

SD-55200-01

BELL TELEPHONE LABORATORIES, INC.

ISS.	ISSUE	ISSUED	APPROVED	
1	1	2-29-40	W.L.F.	L.L.E.
2	2	1-21-41	W.L.F.	B.C.B.
3	3	6-10-41	W.L.F.	B.C.B.

TOLL SYSTEMS
TOLL SWITCHBOARD NO. 3CF
KEY SHEET

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AT&TCO
STANDARDFOR EXPLANATION OF CONVENTIONS
SEE MASTER KEY SHEET SD-90250-01

SD-55200-01

General Description of Toll Switchboard
No. 3CF

Toll switchboard No. 3CF is designed primarily for an operator office to handle DSA service in community dial areas and to establish calls between subscribers in one toll center and subscribers in another toll center. Power supply and distributing frame facilities for this switchboard are obtained from the community dial office in the same building.

The switchboard position consists of a three panel upper unit assembled with a lower unit equipped with regular toll switchboard No. 3C positional circuits. It is wired for a maximum of 10 pairs of toll cords and equipped for repeated dialing on both ends of cords. The growth of the switchboard lineup is always from left to right.

The principal features of this switchboard are similar to toll switchboard No. 3C with the following added features:

1. Fixed equipment layout.
2. 92 type jacks only mounted 10 per strip.
3. Trunking arrangements as follows:
 - 3.1 Ringdown intertoll trunks to distant toll offices with 20 and 135 cycle ringing arrangements and no provision for switching transmission pads. Where switching transmission pads are required, the regular 3C intertoll trunk shall be furnished.

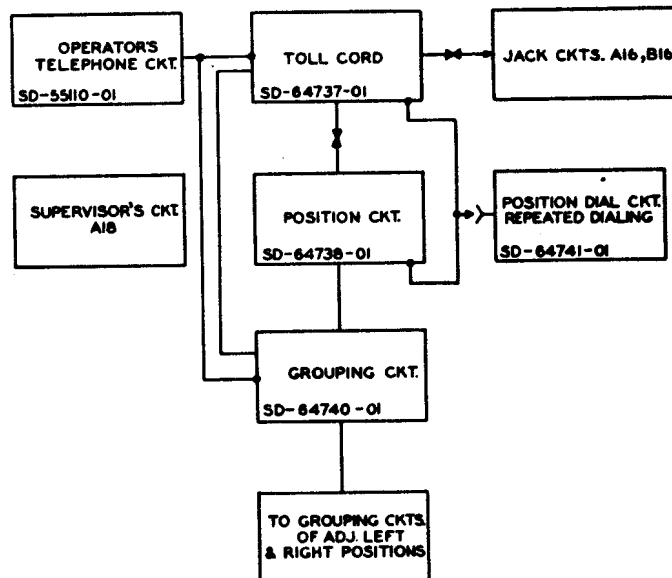
- 3.2 Recording completing trunks incoming from community dial office arranged for type A or B transmission battery supply.
- 3.3 Toll switching trunks outgoing to community dial office arranged for type A or B transmission battery supply.
- 3.4 Two-way master office trunks to distant community dial office arranged for loop, simplex or composite signaling.

The distribution fuse alarm circuit connects to a toll audible and visual alarm circuit arranged to group to the alarm system in the dial office, from which alarm indications extend to alarm line circuits appearing in the toll switchboard.

The testing and maintenance facilities for this switchboard are simplified and are as follows:

