

8 7 6 5 4 3 2 1

| REV | DATE     | DESCRIPTION                  | BY  | APP'D  |
|-----|----------|------------------------------|-----|--------|
| 1   | 12/15/89 | C/N S9215 NEW RELEASE        | JAN | K.R.T. |
| 2   | 12/15/89 | C/N S9230 ENGINEERING UPDATE | JAN | K.R.T. |
| 3   | 12/15/89 | C/N S9250 ENGINEERING UPDATE | JAN | K.R.T. |

# SCHEMATIC NOTES:

1. UNLESS OTHERWISE SPECIFIED:
  - A. ALL DIMS ARE IN INCHES
  - B. ALL 6.2K OHM RESISTORS ARE 2W, 5%
  - C. ALL 3.3K OHM RESISTORS ARE 2W, 5%
  - D. ALL 4.7K OHM RESISTORS ARE 1W, 5%

| SH NO | REV | ACTUATOR    |
|-------|-----|-------------|
| 1     | B   | N/A         |
| 2     | A   | MS-106      |
| 3     | —   | AF-3870     |
| 4     | A   | AF-3869     |
| 5     | A   | MS-106A     |
| 6     | —   | MS-5889A    |
| 7     | —   | ARTS        |
| 8     | —   | TURBINE     |
| 9     | B   | MS-101-1    |
| 10    | —   | MS-384      |
| 11    | A   | MS-611      |
| 12    | A   | MS-ICS11B   |
| 13    | B   | FW-612      |
| 14    | —   | MS-101      |
| 15    | —   | MS-100      |
| 16    | A   | FW-780      |
| 17    | B   | FW-SP7B     |
| 18    | —   | FW-SP6A     |
| 19    | B   | FW-SP7A     |
| 20    | B   | MANUAL TRIP |
| 21    | A   | N/A         |

## ACTUATED EQUIPMENT CROSS REFERENCE

| SHEET NO | ACT. CHANNEL 1 | ACT. CHANNEL 2 |
|----------|----------------|----------------|
| 1        | N/A            | N/A            |
| 2        | MS-106         | MS-107         |
| 3        | AF-3870        | AF-3872        |
| 4        | AF-3869        | AF-3871        |
| 5        | MS-106A        | MS-107A        |
| 6        | MS-5889A       | MS-5889B       |
| 7        | ARTS-1/-3      | ARTS-2/-4      |
| 8        | TURBINE        | TURBINE        |
| 9        | MS-101-1       | MS-100-1       |
| 10       | MS-394         | MS-375         |
| 11       | MS-611         | MS-603         |
| 12       | MS-ICS11B      | MS-ICS11A      |
| 13       | FW-612         | FW-601         |
| 14       | MS-101         | MS-100         |
| 15       | MS-100         | MS-101         |
| 16       | FW-780         | FW-779         |
| 17       | FW-SP7B        | FW-SP7A        |
| 18       | FW-SP6A        | FW-SP6B        |
| 19       | FW-SP7A        | FW-SP7B        |
| 20       | MAN. TRIP      | MAN. TRIP      |
| 21       | POWER SUPPL    | POWER SUPPL    |

## INFORMATIVE NOTES:

1. THIS DRAWING IS APPLICABLE FOR ACTUATION CHANNELS 1 AND 2. THE LABELING DESCRIBES ACTUATION CHANNEL 1 ONLY.
2. FOR TERMINAL BLOCK, LED, PUSH-BUTTON, AND KEYSWITCH TED LABELING CROSS-REFERENCES TO CCC LABELS SHOWN ON THIS DRAWING REFER TO DRAWING SF-0001A

T2



THE TOLEDO EDISON COMPANY  
NUCLEAR FACILITY ENGINEERING  
DOCUMENT REVIEW

1. WORK MAY PROCEED  
2. REVISE AND RESUBMIT WORK MAY PROCEED SUBJECT TO INCORPORATION OF CHANGES INDICATED  
3. REVISE AND RESUBMIT WORK MAY NOT PROCEED  
4. REVIEW NOT REQUIRED WORK MAY PROCEED

PERMISSION TO PROCEED ON THIS DOCUMENT DOES NOT RELIEVE SUPPLIER FROM FULL COMPLIANCE WITH P.O. CONTRACT SPECIFICATION REQUIREMENTS.

BY: *[Signature]*  
DATE: 5-14-88  
CONTROL NUMBER

E-30AQ-012-8-3

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

SHEET 1 OF 21

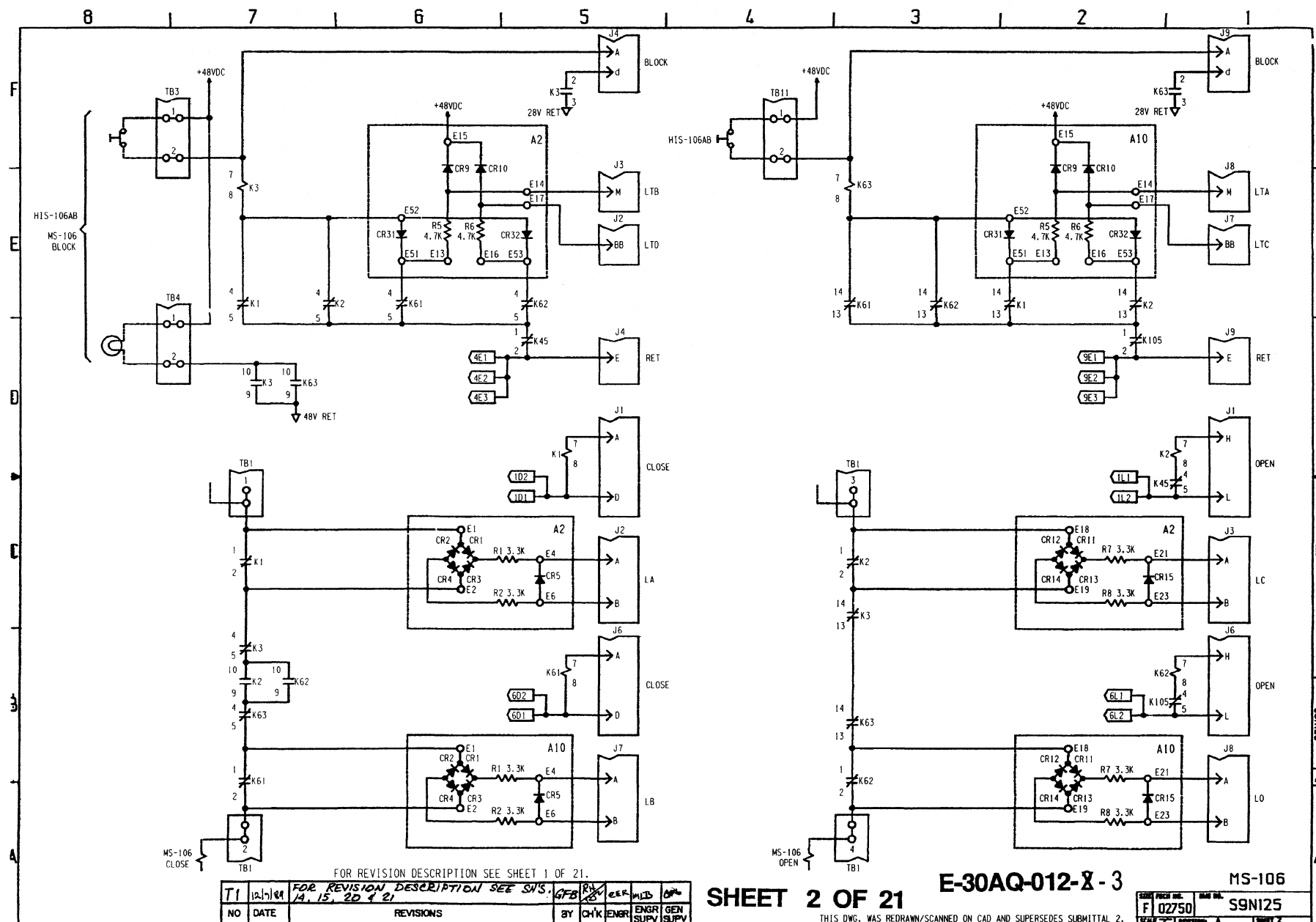
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|----|----------|--------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|------|----------|-----------|
| T2 | 12/15/89 | INC. DUN 13-0383-001-003 REV.0 & GEN. UPDATE INCORPORATE TOLEDO EDISON COMMENTS (SH'S 1, 9, 10, & 13) PER. GEN. DRFTG. PRACTICE. (REDRAWN) | SAC | —   | —    | —        | —         |
| T1 | 12/7/89  | FOR REVISION DESCRIPTION SEE SH'S 14, 15, 20 & 21                                                                                          | GFB | —   | —    | —        | —         |
| NO | DATE     | REVISIONS                                                                                                                                  | BY  | CHK | ENGR | GEN SUPV | ENGR SUPV |

