

TO: ALL HOLDERS OF AIR CONDITIONING ACCESSORY UNIT ASSEMBLY OVERHAUL MANUAL
 21-09-01

REVISION NO. 14, DATED JUL 1/08

HIGHLIGHTS

DESCRIPTION OF CHANGE	TOPICS AFFECTED												
	D & O	D / A s s y	C l e a n i n g	I n s p / C h k	R e p a i r	A s s y	F / C	T e s t	T / S h o o t i n g	S / T o o l s	S t o r a g e	I P L	L / O v e r h a u l
Removed coverage of BAE Systems assemblies	X				X			X	X			X	

AIR CONDITIONING ACCESSORY UNIT ASSEMBLY, M324

21-09-01

I BOEING P/N 65-80021-3, -4

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
I 21-1014 21-1025 21-1028			Jun 10/70 Jun 10/70 Dec 25/74

LIST OF EFFECTIVE PAGES

* Indicates pages revised, added or deleted in latest revision
 F Indicates foldout pages - print one side only

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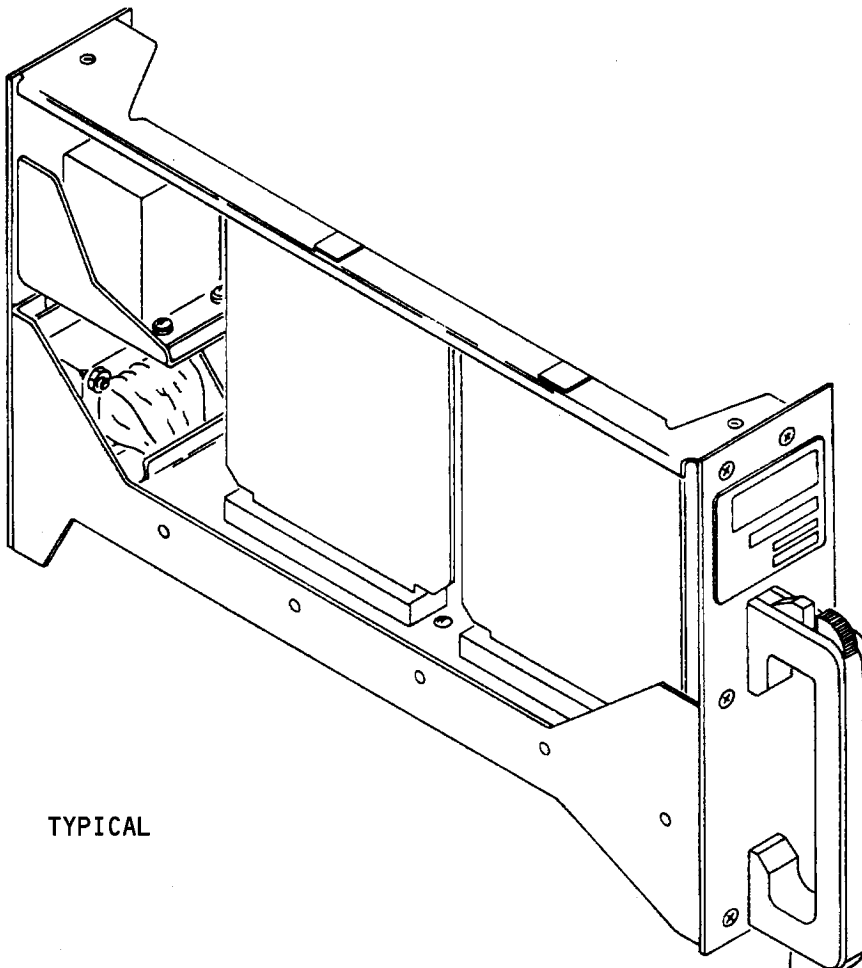
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| *[1] Use applicable procedures in SOPM 20-11-04 and standard industry practices.

*[2] Special instructions not required.

AIR CONDITIONING ACCESSORY UNIT ASSEMBLY (M324)


TYPICAL

Air Conditioning Accessory Unit Assembly (M324)
 Figure 1

DESCRIPTION AND OPERATION

1. Description

NOTE: For coverage of 65-52810-1, -8, -21, -22, -23, refer to BAE Systems (V89954 BAE Systems Controls Inc., 600 Main St., Johnson City, NY 13790) CMM 21-09-01.

- A. The air conditioning accessory unit assemblies consist of a relay, two printed circuit assemblies and three connectors. Diodes and relays are mounted on the printed circuit assemblies. Some configurations have terminal board and diodes mounted on the chassis.

2. Operation

- A. The air conditioning accessory unit assembly provides automatic switching and controls for the air conditioning system valves, fan and indication circuitry. The relays perform the switching functions and the diodes serve as blocking diodes in the air conditioning system circuits.

3. Functional Description

A. Modifications

- (1) Assemblies modified per SB 21-1014 have diode CR15 removed from each of printed circuit assemblies A1 and A2 and diodes CR1 and CR2 added to the assemblies. The circuits were modified to provide a more simple procedure for checking operation of the ram air deflector doors. Refer to OHM 21-09-05 for printed circuit assembly schematics.
- (2) Assemblies modified per SB 21-1025 have diodes CR11, CR12, CR13 and CR16 removed from printed circuit assembly A2. The diodes were removed to eliminate a possible cause of ram air actuator failure. Refer to OHM 21-09-05 for printed circuit assembly schematic.
- (3) Assemblies 65-80021-3 and -4 are modifications of 65-52810-1 and -8 respectively made per SB 21-1028 by addition of a terminal board and six diodes.

B. Relay K1

- (1) K1 (assembly 65-80021-3) is energized by applying 115-volt, 400-Hz power to pin A-20 and grounding pin A-21. If pin A-47 is grounded and K1 is energized it remains energized until the ground is removed from both pins A-21 and A-47 or power is removed from pin A-20. When K1 is energized, 115-volt, 400-Hz power is supplied to pin A-44.
- (2) K1 (assembly 65-80021-4) is energized by applying 115-volt, 400-Hz power to pin A-20 and grounding pin A-9. When K1 is energized, 115-volt, 400-Hz power is supplied to pin A-44.

C. Relays A1K1, A1K3 and A1K4

- (1) A1K1, A1K3 or A1K4 is energized by applying +28 volts dc to pin A-38 and grounding pin A-56, A-33 or A-46, respectively. If pin A-36 is grounded and relays A1K1, A1K3 or A1K4 are energized they remain energized until the ground is removed from pin A-36 or power is removed from pin A-38.