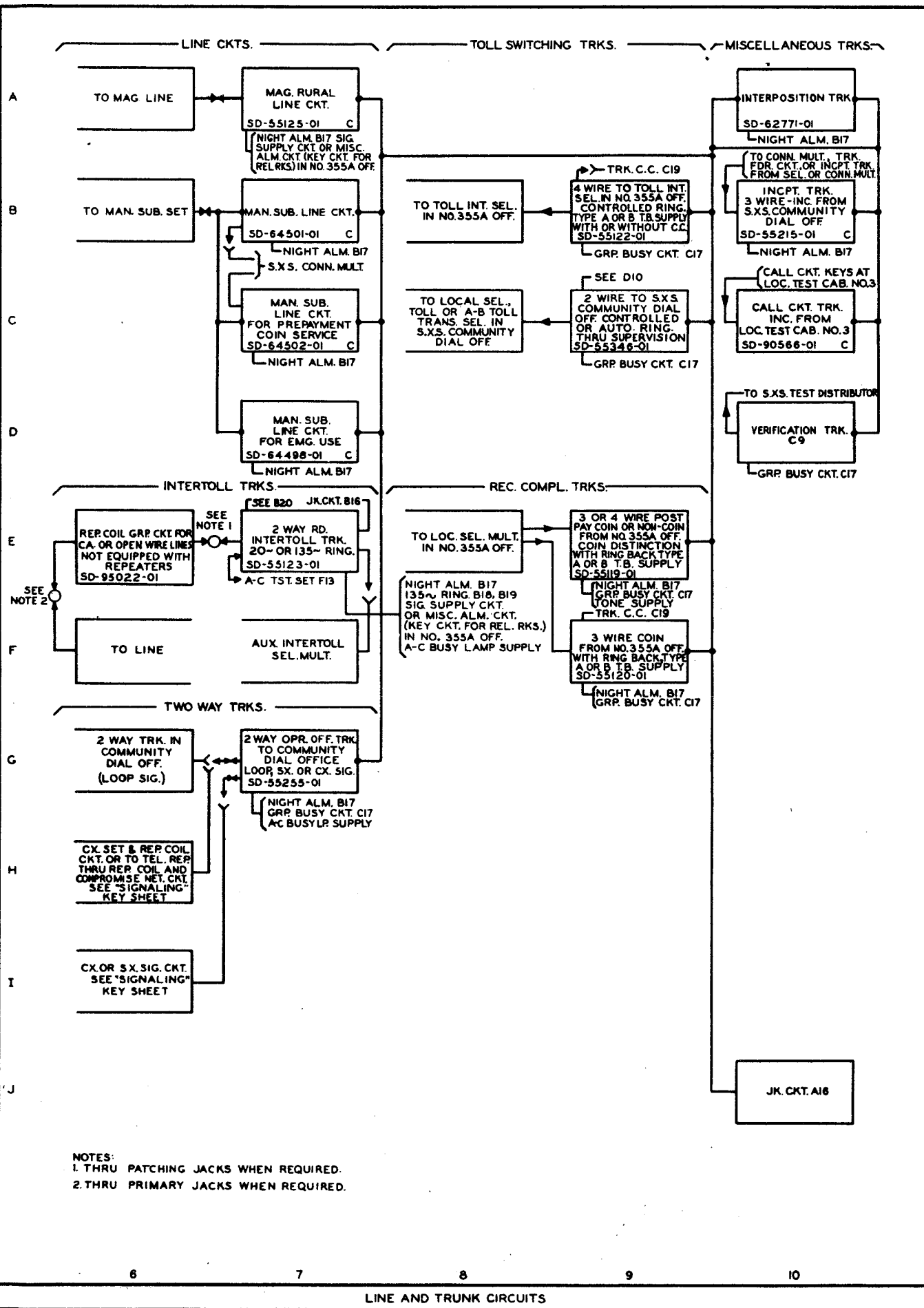
1. Position test circuit for cords, position and dial circuits and intertoll trunk multiple jacks.
2. Portable set for testing and adjusting AC relays.
3. Primary test, patching and miscellaneous jacks mounted on relay rack.
4. Telephone circuit for assisting in testing intertoll trunks.
5. Test line circuit at switchboard for making tests from a local test cabinet No. 3 in the dial office.

