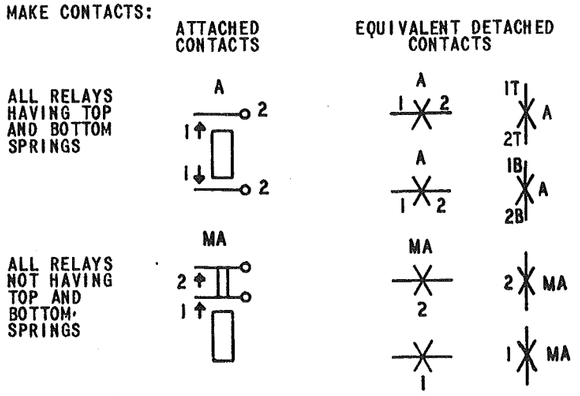
LEGEND FOR OPERATIONAL SKETCHES

THE SYMBOLS AND CONVENTIONS FOR THE OPERATIONAL SKETCHES ARE THE SAME AS THOSE USED ON THE STANDARD SCHEMATIC DRAWINGS (SD-) WITH THE FOLLOWING EXCEPTIONS:

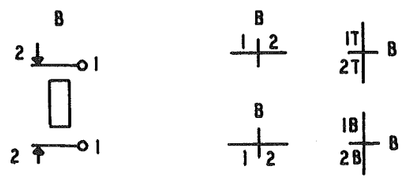
1. ATTACHED CONTACTS MAY BE POSITIONED WITHOUT REGARD TO THEIR TOP OR BOTTOM LOCATIONS AS:

2. DETACHED CONTACT SYMBOLS ARE USED WHENEVER THEY AID IN SIMPLIFYING THE SKETCHES. THEY ARE SHOWN THUS:

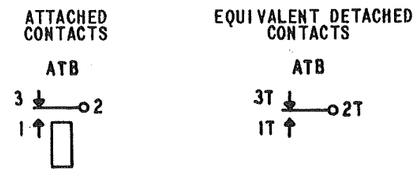
(A) MAKE CONTACTS:



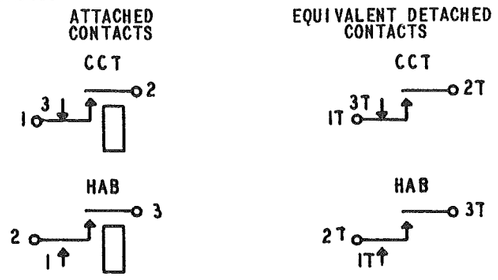
(B) BREAK CONTACTS:



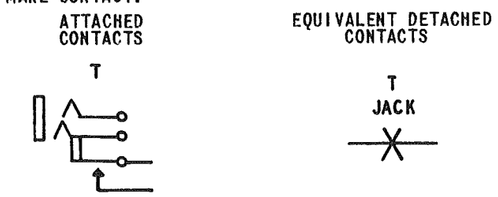
(C) TRANSFER CONTACTS:



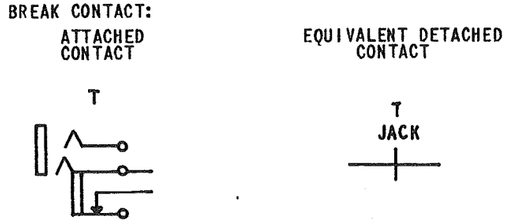
(D) OTHER CONTACTS:



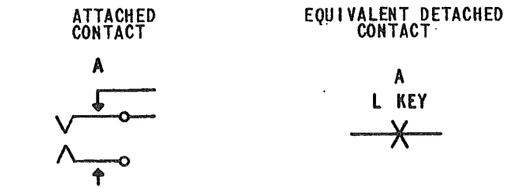
(E) JACK WITH MAKE CONTACT:



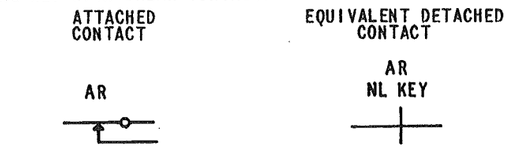
(F) JACK WITH BREAK CONTACT:



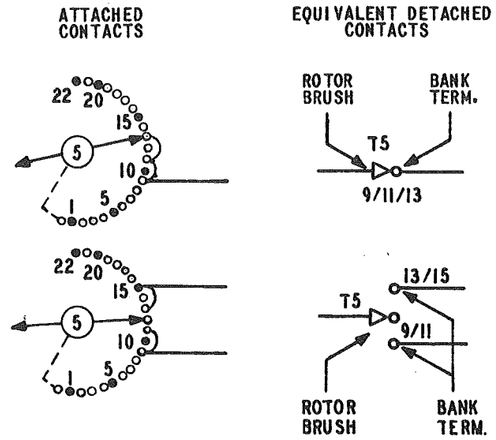
(G) LOCKING KEY WITH MAKE CONTACT:



(H) NON-LOCKING KEY WITH BREAK CONTACT:

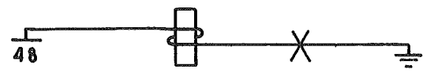


(J) 206 AND SIMILAR TYPE SELECTORS:

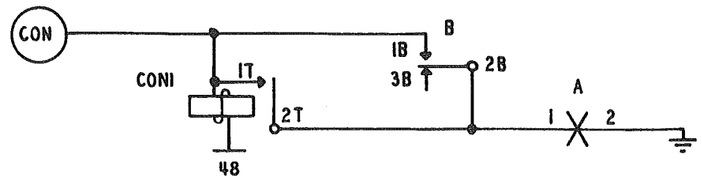


3. INNER ENDS OF WINDINGS ARE OMITTED.

4. BATTERY SYMBOL WITH THE NOMINAL VOLTAGE IS SHOWN THUS:



5. TROUBLE INDICATOR TAPS ARE SHOWN BY A CIRCLE ENCLOSING INDICATION DESIGNATION. FOR EXAMPLE:



6. CONTACT PROTECTIONS ARE IN GENERAL OMITTED.

7. APPARATUS CODES FOR VACUUM TUBES ONLY ARE SHOWN.

8. POLAR RELAYS WITH BIASING SPRINGS ARE INDICATED WITH B.S. FOLLOWING THE RELAY DESIGNATION.
POLAR RELAYS WITHOUT BIASING SPRINGS ARE INDICATED WITH N.B.S. FOLLOWING THE RELAY DESIGNATION.

LEGEND FOR OPERATIONAL SKETCHES
OS 000-2 2 SHEETS, SHEET 1

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LEGEND FOR OPERATIONAL SKETCHES

9. SEQUENCE CHARTS ARE IN GENERAL PROVIDED ON EACH SKETCH. THE RELAY MOVEMENTS SHOWN ARE SUFFICIENT TO PERMIT A PROPER UNDERSTANDING OF THE SKETCH. THE DESIGNATIONS FOR ALL RELAYS OF WHICH THE OPERATING PATHS ARE SHOWN ON THE SKETCH ARE IN HEAVY CHARACTERS. ALL OTHERS ARE IN LIGHT CHARACTERS. COORDINATES ARE OMITTED. OTHERWISE THE LEGEND FOR THESE CHARTS IS THE SAME AS FOR THE REGULAR SEQUENCE CHARTS.

10. IN GENERAL, STRAPPING OR MULTIPLE CONVENTIONS  ARE OMITTED.

11. 

INDICATES THAT THE MAKE CONTACTS (ONE EACH) ON RELAYS C0 TO C9 OR ON RELAYS CH1, CH2, CH4, AND CH7 ARE WIRED IN PARALLEL.

12. 

INDICATES A MAKE CONTACT ON ONE OF A SERIES OF LC RELAYS.

13. FC-/FCA- INDICATES THAT EITHER FC- OR FCA- DESIGNATION APPLIES.

14. 

A SEQUENCE CHART IS GENERALLY INCLUDED AS PART OF AN OS DRAWING. WHEN AN ASTERISK APPEARS OPPOSITE ONE OF THE SD NUMBERS IN THE LIST OF DRAWINGS ABOVE THE TITLE BLOCK IT INDICATES THE SD ON WHICH MAY BE FOUND THE APPARATUS COVERED IN THE CHART THAT DOES NOT HAVE A CIRCUIT ABBREVIATION FOLLOWING ITS DESIGNATION. THUS, TS- INDICATES THAT THE TS- RELAY IS IN THE TRANSVERTER CIRCUIT, WHILE TVO(TRL) INDICATES THAT THE TVO RELAY IS IN THE TRANSLATOR CIRCUIT.

*TRANSVERTER CIRCUIT SD-25802-01, ISSUE 3.
TRANSLATOR CIRCUIT SD-25754-01, ISSUE 8.

