COMPONENT MAINTENANCE MANUAL WITH ILLUSTRATED PARTS LIST

AC SYSTEM GENERATOR AND APU MODULE ASSEMBLY, P5-4

PART NUMBER 69-37314–45, –46, –47, –48, –55, –56, –57, –58, –59, –60, –61, –62, –63, –64, –65, –66, –67, –68, –71, –72, –81, –82

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COMPONENT MAINTENANCE MANUAL

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To: All holders of AC SYSTEM GENERATOR AND APU MODULE ASSEMBLY, P5-4 31-37-30.

Attached is the current revision to this COMPONENT MAINTENANCE MANUAL

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TEMPORARY REVISION AND SERVICE BULLETIN RECORD

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVE	DATE OF INCORPORATION INTO MANUAL
		PRR 34766	MAR 05/92
69-37314-31-01		PRR 34766R	MAR 05/92
		PRR 35005-40	JUN 05/93
69-37314-31-04			DEC 05/93

All revisions to this manual will be accompanied by transmittal sheet bearing the revision number. Enter the revision number in numerical order, together with the revision date, the date filed and the initials of the person filing.

Revision		Filed		Revision		Filed	
Number	Date	Date	Initials	Number	Date	Date	Initials

Revision		Filed		Revision		Filed	
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When the temporary revision is incorporated or cancelled, and the pages are removed, enter the date the pages are removed and the initials of the person who removed the temporary revision.

Temporary Revision		Inserted		Removed	
Number	Date	Date	Initials	Date	Initials

Temporary Revision		Inserted		Removed	
Date	Initials	Number	Date	Date	Initials

Temporary Revision		Inserted		Removed	
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INTRODUCTION

1. General

A. The instructions in this manual supply the data necessary to do the maintenance functions together with the test, fault isolation, repair, and replacement of the defective parts.

B. This manual is divided into different parts:

(1) Title Page

(2) Transmittal Letter

(3) Highlights

(4) List of Effective Pages

(5) Table of Contents

(6) Temporary Revision & Service Bulletin Record

(7) Record of Revisions

(8) Record of Temporary Revisions

(9) Introduction

(10) Procedures & IPL Sections

C. Refer to the Table of Contents for the page location of the applicable procedures.

D. All dimensions, measures, quantities and weights included are in English units. When metric equivalents are given they will be in the parentheses that follow the English units.

E. The introduction to the Illustrated Parts List (IPL) shows how the IPL data is used.

F. Design changes, optional parts, configuration differences and Service Bulletin modifications may cause different part numbers. These part numbers are identified in the IPL with an alphabetical letter which is added to the end of the basic item number. This new item number is referred to as an alpha-variant. Throughout the manual, IPL basic item number references also apply to alpha-variants unless shown differently.

G. Verification:

AC SYSTEM GENERATOR AND APU MODULE ASSEMBLY P5-4 - DESCRIPTION AND OPERATION

1. Description

A. The AC system generator and APU module assembly consists of printed circuit assemblies, indicator light assemblies, ac ammeters, control switches, and a wire bundle assembly.

2. Operation

CAUTION: OBEY THE PROCEDURE IN SUBJECT 20-12-02, HANDLING OF ELECTROSTATIC SENSITIVE DEVICES. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THIS COMPONENT.

A. The AC system generator and APU module assembly provides manual controls and monitoring devices for the ac system generators. The monitoring devices consist of ac ammeters to measure generator line current. Visual indicators alert the crew of APU high oil temperatures, low oil pressure, or low oil quantity, and bus de-energization. Switches in addition to an external power switch, are provided for placing or removing individual generators from the line.

3. Functional Description

NOTE: On 69-37314-59, -62 only, lamp reference designators DS1 thru DS12 have been used instead of L1 thru L12.

A. General (See Schematic Diagram, TESTING AND FAULT ISOLATION, Figure 103)

(1) The switch, ammeter, and relay circuitry is not interconnected with the lamp and printed circuit assembly circuitry. The lamps are interconnected with the printed circuit assemblies. The printed circuit assemblies provide circuit logic, time delay, and master caution triggering where required. Connector P1 pins are used for generator No. 1 system; P3 pins for generator No. 2 system; and P4 pins for APU generator system.

(2) The following lamps provide indications on the module only, with no interconnection with master caution circuitry:

(a) L1, Ground Power Available

(b) L4, Generator No. 2 Off Bus

(c) L5, APU Generator Off Bus

(d) L8, Generator No. 1 Off Bus

(e) L9, APU Low Oil Quantity

(3) The following lamps are interconnected with time delay and master caution circuitry. The time delay functions are contained in circuit cards A2 and A3. The master caution circuitry is external.

(a) L2, Generator No. 2 Transfer Bus Off

(b) L3, Generator No. 2 Bus Off

(c) L6, Generator No. 1 Transfer Bus Off

(d) L7, Generator No. 1 Bus Off

(4) The following lamps are interconnected with time delay and/or master caution circuitry. The master caution circuitry is contained in circuit cards A1 and A3 on the module.

(5) L10, APU High Oil Temperature (no time delay)

(6) L11, APU Low Oil Pressure (time delay and master caution)

(7) L12, APU Overspeed (no time delay)

B. Indicator Lamp Circuitry

(1) Each indicator lamp requires a ground at pin 2, and +28 volts dc at one of pins 1, 3, or 4 to illuminate. Pins 4 of all lamps are wired together, and to +28 volts dc at pin P4-10, such that each lamp may illuminate individually when the press-to-test feature is used. Pins 3 of all lamps are wired together such that they all illuminate when the external master test actuation provides power at pin P4-3. Pins 1 of all lamps individually receive +28 volts dc when performing individual indicator functions.

(2) Pins 2 of all lamps require a ground path for lamp illumination. They are not all grounded at the same point, or in the same manner. L1, which cannot be dimmed, is grounded at pins P2-9 and P2-11. Generator No. 2 lamps, L2, L3, and L4 are grounded in the generator No. 2 electrical system at P3-16. The APU lamps, L5, L9, L10, L11, and L12 are grounded in the APU electrical system at P4-5. Generator No. 1 lamps, L6, L7, and L8 are grounded in the generator No. 1 electrical system at P1-19. The ground path for each of the above groupings can be routed through external zener diodes for lamp dimming.

C. L1, Ground Power Available, Circuitry

(1) L1 illuminates when external power has been connected and energized. The 115 volt ac external power is stepped down to 22 volts ac in the bus protection panel. This 22 volts ac is received at pins P2-8 and P4-24 and rectified by diodes A1CR19 and A1CR20. The resultant full-wave rectified power is connected from P5-5 (A1) to pin 1 of the lamp.

D. L2, L3, L6, and L7 Circuitry (DESCRIPTION AND OPERATION, Figure 1)

(1) DESCRIPTION AND OPERATION, Figure 1 illustrates time delay and master caution activation for master caution circuitry located externally. When any of the four lamps receives a +28 volts dc input to pin 1, one of the circuits on A2 or A3 receives the same input. A transistor inverter provides a ground output at P2-4. As long as this ground output is present, the transistor in the external master caution circuitry is on to provide a ground path for the master caution lamps. (See test setup for simulation of external master caution circuitry.) However, the master caution circuitry on A1 is in series with this transistor and must be triggered to complete the ground path. The time-delay pulse generator provides the trigger. As long as the +28 volt dc input is present, the ground output at P2-4 will be present such that retriggering the master caution circuitry will recall the malfunction indication.

(2) Circuit power for A2 and A3 is +17 volts dc recived from the power supply on the A1 circuit card. A2 and A3 circuits are grounded through pins P2-9 and P2-11.

E. L4 and L8, Generator No. 2 and Generator No. 1 Off Bus (See Schematic Diagram, TESTING AND FAULT ISOLATION, Figure 103.

(1) L4 and L8 are not connected to time delay or master caution circuitry. When the battery switch is set to ON, and their respective generator breakers are in the open position, they receive power from the unregulated dc bus in their respective generator control unit. Since rectified generator power also supplies the unregulated dc bus, L4 and L8 can receive power when the battery switch is set to OFF and the respective generator is up to speed and properly excited. Power for L4 is received at pin P3-18. Power for L8 is received at pin P1-21.

F. L5, L9, L10, L11, and L12, APU System Indicator Lamps (See Schematic Diagram, TESTING AND FAULT ISOLATION, Figure 103).

(1) L5, APU Generator Off, is not connected to time delay or master caution circuitry. After the APU has reached 95% speed, a centrifugal switch actuates to provide power for L5 to pin P4-9. Power will not reach pin P4-9 unless the APU generator breaker, or both bus-tie breakers, are in the tripped position.

(2) L9, APU Low Oil Quantity, is not connected to time delay or master caution circuitry. Pin 1 if L9 receives power through pin P4-4 if the APU master switch is on and the low oil quantity detector has been actuated.

(3) L10, L11, and L12 provide inidications of malfunction that could occur during APU operation (DESCRIPTION AND OPERATION, Figure 2). Each of the three indications, high oil temperature, low oil pressure, or overspeed, will trigger master caution circuitry when received. If reset, the indication can be recalled through pins P2-5 or P2-10. A time delay of 0.5 to 2.0 seconds is involved in the low oil pressure triggering of the master caution circuitry. Circuit power, +28 volts dc, for all time delay and master caution circuitry is received at pin P4-10. The +28 volts is reduced to +17 volts by the power supply on A1 and distributed to the other circuit cards.

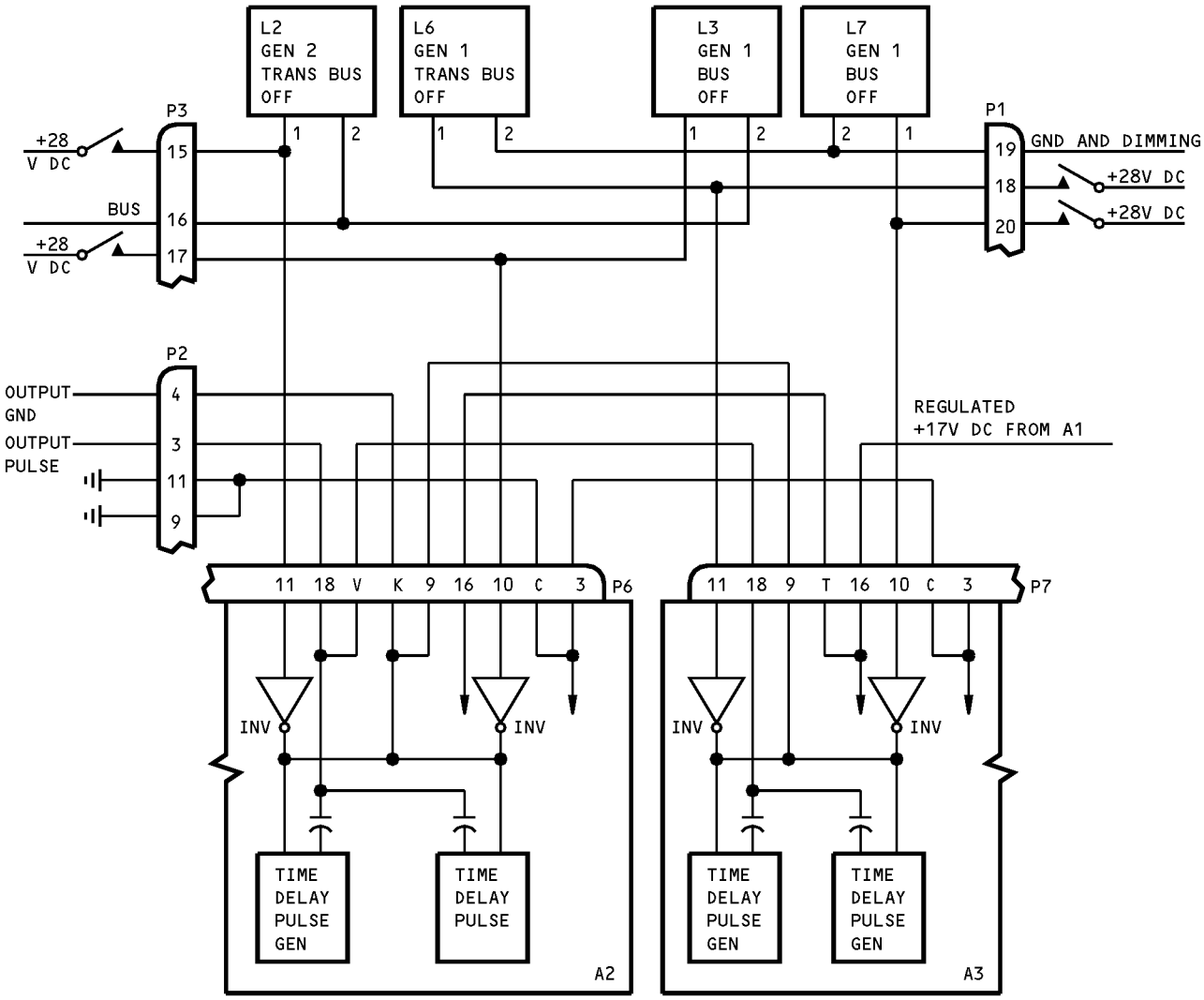
(a) L10, APU High Oil Temperature, is illuminated by +28 volts dc received at pin P4-7. At the same time, the master caution is triggered in card A1. The input signal also energizes relay A2K1. If the APU control switch is set to ON, the +28 volts dc on the relay pole will hold the relay energized, and the indication of high oil temperature will persist, until the APU control switch is set to OFF.

(b) L11, APU Low Oil Pressure, is illuminated by +28 volts dc received at pin P4-8. At the same time, one input to the AND circuit in A3 is provided, and the master caution ground path is opened. If the APU is at 95% RPM, the other input to the AND is present and the master caution is triggered after the 0.5 to 2.0 second time delay. Note that once the APU has reached 95% RPM, and relay A3K1 is energized, the APU control switch will hold the relay energized through the relay pole. This means that one input to the AND will persist even if the APU speed drops below 95%.

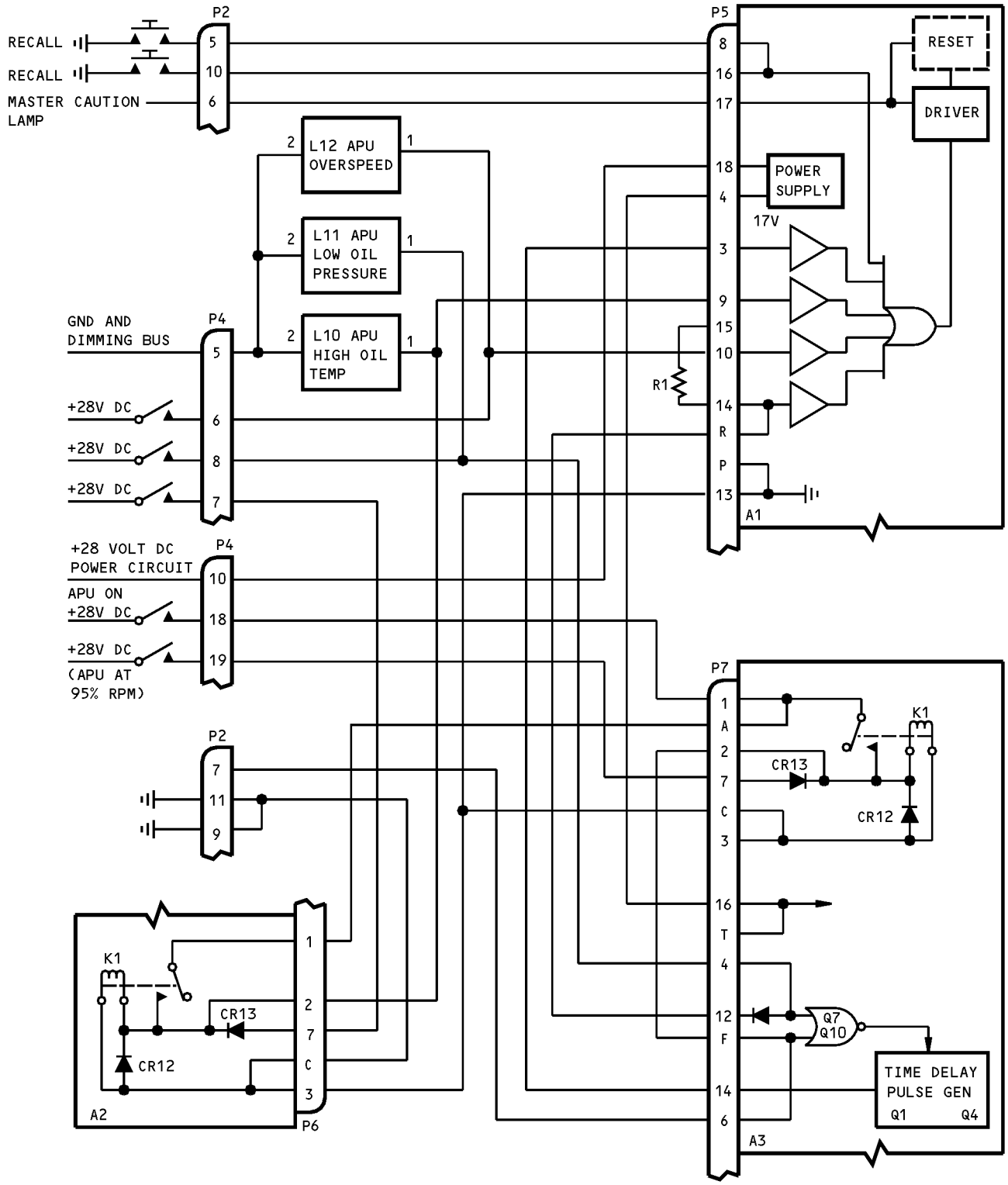
(c) L12, APU Overspeed, is illuninated by +28 volts dc received at pin P4-6. At the same time, the master caution is triggered.

