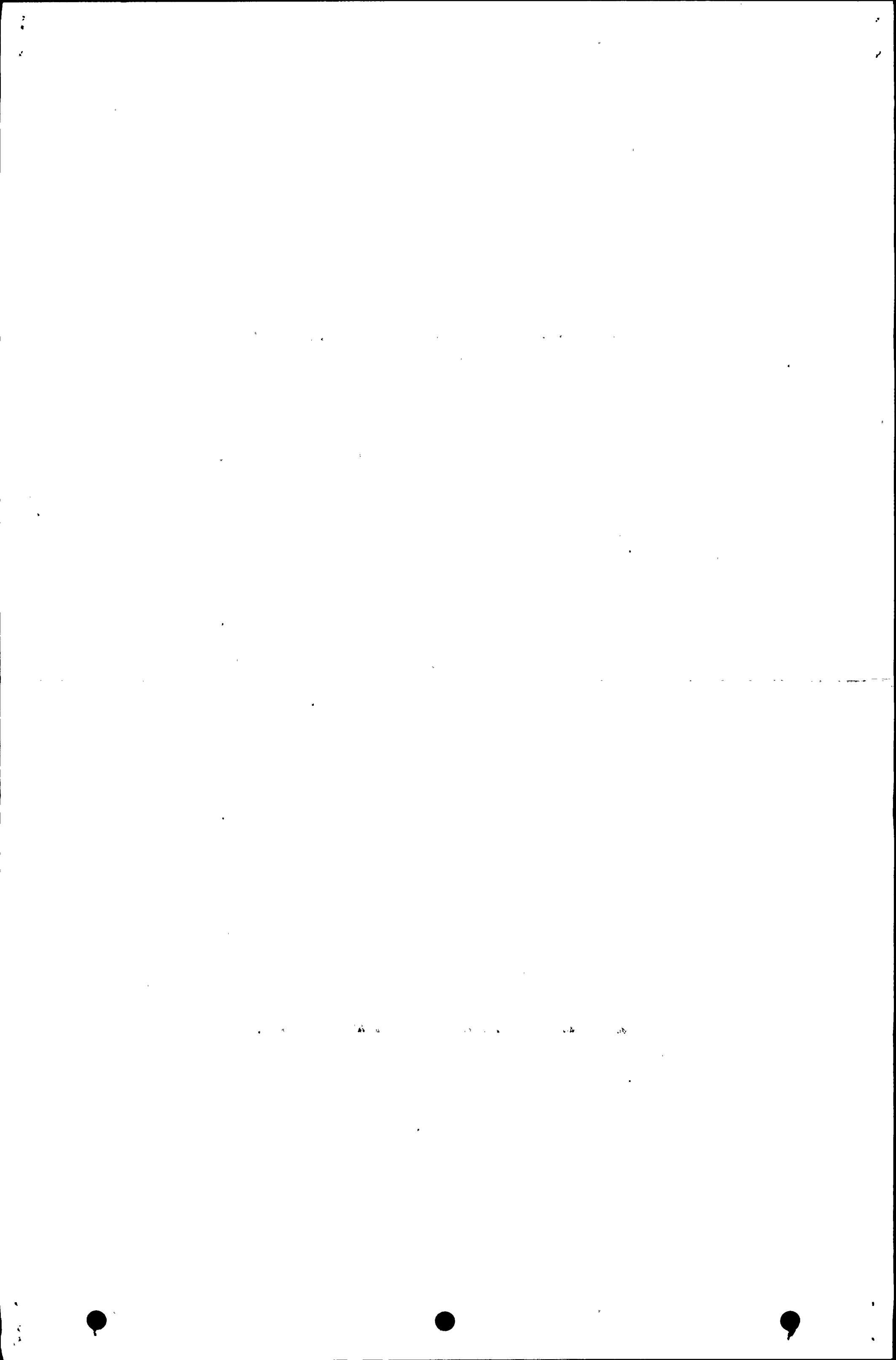
INSTALL USING 4-40 HARDWARE.
INSTALL #4 WASHER BETWEEN
U34 & PCB.

NUCLEAR SAFETY RELATED

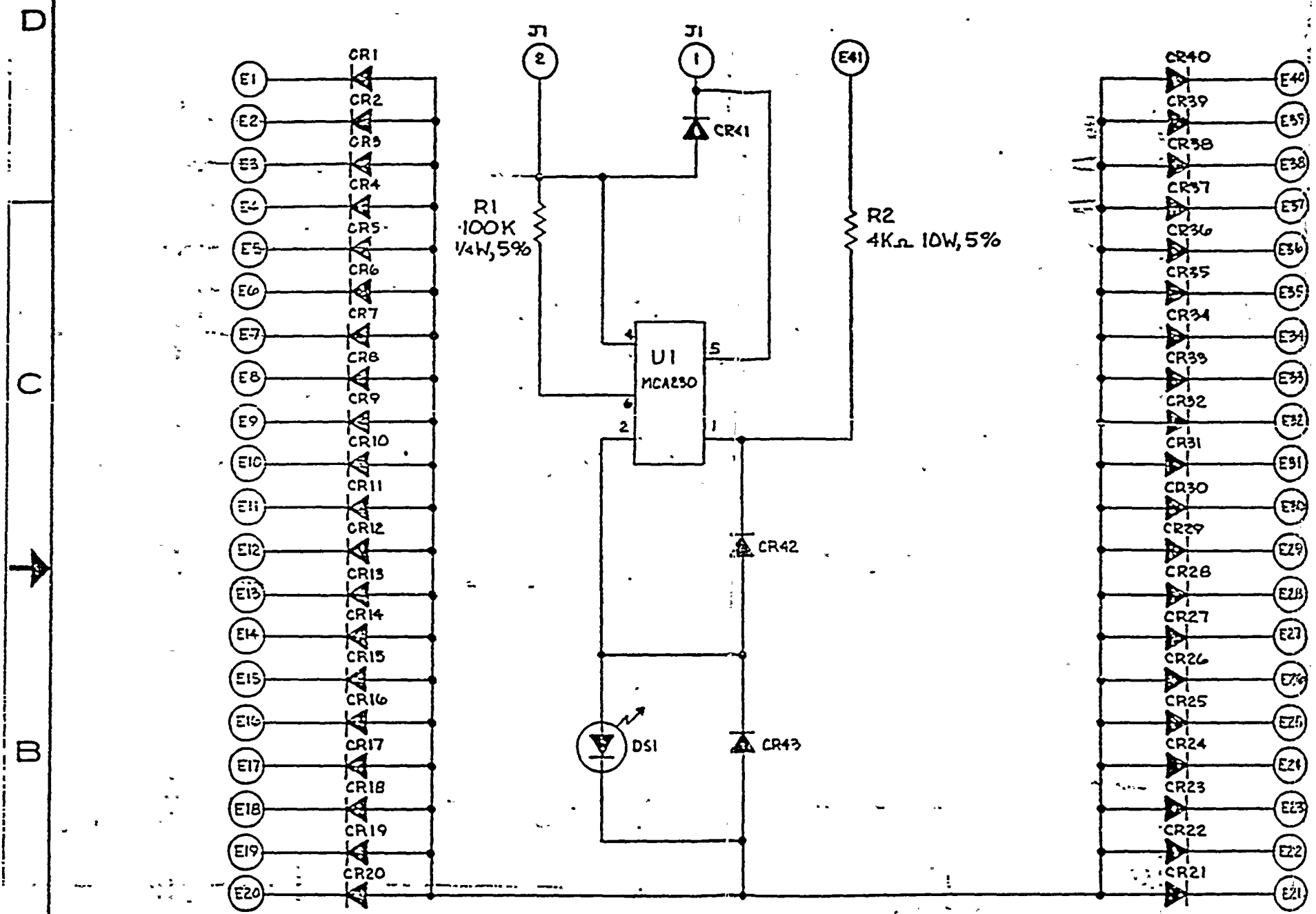
- 3. CONFORMAL COAT PER ELGAR SPEC 1005023.
 - 2. STAMP PCB WITH DASH NO & REV LETTER.
 - 1. FOR SCHEMATIC SEE DWG 6490001.
- NOTES: UNLESS OTHERWISE SPECIFIED.

MARGINAL QUALITY ORIGINAL


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON		CONTRACT NO.			
DECIMALS FRACTIONS ANGLES		DATE			
XX ± .03 ± .12 ± 1°		DRAWN: [UNRECOGNIZABLE]		PC ASSEMBLY - DRIVER LOGIC	
DO NOT SCALE THIS DRAWING		CHECKED: [UNRECOGNIZABLE]		SCALE: 1:1	
MATERIAL		DATE: [UNRECOGNIZABLE]		SIZE: D	
NEXT ASSY		USED ON		CODE IDENT NO: 25965	
APPROVAL		DATE		DRAWING NO: 5490001	
<small>THE INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS ELECTRONIC OR MECHANICAL INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.</small>		<small>THIS DRAWING IS THE PROPERTY OF ELGAR CORPORATION. IT IS TO BE USED ONLY FOR THE PROJECT AND FOR WHICH IT WAS PREPARED. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS ELECTRONIC OR MECHANICAL INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.</small>		<small>SCALE: 1:1</small>	



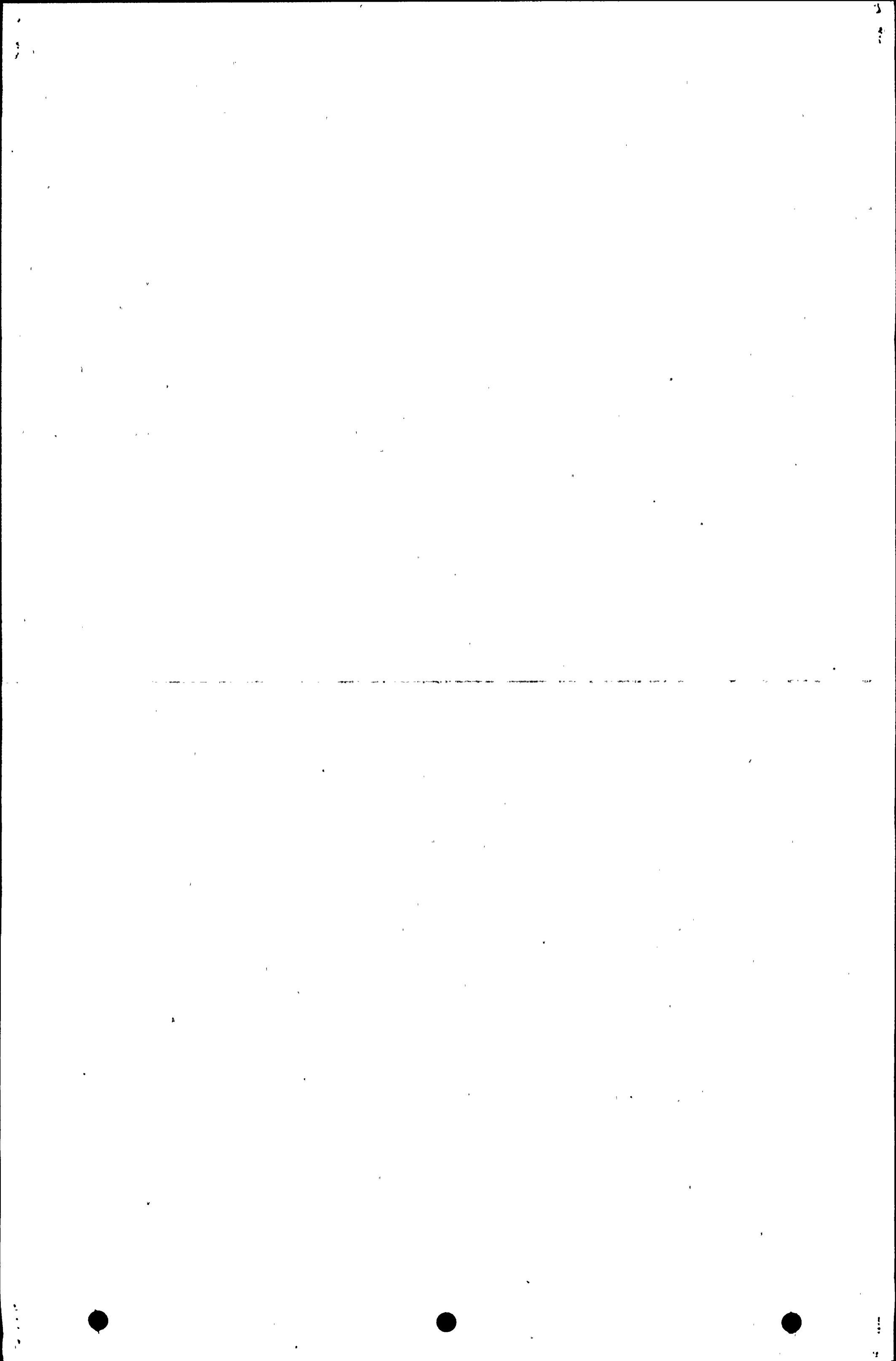
ZONE		REVISIONS		DATE	APPROVED
ZONE	LTR	DESCRIPTION			
A		ENG. RELEASE		7-20-81	SCD, J



3. THE DASH NO. INDICATES THE NUMBER OF DIODES; -10, CR1-10; -20, CR1-20; -40, CR1-40.
 2 ALL RESISTANCE VALUES ARE IN OHMS (Ω).
 1. ALL DIODES ARE IN4004.
 NOTES: UNLESS OTHERWISE SPECIFIED.

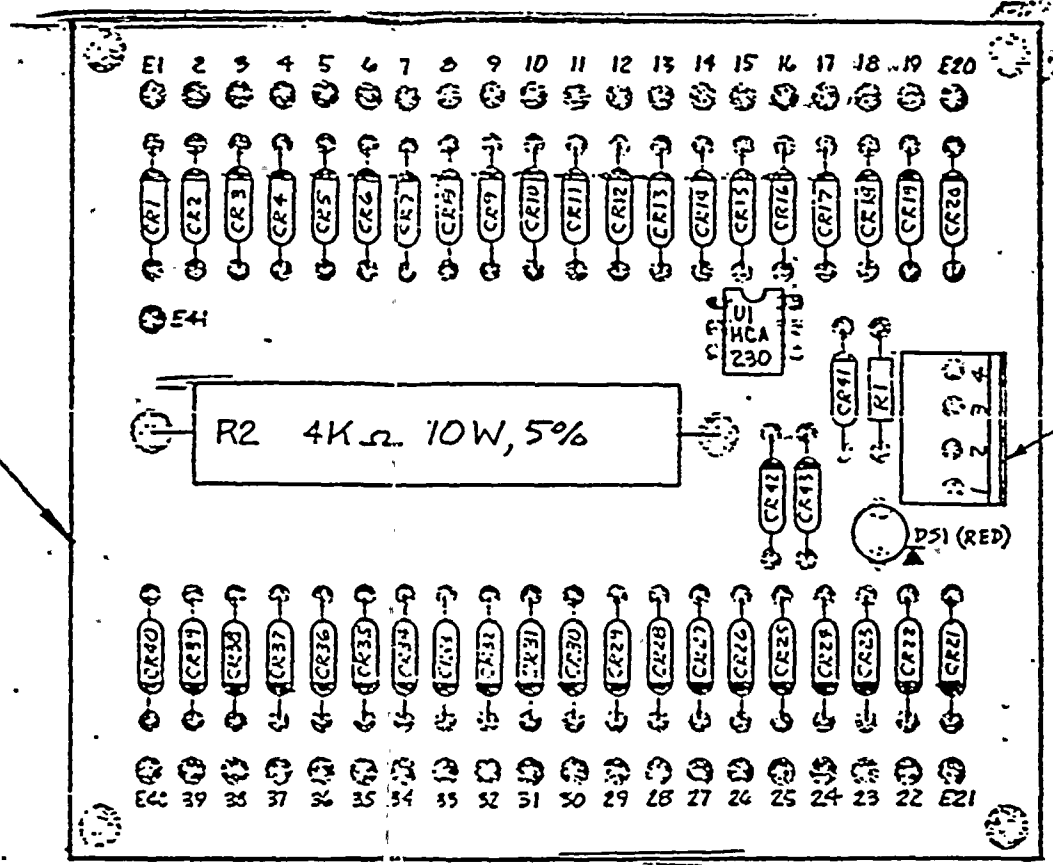
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: DECIMALS FRACTIONS ANGLES XX = .03 = 1/32 = 1/20 XXX = .010 DO NOT SCALE THIS DRAWING		CONTRACT NO. FIRST MADE FOR: 516 2093		 DELGAR <small>an Orion power systems company</small>	
MATERIAL:		APPROVAL DATE			
NEXT ASSY. USED ON		DRAWN: MASANA 116-26-81		FUSE SENSE SCHEMATIC	
APPLICATION		CHECKED: S.C.S. 117-20-81			
FINISH:		QA-REL: S.C.S. 117-20-81		SIZE: C CODE IDENT. NO.: 25965 DRAWING NO.: 6430002 REV: A	
<small>THE INFORMATION DISCLOSED HEREIN WAS ORIGINATED BY AND IS THE PROPERTY OF DELGAR CORPORATION AND EXCEPT FOR RIGHTS EXPRESSLY GRANTED TO THE UNITED STATES GOVERNMENT, DELGAR CORPORATION RESERVES ALL PATENT, PROPRIETARY, DESIGN, USE, SALE, MANUFACTURING AND REPRODUCTION RIGHTS THEREON.</small>		CLON: 643-622-60 SCALE: NONE SHEET 1 OF 1			

6430002



ZONE		LTR		REVISIONS	
DESCRIPTION				DATE	APPROVED
SEE SHEET 1A SIZE				7-20-81	SEDro

PCB 943-622-20




MOLEX CONN.
656-104-11

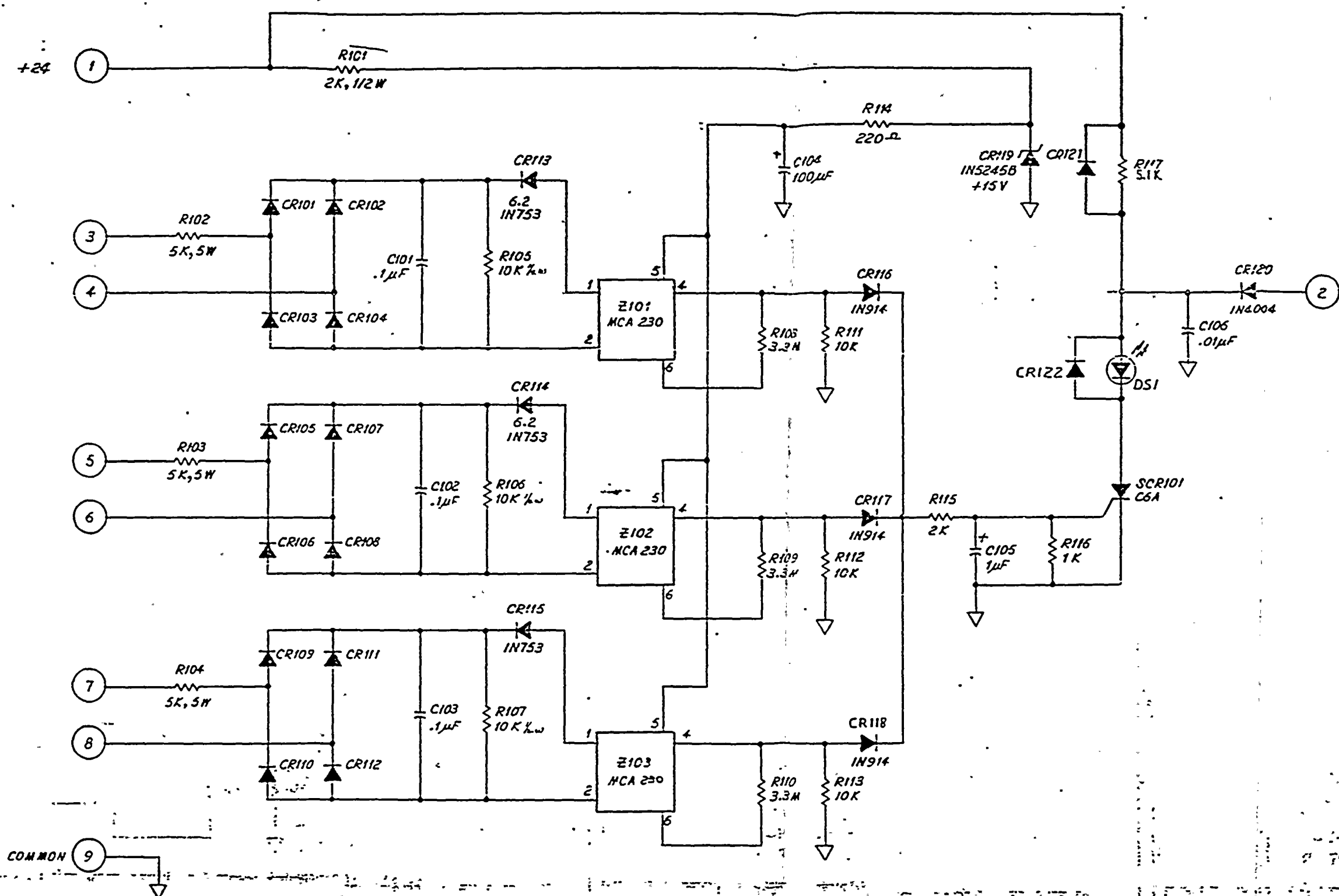
- 6. IDENTIFY APPLICABLE DASH NO & REV.
- 5. FOR SCHEMATIC SEE DWG 6430002.
- 4. CONFORMAL COAT PER ELGAR SPEC 1005D29.
- 3. THE DASH NO. INDICATES THE NUMBER OF DIODES; -10, CR1-10; -20, CR1-20; -40, CR1-40.
- 2. R1 IS 100K, 5%, 1/4 W
- 1. ALL DIODES ARE IN4004

NOTES: UNLESS OTHERWISE SPECIFIED.

NUCLEAR SAFETY RELATED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:		CONTRACT NO.		 an Orion power systems company
DECIMALS	FRACTIONS	ANGLES	FIRST MADE FOR: 510 4095	
.XX = .03	= 1/32	= 1/20	APPROVAL	DATE
.XXX = .010	DO NOT SCALE THIS DRAWING		DRAWN	MA6A11A 15-29-81
MATERIAL:			CHECKED	15-29-81
NEXT ASSY.			PROJ ENG	15-29-81
USED ON			QA-REL	15-29-81
APPLICATION			FUSE SENSE BRD ASSY	
THE INFORMATION DISCLOSED HEREIN WAS ORIGINATED BY AND IS THE PROPERTY OF ELGAR CORPORATION AND EXCEPT FOR RIGHTS EXPRESSLY GRANTED TO THE UNITED STATES GOVERNMENT, ELGAR CORPORATION RESERVES ALL PATENT, PROPRIETARY, DESIGN, USE, SALE, MANUFACTURING AND REPRODUCTION RIGHTS THEREIN.			SIZE C CODE IDENT. NO. 25965 DRAWING NO. 5430002 REV. 1	
FINISH:			SCALE 2:1 SHEET 3 OF 3	

REVISIONS			
ZONE	REF	DESCRIPTION	DATE
3	1	ECN 569 ADDED CR121, CR122, R117	2-2-72
A		ECN 2616	2-2-72

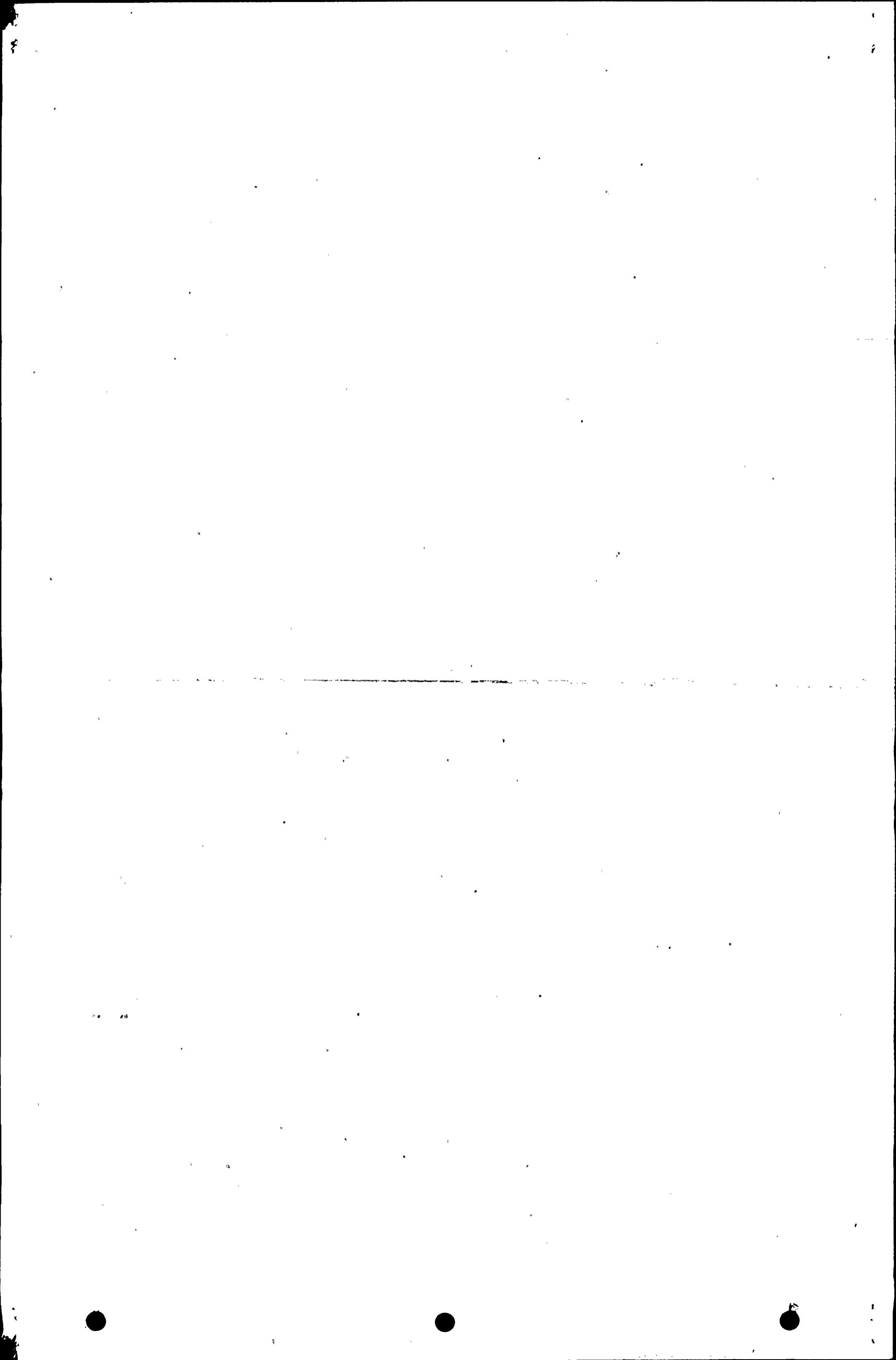


2. ALL RESISTORS ARE 1/4 W.
 1. ALL DIODES ARE IN4004.
 NOTES: UNLESS OTHERWISE SPECIFIED.

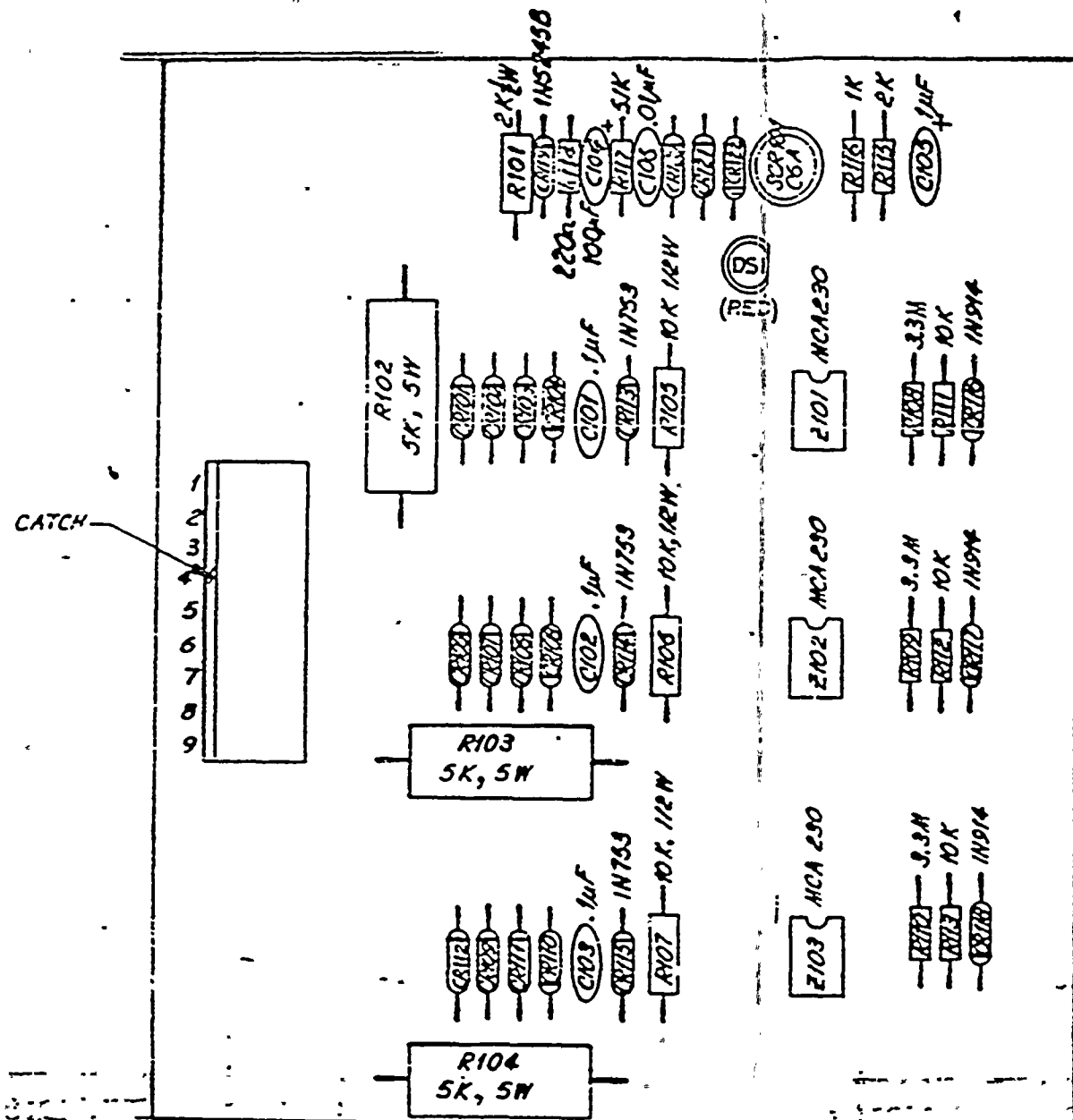
FOR PARTS LIST SEE PL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON		CONTRACT NO.		BELGAR CORPORATION SAN DIEGO, CALIF. 92161	
DECIMALS	FRACTIONS	ANGLES	APPROVAL	DATE	FUSE SENSE LOGIC BOARD THREE CIRCUIT
XX = .01	1/32	1/16	DRAMA	1-22-72	
XXX = .001			DESIGNED	1-2-72	
DO NOT SCALE THIS DRAWING	MATERIAL		TESTING		
NEXT ASSY	ASSEMBLY	FINISH	CARD		SIZE CODE DENT NO. DRAWING NO. REV D 25965 623-137-61 A

623-137-61



REV	DESCRIPTION	DATE	APPROVED
A	ECN 889 ADDED CR121 & CR122	2-16-79	[Signature]
B	ECN 1745	3-30-81	[Signature]
C	ECN # 2616	2-11-82	[Signature]
D	ECN 2797	5-3-82	[Signature]
E	DDC # 519 C-REVISED -40 TO A1 & -41 TO -42 AND ADDED COLOR TO DSI E.D. ADDED NOTES 7 & 8	11/82	[Signature]



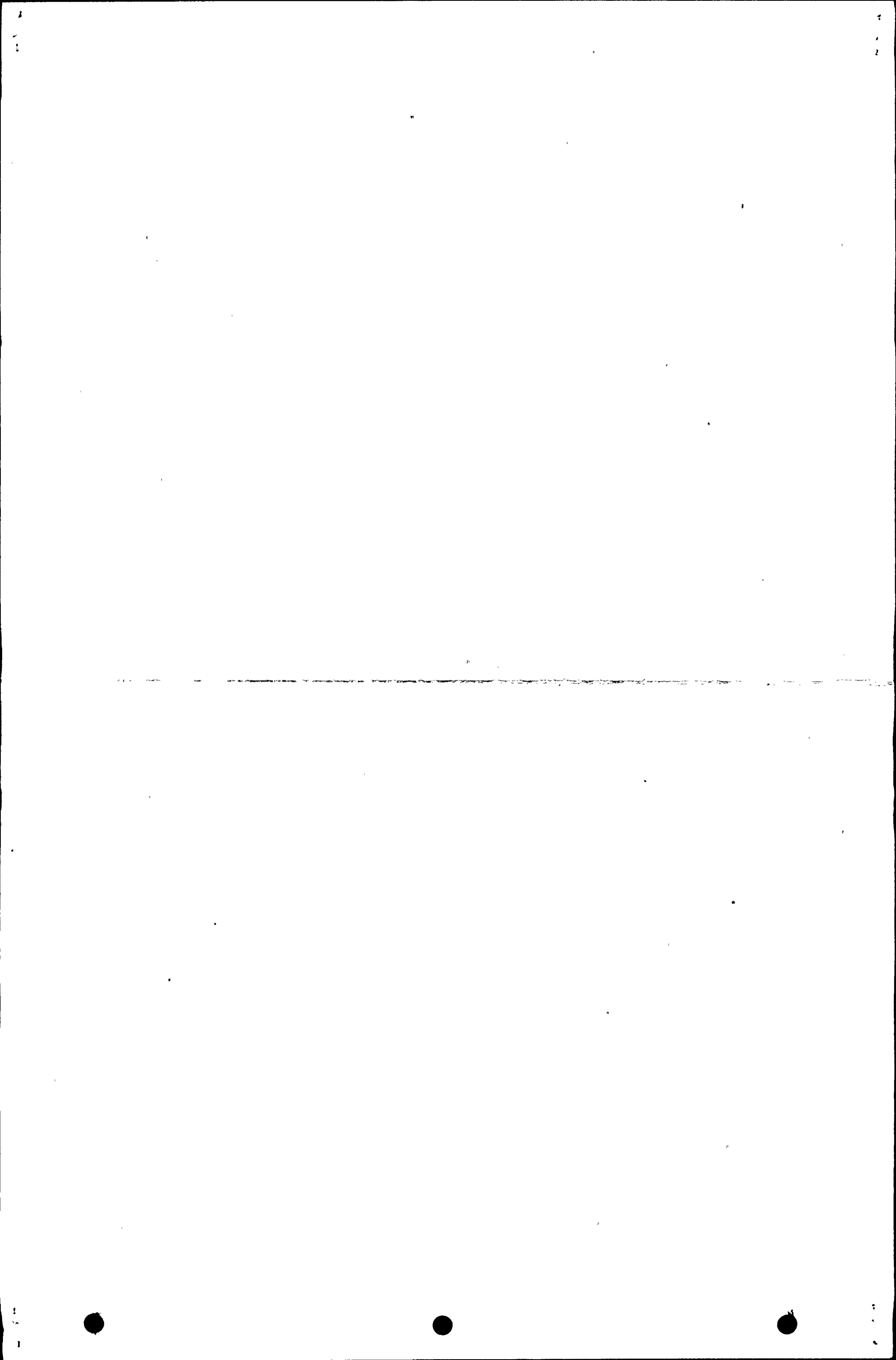
-41 ASSY, CONFORMAL COAT Δ
 -42 ASSY, STANDARD Δ

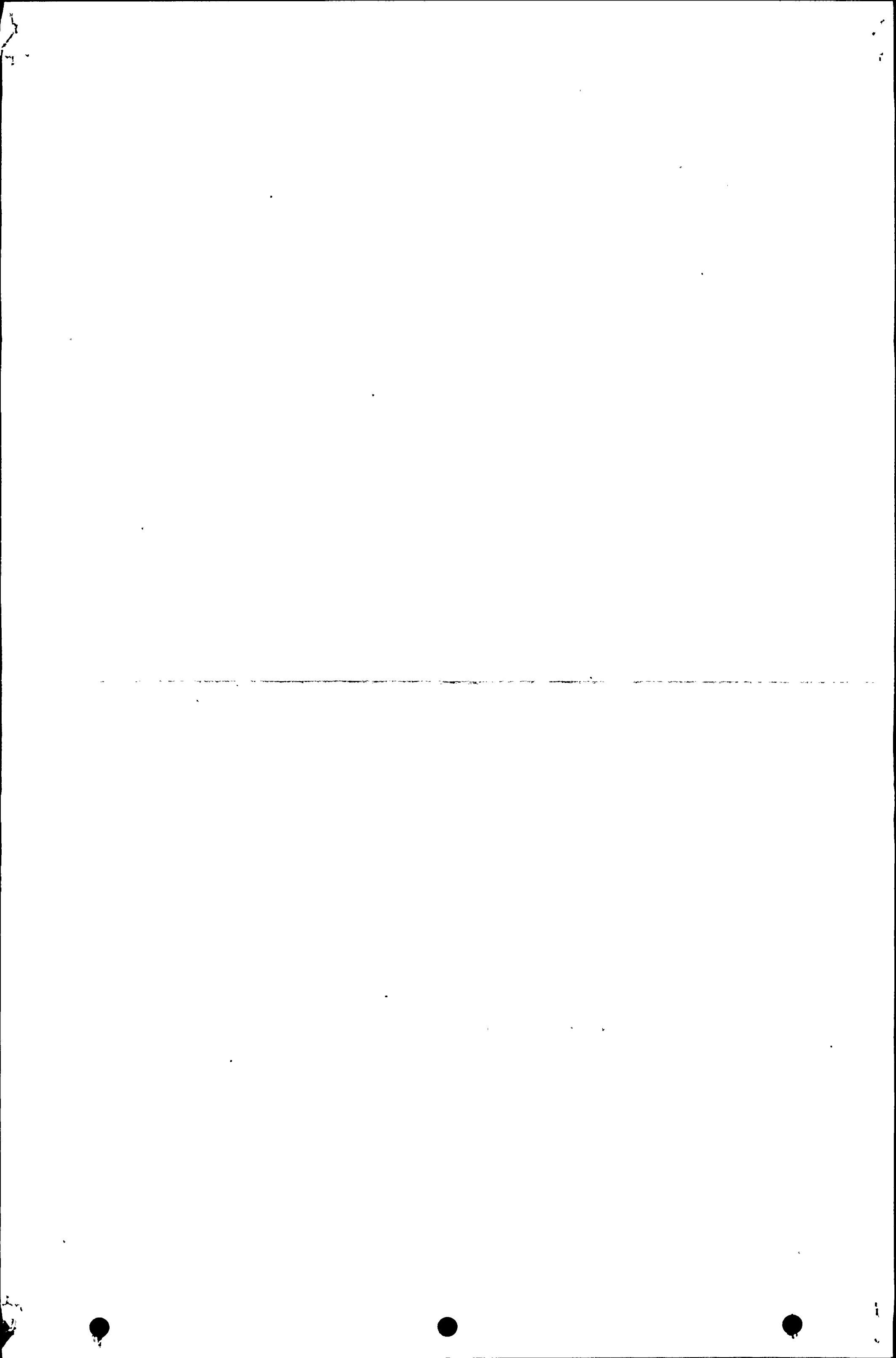
NUCLEAR-SAFETY RELATED

FOR PARTS LIST SEE PL

- 8. MOLEX HEAD IS 855-109-12
 - 7. PCB IS 928-137-21
 - 6. IDENTIFY APPLICABLE DASH NO. & REV.
 - 5. FOR SCHEMATIC SEE DWG 628-137-6X.
 - Δ DO NOT CONFORMAL COAT T-E -42 ASSY.
 - Δ CONFORMAL COAT PER EIGAR SPEC 1005029. (-41 ASSY ONLY)
 - 2. ALL RESISTORS ARE 1/4 W.
 - 1. ALL DIODES ARE IN400*, 1/4 W.
- NOTES: UNLESS OTHERWISE SPECIFIED.

CONTRACT NO.		 SAN DIEGO, CALIFORNIA			
FIRST MADE FOR					
APPROVED	DATE	ASSEMBLY FUSE SENSE LOGIC BOARD THREE CIRCUIT			
DRAWN	H. CRIST 3-1-78				
CHECKED	[Signature]				
PROJ ENG	[Signature]				
QA-REL	[Signature]	SIZE	CODE IDENT NO	DRAWING NO	REV
		C	25965	628-137-4X	E
SCALE 2:1		SHEET 1 OF 1			





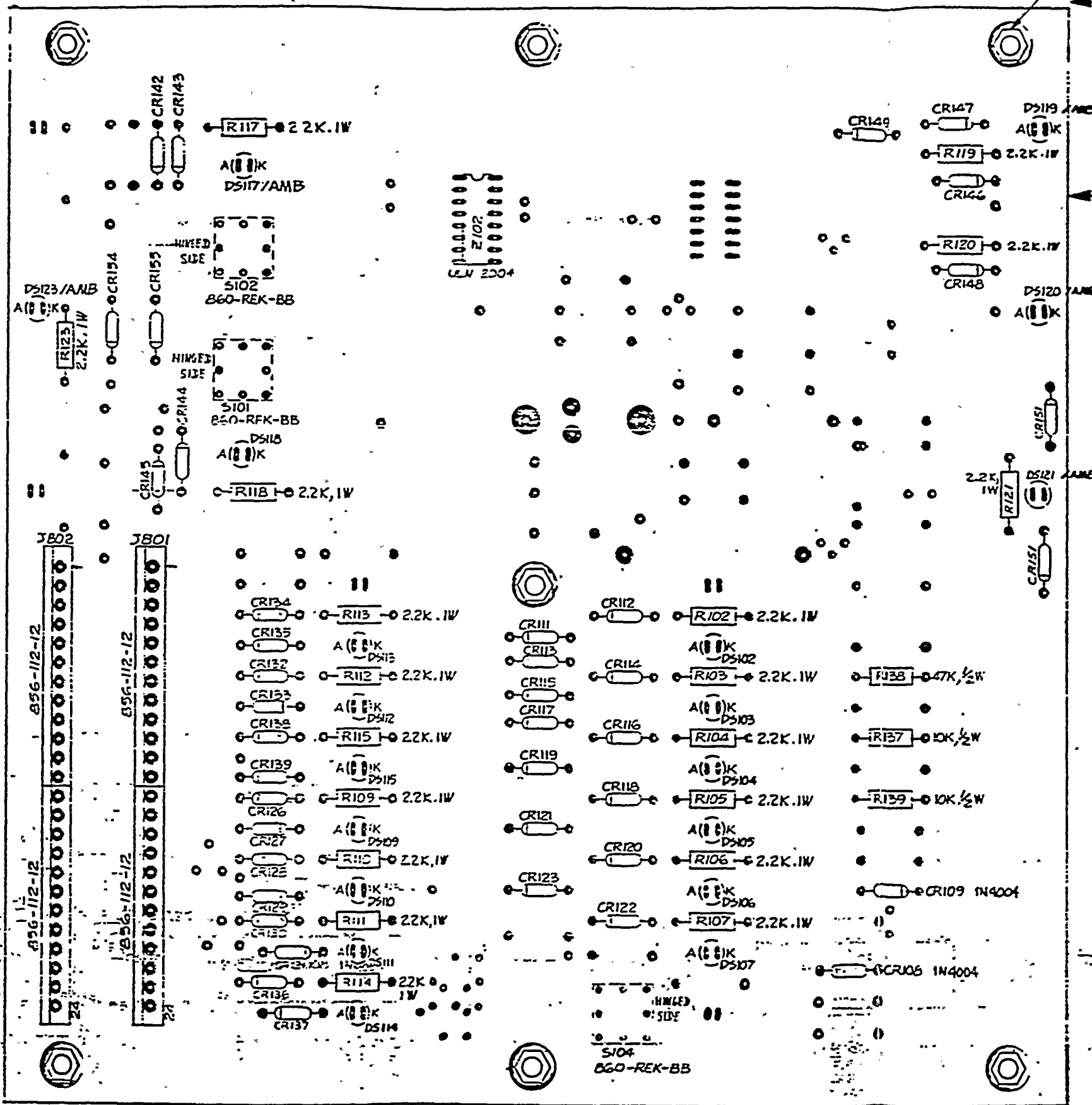
PRESS MAKE FLUSH
ID9-SC6-08, (7PLCS)

COMP. SIDE

STANDOFF, LED &
SWITCH SIDE.

SOLDER
(ON FAR SIDE ONLY)

REV	DATE	BY	CHKD	APP'D
A	END RELEASE			
B	ECN # 2357	8.2.82		
C	220-255-112-12	7.22.82		
D	PER ECN 2656	LL 5.5.82		
E	PER ECN 2845	TL 4.30.82		
F	ECN # 2959	8.2 7.17.82		



NOTES: UNLESS OTHERWISE SPECIFIED.

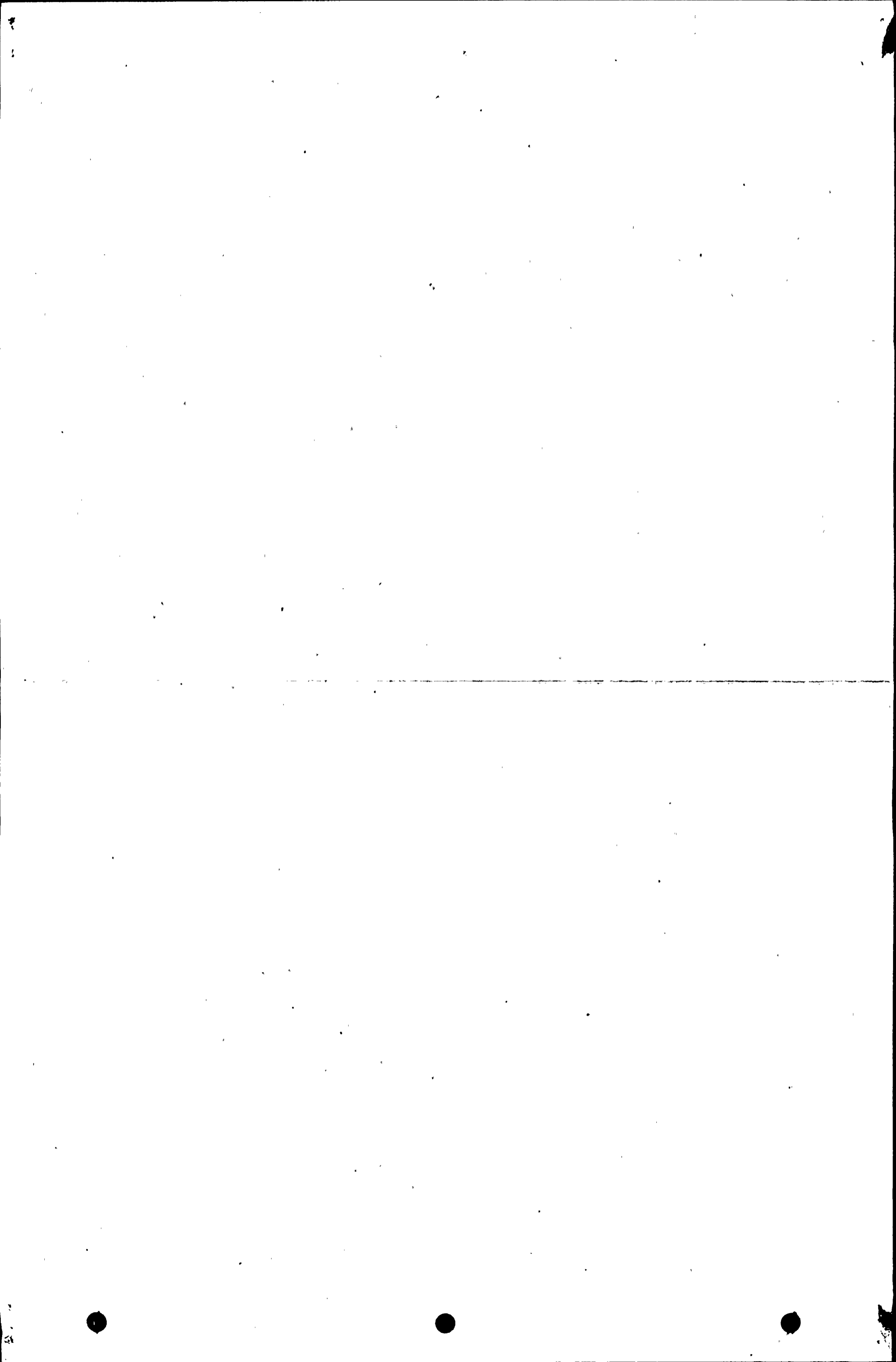
1. ALL RESISTANCE VALUES ARE IN OHMS
2. ALL LED'S ARE RED UNLESS MARKED OTHERWISE.
3. S101 THRU S104 AND DS101 THRU DS124 ARE MOUNTED FROM FAR SIDE. ALL OTHER COMPONENTS MOUNT ON NEAR SIDE.
4. CR110 THRU CR157 (ALL UNMARK DIODES) ARE IN914.
5. CONFORMAL COAT PER ELGAR SPEC 1005029.
6. FOR SCHEMATIC SEE DWG 643-628-6X.
7. IDENTIFY WITH APPLICABLE DASH NO. & REV. LTR.
8. PCB IS 944-001-20

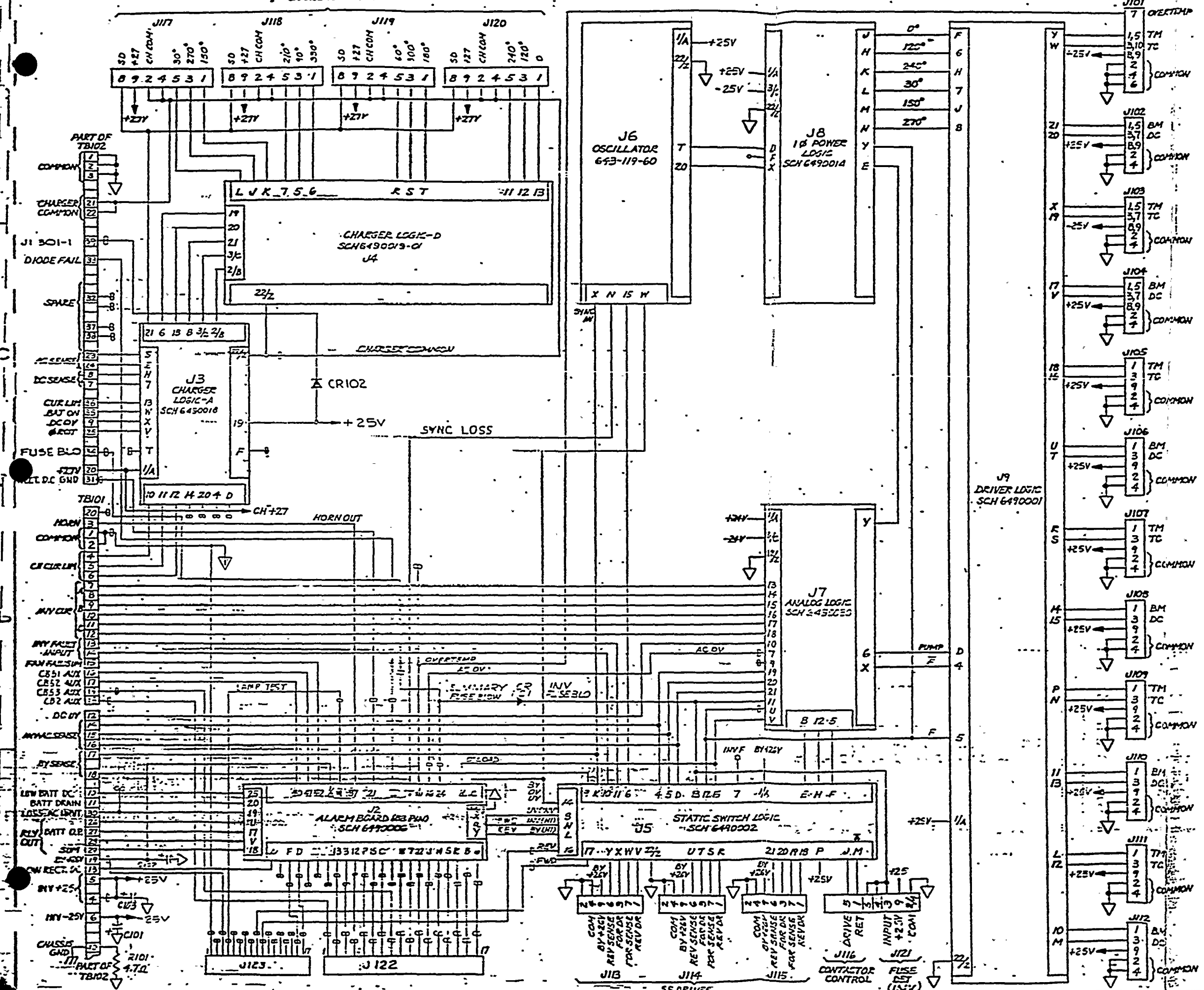
FOR PARTS LIST SEE P.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON		CONTRACT NO.		DATE	
DECIMALS	FRACTIONS	APPROVAL	DATE	DESIGN	DATE
± .01	± 1/32				
± .005	± 1/64				
DO NOT SCALE THIS DRAWING		MATERIAL			
FINISH		DRAWING NO.			
		25965			
		DRAWING NO.			
		643-623-40			
		REV			
		F			

ELGAR

LAMP BRD ASSY



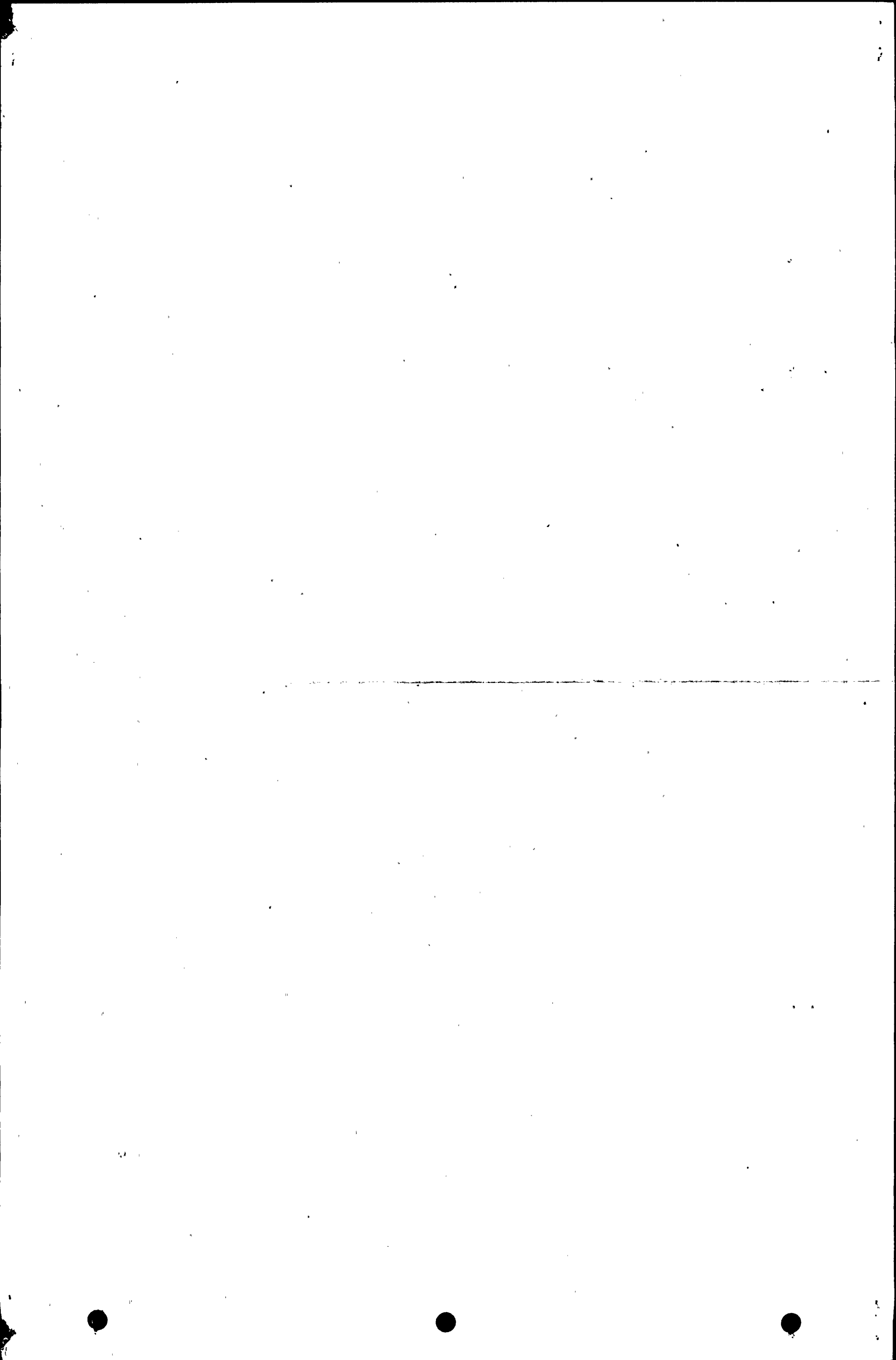


REV	DESCRIPTION	DATE	APPROVED
A	ENG RELEASE	11-19-82	VG
B	ISSUE #55-422 TS 03-33, J2-5	11-19-82	VG
C	ECN# B:60 11-19-82	11-19-82	VG

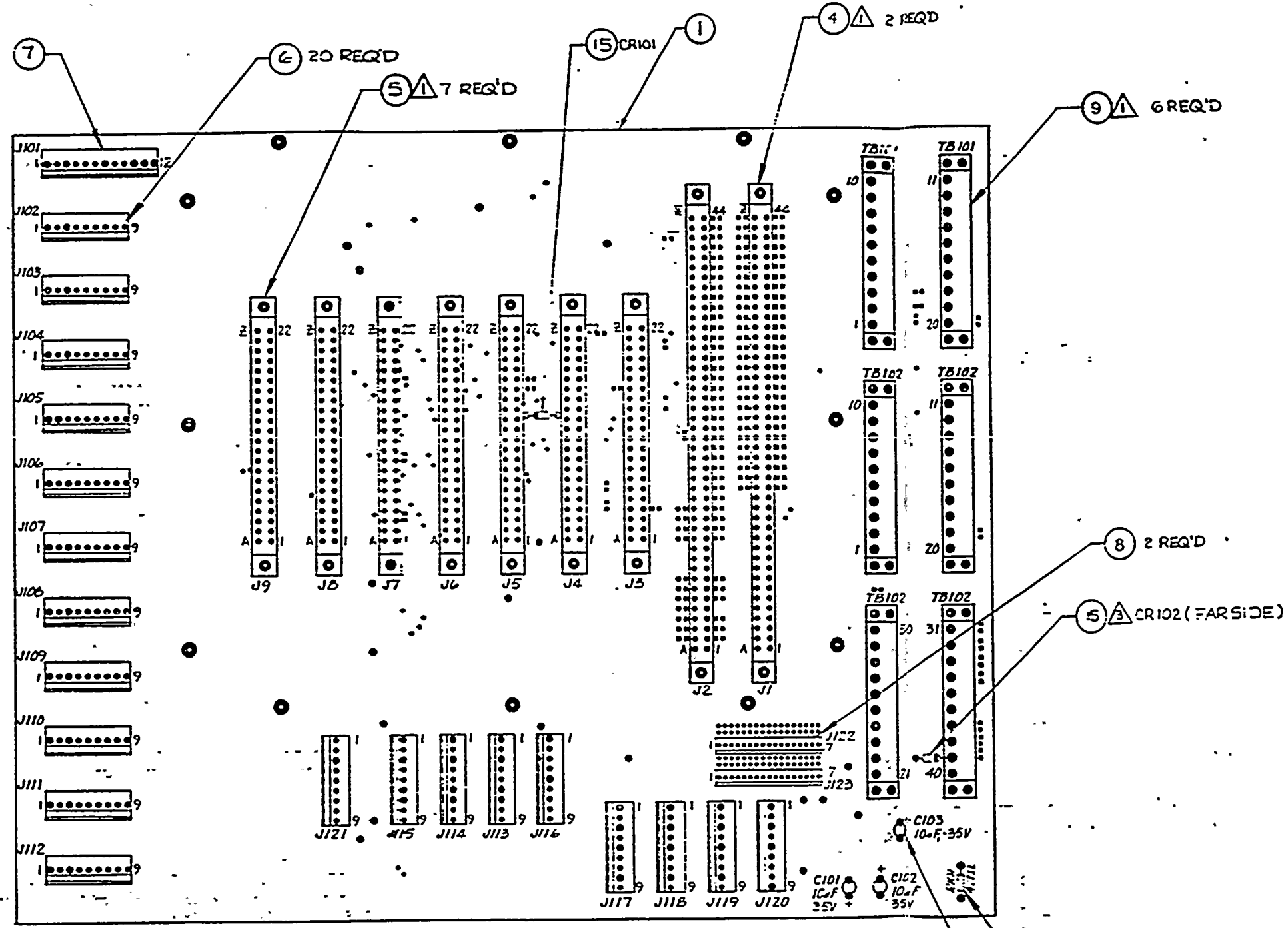
NOTES: UNLESS OTHERWISE SPECIFIED,
 1. C101-C103 ARE 10UF/35V (TANT).
 2. CR101 & CR102 ARE 1N4004.

NUCLEAR SAFETY RELATED

BACK PLANE SCHEMATIC
 UPS 253-1-106
 SIZE: 25965 6490024
 SCALE: NONE 1 OF 1



REVISIONS			
ZONE	DESCRIPTION	DATE	APPROVED
1	See sheet 1		



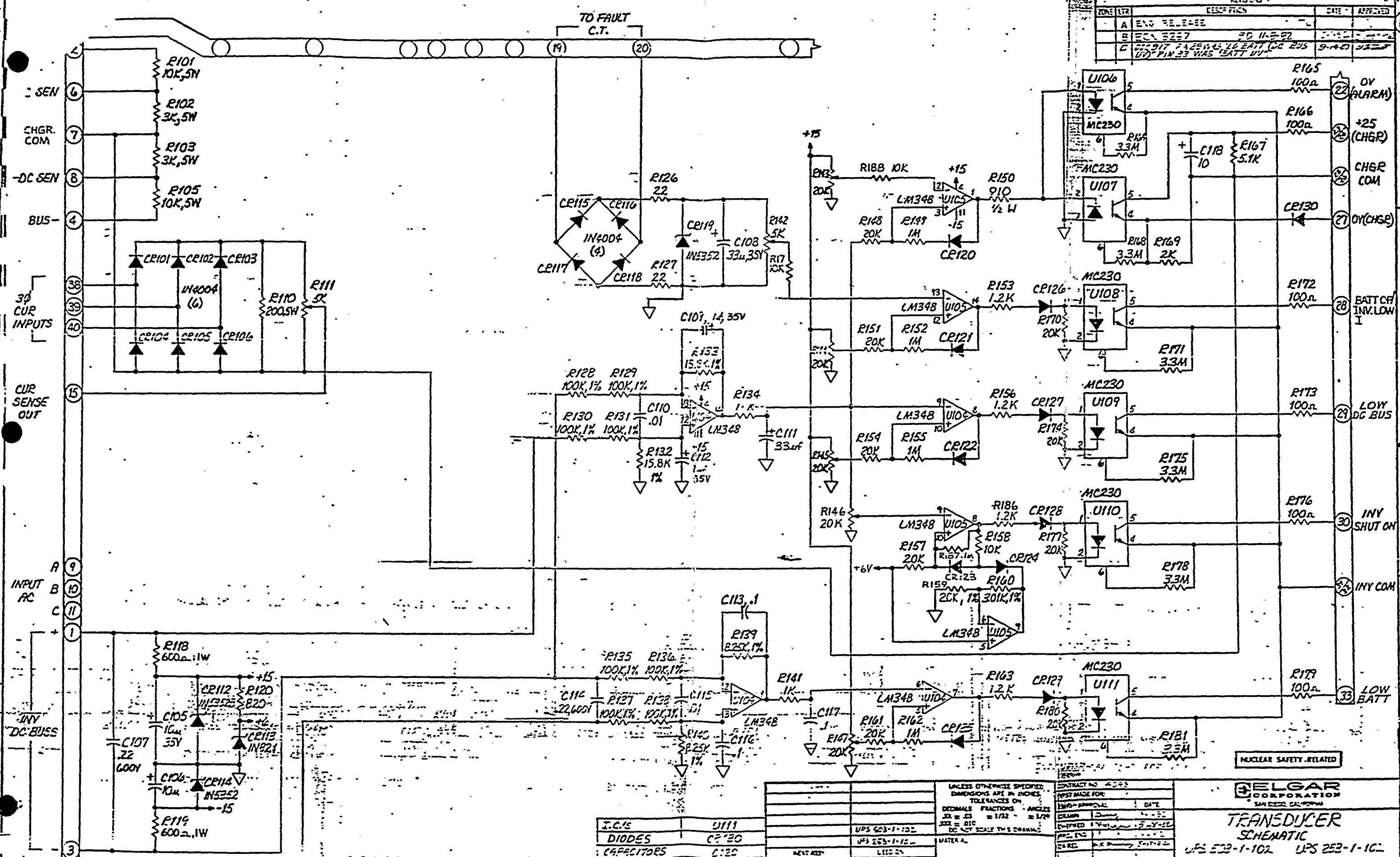
NOTES: UNLESS OTHERWISE SPECIFIED
 1 USE #4 FILED WASHES FOR VTS. J1-J5 AND TB102 (FARSIDE)
 2 CONFORMAL COAT PER ELGAR SPECIFICATION ICG5029.
 3 MOUNT CR102 FARSIDE AS S-SHA.
 +25V — SOLDER TO TB102-39

NUCLEAR SAFETY RELATED

NEXT ASSY		USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: DECIMALS FRACTIONS ANGLES XX ± .03 ± 1/32 ± 1/2° SEE 810 DO NOT SCALE THIS DRAWING		CONTRACT NO.	PC ASSY- BACKPLANE
MATERIAL:		FINISH:	DRAWN: 12/27/57		DATE: 3-7-57	REV: D
APP. DATE		SCALE		DRAWING NO. 5490015		SHEET 1 OF 1
THE INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE AND IS THE PROPERTY OF ELGAR ELECTRONIC CORPORATION. IT IS TO BE CONTAINED IN CONFIDENTIALITY AND IS NOT TO BE DISCLOSED TO ANY OTHER PERSON OR ORGANIZATION WITHOUT THE WRITTEN PERMISSION OF ELGAR ELECTRONIC CORPORATION. THIS DRAWING IS THE PROPERTY OF ELGAR ELECTRONIC CORPORATION AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.		ELGAR		SIZE CODE IDENT NO. D 25965		DRAWING NO. 5490015



ZONE	TR	DESCRIPTION	DATE	APPROVED
A	ENG RELEASE			
B	ECN 5257	20 11-5-92		
C	UPD 917 2A 25V 1.5V BATT (DC BUS)	9-1-01		
		UPD PIN 33 WBS BATT UV		



2. ALL RESISTORS ARE .25W, 5% CARBON
 1. ALL DIODES ARE IN914.
 NOTES: UNLESS OTHERWISE SPECIFIED.

I.C.'S	U111
DIODES	CR130
CAPACITORS	C120
RESISTORS	R127
REF. DESIG.	LAST USED
REFERENCE DESIGNATORS	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: DECIMALS FRACTIONS ANGLES X.XX ± .01 ± 1/32 ± 1/2° X.X ± .010 ± 1/32 ± 1/2° DO NOT SCALE THIS DRAWING	CONTRACT NO. 4093 POST MADE FOR DATE EXAMINER CHECKED DATE SCALE
DATE: 11-5-92	SCALE: 1/8" = 1"

ELGAR CORPORATION
SAN DIEGO, CALIFORNIA

TRANSDUCER SCHEMATIC

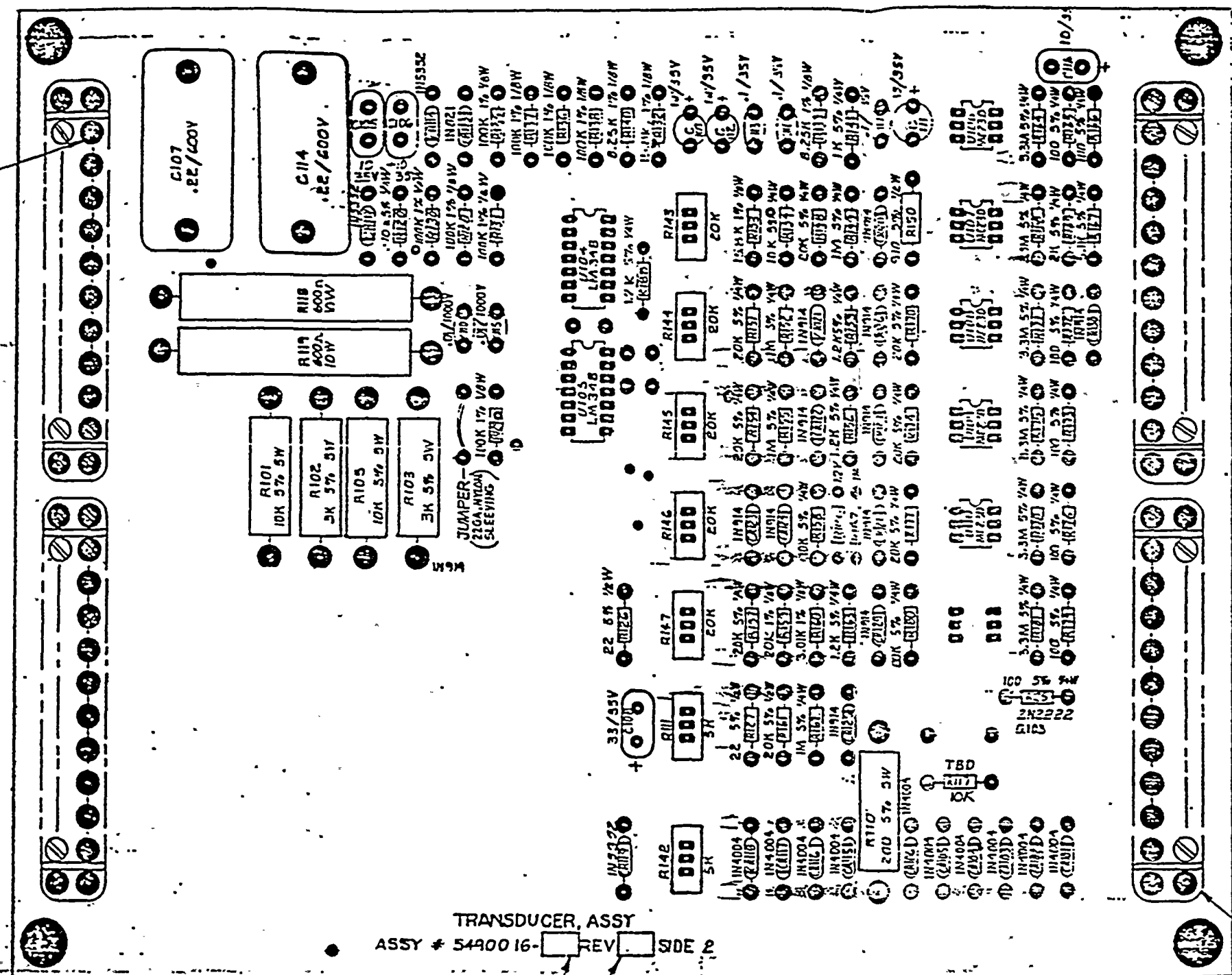
UPS 503-1-102 UPS 253-1-102

SIX	CODE IDENT. NO.	DRAWING NO.	REV.
D	25965	6490016	C

SCALE: 1/8" = 1"



REV	DATE	APPROVED
REV. 5-7 1 (A SIZE)		



TRANSUCER, ASSY
 ASSY # 54900 16- REV. SIDE 2

51 4-PLCS

OF ASSY. CONFORMAL COAT

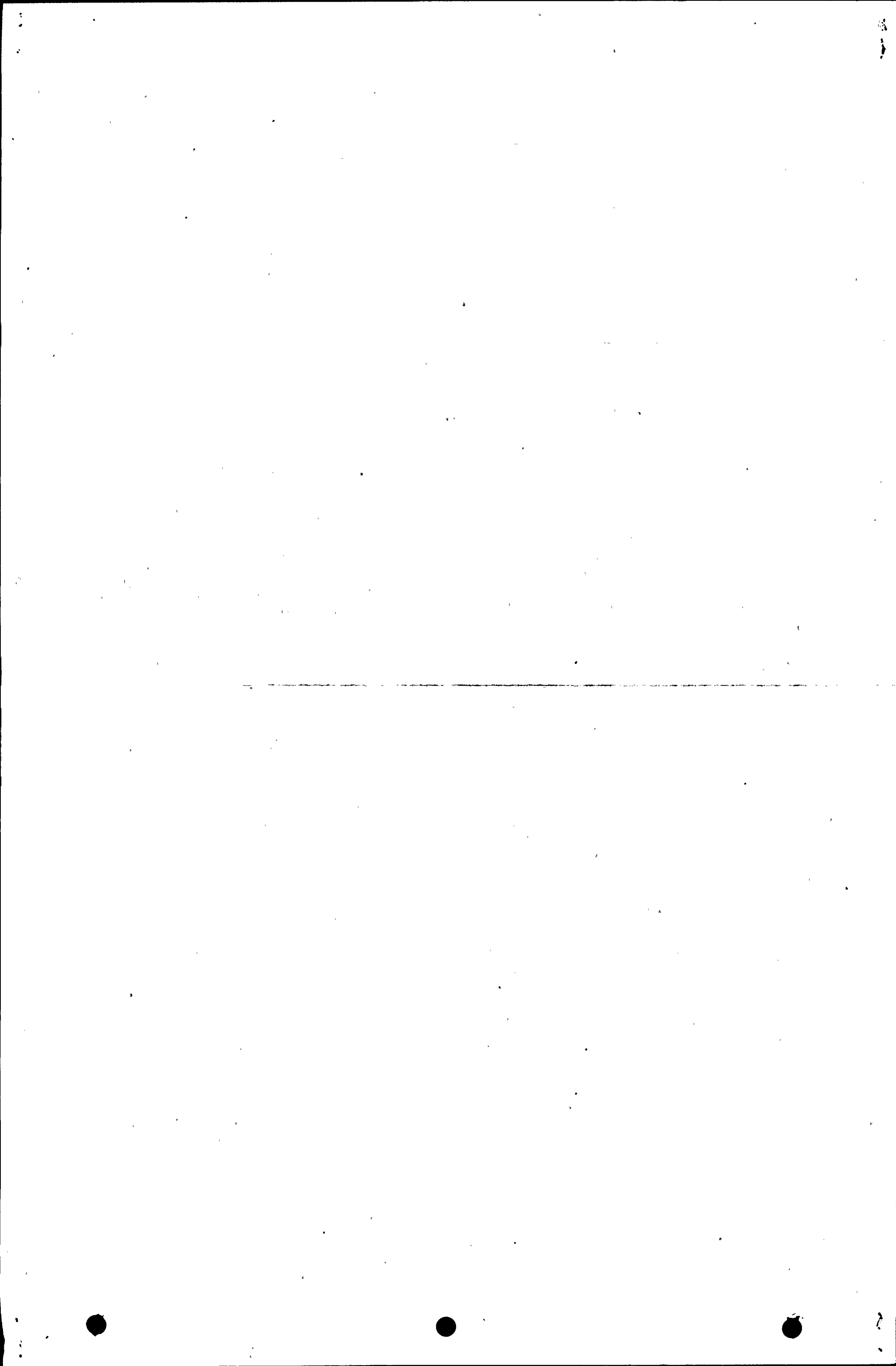
MARGINAL QUALITY ORIGINAL

- ALL CAPACITORS ARE IN MICROFARADS (μf).
- ALL RESISTORS ARE IN OHMS (Ω).
- CONFORMAL COAT PER ELGAR SPEC 1005029, (-OI ASSY. ONLY).
- IDENTIFY WITH P/N & REV LTR.
- FOR SCHEMATIC, SEE DWG 63404CO.
- NOTES: UNLESS OTHERWISE SPECIFIED.

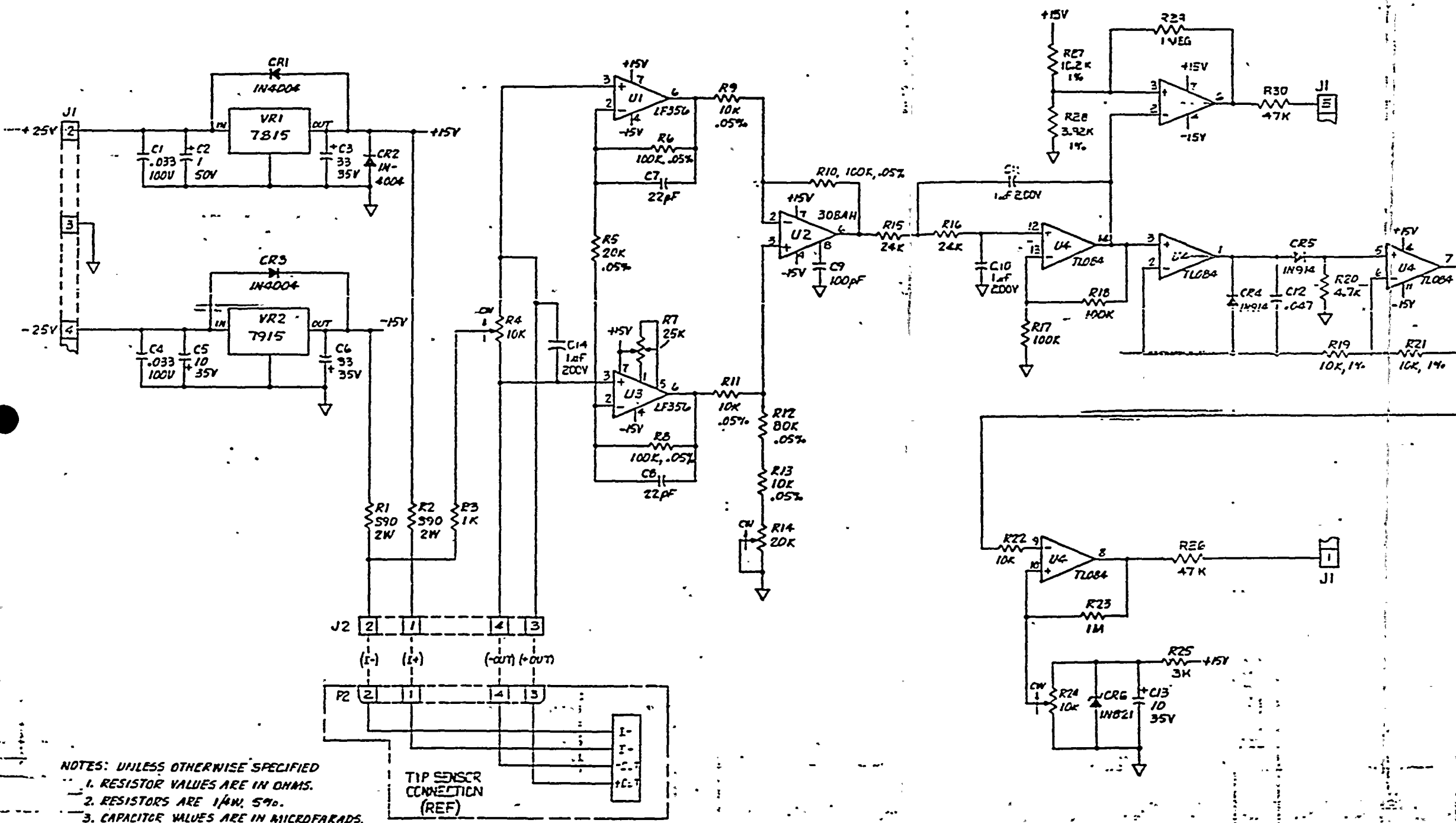
NUCLEAR SAFETY RELATED

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ON: DECIMALS FRACTIONS ANGLES XXX ± .01 ± 1/32 ± 1/20 XXX ± .012 DO NOT SCALE THIS DRAWING		CONTRACT NO. 22 2022 FIRST MADE FOR		ELGAR An Eldec Company	
MATERIAL		APPROVAL DATE		ASSY, TRANSUCER	
NEXT ASSY USED ON		DRAWN JR 3-15-52		SIZE CODE IDENT NO DRAWING NO	
PARTS		CHECKED		D 25965 5490016 C	
		APP'G ENG 1-4-52		SCALE 2 X SHEET 4 OF 4	
		DARREL			

5490016



REV	DESCRIPTION	DATE	BY
A	ELC RELEASE	9-3-82	SP
B	PER EGN 3275	JPT 2-6-83	2-3-83

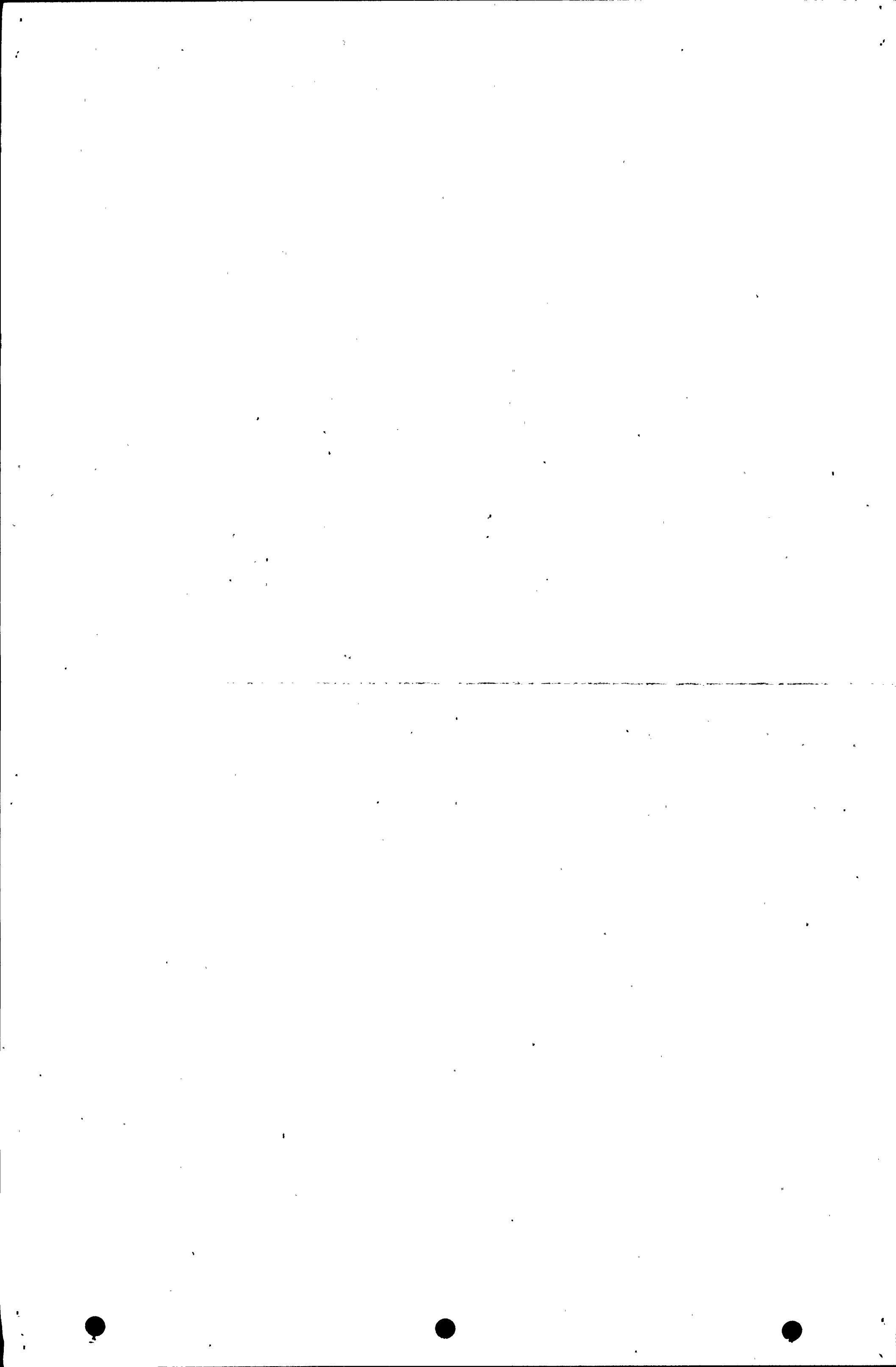


- NOTES: UNLESS OTHERWISE SPECIFIED
1. RESISTOR VALUES ARE IN OHMS.
 2. RESISTORS ARE 1/4W, 5%. 1K, 10K, 100K, 1M.
 3. CAPACITANCE VALUES ARE IN MICROFARADS.
 4. LAST USED REFERENCE DESIGNATOR.
- C14, CR6, J2, G1, R30, U4 & VR2.

TIP SENSOR CONNECTION (REF)

SCHEMATIC - FAULT TRANSDUCER	
D 25965	6430008
SCALE: 1:1	SHEET 1 OF 1

6430008



4

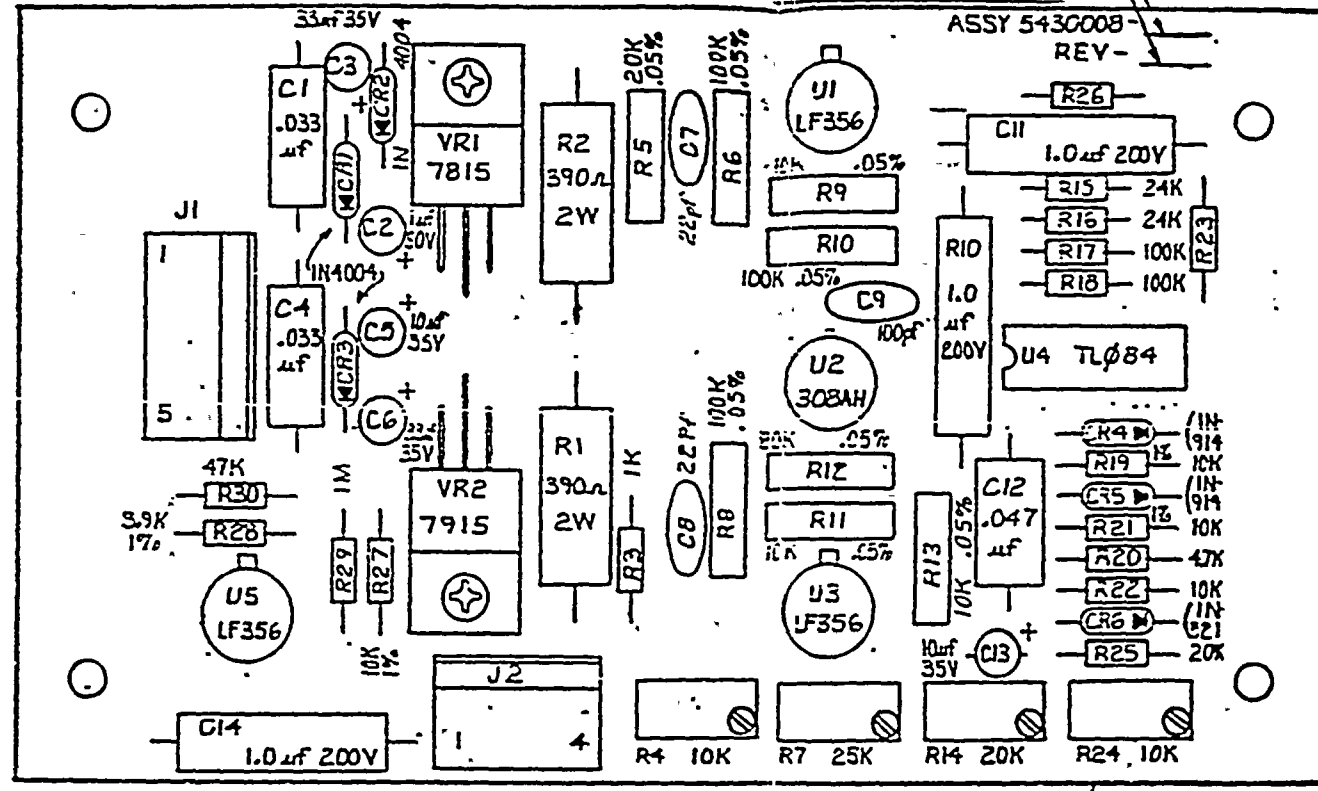
3

2

REVISIONS


ZONE	LTR	DESCRIPTION	DATE	APPROVED
		SEE SHT 1 (A SIZE)		

IDENTIFY ASSY DASH NO. & REVISION.

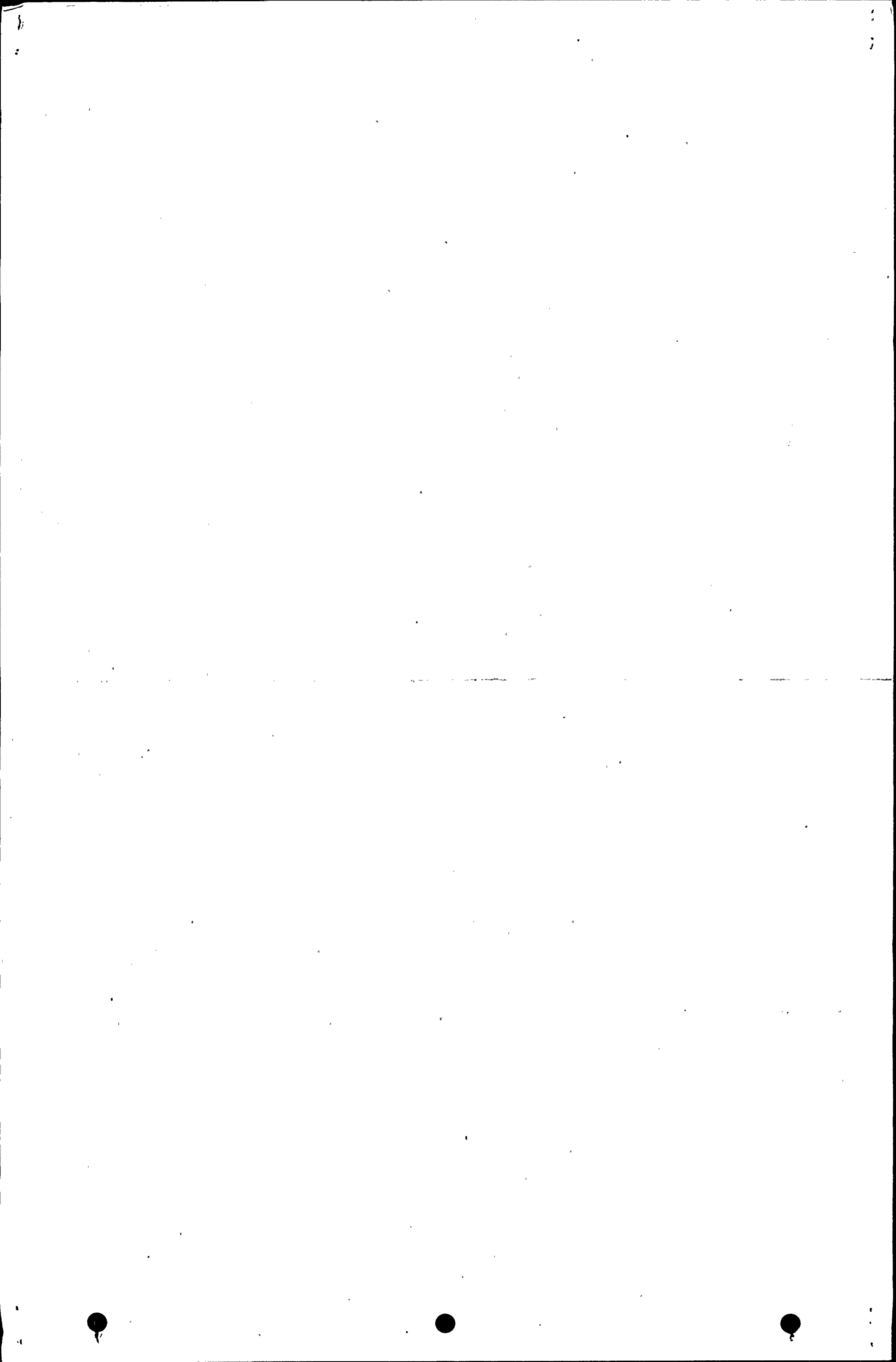


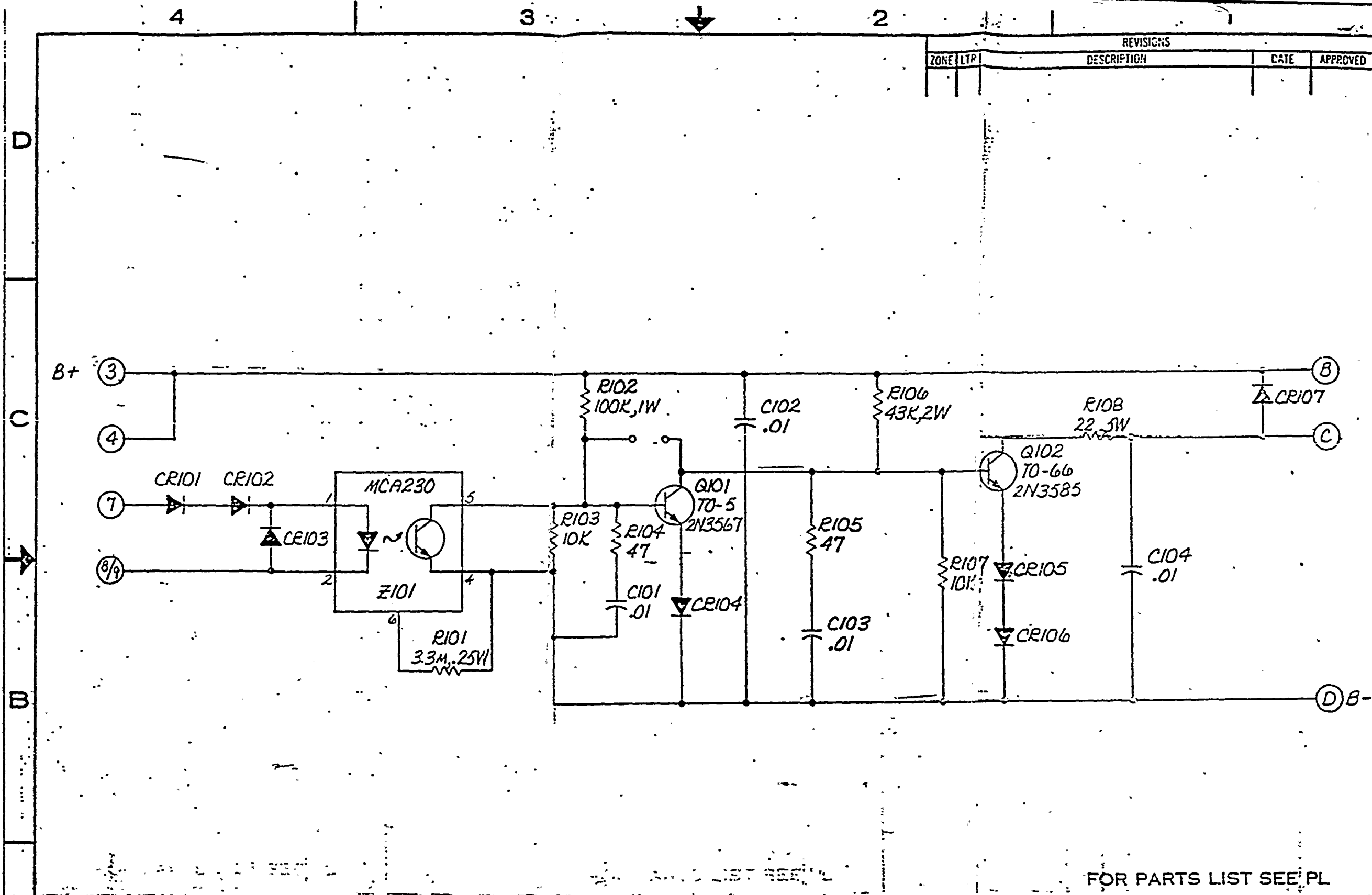
01 ASSY SHOWN

2. RESISTORS ARE IN OHMS, 5% & 1/4W.
 1; FOR SCHEMATIC SEE DWG 643000B.
 NOTES: UNLESS OTHERWISE SPECIFIED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON		CONTRACT NO		 an Orion power systems company	
DECIMALS	FRACTIONS	ANGLES	FIRST MADE FOR:		
XX = .03	= 1/32	= 1/2°	APPROVAL	DATE	ASSY, PCB, CURRENT TRANSDUCER
XXX = .010	DO NOT SCALE THIS DRAWING		DRAWN	J. REEVES 2-8-83	
MATERIAL:		CHECKED	2-9-83		
NEXT ASSY.		USED ON	QA-REL		
APPLICATION		FINISH			SIZE C CODE IDENT. NO. 25965 DRAWING NO. 5430008 REV C
<small>THE INFORMATION CONTAINED HEREIN WAS OBTAINED BY AND IS THE PROPERTY OF ELGAR CORPORATION AND EXCEPT FOR RIGHTS EXPRESSLY GRANTED TO THE UNITED STATES GOVERNMENT, ELGAR CORPORATION RESERVES ALL PATENT PROPRIETARY DESIGN USE SALE MANUFACTURING AND REPRODUCTION RIGHTS THEREIN</small>				SCALE 2:1 SHEET 4 OF 4	

5430008





REVISIONS			
ZONE	LTP	DESCRIPTION	DATE

4. ALL CAPACITORS ARE IN MICRO-FARADS.
 3. ALL RESISTORS ARE IN OHMS (Ω).
 2. ALL RESISTORS ARE .25W, 5% CARBON.
 1. ALL DIODES ARE IN4004.
- NOTES: UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON	CONTRACT NO. FIRST MADE FOR 510 3452
DECIMALS = .030 FRACTIONS = 1/32 ANGLES = 1/2° DO NOT SCALE THIS DRAWING	APPROVAL DATE
NEXT ASSY USED ON	DRAWN HI DINH 12-12-79
APPLICATION	CHECKED R.GORDON 12-13-79
THE INFORMATION DISCLOSED HEREIN WAS DEVELOPED BY AND IS THE PROPERTY OF ELGAR CORPORATION AND EXCEPT FOR RIGHTS EXPRESSLY GRANTED TO THE UNITED STATES GOVERNMENT, ELGAR CORPORATION RESERVES ALL PATENT, PROPRIETARY, DESIGN, USE, SALE, MANUFACTURING AND REPRODUCTION RIGHTS THEREIN.	PROJ ENG R.F. 12-13-79
FINISH	QA REL

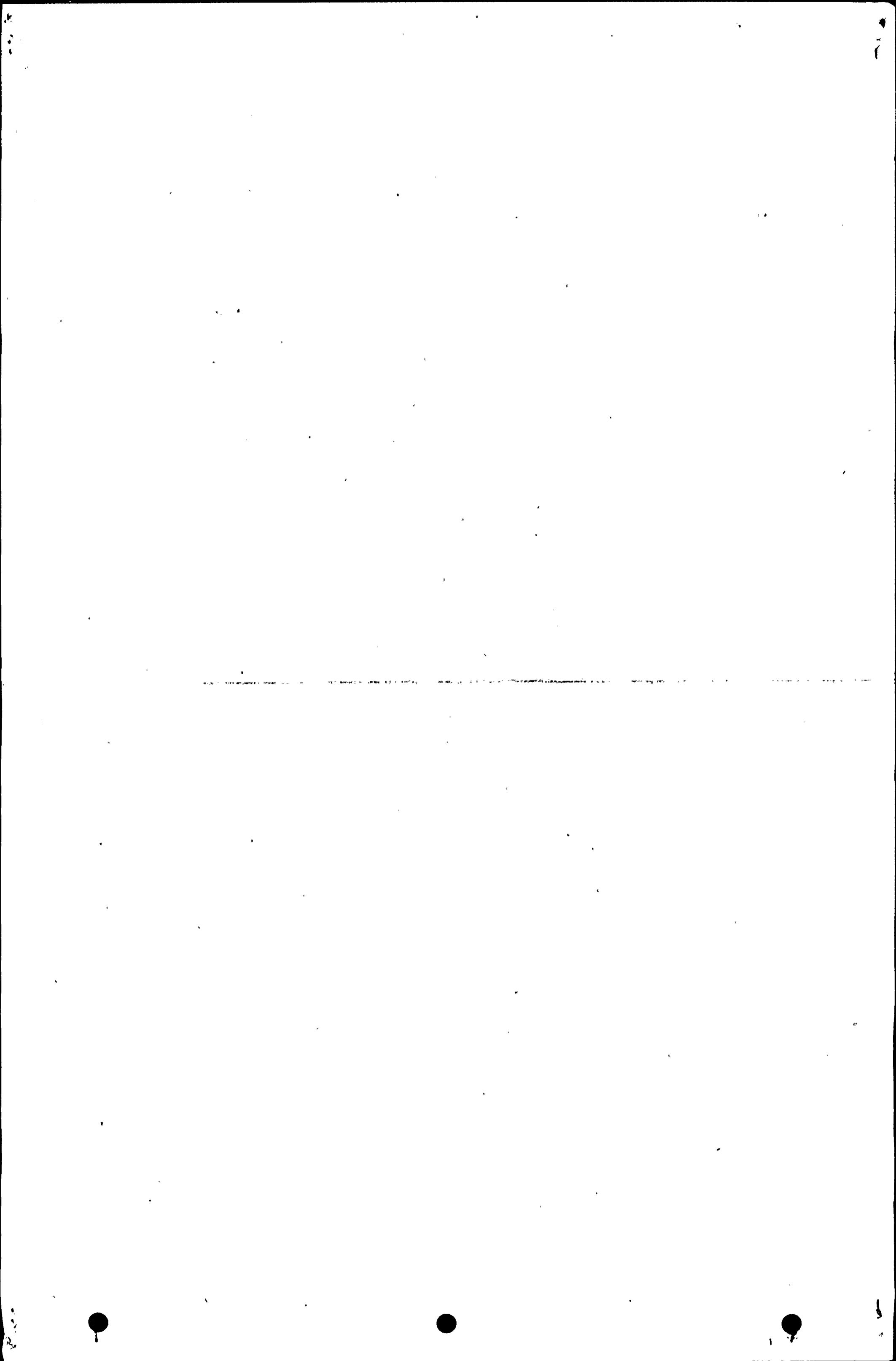
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON	CONTRACT NO. FIRST MADE FOR 510 3452
DECIMALS = .030 FRACTIONS = 1/32 ANGLES = 1/2° DO NOT SCALE THIS DRAWING	APPROVAL DATE
NEXT ASSY USED ON	DRAWN HI DINH 12-12-79
APPLICATION	CHECKED R.GORDON 12-13-79
THE INFORMATION DISCLOSED HEREIN WAS DEVELOPED BY AND IS THE PROPERTY OF ELGAR CORPORATION AND EXCEPT FOR RIGHTS EXPRESSLY GRANTED TO THE UNITED STATES GOVERNMENT, ELGAR CORPORATION RESERVES ALL PATENT, PROPRIETARY, DESIGN, USE, SALE, MANUFACTURING AND REPRODUCTION RIGHTS THEREIN.	PROJ ENG R.F. 12-13-79
FINISH	QA REL

FOR PARTS LIST SEE PL

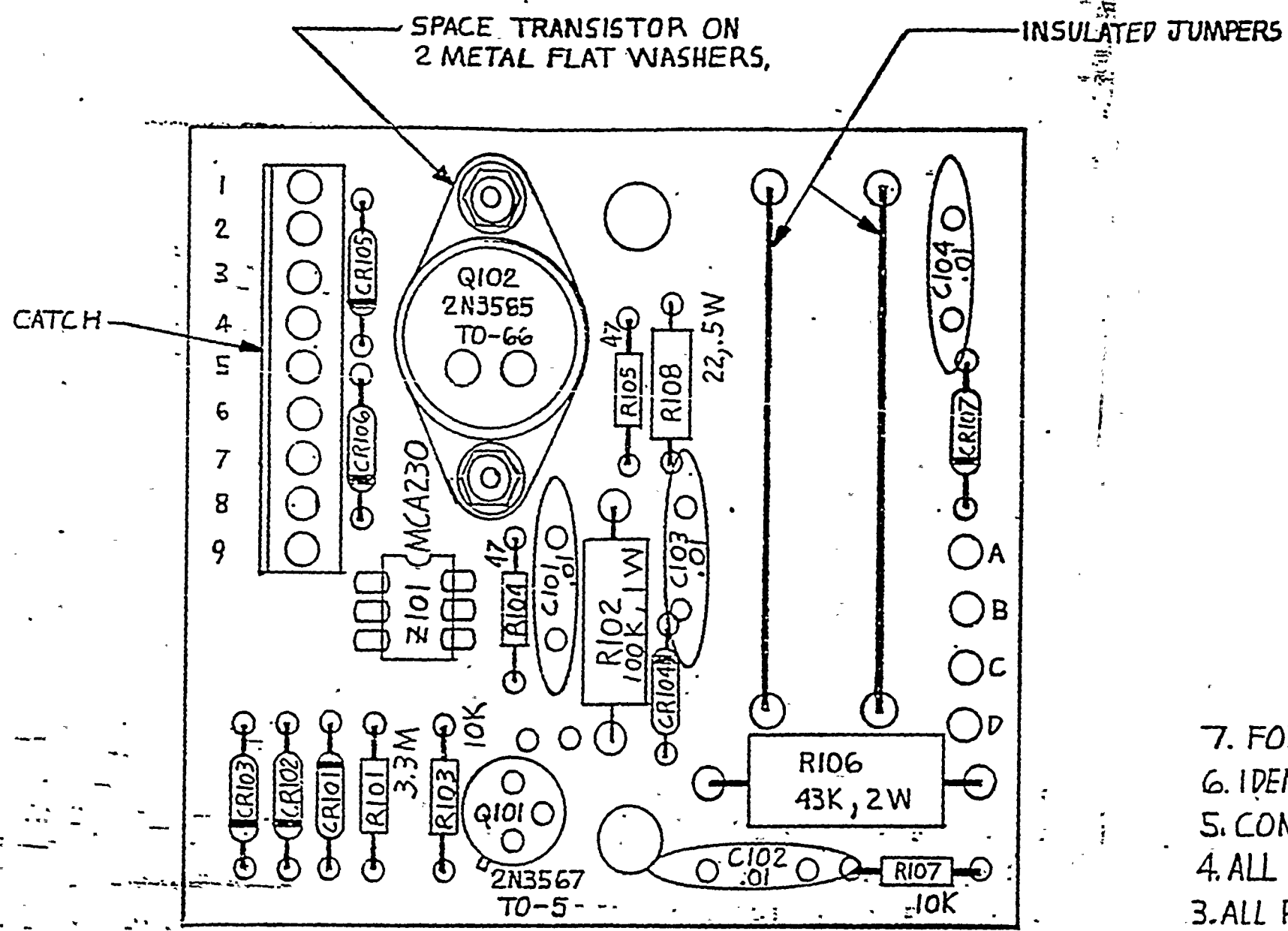
ELGAR CORPORATION
SAN DIEGO, CALIFORNIA

**RELAY DRIVE BOARD
SCHEMATIC**

SIZE C	CODE IDENT. NO. 25965	DRAWING NO. 633-270-60
SCALE NONE	SHEET 1 OF 1	



REVISIONS				
LTR	DESCRIPTION	DATE	APPROVED	
A	ECN # 2795	DP 5-5-82	MJR.	
-	REDRAWN-NO CHNG. R.W.B.	3-28-83		<i>MJR</i>



7. FOR SCHEMATIC SEE DWG. # 633-270-60.
 6. IDENTIFY APPLICABLE DASH NO & REV.
 5. CONFORMAL COAT PER ELGAR SPEC # 1005029
 4. ALL CAPACITORS ARE IN MICRO-FARADS (μF).
 3. ALL RESISTORS ARE IN OHMS (Ω).
 2. ALL RESISTORS ARE .25W, 5%.
 1. ALL DIODES ARE IN4004.
- NOTES: UNLESS OTHERWISE SPECIFIED.