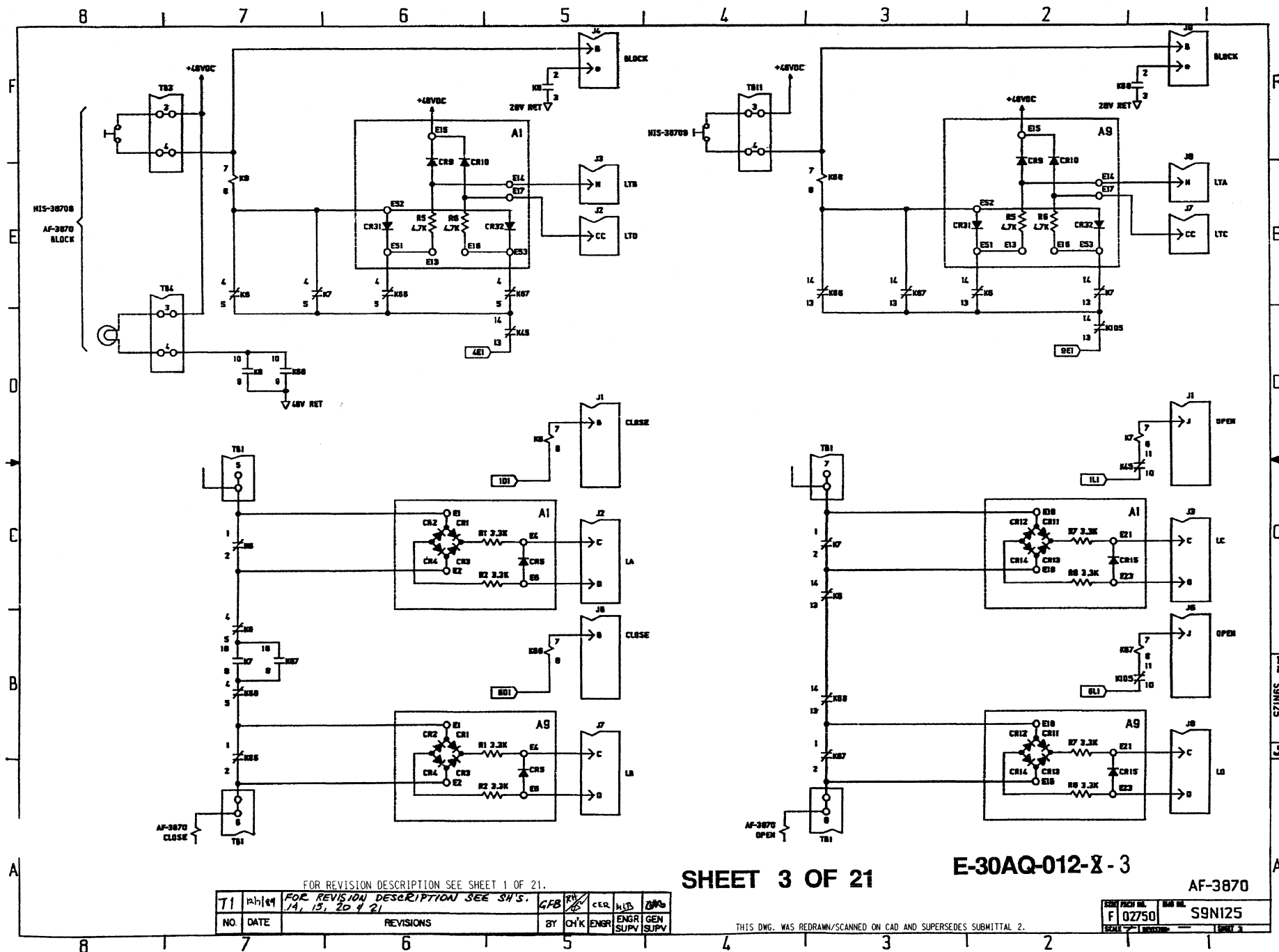
| REV | DATE     | DESCRIPTION        | BY  | APP'D  | REMARKS |
|-----|----------|--------------------|-----|--------|---------|
| 1   | 12/15/89 | NEW RELEASE        | JAN | K.R.T. |         |
| 2   | 12/15/89 | ENGINEERING UPDATE | JAN | K.R.T. |         |
| 3   | 12/15/89 | ENGINEERING UPDATE | JAN | K.R.T. |         |

