INSPECTION REQUIREMENTS

SWITCHES

324, 325 AND 328 (CROSSBAR) TYPES

GENERAL EQUIPMENT REQUIREMENTS

COMMON SYSTEMS

TABLE A — SWITCHES EXCLUSIVE OF OFF-NORMAL CONTACT SPRINGS

Lot Range				A	B	C	D	E	F	G	H	I	J	K
Lot Size (Total Number of Switches in Lot - See Note 1)				1 to 75	76 to 100	101 to 150	151 to 250	251 to 350	351 to 500	501 to 750	751 to 1000	1001 to 2000	2001 to 3000	3001 to 5000
Sample Size (Switches - See Notes 1 and 2)				All	75	85	100	110	120	140	160	200	240	300
Inspection Item (See Note 3) (For Requirements, refer to BSP Section A438.678 and Sections of Division 800.)		Basis For Counting Defects		Allowable Defect Numbers										
				AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN
1. Functional, Numerical and Group Designations		Switch		Record All Defects Found - See Note 5										
2. Mounting of Switch		Switch	-	1	1	1	1	1	1	2	3	4	5	
3. Mounting of Switch Parts		Switch	-	2	2	2	2	3	4	4	6	8	10	
Selecting Unit (Exclusive of Selecting Off-normal Contact Springs - For SON Springs, See Table B)														
4. Freedom of Movement of Selecting Bar	SI	Bar	-	4	5	6	7	7	9	11	14	17	23	
5. Clearance Between Armature Extension and Side of Switch Frame		Bar	-	4	5	6	7	7	9	11	14	17	23	
6. Tightness of Selecting Bar Pivot Screw Locknuts		Bar	-	4	5	6	7	7	9	11	14	17	23	
7. Straightness of Centering Springs		Magnet	-	4	5	6	7	7	9	11	14	17	23	
8. Centering Spring Tension		Magnet	-	4	5	6	7	7	9	11	14	17	23	
9. Clearance Between Selecting Armature Stud and Centering Spring		Bar	-	4	5	6	7	7	9	11	14	17	23	
10. Armature Travel		Magnet	-	4	5	6	7	7	9	11	14	17	23	
11. Straightness of Selecting Finger		Finger	-	10	11	14	16	17	21	25	31	39	51	
Position of Selecting Finger (a) 12. Clearance With Holding Armature and Operating Face of Operating Card. (Holding Armature With and Without Cones).	SI	Finger	-	10	11	14	16	17	21	25	31	39	51	
(b) 13. Closed Crosspoint Shall Open and Opposite Crosspoint Shall Close When Selecting Armature Is Changed From One Fully Operated Position to the Other and the Holding Armature Is Released and Is Reoperated (Holding Armature With Cones).		Finger	-	10	11	14	16	17	21	25	31	39	51	
(c) 14. Touch Stop; Electrically Operated (Holding Armature With and Without Cones).		Finger	-	10	11	14	16	17	21	25	31	39	51	
(d) 15. Engage Nonoperating Faces, Partially Operated. (Holding Armature With and Without Cones).		Finger	-	10	11	14	16	17	21	25	31	39	51	
16. Electrical Requirements (See Note 4)		Magnet	-	9	10	11	12	13	16	18	23	28	36	
Vertical Unit (Exclusive of Holding-off-normal Contact Springs - For HON Springs, See Table B)														
17. Contact Alignment		Crosspoint	-	10	11	14	16	17	21	25	31	39	51	
18. Operating Spring Pressure		Crosspoint	-	10	11	14	16	17	21	25	31	39	51	
19. Contact Separation		Crosspoint	-	10	11	14	16	17	21	25	31	39	51	
20. Front Contact Make		Crosspoint	-	10	11	14	16	17	21	25	31	39	51	
21. Clearance Between Operating Springs and Adjacent Multiple Strips		Crosspoint	-	10	11	14	16	17	21	25	31	39	51	
22. Straightness of Balancing Springs		Vertical Unit	-	4	5	6	7	7	9	11	14	17	23	
23. Balancing Spring Tension		Vertical Unit	-	4	5	6	7	7	9	11	14	17	23	
24. Freedom of Movement of Holding Armature		Vertical Unit	-	4	5	6	7	7	9	11	14	17	23	
25. Armature Air Gap		Vertical Unit	-	4	5	6	7	7	9	11	14	17	23	
26. Electrical Requirements (See Note 4)		Vertical Unit	-	9	10	11	12	13	16	18	23	28	36	

AN = Allowable Number of Defects in Sample.

