RELAYS
AK-TYPE
(WIRE-SPRING TYPE)
REQUIREMENTS
(CONDENSED SECTION FOR 040-504-701)

1. REQUIREMENTS (also see Section 020-012-711)

1.01 *Balancing Spring Tension:* Fig. 1(A)—Card bears against associated surfaces on armature and armature bears against backstop; relay unoperated.

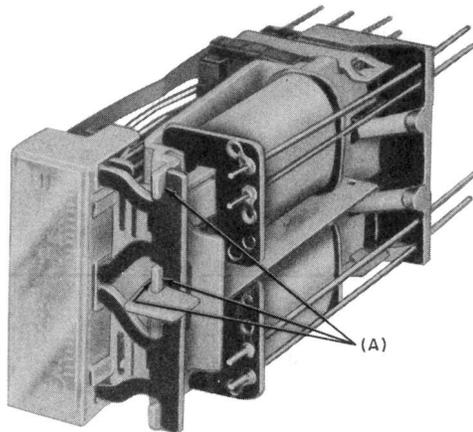**1.02** *Armature Back Tension:* Min 25 grams (readjust 30 grams). 70D gauge.

Fig. 1 — AK-Type Relay

1.03 *Contact Sequence*

Test

(a) *EMB Position:* EM contacts make before B contacts break.

(b) *EBM Position:* EB contacts break before M contacts make.

(c) *EM and EB Positions:* Check sequence if note on circuit requirement table so specifies.

(d) *BM Position:* No requirement.

Readjust: Covered by readjust requirement 1.04.

1.04 *Contact Make and Break*

(a) Both contacts of movable twin springs make in operated position for make contacts and in unoperated position for break contacts.

(b) With relay energized against 171A gauge, except where noted, make and break contacts meet the following requirements.

TEST

(1) *Before Turnover:* (Refer to 040-504-701 for requirements.)

(2) *After Turnover*

MAKE CONTACTS	NEITHER PAIR OF CONTACTS SHALL MAKE (INCH)	AT LEAST ONE PAIR OF CONTACTS SHALL MAKE (INCH)
Spring combination No. 1 to 199	#0.0045	0.0015
Spring combination No. 200 to 399	#0.007	0.0015

BREAK CONTACTS	AT LEAST ONE PAIR OF CONTACTS SHALL NOT BREAK (INCH)	BOTH PAIRS OF CONTACTS SHALL BREAK (INCH)
Spring combination No. 1 to 199	#0.0045	0.0015
Spring combination No. 200 to 399	#0.007	0.0015 .

#182-type gauge inserted between the armature and backstop.

READJUST

MAKE CONTACTS	NEITHER PAIR OF CONTACTS SHALL MAKE (INCH)	AT LEAST ONE PAIR OF CONTACTS SHALL MAKE (INCH)
M (make)	0.015	0.005
EM (early make)	0.0265	0.0165

BREAK CONTACTS	AT LEAST ONE PAIR OF CONTACTS SHALL NOT BREAK (INCH)	BOTH PAIRS OF CONTACTS SHALL BREAK (INCH)
B (break)	0.015	0.005
EB (early break)	0.0265	0.0165

TABLE A — SPRING COMBINATION FIGURE NUMBERS AND CONTACT POSITIONS

SPRING COMBINATION FIGURE NUMBERS

CONTACT POSITIONS	1	2	3	4	5	6	7	8	9	10
12	M	BM	BM	M	M	M	BM	—	B	M
11	M	BM	BM	B	—	B	M	—	M	B
10	M	BM	—	B	B	—	M	M	M	BM
9	M	BM	—	B	—	—	M	—	—	B
8	M	BM	—	—	BM	—	M	M	—	M
5	M	BM	—	—	—	—	M	—	—	M
4	M	BM	—	B	B	—	BM	M	M	BM
3	M	BM	—	B	—	B	BM	—	BM	B
2	M	BM	BM	B	M	BM	BM	M	BM	BM
1	M	BM	BM	M	—	M	BM	—	BM	M