CONSOLIDATED CONTROLS  
BETHLE, CT 06801-0207

**SCHEMATIC DIAGRAM.  
TERMINATION CABINET**

SIZE: 11x17  
F 02/50  
SHEET 1 OF 21





SHEET 3 OF 21

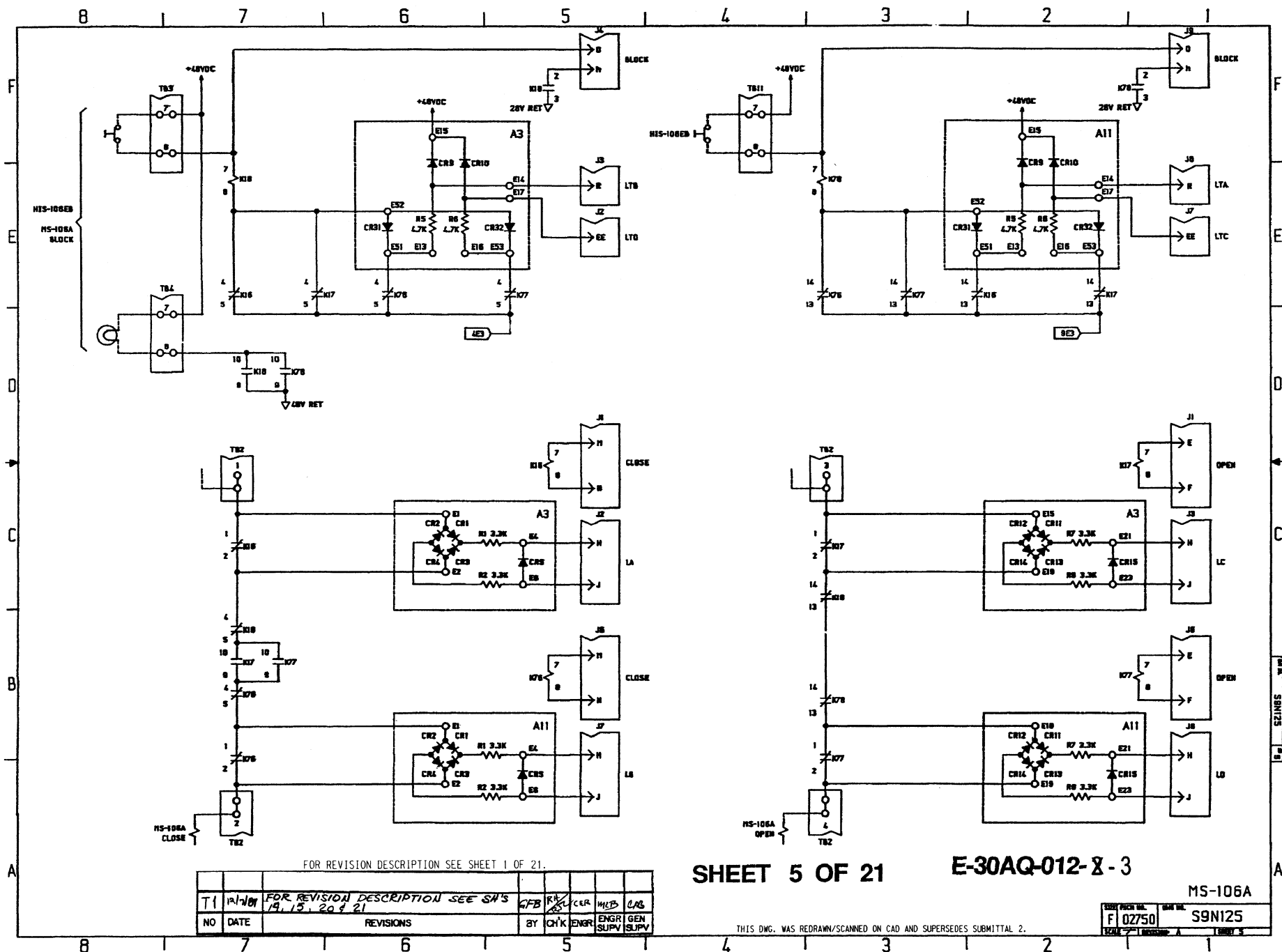
E-30AQ-012-8-3

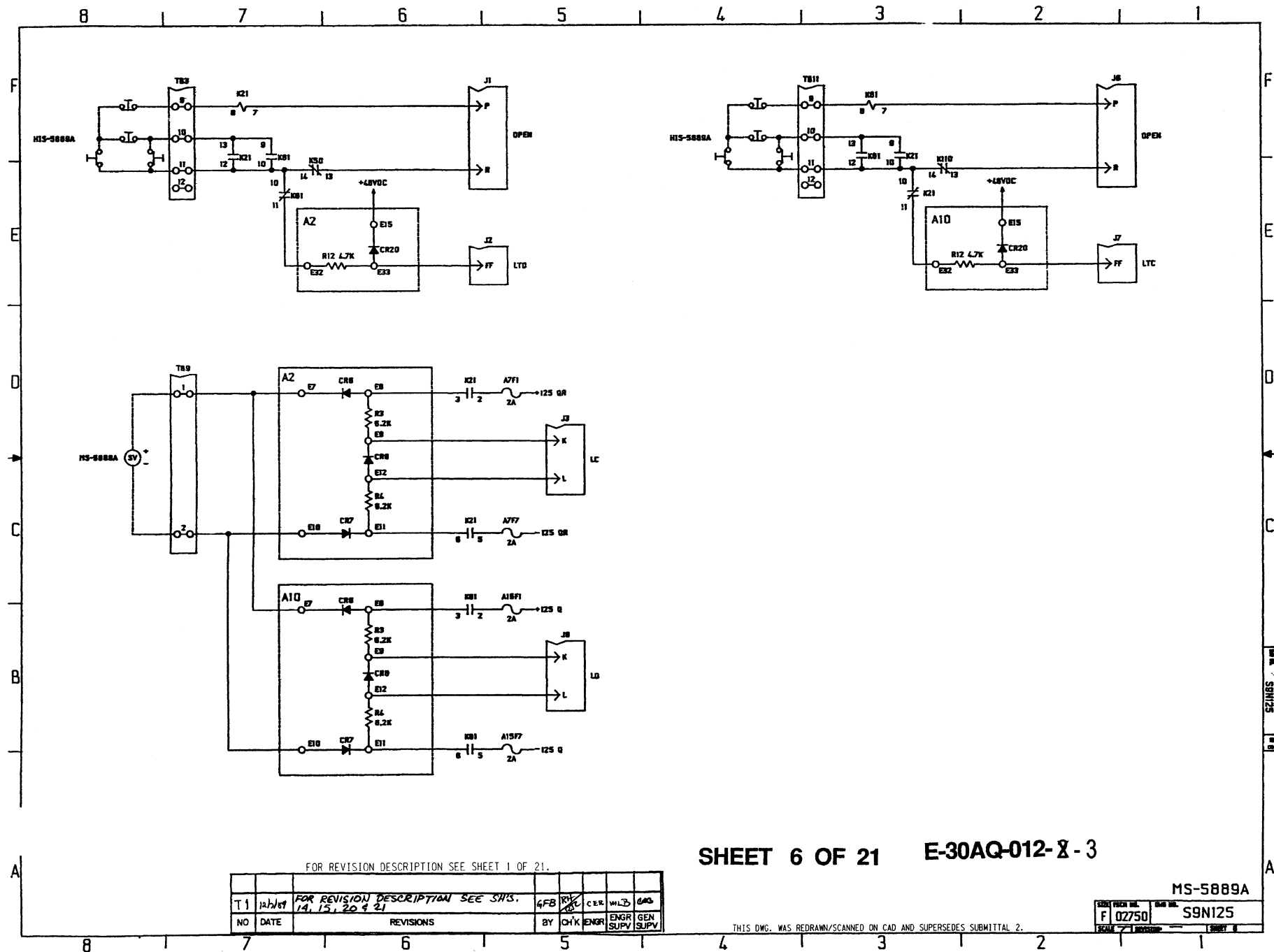
AF-3870

| NO. | DATE    | REVISIONS                                          | BY  | CHK | ENGR | ENGR SUPV | GEN SUPV |
|-----|---------|----------------------------------------------------|-----|-----|------|-----------|----------|
| T1  | 10/1/84 | FOR REVISION DESCRIPTION SEE SH'S. 14, 15, 20 & 21 | GFB | YB  | CER  | HJB       | WAB      |

|               |                 |
|---------------|-----------------|
| CDWG PROJ NO. | 846 NL          |
| F 02750       | S9N125          |
| SCALE         | 1 INCH = 1 FOOT |



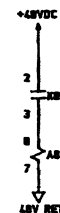
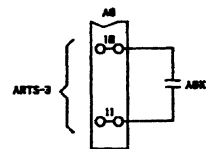
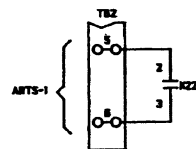
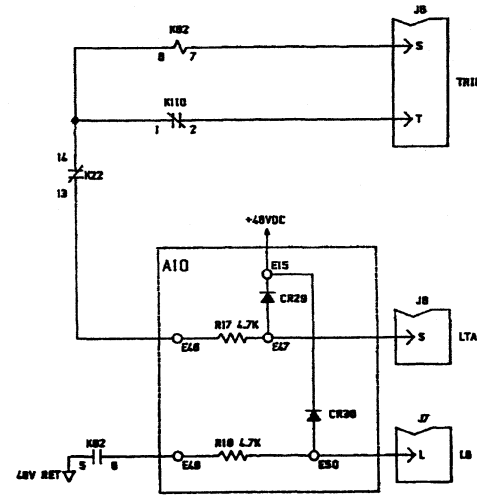
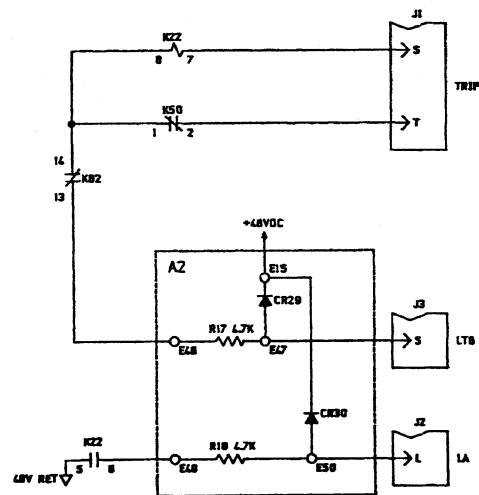




SHEET 6 OF 21 E-30AQ-012-X-3

MS-5889A

F 02750 S9N125



# SHEET 7 OF 21 E-30AQ-012-8-3

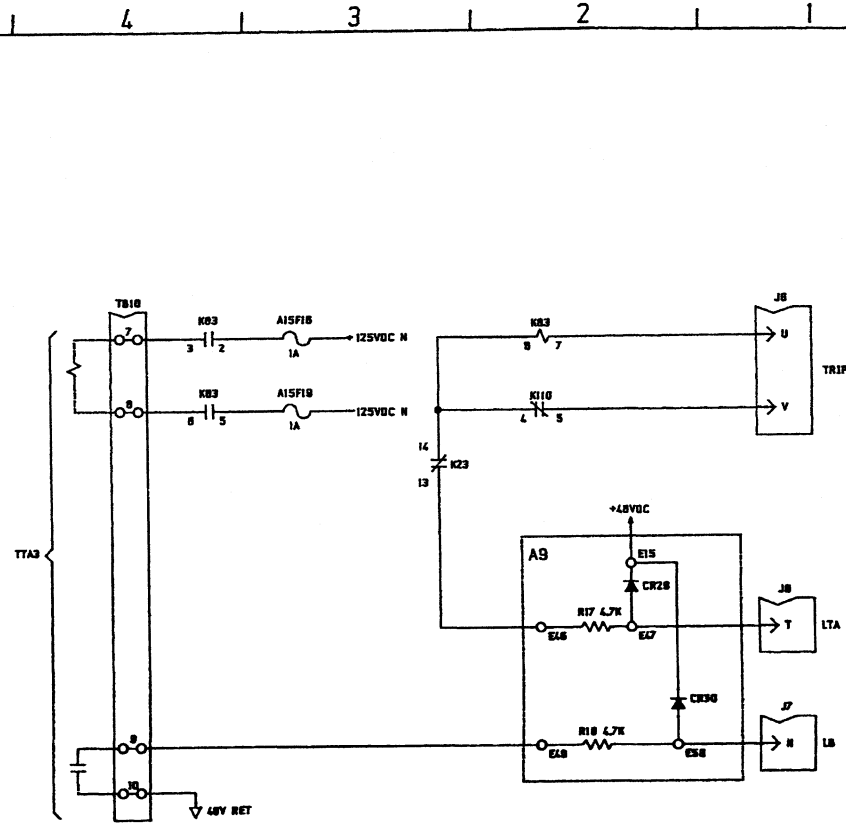
FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

|    |         |                                                       |  |  |  |  |     |     |      |           |          |     |
|----|---------|-------------------------------------------------------|--|--|--|--|-----|-----|------|-----------|----------|-----|
|    |         | FOR REVISION DESCRIPTION SEE SHEET 1 OF 21            |  |  |  |  |     |     |      |           |          |     |
| TI | 12/1/84 | FOR REVISION DESCRIPTION SEE SH'S.<br>14, 15, 20 & 21 |  |  |  |  | GFB | PH  | Y    | C&R       | WLB      | ONS |
| NO | DATE    | REVISIONS                                             |  |  |  |  | BY  | CHK | ENGR | ENGR SUPV | GEN SUPV |     |

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

ARTS

| SIZE  | FECH    | REL  | REV    | REL     |
|-------|---------|------|--------|---------|
| F     | 02750   |      |        |         |
| SCALE | 1/8"=1" | DATE | 1/2/85 | SHEET 7 |



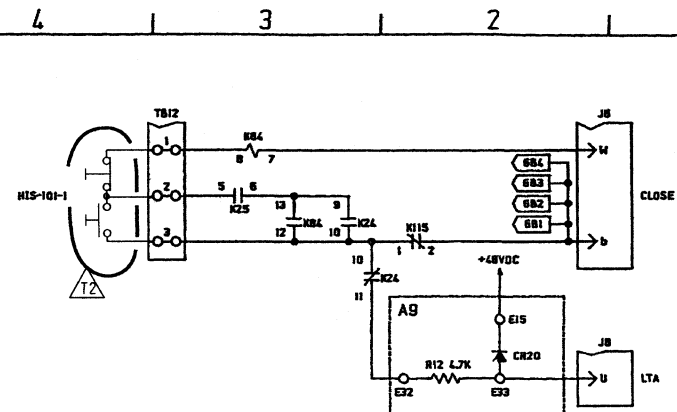
**E-30AQ-012- X - 3**

TURBINE

|      |          |          |
|------|----------|----------|
| SIZE | PCRY NO. | DATE NO. |
| F    | 02750    | S9N125   |

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.