NUCLEAR SAFETY RELATED

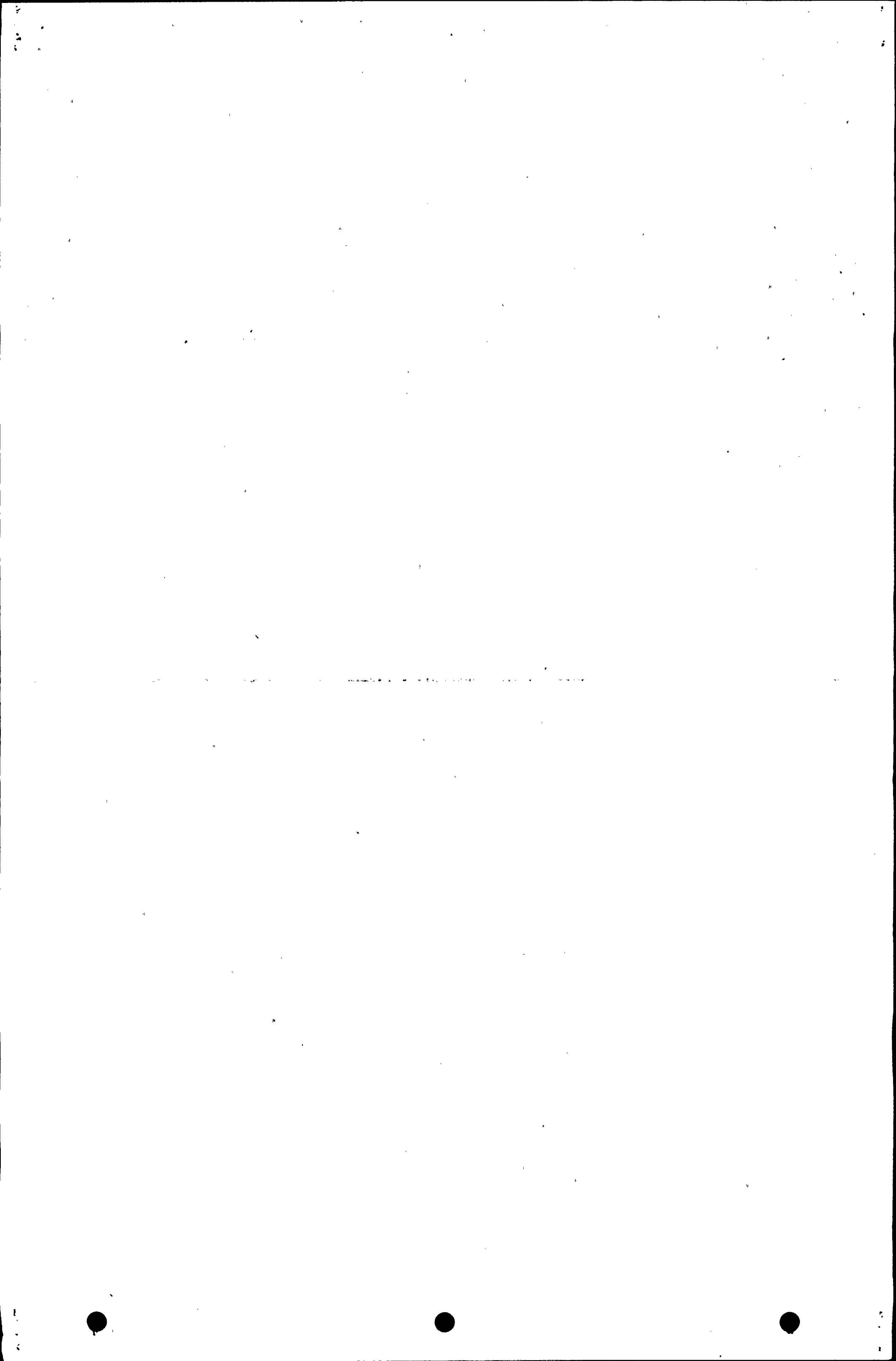
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ON:	CONTRACT NO
DECIMALS FRACTIONS ANGLES	FIRST MADE FOR: 5012452
.XX = .03 = 1/32 = 1/2°	APPROVAL DATE
.XXX = .010	DRAWN: 7/11/82
NEXT ASSY.	CHECKED
USED ON	PROJ ENG R. FISU
APPLICATION	QA-REL M. Murphy
DO NOT SCALE THIS DRAWING	
MATERIAL:	
FINISH:	

ELGAR
an Onan power systems company

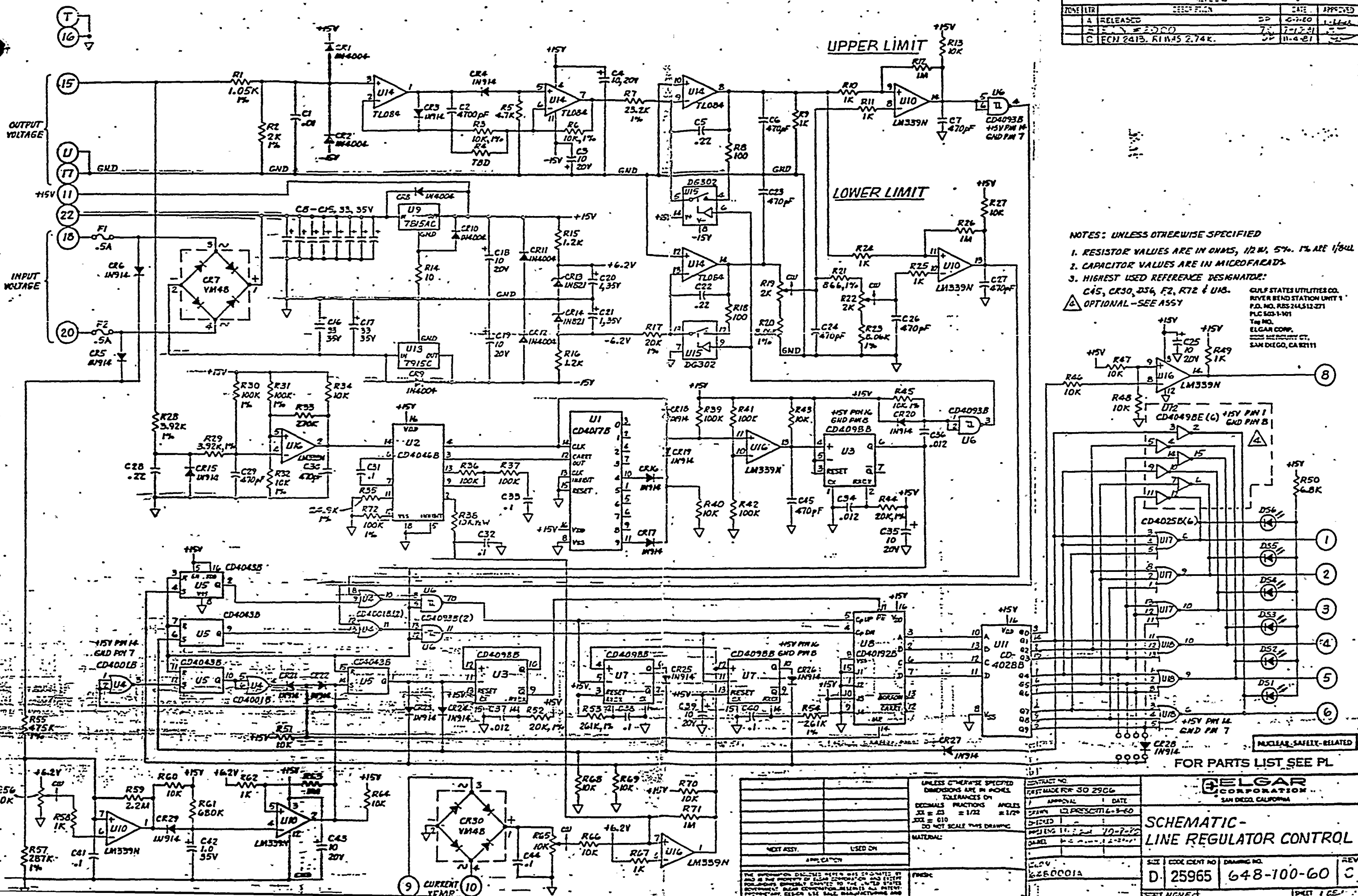
RELAY DRIVE BD. ASSY.

SIZE	CODE IDENT. NO.	DRAWING NO.	REV
B	25965	633-270-40	A
SCALE 2:1		SHEET 1 OF 1	

THE INFORMATION DISCLOSED HEREIN WAS ORIGINATED BY AND IS THE PROPERTY OF ELGAR CORPORATION, AND EXCEPT FOR RIGHTS EXPRESSLY GRANTED TO THE UNITED STATES GOVERNMENT, ELGAR CORPORATION RESERVES ALL PATENT, PROPRIETARY, DESIGN, USE, SALE, MANUFACTURING, AND OTHER RIGHTS THEREIN.



REV	DATE	APPROVED
A	6-20-60	J. L. L...
B	7-12-61	
C	11-4-61	

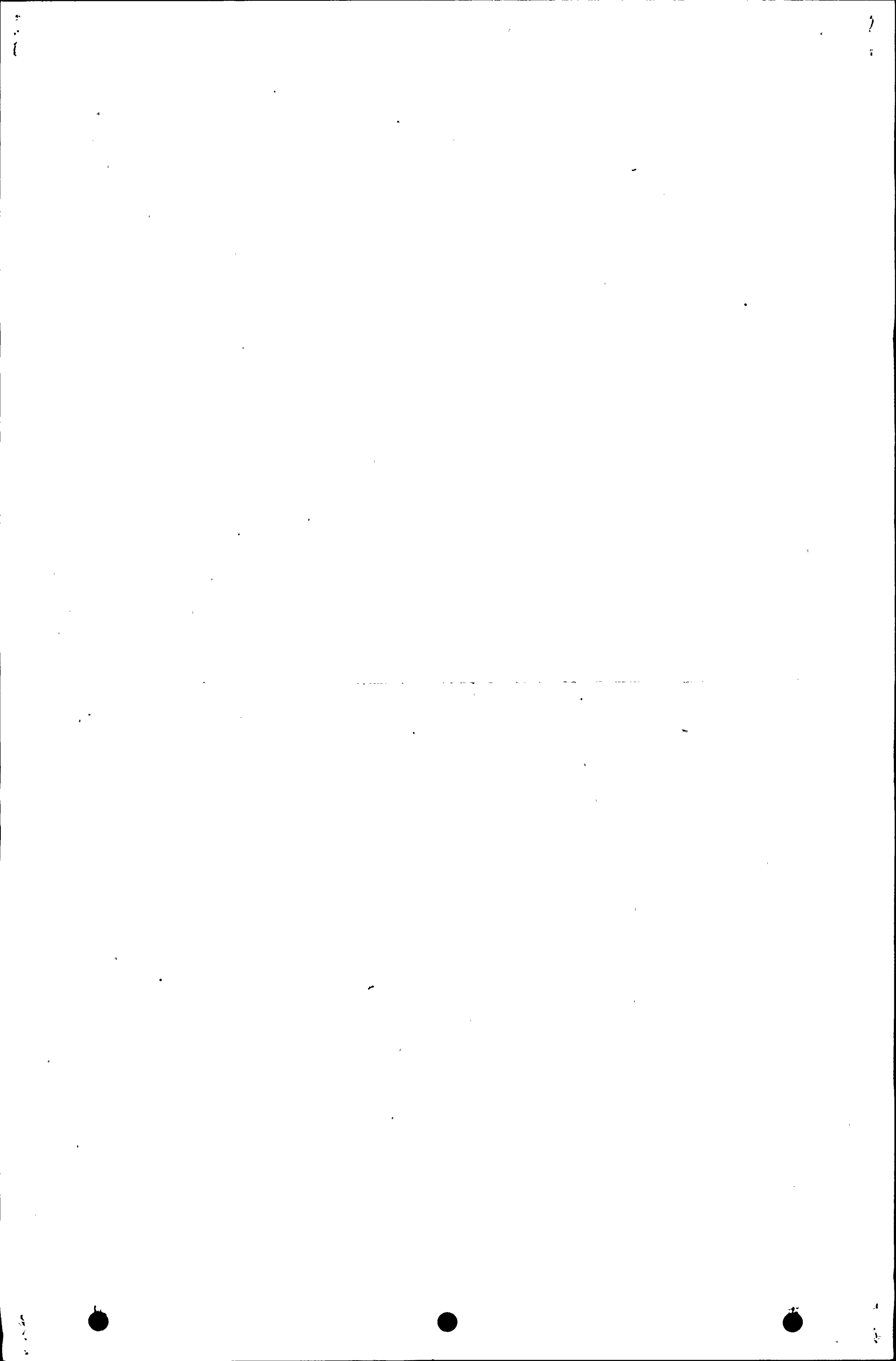


NOTES: UNLESS OTHERWISE SPECIFIED
 1. RESISTOR VALUES ARE IN OHMS, 1/2 W. 5% 1% ARE 1/8W
 2. CAPACITOR VALUES ARE IN MICROFARADS
 3. HIGHEST USED REFERENCE DESIGNATOR:
 C45, CR30, DS6, F2, R72 & U18.
 △ OPTIONAL - SEE ASSY

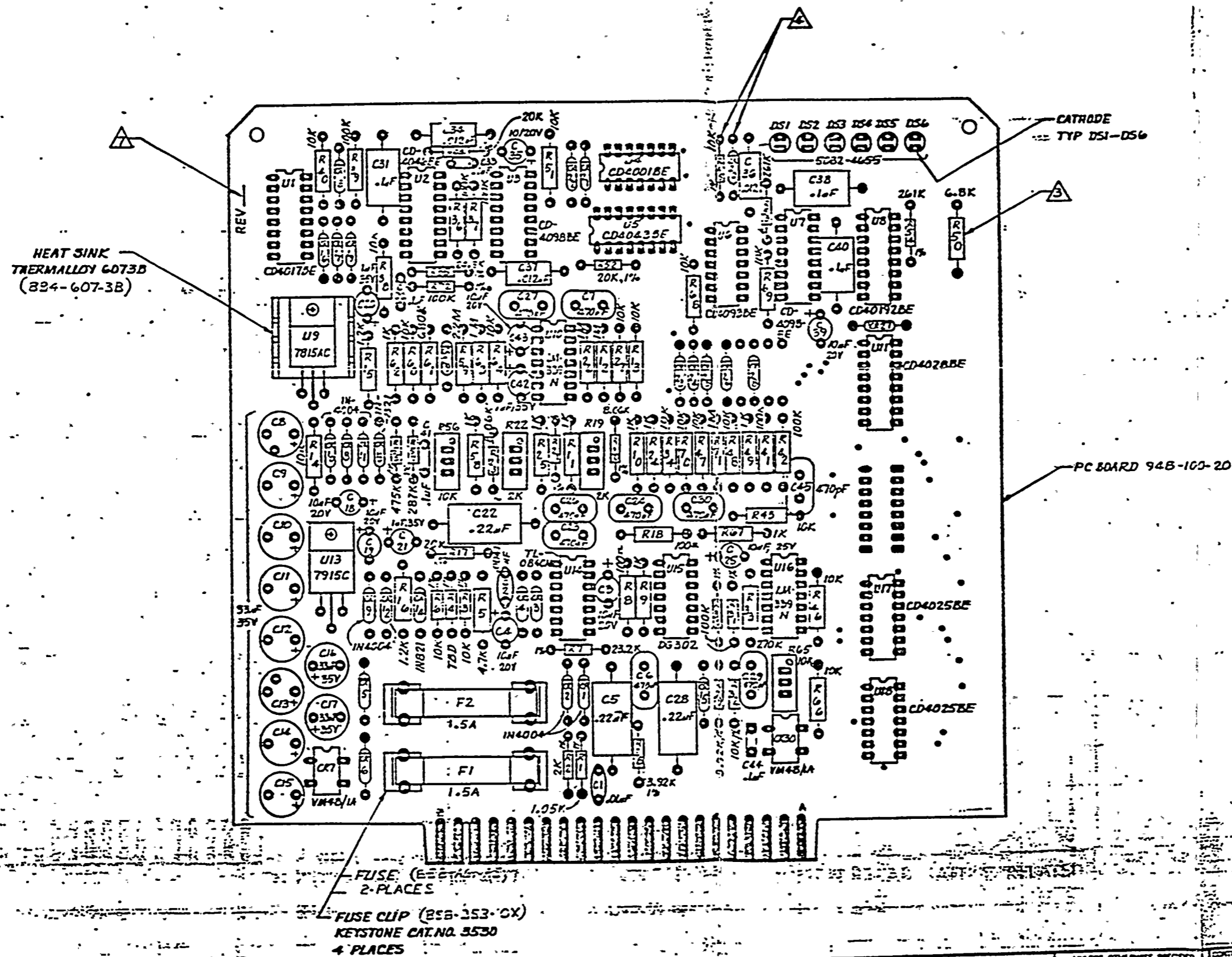
GULF STATES UTILITIES CO.
 RIVER BEND STATION UNIT 1
 P.O. NO. RBS-244,512-271
 PLC 503-1-101
 THE MO.
 ELGAR CORP.
 1000 UNIVERSITY CT.
 SAN DIEGO, CA 92111

FOR PARTS LIST SEE PL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON		CONTRACT NO. PRT. MADE FOR 30 2966	
DECIMALS	FRACTIONS	ANGLES	APPROVAL
XX = .01	1/32 = 1/32	± 1/2°	DATE
XX = .010			DRAWN BY PRESENT L-3-60
DO NOT SCALE THIS DRAWING			CHECKED BY
MATERIAL:			DATE
APPLICATOR	USED ON		POSTING 11-2-60 70-2-22
			JANEL
THE INFORMATION CONTAINED HEREIN WAS DEVELOPED BY AND IS THE PROPERTY OF ELGAR CORPORATION AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.		ELGAR CORPORATION SAN DIEGO, CALIFORNIA	
SCHEMATIC - LINE REGULATOR CONTROL		SIZE	CODE IDENT NO
		D. 25965	648-100-60
		DRAWING NO.	REV
			C



REV	DATE	APPROVED
A	RELEASED	DP 10-16-60
B	ECN # 265	SMS 2-6-61
C	ECN 2413, 2145, 2742, 235, 443-474	1-4-61
D	ECN 2792	2-1-61
E	ECN 2347	2-27-61



NUCLEAR SAFETY RELATED

FOR PARTS LIST SEE PL

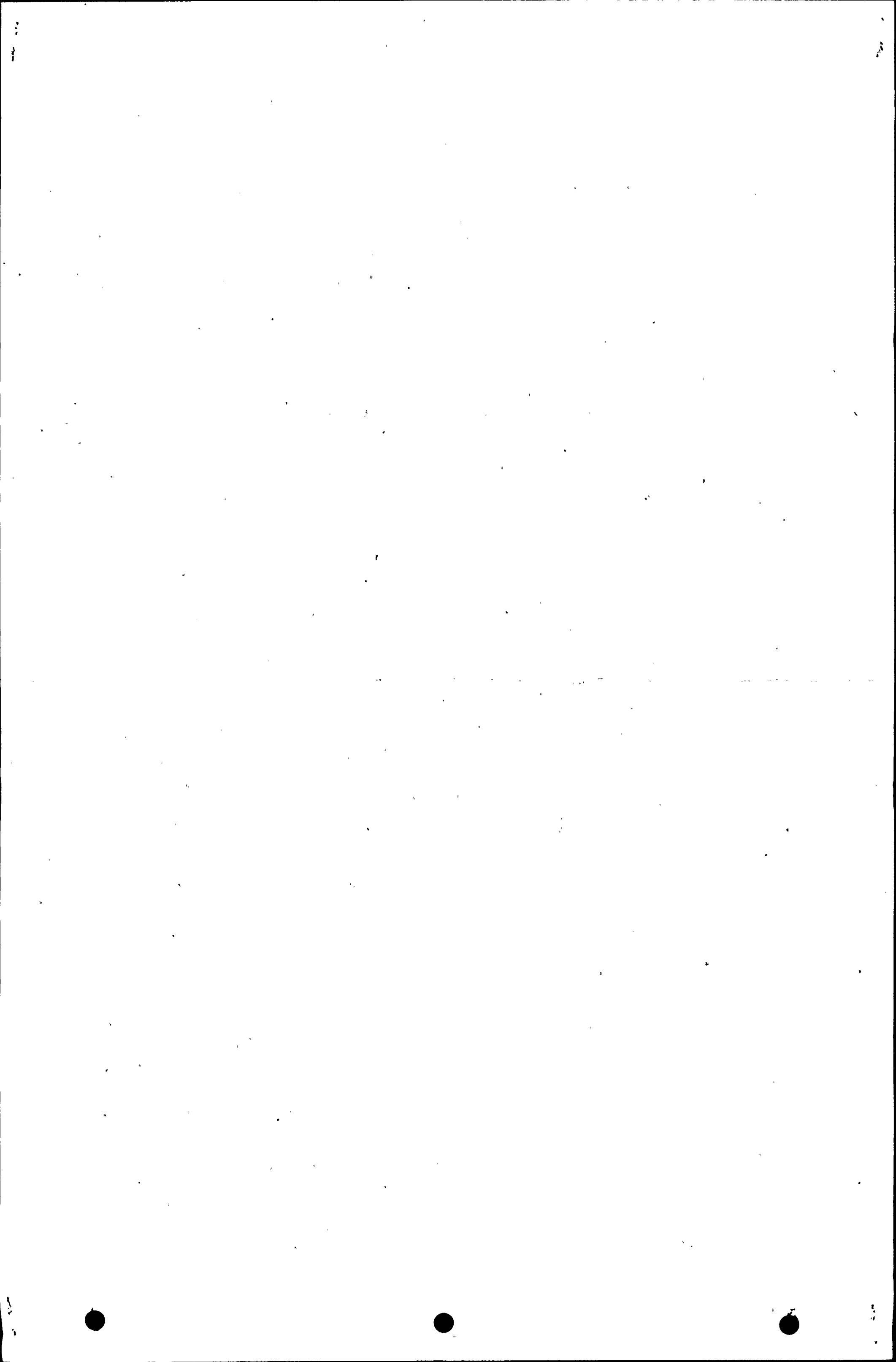
ELGAR

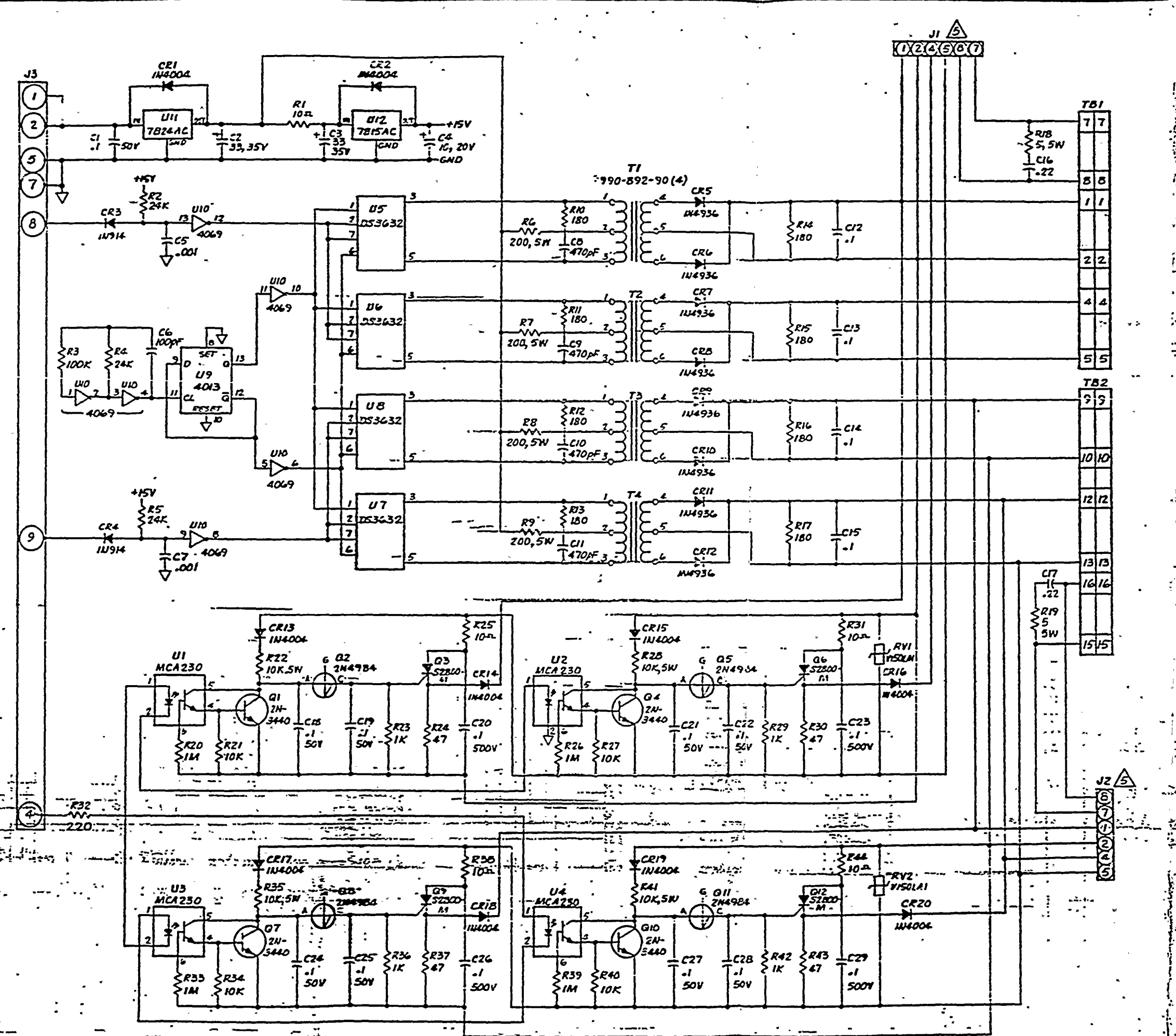
PC ASSY-
LINE REGULATOR CONTROL

- NOTES:
- UNMARKED DIODES ARE IN914.
 - FOR SCHEMATIC SEE DWG 648-100-60.
 - 1/2W RESISTOR LEAD SPACINGS IS .60".
 - DIODE AND 1% RESISTOR LEAD SPACINGS IS .50".

- 5. CONFORMAL COAT PER ELGAR SPEC 1005029.
- 6. IDENTIFY APPLICABLE DASH NO 1/2 REV.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES OR:		CONTRACT NO.	
DECIMALS	FRACTIONS	APPROVAL	DATE
.XX ± .01	1/32 ± 1/32	DRAWN	10-12-60
.XXX ± .010	± 1/32	CHECKED	
DO NOT SCALE THIS DRAWING		PROJ ENG	
		DATE	
MATERIAL:			
NOT ASSY.	USED ON		
APPLICATION			
FINISH:			
DRAWING NO. 648-100-40		REV E	
SCALE 2:1			





REV	DATE	BY	APP'D
A			
B	ECH 2413, A1 C REDESIGNED 025 B 11 CF	1-4-61	

NOTES: UNLESS OTHERWISE SPECIFIED
 1. RESISTOR VALUES ARE IN OHMS, 1/2W
 2. CAPACITOR VALUES ARE IN MICROFARADS.
 3. IC VOLTAGE & GND PINS:

IC	REF DESG	+15V	GND	UNUSED
3632	U5, 6, 7, 8	8	1	4
4013	U9	14	7	U9-A, B
4069	U10	14	7	

UNUSED INPUT PINS GND
 4. HIGHEST USED REFERENCE DESIGNATOR:
 C29, CR20, J1, Q12, R44, RV2, T4,
 TB2 & U12.

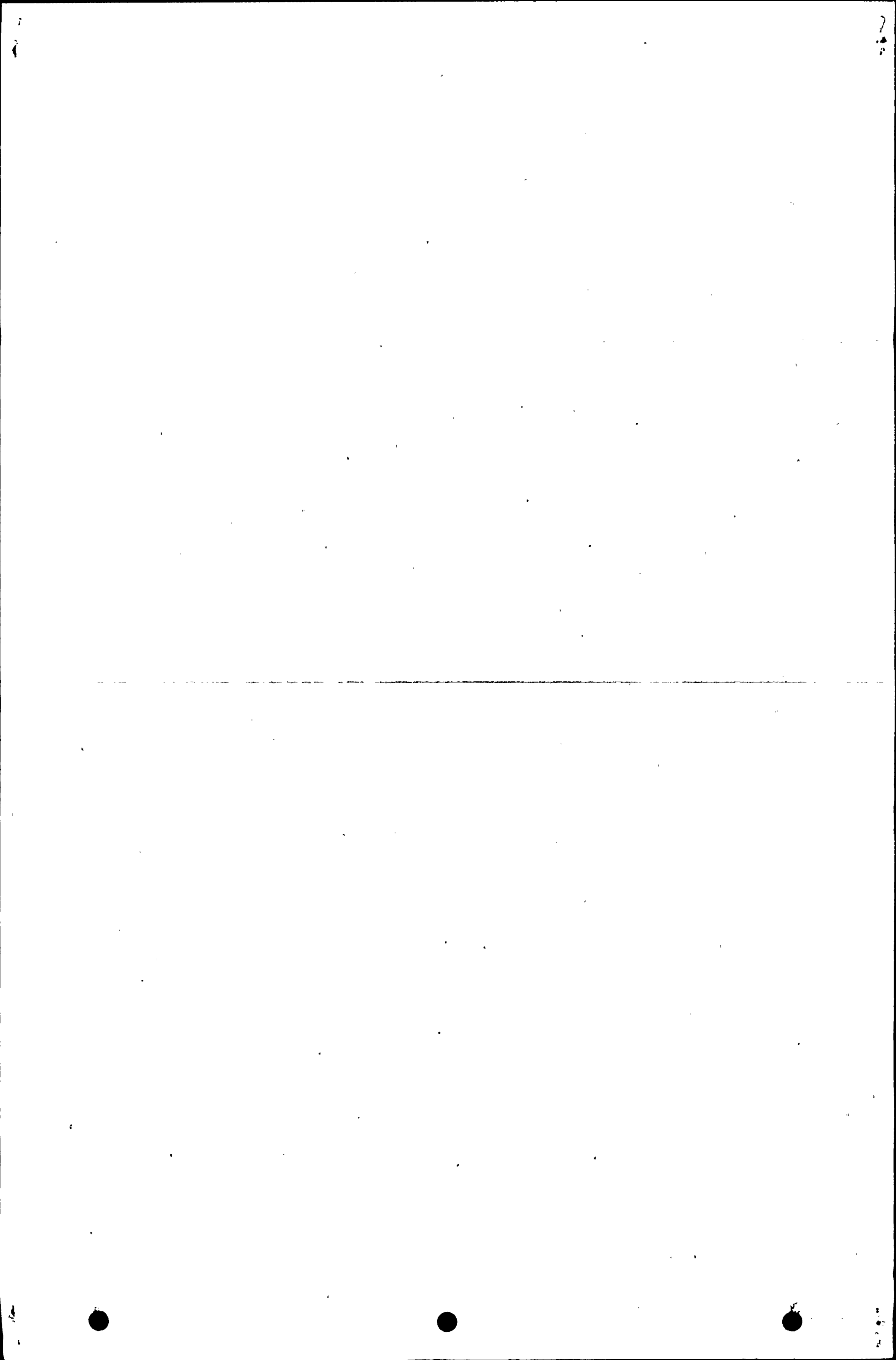
OPTIONAL PC BOARD INTERCONNECTOR.

GULF STATES UTILITIES CO.
 RIVER BEND STATION UNIT 1
 P.O. NO. RES-244, 513-271
 P.O. BOX 101
 TOLSON, TEXAS
 ELGAR CORP.
 8225 MERCURY CT.
 SAN DIEGO, CA 92111

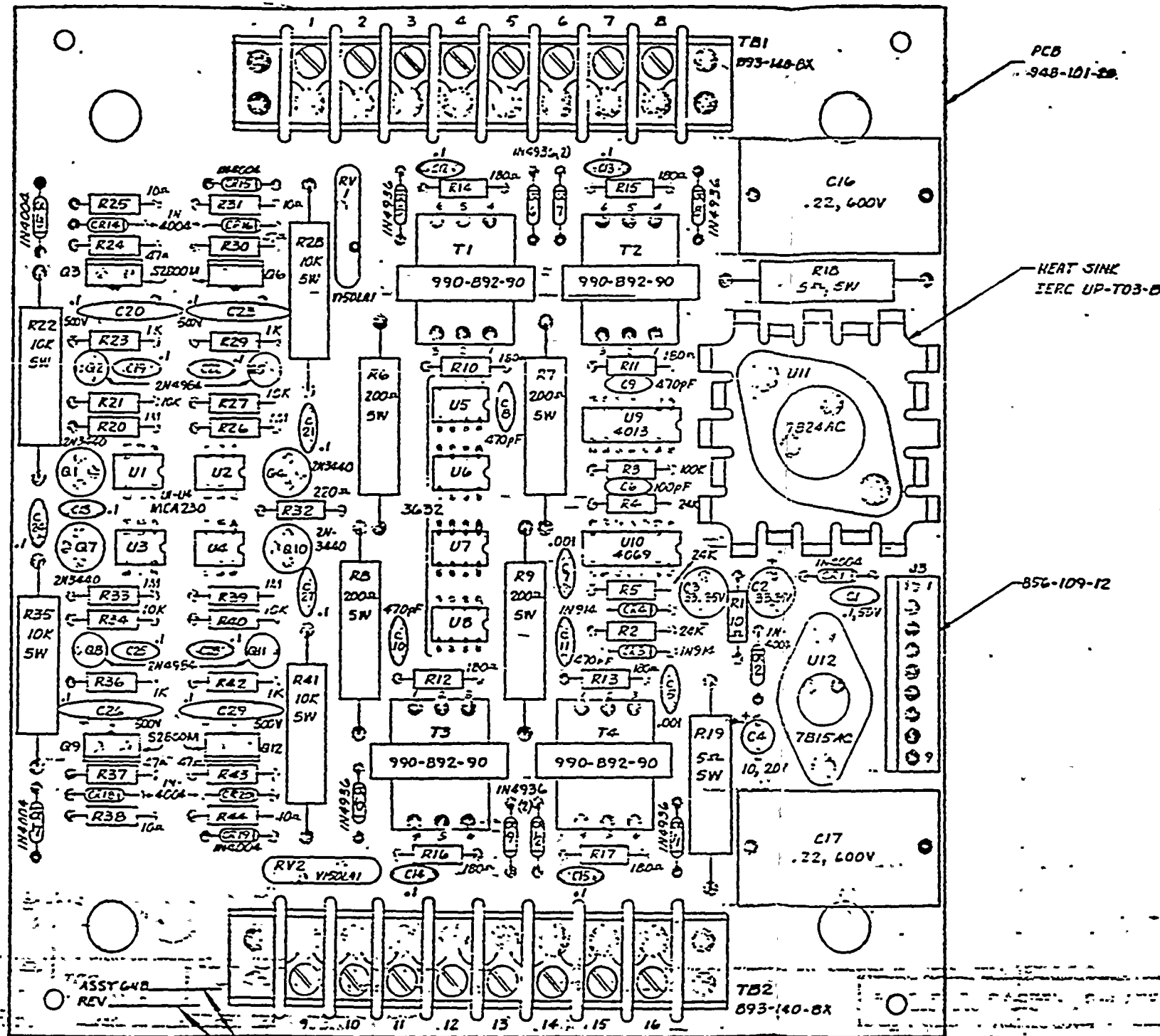
NUCLEAR SAFETY RELATED

		SCHEMATIC	
		LINE REGULATOR DRIVER	
REV	DATE	BY	APP'D
D	25965	64B-101-60	B
SCALE: NONE		SHEET 1 OF 1	

648-101-60



REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	Released	1-2-82	SLC
B	ECN# 680	SR5 2-16-82	KEB
C	PER ECN# 2428	7LLD 2-4-82	2-2-82
D	ECN 2780	DP	
E	ECN 2056	ZD 11-16-82	
F	ECN 3562	RD 2-5-82	

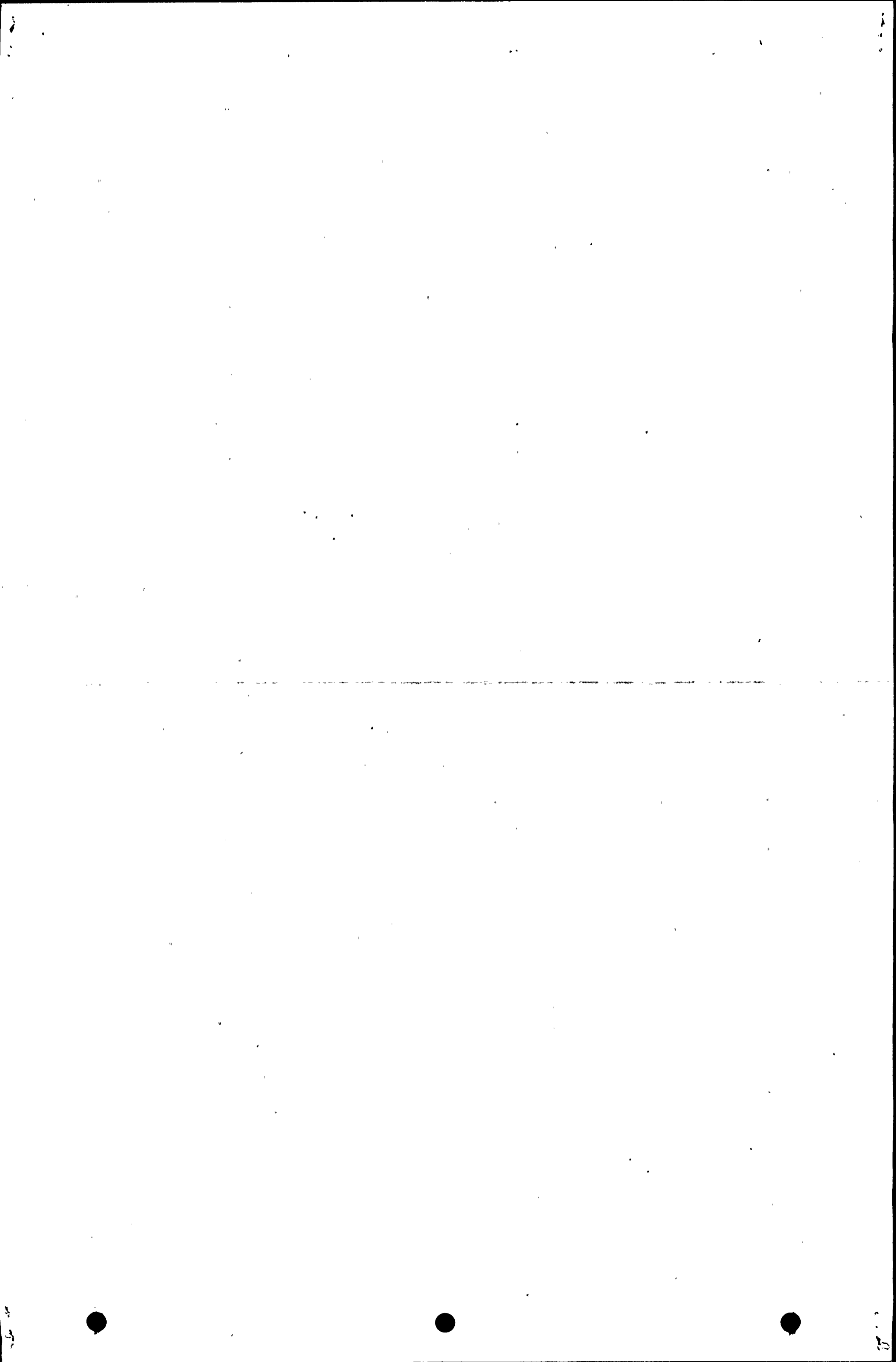


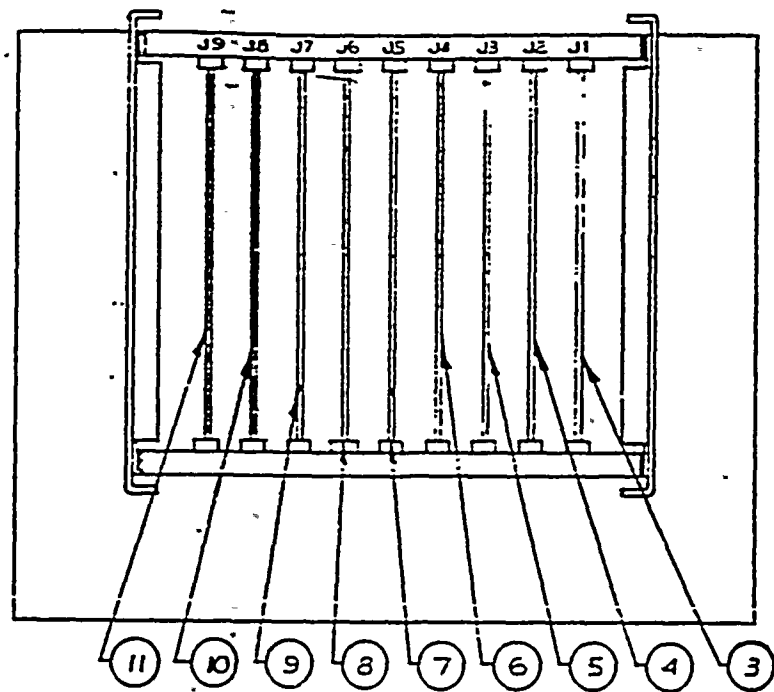
NUCLEAR SAFETY RELATED

FOR PARTS LIST SEE PL

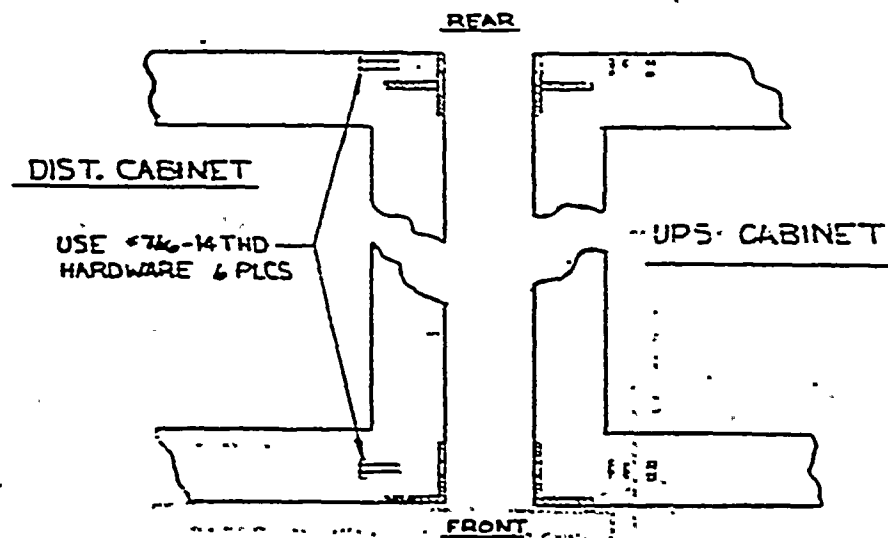
- NOTES: UNLESS OTHERWISE SPECIFIED
- STAMP ASSY NO. & REVISION.
 - FOR SCHEMATIC SEE DWG 648-101-60.
 - CONFORMAL COAT. PER ELGAR SPEC 1005029.
 - STAND U12 & U11 HEATSINK OFF PCB WITH ONE METAL FLAT WASHER ON EACH MOUNTING SCREW.

CONTRACT NO.		FIRST MADE FOR:	
APPROVAL	DATE	ELGAR	
DRAWN	DATE	PC ASSY-	
CHECKED	DATE	LINE REGULATOR DRIVER	
DESIGNED	DATE	SIZE	CODE IDENT NO
DATE	DATE	D	25965
		DRAWING NO.	648-101-40
		REV	F
		SCALE	1 OF 1





DETAIL - 13
CARD CAGE ASSY



SECTION A - A
CABINET BOLTING DETAIL

(SCALE 1/3)

ZONE / LIT.	DESCRIPTION	DATE	APPROVED
	SEE SHEET 1		

PARTS LIST

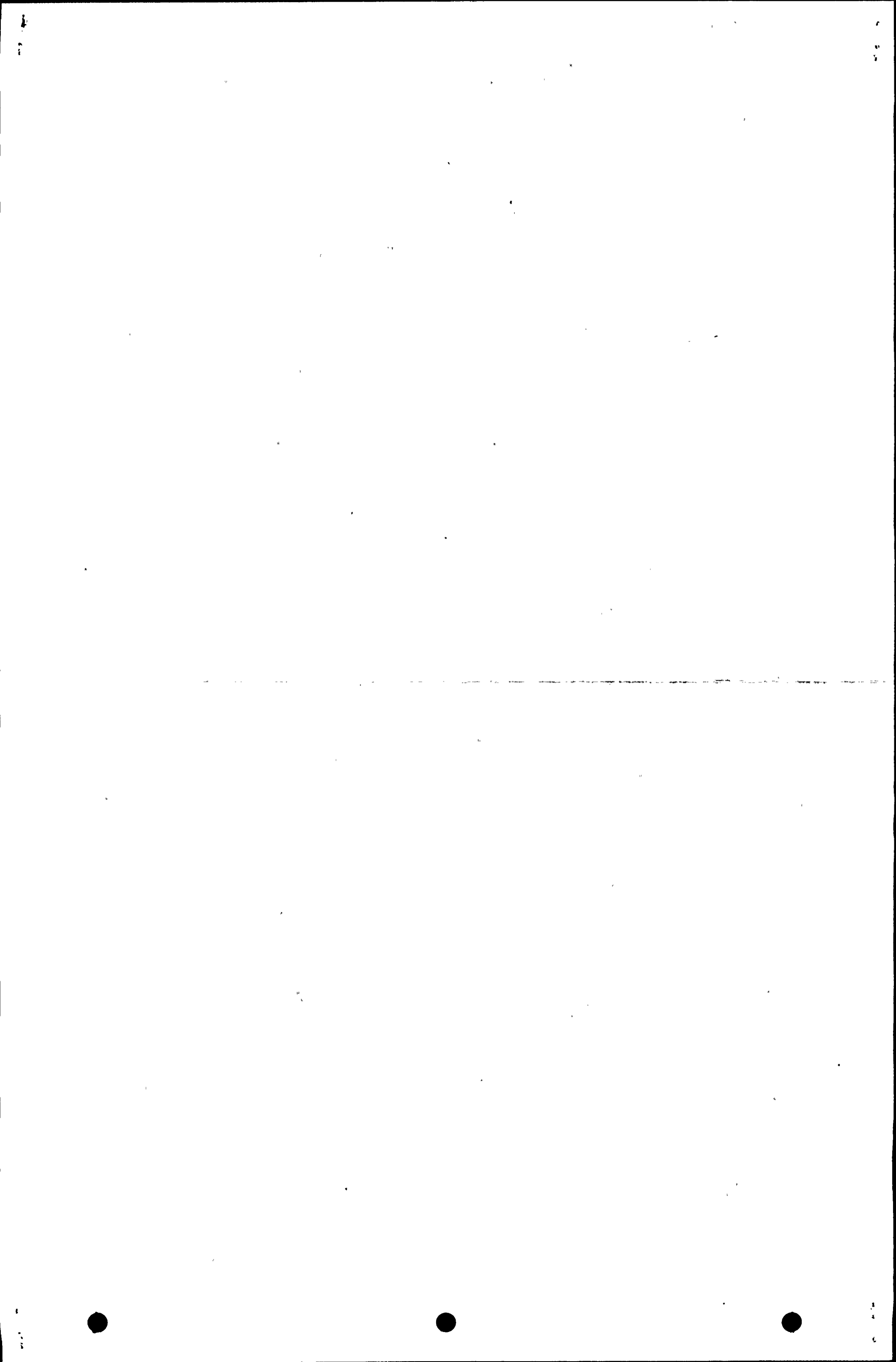
ITEM	PART NUMBER	DESCRIPTION	QTY	REF.
1	643-620-40	DISTRIBUTION CAB. ASSY	1	D
2	643-623-40	UPS CABINET ASSY	1	AB
3	5430003-01	CARD EXTENDER	1	J1
4	5490006-01	ALARM LOGIC ASSY	1	J2
5	5490016-01	CHRG. LOGIC "A" ASSY	1	J3
6	5490019-01	CHRG. LOGIC "D" ASSY	1	J4
7	5490002-01	S.S. LOGIC P.C.B.	1	J5
8	643-119-40	OSCILLATOR PCB ASSY	1	J6
9	5490005-01	ANALOG LOGIC ASSY	1	J7
10	5490014-01	3 BRIDGE 1/2 PWM LOGIC	1	J8
11	5490001-01	3 BRIDGE 1/2 DRIVER LOGIC	1	J9
12				
13				
14	943-416-20	SIDE PANEL - OUTSIDE CAB.	2	
15	9960029-01	LABEL CUSTOMER	1	
16	943-632-20	IDENT. PLATE - ELGAR	1	

NUCLEAR SAFETY RELATED

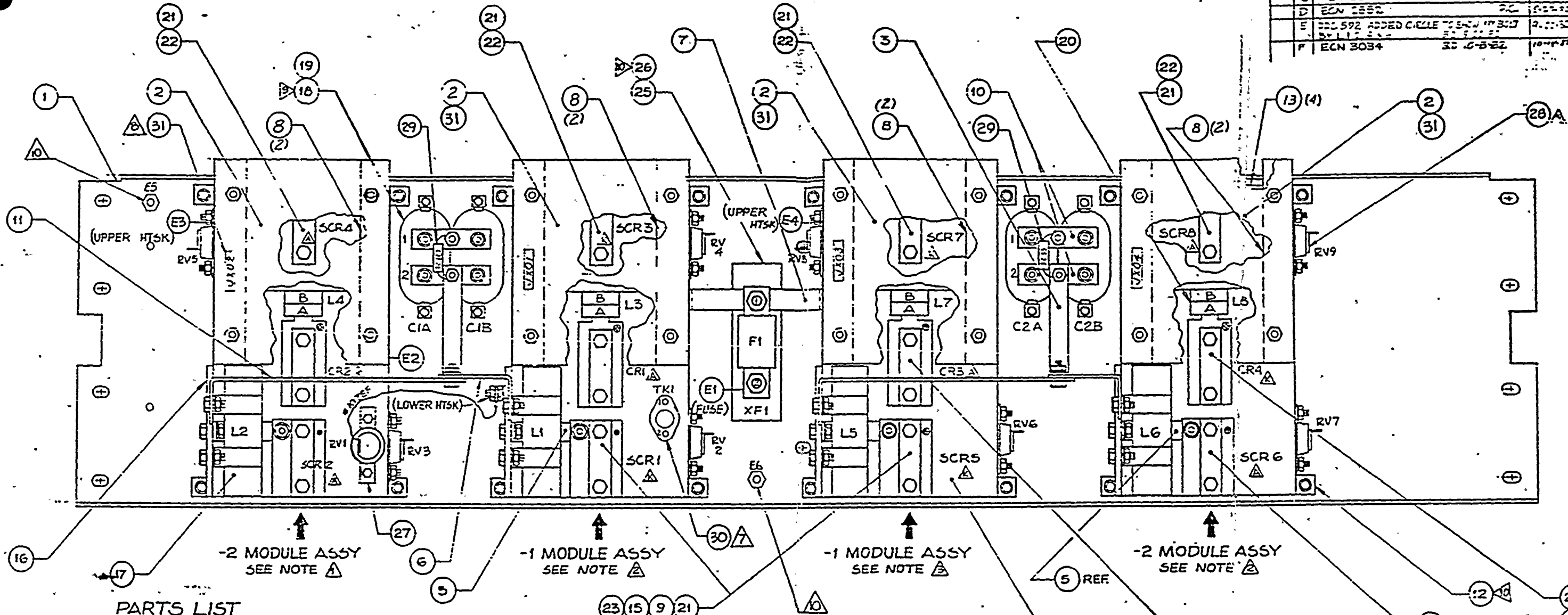
FOR PARTS LIST SEE PL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		CONTRACT NO.		DATE	
TOLERANCES ON		FIRST MADE FOR: 5/2 6073		DATE	
DECIMALS	FRACTIONS	ANGLES			
.XX ± .03	± 1/32	± 1/2°			
.XXX ± .010					
DO NOT SCALE THIS DRAWING		MATERIAL:		FINISH:	
NOT ASSY	USED ON	APPLICATION		PARTS LIST	
		543-507-40		D 25965 543-625-40 C	

ELGAR
 TOP ASSY
 UPS-253-106
 2 OF 2



REV	DESCRIPTION	DATE	APPROVED
A	ENG. RELEASED 4/2 2-25-81		
B	ECN 2434		
C	PER ECN 2621		
D	ECN 2552		
E	ADD 592 ADDED CIRCLE TO NEW 17 303		
F	ECN 3034		



PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	943-291-21	INVERTER PANEL	1
2	549009-03	DRIVE BD ASSY	4
3	943-238-2X	BUSS BAR, 2 HOLES	2
4	943-219-2X	BUSS BAR, SCR-HSK	2
5	943-224-2X	BUSS BAR, COMM-SCR	2
6	943-225-2X	BUSS BAR, COMM-COMM	2
7	943-252-2X	BUSS BAR, HSK-FUSE	2
8	9980043-01	DRIVE SD. MTC. BRKT	8
9	943-249-2X	BUSS BAR, SCR-COMM	4
10	943-250-2X	BUSS BAR, 3 HOLES	4
11	943-251-2X	BUSS BAR, COMM-COMM	2
12	932-216-2X	INSULATOR	2
13	943-220-2X	HEATSINK 4" UPPER	2
14	943-221-2X	HEATSINK 2" LOWER	2
15	943-222-2X	SPACER, SCR CLAMP	4
16	943-223-2X	INSULATOR, COMM REACT	4
17	990-626-9X	COMM. CHCKE	4
18	896-214-6E	CAPACITOR BRACKET	4
19	627-306-66	CAPACITOR 30M 500V	4
20	850-529-T5	CORE	4
21	646-SCR-MB	SCR CLAMP	12
22	646-584-15	SCR	4
23	646-C36-5E	SCR	4
24	645-A39-7E	DIODE	4
25	655-300-50	FUSE	1
26	658-P26-6C	FUSE HOLDER	1
27	650-130-20	VARISTOR RV1 (130V)	1
28	800-V32-0P	VARISTOR RV2-9 (320V)	8
29	800-V32-0P	RESISTOR 200K 1W	2

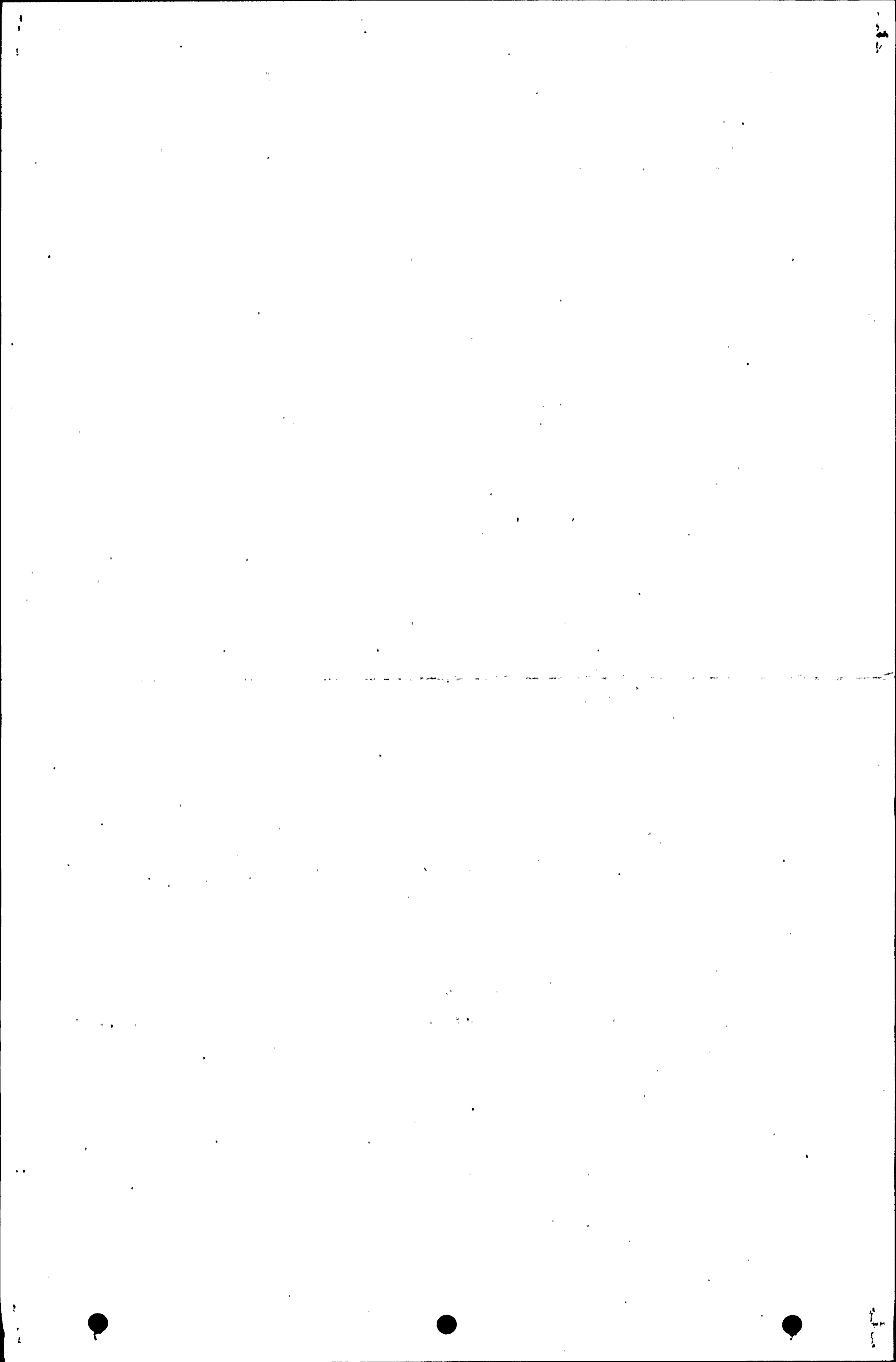
- ⑩ GLASSIC STANDOFF P/N 109-216-51 (FOR EDGE OF WIRING).
- ⑨ ▲ ANODE UP, ▲ CATHODE UP.
- ⑧ ASSIGN PANEL NO. FOR 'X'. EXAMPLE: J202 (FOR #2 PANEL) MOUNT PCB WITH MOLEX CONN. TOWARD LEFT.
- ⑦ #2 PANEL ONLY
- ⑥ PANEL HARDWARE SHALL BE THREAD ROLLING SCREWS AS INDICATED: ⑥ 6-32, ⑥ 10-32.
- ⑤ ITEM 28 - SEE ALTERED ITEM DRAWING (943-542-20) FOR MODIFICATION. ITEM 27 - SEE ALTERED ITEM DRAWING (943-282-20) FOR MODIFICATION.
- ④ SEE DWG 643-523-6X FOR SCHEMATIC REFERENCE.
- ③ SEE DWG 643-552-4X FOR MODULE ASSY REFERENCE.
- ② SEE DWG. 643-551-40 FOR MODULE ASSY REFERENCE.
- ① SEE DWG. 643-550-40 FOR MODULE ASSY REFERENCE.

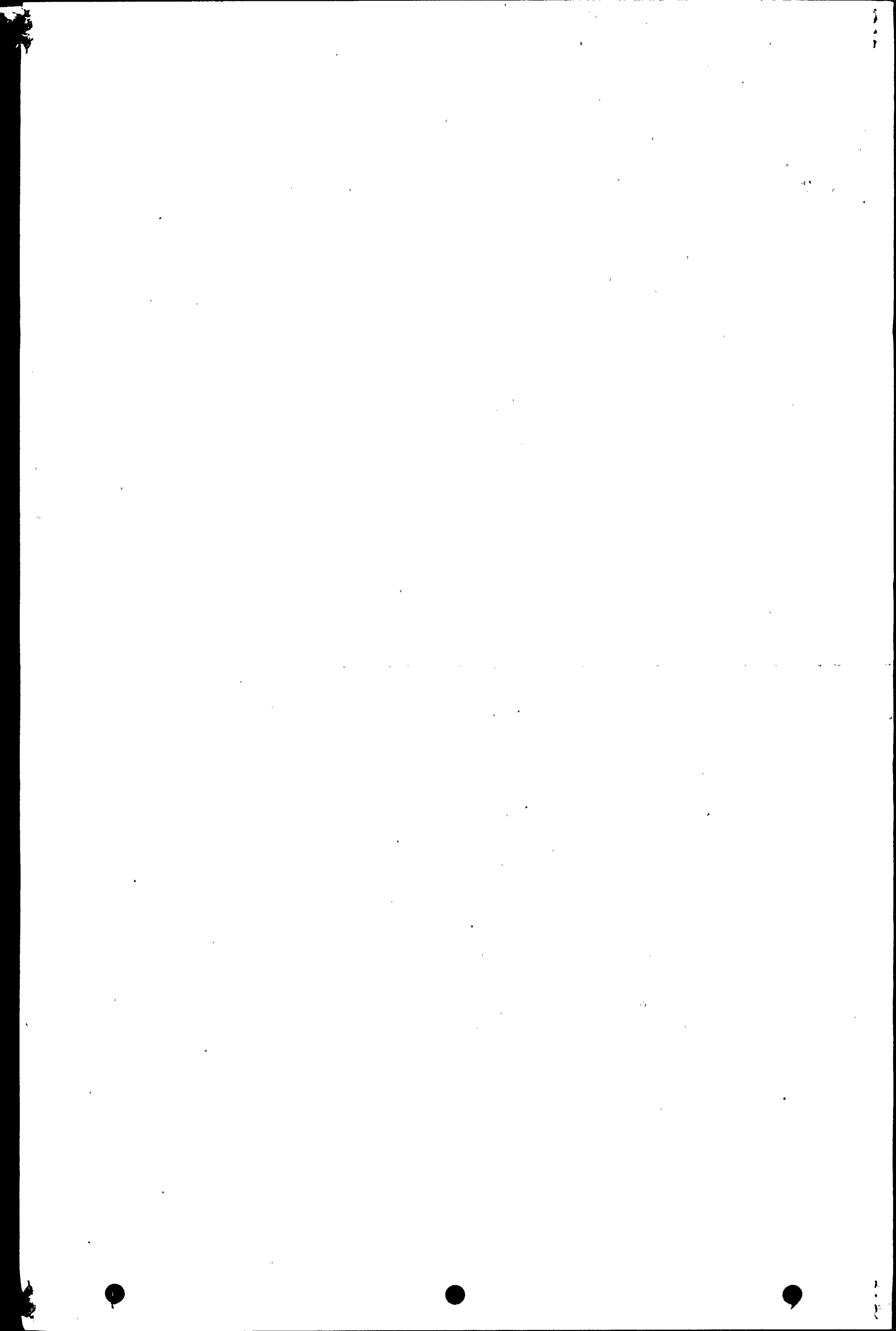
NOTES: UNLESS OTHERWISE SPECIFIED.

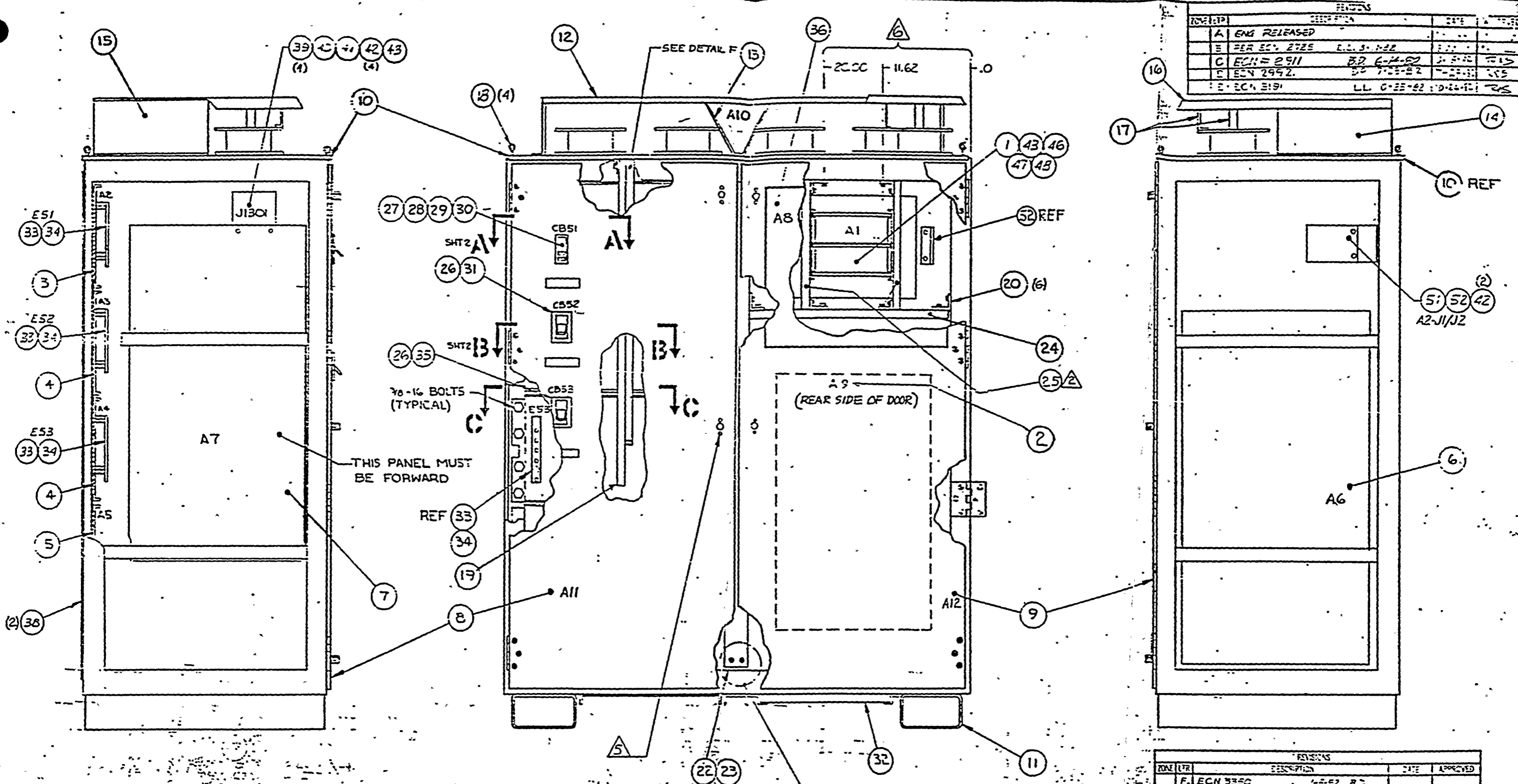
NUCLEAR SAFETY RELATED

FOR PARTS LIST SEE PL

UPS 253-1-107 UPS 253-1-108 UPS 253-1-105 UPS 253-1-102 UPS 253-1-104 UPS 503-1-102	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS FRACTIONS ANGLES .125 = .003 .005 = .001 .010 = .002 .015 = .003 .020 = .004 .030 = .006 .040 = .008 .050 = .010 .060 = .012 .070 = .015 .080 = .018 .090 = .020 .100 = .022 .125 = .028 .150 = .034 .175 = .040 .200 = .047 .250 = .059 .300 = .071 .375 = .089 .450 = .011 .500 = .012 .625 = .015 .750 = .019 .875 = .024 1.000 = .025 1.125 = .028 1.250 = .031 1.375 = .034 1.500 = .037 1.625 = .040 1.750 = .043 1.875 = .046 2.000 = .049 2.125 = .052 2.250 = .055 2.375 = .058 2.500 = .061 2.625 = .064 2.750 = .067 2.875 = .070 3.000 = .073 3.125 = .076 3.250 = .079 3.375 = .082 3.500 = .085 3.625 = .088 3.750 = .091 3.875 = .094 4.000 = .097 4.125 = .100 4.250 = .103 4.375 = .106 4.500 = .109 4.625 = .112 4.750 = .115 4.875 = .118 5.000 = .121 5.125 = .124 5.250 = .127 5.375 = .130 5.500 = .133 5.625 = .136 5.750 = .139 5.875 = .142 6.000 = .145 6.125 = .148 6.250 = .151 6.375 = .154 6.500 = .157 6.625 = .160 6.750 = .163 6.875 = .166 7.000 = .169 7.125 = .172 7.250 = .175 7.375 = .178 7.500 = .181 7.625 = .184 7.750 = .187 7.875 = .190 8.000 = .193 8.125 = .196 8.250 = .199 8.375 = .202 8.500 = .205 8.625 = .208 8.750 = .211 8.875 = .214 9.000 = .217 9.125 = .220 9.250 = .223 9.375 = .226 9.500 = .229 9.625 = .232 9.750 = .235 9.875 = .238 10.000 = .241 10.125 = .244 10.250 = .247 10.375 = .250 10.500 = .253 10.625 = .256 10.750 = .259 10.875 = .262 11.000 = .265 11.125 = .268 11.250 = .271 11.375 = .274 11.500 = .277 11.625 = .280 11.750 = .283 11.875 = .286 12.000 = .289 12.125 = .292 12.250 = .295 12.375 = .298 12.500 = .301 12.625 = .304 12.750 = .307 12.875 = .310 13.000 = .313 13.125 = .316 13.250 = .319 13.375 = .322 13.500 = .325 13.625 = .328 13.750 = .331 13.875 = .334 14.000 = .337 14.125 = .340 14.250 = .343 14.375 = .346 14.500 = .349 14.625 = .352 14.750 = .355 14.875 = .358 15.000 = .361 15.125 = .364 15.250 = .367 15.375 = .370 15.500 = .373 15.625 = .376 15.750 = .379 15.875 = .382 16.000 = .385 16.125 = .388 16.250 = .391 16.375 = .394 16.500 = .397 16.625 = .400 16.750 = .403 16.875 = .406 17.000 = .409 17.125 = .412 17.250 = .415 17.375 = .418 17.500 = .421 17.625 = .424 17.750 = .427 17.875 = .430 18.000 = .433 18.125 = .436 18.250 = .439 18.375 = .442 18.500 = .445 18.625 = .448 18.750 = .451 18.875 = .454 19.000 = .457 19.125 = .460 19.250 = .463 19.375 = .466 19.500 = .469 19.625 = .472 19.750 = .475 19.875 = .478 20.000 = .481 20.125 = .484 20.250 = .487 20.375 = .490 20.500 = .493 20.625 = .496 20.750 = .499 20.875 = .502 21.000 = .505 21.125 = .508 21.250 = .511 21.375 = .514 21.500 = .517 21.625 = .520 21.750 = .523 21.875 = .526 22.000 = .529 22.125 = .532 22.250 = .535 22.375 = .538 22.500 = .541 22.625 = .544 22.750 = .547 22.875 = .550 23.000 = .553 23.125 = .556 23.250 = .559 23.375 = .562 23.500 = .565 23.625 = .568 23.750 = .571 23.875 = .574 24.000 = .577 24.125 = .580 24.250 = .583 24.375 = .586 24.500 = .589 24.625 = .592 24.750 = .595 24.875 = .598 25.000 = .601 25.125 = .604 25.250 = .607 25.375 = .610 25.500 = .613 25.625 = .616 25.750 = .619 25.875 = .622 26.000 = .625 26.125 = .628 26.250 = .631 26.375 = .634 26.500 = .637 26.625 = .640 26.750 = .643 26.875 = .646 27.000 = .649 27.125 = .652 27.250 = .655 27.375 = .658 27.500 = .661 27.625 = .664 27.750 = .667 27.875 = .670 28.000 = .673 28.125 = .676 28.250 = .679 28.375 = .682 28.500 = .685 28.625 = .688 28.750 = .691 28.875 = .694 29.000 = .697 29.125 = .700 29.250 = .703 29.375 = .706 29.500 = .709 29.625 = .712 29.750 = .715 29.875 = .718 30.000 = .721 30.125 = .724 30.250 = .727 30.375 = .730 30.500 = .733 30.625 = .736 30.750 = .739 30.875 = .742 31.000 = .745 31.125 = .748 31.250 = .751 31.375 = .754 31.500 = .757 31.625 = .760 31.750 = .763 31.875 = .766 32.000 = .769 32.125 = .772 32.250 = .775 32.375 = .778 32.500 = .781 32.625 = .784 32.750 = .787 32.875 = .790 33.000 = .793 33.125 = .796 33.250 = .799 33.375 = .802 33.500 = .805 33.625 = .808 33.750 = .811 33.875 = .814 34.000 = .817 34.125 = .820 34.250 = .823 34.375 = .826 34.500 = .829 34.625 = .832 34.750 = .835 34.875 = .838 35.000 = .841 35.125 = .844 35.250 = .847 35.375 = .850 35.500 = .853 35.625 = .856 35.750 = .859 35.875 = .862 36.000 = .865 36.125 = .868 36.250 = .871 36.375 = .874 36.500 = .877 36.625 = .880 36.750 = .883 36.875 = .886 37.000 = .889 37.125 = .892 37.250 = .895 37.375 = .898 37.500 = .901 37.625 = .904 37.750 = .907 37.875 = .910 38.000 = .913 38.125 = .916 38.250 = .919 38.375 = .922 38.500 = .925 38.625 = .928 38.750 = .931 38.875 = .934 39.000 = .937 39.125 = .940 39.250 = .943 39.375 = .946 39.500 = .949 39.625 = .952 39.750 = .955 39.875 = .958 40.000 = .961 40.125 = .964 40.250 = .967 40.375 = .970 40.500 = .973 40.625 = .976 40.750 = .979 40.875 = .982 41.000 = .985 41.125 = .988 41.250 = .991 41.375 = .994 41.500 = .997 41.625 = 1.000 41.750 = 1.003 41.875 = 1.006 42.000 = 1.009 42.125 = 1.012 42.250 = 1.015 42.375 = 1.018 42.500 = 1.021 42.625 = 1.024 42.750 = 1.027 42.875 = 1.030 43.000 = 1.033 43.125 = 1.036 43.250 = 1.039 43.375 = 1.042 43.500 = 1.045 43.625 = 1.048 43.750 = 1.051 43.875 = 1.054 44.000 = 1.057 44.125 = 1.060 44.250 = 1.063 44.375 = 1.066 44.500 = 1.069 44.625 = 1.072 44.750 = 1.075 44.875 = 1.078 45.000 = 1.081 45.125 = 1.084 45.250 = 1.087 45.375 = 1.090 45.500 = 1.093 45.625 = 1.096 45.750 = 1.099 45.875 = 1.102 46.000 = 1.105 46.125 = 1.108 46.250 = 1.111 46.375 = 1.114 46.500 = 1.117 46.625 = 1.120 46.750 = 1.123 46.875 = 1.126 47.000 = 1.129 47.125 = 1.132 47.250 = 1.135 47.375 = 1.138 47.500 = 1.141 47.625 = 1.144 47.750 = 1.147 47.875 = 1.150 48.000 = 1.153 48.125 = 1.156 48.250 = 1.159 48.375 = 1.162 48.500 = 1.165 48.625 = 1.168 48.750 = 1.171 48.875 = 1.174 49.000 = 1.177 49.125 = 1.180 49.250 = 1.183 49.375 = 1.186 49.500 = 1.189 49.625 = 1.192 49.750 = 1.195 49.875 = 1.198 50.000 = 1.201 50.125 = 1.204 50.250 = 1.207 50.375 = 1.210 50.500 = 1.213 50.625 = 1.216 50.750 = 1.219 50.875 = 1.222 51.000 = 1.225 51.125 = 1.228 51.250 = 1.231 51.375 = 1.234 51.500 = 1.237 51.625 = 1.240 51.750 = 1.243 51.875 = 1.246 52.000 = 1.249 52.125 = 1.252 52.250 = 1.255 52.375 = 1.258 52.500 = 1.261 52.625 = 1.264 52.750 = 1.267 52.875 = 1.270 53.000 = 1.273 53.125 = 1.276 53.250 = 1.279 53.375 = 1.282 53.500 = 1.285 53.625 = 1.288 53.750 = 1.291 53.875 = 1.294 54.000 = 1.297 54.125 = 1.300 54.250 = 1.303 54.375 = 1.306 54.500 = 1.309 54.625 = 1.312 54.750 = 1.315 54.875 = 1.318 55.000 = 1.321 55.125 = 1.324 55.250 = 1.327 55.375 = 1.330 55.500 = 1.333 55.625 = 1.336 55.750 = 1.339 55.875 = 1.342 56.000 = 1.345 56.125 = 1.348 56.250 = 1.351 56.375 = 1.354 56.500 = 1.357 56.625 = 1.360 56.750 = 1.363 56.875 = 1.366 57.000 = 1.369 57.125 = 1.372 57.250 = 1.375 57.375 = 1.378 57.500 = 1.381 57.625 = 1.384 57.750 = 1.387 57.875 = 1.390 58.000 = 1.393 58.125 = 1.396 58.250 = 1.399 58.375 = 1.402 58.500 = 1.405 58.625 = 1.408 58.750 = 1.411 58.875 = 1.414 59.000 = 1.417 59.125 = 1.420 59.250 = 1.423 59.375 = 1.426 59.500 = 1.429 59.625 = 1.432 59.750 = 1.435 59.875 = 1.438 60.000 = 1.441 60.125 = 1.444 60.250 = 1.447 60.375 = 1.450 60.500 = 1.453 60.625 = 1.456 60.750 = 1.459 60.875 = 1.462 61.000 = 1.465 61.125 = 1.468 61.250 = 1.471 61.375 = 1.474 61.500 = 1.477 61.625 = 1.480 61.750 = 1.483 61.875 = 1.486 62.000 = 1.489 62.125 = 1.492 62.250 = 1.495 62.375 = 1.498 62.500 = 1.501 62.625 = 1.504 62.750 = 1.507 62.875 = 1.510 63.000 = 1.513 63.125 = 1.516 63.250 = 1.519 63.375 = 1.522 63.500 = 1.525 63.625 = 1.528 63.750 = 1.531 63.875 = 1.534 64.000 = 1.537 64.125 = 1.540 64.250 = 1.543 64.375 = 1.546 64.500 = 1.549 64.625 = 1.552 64.750 = 1.555 64.875 = 1.558 65.000 = 1.561 65.125 = 1.564 65.250 = 1.567 65.375 = 1.570 65.500 = 1.573 65.625 = 1.576 65.750 = 1.579 65.875 = 1.582 66.000 = 1.585 66.125 = 1.588 66.250 = 1.591 66.375 = 1.594 66.500 = 1.597 66.625 = 1.600 66.750 = 1.603 66.875 = 1.606 67.000 = 1.609 67.125 = 1.612 67.250 = 1.615 67.375 = 1.618 67.500 = 1.621 67.625 = 1.624 67.750 = 1.627 67.875 = 1.630 68.000 = 1.633 68.125 = 1.636 68.250 = 1.639 68.375 = 1.642 68.500 = 1.645 68.625 = 1.648 68.750 = 1.651 68.875 = 1.654 69.000 = 1.657 69.125 = 1.660 69.250 = 1.663 69.375 = 1.666 69.500 = 1.669 69.625 = 1.672 69.750 = 1.675 69.875 = 1.678 70.000 = 1.681 70.125 = 1.684 70.250 = 1.687 70.375 = 1.690 70.500 = 1.693 70.625 = 1.696 70.750 = 1.699 70.875 = 1.702 71.000 = 1.705 71.125 = 1.708 71.250 = 1.711 71.375 = 1.714 71.500 = 1.717 71.625 = 1.720 71.750 = 1.723 71.875 = 1.726 72.000 = 1.729 72.125 = 1.732 72.250 = 1.735 72.375 =
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REV	DESCRIPTION	DATE	APPROVED
A	ENG RELEASED		
B	PER ECN 2725	6-14-82	
C	ECN 2511	6-14-82	
D	ECN 2592	7-23-82	
E	ECN 2591	8-23-82	

- ▲ USED ON CB52 ONLY
- ▲ DRILL TWO HOLES (.391 DIA THRU) APPROX DIMENSIONS SHOWN (TC ENSURE F/P METERS ESS CARD CASE)
- ▲ USE FLAT WASHERS BEHIND LATCHES AS NECESSARY TO ALIGN WITH SLOTS IN ITEM 23
- ▲ DO NOT OPEN CKT BKRS. TERMINATE EXISTING 'SELF' WIRES PER WIRELIST.
- ▲ MOUNT ITEM 4445 TO ITEM 26 WITH 2-6 CSK SCREWS BEFORE MOUNTING CKT. BKR.
- ▲ ASSEMBLE WITH OPEN SIDE OF CHANNEL FACING TOWARD ITEM 1 (CENTER).