	11	12	13	14	15	16	17	18	19	20	21
12	—	BM	BM	BM	B	BM	M	—	M	—	BM
11	M	BM	BM	BM	BM	BM	M	—	M	B	BM
10	M	—	B	BM	M	BM	—	BM	M	BM	BM
9	—	M	—	BM	B	BM	B	—	B	M	B
8	—	M	—	BM	B	BM	B	M	B	M	M
5	—	M	—	—	B	B	B	—	B	M	M
4	M	M	—	—	BM	B	B	M	B	M	B
3	M	—	B	B	M	BM	B	—	M	M	BM
2	M	BM	BM	M	BM	BM	M	M	M	B	BM
1	M	BM	BM	M	M	BM	M	—	M	—	BM

M — Make

B — Break   See Requirements 1.03 and 1.04.

BM — Break Make

TABLE A – SPRING COMBINATION FIGURE NUMBERS AND CONTACT POSITIONS (Cont)

SPRING COMBINATION FIGURE NUMBERS

CONTACT POSITIONS	201	202	203	204	205	206	207	208	209	210
12	EBM	M	EBM	M	—	M	M	EBM	M	M
11	EBM	EBM	EBM	M	—	—	M	EBM	M	M
10	M	EBM	EBM	EBM	M	—	EB	EBM	M	EMB
9	B	EMB	EM	EMB	—	EMB	EM	B	B	EM
8	EMB	EMB	EM	EM	EM	B	EM	B	B	EMB
5	B	EMB	EM	EM	—	B	EM	—	EMB	EMB
4	B	EMB	EM	B	EM	EMB	EM	—	EMB	EM
3	—	EBM	EBM	EBM	—	—	EB	EBM	EB	EMB
2	EBM	EBM	EBM	EBM	M	—	M	EBM	EB	M
1	M	M	EBM	M	—	M	M	EBM	EBM	M

	211	212	213	214	215	216	217	218	219	220
12	M	M	M	EBM	M	EBM	M	M	M	M
11	M	M	M	EBM	M	EBM	M	M	M	EB
10	M	EBM	M	EBM	M	EBM	M	M	M	EBM
9	EMB	EM	—	—	EM	EMB	—	—	EM	EMB
8	EMB	EMB	—	—	EMB	EMB	—	EMB	EMB	—
5	EMB	EMB	EM	—	EMB	EMB	—	EMB	EMB	—
4	EMB	EM	B	—	EM	EMB	—	B	EM	EMB
3	M	EBM	—	EBM	M	EBM	EBM	—	M	EBM
2	M	M	—	EBM	M	EBM	EBM	M	EBM	EBM
1	M	M	EBM	EBM	M	EBM	M	EB	EBM	M

M — Make

B — Break

EM — Early Make

EB — Early Break

EMB — Early Make Break

EBM — Early Break Make

See Requirements 1.03 and 1.04.

♦ TABLE A — SPRING COMBINATION FIGURE NUMBERS AND CONTACT POSITIONS (cont)♦

SPRING COMBINATION FIGURE NUMBERS

CONTACT POSITIONS	221	222	223	224	225	226	227	228	229
12	EBM	EBM	M	M	EB	EB	EBM	EB	EBM
11	EBM	EBM	M	EBM	EBM	EBM	—	EB	EBM
10	—	EBM	EBM	EMB	EBM	EBM	M	EM	—
9	EMB	EBM	—	EMB	EMB	EBM	M	EMB	EMB
8	EMB	EBM	EMB	EMB	EMB	EBM	M	EMB	EMB
5	EMB	EBM	EMB	EMB	EMB	EBM	M	EMB	BM
4	EMB	EBM	—	EMB	EMB	EBM	M	EMB	BM
3	—	EBM	EBM	EMB	EBM	EBM	M	EM	—
2	EBM	EBM	M	EBM	EBM	EBM	—	EB	BM
1	M	EBM	M	M	EB	EB	EBM	EB	BM

M   —   Make

EMB   —   Early Make Break   See Requirements 2.08 and 2.09.

EBM   —   Early Break Make