TO: ALL HOLDERS OF AC SYSTEM GENERATOR AND APU MODULE ASSEMBLY P5-4 OVERHAUL MANUAL, 31-36-30

REVISION NO. 32, DATED NOV 1/05

HIGHLIGHTS

DESCRIPTION OF CHANGE	TOPICS AFFECTED												
	D&O	D/Assy	Cleaning	Insp/Chk	Repair	Assy	F/C	Test	T/Shooting	S/Tools	Storage	IPL	L/Overhaul
Clarified test steps without technical change								X					

AC SYSTEM GENERATOR AND APU MODULE ASSEMBLY P5-4

31-36-30

BOEING P/N 69-37314-12, -13, -15, -16, -18, -19, -20, -22, -23, -24, -28, -30, -31, -35, -38, -40, -41, -42, -43, -44, -49, -50, -53, -54

AIRLINE P/N

THE FOLLOWING DIRECTIVES APPLY TO THIS SUBJECT:

BOEING SERVICE BULLETIN	BOEING TEMPORARY REVISION	OTHER DIRECTIVES	DATE DIRECTIVE INCORPORATED INTO TEXT
33-1013, Rev 1		PRR 31143	Aug 15/69
		PRR 31253	Aug 15/69
		PRR 32373	Mar 25/75
		PRR 33420	Dec 5/83
		PRR 33453	Sep 5/84
		PRR 34766	Dec 5/90
		PRR 34749	Dec 5/90
69-37314-31-02		MC 4900MK3059	Sep 5/91
69-37314-31-03			Mar 5/92
69-37314-31-02 Rev 2			Jun 5/93

LIST OF EFFECTIVE PAGES

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

	PAGE	DATE		PAGE	DATE		PAGE	DATE
	31-36-30		F	813	Mar 5/92			
	T-1	Jun 5/93		814	BLANK			
	T-2	BLANK		1101	Nov 1/99			
*	LEP-1	Nov 1/05		1102	Dec 1/97			
	LEP-2	BLANK		1103	Jun 5/93			
	T/C-1	Mar 25/75		1104	Jun 5/93			
	T/C-2	BLANK		1105	Jun 5/93			
	1	Mar 25/75		1106	Nov 1/99			
	2	Mar 25/75		1106A	Jun 5/93			
	3	Aug 15/69		1106B	Jun 5/93			
	4	Aug 15/69		1107	Dec 1/97			
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	702A	Jul 5/82						
	702B	Jul 1/04						
	702C	Jul 1/04						
	702D	Jul 1/04						
	703	Jun 5/91						
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	705	Jan 5/83						
	706	Jun 1/97						
*	707	Nov 1/05						
*	708	Nov 1/05						
	708A	Mar 5/92						
	708B	BLANK						
	801	Mar 25/75						
	802	Aug 15/69						
	803	Sep 5/84						
	804	BLANK						
	805	BLANK						
F	806	Jul 5/80						
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	808	BLANK						
	809	BLANK						
F	810	Dec 5/83						
	811	BLANK						
F	812	Jun 1/94						

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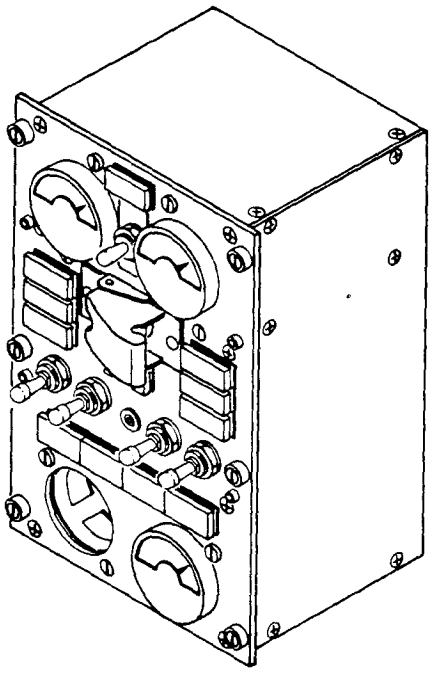
*[1] Use applicable procedures in 20-11-04, 31-10-01 and standard industry practices.

*[2] Special instructions not required.

AC SYSTEM GENERATOR AND APU MODULE ASSEMBLY (P5-4)



AC System Generator and APU Module Assembly (P5-4)
Figure 1

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

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 69-37314-20, -24 only, lamp reference designators DS1 thru DS12 have been used instead of L1 thru L12.