SEE DETAIL D
SHEET 2

REV	DESCRIPTION	DATE	APPROVED
F	ECN 3350	4-22-82	

NUCLEAR SAFETY RELATED

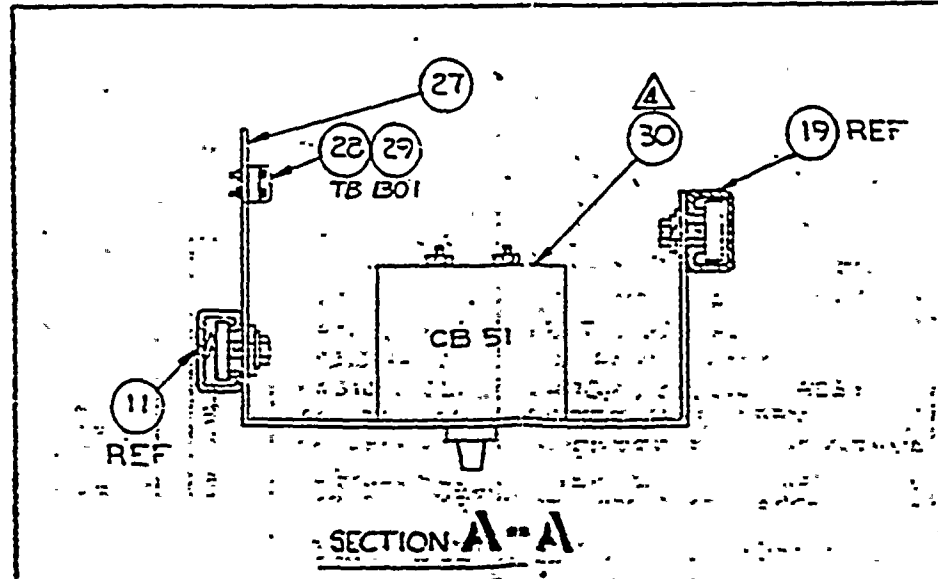
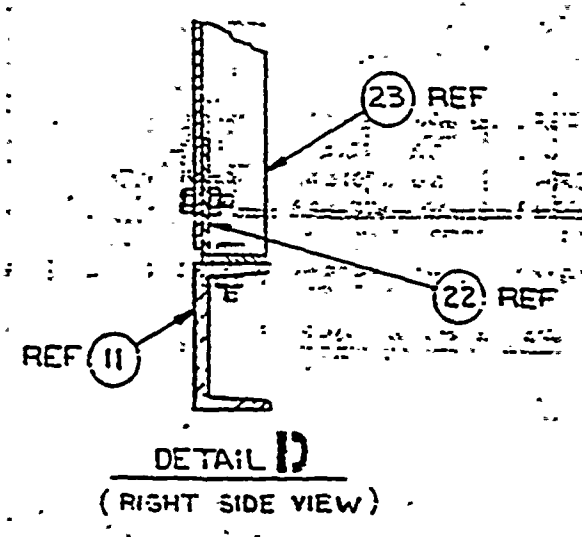
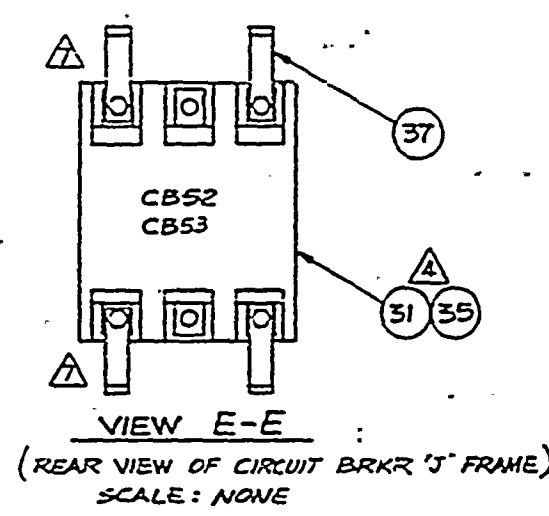
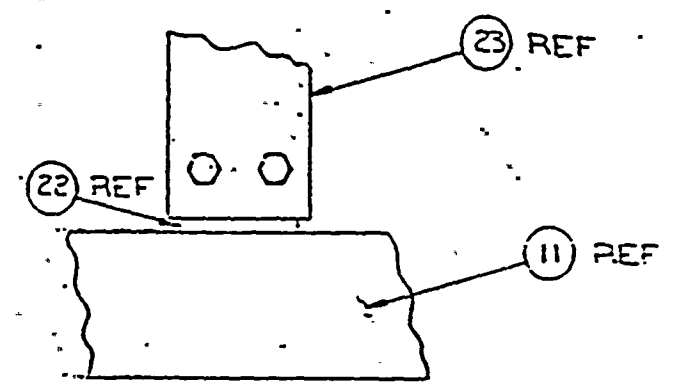
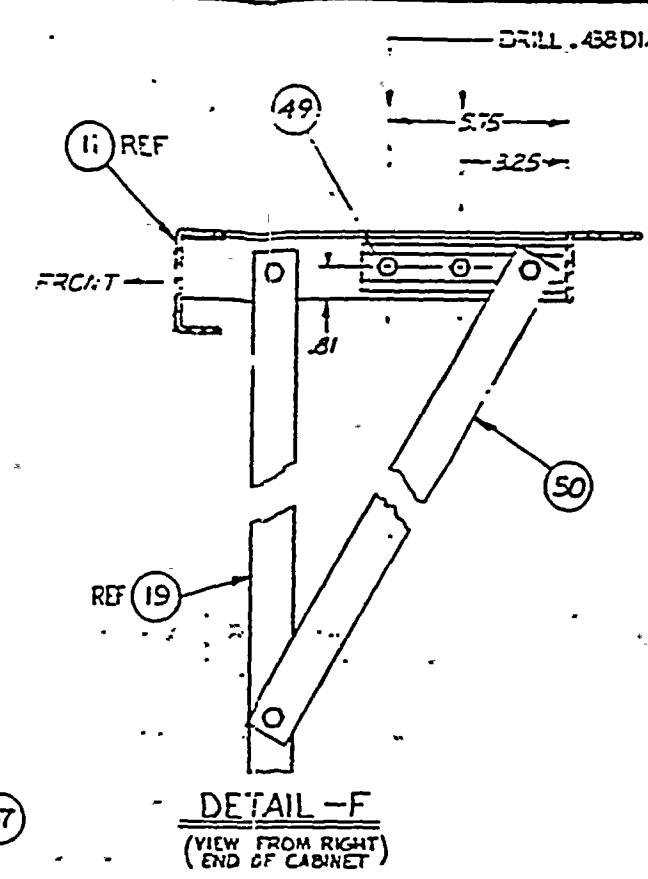
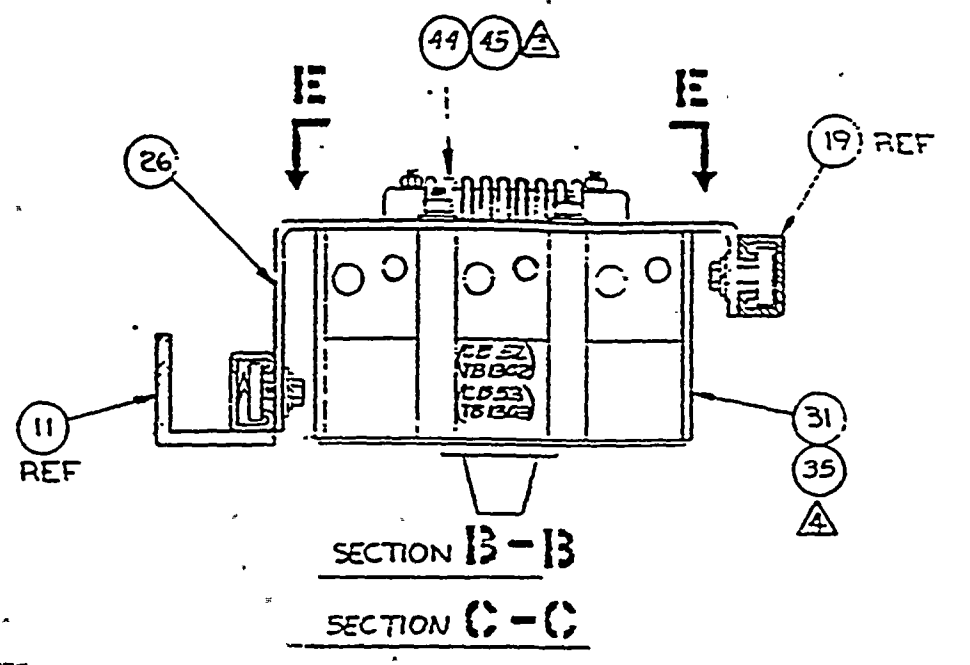
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ON:		CONTRACT NO.	
DECIMALS	FRACTIONS	FIRST MADE FOR 512-4595	
±.015	±.005	DESIGN	DATE
±.010	±.003	DRAWN	APPROVED
±.005	±.002	CHECKED	
±.002	±.001	PREPARED	
DO NOT SCALE THIS DRAWING		CHECKED	
PART NO. UPS 253-1-106		MATERIAL	
REV. 001		DATE	
DESCRIPTION		DATE	
OPERATION		DATE	
DRAWN		DATE	
CHECKED		DATE	
PREPARED		DATE	
CLEN 643-515-40		DATE	
A-12		DATE	
D 25955		DATE	
643-623-40		DATE	

SELGAR

UPS CABINET ASSY
UPS 253-1-106

REV	DESCRIPTION	DATE
1	ISSUED	10/1/72

(SEE SHEET I)



ITEM	PART NO	DESCRIPTION	QTY	REF
52	543006-01	CURRENT XDCR PCB A	1	AZ-11/J2
51	943-595-20	PCB BRACKET	1	
50	552076-01	C/2 BRACE	1	
49	5350077-01	C/B BRACE	1	
48	109-510-5X	MOLEX PINS	50	
47	109-010-6X	MOLEX PINS	500	
46	856-117-11	17-PIN CONN.	2	
45	893-MS1-8X	MARKER STRIP	2	
44	893-601-8X	8-PIN TERM BLOCK	2	TB 1302.3
43	856-309-11	9-PIN MOLEX	20	
42	109-216-3X	FIBER WASHER #8	6	
41	628-137-41	FUSE SENSE BD.	1	J1301
40	9491018-01	FUSE SENSE BD. BRACKET	1	
39	109-232-5X	STANDOFFS	4	
38	9431048-01	REAR PANEL COVER	2	
37	943-594-20	BUS BAR ANGLE	6	
36	643-626-40	CONTROL PANEL ASSY	1	A8
35	852-300-2P	CIRCUIT BRKR SS OUTPUT	1	CB53
34	109-216-51	STANDOFF-GLASTIC	6	
33	934-248-22	BUSS BAR	3	E51,52,53
32	105-17X-38	AIR FILTER 17.38 X30X.88	1	
31	852-253-3P	CIRCUIT BRKR-BATT INPUT	1	CB52
30	852-136-90	CIRCUIT BRKR-AC INPUT	1	CB51
29	893-MS1-6X	MARKER STRIP	1	
28	893-601-6X	TERMINAL BLOCK-6 PIN	1	TB 1301
27	943-557-20	CB MNT BRKT-'E' FRAME	1	
26	943-232-21	CB MNT BRKT-'J' FRAME	2	
25	943-392-20	FRONT BRACE-CARD CAGE	2	
24	943-391-20	LOWER BRACE-CARD CAGE	1	
23	943-393-20	CENTER BRACE-CHASSIS	1	
22	943-403-20	BRACE ANGLE-CHASSIS	2	
21				
20	109-PI0-63	90° ANGLE-UNISTRUT	6	
19	943-418-20	SWITCH SUPPORT	2	
18	109-EB2-5X	EYE BOLT	4	
17	943-420-20	SPACER BRKT-VENT HOOD	2	
16	943-417-20	VENT HOOD-FRONT	1	
15	943-255-20	L SUPPORT VENT HOOD	1	
14	943-254-20	R SUPPORT VENT HOOD	1	
13	943-253-20	VENT HOOD BRACE	1	
12	943-242-20	VENT HOOD	1	
11	643-624-40	CHASSIS ASSY-UPS	1	
10	643-518-40	FAN MT PNL ASSY-UPS	1	A10
9	643-519-40	RIGHT DOOR ASSY-UPS	1	A12
8	643-520-40	LEFT DOOR ASSY	1	A11
7	5431003-03	I/O PANEL ASSY	1	A7
6	5431086-02	CHGR / SS/DIODE ASSY	1	A6
5	5321074-01	FILTER PNL ASSY	1	A5
4	643-524-40	INVERTER PNL ASSY-TKVA	2	A3,4
3	643-523-40	INVERTER PNL ASSY-12KVA	1	A2
2	643-530-42	RT. DOOR PLATE ASSY	1	A9
1	5491003-04	CARD CAGE ASSY	1	A1

ITEM	PART NO	DESCRIPTION	QTY	REF
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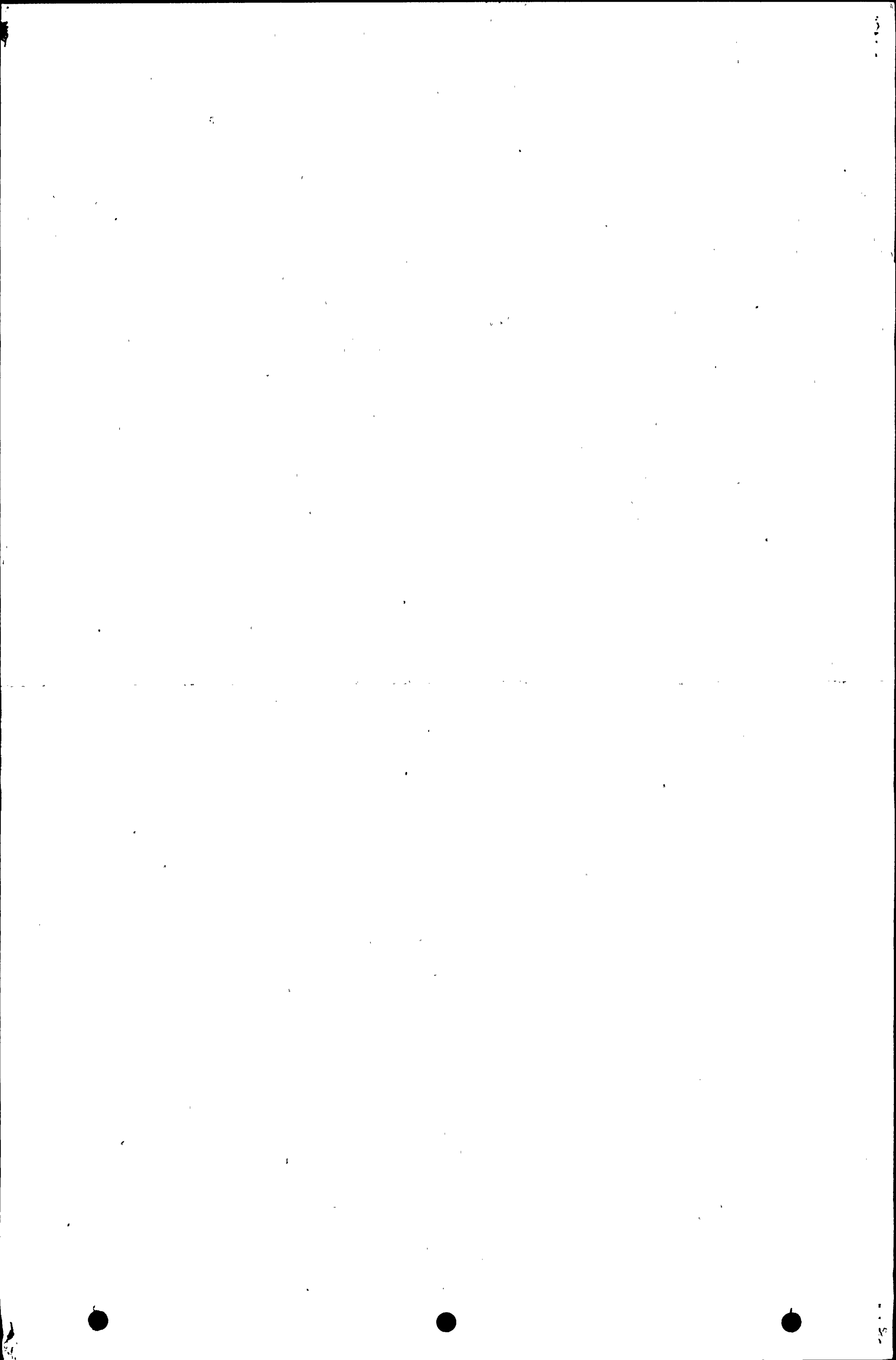
ELGAR
A QUALITY COMPANY

UPS CABINET ASSY

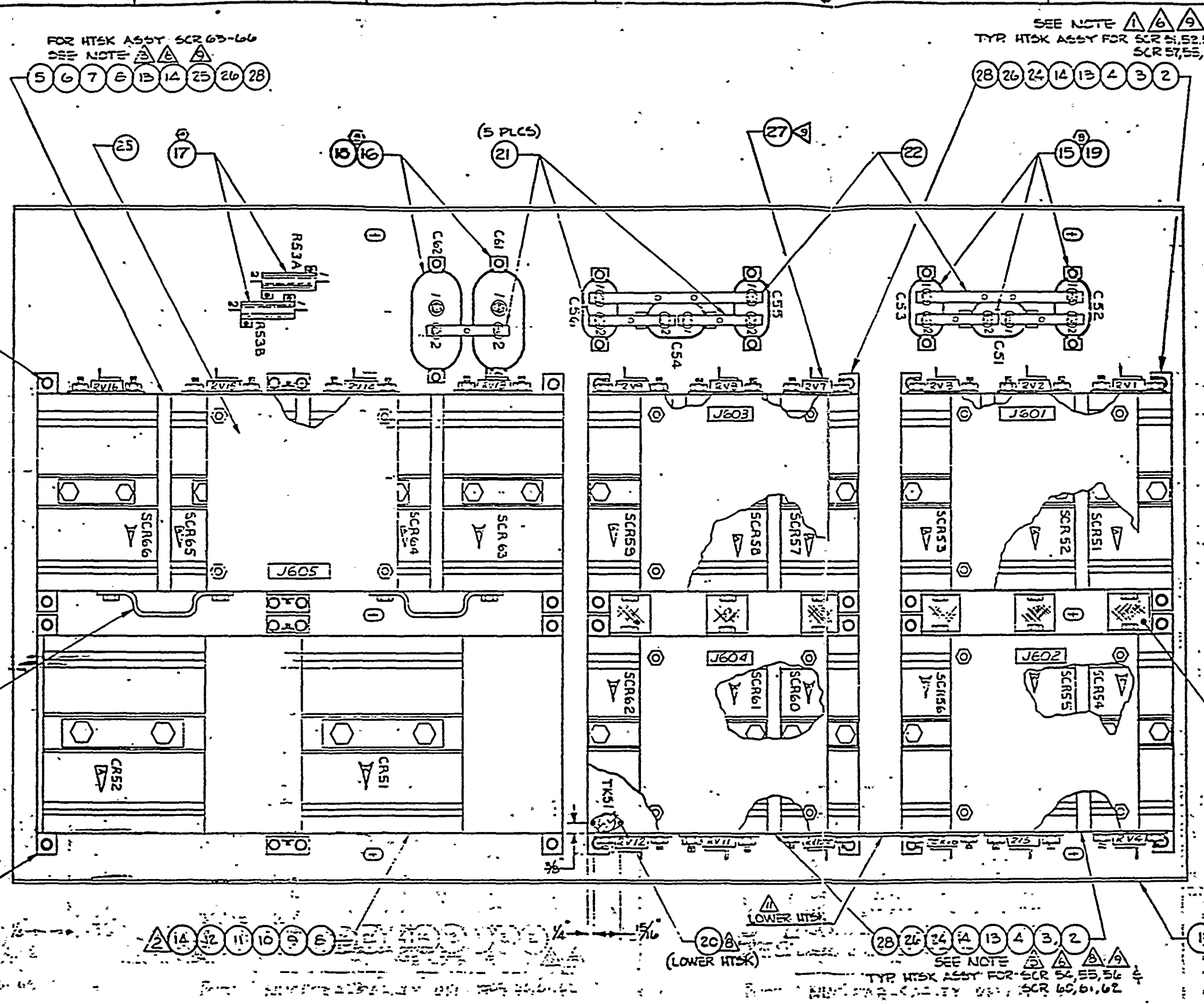
REV	DESCRIPTION	DATE
D	25965	643-623-40

SCALE: 1" = 1"

NUCLEAR SAFETY RELATED



REVISED			
NO.	DESCRIPTION	DATE	APPROVED
1	SEE SHEET 1,		

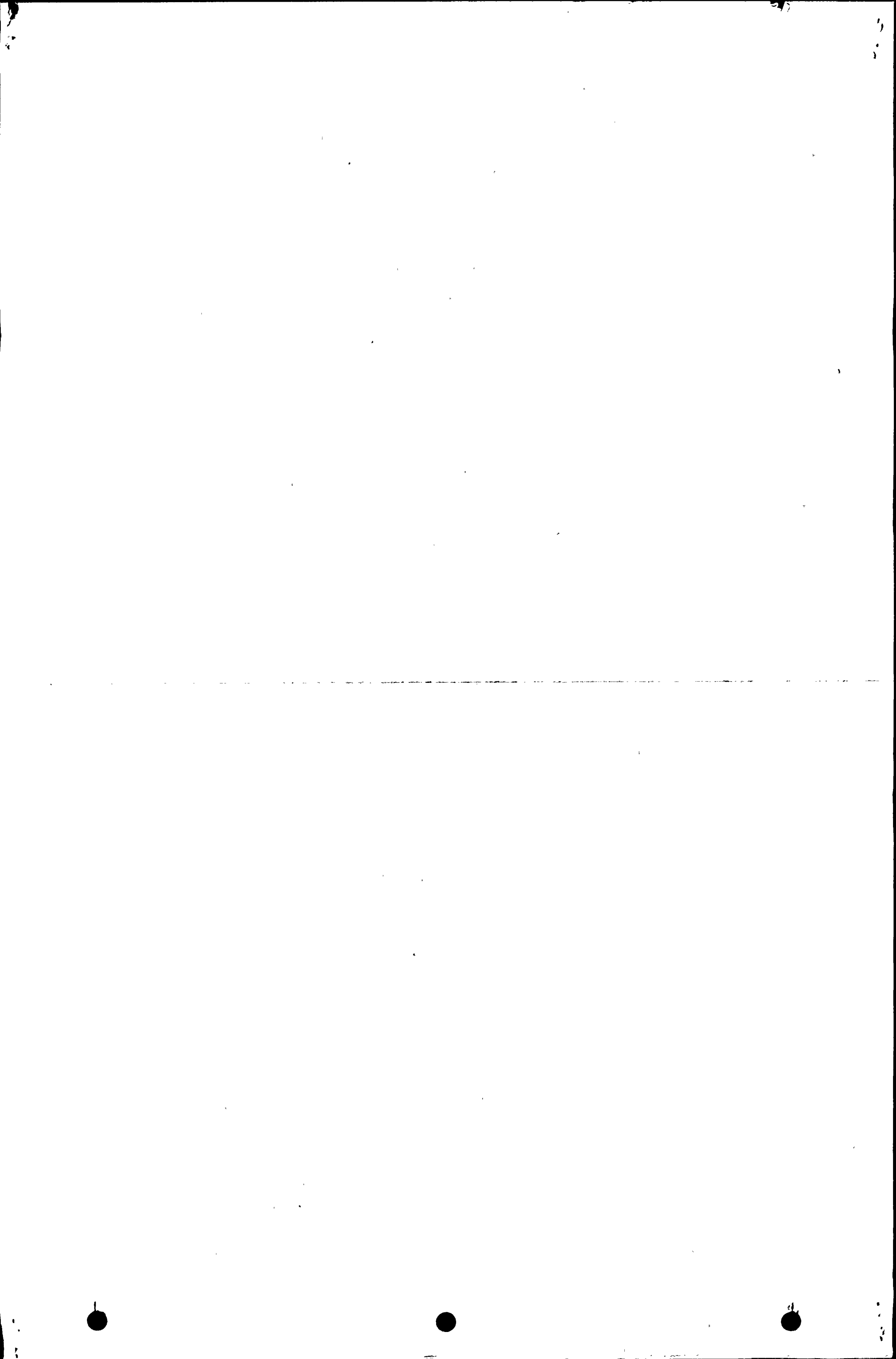


- NOTES: UNLESS OTHERWISE SPECIFIED
- ▲ INSTALL XI 2/0 TEFZEL WIRE 4 LUGS
 - ▲ MOUNT ITEM 29 TO UPPER HEATSINKS, USE 5/16-18 FASTNERS.
 - ▲ ALL MOV. MOUNTED ON THE UPPER HEATSINKS SEE DWG. 943-542-20 FOR MOD.
 - ▲ DRILL .06 DIA HOLE (2 PLCS). MOUNT TK 51 WITH #4 ROLOCK FASTNERS.
 - 2 ▲ DESIGNATES CATHODE UP
 - ▲ DESIGNATES ANODE UP
 - ▲ MOUNT PCB'S WITH MOLEX TOWARD: LEFT SIDE OF PNL (J601-J604) RIGHT SIDE OF PNL (J605)
 - ▲ FOR ASSY SEE REF. DRAWING 643-537-40
 - ▲ USE SELF THREADING SCREWS FOR THE FOLLOWING SYMBOLS: (A) #4, (B) #6, (C) #10
 - ▲ FOR ASSY SEE REF. DRAWING 643-535-40
 - ▲ FOR ASSY SEE REF. DRAWING 643-677-40
 - ▲ FOR ASSY SEE REF. DRAWING 643-536-40

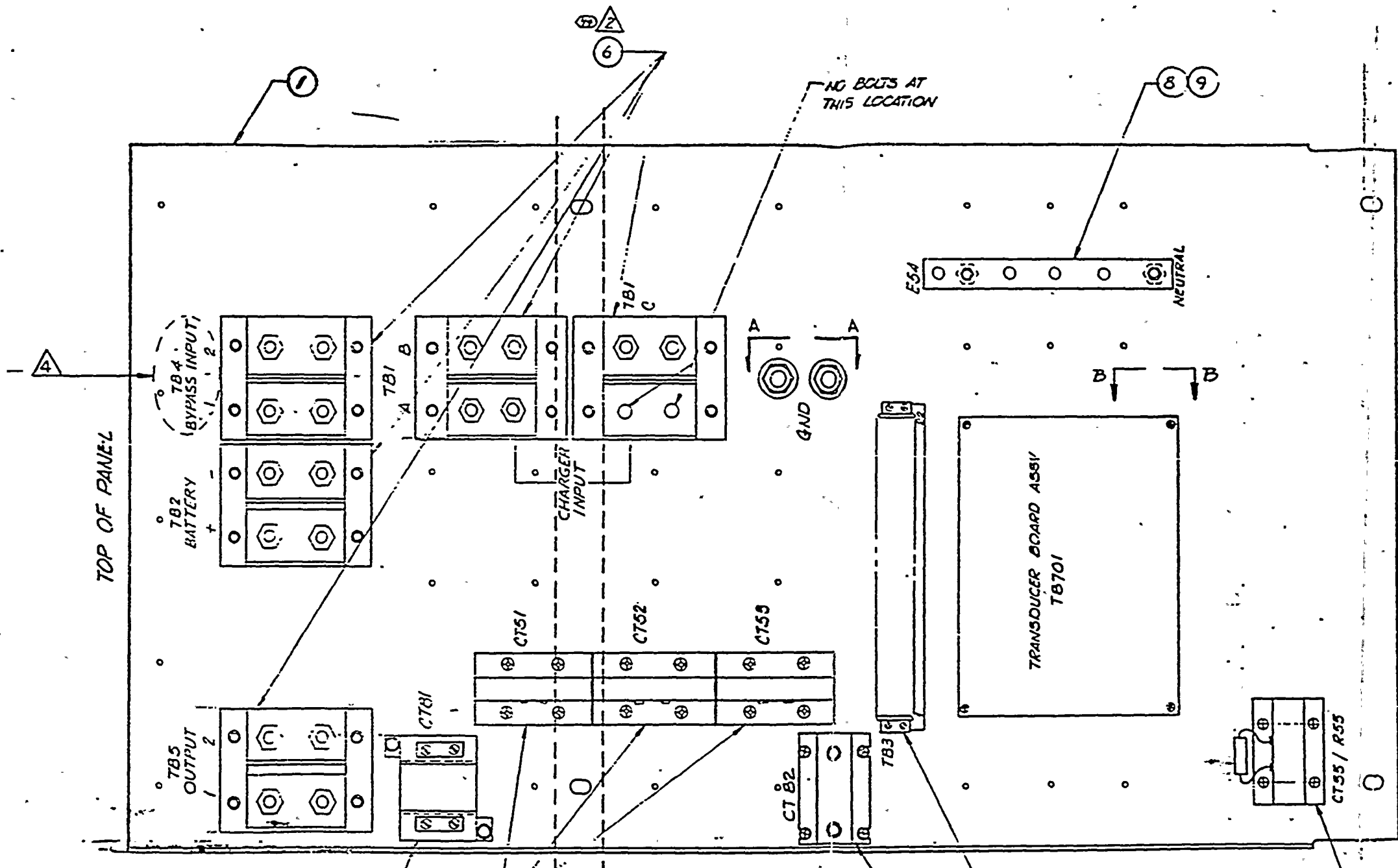
NUCLEAR-SAFETY RELATED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON		DRAWING NO. 643-521-20		DATE 1-23-52	
DECIMALS	FRACTIONS	ANGLES	DATE	DATE	DATE
± .01	± 1/32	± 1/16	1-23-52	1-23-52	1-23-52
DRAWN BY JPS		CHECKED BY JPS		DATE 1-23-52	
-02 543-625-40		JPS253-1-106		SCALE 1/2" = 1"	
MATERIAL		MATERIAL		MATERIAL	
NEXT ASSY USED ON		NEXT ASSY USED ON		NEXT ASSY USED ON	
APPROVAL		APPROVAL		APPROVAL	
DESIGNED BY		DESIGNED BY		DESIGNED BY	
CHECKED BY		CHECKED BY		CHECKED BY	
DATE 1-23-52		DATE 1-23-52		DATE 1-23-52	
SCALE 1/2"		SCALE 1/2"		SCALE 1/2"	
CLCN 643-521-20		CLCN 643-521-20		CLCN 643-521-20	
A6		A6		A6	
D 25955		D 25955		D 25955	
5431086		5431086		5431086	
SCALE 1/2"		SCALE 1/2"		SCALE 1/2"	

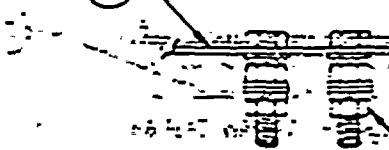
9901575



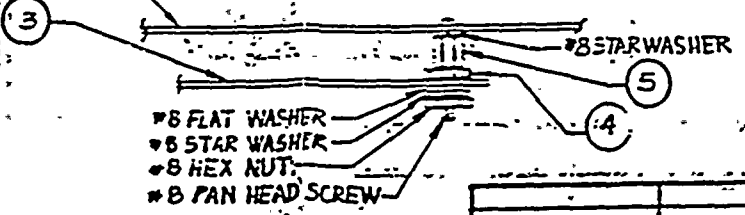
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
		SEE 5-1		



VIEW A-A



VIEW B-B (TYP & PLCS)



3 PREVENT INTERFERENCE WITH JIN STRUT BRG. ALL PROTRUDING FASTENERS MUST BE CUT FLUSH WITH BACK OF PANEL PRIOR TO MOUNTING PANEL IN CRASSIS.
 2 SEE DRAWING 642-234-41 FOR ASSEMBLY.

1. USE ROLCK SELF-THREADING SCREWS FOR THE FOLLOWING SYMBOLS: (6) #6-32, (C) #10-32, (14) #14-20.

NOTES: (UNLESS OTHERWISE SPECIFIED)

4 ON UPS 253-1-104 AND UPS 253-1-105 LABEL THIS TB AS "SPARE"

FOR PARTS LIST SEE PL 400-3R SHT (A SIZE 27-35)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	
DECIMALS	FRACTIONS
XX = 01	= 1/32
XXX = 015	= 3/128
DO NOT SCALE THIS DRAWING	
MATERIAL	
NEXT ASSY	USED ON
APPLICATION	
FINISH	

APPROVAL	DATE
DRAWN	DATE
DESIGNED	DATE
CHECKED	DATE
CHECKED	DATE

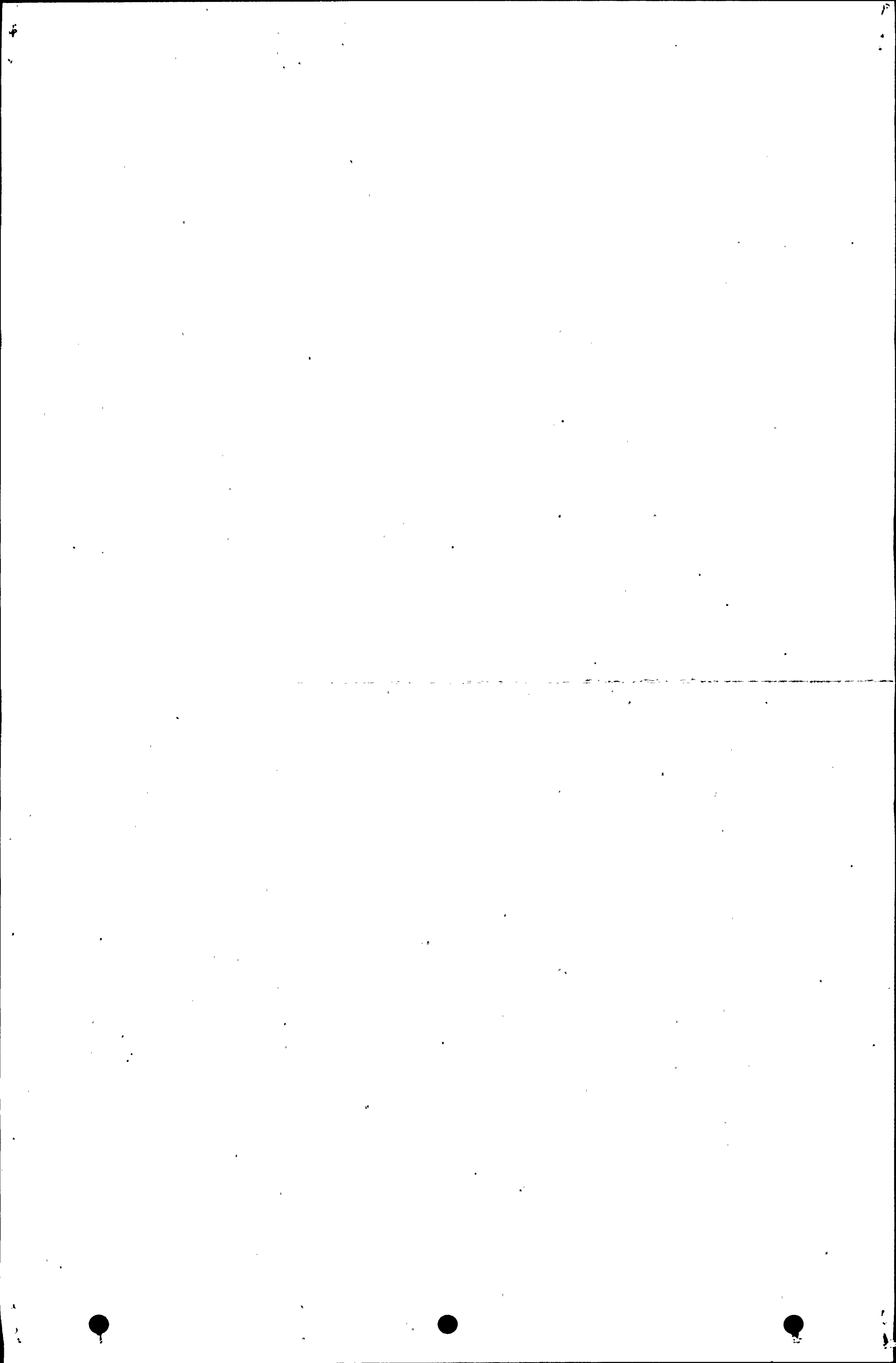
DELGAR
 IN OVERSEAS SYSTEMS DIVISION

TOP PANEL ASSEMBLY

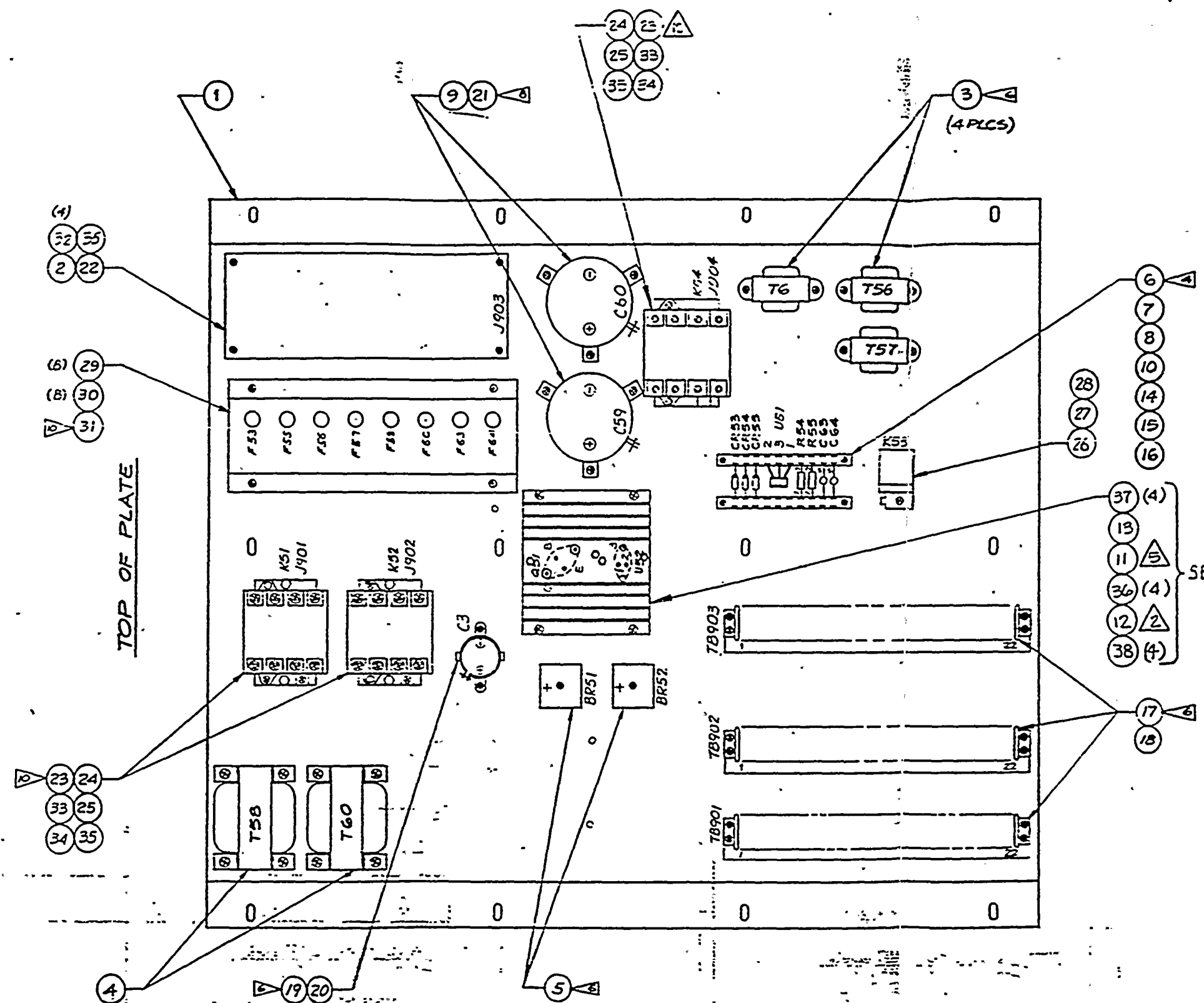
SIZE	CODE IDENT NO	DRAWING NO	REV
D	25965	5431003	F

SCALE: 3/4" = 1"

SHEET 3 OF 3



REV	DESCRIPTION	DATE	APPROVED
A	ENG. RELEASED	4-19-81	
B	ECN # 2536	5-2-82	
C	PER ECN 2761	L.L. 4-2-82	
D	ECN 2532	H.C.	
E	ECN 2765	3-0-82	
F	ECN 3.30	10-14-82	



1. DRILL OUT END MOUNTING HOLES TO .250 INCHES. INSTALL SHOULDER WASHER (ITEM 36) ON BOTH SIDES OF EACH MOUNTING HOLE. SLEEVE LEGS 1 AND 2.

2. MOUNTS ABOVE ITEM 23 WITH MOLEX CONNECTOR TOWARD BOTTOM OF PANEL.

3. INSTALL GSI DIRECTLY ON ITEM 13. SLEEVE BASE AND EMITTER LEGS.

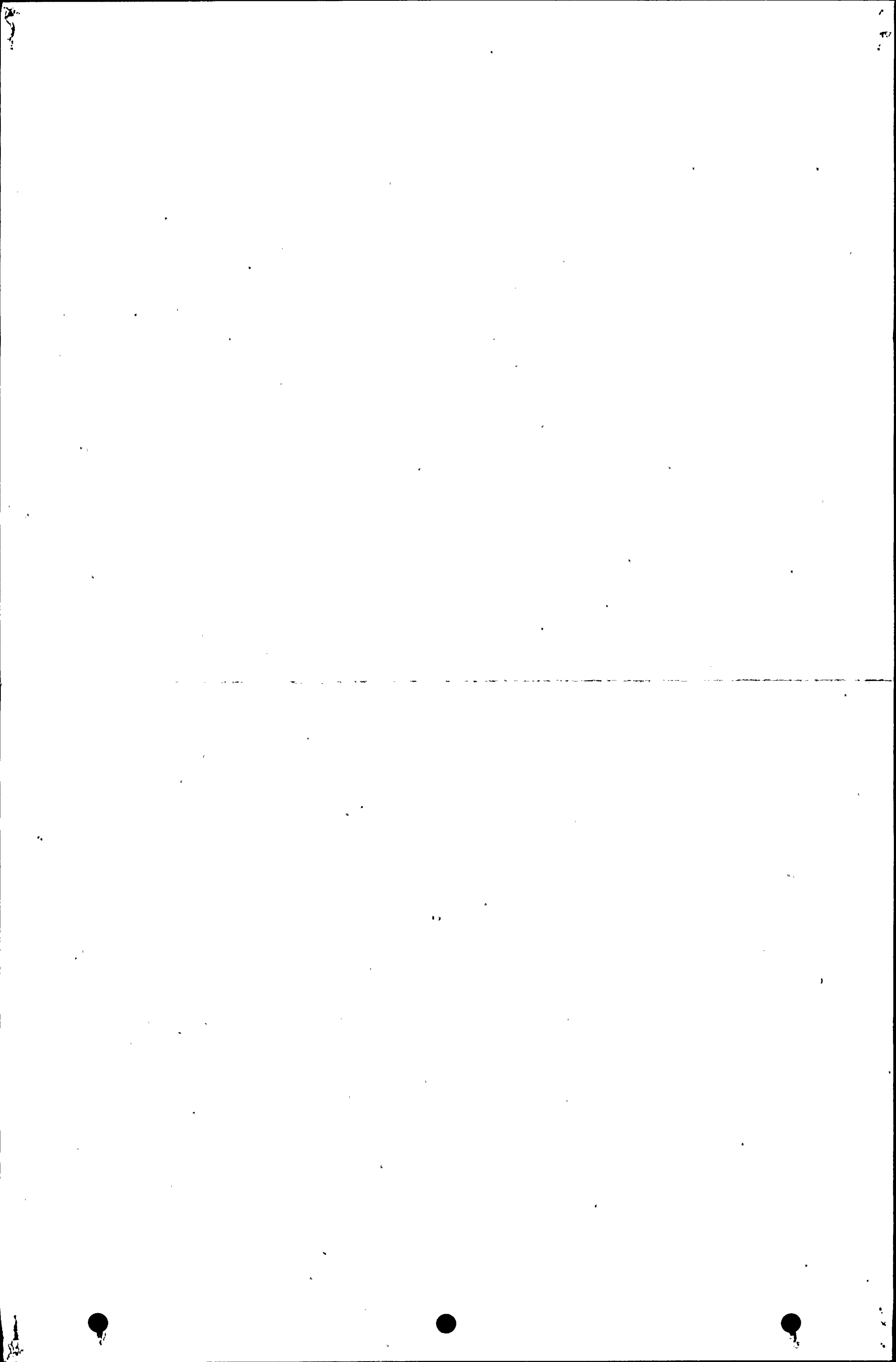
4. USE THREAD ROLLING ROLOK SCREENS FOR THE FOLLOWING SYMBOLS:

- ◁ #4-40, ▷ #6-32, ◁ #8-32, ▷ #10-32

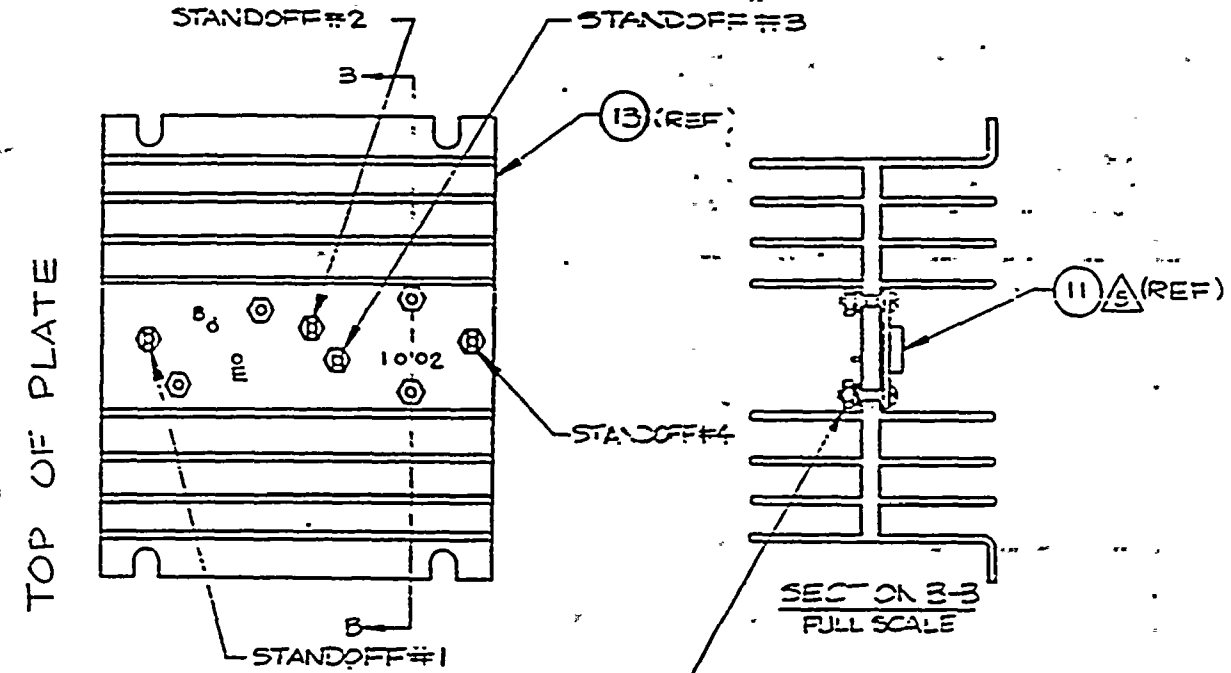
SEE DETAIL A

DASH = 45	UPS 253-1-82	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
DASH = 47	UPS 255-1-82	TOLERANCES ON
DASH = 4	UPS 255-1-82	DECIMALS FRACTIONS ANGLES
DASH = 41	UPS 255-1-82	XX = .05 XX = .12 XX = .150
DASH = 40	UPS 253-1-82	DO NOT SCALE THIS DRAWING
REST ASSY	USED ON	MATERIAL
APPROVED	DATE	FINISH

CONTRACT NO.		TEST MADE FOR: 540 4529	
APPROVAL		DATE	
DELGAR			
RIGHT DOOR PLATE ASSY			
SIZE	CODE IDENT NO	DRAWING NO	REV
D	25965	643-530-4X	=
SCALE: 1/2		SHEET 1 OF 1	



REVIEWS			
DATE	DESCRIPTION	DATE	APPROVED
SEE S-EE			



WIRING TABLE-(22 ANGTEFE...)

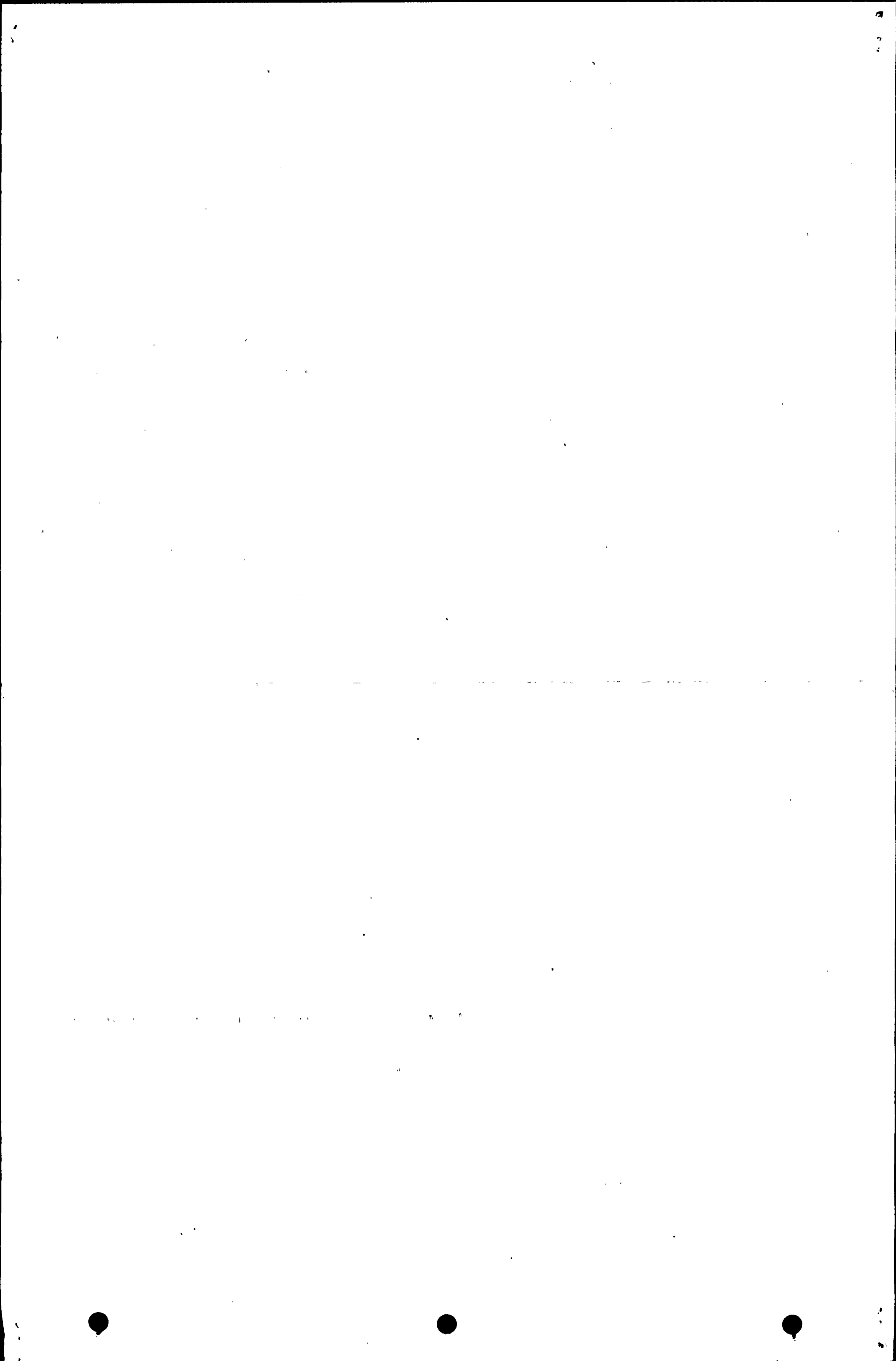
FROM	TO
STANDOFF #1	Q51-B
STANDOFF #2	Q51-E
STANDOFF #3	U52-2
STANDOFF #4	U52-1

U52 HARDWARE:
 #4 NUT (2)
 STARWASHER (2)
 FLAT WASHER (2)
 SHOULDER WASHER (4)
 #4 SCREW (2)

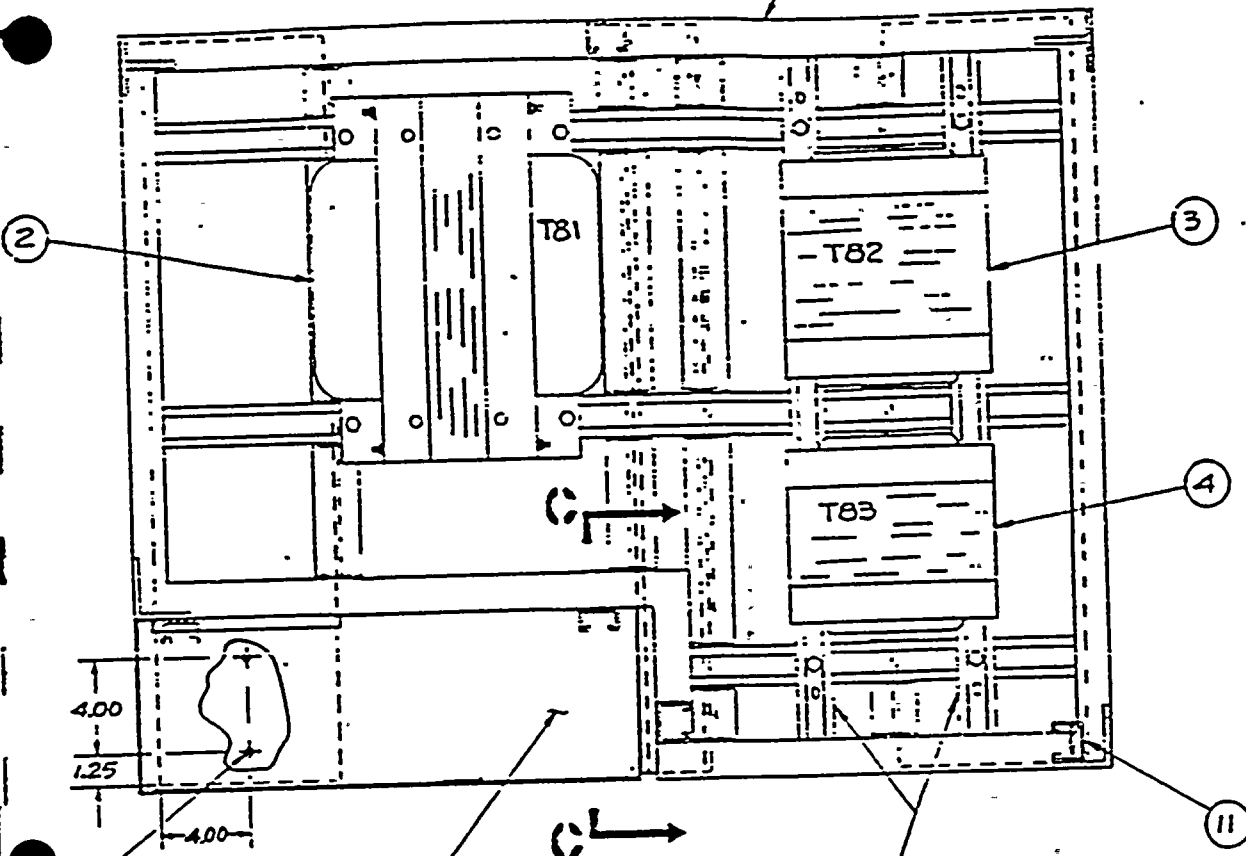
ITEM NO	PART NUMBER	DESCRIPTION	REF	QUANTITY			
				-40	-41	-42	-43
1	943-530-20	RIGHT DOOR PLATE	SPEC 1005008	1	1	1	-
1	943-530-21	RS-333R PLATE	SPEC 1005030	-	-	-	1
2	549-101-10	DC-DC CONV (120VDC) ASSY	J903	1	1	1	1
3	991-32-90	SENSE XENR	T6,55,57	3	3	3	3
4	990-94-90	POWER XENR	T55,60	2	2	2	2
5	347-390-3X	BRIDGE	BR51,52	2	2	2	2
6	845-562-4X	DIODE 1N5624	CR53	1	1	1	1
7	845-400-4X	DIODE 1N4004	CR54,55	2	2	2	2
8	395-170-10	SOLDER STRIP		2	2	2	2
9	826-239-12	CAPACITOR 22000/50V	C59,60	2	2	2	2
10	549-781-5F	IC 15V REG	U51	1	1	1	1
11	549-782-4R	IC 24V REG	U52	1	1	1	1
12	541-377-2X	TRANSFORMER 2N3772	Q51	1	1	1	1
13	914-241-20	HEATSINK 4" LONG		1	1	1	1
14	823-336-61	CAPACITOR 53/35V	C63,64	2	2	2	2
15	803-321-05	RESISTOR 520Ω, W	R54	1	1	1	1
16	803-751-05	RESISTOR 750Ω, 1W	R55	1	1	1	1
17	893-301-22	TERMINAL BLOCK-22 PIN	TB901,902,903	2	2	2	3
18	893-MS-22	MARKER STRIP		2	2	2	3
19	826-142-82	CAPACITOR 1400M/100V	C3	1	1	1	1
20	109-458-97	CAP. CLAMP	C3	1	1	1	1
21	576-CMC-48	CAP. CLAMP	C59,60	2	2	2	2
22	109-212-7X	STANDOFF, 1/2" LONG #8		4	4	4	4
23	861-ARD-45	RELAY (20VDC)	K51,52,54	1	2	2	3
24	861-ARD-5R	CONTACT RELAY		2	4	4	6
25	653-270-40	DRIVER BOARD, RELAY	J901,902,904	1	2	2	3
26	861-1Y4-70	RELAY (24VDC)	K53,55,56	1	-	1	1
27	861-27E-15	SOCKET		1	-	1	1
28	861-20C-25	SPR NG		1	-	1	1
29	853-342-0	FLSE HOLDER		8	8	8	8
30	853-338-02	FLSE 2A/SLO		8	8	8	8
31	943-407-20	FLSE BRACKET	SPEC 1005008	1	1	1	-
31	943-407-21	FLSE BRACKET	SPEC 1005030	-	-	-	1
32	109-216-3X	#8 FIBER WASHER		4	4	4	4
33	109-210-1X	#8 STANDOFF		2	4	4	6
34	109-216-2X	#8 FIBER WASHER		2	4	4	6
35	856-309-11	9-0X MOLEX		2	3	3	4
36	109-245-0X	#8 SOLDER WASHER		4	4	4	4
37	894-105-NX	HEATSINK INSULATOR		4	4	4	4
38	109-60-2	INSULATING STANDOFF		4	4	4	4
39							
40							

△ (13) REF
 △ (11) REF
 △ (13) REF
 △ (11) REF

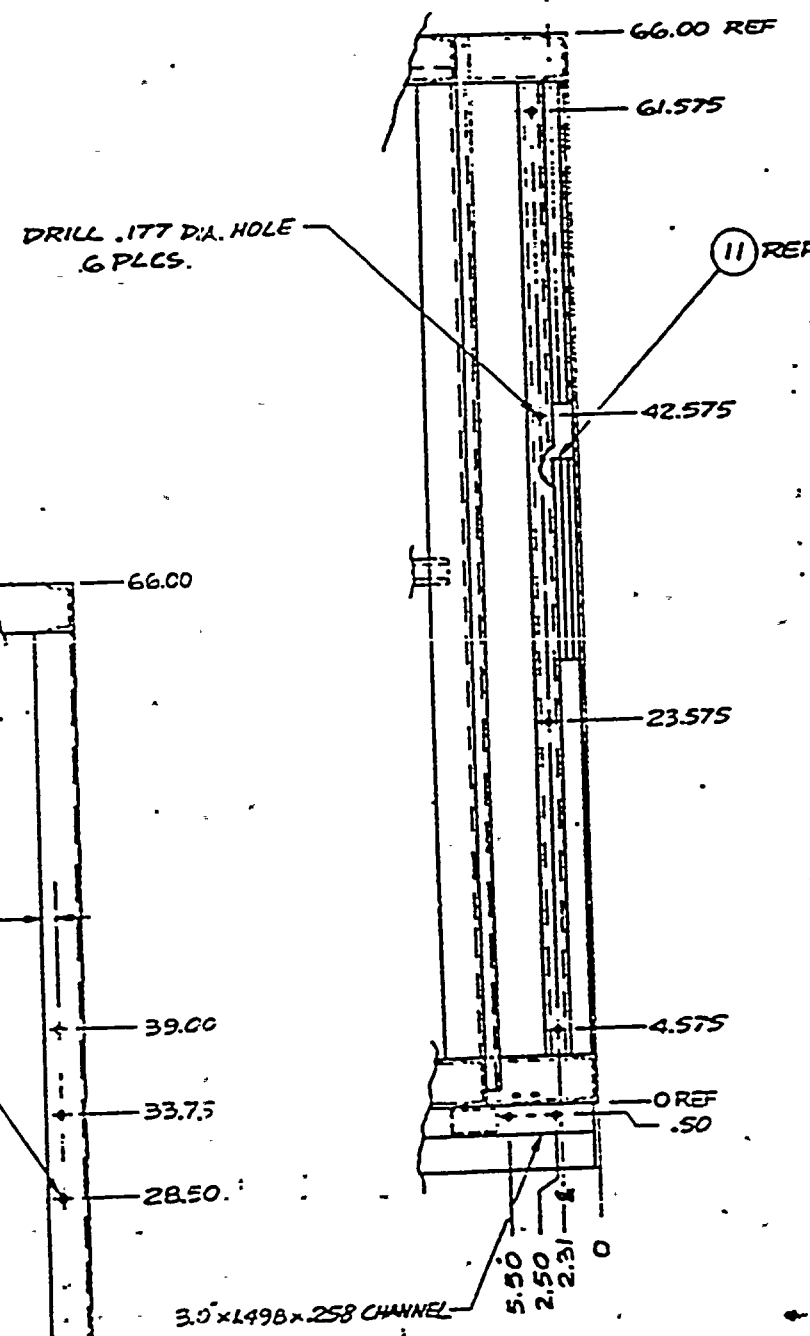
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:		DRAWING NO. 643-530-4X	
DECIMALS FRACTIONS ANGLES		DATE	
XX ± .01 ± .005 ± .01		DRAWN BY: J. J. J. J.	
DO NOT SCALE THIS DRAWING		CHECKED BY:	
MATERIAL:		SPEC'G BY:	
NEXT ASSY:		DATE:	
APP. DATE:		DATE:	
THE INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE BY THE NATIONAL ARCHIVES AND RECORDS ADMINISTRATION			
		RIGHT DOOR PLATE ASSY	
		REV	
		D 25965 643-530-4X	
		SCALE	
		SHEET 2 OF 2	



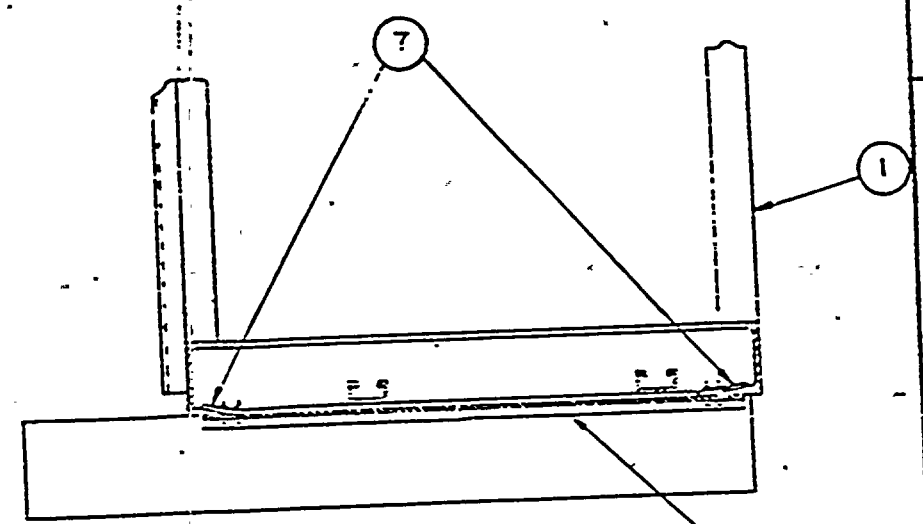
REV	DESCRIPTION	DATE	APPROVED
A	ENG. RELEASED		
B	ECK 2711	B.D. 6-15-62	



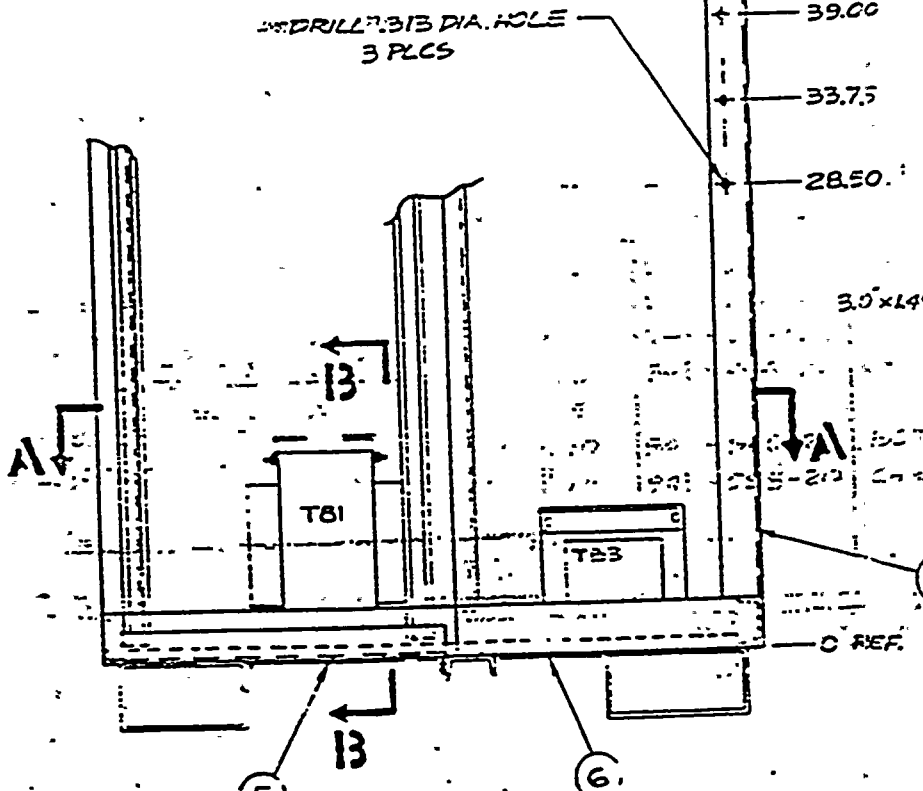
SECTION A-A
SCALE: 1/4



SECTION C-C
SCALE: 1/4



SECTION B-B
SCALE: 1/4
TRANSFORMER NOT SHOWN FOR CLARITY



FRONT VIEW
CHASSIS WELDMENT

PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY	REF.
1	943-380-20	CHASSIS WELDMENT-DIST	1	
2	9900049-01	ISOLATION XFMR	1	T81
3	991-173-90	LINE REGULATOR XFMR	1	T82
4	991-174-90	LINE REGULATOR XFMR	1	T83
5	943-371-20	L BOTTOM COVER-DIST	1	
6	943-372-20	R BOTTOM COVER-DIST	1	
7	943-315-21	SCREEN CLIP	0	
8	943-314-20	XFMR CHANNEL-LONG	2	
9		BOTTOM COVER PLATE	1	
10	943-360-20	BOTTOM COVER PLATE	1	
11	943-358-20	CHANNEL (P3000) 1.50"	1	

1. ASSEMBLE ITEMS 5, 6, & 7 TO CHASSIS WELDMENT BEFORE MOUNTING TRANSFORMERS.

NUCLEAR SAFETY RELATED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON

DECIMALS	FRACTIONS	ANGLES
XX ± .03	± 1/32	± 1/2°
XXX ± .010		

DO NOT SCALE THIS DRAWING

5-2-625-40 UPS 253-1-66 MATERIAL

REV ASSY USED ON APPLICATION

CONTROL NO. FIRST MADE FOR 4093

APPROVAL DATE

DESIGNED BY: MARGARET S. STUBBS

ENGINEER: J. J. ...

DATE: 6-15-62

SCALE: 1/4

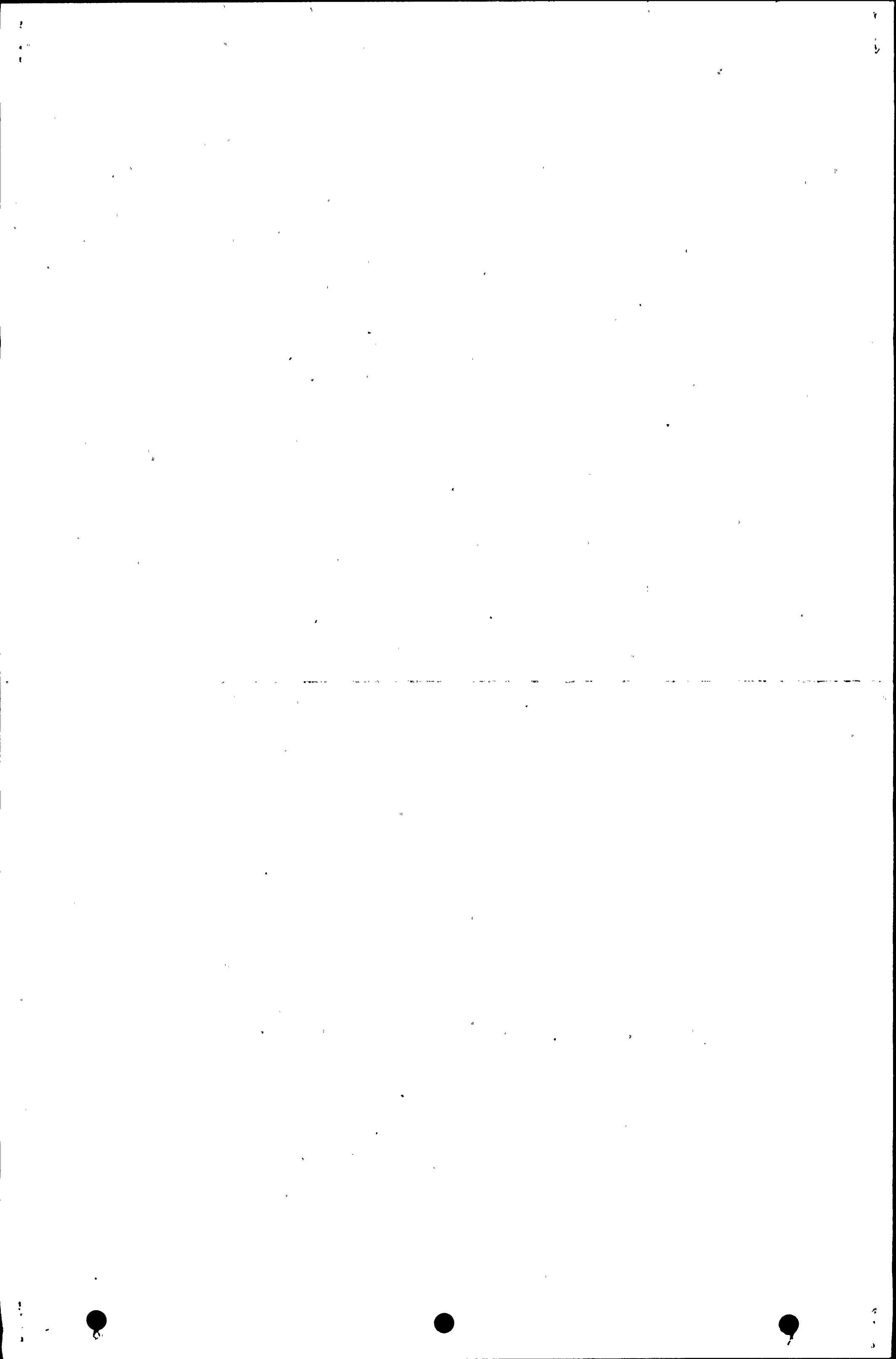
CLON 643-380-40

25965 643-607-40

CHASSIS ASSY - DIST

SCALE 1/4

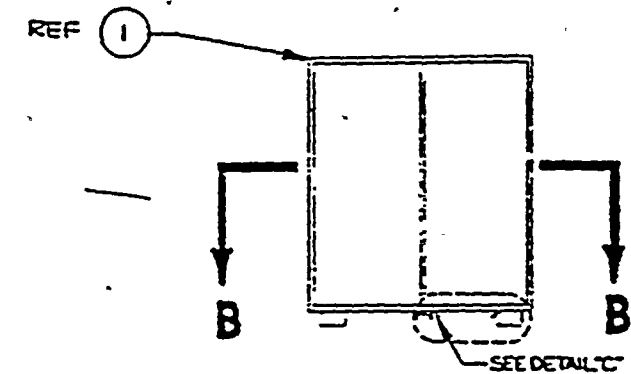
643-607-40



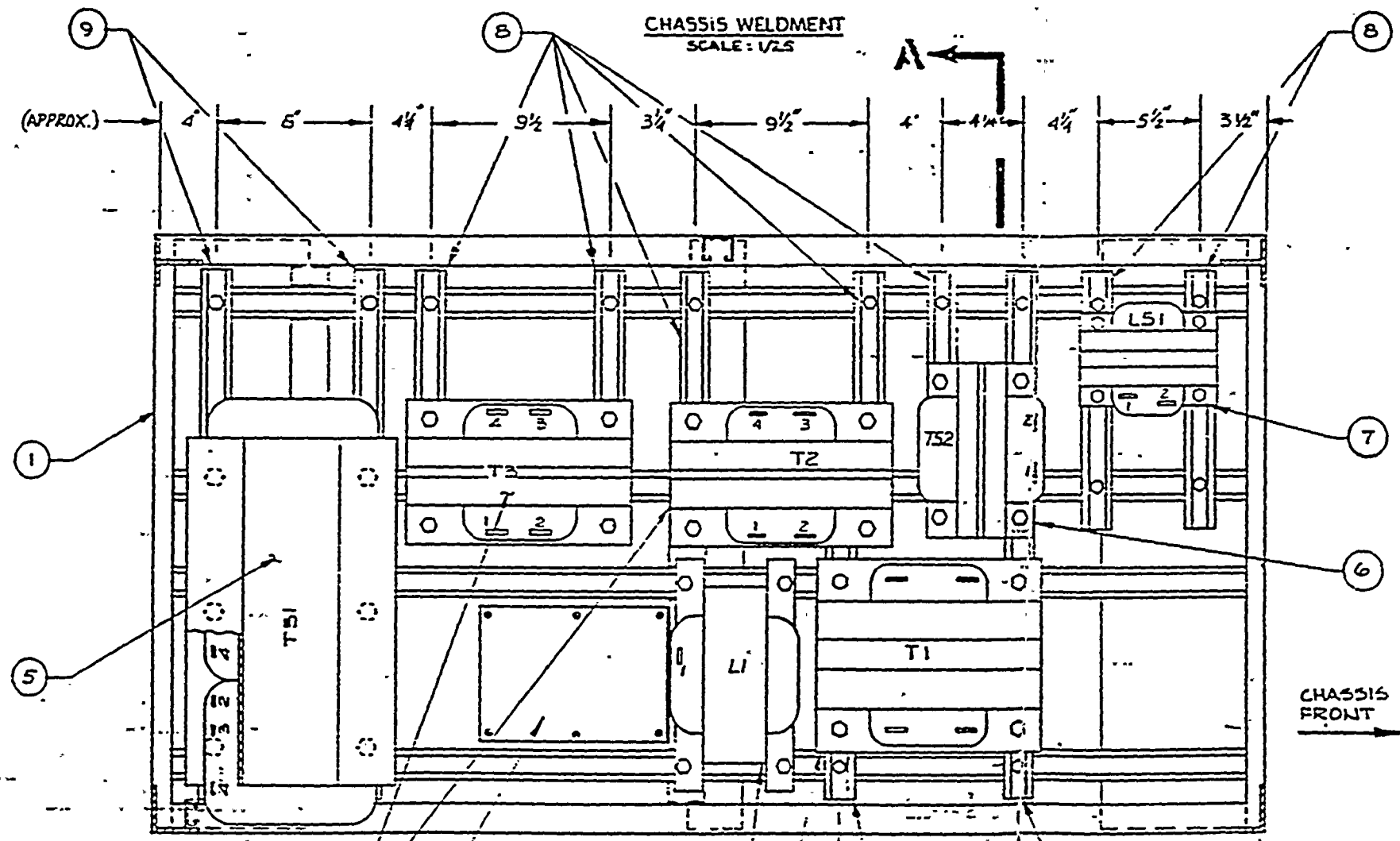
ZONE	DATE	DESCRIPTION	DATE	APPROVED
A	ENG RELEASE			
B	ECL # 2911			
C	ECN # 351			

PARTS LIST

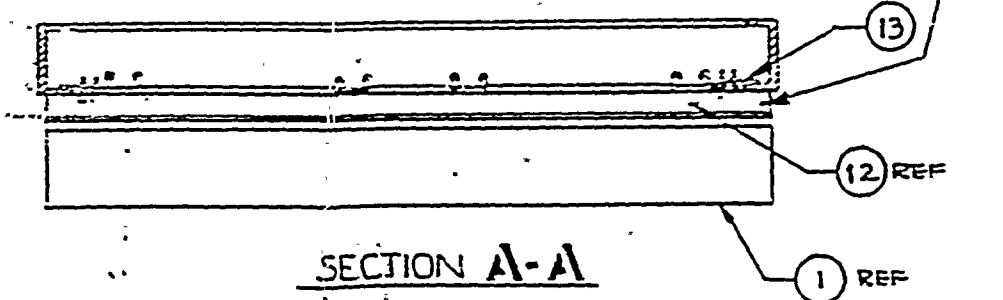
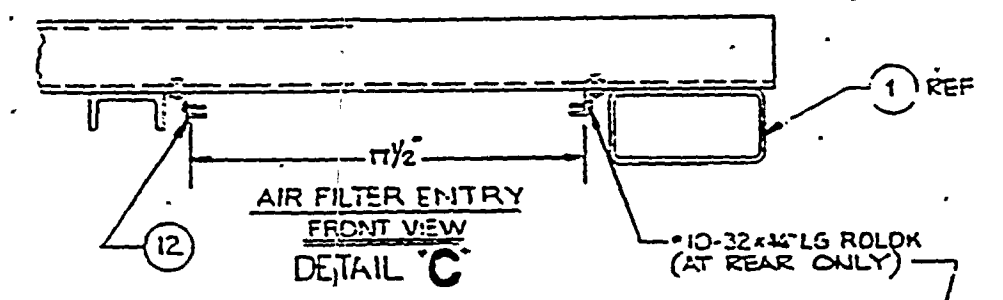
ITEM	PART NO.	DESCRIPTION	QTY	REF
1	943-292-20	CHASSIS WELDMENT-UPS	1	
2	990-899-90	SERIES FILTER CHOKE	1	L1
3	990-990-90	SUMMING TRANSFORMER, 12KVA	1	T1
4	990-991-90	SUMMING TRANSFORMER, 7KVA	2	T2, T3
5	9900048-01	INPUT TRANSFORMER	1	T51
6	991-140-90	INTERØ TRANSFORMER	1	T52
7	991-141-90	DC. CHOKE	1	LS1
8	943-413-20	XFMR CHANNEL -SHORT	8	
9	943-414-20	XFMR CHANNEL -LONG	3	
10	943-294-20	BOTTOM ENTRY PLATE	1	
11	943-297-20	BOTTOM SHIELD ENTRY	1	
12	943-421-20	GUIDE BRKT. AIR FILTER	2	
13	943-315-21	SCREEN CLIP	4	



CHASSIS WELDMENT
SCALE: 1/25



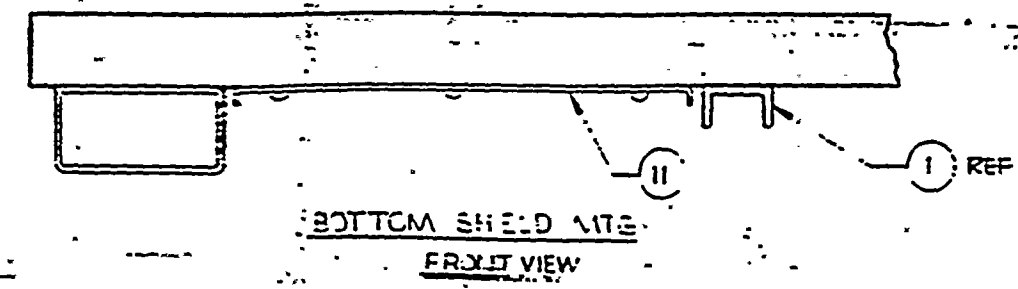
SECTION B-B
XFMR MTG DETAIL



1. ASSEMBLE ITEMS 11/13 TO CHASSIS WELDMENT BEFORE MTG. TRANSFORMERS.

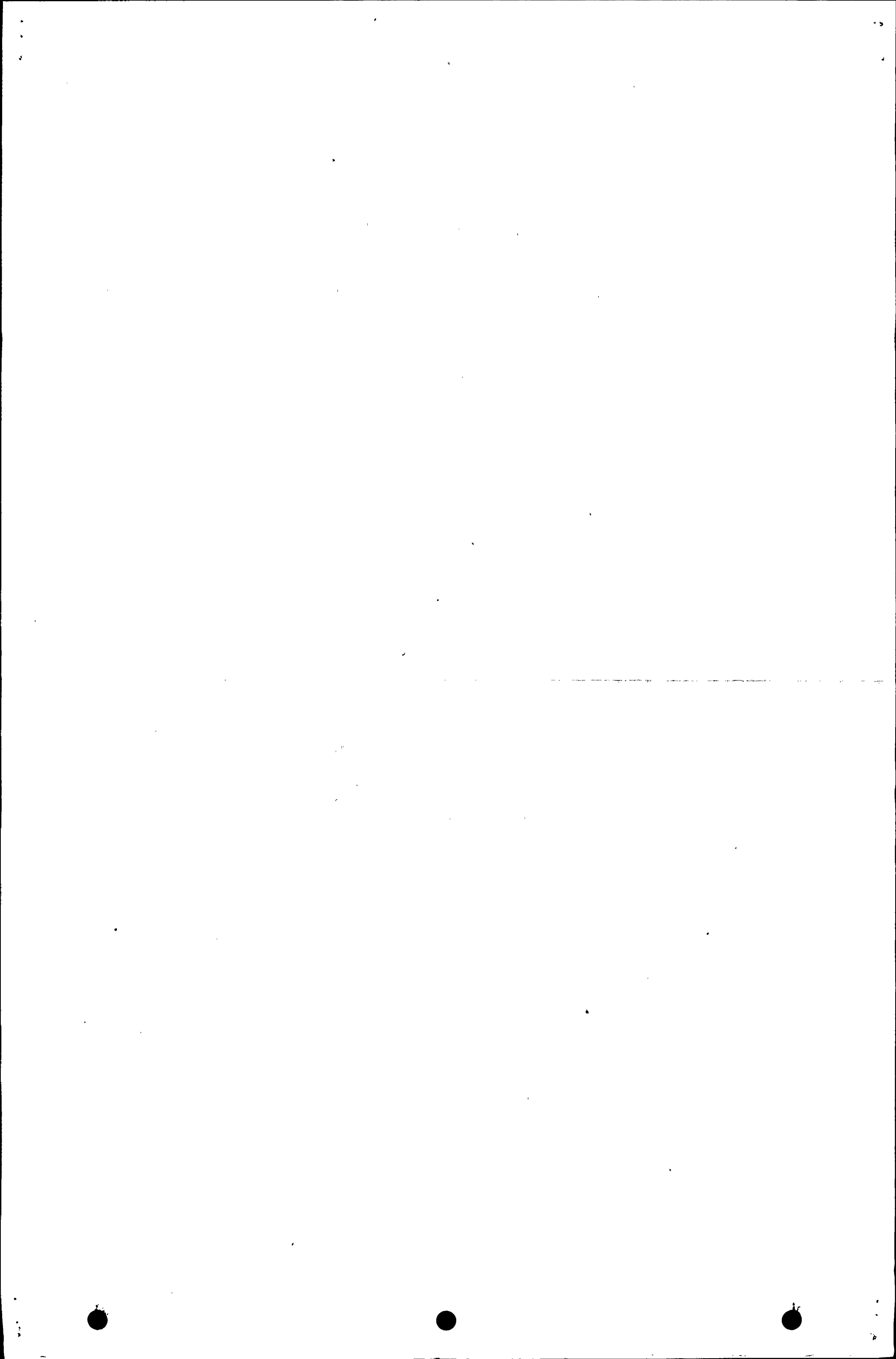
NOTES:

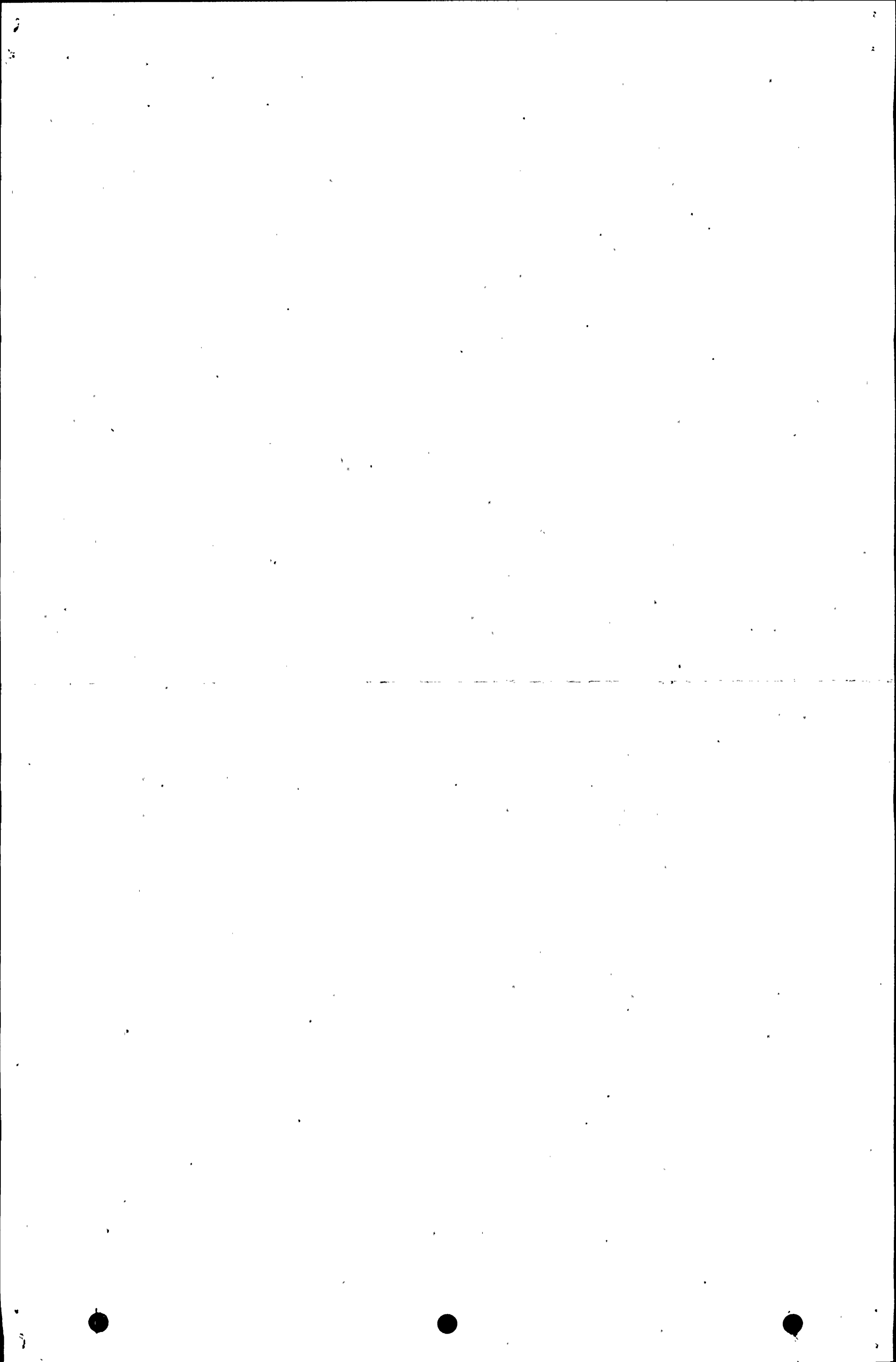
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:		DRAWN BY: [Signature]		CHECKED BY: [Signature]		DATE: [Date]	
DECIMALS	FRACTIONS	ANGLES	APPROVAL		DATE		GELGAR CORPORATION SAN DIEGO CALIFORNIA
±.01	± 1/32	± 1/2°	[Signature]		[Date]		
DO NOT SCALE THIS DRAWING		MATERIAL		FINISH		CHASSIS ASSY UPS CABINET	
943-223-40	UPS 253-1-106	NEXT ASSY USED ON		GELGAR		SIZE CODE QENT NO DRAWING NO	
APP. DATE		GELGAR		3-23-292-40		D. 25965 643-624-40	
SCALE 1/2		SHEET 1 OF 1					



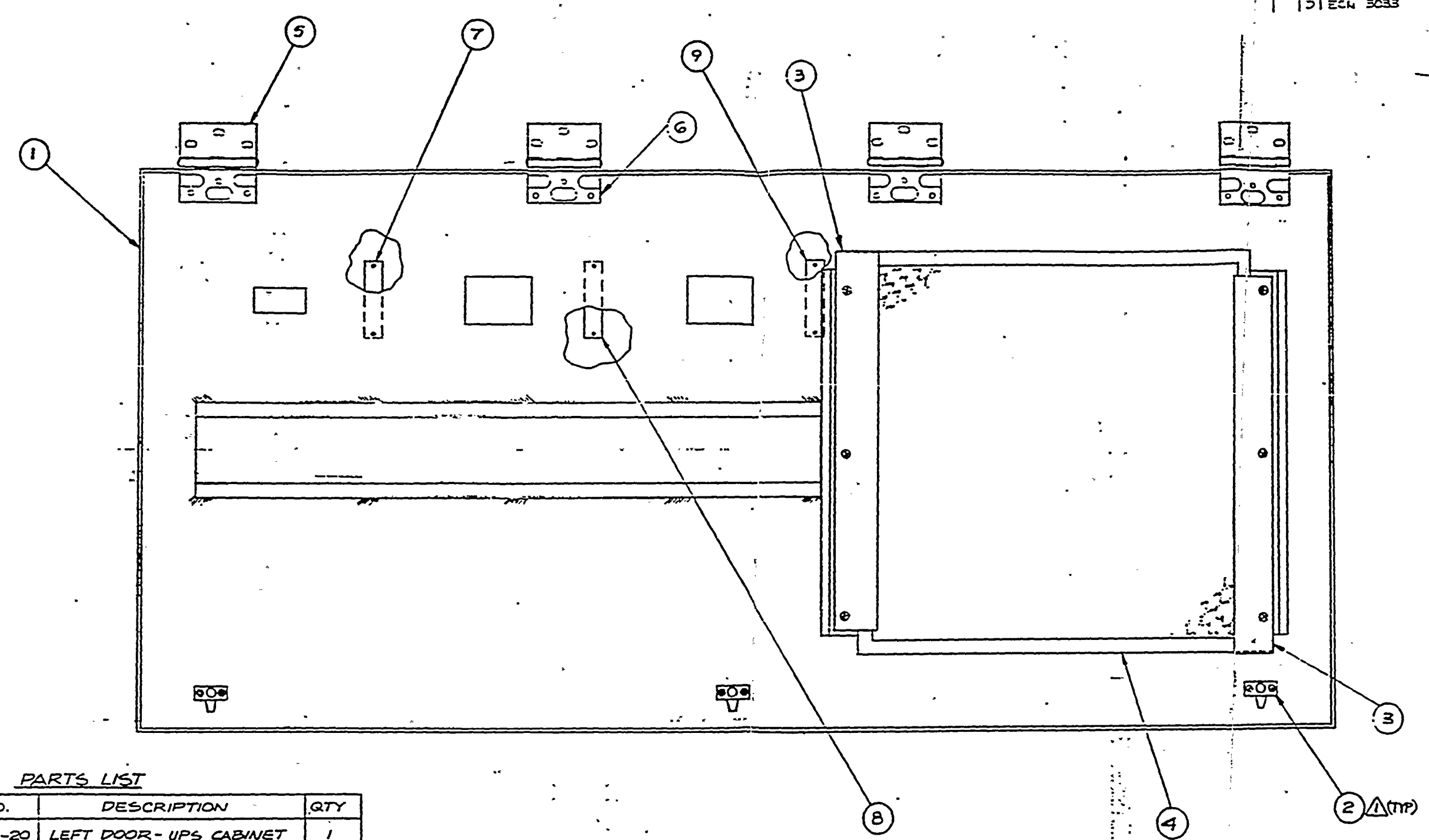
BOTTOM SHIELD MTE
FRONT VIEW

643-624-40 III





REV	DESCRIPTION	DATE	BY
A	ENG. RELEASED E.P. 3-18-81	3-18-81	2FS
B	ECN 2882	R.G. 5-27-82	2FS
C	ECN 3017	S.D. 8-5-82	R.L. 8-22-82
D	ECN 3033	B.D. 10-8-82	10-17-82



PARTS LIST

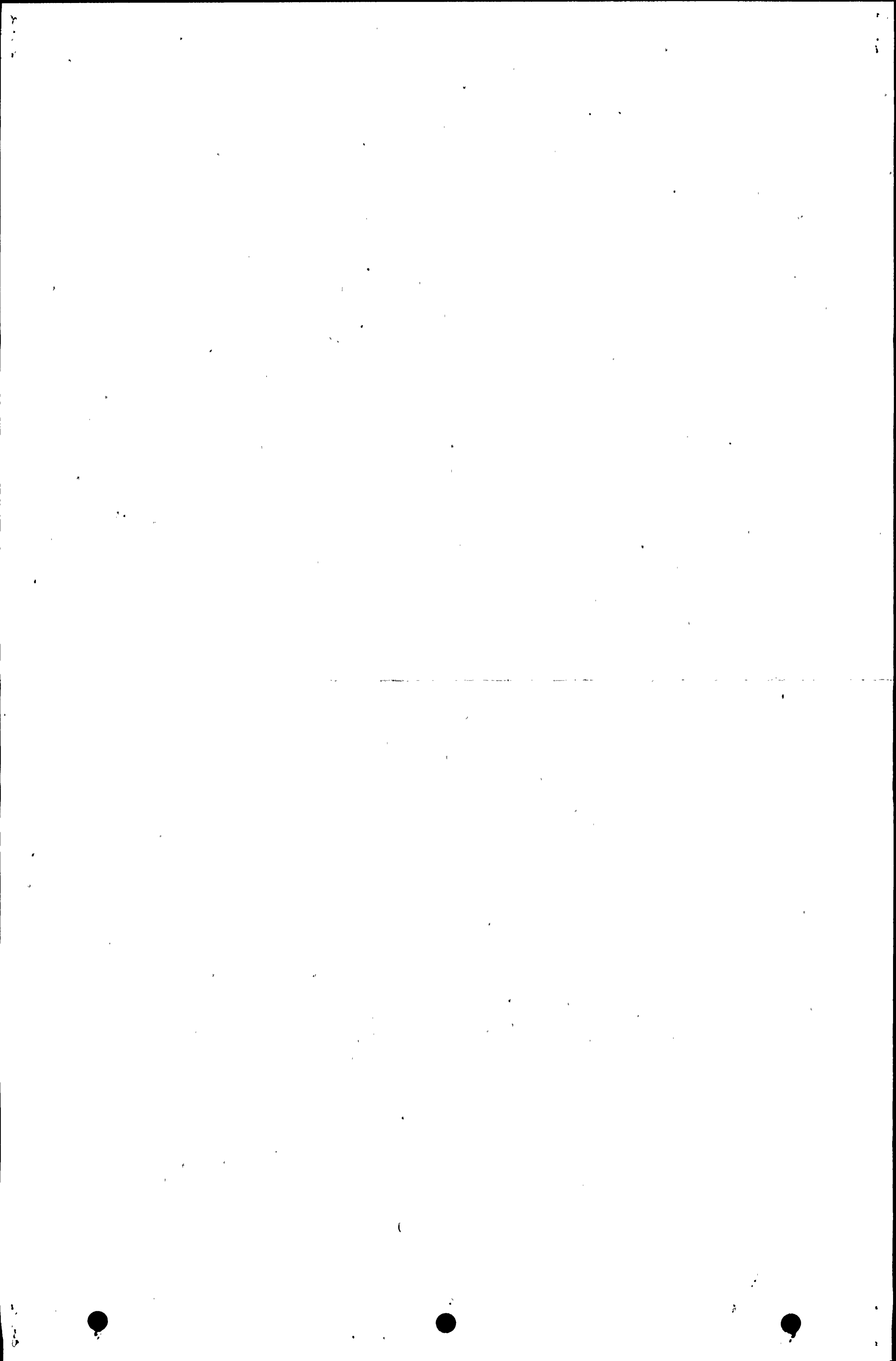
ITEM	PART NO.	DESCRIPTION	QTY
1	943-520-20	LEFT DOOR-UPS CABINET	1
2	109-441-20	QUARTER TURN LATCH	3
3	943-394-20	AIR FILTER BRACKET	2
4	105-207-50	AIR FILTER	1
5	943-366-20	BUTT HINGE	4
6	943-367-20	NUT PLATE - HINGE	4
7	943-570-20	LABEL- INPUT POWER	1
8	943-443-20	LABEL- BATTERY INPUT	1
9	943-572-20	LABEL- SIS OUTPUT	1

△ SPACE WITH FLAT WASHER TO ENSURE FIT WITH CENTER BRACE ON CHASSIS.
 NOTES: UNLESS OTHERWISE SPECIFIED.

FOR PARTS LIST SEE PL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS FRACTIONS ANGLES .XX ± .03 ± 1/32 ± 1/2° .XXX ± .010 DO NOT SCALE THIS DRAWING		CONTRACT NO. TEST MADE FOR: SVD 4529			
MATERIAL:		APPROVAL: I. DATE			
NEXT ASSY. USED ON:		DRAWN: 1-17-81		LEFT DOOR ASSY.	
APPLICATION:		CHECKED: 1-17-81		UPS CABINET	
THE INFORMATION CONTAINED HEREIN WAS PREPARED BY AND IS THE PROPERTY OF BELGAR CORPORATION AND IS LOANED TO YOU FOR YOUR USE ONLY. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.		DATE: 1-17-81		ISSUE NO. 25965	
FINISH:		DRAWING NO. 643-520-40		REV .D	
		SCALE 1-3		1 OF 1	

643-520-40.D



8 7 6 5 4 3 2 1

REV	DESCRIPTION	DATE	APPROVED
A	ENG. RELEASED H.P. 2-12-81		
B	PER ECN 2760 L.L. 4-1-82		
C	ECN 2882 P.C. 5-22-82		
D	ECN 3035 10-8-82 BD 10-14-82		

1 BEZEL
943-538-20

4 BUTT HINGE
943-366-20
(4 REQ'D)

5 NUT PLATE HINGE
912-507-20
(4 REQ'D)

3 QUARTER TURN LATCH Δ (TYP)
109-441-20
(3 REQ'D)

2 RIGHT DOOR
943-519-20

AB (REF)
CONTROL PANEL
ASSY

SEE DETAIL B

A9 (REF)

2 REF

SECTION A-A
SCALE: 1/3

2 REF

3 REF

(REF) A9

REF 2

A9 (REF-25KVA)
RIGHT DOOR PLATE ASSY

HEX NUT
STAR WASHER
FLAT WASHER

DETAIL B
SCALE: NONE

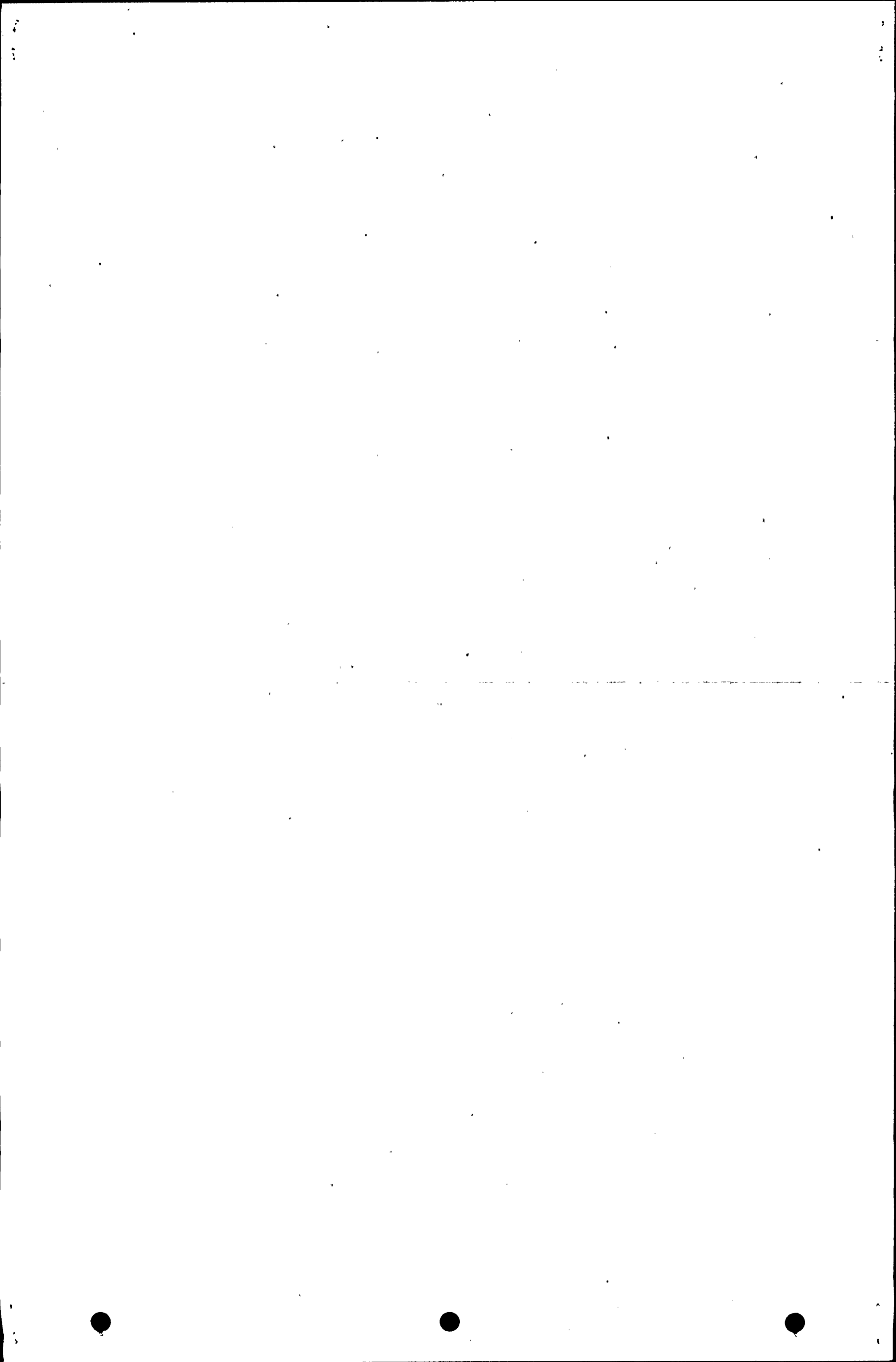
FRONT VIEW

REAR VIEW

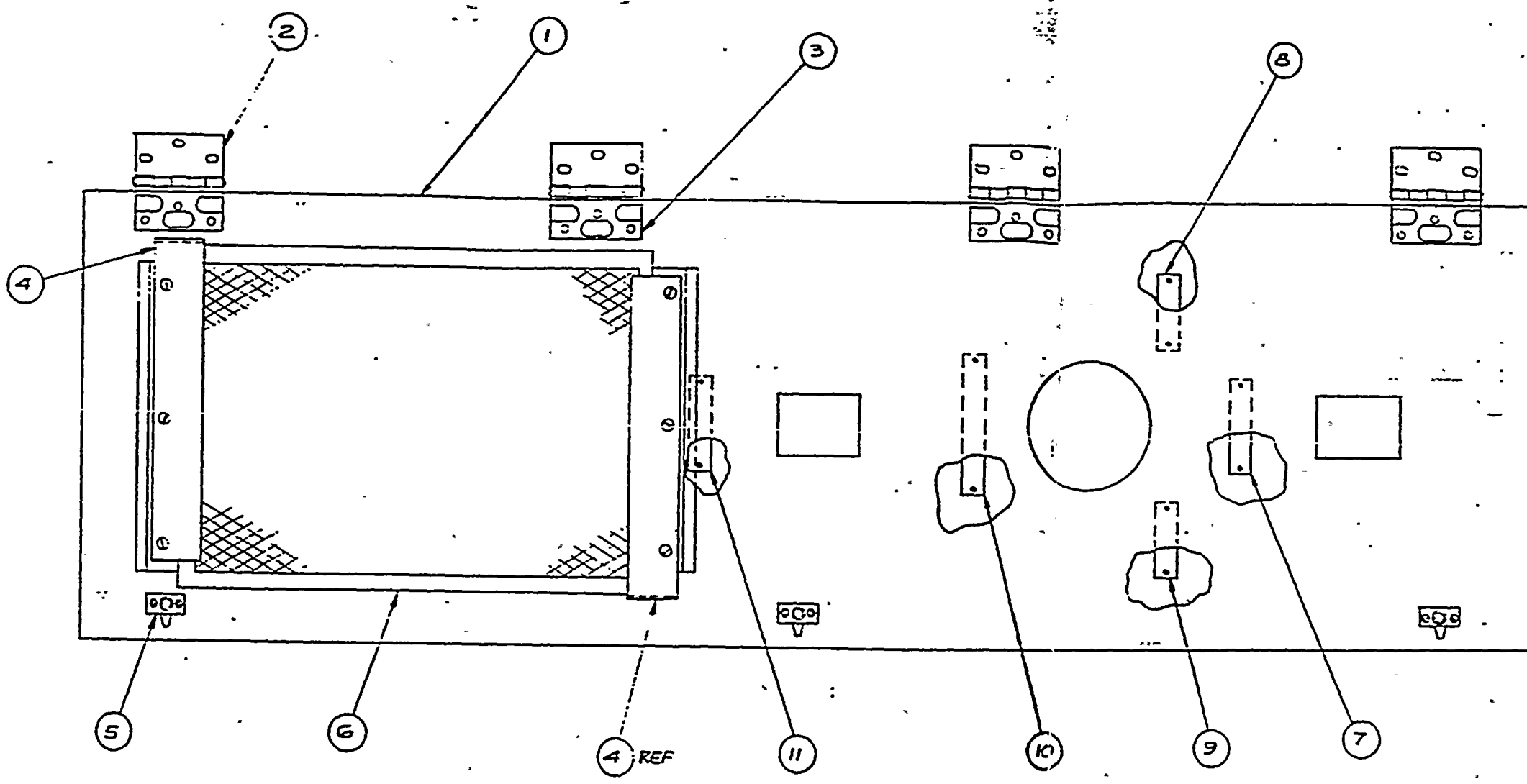
Δ SPACE WITH FLAT WASHERS TO ENSURE FIT WITH CENTER BRACE ON CHASSIS.

RIGHT DOOR CABINET ASSY	
SIZE: D	PART NO: 25965
DATE: 10-8-82	REV: 1

643-519-40



REV	DESCRIPTION	DATE	BY
A	ENG. RELEASED	6-26-82	6/10/82
B	ECU # 2889	B.D. 6-8-82	6-10-82



TOP OF PANEL

PARTS LIST.