G. Switches S1 through S6, and relays K1 and K2 provide continuity or noncontinuity between points in the electrical system. The switches and relays are not interconnected to the lamps or printed circuit assemblies within the module.

H. Ammeters N1 through N3 provide generator output indications for generators No. 1, 2, and the APU.



L2,L3,L6,L7, Time Delay Circuitry
Figure 1



L10,L11,L12, Time Delay and Master Caution Circuitry
Figure 2

TESTING AND FAULT ISOLATION

1. Testing

A. Test Equipment

NOTE: Equivalent substitute may be used.

(1) Power Supplies

(a) 28 volts dc

(b) 18 volts dc

(c) 400 Hz Signal Generator (TESTING AND FAULT ISOLATION, Figure 102):

1) AC ammeter, 1% accuracy (Fluke 8012)

2) Autotransformer, adjustable - Gen Rad Model M2 (T1)

3) Transformer, power - Litton Systems, Triad Model F44X (T2)

4) Digital Multimeter - Fluke 8010A (DVM)

5) Resistor - 1 ohm ±0.2%, 7 watt (R10)

(d) 5 volts ac or dc

(2) Volt-Ohm-Milliammeter: model 260 simpson voltmeter, STD-3946

B. Test Setup: consisting of the following components

NOTE: Equivalent substitute may be used.

(1) Switches, SPST (27 required, S1 through S27)

(2) Test Lamps: 28 volts, 170mA - type 313 or equivalent (2 required, L1, L3) 28 volts, 40mA - type 327 (1 required, L2)

(3) Connectors:

(a) test connector, SPL-5366 (J1)

(b) mating connector, SPL-4517 (J2)

(c) test connector, SPL-5365 (J3)

(d) connector, SPL-6031 (J4)

(4) Resistors:

(a) RC07GF242J, 2.4k ±5%, 1/4 watt (R1)

(b) RC07GF512J, 5.1k ±5%, 1/4 watt (R2)

(c) RW67G601, 600 ohms, 6.5 watts (R3)

(d) RC07GF102J, 1k ±5%, 1/4 watt (R4)

(e) RC07GF101J, 100 ohms ±5%, 1/4 watt (R5)

(f) RC07GF271J, 270 ohms ±5%, 1/4 watt (R6)

(g) RC07GF272J, 2.7k ±5%, 1/4 watt (R7)

(h) RC07GF432J, 4.3k ±5%, 1/4 watt (R8)

(i) RC07GF104J, 100k ±5%, 1/4 watt (R9)

(5) Capacitors:

(a) CS13BF105K, 1μf, 35 vdc (C1 and C4)

(b) CS13BF104K, 0.1μf, 75 vdc (C2)

(c) CS13BF155K, 1.5μf, 35 vdc (C3)

(6) Transistors

(a) 2N5415 (Q1)

(b) 2N1701 (Q2)

(c) 2N2904A (Q4)

(7) Rectifier, SCR, 2N4171 (Q3)

C. Test Procedure

NOTE: References to switches and lamps mean those on test set unless otherwise specified. On assembly 69-37314-59, and -62 only, lamp reference designators L1 thru L12 have been replaced by DS1 thru DS12.

CAUTION: OBEY THE PROCEDURE IN SUBJECT 20-12-02, HANDLING OF ELECTROSTATIC SENSITIVE DEVICES. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THIS COMPONENT.

(1) Connect module assembly to test setup as shown in TESTING AND FAULT ISOLATION, Figure 101. Set test switches S1 -S24 TO OFF. Set S25-S27 TO ON.

(2) Turn on power supplies and set S1 to ON.

(3) Set S2, S16, and S21 to ON. All module indicator lamps must come on.

(4) Set S21 to OFF. All module indicator lamps must go off.

(5) Press to test each module indicator lamp (L1 thru L12). Each indicator must come on when pressed and go off when released.

(6) Test auxiliary power unit indicator lamp and master caution circuitry perTESTING AND FAULT ISOLATION, Table 101.

Table 101: APU Indicator Lamp and Master Caution Tests

STEP	PROCEDURE	Module Lamps		Test Lamps	
		ON	OFF	ON	OFF
1	Set S18 to ON	L10		L3	
2a	Set S2 to OFF momentarily	L10			L3
2b	Set S16 to OFF and ground pin P4-18. *[1]	L10 *[1]			L3 *[1]
2c	Remove ground from pin P4-18, then set S16 to ON. *[1]	L10 *[1]			L3 *[1]
3	Set S18 to OFF	L10			L3
4	Set S16 to OFF momentarily		L10		L3
4b	Set S16 to ON		L10		L3
5	Set S4 to ON			L3	
6	Set S4 to OFF				L3
7	Set S17 to ON	L12		L3	
8	Set S2 to OFF momentarily	L12			L3

Table 101: APU Indicator Lamp and Master Caution Tests (Continued)

STEP	PROCEDURE	Module Lamps		Test Lamps	
		ON	OFF	ON	OFF
9	Set S4 to ON momentarily	L12		L3	
10	Set S2 to OFF momentarily	L12			L3
11	Set S3 to ON momentarily	L12		L3	
12	Set S2 to OFF momentarily; and set S17 to OFF.		L12		L3
13	Set S19 to ON	L11			
14	Set S14 to ON (L3 must come on 0.5 to 2.0 seconds after L2)	L11		L2,L3	
15	Set S14 to OFF	L11		L2,L3	
16	Set S19 to OFF		L11	L2	L3
17	Set S16 to OFF momentarily		L11		L2,L3

*[1] 69-37314-47, -48, -68, -71, -72, -81, -82

(7) Test time delay circuits per TESTING AND FAULT ISOLATION, Table 102.

Table 102: Time Delay Tests

STEP	PROCEDURE	Module Lamps		Test Lamps	
		ON	OFF	ON	OFF
1	Set S8 to ON (L1 must come on 0.5 to 2.0 seconds after L6)	L6		L1	
2	Set S8 to OFF		L6		L1
3	Set S9 to ON (L1 must come on 0.5 to 2.0 seconds after L7)	L7		L1	
4	Set S9 to OFF		L7		L1
5	Set S11 to ON (L1 must come on 0.5 to 2.0 seconds after L2)	L2		L1	
6	Set S11 to OFF		L2		L1
7	Set S12 to ON (L1 must come on 0.5 to 2.0 seconds after L3)	L3		L1	
8	Set S12 to OFF		L3		L1

(8) Indicator Lamp Test

(a) Test module lamps L1, L4, L5, L8, and L9 per TESTING AND FAULT ISOLATION, Table 103.

Table 103: Indicator Lamp Test

			Module Lamps		Test Lamps	
Step	**Test Switch**	**Position**	**ON**	**OFF**	**ON**	**OFF**
1	S15	ON	L1			
2	S15	OFF		L1		
3	S5	ON	L1			
4	S13	ON	L4			
5	S22	ON	L5			
6	S7	ON	L8			
7	S5,S7, S13,S22	OFF		L1,L4,L5, L8		
8	S20	ON	L9			
All except assys 69-37314-68						
9	S20	OFF		L9		
Assys 69-37314-68						
10	S20	OFF				
11	S16	OFF MOMENTARILY		L9		
12	S20	ON	L9			
13	S18	ON	L9,L10		L3	
14	S18	OFF				
15	S20	OFF	L9,L10		L3	
16	S16	OFF MOMENTARILY		L9,L10		L3
Assys 69-37314-71, -72, -81, -82 only						
17	S20	ON	L9			
18	S18	ON	L9,L10		L3	
19	S20,S18	OFF	L10	L9	L3	
20	S16	OFF MOMENTARILY		L10		L3

(b) Assemblies 69-37314-81, -82 ONLY: Set S25, S26, S27 to OFF. Verify no continuity (greater than 3 ohms resistance) between pins P2-9 (+) and P4-5 (-) and between P2-11 (+) and P4-5 (-). Set S25, S26, S27 to ON.

(9) Verify greater than 1 megohm resistance between pin P4-24 and P2-8. Reverse multimeter leads and verify same resistance.

(10) Test ammeters N1, N2, and N3 as follows:

NOTE: See TESTING AND FAULT ISOLATION, Figure 102 for test setup (either AC ammerter or voltmeter and transformers).

CAUTION: IN EACH STEP BELOW, WHEN ADJUSTING THE 400 HZ AC SOURCE VOLTAGE FROM 0V AC TOWARD THE VOLTAGE THAT RESULTS IN THE TEST METER'S FULL SCALE LIMIT (APPROX. 2 TO 5V AC), INCREASE THE VOLTAGE SLOWLY, SO AS TO AVOID DAMAGE TO THE METER.

(a) Turn 5 volts ac (or dc) power supply on. Set S24 to ON and verify illumination of all three ammeters.

(b) Set S6 to ON.

(c) Slowly adjust auto transformer T1 (or the 400 HZ AC source) so that No. 1 generator ammeter (N1) indication slowly increases from 0 to 200 amps (full scale). Verify indication of 1.35 to 1.85 volts on digital multimeter DVM (or 1.6 ± 0.25 Amperes on the AC ammeter). Adjust T1 back to 0 volt.

(d) Set S6 to OFF and S10 to ON.

(e) Slowly adjust auto transformer T1 (or the 400 HZ AC source) so that No. 2 generator ammeter (N2) indication slowly increases from 0 to 200 amps (full scale). Verify indication of 1.35 to 1.85 volts on digital multimeter DVM (or 1.6 ± 0.25 Amperes on the AC ammeter). Adjust T1 back to 0 volt.

(f) Set S10 to OFF and S23 to ON.

(g) Slowly adjust auto transformer T1 (or the 400 HZ AC source) so that No. 3 generator ammeter (N3) indication slowly increases from 0 to 200 amps (full scale). Verify indication of 1.35 to 1.85 volts on digital multimeter DVM (or 1.6 ± 0.25 Amperes on the AC ammeter). Adjust T1 back to 0 volt.

(h) Set S23 to OFF.

(i) Set S24 to OFF and verify that all three ammeters are off.

(11) Verify switch and relay wiring continuity between pins listed in TESTING AND FAULT ISOLATION, Table 104.

Table 104: Wiring Coninuity Tests

From Pin	To Pin
P1-3	P1-4
P1-5	P1-6
P1-5	P1-7
P1-9	P1-10
P1-13	P4-12
P3-3	P3-4
P3-5	P3-6
P3-5	P3-7
P3-9	P3-10
P4-11	P4-31
P4-21	P4-26
P4-21	P4-28

(12) Test switches and relays per TESTING AND FAULT ISOLATION, Table 105.

NOTE: All switches listed are module switches. Permit 3-position switches to return to center after each step.

Con (Continuity): Less than 10 ohms No Con (No Continuity): Greater than 50 Kohms

Table 105: Switch and Relay Contact Continuity Tests

Step	Connect Ohmeter between pins		Test Procedure	Test Indication	Component Tested
1			Connect P3-22 and P1-22 to ground		
2	P3-8	Ground		No Con	K2
3	P4-13	P4-14	Hold S1 to OFF	Con	S1,K1,K2
4	P4-15	P4-14	Hold S1 to ON	Con	S1
5	P4-13	P4-15	Hold S1 to OFF	No Con	S1
6	P4-13	P4-15	Hold S1 to ON	No Con	S1
7	P3-14	P1-12	Hold S4 and S5 to ON	Con	S4,S5,K2,K1
8	P3-14	P1-12	Hold S4 to ON, release S5	No Con	S5
9	P3-14	P1-12	Hold S5 to ON, release S4	No Con	S4
10	P3-14	P1-12	Connect +28 volts dc to P3-8 and P3-5 Set S6 to ON momentarily		
11	P3-14	P1-12	Hold S4 and S5 to ON	No Con	K2,S6
12	P4-13	P4-14	Hold S1 to OFF	No Con	K2
13	P3-14	P1-12	Disconnect +28 volts from P3-8 Hold S4 and S5 to ON	Con	S6
14			Disconnect +28 volts from P3-5		
15	P1-8	Ground		No Con	K1
16	P3-14	P1-12	Connect +28 volts dc to P1-8 and P1-5 Set S3 to ON momentarily		
17	P3-14	P1-12	Hold S4 and S5 to ON	No Con	K1,S3
18	P4-13	P4-14	Hold S1 to OFF	No Con	K1
19	P3-14	P1-12	Disconnect +28 volts from P1-8 Hold S4 and S5 to ON	Con	S3
20			Disconnect +28 volts from P1-5		
69-37314-45 thru -48,-63 thru -68,-71,-72,-81,-82 only					
21	P3-11	P3-12	Set S2 to AUTO	Con	S2
22	P1-13	P1-14	Set S2 to AUTO	Con	S2
23	P3-23	P3-24	*[1]Set S2 to AUTO	Con	S2
24	P3-23	P3-24	*[1]Set S2 to OFF	No Con	S2

Table 105: Switch and Relay Contact Continuity Tests (Continued)

Step	Connect Ohmeter between pins		Test Procedure	Test Indication	Component Tested
25	P1-13	P1-14	Set S2 to OFF	No Con	S2
26	P3-11	P3-12	Set S2 to OFF	No Con	S2
69-37314-55 thru -62 only					
27	P3-12	P1-14	Set S2 to AUTO	Con	S2
28	P3-12	P1-14	Set S2 to OFF	No Con	S2
29	P3-11	P1-13	Set S2 to OFF	No Con	S2
30	P3-11	P1-13	Set S2 to AUTO	Con	S2
All Configurations					
31	P1-4	P1-5		No Con	S3
32	P1-4	P1-5	Hold S3 to OFF	Con	S3
33	P1-10	P1-11	Hold S3 to ON	Con	S3
34	P1-10	P1-11	Release S3	No Con	S3
35	P3-4	P3-5		No Con	S6
36	P3-4	P3-5	Hold S6 to OFF	Con	S6
37	P3-10	P3-13	Hold S6 to ON	Con	S6
38	P3-10	P3-13	Release S6	No Con	S6
39	P4-22	P4-23		No Con	S4
40	P4-22	P4-23	Hold S4 to ON	Con	S4
41	P4-25	P4-31	Hold S4 to ON	Con	S4
42	P4-25	P4-11	Hold S5 to ON	Con	S5
43	P4-25	P4-11	Release switches	No Con	S5
44	P4-25	P4-31		No Con	S4
45	P3-14	P4-20	Hold S4 to OFF and S5 to ON	Con	S4,S5,K2
46	P3-14	P4-20	Hold S4 to ON and S5 to ON	No Con	S4,S5,K2
47	P4-20	P4-21	Release switches	No Con	S4
48	P4-20	P4-21	Hold S4 to OFF	Con	S4
49	P4-27	P1-12	Hold S4 to ON	No Con	S4,S5,K1
50	P4-27	P1-12	Hold S4 to ON and S5 to OFF	Con	S4,S5,K1
51	P4-20	P4-27	Hold S4 and S5 to OFF	Con	S4,S5
52	P1-12	P4-27	Hold S4 to ON and S5 to OFF	Con	S4,S5,K1
53	P4-29	P4-30	Release switches	No Con	S5
54	P4-29	P4-30	Hold S5 to ON	Con	S5
69-37314-45 thru -48,-65,-67 thru -68,-71,-72,-81,-82 only					

Table 105: Switch and Relay Contact Continuity Tests (Continued)

Step	Connect Ohmeter between pins		Test Procedure	Test Indication	Component Tested
55	P1-14	P4-12	Set S2 to AUTO	Con	S2
56	P4-22	P4-23	Hold S4 to ON	Con	S4
57	P4-29	P4-30	Hold S5 to ON	Con	S5
58	P4-20	P3-14	Hold S4 to OFF and S5 to ON	Con	K2,S1,S4,S5
59			Hold S6 to ON and apply +28 volts dc to P3-7 and P3-8		
60	P3-14	P4-20	Hold S4 to OFF and S5 to ON	No Con	K2,S4,S5
61			Remove power from P3-7 and P3-8		
62	P2-1	P4-20	Hold S1 to ON and S4 to OFF	Con	K1,K2,S1,S4
63			Hold S3 to ON and apply +28 volts dc to P1-7 and P1-8		
64	P4-20	P2-1	Hold S1 to ON and S4 to OFF	No Con	K1,S1,S4
65			Remove power from P1-7 and P1-8		

*[1] Except 69-37314-63, -64

(13) Verify continuity between pin P1-2 and center contact of power connector L13 (J4 on 69-37314-59 and -62).

(14) Verify continuity between outer rim of power connector L13 (J4 on 69-37313-59 and -62) and pin P1-1.