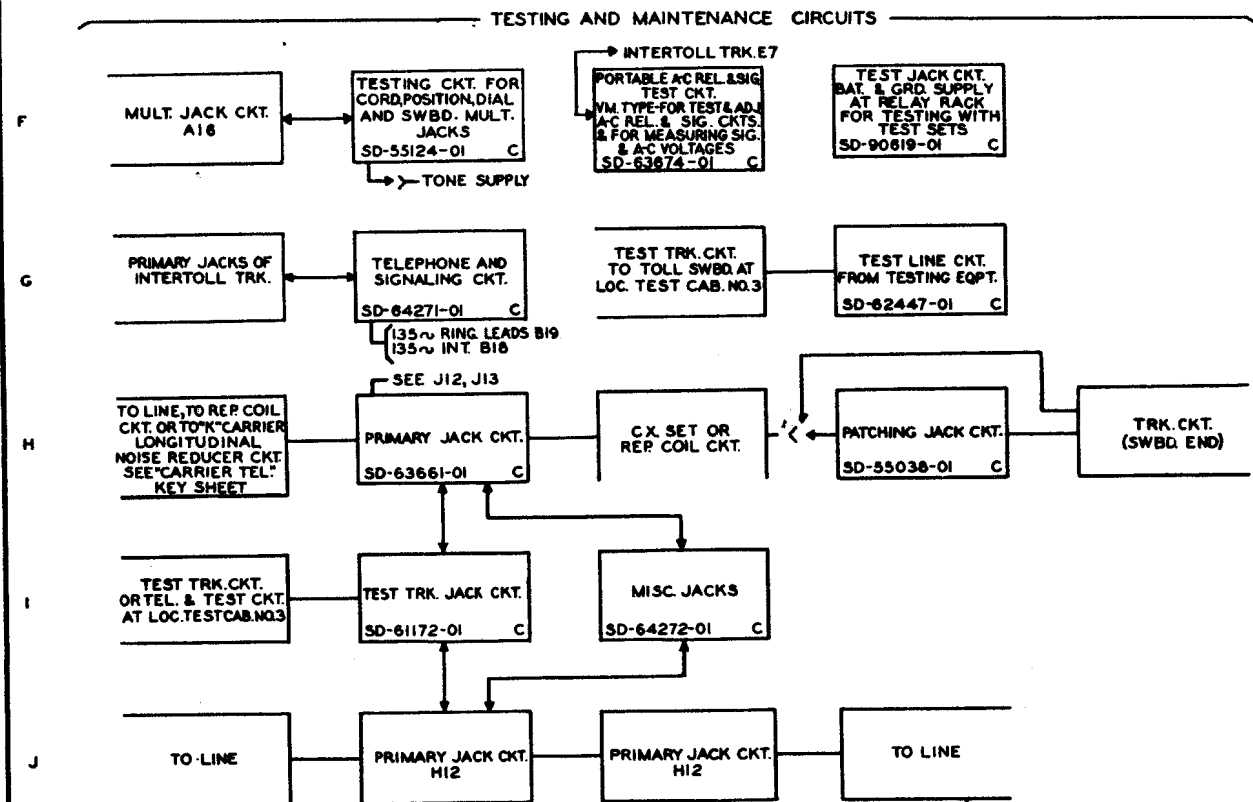
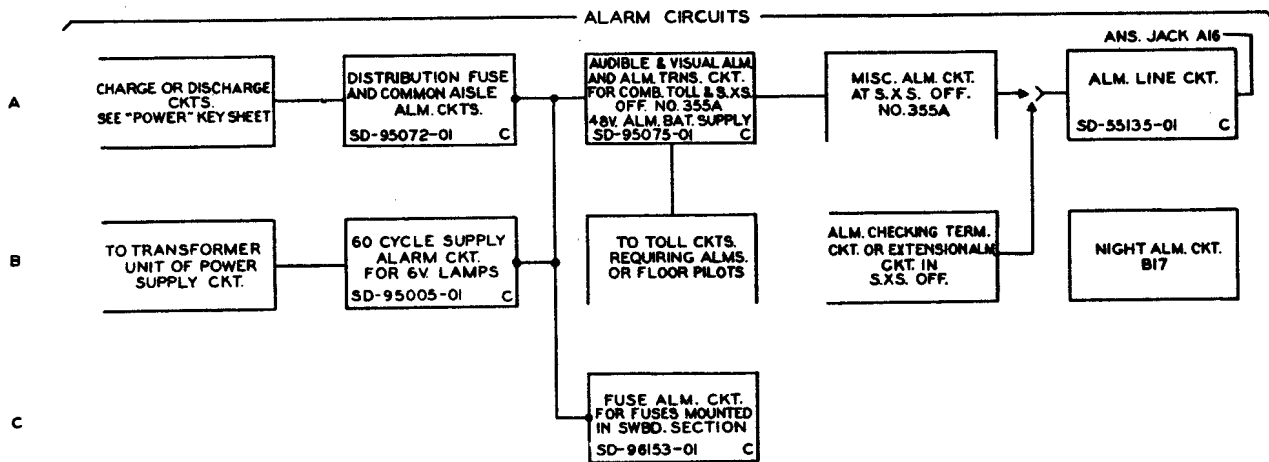
A
B
C
D



