REPLACEMENT CONTACTS
RELAYS (NONWIRE SPRING TYPE), 197-TYPE SWITCHES, AND KS-13835 (AMA) READER — HAVING UNUSUAL CONTACT CONDITIONS

1. GENERAL

1.01 This section covers the cases where silver replacement contacts are recommended for use on certain apparatus in circuits where heavy contact erosion occurs. It also covers those cases where No. 1 metal replacement contacts are recommended where frequent contact opens occur.

1.02 This section is reissued to cover limitations for the use of silver negative and palladium positive contacts and to amplify the use of the No. 1 metal contact.

1.03 In some cases, mating palladium contacts having contact protection show heavy erosion on the negatively poled contact with little erosion or build-up on the positively poled contact. Except as stated below, the P-16A222 silver contact is recommended for the negative contact with a mating palladium contact in these cases. This combination of contacts, referred to as silver negative (Ag−) and palladium positive (Pd+) should not be used for contacts controlling the 46-ohm stepping magnets on switches in step-by-step offices. Mating palladium contacts should be used in this case. If arcing occurs with the silver negative and palladium positive combination and the arcing cannot be eliminated by vigorous burnishing of the contacts, the silver contact should be replaced with a palladium contact. Typical examples for the substitution of the silver for the palladium contact are covered in Part 2 of this section.

Note: Replace only the worn contact of a contact pair.

1.04 On step-by-step relays and 197-type switch VON springs with dome shaped contacts, it will be satisfactory to replace only one contact of a pair leaving a dome contact mating with a bar contact providing satisfactory alignment is obtained. In this case, the width of the bar contact must lie wholly within the periphery of the dome and the dome must lie wholly within the length of the bar. If this alignment is not obtained, remove the dome contact and weld a bar contact perpendicular to the other bar contact.

1.05 In some cases, mating palladium contacts which do not make or break current show frequent contact opens. In these cases, No. 1 metal (P-15A847) contacts are recommended as replacements for both palladium contacts to give increased contact reliability. Substitution of No. 1 metal contacts for palladium contacts is restricted to the applications covered in Part 3 of this section.

1.06 Section A504.101.2 covers the procedures for replacing the contacts on the apparatus referred to herein.

2. P-16A222 (SILVER) CONTACT

2.01 The following tables cover typical examples where the silver (P-16A222) contact is recommended for use as the negatively poled contact with a mating palladium (positive) contact. These examples are given with reference to the switching systems in which they occur and are subject to the limitations covered in 1.03.

Caution: ***Before making the contact replacement, check for the negative (battery) side of the contact pair in order to insure applying the silver contact to this side. In some cases, the poling of the contacts may differ from that indicated on the circuit drawing because of local wiring deviations.***

TABLE A — STEP-BY-STEP SYSTEM (CO, PBX, CDO)

1. Contacts that control a switch vertical or rotary stepping magnet except magnets with 46-ohm winding.

RELAY DESIGNATION	CONTACT POSITIONS (See Note)
C (Line Finder)	1-2
A (Selector)	1-2
A (Connector)	1-2
E (Selector)	1-2 or 3-4
SP (Line Finder — SD-31731-01)	1-2T

2. 197-type switch VON contacts 1-2, 3-4, or 5-6 depending on which contacts break the circuit to the release magnet.

   Note: In a few cases, the vertical or rotary stepping magnet is controlled from a different contact position. In such cases, it is permissible to apply the silver contact on the negative contact of this position. If dome contacts are provided and the positive dome contact is not excessively worn, replace only the negative contact. Refer to 1.04 for the required alignment of the bar and dome contacts.

TABLE B — NO. 4A TOLL SWITCHING SYSTEM

SD-68340-01 Decoder Circuit (U-type Relays)

RELAY DESIGNATION	CONTACT POSITIONS TOP	BOTTOM
HTR	4-5	5-6
	6-7	7-8
	8-9	9-10
	10-11	
OC	3-4	1-2
	5-6	3-4

TABLE C — NO. 5 CROSSBAR SYSTEM

SD-25550-01 Marker (U-type Relays)

RELAY DESIGNATION	CONTACT POSITIONS TOP	BOTTOM
FR	1-2	3-4
FTK1		1-2
HTK1	1-2	
GK	1-2	1-2
VGR		3-4
HGT0-9	5-6	
VGT0-6	7-8	
VFT0-4	5-6	
TLC2	1-2	
D1S1		3-4
LLC1	9-10	
D	1-2	7-8
	7-8	9-10
	9-10	
CKG1	5-6	
LK1		9-10
CON1		6-7
CKG3	1-2	3-4
CB		1-2
STF		2-3
CBF		1-2
VFL1		1-2

TABLE C (Cont)

RELAY DESIGNATION	CONTACT POSITIONS TOP	BOTTOM
TBK	3-4	
MAK1	3-4	
NSO		1-2
GTL		5-6
FBK	1-2	
GLH		7-8
		9-10
FCK	4-5	1-2
		4-5
RYT	1-2	
CKG5	11-12	