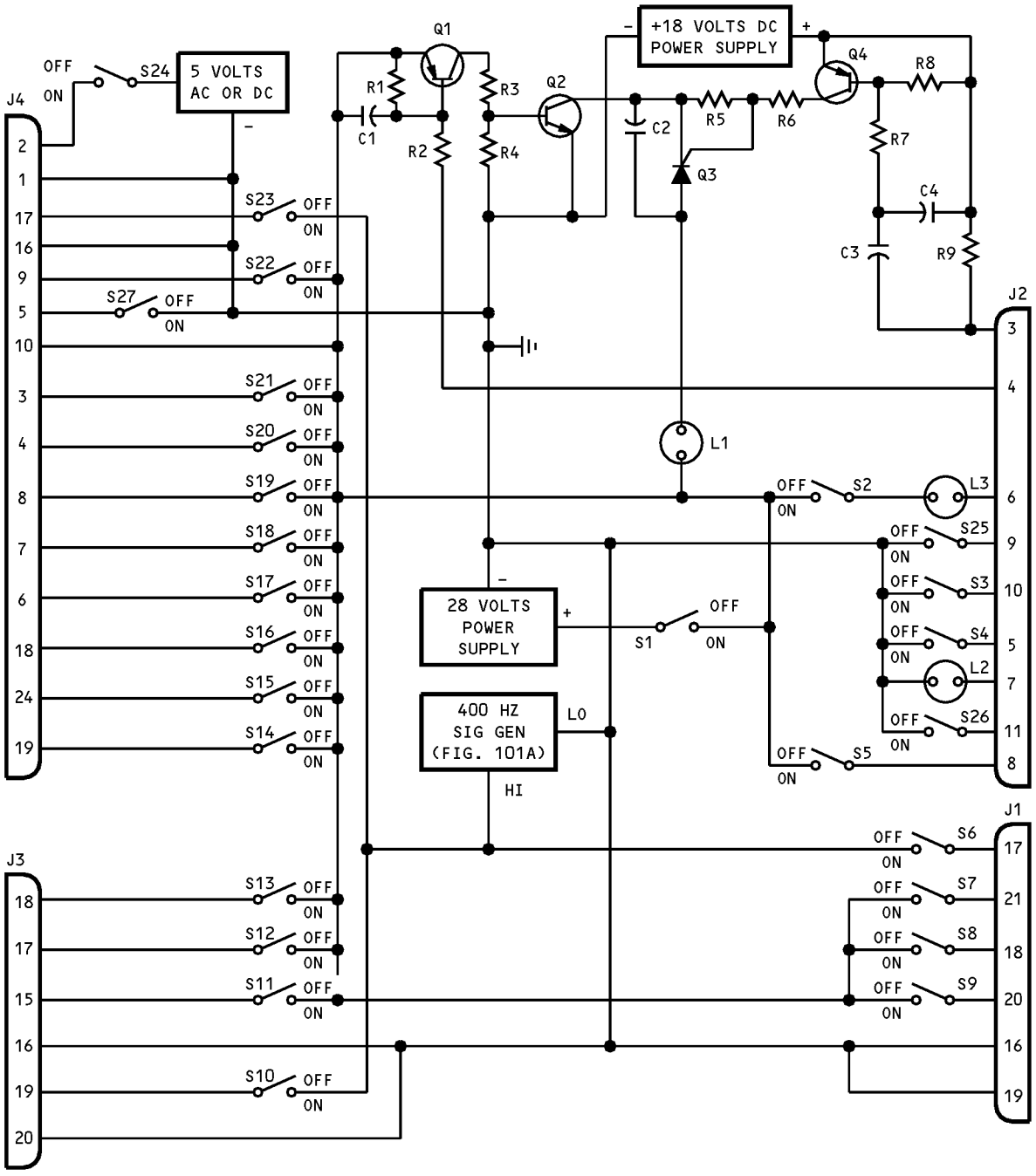
(15) Verify no continuity between pins P1-1 and P1-2.

(16) 69-37314-45 thru -48, -65 thru -69, -71, -72, -81 and -82 only - Test diode CR3 and CR4 per TESTING AND FAULT ISOLATION, Table 106.

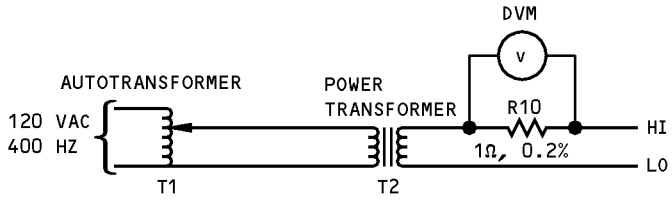
Table 106: Diode Tests

Step	Measure Between Pins	Require Results	Component Tested
1	P4-22(+) to P2-2(-)	100 ohms max	CR3
2	P2-2(+) to P4-22(-)	1 megohm min	CR3
3	P4-29(+) to P2-12(-)	100 ohms max	CR4
4	P2-12(+) to P4-29(-)	1 megohm min	CR4

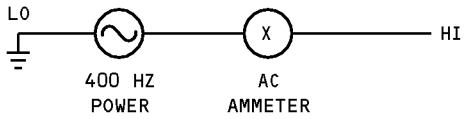
(17) Turn off all power supplies and remove all connections.



Test Setup
Figure 101



OR



NOTE: EITHER TRANSFORMERS AND VOLTMETER OR AC AMMETER
CAN BE USED TO SET UP THE 400HZ SIGNAL GENERATOR.

400 Hz Signal Generator
Figure 102

2. Trouble Shooting

A. If failure of a test occurs, check for defective connections or incorrect wiring before replacing components.

NOTE: Trouble shooting is keyed to functional test procedure steps and is written with the assumption that previous steps did not fail.

On 69-37314-59 and -62 only, lamp reference designators DS1 thru DS12 replace L1 thru L12.

Table 107: Troubleshooting

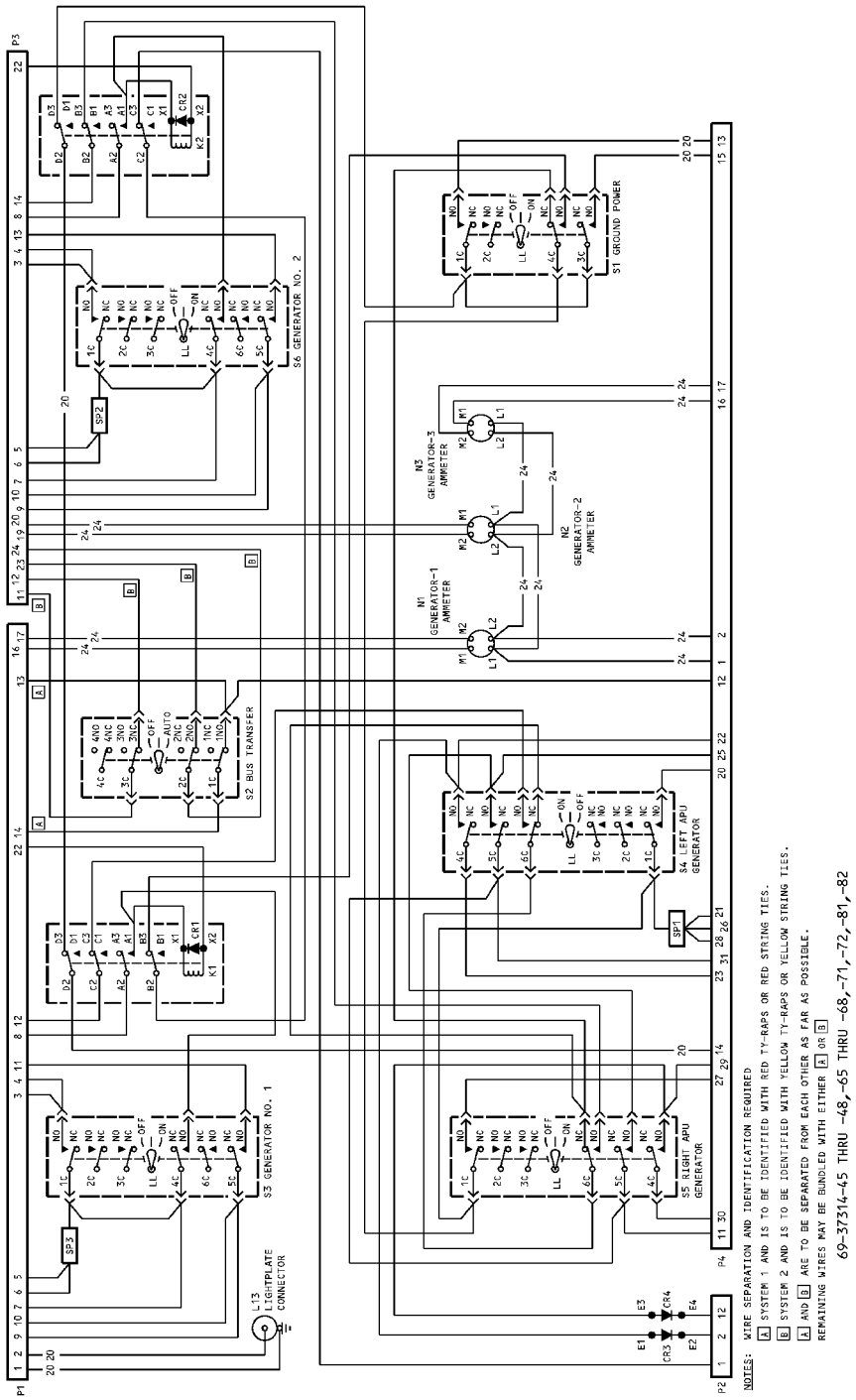
Trouble	Possible Cause	Correction
TESTING AND FAULT ISOLATION, Paragraph 1.C.(3), lamp does not come on.	Lamp	Replace Lamp.
TESTING AND FAULT ISOLATION, Paragraph 1.C.(4)		
Module lamp L10 stays on.	Relay A2K1	Repair or replace A2.
Test lamp L2 is on.	Relay A3K1	Repair or replace A3.
TESTING AND FAULT ISOLATION, Paragraph 1.C.(5), lamp does not come on.	Lamp	Replace lamp.
TESTING AND FAULT ISOLATION, Table 101 Test Step Failure		
Step 1		
Both lamps do not come on.	A2CR13	Repair or replace A2.
Module lamp L10 does not come on.	L10	Replace L10.
L3 does not come on.	A1 or R1	Remove A1 and verify 300 ohms across R1. If correct, A1 defective.
Step 2, L3 does not go off.	A1 conducting without trigger	Repair or replace A1.
Step 3, module lamp L10 goes off.	Relay A2K1 not holding	Repair or replace A2.
Step 7		
Module lamp L12 does not come on.	L12	Replace L12.
L3 does not come on.	A1	Repair or replace A1.
Step 9, L3 does not come on.	A1 not retriggered	Repair or replace A1.
Step 11, L3 does not come on.	A1CR15	Repair or replace A1.
Step 13, module lamp L11 does not come on.	L11	Replace L11.
Step 14		
L2 and L3 do not come on.	A3CR13	Repair or replace A3.
L3 does not come on.	A3	Repair or replace A3.

Table 107: Troubleshooting (Continued)

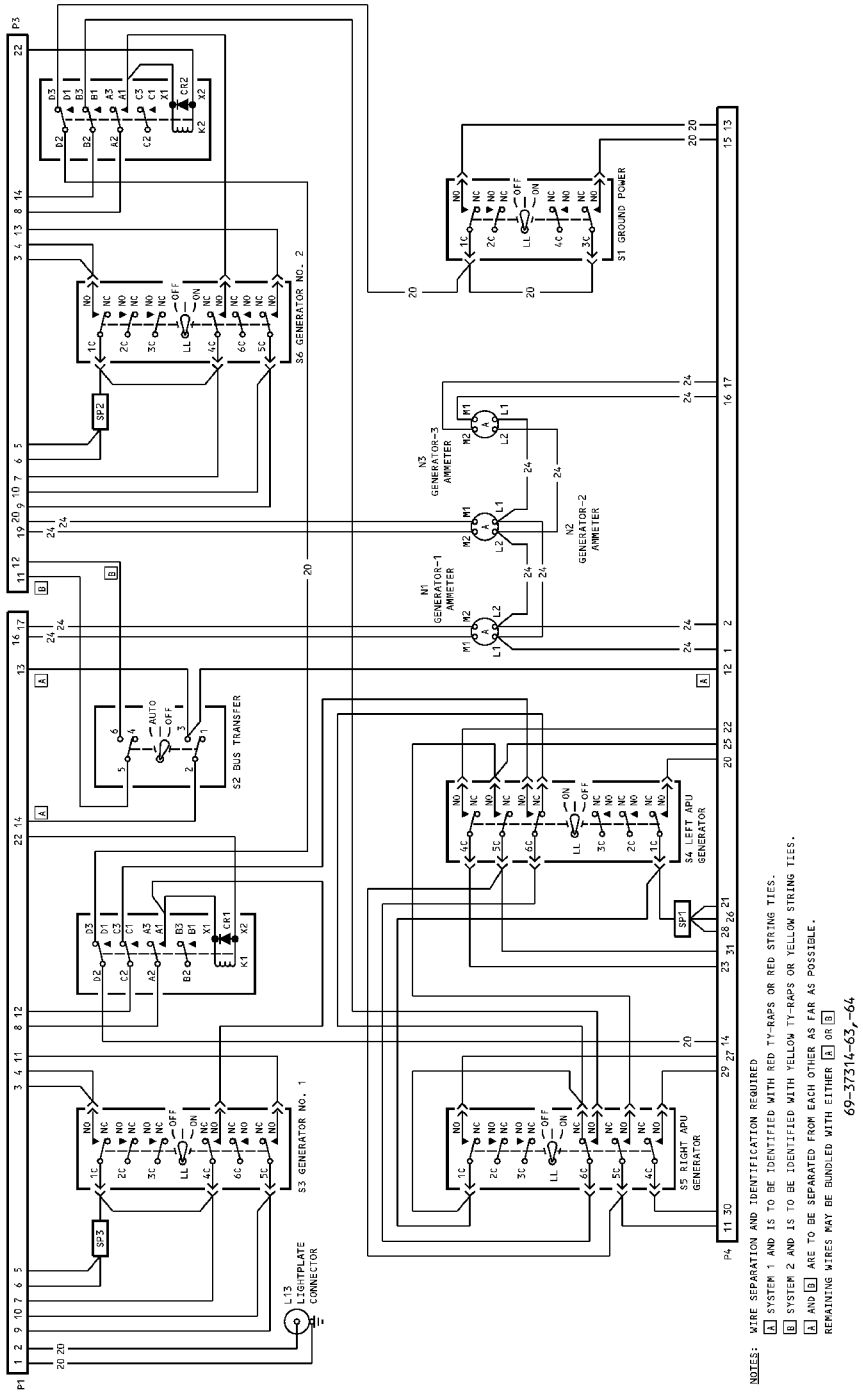
Trouble	Possible Cause	Correction
L3 comes on before 0.5 sec or after 2.0 sec.	A3C1 and tunnel diode A3Q4 not performing timing func- tion for A3Q1 turn-on	Repair or replace A3.
Step 15, L2 and L3 do not come on.	Relay A3K1 not holding	Repair or replace A3.
Step 16, L3 does not go off.	A1	Repair or replace A1.
Step 17, L2 does not go off.	Relay A3K1	Repair or replace A3.
TESTING AND FAULT ISOLATION, Table 102 Test Step Failure		
Steps 1 thru 4		
Module lamp does not come on.	Module lamp	Replace lamp.
L1 does not come on, time delay incorrect or L1 does not go off.	A3	Repair or replace A3.
Steps 5 thru 8		
Module lamp does not come on.	Module lamp	Replace lamp.
L1 does not come on time delay incorrect or L1 does not go off.	A2	Repair or replace A2.
TESTING AND FAULT ISOLATION, Table 103 test step failure	Lamp	Replace lamp.
TESTING AND FAULT ISOLATION, Paragraph 1.C.(9) test failure.	Diode A1CR19 or CR20	Repair or replace A1.
TESTING AND FAULT ISOLATION, Paragraph 1.C.(10) test failure.	Ammeter	Replace ammeter.
TESTING AND FAULT ISOLATION, Table 104 test step failure.	Wiring	Repair wiring.
TESTING AND FAULT ISOLATION, Table 105 test step failure.	Component or wiring	Replace listed com- ponent after checking wiring.
TESTING AND FAULT ISOLATION, Paragraph 1.C.(13), TESTING AND FAULT ISOLATION, Paragraph 1.C.(14) or TESTING AND FAULT ISOLATION, Paragraph 1.C.(15) test failure.	Connector or wiring	Repair or replace.
TESTING AND FAULT ISOLATION, Table 106		
Step 1 and 2	CR3	Replace CR3

Table 107: Troubleshooting (Continued)

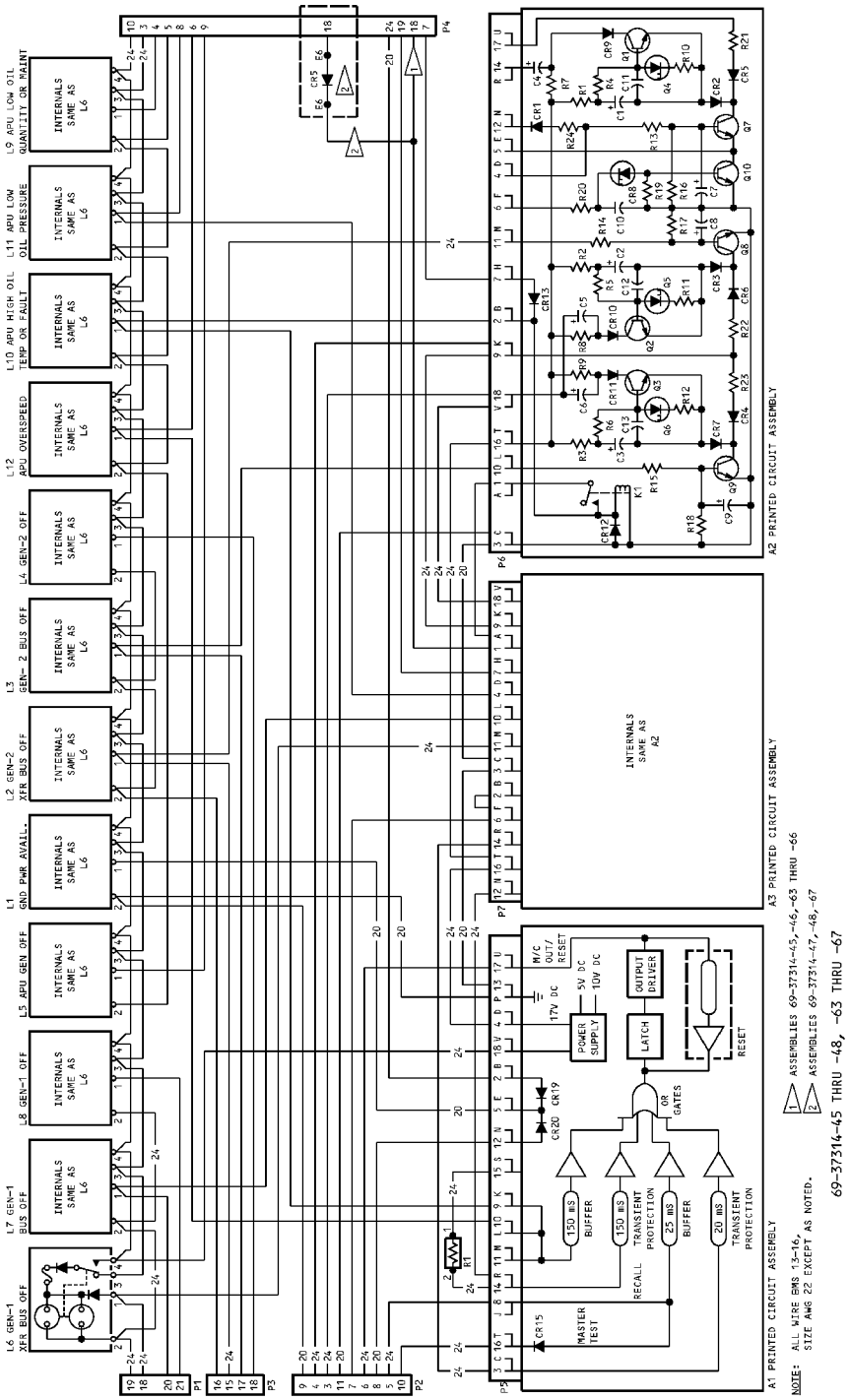
Trouble	Possible Cause	Correction
Step 3 and 4	CR4	Replace CR4