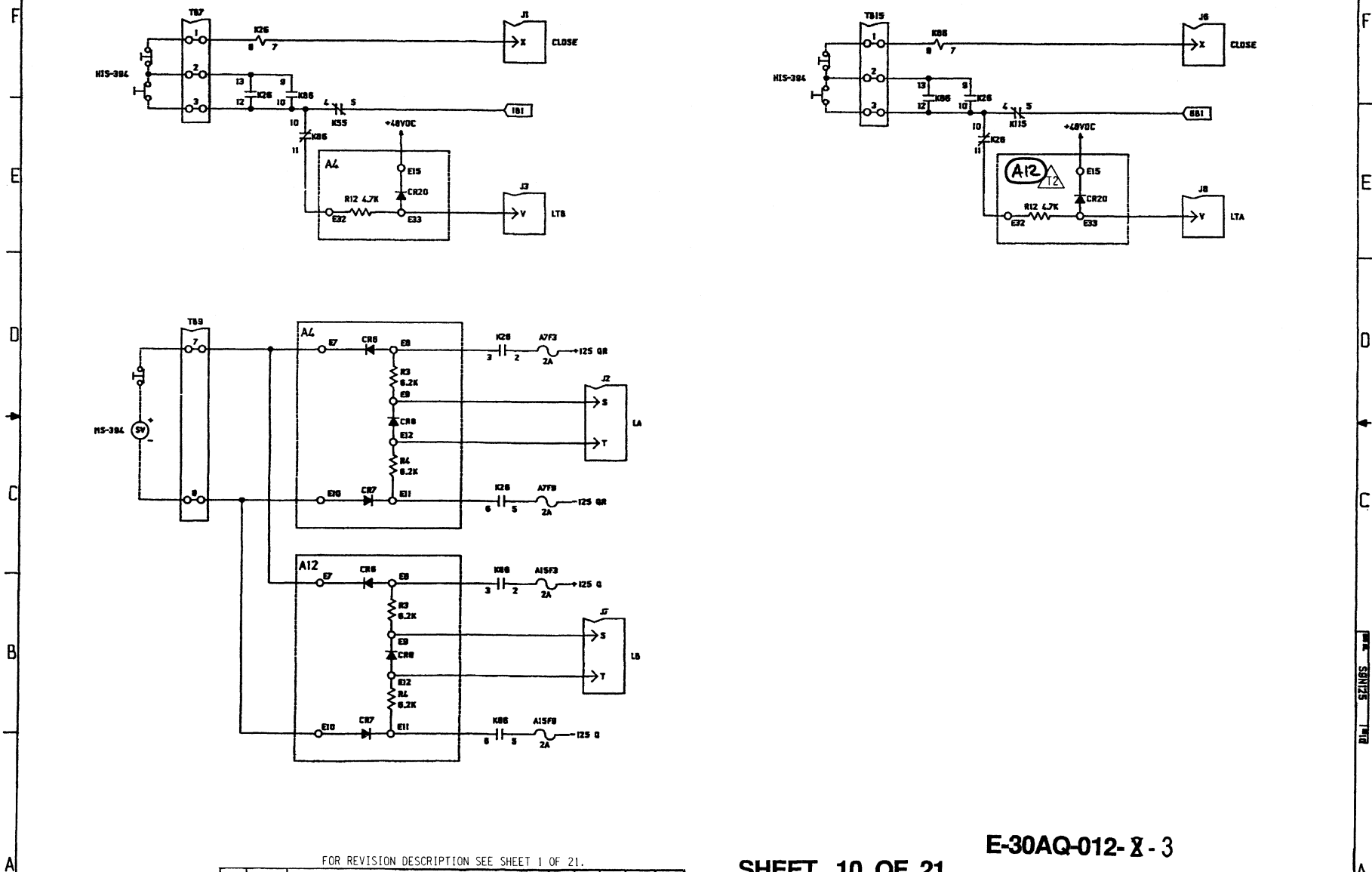
**SHEET 9 OF 21**

**E-30AQ-012-X-3**

MS-101-1

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

8 7 6 5 4 3 2 1



FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

SHEET 10 OF 21

E-30AQ-012-8-3

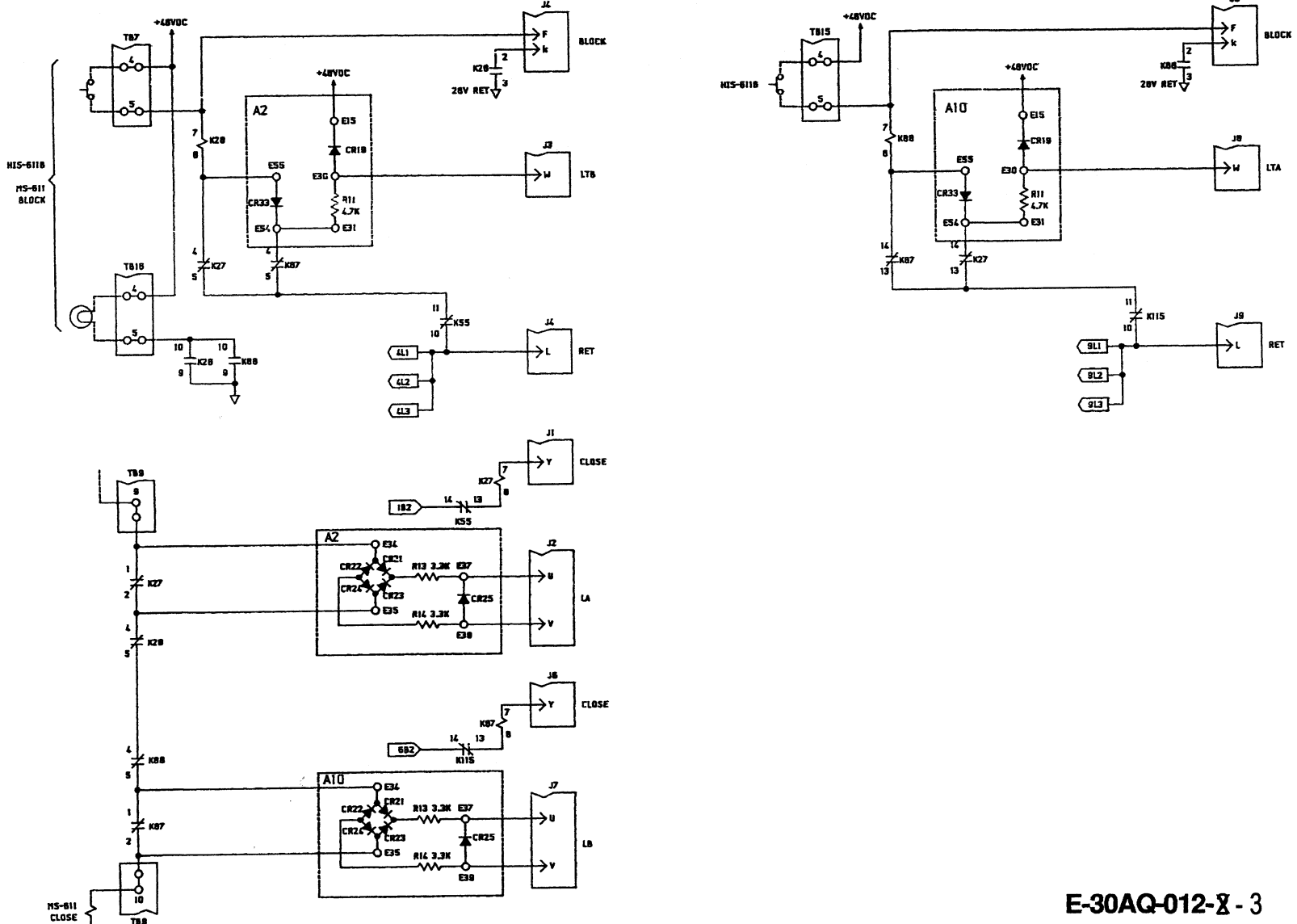
MS-394

| NO | DATE    | REVISIONS                                          | BY  | CHK | ENGR   | ENGR   | GEN | SUPV |
|----|---------|----------------------------------------------------|-----|-----|--------|--------|-----|------|
| T1 | 12/1/84 | FOR REVISION DESCRIPTION SEE SH'S. 14, 15, 20 & 21 | GFB | R/S | C.R.L. | W.E.B. | CAB |      |

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

|       |         |      |         |       |    |
|-------|---------|------|---------|-------|----|
| SCALE | 1" = 1" | DATE | 12/1/84 | SHEET | 10 |
|-------|---------|------|---------|-------|----|

8 7 6 5 4 3 2 1



E-30AQ-012-8-3

SHEET 11 OF 21

FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

| NO | DATE    | REVISIONS                                          | BY  | CHK | ENGR | ENGR SUPV | GEN SUPV |
|----|---------|----------------------------------------------------|-----|-----|------|-----------|----------|
| T1 | 12/1/81 | FOR REVISION DESCRIPTION SEE SH'S. 14, 15, 20 & 21 | GFB | TH  | CER  | WLB       | LJB      |

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

|          |            |
|----------|------------|
| MS-611   |            |
| SIZE     | FRONT VIEW |
| F        | 02750      |
| SCALE    | 1:1        |
| REVISION | A          |
| SHEET 11 |            |