TABLE B — OFF-NORMAL CONTACT SPRING ASSEMBLIES OF CROSSBAR SWITCHES (See Note 9)

SELECTING OFF-NORMAL CONTACT SPRING ASSEMBLIES

Lot Range			A	B	C	D	E	F	G	H	I	J	K	L
Lot Size	(Number of Switches with Selecting) (Off-normal Units in Lot		1 60	61 90	91 120	121 160	161 200	201 300	301 500	501 700	701 1000	1001 1500	1501 2000	2001 3000
Sample Size (Switches, See Note 6)			All	60	68	74	80	88	100	110	120	140	160	180
Inspection Item (See Note 3) (For requirements, refer to Section A438.678)		Basis For Counting Defects	-	Allowable Defect Numbers										
				AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN
27.SON Cover Spring Tension		Cover	-	3	4	4	4	5	6	7	7	9	11	12
28.Contact Alignment		Bar	-	3	4	4	4	5	6	7	7	9	11	12
29.Stationary Stud Clearance		Bar	-	3	4	4	4	5	6	7	7	9	11	12
30.Straightness of Spring (See Note 8)		Bar	-	5	6	7	8	9	10	11	12	15	17	20
31.Contact Spring Clearance		Bar	-	3	4	4	4	5	6	7	7	9	11	12
32.Contact Spring Tension		Bar	-	3	4	4	4	5	6	7	7	9	11	12
33.Contact Separation		Bar	-	3	4	4	4	5	6	7	7	9	11	12
34.Operating Stud Gap		Bar	-	3	4	4	4	5	6	7	7	9	11	12
35.Front Contact Make		Bar	-	3	4	4	4	5	6	7	7	9	11	12

HOLDING OFF-NORMAL CONTACT SPRING ASSEMBLIES

Lot Range			A	B	C	D	E	F	G	H	I	J	K	L
Lot Size	(Number of Switches with Holding) (Off-normal Units in Lot)		1 60	61 90	91 120	121 160	161 200	201 300	301 500	501 700	701 1000	1001 1500	1501 2000	2001 3000
Sample Size (Switches, See Note 7)			All	60	68	74	80	88	100	110	120	140	160	180
Inspection Item (See Note 3) (For requirements refer to Section A438.678)		Basis For Counting Defects		Allowable Defect Numbers										
				AN	AN	AN	AN	AN	AN	AN	AN	AN	AN	AN
36.Contact Alignment		Vertical Unit	-	3	4	4	4	5	6	7	7	9	11	12
37.Operating Stud Clearance		Vertical Unit	-	3	4	4	4	5	6	7	7	9	11	12
38.Straightness of Spring (See Note 8)		Vertical Unit	-	5	6	7	8	9	10	11	12	15	17	20
39.Spring Clearance		Vertical Unit	-	3	4	4	4	5	6	7	7	9	11	12
40.Spring Tension		Vertical Unit	-	3	4	4	4	5	6	7	7	9	11	12
41.Contact Separation		Vertical Unit	-	3	4	4	4	5	6	7	7	9	11	12
42.Operating Stud Gap		Vertical Unit	-	5	6	7	8	9	10	11	12	15	17	20
43.Front Contact Make		Vertical Unit	-	3	4	4	4	5	6	7	7	9	11	12

AN = Allowable Number of Defects in Sample.

SPOTTINESS TABLE

Size of Subsample	3 to 25	26 to 70	71 to 125	126 to 175	176 to 200	201 to 250	251 to 300	301 to 350	351 to 400	401 to 450	451 to 500	501 to 550	551 to 600	601 to 650	651 to 700	701 to 750	751 to 800	801 to 850	851 to 900	901 to 950	951 to 1000
SN	2	3	4	6	7	8	10	11	12	13	14	16	17	19	20	22	23	24	25	26	28

SN = Spottiness Number (Applying to Subsample).