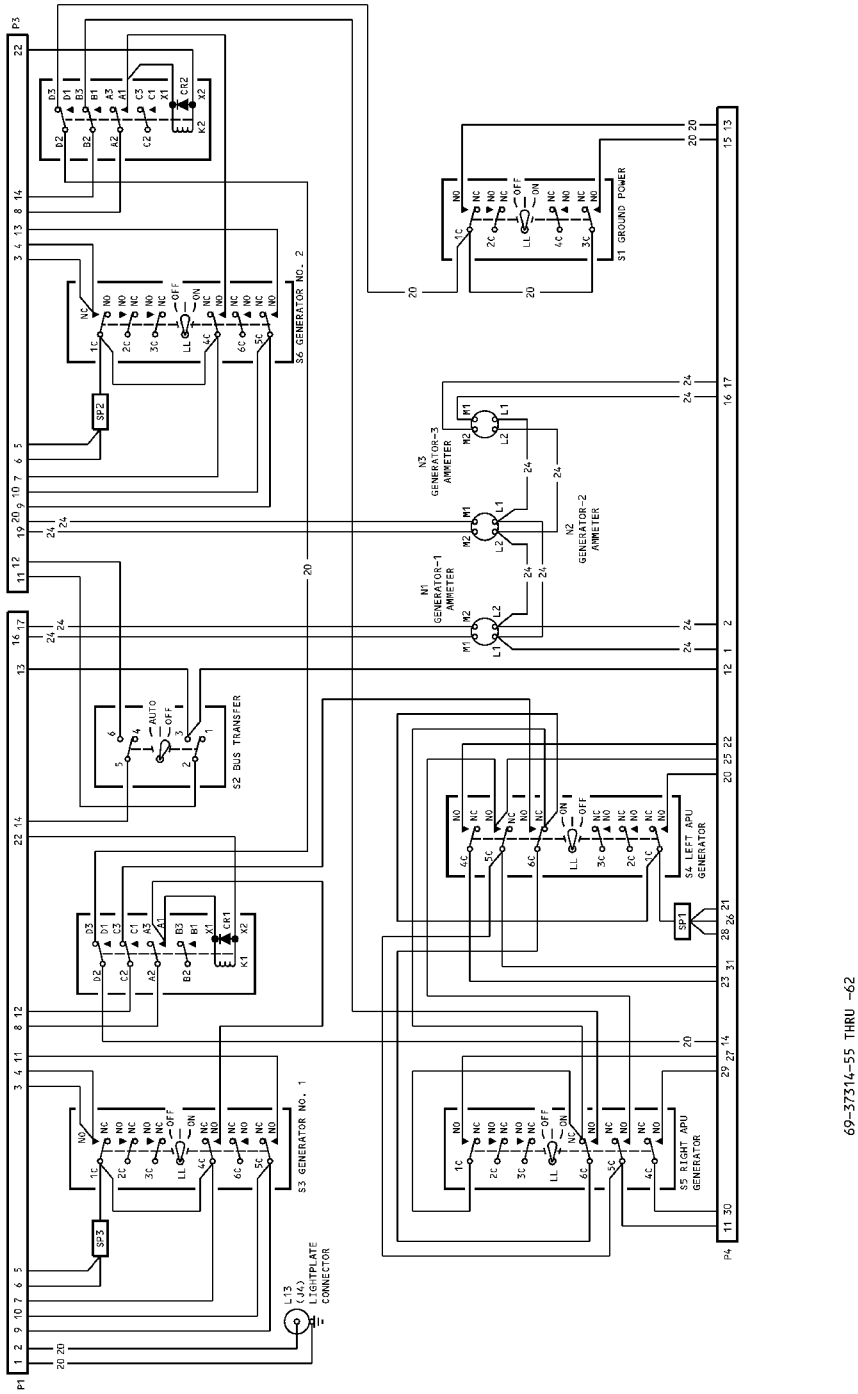
Schematic Diagram
Figure 103 (Sheet 1 of 6)



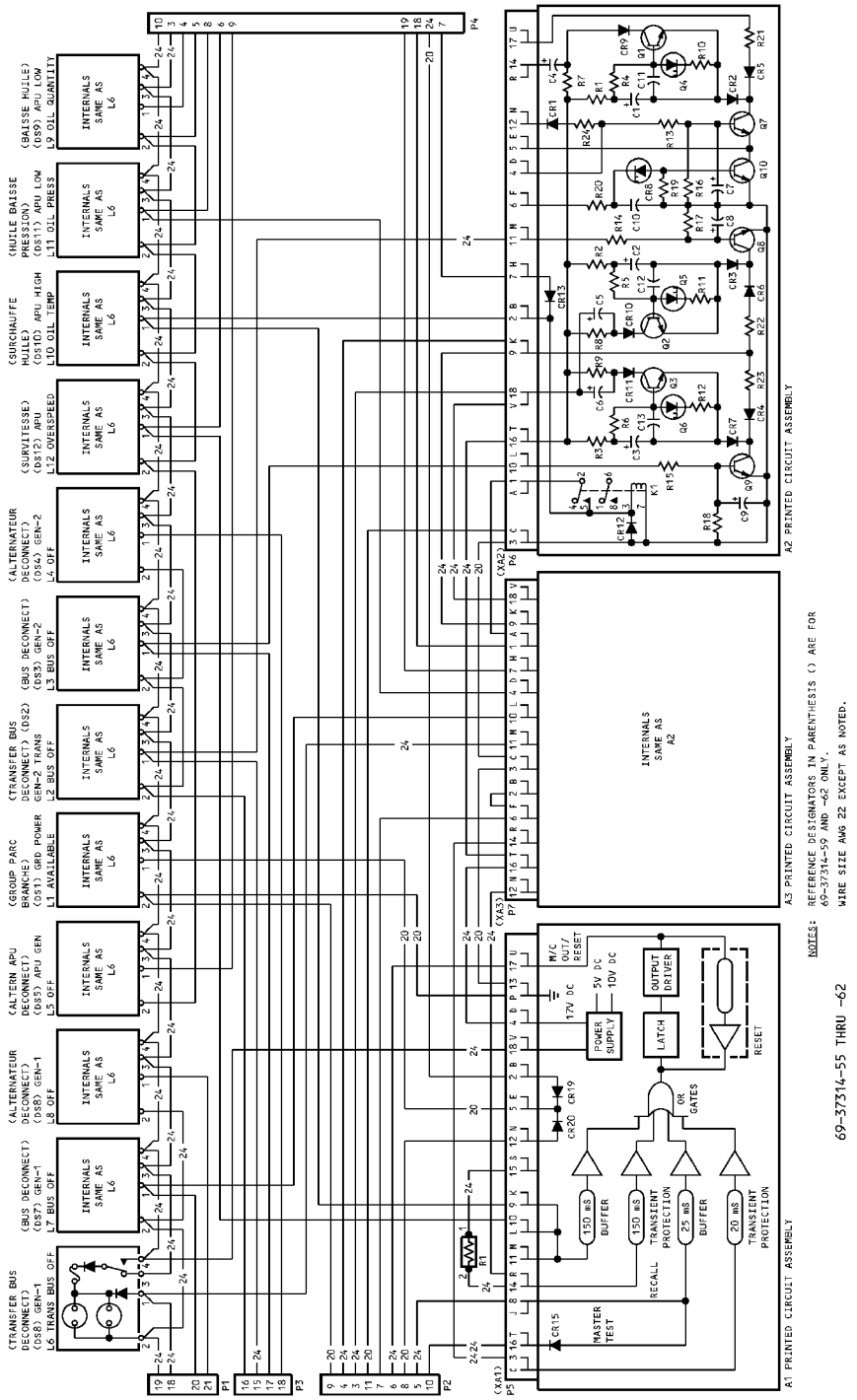
Schematic Diagram
Figure 103 (Sheet 2 of 6)



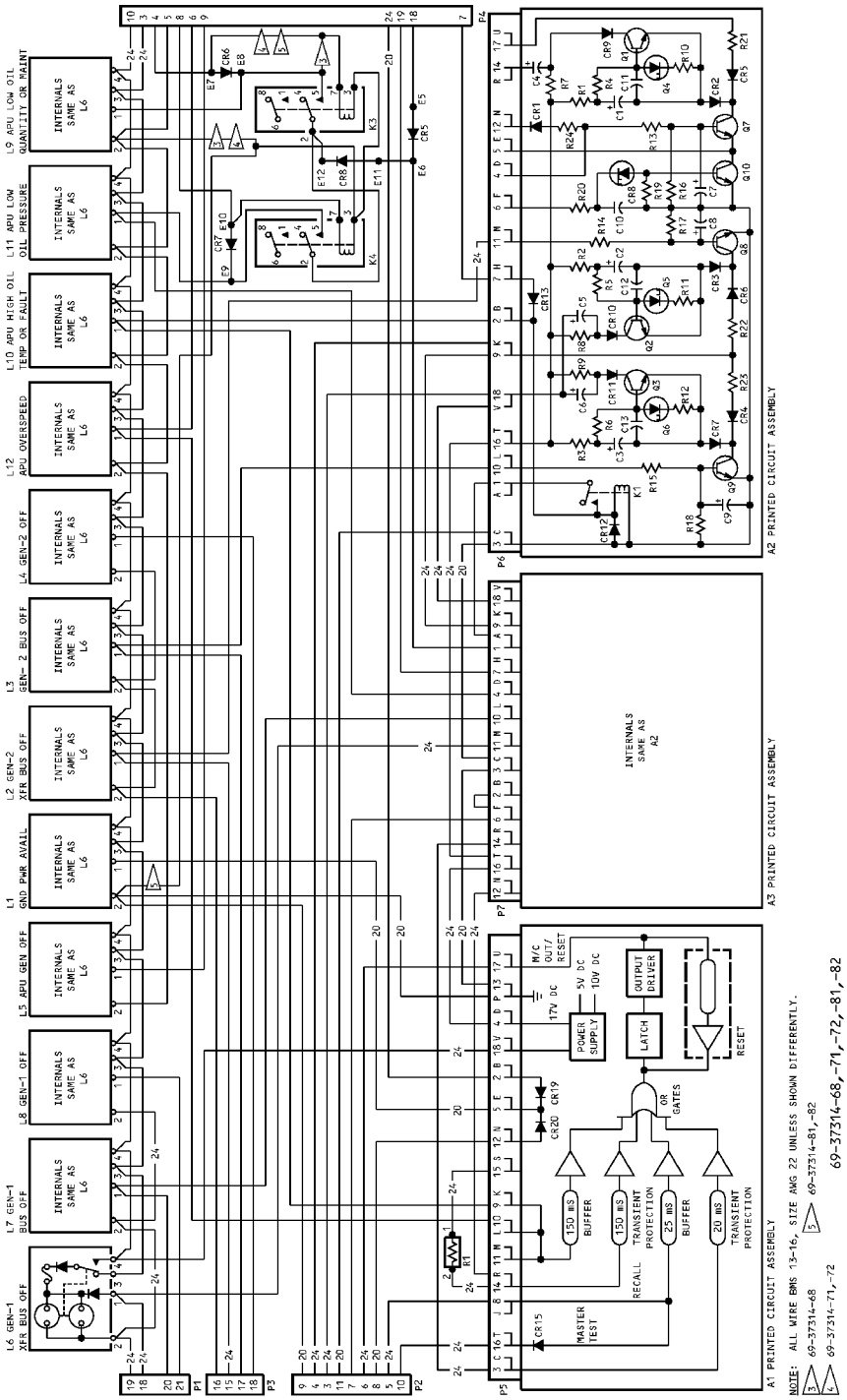
Schematic Diagram
Figure 103 (Sheet 3 of 6)



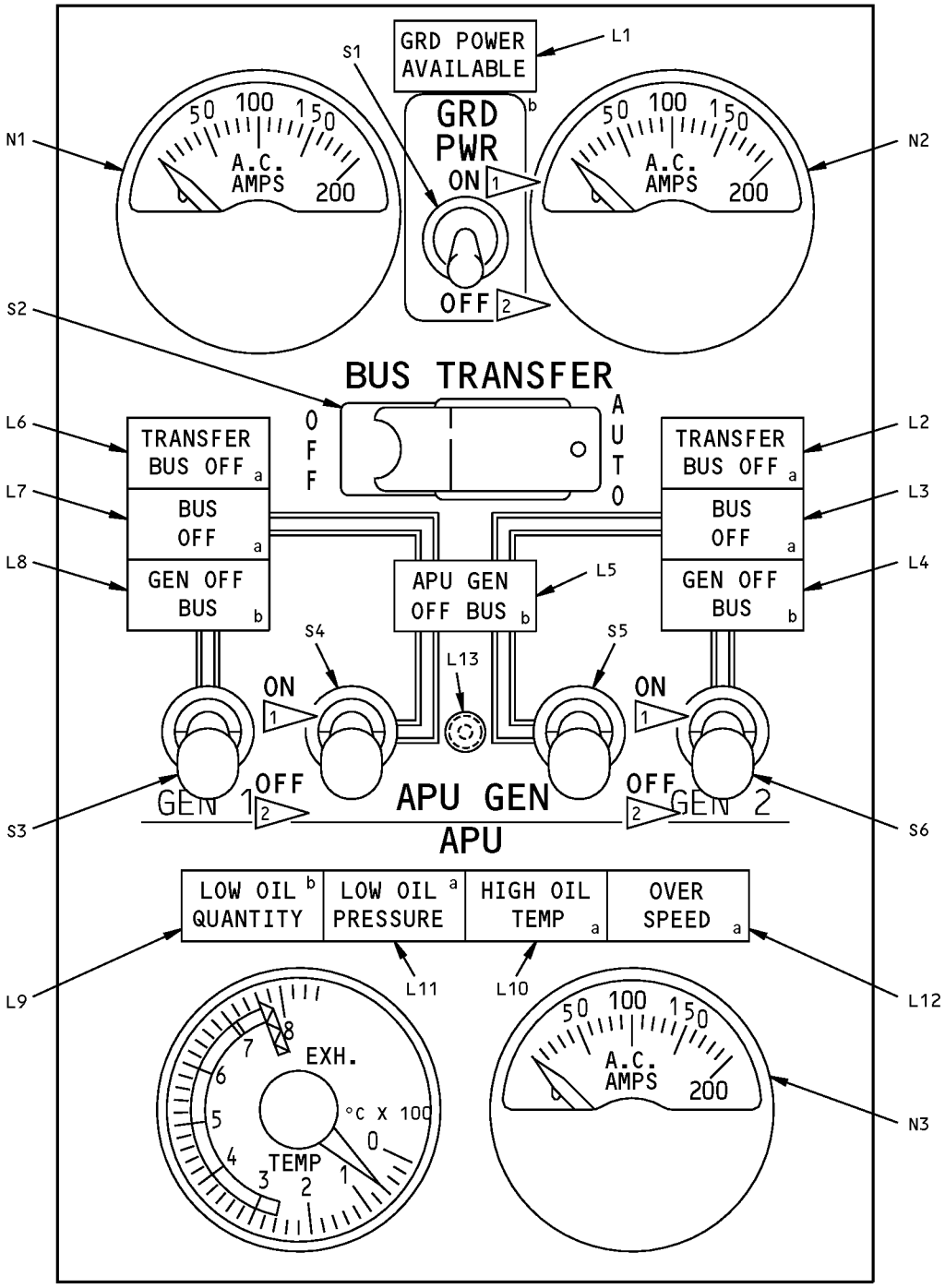
Schematic Diagram
Figure 103 (Sheet 4 of 6)



Schematic Diagram
Figure 103 (Sheet 5 of 6)



Schematic Diagram
Figure 103 (Sheet 6 of 6)