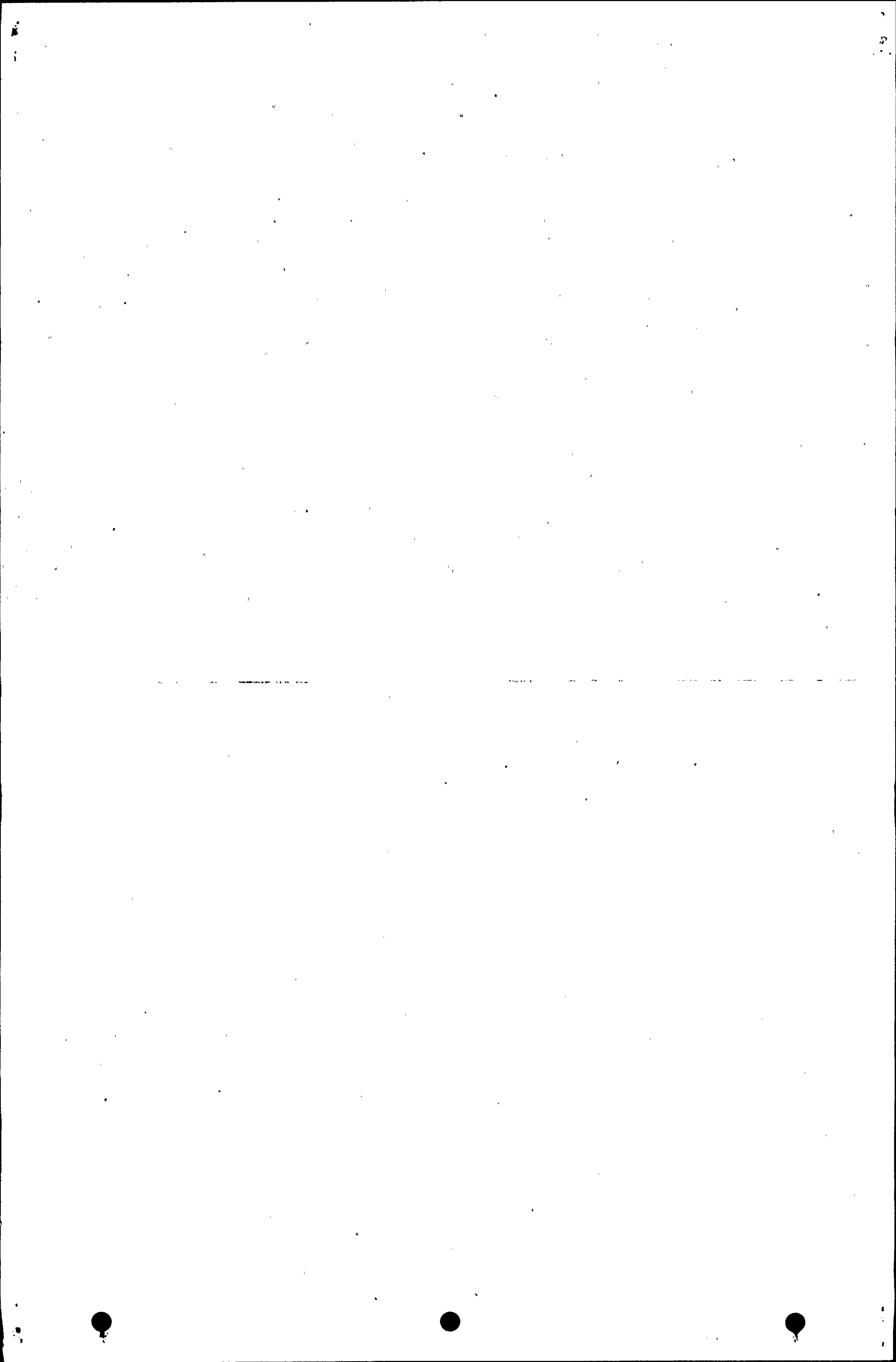
ITEM	PART NO.	DESCRIPTION	QTY
1	943-556-20	RIGHT DOOR -DIST.	1
2	943-366-20	BUTT HINGE	4
3	943-367-20	NUT PLATE HINGE	4
4	943-373-20	AIR FILTER BRKT -DIST	2
5	109-441-20	1/4 TURN LATCH	3
6	105-17X-20	AIR FILTER	1
7	943-565-20	LABEL- MANUAL BYPASS INPUT	1
8	943-567-20	LABEL- BYPASS	1
9	943-566-20	LABEL- UPS	1
10	943-568-20	LABEL- MANUAL SWITCH	1
11	943-569-20	LABEL- STATIC SWITCH INPUT	1

FOR PARTS LIST-SEE PL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:		CONTRACT NO. EST. MADE FOR 50 4529 APPROVAL DATE SERIAL # HI DWH 13-13-81 SPEC. ENG. 6-10-82 CHECKED	
DECIMALS FRACTIONS ANGLES XX ± .03 = 1/32 = 1/2° XXX ± .010 = 1/32 = 1/2° DO NOT SCALE THIS DRAWING	MATERIAL: FINISH:		DRAWING NO. 643-556-40 REV. B
NEXT ASSY. USED ON APPLICATION	THE INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE AND IS THE PROPERTY OF ELGA CORPORATION AND IS TO BE KEPT CONFIDENTIAL. ALL RIGHTS RESERVED. ELGA CORPORATION, 1111 EAST 17TH AVENUE, DENVER, CO 80202. ALL RIGHTS RESERVED. REPRODUCTION IS PROHIBITED.		SCALE 1/3 SHEET 1 OF 1

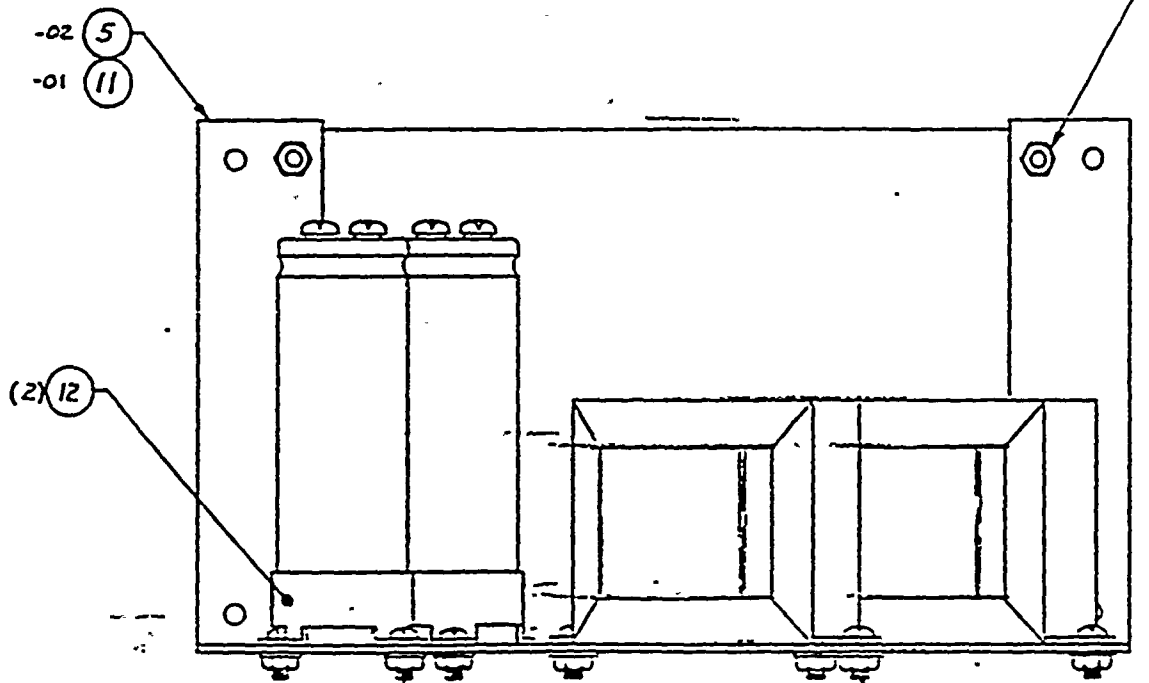
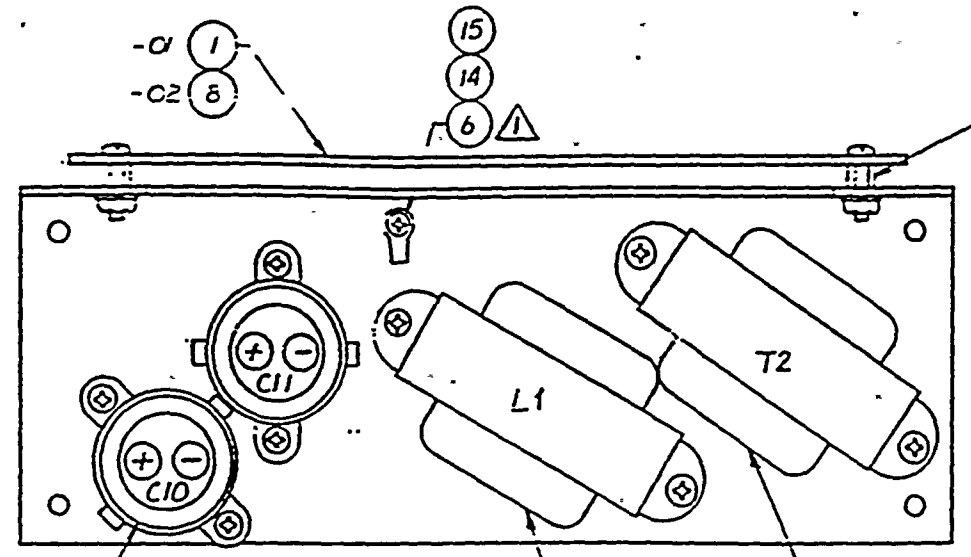
ELGAR
 RIGHT DOOR ASSY
 DISTRIBUTION CABINET

643-556-40 III



8 7 6 5 4 3 2 1

ZONE	DESCRIPTION	DATE	APPROVED
	SEE SHT 1		



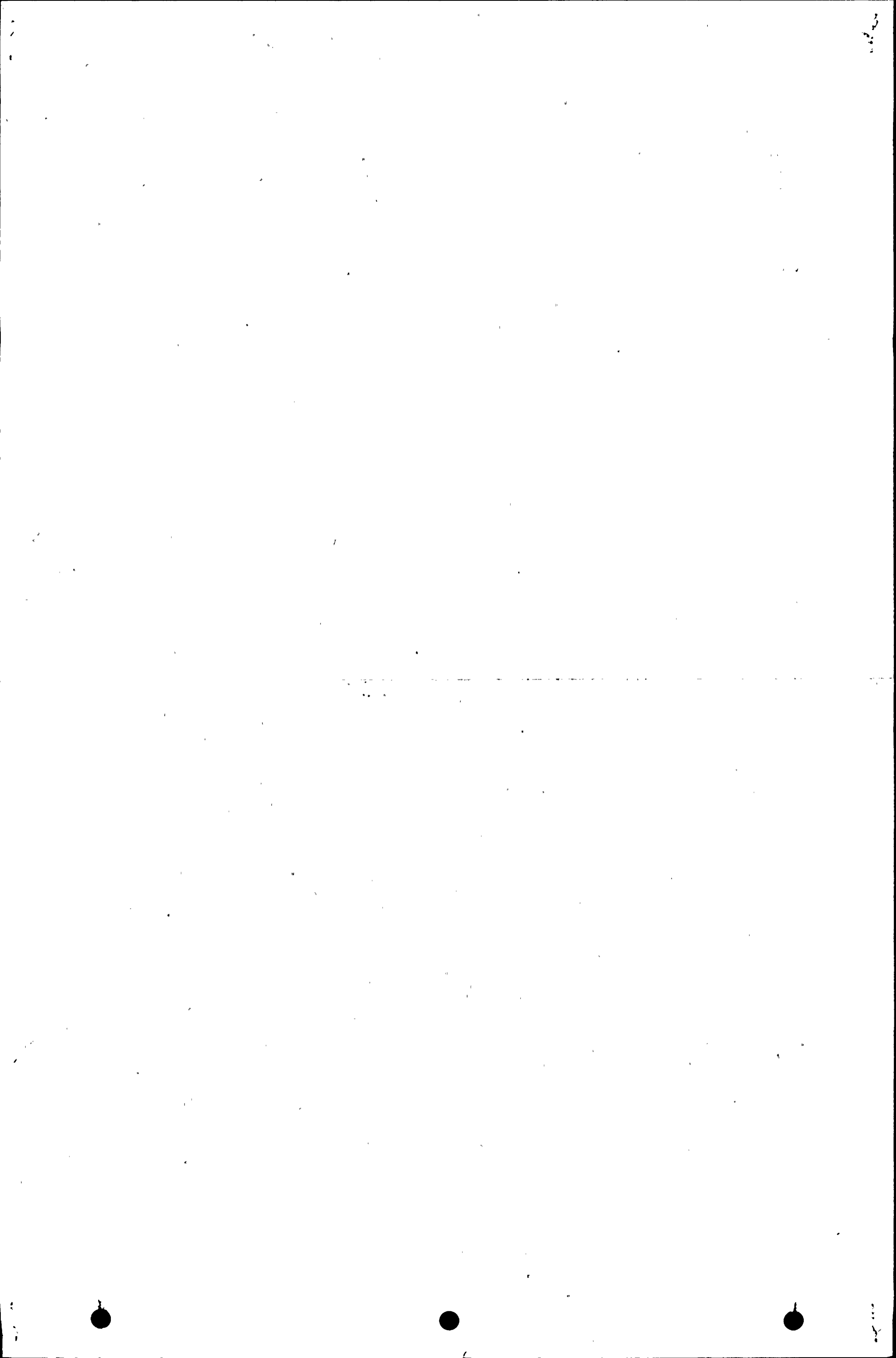
NUCLEAR SAFETY RELATED

SEE SHT 3. FOR WIRING.

UNLESS OTHERWISE SPECIFIED				CONTRACT NO.	
DIMENSIONS ARE IN INCHES				643-530-475	
TOLERANCES ON				APPROVAL	DATE
DECIMALS	FRACTIONS	ANGLES	DATE	DATE	
±.01	±.005	±.005	12-6-82		
±.005	±.002	±.002	CHECKED		
±.002	±.001	±.001	APPROVING		
DO NOT SCALE THIS DRAWING				DATE	
MATERIAL				DATE	
SEE P/L				DATE	
FINISH				DATE	
SEE P/L				DATE	
APP. 217 24				DATE	
THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF S.O. 475 AND IS TO BE KEPT SECRET AND NOT TO BE DISCLOSED TO THE PUBLIC OR TO ANY OTHER PERSON OR ORGANIZATION WITHOUT THE WRITTEN PERMISSION OF S.O. 475.				SIZE	CODE IDENT NO
				D	25965
				DRAWING NO	5491011
				REV	D
				SCALE	
				SHEET	OF 3

5491011





8

7

6

5

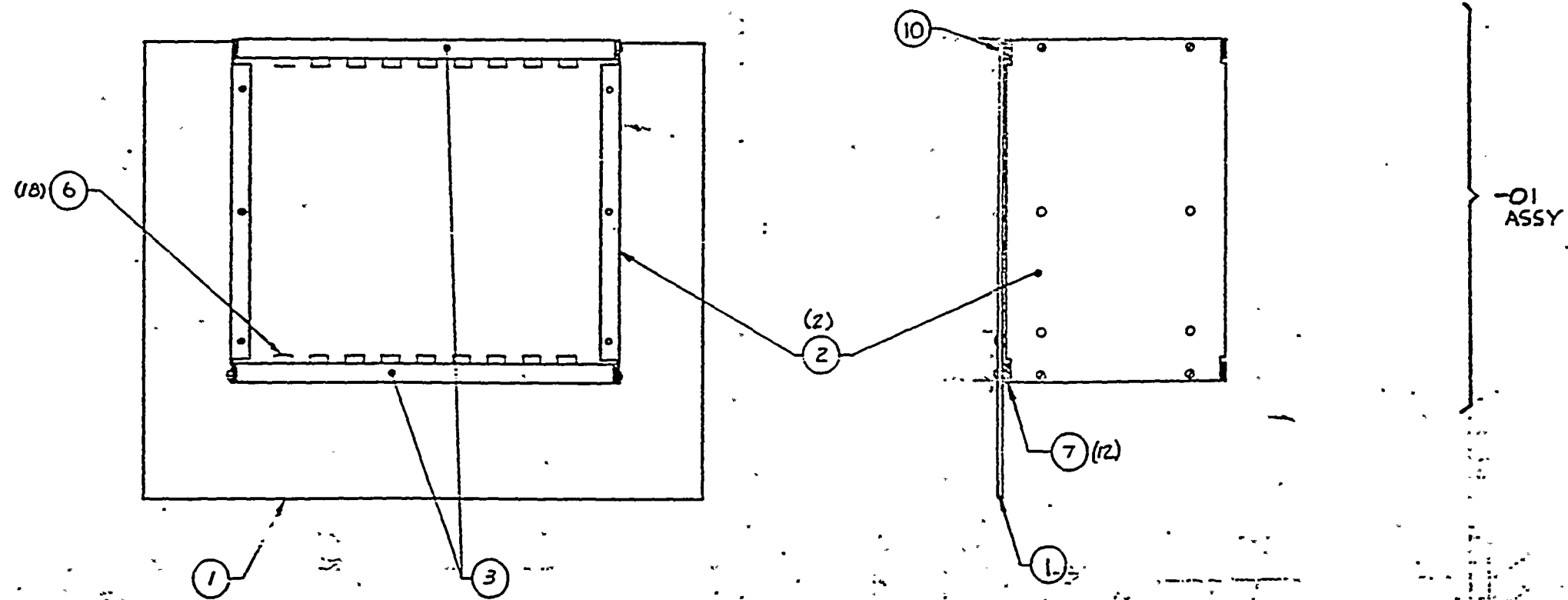
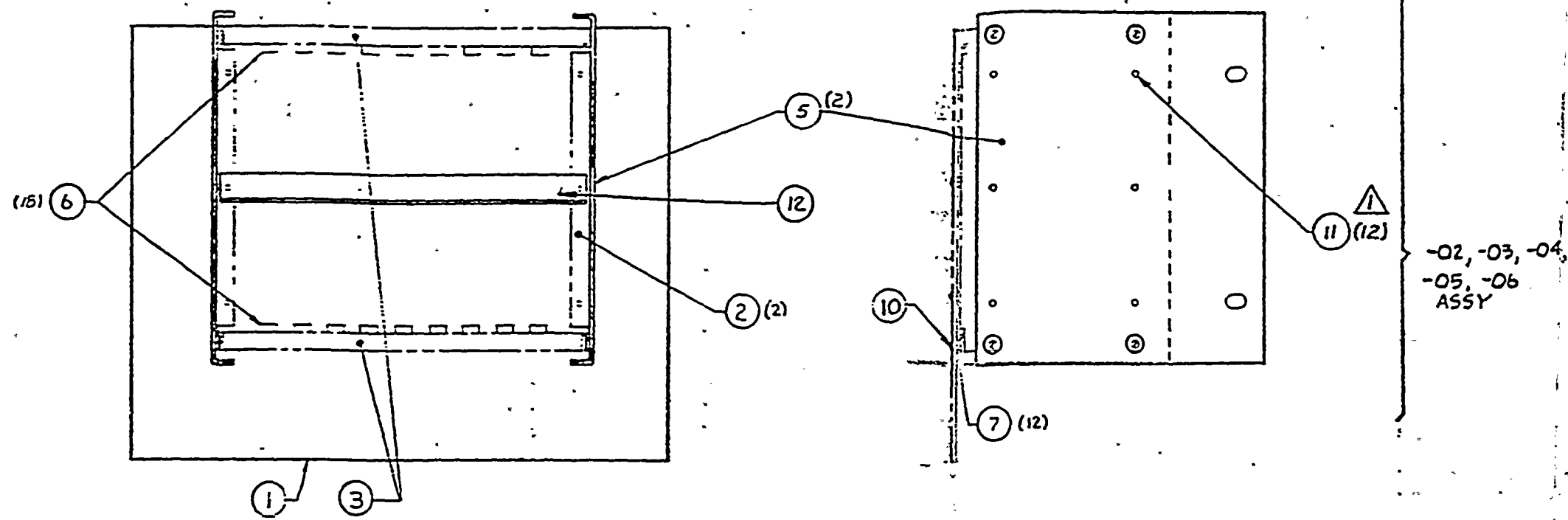
4

3

2

1

REV	DATE	APPROVED
A	ENG RELEASE	
SEE SHEET 1		



NUCLEAR SAFETY RELATED

06	PS 253-1-12
05	PS 253-1-11.5
04	PS 253-1-11
03	PS 253-1-10.5
02	PS 253-1-10
01	PS 253-1-9.5
DASH	ADT ASSY

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON

DECIMALS	FRACTIONS	ANGLES
XX = .01	XX = 1/32	XX = 1/2°

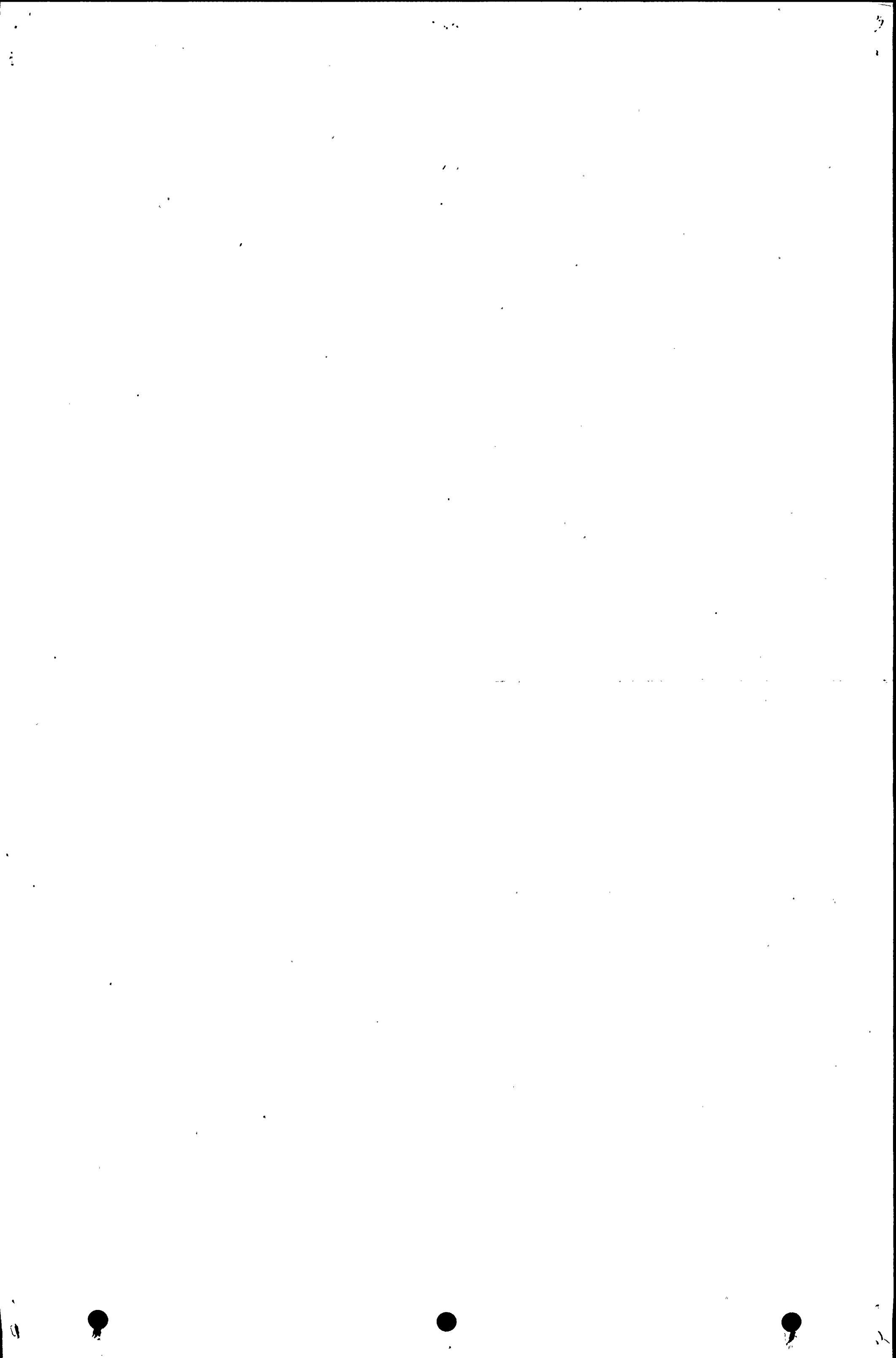
DO NOT SCALE THIS DRAWING

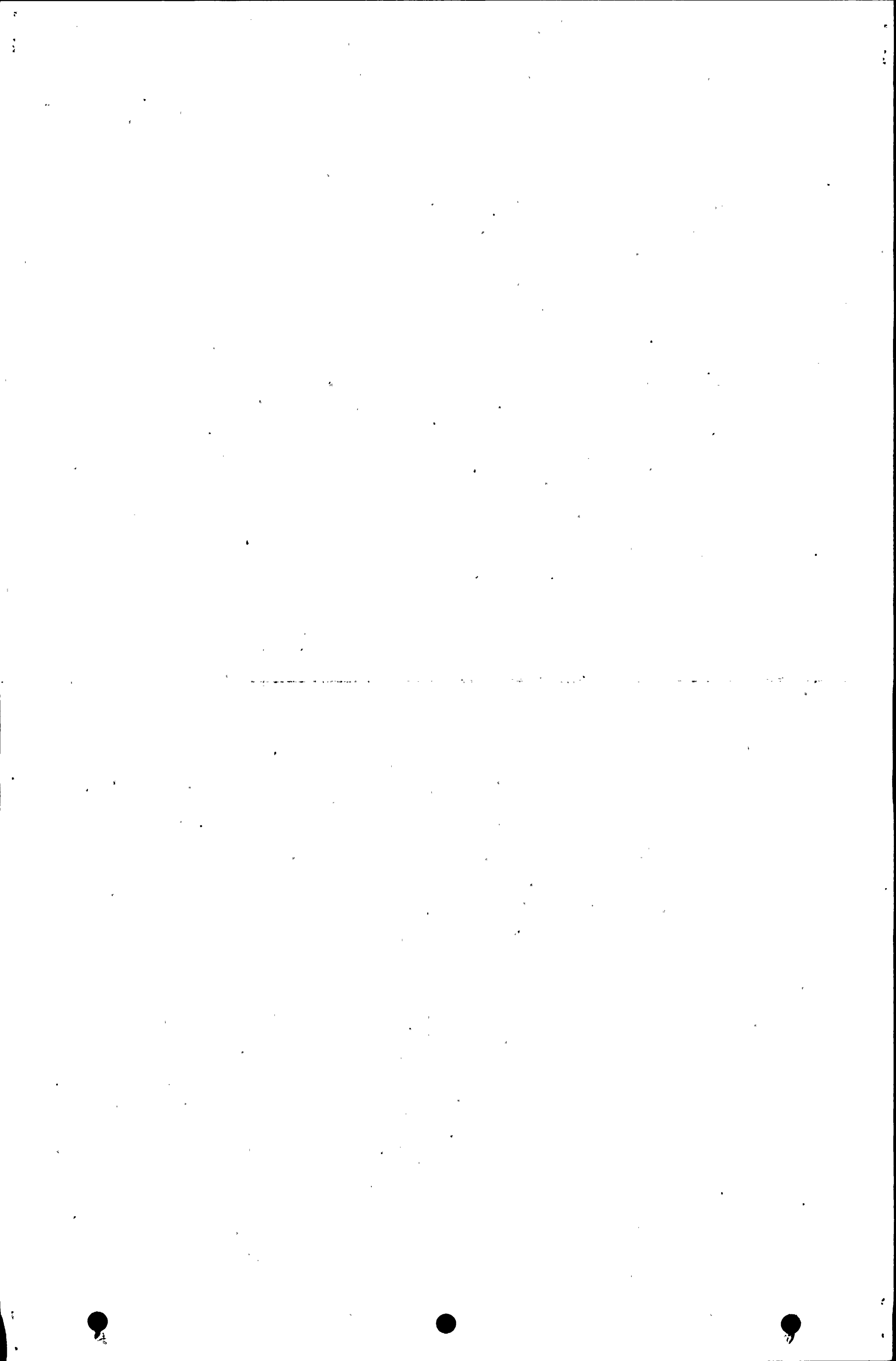
MATERIAL
SEE P/L

CONTRACT NO.	
FIRST MADE FOR	E.C. 675
APPROVAL	DATE
DRAWN	PTAR 2-8-82
CHECKED	
PROJ ENG	
CAPBL	1-1-82

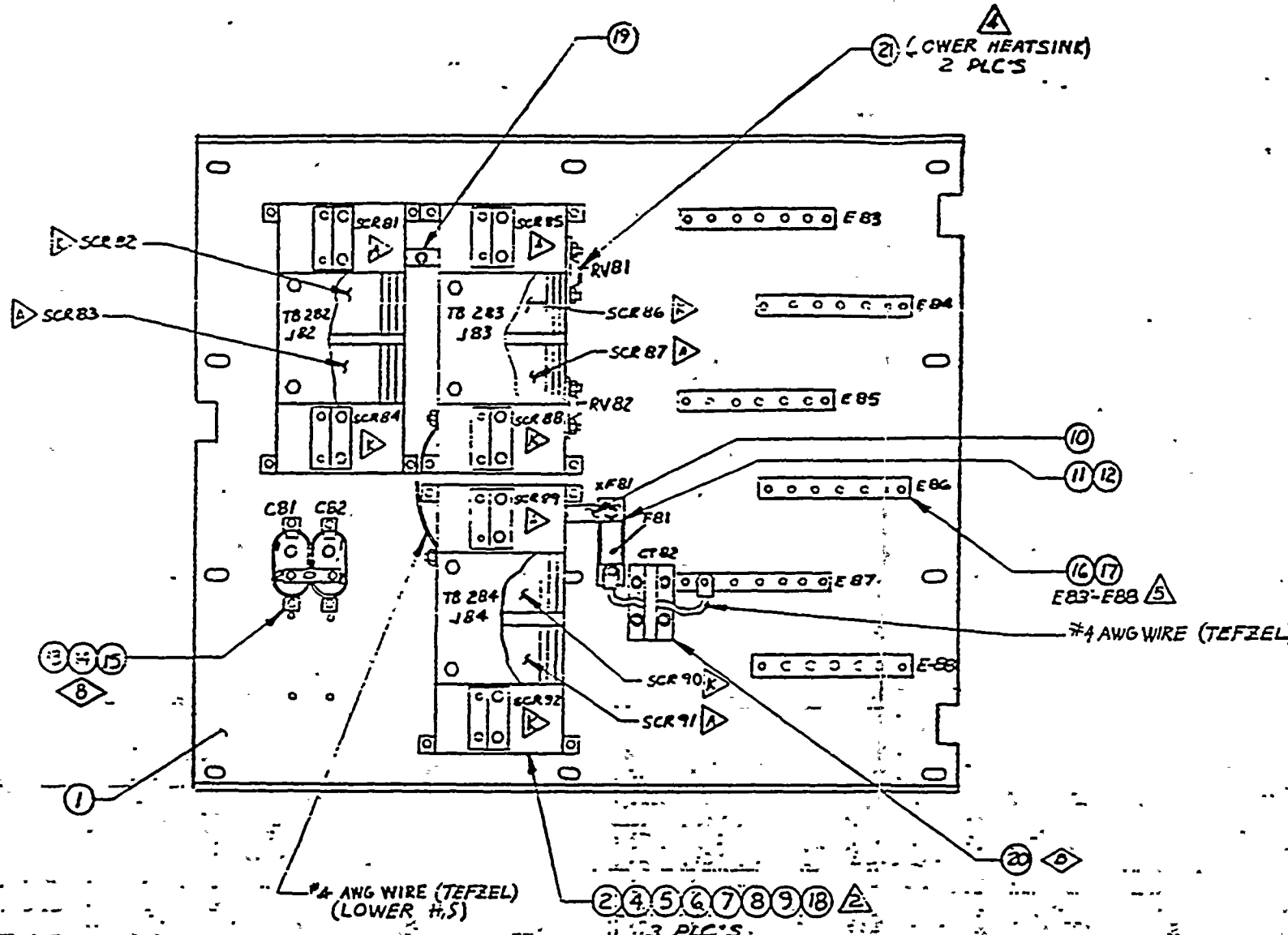
SELGAR
CARD CAGE ASSY

THE INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE BY THE SOURCE OF ORIGIN AND IS THE PROPERTY OF SELGAR CORPORATION. IT IS TO BE CONTAINED AND TRANSMITTED IN CONFIDENCE TO THE U.S. GOVERNMENT. SELGAR CORPORATION, BETHLEHEM, PA. 18018. PROPERTY OF SELGAR CORPORATION. ALL RIGHTS RESERVED. THIS DRAWING IS THE PROPERTY OF SELGAR CORPORATION.	FINISH	SCALE 1/2"	SHEET 4 OF 4
DRAWING NO. D 25965	CODE IDENT NO. 5491009	REV. AI	





4	PER ECN # 2552	72	11-20-82	R/L
8	ECN # 2889	80	6-2-86	Z/S



ITEM	PART NO.	DESCRIPTION	QTY.	REF.
1	1943-383-20	HEATSINK MOUNT PANEL	1	
2	1642-106-40	DRIVE BD ASSY	2	J82,84
3	1648-101-40	ST DRIVE BD ASSY	1	J83
4	1846-C35-0M	SCR C 350 M	12	SCR81-82
5	1846-SCR-MB	SCR CLAMP #1000	12	
6	1942-240-20	BUSS BAR/SCR SPACER	6	
7	1928-475-21	HEATSINK 1 3/2" LOWER	3	
8	1928-478-20	HEATSINK 3" UPPER	6	
9	1932-218-20	HEATSINK INSULATOR	6	
10	1943-252-20	BUSS BAR HTSK-FUSE	1	
11	1558-A50-P2	FUSE, 200 AMP	1	F81
12	858-P24-3E	FUSE BLOCK	1	XF81
13	327-406-47	CAPACITOR 40uF 400V	2	C81,82
14	893-186-GE	CAP BRACKET GE186	4	
15	1943-250-20	BUSS BAR 3 HOLE	1	
16	1934-248-22	BUSS BAR	6	E83-88
17	1109-216-51	STANDOFF-GLASTIC	12	
18	109-GR0-SR	GROMMET-SILICONE	24	PC8,MT8
19	1943-467-20	BUSS BAR-LOWER HTSK	2	
20	1990-361-91	CURRENT XFMR	1	CT82
21	1500-130-20	VARISTOR	2	RV81,82

- ▲ ITEM 17 UNDER EACH END OF ITEM 16.
 - ▲ SEE DUG. 943-282-20 FOR VARISTOR MODIFICATION.
 - 3. USE SELF-TAPPING (ROLOK) SCREWS FOR THE FOLLOWING SYMBOLS:
 - ① 4-20
 - ② 8-32
 - ③ 10-32
 - ▲ ASSEMBLE PER. REF. DUG. 642-298-40
 - 1. SYMBOL: ▲ DESIGNATES ANODE UP.
 ▼ DESIGNATES CATHODE UP.
- NOTES: UNLESS OTHERWISE SPECIFIED.

NUCLEAR SAFETY RELATED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:		CONTRACT NO. _____	
DECIMALS	FRACTIONS	FIRST MADE FOR _____	DATE _____
XX ± .01	1/16 ± 1/32	DRAWN BY _____	DATE _____
XXX ± .010	DO NOT SCALE THIS DRAWING	CHECKED BY _____	DATE _____
MATERIAL _____		SCALE _____	
NEXT ASSY _____		SHEET _____	
APP. _____		REV _____	
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243-385-40

NEXT ASSY

USED ON

D-A3

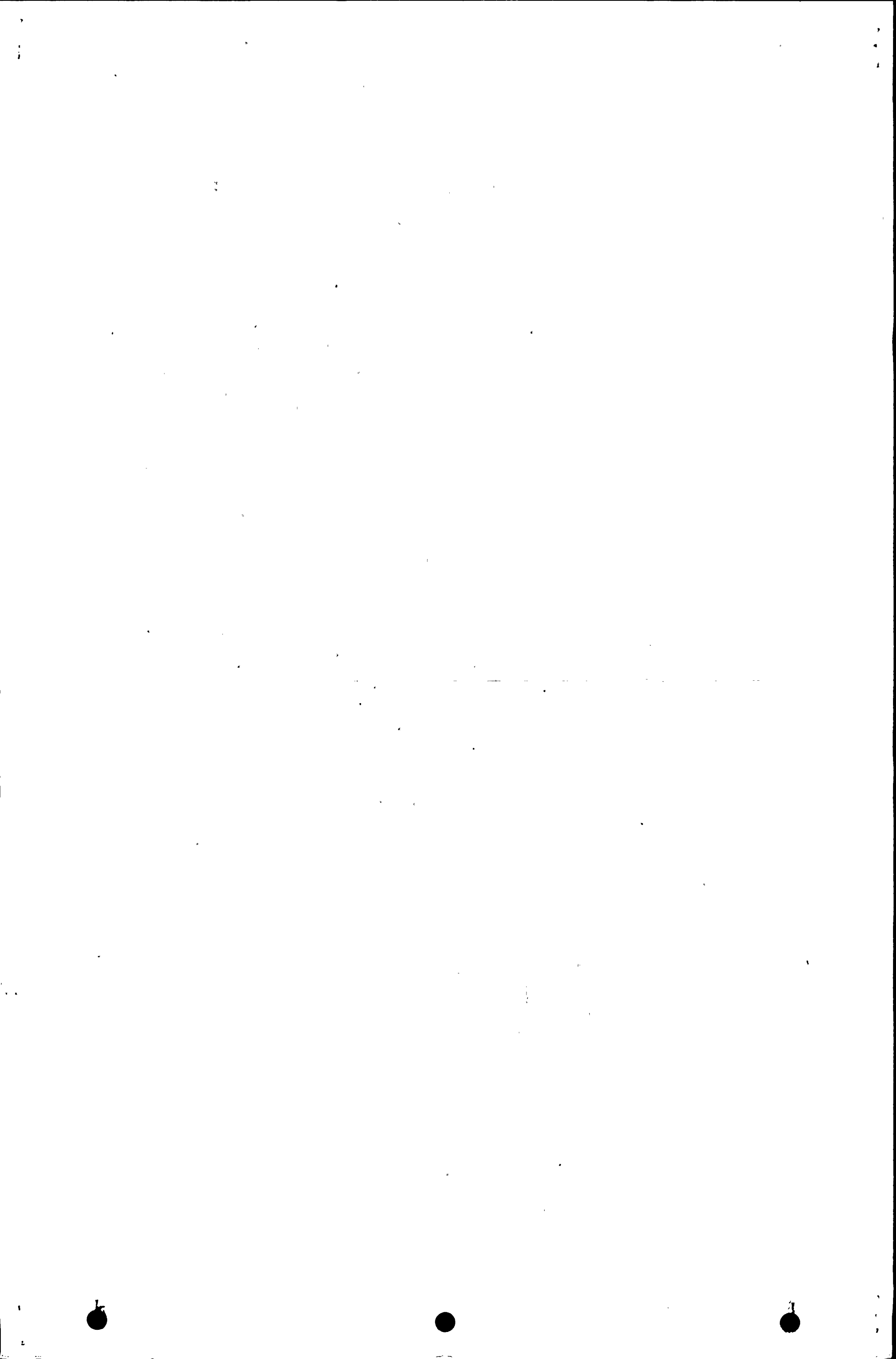
GELGAR

HEATSINK PANEL ASSY (DIST. CABINET)

D 25965

643-383-40

E



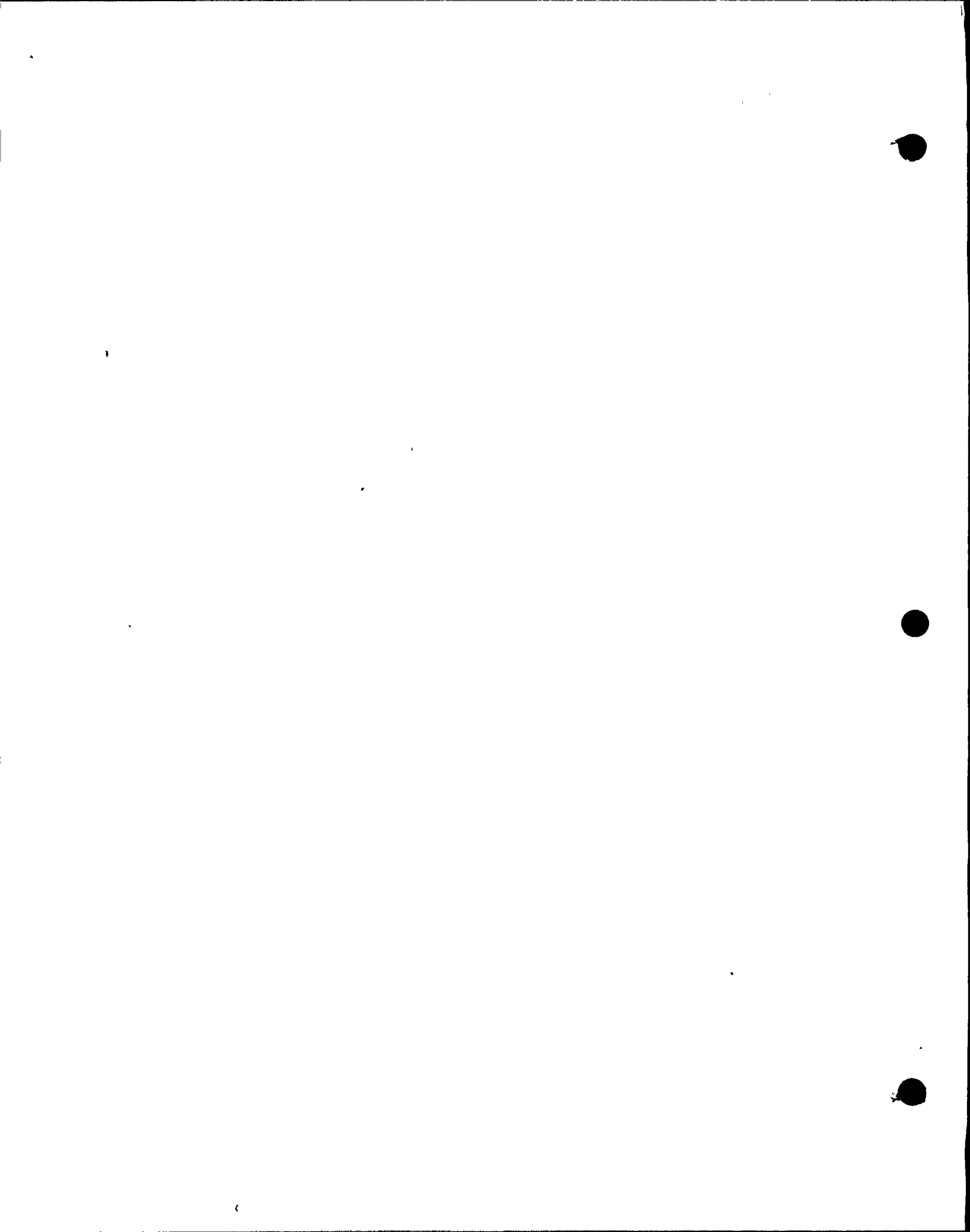
SECTION IV
PARTS LIST

4-1 GENERAL

a. This section contains a listing of all parts necessary for factory authorized repair of the UPS. When ordering spare parts, specify part name, part number, manufacturer, component value and Elgar part number. Where no specific manufacturer or part number is given, the replacement part should conform to value, rating and tolerance as listed. If complete assemblies are desired, order assemblies from:

ELGAR CORPORATION
9250 Brown Deer Rd.
San Diego, CA 92121

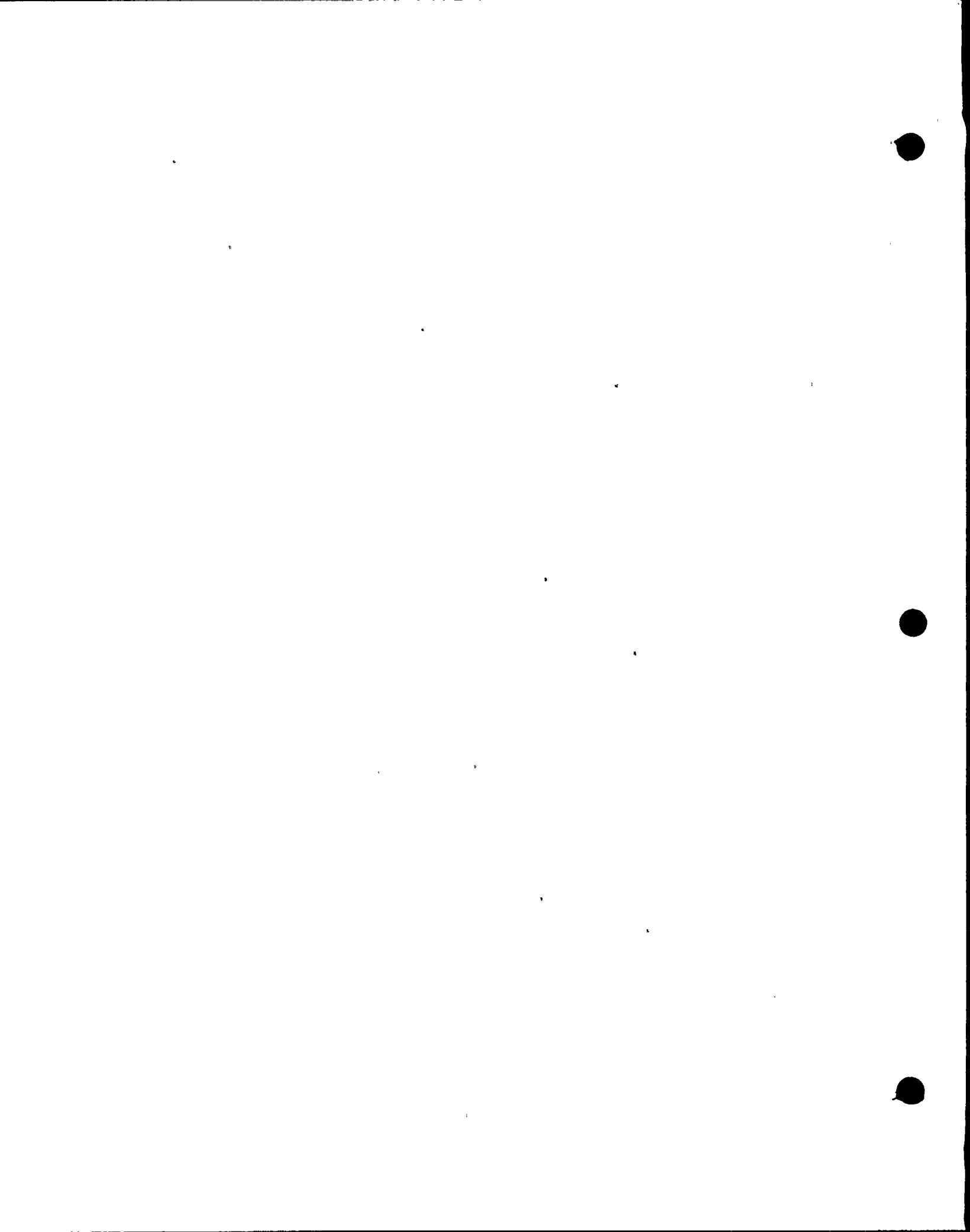
Specify assembly number, instrument series number and instrument name.



TOP ASSEMBLY 543-625-40

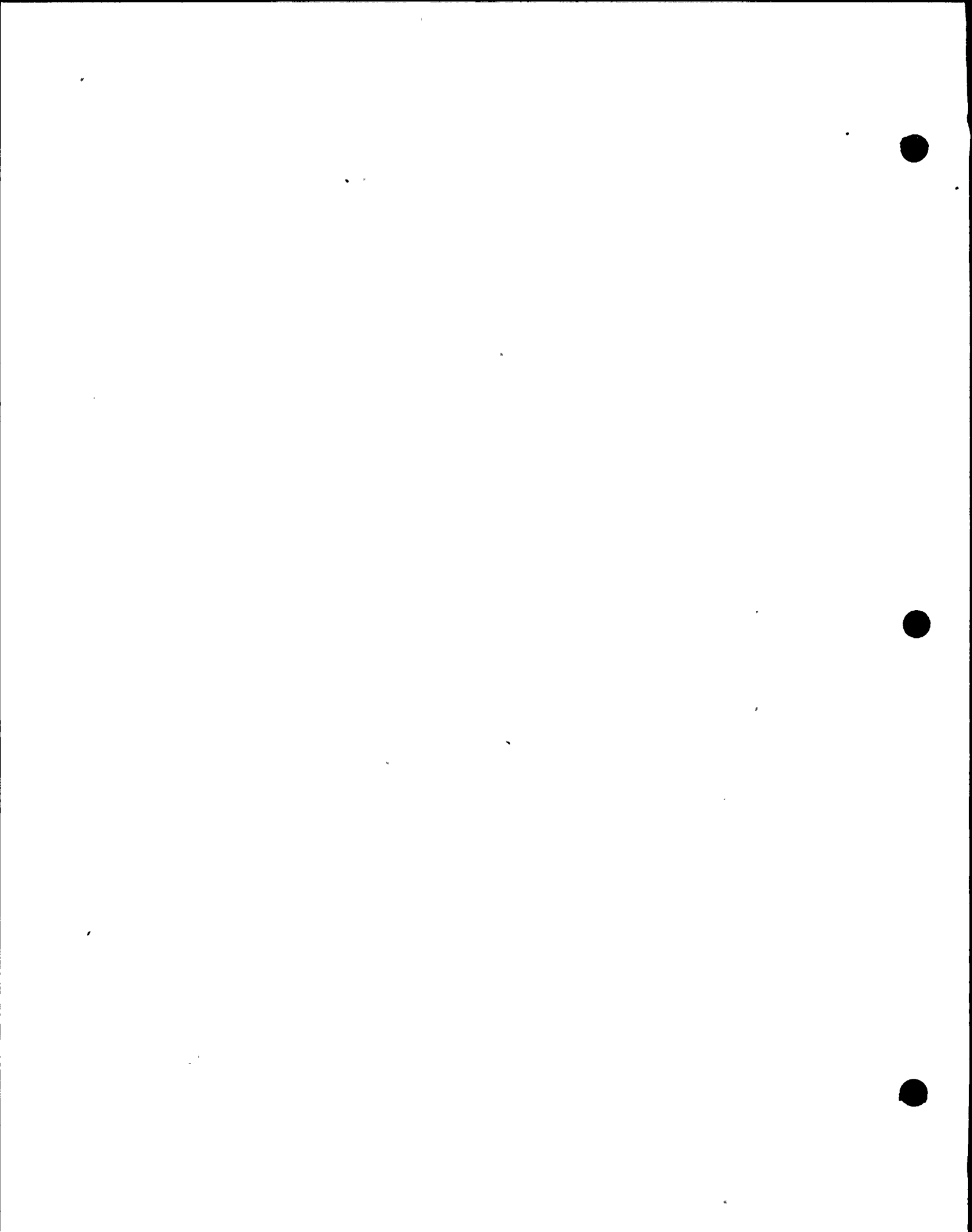
SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
		Distribution Cabinet Assembly		Elgar		643-630-40
		UPS Cabinet Assembly		Elgar		643-623-40
J1		Card Extender 88 Pin		Elgar		5430003-01
J9		Driver Logic PCB Assembly		Elgar		5490001-01
J8		Digital Logic PCB Assembly		Elgar		5490014-01
J7		Analog PCB Assembly		Elgar		5490030-01
J6		Oscillator Logic PCB Assembly		Elgar		643-119-41
J3		Charger Logic "A" PCB Assembly		Elgar		5490018-01
J5		SS Logic PCB Assembly		Elgar		5490002-01
J2		Alarm Logic Assembly		Elgar		5490006-01
J4		Charger Logic "D" Assembly		Elgar		5490019-01

42



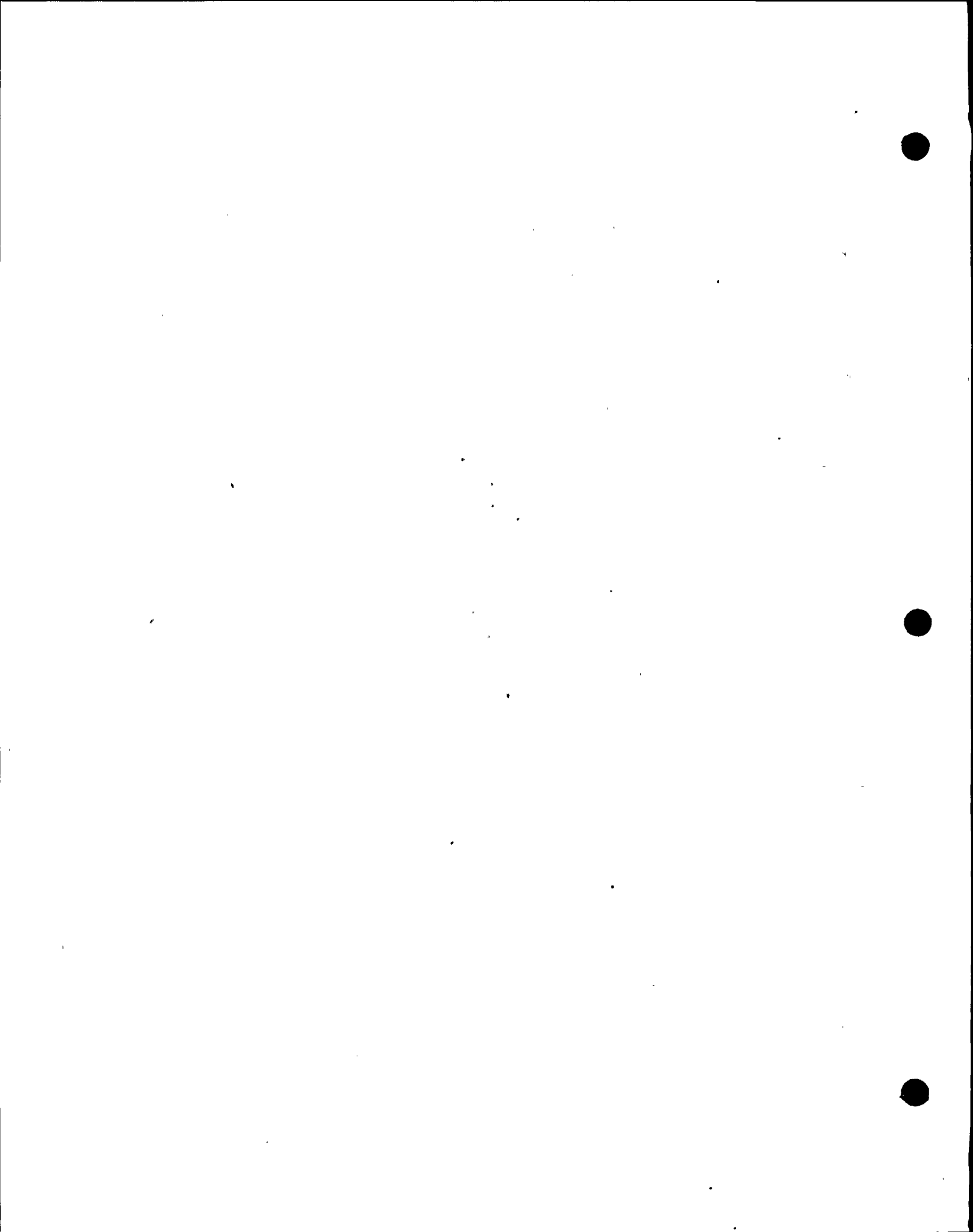
SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
A1		Card Cage Assembly		Elgar		5491009-04
A2		Inverter Panel Assembly 12KVA		Elgar		643-523-40
A3,4		Inverter Panel Assembly 7 KVA		Elgar		643-524-40
A5		Filter Panel Assembly		Elgar		5321074-01
A6		Charger Static Switch Panel Assembly		Elgar		5431086-02
A7		I/O Panel Assembly		Elgar		5431003-01
A8		Control Panel Assembly		Elgar		643-626-40
A9		Right Door Plate Assem		Elgar		643-530-40
A10		Fan Mount Panel Assem		Elgar		643-518-40
A11		Left Door Assembly		Elgar		643-520-40
A12		Right Door Assembly		Elgar		643-519-40
		Chassis Assem		Elgar		643-624-40
		Fuse Sense PCB Assembly		Elgar		628-136-90
CB51		Circuit Breaker AC		Elgar		852-275-AP
CB52		Circuit Brkr Battery Input		Elgar		852-253-3D
CB53		Circuit Brkr Static Switch Output		Elgar		852-300-2P

4-3



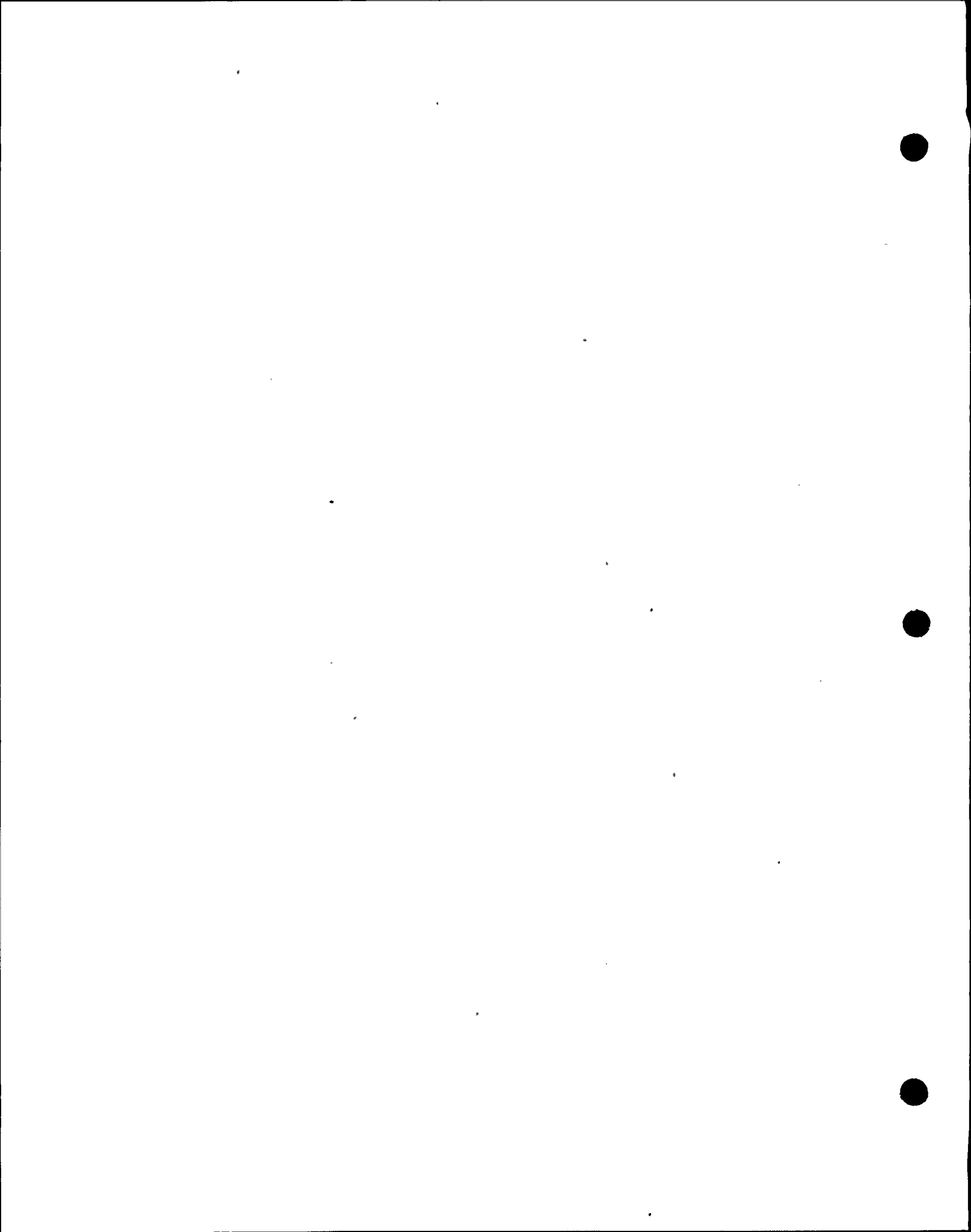
CARD CAGE ASSEMBLY (A1)

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
		Back Plane PCB Assem		Elgar		5490015-05



INVERTER PANEL ASSEMBLY (A2) 643-523-40

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
C1 A&B, C2 A&B CR1,2,3,4 F1 L1,2,5,6 L3,4,7,8 R1 SCR1,2,5,6 SCR3,4,7,8 TK1 R2,3,4,5,6, 7,8,9 R10,R11 J1,2,3,4	30 uF 300A 200K	Capacitor Diode Fuse Comm Choke Core MOV SCR SCR Thermostat MOV Resistor SCR Drive Bd Assy(INV)	500V 500V 500V 130V 500V 500V 320V 1W	G.E. G.E. Chase-Shaw Elgar Ferroxcube G.E. G.E. G.E. G.E. Dale Elgar	26F6816FB A397E A50P300 528T5003C8 V130PA20C C385E C384E 2450-21-272 V320PA40A RC42GF204J	827-306-66(1) 845-A39-7E 858-300-50 990-846-90 850-528-T5 800-130-20 846-C38-5E 846-384-15 861-340-0X 800-V32-OP 803-204-05 5490009-03
NOTE:						
1. Replacement required at 9 year intervals.						



VERTER PANEL ASSEMBLY (A3,4) 643-524

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
C1,2	40 uF	Capacitor	500V	G.E.	26FC817FB or 26FC911FC	827-406-66(1,2)
CR1,2,3,4		Diode		G.E.	A397E	845-A39-7E
F1	200A	Fuse	500V	Chase-Shaw	A50P200	858-A50-P2
L1,2,5,6		Comm. Choke		Elgar		990-846-90
L3,4,7,8		Core		Ferroxcube	528T5003C8	850-528-T5
R1		MOV	130CV	G.E.	V130PA20CV	800-130-20
SCR1,2,5,6		SCR	500V	G.E.	C355E	846-C35-5E
SCR3,4,7,8		SCR	500V	G.E.	C384E	846-364-15
R2,3,4,5,6,7,8,9		MOV	320V	G.E.	V320PA40A	800-V32-OP
R10,11	200K	Resistor	1W	Dale	RC42GF204J	803-204-05
J1,2,3,4		SCR Drive Bd (Inv.)		Elgar		5490009-03

NOTES:

1. Replacement required at 9 year intervals.
2. Item has a pre-determined shelf life of 5 years.

RECEIVED

J. O. NO. 12187

JUL 01 1985

STONE & WEBSTER
ENG. CORP.
CONTROL LEVEL 1

Stone & Webster Engineering	
I.O. No. 12177	
Spec. No. <u>E035A</u>	
PREPARED FOR: RETURN TO SUPPLIER <input type="checkbox"/> ENG. & DESIGN <input checked="" type="checkbox"/> FAB.ICATION <input type="checkbox"/>	DIRECTIONS TO SITE: FOR CONSTRUCTION <input checked="" type="checkbox"/> NOT FOR CONSTRUCTION <input type="checkbox"/>
<input checked="" type="checkbox"/> APP Approved/Acceptable For Use <input type="checkbox"/> AAR Approved As Revised <input type="checkbox"/> U/A Unacceptable <input type="checkbox"/> BLT As - Built <input type="checkbox"/> FIO For Information Only	
Date <u>6/27/85</u> By <u>G. Modi</u> <u>7010</u> <u>tkon</u>	



CHARGER STATIC SWITCH PANEL ASSEMBLY (A6) 5431086-02

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
SCR51-62		SCR	600V	G.E.	C380M	846-C38-OM
SCR63-66		SCR	600V	G.E.	C430M	846-C43-OM
CR51,52		Diode	600V	G.E.	A430M	845-A43-OM
C51-56	5 uF	Capacitor	600V	C.D.E.	SCRN222	827-505-60 (1 & 2)
C61,62	50 uF	Capacitor	200V	C.D.E.	SCRN210	827-506-29 (1 & 2)
R53A,B	20ohms	Resistor	50W	Dale	RH50-20R	810-020-05
TK2		Thermostat		Elmwood	3400	861-340-0X
J601,2,3,4		SCR Drive Bd (Rect)		Elgar		5490009-01
J605		SCR Drive Bd(S/S)		Elgar		5490009-02
<p>NOTES:</p> <ol style="list-style-type: none"> 1. Replacement required at 9 year intervals. 2. Item has a predetermined shelf life of 5 years. 						

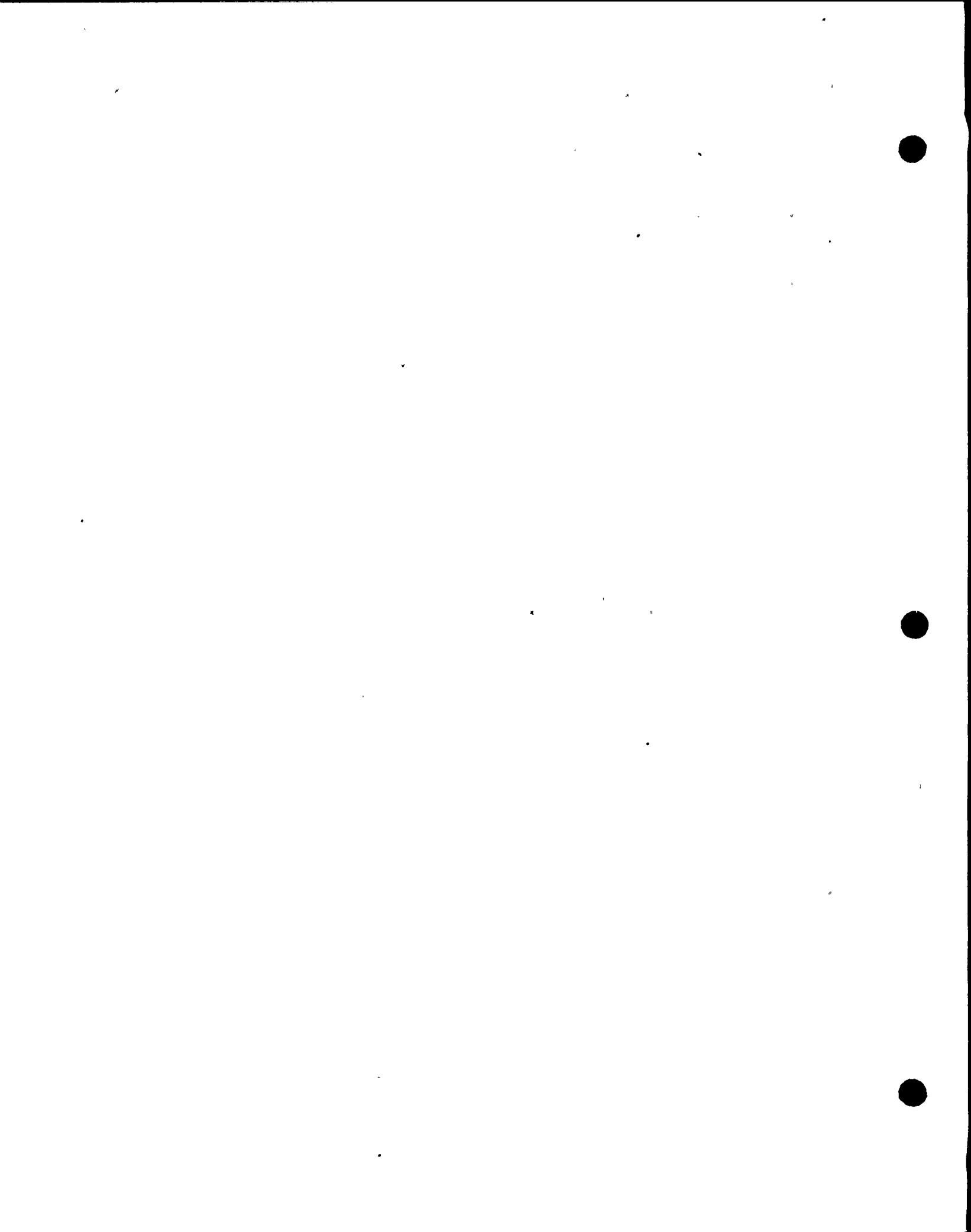


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FILTER PANEL ASSEMBLY (A5) 5321074-01

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
C57 A-T	5400 uF	Capacitor	200V	G.E.	86F207	826-548-X2 (2 & 3)
C1 A-H, C2 A-G, C58	150 uF	Capacitor	250V	G.E.	97F7500FC	827-157-66 (1 & 3)
L52, 53		Choke, DC Filter		Elgar		990-769-90
L3		Choke Trap		Elgar		991-009-91
CT54		Current Transformer		Elgar		991-014-90
CT56		Current Sensor Hall Effect		F.W. Bell		850-500-1M
T55		Xfmr. Aux. Power	480-120	Elgar		991-181-90
R51,52	400amp	Shunt	50MV	Q.E.	PR400	857-PR4-00
F51,62	600 amp	Fuse	500V	Shawmut	A50P600	858-600-XX
F65 A-T	30 amp	Fuse	250V	Bussman	KAB 30	858-KAB-03
R57 A,B	200 ohm	Resistor	250W	Dale	RH250	811-201-05
J501		Fuse Sense Bd Assy		Elgar		5430002-20
J503		Fuse Sense Bd Assy		Elgar		628-137-41
J504		Current Xdcr Assy		Elgar		5430008
R54	100 ohm	Resistor		Dale	RC32GF01J	803-101-05
NOTES:						
1. Replacement required at 9 year intervals.						
2. Replacement required at 9 year intervals. At time of replacement capacitors must be wrapped with silicone glued glass tape on the lower 2 inches (Permacel P212).						
3. Items with a predetermined shelf life.						



I/O ASSEMBLY (A7) 5431003-01

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
CT51,52, 53,55 CT81 R55	100 ohm	Transducer PCB Assy.	300-5.5VA 1W	Elgar	KS085 RC32GF101J	5490016-01
		Current Xfmr.		Elgar		991-014-90
		Current Xfmr.		Ritz		850-203-01
		Resistor		Dale		803-101-05



EQ35A 11560-5002L
 RIGHT DOOR PLATE ASSEMBLY (A9) 643-530-40

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR
				NAME	PART NUMBER	PART NUMBER
T5,6,56,57		DC-DC Converter Assy.		Elgar	J. O. NO. 12187	5491011-02
T58,60		Sense Transformer		Elgar	STONE & WEBSTER ENGR. CORP.	991-182-90
BR51,52		Power Transformer		Elgar	CONTROL LEVEL I	990-941-90
CR53	IN5624	Bridge Diode	25A	MOT	MDA990-3	847-990-3X
CR54,55	IN4004	Diode	5A	G.E.	IN5624	845-562-4X
C59,60	23000 MFD	Diode	1A	MOT	IN4004	846-400-4X
K53,55,56		Capacitor	230K/50V	G.E.	86F170M1	826-239-12 (1 & 2)
U51	15V	Relay		P.B.	R10E1V4V700	861-1Y4-70
U52	25V	Regulator		S.Gen	SG7815ACP	849-781-5P
Q51	2N3772	Regulator		S.Gen	SG7824ACR	849-782-4R
C63,64	33MFD	Transistor		RCA	2N3772	841-377-2X
R54	820 ohm	Capacitor	35V	Sprague	196D336X9035TE4	823-336-61
R55	750 ohm	Resistor	1W	Dale	RC32GF821J	803-821-05
J901,902,904		Resistor	1W	Dale	RC32GF751J	803-751 05
F53,55,56,57		Relay Drive Bd Assy.		Elgar		633-270-40
59,60,63,64		Fuse	2 AMP	Bussman		858-313-02
C3	1400 uF	Capacitor	100V	G.E.	86F184M	826-142-82
K51,52,54		Relay		Westinghouse	ARD440SR	861-ARD-4S
FG4 *		FUSE	3 AMP	BUSSMAN (OR EQUAL)		

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4-10

NOTES:

1. Replacement required at 9 year intervals.
2. Item has a predetermined shelf life of 5 years.

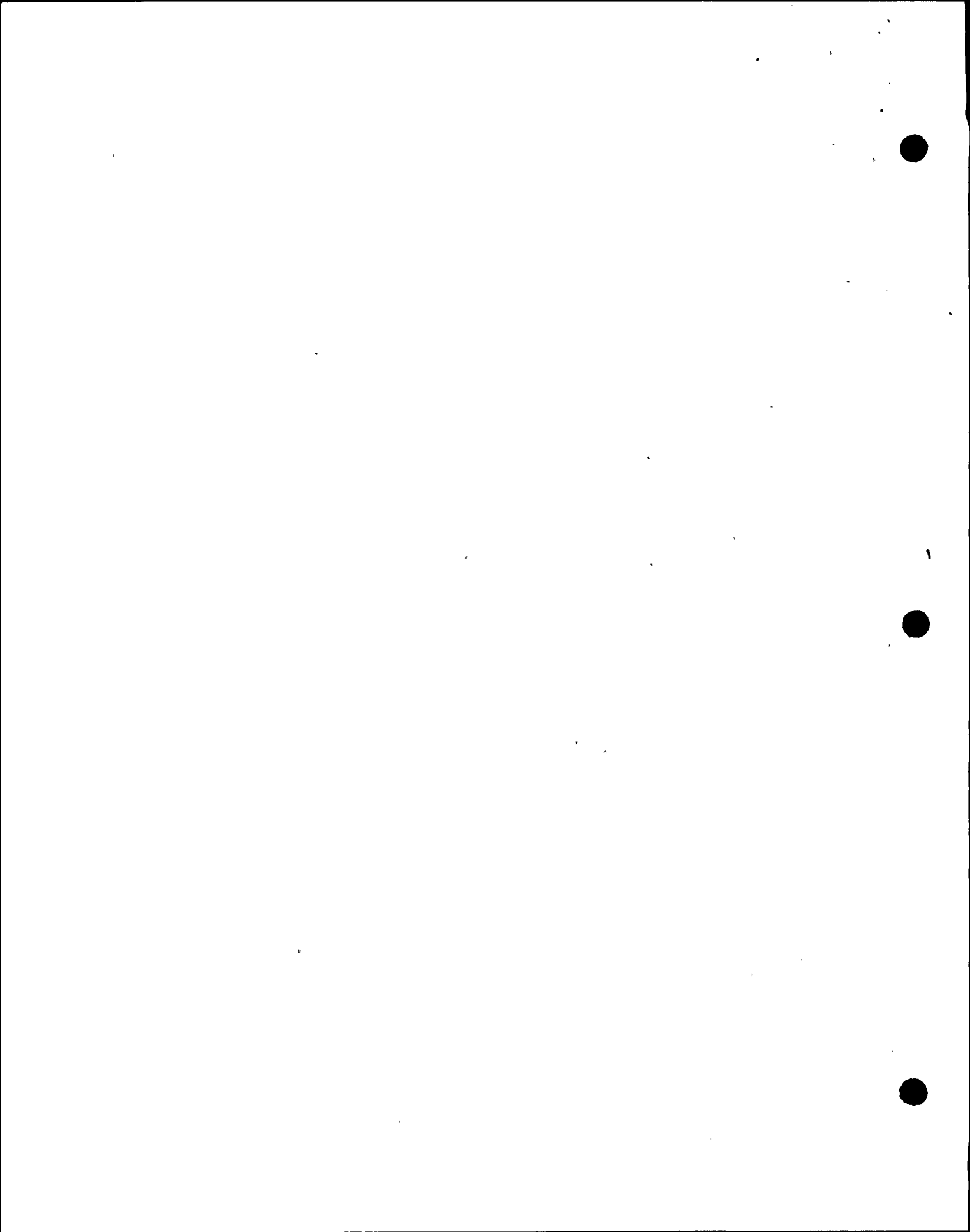
(* SWEC REVISION PER ELGAR LETTER DATED 5/9/85)

Stone & Webster Engineering I.O. No. 12177 Spec. No. EQ35A	
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<input checked="" type="checkbox"/> APP - Approved/Acceptable For Use <input type="checkbox"/> AAR - Approved As Revised <input type="checkbox"/> UHA - Unacceptable <input type="checkbox"/> BLT - As-Built <input type="checkbox"/> FIO - For Information Only	
Date 5/20/85 By [Signature]	



CHASSIS ASSEMBLY 643-624-40

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
L1		Series filter choke		Elgar		990-899-90
T1		Summing Xfmr.	2KVA	Elgar		990-990-90
T2,3		Summing Xfmr.	7KVA	Elgar		990-991-90
T51		Input Xfmr.		Elgar		9900048-01
T52		Input Xfmr.		Elgar		991-140-90
L51		DC Choke		Elgar		991-141-90



FAN MOUNT PANEL ASSEMBLY (A10) 643-518-40

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
B1,2,3,51,53 S1,2,3,51,53		Fan Air Switch		Rotron Warren	CL2T2 FS3101	853-CL2-T2 (1) 860-531-01
<p>NOTES:</p> <p>1. Replacement required at 2 year intervals.</p>						



RIGHT SIDE PLATE ASSEMBLY (DISTRIBUTION) DAI 5431249

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
T84,85	400 uF	Regulator Control Bd Assy	.	Elgar		648-100-40
C84		Control Transformer		Elgar		991-191-90
F82-86		Capacitor		Bishop	A 11C105J	882-105-58
BR81		Fuse	2 amp	Buss	AGC-2	858-313-02
C83		Bridge Diode		MOT	MDA990-3	847-990-3X
K1		Capacitor	100V	Mepco	3186BE142U100AMA1	826-142-82
XK1		Relay	2 amp	P/B	R10E1YV700	861-1Y4-70
		Relay Socket		P/B	27E152	861-27E-15

4-13

Inst 015100-50046



DISTRIBUTION CABINET ASSEMBLY 643-630-40

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR
				NAME	PART NUMBER	PART NUMBER
D-A1		Right Plate Assy.		Elgar		5431249
D-A2		Right Door Assy.		Elgar		643-556-40
D-A3		Heatsink Panel Assy.		Elgar		643-383-40
D-A4		Fan Plate Assy		Elgar		643-377-40
D-A5		1/8 Ripple Filter Panel Assy.		Elgar		5431081-02
S5		Chassis Assy Switch		Elgar Electro-Switch		643-607-40
CB1, CB2		Circuit Breaker		G.E.	107601A-2AS MBB TJJ426300	860-107-1S 852,300-2P

Inst 01500-5000



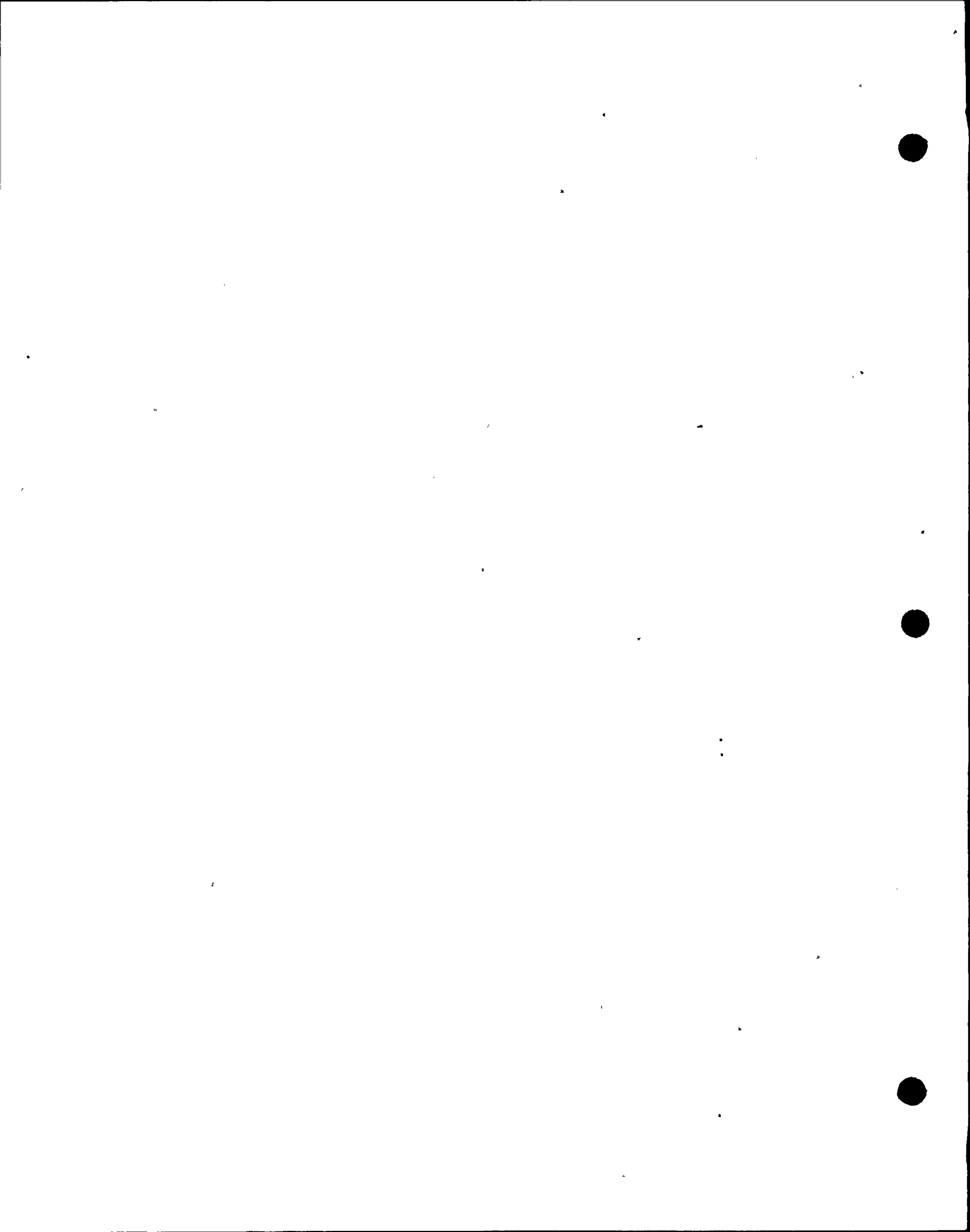
UPS 253-1-101 CHASSIS ASSEMBLY - DISTRIBUTION 643-607-40

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
T81		Isolation Xfmr		Elgar		9900049-01
T82		Line Regulator Xfmr.		Elgar		991-173-90
T83		Line Regulator Xfmr.		Elgar		991-174-90



RIGHT DOOR ASSEMBLY - DISTRIBUTION CABINET D(A5) 5431081-02

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
L1 A,B,C J501		Choke Fuse Sense Bd. Assy		Elgar		990-769-90
R1A,B CIA-T	200 ohm 5400 uF	Resistor Capacitor	250 W 200V	Elgar Dale G.E.	RH250 86F207	5430002-20 811-201-05 826-548-X2 (2 & 3)
F1A-T	30 Amp	Fuse	250V	Bussman	KAB 30	858-KAB-03
<p>NOTES:</p> <ol style="list-style-type: none"> 1. Replacement required at 9 year intervals. 2. Replacement required at 9 year intervals. At time of replacement, capacitors must be wrapped with silicone glued glass tape on the lower 2 inches (Permacel P212). 3. Items with a predetermined shelf life. 						



HEATSINK PANEL ASSEMBLY (A3) 643-383-40

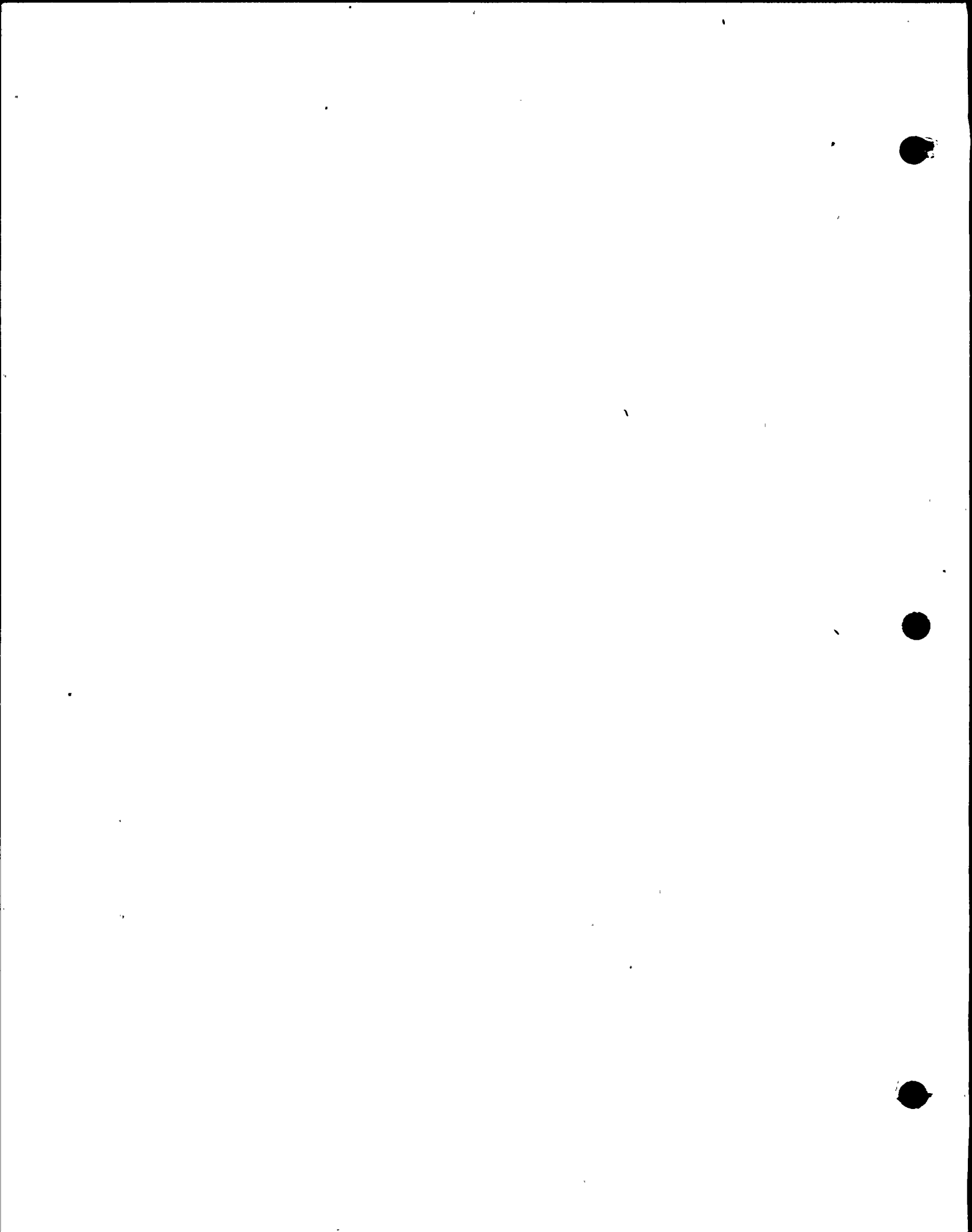
SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
SCR81-92 F81 C81,82	40 uF	Drive Board Assy S.T. Drive Bd. Assy. SCR Fuse Capacitor	200 amp 400 V	Elgar Elgar G.E. Shawmut C.D.E.	C350M A50P200 SCRN218	642-106-40 648-101-40 846-C35-OM 858-A50-P2 827-406-47 (1 & 2)
RV81,82 CT82		Varistor Current Xfmr.		G.E. Elgar	V130PA20C	800-130-20 990-361-91
<p>NOTES:</p> <ol style="list-style-type: none"> 1. Replacement required at 9 year intervals. 2. Item has a predetermined shelf life of 5 years. 						

