

45
 07-~~15~~-91
 (duplicate pp. 1-35)

CONTROLLED
 #10111

312-367 N08-88

NM NIAGARA NINE MILE POINT MOHAWK NUCLEAR STATION

EDC NO	2	E	1	0	1	3	0	REV
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PAGE 1 OF 32

8/88
 NEL-050
 ENGINEERING DESIGN CHANGE

DOCUMENTS CHANGED

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

	DISC	STAT		DISC	STAT
1.560-229-004	ZE	C	1.560-229-018	ZE	C
1.560-229-007	ZE	C	1.560-229-019	ZE	C
1.560-229-010	ZE	C	1.560-229-021	ZE	C
1.560-229-017	ZE	C	1.560-229-026	ZE	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.

RECEIVED
 MAR 23 1990

SOURCE OF CHANGE

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 MILD EQAIF # NA BY/DATE A. Attali/3-14-90
 NA
 SQ YES... SQAIF # NA BY/DATE 3-12-90
 NA

LICENS IMPACT YES... LIST 090-091
 NO NA
 MEL YES... SEE PAGE 2
 NO

ASME YES... ANII NA DATE: _____
 NO PE N/A DATE: _____

RDO PREPARED A. Freeland x7223/12-14-89 PHONE/DATE
 CHECKED/DATE G. Colopoulas 3-12-90 APPROVED/DATE A. K. Jukka 3/23/90

INTERDISC. CONC. NA

ACCEPTED/DATE NA QA CONCURRENCE/DATE NA

MOD HOLD FILE/DATE NA RELEASED/DATE 101E2-90-011 3-23-90

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

SYMBOL NO. 55-32-385

9304290110 911031
 PDR ADOCK. 05000410
 S PDR

N/A 0691

1911

8/88
 MEL-050
 ENGINEERING DESIGN CHANGE

DOCUMENTS CHANGED

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

DISC	STAT		DISC	STAT
2E	C	1.560-229-027	2E	C
2E	C	1.560-229-028	2E	C
2E	C	1.560-229-029	2E	C
2E	C	1.560-229-013	2E	C
			2E	C
			2E	C
			2E	C
			2E	C
			2E	C

MEL 2VBA * UPS 2A SR
 2VBA * UPS 2B SR
 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

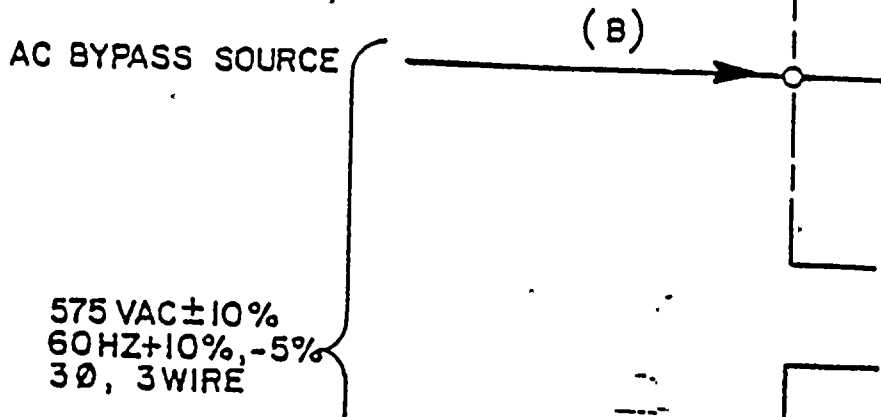
1.560-229-008
 1.560-229-024
 NZE209001PWSUP001
 NZE209001PWSUP002
 NZE356001PWSUP001
 1.560-229-00853-23-90

100

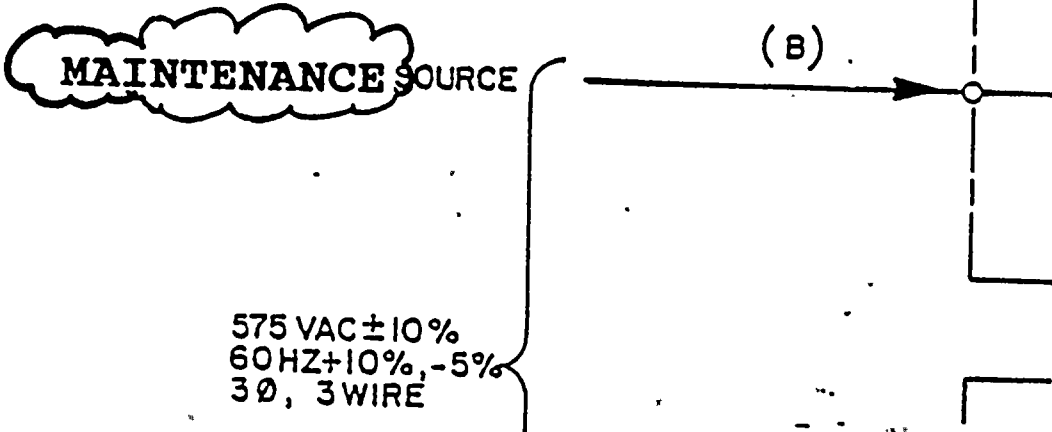
8/88
NEL-050
ENGINEERING DESIGN CHANGE

SWEGNO: 1.560-229-004

FROM:



TO:



1
2
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SNECNO: 1.560-229-004

ENGINEERING DESIGN CHANGE HEL-050 B/88

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

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

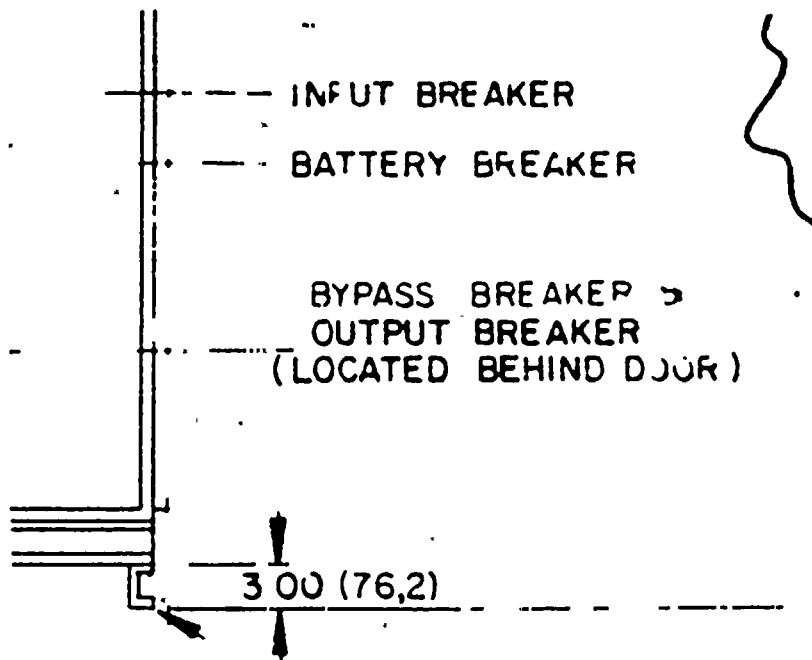
TO:

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

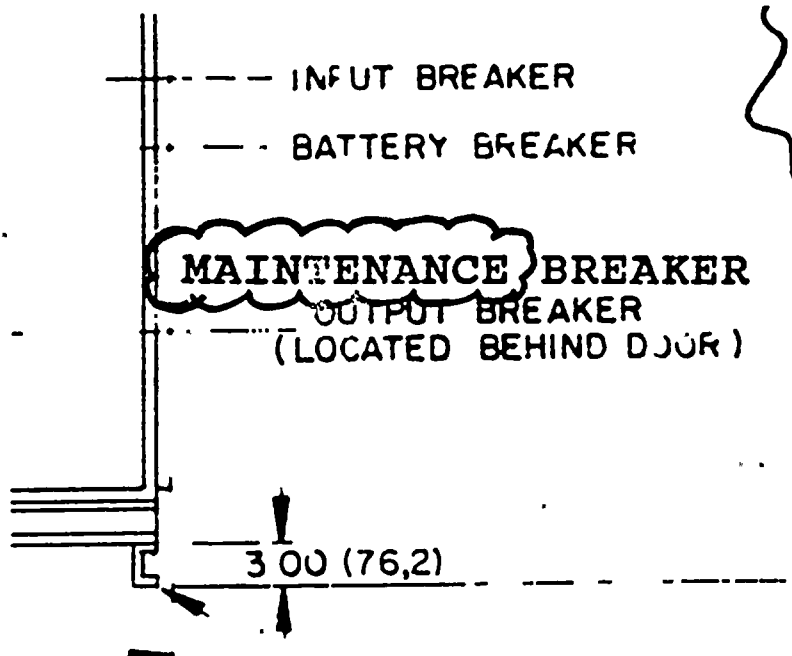


SWECNO 1.560-229-005

FROM:



TO:



8/88

REL 050

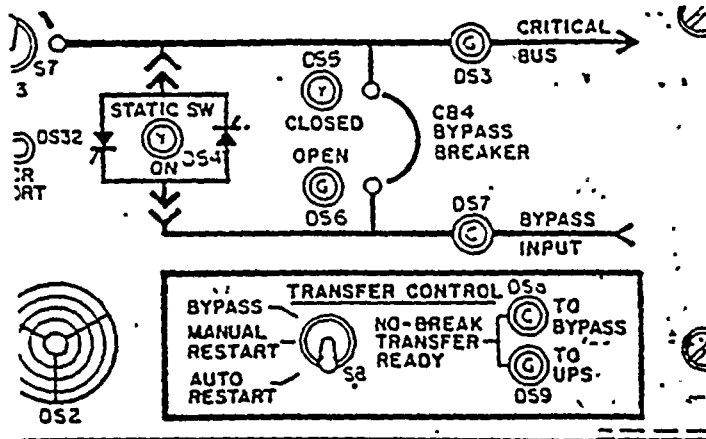
ENGINEERING DESIGN CHANGE



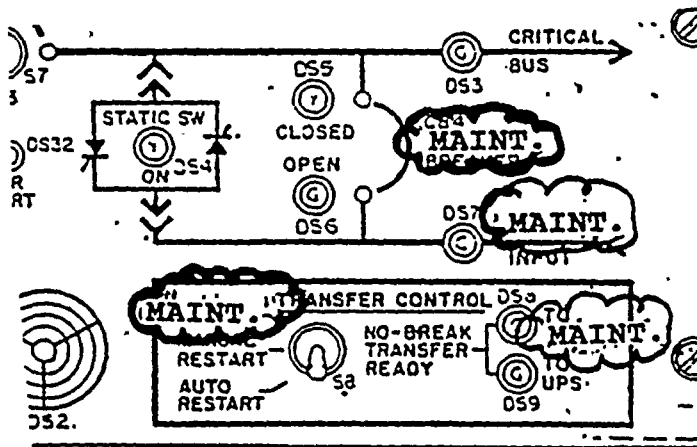
8/88
HEL-050
ENGINEERING DESIGN CHANGE

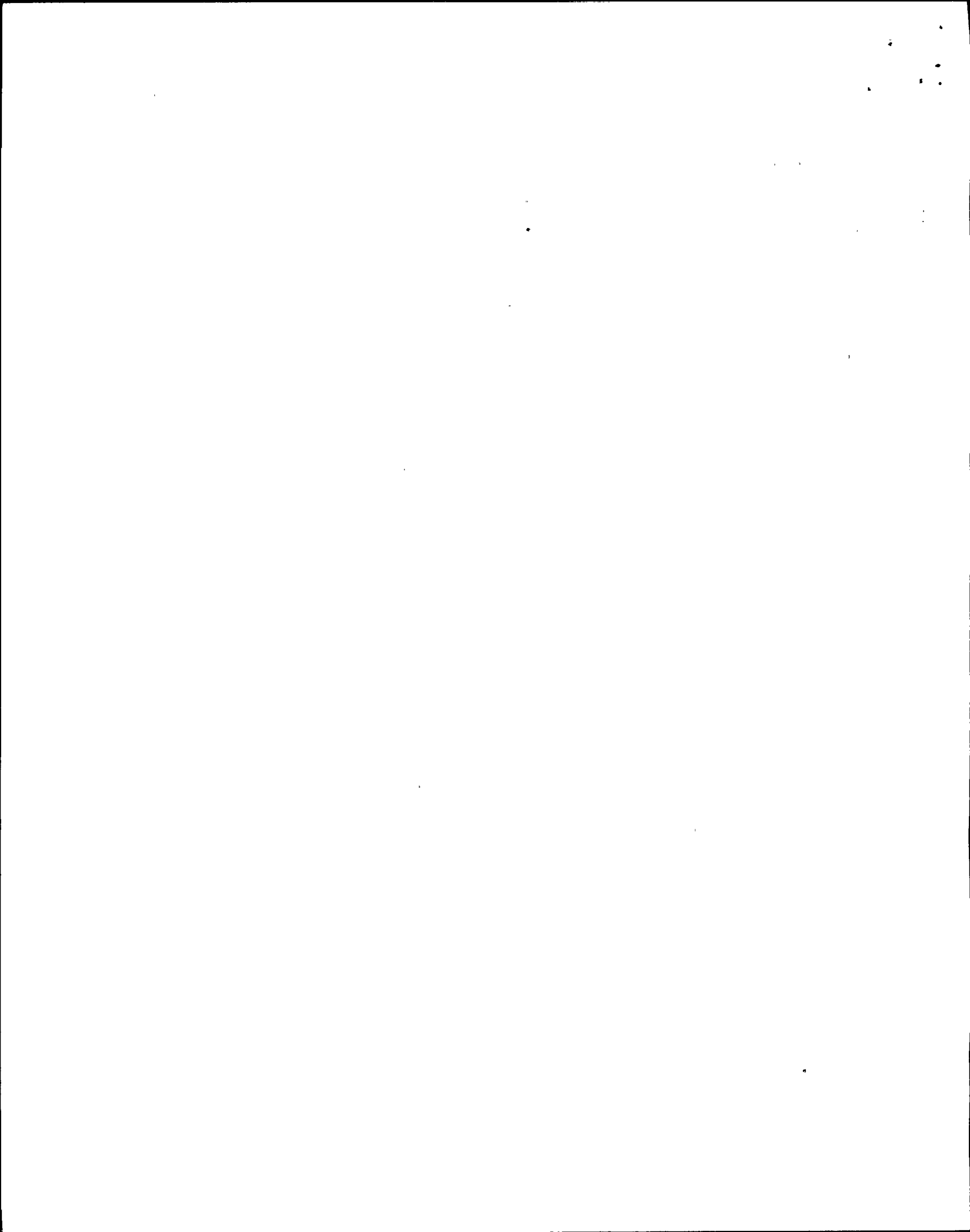
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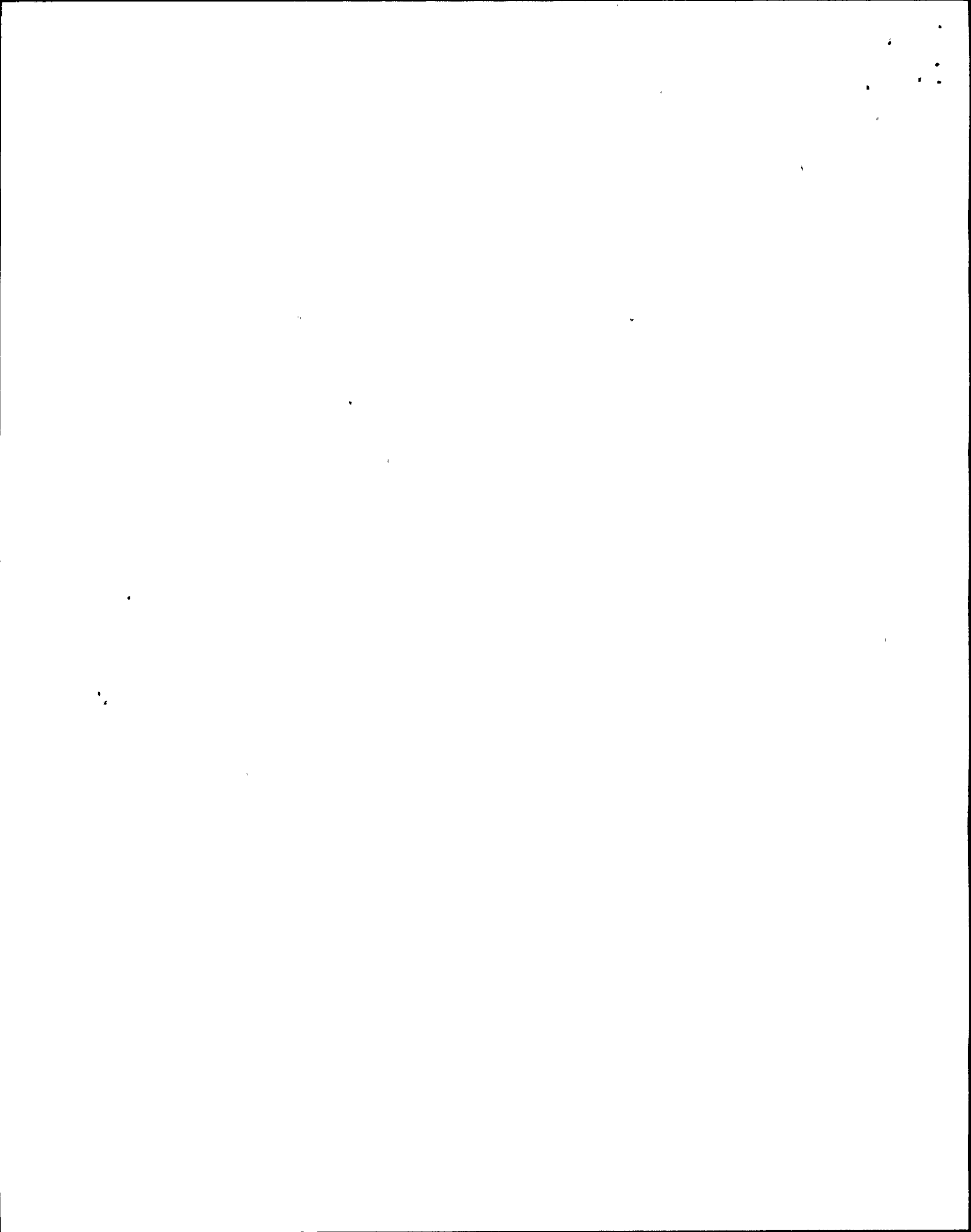
FROM:



TO:







SWECND: 1.560-229-010

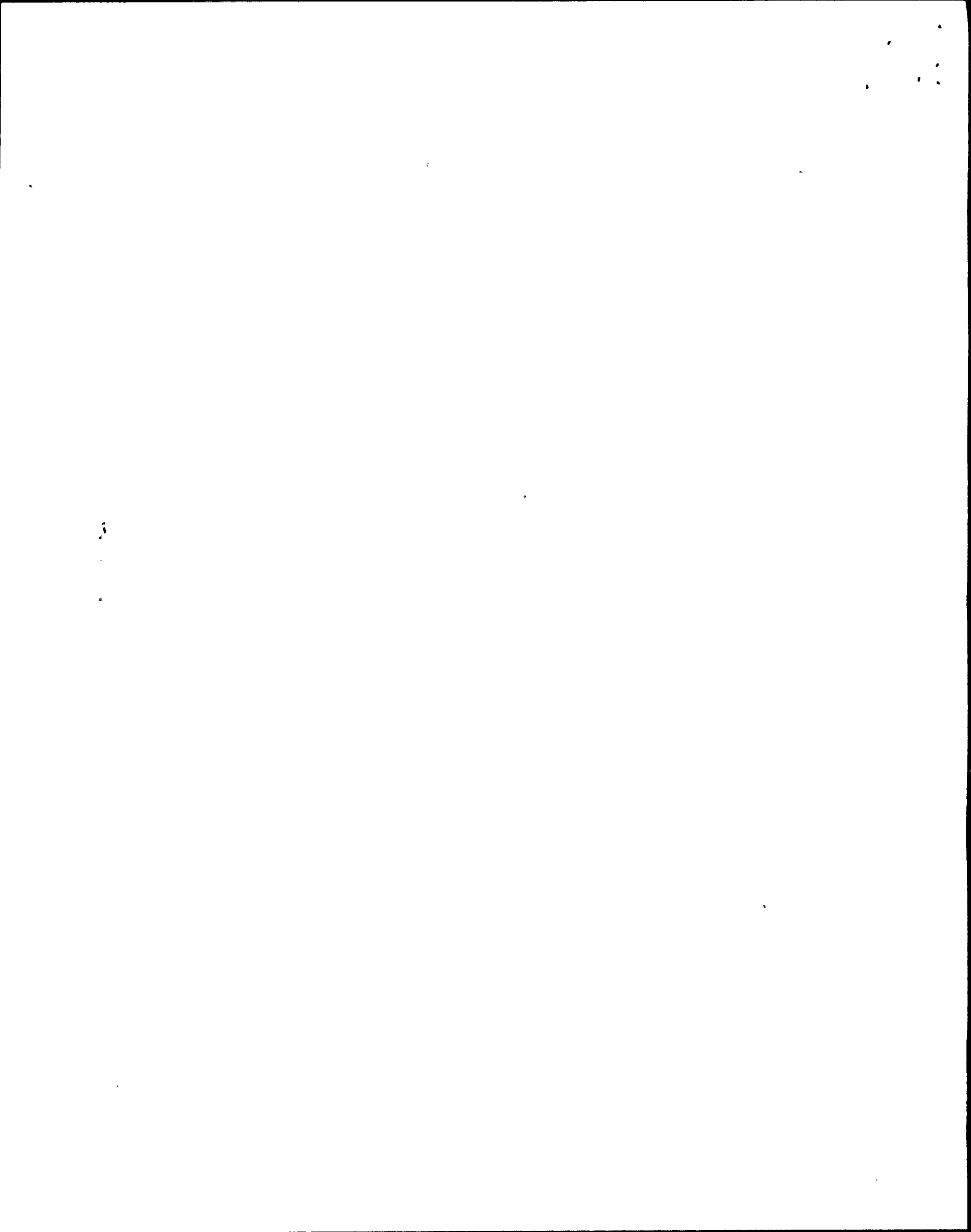
8/88
NEL-050
ENGINEERING DESIGN CHANGE

FROM:

	AC BYPASS FEED TO UPS (SEE NOTE 1 and 2 SHEET 1)		
	A-B-C PHASE ROTATION REQUIRED)		
		<u>INVERTER</u>	
Phase A		E10 (bypass 0A)	Located under top ri
Phase B		E11 (bypass 0B)	entry plate.

TO:

	MAINTENANCE FEED TO UPS (SEE NOTE 1 and 2 SHEET 1)		
	A-B-C PHASE ROTATION REQUIRED)		
		<u>INVERTER</u>	
Phase A		E10 (bypass 0A)	Located under top ri
Phase B		E11 (bypass 0B)	entry plate.



NIAGARA MOHAWK NINE MILE POINT NUCLEAR STATION

EDC NO.

2 E 1 0 1 3 0

REV

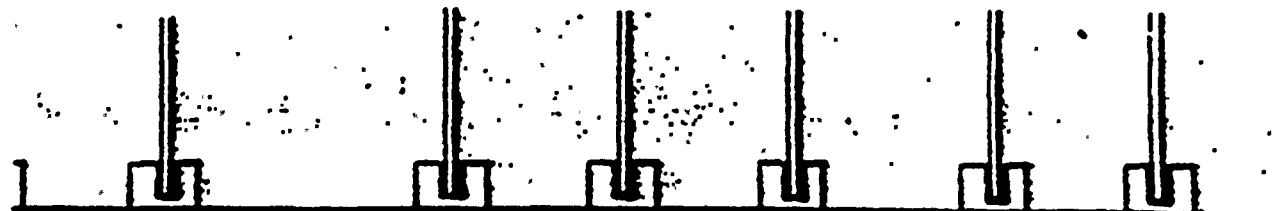
PAGE 10 OF 32

SWECNO: 1.560-229-013

HEL-050 87

ENGINEERING DESIGN CHANGE

FROM:

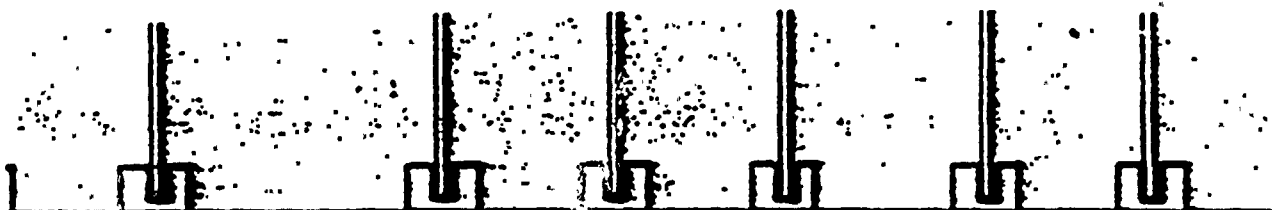


A3 A5 A8 A9 A12 A18

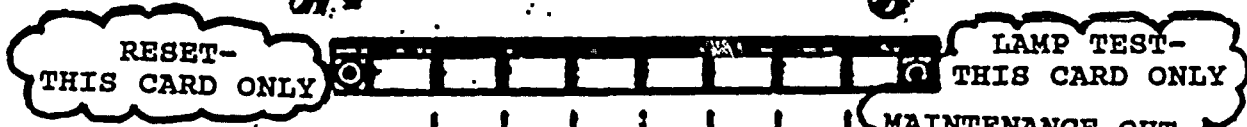


OVERLOAD TRANSFER
 UV/OV TRANSFER
 TRANSFER LOCKOUT
 BYPASS OUT OF LIMITS
 VOLTAGE DIFFERENCE
 OUTPUT OV/UV
 STATIC SWITCH UNPLUGGED

TO:



A3 A5 A8 A9 A12 A18



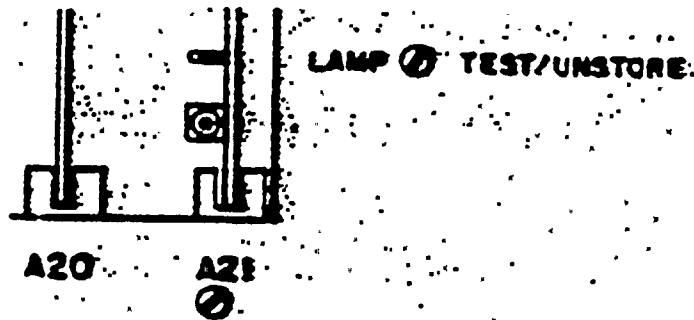
OVERLOAD TRANSFER
 UV/OV TRANSFER
 TRANSFER LOCKOUT
 MAINTENANCE OUT OF LIMITS
 VOLTAGE DIFFERENCE
 OUTPUT OV/UV
 STATIC SWITCH UNPLUGGED



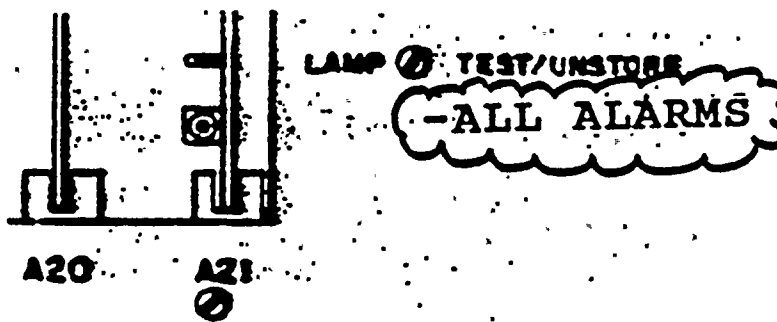
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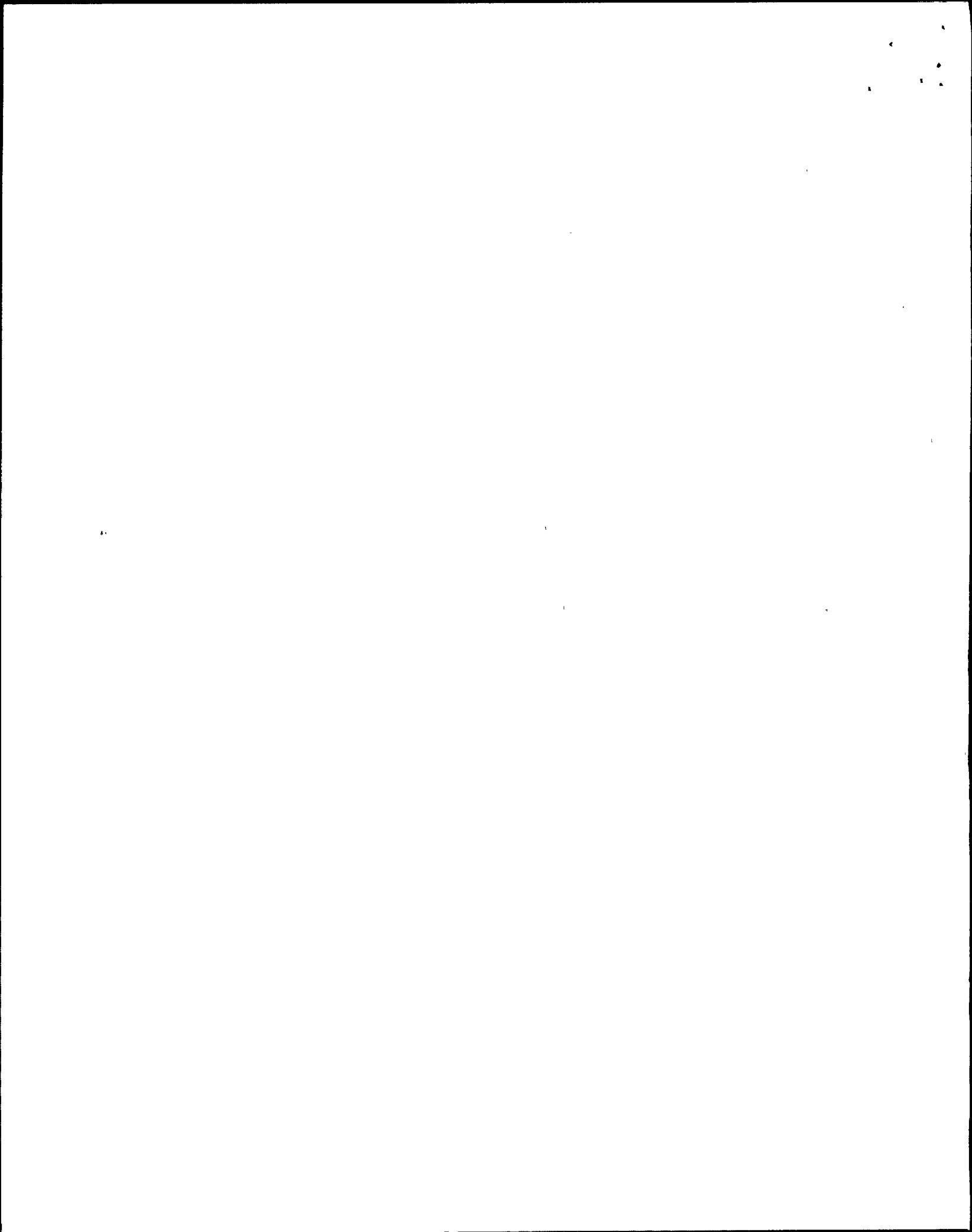
ENGINEERING DESIGN CHANGE
NEL-050 87

FROM:



TO:

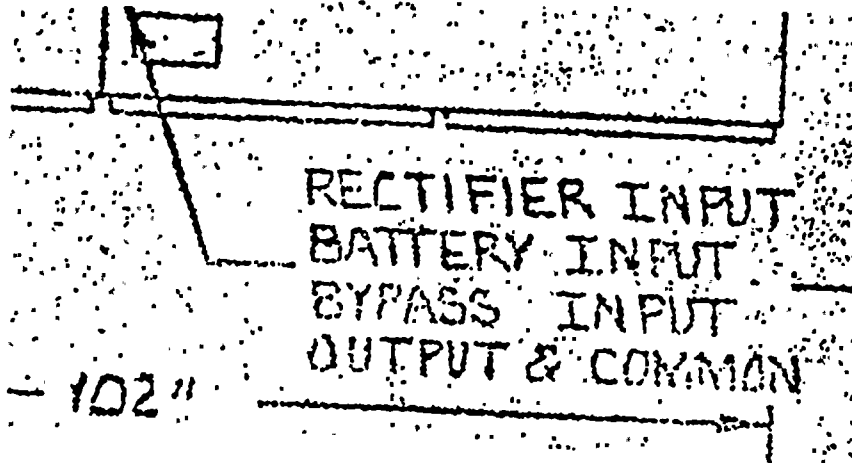




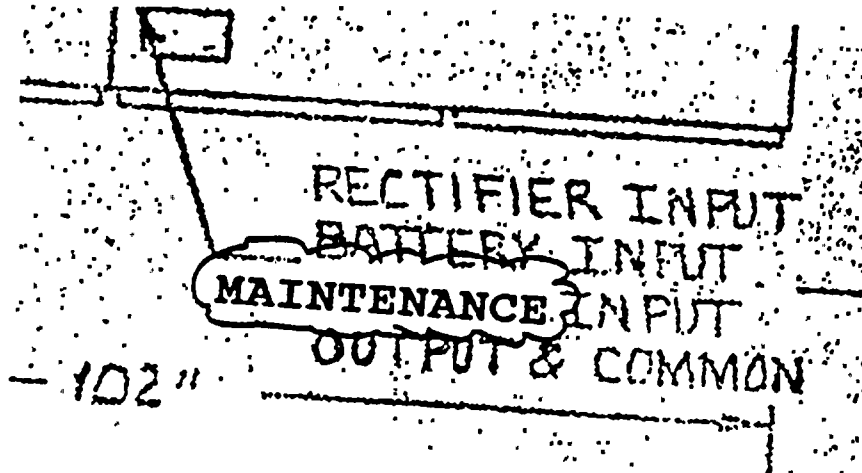
8/88
HEL-050
ENGINEERING DESIGN CHANGE

SWECNO: 1.560-229-017

FROM:



TO:



100

8/88
NEL-050
ENGINEERING DESIGN CHANGE

SWECNO: 1.560-229-017

NOTES SECTION:

FROM:

B. 120 VAC, 60 AMP, 10, 60 Hz. 1/2" LUG SIZE

4. BYPASS INPUT POWER:

A. 575 VAC 68 AMP SERVICE (PLUS XFMR. INRUS

B. 2-PIN TERMINAL BLOCK TB4 WILL ACCEPT TWO

LUG, TYPE YA-2N.

TO:

B. 120 VAC, 60 AMP, 10, 60 Hz. 1/2" LUG SIZE

MAINTENANCE INPUT POWER

A. 575 VAC 68 AMP SERVICE (PLUS XFMR. INRUS

B. 2-PIN TERMINAL BLOCK TB4 WILL ACCEPT TWO

LUG, TYPE YA-2N.

FROM:

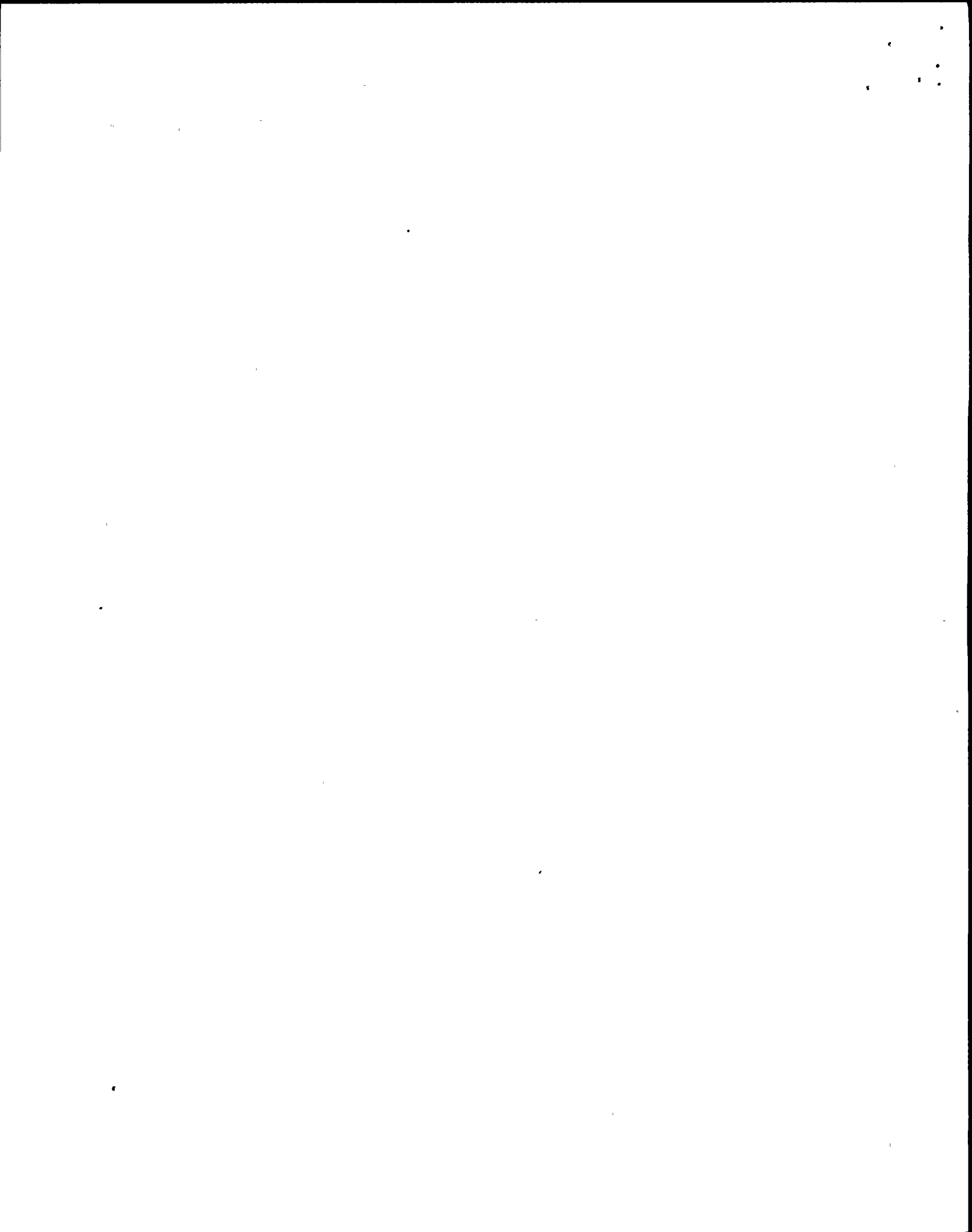
10. MANUAL BYPASS SWITCH:

ELECTRO SWITCH 2 POSITION 107601A-2AS MAKE BEFORE BREAK

TO:

10. MANUAL MAINTENANCE SWITCH:

ELECTRO SWITCH 2 POSITION 107601A-2AS MAKE BEFORE BREAK



SWENB: 1560-229-017
FROM:

EDC
NO.