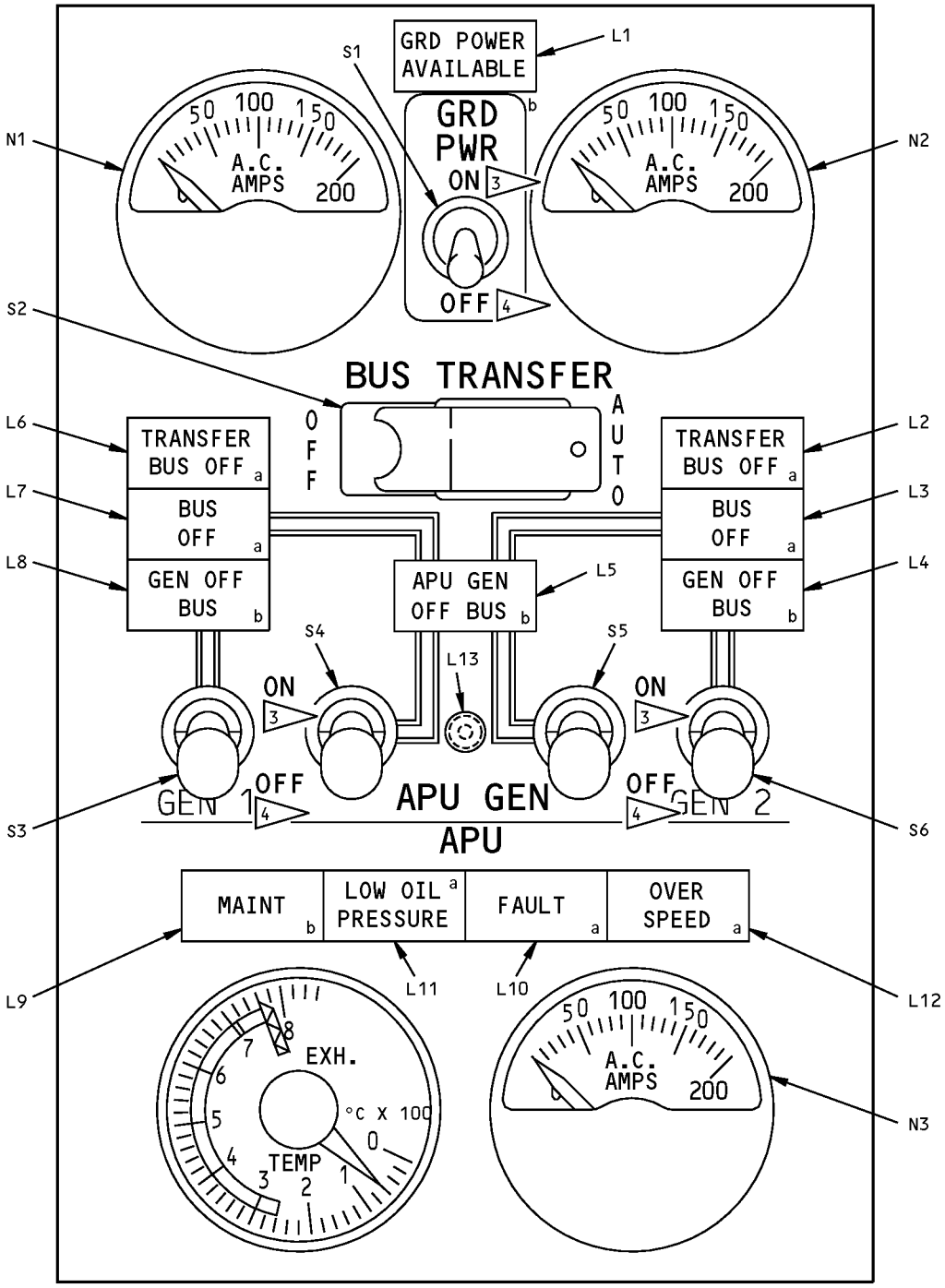


69-37314-45,-46,-55 THRU -58,-60,-61,-63 THRU -67

1 OFF FOR 69-37314-45,-56,-58,-61,-63,-65,-67

2 ON FOR 69-37314-45,-56,-58,-61,-63,-65,-67

P5-4 Front Panel Components
Figure 104 (Sheet 1 of 3)

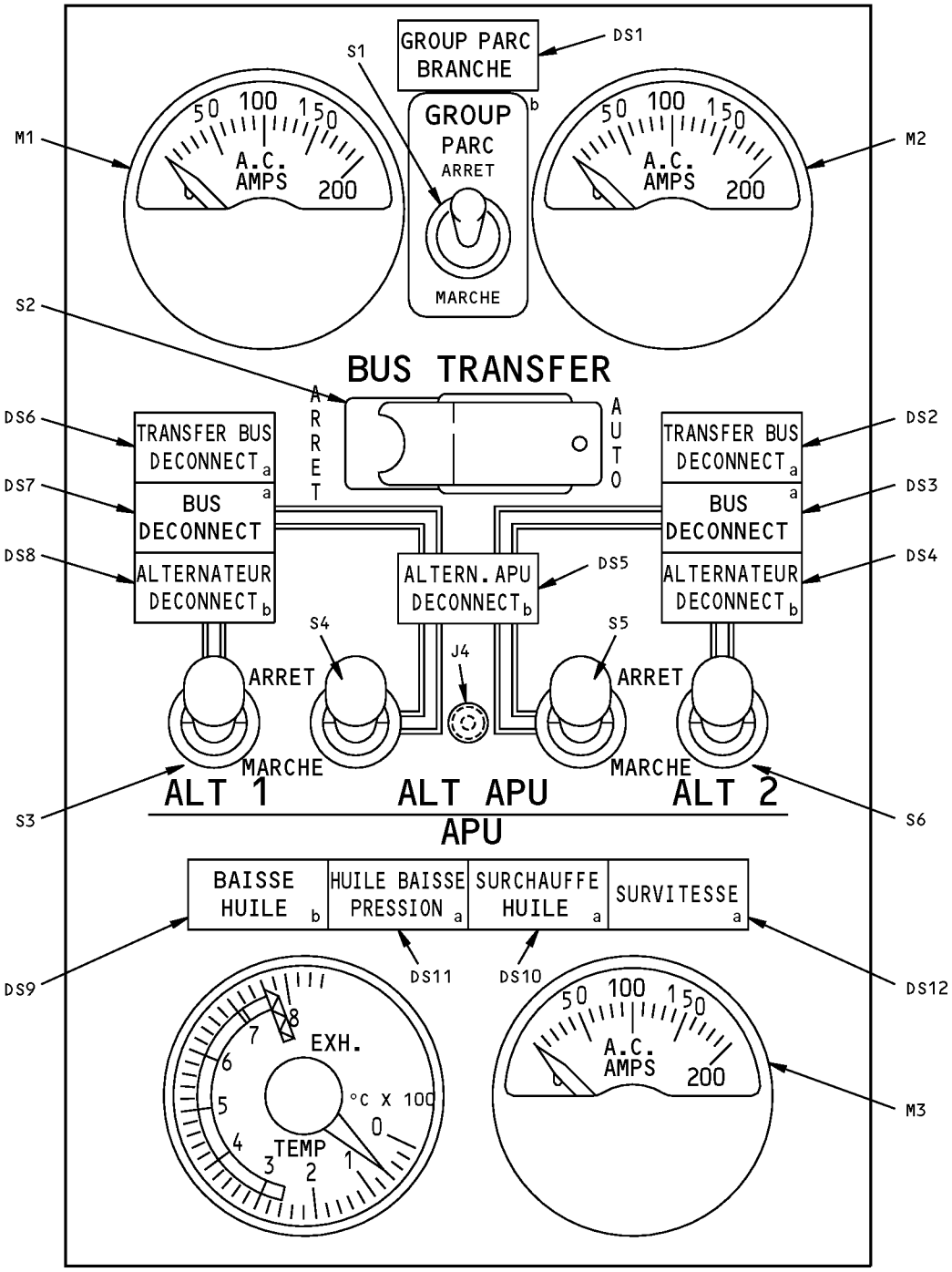


69-37314-47,-48,-68,-71,-72,-81,-82

3 OFF FOR 69-37314-47,-68,-71,-81

4 ON FOR 69-37314-47,-68,-71,-81

P5-4 Front Panel Components
Figure 104 (Sheet 2 of 3)



69-37314-59,-62

P5-4 Front Panel Components
Figure 104 (Sheet 3 of 3)

DISASSEMBLY

Use application procedure in SOPM 20-11-04 and standard insdustry practices.

CLEANING

Use application procedure in SOPM 20-11-04 and standard insdustry practices.

CHECK

Use application procedure in SOPM 20-11-04 and standard insdustry practices.

REPAIR

1. **Procedure**

   CAUTION: OBEY THE PROCEDURE IN SUBJECT 20-12-02, HANDLING OF ELECTROSTATIC SENSITIVE DEVICES. ELECTROSTATIC DISCHARGE CAN CAUSE DAMAGE TO THIS COMPONENT.

   A. All repair may be accomplished with standard industry practices and procedures contained in SOPM 20-11-04 except as noted in the following:

   B. If keying plugs (135, IPL Figure 1) require replacement, insert into printed circuit assembly connectors:

      (1) P6, P7, XA2, XA3; at position 15.

      (2) P5, XA1; at position 6.

   C. If grommet (305, IPL Figure 1) requires replacement, bond in place using type 82 adhesive, A50091 per SOPM 20-50-12.

   D. When you replace 10-61305 indicator lights tighten the mounting screws to 15 ±3 ounce-inches torque.

   E. When you replace relays K3 or K4; position the relay with the contrasting bead to the left as viewed from the contacts side of the relay.

ASSEMBLY

Use application procedure in SOPM 20-11-04 and standard insdustry practices.

BOEING®

COMPONENT MAINTENANCE MANUAL

FITS AND CLEARANCES

(NOT APPLICABLE)

SPECIAL TOOLS, FIXTURES, AND EQUIPMENT

1. General

A. This section lists the special tools, fixtures, and equipment necessary for maintenance.

NOTE: Equivalent substitutes may be used.

Special Tools

Reference	Description	Part Number	Supplier
SPL-4517	Mating Connector	BACC45FT12-12S	81205
SPL-5365	Test Connector	BACC45FT16-24S	81205
SPL-5366	Test Connector	BACC45FT16-24S6	81205
SPL-6031	Connector	BACC45FT18-31S7	81205

Tool Supplier Information

CAGE Code	Supplier Name	Supplier Address
81205	THE BOEING COMPANY	17930 INTERNATIONAL BLVD. SOUTH SEATAC, WA 98188-4321 Telephone: 206-662-6650 Facsimile: 206-662-7145

ILLUSTRATED PARTS LIST

1. Introduction

A. The Illustrated Parts List (IPL) contains an illustration and a list of component parts you can repair or replace. The Illustrated Parts Catalog (IPC) shows how to use the Boeing part number system.

B. This shows how parts are related: The relation of each item to its next higher assembly (NHA) is shown in the NOMENCLATURE column. Use the indenture system that follows:

1 2 3 4 5 6 7

. Assembly

. Attaching parts for assembly

. . Detail parts for assembly

. . Subassembly

. . Attaching parts for subassembly

. . . Detail parts for subassembly

. . . Sub-subassembly

. . . Attaching parts for subassembly

. . . . . Details parts for sub-subassembly

Detail Installation Parts (Included only if installation parts may be sent to the shop as part of assembly)

C. Each top assembly is given one use code letter (A, B, C, etc.) in the USAGE CODE column. All subsequent component parts in the list can have one or more of the use code letters to show effectivity to top assemblies. A component part without a use code applies to all top assemblies.

D. An alphabetical letter is added after the item number for optional parts, parts changed by a Service Bulletin, configuration differences (except left-handed and right-handed parts), last engineering releases, and parts added between item numbers in a sequence. The alphabetical letter will not be shown on the illustration for equivalent parts of the same part number.

E. Color-coded parts are identified with a single digit alpha following the dash number or with ''SP'' suffix. If the ''SP'' suffix is used, it represents consolidation of all color codes applicable for a given usage which are not separately listed. Orders for color-coded parts should include the registry number of the airplane for which the parts are ordered.

F. If a part number is 15 characters long but will not fit in the part number column, the part number will be displayed with a ''~'' at the end of the line and will be continued on the next line. The ''~'' denotes that the part number continues on the next line.

G. Parts changed by a Service Bulletin are shown by PRE SB XXXX and POST SB XXXX added to the NOMENCLATURE column.

(1) When a new top assembly is added by a Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the top assembly level only. The configuration differences at the detail part level are shown by use code letters.

(2) When the top assembly part number is not changed by the Service Bulletin, PRE SB XXXX and POST SB XXXX will be added at the detail level.

H. Interchangeable Parts

Optional (OPT)	The part is optional to and interchangeable with other parts that have the same item number.
Replaces, Replaced by and not interchangeable with (REPLACES, REPLACED BY AND NOT INTCHG/W)	The part replaces and is not interchangeable with the initial part.
Replaces, Replaced by (REPLACES, REPLACED BY)	The part replaces and is interchangeable with, or is an alternative to, the initial part.

VENDOR CODES

Code	Name
00213	MSD INC 700 ORANGE ST DARLINGTON, SOUTH CAROLINA 29532 FORMERLY V01350; FORMERLY 78290; FORMERLY NYTRONICS COMPONENTS GROUP
00779	TYCO ELECTRONICS CORP 2800 FULLING MILL ROAD PO BOX 3608 MIDDLETOWN, PENNSYLVANIA 17057 FORMERLY AMP INC; FORMERLY V04618 FORMERLY GENICOM COMP V01526
01526	Replaced: [V01526] SEE 00779 TYCO ELECTRONICS by Code: Name and Address below 00779: TYCO ELECTRONICS CORP 2800 FULLING MILL ROAD PO BOX 3608 MIDDLETOWN, PENNSYLVANIA 17057 FORMERLY AMP INC V18342; FORMERLY V04618 FORMERLY GENICOM COMP V01526
02660	AMPHENOL CORP INDUSTRIAL TECHNOLOGY DIV 358 HALL AVENUE PO BOX 384 WALLINGFORD, CONNECTICUT 06492 FORMERLY BUNKER RAMO CORP, ELTRA CORP AMPHENOL AND AMPHENOL CORP COMM AND IND DIV

Code	Name
03680	Replaced: [V03680] STANDARD PRESSED STEEL AIRCRAFT PROD SEE V56878 by Code: Name and Address below 56878: SPS TECHNOLOGIES INC AEROSPACE AND INDUSTRIAL PRODUCTS DIV 301 HIGHLAND AVE JENKINTOWN, PENNSYLVANIA 19046 FORMERLY STANDARD PRESSED STEEL FORMERLY IN SALT LAKE, UTAH
05617	IDD AEROSPACE CORP 18225 NORTHEAST 76TH STREET PO BOX 97056 REDMOND, WASHINGTON 98073-9756 FORMERLY FARWEST ELEC INC;FORMERY IN BELLEVUE, WA; FORMERLY BELL IND FARWEST MFG DIV;FORMERLY BELL IND ILLUMINATED DISPLAYS DIV
06950	SCREWCORP VSI AEROSPACE PRODUCTS DIV FAIRCHILD IND DIV 13001 EAST TEMPLE AVENUE PO BOX 730 CITY OF INDUSTRY, CALIFORNIA 91746-1417 FORMERLY VB0096 AND VSI CORP SCREWCORP DIV FORMERLY IN CULVER CITY, CALIFORNIA SCREW CORP SEE V.S.I. CORP SCREWCORP DIVISION
08524	Replaced: [V08524] DEUTSCH FASTENER CORP SEE CODE V97928 Replaced: [V97928] SEE V17446 HUCK INTL by Code: Name and Address below 17446: HUCK INTL INC AEROSPACE FASTENER DIV 900 WATSON CENTER ROAD CARSON, CALIFORNIA 90745-4201 FORMERLY V32134 REXNORD INC; FORMERLY V97928 HUCK INTL Referenced in FORMERLY line below [17419] DEUTSCH COMPANY THE WELLS FARGO BANK BLDG 2444 WILSHIRE BLVD #600 SANTA MONICA, CALIFORNIA 90403 FORMERLY DEUTSCH FASTENER CORP V08524 FORMERLY IN LOS ANGELES

Code	Name
09026	Replaced: [V09026] BABCOCK ELECTRONICS CORP CONTROL PRODUCT DIV by Code: Name and Address below 82050: ESTERLINE ELECTRONICS CORP COSTA MESA. CALIFORNIA 92626-1437 FACILITIES DISCONTINUED FORMERLY BABCOCK ELECTRONIC CORP ELECTRONIC PRODUCTS V09026
11815	CHERRY AEROSPACE FASTENERS DIV OF TEXTRON 1224 EAST WARNER AVENUE PO BOX 2157 SANTA ANA, CALIFORNIA 92707-0157 FORMERLY IN LOS ANGELES, CALIF , FORMERLY CHERRY FASTENERS TOWNSEND DIV OF TEXTRON INC V71087
12324	DUPREE INC STAKE FASTENER CO 14395 RAMONA PO BOX 1797 CHINO, CALIFORNIA 91708 FORMERLY DUPREE MFG CO IN SOUTH EL MONTE, CALIFORNIA FORMERLY STAKE FASTENER CO DIV OF DUPREE INC
13556	LABINAL COMPONENTS AND SYS CINCH MILITARY AEROSPACE DIV 8821 SCIENCE CENTER DRIVE MINNEAPOLIS, MINNESOTA 55428-3619 FORMERLY TRW CINCH MFG CO, FORMERLY IN NEW HOPE, MINNESOTA FORMERLY CINCH CYLINDRICAL DIV OF LABINAL COMP & SYS
15653	ALCOA GLOBAL FASTENERS INC DIV KAYNAR PRODUCTS 800 S STATE COLLEGE BLVD FULLERTON, CALIFORNIA 92831-3001 FORMERLY VK6405 MICRODOT AEROSP LTD; FORMERLY KAYNAR TECH FORMERLY FAIRCHILD FASTENERS KAYNAR DIV
34830	ROGERSON KRATOS 403 SOUTH RAYMOND AVENUE BIN 45 PASADENA, CALIFORNIA 91105-2609 FORMERLY GLASSCO INSTRUMENT CO V03936 FORMERLY KRATOS-KRATOS CORP & KRATOS INC AVIATION PROD DIV