4-17



FAN COVER ASSEMBLY - DISTRIBUTION (A6) 643-377-40

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
B81,82		Fan		Rotron	CL2T2	853-CL2-T2 (1)
<p>NOTES:</p> <p>1. Replacement required at 2 year intervals.</p>						



18 BATTERY RIPPLE FILTER PANEL ASSEMBLY 5431081-02

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR
				NAME	PART NUMBER	PART NUMBER
C1A-T FIA-T J501 L1A,B,C R1A,B	5400 uF 30A 200SL	Capacitor Fuse Fuse Sense PCB DC Choke Resistor	200V 250V 250W	GE Bussman Elgar Elgar Dale	86F207 KAB 30 RH250-200R	826-548-X2 * 858-KAB-03 5430002-20 990-769-90 811-201-05
<p>*NOTES:</p> <p>Replacement required at 9 year intervals.</p>						



ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		ENG. RELEASE	ST. 1-28-81	S. SENDO
B		ECN 1672	J.M. 2-5-81	S. SENDO
C		ECN 1917	PC 5-19-81	SENDO
D		DDC # 254 SH. 1 REVISE NOTES; SH. 2 ADDED INDICATORS; SH. 3 ADDED DESCRIPTION FOR TB 3.	12/7/81	
E		PER ECN 2714	L.L. 3-24-82	
F		ECN 3048	MRS 5-9-82	1-17-82
CONT. ON SHEET 2				

NOTES:

- RECTIFIER AC INPUT POWER:
 - 575VAC, 3Ø, 60HZ, 75 AMP SERVICE (PLUS XFMR. INRUSH)
 - 3-PIN TERMINAL BLOCK TB1 WILL ACCEPT TWO HOLE BURNDY LUG, TYPE YA-2N.
- BATTERY DC INPUT POWER:
 - 125 VDC, 313 AMPS MAX.
 - 2-PIN TERMINAL BLOCK TB2 WILL ACCEPT TWO HOLE BURNDY LUG, TYPE YA-2N.
- OUTPUT POWER:
 - RATED POWER: 25KVA.
 - 120 VAC, 208 AMP, 1Ø, 60HZ. TB3 LUG SIZE IS SAME AS NOTE 4B.
- BYPASS INPUT POWER:
 - 575VAC 68 AMP SERVICE (PLUS XFMR. INRUSH), 1Ø, 60HZ
 - 2-PIN TERMINAL BLOCK TB4 WILL ACCEPT TWO HOLE BURNDY LUG, TYPE YA-2N.
- GROUNDING:

GROUNDING STUDS LOCATED RIGHT CENTER OF I/O PANEL, WILL ACCEPT TWO HOLE BURNDY LUG, TYPE YA-2N.
- COOLING:

FORCED CONVECTION VENTS TOP & BOTTOM OF ENCLOSURE
- HEAT REJECTION:

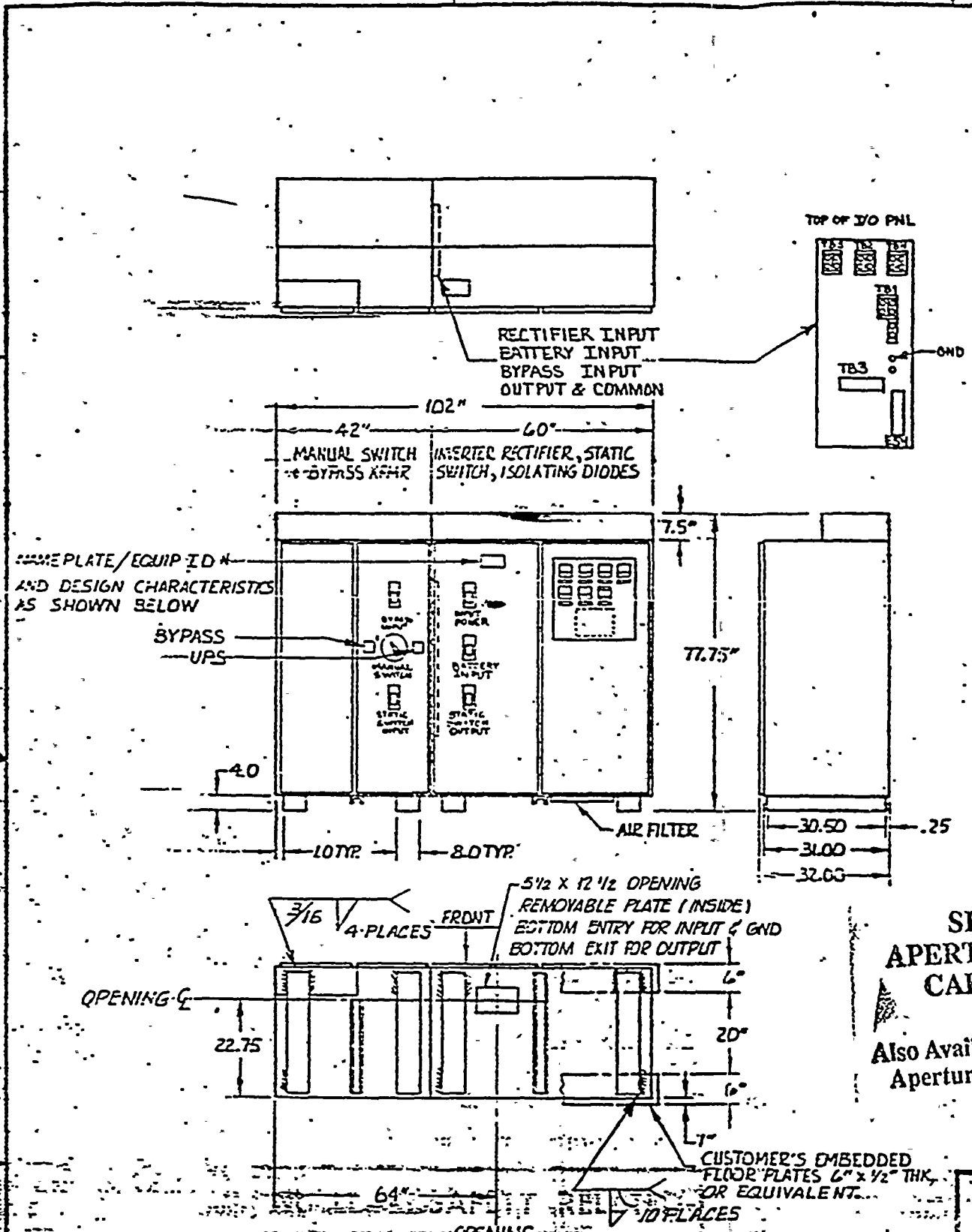
18,000 BTU/HZ.
- WEIGHT:

APPROXIMATELY 4400*
- COLOR:

LIGHT GREY-ANSI NO. 61
- MANUAL BYPASS SWITCH:

ELECTRO SWITCH 2 POSITION 107601A-2A\$ MAKE-BEFORE BREAK

(NOTES CONT. ON SHT 2)



SI APERTURE CARD
Also Available On Aperture Card

NUCLEAR SAFETY RELATED

Five Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation
J.O. No. 12177, P.O. No. NMP2-ED35A

PURCHASE ORDER NO. NMP2-ED35A UNINTERRUPTIBLE POWER SUPPLIES S/W. MARK NOS. ZVBA* UPS 2A ZVBA* UPS 2B J.O. NO. 12177		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES (UNLESS OTHERWISE SPECIFIED) DECIMALS FRACTIONS ANGLES XX = .03 = 1/32 = 3/20 XXX = .010 DO NOT SCALE THIS DRAWING		CONTRACT NO. FIRST MADE FOR: S/D 2093-2 APPROVAL DATE DRAWN: TOOTHACREI-28-81 CHECKED: [Signature] PROJ ENG: [Signature] Q-REL: [Signature]		 SAN DIEGO, CALIFORNIA	
EQUIPMENT TAG SERVICE NAME PLATE COLOR ZVBA * UPS 2A CAT I E.K. CORE ON GRN. SURFACE ZVBA * UPS 2B CAT I BLK CORE ON YEL. SURFACE		NEXT ASSY USED ON APPLICATION		MATERIAL:		INSTALLATION DRAWING UPS 253-1-106	
EQUIPMENT MANUFACTURED AND QUALIFIED TO CATEGORY 1 SPECIFICATIONS.		THE INFORMATION DISCLOSED HEREIN WAS ORIGINATED BY AND IS THE PROPERTY OF ELGAR CORPORATION AND EXCEPT FOR RIGHTS EXPRESSLY GRANTED TO THE UNITED STATES GOVERNMENT, ELGAR CORPORATION RESERVES ALL PATENT, PROPRIETARY, DESIGN, USE, SALE, MANUFACTURING AND REPRODUCTION RIGHTS THEREIN.		FINISH:		CLOW: 543-507-70 SIZE: C CODE: 25965 CONT. NO.: 543-514-70 DRAWING NO.: 543-514-70 REV: 6 SCALE: 1/25 SHEET 1 OF 3	

930480034

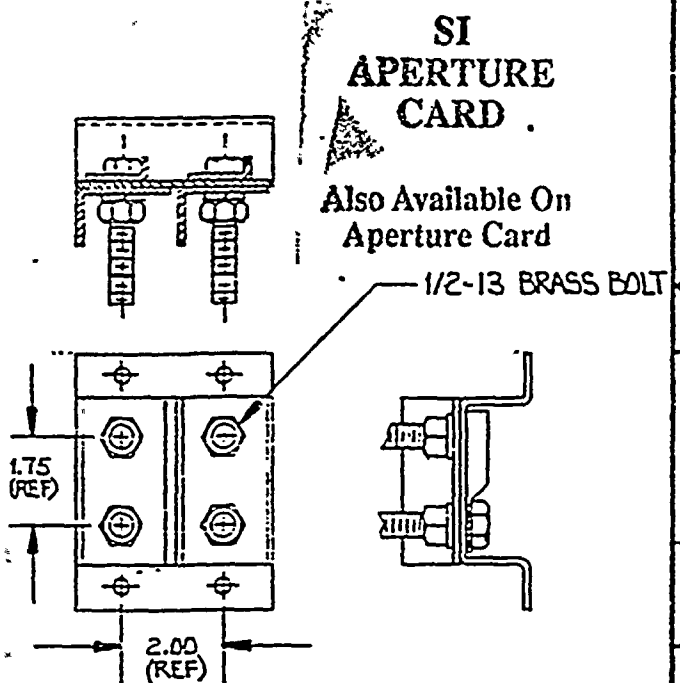
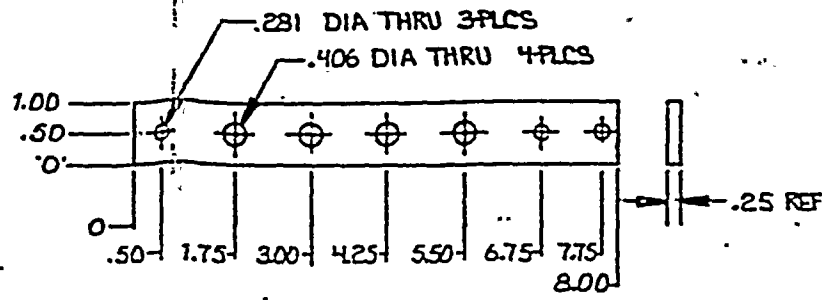
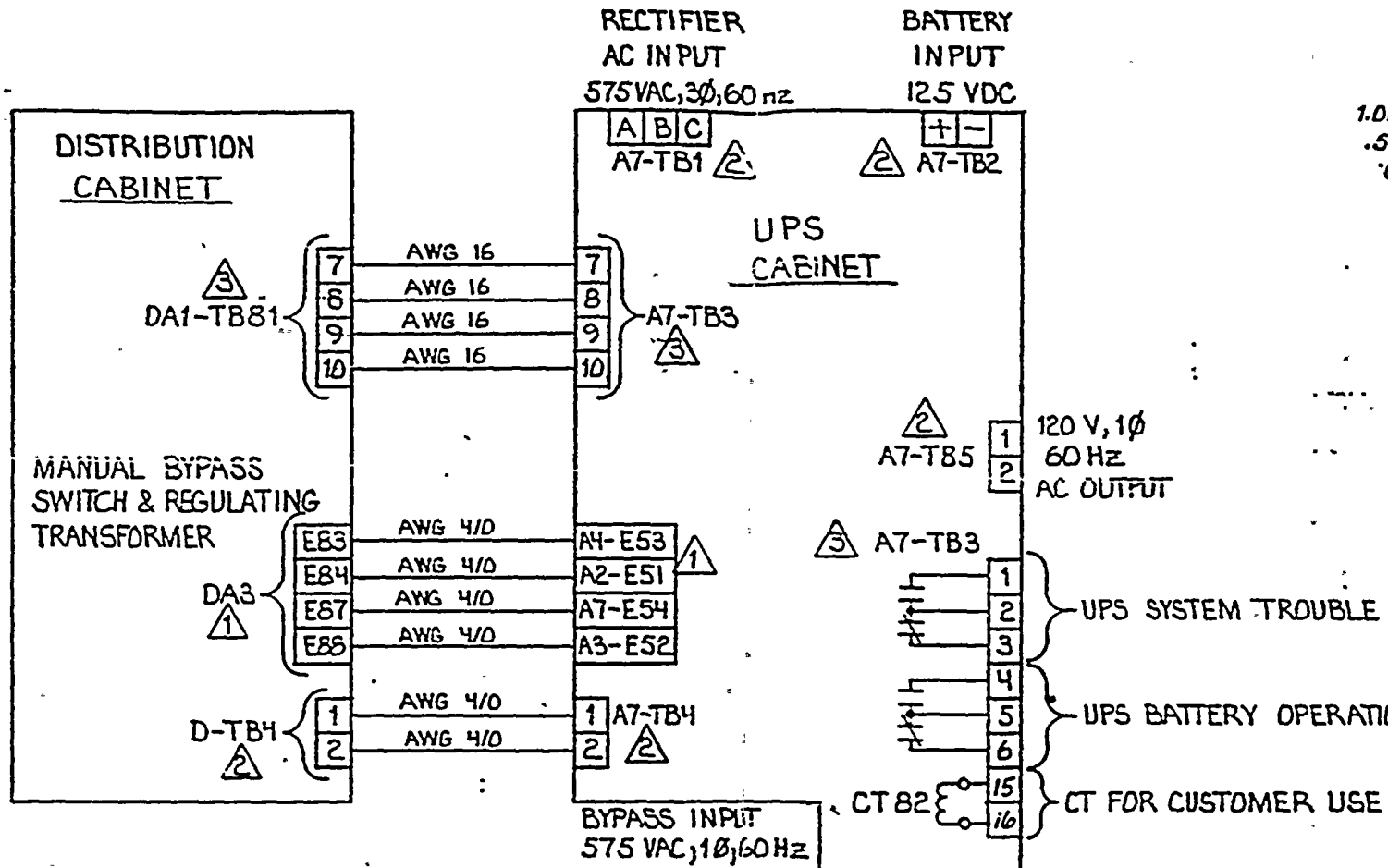
4

3

2

1

ZONE		LTR		REVISIONS	DESCRIPTION	DATE	APPROVED
				SEE SHEET 1			



- NOTES:
- 1. BUSS BAR — SEE DETAIL "A"
 - 2. TERMINAL BLOCK — SEE DETAIL "B"
 - 3. TERMINAL BLOCK — KULKA 601 SERIES

9304290244-02

NUCLEAR SAFETY RELATED

Nine Mile Point Nuclear Station — Unit 2
 Niagara Mohawk Power Corporation
 J.O. No. 12177, P.O. No. NMP2-E035A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:		CONTRACT NO.		CELGAR an Ohm's power systems company
DECIMALS	FRACTIONS	ANGLES	FIRST-MADE FOR: 2093-24	
.XX = .03	1/32 = 1/32	1/2° = 1/2°	APPROVAL	INSTALLATION DWG UPS 253-1-106
.XXX = .010	DO NOT SCALE THIS DRAWING		DATE	
MATERIAL:		DRAWN		
NEXT ASSY.		CHECKED		
USED ON		PROJ ENG		DRAWING NO. 543-514-70
AFFILIATION		QA-REL		
THE INFORMATION CONTAINED HEREIN WAS ORIGINATED BY AND IS THE PROPERTY OF THE UNITED STATES GOVERNMENT. CELGAR CORPORATION RESERVES ALL PATENT, PROPRIETARY, DESIGN, TRADE MARK, MANUFACTURING AND REPRODUCTION RIGHTS THEREIN.		FINISH:		REV L
		SCALE		SHEET 3 OF 3

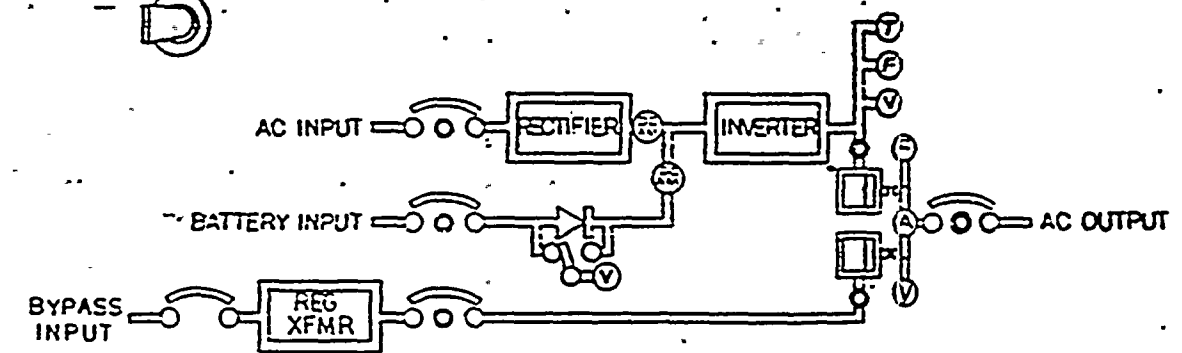
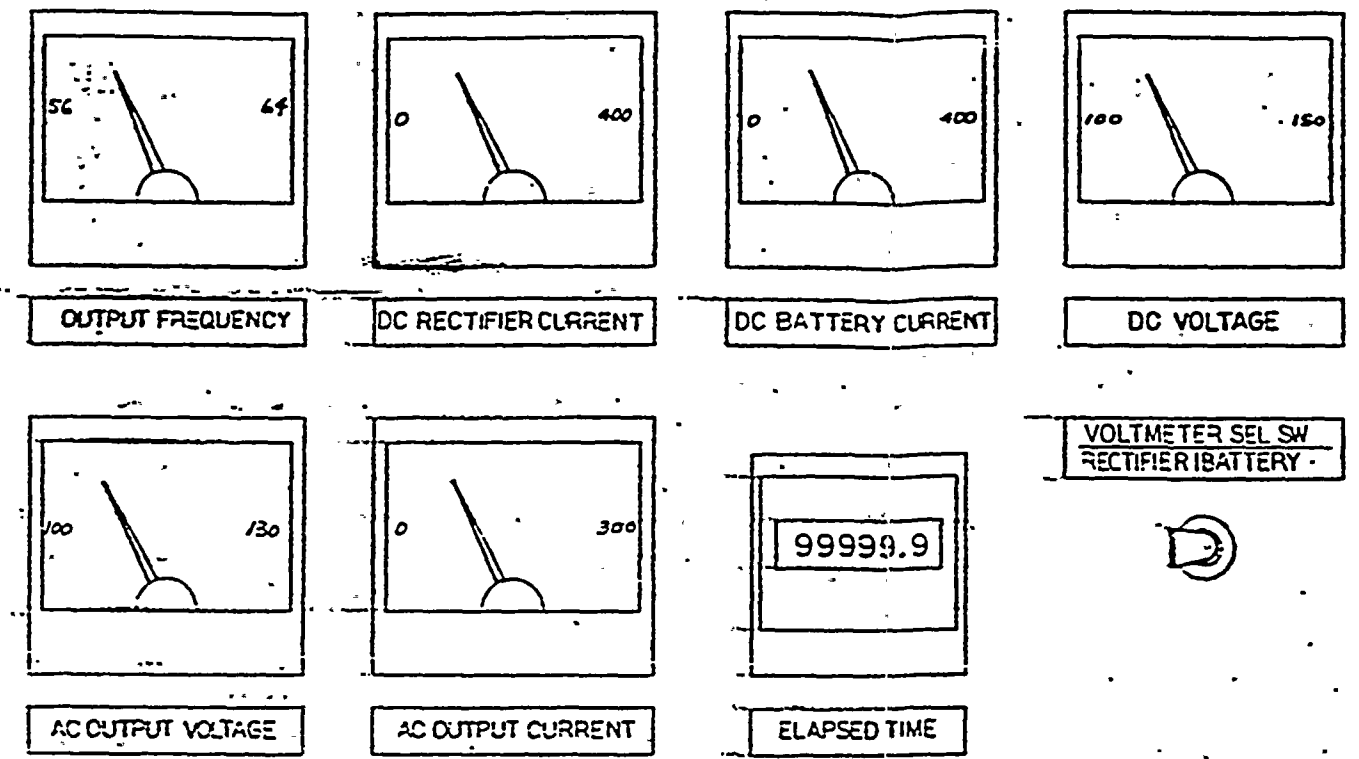
APR 1954

REVISIONS			
ZONE/LTR	DESCRIPTION	DATE	APPROVED
G	DC 631 CHGD. M53 TO 0-400	E.D. 10-15-82	<i>[Signature]</i>
H	ECN 3281	MRS	
J	ECN 3313	J.W. 11-16-82	
K	DC 715 ADDED DETAIL NOTES TO ABS AND NETWORK ON SHT-2	12-2-92 S.D.	
L	DC 872. SH. AGEZ FLARE LEVEL 94R EGIN.	5-16-93	

NOTES (CONTINUED)

II. CIRCUIT BREAKERS: (OR EQUAL)

	TYPE	PART #	INTERRUPTING CAPABILITIES	CONTINUOUS RATING
CB2	J600	TJJ426300	42,000 AAC	300 AAC
CB53	"	" " "	" " "	" "
CB51	E 150	THED136090	18,000 AAC	90 AAC
CB52	J600	TJJ426400	FUSED FOR 200,000 AMP	51 RATED 600 AMP
CB1	J600	TJJ426400	42,000 AAC	400 AAC



- | | |
|--|--|
| <ul style="list-style-type: none"> ○ SYNC. LOSS ○ INVERTER VOLTAGE ○ INVERTER OVERTEMP ○ FUSE BLOWN ○ LOW BATTERY ○ LOW DC BUSS ○ LAMP-TEST | <ul style="list-style-type: none"> ○ OVERLOAD ○ REVERSE TRANSFER ○ FAN FAIL ○ RECTIFIER AC LOSS ○ BATTERY DRAIN/CHARGE ○ RECTIFIER DC GROUND ○ DIODE FAIL |
|--|--|

SI
APERTURE
CARD

Also Available On
Aperture Card

9304290244-03

NUCLEAR SAFETY RELATED

Nine Mile Point Nuclear Station - Unit 2
Niagara Mohawk Power Corporation
P.O. No. 12177, P.O. No. NMP2-E035A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON		CONTRACT NO			
DECIMALS FRACTIONS ANGLES		FIRST MADE FOR: S/O 4093-2			
XX = .03 = 1/32 = 1/2°		APPROVAL [Signature] DATE		INSTALLATION DRAWING UPS 253-1-106	
XXX = .010		DRAWN [Signature] 1-29-81			
DO NOT SCALE THIS DRAWING		CHECKED [Signature]			
MATERIAL		PROJ ENG [Signature]			
NEXT ASSY.	USED ON	QA-REL [Signature]	DATE [Signature]	SIZE	CODE IDENT. NO
APPLICATION		FRSH		C	25965
THE INFORMATION DISCLOSED HEREIN WAS ORIGINATED BY AND IS THE PROPERTY OF ELGAR CORPORATION AND EXCEPT FOR RIGHTS EXPRESSLY GRANTED TO THE UNITED STATES GOVERNMENT, ELGAR CORPORATION RESERVES ALL PATENT PROPRIETARY DESIGN USE, SALE, MANUFACTURING AND REPRODUCTION RIGHTS.				DRAWING NO	543-514-70
				REV	L
				SCALE: 1/2"	SHEET 2 OF 3

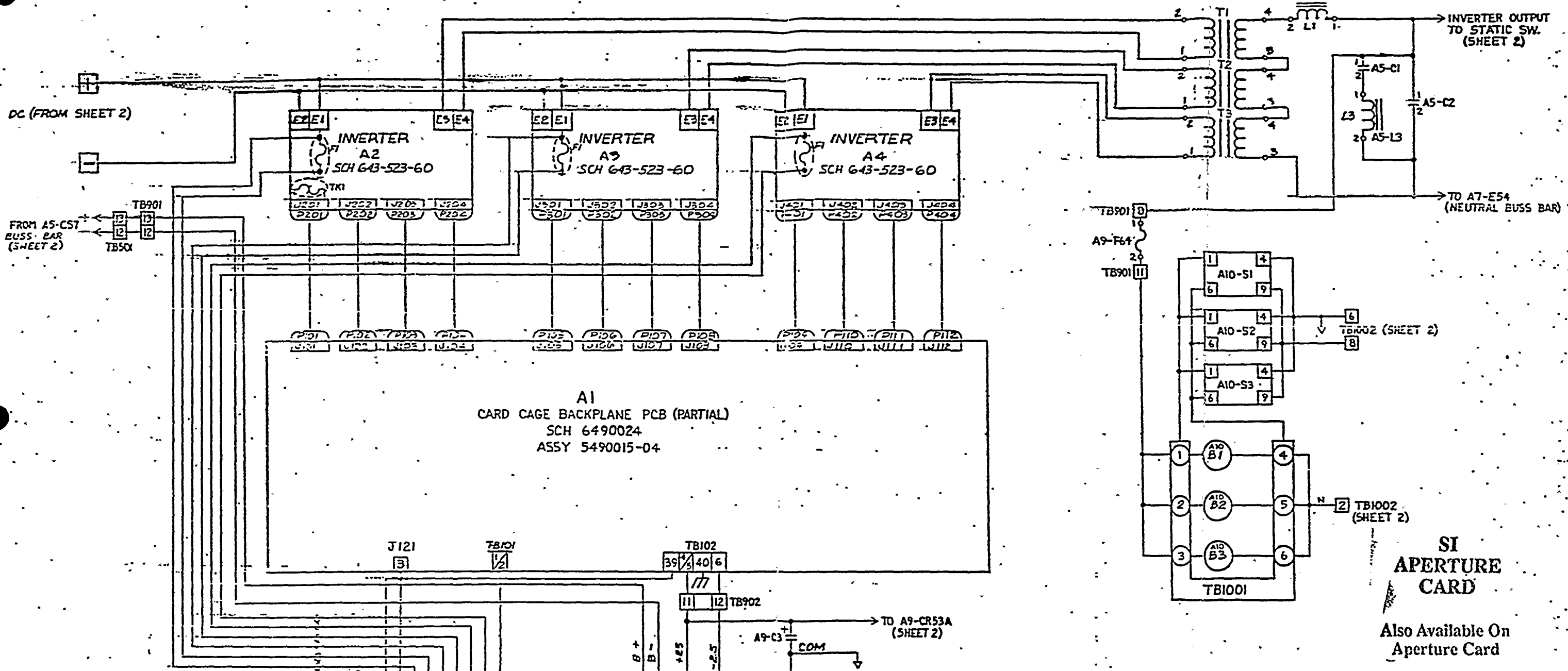
08012280

08012280

08012280



REV	DATE	DESCRIPTION	APPROVED
A	11-22-60	ENG RELEASE	
B	11-22-60	REVISED	
C	11-22-60	REVISED	
D	11-22-60	REVISED	

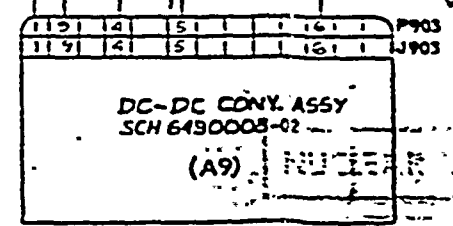
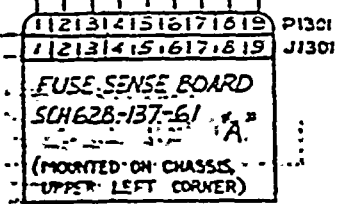


VARISTERS ACROSS EACH SCR

CHARGER SNUBBERS

SCR54-A	7	TB1	SCR57-K	7	TB1
SCR54-K	8	TB1	SCR59-A	8	TB1
		(REF J602)			(REF J603)
SCR55-K	7	TB2	SCR58-A	7	TB2
SCR54-K	8	TB2	SCR57-A	8	TB2
		(REF J604)			(REF J604)
SCR51-K	7	TB1	SCR60-A	7	TB1
SCR53-A	8	TB1	SCR62-K	8	TB1
		(REF J601)			(REF J604)
SCR52-A	7	TB2	SCR61-K	7	TB2
SCR51-A	8	TB2	SCR60-K	8	TB2
		(REF J601)			(REF J604)

NOTES: UNLESS OTHERWISE SPECIFIED



NUCLEAR SAFETY RELATED

9304290244-04

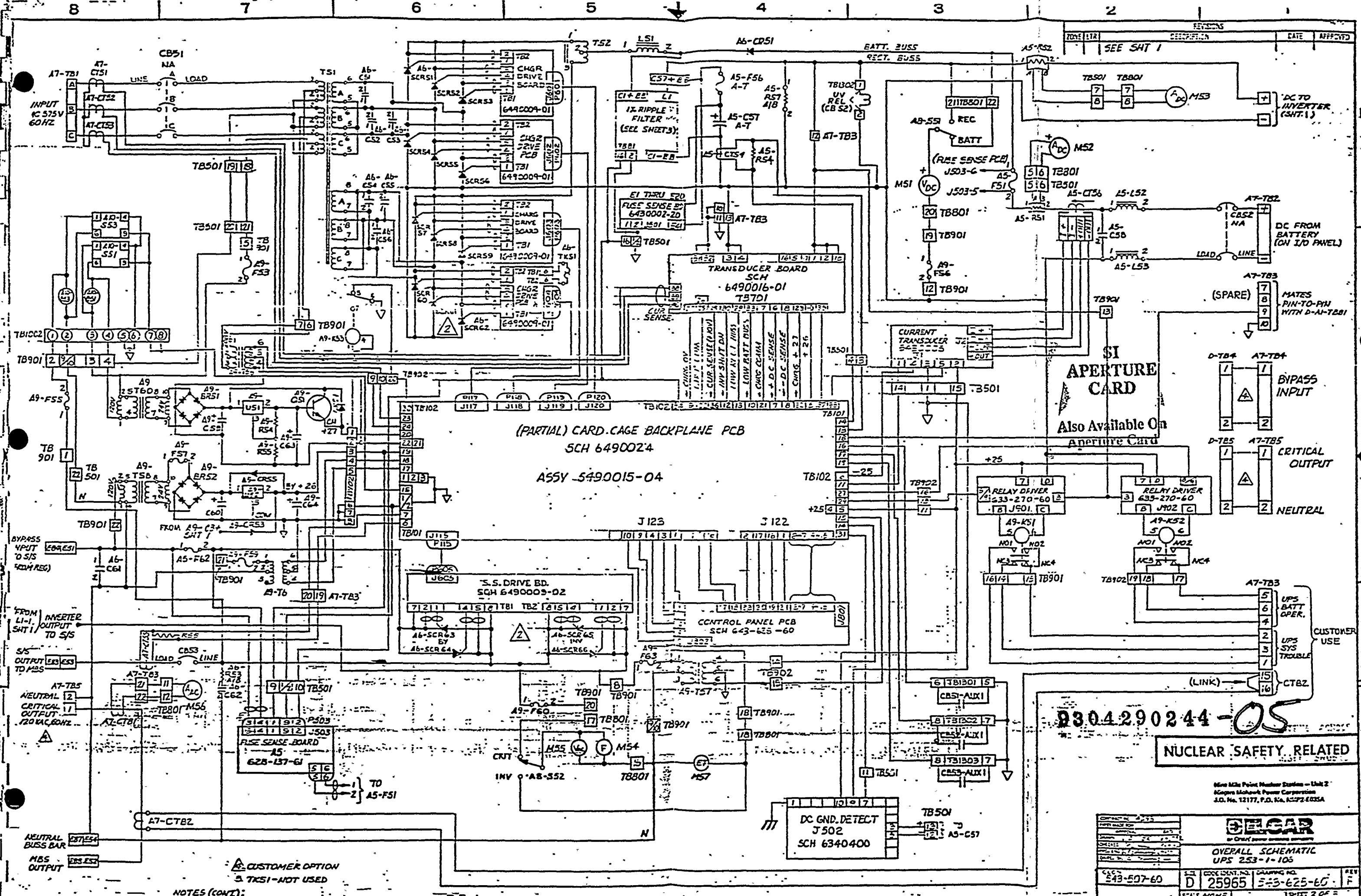
New Site Point Nuclear Station - Unit 2
Nuclear Light and Power Corporation
I.D. No. 12177, P.O. No. 12177-ECBA

BELGAR
an Olin Corporation

OVERALL SCHEMATIC
UPS 253-1-106
(INVERTER SECTION)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:	DECIMALS FRACTIONS ANGLES	±.01 ±.005 ±.010	±.005 ±.002 ±.005	±.010 ±.005 ±.010
DO NOT SCALE THIS DRAWING	MATERIAL	CLON	3-3-507-60	REV F
DATE ASS'Y	USED ON	SIZE	D	CODE DATE AS
APPLICATION		SCALE	NONE	DRAWING NO.
				25965
				543-625-60

080425089



SI
APERTURE
CARD
Also Available On
Aperture Card

2304290244-05

NUCLEAR SAFETY RELATED

More Make Point Number Station - Unit 2
Kaiser Aluminum Power Corporation
J.O. No. 12177, P.O. No. 15272-033A

ELCAR
BY ORIGIN POWER COMPANY

OVERALL SCHEMATIC
UPS 253-1-105

DATE	REV
5-13-60	F

SCALE NONE
PAGE 2 OF 2

NOTES (CONT):
A CUSTOMER OPTION
B TKS1 - NOT USED

830750844

830750844

030480377

030480377

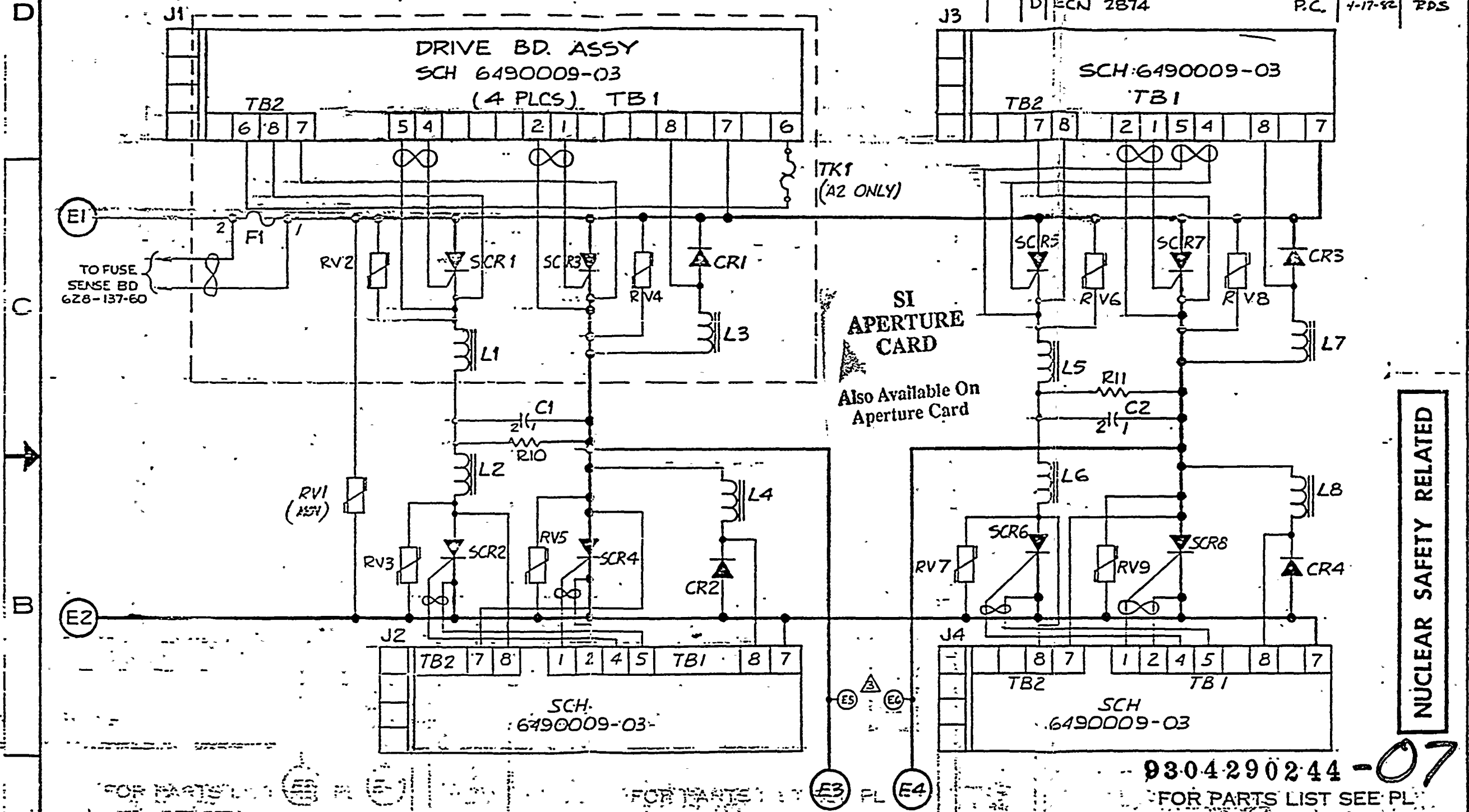
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2

1

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		ENG. RELEASED	2-7-81	J.C.
B		PER ECN 2484	P.C.	1/1/82
C		PER ECN 2621	LIPTAK282	1-13-82
D		ECN 2874	P.C.	4-17-82



FOR PARTS LIST SEE PL 93-04290244-07 FOR PARTS LIST SEE PL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:		CONTRACT NO.		ELGAR CORPORATION SAN DIEGO, CALIFORNIA	
DECIMALS	FRACTIONS	ANGLES	FIRST MADE FOR: 5/0 4178	APPROVAL DATE	
JX = .03	= 1/32	= 1/20	DRAWN: R. Bink	2-7-81	
XXX = .010	DO NOT SCALE THIS DRAWING		CHECKED:		
GENERAL USE		MATERIAL:	PROJ ENG:		
NEXT ASSY.	USED ON	FINISH:	QA-REL:	P.C. 1/11/82	
APPLICATION		CLON 643-203-6X		SIZE	CODE IDENT. NO.
THE INFORMATION DISCLOSED HEREIN WAS ORIGINATED BY AND IS THE PROPERTY OF ELGAR CORPORATION AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. ELGAR CORPORATION RESERVES ALL PATENT, PROPRIETARY, DESIGN, USE, SALE, MANUFACTURING AND REPRODUCTION RIGHTS THEREIN.				C	25965
				DRAWING NO.	REV
				643-523-60	D
				SCALE	SHEET 1 OF 1

NOTES: UNLESS OTHERWISE SPECIFIED
 1. 12KVA PANELS ONLY
 2. COMM. SCRS ARE 1, 2, 5, 6
 1. MAIN SCRS ARE 3, 4, 7, 8

NUCLEAR SAFETY RELATED

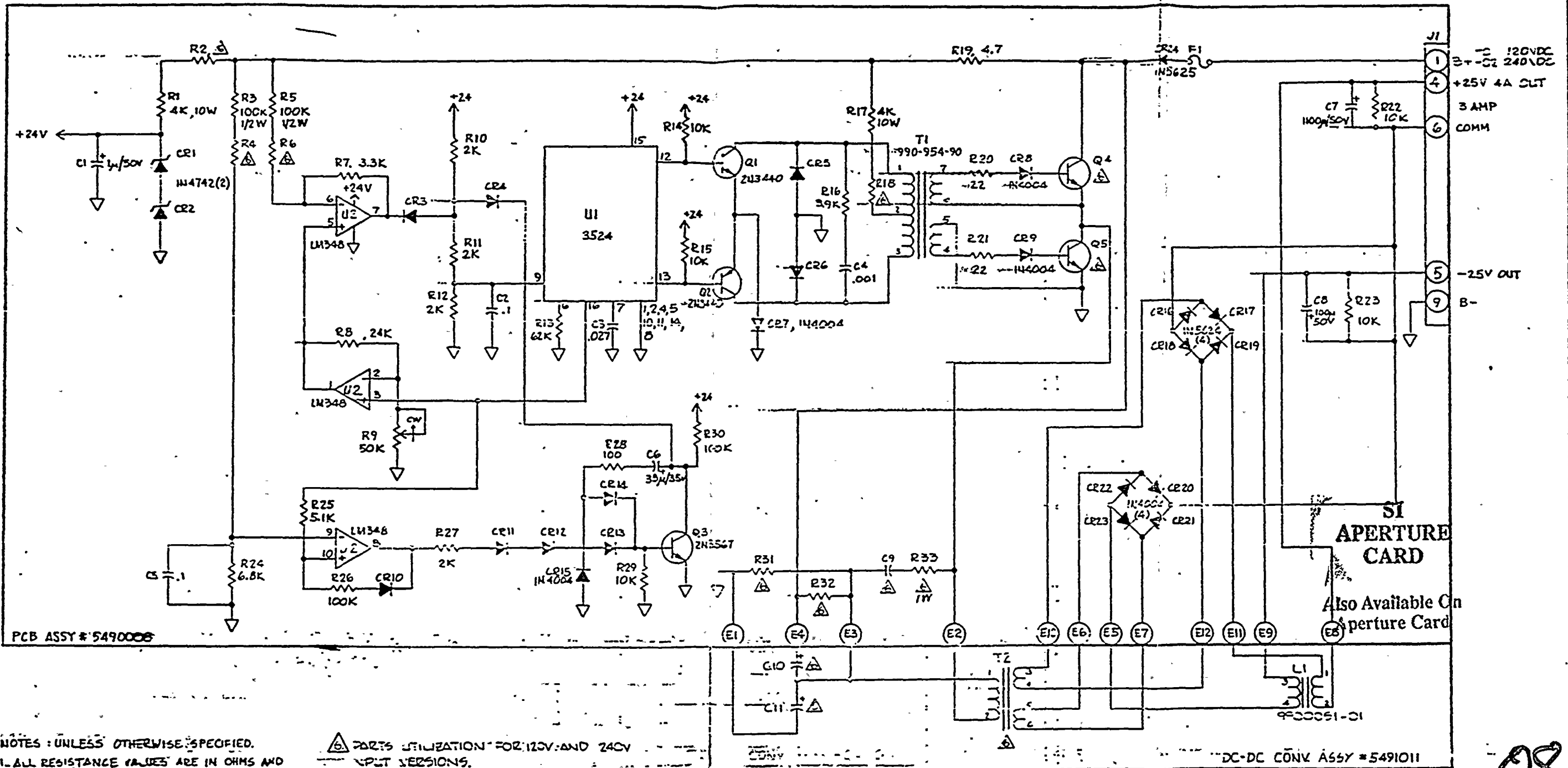
643-523-60

8304 540846

1000
1000
1000



ZONE	LTR	DESCRIPTION	DATE	APPROVED
		ECU # 2595	72-7-22-97	
		ECU # 2595	72-7-22-97	
		ECU # 2595	72-7-22-97	



PCB ASSY # 5490008

SI APERTURE CARD

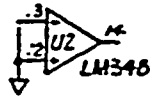
Also Available On Aperture Card

DC-DC CONV ASSY # 5491011

- NOTES: UNLESS OTHERWISE SPECIFIED.
- ALL RESISTANCE VALUES ARE IN OHMS AND RESISTORS ARE 1/2W.
 - ALL DIODES ARE 1N4148.
 - ALL CAPACITANCE VALUES ARE IN MICROFARADS.
 - LAST USED REFERENCE DESIGNATORS:

C1	E12	J1	R33	U2
CR24	F1	B5	T1	L1

5. UNUSED PORTION OF IC:



PARTS UTILIZATION FOR 120V AND 240V INPUT VERSIONS.

REF DES	-02 (-25VDC)	-01 (120VDC)
R2	4K, 10W	4K, 10W
R3	100K, 1/2W	100K, 1/2W
R4	100K, 1/2W	100K, 1/2W
R5	100K, 1/2W	100K, 1/2W
R6	100K, 1/2W	100K, 1/2W
R7	3.3K	3.3K
R8	24K	24K
R9	50K	50K
R10	2K	2K
R11	2K	2K
R12	2K	2K
R13	2K	2K
R14	10K	10K
R15	10K	10K
R16	39K	39K
R17	4K, 10W	4K, 10W
R18	4K, 10W	4K, 10W
R19	4.7K	4.7K
R20	10K	10K
R21	10K	10K
R22	10K	10K
R23	10K	10K
R24	10K	10K
R25	5.1K	5.1K
R26	100K	100K
R27	2K	2K
R28	100	100
R29	10K	10K
R30	100K	100K
R31	10K	10K
R32	10K	10K
R33	10K	10K

MARGINAL QUALITY ORIGINAL

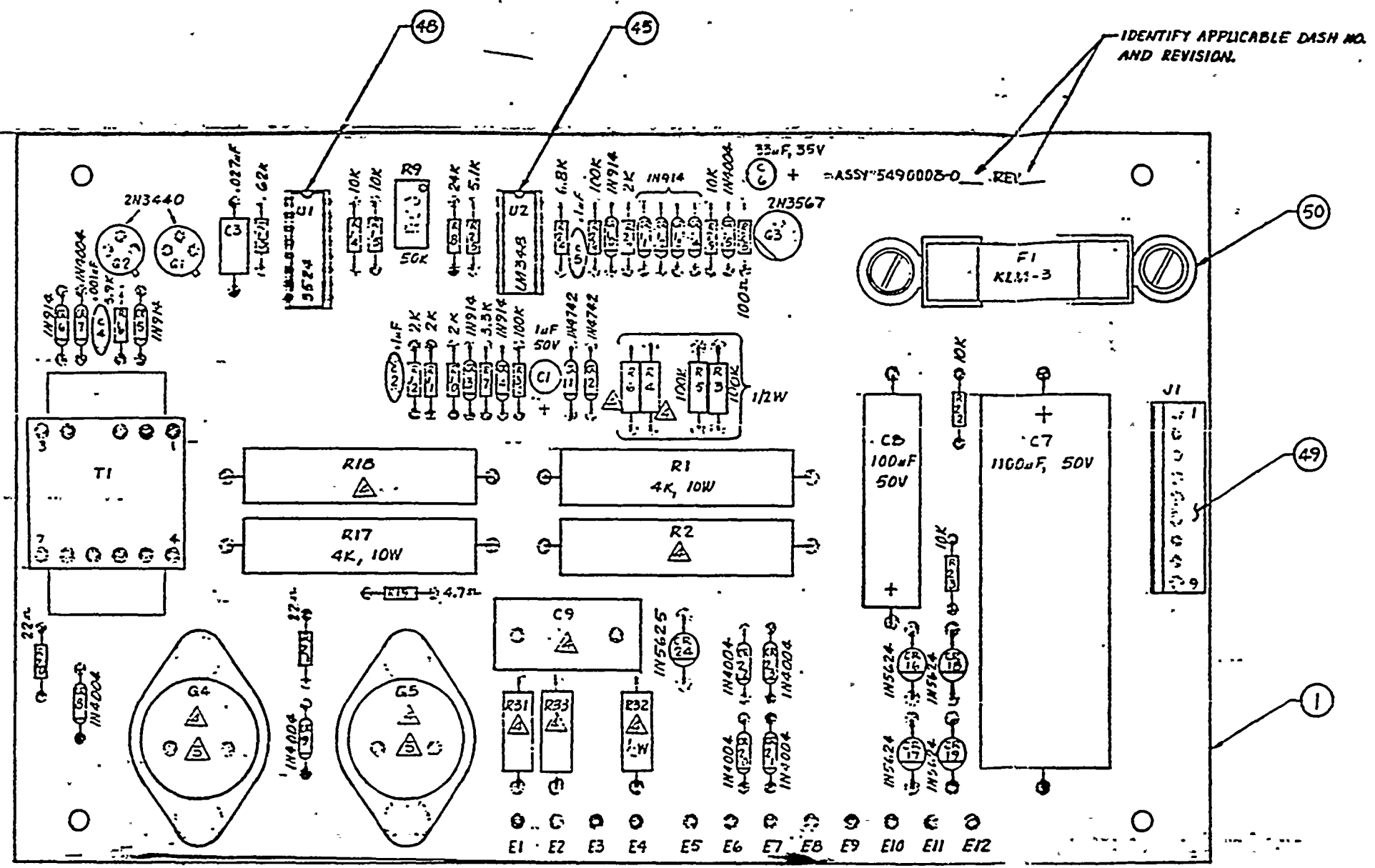
9304290244-08
NUCLEAR SAFETY RELATED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:	CONTACT NO. #101 MADE FOR DCC1	
DECIMALS FRACTIONS ANGLES XX = .XX = 1/2" = 1/2"	APPROVAL DATE	
DO NOT SCALE THIS DRAWING	SEARCH NUMBER 1103-21	SCHEMATIC DIAGRAM DC-DC CONVERTER
MATERIAL	PROJECT #	
DATE	CARD	SIZE CODE IDENT NO. DRAWING NO. REV D 25965 6490008 D

ASSOCIATION

7

PERSONS			
DESIGNER	CHECKER	DATE	APPROVED
-	-	SEE 5-1- A SIZE	



IDENTIFY APPLICABLE DASH NO. AND REVISION.

SI APERTURE CARD

Also Available On Aperture Card

REF DES	-02 (220V)	-01 (120V)
R2	4K, 10W	5K, 1/2W
R4	100K, 1/2W	5K, 1/2W
E6	100K, 1/2W	5K, 1/2W
R18	4K, 10W	5K, 1/2W
R31	100K, 1/2W	5K, 1/2W
R32	100K, 1/2W	5K, 1/2W
R33	100K, 1/2W	5K, 1/2W
C9	.05 200V	.1 200V
G4	MJ10007	6050
G5	MJ10007	6050

-01 ASSY, CONFORMAL COAT
 -02 ASSY, STD

9304290244-09

NUCLEAR SAFETY RELATED

FOR PARTS LIST SEE PL

- NOTES:
- FOR SCHEMATIC SEE DRG 6490008.
 - FOR -01 ASSY, CONFORMAL COAT PER ELGAR SPEC 1005929.
 - I.C. SOCKETS TO BE USED ON -02 ASSY ONLY

ITEM	DESCRIPTION	ELGAR P/N	QTY
1	14 PIN IC SOCKET	242-0-14	1
2	18 PIN IC SOCKET	242-0-18	1

△ PARTS UTILIZATION FOR -01 (20V) AND -02 (200V) VERSIONS - SEE CHART
 △ MOUNT WITH ONE STEEL WASHER, EACH END.

INSTALL CR16-19, CR24 10W RESISTORS (R1, 2, 17 & 18) ABOVE PCB AS SHOWN.

REV	DESCRIPTION	DATE
001	ISSUED FOR PRODUCTION	11/22/55
002	REVISED	11/22/55
003	REVISED	11/22/55

CONTRACTING PARTY MADE FOR		DATE	
DESIGN	APPROVAL	DATE	DATE
DRAWN	CHECKED	DATE	DATE
INSTRUMENTED	TESTED	DATE	DATE
DATE	DATE	DATE	DATE

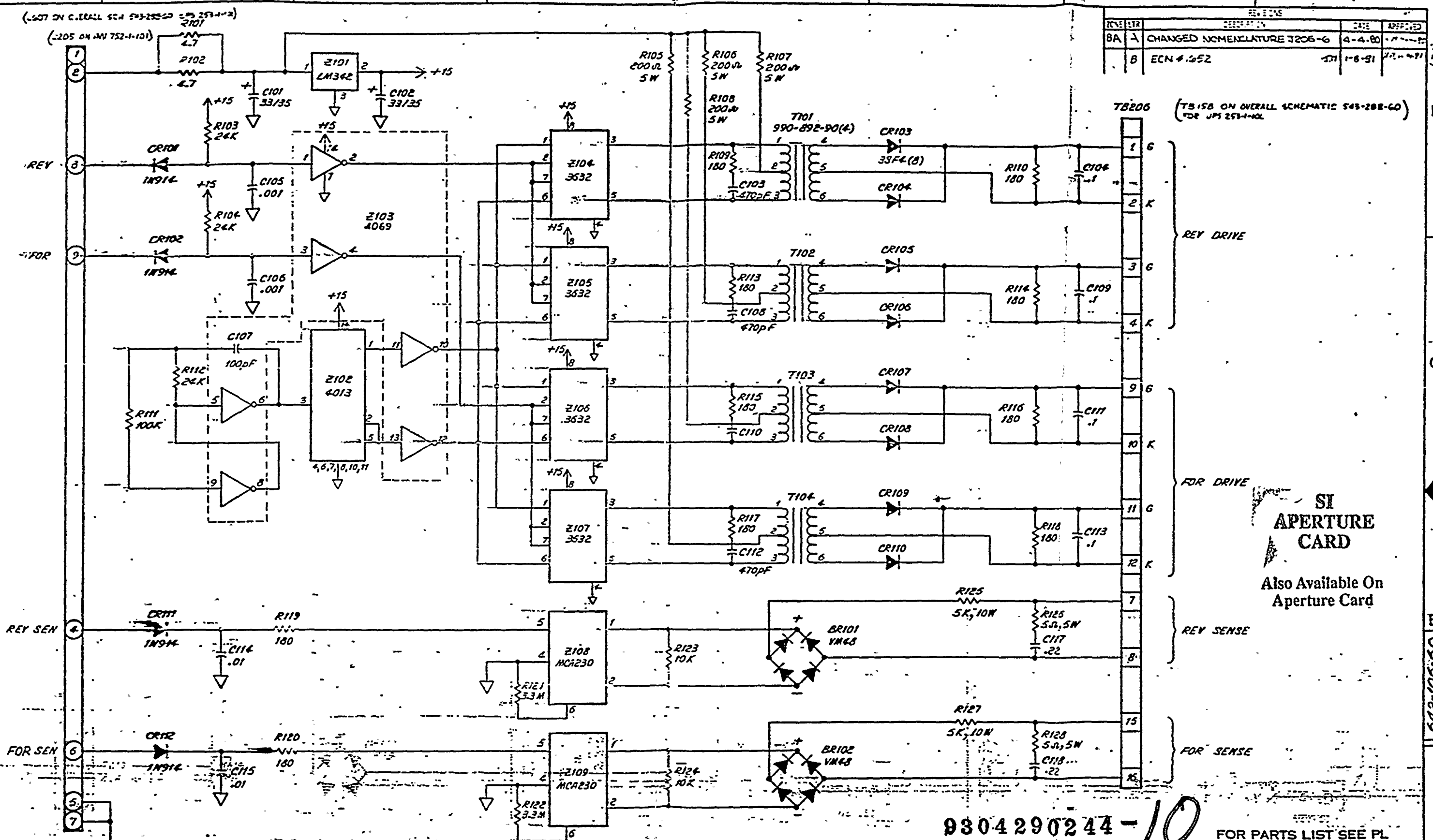
ELGAR
 IN CHARGE OF QUALITY CONTROL

P C ASSY - DC-DC CONVERTER

SIZE	CODE IDENT. NO.	DRAWING NO.	REV
D	25965	5490008	C

APR 1958

REVISIONS			
REV	DATE	DESCRIPTION	APPROVED
BA	4-4-60	CHANGED NOMENCLATURE J206-6	
B	1-8-61	ECN # 352	



(T515B ON OVERALL SCHEMATIC 543-208-60)
FOR UPS 253-1-101

REV DRIVE

FOR DRIVE

SI
APERTURE
CARD

Also Available On
Aperture Card

REV SENSE

FOR SENSE

9304290244-10

FOR PARTS LIST SEE PL

- NOTES: UNLESS OTHERWISE SPECIFIED.
- ALL RESISTORS ARE 1/2 W, 5%, CARBON COMR
 - INTERCONNECTS PIN TO PIN WITH J157 ON BLACKPLANE (CARD CAGE) ASSY SCHEMATIC 643-353-60 (UPS 253-1-101 ONLY).

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:		CONTRACT NO. FIRST MADE FOR	
DECIMALS	FRACTIONS	ANGLES	APPROVAL
±.01	± 1/32	± 1/2°	DATE
DRAWN: M.C.PIST 1-10-70		CHECKED: G.CEMAS 4-11-70	
DESIGNED: J.P. 1-15-70		DATE	
NEXT ASSY: 312 ON		MATERIAL	
APPROVAL		FINISH	
THE INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE		DATE	
CLASSIFICATION		DATE	
D 25965		642-106-60	
SCALE: 1/2"		DATE: 1/61	

DELGAR CORPORATION
SAN DIEGO, CALIFORNIA

SS DRIVE BD

REV	DATE	DESCRIPTION	BY
D	25965	642-106-60	B

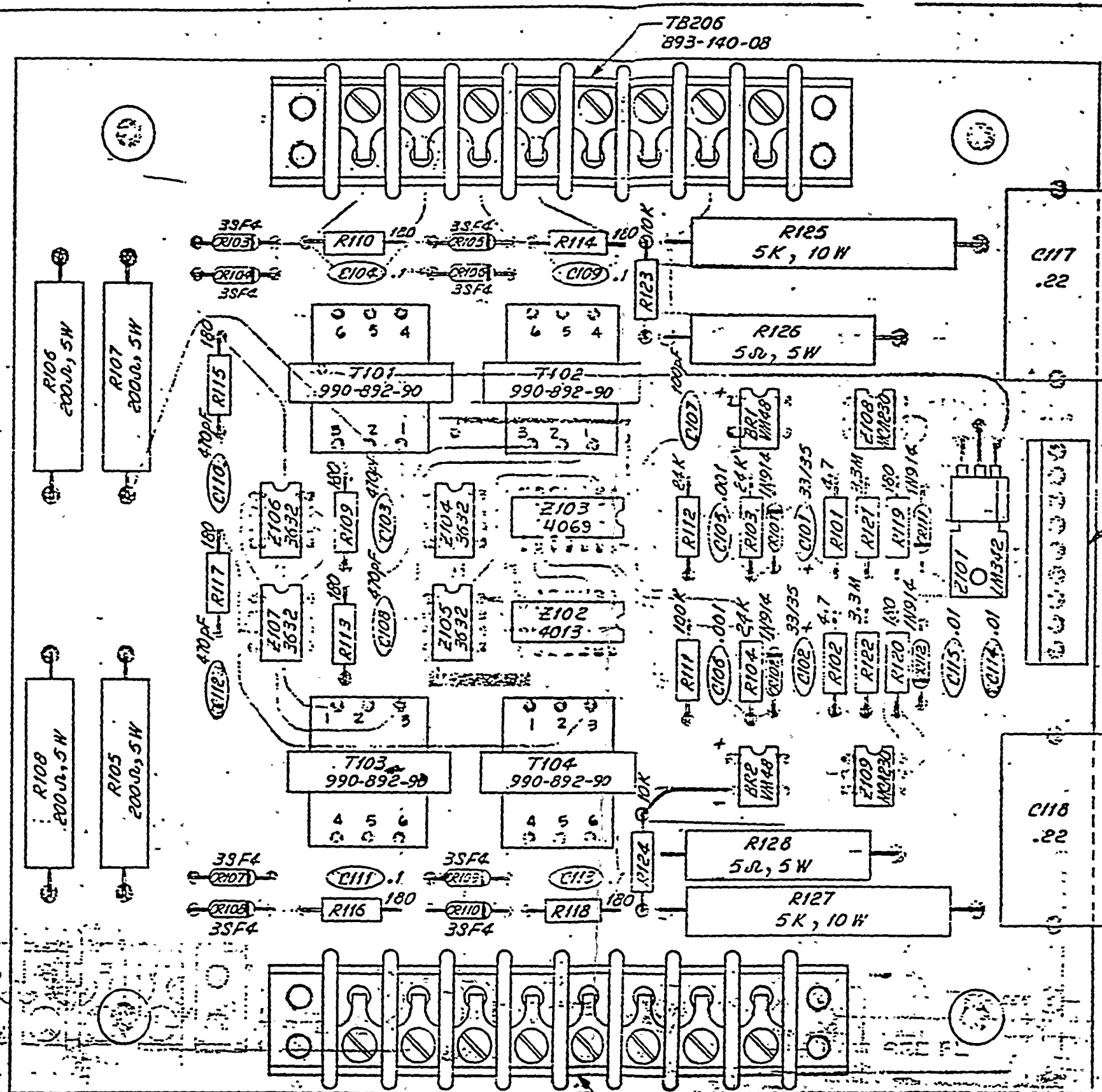
MASSACHUSETTS

411

MASSACHUSETTS

MASSACHUSETTS

ZONE LTR	REVISIONS	DESCRIPTION	DATE	APPROVED
A		P.C. A/W CHANGES, sec. Drill. Dwg.	4-4-80	WJW/JS
B		ECN # 1680	4-9-81	TCV/D
C		ECN 1797	5-19-81	WJW/JS
D		ECN # 2134	7-1-81	WJW/JS
E		DDC # 205 CONNECTION ON J205	7-26-81	
		856-109-12 WAS 156-109-12	B.D.	
F		PER ECN 2790	11-1-81	WJW/JS



J205
856-109-12

SI
APERTURE
CARD

Also Available On
Aperture Card

NUCLEAR SAFETY RELATED

93042902.44 - 11

FOR PARTS LIST SEE PL

NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL RESISTORS ARE 1/2W, 5%, CARB. COMP.

TB206
893-140-08
4. IDENTIFY WITH APPLICABLE DASH
NO. & REV. LTR.

CONTRACT NO.	
FIRST MADE FOR:	
APPROVAL	DATE
DRAWN H. BRIST	5-1-79
CHECKED S. GUNAWAN	5-3-79
PROJ ENG	5-2-79
CA-REL	5-5-79

ELGAR
CORPORATION
SAN DIEGO, CALIFORNIA

S3 DRIVE BD
INV 752-1-101

SIZE	CODE IDENT. NO.	DRAWING NO.	RE
C	25965	642-106-40	F

ASSOCIATES

ASSOCIATES

ASSOCIATES

8

7

6

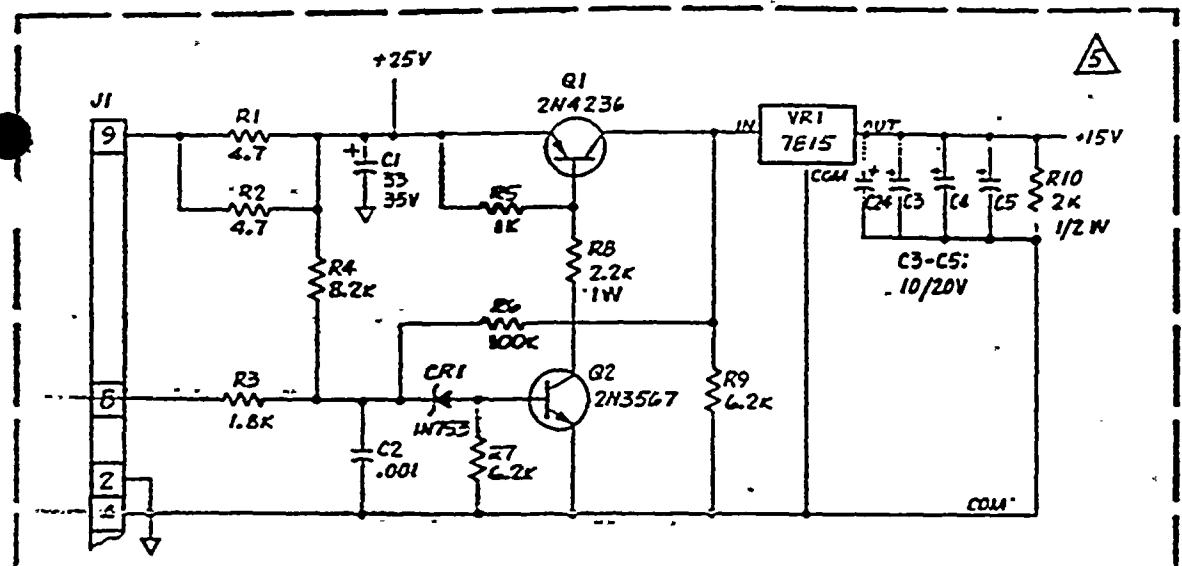
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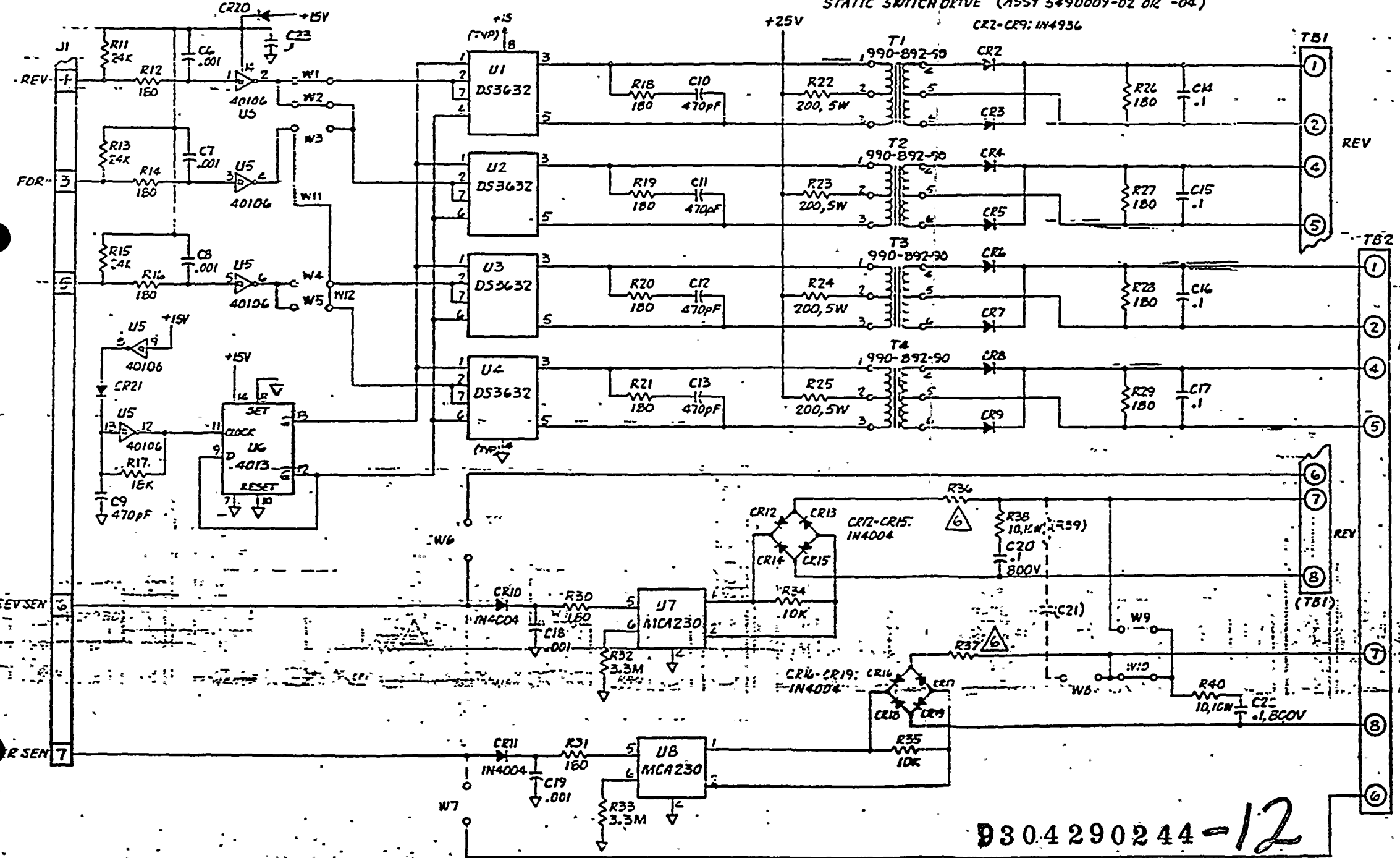
3

2

1



-02 AND -04 ASSY SCHEM A
 STATIC SWITCH DRIVE (ASSY 5490009-02 OR -04)



REV	DESCRIPTION	DATE	APPROVED
1	ENG. 2 E.L.		
2	ECN 2909	P.C. 6-2-82	

SI APERTURE CARD
 Also Available On Aperture Card

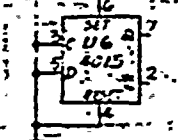
NUCLEAR SAFETY RELATED

- 1. NOTES: UNLESS OTHERWISE SPECIFIED RESISTOR VALUES ARE IN OHMS.
- 2. CAPACITOR VALUES ARE IN MICROFARADS.
- 3. RESISTORS ARE 1/4W 5%.
- 4. IC VCC & GND PINS.

IC	REF DESIG	+15V	GND
DS3632	U1, 2, 3, 4	8	4
4013	U6	14	7
40106	U5	14	7
MCA230	U7, 8	NA	NA

- 5. CIRCUIT REQUIRED FOR ALL ASSEMBLIES.
- 6. RES & CAP VALUES: (-02 & -04 ASSY ONLY)
 -02 ASSY: 5K, 10W
 -04 ASSY: 12K, 10W

7. UNUSED IC CIRCUIT:



8. HIGHEST USED REFERENCE DESIGNATORS: C23, CR21, J1, G2, R40, T4, TB2, U8, VR1 & W10.

9304290244-12

DELGAR
 SC-EMATIC
 SCP DRIVE BOARD

REV	D	25965	5490009
SCALE	1:1	SHEET	1 OF 2

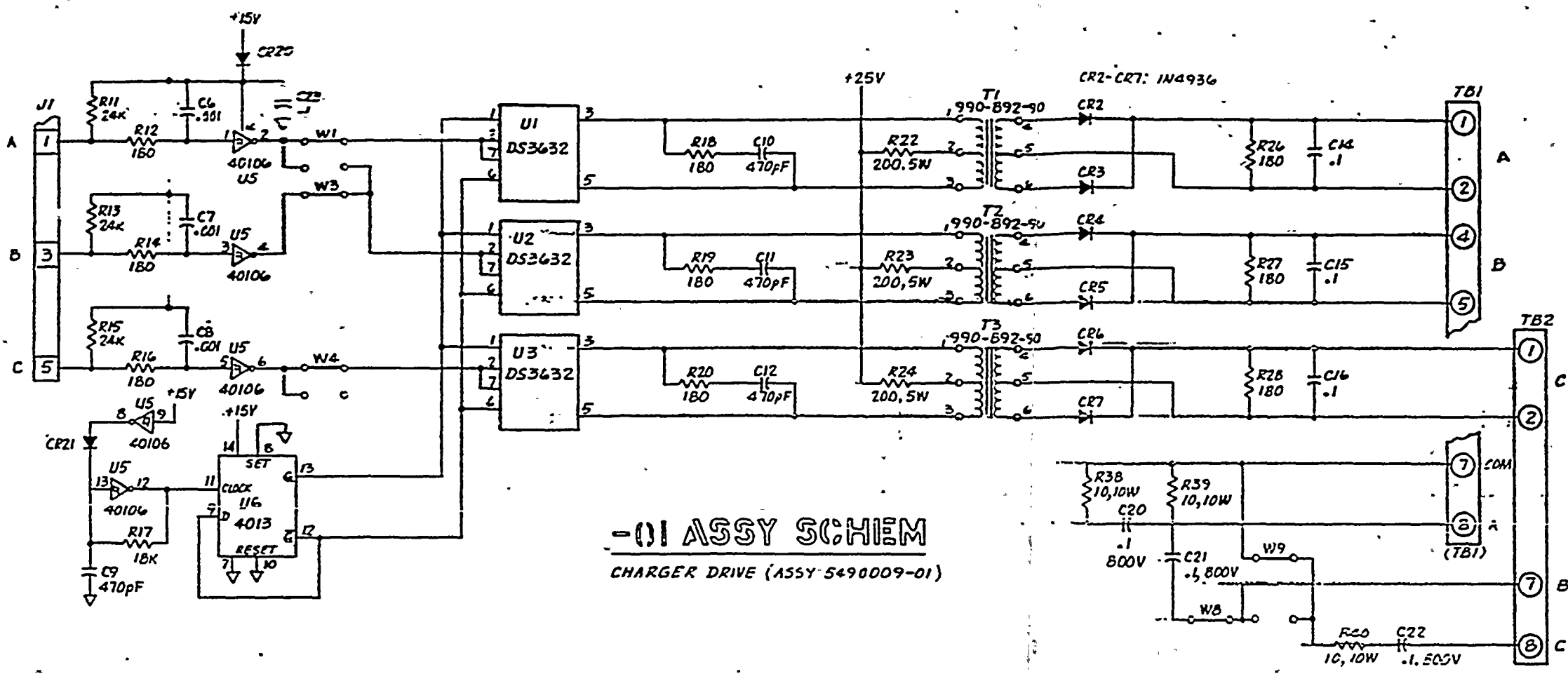
6490009

1911

1911

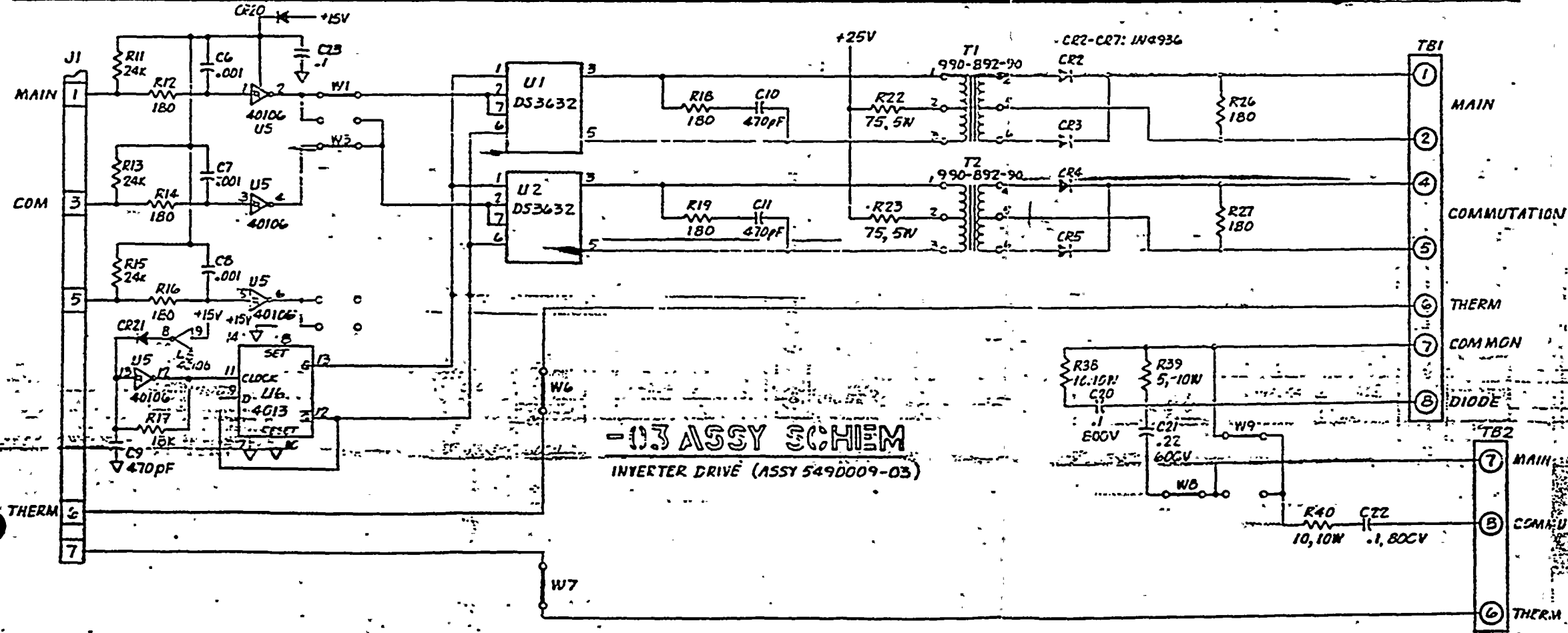


ZONE	LTR	DESCRIPTION	DATE	APPROVED
-	-	SEE S- FOR SEC.		



SI APERTURE CARD

Also Available On Aperture Card



9304290244-13

NUCLEAR SAFETY RELATED

ELGAR AN ORION ELECTRONIC COMPANY	
SCHEMATIC - SCP DRIVE BC 1RD.	
SIZE: D	DATE: 25965
REV: 5	DRW: 549009
SCALE: 1:1	SHEET: 2

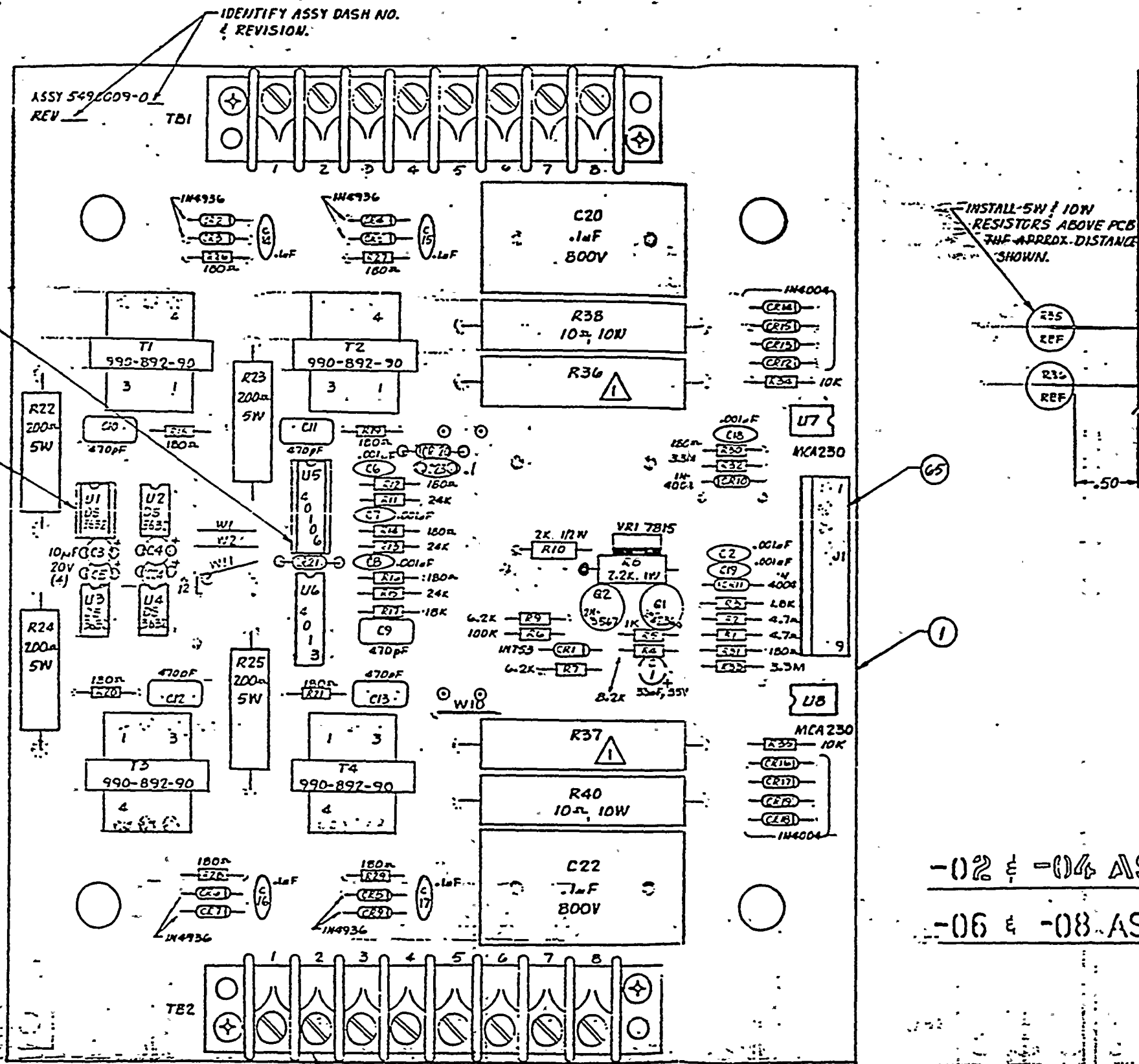
D C C B A

649009

APR 20 1963

03.04.85 TV

REV	DESCRIPTION	DATE	APPROVED
1	ENG 2 ZEL	P.C	
2	SEE ST. 502, 503		



SI
APERTURE
CARD
Also Available On
Aperture Card

-02 & -04 ASSY, Δ CONFORMAL COAT (SEE SHTS 2-4 OF P/L)
-06 & -08 ASSY, Δ STD (SEE SHTS 5-7 OF P/L)

9304290244-15

NUCLEAR SAFETY RELATED

- NOTES:
- △ R36 & R37 VALUES ARE:
-02, -04 ASSY: 5K, 10W
-06, -08 ASSY: 12K, 10W
 - FOR SCHEMATIC SEE DWG 6490009.
 - 02 & -04 ASSY TO BE CONFORMAL COATED PER ELGAR SPEC 1005023.
 - 06 & -08 TO HAVE IC SOCKETS ONLY.

IC SOCKETS WILL BE INSTALLED

ITEM	DESCRIPTION	ELGAR P/N	QTY
1	14 PIN IC SOCKET	848-09-14	2
2	5 PIN IC SOCKET	848-09-EX	2

- (66)
 - (76) (2)
 - (77) (2)
 - (78) (2)
- 2 PLACES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:		DRAWING NO.	
DECIMALS	FRACTIONS	ANGLES	
±.01	± 1/32	± 1/2°	
DO NOT SCALE THIS DRAWING		MATERIAL:	
NEXT ASSY. USED ON:		FINISH:	
APPLICATION:		DATE:	
DRAWING NO.		REV.	
25965		5490009	
SCALE:		SHEET:	

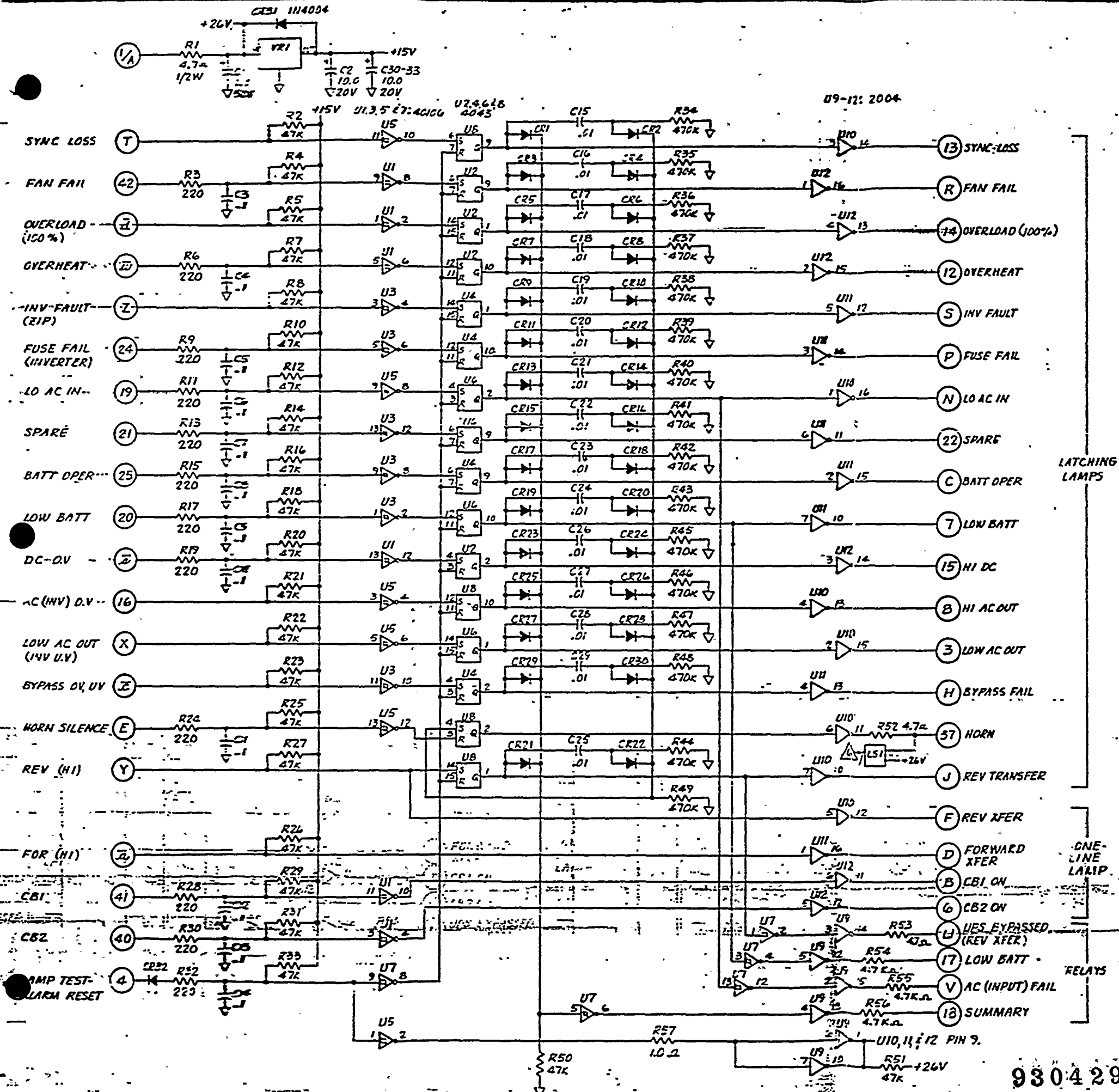
03075054030

03075054030

888 010 1 688

888 010 1 688

ZONE	LT	DESCRIPTION	DATE	AFFECTED
A	1	ELC 2 DEL.		
B	2	ECN 2206 CHANGES 54-56 TO 4.7K.Ω	5-82	



SI APERTURE CARD

Also Available On Aperture Card

- 1. RESISTOR VALUES ARE IN OHMS.
- 2. CAPACITOR VALUES ARE IN MICROFARADS.
- 3. UNMARKED DIODES ARE IN914.
- 4. IC VOLTAGE & GND PINS:

IC TYPE	REF DESIGNATOR	+15V	GND UNUSED
2004	U9-12	—	8
4043	U2, 4, 6, 8	5, 16	8
40106	U1, 3, 5, 7	14	7

- 5. LAST-USED REFERENCE DESIGNATOR: C33, CR32, LS1, R57 & U12.
- 6. OPTIONAL COMPONENT.

NUCLEAR SAFETY RELATED

CELGAR by GEORGE EASTMAN COMPANY			
SCHEMATIC ALARMS LOGIC			
REV	DATE	DRAWING NO	REV
D	25965	649506	5
SCALE		SHEET	

9304290244-17

649006

030480054

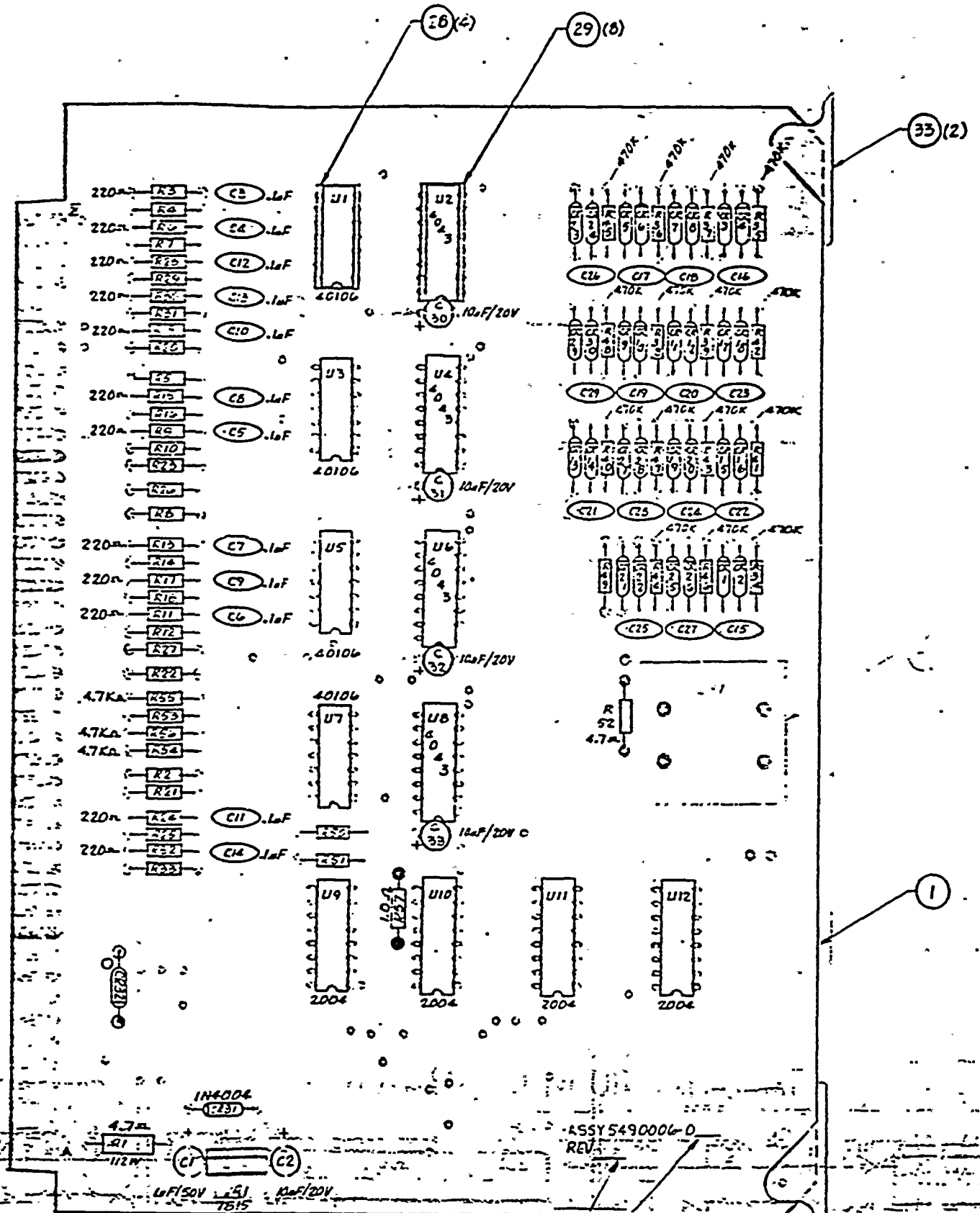
11111111

11111111

11111111

OK

REV	DATE	DESCRIPTION	APPROVED
1		SEE 541, A SIZE	



SI
APERTURE
CARD

Also Available On
Aperture Card

-01 ASSY, CONFORMAL COAT 9304290244-18

NUCLEAR SAFETY RELATED

- NOTES:
1. FOR SCHEMATIC, SEE DNG 649006.
 2. UNMARKED RESISTORS ARE 47K, ITEM 7.
 3. UNMARKED DIODES ARE IN914, ITEM 21.
 4. UNMARKED CAPACITORS ARE .01uF, ITEM 5.
 5. FOR -01 ASSY CONFORMAL COAT SEE ELSAR SPEC 1005029.

IDENTIFY APPLICABLE DASH NO.
AND REVISION.

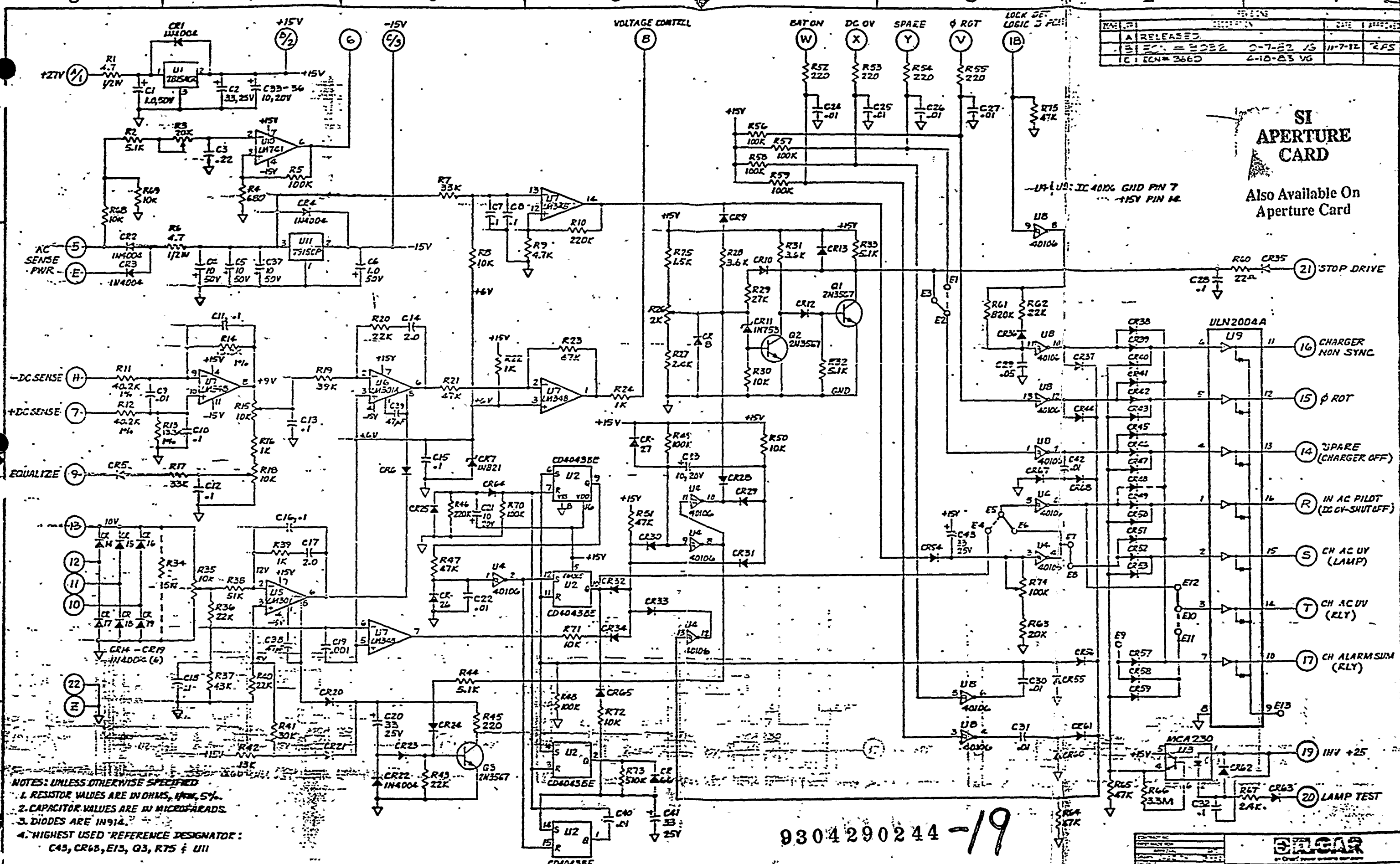
NEXT ASSY		USED ON		MATERIAL		CONTRACT NO MFG MADE FOR			
APP. DATE		FINISH		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS FRACTIONS ANGLES XX = .01 .1/32 .1/16 XXX = .010 DO NOT SCALE THIS DRAWING		APPROVAL DATE		PC ASSY- ALARM LOGIC	
SCALE 2:1		SHEET 2:1		SHEET 2:1		SHEET 2:1		SHEET 2:1	
D 25965		5490006		D 25965		5490006		REV C	

1900

1900

1900

REV	DESCRIPTION	DATE	APPROVED
A	RELEASED		
B	ECN = 3022	0-7-82 JS	11-7-12 EFS
C	ECN = 3660	2-10-83 VG	



SI APERTURE CARD
Also Available On Aperture Card

- NOTES: UNLESS OTHERWISE SPECIFIED
1. RESISTOR VALUES ARE IN OHMS, $K\Omega$, $M\Omega$, $S\Omega$.
 2. CAPACITOR VALUES ARE IN MICROFARADS.
 3. DIODES ARE IN 914.
 4. HIGHEST USED REFERENCE DESIGNATOR: C45, CR65, E15, G3, R75 & U11

9304290244-19

NUCLEAR SAFETY RELATED

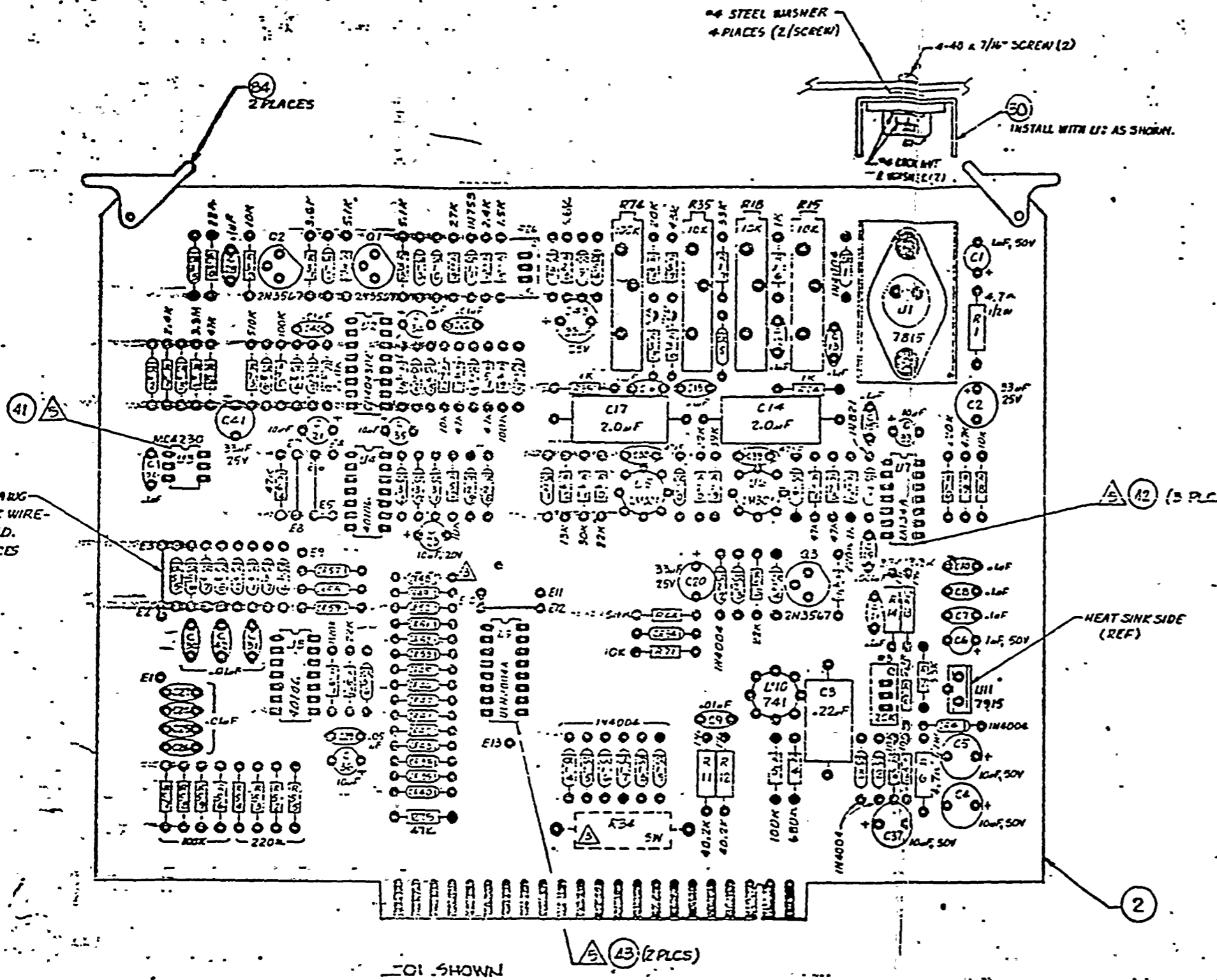
SEIAR
SCHEMATIC - CHARGER LOGIC 'A'
D 25965
DATE: 04-03-82
REV: 1

1950
1951

1950
1951



REV	DATE	BY
1	RELEASED	
2		
3		



SI
APERTURE
CARD
Also Available On
Aperture Card

9304290244-20

- NOTES UNLESS OTHERWISE SPECIFIED
1. DIMS ARE IN INCH.
 2. FOR SCHEMATIC SEE DRG 6490018
- △ DO NOT INSTALL COMPONENTS - SPACE RESERVED FOR FUTURE USE (2 PLACES)
 - △ -01 ASSY TO BE CONFORMAL COATED PER ELSE SPEC 1005279. NO IC SOCKETS.
 - △ -02 ASSY TO HAVE IC SOCKETS

-01 ASSY, CONFORMAL COAT △

-02 ASSY, STD ASSY △

MARGINAL QUALITY ORIGINAL

NUCLEAR SAFETY RELATED

FOR PARTS LIST SEE PL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES UNLESS OTHERWISE SPECIFIED		APPROVAL		DATE	
DECIMALS	FRACTIONS	DRAWN		CHECKED	
±.01	± 1/32	DESIGNED		TESTED	
±.005	± 1/64	MATERIAL		DATE	
±.002	± 1/128	NOT ASSY		DATE	
±.001	± 1/256	APPLICATOR		DATE	
±.0005	± 1/512	FROM		DATE	
±.0002	± 1/1024	PART NO.		REV	
±.0001	± 1/2048	DRAWING NO.		SCALE	
		D 25965		5490018	
		SCALE 75%		DATE 5/65	

PC ASSY - CHARGER LOGIC A

SI

DATE 5/65

1954

4580054030

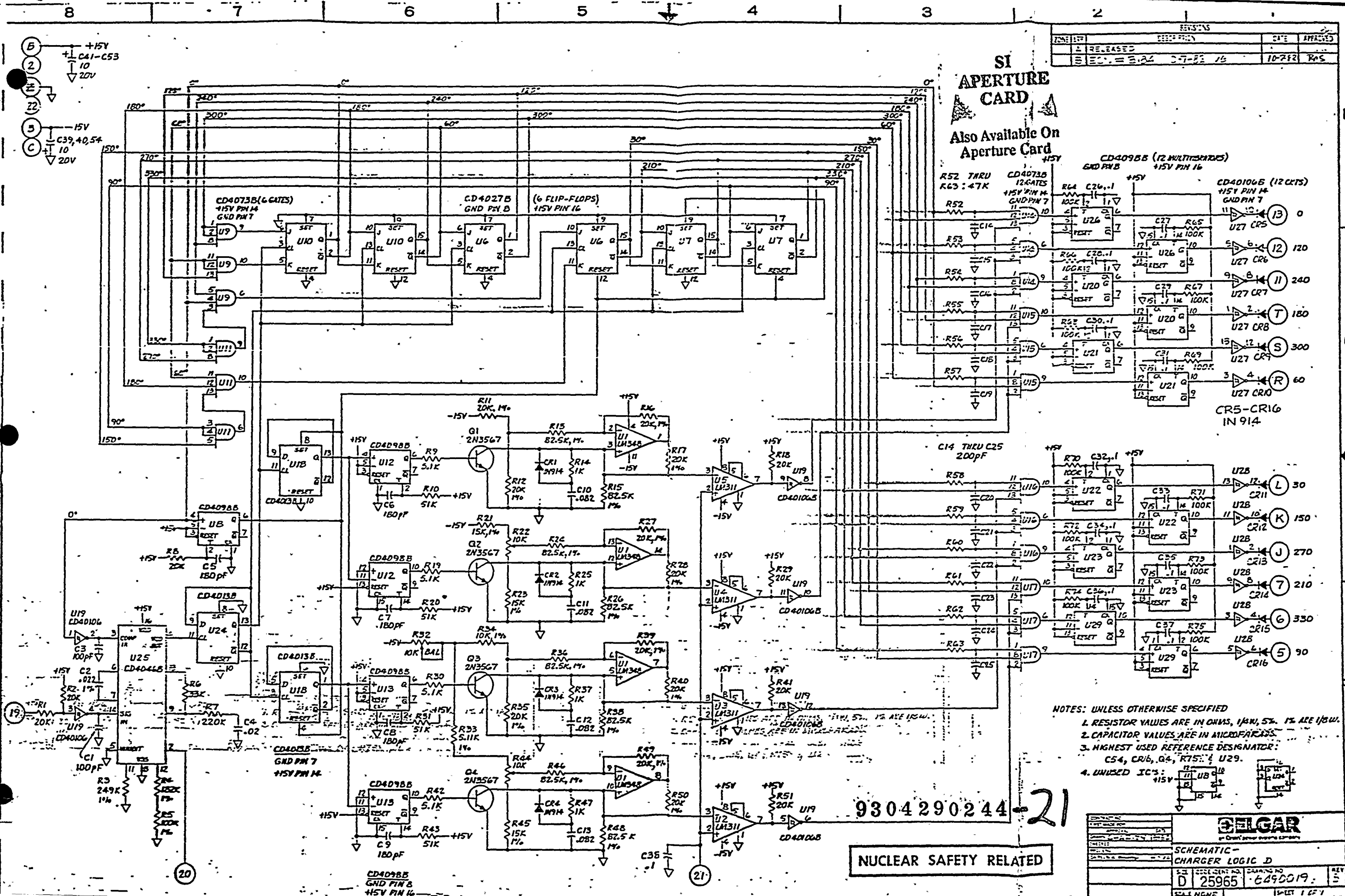
NOV 1954

RECEIVED
F. B. I.