D. Relays A2K1, A2K3 and A2K4

- (1) A2K1, A2K3 or A2K4 is energized by applying +28 volts dc to pin A-38 and grounding pin B-56, B-33 or B-46, respectively. If pin B-36 is grounded and relays A2K1, A2K3 or A2K4 are energized they remain energized until the ground is removed from pin B-36 or power is removed from pin A-38.

E. Relays A1K5 and A2K5

- (1) A1K5 (all assemblies except those modified per SB 21-1014) is energized by applying +28 volts dc to pin A-38 and grounding pin A-28. Relays A1K5 and A2K5 are both energized by applying +28 volts dc to pin A-38 and grounding pin B-28.
- (2) A1K5 (assemblies modified per SB 21-1014) is energized by applying +28 volts dc to pin A-7 and grounding pin A-28. Relays A1K5 and A2K5 are both energized by applying +28 volts dc to pin A-7 and grounding pin B-28.

4. Leading Particulars

Length -- 15-1/4 inches (approximately)

Width -- 4 inches (approximately)

Height -- 8-1/4 inches (approximately)

Weight -- 4 pounds (approximately)

Operating Voltages -- 28 volts dc and 115 volts, single phase, 400 Hz

REPAIR

1. All repair can be accomplished using standard industry practices and procedures contained in SOPM 20-11-04, except as noted in the following:
 - A. If keying plug (28, Fig. 1101) requires replacement, insert in printed circuit assembly connector between pins at positions 57-58.

TESTING

1. Test Equipment

A. The following test equipment is required to test the air conditioning accessory unit assemblies.

- (1) DC power supply: 28 volts dc, 5 amps
- (2) AC power supply: 115 volts ac, single phase, 400 Hz, 5 amps
- (3) Volt-Ohm-Milliammeter: Triplet 630 series (or equivalent)
- (4) Connector with pigtail leads: DPX2MA57S57S33B0000 (ITT Cannon Electric Incorporated, 666 E. Dyer Road, Santa Ana, California 92702)

2. Functional Test

A. Mate test connector to accessory unit assembly connector. Identify and tag pigtail leads.

NOTE: Pin numbers of the P1 connector are prefixed with "A" or "B" to indicate P1A or P1B connector section pins.

B. Perform continuity and diode tests listed in Fig. 701. When a plus sign is prefixed to the pin number, a diode is in the circuit and polarity must be observed.

C. CONTINUITY, or "CON", as used in the test should show 50 ohms or less for those checks including a diode, and 2 ohms or less for all other checks. NO CONTINUITY or "NO CON" must show 50K ohms or greater.

Component	Measure Between Pins (+) to (-)	Required Results	Component	Measure Between Pins (+) to (-)	Required Results
A1	A-10 to Chassis	Con	A2	+A-42 to A-34	50 ohms max
	A-11 to A-14	Con		+A-42 to B-27	50 ohms max
A-11 to B-15	No Con	+A-42 to B-37		50 ohms max	
A-11 to B-21	No Con	+A-42 to B-35		50 ohms max	
A-13 to A-17	Con	+A-42 to A-35		50 ohms max	
A-15 to A-12	Con	A-43 to A-21		Con	
A-15 to B-32	No Con	A-44 to A-20		No Con	
A-15 to B-34	No Con	A-45 to A-49		No Con	
A-20 to A-44	No Con	+A-46 to A-38		300 ohms max	
A-21 to A-43	Con	+A-46 to A-36		No Con	
A-21 to A-47	No Con	+A-47 to A-21		No Con	
A-22 to A-42	Con	A-48 to A-42		No Con	
A-22 to A-40	No Con	A-49 to A-50		Con	
A-24 to A-25	Con	A-49 to A-45		No Con	
A-24 to A-23	No Con	A-51 to A-42		No Con	
A-26 to A-30	No Con	A-51 to A-37		No Con	
A-26 to A-32	No Con	A-53 to A-37		Con	
A-26 to A-34	No Con	A-53 to A-35	No Con		
A-26 to A-42	No Con	A-54 to A-52	Con		
*[1] +A-28 to B-28	50 ohms max	A-54 to A-31	No Con		
A-30 to A-34	No Con	A-56 to A-36	No Con		
A-30 to A-26	No Con	+A-56 to A-38	300 ohms max		
A-30 to A-32	No Con	B-10 to Chassis	Con		
A-30 to A-42	No Con	B-22 to B-47	Con		
A-32 to A-26	No Con	B-25 to B-39	Con		
A-32 to A-30	No Con	B-25 to B-29	No Con		
A-32 to A-34	No Con	B-27 to B-41	No Con		
A-32 to A-42	No Con	B-27 to A-42	No Con		
+A-33 to A-38	300 ohms max	+B-33 to A-38	300 ohms max		
A-33 to A-36	No Con	B-33 to B-36	No Con		
A-34 to A-26	No Con	B-35 to A-42	No Con		
A-34 to A-30	No Con	B-35 to B-53	No Con		
A-34 to A-32	No Con	B-37 to A-42	No Con		
A-34 to A-42	No Con	B-37 to B-53	Con		
A-39 to A-16	Con	B-37 to A-35	No Con		
A-39 to A-29	No Con	B-40 to B-35	No Con		
A-40 to A-42	No Con	B-40 to B-27	No Con		
A-41 to A-27	No Con	B-41 to A-26	Con		
A-41 to A-34	Con	B-41 to A-30	No Con		
A-41 to A-32	No Con	B-48 to A-42	No Con		
A-41 to A-42	No Con	B-49 to B-50	Con		
+A-42 to A-26	50 ohms max	B-49 to B-45	No Con		
+A-42 to B-40	No Con	B-53 to A-42	No Con		
			A2		

65-80021-3, 4

Functional Test
Figure 701 (Sheet 1)