LEGEND FOR SEQUENCE CHARTS

1. RELAY OR OTHER APPARATUS OPERATIONS AND RELEASES ONLY ARE SHOWN.

2. VERTICAL PROGRESSION DOWNWARD SHOWS TIME PHASE OF RELAY OR OTHER APPARATUS MOVEMENTS (OPERATION OR RELEASE).

3. COORDINATES ARE USED TO PROVIDE FOR INDEXING AND REFERENCES. THE HORIZONTAL COORDINATES ARE ALPHABETICAL STARTING WITH A AND THE VERTICAL COORDINATES ARE NUMERICAL STARTING WITH 101 ON SHEET 1, 201 ON SHEET 2, ETC.

4. THE FOLLOWING TABLE SHOWS, ON A LINE BASIS, THE OPERATE AND RELEASE TIMES WHICH ARE USED FOR THE APPARATUS:

APPARATUS	OPERATE	RELEASE
ALL RELAYS EXCEPT SLOW OPERATE, SLOW RELEASE, TIMED AND MULTICONTACT	1 LINE	1 LINE
SLOW OPERATE RELAYS	2 LINES	1 LINE
SLOW RELEASE RELAYS	1 LINE	2 LINES (MIN.)
TIMED RELAYS, COLD CATHODE TUBES, ETC.	SEE NOTE 10	SEE NOTE 10
MULTICONTACT RELAYS	2 LINES	1 LINE
SELECT MAGNETS	2 LINES	1 LINE
HOLD MAGNETS	2 LINES	1 LINE
PERFORATOR MAGNETS	2 LINES	2 LINES
OTHER APPARATUS	1 LINE	1 LINE

5. OPERATE SYMBOLS:

(A) A — INDICATES RELAY A OR OTHER APPARATUS COMES TO FULLY OPERATED CONDITION AT THIS POINT. FOR POLAR RELAYS WITHOUT BIASING SPRINGS, THE ARMATURE HAS MOVED TO FRONT OR LEFT CONTACT.

(B) T — INDICATES TUBE T HAS OPERATED.

(C) (B) TC — INDICATES INTERRUPTER OR TIMER TC HAS CLOSED ITS BACK CONTACT.

6. RELEASE SYMBOLS:

(A) B — INDICATES RELAY B OR OTHER APPARATUS COMES TO FULLY RELEASED CONDITION AT THIS POINT. FOR POLAR RELAYS WITHOUT BIASING SPRINGS, THE ARMATURE HAS MOVED TO BACK OR RIGHT CONTACT.

(B) T — INDICATES TUBE T HAS RELEASED.

(C) (PU) T — INDICATES INTERRUPTER OR TIMER T HAS OPENED ITS PU CONTACT.

7. Z — INDICATES Z RELAY HAS EITHER OPERATED OR RELEASED.

8. SYMBOL NOTATION:

(A) C- — INDICATES ONE OR MORE OF THE RELAYS DESIGNATED CO TO C_n OR CA TO C_n HAVE OPERATED.

(B) CO-9, CO-n; FA-D — INDICATES THAT ALL OF THE RELAYS DESIGNATED CO TO C9, CO TO C_n OR FA TO FD, INCLUSIVE, HAVE OPERATED.

(C) A,C — INDICATES BOTH A AND C RELAYS HAVE OPERATED FROM THE SAME CAUSE.

(D) HG $\frac{2}{5}$ — INDICATES A COMBINATION OF "2 OUT OF 5" RELAYS HAS OPERATED FROM THE SAME CAUSE.

(E) L/R — INDICATES THAT EITHER OF THE RELAYS L AND R HAS OPERATED OR ONE OF THE SERIES OF RELAYS L TO R HAS OPERATED.

(F) (TOP) MC — INDICATES TOP HALF OF THE MC MULTICONTACT RELAY HAS OPERATED.

(G) (BOT.) MC — INDICATES BOTTOM HALF OF THE MC MULTICONTACT RELAY HAS RELEASED.

(H) MC — INDICATES BOTH HALVES OF THE MC MULTICONTACT RELAY HAVE OPERATED.

(J) AR KEY — INDICATES AR KEY HAS BEEN OPERATED.

(K) A JACK — INDICATES PLUG HAS BEEN INSERTED INTO THE A JACK AND JACK CONTACTS ARE CLOSED.

(L) AL LAMP — INDICATES AL LAMP HAS LIGHTED.