REVISED		DATE	APPROVED
1	RELEASED		
2	ECN = 2,24	07-22 16	10-282 RAS

SI APERTURE CARD

Also Available On Aperture Card



- NOTES: UNLESS OTHERWISE SPECIFIED
1. RESISTOR VALUES ARE IN OHMS, 1KΩ, 5K, 1% ARE 1/8W.
 2. CAPACITOR VALUES ARE IN MICROFARADS.
 3. HIGHEST USED REFERENCE DESIGNATOR: C54, CR16, Q4, RT5, U29.
 4. UNUSED IC'S: U18

9304290244-21

NUCLEAR SAFETY RELATED

ELGAR
Schematic - CHARGER LOGIC D

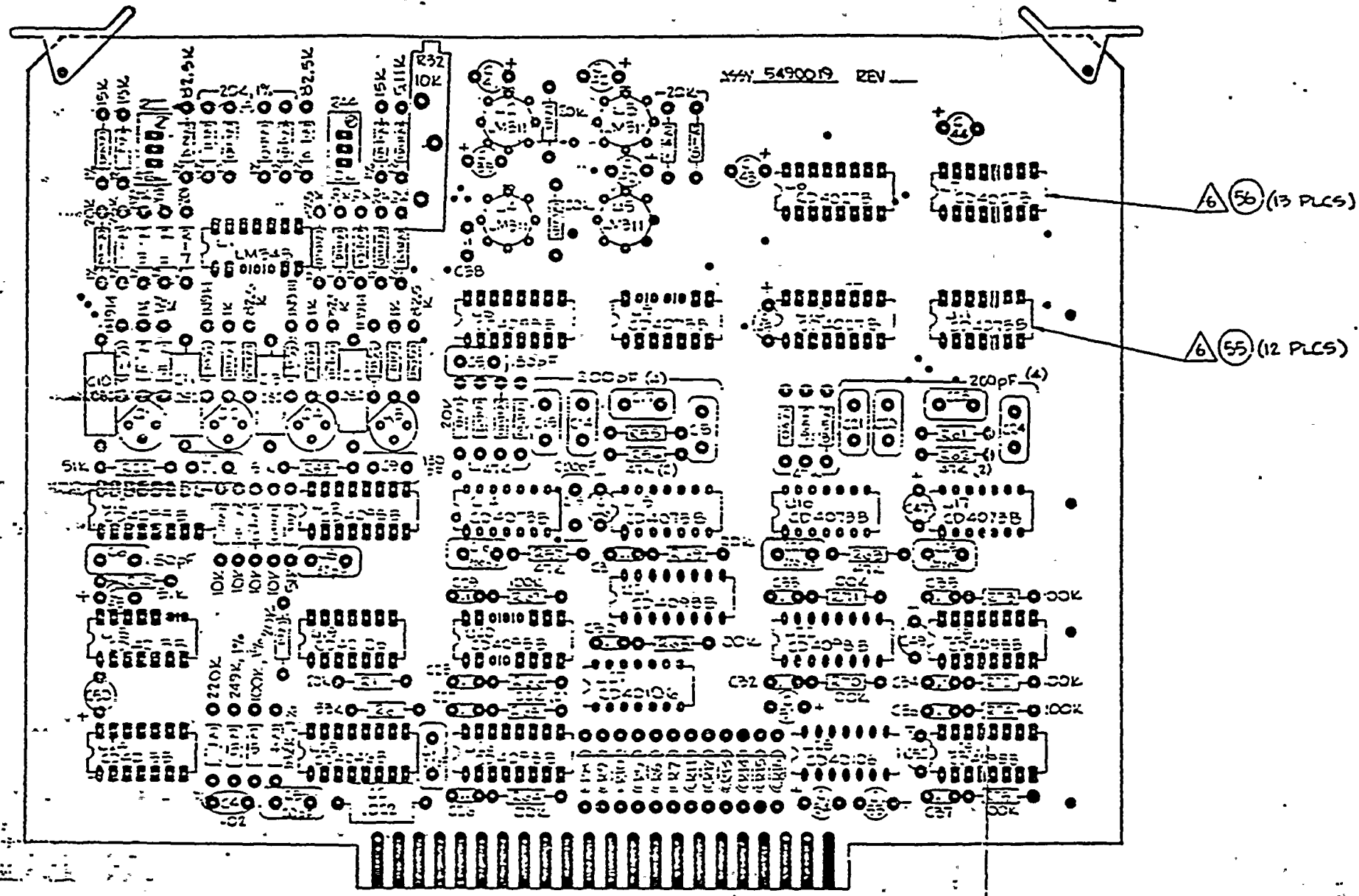
REV	DATE	BY
1	07-22 16	RAS

SCALE NONE SHEET 1 OF 1

445085A088

12
EQUITY
A. M.
MAY 1964

REV	DESCRIPTION	DATE	APPROVED
1	ENG C DEL	PC	
15	ENCL 5 B	10-7-72	CPS



SI
APERTURE
CARD

Also Available On
Aperture Card

9304290244-22

-01 SHOWN

-01 ASSY, CONFORMAL COAT
-02 ASSY, STD ASSY

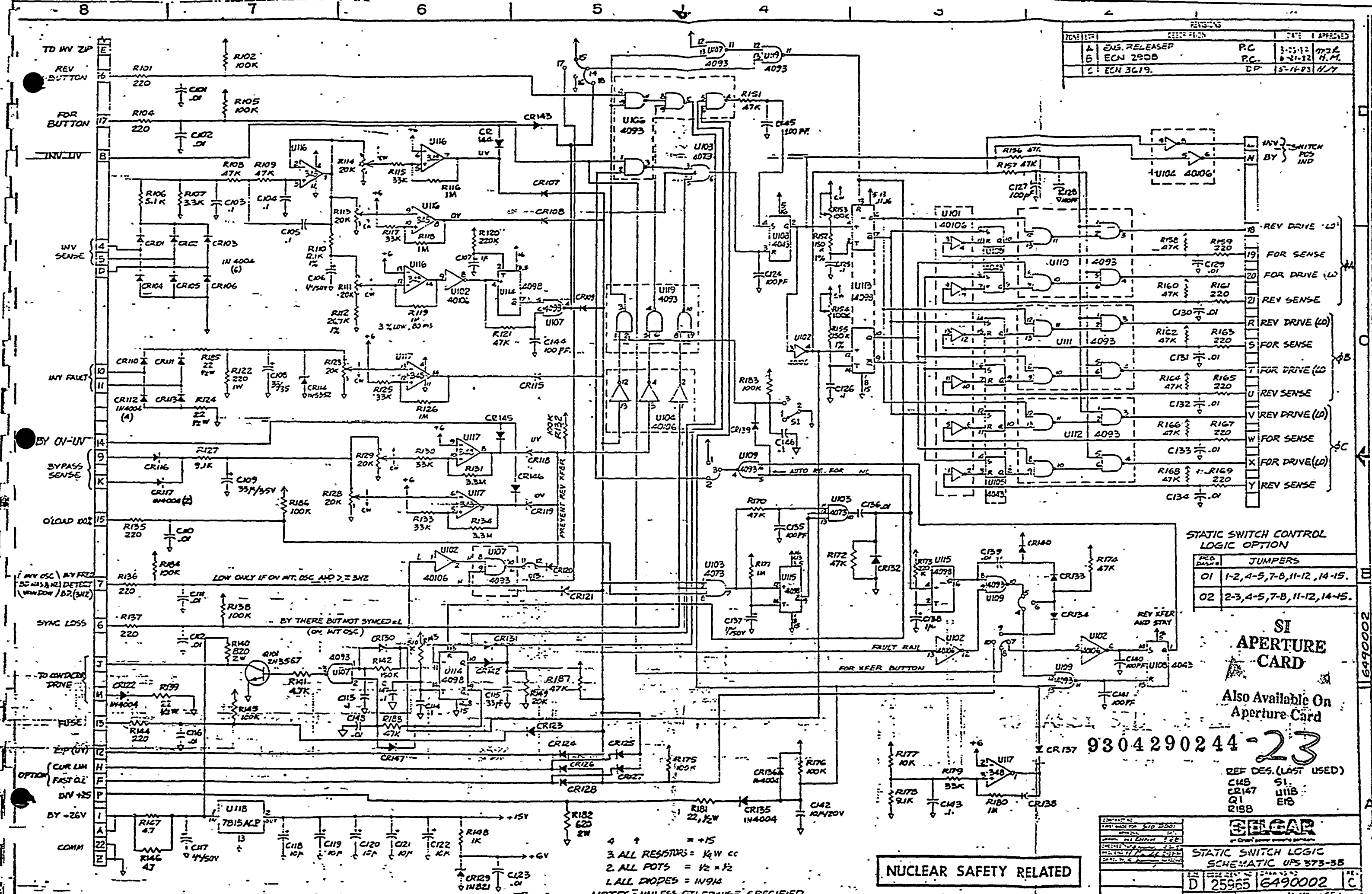
NUCLEAR-SAFETY RELATED

- CR-CR'6 ARE NSC.
 - 02 ASSY TO HAVE IC SOCKETS.
 - 01 ASSY TO BE CONFORMAL COATED USING ELGAR SPEC NO 100509. NO IC SOCKETS.
 - 4. USE BOARD NO 9490019 AND LATEST REV.
 - 2 RESISTANCE IS IN OHMS, 1/2 W ARE 5%, 1/4 W ARE 1%
 - 2 TRANSISTORS ARE 2N3567.
 - 2 CAPACITORS ARE 0.1UF/20V.
- NOTES: (UNLESS OTHERWISE SPECIFIED)

UNLESS OTHERWISE SPECIFIED		ELGAR	
FORMAL	REVISION	DATE	APPROVED
1	1	10-7-72	CPS
PC ASS'Y		PC ASSY - CHARGER LOGIC D	
D	25965	5490019	

5490019

930750S IV



REVISIONS		DATE APPROVED	
NO.	DESCRIPTION	BY	DATE
A	ENS. RELEASEP	P.C.	3-23-82
B	ECN 2908	P.C.	8-21-82
C	ECN 3619	CP	5-16-83

STATIC SWITCH CONTROL LOGIC OPTION

JUMPER	JUMPERS
01	1-2, 4-5, 7-8, 11-12, 14-15.
02	2-3, 4-5, 7-8, 11-12, 14-15.

SI APERTURE CARD

Also Available On Aperture Card

9304290244-23

REF DES. (LAST USED)
 C145 SI
 CR147 SI
 Q1 EI8
 R188 EI8

NUCLEAR SAFETY RELATED

4 ↑ = +15
 3 ALL RESISTORS = 1/2 W CC
 2 ALL POTS = 1/2 W F2
 1 ALL DIODES = IN914
 NOTES: UNLESS OTHERWISE SPECIFIED.

EDGAR

STATIC SWITCH LOGIC SCHEMATIC UPS 373-35

25965 649002

0000000000

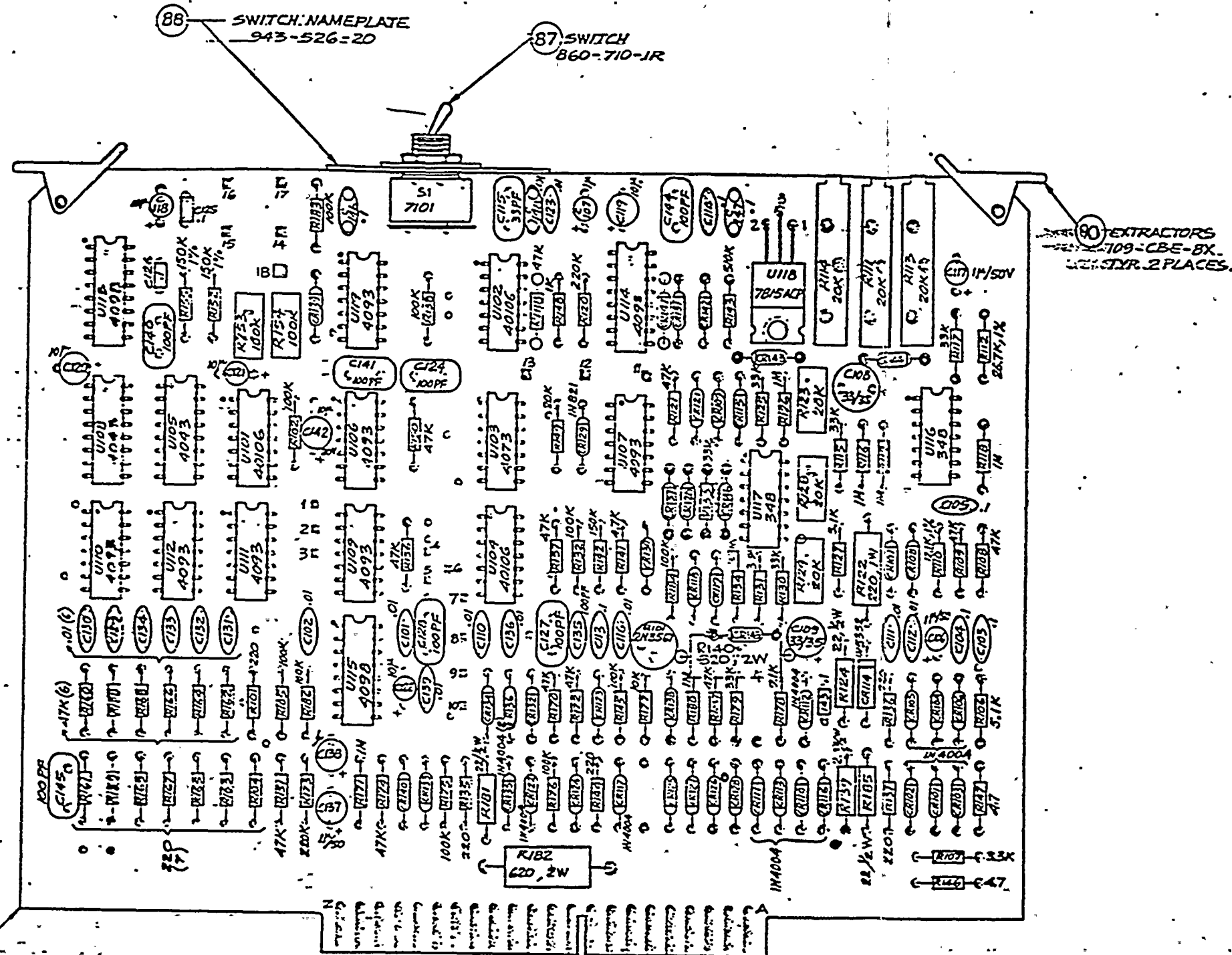
0000000000

0000000000



REV	DESCRIPTION	DATE	APPROVED
A	ENG. R REL	P.C.	3-21-72
B	ECN 2908	P.C.	6-21-72

SEE SHEET 1 FOR CURRENT REV. LTR.



STATIC SWITCH CONTROL LOGIC OPTION.

RES WASH	JUMPER
01	3-2, 4-5, 7-8, 11-12, 14-15
02	2-3, 4-5, 7-8, 11-12, 14-15

SI APERTURE CARD
Also Available On Aperture Card

9304290244-24

NUCLEAR SAFETY RELATED

FOR PARTS LIST SEE PL

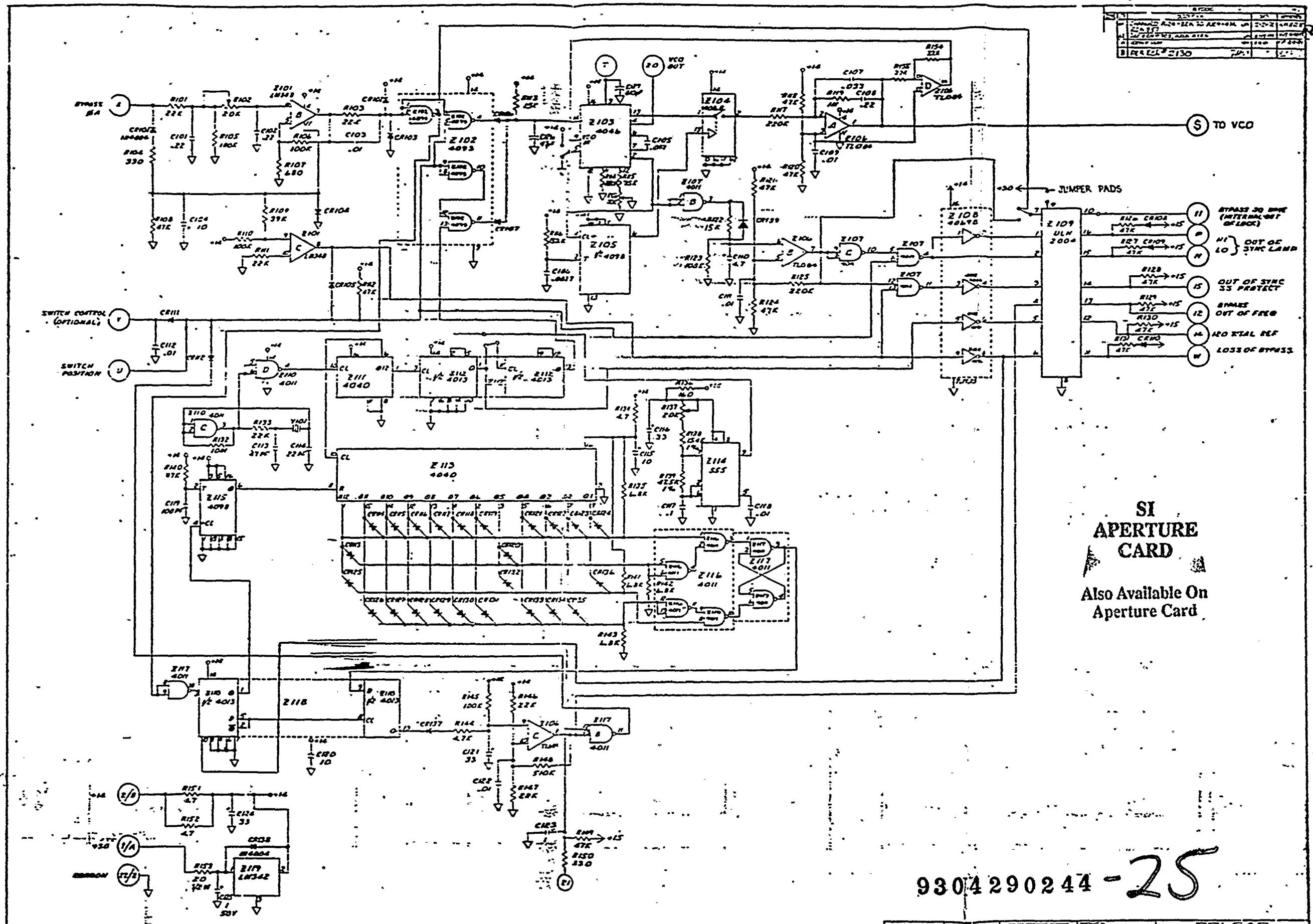
1. ALL DIODES ARE IN 914
 2. ALL RESISTORS ARE 1/4 W
 3. ASSY TO BE CONFORMAL COATED USING ELGAR SPEC NO 1005029. NO IC SOCKETS.
- NOTES: UNLESS OTHERWISE SPECIFIED

CONTRACT NO. PART MADE FOR: EGG		ELGAR <small>an Ortel Corp. Company</small>	
APPROVAL DATE DRAWN: 1HI DINH 15-24-72 CHECKED: 15-24-72 PROJ ENG: 15-24-72 CABL: 15-24-72		STATIC SWITCH LOGIC ASSY	
MATERIAL: NEXT ASSY. USED ON: APPLICATION:		SIZE: D CODE IDENT. NO: 25965 DRAWING NO: 5490002	D
<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: DECIMALS FRACTIONS ANGLES .XX ± .03 ± 1/32 ± 1/20 .XXX ± .010 DO NOT SCALE THIS DRAWING</small>		SCALE: 2-1	

430250344

1950
1951
1952
1953
1954
1955
1956
1957
1958
1959
1960

REV	DATE	BY	CHKD
1	12/1/73	...	...
2	...	...	...
3	...	...	...
4	...	...	...
5	...	...	...
6	...	...	...
7	...	...	...
8	...	...	...



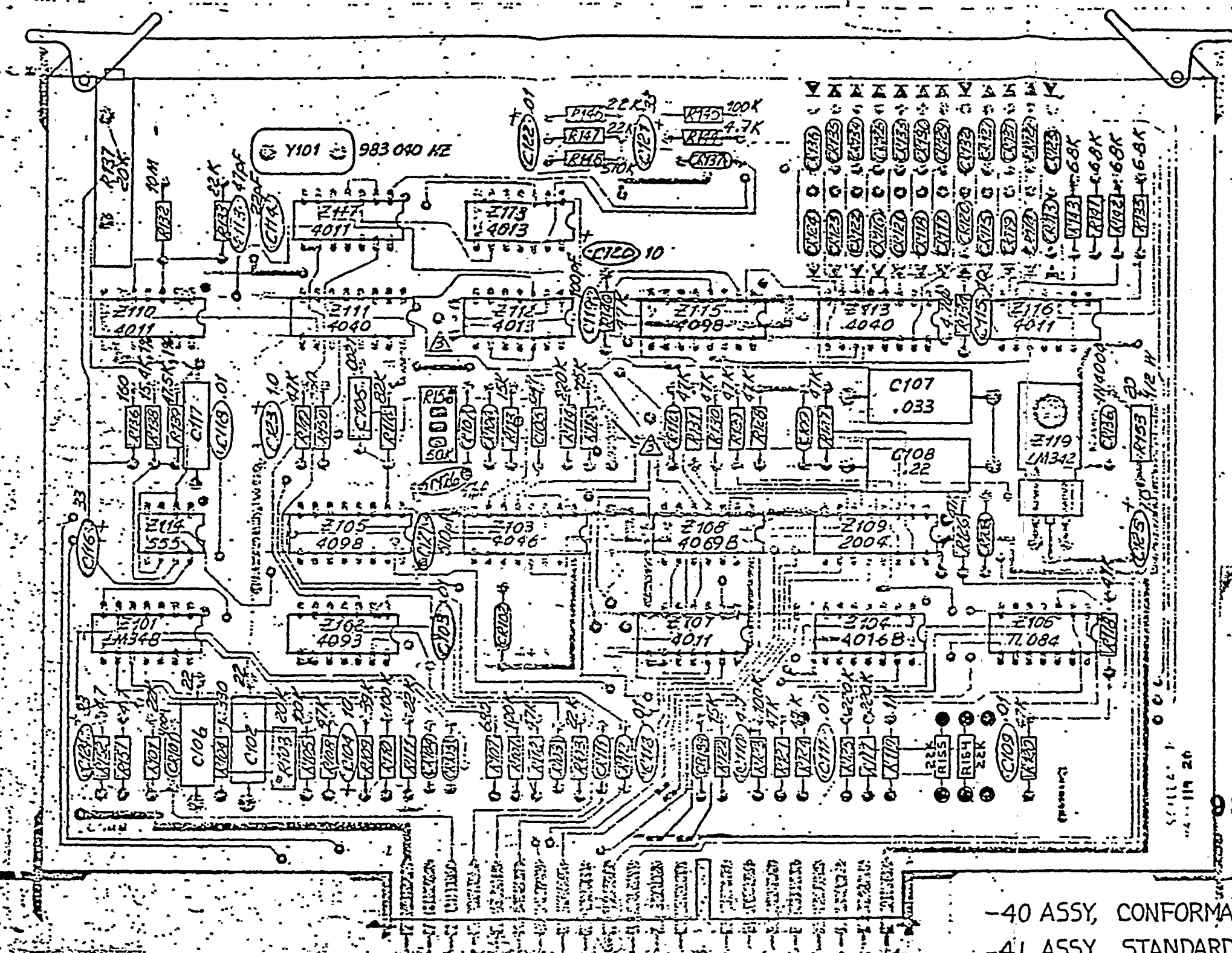
9304290244-25

1. FOR PART INFORMATION REFER TO BACKPLANE (REV D) SCHEMATIC.
 2. ALL CAPACITOR VALUES ARE IN MICROFARADS.
 3. ALL DIMENSIONS ARE IN INCHES.
 4. ALL RESISTORS ARE 1/4 WATT, 5% CARBON COMPOUND.
 NOTE: UNLESS OTHERWISE SPECIFIED

CELGAR CORPORATION 10000 WILSON BLVD WASHINGTON, DC 20048	
SCHEMATIC - OSCILLATOR PCB WY 53-101 2.5 MHz FIXED	
DATE: 12/1/73 BY: ... CHKD: ...	PART NO: 25965 REV: 643-119-62

0304580844

12
SUTTER
STAN
COMMUNICATIONS
CORPORATION



REV	DATE	DESCRIPTION
A	6-13-79	INITIALS
B	7-30-81	SCAVIO
C	11-17	

SI
APERTURE
CARD
Also Available On
Aperture Card

9304290244-26

- 40 ASSY, CONFORMAL COAT Δ
- 41 ASSY, STANDARD Δ

- NOTES: UNLESS OTHERWISE SPECIFIED.
1. RAISE ALL DIODES ON MATRIX, 1/8" OFF BOARD.
 2. ALL RESISTORS ARE 1/4 W, 5% CARBON COMB.
 3. BUSS WIRE JUMPER.
 4. ALL CAPACITORS ARE MICROFARADS.
 5. ALL DIODES ARE IN14.
 6. IC SOCKETS WILL BE INSTALLED -41 ASSY ONLY
- | ITEM | DESCRIPTION | ELGAR PIN | QTY. |
|------|------------------|------------|------|
| 1 | 14 PIN IC SOCKET | 649-DIP-14 | 11 |
| 2 | 16 PIN IC SOCKET | 649-DIP-16 | 6 |
7. CONFORMAL COAT PER ELGAR SPEC 1005029. (-40 ASSY ONLY)
 8. FOR SCHEMATIC SEE DWG 643-119-6X
 9. IDENTIFY APPLICABLE DASH NO & REV.

MARGINAL QUALITY ORIGINAL

NUCLEAR SAFETY RELATED

FOR PARTS LIST SEE-PL

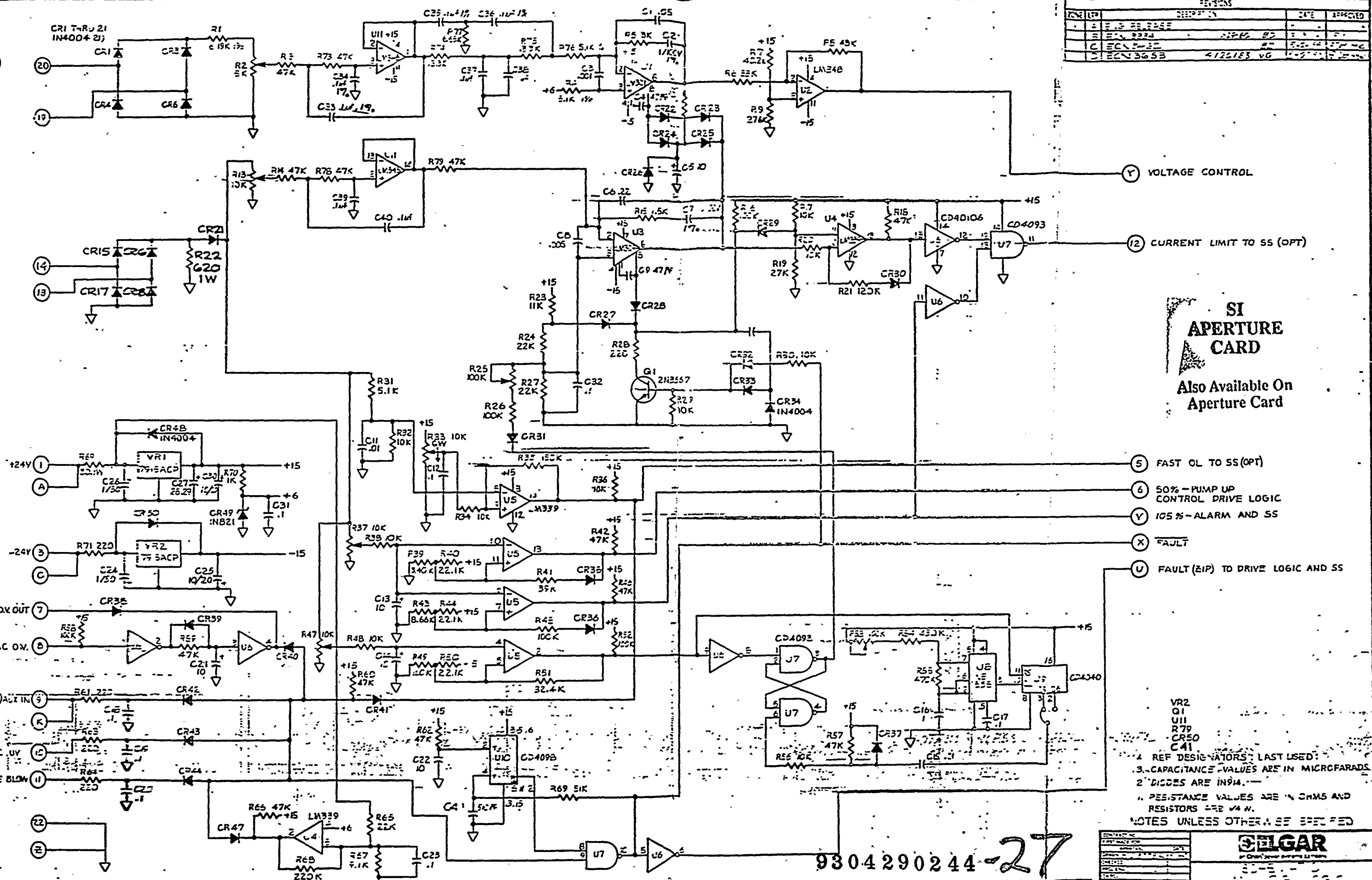
CONTRACT NO.		ELGAR CORPORATION SAN DIEGO CALIFORNIA	
FIRST MADE FOR:		OSCILLATOR PCB ASSY ±.5 HZ FIXED	
APPROVAL	DATE	SIZE	CODE IDENT NO
DRAWN	11-30-78	C.	25965
CHECKED	11-30-78	DRAWING NO	643-119-40
PROJ ENG.	11-30-78	REV	C
QA-REL	11-30-78	SCALE	2/1
SHEET 1 OF 1			

第 五 号 证 据 册

03048805 号

RECEIVED
FEDERAL BUREAU OF INVESTIGATION
U. S. DEPARTMENT OF JUSTICE
WASHINGTON, D. C. 20535

REVISIONS			
NO.	DATE	DESCRIPTION	AFFECTED
1	12-15-65	ISSUED	
2	1-10-66	REVISED	
3	1-10-66	REVISED	
4	1-10-66	REVISED	



SI APERTURE CARD

Also Available On Aperture Card

- (S) FAST OL TO SS (OPT)
- (6) 50% - PUMP UP CONTROL DRIVE LOGIC
- (Y) 105% - ALARM AND SS
- (X) FAULT
- (U) FAULT (ZIP) TO DRIVE LOGIC AND SS

VR2
Q1
U11
R79
CR50
CR41

4. REF DESIGNATORS LAST USED:
3. CAPACITANCE VALUES ARE IN MICROFARADS
2. DIMS ARE IN INCHES
1. RESISTANCE VALUES ARE IN OHMS AND RESISTORS ARE 1/4 W.
NOTES UNLESS OTHERWISE SPECIFIED

9304290244-27

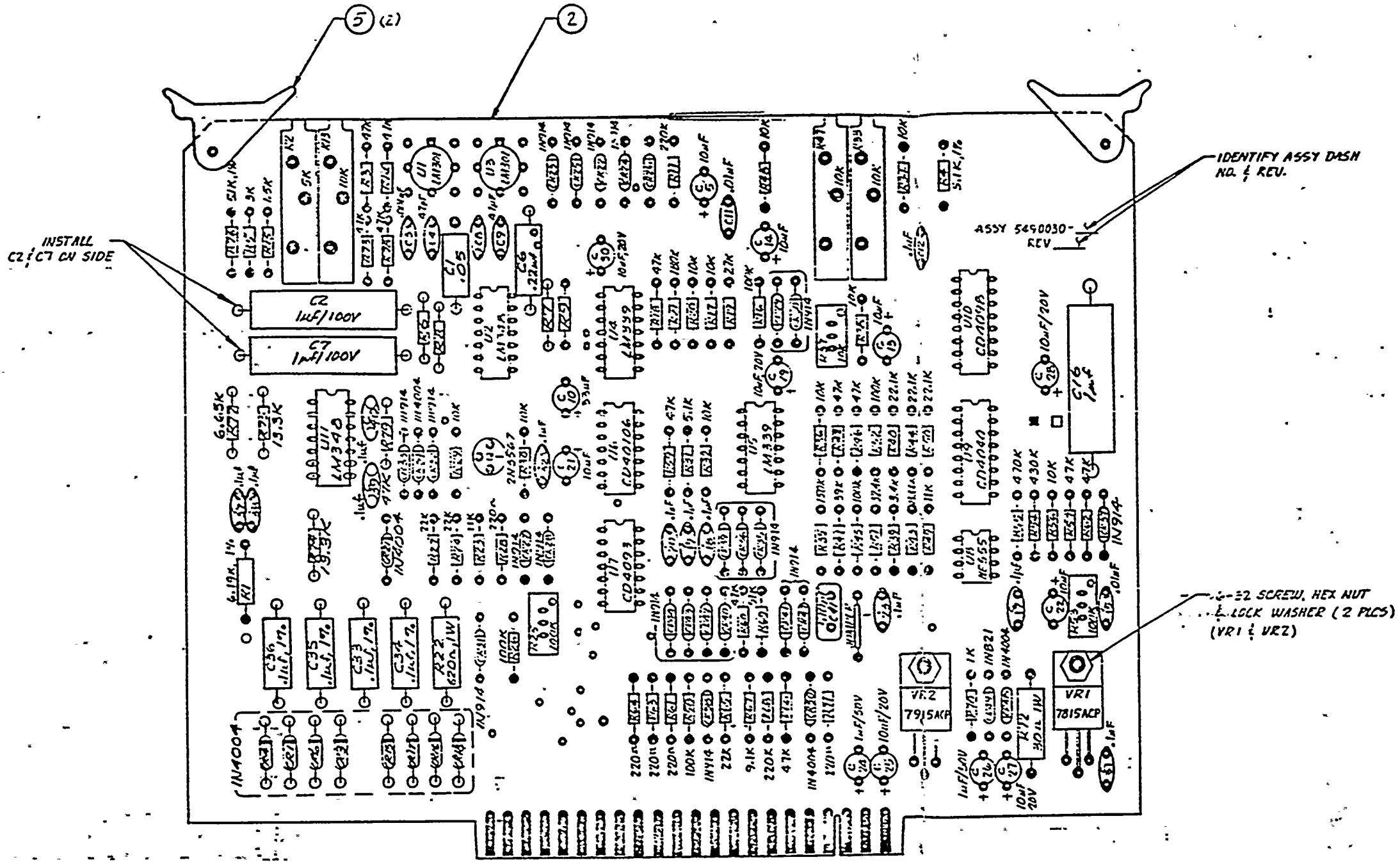
NUCLEAR SAFETY RELATED

REV	DATE	BY	CHKD
D	25965		
SCALE	SWT		CFI

APR 1968

NO. 1000
SERIALS
SECTION

REVISE		DATE	APPROVED
NO.	BY		
SEE 54 1 "A" SIZE			



IDENTIFY ASSY DASH NO. & REV.

INSTALL C2, C7 ON SIDE

SI APERTURE CARD

Also Available On Aperture Card

1/4-22 SCREW, HEX NUT, LOCK WASHER (2 PLCS) (VR1 & VR2)

NOTES: UNLESS OTHERWISE SPECIFIED
 1. FOR SCHEMATIC SEE DRAWING 6490030.
 2. CONFORMAL COAT PER ELGAR SPEC 1005029.

01 ASSY

MARGINAL QUALITY ORIGINAL

9304290244-28

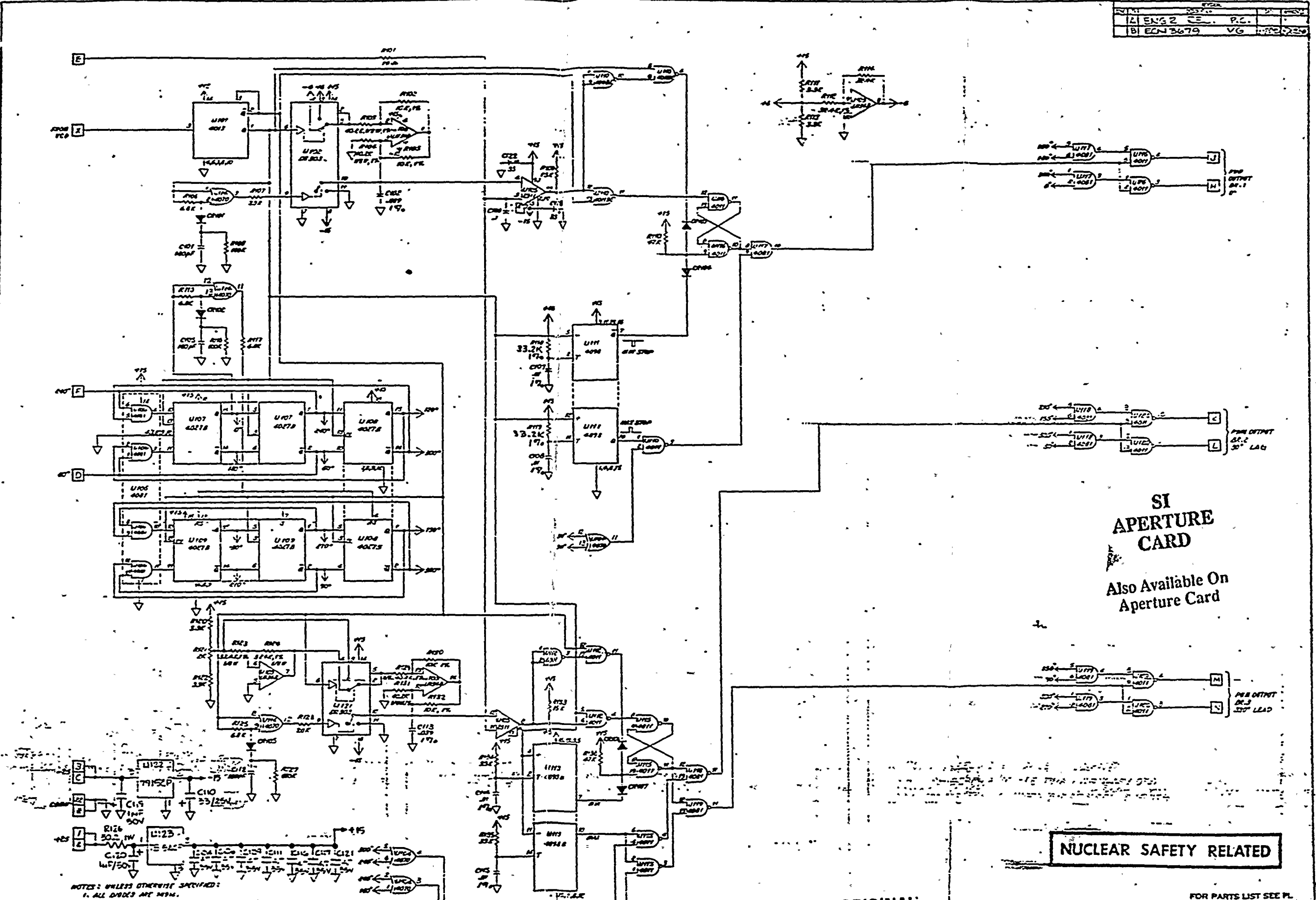
NUCLEAR SAFETY RELATED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:		DRAWING NO. DATE	
DECIMALS	FRACTIONS	ANGLES	
XX ± .03	± 1/32	± 1/2°	
DO NOT SCALE THIS DRAWING		REV	
MATERIAL:		SHEET NO. OF 5	
NEXT ASSY	USED ON	PC ASSY- ANALOG LOGIC	
APP. CAT. NO.		SIZE CODE IDENT NO. DRAWING NO. REV	
		D 25965 5490030 C	
PART NO. 5490005		SCALE 2:1	

SECRET

SECRET

SECRET



- NOTES: UNLESS OTHERWISE SPECIFIED:
1. ALL DIODES ARE 1N914.
 2. ALL RESISTORS ARE 1/4 W. 5% CARBON COMP.
 3. CAPACITANCES ARE IN MICRO FARADS.
 4. LINE BENDING ANGLES (90°) CORRECT TOGETHER.
 5. FOR INTERCONNECTION AND ELECTRICAL MOUNTING USE: 26, 28, 30.
 6. REC DIS-LAST USED: C122, C127, R126, U123

SI
APERTURE
CARD

Also Available On
Aperture Card

NUCLEAR SAFETY RELATED

MARGINAL QUALITY ORIGINAL

9304290244-29

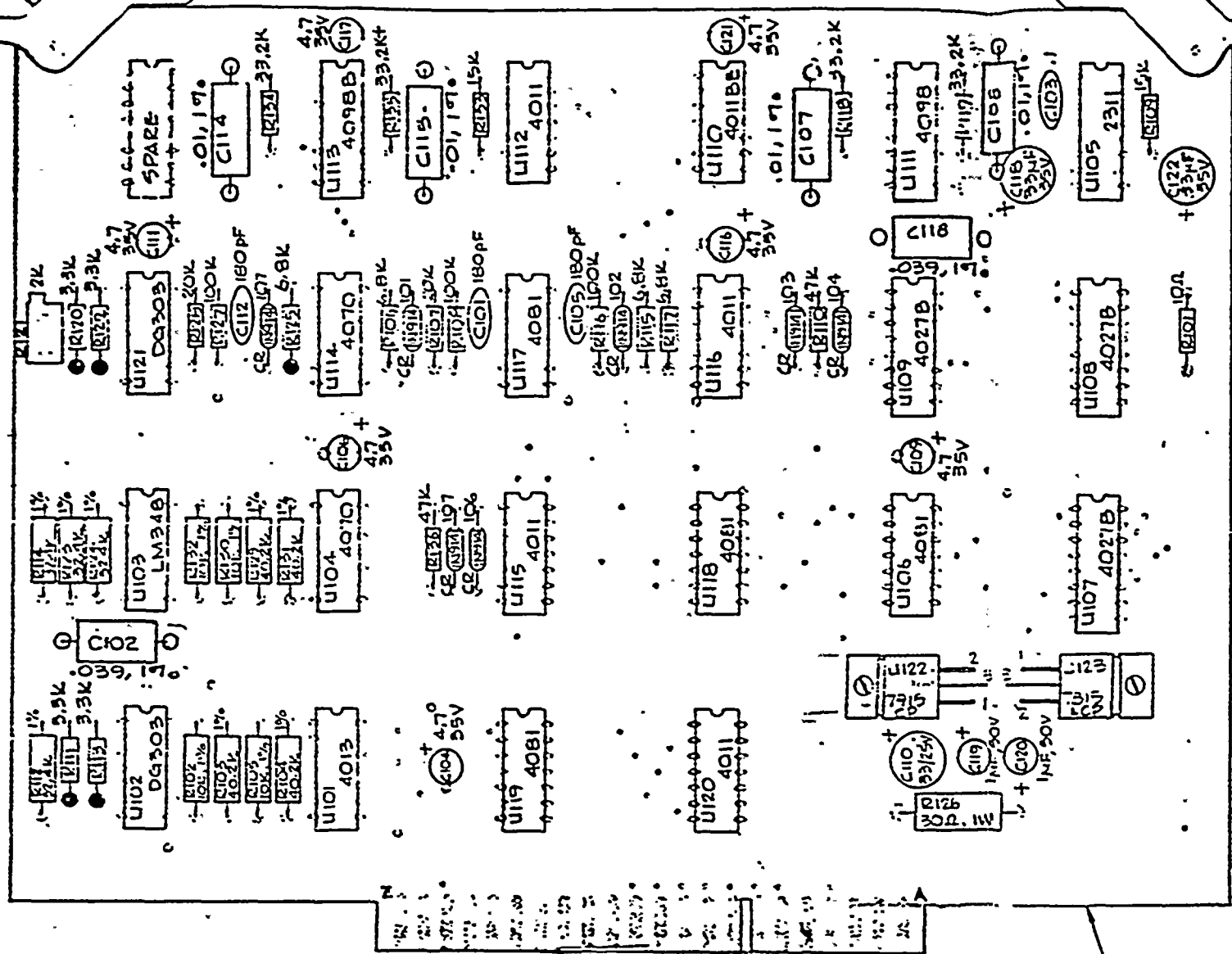
FOR PARTS LIST SEE PL	
GELGAR CORPORATION 10000 W. 10TH AVE. DENVER, CO 80201	
IC 3 BRIDGE PPM LOGIC	
REV 1	REV B
25955	635014

SECRET
CONFIDENTIAL

SECRET
CONFIDENTIAL



49



A ENG'D ZEL.
 B SEE SHG. 1
 C SEE SHG. 1
 D SEE SHG. 1

**SI
 APERTURE
 CARD**

Also Available On Aperture Card

NUCLEAR SAFETY RELATED

1. -JI ASSY TO BE CONFORMAL COATED USING ELGAR 4PEC 005029. NO IC SOCKETS USED.

- 2. CAPACITANCES ARE IN MICROFARADS.
- 3. ALL RESISTORS ARE 1/4W, 5%, CARBON COMP.
- 4. ALL CODES ARE MARK.

NOTES: (UNLESS OTHERWISE SPECIFIED)

S.O. 4178
 QUANTITY 1-BZ
 ASSY.
 103 BRIDGE, PWM LOGIC

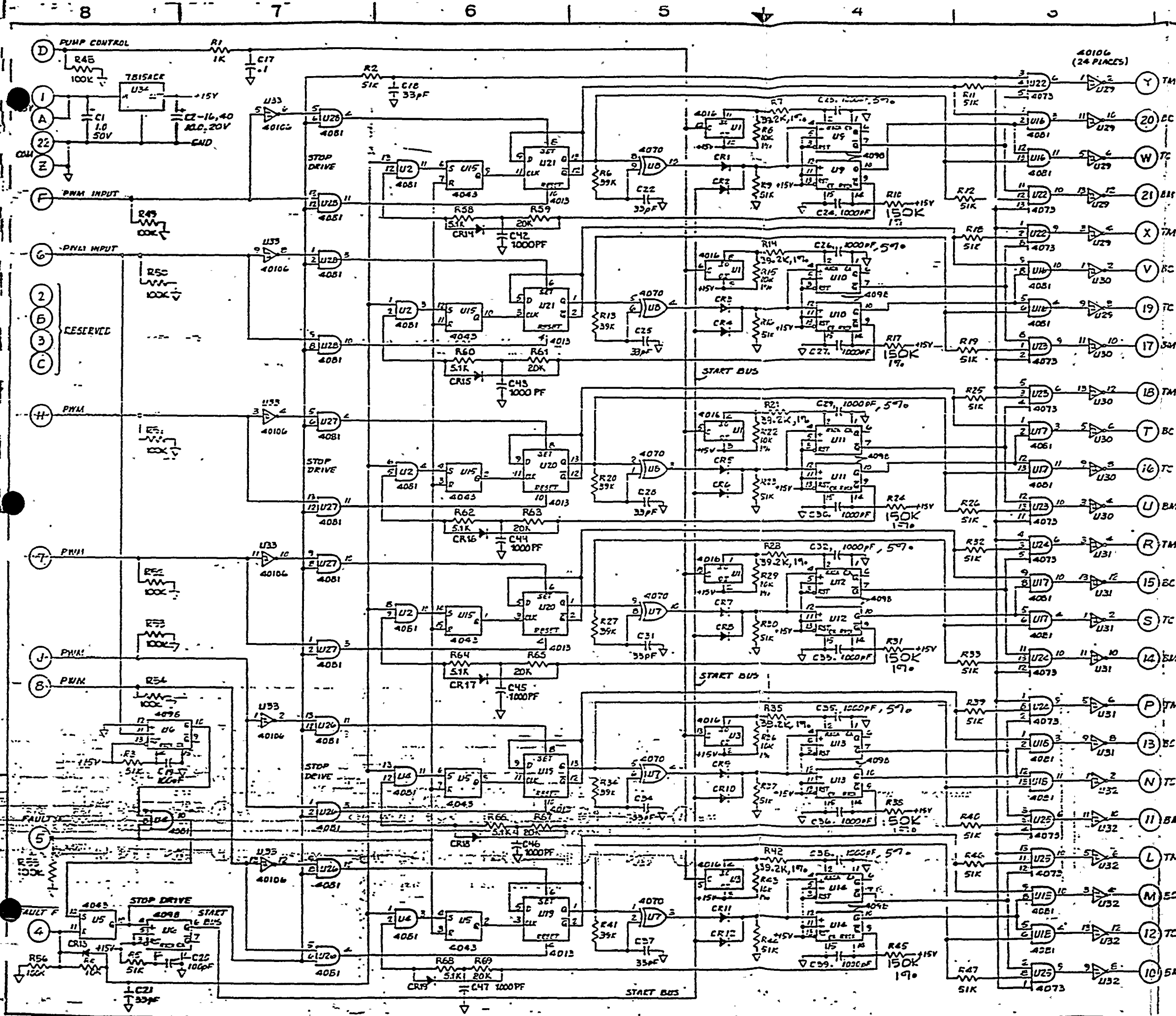
9304290244 - 30

5490014 D

5490014

RECEIVED
OFFICE
MAY 19 1964

44-30684-88



REV	DESCRIPTION	DATE	APPROVED
A	ENGE TEL	00	...
B	EN 2908	00	...
C	EN 3227	VG	...
D	EN 3536	VG	...
E	EN 3751	VG	...

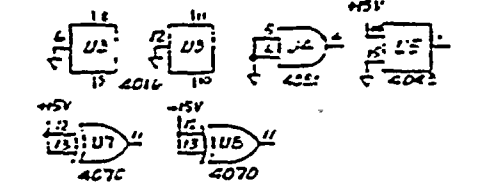
SI APERTURE CARD

Also Available On Aperture Card

- NOTES: UNLESS OTHERWISE SPECIFIED
1. RESISTOR VALUES ARE IN OHMS, 5%.
 2. CAPACITOR VALUES ARE IN MICROFARADS.
 3. DIODES ARE TYPE 1N4148.
 4. IC VOLTAGE (GND PINS):

IC TYPE	REFERENCE DESIGNATOR	1PWR PINS	1PWR PINS
ICD4013	U19, 20, 21	1	7
ICD4016	U1, 3	1	7
ICD4043	U6, 15	1	8
ICD4070	U7, 5	1	7
ICD40131	U22, 23, 24, 25	1	7
ICD4061	U2, 4, 14, 17, 18, 22, 27, 28	1	7
ICD4091	U10, 9, 10, 11, 12, 13, 16	1	7
ICD40161	U25, 26, 27, 28	1	7

5. UNUSED IC GATES:



6. HIGHEST USED REFERENCE DESIGNATOR: C47, CR19, R69, U34

9304290244-31

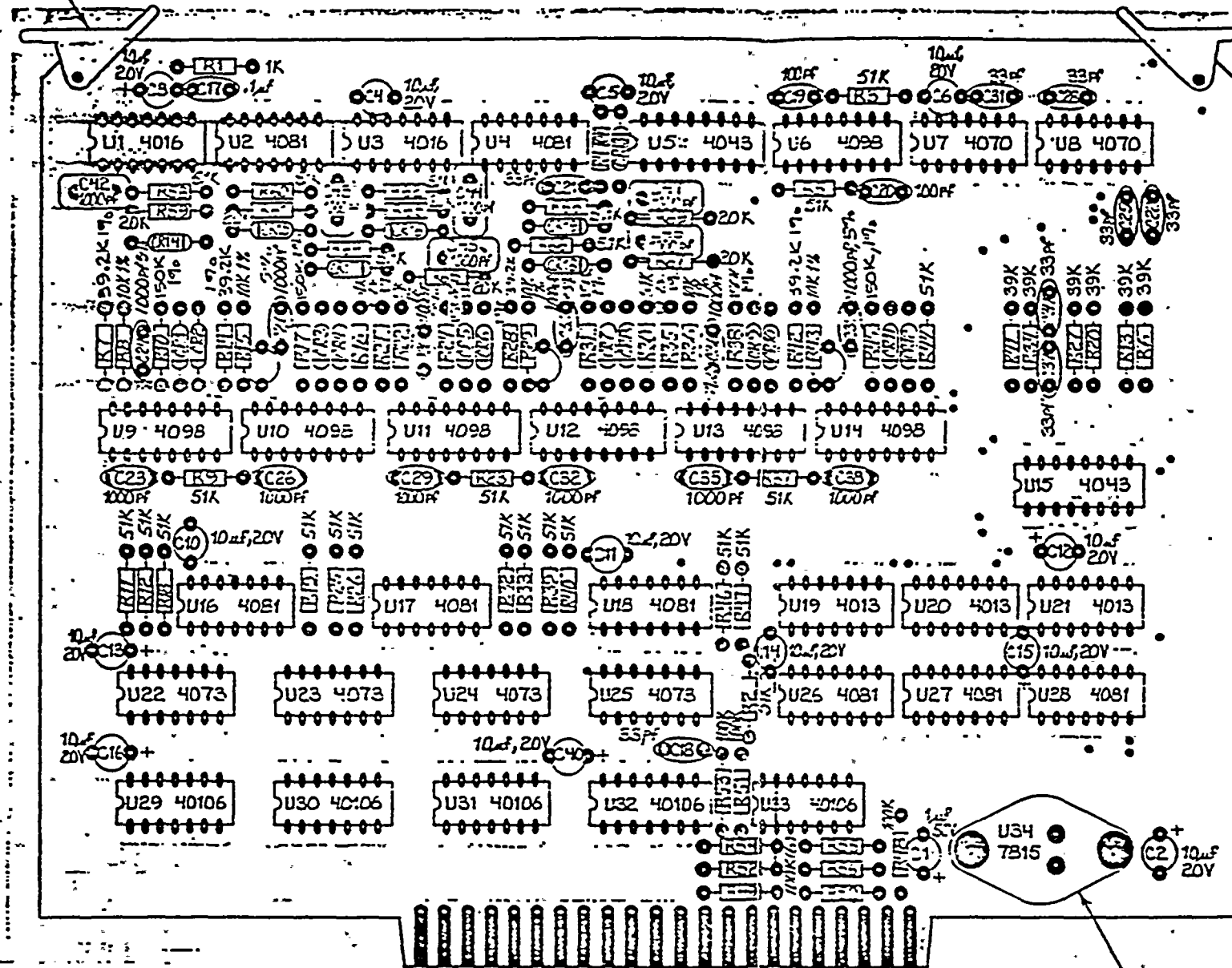
NUCLEAR SAFETY RELATED

ELGAR
Schematic Driver Logic
D 25965 0-33001
SCALE NONE 15PST 1 CF 1

1480881066

1480881066

(2) 42



SI
APERTURE
CARD

Also Available On
Aperture Card

INSTALL USING 4-40 HARDWARE.
INSTALL .4 WASHER BETWEEN
U34 & PCB.

9304290244-32

NUCLEAR SAFETY RELATED

- 3. CONFORMAL COAT PER ELGAR SPEC 1005023.
 - 2. STAMP PCB WITH DASH NO & REV LETTER.
 - 1. FOR SCHEMATIC SEE DWG 6490001.
- NOTES: UNLESS OTHERWISE SPECIFIED.

MARGINAL QUALITY ORIGINAL

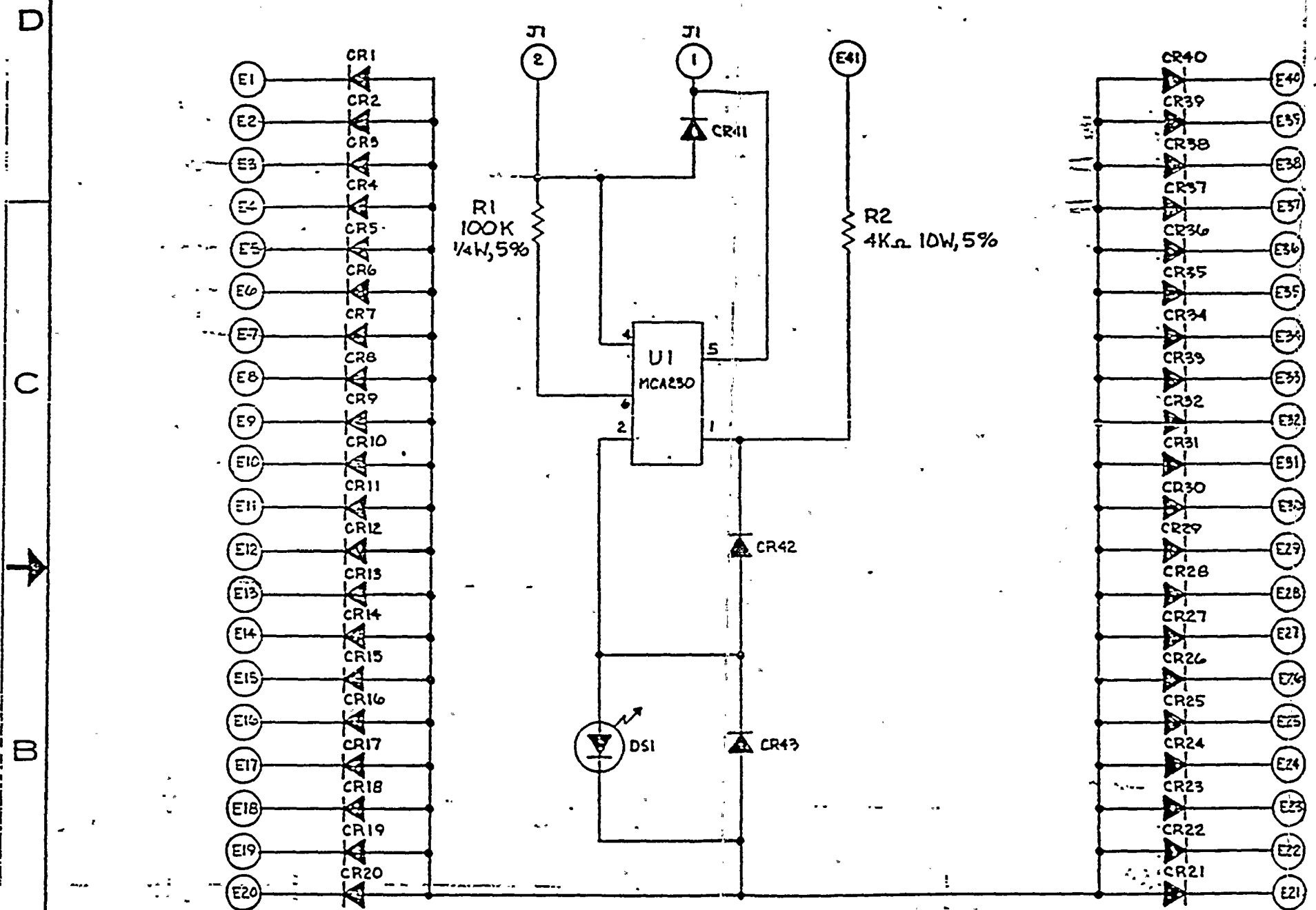
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS FRACTIONS ANGLES XX ± .03 ± .12 ± 1° XXX ± 0.15 ± .31 ± 1° DO NOT SCALE THIS DRAWING.		ELGAR PC ASSEMBLY— DRIVER LOGIC	
CONTRACT NO. PART NAME APPROVAL DATE DRAWN BY CHECKED BY PROJECT NO. PANEL NO.	MATERIAL FINISH	SIZE D 25965	DRAWING NO. 5490001
THE INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE. IT IS THE PROPERTY OF ELGAR CORPORATION AND IS LOANED TO YOU BY THE UNITED STATES GOVERNMENT UNDER CONTRACT. ALL RIGHTS ARE RESERVED. REPRODUCTION OR TRANSMISSION IN ANY FORM OR BY ANY MEANS IS PROHIBITED WITHOUT THE WRITTEN PERMISSION OF ELGAR CORPORATION.		SCALE: 1:1 SHEET NO. 1 OF 1	

AS 8068 b 928

40 91 16 04

19 11 16 04


REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		ENG. RELEASE	7-20-81	SCD, J



SI
APERTURE
CARD
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3. THE DASH NO. INDICATES THE NUMBER OF DIODES; -10, CR1-10; -20, CR1-20; -40, CR1-40.
 2 ALL RESISTANCE VALUES ARE IN OHMS (Ω).
 1. ALL DIODES ARE IN4004.
 NOTES: UNLESS OTHERWISE SPECIFIED.

0304290244 - 33

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: DECIMALS FRACTIONS ANGLES XX = .03 = 1/32 = 1/20 XXX = .010 DO NOT SCALE THIS DRAWING		CONTRACT NO. FIRST MADE FOR: 516 2093		 an Eaton power systems company	
MATERIAL:		APPROVAL: DATE			
NEXT ASSY. USED ON		DRAWN: MASANA 116-26-81		FUSE SENSE SCHEMATIC	
APPLICATION		CHECKED: SCD 117-20-81			
FINISH:		PROJ ENG: SCD 117-20-81		REV A	
THE INFORMATION DISCLOSED HEREIN WAS ORIGINATED BY AND IS THE PROPERTY OF DELGAR CORPORATION, AND EXCEPT FOR RIGHTS EXPRESSLY GRANTED TO THE UNITED STATES GOVERNMENT, DELGAR CORPORATION RESERVES ALL PATENT, PROPRIETARY, DESIGN, LSI SELL, MANUFACTURING AND REPRODUCTION RIGHTS THEREON		CLON 643-622-60		SCALE NONE	
		QA-REL: m.c. 117-20-81		SHEET 1 OF 1	
		CLOW 643-622-60		SIZE C CODE IDENT. NO. 25965 DRAWING NO. 6430002	

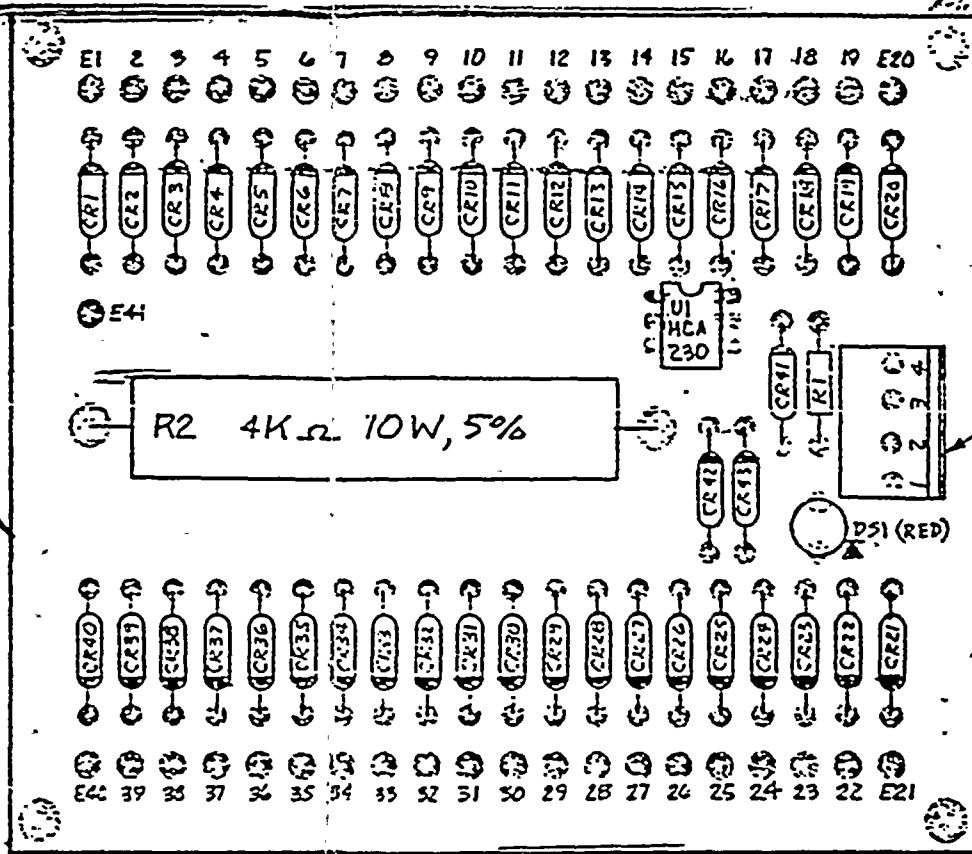
RECEIVED
MAY 19 1968
U.S. AIR FORCE
HEADQUARTERS
WASHINGTON, D.C.

218 11 11

ASS0852038

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1'A SIZE	7-29-81	SCDro

PCB 943-622-20



SI APERTURE CARD
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6. IDENTIFY APPLICABLE DASH NO & REV.
5. FOR SCHEMATIC SEE DWG 6430002.
4. CONFORMAL COAT PER ELGAR SPEC 1005029.
3. THE DASH NO. INDICATES THE NUMBER OF DIODES; -10, CR1-10; -20, CR1-20; -40, CR1-40.
2. R1 IS 100K, 5%, 1/4 W
1. ALL DIODES ARE IN4004.

NOTES: UNLESS OTHERWISE SPECIFIED.

9304290244-34

NUCLEAR SAFETY RELATED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:		CONTRACT NO.	
DECIMALS	FRACTIONS	ANGLES	FIRST MADE FOR: S/O 4793
XX = .03	= 1/32	= 1/20	APPROVAL
XXX = .010	DO NOT SCALE THIS DRAWING		DATE
MATERIAL:		DRAWN	J. MAGALLA 5-29-81
NEXT ASSY.		CHECKED	5-29-81
USED ON		PROJ ENG	5-29-81
APPLICATION		QA-REL	5-29-81
FINISH:		DRAWING NO.	
THE INFORMATION DISCLOSED HEREIN WAS ORIGINATED BY AND IS THE PROPERTY OF ELGAR CORPORATION AND IS LOANED TO YOU BY ELGAR CORPORATION. ELGAR CORPORATION RESERVES ALL PATENT, PROPRIETARY, DESIGN, USE, SALE, MANUFACTURING AND REPRODUCTION RIGHTS THEREIN.		SIZE	REV
		C	25965
		DRAWING NO. 5430002	
		SCALE 2:1	SHEET 3 OF 3



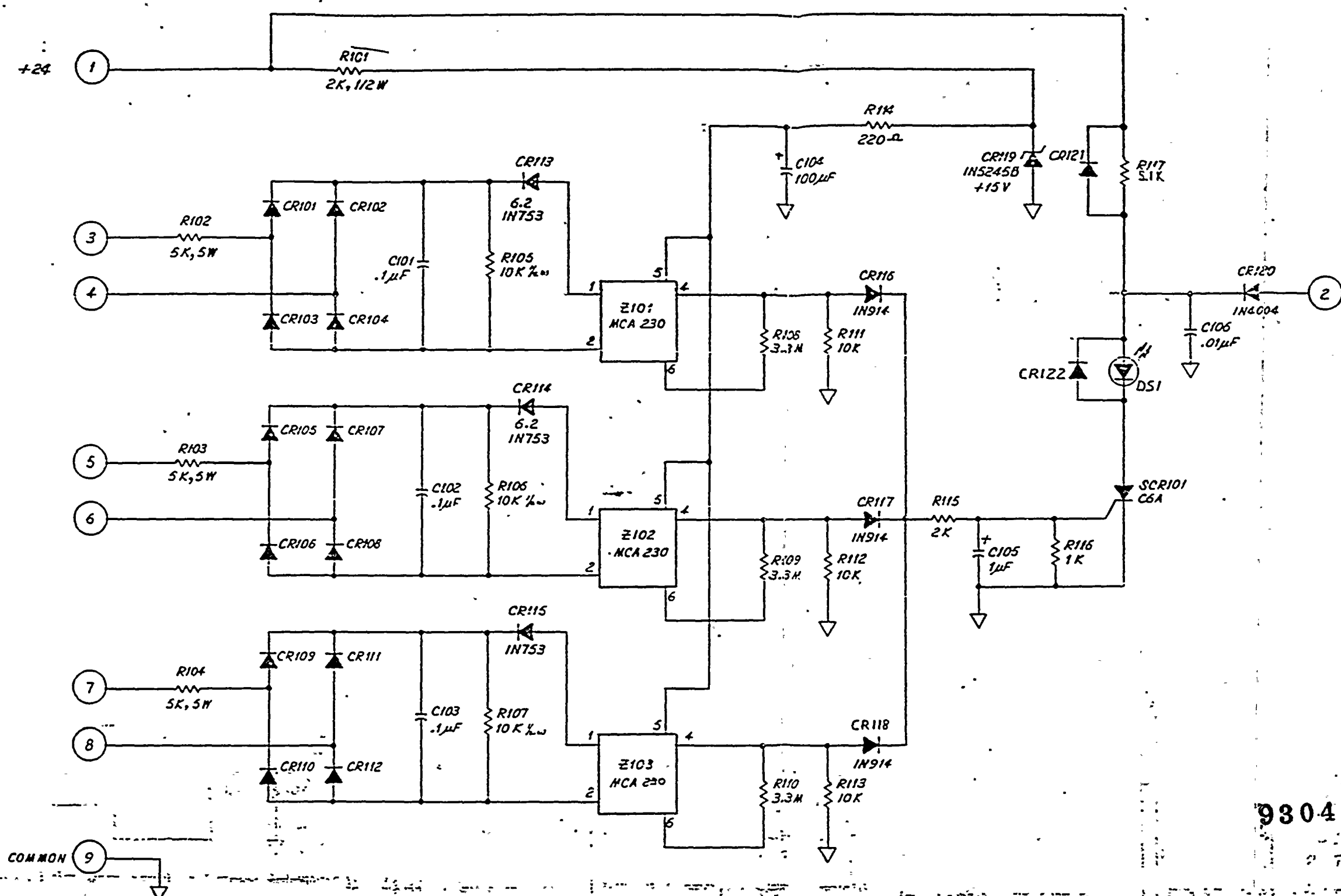
FUSE SENSE BRD ASSY

15
16
17
18
19
20

21
22
23
24
25
26
27
28
29
30



REVIEWS			
ZONE	REV	DESCRIPTION	DATE
5	6	ECN 269 ADDED CR21, CR22, R17	2-2-72
	A	ECN 2616	2-2-72



SI
APERTURE
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9304290244 - 35

2. ALL RESISTORS ARE 1/4 W.
1. ALL DICDES ARE IN4004.

NOTES: UNLESS OTHERWISE SPECIFIED.

FOR PARTS LIST SEE PL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:		DRAWING NO. 622-137-61		DATE 1-25-72	
DECIMALS	FRACTIONS	ANGLES			
±.01	± 1/32	± 1.00			
DO NOT SCALE THIS DRAWING			MATERIAL		
NEXT ASSY	BY	DATE	FINISH		
DRAWN BY		CHECKED BY		DATE	
APPROVED BY		DATE		SCALE	
MATERIAL		FINISH		SCALE	
DRAWING NO.		DATE		REV	
D 25965		622-137-61		A	
SCALE		SHEET		OF	

SELGAR CORPORATION
SAN DIEGO, CALIFORNIA

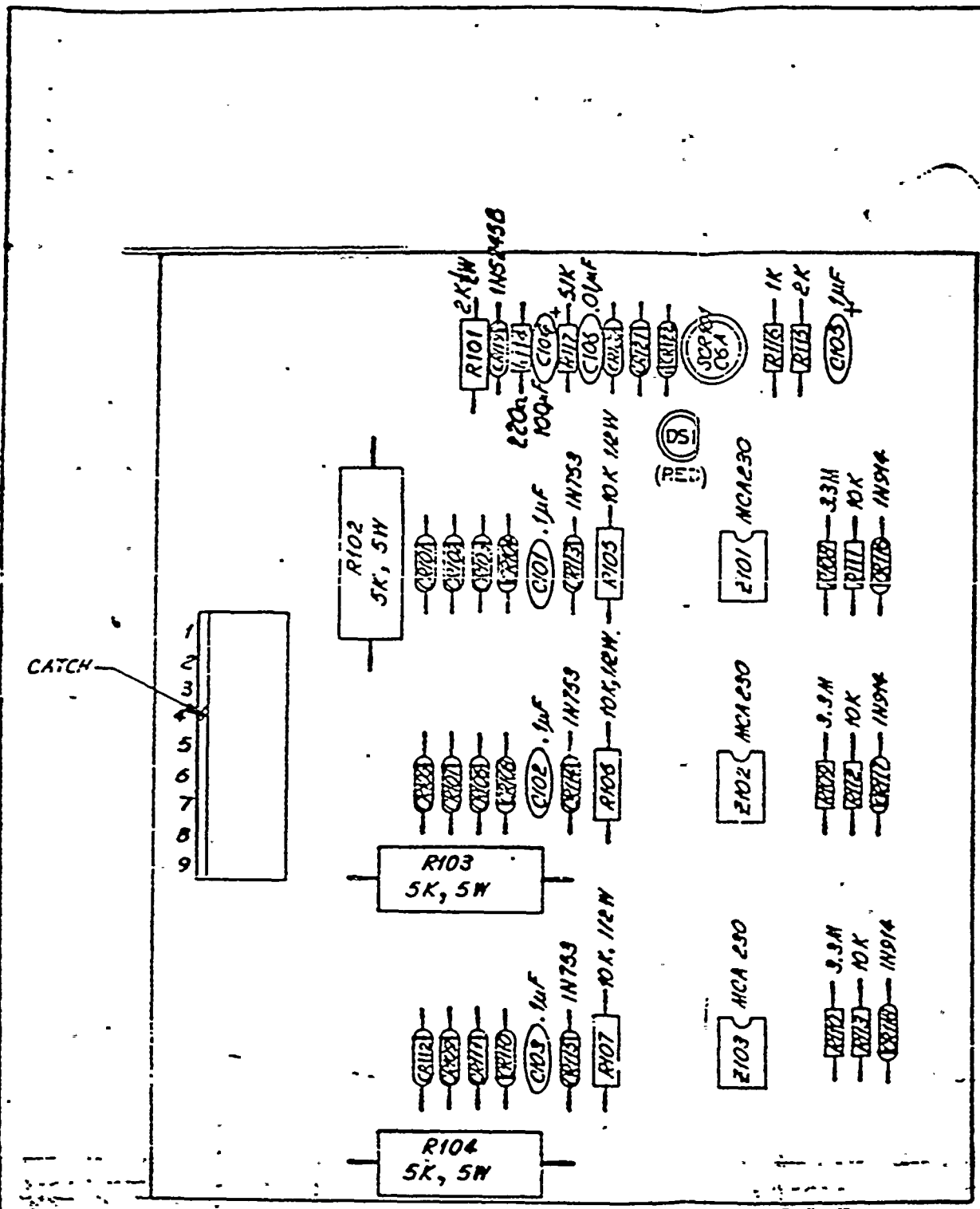
FUSE SENSE
LOGIC BOARD
THREE CIRCUIT

622-137-61

PASSPORT

12
JAN 21 1954
U.S. DEPARTMENT OF STATE
WASHINGTON, D.C.

12 JAN 21 1954



ZONE	LTR	DESCRIPTION	DATE	APPROVED
		ECN 889 ADDED CR121 & CR122	2-16-79	
A		ECN #1777	2-26-79	
B		ECN #1775	3-30-81	
C		ECN #2616	2-11-82	
D		ECN 2797	2-5-82	
E		DDC #519 2-AN52-40 TO 12-41 TO -42 AND ADDED COLOR TO PSI E.D. ADDED NOTES 7 & 8	4/3/82	

SI
APERTURE
CARD

Also Available On
Aperture Card

-41 ASSY, CONFORMAL COAT Δ
-42 ASSY, STANDARD Δ

NUCLEAR-SAFETY RELATED

FOR PARTS LIST SEE PL

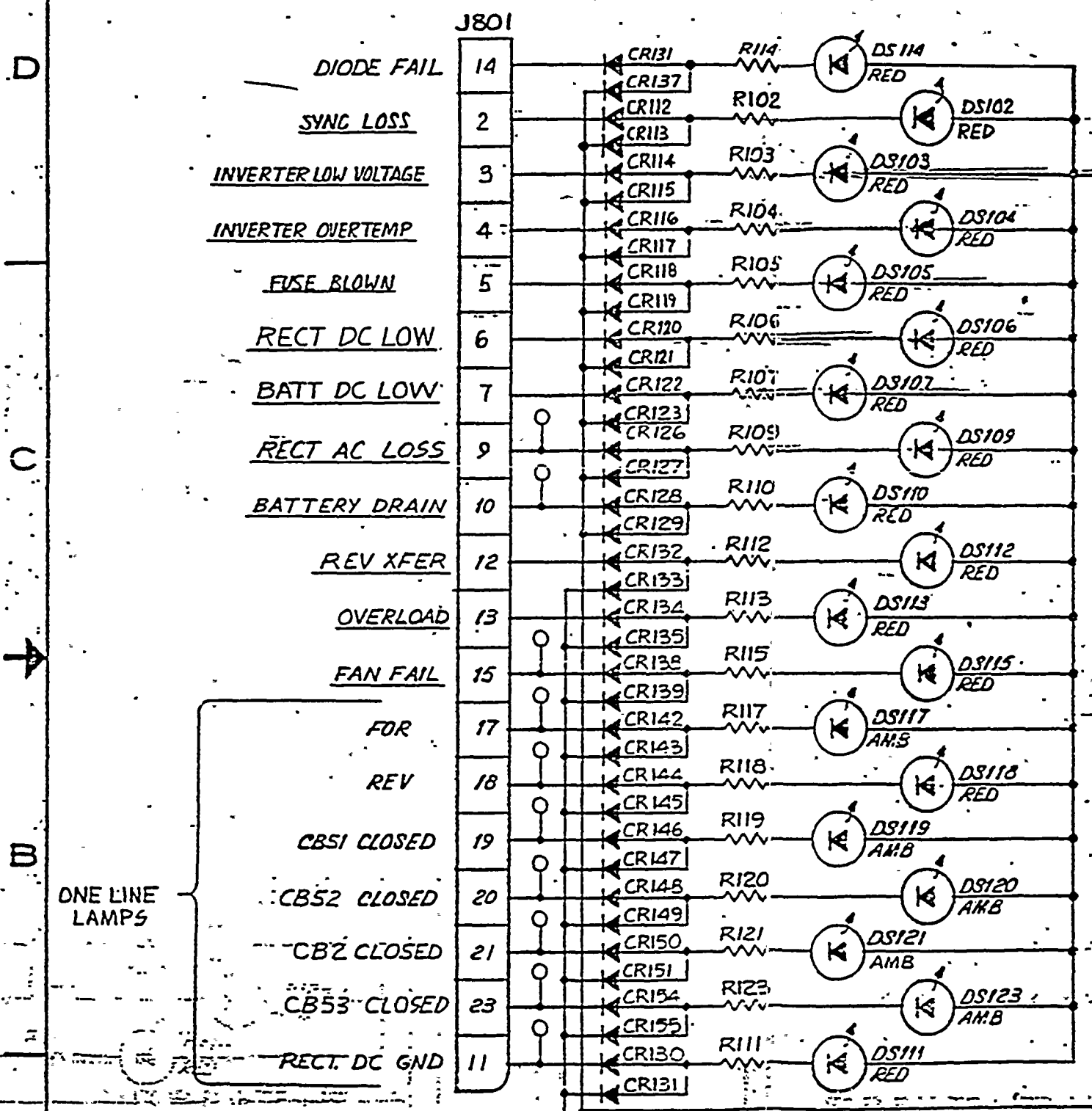
- 8. MOLEX HEAD IS 855-109-12
 - 7. PCB IS 928-137-21
 - 6. IDENTIFY APPLICABLE DASH NO. & RES.
 - 5. FOR SCHEMATIC SEE DWG 628-137-6X.
 - Δ DO NOT CONFORMAL COAT THE -42 ASSY.
 - Δ CONFORMAL COAT PER ELGAR SPEC 1005029. (-41 ASSY ONLY)
 - 2. ALL RESISTORS ARE 1/4 W.
 - 1. ALL DIODES ARE IN4004, 1/4 W.
- NOTES: UNLESS OTHERWISE SPECIFIED.

9304290244-36

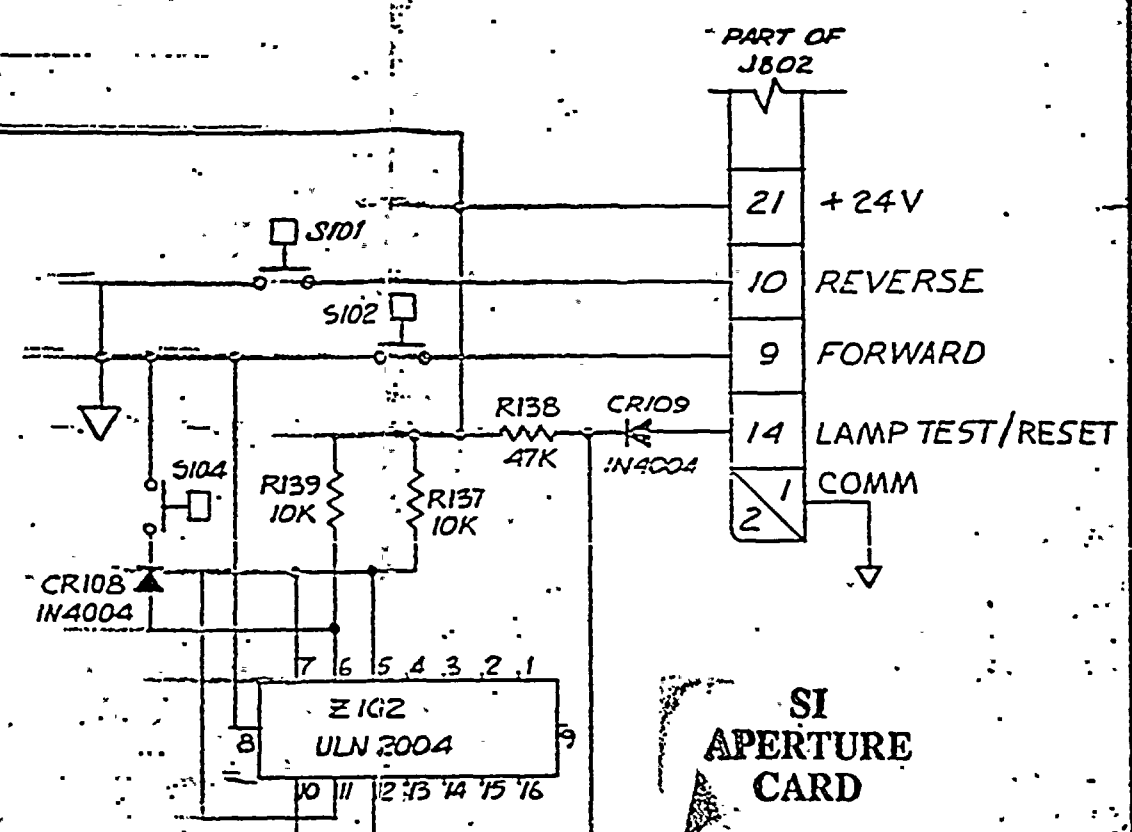
CONTRACT NO.		 ELGAR CORPORATION SAN DIEGO, CALIFORNIA			
FIRST MADE FOR					
APPROVAL	DATE	ASSEMBLY FUSE SENSE LOGIC BOARD THREE CIRCUIT			
DRAWN	H. CRIST 13-1-78				
CHECKED					
PROJ ENG	V. J. AS 1-2-78				
QA/EL		SIZE	CODE IDENT NO	DRAWING NO	REV
		C	25965	628-137-4X	E
SCALE 2:1		SHEET 1 OF 1			

190681088

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		ENG RELEASE	3-10-82	SED/D
B		PER ECN 2696 L.L. 3-10-82	3-10-82	
C		ECN # 2989 B.D. 7-19-82	7-21-82	PS



- DIODE FAIL 14
- SYNC LOSS 2
- INVERTER LOW VOLTAGE 3
- INVERTER OVERTEMP 4
- FUSE BLOWN 5
- RECT DC LOW 6
- BATT DC LOW 7
- RECT AC LOSS 9
- BATTERY DRAIN 10
- REV XFER 12
- OVERLOAD 13
- FAN FAIL 15
- FOR 17
- REV 18
- CB51 CLOSED 19
- CB52 CLOSED 20
- CB2 CLOSED 21
- CB53 CLOSED 23
- RECT. DC GND 11



SI APERTURE CARD

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- NOTES: UNLESS OTHERWISE SPECIFIED.
- ALL RESISTANCE VALUES ARE IN OHMS, 1/2 W.
 - ALL CAPACITANCE VALUES ARE IN MICROFARADS.
 - R102 THRU R124 ARE 2.2K, 1W.
 - CR108 AND CR109 ARE IN4004, ALL OTHER DIODES ARE IN914.

9304290244-37
FOR PARTS LIST SEE PL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		CONTRACT NO. FIRST MADE FOR: 5/ 4093	
TOLERANCES ON DECIMALS FRACTIONS ANGLES: .01 = 1/32 = 1/20 .005 = .010 DO NOT SCALE THIS DRAWING		APPROVAL: J. MAGANA 7-1-81	DATE: 7-1-81
MATERIAL: VFC-253-1-106		CHECKED: [Signature]	DATE: 7-1-81
NEXT ASSY: USED ON: [Blank]		PROJ ENG: [Blank]	DATE: [Blank]
APPLICATION: [Blank]		QA-REL: [Blank]	DATE: [Blank]
THE INFORMATION ON THIS DRAWING WAS OBTAINED BY AND IS THE PROPERTY OF ELGAR CORPORATION AND EXCEPT FOR RIGHTS EXPRESSLY GRANTED TO THE UNITED STATES GOVERNMENT ELGAR CORPORATION DISCLAIMS ALL PATENT PROPRIETARY DESIGN AND TRADE MARK MANUFACTURING AND REPRODUCTION RIGHTS THEREIN.		CLON 643-129-60	SIZE C
FINISH: [Blank]		CODE IDENT NO. 25965	DRAWING NO. 643-628-60
		SCALE: [Blank]	REV. C
		SHEET 1 OF 1	

9807220514

1980
1980
1980

PRESS & MAKE FLUSH
ID9-S06-08, (7PLCS)

COMP. SIDE

STANDOFF, LED &
SWITCH SIDE.

SOLDER
(ON FAR SIDE ONLY)

ZONE	LTR	DESCRIPTION	DATE	BY	CHKD
A	ENG RELEASE				
B	ECN # 2357				
C	ECN # 2358				
D	PER ECN # 2359				
E	PER ECN # 2360				
F	ECN # 2359				

NOTES: UNLESS OTHERWISE SPECIFIED:

1. ALL RESISTANCE VALUES ARE IN OHMS
2. ALL LED'S ARE RED UNLESS MARKED OTHERWISE.
3. S101 THRU S104 AND DS101 THRU DS124 ARE MOUNTED FROM FAR SIDE. ALL OTHER COMPONENTS MOUNT ON NEAR SIDE.
4. CR110 THRU CR157 (ALL UNMARK DIODES) ARE IN 914.
5. CONFORMAL COAT PER ELGAR SPEC 1005029.
6. FOR SCHEMATIC SEE DWG 643-628-6X.
7. IDENTIFY WITH APPLICABLE DASH NO. & REV. LTR.
8. PCB IS 944-DDI-20

SI
APERTURE
CARD

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Aperture Card

9304290244-38

FOR PARTS LIST SEE P.

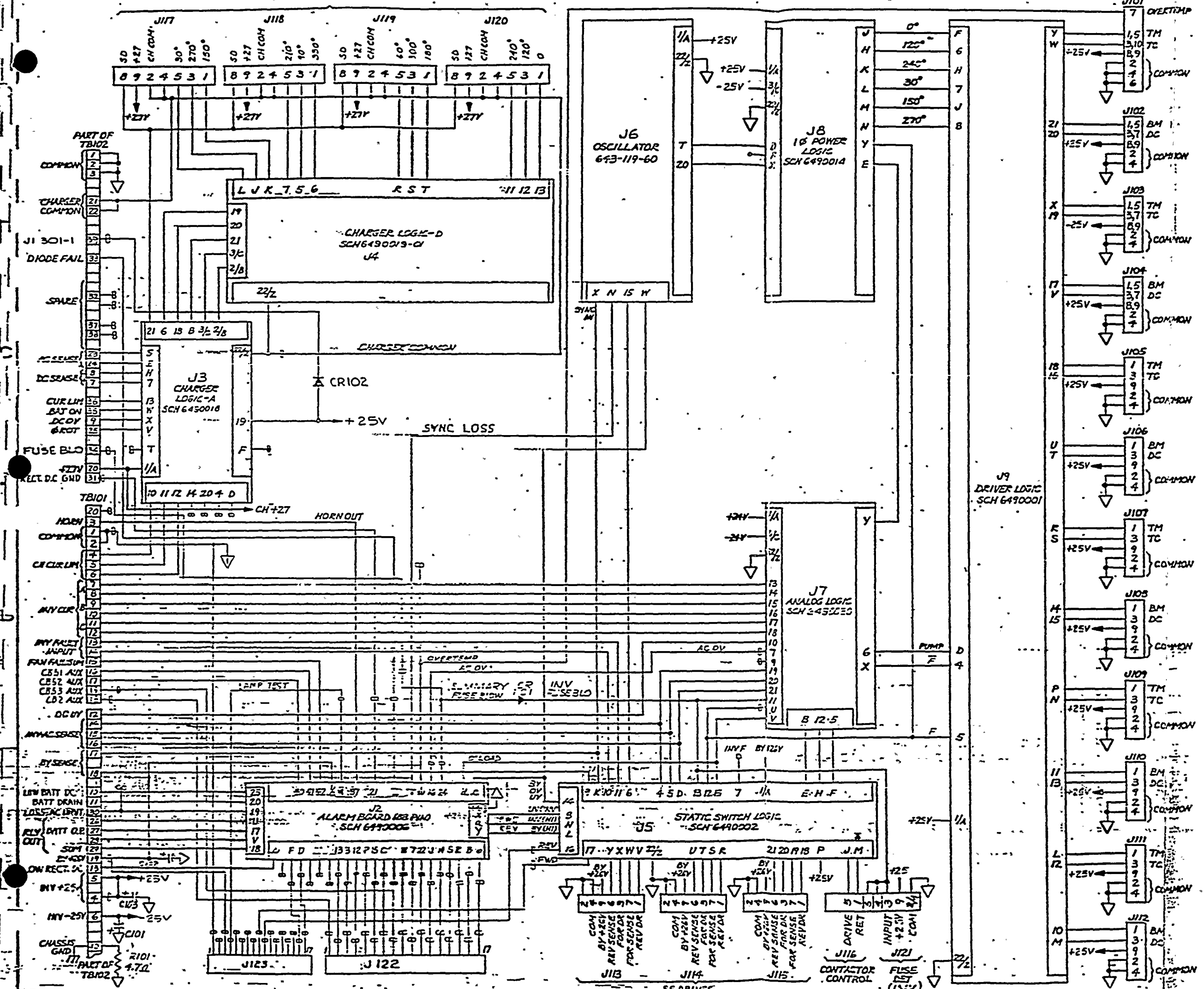
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES ON		CONTRACT NO. FIRST MADE FOR: 3/6 6093		ELGAR OF CHRYSLER GROUP	
DECIMALS	FRACTIONS	APPROVAL	DATE	LAMP BRD ASSY	
± .01	± 1/32	DATE	DATE		
ANGLES	± 1/2°	MATERIAL		SCALE	
DO NOT SCALE THIS DRAWING		DRAWING NO.		REV	
		CLON: 644-001-40		25965 643-623-40 F	

100-100000

1120187036

100-100000

1120187036



NO.	DESCRIPTION	DATE	APPROVED
A	ENG RELEASE	11-19-82	VG
B	ISSUE # 25-422 TS 03-33, J2-5	11-19-82	VG
C	ECN# 3:60	11-19-82	VG

SI APERTURE CARD

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- NOTES: UNLESS OTHERWISE SPECIFIED,
 1. C101-C103 ARE 10uF/35V (TANT).
 2. CR101 & CR102 ARE 1N4004.

9304290244-39

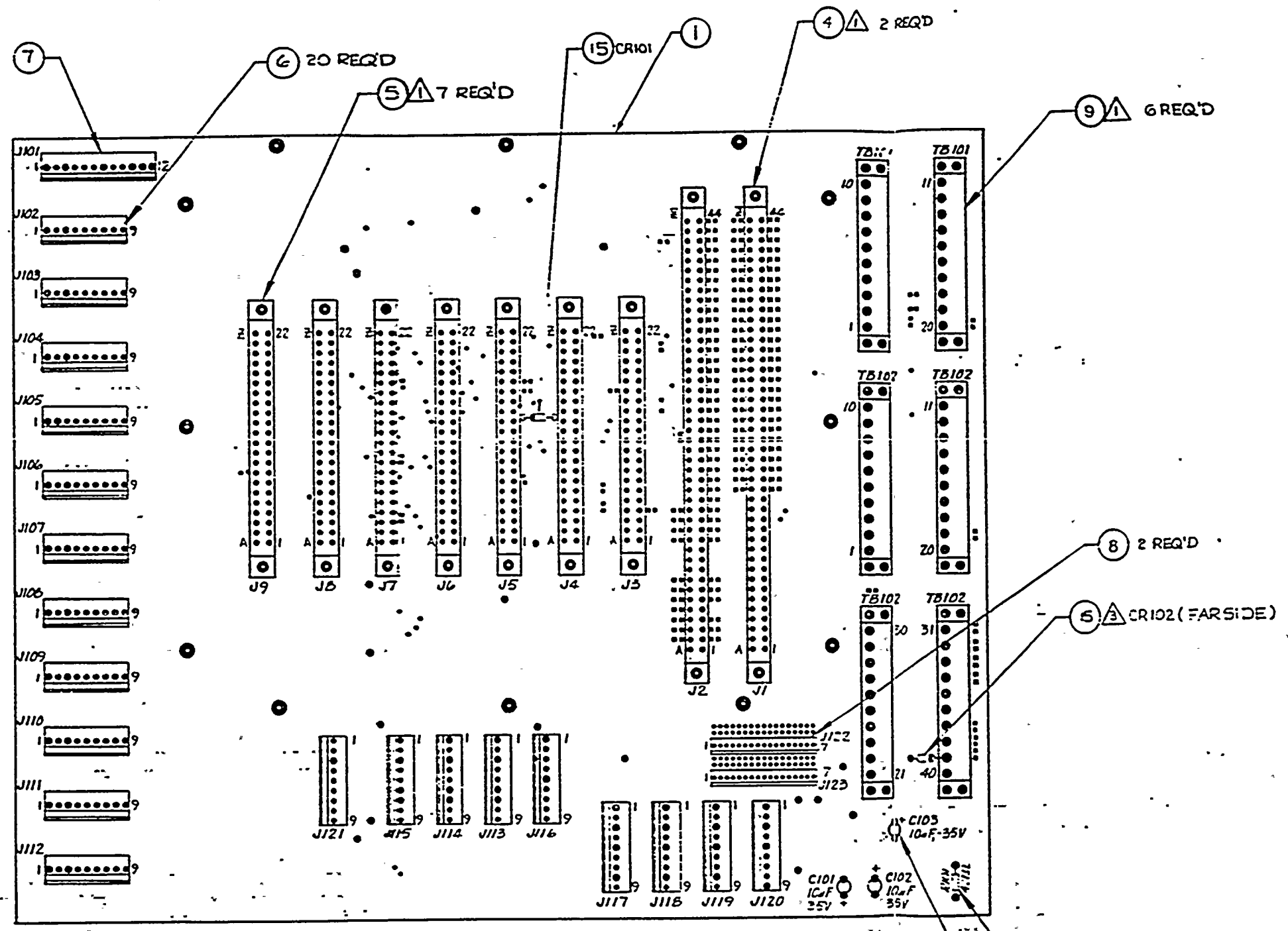
NUCLEAR SAFETY RELATED

BACK PLANE SCHEMATIC UPS 253-1-106	
SIZE: D 25965	DRAWING NO: 6490024
SCALE: NONE	12-LET 1.05/1

9301361271

RECEIVED
FEB 10 1964

REVISIONS			
ZONE	DESCRIPTION	DATE	APPROVED
	See Sheet 1		



SI
APERTURE
CARD

Also Available On
Aperture Card

9304290244-40

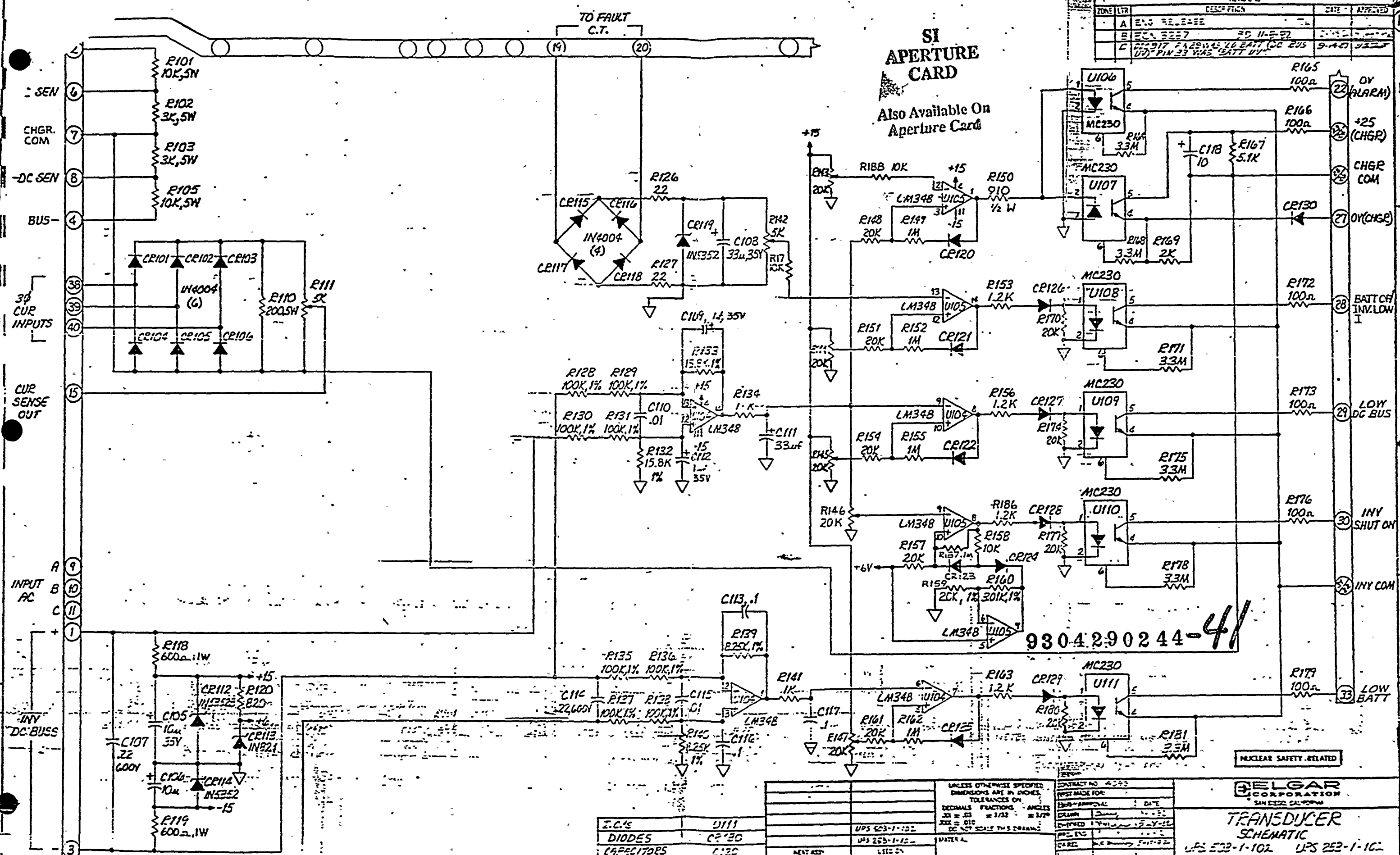
NUCLEAR SAFETY RELATED

NOTES: UNLESS OTHERWISE SPECIFIED
 1 USE #4 FIBER WASHER FOR MTS. J1-J6 AND TB101-TB102 (FARSIDE)
 2 CONFORMAL COAT PER ELGAR SPECIFICATION IC05029.
 3 MOUNT CR102 FARSIDE AS SHOWN

+25V — SOLDER TO TB102-39

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON		CONTRACT NO.		ELGAR	
DECIMALS	FRACTIONS	ANGLES	APPROVAL	DATE	PC ASSY- BACKPLANE
XX ± 0.1	XX ± 0.01	XX ± 0.1°			
XXX ± 0.01					SIZE CODE IDENT NO DRAWING NO
DO NOT SCALE THIS DRAWING	MATERIAL:				D 25965 5490015
					REV C
					SCALE

ZONE LTR	DESCRIPTION	DATE	APPROVED
A	ENG RELEASE		
B	ECA 2227	20 11-5-92	
C	REPAIR PAGES 10 BATT (DC BUS	9-1-02	
	U7 PIN 23 WAS "BATT U"		



SI APERTURE CARD
Also Available On Aperture Card

9304290244-41

ALL RESISTORS ARE .25W, 5% CARBON
ALL DIODES ARE IN914.
NOTES: UNLESS OTHERWISE SPECIFIED.