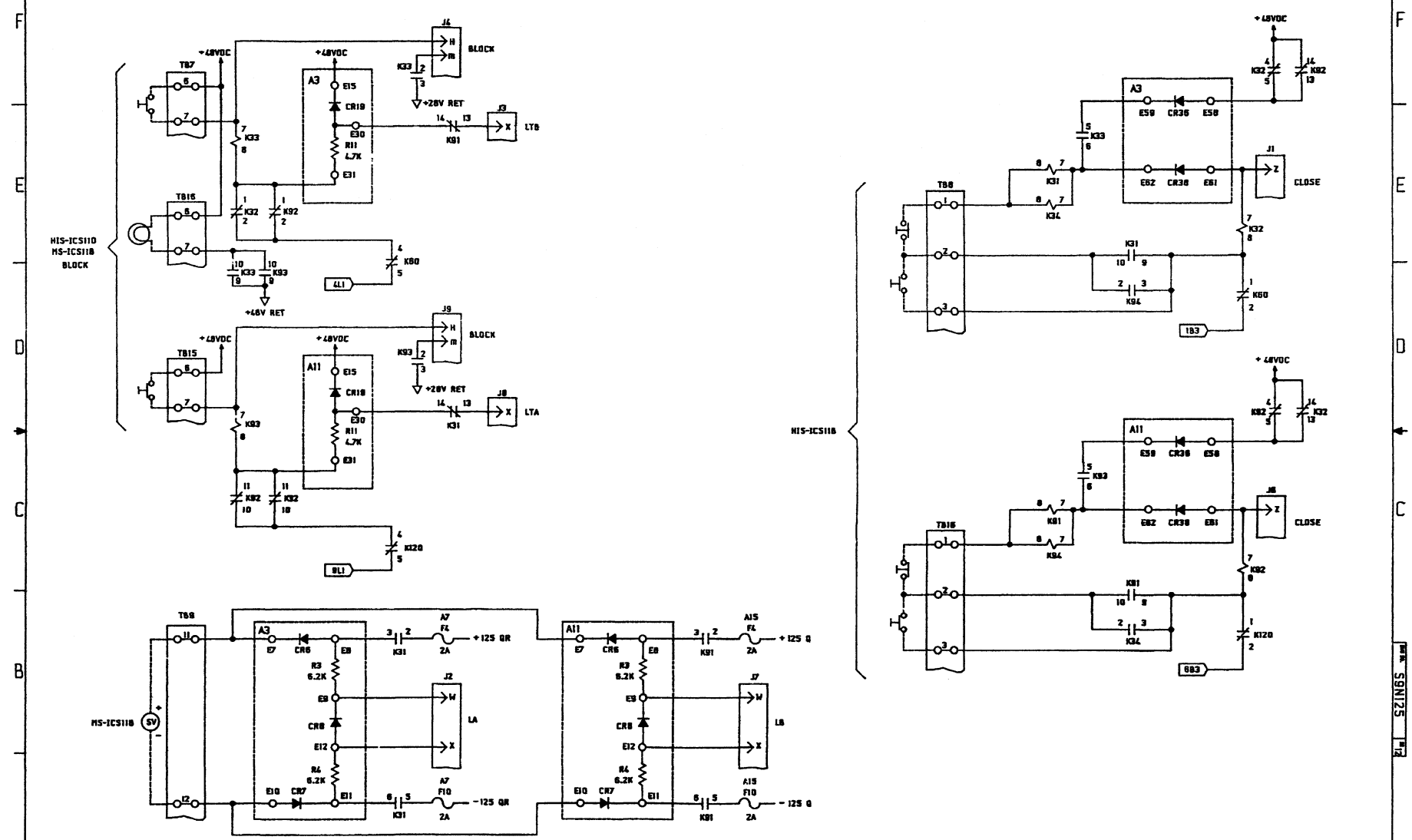
DB 02-09-14

DFN=J/RASDGN/E30AQ12S11.DGN/TIF

MS-611

A

8 7 6 5 4 3 2 1



SHEET 12 OF 21 E-30AQ-012-X-3

FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

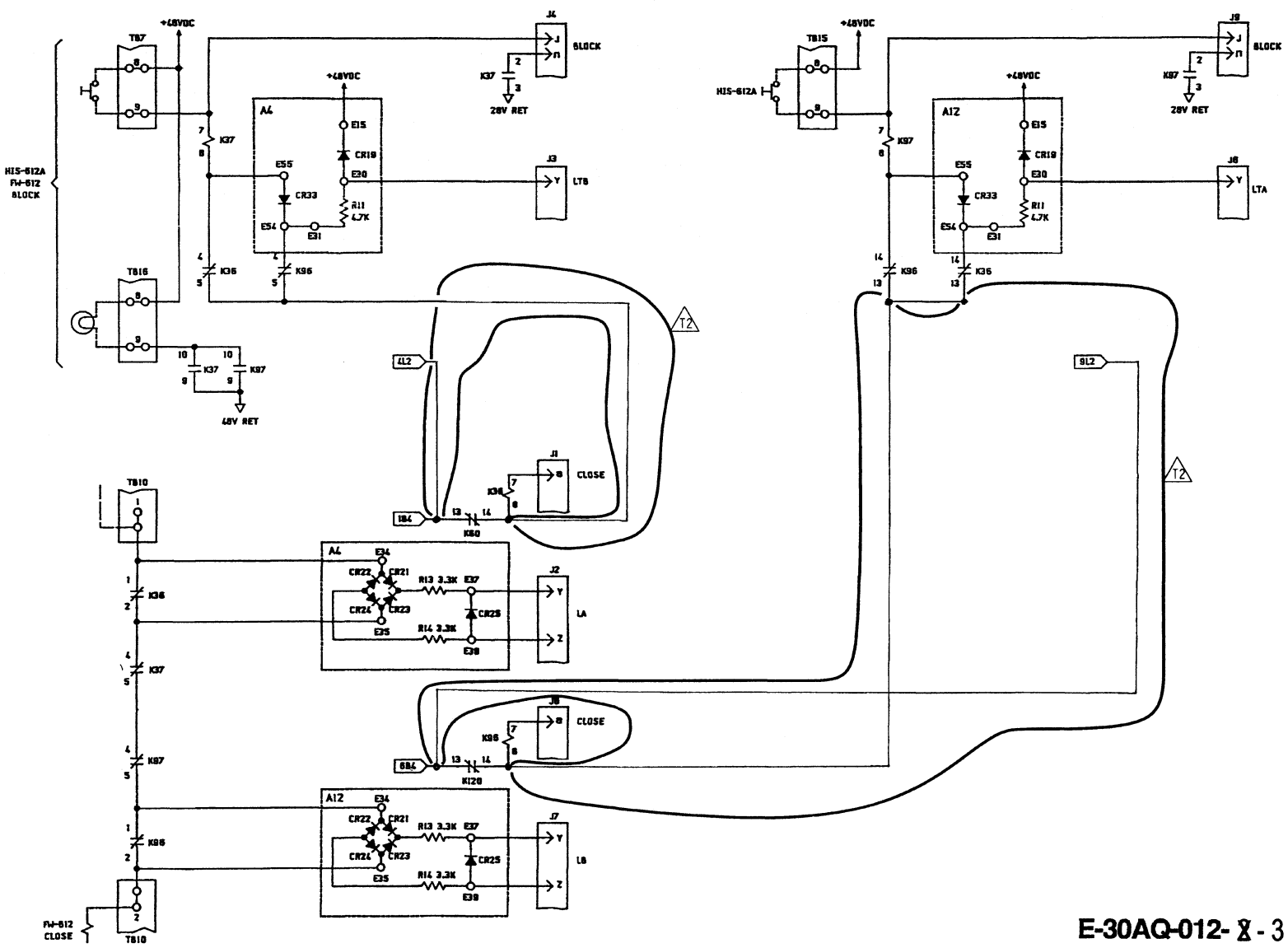
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|----|---------|---------------------------------------------|-----|-----|------|-----------|----------|
| T1 | 12/1/77 | FOR REVISION DESCRIPTION SEE SHEET 1 OF 21. | GFB | CHK | ENGR | ENGR SUPV | GEN SUPV |
| NO | DATE    | REVISIONS                                   | BY  | CHK | ENGR | ENGR SUPV | GEN SUPV |

|           |                 |
|-----------|-----------------|
| MS-ICS118 |                 |
| SIZE      | 1/2" x 1/2"     |
| FIG NO    | 02750           |
| SCALE     | 1 INCH = 1 FOOT |
| REV       | 1               |
| SHEET     | 12              |

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

8 7 6 5 4 3 2 1

F  
E  
D  
C  
B  
A



E-30AQ-012- 8 - 3

SHEET 13 OF 21

FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

|    |          |                                                       |     |     |      |           |          |  |
|----|----------|-------------------------------------------------------|-----|-----|------|-----------|----------|--|
|    |          |                                                       |     |     |      |           |          |  |
| T1 | 12/10/14 | FOR REVISION DESCRIPTION SEE SH/S.<br>14, 15, 20 & 21 | GFB | RYS | CER  | WJD       | CS       |  |
| NO | DATE     | REVISIONS                                             | BY  | CHK | ENGR | ENGR SUPV | GEN SUPV |  |

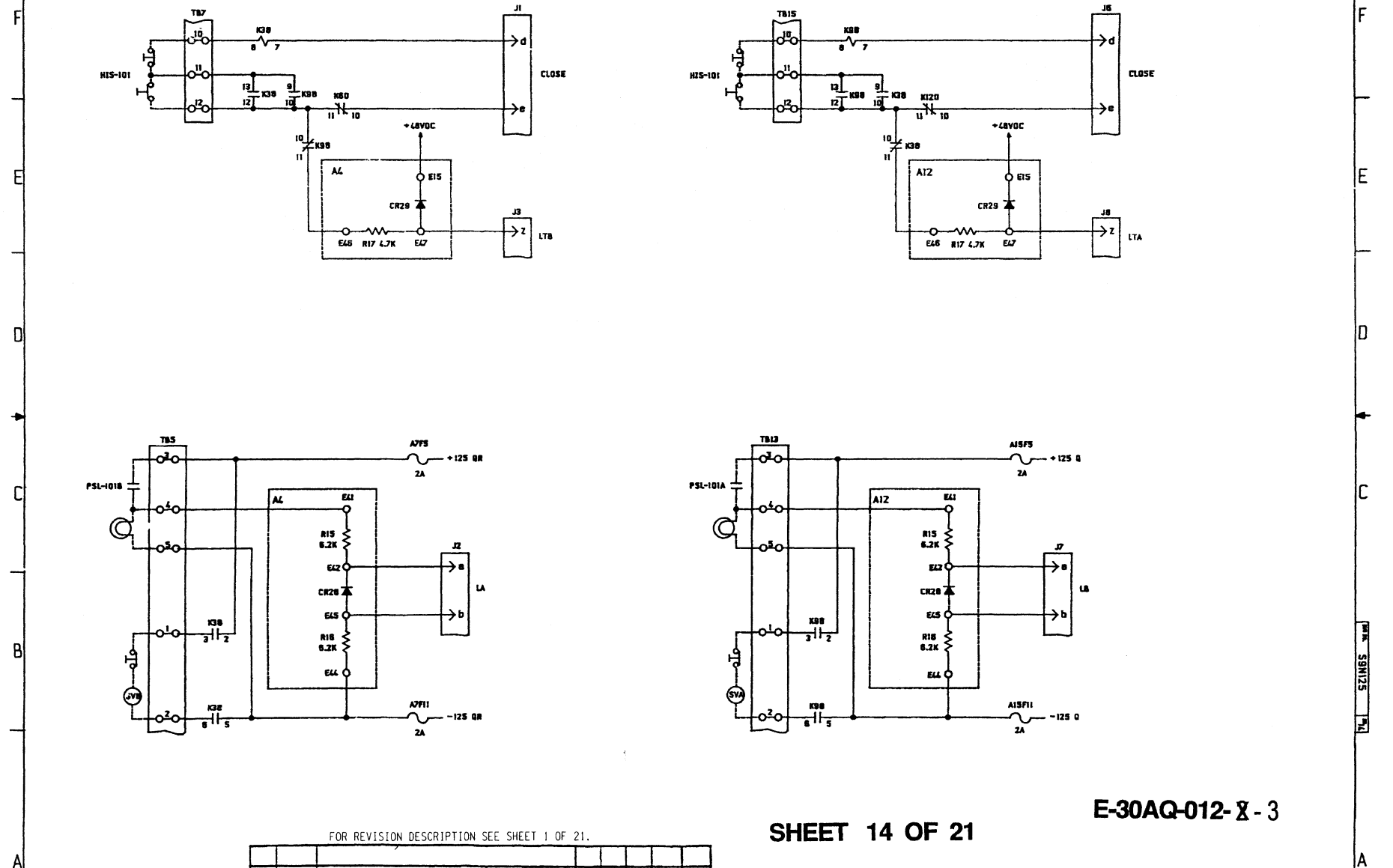
THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