Code	Name
35344	Replaced: [V35344] LEACH CORP RELAY DIV SEE LEACH CORP CONTROL PROD DIV V58657 by Code: Name and Address below 58657: LEACH INTERNATIONAL OF NORTH AMERICA 6900 ORANGETHORPE AVE PO BOX 5032 BUENA PARK, CALIFORNIA 90622-5032 FORMERLY LEACH CORP V35344 AND V00614 FORMERLY LEACH CORP
49367	AMPHENOL CORP AMPHENOL AEROSPACE PYLE-NATIONAL CONNECTORS 40-60 DELAWARE AVE SIDNEY, NEW YORK 13838-1395
52828	REPUBLIC FASTENER MFG CORP 1300 RANCHO CONEJO BLVD NEWBURY PARK, CALIFORNIA 91320-1405 FORMERLY IN SYLMAR, CALIFORNIA
58614	COMMUNICATIONS INSTRUMENTS INC HWY 74 EAST, PO BOX 520 FAIRVIEW, NORTH CAROLINA 28730
60119	MONADNOCK CO THE 18301 ARENTH AVENUE ROWLAND HEIGHTS, CALIFORNIA 91748-1288 FORMERLY UNITED CARR FASTENER CORP VB0051 VB0056 VB0076 FORMERLY TRW ELECTRONIC COMPONENTS CINCH-MONADNOCK DIV FORMERLY CINCH-MONADNOCK DIV OF TRW INC V76530 FORMERLY IN CITY OF INDUSTRY, CALIFORNIA
71482	CP CLARE CORP NORTH AMERICA SALES OPERATIONS 601B CAMPUS DRIVE ARLINGTON HEIGHTS, ILLINOIS 60004 FORMERLY CLARE DIV OF GENERAL INSTRUMENT CORP FORMERLY IN CHICAGO, ILLINOIS
72914	HONEYWELL/GRIMES AEROSPACE 550 STATE RT 55 URBANA, OHIO 43078 FORMERLY AERO-FLOW V70128; MIDLAND-ROSS JANITROL AERO DIV; FORMERLY FL AEROSP CORP V89513; ALLIEDSIGNAL/GRIMES AEROSP FORMERLY GRIMES AEROSPACE V00672 AND HONEYWELL V60187

Code	Name
72962	HARVARD INDUSTRIES INC 3 WERNER WAY SUITE 210 LEBANON, NEW JERSEY 08833 FORMERLY ESNA V7A079 FORMERLY ELASTIC STOP NUT IN UNION, NJ
73197	HI-SHEAR TECHNOLOGY CORP 2600 SKYPARK DRIVE TORRANCE, CALIFORNIA 90509
80539	SPS TECHNOLOGIES INC DIV AERPSOACE - SANTA ANA 2701 SOUTH HARBOR BOULEVARD SANTA ANA, CALIFORNIA 92704-5803 FORMERLY NUTT-SHEL DIV OF SPC WESTERN CO V80539 AND STANDARD PRESSED STEEL WESTERN DIV V17279
81590	KORRY ELECTRONIC INC SUB OF CRITON CORP 901 DEXTER AVENUE NORTH SEATTLE, WASHINGTON 98109-3515 FORMERLY KORRY, BORIS VB0021 AND KORRY MFG CO
81640	EATON CORP AEROSPACE AND COMMERCIAL CONTROLS DIV 2250 WHITFIELD AVENUE EAST SARASOTA, FLORIDA 34243-9703 FORMERLY SINGER CO CONTROLS DIV AND CONTROLS CO OF AMERICA AND CONTROL SWITCH A CUTLER-HAMMER CO AND EATON CORP CUTLER-HAMMER GROUP V97198, V81641 IN FOLCROFT, PENNSYLVANIA INFO FROMVDR THRU M2880 FEB 1987 SWITCHES
88245	WINCHESTER ELECTRONICS LITTON SYSTEMS INC USECO DIV 13536 SATICOY STREET VAN NUYS, CALIFORNIA 91409 FORMERLY U.S. ENGINEERING CO V88245 AND LITTON PRECISION PRODUCTS INC USECO DIV LITTON IND AND LITTON SYSTEMS INC USECO DIV

Code	Name
89954	BAE SYSTEMS CONTROL 600 MAIN STREET JOHNSON CITY, NEW YORK 13790 FORMERLY MARTIN MARIETTA AIRCRAFT CONTROL SYSTEMS; FORMERLY LOCKHEED MARTIN CONTROL SYSTEMS
91637	VISHAY DALE ELECTRONICS VISHAY AMERICAS INC DBA VISHAY 1122 23RD STREET PO BOX 609 COLUMUS, NEBRASKA 68602-0609
91893	M S P INC 4510 E STATE ROAD 46 NASHVILLE, INDIANA 47448 FORMERLY MARION SCREW PRODUCTS IN MARION, INDIANA
91929	HONEYWELL INC MICRO SWITCH DIV 11 WEST SPRING STREET FREEPORT, ILLINOIS 61032 FORMERLY MICRO SWITCH A DIV OF HONEYWELL FORMERLY V74059 AND V40228
92215	FAIRCHILD IND INC FAIRCHILD AEROSPACE FASTENER DIV 3010 W LOMITA BLVD TORRANCE, CALIFORNIA 90505-5102 FORMERLY VOI-SHAN IN CULVER CITY, CALIF
98625	Replaced: [V98625] AEROQUIP CORP AEROSPACE DIV MARMON PLANT SEE AEROQUIP CORP AEROSPACE DIV V00624 MARMAN DIV AEROQUIP CORP SEE AEROQUIP CORP AEROSPACE-MARMAN by Code: Name and Address below 00624: EATON AEROQUIP INC ENGINEERED SYSTEMS DIV 300 S EAST AVE JACKSON, MICHIGAN 49203-1972 FORMERLY AEROQUIP ELBEE PLANT V99879 OR WESTERN PLANT V70128; FORMERLY AEROQUIP AEROSP DIV JACKSON PLANT; FORMERLY V11328 AEROQUIP LINAIR DIV; LAWRENCE PLANT V26622

REFERENCE DESIGNATOR INDEX

REFERENCE DESIGNATOR	PART NUMBER	FIG-ITEM
A1	69-78286-1	1-110
A1	69-78286-1	1-365
A2	69-51814-1	1-115
A3	69-51814-1	1-115
CR1	1N4385	1-190
CR2	1N4385	1-190
CR3	1N5061	1-215
CR4	1N5061	1-215
CR5	1N5061	1-220
CR6-CR8	1N4384	1-222
E1-E4	1411A	1-205
E5	1411A	1-210
E6	1411A	1-210
E7-E12	1411A	1-212
K1	BACR13CG4	1-185
K2	BACR13CG4	1-185
K3	3SAV1461A2	1-188
K4	3SAV1461A2	1-188
L1	BCREF4173	1-75
L10	BCREF7423	1-45A
L10	BCREF4150	1-45B
L11	BCREF4140	1-40
L12	BCREF4148	1-50
L13	800000121-1	1-105
L2	BCREF4142	1-65
L3	BCREF4143	1-60
L4	BCREF4138	1-55
L5	BCREF4145	1-70
L6	BCREF4142	1-65
L7	BCREF4143	1-60
L8	BCREF4138	1-55
L9	BCREF4154	1-35
L9	BCREFA2837	1-35B
N1-N3	124-837	1-30

REFERENCE DESIGNATOR	PART NUMBER	FIG-ITEM
N1-N3	S231N212-1	1-30A
P5-P7	582555-1	1-140
R1	RH5-330-1PCT	1-165
R1	3105M330-1PCT	1-165A
S1	64AT22-7	1-100
S1	A3-1110-04-1	1-100A
S2	64AT22-3	1-90
S2	A3-1110-05-1	1-90A
S3-S6	66AT22-7E	1-80
S3-S6	A3-1113-044E1	1-80A

NUMERICAL INDEX

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
01400-6A1		1	265	6
10-60757-27		1	30	3
10-61803-102		1	35	1
10-61803-2		1	55	2
10-61803-28		1	65	2
10-61803-29		1	60	2
10-61803-31		1	70	1
10-61803-383		1	45A	1
10-61803-40		1	75	1
10-61803-432		1	35B	1
10-61803-51		1	50	1
10-61803-6		1	40	1
10-61803-62		1	45B	1
11170-1		1	85	1
124-837		1	30	3
1411A		1	205	4
		1	210	2
		1	212	6
1N4384		1	222	3
1N4385		1	190	2
1N5061		1	215	2
		1	220	1
293162		1	300	8
3105M330-1PCT		1	165A	1
318-630-1002-001		1	55	2
318-630-1002-004		1	40	1
318-630-1002-006		1	65	2
318-630-1002-007		1	60	2
318-630-1002-009		1	70	1
318-630-1002-012		1	75	1
318-630-1002-013		1	50	1
318-630-1002-020		1	35	1
318-630-1002-080		1	45A	1
318-630-1002-093		1	35B	1

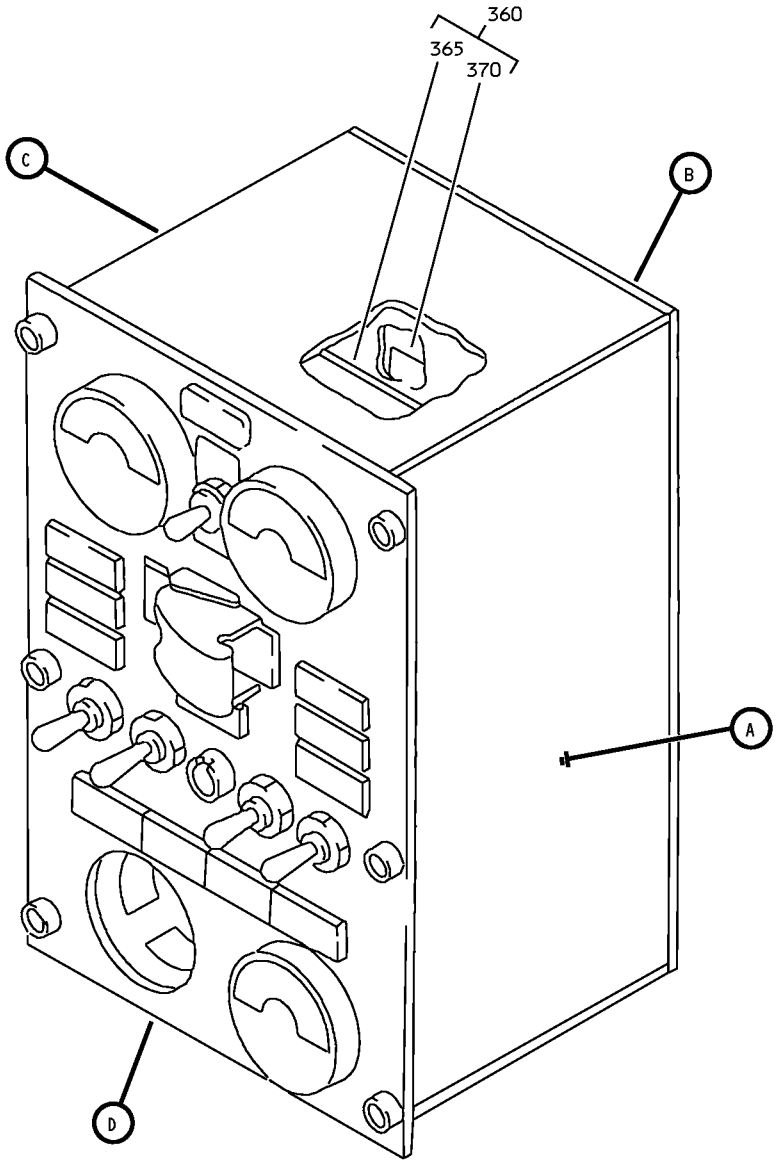
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
3SAV1461A2		1	188	2
48-10R12-12P300		1	310	1
48-10R16-24P300		1	315	1
48-10R16-24P6-300		1	320	1
48-10R18-31P7-300		1	325	1
582507-1		1	145	3
582555-1		1	140	3
640003		1	25	4
64AT22-3		1	90	1
64AT22-7		1	100	1
66AT22-7E		1	80	4
69-37268-15		1	245	3
69-37268-16		1	250	2
69-37314-10		1	260	1
69-37314-11		1	260A	1
69-37314-32		1	150	1
69-37314-39		1	305	1
69-37314-4		1	255	2
69-37314-45		1	1	RF
69-37314-46		1	1A	RF
69-37314-47		1	1B	RF
69-37314-48		1	1C	RF
69-37314-51		1	305A	1
69-37314-55		1	1D	RF
69-37314-56		1	1E	RF
69-37314-57		1	1F	RF
69-37314-58		1	1G	RF
69-37314-59		1	1H	RF
69-37314-60		1	1J	RF
69-37314-61		1	1K	RF
69-37314-62		1	1L	RF
69-37314-63		1	1M	RF
69-37314-64		1	1N	RF
69-37314-65		1	1P	RF
69-37314-66		1	1Q	RF

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
69-37314-67		1	1R	RF
69-37314-68		1	1S	RF
69-37314-69		1	1T	RF
69-37314-70		1	305B	1
69-37314-71		1	1U	RF
69-37314-72		1	1V	RF
69-37314-73		1	305C	1
		1	305E	1
69-37314-74		1	305D	1
69-37314-81		1	1W	RF
69-37314-82		1	1X	RF
69-41788-1		1	10	1
69-41788-12		1	15A	1
69-41788-13		1	175	1
69-41788-15		1	285	1
		1	293	1
69-41788-16		1	280	1
69-41788-17		1	290	1
69-41788-21		1	15	1
69-41788-22		1	10A	1
69-41788-23		1	15B	1
69-41788-24		1	20A	1
69-41788-27		1	280A	1
69-41788-28		1	290A	1
69-41788-29		1	280B	1
		1	292J	1
69-41788-30		1	290B	1
		1	293J	1
69-41788-31		1	291	1
69-41788-5		1	20	1
69-41879-1		1	270	1
69-44578-2		1	95	1
69-51814-1		1	115	2
69-78286-1		1	110	1
		1	365	1

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
69-78601-2		1	360	1
800000121-1		1	105	1
96-62		1	135	6
		1	180	6
A3-1110-04-1		1	100A	1
A3-1110-05-1		1	90A	1
A3-1113-044E1		1	80A	4
AN960D6L		1	200	18
		1	202	18
BAC27DCC244		1	345	1
BAC27DCC245		1	350	1
BAC27DCC513		1	330	1
BAC27DCC567		1	335	1
BAC27DCC568		1	335A	1
BAC27EEX510		1	294	1
		1	340	1
		1	370	1
BACC10EL3		1	25	4
BACC45FN12-12P		1	310	1
BACC45FN16-24P		1	315	1
BACC45FN16-24P6		1	320	1
BACC45FN18-31P7		1	325	1
BACG20ZA0440		1	225	1
BACG20ZA440		1	292	1
BACN10DN26		1	160	2
BACN10JC06		1	135	6
		1	180	6
BACN10NW1		1	300	8
BACN10PA06-6		1	275	4
BACR13CD3		1	188	2
BACR13CG4		1	185	2
BACS12BE02-4		1	155	2
		1	155	2
		1	155	2
		1	155	2