Com ponent	Measure Between Pins (+) to (-)	Required Results	Com ponent	Measure Between Pins (+) to (-)	Required Results
A2	B-54 to B-31 B-54 to B-52 +B-56 to A-38 B-56 to B-36 B-57 to B-26 B-57 to B-30 +A-28 to A-38*[3]	No Con Con 300 ohms max No Con Con No Con 50 ohms max	A1	<u>65-80021-4 only</u> +A-22 to B-52 B-52 to A-22	50 ohms max 50k ohms min
CR33	A-19 to A-32	No Con	A1	Following applicable to the units with <u>SB 21-1014 incorporated</u> +A-28 to A-7	50 ohms max
CR30	A-19 to A-55	No Con	A2	+B-28 to A-7	50 ohms max
CR35	A-30 to B-55	No Con		<u>Following applicable to all</u>	
CR30	+A-55 to A-19	50 ohms max		+A-18 to A-38	50 ohms max
Wiring	A-57 to A-55	Con		B-20 to B-23	Con
Wiring	A-57 to B-42	Con		B-20 to B-44	No Con
CR29	B-55 to B-42	No Con		+B-43 to A-38	50 ohms max
CR34	B-55 to A-30	No Con		+B-46 to A-38	50 ohms max
CR29	+B-42 to B-55	50 ohms max		B-46 to B-36	No Con
				B-51 to B-37	No Con
				Connect A-38 to 28vdc Connect A-56 to ground	
A2	B-26 to B-30 B-26 to B-32 B-26 to B-34 B-30 to B-34 B-30 to B-26 B-30 to B-32 B-32 to B-26 B-32 to B-30 B-32 to B-34 B-34 to B-30 B-34 to B-26 B-34 to B-32	No Con No Con No Con No Con No Con No Con No Con No Con No Con No Con No Con No Con	A1	A-13 to A-17 +A-27 to A-40 A-36 to A-56 A-39 to A-29 A-39 to A-16 +A-40 to A-27 +A-56 to A-36 Connect A-36 to ground Disconnect A-56 +A-40 to A-27 Disconnect A-36 Connect A-18 to ground A-13 to A-17 A-39 to A-16 A-39 to A-29 A-41 to A-27 A-41 to A-34 Disconnect A-18	No Con No Con No Con Con No Con 50 ohms max 50 ohms max 50 ohms max No Con No Con Con Con No Con
	Following not applicable to the units with <u>SB 21-1025 incorporated</u>				

65-80021-3, -4

Functional Tests
Figure 701 (Sheet 2)

Com ponent	Measure Between Pins (+) to (-)	Required Results	Com ponent	Measure Between Pins (+) to (-)	Required Results
A1	Connect A-33 to ground		A2	Connect A-38 to 28vdc	
	+A-33 to A-36	50 ohms max		B-22 to B-47	No Con
	+A-36 to A-33	No Con		B-25 to B-39	No Con
	+A-37 to A-51	No Con		+B-27 to B-40	No Con
	+A-51 to A-37	50 ohms max		+B-35 to B-40	No Con
	+A-53 to A-27	No Con		B-36 to B-56	No Con
	A-53 to A-35	Con		B-39 to B-29	Con
	A-53 to A-37	No Con		B-39 to B-25	No Con
	A-54 to A-31	Con		+B-40 to B-27	50 ohms max
	A-54 to A-52	No Con		+B-40 to B-35	50 ohms max
	Connect A-36 to ground			B-40 to A-42	Con
	Disconnect A-33			Connect B-36 to ground	
	A-53 to A-35	Con		Disconnect B-56	
	A-53 to A-37	No Con		B-39 to B-29	Con
	Disconnect A-36			B-39 to B-25	No Con
	Connect A-46 to ground			Disconnect B-36	
	+A-36 to A-46	No Con		Connect B-43 to ground	
	A-48 to A-42	Con		B-22 to B-47	No Con
	A-49 to A-45	Con		B-25 to B-29	No Con
	A-49 to A-50	No Con		B-25 to B-39	No Con
	+A-46 to A-36	50 ohms max		B-39 to B-29	Con
	Connect A-36 to ground			B-39 to B-25	No Con
	Disconnect A-46			B-41 to B-27	Con
	A-49 to A-50	No Con		B-41 to A-26	No Con
	A-49 to A-45	Con		B-41 to A-42	No Con
	Disconnect A-36			+A-42 to B-41	50 ohms max
	Disconnect A-38 from 28vdc			Disconnect B-43	
Connect *[2] to 28vdc		B-25 to B-39	Con		
Connect A-28 to ground		Connect B-33 to ground			
A2	A-11 to B-21	No Con	B-36 to B-33	No Con	
A1, A2	A-11 to B-15	Con	+B-33 to B-36	50 ohms max	
	A-11 to A-14	No Con	B-37 to B-53	No Con	
	A-15 to B-34	Con	+A-42 to B-53	50 ohms max	
	A-15 to A-12	No Con	+B-51 to B-37	50 ohms max	
A1	A-41 to A-34	No Con	B-53 to B-35	Con	
	+A-41 to A-32	50 ohms max	+B-51 to B-35	50 ohms max	
	+A-41 to A-42	No Con	B-53 to B-37	No Con	
	+A-42 to A-41	50 ohms max	B-54 to B-31	Con	
	+A-42 to B-41	50 ohms max	B-54 to B-52	No Con	
	+B-15 to B-32	50k min	Connect B-36 to ground		
A2	B-20 to B-23	Con	Disconnect B-33		
	B-20 to B-44	No Con	B-53 to B-35	Con	
	B-41 to A-42	No Con	B-53 to B-37	No Con	
	+B-41 to A-26	No Con	Disconnect B-36		
	A-15 to A-32	No Con	B-53 to B-37	Con	
	Connect B-56 to ground		B-54 to B-52	Con	
			B-54 to B-31	No Con	

65-80021-3, -4
Functional Tests
701 (Sheet 3)

Com ponent	Measure Between Pins (+) to (-)	Required Results	Com ponent	Measure Between Pins (+) to (-)	Required Results
A2	Connect B-46 to ground		A1	A-15 to A-12	Con
	A-42 to B-20	No Con		A-15 to B-34	No Con
	+B-36 to B-46	No Con	A2	B-41 to A-26	Con
	+B-46 to B-36	50 ohms max		+B-41 to A-30	No Con
	+B-48 to A-30	150 ohms max	B-57 to B-26	Con	
	B-48 to A-22	Con	+B-57 to B-30	No Con	
	B-48 to A-42	Con	Remove all connections		
	+B-48 to B-37	50 ohms max			
	B-49 to B-45	Con			
	B-49 to B-50	No Con			
	Connect B-36 to ground				
	Disconnect B-46				
	B-49 to B-45	Con			
	B-49 to B-50	No Con			
	Disconnect B-36				
	B-49 to B-50	Con			
	B-49 to B-45	No Con			
	Disconnect A-38 from	28vdc			
	+A-41 to A-32	50 ohms max			
	+B-41 to A-30	50 ohms max			
+A-41 to A-19	50 ohms max				
+A-30 to B-41	50k min				
+A-32 to A-41	50k min				
+B-41 to B-55	50 ohms max				
Disconnect A-28					
Connect B-28 to ground					
A1	A-11 to A-14	No Con			
A1, A2	A-11 to B-21	Con			
A2	A-11 to B-15	No Con			
A1, A2	A-15 to B-32	Con			
A1	A-15 to A-12	No Con			
A2	A-15 to B-34	No Con			
	B-20 to B-44	Con			
	B-20 to B-23	No Con			
	B-57 to B-30	Con			
	B-57 to B-26	No Con			
	Disconnect B-28				

65-80021-3, -4

- *[1] Component tested is CR2 on units modified per SB 21-1014
- *[2] Pin A-7 on units modified per SB 21-1014
Pin A-38 if SB 21-1014 not incorporated
- *[3] Assemblies without SB 21-1014 incorporated only

 Functional Test
 Figure 701 (Sheet 4)

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C. Test relay K1 per Fig. 702.