8600 PROJ. NO. **F 02750** DRAW NO. **S9N125**

SCALE: **1"=10'** (UNLESS NOTED) DATE: **12/10/14**

8 7 6 5 4 3 2 1

8 7 6 5 4 3 2 1



FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

SHEET 14 OF 21

E-30AQ-012-X-3

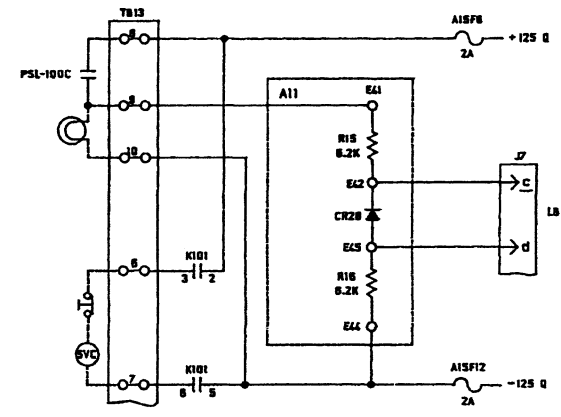
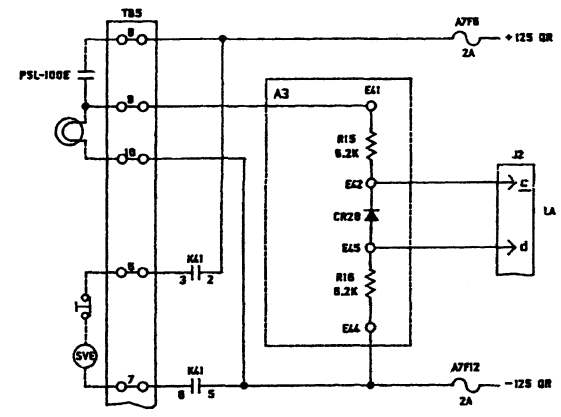
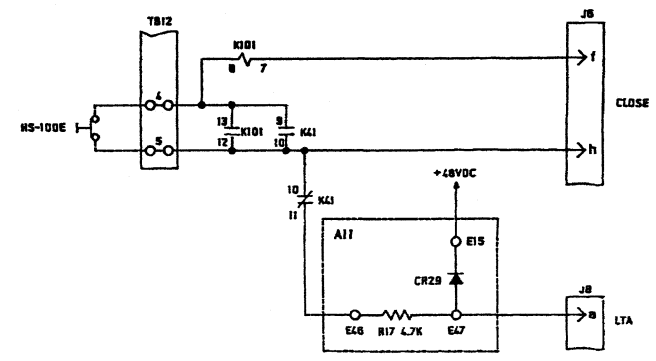
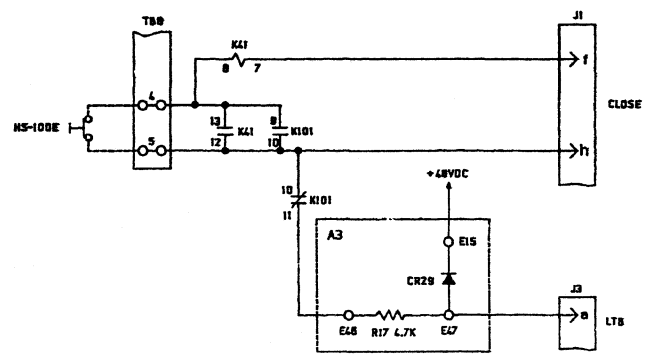
|     |  |         |                                        |     |     |      |           |          |
|-----|--|---------|----------------------------------------|-----|-----|------|-----------|----------|
| T 1 |  | 12/1/81 | AS BUILT FOR MOD 81-1107, SUP. 3, INC. | GPS | RH  | CER  | MLD       | LOS      |
| NO  |  | DATE    | REVISIONS                              | BY  | CHK | ENGR | ENGR SUPV | GEN SUPV |
|     |  |         |                                        |     |     |      |           |          |

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

|          |             |
|----------|-------------|
| MS-101   |             |
| SIZE: F  | DATE: 02750 |
| SCALE: 1 | REVISION: 1 |
| SHEET 14 |             |

8 7 6 5 4 3 2 1

F  
E  
D  
C  
B  
A



# SHEET 15 OF 21 E-30AQ-012- 8 - 3

FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

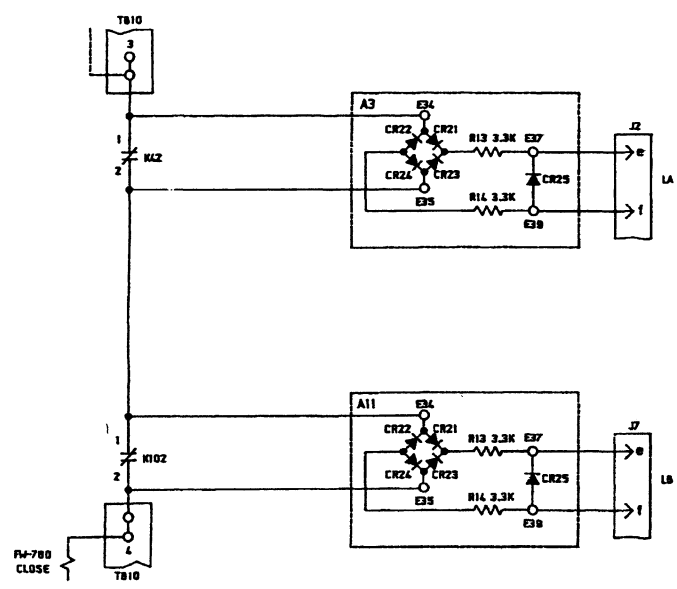
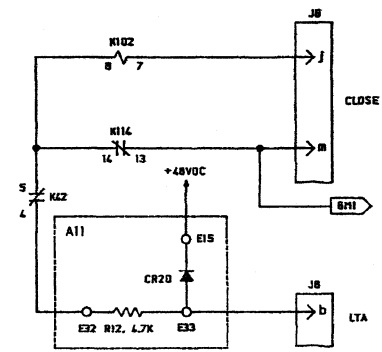
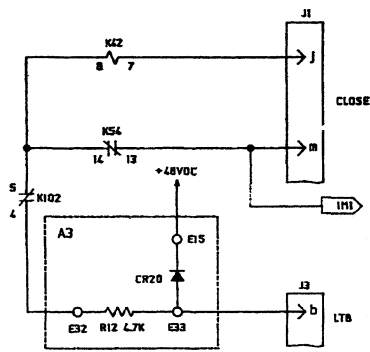
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|----|------|-----------|------------------------------------------------------------|-----|-----|-----|--------------|-------------|-----|
| T1 |      | 12/1/84   | AS BUILT FOR MOD 87-1107, SUP S, INC.<br>VPCN E-30AQ-012-2 | GFB | CHK | ENG | ENGR<br>SUPV | GEN<br>SUPV | CRB |
| NO | DATE | REVISIONS |                                                            | BY  | CHK | ENG | ENGR<br>SUPV | GEN<br>SUPV |     |

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

|          |          |
|----------|----------|
| MS-100   |          |
| FORM 100 | REV. 100 |
| F 02750  | S9N125   |
| 100      | 100      |