2 E 1 0 1 3 0

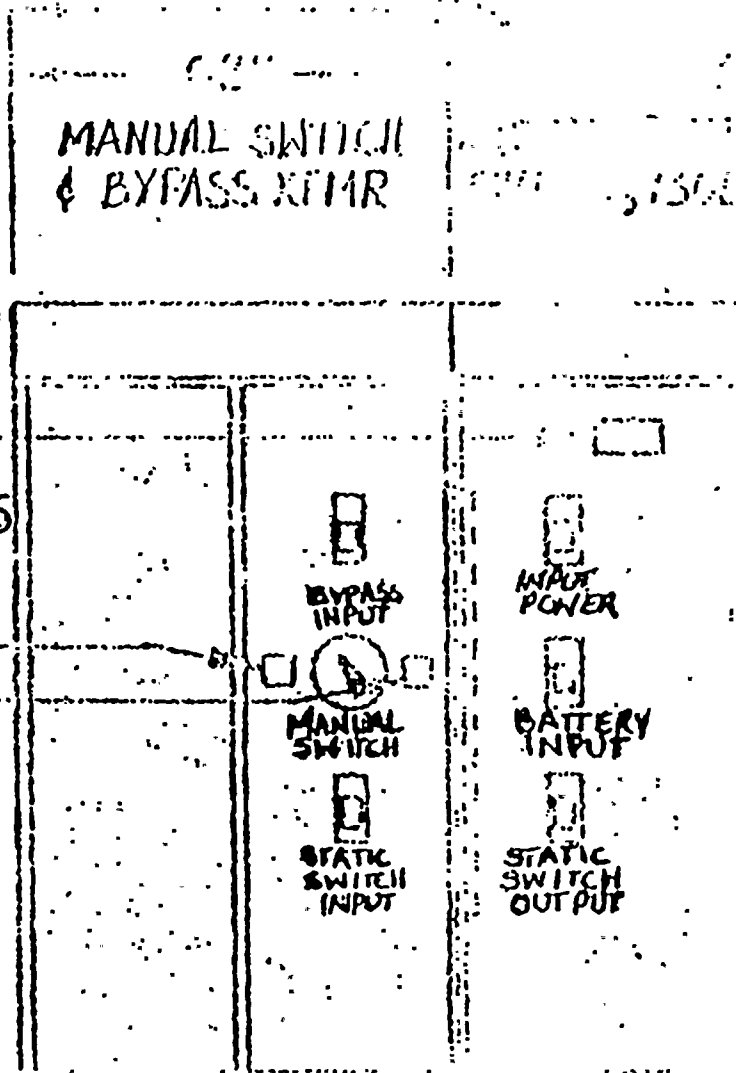
REV

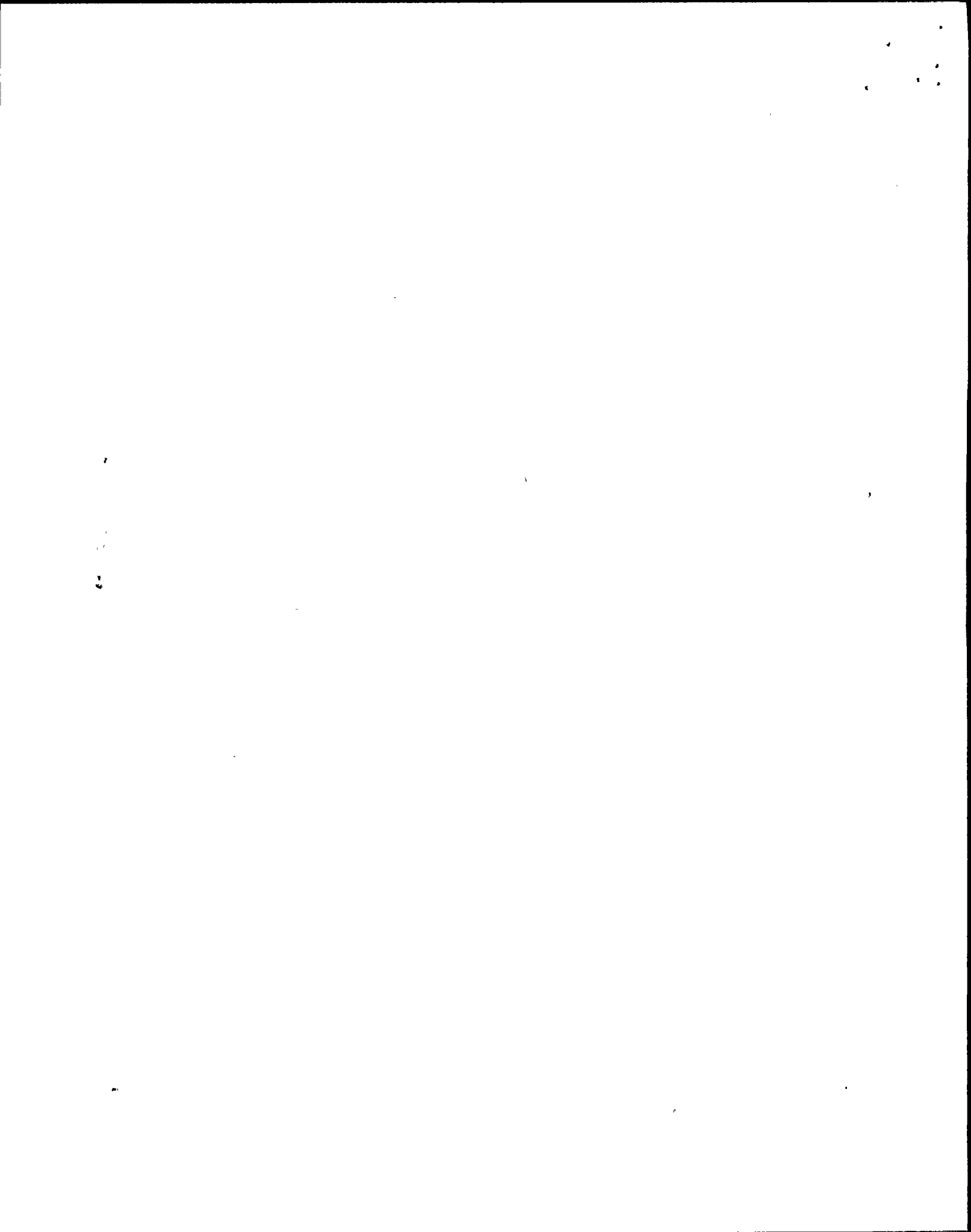
PAGE 14
OF 22

MANUAL SWITCH
& BYPASS KEYS

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

BYPASS
UPS

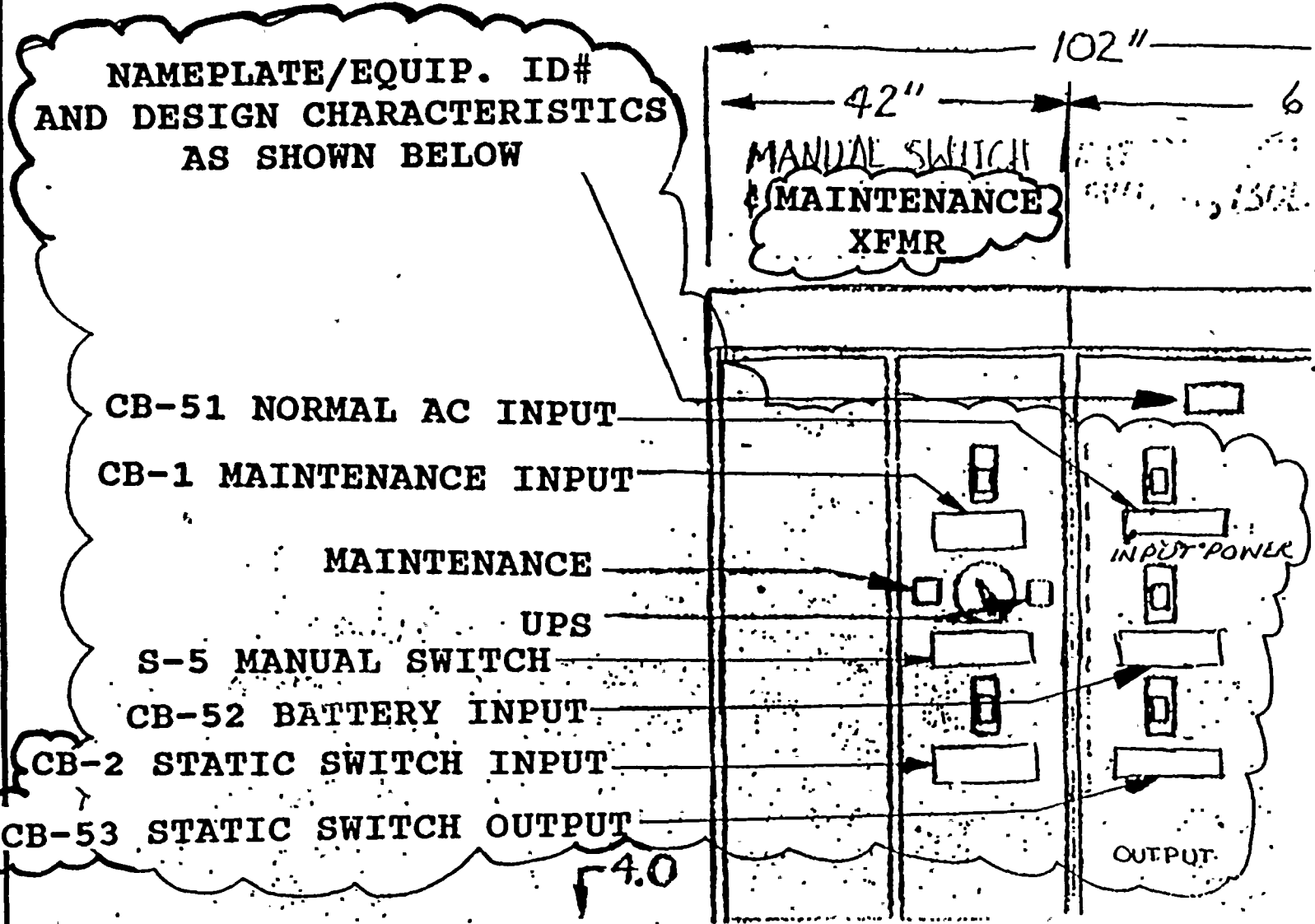




SYMBOL NO. 55-32-387

TO: SWECD: 15160-229-017

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



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

4.0

MANUAL SWITCH (MAINTENANCE) XFMR

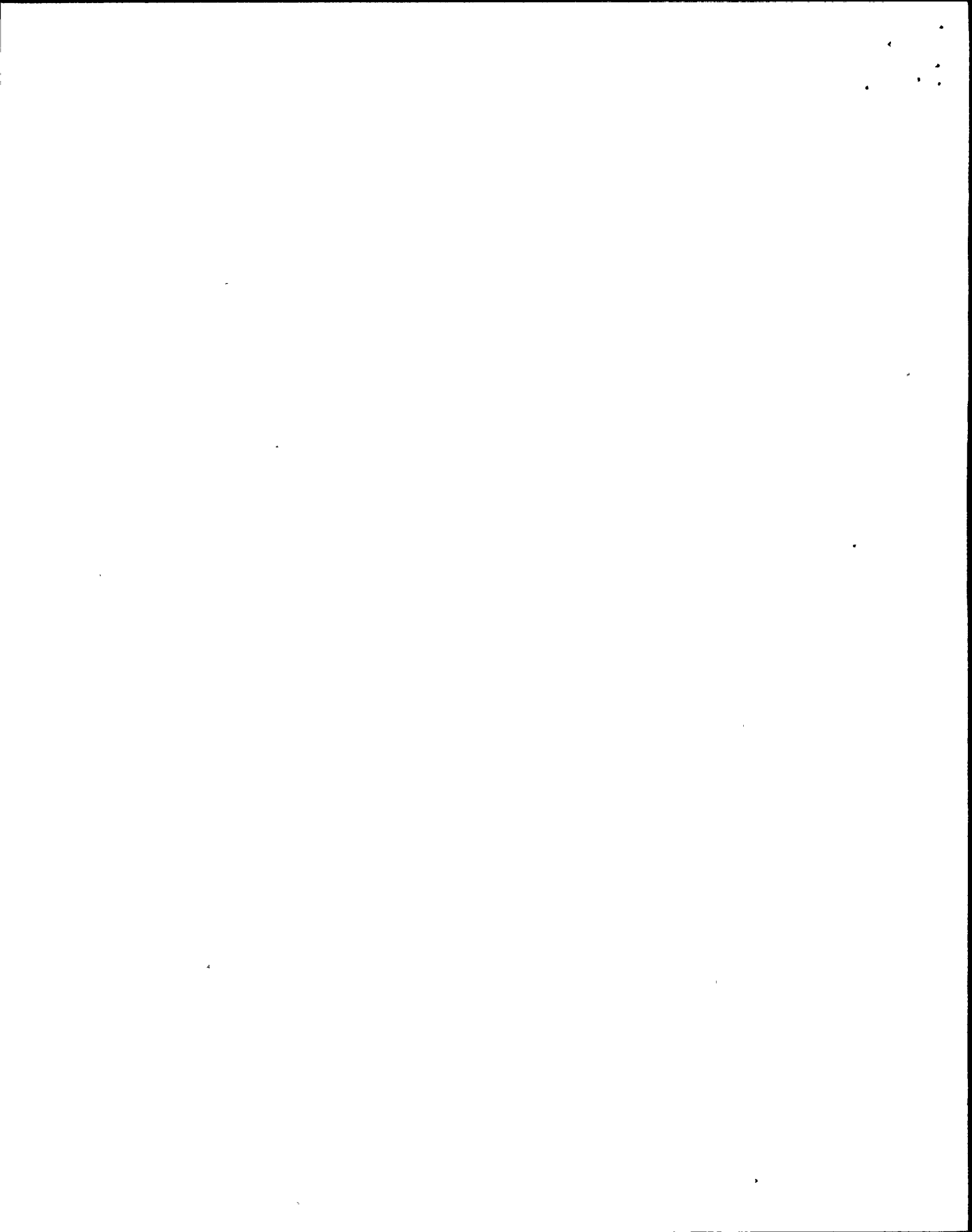
INPUT POWER

OUTPUT

102"

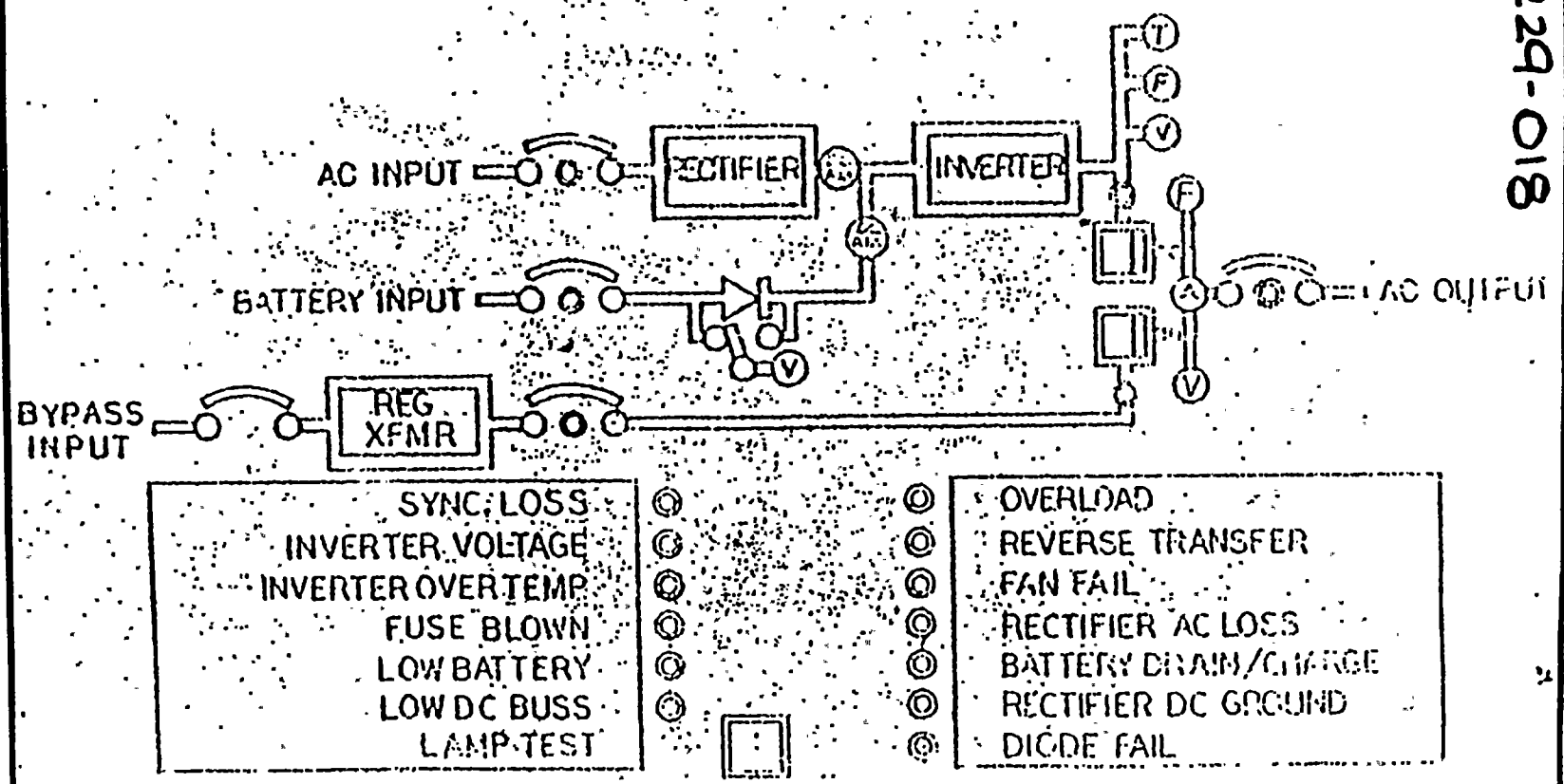
42"

6"



ENGINEERING DESIGN CHANGE NEL-050 8/88

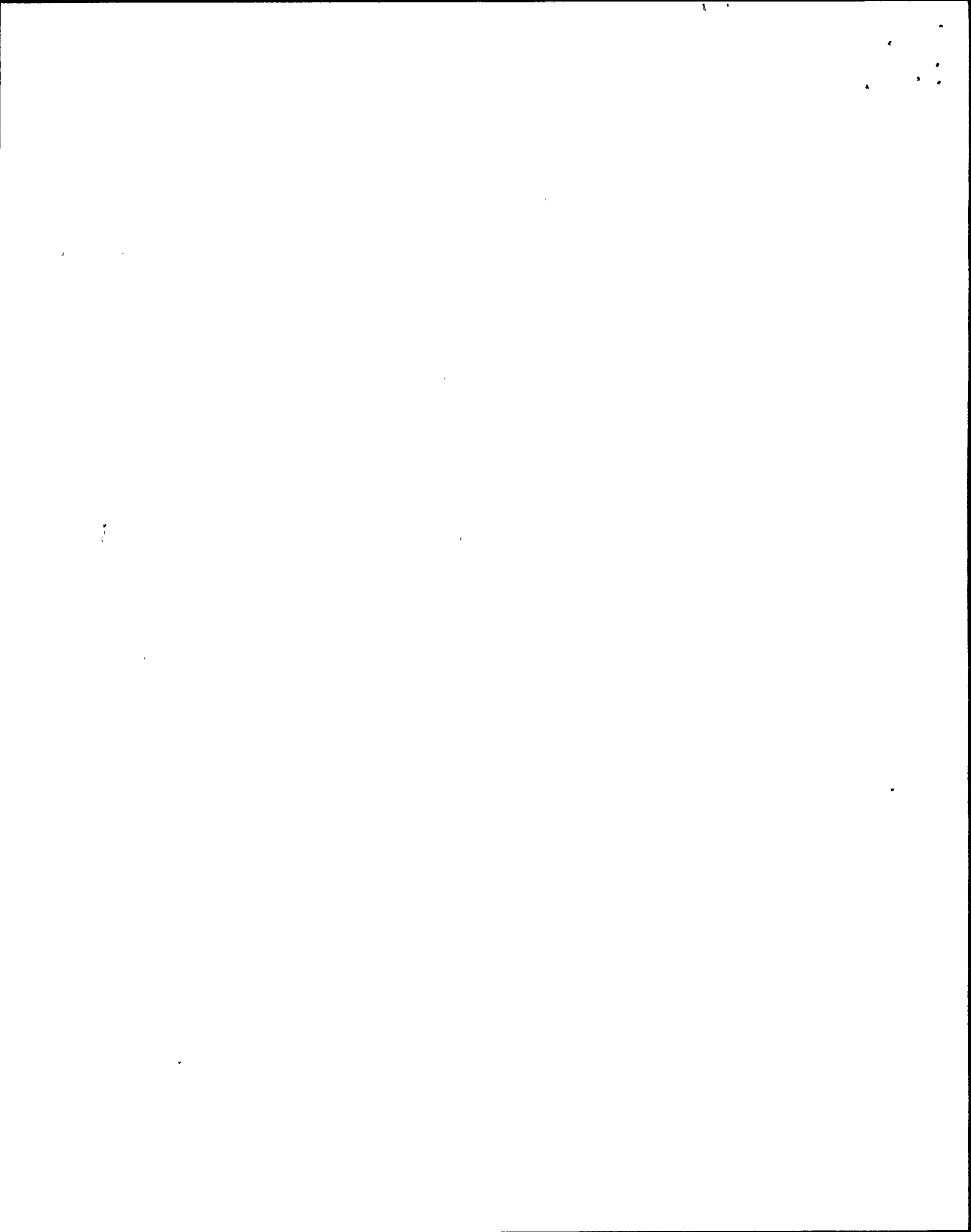
SWECD NO: 1.520-229-018
FROM:



- SYNC LOSS
- INVERTER VOLTAGE
- INVERTER OVERTEMP
- FUSE BLOWN
- LOW BATTERY
- LOW DC BUSS
- LAMP TEST

- OVERLOAD
- REVERSE TRANSFER
- FAN FAIL
- RECTIFIER AC LOSS
- BATTERY DRAIN/CHARGE
- RECTIFIER DC GROUND
- DIODE FAIL

SYMBOL NO. 55-33-387



SYMBOL NO. 55-32-387

ENGINEERING DESIGN CHANGE

HEL-050

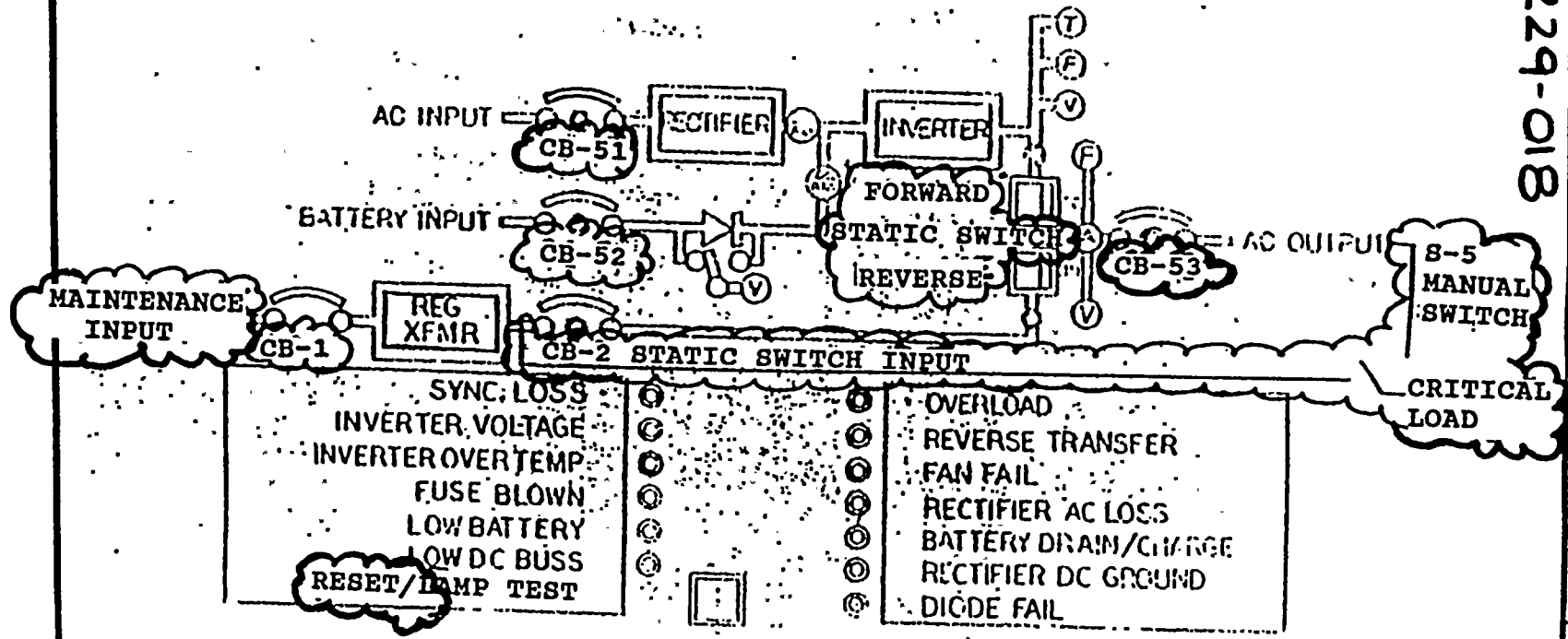
8/88

313-369 N08-88
NIAGARA NINE MILE POINT
MOHAWK NUCLEAR STATION

SWENNO: 1.560-229-018
TR:

EDC NO. 2 E 1 0 1 3 0 REV

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0
A
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x

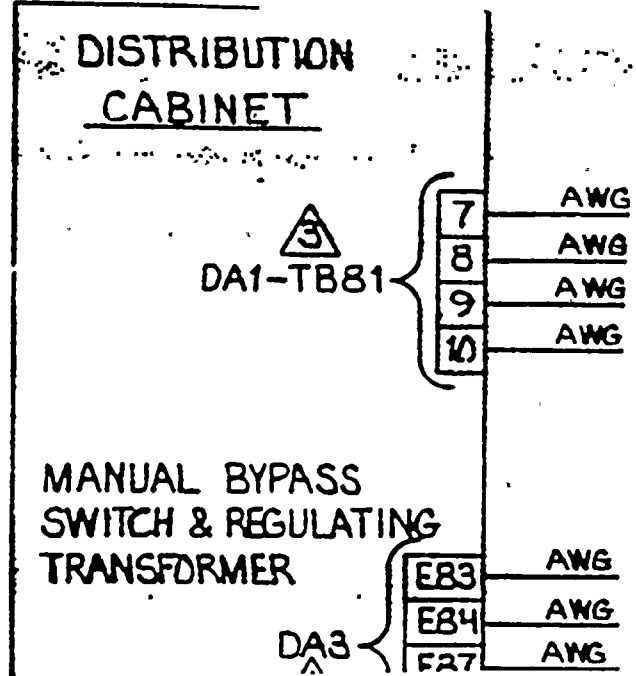
8/88

REL-050

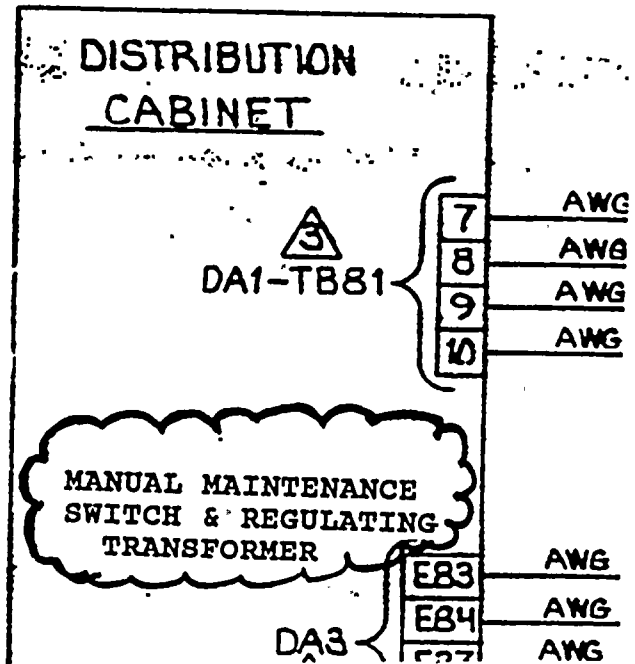
ENGINEERING DESIGN CHANGE

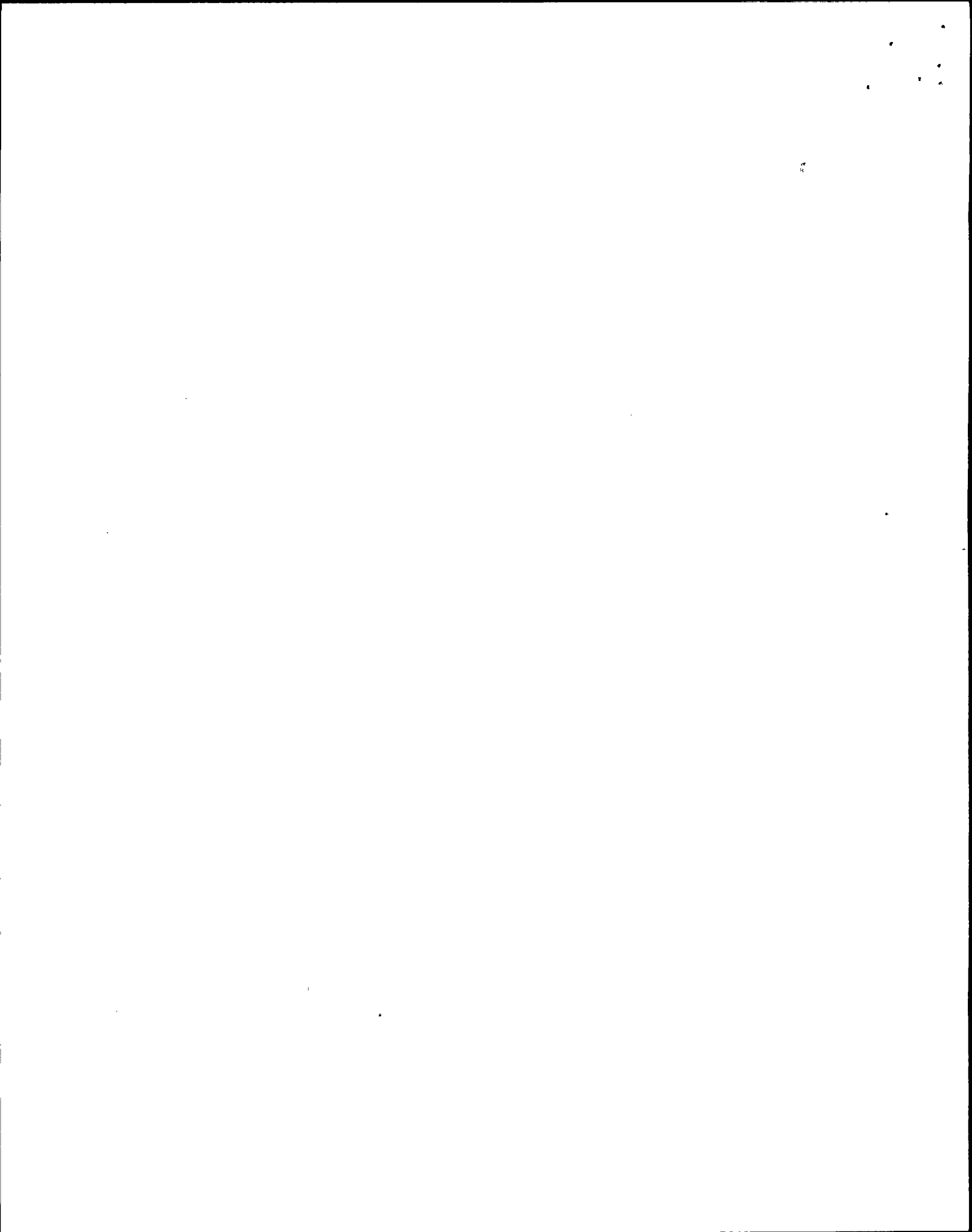
SWECNO: 1.560-229-019 AREA C4.

FROM:



TO:





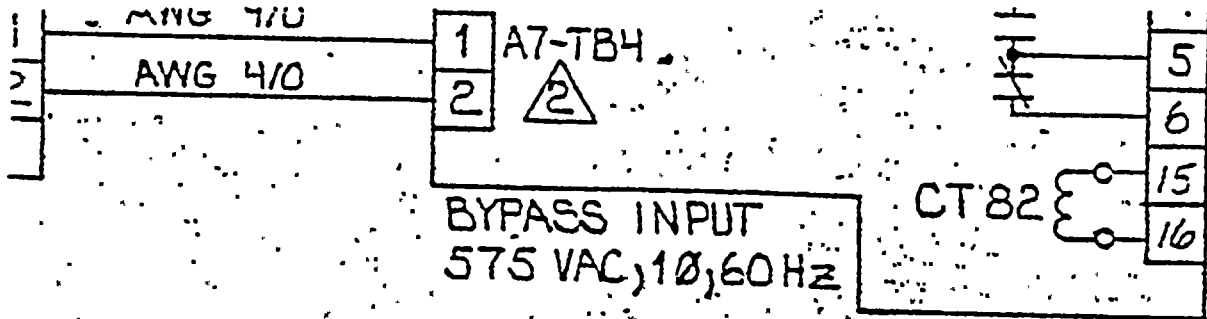
8/88

REL-050

ENGINEERING DESIGN CHANGE

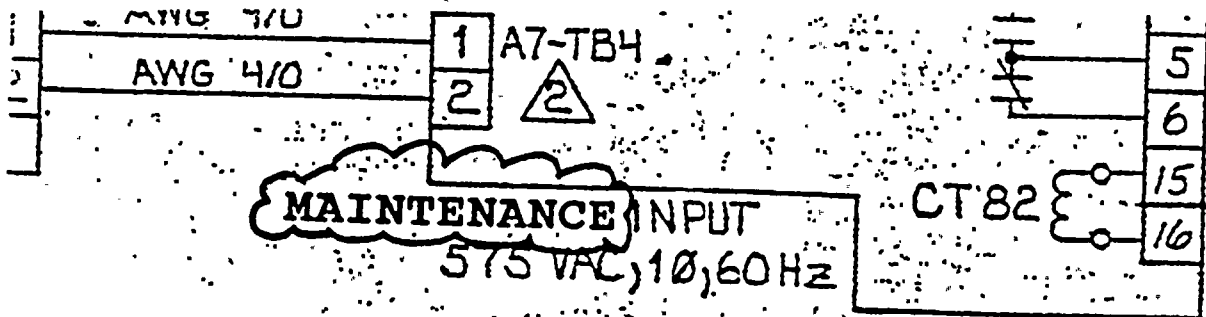
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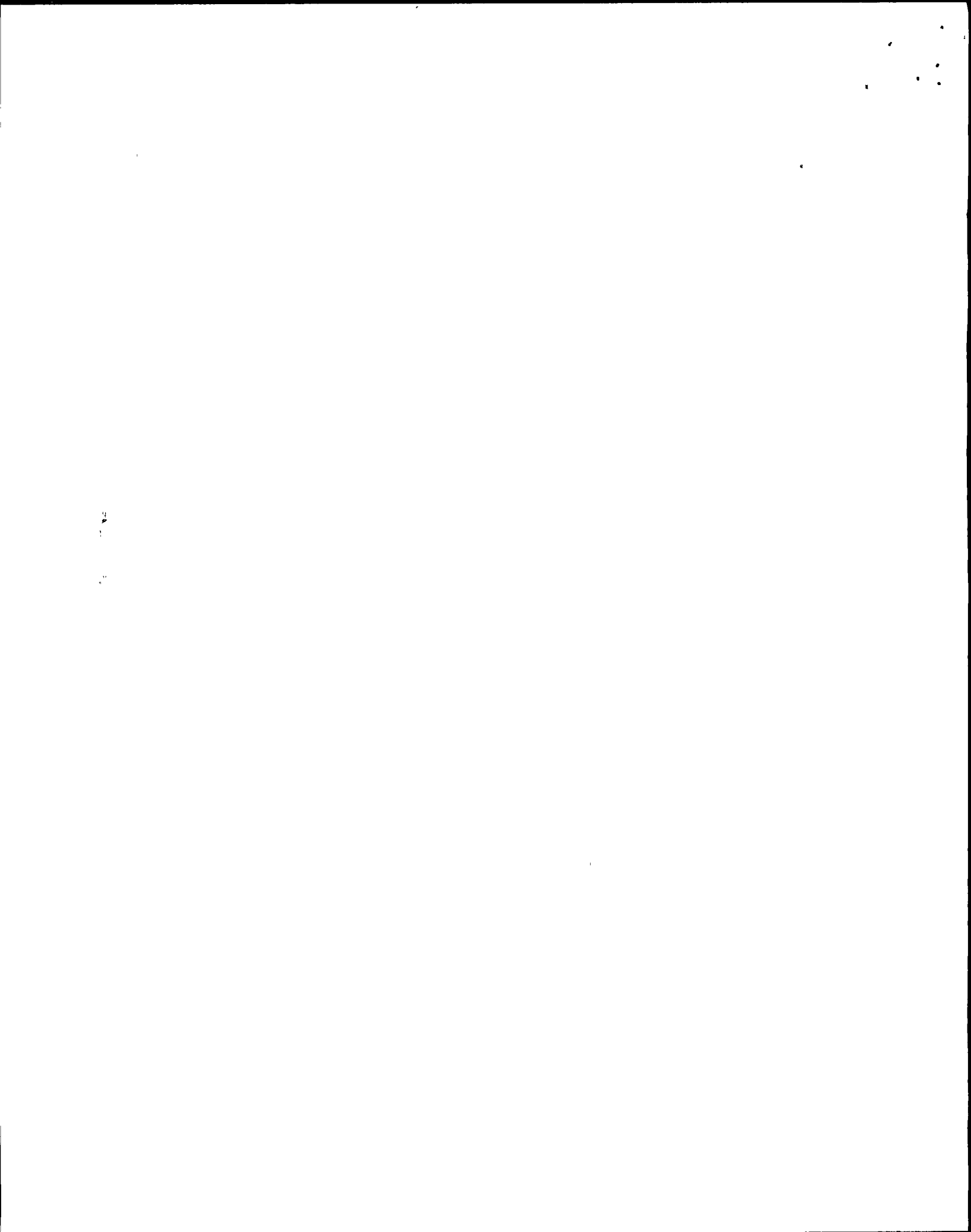


DETAIL "A"

TO:



DETAIL "A"



SWECNO: 1-560-229-021

FROM:

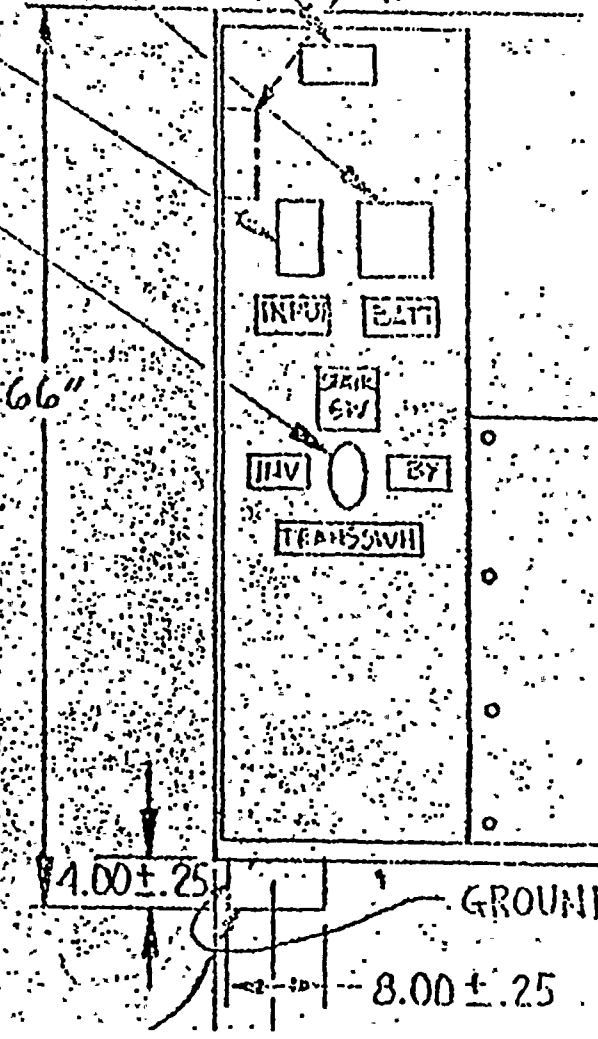
8/88

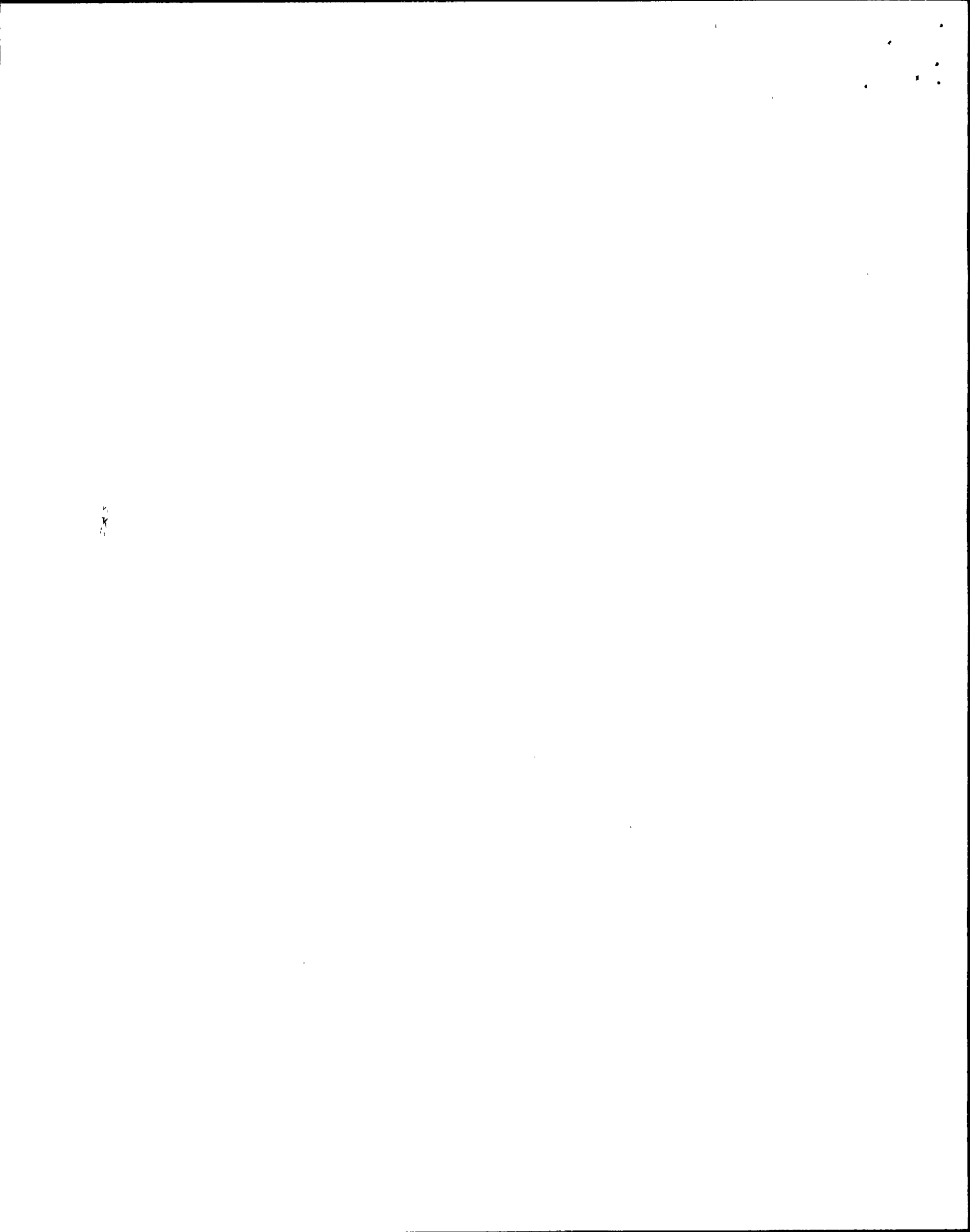
HEL-050

ENGINEERING DESIGN CHANGE

AC INPUT CKT BRKR
GE TYPE THED136050

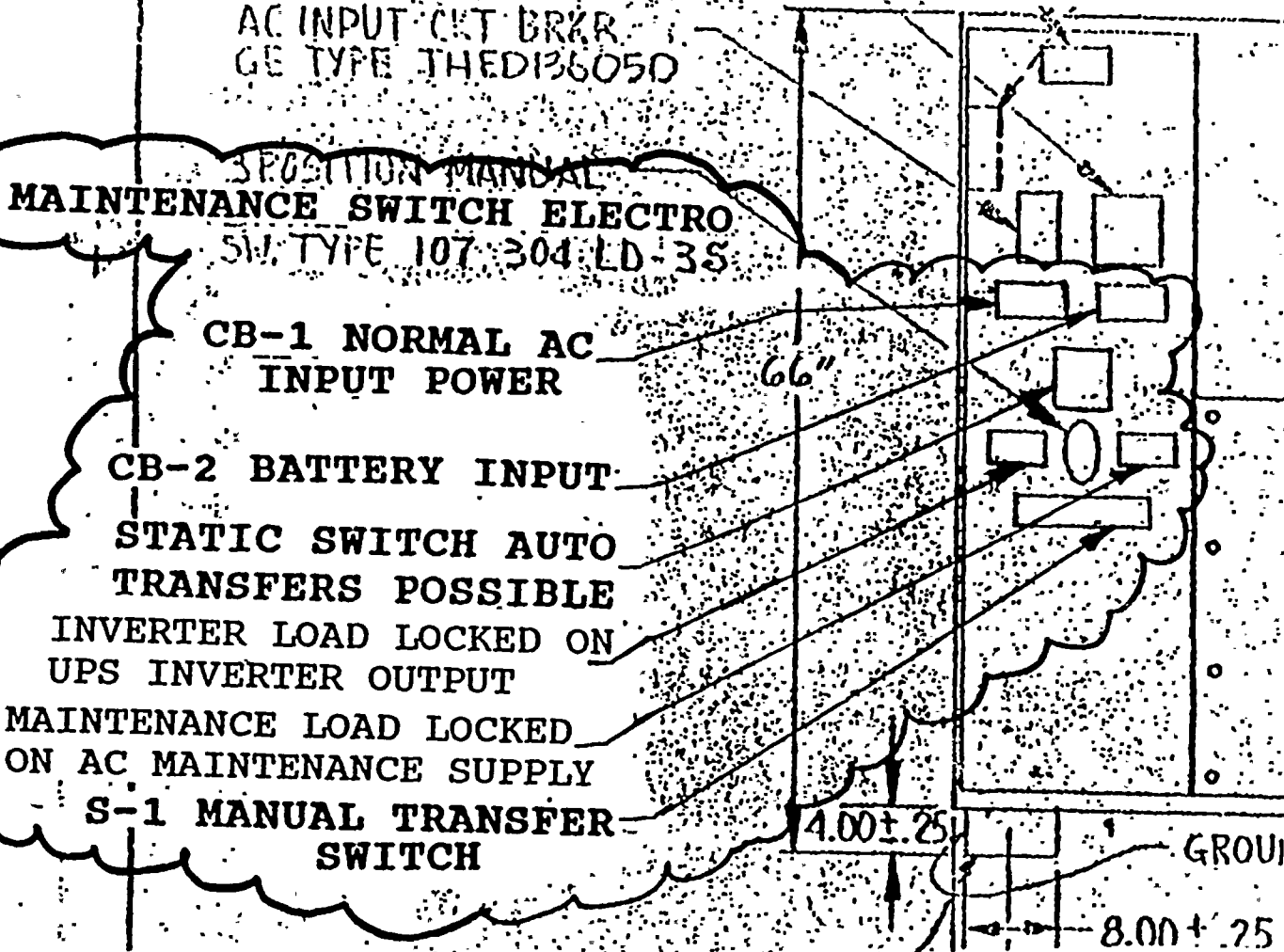
3 POSITION MANUAL
BYPASS SWITCH ELECTRO
SW TYPE 107-304-LD-38





SWECNO: 1.560-229-021

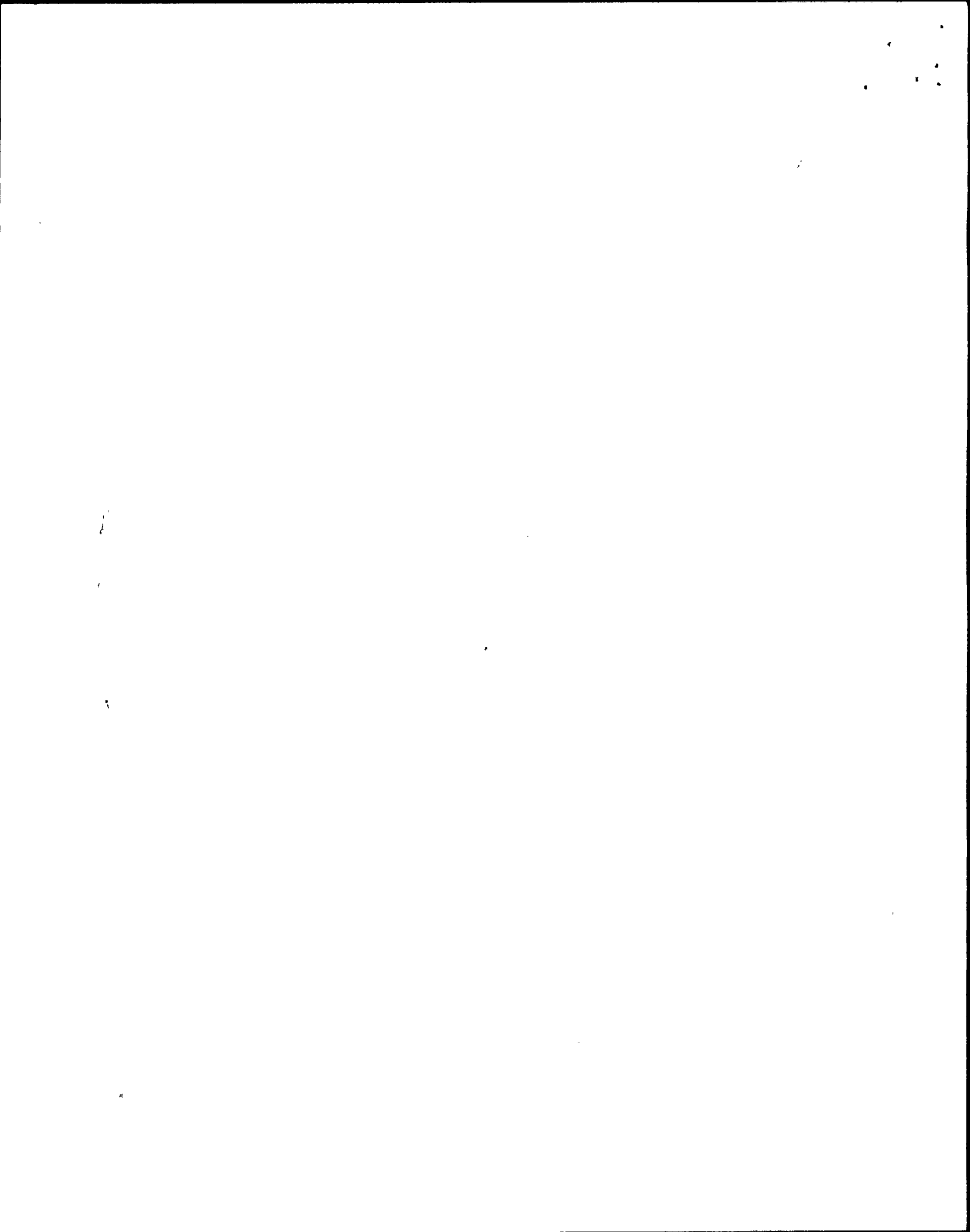
TD:



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ENGINEERING DESIGN CHANGE



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ENGINEERING DESIGN CHANGE

SWECNO: 1.560-229-021 NOTES SECTION

FROM:

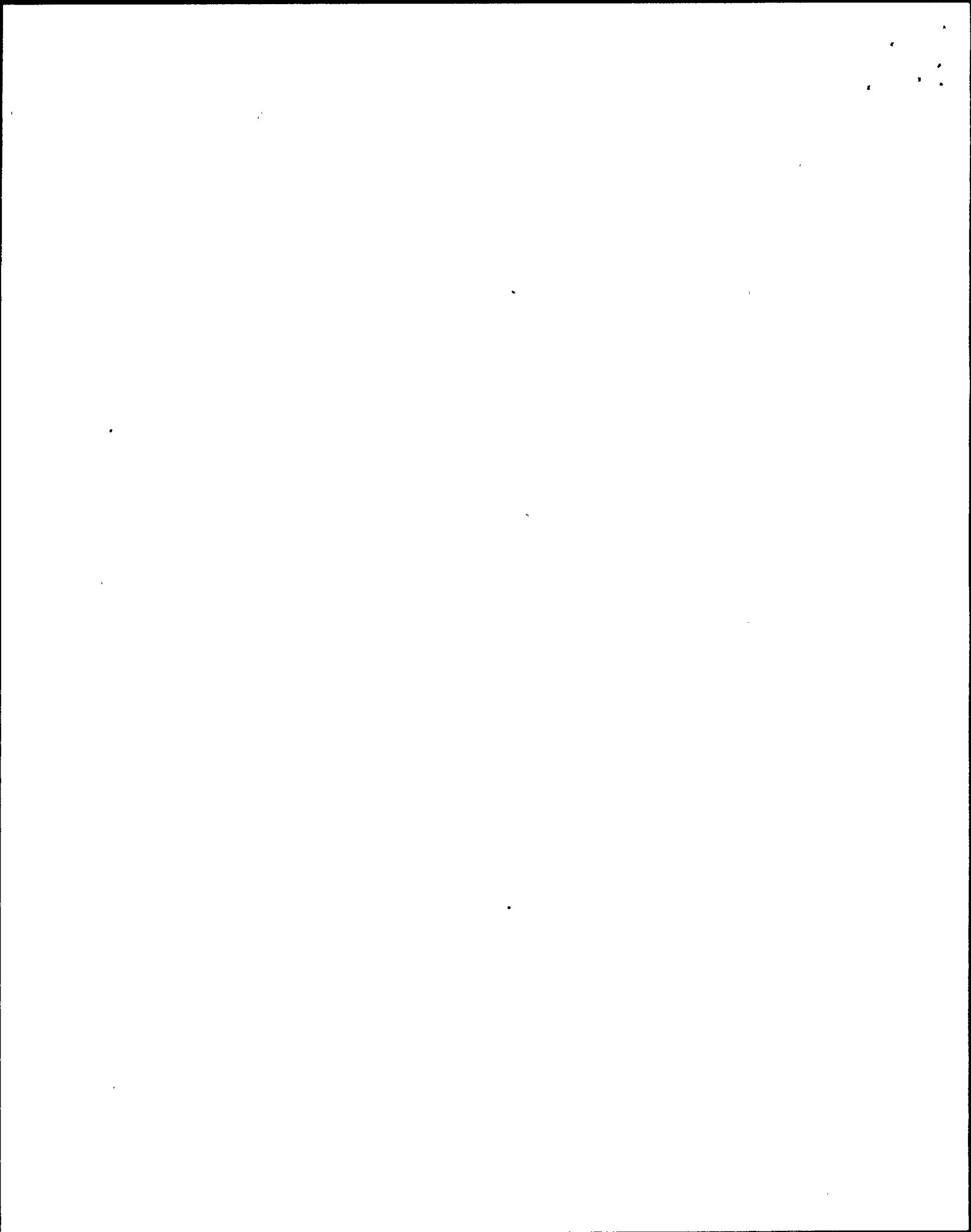
- 4. BYPASS INPUT POWER FROM PLC:
 - A. 120 VAC, 10 AMP, 10, 60HZ. RATED TO SUPPLY SHORT CIRCUIT FOR 20 MS.
 - B. CONNECT TO 2-PIN TERMINAL BLOCK TB4, BUSMAN

- 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 ALARMS CONNECTED TO TERMINAL BLOCK TB5 GE TYPE CR1 B2, MARKED 1-34.