Step	Procedure	Measure Between Pins (+) to (-)	Required Results
	<u>65-80021-3 only</u>		
1	Connect A-21 to ground		
	<u>65-80021-4 only</u>		
1	Connect A-9 to ground		
	<u>All Configurations</u>		
2	Connect A-20 to 115 volts ac		
3	Measure with ohmmeter	A-21 to A-47 A-21 to A-43 A-22 to A-42 A-24 to A-23 A-24 to A-25 A-44 to Gnd	Con No Con No Con Con No Con
4	Measure with voltmeter		115 volts ac (± 3 volts ac)
5	Connect A-44 to 115 volts ac		
	<u>65-80021-3 only</u>		
6	Connect A-47 to ground		
7	Disconnect A-20 and A-21		
8	Measure with voltmeter	A-20 to Gnd	115 volts ac (± 3 volts ac)
9	Measure with ohmmeter	A-24 to A-23 A-24 to A-25	Con No Con
10	Disconnect A-44 and A-47		
11	Measure with ohmmeter	A-24 to A-25 A-24 to A-23	Con No Con
	<u>65-80021-4 only</u>		
6	Disconnect A-20		
7	Measure with voltmeter	A-20 to Gnd	115 volts ac (± 3 volts ac)
8	Measure with ohmmeter	A-24 to A-23 A-24 to A-25	Con No Con
9	Disconnect A-44	A-24 to A-25 A-24 to A-23	Con No Con