8 7 6 5 4 3 2 1

8 7 6 5 4 3 2 1



SHEET 16 OF 21 E-30AQ-012- X - 3

FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

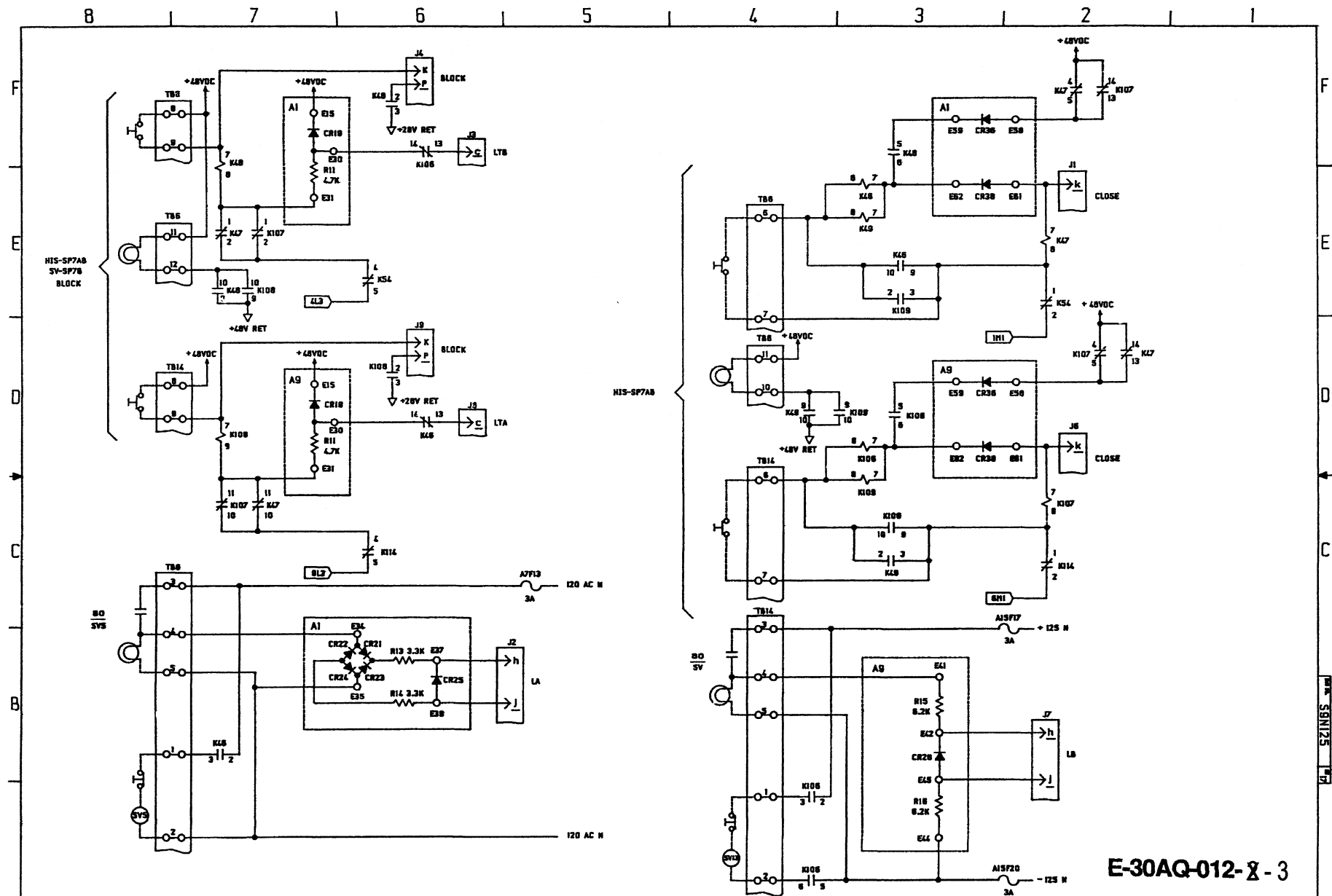
| NO | DATE    | REVISIONS                                         | BY  | CHK | ENGR | ENGR SUPV | GEN SUPV |
|----|---------|---------------------------------------------------|-----|-----|------|-----------|----------|
| T1 | 12/1/88 | FOR REVISION DESCRIPTION SEE SH'S 14, 15, 20 & 21 | GFB | RW  | CER  | MLB       | QAC      |

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

|                          |              |
|--------------------------|--------------|
| FW-780                   |              |
| SIZE: F02750             | DATE: S9N125 |
| SCALE: 1" = 1" (MAXIMUM) | SHEET: 16    |

8 7 6 5 4 3 2 1





FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

| NO | DATE    | REVISIONS                                           | BY  | CHK | ENGR | ENGR | GEN | SUPV |
|----|---------|-----------------------------------------------------|-----|-----|------|------|-----|------|
| T1 | 12/1/81 | FOR REVISION DESCRIPTION SEE SHEETS 14, 15, 20 & 21 | GFB | PA  | CER  | MLB  | WAS |      |

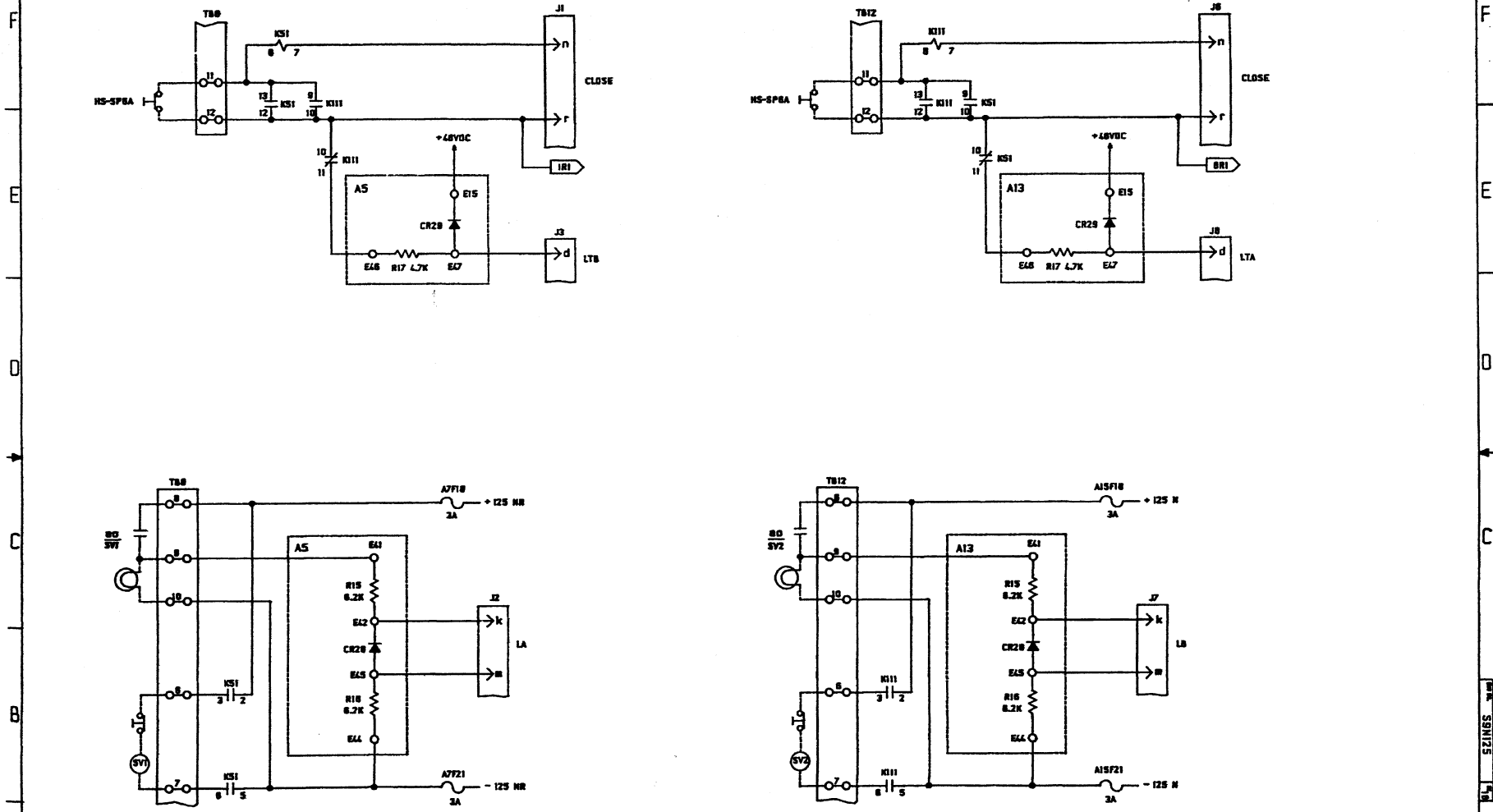
SHEET 17 OF 21

FW-SP78

|      |         |      |    |          |      |      |       |      |
|------|---------|------|----|----------|------|------|-------|------|
| 1000 | REVISED | DATE | BY | CHK      | ENGR | ENGR | GEN   | SUPV |
| F    | 02/750  | 1984 | 1  | REVISION | W    | 1    | SHEET | 17   |