(M) T HOLD — INDICATES T HOLD MAGNET HAS OPERATED.

(N) J SEL. — INDICATES J SELECT MAGNET HAS OPERATED.

(P) U STEP 10/20 — INDICATES U STEP MAGNET HAS RELEASED AND THE BRUSHES ARE IN CONTACT WITH BANK TERMINAL 10 OR 20.

(R) PAC MAG. — INDICATES PAC MAGNET HAS OPERATED.

(S) A2 PERF. — INDICATES A2 PERFORATOR MAGNET HAS RELEASED.

9. CONNECTING LINES:

(A) VERTICAL LINES ARE USED TO LINK CAUSES WITH EFFECTS ON SUCCEEDING LINES AS:

LINE 101 — A — LINE 102 — B

INDICATES THAT THE RELAY B HAS OPERATED ON LINE 102 AS RESULT OF RELAY A OPERATION ON LINE 101.

(B) HORIZONTAL AND OBLIQUE LINES ARE USED TO CONNECT MULTIPLE CAUSES SO AS TO INDICATE THEIR COMMON EFFECT OR TO CONNECT MULTIPLE EFFECTS TO INDICATE THEIR COMMON CAUSE AS:

LINE 101: A, B — LINE 102: C

INDICATES THAT THE RELAY C HAS OPERATED ON LINE 102 AS RESULT OF BOTH A AND B RELAY OPERATION ON LINE 101. NEITHER A NOR B RELAY OPERATION ALONE IS SUFFICIENT TO OPERATE C RELAY.

LINE 101: A, B, C — LINE 102: D

INDICATES THAT THE RELAY D HAS OPERATED ON LINE 102 AS RESULT OF EITHER A, B OR C RELAY OPERATION ON LINE 101 (USED TO SHOW OPTIONS).

A B C D

LINE 101: HGK — LINE 102: A104

LINE 103: LCK — LINE 104: TK, D101

INDICATES THAT THE RELAY TK HAS OPERATED ON LINE 104 AS RESULT OF OPERATION OF BOTH HGK ON LINE 101 AND LCK ON LINE 103. NEITHER THE HGK NOR THE LCK OPERATION ALONE IS SUFFICIENT TO OPERATE THE TK RELAY. THE DIAGONAL LINE MAY BE CONTINUOUS OR AS SHOWN. THE DESIGNATIONS "A104" AND "D101" REFER TO THE COORDINATE POSITIONS OF THE SYMBOLS.

10. THE TIME DELAY INTRODUCED BY A TIMED CIRCUIT IS SHOWN THUS:

LINE 101: A — 20 TO 35 SEC. — LINE 103: T

INDICATES THAT THE T TUBE OPERATES IN 20 TO 35 SEC. AFTER THE A RELAY OPERATES.

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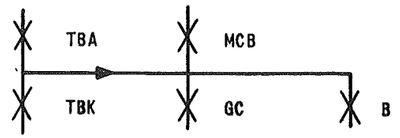
LEGEND FOR SEQUENCE CHARTS

11. ARROWHEADS:

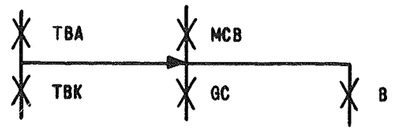
ARROWHEADS ARE USED TO DEFINE THE PRECISE DIRECTION, OR DIRECTION AND POSITION, OF THE CONNECTING LINE.

(A) IF ARROWHEAD IS ON A HORIZONTAL LINE AND IS LOCATED MIDWAY BETWEEN TWO VERTICAL LINES, IT GIVES THE HORIZONTAL LINE DIRECTION INSOFAR AS CAUSE TO EFFECT IS CONCERNED. FOR EXAMPLE:



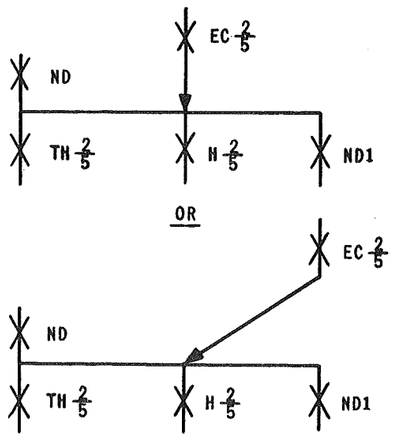
INDICATES B AND GC RELAYS WILL NOT OPERATE UNTIL BOTH THE MCB AND TBA HAVE OPERATED, BUT THE TBK WILL OPERATE INDEPENDENTLY OF THE MCB.