Relay Test
Figure 702

D. Verify indexing on rear connector as follows:

Assembly

Indexing

65-80021-3

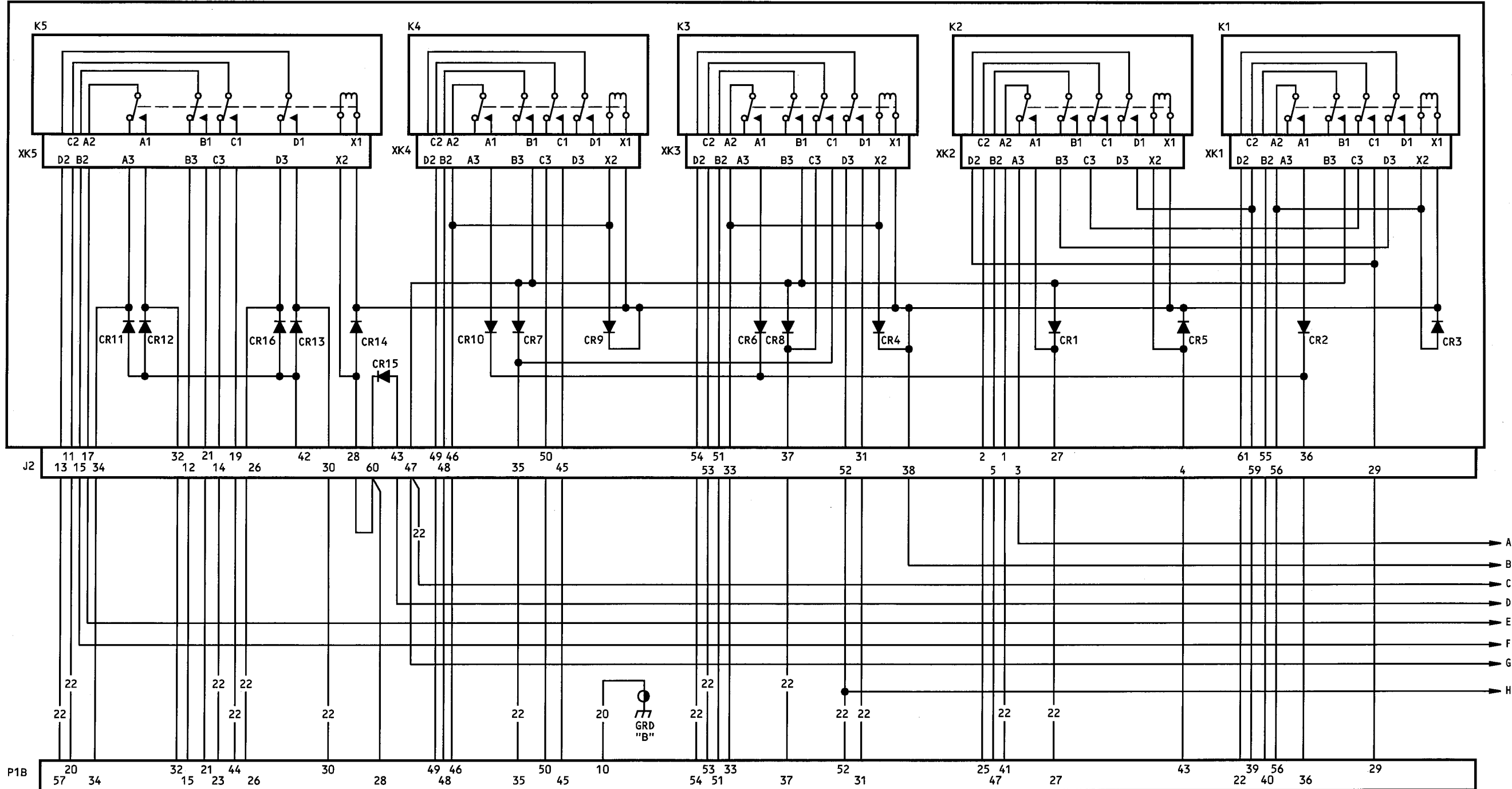


65-80021-4



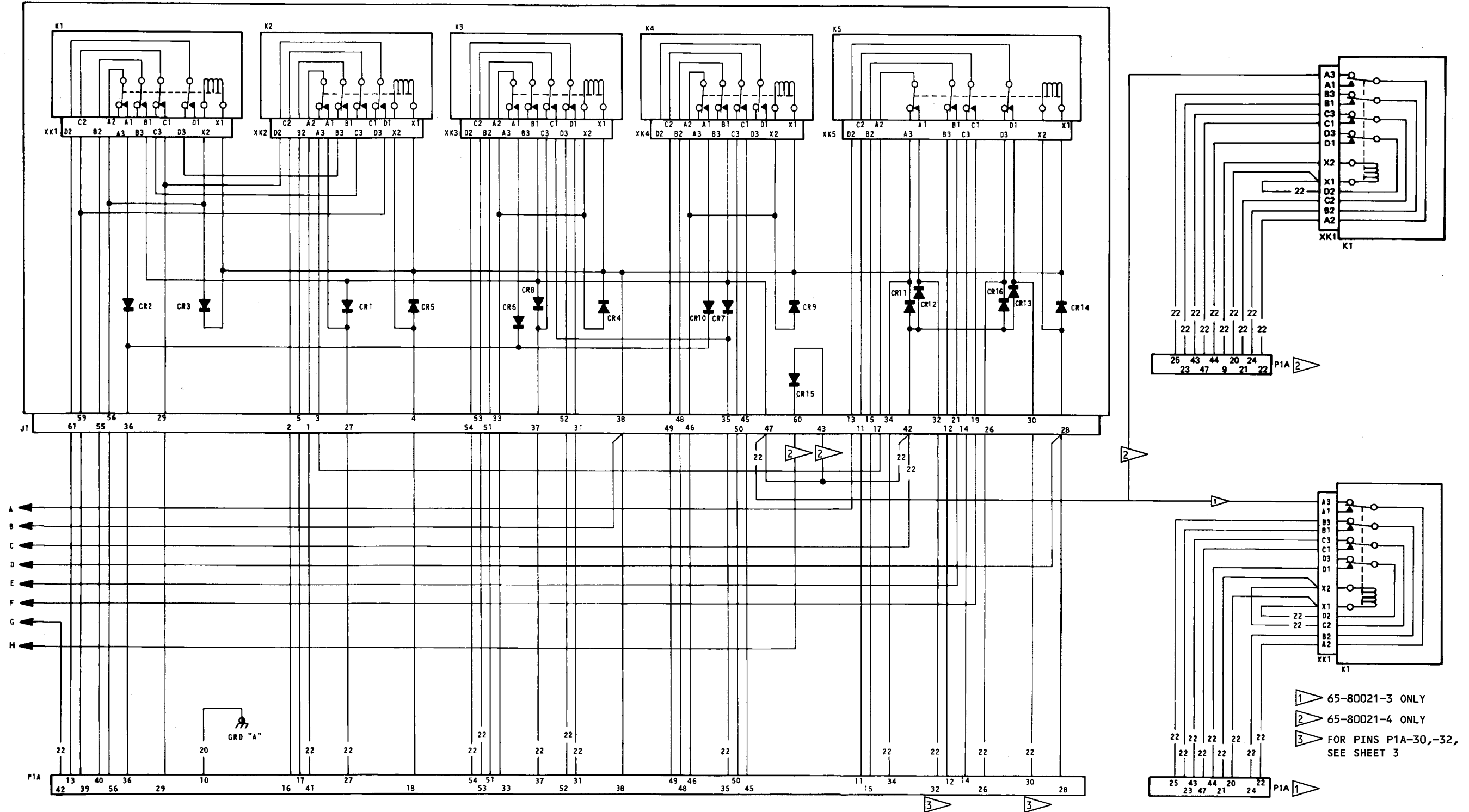
NOTE: Darkened portion indicates extended part of keying post.

A2 PRINTED CIRCUIT ASSEMBLY



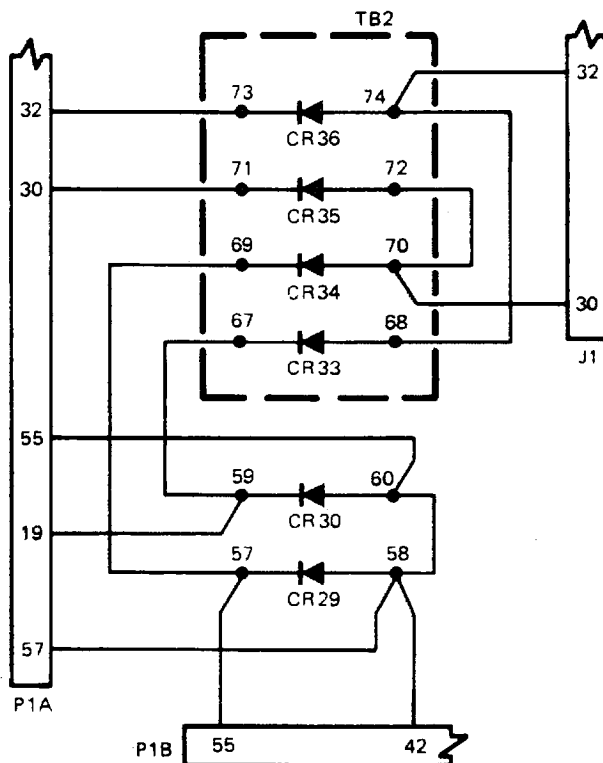
65-80021-3,-4
Schematic Diagram
Figure 703 (Sheet 1)