TO:

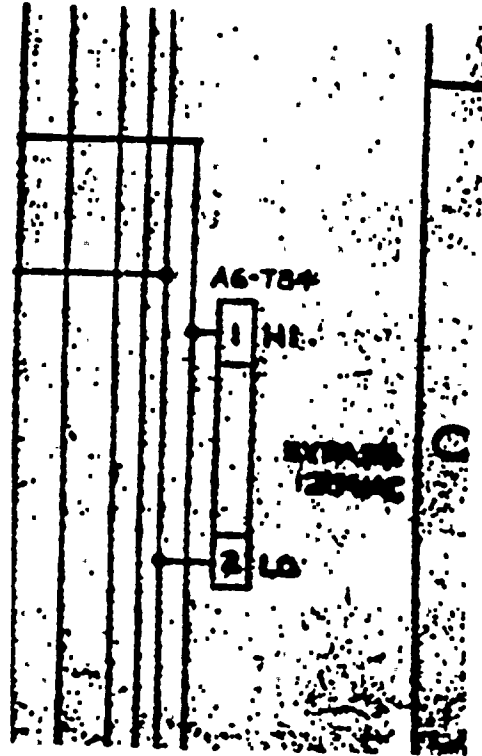
- 4. ~~TYPE 3580 MARKED 1-2~~
MAINTENANCE INPUT POWER FROM PLC:
 - A. 120 VAC, 10 AMP, 10, 60HZ. RATED TO SUPPLY SHORT CIRCUIT FOR 20 MS.
 - B. CONNECT TO 2-PIN TERMINAL BLOCK TB4, BUSMAN

- 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
- 14. ~~EXTERNAL ALARMS CONNECTED TO TERMINAL BLOCK TB5 GE TYPE CR1 B2, MARKED 1-34.~~

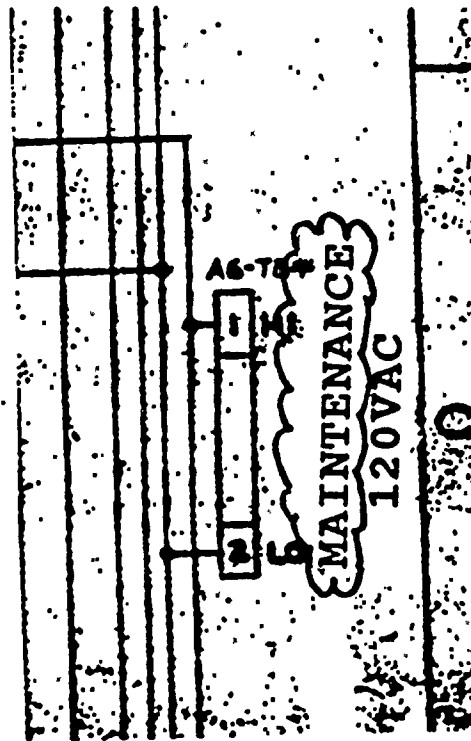


SWECNO: 1.560-229-024

FROM:



TO:



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NEL-050
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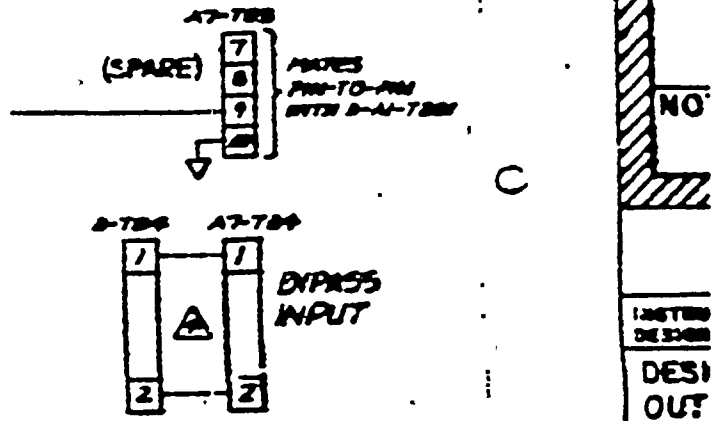
1

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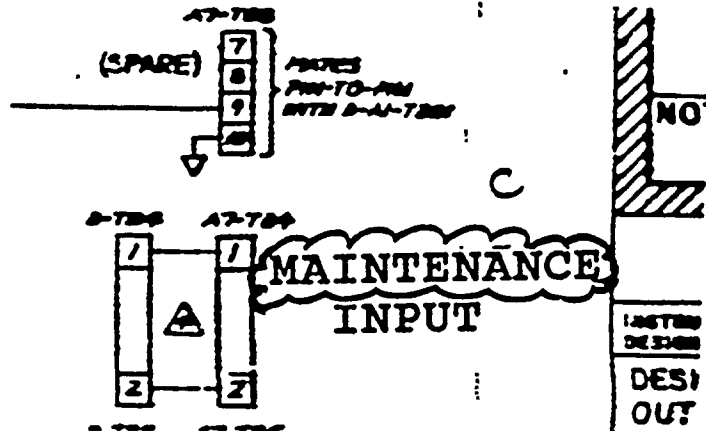
ENGINEERING DESIGN CHANGE

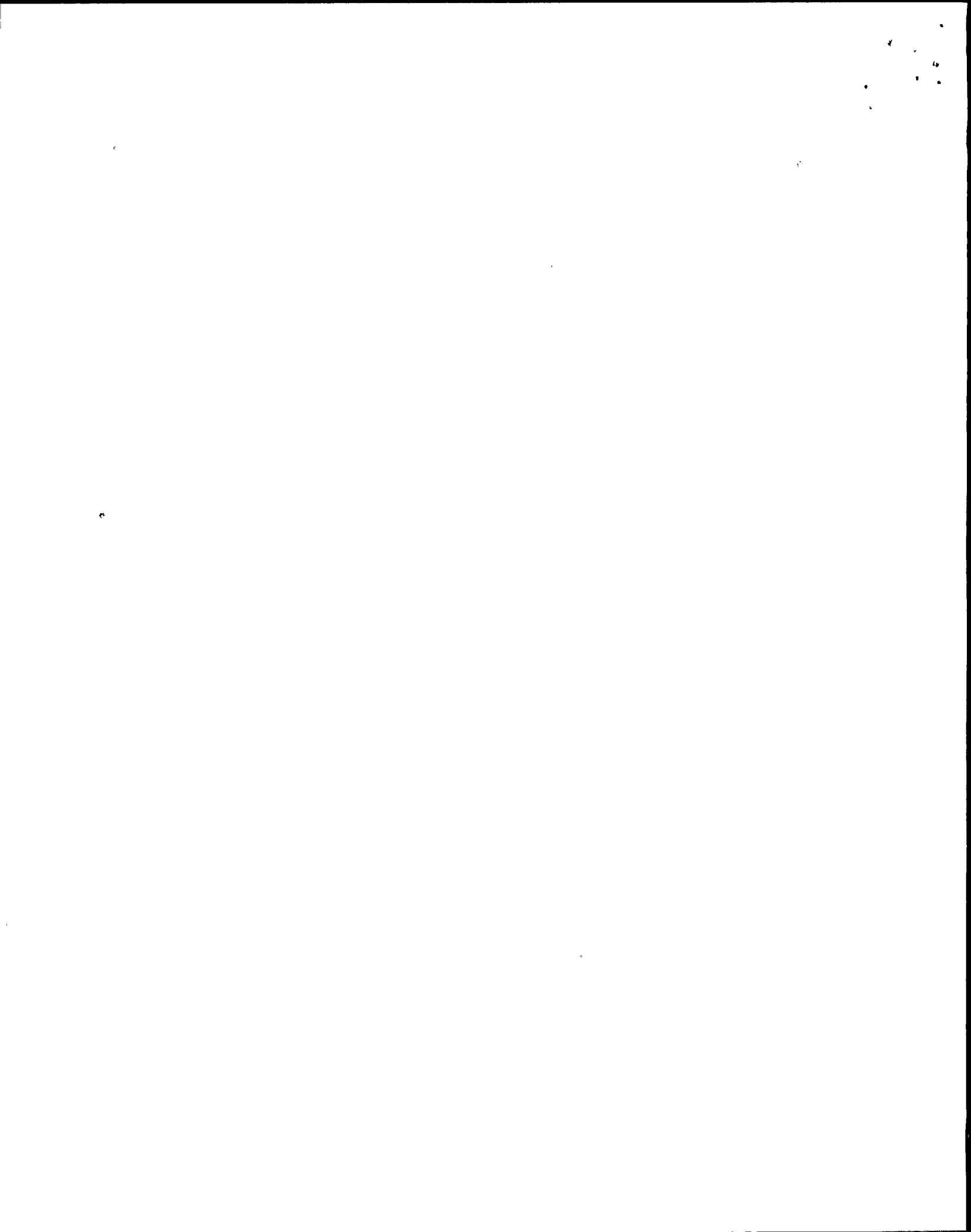
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FROM:



TO:





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11

12

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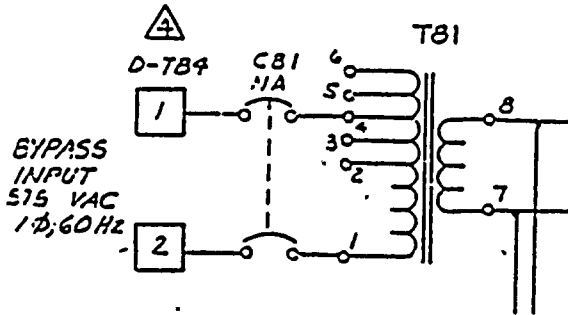
HEL-050

ENGINEERING DESIGN CHANGE

SWELNO: 1.560-229-027

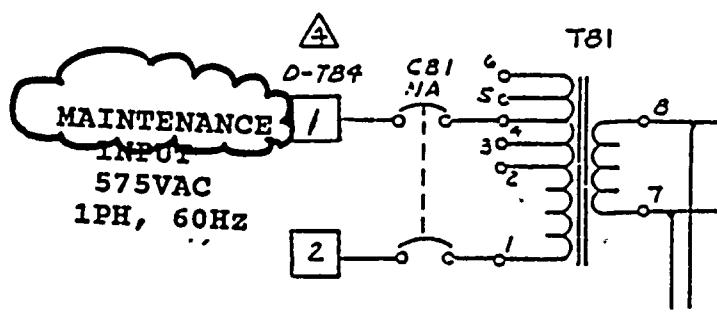
FROM:

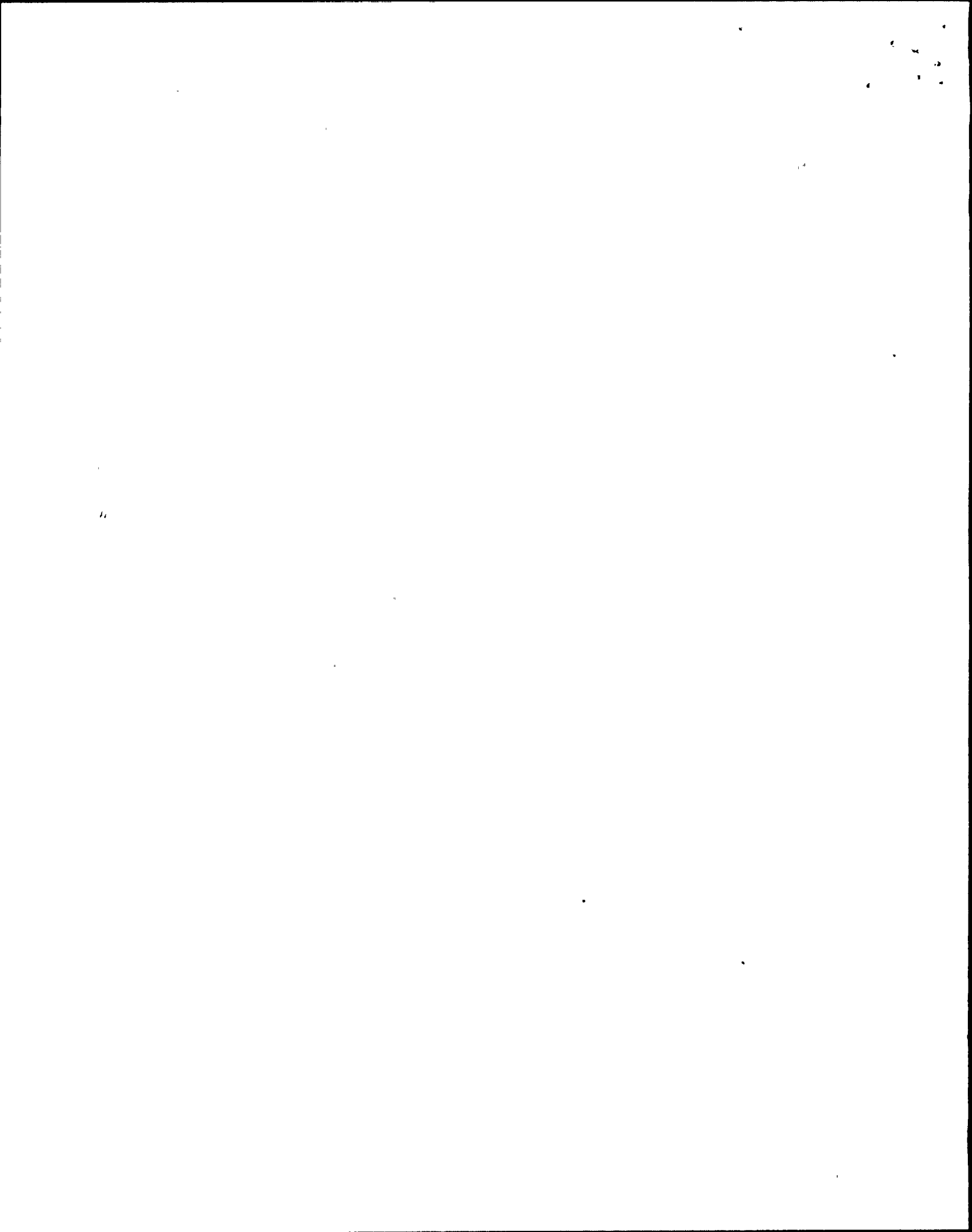
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TO:

D





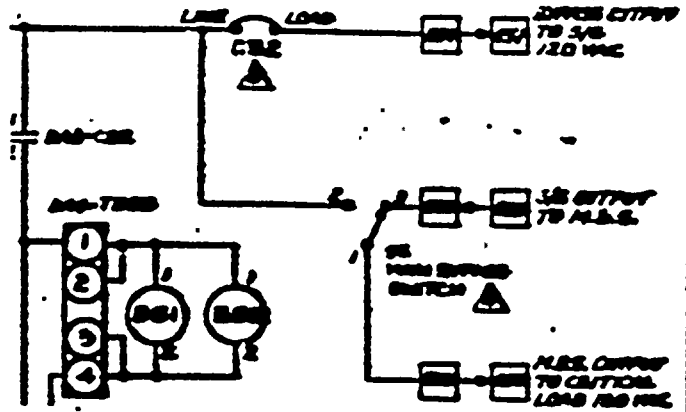
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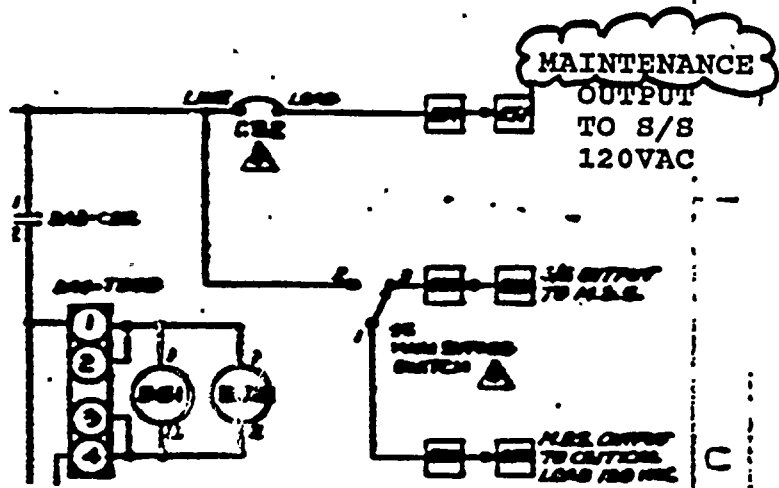
NEL-050

ENGINEERING DESIGN CHANGE

FROM:



TO:



10

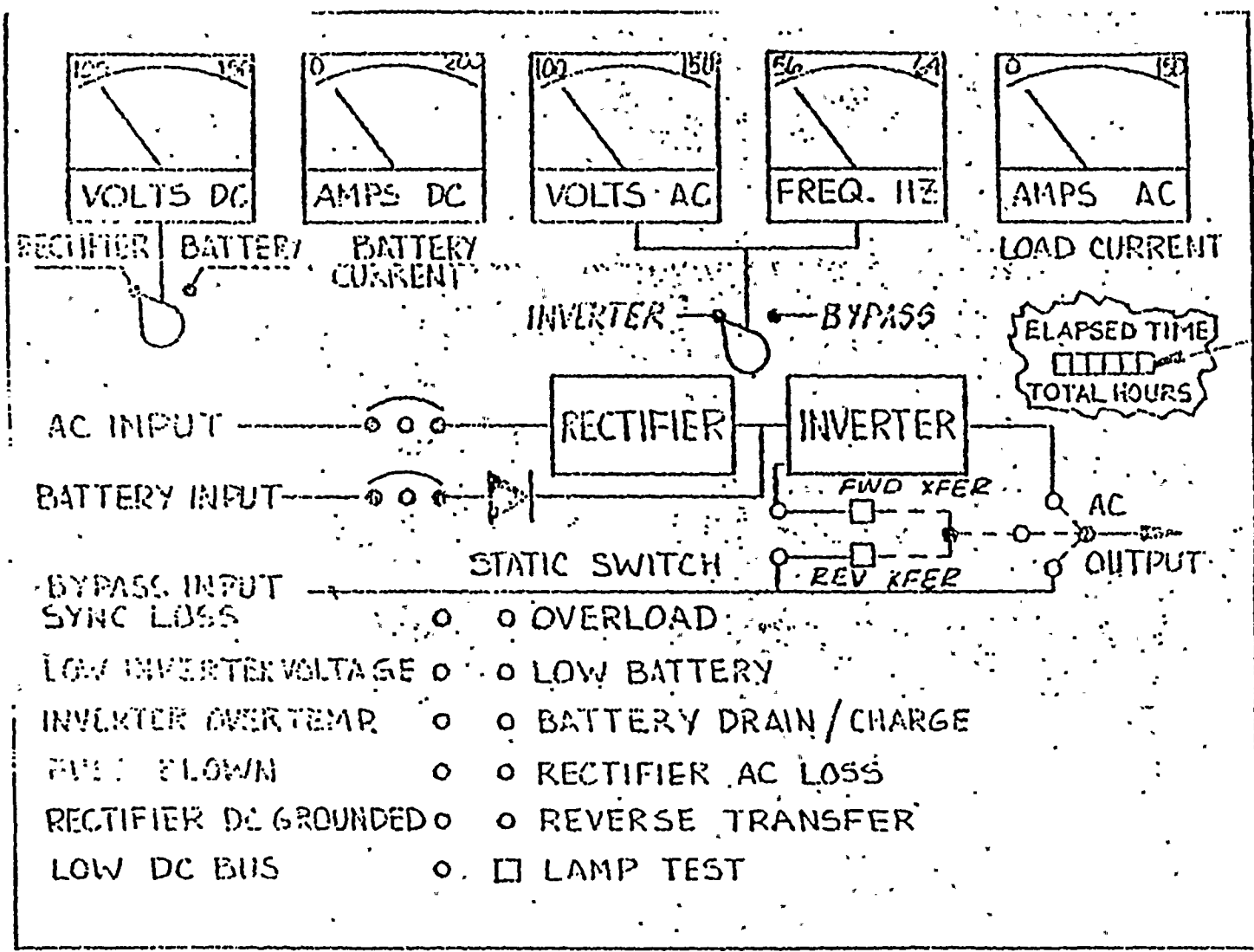
10

SYMBOL NO. 55-32-387

ENGINEERING DESIGN CHANGE HEL-050 8/88

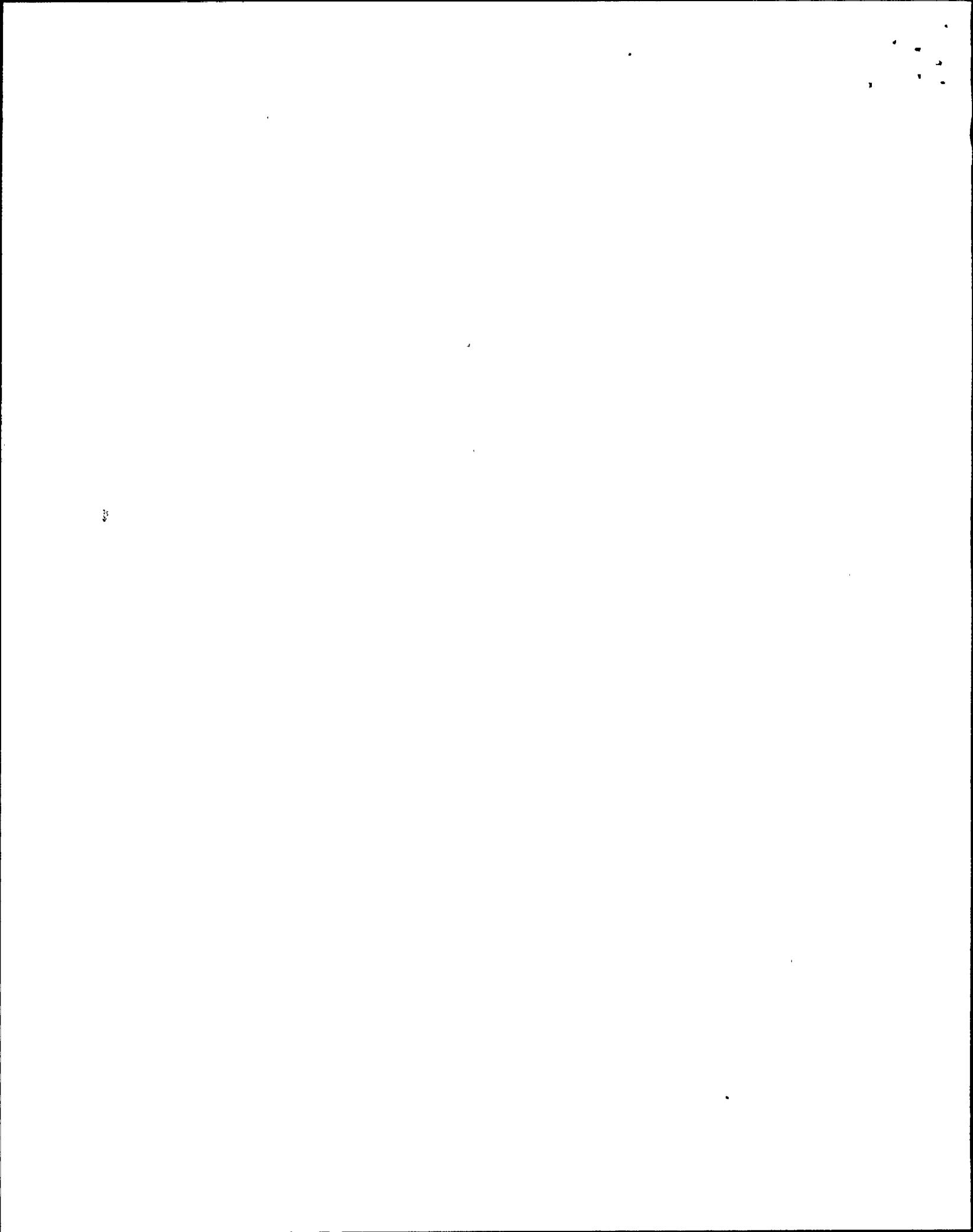
313-369 N08-88
N NIAGARA
M MOHAWK
 NINE MILE POINT
 NUCLEAR STATION

FROM:
 SWELNO: 1.560-229-028



CONTROL PANEL

EDC NO.	2	E	1	0	1	3	0	REV	
PAGE	28							OF	32



SYMBOL NO. 55-32-387

ENGINEERING DESIGN CHANGE

HEL-050

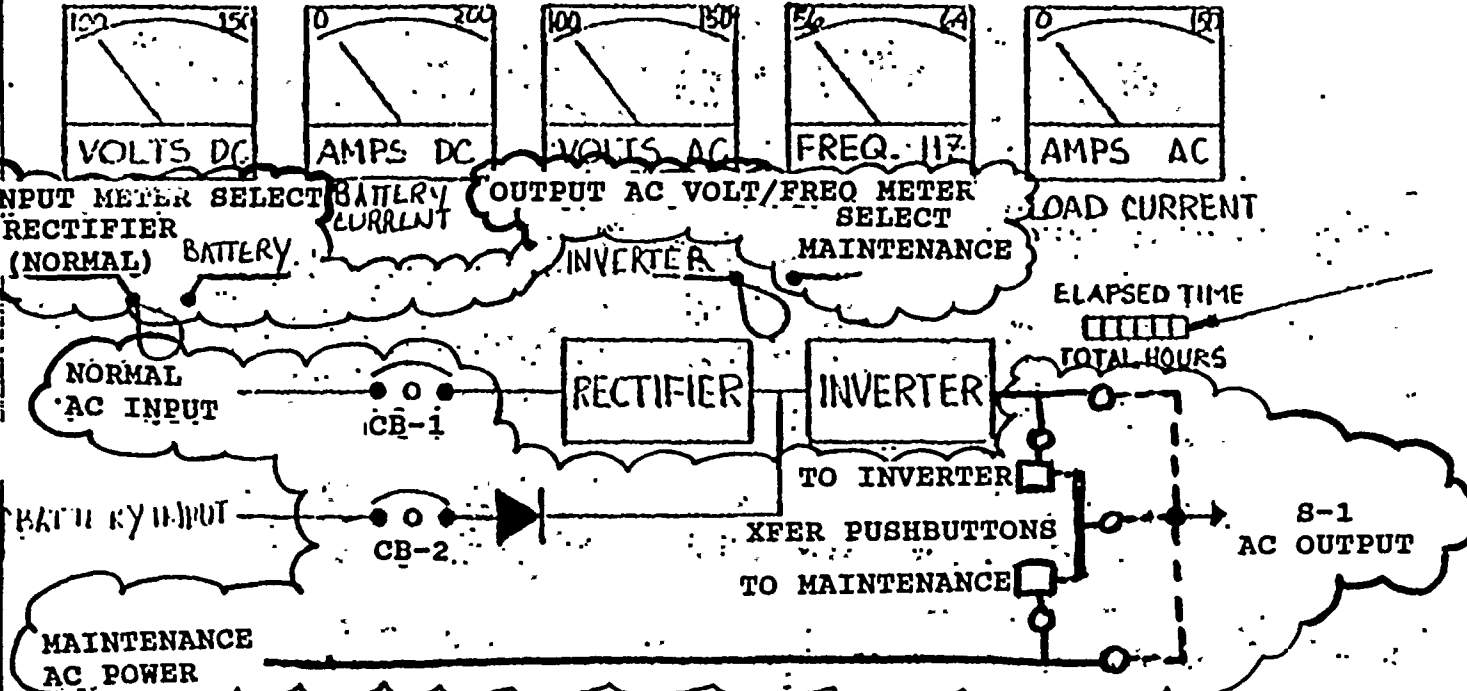
8/88

313-369 NOV-88
N NIAGARA
M MOHAWK
 NINE MILE POINT
 NUCLEAR STATION

SWEETNO: 1.560-229-028
 TO:

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

PAGE 29
 OF 32



- SYNC LOSS ○ ○ OVERLOAD
- LOW INVERTER VOLTAGE ○ ○ LOW BATTERY
- INVERTER OVERTEMP. ○ ○ BATTERY DRAIN/CHARGE
- FUSE BLOWN ○ ○ RECTIFIER AC LOSS
- RECTIFIER DC GROUNDED ○ ○ REVERSE TRANSFER
- LOW DC BUIS ○
- ALARM RESET/LAMP TEST

CONTROL PANEL

10

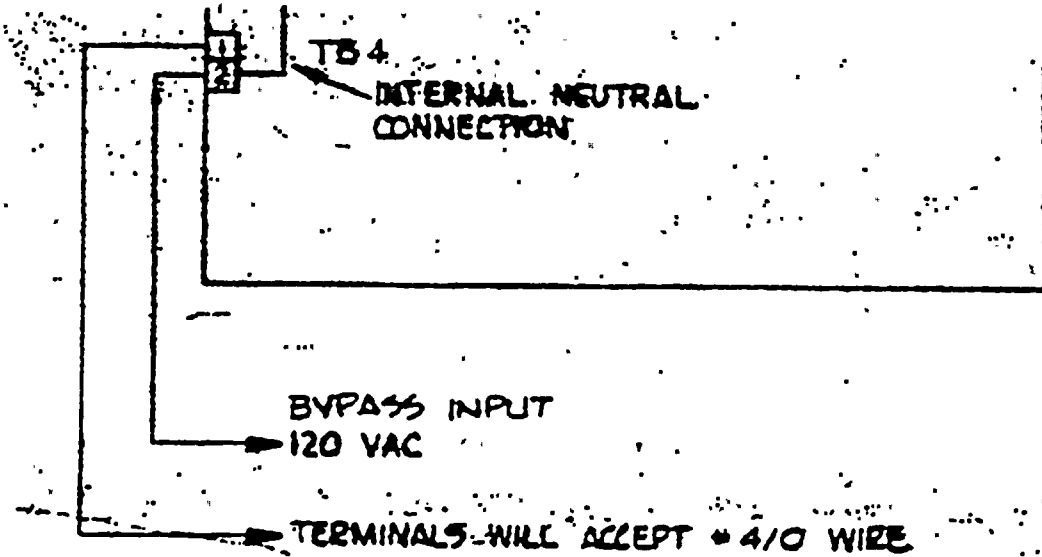
8/88

HEL-050

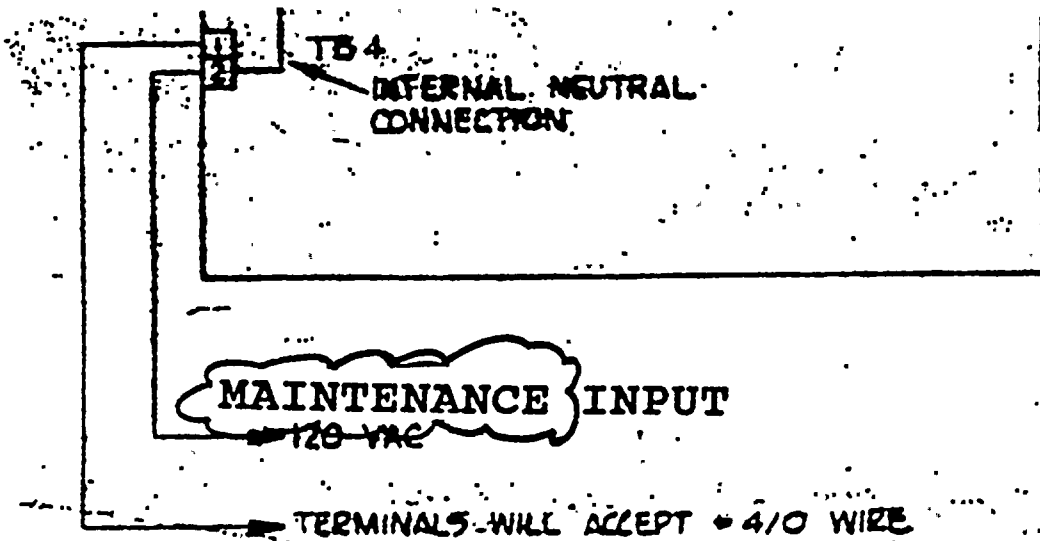
ENGINEERING DESIGN CHANGE

SNECNO: 1.560-229-029

FROM:



TO:



10

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.

10

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.

ELECTRICAL CHECKLIST FOR POTENTIAL AFFECT ON DESIGN DOCUMENTS

CHECKLIST NUMBER = ECL 2-90010
 EDC NO. & REV. = 2E10130

PREPARED BY: A. Healand / Date 2-8-90
 CHECKED BY: E. Lapides / 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 |

11

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)

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- | | | |
|------------------------------------------------------------------------------------------------------|-----|------|
| 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.