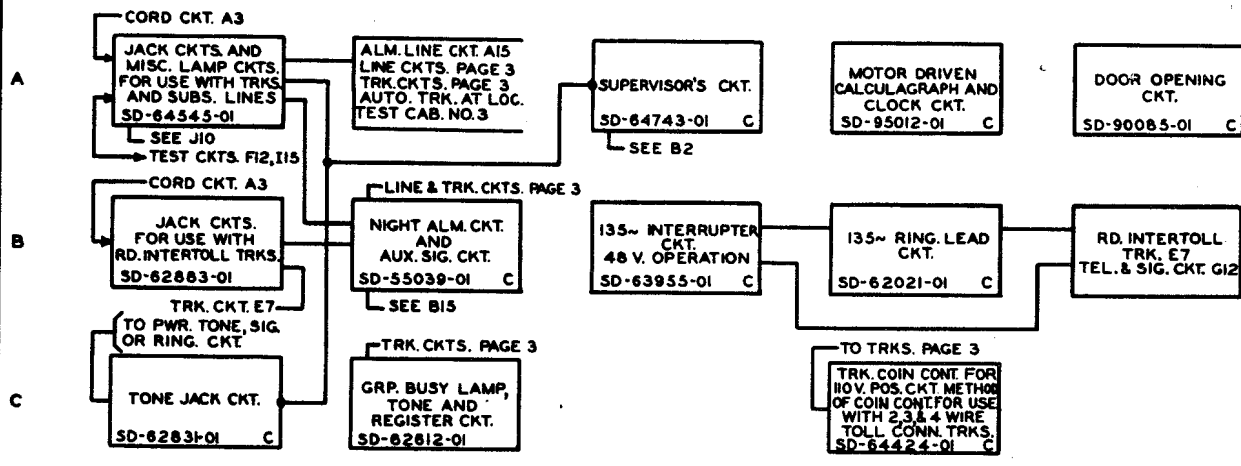
1 2 3 4 5

POSITIONAL CIRCUITS





ALARM CKTS. AND TESTING AND MAINTENANCE CKTS.



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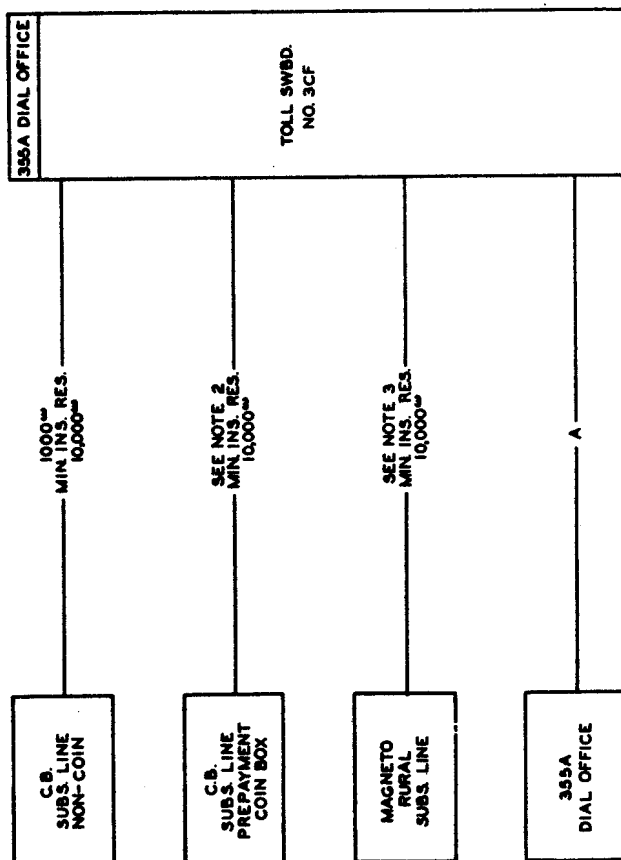
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MISCELLANEOUS CIRCUITS