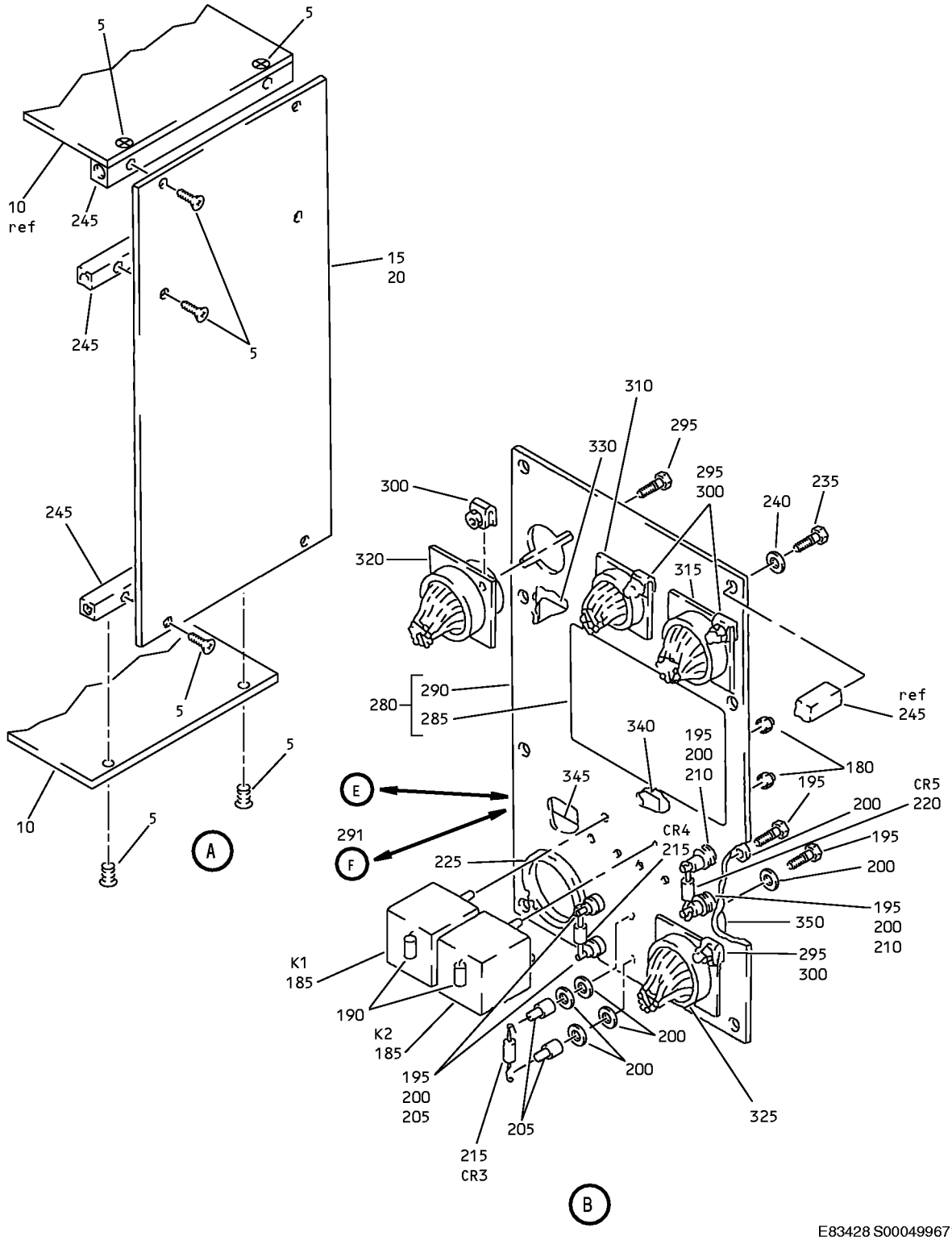
PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
		1	155	2
		1	155	2
BACS12CB04-4		1	170	4
BACS12CB04-5		1	295A	8
		1	295A	8
BACS12CB06-14		1	125	3
BACS12CB06-5		1	235	7
		1	235	7
BACS21DD1		1	265	6
BCREF4138		1	55	2
BCREF4140		1	40	1
BCREF4142		1	65	2
BCREF4143		1	60	2
BCREF4145		1	70	1
BCREF4148		1	50	1
BCREF4150		1	45B	1
BCREF4154		1	35	1
BCREF4173		1	75	1
BCREF7423		1	45A	1
BCREFA2837		1	35B	1
BR16S234		1	188	2
BRH10A06		1	135	6
		1	180	6
BRH10A62		1	135	6
		1	180	6
C48-10R12-12P102		1	310	1
C48-10R16-24P102		1	315	1
C48-10R16-24P6-10		1	320	1
C48-10R18-31P7-10		1	325	1
EE2AA012		1	188	2
H10-06BAC		1	135	6
		1	180	6
HFW1104K02		1	188	2
HFW1106K14		1	188	2
K19798-04		1	300	8

PART NUMBER	AIRLINE PART NUMBER	FIGURE	ITEM	UNITS PER ASSEMBLY
MBG59235		1	25	4
MS21042-02		1	187	4
MS35206-203		1	186	4
MS35338-41		1	240	7
NAS1801-04-4		1	170A	4
NAS1801-04-5		1	295	8
NAS1801-06-03		1	195	6
		1	197	6
NAS1801-06-14		1	125A	3
NAS1801-06-5		1	235A	7
NAS43DD1-17		1	130	6
NAS514P440-4		1	5	10
NAS514P632-14		1	120	3
NAS514P632-5		1	230	7
NS202101-62		1	135	6
		1	180	6
RH5-330-1PCT		1	165	1
RMA4812-160-40		1	300	8
RMLH9075-62W		1	135	6
		1	180	6
S231N212-1		1	30A	3
SF6G6CBB5D		1	275	4
T6S632J		1	135	6
		1	180	6
VN303A62		1	135	6
		1	180	6
ZZWAC1712-12P		1	310	1
ZZWAC1716-24P		1	315	1
ZZWAC1716-24P6		1	320	1
ZZWAC1718-31P7		1	325	1



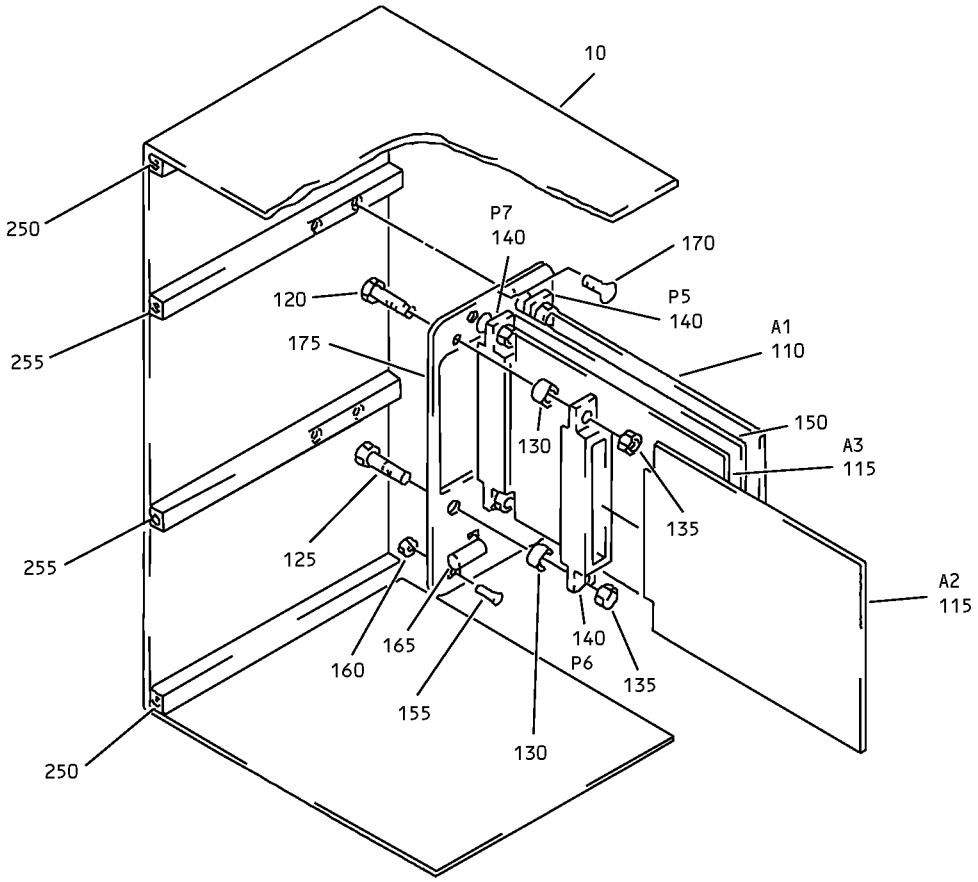
A04561 S0004996712_V2

AC System Generator and APU Module Assembly (P5-4)
IPL Figure 1 (Sheet 1 of 6)

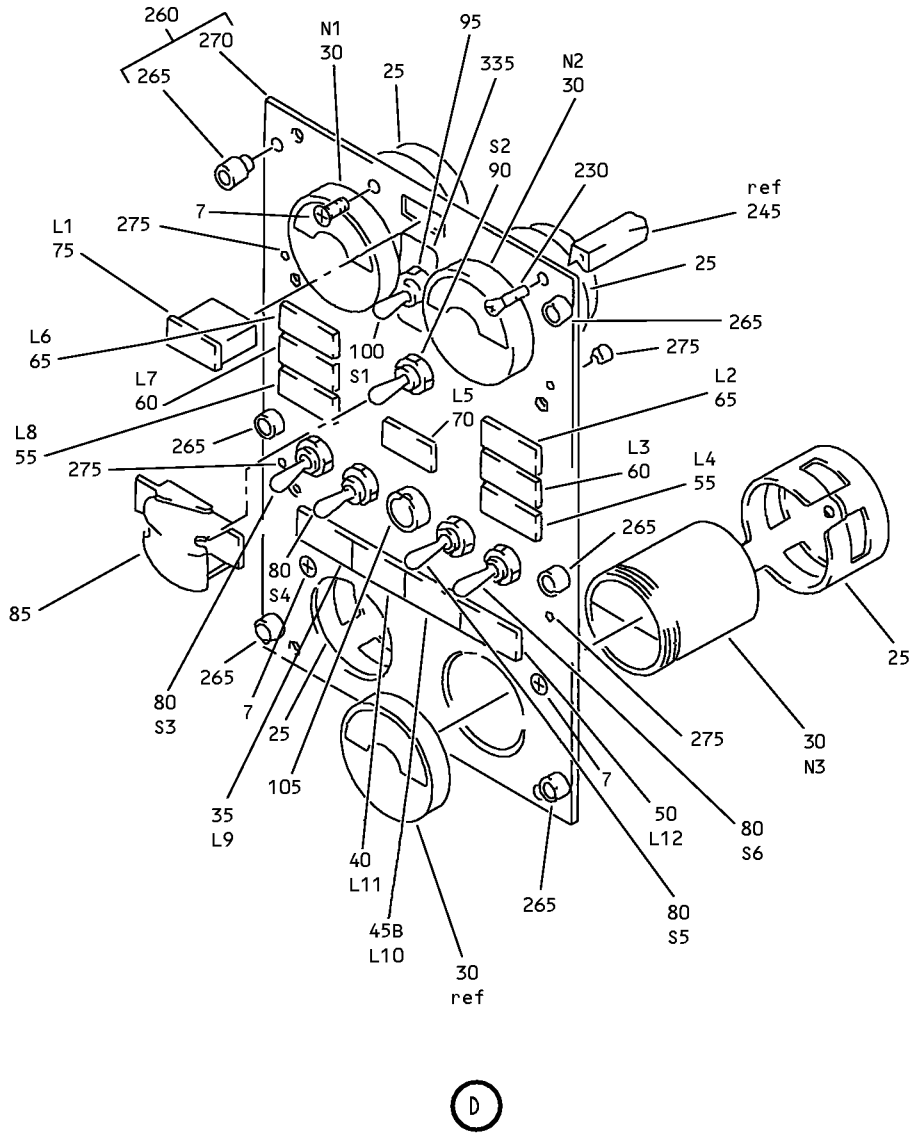


E83428 S0004996713_V2

AC System Generator and APU Module Assembly (P5-4)
IPL Figure 1 (Sheet 2 of 6)

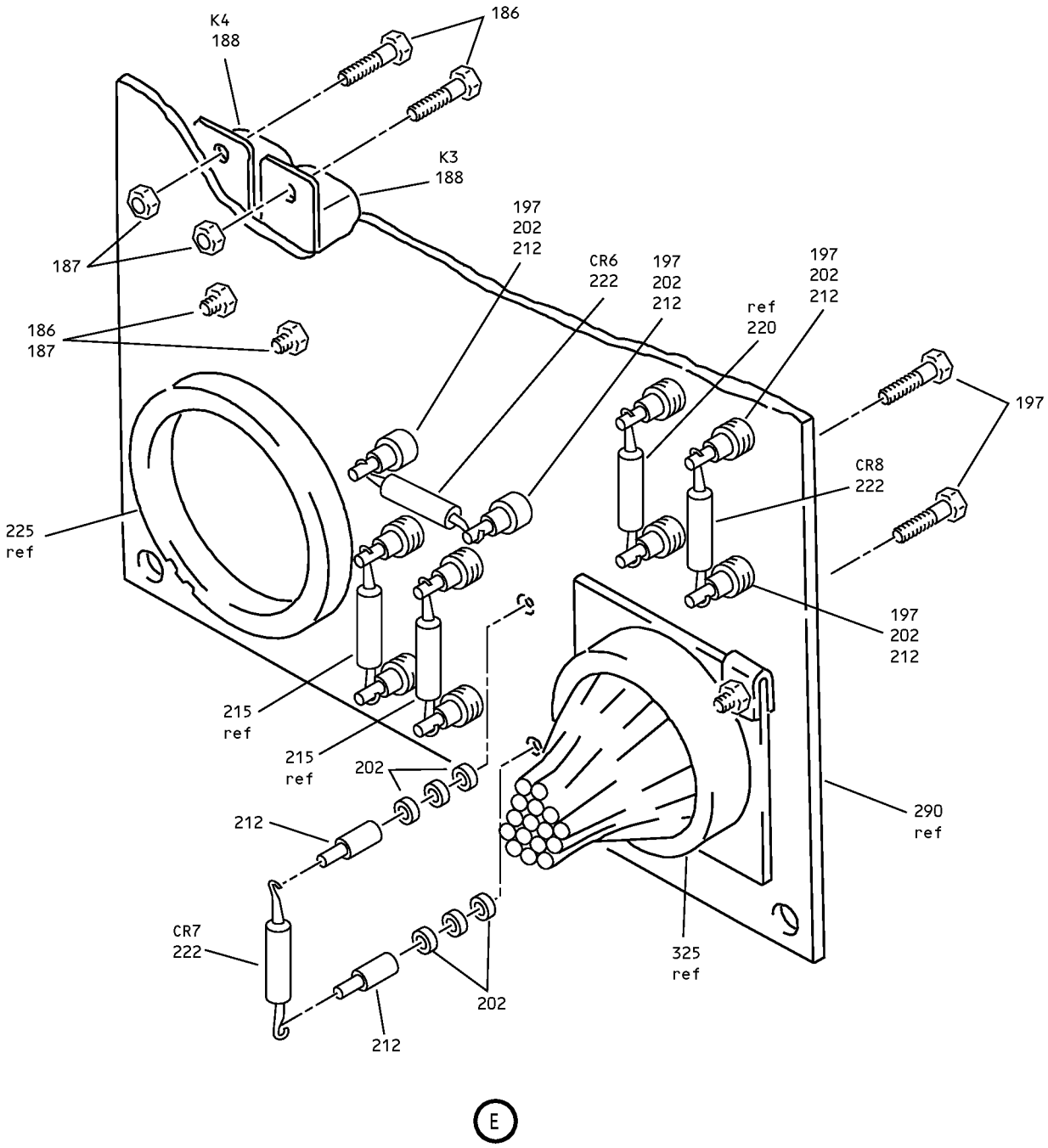


AC System Generator and APU Module Assembly (P5-4)
IPL Figure 1 (Sheet 3 of 6)

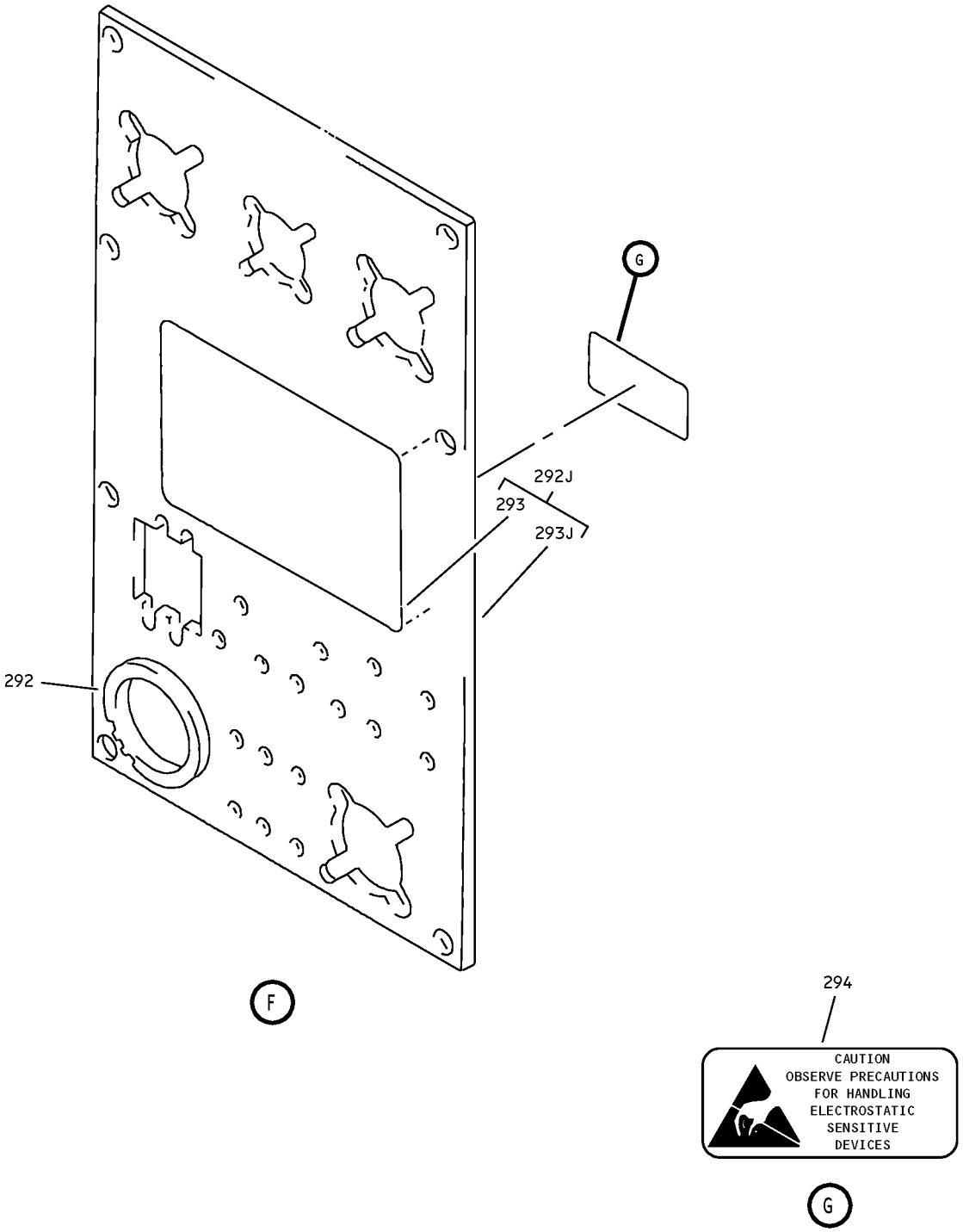


E83386 S0004996715_V2

AC System Generator and APU Module Assembly (P5-4)
IPL Figure 1 (Sheet 4 of 6)