Note 1: The lot and sample sizes for the inspection of the crossbar switch, exclusive of the off-normal contact springs, are stated in terms of the switch as indicated. The sample, however, will include from each switch, only five vertical units, five selecting magnets and associated centering springs, and the five selecting bars, exclusive of selecting fingers. For the sample of selecting magnets and centering springs, select either the upper or lower centering springs and selecting magnet associated with the individual selecting bar including an approximately equal number of "upper" and "lower" selections in the sample. For requirements applying to crosspoints, a total of ten crosspoints in the vertical units selected on each switch will be included in the sample, a maximum of three crosspoints being taken from a single vertical unit. Ten selecting fingers associated with vertical units of the sample will also be included from each switch, a maximum of four being selected from a single selecting bar. The sample of switches selected from the lot should be distributed in such a manner as to be fully representative of the lot. A minimum equipment group subsample of three switches shall be included from each equipment group sublot of six or more switches. Where the number of switches in any equipment group included in the lot is less than three, include all switches of such equipment groups in the sample.

Note 2: For Lot Range A include all switches of the lot in the sample, selecting the same number of parts per switch as indicated in Note 1. In addition to spottiness tests for the sample quantities inspected, the following tests shall also be applied in determining whether additional inspection shall be required for a lot in Lot Range A. Where the lot comprises more than five switches, if the total number of defects found for any inspection item is in excess of 1/2 the spottiness number corresponding to the sample quantity inspected (in terms of the "Basis for Counting Defects"), the uninspected portion of the lot shall be inspected completely for that inspection item. For lots of five switches or less, the individual switch shall be considered "spotty" for any inspection item if more than two defects are found on it for that item and the balance of the switch shall be inspected for that item.

Note 3: Except for switches mounted and wired during installation, inspection for the crossbar switch may be limited to the items designated "SI" (Selected Item). Extension of inspection to the remaining items for lots in Lot Range A including those applying to the off-normal features shall be made only where more than 1/2 the SN (dropping fractional parts and in no case in excess of the AN in Lot Range B) corresponding to the number of parts inspected is exceeded for each of the respective selected items. For lots in Lot Ranges B to K, inclusive, the extension shall be made only where the AN is exceeded for both of the selected items.

Note 4: No inspection need be made for items 16 and 26 unless the testing results indicate that the switches do not satisfactorily meet the electrical requirements. Allowable defect numbers are provided for items 16 and 26 for use in case such inspection is required.

Note 5: For each type of defect recorded, sufficient additional inspection shall be made to insure the elimination of the irregularity in the equipment involved.

Note 6: From each switch of the sample the selecting off-normal contact springs associated with either the upper or lower selecting magnet of each selecting bar will be included in the sample, an approximately equal distribution being maintained between "upper" and "lower" contact springs.

Note 7: From each switch of the sample only five holding off-normal units exclusive of balancing springs will be included in the sample.

Note 8: Where the allowable defect number for inspection items 30 and 38, "Straightness of Spring," is not exceeded, correction of defects for these items may be omitted. Where the allowable defect number is exceeded, the case shall be reviewed with the operating company to determine the corrective measure to be taken.

Note 9: The holding and selecting off-normal units of the crossbar switches, exclusive of centering and balancing springs, will be treated separately from the other switch features and from each other for inspection purposes. For the determination of sample sizes, the lot sizes will be considered as the total number of switches in the office equipped with holding off-normal units and the total number equipped with selecting off-normal units, respectively. The samples shall be selected from the lots so that each equipment group subsample is proportional to the size of the corresponding sublot, except that a minimum of five switches (or all switches where the equipment group sublot contains less than five) from each equipment group sublot will be included in the sample.

For detailed explanation and use of tables, refer to Section 800-668-180.

REASONS FOR REISSUE

1. To add inspection item 13(b) and to change the lot tolerance per cent defective for electrical requirement from 2 to 3 per cent to agree with other apparatus tolerances.