**CURRENT DRAIN
AMPERE HOURS PER BUSY HOUR**

CIRCUIT DRAWINGS		SEE NOTE NO.	REMARKS	DRAINS LIST 1 & LIST 2								
CIRCUIT TITLE	CIRCUIT NO.			48V. TALK.			48V. SIG.			24V. SIG.		
				BAT.	F.P. GRD.	SWBD GRD.	BAT.	F.P. GRD.	SWBD GRD.	BAT.	F.P. GRD.	SWBD GRD.
CORD-TOLL	SD-64737-01						.006			.005		
DIAL	SD-64741-01						.010		.010	.021		.010
GROUPING	SD-64740-01						.019		.019	.103		
GROUP BUSY LAMP, TONE, REG.	SD-62612-01		PER GRP. 5 OUT. TRKS. EACH ADDL. KI LAMP							.081	.062	
										.008	.008	
JACKS FOR INTERTOLL TRKS.	SD-62683-01		PER AI LINE LAMP							.0005		.0005
JACKS AND LAMPS FOR TRKS.	SD-64545-01		PER AI TRK. LAMP PER AISUB. LINE LAMP PER KI GRP. BUSY LAMP							.001		.001
										.0002		.0002
										.0285		.0285
LINE -RURAL	SD-55125-01						.008	.008				.008
POSITION	SD-64736-01						.067		.067	.041		.123
TELEPHONE - OPERATORS	SD-55110-01						.091		.091			
TRUNK - INTERPOSITION	SD-62771-01									.009	.011	
TRUNK-RECORDING COMPLETING	SD-55119-01					.066	.050		.062			.022
TRUNK-RECORDING COMPLETING	SD-55120-01					.033	.021		.031			.007
TRUNK-TOLL SWITCHING	SD-55122-01					.122	.122					.021

- NOTES:
1. ADDL. DRAIN FOR 20~ SIG. WITH 196 TYPE RELAY.
 2. ADDL. DRAIN FOR 135~ SIG.
 3. ADDL. DRAIN FOR CONNECTION TO INTERTOLL SELECTOR MULTIPLE.
 4. REVERSED BATTERY WITH THRU SUPERVISION.
 5. REVERSED BATTERY WITHOUT THRU SUPERVISION.



RANGE CHART

NOTES:
1. ALL LOOP VALUES GIVEN ON THE CHART OR BY LETTER REFERENCE INCLUDE ONLY THE RESISTANCE OF THE OUTSIDE CONDUCTORS, INSIDE WIRING, AND CENTRAL OFFICE HEAT COILS. THEY DO NOT INCLUDE THE RESISTANCE OF ANY CENTRAL OFFICE APPARATUS OR THE RESISTANCE OF STATION APPARATUS.

2. FOR COIN LINES THE CONDUCTOR LOOP RESISTANCE IS OBTAINED FROM THE FORMULA BELOW, BUT NO CASE SHALL THIS VALUE EXCEED 750 OHMS. WITH A MAXIMUM EARTH POTENTIAL OF 177 VOLTS THE FORMULA ASSUMES THE USE OF THE 12 OR 13E RESISTANCE LAMP IN THE COIN CONTROL CIRCUIT, AND "N" DENOTES MINIMUM COIN VOLTAGE. "EP" DENOTES POSITIVE OR NEGATIVE EARTH POTENTIAL AND THE POLARITY OF BOTH THE COIN VOLTAGE AND THE EARTH POTENTIAL SHALL BE DISREGARDED.

FORMULA: CONDUCTOR LOOP (OHMS) = $28(V-E)^2 - 2065$

3. BRIDGED RINGING:
LINES EQUIPPED WITH 3 BAR HAND) 6 SETS ON 800 OHM GENERATORS AND 1000 OHM RINGERS) LOOP
LINES EQUIPPED WITH 5 BAR HAND) 20 SETS ON 2500 OHM GENERATORS AND 2500 OHM RINGERS) LOOP
TEN PARTY DIVIDED CODE RINGING:
LINES EQUIPPED WITH 3 BAR HAND) 5 SETS ON EACH SIDE GENERATORS AND WITH 2500 OHM RINGERS) OF LINE ON 2500 OHM RINGERS CONNECTED TO GROUND) LOOP

LOOP DESIG.	LOOP RES. NOT TO EXCEED	MIN. INS. RES.	SEE NOTE	REMARKS
A	1200 ^Ω	30,000 ^Ω		S.X.S. TRK. OR SEL. EQUIPPED WITH 221FAE PULSING REL.
A	2000 ^Ω	30,000 ^Ω		S.X.S. TRK. OR SEL. EQUIPPED WITH 221FAF PULSING REL.
A	1300 ^Ω	30,000 ^Ω		S.X.S. SEL. EQUIPPED WITH 221B9 PULSING REL.