AC System Generator and APU Module Assembly (P5-4)
IPL Figure 1 (Sheet 5 of 6)



AC System Generator and APU Module Assembly (P5-4)
IPL Figure 1 (Sheet 6 of 6)

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–1	69-37314-45		MODULE ASSY-AC SYS GEN AND APU P5-4 (STATIC SENSITIVE PART) (POST SB 69-37314-31-01)	A	RF
–1A	69-37314-46		MODULE ASSY-AC SYS GEN AND APU P5-4 (STATIC SENSITIVE PART) (POST SB 69-37314-31-01)	B	RF
–1B	69-37314-47		MODULE ASSY-AC SYS GEN AND APU P5-4 (STATIC SENSITIVE PART) (POST SB 69-37314-31-01) (PRE SB 69-37314-31-04)	C	RF
–1C	69-37314-48		MODULE ASSY-AC SYS GEN AND APU P5-4 (STATIC SENSITIVE PART) (POST SB 69-37314-31-01) (PRE SB 69-37314-31-04)	D	RF
–1D	69-37314-55		MODULE ASSY-AC SYS GEN AND APU P5-4 (POST SB 69-37314-31-01)	E	RF
–1E	69-37314-56		MODULE ASSY-AC SYS GEN AND APU P5-4 (POST SB 69-37314-31-01)	F	RF
–1F	69-37314-57		MODULE ASSY-AC SYS GEN AND APU P5-4 (POST SB 69-37314-31-01)	G	RF
–1G	69-37314-58		MODULE ASSY-AC SYS GEN AND APU P5-4 (POST SB 69-37314-31-01)	H	RF
–1H	69-37314-59		MODULE ASSY-AC SYS GEN AND APU P5-4 (POST SB 69-37314-31-01)	J	RF
–1J	69-37314-60		MODULE ASSY-AC SYS GEN AND APU P5-4 (POST SB 69-37314-31-01)	K	RF
–1K	69-37314-61		MODULE ASSY-AC SYS GEN AND APU P5-4 (POST SB 69-37314-31-01)	L	RF

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–1L	69-37314-62		MODULE ASSY-AC SYS GEN AND APU P5-4 (POST SB 69-37314-31-01)	M	RF
–1M	69-37314-63		MODULE ASSY-AC SYS GEN AND APU P5-4 (POST SB 69-37314-31-01)	N	RF
–1N	69-37314-64		MODULE ASSY-AC SYS GEN AND APU P5-4 (POST SB 69-37314-31-01)	P	RF
–1P	69-37314-65		MODULE ASSY-AC SYS GEN AND APU P5-4 (POST SB 69-37314-31-01)	Q	RF
–1Q	69-37314-66		MODULE ASSY-AC SYS GEN AND APU P5-4 (POST SB 69-37314-31-01)	R	RF
–1R	69-37314-67		MODULE ASSY-AC SYS GEN AND APU P5-4 (POST SB 69-37314-31-01)	S	RF
–1S	69-37314-68		MODULE ASSY-AC SYS GEN AND APU P5-4 (STATIC SENSITIVE PART)	T	RF
–1T	69-37314-69		MODULE ASSY-AC SYS GEN AND APU P5-4 (STATIC SENSITIVE PART)	U	RF
–1U	69-37314-71		MODULE ASSY-AC SYS GEN AND APU P5-4 (STATIC SENSITIVE PART) (POST SB 69-37314-31-04)	V	RF
–1V	69-37314-72		MODULE ASSY-AC SYS GEN AND APU P5-4 (STATIC SENSITIVE PART) (POST SB 69-37314-31-04)	W	RF
–1W	69-37314-81		MODULE ASSY-AC SYS GEN AND APU P5-4 (STATIC SENSITIVE PART)	X	RF
–1X	69-37314-82		MODULE ASSY-AC SYS GEN AND APU P5-4 (STATIC SENSITIVE PART)	Y	RF
3	69-37314-15		DELETED		
–3A	69-37314-16		DELETED		

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–3B	69-37314-18		DELETED		
–3C	69-37314-19		DELETED		
–3D	69-37314-20		DELETED		
–3E	69-37314-22		DELETED		
–3F	69-37314-23		DELETED		
–3G	69-37314-24		DELETED		
–3H	69-37314-28		DELETED		
–3J	69-37314-30		DELETED		
–3K	69-37314-38		DELETED		
–3L	69-37314-40		DELETED		
–3M	69-37314-49		DELETED		
5	NAS514P440-4		. SCREW	A-D, T-Y	10
10	69-41788-1		. COVER	A, C, T, V, X	1
10A	69-41788-22		. COVER	B, D, U, W, Y	1
15	69-41788-21		. COVER ASSY (OPT ITEM 15A)	A, C, T, V, X	1
–15A	69-41788-12		. COVER ASSY (OPT ITEM 15)	A, C, T, V, X	1
–15B	69-41788-23		. COVER ASSY	B, D, U, W, Y	1
20	69-41788-5		. . COVER-SIDE	A, C, T, V, X	1
–20A	69-41788-24		. . COVER-SIDE	B, D, U, W, Y	1
25	MBG59235		. CLAMP (V98625) (SPEC BACC10EL3) (OPT 640003 (V91893))	A-D, T-Y	4
30	124-837		. AMMETER (V34830) (N1-N3) (SPEC 10-60757-27) (OPT ITEM 30A)	A-D, T-Y	3

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
–30A	S231N212-1		. AMMETER (N1-N3) (OPT ITEM 30)	A-D, T-Y	3
35	BCREF4154		. LIGHT ASSY-IND (LOW OIL QTY) (V81590) (318-630-1002-020) (L9) (SPEC 10-61803-102)	A, B	1
–35A	10-61803-432		DELETED		
–35B	BCREFA2837		. LIGHT ASSY-IND (MAINT) (V81590) (318-630-1002-093) (L9) (SPEC 10-61803-432)	C, D, T-Y	1
40	BCREF4140		. LIGHT ASSY-IND (LOW OIL PRESSURE) (V81590) (318-630-1002-004) (L11) (SPEC 10-61803-6)	A-D, T-Y	1
45	BCREF4120		DELETED		
–45A	BCREF7423		. LIGHT ASSY-IND (FAULT) (V81590) (318-630-1002-080) (L10) (SPEC 10-61803-383)	C, D, T-Y	1
45B	BCREF4150		. LIGHT ASSY-IND (HIGH OIL TEMP) (V81590) (L10) (SPEC 10-61803-62)	A, B	1
50	BCREF4148		. LIGHT ASSY-ING (OVERSPEED) (V81590) (318-630-1002-013) (L12) (SPEC 10-61803-51)	A-D, T-Y	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
55	BCREF4138		. LIGHT ASSY-IND (GEN OFF) (V81590) (318-630-1002-001) (L4, L8) (SPEC 10-61803-2)	A-D, T-Y	2
60	BCREF4143		. LIGHT ASSY-IND (BUS OFF) (V81590) (318-630-1002-007) (L3, L7) (SPEC 10-61803-29)	A-D, T-Y	2
65	BCREF4142		. LIGHT ASSY-IND (TRANSFER BUS OFF) (V81590) (318-630-1002-006) (L2, L6) (SPEC 10-61803-28)	A, D, T-Y	2
70	BCREF4145		. LIGHT ASSY-IND (APU GEN OFF BUS) (V81590) (318-630-1002-009) (L5) (SPEC 10-61803-31)	A-D, T-Y	1
75	BCREF4173		. LIGHT ASSY-IND (GRD POWER AVAILABLE) (V81590) (318-630-1002-012) (L1) (SPEC 10-61803-40)	A-D, T-Y	1
80	66AT22-7E		. SWITCH-TG (V91929) (S3-S6) (OPT ITEM 80A)	A-D, T-Y	4
–80A	A3-1113-044E1		. SWITCH-TG (V81640) (S3-S6) (OPT ITEM 80)	A-D, T-Y	4
85	11170-1		. GUARD-SWITCH (V72914)	A-D, T-Y	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
90	64AT22-3		. SWITCH-TG (V91929) (S2) (OPT ITEM 90A)	A-D, T-Y	1
90A	A3-1110-05-1		. SWITCH-TG (V81640) (S2) (OPT ITEM 90)	A-D, T-Y	1
95	69-44578-2		. CAP-CUSHION	A-D, T-Y	1
100	64AT22-7		. SWITCH-TG (V91929) (S1) (OPT ITEM 100A)	A-D, T-Y	1
–100A	A3-1110-04-1		. SWITCH-TG (V81640) (S1) (OPT ITEM 100)	A-D, T-Y	1
105	800000121-1		. CONNECTOR-PWR (V05617) (L13)	A-D, T-Y	1
110	69-78286-1		. PRINTED CIRCUIT ASSY-PWR SENSING (STATIC SENSITIVE PART) (A1) (V89954)	A-D, T-Y	1
115	69-51814-1		. PRINTED CIRCUIT ASSY-APU AND ELEC SYS (A2, A3) (REFER TO CMM 31-36-40)	A-D, T-Y	2
120	NAS514P632-14		. SCREW	A-D, T-Y	3
125	BACS12CB06-14		. SCREW	A, C, T, V, X	3
–125A	NAS1801-06-14		. SCREW	B, D, U, W, Y	3
130	NAS43DD1-17		. SPACER	A-D, T-Y	6

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
135	H10-06BAC		. NUT (V15653) (SPEC BACN10JC06) (OPT RMLH9075-62W (V72962)) (OPT T6S632J (V11815)) (OPT VN303A62 (V92215)) (OPT 96-62 (V80539)) (OPT BRH10A06 (V52828)) (OPT BRH10A62 (V52828)) (OPT NS202101-62 (V80539))	A-D, T-Y	6
140	582555-1		. CONNECTOR (V00779) (P5-P7)	A-D, T-Y	3
–145	582507-1		. PLUG-KEYING (V00779)	A-D, T-Y	3
150	69-37314-32		. INSULATOR	A-D, T-Y	1
155	BACS12BE02-4		. SCREW (V03680) (SPEC BACS12BE02-4) (OPT BACS12BE02-4 (V08524)) (OPT BACS12BE02-4 (V73197)) (OPT BACS12BE02-4 (V80539)) (OPT BACS12BE02-4 (V92215))	A-D, T-Y	2
160	BACN10DN26		. NUT	A-D, T-Y	2
165	RH5-330-1PCT		. RESISTOR-330 OHMS, 1 PCT, 5W (V91637) (R1) (OPT ITEM 165A)	A-D, T-Y	1
–165A	3105M330-1PCT		. RESISTOR-330 OHMS, 1 PCT, 5W (V00213) (R1) (OPT ITEM 165)	A-D, T-Y	1
170	BACS12CB04-4		. SCREW	A, C, T, V, X	4
–170A	NAS1801-04-4		. SCREW	B, D, U, W, Y	4
175	69-41788-13		. SUPPORT-CONN.	A-D, T-Y	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
180	H10-06BAC		. NUT (V15653) (SPEC BACN10JC06) (OPT RMLH9075-62W (V72962)) (OPT T6S632J (V11815)) (OPT VN303A62 (V92215)) (OPT 96-62 (V80539)) (OPT BRH10A06 (V52828)) (OPT BRH10A62 (V52828)) (OPT NS202101-62 (V80539))	A-D, T-Y	6
185	BACR13CG4		. RELAY (K1, K2)	A-D, T-Y	2
186	MS35206-203		. SCREW	T-Y	4
187	MS21042-02		. NUT	T-Y	4
188	3SAV1461A2		. RELAY (V01526) (SPEC BACR13CD3) (OPT BR16S234 (V09026)) (OPT EE2AA012 (V35344)) (OPT HFW1104K02 (V71482)) (OPT HFW1106K14 (V58614)) (K3, K4)	T-Y	2
190	1N4385		. DIODE (CR1, CR2)	A-D, T-Y	2
195	NAS1801-06-03		. SCREW	C, D, T-Y	6
197	NAS1801-06-03		. SCREW	T-Y	6
200	AN960D6L		. WASHER	C, D, T-Y	18
202	AN960D6L		. WASHER	T-Y	18
205	1411A		. TERMINAL-INSULATED (V88245) (E1-E4)	A-D, T-Y	4
210	1411A		. TERMINAL-INSULATED (V88245) (E5, E6)	C, D, T-Y	2
212	1411A		. TERMINAL-INSULATED (V88245) (E7-E12)	T-Y	6
215	1N5061		. DIODE (CR3, CR4)	A-D, T-Y	2

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
220	1N5061		. DIODE (CR5)	C, D, T-Y	1
222	1N4384		. DIODE (CR6-CR8)	T-Y	3
225	BACG20ZA0440		. GROMMET	A-D, T-Y	1
230	NAS514P632-5		. SCREW	A-D, T-Y	7
235	BACS12CB06-5		. SCREW (V06950) (SPEC BACS12CB06-5)	A, C	7
–235A	NAS1801-06-5		. SCREW	B, D, T-Y	7
240	MS35338-41		. WASHER	A-D, T-Y	7
245	69-37268-15		. STANDOFF	A-D, T-Y	3
250	69-37268-16		. STANDOFF	A-D, T-Y	2
255	69-37314-4		. STANDOFF	A-D, T-Y	2
260	69-37314-10		. BASEPLATE ASSY	B-D, U, W, Y	1
–260A	69-37314-11		. BASEPLATE ASSY	A, C, T, V, X	1
265	01400-6A1		. . STUD ASSY (V08524) (SPEC BACS21DD1)	A-D, T-Y	6
270	69-41879-1		. . PANEL	A-D, T-Y	1
275	SF6G6CBB5D		. NUT (V12324) (SPEC BACN10PA06-6)	A-D, T-Y	4
280	69-41788-16		. BACKPLATE ASSY	A, B	1
–280A	69-41788-27		. BACKPLATE ASSY (PRE SB 69-37314-31-04)	C, D	1
–280B	69-41788-29		. BACKPLATE ASSY	T-Y	1
285	69-41788-15		. . INSULATOR	A-D, T-Y	1
290	69-41788-17		. . BACKPLATE	A, B	1
–290A	69-41788-28		. . BACKPLATE	C, D	1
–290B	69-41788-30		. . BACKPLATE	T-Y	1
291	69-41788-31		. BACKPLATE ASSY (POST SB 69-37314-31-04)	C, D	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
292	BACG20ZA440		. . GROMMET	C, D	1
292J	69-41788-29		. . BACKPLATE ASSY	C, D	1
293	69-41788-15		. . . INSULATOR	C, D	1
293J	69-41788-30		. . . BACKPLATE	C, D	1
294	BAC27EEX510		. . DECAL	C, D	1
295	NAS1801-04-5		. SCREW	B-D, T-Y	8
–295A	BACS12CB04-5		. SCREW (V06950) (SPEC BACS12CB04-5)	A	8
300	K19798-04		. NUT (V15653) (SPEC BACN10NW1) (OPT RMA4812-160-40 (V72962)) (OPT 293162 (V60119))	A-D, T-Y	8
305	69-37314-39		. WIRE BUNDLE ASSY	A, B	1
–305A	69-37314-51		. WIRE BUNDLE ASSY (PRE SB 69-37314-31-04)	C, D	1
–305B	69-37314-70		. WIRE BUNDLE ASSY	T, U	1
–305C	69-37314-73		. WIRE BUNDLE ASSY	V, W	1
–305D	69-37314-74		. WIRE BUNDLE ASSY	X, Y	1
–305E	69-37314-73		. WIRE BUNDLE ASSY (POST SB 69-37314-31-04)	C, D	1
310	ZZWAC1712-12P		. . CONNECTOR (V49367) (SPEC BACC45FN12-12P) (OPT C48-10R12-12P102 (V13556)) (OPT 48-10R12-12P300 (V02660))	A-D, T-Y	1
315	ZZWAC1716-24P		. . CONNECTOR (V49367) (SPEC BACC45FN16-24P) (OPT C48-10R16-24P102 (V13556)) (OPT 48-10R16-24P300 (V02660))	A-D, T-Y	1
320	ZZWAC1716-24P6		. . CONNECTOR (V49367) (SPEC BACC45FN16-24P6) (OPT C48-10R16-24P6-10 (V13556)) (OPT 48-10R16-24P6-300 (V02660))	A-D, T-Y	1

–Item not Illustrated

FIG/ ITEM	PART NUMBER	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USAGE CODE	UNITS PER ASSY
1–					
325	ZZWAC1718-31P7		. . CONNECTOR (V49367) (SPEC BACC45FN18-31P7) (OPT C48-10R18-31P7-10 (V13556)) (OPT 48-10R18-31P7-300 (V02660))	A-D, T-Y	1
330	BAC27DCC513		. MARKER-ALUMINUM FOIL	A-D, T-Y	1
335	BAC27DCC567		. MARKER-ALUMINUM FOIL	B, D, U, W, Y	1
–335A	BAC27DCC568		. MARKER-ALUMINUM FOIL	A, C, T, V, X	1
340	BAC27EEX510		. DECAL	A-D, T-Y	1
345	BAC27DCC244		. MARKER-ALUMINUM FOIL	A, B	1
350	BAC27DCC245		. MARKER-ALUMINUM FOIL	A, B	1
360	69-78601-2		. MODULE ASSY-OVERHEAD MASTER CAUTION (REWORK)	E-S	1
365	69-78286-1		. . PRINTED CIRCUIT ASSY (A1) (V89954)	E-S	1
370	BAC27EEX510		. . DECAL	E-S	1

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