I.C.'S	U111
DIODES	CR120
CAPACITORS	C120
RESISTORS	R127
REF. DESIG.	LAST USED
REFERENCE DESIGNATORS	

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ON:	
DECIMALS	FRACTIONS
XX ± .01	± 1/32
XXX ± .010	± 1/32
DO NOT SCALE THIS DRAWING	
DATE	REV
DESIGNED BY	APP'D BY
CHECKED BY	DATE

CONTRACT NO. 4093		FIRST MADE FOR	
DATE	DATE	DATE	DATE
BELGAR CORPORATION			
SAN DIEGO, CALIFORNIA			
TRANSDUCER SCHEMATIC			
UPS 253-1-102		UPS 253-1-102	
SIZE	CODE IDENT. NO.	DRAWING NO.	REV.
D	25965	6490016	C
SCALE: AS SHOWN			

NUCLEAR SAFETY RELATED

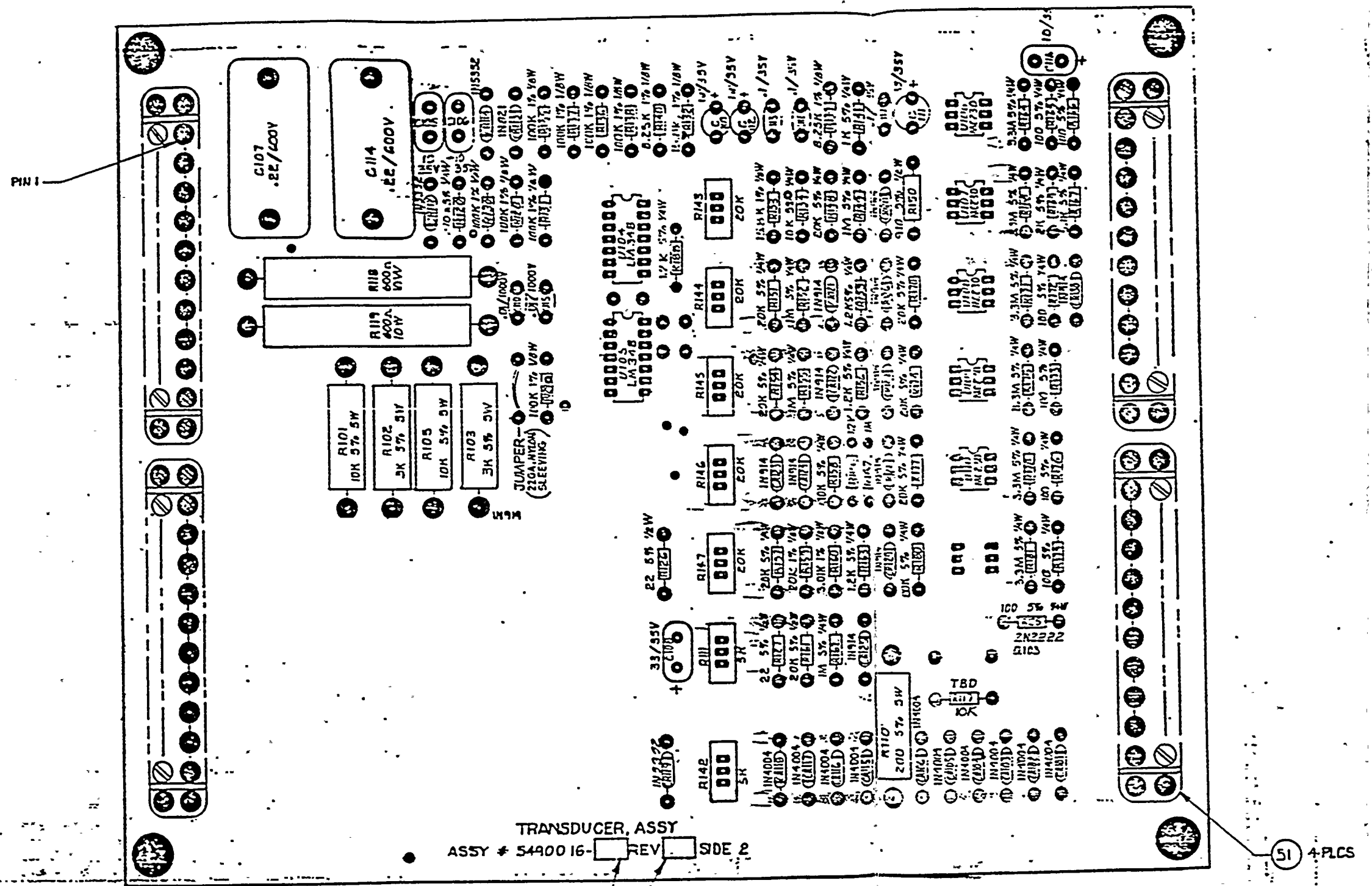
1954

ALBERTA

1954

ALBERTA

REV'S	DATE	AUTH
1	SEE S-7 I (A SIZE)	



SI
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9304290244-42

DI ASSY, CONFORMAL COAT

MARGINAL QUALITY ORIGINAL

- ALL CAPACITORS ARE IN MICROFARADS (μf).
- ALL RESISTORS ARE IN OHMS (Ω).
- CONFORMAL COAT PER ELGAR SPEC 105029, (-DI ASSY, ONLY).
- IDENTIFY WITH P/N & REV LTR.
- FOR SCHEMATIC, SEE DWG 6340400.
- NOTES: UNLESS OTHERWISE SPECIFIED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:		CONTRACT NO. 54400	
DECIMALS	FRACTIONS	APPROVAL	DATE
±.01	± 1/32	CHRYN JR	3-15-52
±.005	± 1/64	CHECKED	
±.002	± 1/128	DESIGNED	3-15-52
DO NOT SCALE THIS DRAWING	MATERIAL	DRAWN	3-15-52
		DATE	3-15-52
REV ASSY	LEAD IN	SIZE	CODE IDENT
		D	25965
		FORM NO.	5490016
		SCALE	2 X
		REV	C

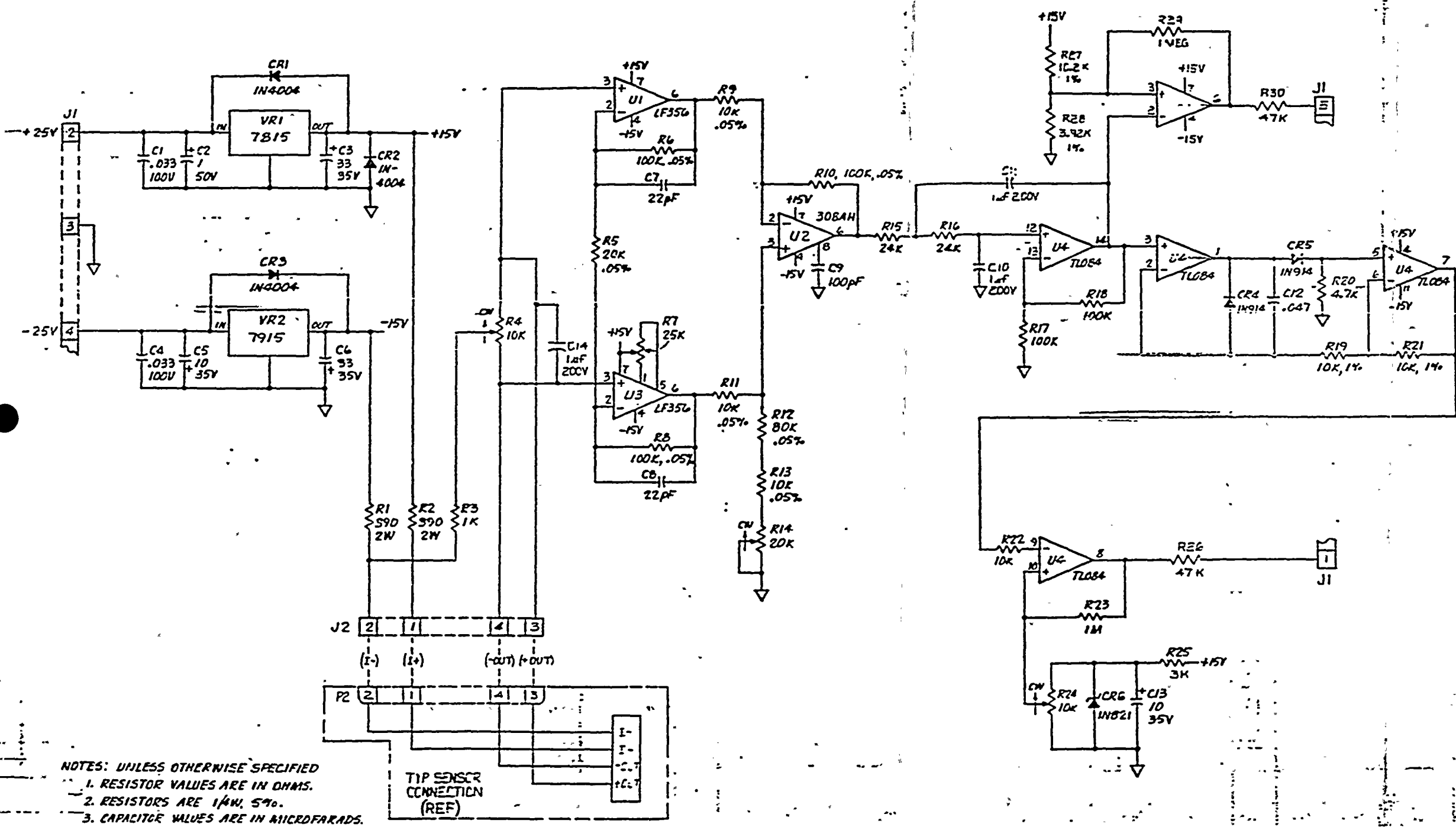
NUCLEAR SAFETY RELATED

ELGAR
ASSY, TRANSDUCER

5490016

ASSOCIATION

ZONE	DATE	APPROVED
A	9-3-50	
Z1	2-8-53	



NOTES: UNLESS OTHERWISE SPECIFIED
 1. RESISTOR VALUES ARE IN OHMS.
 2. RESISTORS ARE 1/4W, 5%.
 3. CAPACITOR VALUES ARE IN MICROFARADS.
 4. LAST USED REFERENCE DESIGNATOR.
 C14, CR6, J2, G1, R30, U4 & VR2.

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9304290244-43

SCHEMATIC -	
- FC-7 TRANSDUCER	
REV D	25965
DATE	6430008
SCALE	1:1

6430008

100-100000-100000

100-100000-100000

100-100000-100000

100-100000-100000

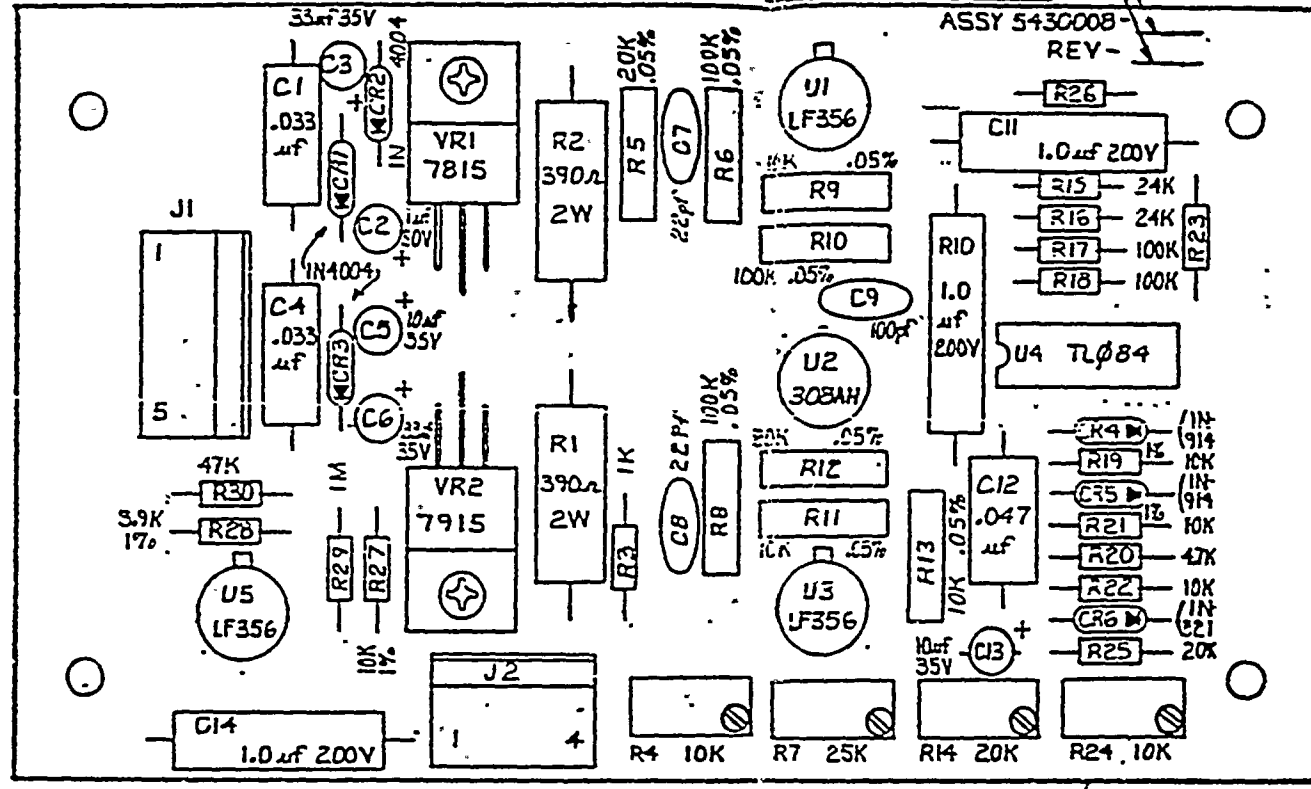
4

3

2

ZONE LTR		REVISIONS	DESCRIPTION	DATE	APPROVED
			SEE SHT 1 (A SIZE)		

IDENTIFY ASSY DASH NO.
& REVISION.




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-01 ASSY SHOWN

9304290244-44

2. RESISTORS ARE IN OHMS, 5% & 1/4W.
1; FOR SCHEMATIC SEE DWG 643000B.
NOTES: UNLESS OTHERWISE SPECIFIED.

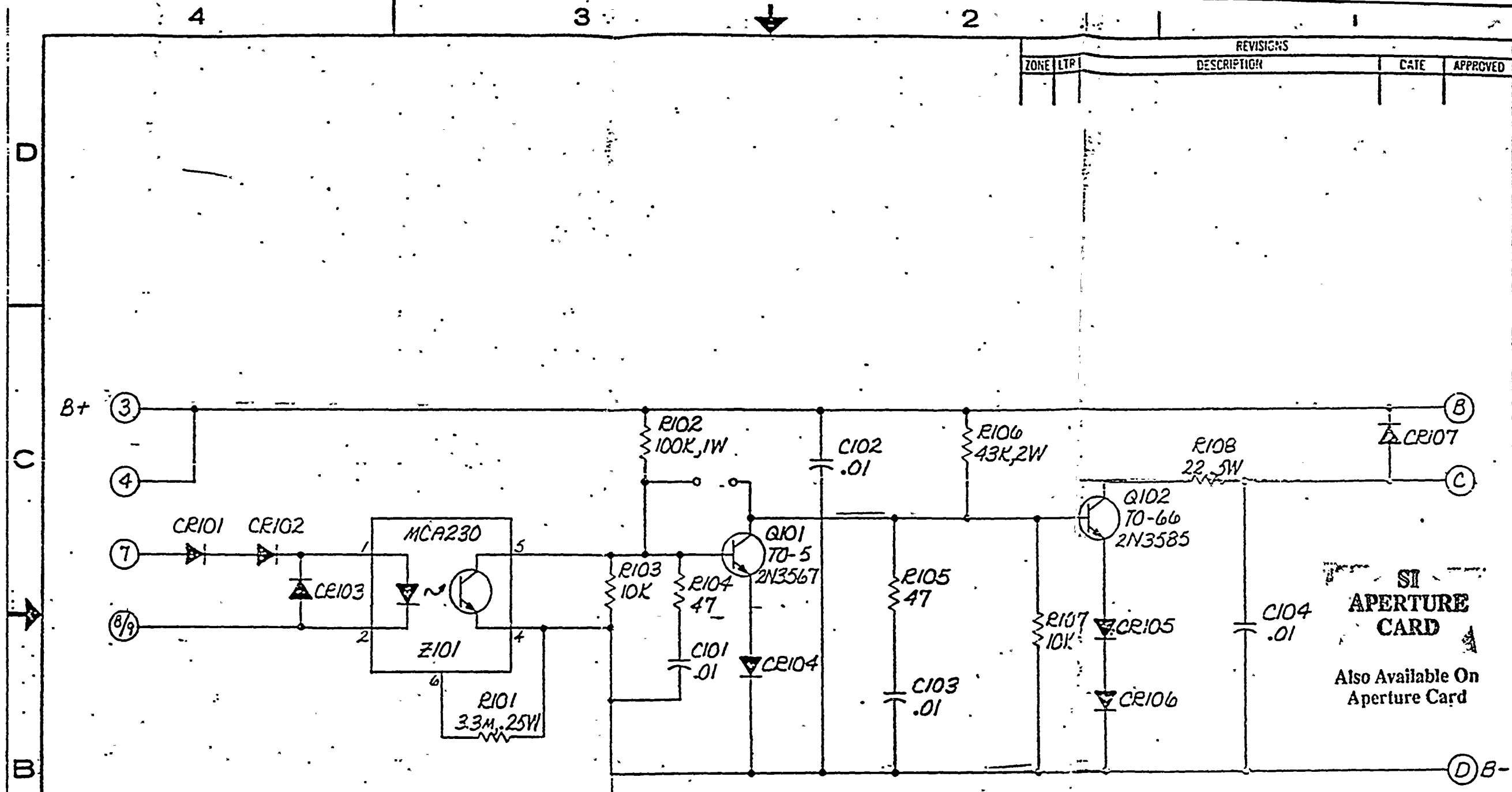
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON		CONTRACT NO.		 an Omron power systems company	
DECIMALS FRACTIONS ANGLES .XX = .03 = 1/32 = 1/2° .XXX = .010 DO NOT SCALE THIS DRAWING		FIRST MADE FOR:			
MATERIAL:		APPROVAL	DATE	ASSY, PCB, CURRENT TRANSDUCER	
NEXT ASSY.		DRAWN	J. REEVES 2-8-83		
USED ON		CHECKED	2-8-83	SIZE CODE IDENT. NO. DRAWING NO. REV C 25965 5430008 C	
APPLICATION		PROJ ENG	2-8-83		
FINISH:		QA-REL		SCALE 2:1 SHEET 4 OF 4	

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PROPRIETARY, DESIGN, OR SALE, MANUFACTURING AND
REPRODUCTION RIGHTS THEREIN.

5430008

00015501

1955



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

9304290244-45

FOR PARTS LIST SEE PL

4. ALL CAPACITORS ARE IN MICRO-FARADS.
 3. ALL RESISTORS ARE IN OHMS (Ω).
 2. ALL RESISTORS ARE .25W, 5% CARBON.
 1. ALL DIODES ARE IN4004.
- NOTES: UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES -	CONTRACT NO. FIRST MADE FOR 510 3452
DECIMALS FRACTIONS ANGLES XX = .03 = 1/32 = 1/2° XXX = .010 DO NOT SCALE THIS DRAWING	APPROVAL DATE DRAWN HI DINH 12-12-79 CHECKED R. GORDON 12-13-79 PRGJ ENG 12-13-79 QA REL
MATERIAL NEXT ASSY UPS 453-3-108 USED CN	FINISH:
APPLICATION	SIZE CODE IDENT. NO DRAWING NO C 25965 633-270-60
THE INFORMATION DISCLOSED HEREIN WAS OBTAINED BY AND IS THE PROPERTY OF ELGAR CORPORATION AND EXCEPT FOR RIGHTS EXPRESSLY GRANTED TO THE UNITED STATES GOVERNMENT, ELGAR CORPORATION RESERVES ALL PATENT, PROPRIETARY, DESIGN, USE, SALE, MANUFACTURING AND REPRODUCTION RIGHTS THEREIN	SCALE NONE SHEET 1 OF 1

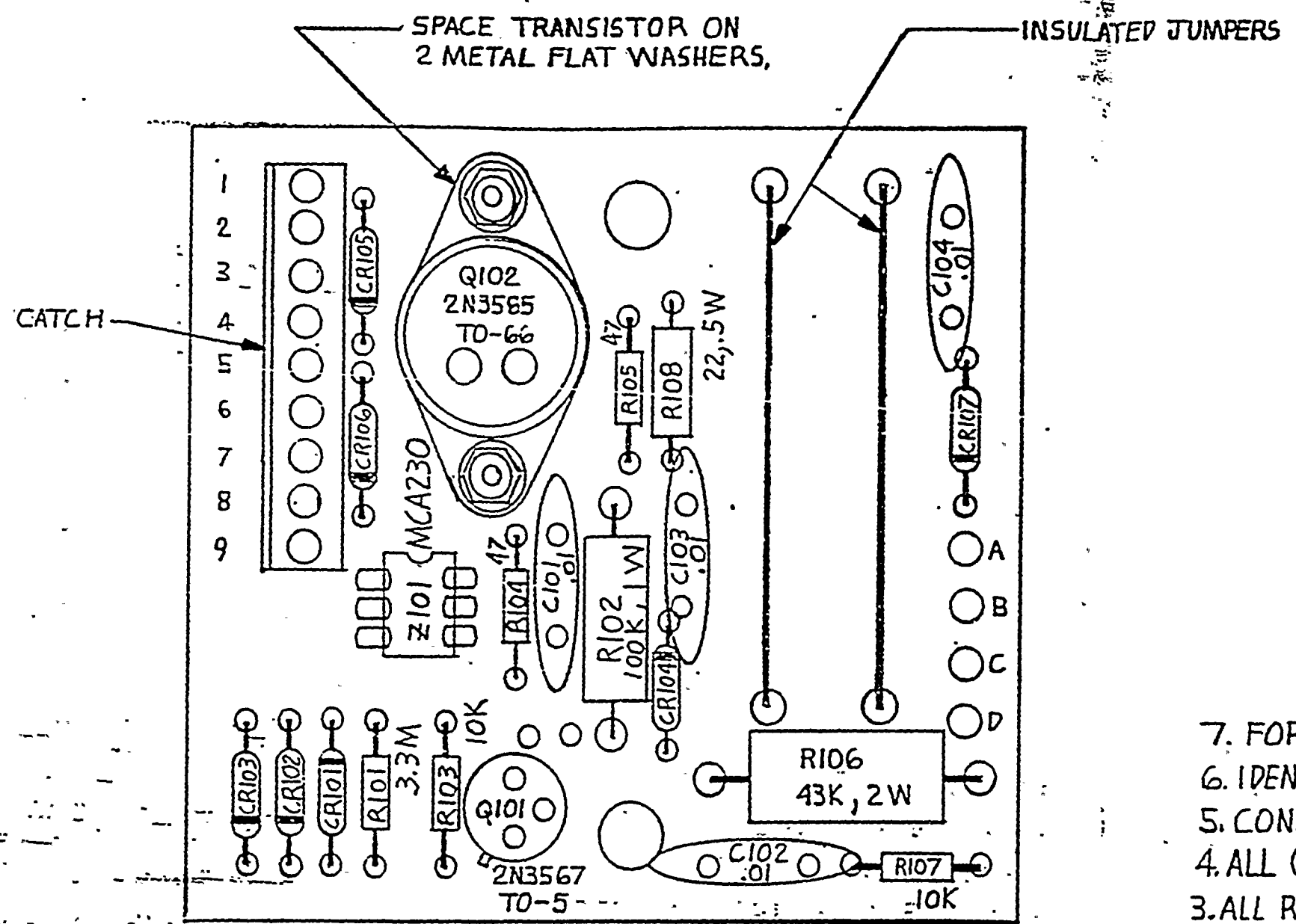
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES -	CONTRACT NO. FIRST MADE FOR 510 3452
DECIMALS FRACTIONS ANGLES XX = .03 = 1/32 = 1/2° XXX = .010 DO NOT SCALE THIS DRAWING	APPROVAL DATE DRAWN HI DINH 12-12-79 CHECKED R. GORDON 12-13-79 PRGJ ENG 12-13-79 QA REL
MATERIAL NEXT ASSY UPS 453-3-108 USED CN	FINISH:
APPLICATION	SIZE CODE IDENT. NO DRAWING NO C 25965 633-270-60
THE INFORMATION DISCLOSED HEREIN WAS OBTAINED BY AND IS THE PROPERTY OF ELGAR CORPORATION AND EXCEPT FOR RIGHTS EXPRESSLY GRANTED TO THE UNITED STATES GOVERNMENT, ELGAR CORPORATION RESERVES ALL PATENT, PROPRIETARY, DESIGN, USE, SALE, MANUFACTURING AND REPRODUCTION RIGHTS THEREIN	SCALE NONE SHEET 1 OF 1

ELGAR CORPORATION SAN DIEGO, CALIFORNIA		
RELAY DRIVE BOARD SCHEMATIC		
SIZE	CODE IDENT. NO	DRAWING NO
C	25965	633-270-60
SCALE NONE		SHEET 1 OF 1

930752087

SECRET
NO FORN DISSEM
EXCLUDED FROM AUTOMATIC
DOWNGRADING AND
DECLASSIFICATION

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
A	ECN # 2795	DP 5-5-82	MJR.
-	REDRAWN-NO CHNG. R.W.B.	3-28-83	<i>Adcott</i>




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CARD
Also Available On
Aperture Card

- 7. FOR SCHEMATIC SEE DWG. # 633-270-60.
 - 6. IDENTIFY APPLICABLE DASH NO & REV.
 - 5. CONFORMAL COAT PER ELGAR SPEC # 1005029
 - 4. ALL CAPACITORS ARE IN MICRO-FARADS (μF).
 - 3. ALL RESISTORS ARE IN OHMS (Ω).
 - 2. ALL RESISTORS ARE .25W, 5%.
 - 1. ALL DIODES ARE IN4004.
- NOTES: UNLESS OTHERWISE SPECIFIED.

9304290244-46

NUCLEAR SAFETY RELATED

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS FRACTIONS ANGLES XX = .03 = 1/32 = 1/2° XXX = .010		CONTRACT NO. FIRST MADE FOR: 5012452 APPROVAL: DATE		 an Onon power systems company	
NEXT ASSY.		DRAWN: 7/11/83			
USED ON		CHECKED		RELAY DRIVE BD. ASSY.	
APPLICATION		PROJ ENG R. FISU QA-REL M. MURPHY			
DO NOT SCALE THIS DRAWING		MATERIAL:		SIZE	CODE IDENT. NO.
FINISH:		DRAWING NO.		B	25965
THE INFORMATION DISCLOSED HEREIN WAS ORIGINATED BY AND IS THE PROPERTY OF ELGAR CORPORATION, AND EXCEPT FOR RIGHTS EXPRESSLY GRANTED TO THE UNITED STATES GOVERNMENT, ELGAR CORPORATION RESERVES ALL PATENT, PROPRIETARY, DESIGN, USE, SALE, MANUFACTURING, AND OTHER RIGHTS.		DRAWING NO.		633-270-40	REV
		DRAWING NO.		A	
		SCALE 2:1		SHEET 1 OF 1	

030780574

030780574
030780574
030780574

030780574

DATE	DESCRIPTION	BY	APP'D
7-20-60	RELEASED	JD	JD
7-21-61	REVISED	JD	JD
11-2-61	REVISED	JD	JD

SI APERTURE CARD

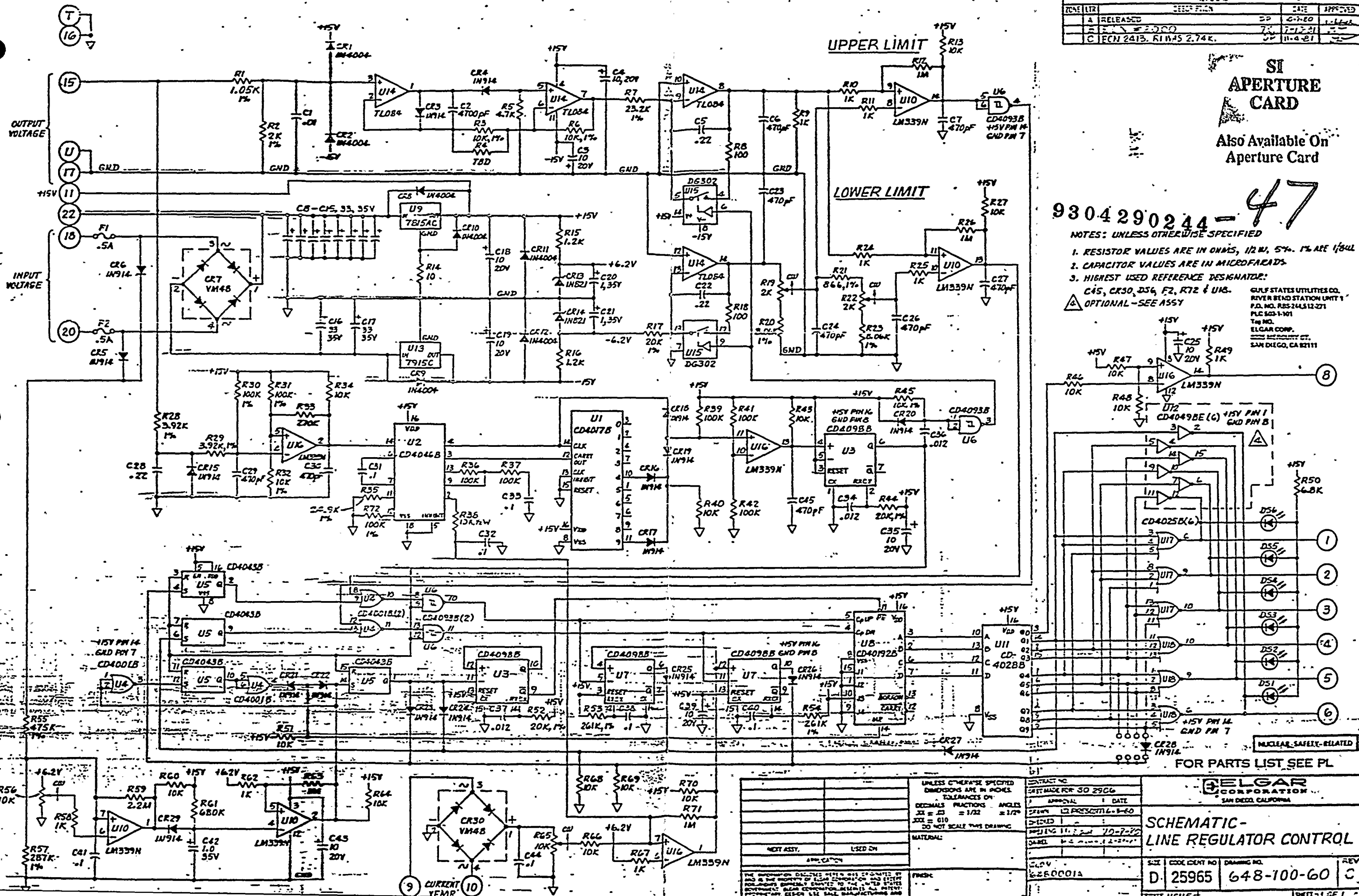
Also Available On Aperture Card

9304290244-47

- NOTES: UNLESS OTHERWISE SPECIFIED
1. RESISTOR VALUES ARE IN OHMS, 1/2 W, 5%, 1% ARE 1/8W
 2. CAPACITOR VALUES ARE IN MICROFARADS
 3. HIGHEST USED REFERENCE DESIGNATOR:

C45, CR30, DS6, F2, R72 & U8.
 △ OPTIONAL - SEE ASSY

GULF STATES UTILITIES CO.
 RIVER BEND STATION UNIT 1
 P.O. NO. R85-244,512-271
 PLC 503-1-101
 TEL. NO.
 ELGAR CORP.
 100 UNIVERSITY CT.
 SAN DIEGO, CA 92111



EXTRACTING		DATE	
DATE	DESCRIPTION	BY	APP'D
7-20-60	RELEASED	JD	JD
7-21-61	REVISED	JD	JD
11-2-61	REVISED	JD	JD

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:		DECIMALS FRACTIONS ON: ANGLES	
XXX = .010		XXX = 1/32 = 1/16"	
DO NOT SCALE THIS DRAWING			
MATERIAL:		DRAWING NO. 648-100-60	
NEXT ASSY. USED ON:		DATE 11-2-61	
APPLICATION:		REV. 2	
FRS:DC		REV. 2	

ELGAR CORPORATION		SAN DIEGO, CALIFORNIA	
SCHEMATIC - LINE REGULATOR CONTROL			
SIZE	CODE CONT NO	DRAWING NO.	REV
D	25965	648-100-60	C
DRAWING NO. 648-100-60		REV. 2	

FOR PARTS LIST SEE PL

NUCLEAR SAFETY RELATED

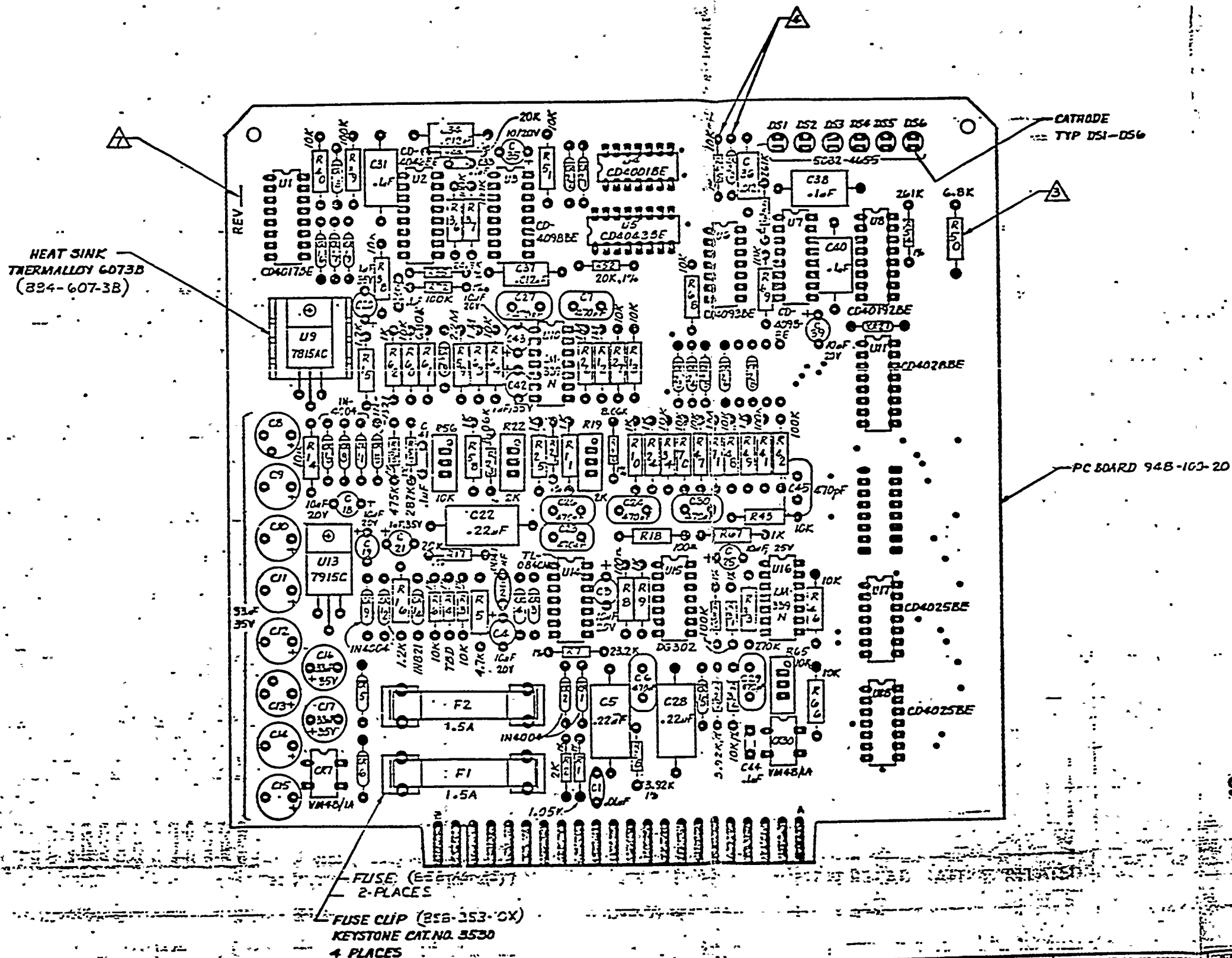
11
12

480420844

100
100

100
100

ZONE	LTR	DESCRIPTION	DATE	APPROVED
A		RELEASED	DP 10-16-60	82-UM
E		ECN # 280	5/85	2-6-61
C		ECN 2413, 2145, 2742, 2504, 2574, 2575		
D		ECN 2792		
E		ECN 2847		



SI
APERTURE
CARD

Also Available On
Aperture Card

9304290244-48

NUCLEAR SAFETY RELATED

FOR PARTS LIST SEE PL

- NOTES:
- 1. UNMARKED DIODES ARE IN914.
 - 2. FOR SCHEMATIC SEE DWG 648-100-60.
 - 3. 1/2W RESISTOR LEAD SPACINGS IS .60".
 - 4. DIODE AND 1% RESISTOR LEAD SPACING IS .50".
 - 5. CONFORMAL COAT PER ELGAR SPEC 1005029.
 - 6. CERTIFY APPLICABLE DASH NO 1/2 REV.

CONTRACT NO.		PROJECT MADE FOR		APPROVAL		DATE	
DRAWN		CHECKED		PROJECT ENG		DATE	
MATERIAL		FINISH		SCALE 2:1		REV E	
NOT ASSY		USED ON		APPLICATION		DRAWING NO. 643-100-40	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		DECIMALS FRACTIONS ANGLES		XX ± .03 ± 1/32 ± 1/2		D 25965 643-100-40	
DO NOT SCALE THIS DRAWING		MATERIAL		FINISH		SCALE 2:1	
DATE		DATE		DATE		DATE	
DATE		DATE		DATE		DATE	

ELGAR

PC ASSY -
LINE REGULATOR CONTROL

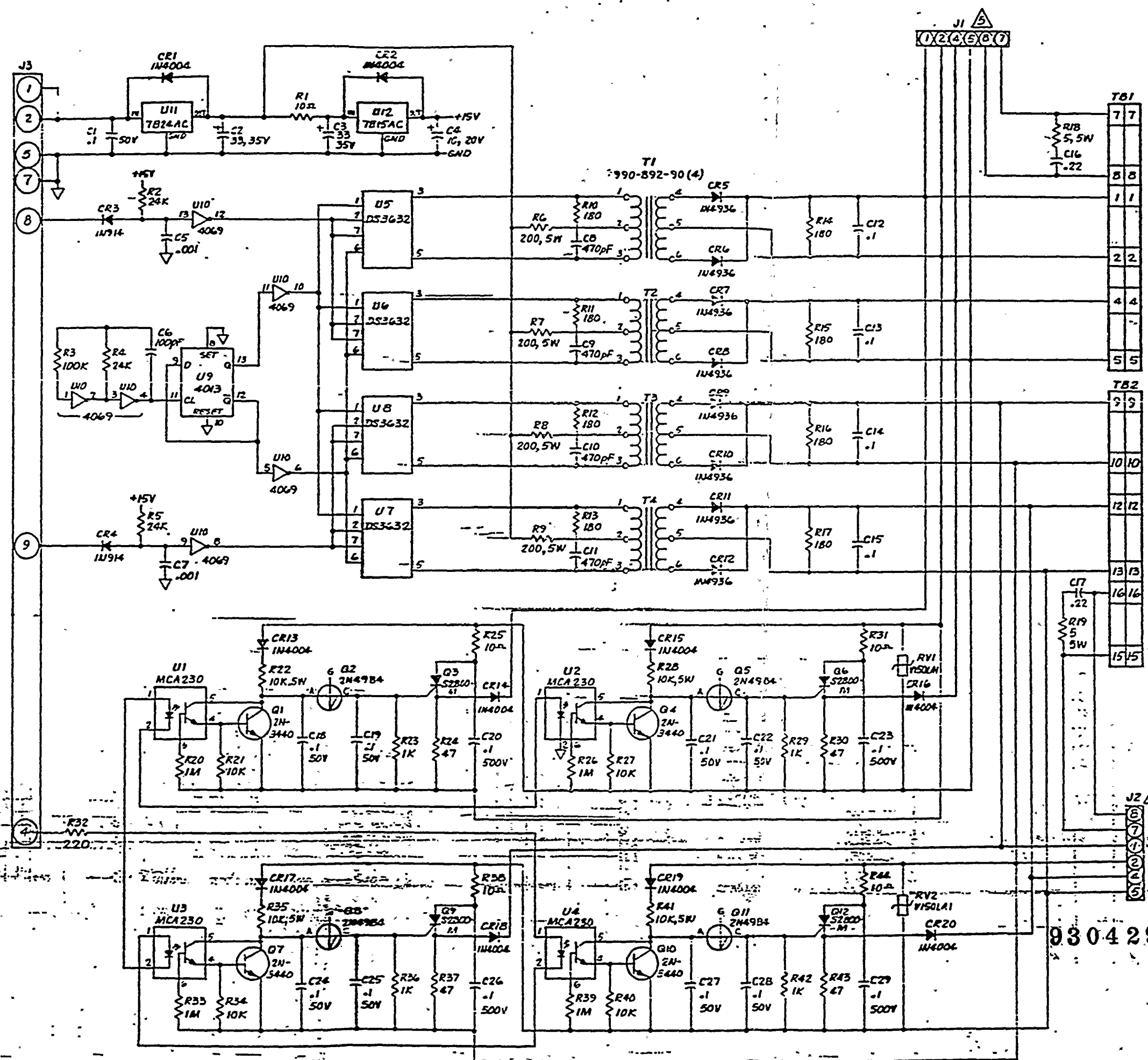
SIZE CODE IDENT. NO. DRAWING NO. REV
D 25965 643-100-40 E

1900

1900

1900

REV	DATE	APPROVED
A		
B	ECH 2413, A11C IDEL CD UN 8258/11 DP 11-4-81	



TB1	7 7
8 8	
11 11	
2 2	
4 4	
5 5	
TB2	2 2
10 10	
12 12	
13 13	
16 16	
15 15	

SI APERTURE CARD

Also Available On Aperture Card

- NOTES: UNLESS OTHERWISE SPECIFIED
 1: RESISTOR VALUES ARE IN OHMS, 1/2W
 2: CAPACITOR VALUES ARE IN MICROFARADS
 3: IC VOLTAGE & GND PINS:

IC	REF DESIG	+15V GND	UNUSED PINS
3632	U5, 6, 7, 8	B	4
4013	U9	14	7 U9-A*
4069	U10	14	7

- * UNUSED INPUT PINS GND
 † HIGHEST USED REFERENCE DESIGNATOR:
 C29, CR20, J1, Q12, R44, RV2, T4, TB2 & U12.
 ‡ OPTIONAL PC BOARD INTERCONNECTOR.

GULF STATES UTILITIES CO.
 RIVER BEND STATION UNIT 1
 P.O. NO. RES-244, 813-271
 PLS 803-1-101
 TRW
 ELGAR CORP.
 8225 MERCURY CT.
 SAN DIEGO, CA 92111

NUCLEAR SAFETY RELATED

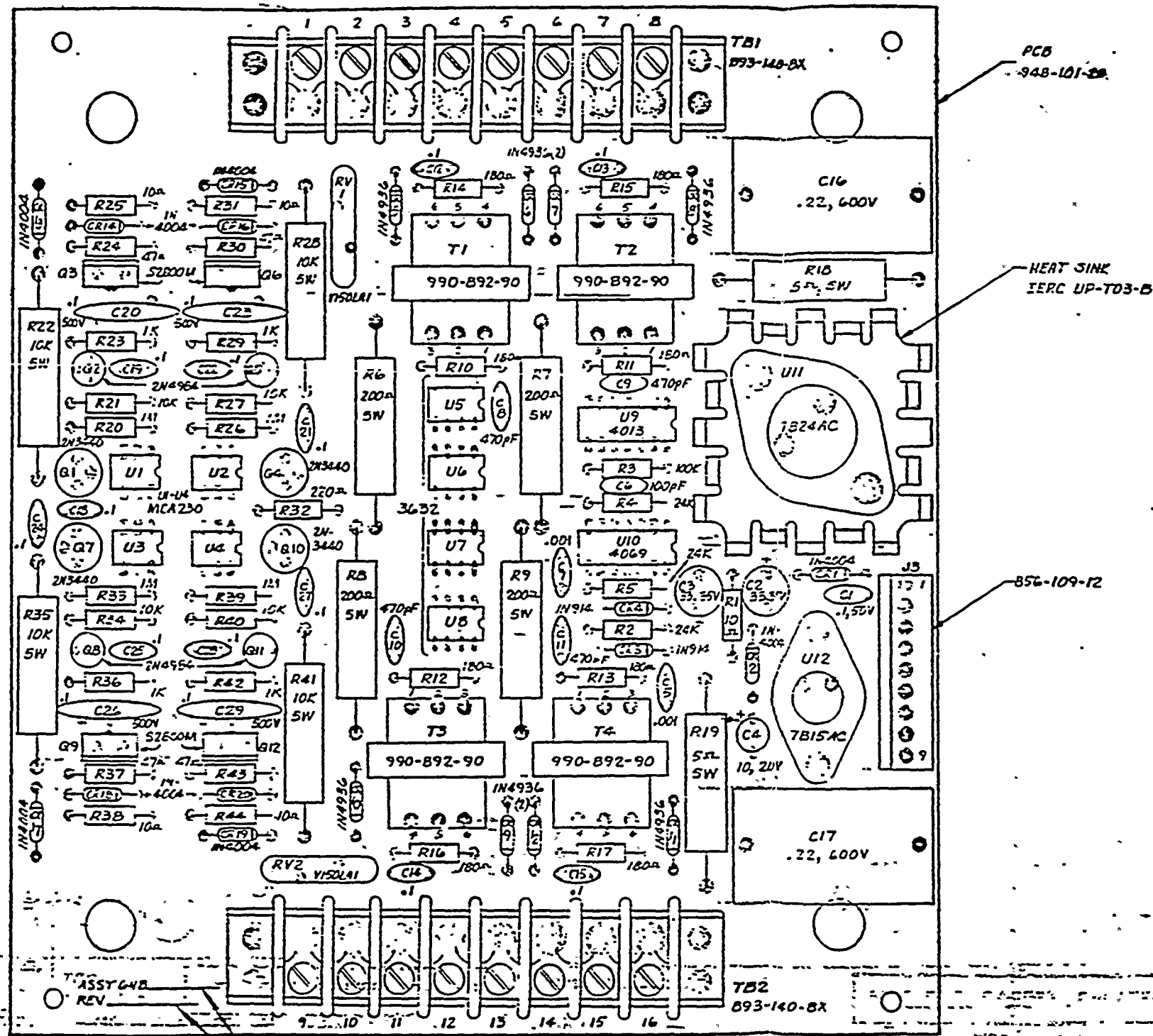
9304290244-49

ELGAR			
SCHEMATIC - LINE REGULATOR DRIVER			
SZ	DESIGN NO	DRAWING NO	REV
D	25965	64B-101-60	5
SCALE: NONE			SHEET 1 OF 1

64B-101-60

000150111

REV	DESCRIPTION	DATE	APPROVED
A	Released	1-2-82	SG
B	ECN 650	SRS 2-16-82	CEB
C	PER ECN 2428	7/11/82	2-4-82/2-11-82
D	EDN 2730	5P	
E	ECN 3256	25 11-16-82	
F	ECN 3362	RD 1-5-82	



SI APERTURE CARD
Also Available On Aperture Card

9304290244-50

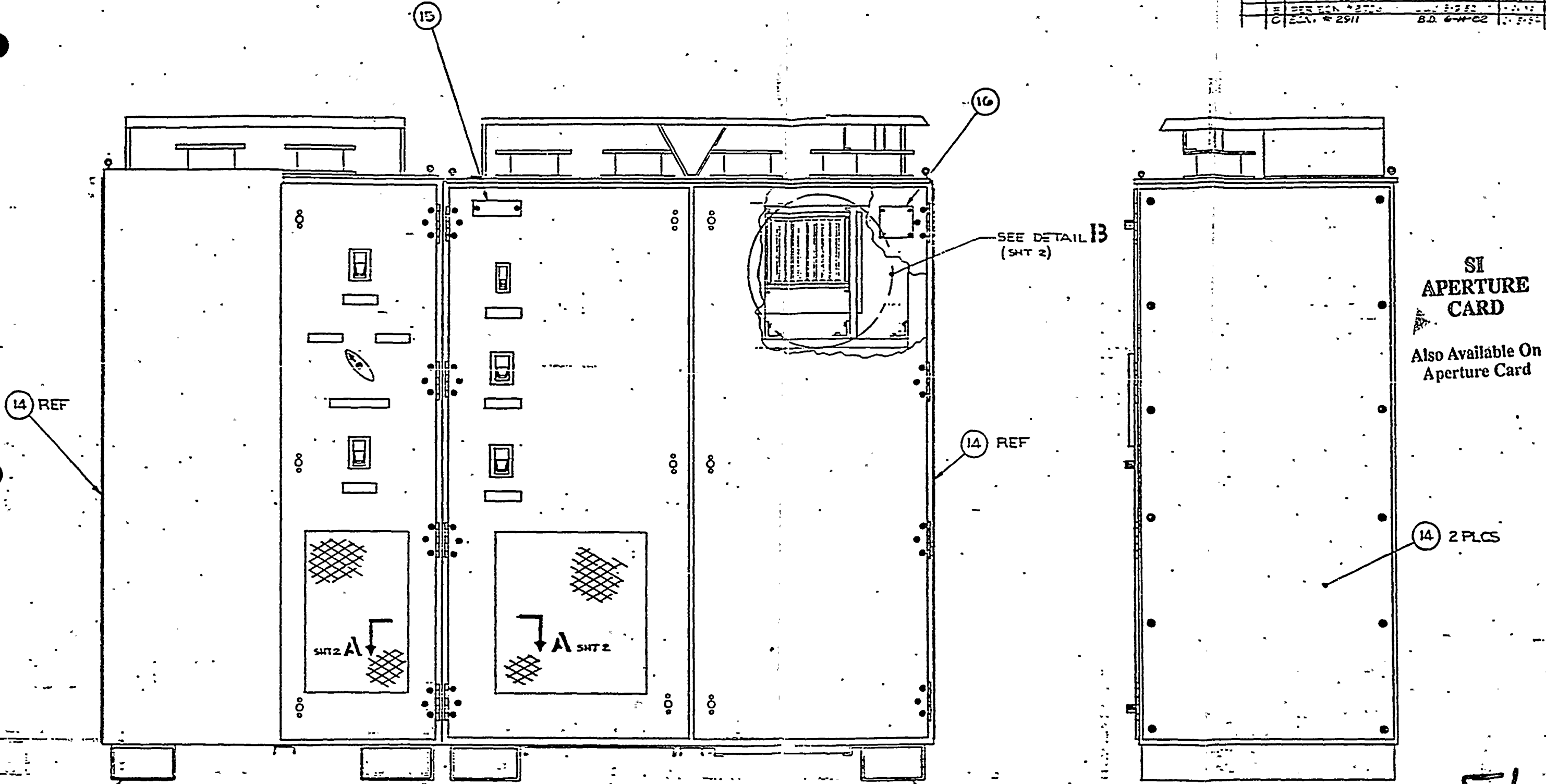
NUCLEAR SAFETY RELATED

FOR PARTS LIST SEE PL

- NOTES: UNLESS OTHERWISE SPECIFIED
- STAMP ASSY NO. & REVISION.
 - FOR SCHEMATIC SEE DWG 648-101-60.
 - CONFORMAL COAT. PER ELGAR SPEC 1005029.
 - STAND U12 & U11 HEATSINK OFF PCB WITH ONE METAL FLAT WASHER ON EACH MOUNTING SCREW.

CONTRACT NO.		FIRST MADE FOR	
APPROVAL	DATE	CHECKED	DATE
DESIGNED	DATE	PROJ. ENG.	DATE
DRG. NO.	REV.	DATE	BY
APP. CAT. ON	USED ON	MATERIAL	FINISH
SIZE	CODE	QUANT. NO.	DATE
D	25965	648-101-40	F
SCALE			SHEET 1 OF 1

ZONE	DESCRIPTION	DATE	APPROVED
A	ENG. RELEASED	2-23-61	
B	REF. EGN. 2534	3-2-62	
C	ECN. # 2911	B.D. 6-11-62	



9304290244-51

NUCLEAR SAFETY RELATED

CELGAR

TOP ASSY
UPS-253-1-106

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON	CONTRACT NO. FIRST MADE FOR 50 2595	REV	DATE
DECIMALS - FRACTIONS - ANGLES	APPROVAL	D	25965
XX ± .03 = 1/32 = 1/16"	CHECKED	543-625-40	
XXX ± .010	APP. ENG.	SCALE 1/2"	
DO NOT SCALE THIS DRAWING	DATE	PAGE 1 OF 2	
END ITEM	UPS 253-1-106	MATERIAL	
NOT ASS'Y	USED ON	FINISH	
APPLICATION		CONTRACT NO. 543-507-40	
SCALE		PAGE 1 OF 2	

1. SEE SHEET 2 FOR PARTS LIST.

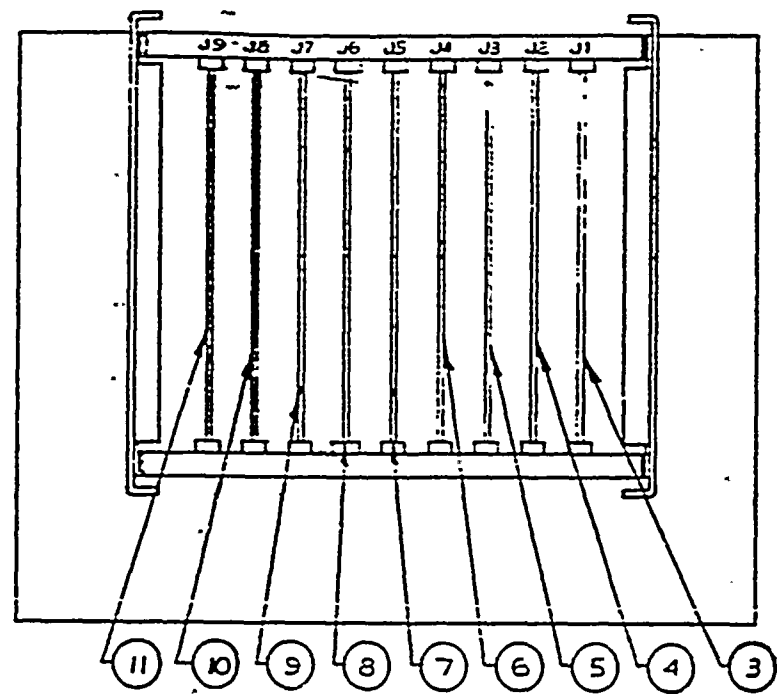
NOTES:

543-625-40 IM

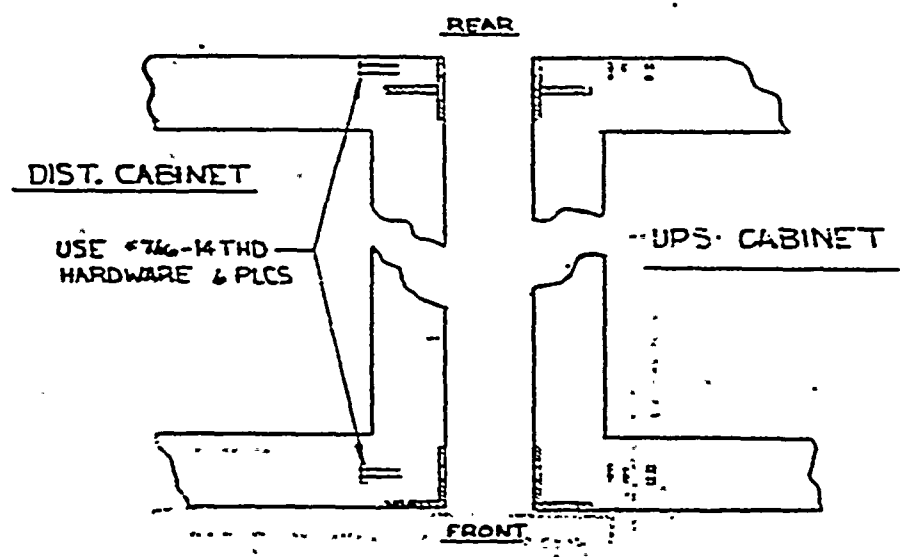
4480884088

NO SIGNATURE
REQUIRED
ON
THIS
FORM

REVISIONS			
ZONE	DATE	DESCRIPTION	APPROVED
		SEE SHEET 1	



DETAIL - B
CARD CAGE ASSY



SECTION A-A
CABINET BOLTING DETAIL
(SCALE 1/3)

SI
APERTURE
CARD

Also Available On
Aperture Card

PARTS LIST

ITEM	PART NUMBER	DESCRIPTION	QTY	REF.
1	643-623-40	DISTRIBUTION CAB. ASSY	1	D
2	643-623-40	UPS CABINET ASSY	1	A/B
3	5430003-01	CARD EXTENDER	1	J1
4	5490006-01	ALARM LOGIC ASSY	1	J2
5	5490016-01	CHGR LOGIC 'A' ASSY	1	J3
6	5490019-01	CHGR LOGIC 'D' ASSY	1	J4
7	5490002-01	S.S. LOGIC P.C.B.	1	J5
8	643-119-40	OSCILLATOR PCB ASSY	1	J6
9	5490005-01	ANALOG LOGIC ASSY	1	J7
10	5490014-01	3 BRIDGE 1/2 PWM LOGIC	1	J8
11	5490001-01	3 BRIDGE 1/2 DRIVER LOGIC	1	J9
12				
13				
14	943-416-20	SIDE PANEL - OUTSIDE CAB.	2	
15	9960029-01	LABEL CUSTOMER	1	
16	943-632-20	IDENT. PLATE - ELGAR	1	

9304290244-52

NUCLEAR SAFETY RELATED

FOR PARTS LIST SEE 'PL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		CONTRACT NO.		FIRST MADE FOR: 543-6013	
TOLERANCES ON		APPROVAL		DATE	
DECIMALS	FRACTIONS	ANGLES	DATE	DATE	DATE
XX ± .03	1/32	± 1/2°			
XXX ± .010					
DO NOT SCALE THIS DRAWING		MATERIAL:		FINISH:	
NOT TEST	USED ON	APPLICATION		PART NO. 543-507-40	
MATERIAL:		FINISH:		REV	
				D 25965 543-625-40 C	

ELGAR

TOP ASSY
UPS-253--106

REV D 25965 543-625-40 C

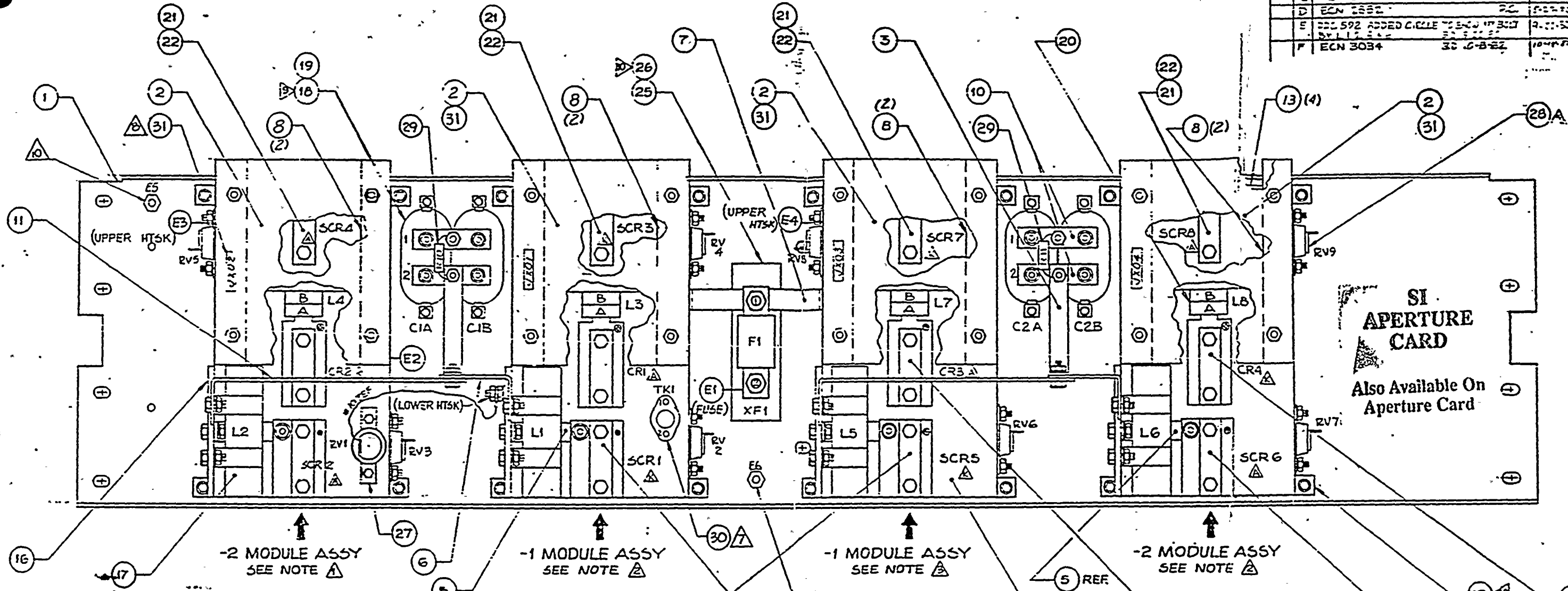
543-625-40 III

1880-1881

1880-1881

1880-1881

REV	DESCRIPTION	DATE	APPROVED
A	ENG. RELEASED 2/25/81	2-25-81	
B	ECN 2484	2-25-81	
C	PER ECN 2621	2-25-81	
D	ECN 2552	2-25-81	
E	ADD 592 ADDED CIRCLE TO END OF BOARD	2-25-81	
F	ECN 3034	10-4-82	



PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	943-291-21	INVERTER PANEL	1
2	549C009-03	DRIVE BD ASSY	4
3	943-238-2X	BUSS BAR, 2 HOLES	2
4	943-219-2X	BUSS BAR, SCR-HSK	2
5	943-224-2X	BUSS BAR, COMM-SCR	2
6	943-225-2X	BUSS BAR, COMM-COMM	2
7	943-252-2X	BUSS BAR, HSK-FUSE	2
8	9980043-01	DRIVE SD. MTC. BRKT	8
9	943-249-2X	BUSS BAR, SCR-COMM	4
10	943-250-2X	BUSS BAR, 3 HOLES	4
11	943-251-2X	BUSS BAR, COMM COMM.	2
12	932-216-2X	INSULATOR	8
13	943-220-2X	HEATSINK, 4 UPPER	4
14	943-221-2X	HEATSINK, 12 LOWER	4
15	943-222-2X	SPACER, SCR CLAMP	8
16	943-223-2X	INSULATOR, COMM REACT	4
17	990-646-9X	COMM. CHECK	4
18	896-214-GE	CAPACITOR BRACKET	4
19	627-306-66	CAPACITOR 30M 1500V	4
20	850-525-T5	CORE	6
21	646-SCR-MB	SCR CLAMP	12
22	646-594-15	SCR	4
23	646-C38-5E	SCR	4
24	646-A39-7E	DIODE	4
25	655-360-50	FUSE	1
26	658-P26-6C	FUSE HOLDER	1
27	600-V32-20	VARIATOR RV1 (130V)	1
28	800-V32-0P	VARIATOR RV2-9 (320V)	1
29	600-V32-0P	RESISTOR 600K 1W	2

- ⑩ GLASSIC STANDOFF P/N 109-216-51 (FOR EASE OF WIRING).
- 9. ▲ ANODE UP, ▲ CATHODE UP.
- ⑧ ASSIGN PANEL NO FOR 'Y'. EXAMPLE: J202 (FOR #2 PANEL) MOUNT PCB WITH MOLEX CONN. TOWARD LEFT.
- ⑦ A2 PANEL ONLY
- 6. PANEL HARDWARE SHALL BE THREAD ROLLING SCREWS AS INDICATED: ⑥ 6-32, ⑩ 10-32
- ⑤ ITEM 28 - SEE ALTERED ITEM DRAWING (943-542-20) FOR MODIFICATION.
- ITEM 27 - SEE ALTERED ITEM DRAWING (943-782-20) FOR MODIFICATION.
- 4. SEE DWG 643-523-6X FOR SCHEMATIC REFERENCE.
- ▲ SEE DWG 643-552-4X FOR MODULE ASSY REFERENCE.
- ▲ SEE DWG. 643-551-40 FOR MODULE ASSY REFERENCE.
- ▲ SEE DWG. 643-550-40 FOR MODULE ASSY REFERENCE.

NOTES: UNLESS OTHERWISE SPECIFIED.

9304290244-53

NUCLEAR SAFETY RELATED

FOR PARTS LIST SEE PL

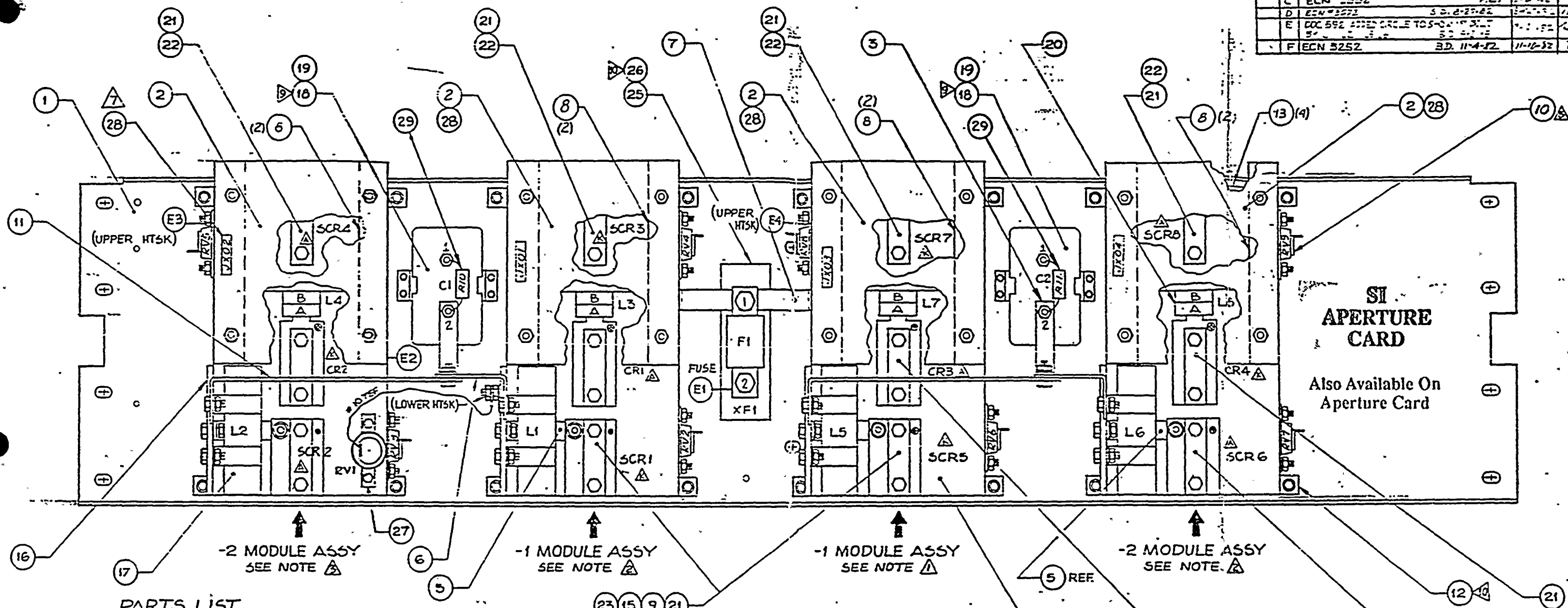
UPS 253-1-107	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON	DATE: 2-25-81	REV: 1
UPS 253-1-108	DECIMALS FRACTIONS ANGLES	DATE: 2-25-81	REV: 1
UPS 253-1-105	±.01 ±.005 ±.002	DATE: 2-25-81	REV: 1
UPS 253-1-102	±.01 ±.005 ±.002	DATE: 2-25-81	REV: 1
UPS 253-1-104	±.01 ±.005 ±.002	DATE: 2-25-81	REV: 1
UPS 503-1-102	±.01 ±.005 ±.002	DATE: 2-25-81	REV: 1
SEE PARTS LIST			
CLON 643-291-40			
Ax			
D 25965	643-523-40		
REV: 1			

GELGAR CORPORATION
INVERTER PANEL ASSY (12 KVA)

1951-1952

1951-1952

REV	DESCRIPTION	DATE	APPROVED
A	ENG RELEASED	2-25-81	
B	PER ECN # 2621	11-14-82	
C	ECN # 2632	P.C.	
D	ECN # 2672	S.D. 8-27-82	
E	DOC 592 ADDED CIRCLE TO S-C		
F	ECN 3252	S.D. 11-4-82	



PARTS LIST

ITEM	PART NO	DESCRIPTION	QTY
1	943-291-21	INVERTER PANEL	1
2	5490009-03	DRIVE ED ASSY	4
3	943-246-2X	BUSS BAR, 2 HOLES	2
4	943-219-2X	BUSS BAR, SCR-HSK	4
5	943-224-2X	BUSS BAR, COMM-SCR	2
6	943-225-2X	BUSS BAR, COMM-COMM	2
7	943-252-2X	BUSS BAR, HSK-FUSE	2
8	9980043-01	DRIVE 3D, MTG. BRKT	5
9	943-249-2X	BUSS BAR, SCR-COMM.	4
10	800-Y32-0P	VARIATOR RV2-9	8
11	943-251-EX	BUSS BAR, COMM-COMM	2
12	932-218-2X	INSULATOR	2
13	943-220-2X	HEATSINK, 4" UPPER	4
14	943-221-2X	HEATSINK, 12" LOWER	4
15	943-222-2X	SPACER, SCR-CLAMP	6
16	943-223-2X	INSULATOR COMM REACT	4
17	990-846-9X	COMM. CHCKE	4
18	896-218-GE	CAPACITOR BRACKET	4
19	827-406-66	CAPACITOR	2
20	850-528-T5	CORE	6
21	846-SCR-MB	SCR CLAMP	12
22	846-884-15	SCR	4
23	846-C35-5E	SCR	4
24	845-A39-7E	DIODE	4
25	855-A50-P2	FUSE	1
26	858-P24-3E	FUSE HOLDER	1
27	800-150-20	VARIATOR (RVI)	1
28	856-309-11	9 PIN MOLEX	4
29	803-204-C5	RESISTOR, 200K, 1W	2

- 8. Δ ANODE UP, Δ CATHODE UP
- Δ ASSIGN PANEL No. FOR 'X'. EXAMPLE J402 (FOR A4 PANEL). MOUNT PCB'S WITH MOLEX TOWARD LEFT.
- 6. PANEL HARDWARE SHALL BE THREAD ROLLING SCREWS AS INDICATED: Δ 6-32, Δ 10-32
- Δ ITEM 10--SEE ALTERED ITEM DRAWING (943-542-20) FOR MODIFICATION.
- ITEM 21--SEE ALTERED ITEM DVG (943-282-20) FOR MODIFICATION.
- 4. SEE DWG 643-523-60 FOR SCHEMATIC REFERENCE.
- Δ SEE DWG 243-550-40 FOR MODULE ASSY REFERENCE.
- Δ SEE DWG 643-551-40 FOR MODULE ASSY REFERENCE.
- Δ SEE DRAWING 643-552-40 FOR MODULE ASSY REFERENCE.

NOTES: UNLESS OTHERWISE SPECIFIED.

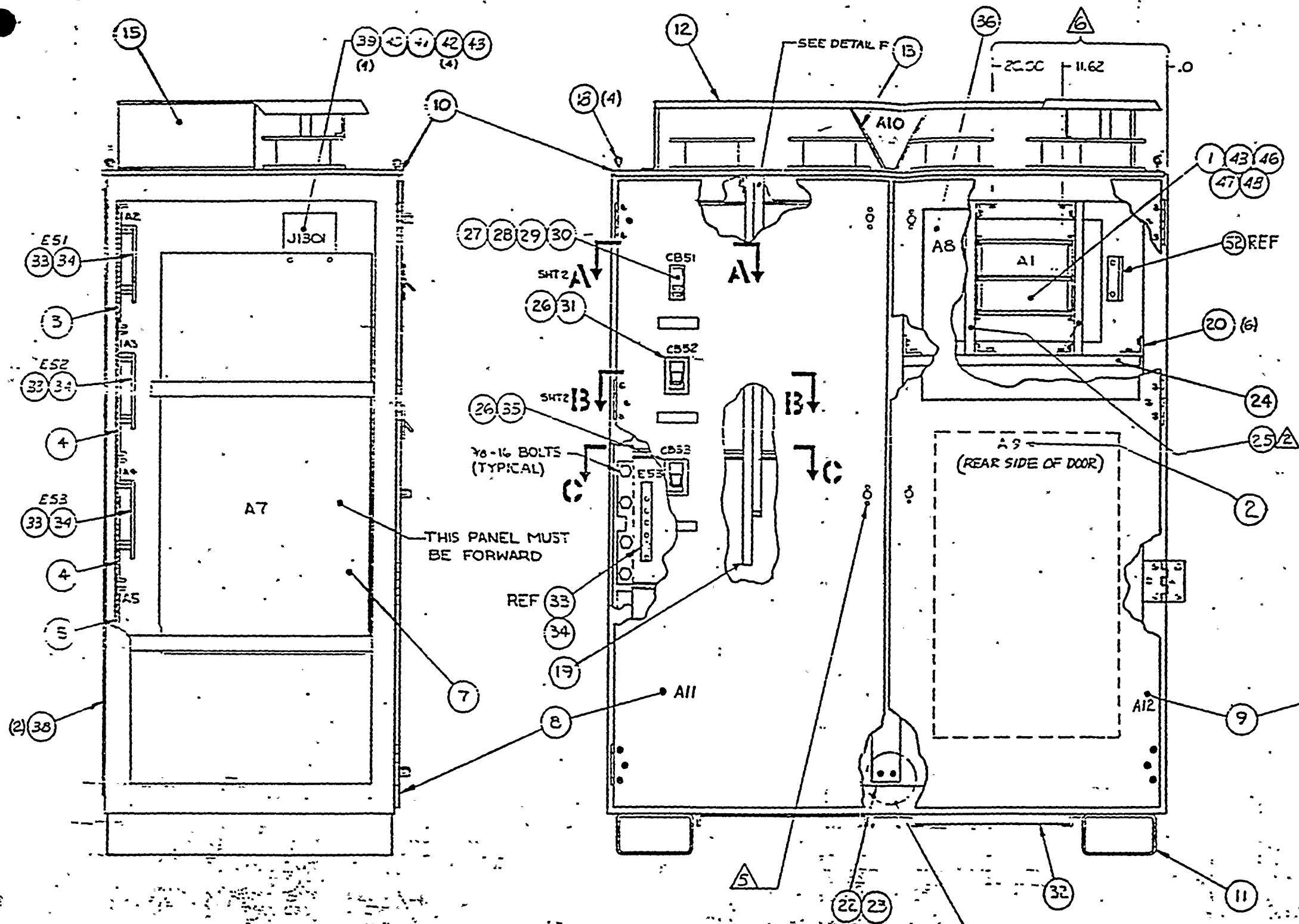
9304290244-54

FOR PARTS LIST SEE PL

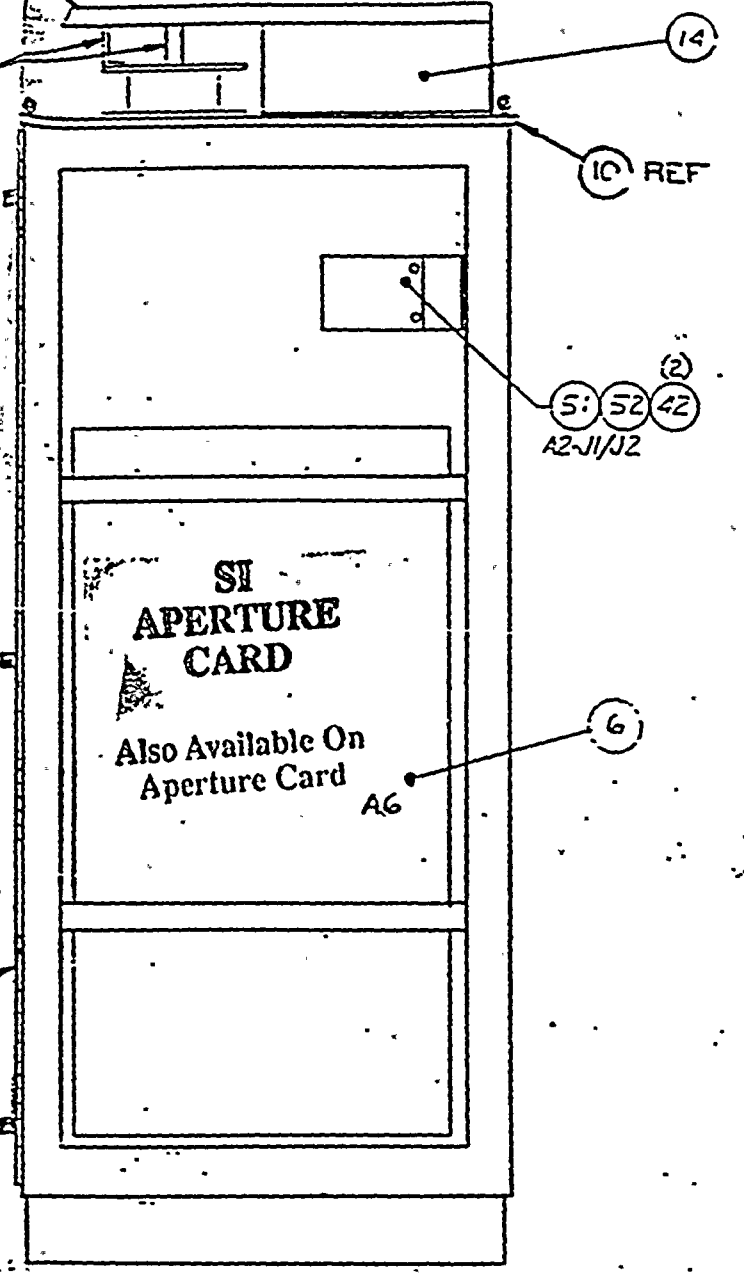
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES UNLESS OTHERWISE SPECIFIED	CONTRACT NO. 510 4529	
DECIMALS FRACTIONS ANGLES 1/16" = .0625" 1/32" = .03125" 1/4" = .2500"	DATE HI DINH2-26-81	
SEE PARTS LIST	REV D 25965	<p>INVERTER PANEL ASSY (7 KVA)</p> <p>GLDN 643-291-40</p>
	REV F	<p>643-524-40</p> <p>SCALE 1/2" = 1"</p>

19860807

19860807



REV	DESCRIPTION	DATE	APPROVED
A	ENG RELEASED		
B	PER ECN 2725	6-11-82	
C	ECN 2911	6-11-82	
D	ECN 2992	7-23-82	
E	ECN 3191	10-23-82	



REV	DESCRIPTION	DATE	APPROVED
F	ECN 3350	1-22-83	

9304290244-55

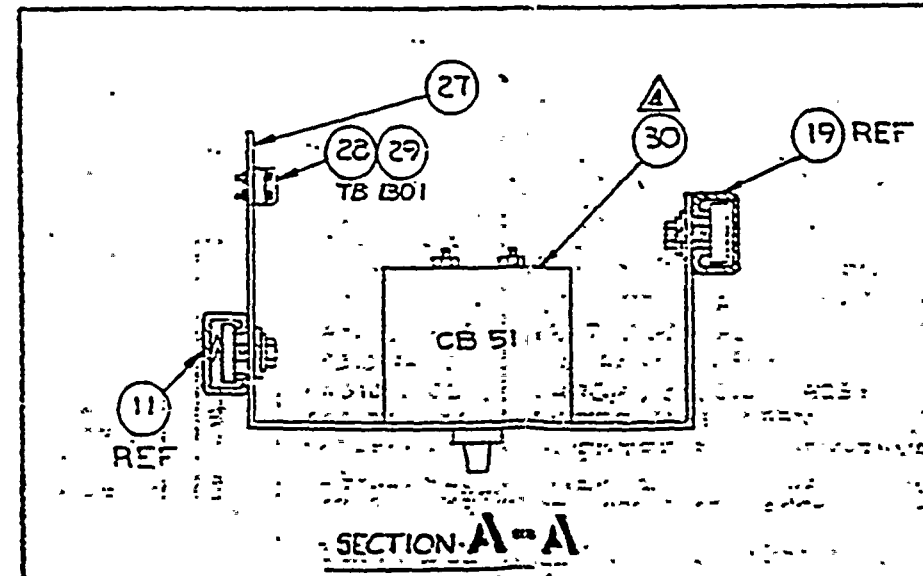
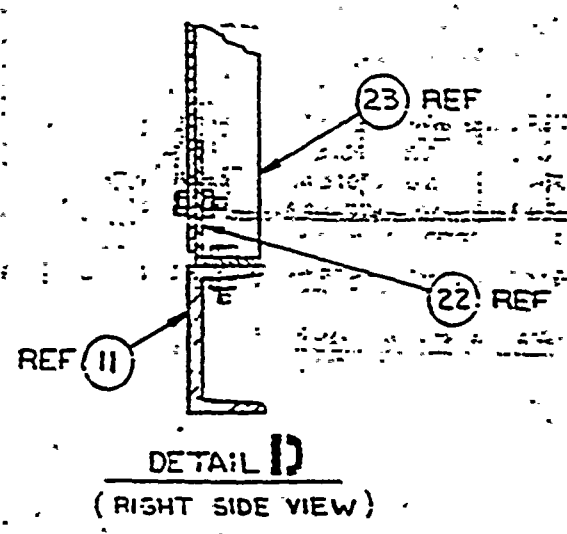
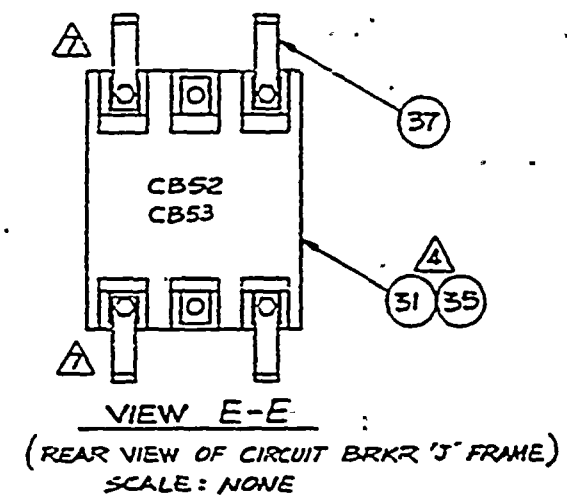
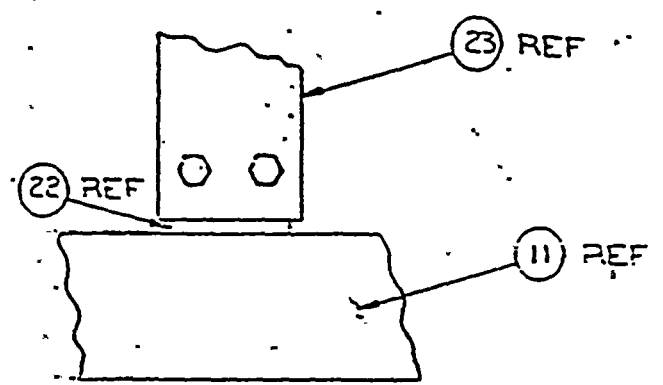
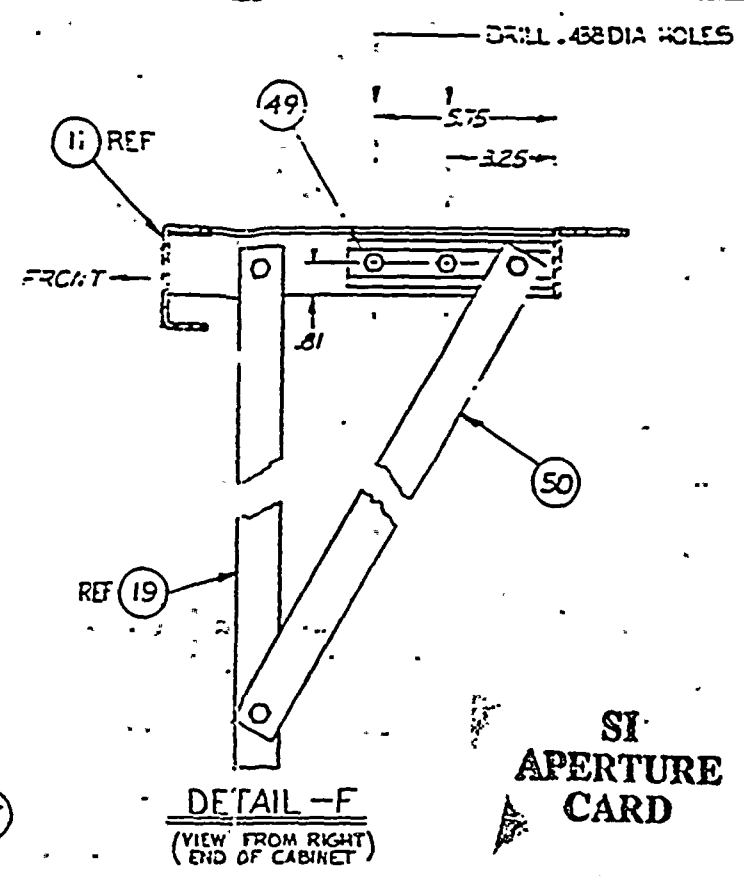
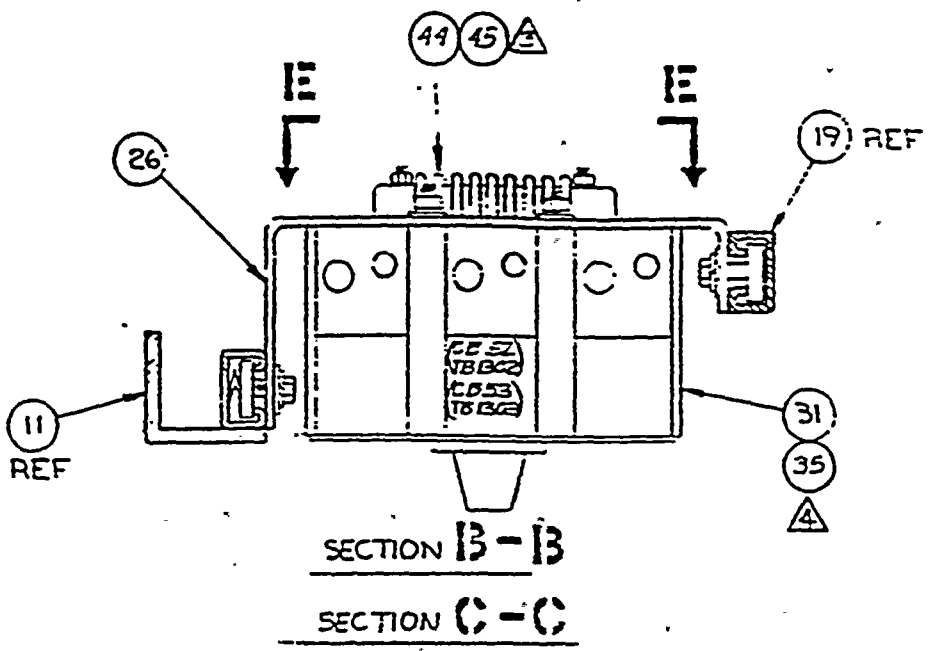
NUCLEAR SAFETY RELATED

- ▲ USED ON CB52 ONLY
- ▲ DRILL TWO HOLES (.391 DIA TYPICAL) ON APPROX DIMENSIONS SHOWN (TO ENSURE FIP METERS ESS CARD CASE)
- ▲ USE FLAT WASHERS BEHIND LATCHES AS NECESSARY TO ALIGN WITH SLOTS IN ITEM 23
- ▲ DO NOT OPEN CKT BKRS. TERMINATE EXISTING 'SELF' WIRES PER WIRELIST.
- ▲ MOUNT ITEM 4445 TO ITEM 26 WITH #6 CSK SCREWS BEFORE MOUNTING CKT. BKR.
- ▲ ASSEMBLE WITH OPEN SIDE OF CHANNEL FACING TOWARD ITEM 1 CENTER.

SEE DETAIL D
SHEET 2

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ON:		CONTRACT NO. FIRST MAKE FOR S/C 4595	
DECIMALS	FRACTIONS	ANGLES	APPROVAL DATE
±.01	± 1/32	± .005	DESIGN APPROVAL DATE
±.005	± 1/64	± .002	CHECKED DATE
±.002	± 1/128	± .001	FILED DATE
±.001	± 1/256	± .0005	CARL DATE
DO NOT SCALE THE DRAWING		MATERIAL	
PART NO. UPS 253-1-106		CLON 643-515-40	
REV. 001		D 25955 643-623-40	

SEE SHEET 2 FOR PARTS LIST



ITEM	PART NO	DESCRIPTION	QTY	REF
52	543006-01	CURRENT XDCR PCB	1	AZ-J1/J2
51	943-595-20	PCB BRACKET	1	
50	592076-01	C/B BRACE	1	
49	5350077-01	C/B BRACE	1	
48	109-210-5X	MOLEX PINS	50	
47	109-010-6X	MOLEX PINS	500	
46	856-117-11	17-PIN CONN.	2	
45	893-M51-8X	MARKER STRIP	2	
44	893-601-8X	8-PIN TERM BLOCK	2	TB 1302.3
43	856-309-11	9-PIN MOLEX	20	
42	109-216-3X	FIBER WASHER #8	6	
41	628-137-41	FUSE SENSE BD.	1	J1301
40	9491018-01	FUSE SENSE BD. BRACKET	1	
39	109-232-5X	STANDOFFS	4	
38	943104E-01	REAR PANEL COVER	2	
37	943-594-20	BUS BAR ANGLE	6	
36	643-626-40	CONTROL PANEL ASSY	1	A8
35	852-300-2P	CIRCUIT BRKR SS OUTPUT	1	CB53
34	109-216-51	STANDOFF-GLASTIC	6	
33	934-248-22	BUSS BAR	3	E51,52,53
32	105-17X-38	AIR FILTER 17.38 X30X.88	1	
31	852-253-3D	CIRCUIT BRKR-BATT INPUT	1	CB52
30	852-136-90	CIRCUIT BRKR-AC INPUT	1	CB51
29	893-M51-6X	MARKER STRIP	1	
28	893-601-6X	TERMINAL BLOCK-6 PIN	1	TB 1301
27	943-557-20	CB MNT BRKT-E FRAME	1	
26	943-232-21	CB MNT BRKT-J FRAME	2	
25	943-392-20	FRONT BRACE-CARD CAGE	2	
24	943-393-20	LOWER BRACE-CARD CAGE	1	
23	943-395-20	CENTER BRACE-CHASSIS	1	
22	943-403-20	BRACE ANGLE-CHASSIS	2	
21				
20	109-P10-63	90° ANGLE-UNISTRUT	6	
19	943-410-20	SWITCH SUPPORT	2	
18	109-E82-5X	EYE BOLT	4	
17	943-420-20	SPACER BRKT-VENT HOOD	2	
16	943-417-20	VENT HOOD-FRONT	1	
15	943-255-20	L SUPPORT VENT HOOD	1	
14	943-254-20	R SUPPORT VENT HOOD	1	
13	943-253-20	VENT HOOD BRACE	1	
12	943-212-20	VENT HOOD	1	
11	643-624-40	CHASSIS ASSY-UPS	1	
10	643-510-40	FAN MT PNL ASSY-UPS	1	A10
9	643-519-40	RIGHT DOOR ASSY-UPS	1	A12
8	643-520-40	LEFT DOOR ASSY	1	A11
7	5431003-03	I/O PANEL ASSY	1	A7
6	5431086-02	CHGR / SS/DIODE ASSY	1	A6
5	5321074-01	FILTER PNL ASSY	1	A5
4	643-524-40	INVERTER PNL ASSY-TKVA	2	A3,4
3	643-523-40	INVERTER PNL ASSY-12KVA	1	A2
2	643-530-42	RT. DOOR PLATE ASSY	1	A9
1	5491003-04	CARD CAGE ASSY	1	A1

ITEM	PART NO	DESCRIPTION	QTY	REF
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9304290244-56

NUCLEAR SAFETY RELATED

PHYSICAL
DATE

(SEE SHEET 1)

CEGAR
an Olin Corporation Company

UPS CABINET ASSY

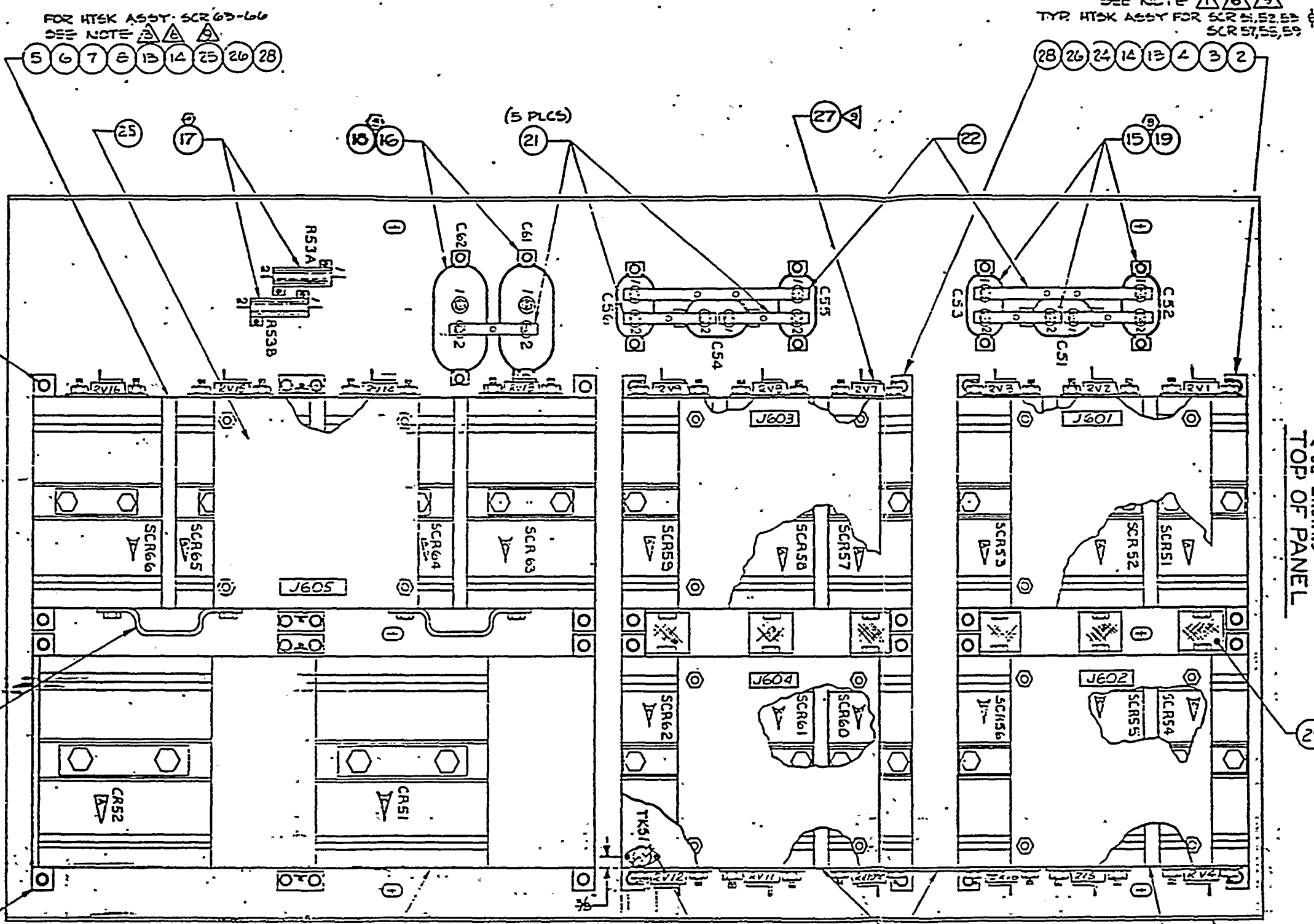
D 25955 643-624-40

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NO. 1000000000
1000000000
1000000000

1000000000

ZONE/LTR	DESCRIPTION	DATE	APPROVED
	SEE SHEET 1,		



SI
APERTURE
CARD

Also Available On
Aperture Card

9304290244-57

- ▲ INSTALL XI 2/0 TEFZEL WIRE & LUGS
- ▲ MOUNT ITEM 29 TO UPPER HEATSINKS, USE 5/16-18 FASTNERS.
- ▲ ALL MOY. MOUNTED ON THE UPPER HEATSINKS SEE DWG. 943-542-20 FOR MOD.
- ▲ DRILL J06 DIA HOLE (2 PLCS). MOUNT TK SI WITH #4 ROLOCK FASTNERS.
- 7 ▲ DESIGNATES CATHODE UP
- ▲ DESIGNATES ANODE UP
- ▲ MOUNT PCB'S WITH MOLEX TOWARD: LEFT SIDE OF PHL (J601-J604) RIGHT SIDE OF PNL (J605)
- ▲ FOR ASSY SEE REF. DRAWING 643-537-40
- ▲ USE SELF THREADING SCREWS FOR THE FOLLOWING SYMBOLS: (A) #4, (B) #6, (C) #10
- ▲ FOR ASSY, SEE REF. DRAWING 643-535-40
- ▲ FOR ASSY SEE REF. DRAWING 643-677-40
- ▲ FOR ASSY SEE REF. DRAWING 643-536-40

NOTES: UNLESS OTHERWISE SPECIFIED

NUCLEAR-SAFETY RELATED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON		DRAWN BY: JPS-22-82		DATE: 1-28-82	
DECIMALS FRACTIONS ANGLES		CHECKED BY: JPS-22-82		DATE: 1-28-82	
.XX ± .01 .XX ± .005 .XX ± .002		DESIGNED BY: JPS-22-82		DATE: 1-28-82	
.XX ± .005 .XX ± .002 .XX ± .001		APP'D BY: JPS-22-82		DATE: 1-28-82	
DO NOT SCALE THIS DRAWING		MATERIAL		CLCN 643-521-40	
-02 543-625-40 JPS253-1-106		NEXT ASSY USED ON		REV D 25955 5431086	
APP. DATE		APP. DATE		SCALE: 1/2"	
A6		A6		11-11-82	

DELGAR CORPORATION
SAN DIEGO, CALIFORNIA

CHARGER/STATIC SWITCH/DIODE
ASSY

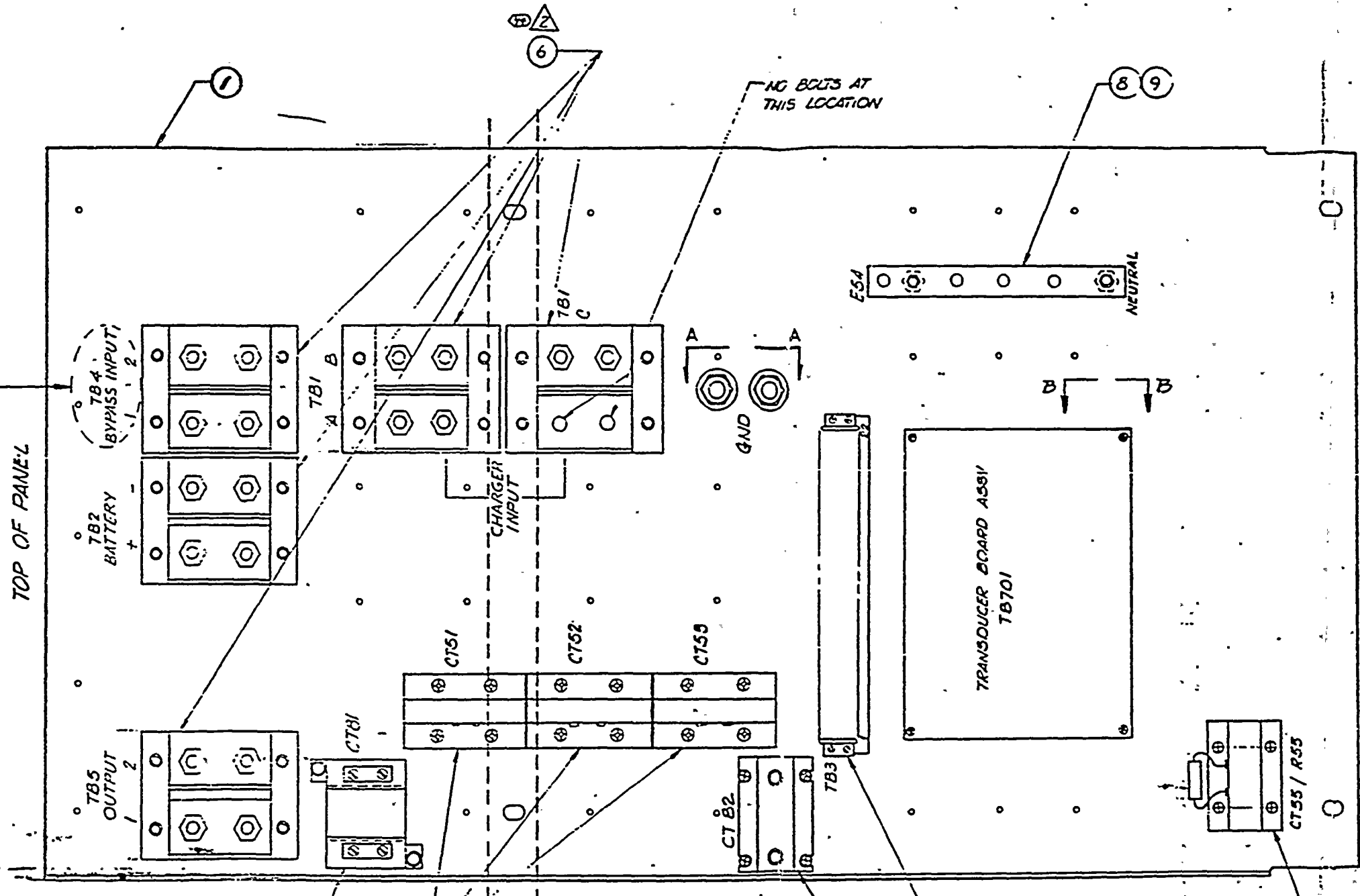
CLCN 643-521-40	REV D	25955	5431086
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REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
		SEE S-1		

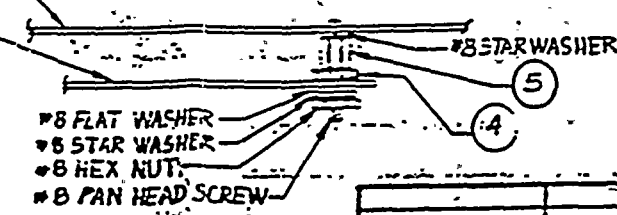


SI APERTURE CARD
 Also Available On Aperture Card

VIEW A-A



VIEW B-B (TYP 4 PL'S)



1/2-13 THD STL HARDWARE REQD

3 PREVENT INTERFERENCE WITH JIN STRUT BOLT. ALL PROTRUDING FASTENERS MUST BE CUT FLUSH WITH BACK OF PANEL PRIOR TO MOUNTING PANEL IN CHASSIS.
 2 SEE DRAWING 642-234-41 FOR ASSEMBLY.