TABLE D — AMA ACCOUNTING CENTER

1. SD-40002-01 Computer Circuit (UB-type Relays)

RELAY DESIGNATION	CONTACT POSITIONS TOP	BOTTOM
A. Reading Relays		
A0	1-2	1-2
	5-6	5-6
A1	3-4	1-2
	5-6	3-4
A2	1-2	5-6
	3-4	
B0 to F0	1-2	7-8
	5-6	9-10
	9-10	
B1 to F1	1-2	5-6
	3-4	9-10
	5-6	
	7-8	
	9-10	
B2 to F2	1-2	1-2
	3-4	9-10
	5-6	
	7-8	
	9-10	
B4 to F4	1-2	3-4
	3-4	9-10
	5-6	
	7-8	
	9-10	
B7 to F7	1-2	3-4
	5-6	9-10
	9-10	
B. Other Relays		
RS1	11-12	
RS2	11-12	3-4
		7-8

TABLE D (Cont)

2. SD-40019-01 Assembler Circuit (UB-type Relays)

RELAY DESIGNATION	CONTACT POSITIONS TOP	BOTTOM
A. Reading Relays		
A0	7-8	
A1		5-6
		7-8
A2	5-6	
B0 to F0	5-6	
B1 to F1	5-6	
	7-8	
B2 to F2	5-6	
	7-8	
B4 to F4	5-6	
	7-8	
B7 to F7	5-6	
B0		3-4
		7-8
B1		7-8
B2		3-4
E0 to E7		3-4
		5-6
		7-8
F0 to F7		3-4
		5-6
		7-8
B. Other Relays		
PA0 to PA9	All	All
PB0 to PB9	All	All
PC0 to PC9	All	All
KA0 to KF7	5-6	
RS3	5-6	
RS4	5-6	

3. SD-40003-01 Sorter Circuit (UB-type Relays)

RELAY DESIGNATION	CONTACT POSITIONS TOP	BOTTOM
A. Reading Relays		
A0	1-2	
	3-4	
	5-6	
A1	1-2	
	3-4	
	5-6	

TABLE D (Cont)

RELAY DESIGNATION	CONTACT POSITIONS TOP	BOTTOM
A2	1-2	
	3-4	
	7-8	
B0 to F7	1-2	3-4
	3-4	5-6
	5-6	7-8
	7-8	
B. Other Relays		
PA0 to PA9	7-8	1-2
	9-10	3-4
		5-6
		7-8
		9-10
PB0 to PB9	1-2	1-2
and	3-4	3-4
PC0 to PC9	5-6	5-6
	7-8	7-8
	9-10	9-10
KA0	5-6	
KA1		3-4
KA2		3-4
KB0 to KF7	1-2	1-2
	3-4	3-4
	5-6	
RS1		9-10
RS2		9-10

4. KS-13835 Reader

A. All reading and control contacts.

3. P-15A847 (NO. 1 METAL) CONTACT

3.01 The following table covers all cases where the No. 1 metal (P-15A847) contact is recommended for use where frequent open contact troubles occur. Replace both mating contacts.

TABLE E — STEP-BY-STEP SYSTEM

1. SD-32183-01 Digit-absorbing Selector (See Note)

APPARATUS DESIGNATION	CONTACT POSITIONS
VON Springs	3-4
F Relay	7-8 T and B
Z Relay	7-8

2. SD-30976-01 Digit-absorbing Selector

APPARATUS DESIGNATION	CONTACTS
B Relay	1-2
VON Springs	6-7

Note: All SD-32183-01 digit-absorbing selectors bearing manufacture dates September 1956, and later have No. 1 metal contacts in the contact positions listed. During the period of introducing these contacts, some selectors manufactured prior to September 1956, were equipped with No. 1 metal contacts in these positions. These selectors may be identified by the 1/8-inch diameter green dot stamped on the pole pieces of F and Z relays and the bracket of the VON spring assembly.

TABLE F — PANEL SYSTEM

1. SD-21193-01 Subscriber Sender Circuit

RELAY DESIGNATION	CONTACT POSITIONS (See Note) TOP		BOTTOM
P1[1]	2-3 or 4-5		
P2[1]	3-4	and	2-3 or 1-2 or 4-5

TABLE F (Cont)

RELAY DESIGNATION	CONTACT POSITIONS (See Note) TOP		BOTTOM
P3[1]	2-3		
P4[1]	3-4	and	2-3
P5[1]	4-5	and	1-2

2. SD-21193-02 Subscriber Sender Circuit

RELAY DESIGNATION	CONTACT POSITIONS (See Note) TOP		BOTTOM
P1[1]	2-3 or 4-5		
P2[1]	3-5	and	2-3 or 1-2 or 4-5
P3[1]	2-3		
P4[1]	3-4	and	2-3
P5[1]	2-3 or 4-5 or 4-5	and	1-2

Note: Break contact that controls operating path of CK relay.