(B) IF ARROWHEAD ON A CONNECTING LINE ADJOINS A VERTICAL OR HORIZONTAL LINE, THE EFFECT OF THE ARROWHEAD IS LIMITED TO THE OPERATION SHOWN DIRECTLY BELOW. FOR EXAMPLE:



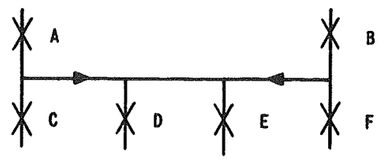
INDICATES B RELAY IS OPERATED FROM MCB ONLY; THE GC FROM THE MCB AND TBA; AND THE TBK FROM THE TBA ONLY.

(C)



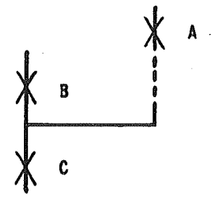
INDICATES H 2/5 RELAYS WILL NOT OPERATE UNTIL BOTH ND AND EC 2/5 RELAYS HAVE OPERATED. ALSO THE ND1 AND TH 2/5 RELAYS WILL OPERATE AFTER THE ND RELAY HAS OPERATED BUT INDEPENDENTLY OF THE EC 2/5 RELAYS.

(D) IN SOME CASES TWO ARROWHEADS MAY BE SHOWN AS:



INDICATES D AND E RELAYS ARE DEPENDENT UPON THE OPERATION OF BOTH A AND B RELAYS. ALSO, C RELAY WILL OPERATE INDEPENDENTLY OF B RELAY AND F RELAY WILL OPERATE INDEPENDENTLY OF A RELAY.

12. A DOTTED LINE INDICATES INTERMEDIATE ACTIONS OR INDEFINITE TIME INTERVALS.



13. CB(-1) INDICATES ALL CB RELAYS EXCEPT ONE HAVE OPERATED.

14. TS-

TVO(TRL)

*TRANSVERTER CIRCUIT SD-25802-01, ISSUE 3.
TRANSLATOR CIRCUIT SD-25754-01, ISSUE 8.

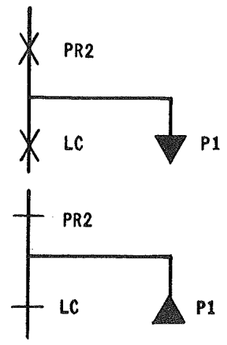
THE ASTERISK OPPOSITE AN SD NUMBER IN THE LIST OF DRAWINGS ABOVE THE TITLE BLOCK INDICATES THE SD ON WHICH MAY BE FOUND THE APPARATUS COVERED IN THE CHART THAT DOES NOT HAVE A CIRCUIT ABBREVIATION FOLLOWING ITS DESIGNATION. THUS, TS- INDICATES THAT THE TS- RELAY IS IN THE TRANSVERTER CIRCUIT, WHILE TVO(TRL) INDICATES THAT THE TVO RELAY IS IN THE TRANSLATOR CIRCUIT.

15. RK

THE SOLID INVERTED TRIANGLE UNDER THE RK RELAY DESIGNATION INDICATES THAT THE LAMP HAVING THE SAME DESIGNATION WILL BE LIGHTED IN THE TROUBLE INDICATOR IF A TROUBLE RECORD IS TAKEN AT THIS TIME.

RK

THE SOLID UPRIGHT TRIANGLE UNDER THE RK RELAY DESIGNATION INDICATES THAT THE LAMP HAVING THE SAME DESIGNATION WILL NOT BE LIGHTED IN THE TROUBLE INDICATOR IF A TROUBLE RECORD IS TAKEN AT THIS TIME.



THE SOLID INVERTED TRIANGLE DESIGNATED P1 INDICATES THAT THE LAMP HAVING THIS DESIGNATION WILL BE LIGHTED IN THE TROUBLE INDICATOR UNDER CONTROL OF THE PR2 RELAY, IF A TROUBLE RECORD IS TAKEN AT THIS TIME.

THE SOLID UPRIGHT TRIANGLE DESIGNATED P1 INDICATES THAT THE LAMP HAVING THIS DESIGNATION WILL NOT BE LIGHTED IN THE TROUBLE INDICATOR IF A TROUBLE RECORD IS TAKEN AFTER THE PR2 RELAY HAS RELEASED.

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