1. USE ROLCK SELF-THREADING SCREWS FOR THE FOLLOWING SYMBOLS: (C) #6-32, (CC) #10-32, (CD) #14-20.

NOTES: (UNLESS OTHERWISE SPECIFIED)

ON UPS 253-1-104 AND UPS 253-1-105 LABEL THIS TB AS "SPARE"

9304290244-58

FOR PARTS LIST SEE PL 4 CC-30 SH1 (A SIZE 27-35)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	DECIMALS	FRACTIONS	ANGLES
XX = 01	= 1/32	= 1/16	= 1/2°
XXX = 010			
DO NOT SCALE THIS DRAWING			
MATERIAL			
FINISH			
APPROVAL			
DATE			
BY			
CHECKED			
DATE			
BY			
CHECKED			
DATE			
BY			

APPROVAL	DATE
BY	DATE
CHECKED	DATE
BY	DATE

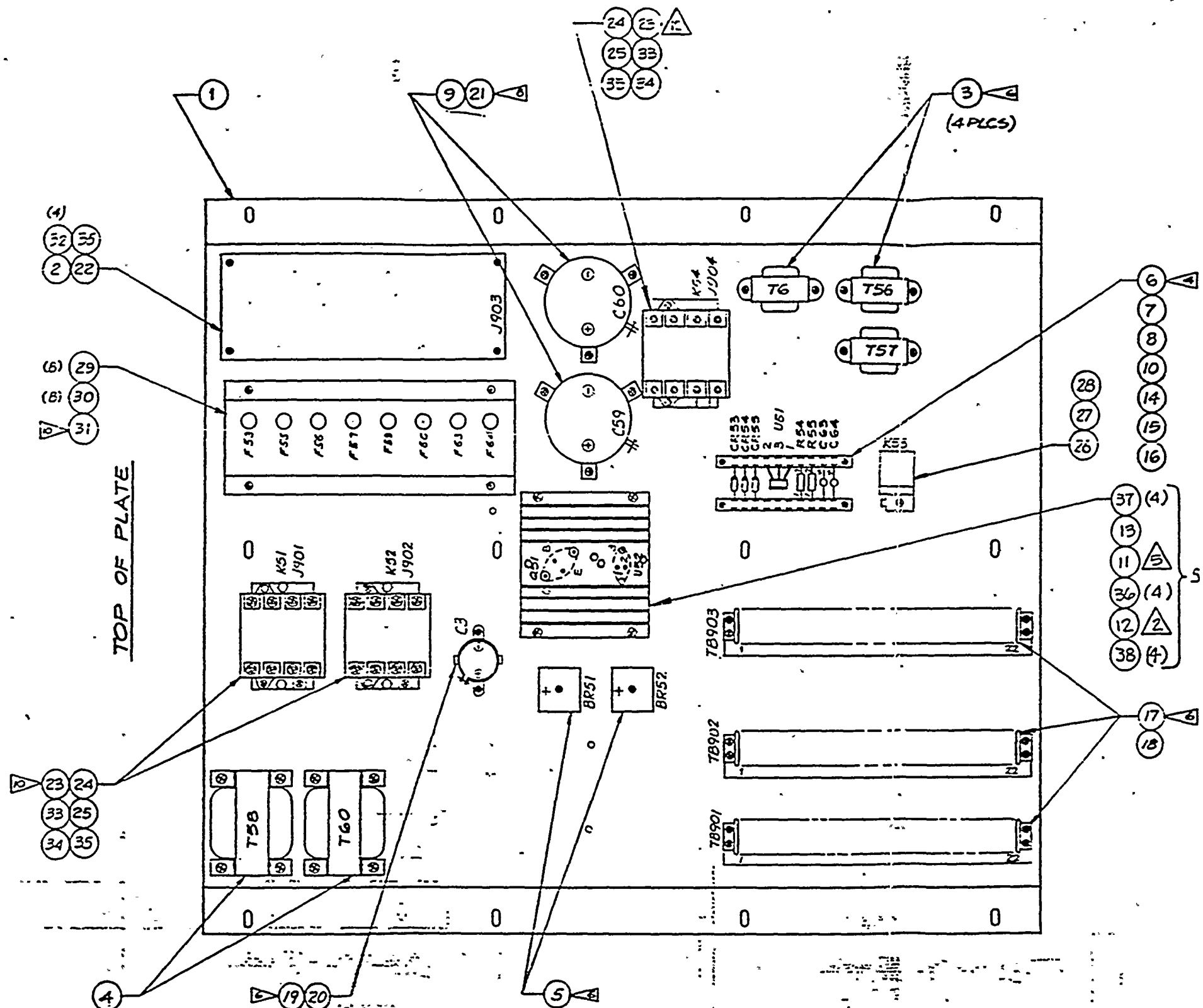
GELGAR			
I/O PANEL ASSEMBLY			
SIZE	CODE IDENT NO	DRAWING NO	REV
D	25965	5431003	1
SCALE			SHEET 3 OF 3

1950

1950



ZONE	USE	DESCRIPTION	DATE	APPROVED
A	ENG. RELEASED	459, 2-19-81		
E	ECN 2536	SD 2-5-82		
C	PER ECN 2761	L.L. 4-2-82		
D	ECN 2532	RC	5-27-82	FIS
E	ECN 2565	SD 7-22-92	9-2-92	RCS
F	ECN 2530	SD 10-11-82	10-14-82	RCS



TOP OF PLATE

SI APERTURE CARD
Also Available On Aperture Card

SEE DETAIL A

9304290244-59

- ▲ DRILL OUT END MOUNTING HOLES TO .250 INCHES. INSTALL SHOULDER WASHER (ITEM 36) ON BOTH SIDES OF EACH MOUNTING HOLE. SLEEVE LEGS 1 AND 2.
- ▲ MOUNTS ABOVE ITEM 23 WITH MOLEX CONNECTOR TOWARD BOTTOM OF PANEL.
- ▲ INSTALL GSI DIRECTLY ON ITEM 13. SLEEVE BASE AND EMITTER LEGS.
- 1. USE THREAD ROLLING ROLOX SCREENS FOR THE FOLLOWING SYMBOLS:
 ▲ #4-40, ▲ #6-32, ▲ #8-32, ▲ #10-32

DASH - 45	USE 253 - 10	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS FRACTIONS ANGLES XX = .01 = 1/32 = 1/2° XXX = .010 DO NOT SCALE THIS DRAWING	DATE	APPROVAL	
DASH - 47	USE 253 - 10		DATE	APPROVAL	
DASH - 4	USE 253 - 10		DATE	APPROVAL	
DASH - 41	USE 253 - 10		DATE	APPROVAL	
DASH - 40	USE 253 - 10	MATERIAL	DATE	APPROVAL	RIGHT DOOR PLATE ASSY
SIZE	CODE IDENT NO	DRAWING NO	PART		
D	25965	643-530-4X	=		
SCALE 1/2		SHEET 1 OF 1			

0304552080

0304552080

0304552080

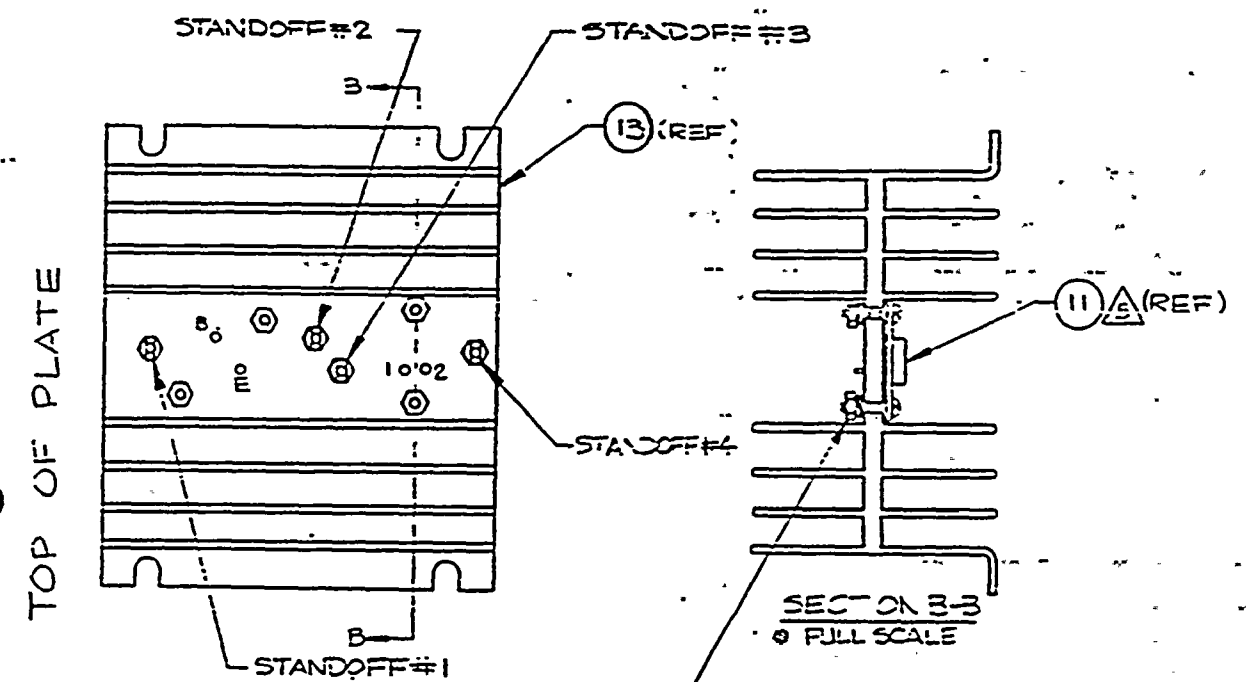


DATE	DESCRIPTION	DATE	APPROVED
SEE S-22			

SI
APERTURE
CARD

Also Available On
Aperture Card

9304290244-60



US2 HARDWARE:
#4 NUT (2)
STARWASHER (2)
FLAT WASHER (2)
SHOULDER WASHER (4)
#4 SCREW (2)

DETAIL A
FULL SCALE

FROM	TO
STANDOFF #1	Q51-B
STANDOFF #2	Q51-E
STANDOFF #3	U52-2
STANDOFF #4	U52-1

ITEM NO	PART NUMBER	DESCRIPTION	REF	QUANTITY			
				-40	-41	-42	-43
1	943-530-20	RIGHT DOOR PLATE	SPEC 1005008	1	1	1	-
1	943-530-21	RS- DOOR PLATE	SPEC 1005050	-	-	-	1
2	549-101-01	DC-DC CONV (120VDC) ASSY	J903	1	1	1	1
3	991-32-90	SENSE XFR	T6, E6, E7	3	3	3	3
4	990-94-90	POWER XFR	T55, G0	2	2	2	2
5	347-990-3X	BRIDGE	BR51, 52	2	2	2	2
6	845-562-4X	DICODI NS624	CR53	1	1	1	1
7	845-400-4X	DICODI N4004	CR54, 55	2	2	2	2
8	895-170-10	SOLDER STRIP		2	2	2	2
9	826-239-12	CAPACITOR 22000/50V	C59, 60	2	2	2	2
10	849-781-5P	IC 15V REG	U51	1	1	1	1
11	849-782-4R	IC 24V REG	U52	1	1	1	1
12	841-877-2X	TRANSFORMER 2V3772	Q51	1	1	1	1
13	914-241-20	HEATSINK 4" LONG		1	1	1	1
14	823-536-01	CAPACITOR 33/35V	C63, 64	2	2	2	2
15	803-321-05	RESISTOR 520Ω, W	R54	1	1	1	1
16	803-751-05	RESISTOR 750Ω, 1W	R55	1	1	1	1
17	893-901-22	TERMINAL BLOCK-22 PIN	T8901, 902, 903	2	2	2	3
18	893-MS-22	MARKER STRIP		2	2	2	3
19	825-142-32	CAPACITOR 1400N/100V	C3	1	1	1	1
20	109-258-97	CAP. CLAMP	C3	1	1	1	1
21	576-CMC-48	CAP. CLAMP	C59, 60	2	2	2	2
22	109-212-7X	STANDOFF, 1/2" LONG #8		4	4	4	4
23	861-ARD-46	RELAY (20VDC)	K51, 52, 54	1	2	2	3
24	861-ARD-CR	CONTACT RELAY		2	4	4	6
25	653-270-40	DRIVER BOARD, RELAY	J901, 902, 904	1	2	2	3
26	861-1Y4-70	RELAY (24VDC)	K53, 55, 56	1	-	1	1
27	861-27E-15	SOCKET		1	-	1	1
28	861-200-25	SPRING		1	-	1	1
29	853-342-10	FLSE HOLDER		8	8	8	8
30	853-38-02	FLSE 2A/SLO		8	8	8	8
31	943-407-20	FLSE BRACKET	SPEC 1005008	1	1	1	-
31	943-407-21	FLSE BRACKET	SPEC 1005030	-	-	-	1
32	109-216-3X	#5 FIBER WASHER		4	4	4	4
33	109-210-1X	#6 STANDOFF		2	4	4	6
34	109-216-2X	#6 FIBER WASHER		2	4	4	6
35	850-309-11	9-PIN MOLEX		2	3	3	4
36	109-263-0X	#6 SOLDER WASHER		4	4	4	4
37	894-105-1X	HEATSINK INSULATOR		4	4	4	4
38	109-60-3	INSULATING STANDOFF		4	4	4	4
39							
40							

△ (13) (REF)
△ (11) (REF)
△ (25)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON DECIMALS FRACTIONS ANGLES .XX ± .01 .XX ± .010 .XX ± .010 DO NOT SCALE THIS DRAWING		<p>DELGAR</p> <p>RIGHT DOOR PLATE ASSY</p>	
DATE	APPROVAL	DATE	APPROVAL
DESIGNED	DRAWN	CHECKED	INSP
MATERIAL	FINISH	QUANTITY	SCALE
REV	DESCRIPTION	DATE	BY
D	25965	643-530-4X	
NEXT ASSY USED ON		APP. DATE	

RECEIVED
FEB 10 1954
U.S. AIR FORCE
HEADQUARTERS
WASHINGTON, D.C.

AY 80884088

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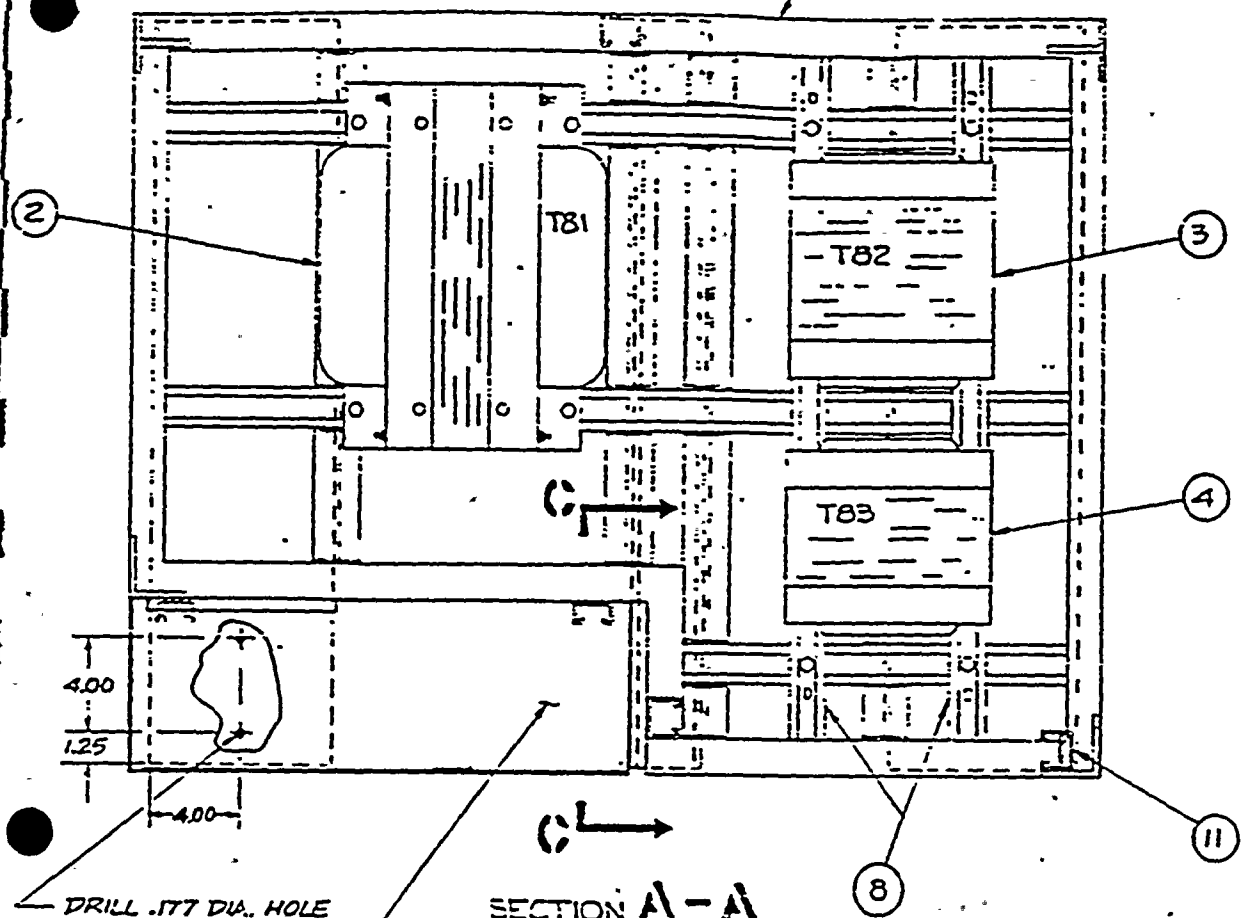
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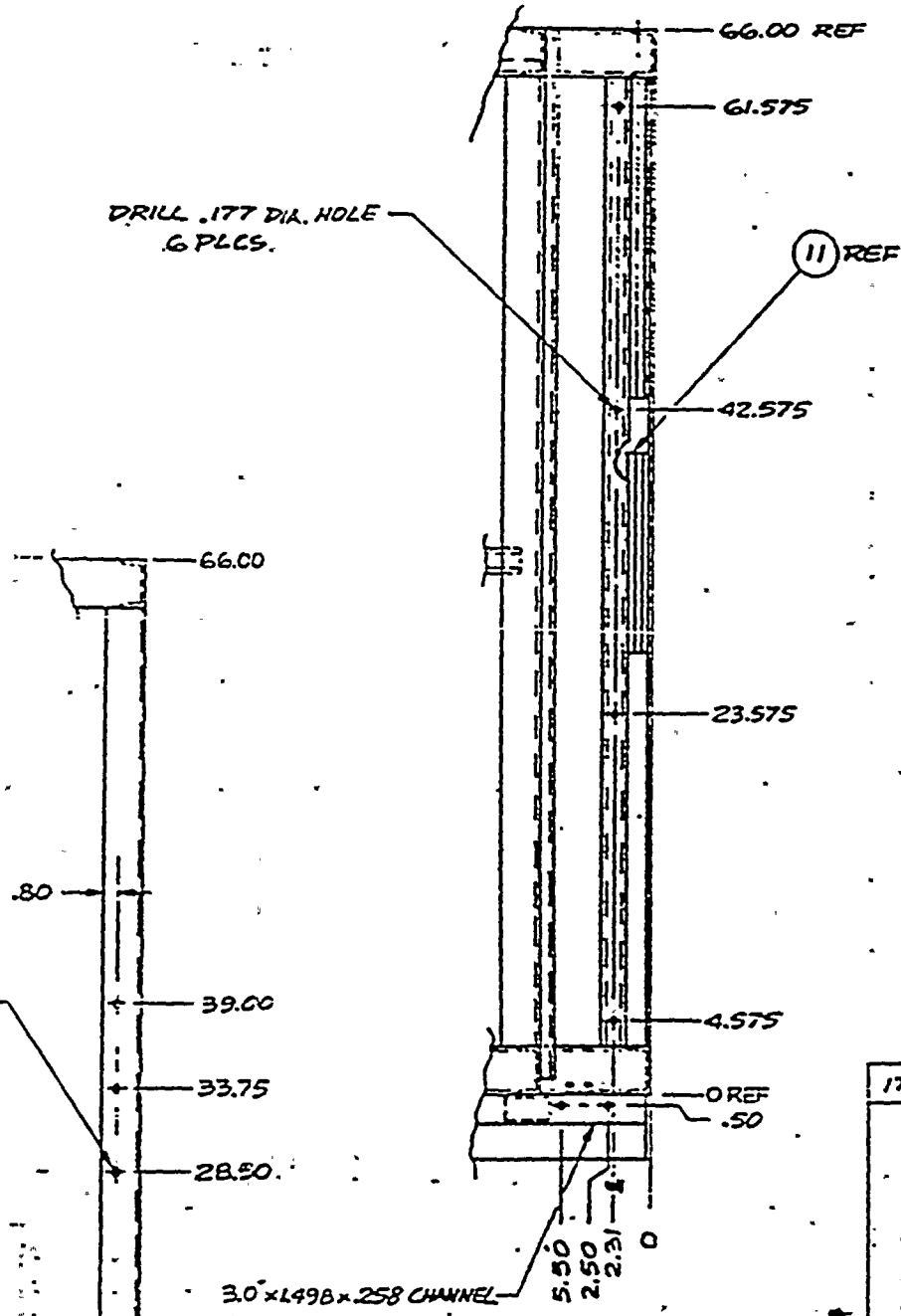
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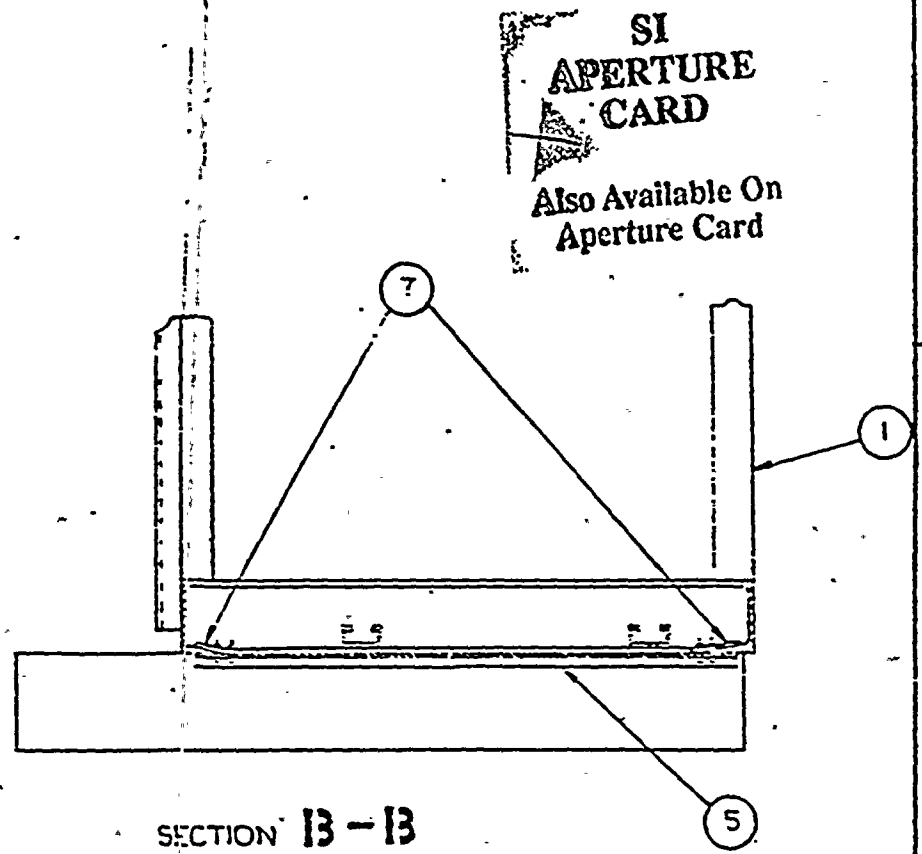
DATE	REVISED	BY	APP'D
A	ENG. RELEASED		
B	ECH 27:1	B.C. 6-15-62	



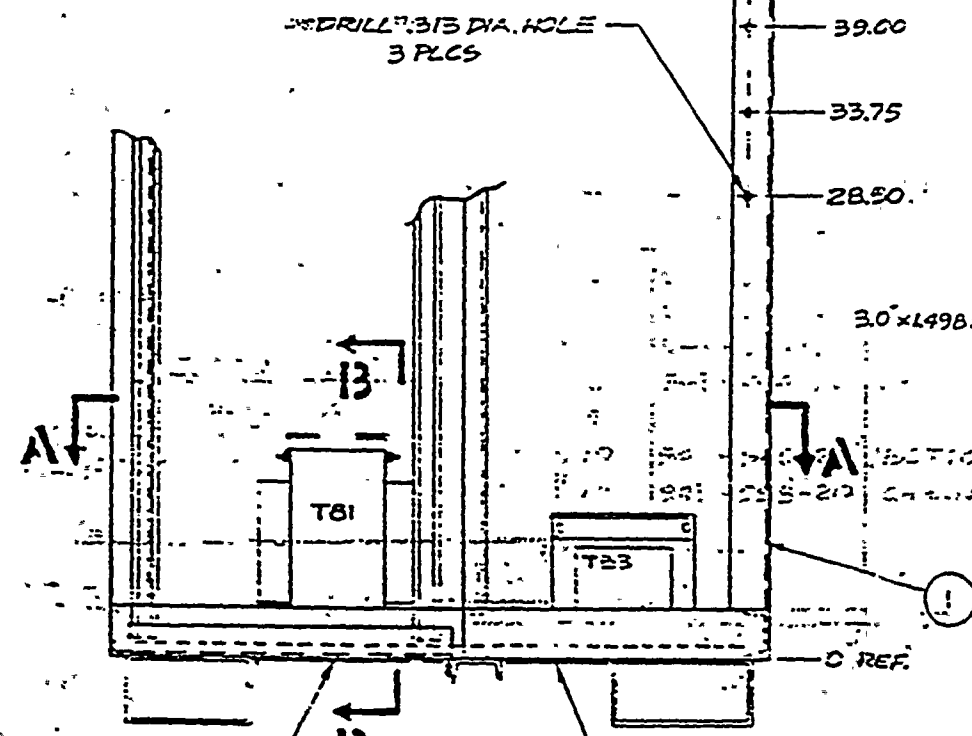
SECTION A-A
SCALE: 1/4



SECTION C-C
SCALE: 1/4



SECTION B-B
SCALE: 1/4
TRANSFORMER NOT SHOWN FOR CLARITY



FRONT VIEW
CHASSIS WELDMENT

9304290244-61
PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY	REF.
1	943-380-20	CHASSIS WELDMENT-DIST	1	
2	9900049-01	ISOLATION XFMR	1	T81
3	991-173-90	LINE REGULATOR XFMR	1	T82
4	991-174-90	LINE REGULATOR XFMR	1	T83
5	943-371-20	L BOTTOM COVER-DIST	1	
6	943-372-20	R BOTTOM COVER-DIST	1	
7	943-315-21	SCREEN CLIP	6	
8	943-314-20	XFMR CHANNEL-LONG	2	
9				
10	943-560-20	BOTTOM COVER PLATE	1	
11	943-558-20	CHANNEL (P3000) 1250"	1	

1. ASSEMBLE ITEMS 5, 6, & 7 TO CHASSIS WELDMENT BEFORE MOUNTING TRANSFORMERS.

NUCLEAR SAFETY RELATED

543-625-40	UPS 250-1-16
REF ASSY	USED ON
APP. DATE	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON DECIMALS FRACTIONS ANGLES	CONTRACT NO
XX ± .03 = 1/32 = 1/20	WORK MADE FOR 4093
XXX ± .010	APPROVAL
DO NOT SCALE THIS DRAWING	DATE
	DRAWN BY
	CHECKED BY
	DATE
	SCALE

BELGAR	
CHASSIS ASSY - DIST	
CLON 603-380-40	REV B
D 25965	643-607-40

643-607-40

1954

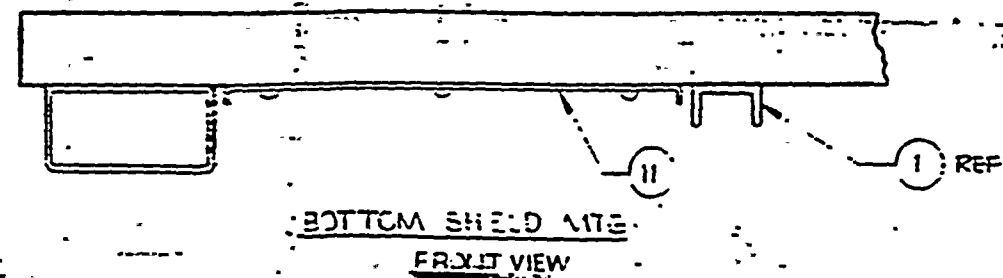
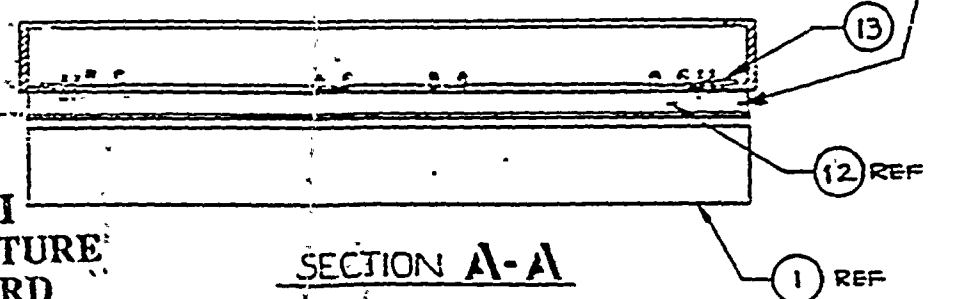
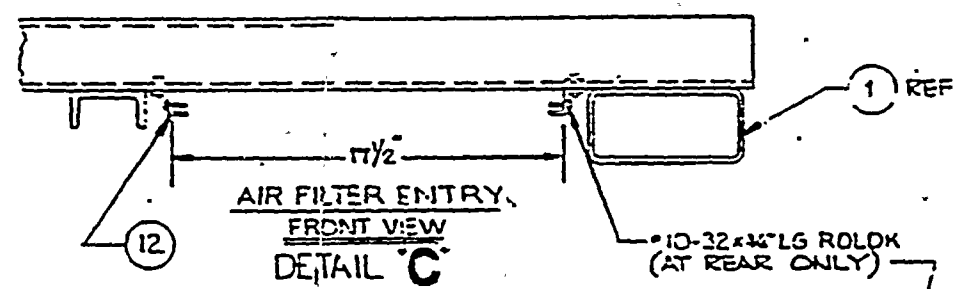
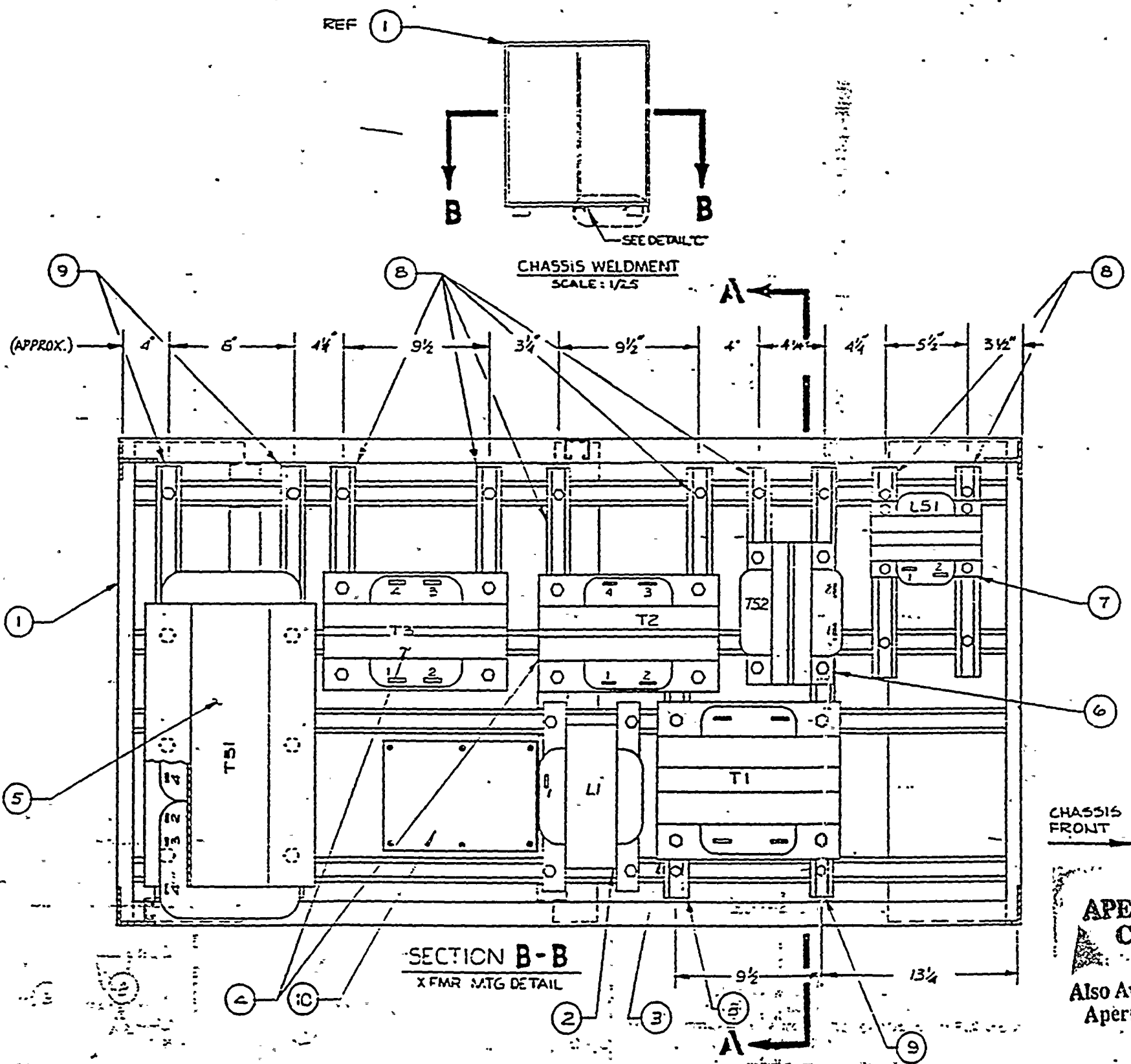
3A5408108G

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ZONE LTR	DESCRIPTION	DATE	APPROVED
A	ENG RELEASE	EM	
B	ECL # 2911	B.D	
C	ECH # 351	2-25-62	

PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY	REF
1	943-292-20	CHASSIS WELDMENT-UPS	1	
2	990-899-90	SERIES FILTER CHOKE	1	L1
3	990-990-90	SUMMING TRANSFORMER, 12KVA	1	T1
4	990-991-90	SUMMING TRANSFORMER, 7KVA	2	T2, T3
5	9900048-01	INPUT TRANSFORMER	1	T51
6	991-140-90	INTERØ TRANSFORMER	1	T52
7	991-141-90	DC. CHOKE	1	L51
8	943-413-20	XFMR CHANNEL -SHORT.	8	
9	943-414-20	XFMR CHANNEL -LONG	3	
10	943-294-20	BOTTOM ENTRY PLATE	1	
11	943-297-20	BOTTOM SHIELD ENTRY	1	
12	943-421-20	GUIDE BRKT- AIR FILTER	2	
13	943-315-21	SCREEN CLIP	4	



NOTES:

1. ASSEMBLE ITEMS 11/13 TO CHASSIS WELDMENT BEFORE MTG. TRANSFORMERS.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON		CONTRACT NO. FIRST MADE FOR 50 4842			
DECIMALS	FRACTIONS	ANGLES	APPROVAL	DATE	CHASSIS ASSY UPS CABINET
XX ± .01	1/32	± 1/20	DATE	DATE	
XX ± .005		DO NOT SCALE THIS DRAWING	MATERIAL	DATE	DRAWING NO. 643-624-40 SIZE CODE DENT NO. 25965 SCALE 1/2" = 1"
545-223-45	UPS 253-1-106	MATERIAL	DATE	DATE	
NEXT ASSY USED ON		DATE		DRAWING NO. 643-624-40 SIZE CODE DENT NO. 25965 SCALE 1/2" = 1"	

643-624-540M

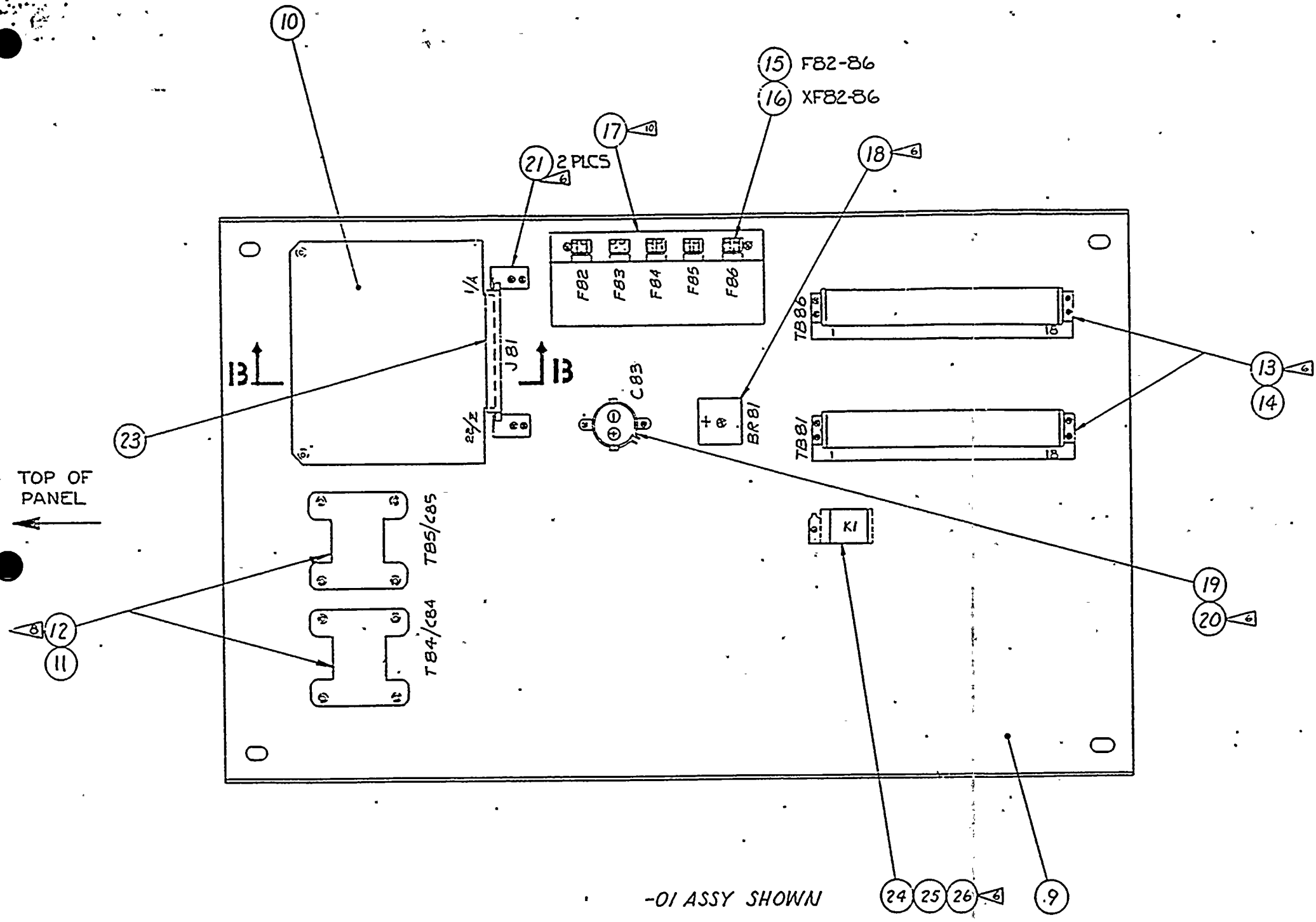
9304290244-62

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NOTES:
 1. USE SELF-TAPPING (ROLOK) SCREWS AS PER THE FOLLOWING SYMBOLS:
 (Symbol) #6-32,
 (Symbol) #10-32,
 (Symbol) #8-32.

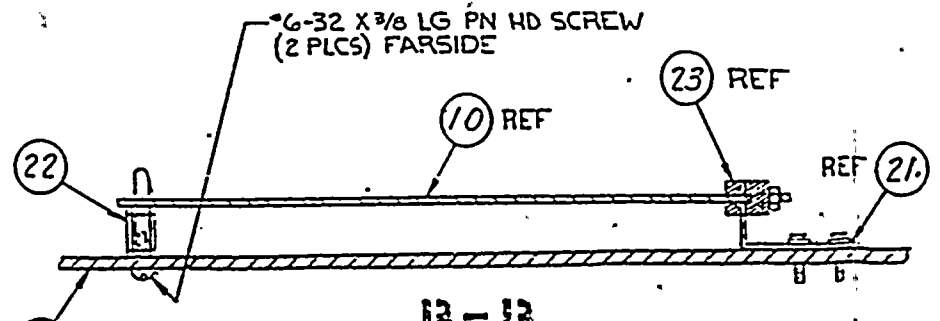
SI APERTURE CARD

Also Available On Aperture Card

RECEIVED
 J. O. NO. 12187
 OCT 26 '87
 STONE & WEBSTER
 ENG. CORP.
 CONTROL LEVEL

9304290244-63

NUCLEAR SAFETY RELATED



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS FRACTIONS ANGLES .XX = .03 = 1/32 = 1/2° .XXX = .010 DO NOT SCALE THIS DRAWING		CONTRACT NO. FIRST MADE FOR: S/O			
643-630-40 UPS 253-1106		APPROVAL DATE		DRAWN: A. EIRICH 8-86 CHECKED: SFO:rd 8-11-86 PROJ ENG: (signature) 8-11-86 QA: (signature) r.v.r.l.	
APPLICATION: UPS 253-1106		MATERIAL:		RIGHT SIDE PLATE ASSY. DISTRIBUTION CABINET	
NEXT ASSY. USED ON:		FINISH:		CLONED FROM: 643-563-40 SIZE: D CODE IDENT. NO: 25965 DRAWING NO: 5431249 REV: B	

5431249-01

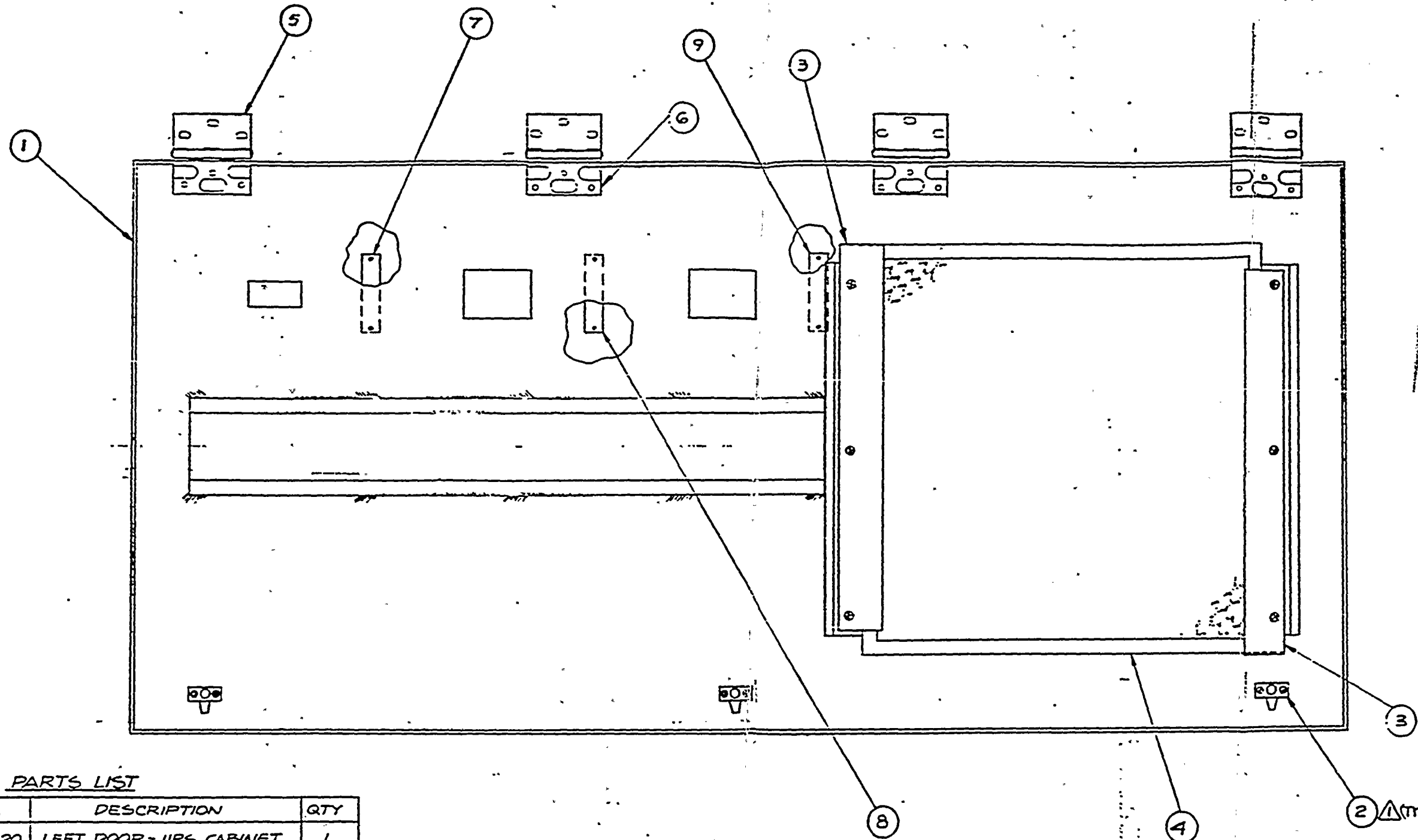
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1971



REV	DESCRIPTION	DATE	BY
A	ENG. RELEASED 2-2-81	2-2-81	SEL
B	ECN 7382	PC	2-27-81
C	ECN 3017	S.D. 2-5-82	6-10-82
D	ECN 5033	B.D. 10-8-82	10-11-82



SI
APERTURE
CARD
Also Available On
Aperture Card

PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY
1	943-520-20	LEFT DOOR- UPS CABINET	1
2	109-441-20	QUARTER TURN LATCH	3
3	943-394-20	AIR FILTER BRACKET	2
4	105-207-50	AIR FILTER	1
5	943-366-20	BUTT HINGE	4
6	943-367-20	NUT-PLATE- HINGE	4
7	943-570-20	LABEL- INPUT POWER	1
8	943-443-20	LABEL- BATTERY INPUT	1
9	943-572-20	LABEL- SIS OUTPUT	1

9304290244-64

FOR PARTS LIST SEE PL

△ SPACE WITH FLAT WASHER TO ENSURE FIT WITH CENTER BRACE ON CHASSIS.
NOTES: UNLESS OTHERWISE SPECIFIED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		CONTRACT NO.		FIRST MADE FOR 500 4527	
TOLERANCES ON:		APPROVAL		DATE	
DECIMALS	FRACTIONS	ANGLES	DRWN	CHKD	DATE
XX ± .01	± 1/32	± 1/2°	10-13-81		
XXX ± .010			CHKD		
DO NOT SCALE THIS DRAWING		MATERIAL:		PARTS LIST SEE PL	
NEXT ASSY.	USED ON	APPLICATION		CLON 643-457-40	
THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF BELGAR CORPORATION AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.		FRSDE		SCALE 1-3	
		BELGAR		LEFT DOOR ASSY.	
		UPS CABINET		REV	
		D 25965		643-520-40	
		SCALE 1-3		1 OF 1	

643-520-40 1M

ALBERT S. BAKER

1914



8 7 6 5 4 3 2 1

REV	DATE	APPROVED
A	ENG. RELEASED HP D. 2-12-51	
B	PER ECN 2760 L.L. 4-1-62	
C	ECN 2852 P.C. 5-2-62	
D	ECN 3033 10-6-82 BD	10-14-82 TJS

1 BEZEL
943-538-20

4 BUTT HINGE
943-366-20
(4 REQ'D)

5 NUT PLATE HINGE
743-567-20
(4 REQ'D)

3 QUARTER TURN LATCH Δ (TYP)
109-441-20
(3 REQ'D)

2 RIGHT DOOR
943-519-20

SI
APERTURE
CARD
Also Available On
Aperture Card

AB (REF)
CONTROL PANEL
ASSY

SEE DETAIL 13

A9 (REF)

2 REF

SECTION A-A
SCALE: 1/3

2 REF

3 REF

(REF) A9

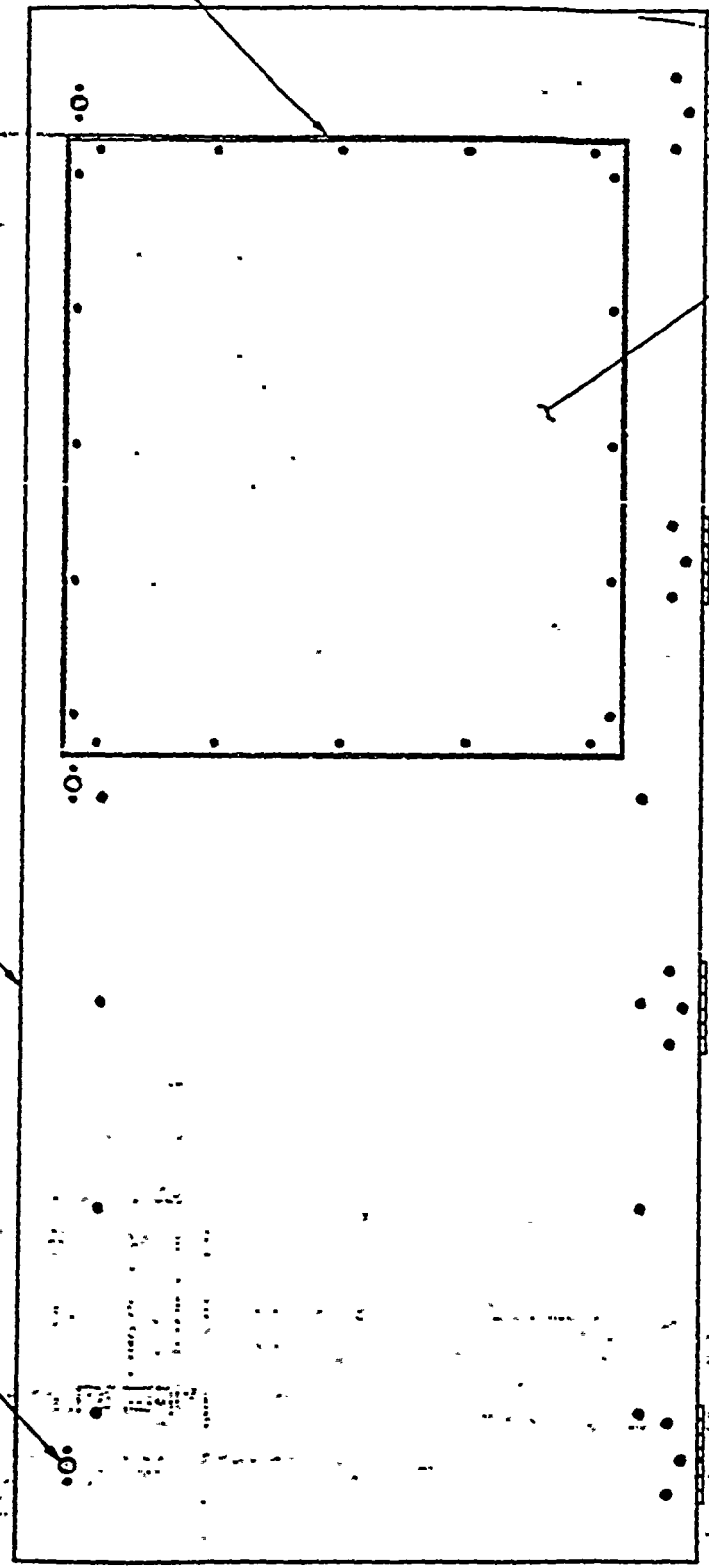
REF 2

A9 (REF-25KVA)
RIGHT DOOR PLATE ASSY

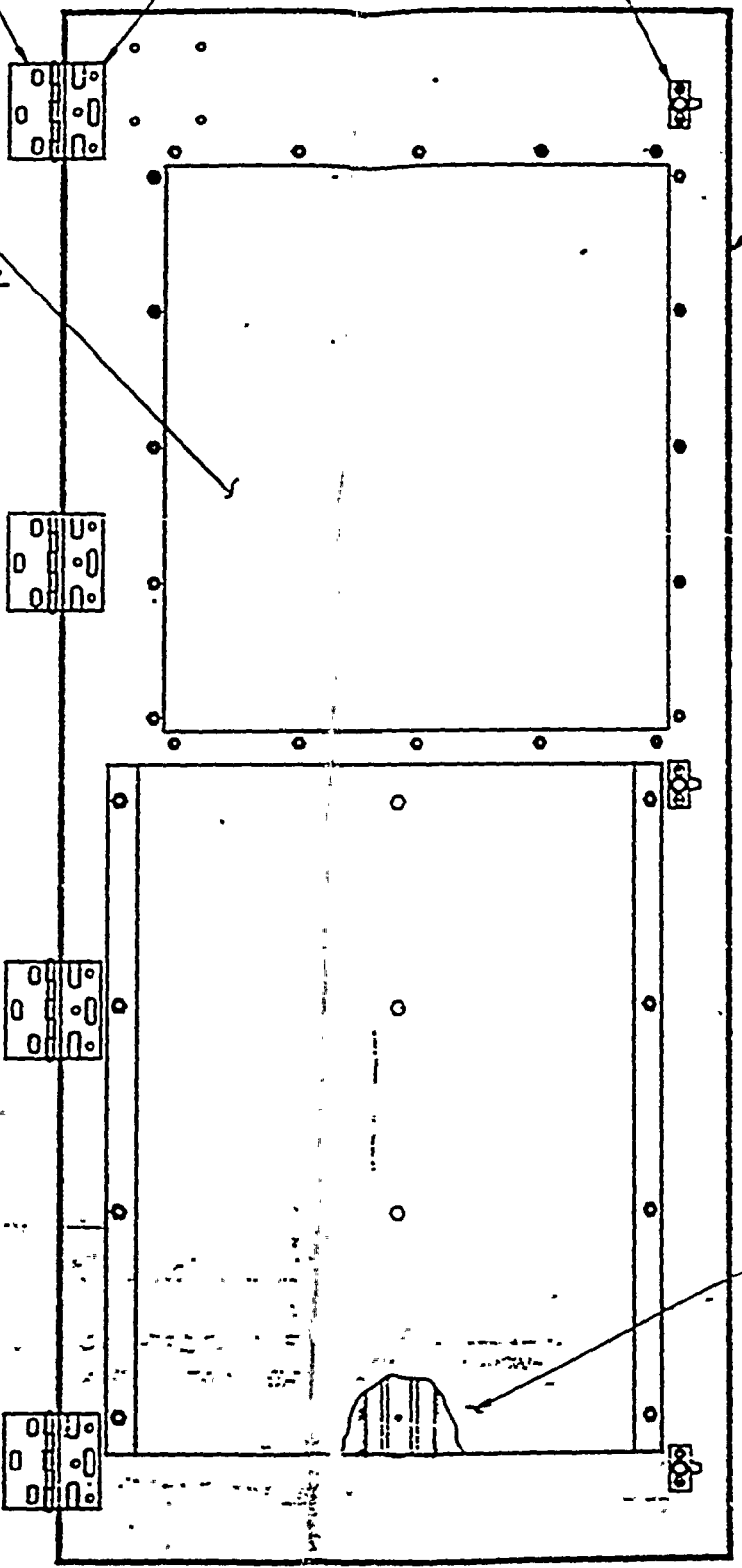
HEX NUT
STAR WASHER
FLAT WASHER

DETAIL 13
SCALE: NONE

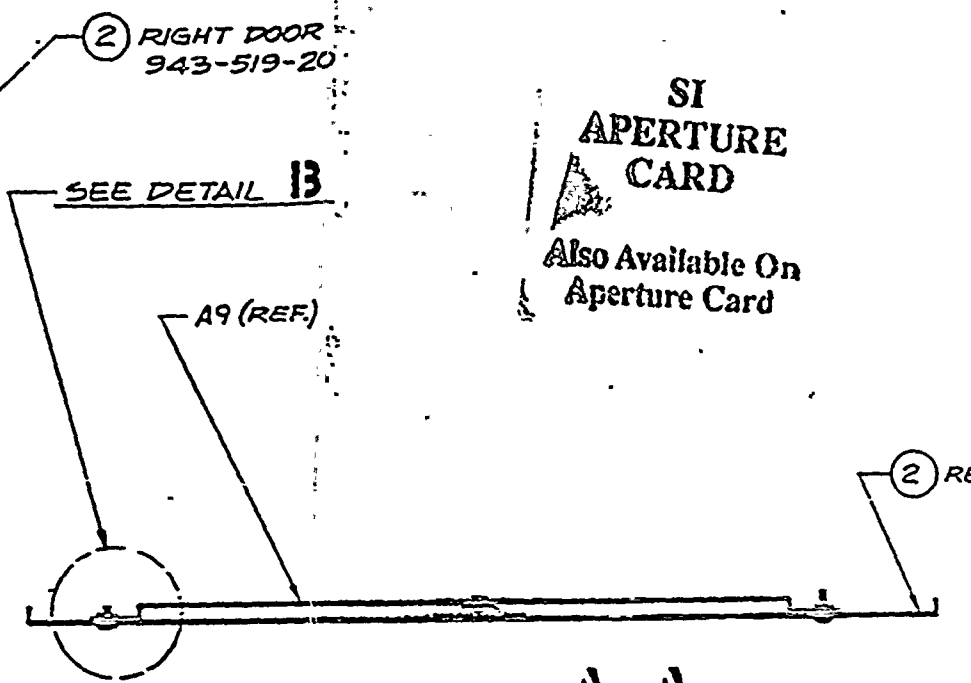
9304290244-65



FRONT VIEW



REAR VIEW



A

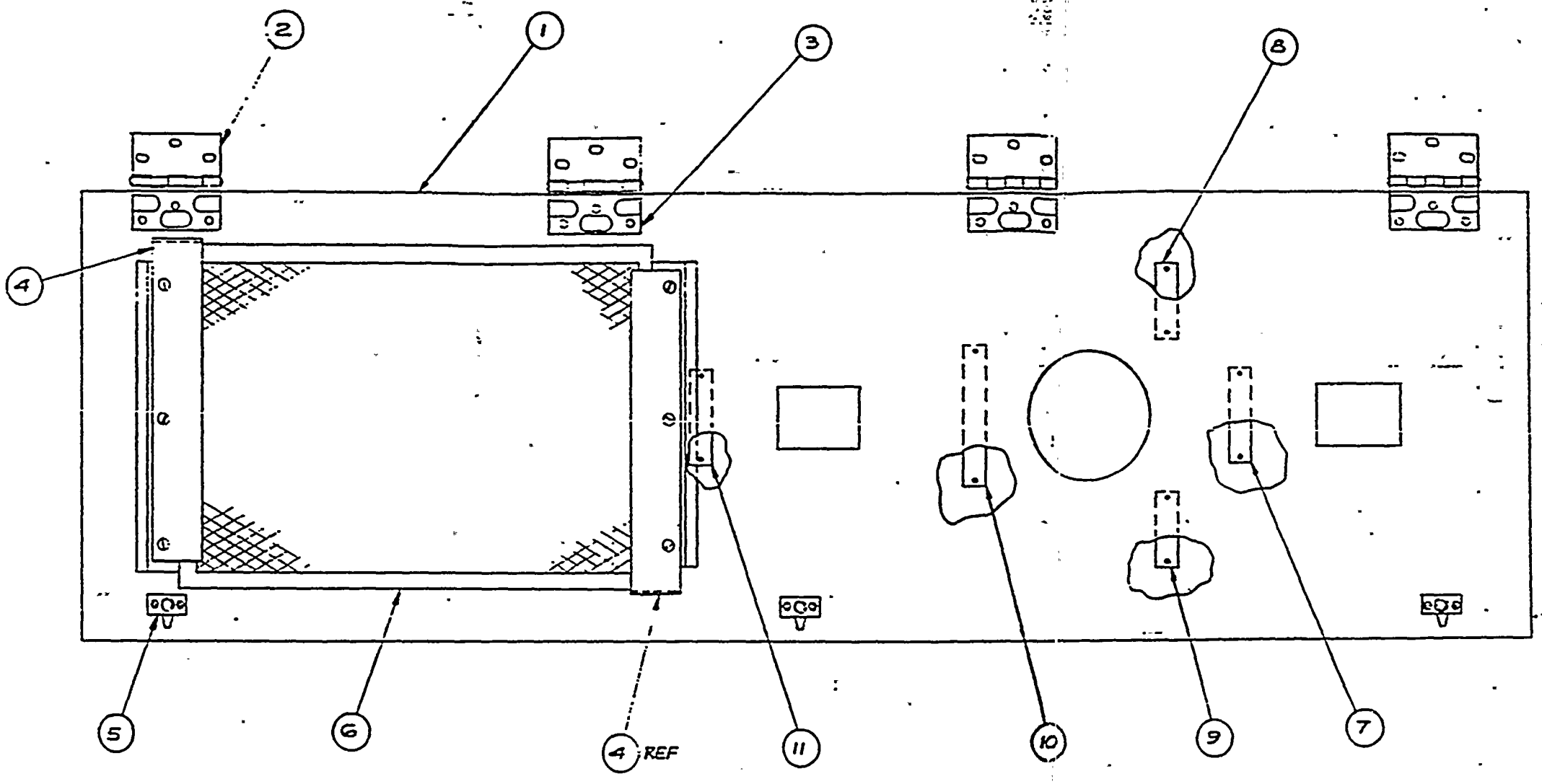
A

SPACE WITH FLAT WASHERS TO ENSURE FIT WITH CENTER BRACE ON CHASSIS.

RIGHT DOOR CABINET ASSY	
REV D	25965 943-519-40

943-519-40

DATE	DESIGNER	DATE	APPROVED
A	ENG. RELEASED	6/21/81	DU-3
B	ICU # 2889	B.D. 6/5/82	6-10-82 RPS



SI
APERTURE
CARD

Also Available On
Aperture Card

PARTS LIST.

ITEM	PART NO.	DESCRIPTION	QTY
1	943-556-20	RIGHT DOOR -DIST.	1
2	943-366-20	BUTT HINGE	4
3	943-367-20	NUT PLATE HINGE	4
4	943-373-20	AIR FILTER BRKT -DIST	2
5	109-441-20	1/4 TURN LATCH	3
6	105-17X-20	AIR FILTER	1
7	943-565-20	LABEL- MANUAL BYPASS INPUT	1
8	943-567-20	LABEL- BYPASS	1
9	943-566-20	LABEL- UPS	1
10	943-568-20	LABEL- MANUAL SWITCH	1
11	943-569-20	LABEL- STATIC SWITCH INPUT	1

9304290244 -66

FOR PARTS LIST-SEE PL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:		DRAWING NO. 643-556-40		DELGAR an Oron's power systems company
DECIMALS	FRACTIONS	ANGLES	REV. APPROVAL	
±.01	± 1/32	± 1/2°	DATE: 1/13/81	RIGHT DOOR ASSY DISTRIBUTION CABINET
±.005	± 1/64	± 1/4°	SCALE: 1/3	
MATERIAL:		DRAWING NO. 643-556-40		REV. B
NEXT ASSY. USED ON:		D-25965		
APPLICATION:		D-25965		SCALE 1/3
THE INFORMATION CONTAINED HEREIN WAS OBTAINED BY... AND IS THE PROPERTY OF DELGAR COMPANY AND IS LOANED TO YOU... FOR YOUR USE ONLY. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.		DATE: 6/21/81		1 OF 1

643-556-40

030 50244

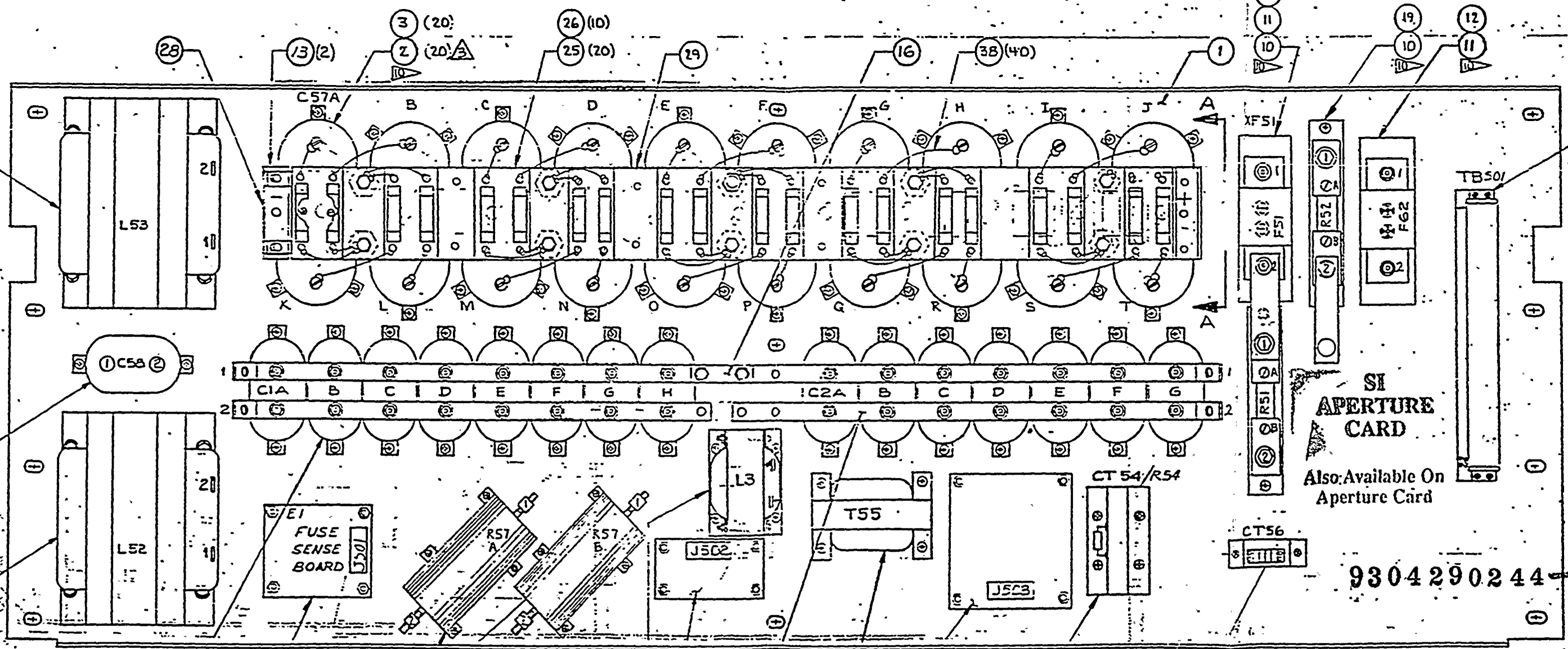
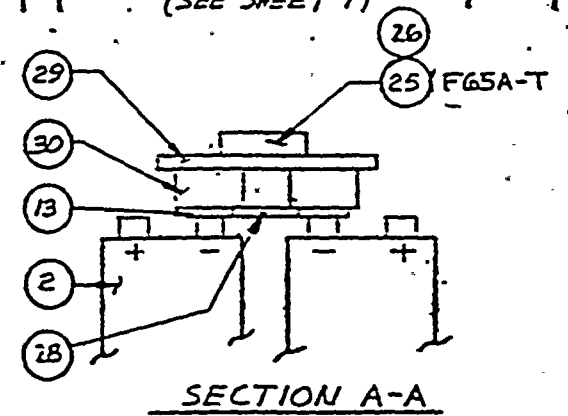
SCIENCE CLUB
1930-1931

1930
1931

8 7 6 5 4 3

ZONE	DESCRIPTION	DATE	APPROVED
	(SEE SHEET 1)		

-01 ASSY SHOWN



SI APERTURE CARD
Also Available On Aperture Card

9304290244-68

SEE COVER SHEET & P/L
(A SIZE DRAWING)

- ▲ WRAP BOTTOM & LOWER PART (2" UP) OF CAPS C57A WITH PERMACEL P212. MOUNT CT WITH ARROW POINTING TOWARD TOP OF PANEL.
- 1 USE SELF-THREADING (ROLOK) SCREWS FOR THE FOLLOWING SYMBOLS: ◁ 6-32, ◁ B-32, ◁ 10-32, ◁ 1/4-20.

NOTES: UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TOLERANCES ON	
DECIMALS	FRACTIONS	ANGLES	
±.010	± 1/32	± 1/2°	
±.005	± 1/64	± 1/4°	
±.002	± 1/128	± 1/8°	
±.001	± 1/256	± 1/16°	
DO NOT SCALE THIS DRAWING			
MATERIAL		CONTRACT NO.	
NEXT ASSY		FIRST MADE FOR 50 4530	
APPICATION		SI APPROVAL	
FINISH		DATE	
		DRAWN 1 PM DINH 7-25-68	
		CHECKED	
		PROF ENG	
		DATE	
		SCALE	
		REV. C	
		D 25965 5321074	
		A-5	
		643-380-00	
		SCALE V2	
		SHEET 4 OF 4	

ELGAR CORPORATION
SAN DIEGO CALIFORNIA

FILTER PANEL ASSY

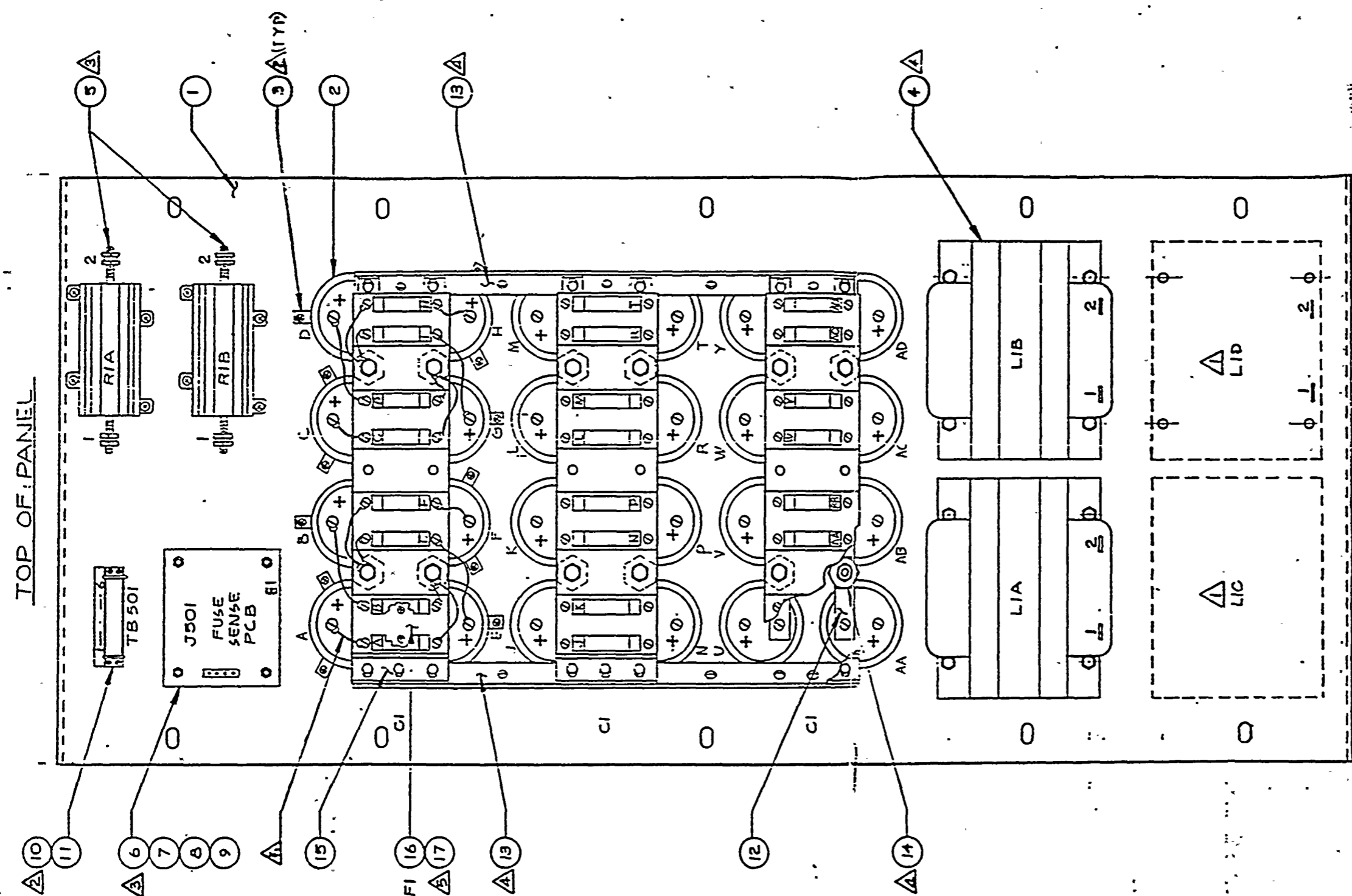
ASSOCIATION

AMERICAN

ASSOCIATION

4480934038

PROPERTY OF THE
FEDERAL BUREAU OF INVESTIGATION
U.S. DEPARTMENT OF JUSTICE



SI
APERTURE
CARD

Also Available On
Aperture Card

9304290244-70

NUCLEAR SAFETY RELATED

- ▲ EFZEL #10 WIRE (TYPICAL CAP BANKS)
 - ▲ #6 COUNTERSINK HARDWARE
 - ▲ 1/4-20 BOLT HARDWARE
 - ▲ #8 HARDWARE
 - ▲ FOLGX #6 HARDWARE
 - ▲ ENGINEERING OPTION.
- NOTES: UNLESS OTHERWISE SPECIFIED.

TASK ORDER		REVISION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON:		CONTRACT NO.			
TASK OR	REV	DATE	DESCRIPTION	DECIMALS	FRACTIONS	ANGLES	FAST MADE FOR 5/13/5590		
				.XX = .01	1/32	± 1/2°	APPROVAL	DATE	!% BATTERY RIPPLE FILTER PANEL ASSY D-A5
				.XXX = .010			DRAWN		
				DO NOT SCALE THIS DRAWING			CHECKED		
							POSTING TO DRAWING		
NEXT ASSY		USED ON		MATERIAL		CASEL		SIZE: D 25965 CODE: 5431081 DRAWING NO: 5431081 REV: B	
APPLICATION		FREQ				SCALE: 1/2		SHEET 2 OF 2	

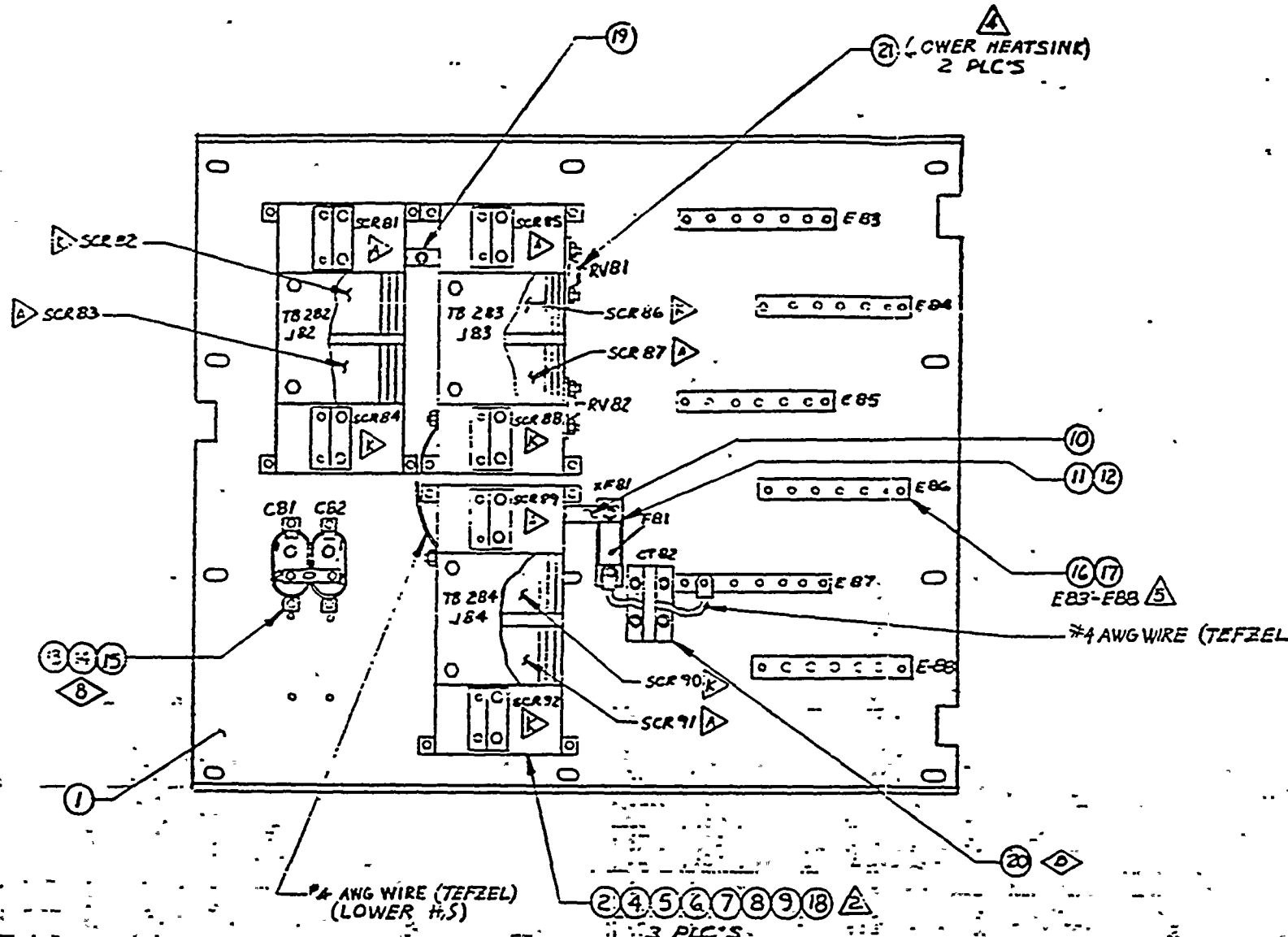
830458731

830458731

830458731



4	PER ECN # 2582	7/8	11-25-62	2/10
8	ECN # 2889	ED	6-2-64	2/5



SI
APERTURE
CARD
Also Available On
Aperture Card

ITEM	PART NO	DESCRIPTION	QTY	REF
1	943-383-20	HEATSINK MOUNT PANEL	1	
2	642-106-40	DRIVE BD ASSY	2	J82,84
3	648-101-0	ST DRIVE BD ASSY	1	J83
4	846-C35-0M	SCR C 350 M	12	SCR81-82
5	1846-SCR-MB	SCR CLAMP #1000	12	
6	1942-240-20	BUSS BAR/SCR SPACER	6	
7	1928-475-21	HEATSINK 1 3/2" LOWER	3	
8	1928-476-20	HEATSINK 3" UPPER	6	
9	932-218-20	HEATSINK INSULATOR	6	
10	943-252-20	BUSS BAR HTSK-FUSE	1	
11	155B-A50-P2	FUSE 200 AMP	1	F81
12	858-P24-3E	FUSE BLOCK	1	XFB1
13	527-406-47	CAPACITOR 20uF 40V	2	C81,82
14	893-186-GE	CAP BRACKET GE186	4	
15	943-250-20	BUSS BAR 3 HOLE	1	
16	934-248-22	BUSS BAR	6	EB3-88
17	109-216-51	STANDOFF-GLASTIC	12	
18	109-GR-SR	GROMMET-SILICONE	24	PC8,MT8
19	943-467-20	BUSS BAR-LOWER HTSK	2	
20	1990-361-91	CURRENT XFMR	1	CT82
21	1800-130-20	VARISTOR	2	RV81,82

- ▲ ITEM 17 UNDER EACH END OF ITEM 16.
 - ▲ SEE DWG. 943-282-20 FOR VARISTOR MODIFICATION.
 - 3. USE SELF-TAPPING (ROLOK) SCREWS FOR THE FOLLOWING SYMBOLS:
 - ① 4-20
 - ② 10-32
 - ③ 8-32
 - ▲ ASSEMBLE PER. REF. DWG. 642-298-40
 - 1. SYMBOL: ▲ DESIGNATES ANODE UP
 ▼ DESIGNATES CATHODE UP
- NOTES: UNLESS OTHERWISE SPECIFIED.

9304290244-7

NUCLEAR SAFETY RELATED

SELGAR	
HEATSINK PANEL ASSY (DIST. CABINET)	
D	25965
D-25965	643-383-40
D-A3	E

4489063088

RECEIVED
MAY 19 1964
U.S. AIR FORCE

SECTION IV
PARTS LIST

4-1 GENERAL

a. This section contains a listing of all parts necessary for factory authorized repair of the UPS. When ordering spare parts, specify part name, part number, manufacturer, component value and Elgar part number. Where no specific manufacturer or part number is given, the replacement part should conform to value, rating and tolerance as listed. If complete assemblies are desired, order assemblies from:

ELGAR CORPORATION
9250 Brown Deer Rd.
San Diego, CA 92121

Specify assembly number, instrument series number and instrument name.



TOP ASSEMBLY 543-625-40

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
		Distribution Cabinet Assembly		Elgar		643-630-40
		UPS Cabinet Assembly		Elgar		643-623-40
J1		Card Extender 88 Pin		Elgar		5430003-01
J9		Driver Logic PCB Assembly		Elgar		5490001-01
J8		Digital Logic PCB Assembly		Elgar		5490014-01
J7		Analog PCB Assembly		Elgar		5490030-01
J6		Oscillator Logic PCB Assembly		Elgar		643-119-41
J3		Charger Logic "A" PCB Assembly		Elgar		5490018-01
J5		SS Logic PCB Assembly		Elgar		5490002-01
J2		Alarm Logic Assembly		Elgar		5490006-01
J4		Charger Logic "D" Assembly		Elgar		5490019-01



SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
A1		Card Cage Assembly		Elgar		5491009-04
A2		Inverter Panel Assembly 12KVA		Elgar		643-523-40
A3,4		Inverter Panel Assembly 7 KVA		Elgar		643-524-40
A5		Filter Panel Assembly		Elgar		5321074-01
A6		Charger Static Switch Panel Assembly		Elgar		5431086-02
A7		I/O Panel Assembly		Elgar		5431003-01
A8		Control Panel Assembly		Elgar		643-626-40
A9		Right Door Plate Assem		Elgar		643-530-40
A10		Fan Mount Panel Assem		Elgar		643-518-40
A11		Left Door Assembly		Elgar		643-520-40
A12		Right Door Assembly		Elgar		643-519-40
		Chassis Assem		Elgar		643-624-40
		Fuse Sense PCB Assembly		Elgar		628-136-90
CB51		Circuit Breaker AC		Elgar		852-275-AP
CB52		Circuit Brkr Battery Input		Elgar		852-253-3D
CB53		Circuit Brkr Static Switch Output		Elgar		852-300-2P

4-3



CARD CAGE ASSEMBLY (A1)

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
		Back Plane PCB Assem		Elgar		5490015-05

44



INVERTER PANEL ASSEMBLY (A2) 643-523-40

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
C1 A&B, C2 A&B CR1,2,3,4 F1 L1,2,5,6 L3,4,7,8 R1 SCR1,2,5,6 SCR3,4,7,8 TK1 R2,3,4,5,6, 7,8,9 R10,R11 J1,2,3,4	30 uF 300A 200K	Capacitor Diode Fuse Comm Choke Core MOV SCR SCR Thermostat MOV Resistor SCR Drive Bd Assy(INV)	500V 500V 500V 130V 500V 500V 320V 1W	G.E. G.E. Chase-Shaw Elgar Ferroxcube G.E. G.E. G.E. G.E. Dale Elgar	26F6816FB A397E A50P300 528T5003C8 V130PA20C C385E C384E 2450-21-272 V320PA40A RC42GF204J	827-306-66(1) 845-A39-7E 858-300-50 990-846-90 850-528-T5 800-130-20 846-C38-5E 846-384-15 861-340-0X 800-V32-OP, 803-204-05 5490009-03
NOTE:						
1. Replacement required at 9 year intervals.						

4-5



VERTER PANEL ASSEMBLY (A3,4) 643-524

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
C1,2	40 uF	Capactor	500V	G.E.	(26FG817FB or 26FG911FC)	827-406-66(1,2)
CR1,2,3,4		Diode		G.E.	A397E	845-A39-7E
F1	200A	Fuse	500V	Chase-Shaw	A50P200	858-A50-P2
L1,2,5,6		Comm. Choke		Elgar		990-846-90
L3,4,7,8		Core		Ferroxcube	528T5003C8	850-528-T5
R1		MOV	130CV	G.E.	V130PA20CV	800-130-20
SCR1,2,5,6		SCR	500V	G.E.	C355E	846-C35-5E
SCR3,4,7,8		SCR	500V	G.E.	C384E	846-364-15
R2,3,4,5,6,7,8,9		MOV	320V	G.E.	V320PA40A	800-V32-OP
R10,11	200K	Resistor	1W	Dale	RC42GF204J	803-204-05
J1,2,3,4		SCR Drive Bd (Inv.)		Elgar		5490009-03

NOTES:

1. Replacement required at 9 year intervals.
2. Item has a pre-determined shelf life of 5 years.

RECEIVED

J. O. NO. 12187

JUL 01 1985

STONE & WEBSTER
ENG. CORP.
CONTROL LEVEL 1

Stone & Webster Engineering	
I.O. No. 12177	
Spec. No. E035A	
REQUIRED FOR:	DIRECTIONS TO SITE:
<input type="checkbox"/> RETURN TO SUPPLIER <input checked="" type="checkbox"/> ENG & DESIGN <input type="checkbox"/> FABRICATION	<input type="checkbox"/> FOR CONSTRUCTION <input checked="" type="checkbox"/> NOT FOR CONSTRUCTION
<input checked="" type="checkbox"/> APP Approved/Acceptable For Use <input type="checkbox"/> AAR Approved As Revised <input type="checkbox"/> U/A Unacceptable <input type="checkbox"/> BLT As - Built <input type="checkbox"/> FIO For Information Only	
Date <u>6/30/85</u>	
By <u>G. Med 7010 tkon</u>	



CHARGER STATIC SWITCH PANEL ASSEMBLY (A6) 5431086-02

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
SCR51-62	5 uF	SCR	600V	G.E.	C380M	846-C38-OM
SCR63-66		SCR	600V	G.E.	C430M	846-C43-OM
CR51,52		Diode	600V	G.E.	A430M	845-A43-OM
C51-56		Capacitor	600V	C.D.E.	SCRN222	827-505-60 (1 & 2)
C61,62	50 uF	Capacitor	200V	C.D.E.	SCRN210	827-506-29 (1 & 2)
R53A,B	20ohms	Resistor	50W	Dale	RH50-20R	810-020-05
TK2		Thermostat		Elmwood	3400	861-340-0X
J601,2,3,4		SCR Drive Bd (Rect)		Elgar		5490009-01
J605		SCR Drive Bd(S/S)		Elgar		5490009-02
NOTES:						
1. Replacement required at 9 year intervals.						
2. Item has a predetermined shelf life of 5 years.						



FILTER PANEL ASSEMBLY (A5) 5321074-01

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
C57 A-T	5400 uF	Capacitor	200V	G.E.	86F207	826-548-X2 (2 & 3)
C1 A-H, C2 A-G, C58	150 uF	Capacitor	250V	G.E.	97F7500FC	827-157-66 (1 & 3)
L52, 53		Choke, DC Filter		Elgar		990-769-90
L3		Choke Trap		Elgar		991-009-91
CT54		Current Transformer		Elgar		991-014-90
CT56		Current Sensor Hall Effect		F.W. Bell		850-500-1M
T55		Xfmr. Aux. Power	480-120	Elgar		991-181-90
R51,52	400amp	Shunt	50MV	Q.E.	PR400	857-PR4-00
F51,62	600 amp	Fuse	500V	Shawmut	A50P600	858-600-XX
F65 A-T	30 amp	Fuse	250V	Bussman	KAB 30	858-KAB-03
R57 A,B	200 ohm	Resistor	250W	Dale	RH250	811-201-05
J501		Fuse Sense Bd Assy		Elgar		5430002-20
J503		Fuse Sense Bd Assy		Elgar		628-137-41
J504		Current Xdcr Assy		Elgar		5430008
R54	100 ohm	Resistor		Dale	RC32GF01J	803-101-05
NOTES:						
1. Replacement required at 9 year intervals.						
2. Replacement required at 9 year intervals. At time of replacement capacitors must be wrapped with silicone glued glass tape on the lower 2 inches (Permacel P212).						
3. Items with a predetermined shelf life.						



I/O ASSEMBLY (A7) 5431003-01

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR
				NAME	PART NUMBER	PART NUMBER
CT51,52, 53,55 CT81 R55	100 ohm	Transducer PCB Assy.	300-5.5VA 1W	Elgar	KS085 RC32GF101J	5490016-01
		Current Xfmr.		Elgar		991-014-90
		Current Xfmr.		Ritz		850-203-01
		Resistor		Dale		803-101-05



RIGHT DOOR PLATE ASSEMBLY (A9) 643-530-40

EQ35H 1031 560-50025

RECEIVED

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
T5,6,56,57		DC-DC Converter Assy.		Elgar	J. O. NO. 12187	5491011-02
T58,60		Sense Transformer		Elgar	MAY 24 1985	991-182-90
BR51,52		Power Transformer		Elgar	STONE & WEBSTER	990-941-90
CR53	IN5624	Bridge Diode	25A	MOT	ENGR. CORP.	CONTROL LEVEL I 847-990-3X
CR54,55	IN4004	Diode	5A	G.E.		845-562-4X
C59,60	23000 MFD	Diode	1A	MOT		846-400-4X
K53,55,56		Capacitor	230K/50V	G.E.	86F170M1	826-239-12 (1 & 2)
U51	15V	Relay		P.B.	R10E1V4V700	861-1Y4-70
U52	25V	Regulator		S.Gen	SG7815ACP	849-781-5P
Q51	2N3772	Regulator		S.Gen	SG7824ACR	849-782-4R
C63,64	33MFD	Transistor		RCA	2N3772	841-377-2X
R54	820 ohm	Capacitor	35V	Sprague	196D336X9035TE4	823-336-61
R55	750 ohm	Resistor	1W	Dale	RC32GF821J	803-821-05
J901,902,904		Resistor	1W	Dale	RC32GF751J	803-751 05
F53,55,56,57		Relay Drive Bd Assy.		Elgar		633-270-40
59,60,63,64		Fuse	2 AMP	Bussman		858-313-02
C3	1400 uF	Capacitor	100V	G.E.	86F184M	826-142-82
K51,52,54		Relay		Westinghouse	ARD440SR	861-ARD-4S
FG4 *		FUSE	3 AMP	BOSSMAN (OR EQUAL)		

- NOTES:
1. Replacement required at 9 year intervals.
 2. Item has a predetermined shelf life of 5 years.

(*) SWEC- REVISION PER ELGAR LETTER DATED 5/9/85

Stone & Webster Engineering I.O. No. 12177 Spec. No. EQ35A	
RELEASED FOR: RETURN TO SUPPLIER <input type="checkbox"/> ENG & DESIGN <input checked="" type="checkbox"/> FABRICATION <input type="checkbox"/>	INTENTIONS TO USE: FOR CONSTRUCTION <input checked="" type="checkbox"/> NOT FOR CONSTRUCTION <input type="checkbox"/>
<input checked="" type="checkbox"/> APP - Approved/Acceptable For Use <input type="checkbox"/> AAR - Approved As Revised <input type="checkbox"/> UNA - Unacceptable <input type="checkbox"/> BLT - As-Built <input type="checkbox"/> FIQ - For Information Only	
Date 5/20/85 By [Signature]	

4-10



CHASSIS ASSEMBLY 643-624-40

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
L1		Series filter choke		Elgar		990-899-90
T1		Summing Xfmr.	2KVA	Elgar		990-990-90
T2,3		Summing Xfmr.	7KVA	Elgar		990-991-90
T51		Input Xfmr.		Elgar		9900048-01
T52		Input Xfmr.		Elgar		991-140-90
L51		DC Choke		Elgar		991-141-90



FAN MOUNT PANEL ASSEMBLY (A10) 643-518-40

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
B1,2,3,51,53 S1,2,3,51,53		Fan Air Switch		Rotron Warren	CL2T2 FS3101	853-CL2-T2 (1) 860-531-01
<p>NOTES:</p> <p>1. Replacement required at 2 year intervals.</p>						



RIGHT SIDE PLATE ASSEMBLY (DISTRIBUTION) DAI 5431249

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
T84,85	400 uF	Regulator Control Bd Assy	2 amp	Elgar	A 11C105J AGC-2 MDA990-3 3186BE142U100AMA1 R10E1YV700 27E152	648-100-40
C84		Control Transformer		Elgar		991-191-90
F82-86		Capacitor		Bishop		882-105-58
BR81		Fuse		Buss		858-313-02
C83		Bridge Diode		MOT		847-990-3X
K1		Capacitor		Mepco		826-142-82
XK1		Relay		P/B		861-1Y4-70
		Relay Socket		P/B		861-27E-15

4-13

Inst 01560-50026



DISTRIBUTION CABINET ASSEMBLY 643-630-40

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR
				NAME	PART NUMBER	PART NUMBER
D-A1		Right Plate Assy.		Elgar		5431249
D-A2		Right Door Assy.		Elgar		643-556-40
D-A3		Heatsink Panel Assy.		Elgar		643-383-40
D-A4		Fan Plate Assy		Elgar		643-377-40
D-A5		1% Ripple Filter Panel Assy.		Elgar		5431081-02
S5		Chassis Assy Switch		Elgar		643-607-40
CB1, CB2		Circuit Breaker		Electro-Switch G.E.	107601A-2AS MBB TJJ426300	860-107-1S 852,300-2P

Inst 015100-50026



UPS 253-1-101 CHASSIS ASSEMBLY - DISTRIBUTION 643-607-40

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
T81		Isolation Xfmr		Elgar		9900049-01
T82		Line Regulator Xfmr.		Elgar		991-173-90
T83		Line Regulator Xfmr.		Elgar		991-174-90



RIGHT DOOR ASSEMBLY - DISTRIBUTION CABINET D(A5) 5431081-02

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
L1 A,B,C J501		Choke Fuse Sense Bd. Assy		Elgar		990-769-90
R1A,B CIA-T	200 ohm 5400 uF	Resistor Capacitor	250 W 200V	Elgar Dale G.E.	RH250 86F207	5430002-20 811-201-05 826-548-X2 (2 & 3)
F1A-T	30 Amp	Fuse	250V	Bussman	KAB 30	858-KAB-03
<p>NOTES:</p> <ol style="list-style-type: none"> 1. Replacement required at 9 year intervals. 2. Replacement required at 9 year intervals. At time of replacement, capacitors must be wrapped with silicone glued glass tape on the lower 2 inches (Permacel P212). 3. Items with a predetermined shelf life. 						



HEATSINK PANEL ASSEMBLY (A3) 643-383-40

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
SCR81-92 F81 C81,82	40 uF	Drive Board Assy S.T. Drive Bd. Assy. SCR Fuse Capacitor	200 amp 400 V	Elgar Elgar G.E. Shawmut C.D.E.	C350M A50P200 SCRN218	642-106-40 648-101-40 846-C35-OM 858-A50-P2 827-406-47 (1 & 2)
RV81,82 CT82		Varistor Current Xfmr.		G.E. Elgar	V130PA20C	800-130-20 990-361-91
NOTES:						
1. Replacement required at 9 year intervals.						
2. Item has a predetermined shelf life of 5 years.						



FAN COVER ASSEMBLY - DISTRIBUTION (A6) 643-377-40

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR PART NUMBER
				NAME	PART NUMBER	
B81,82		Fan		Rotron	CL2T2	853-CL2-T2 (1)
<p>NOTES:</p> <p>1. Replacement required at 2 year intervals.</p>						



18 BATTERY RIPPLE FILTER PANEL ASSEMBLY 5431081-02

SCHEMATIC DESIGNATION	VALUE	DESCRIPTION OR TYPE	RATING	MANUFACTURER		ELGAR
				NAME	PART NUMBER	PART NUMBER
C1A-T FIA-T J501 L1A,B,C R1A,B	5400 uF 30A 200SL	Capacitor Fuse Fuse Sense PCB DC Choke Resistor	200V 250V 250W	GE Bussman Elgar Elgar Dale	86F207 KAB 30 RH250-200R	826-548-X2 * 858-KAB-03 5430002-20 990-769-90 811-201-05
<p>*NOTES:</p> <p>Replacement required at 9 year intervals.</p>						