A1 PRINTED CIRCUIT ASSEMBLY



65-80021-3,-4

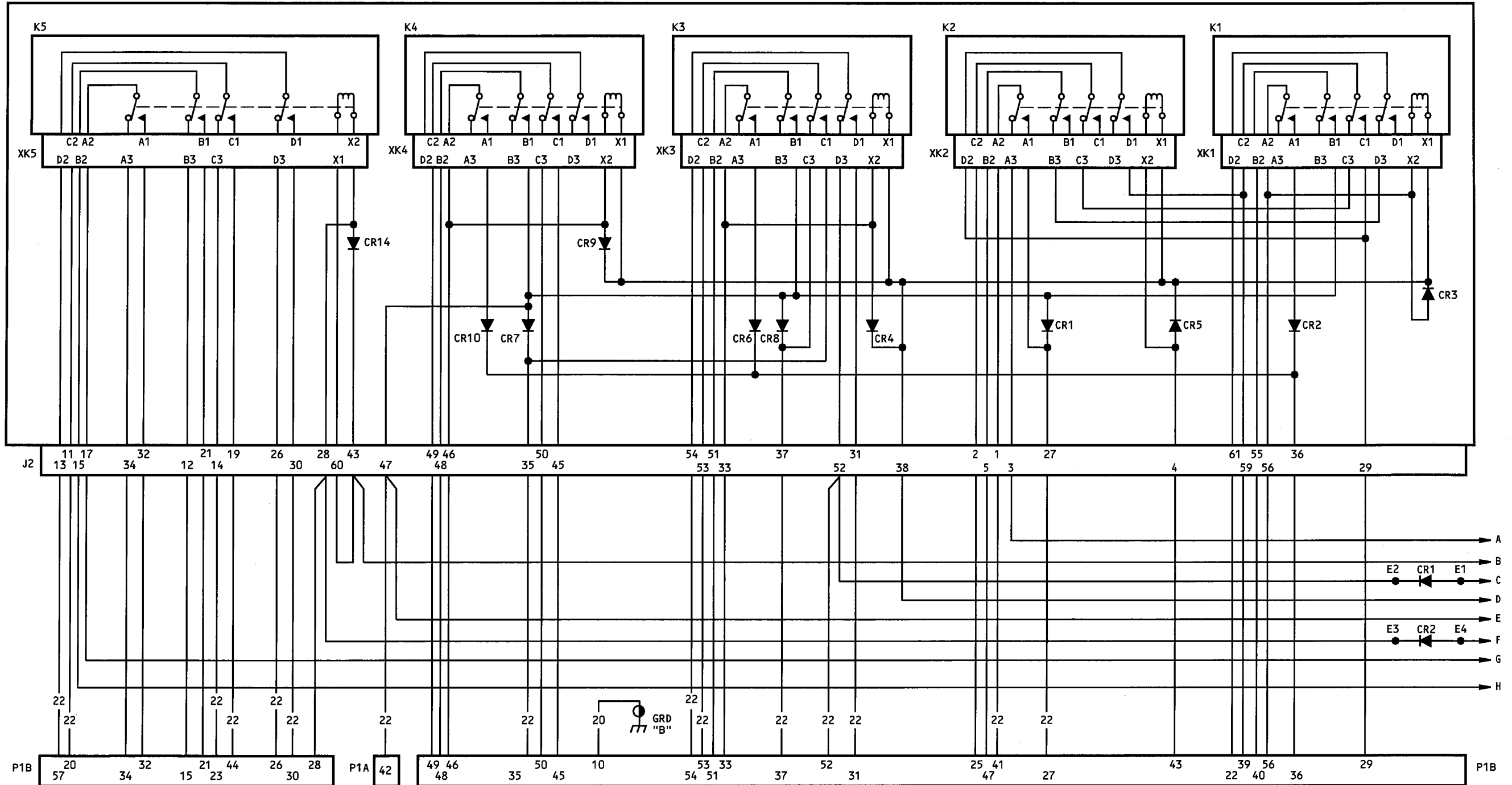
Schematic Diagram
Figure 703 (Sheet 2)



65-80021-3,-4 (SB 21-1028)

Schematic Diagram
Figure 703 (Sheet 3)

A2 PRINTED CIRCUIT ASSEMBLY

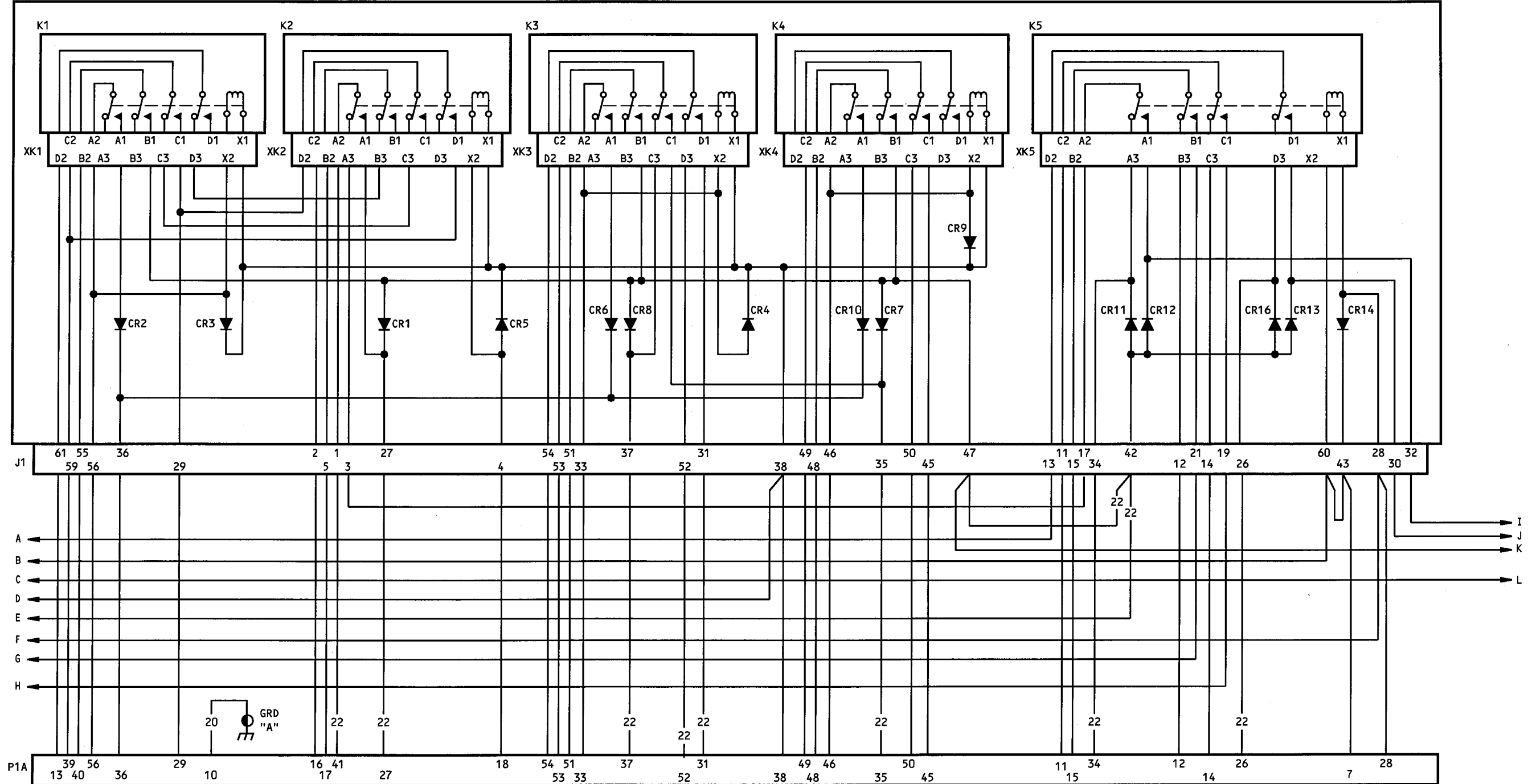


65-80021-3,-4 WITH SB 21-1014 AND SB 21-1025 INCORPORATED

Schematic Diagram
Figure 704 (Sheet 1)