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

8 7 6 5 4 3 2 1



E-30AQ-012-8-3

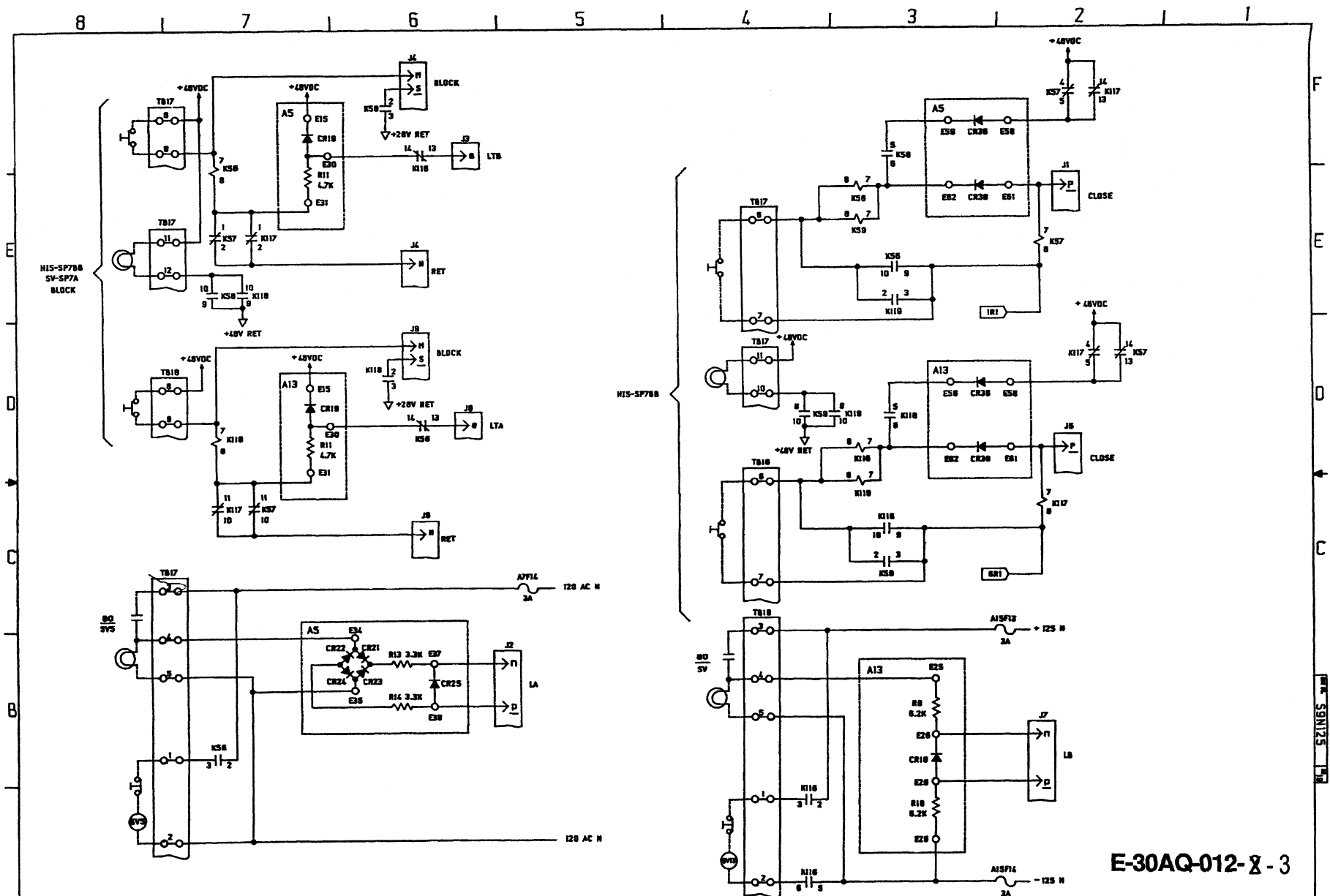
SHEET 18 OF 21

FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

|    |         |                                            |    |     |      |      |     |      |      |
|----|---------|--------------------------------------------|----|-----|------|------|-----|------|------|
| T1 | 12/1/81 | FOR REVISION DESCRIPTION SEE SHEET 1 OF 21 | BY | CHK | ENGR | ENGR | GEN | SUPV | SUPV |
| NO | DATE    | REVISIONS                                  | BY | CHK | ENGR | ENGR | GEN | SUPV | SUPV |

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

|          |        |
|----------|--------|
| FW-SP6A  |        |
| FIG. NO. | 02750  |
| REV. NO. | S9N125 |
| DATE     | 7/1/81 |
| BY       | TERRY  |



FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

| NO | DATE    | REVISIONS                                         | BY  | CHK | ENGR | ENGR SUPV | GEN SUPV |
|----|---------|---------------------------------------------------|-----|-----|------|-----------|----------|
| 1  | 12/1/81 | FOR REVISION DESCRIPTION SEE SH'S 14, 15, 20 & 21 | GFB | FK  | CAR  | WLB       | C/S      |

SHEET 19 OF 21

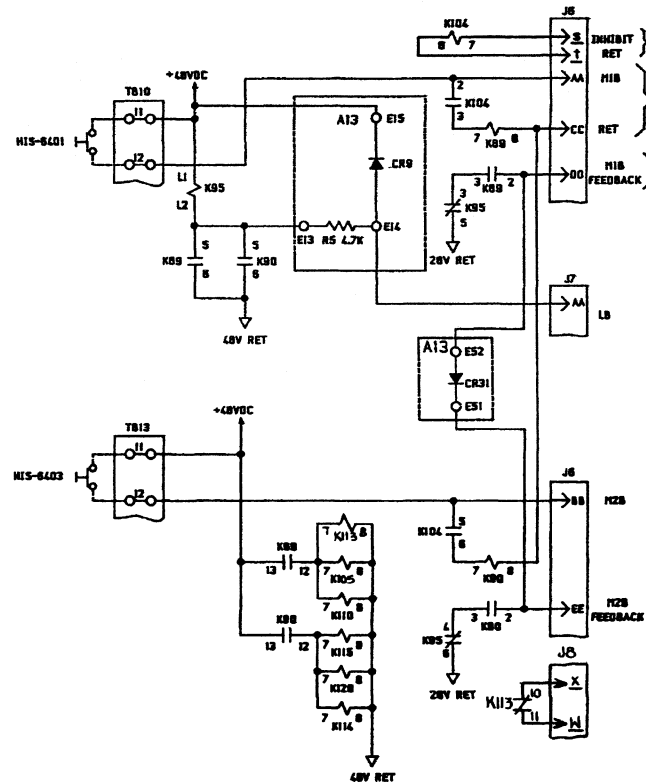
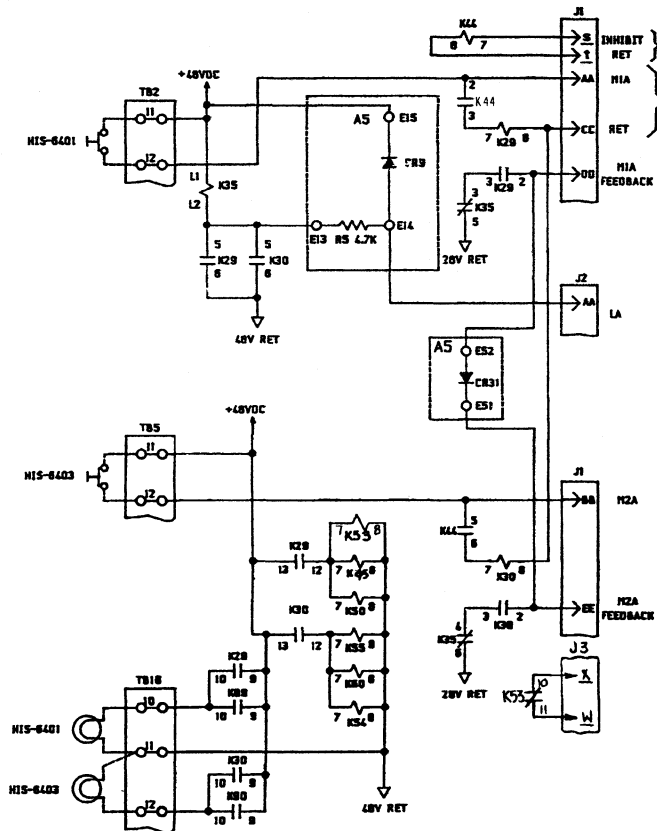
E-30AQ-012-X-3

FW-SP7A

F 02750 S9N125

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

8 7 6 5 4 3 2 1



E-30AQ-012-X-3

SHEET 20 OF 21

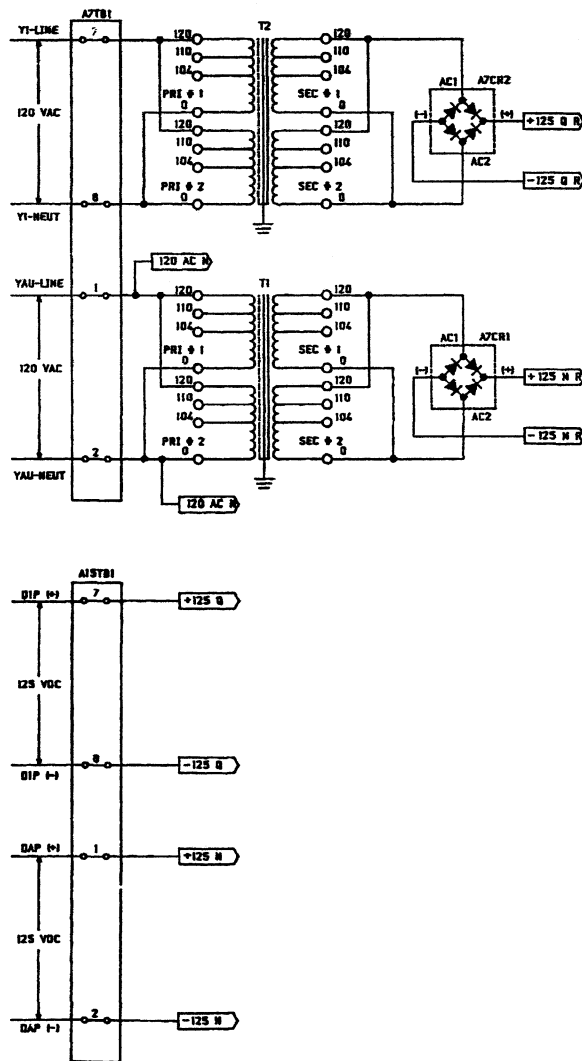
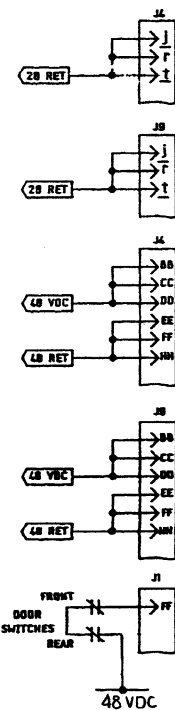
FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

| NO | DATE    | REVISIONS                                                | BY  | CHK | ENGR | ENGR SUPV | GEN SUPV |
|----|---------|----------------------------------------------------------|-----|-----|------|-----------|----------|
| T1 | 12/1/87 | AS BUILT FOR MOD 87-1107, SUP. 3, INC. VDCN E-30AQ-012-1 | SFB | RH  | CER  | MLD       | ELC      |

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

| SIZE | PAGE NO. | MAN. NO. |
|------|----------|----------|
| F    | 02750    | S9N125   |

MANUAL TRIP



E-30AQ-012- X - 3

SHEET 21 OF 21

FOR REVISION DESCRIPTION SEE SHEET 1 OF 21.

|    |         |                                            |     |     |      |      |          |
|----|---------|--------------------------------------------|-----|-----|------|------|----------|
| T1 | 12/1/01 | AS-BUILT FOR MOD 87-1107; SUP. 3, INC. VDC | GFB | RL  | CER  | MED  | CAS      |
| NO | DATE    | REVISIONS                                  | BY  | CHK | ENGR | ENGR | GEN SUPV |

THIS DWG. WAS REDRAWN/SCANNED ON CAD AND SUPERSEDES SUBMITTAL 2.

|           |          |         |        |
|-----------|----------|---------|--------|
| SHEET NO. | 02750    | DWG NO. | S9N125 |
| SCALE     | AS SHOWN | REVISED | 1      |