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A1 PRINTED CIRCUIT ASSEMBLY



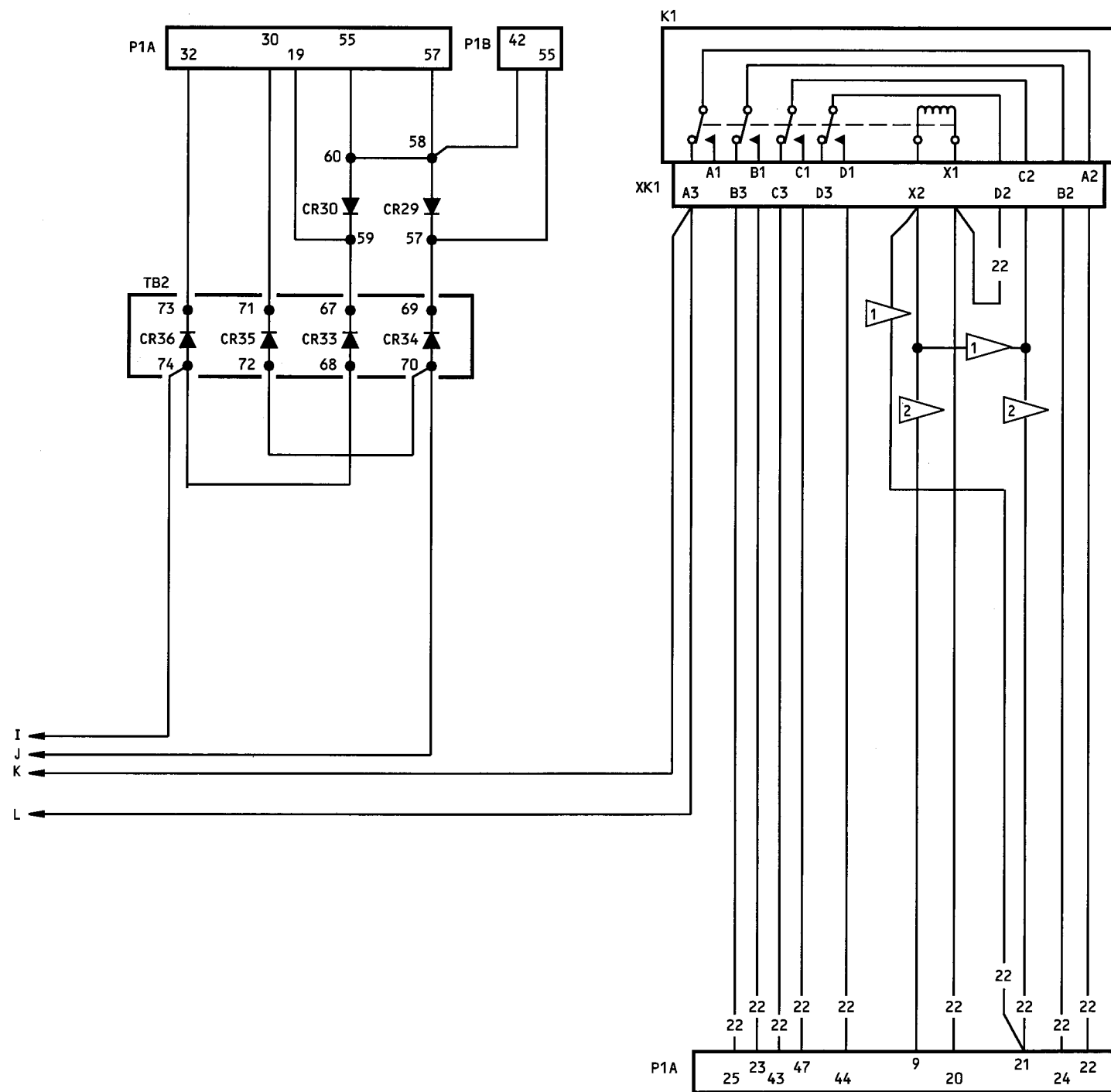
65-80021-3,-4 WITH SB 21-1014 AND SB 21-1025 INCORPORATED

Schematic Diagram
Figure 704 (Sheet 2)

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1 65-80021-3 ONLY
2 65-80021-4 ONLY

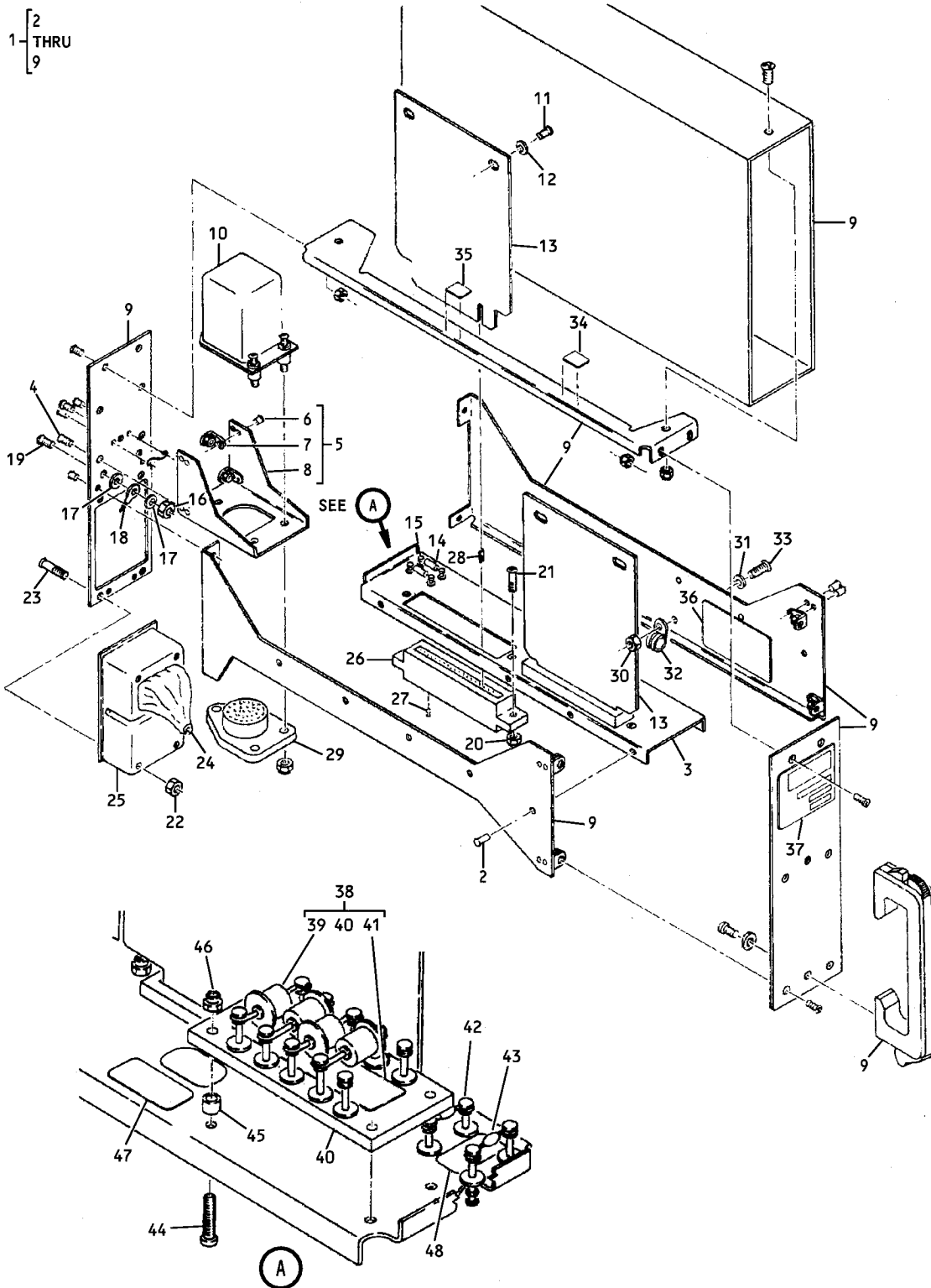
65-80021-3,-4 WITH SB 21-1014 AND SB 21-1025 INCORPORATED

Schematic Diagram
Figure 704 (Sheet 3)

ILLUSTRATED PARTS LIST

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Air Conditioning Accessory Unit Assembly (M324)
Figure 1101

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE							USE CODE	QTY PER ASSY
			1	2	3	4	5	6	7		
1101-	65-80021-3		ACCESSORY UNIT ASSY (M324), AIR CONDITIONING (SB 21-1028)							A	
	65-80021-4		ACCESSORY UNIT ASSY (M324), AIR CONDITIONING (SB 21-1028)							B	
1	65-52810-3		. CHASSIS ASSY								1
2	BACR15BA3A		. . RIVET (REPLS MS20426A3)								10
3	69-39932-11		. . MOUNTING WEB								1
3	69-39932-11		. . MOUNTING WEB (REWORKED PER SB 21-1014)								2
4	NAS514P440-4		. . SCREW								4
5	69-44490-1		. . BRKT ASSY								1
6	BACR15BB2A		. . . RIVET (REPLS MS20470A2)								8
7	22A27M22-40		. . . ANCHOR NUT, V72962								4
8	69-44490-2		. . . BRACKET								1
9	65-52800-23		. . CHASSIS ASSY (REF 24-01-02)								1
10	10-60450-2 (BOEING)		. RELAY								1
			APPROVED PARTS ARE: 9524-6507, V35344; A410-159673-02, V73949; 3799-14002, V24727								
11	NAS601-6P		. SCREW								4
12	NAS549-10		. WASHER								4
13	65-57481-1		. PRINTED CIRCUIT ASSY (REF 21-09-05)								2
13	65-57481-1		. PRINTED CIRCUIT ASSY (REWORKED PER SB 21-1014) (REF 21-09-05)								2
14	1N4384		. DIODE, V14936								2
15	4444A4		. TERMINAL, INSULATED, V88245								4
16	22NM107-62		. NUT, V72962								2
17	AN960D6L		. WASHER								4
18	BACT12AC7		. TERMINAL LUG								2
19	NAS514P632		. SCREW								2
20	BACN10DN40		. NUT								4

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE							USE CODE	QTY PER ASSY
			1	2	3	4	5	6	7		
1101-											
21	NAS600-8P		.								4
22	BACN10DN40		.								4
23	NAS600-6P		.								4
24	65-52810-2		.						A		1
24	65-52810-9		.						B		1
25	DPX2MA57P57P 34B0005		.						A		1
25	DPX2MA57P57P 34B0052		.						B		1
26	582591-1		.								2
27	66143-2LP		.								90
28	582507-1		.								2
29	000300-0597		.								1
30	22NM107-62		.								2
31	AN960PD6		.								2
32	BACC10DK-()		.								2
33	NAS514P632-7		.								2
34	69-34180-1		.								1
35	69-34180-2		.								1
36	69-34180-13		.								1
37	69-31184-57		.								1
38	69-62206-1		.								1
39	1N4723		.	.							4
40	BACT42C9A1		.	.							1
41	BAC27DEX931		.	.							1
42	4445B4		.								4
43	1N4385		.								2
44	NAS600-5B		.								4
45	NAS43DD0-8		.								4
46	BACN10DN40		.								4
47	BAC27DEX958		.								1
48	BAC27DEX925		.								1

REFERENCE DESIGNATION INDEX (SEE SCHEMATIC DIAGRAM)		
REFERENCE DESIGNATION	PART NUMBER	ITEM NO.
A1, A2	65-57481-1	13
CR1, CR2	1N4384	14
CR29-CR30	1N4385	43
CR33-CR36	1N4723	39
J1, J2	582591-1	26
K1	10-60450-2	10
P1	DPX2MA57P57P34B0005	25
P1	DPX2MA57P57P34B0024	25
P1	DPX2MA57P57P34B0052	25
TB2	69-62206-1	38
XK1	000300-0597	29

VENDORS

V00779	TYCO ELECTRONICS CORP., 2800 FULLING MILL RD., BLDG-38, MIDDLETOWN, PENNSYLVANIA 17057-3142
V05574	VIKING ELECTRONICS, INC., 5455 ENDEAVOUR CT., MOORPARK, CALIFORNIA 93021-1712
V091L2	MACLEAN-FOGG COMPANY DEL, DBA MACLEAN-ESNA, 611 COUNTRY CLUB RD., POCAHONTAS, ARIZONA 72455-8803
V14936	GENERAL SEMICONDUCTOR, INC., 10 MELVILLE PARK RD., MELVILLE, NEW YORK 11747
V24727	SEACON BRANTNER & ASSOC., DBA SEACON GIANNINI, 86695 AVENUE 54, UNIT C, COACHELLA, CALIFORNIA 92236-3810
V58657	LEACH INTERNATIONAL CORP., DBA REACH INTERNATIONAL, 6900 ORANGETHORPE AVE., BUENA PARK, CALIFORNIA 90620-1351
V71468	ITT CORP., DBA ITT CANNON DIV , 666 E. DYER RD., SANTA ANA, CALIFORNIA 92702
V72962	CANCELLED/REPLACED BY V019L2
V73949	GUARDIAN ELECTRIC MFG. CO., 1425 LAKE AVE., WOODSTOCK, ILLINOIS 60098-7419
V81312	WINCHESTER ELECTRONICS CORP., 62 BARNES INDUSTRIAL RD. N., WALLINGFORD, CONNECTICUT 06492-1846
V88245	CANCELLED/REPLACED BY V81312