A. General (See Schematic Diagram)

(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, besides providing indications on the module, 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, besides providing indications on the module, 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:

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

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

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

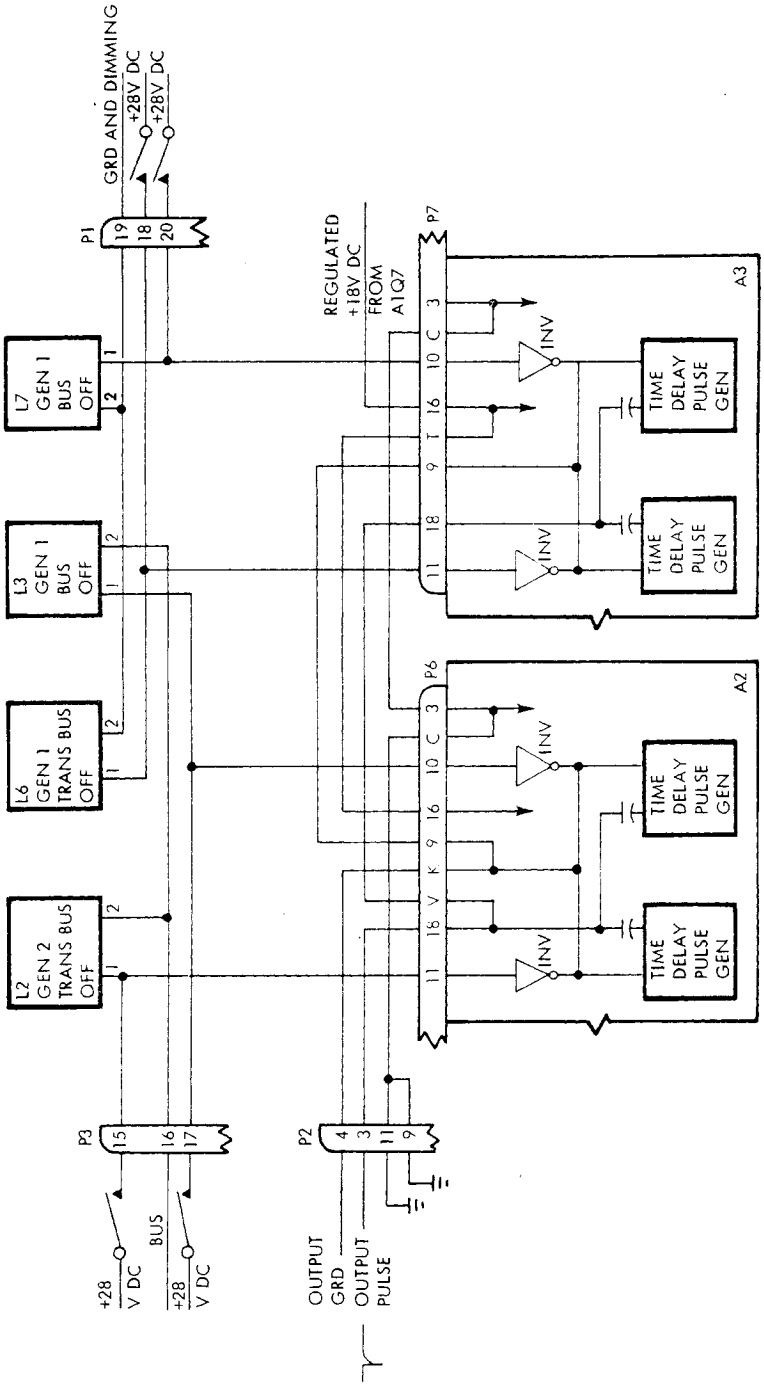
B. Indicator Lamp Circuitry

(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 A1CR10 and A1CR9. The resultant full-wave rectified power is connected from P5-5 (A1) to pin 1 of the lamp.



L2, L3, L6, L7, Time Delay Circuitry
Figure 2

D. L2, L3, L6, and L7 Circuitry (See figure 2.)

(1) Figure 2 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, an SCR is in series with this transistor and must be triggered to complete the ground path. The time-delay pulse generator provides the SCR 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 SCR will recall the malfunction indication.

(2) Circuit power for A2 and A3 is +18 volts dc received from voltage regulator Q7 in 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.)

(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.)

(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 of 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 indications of malfunction that could occur during APU operation. (See figure 3.) Each of the three indications, high oil temperature, low oil pressure, or overspeed, will trigger master caution circuitry when received. To complete the ground path for the master caution lamp, the gate transistor must be on, and the SCR must be triggered. If the SCR is reset, the indication can be recalled through pins P2-5 or P2-10 by retriggering the SCR provided the gate transistor remains on due to persistence of its input signal. 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 +18 volts by a zener-controlled voltage regulator, A1Q7, and distributed to the other circuit cards.

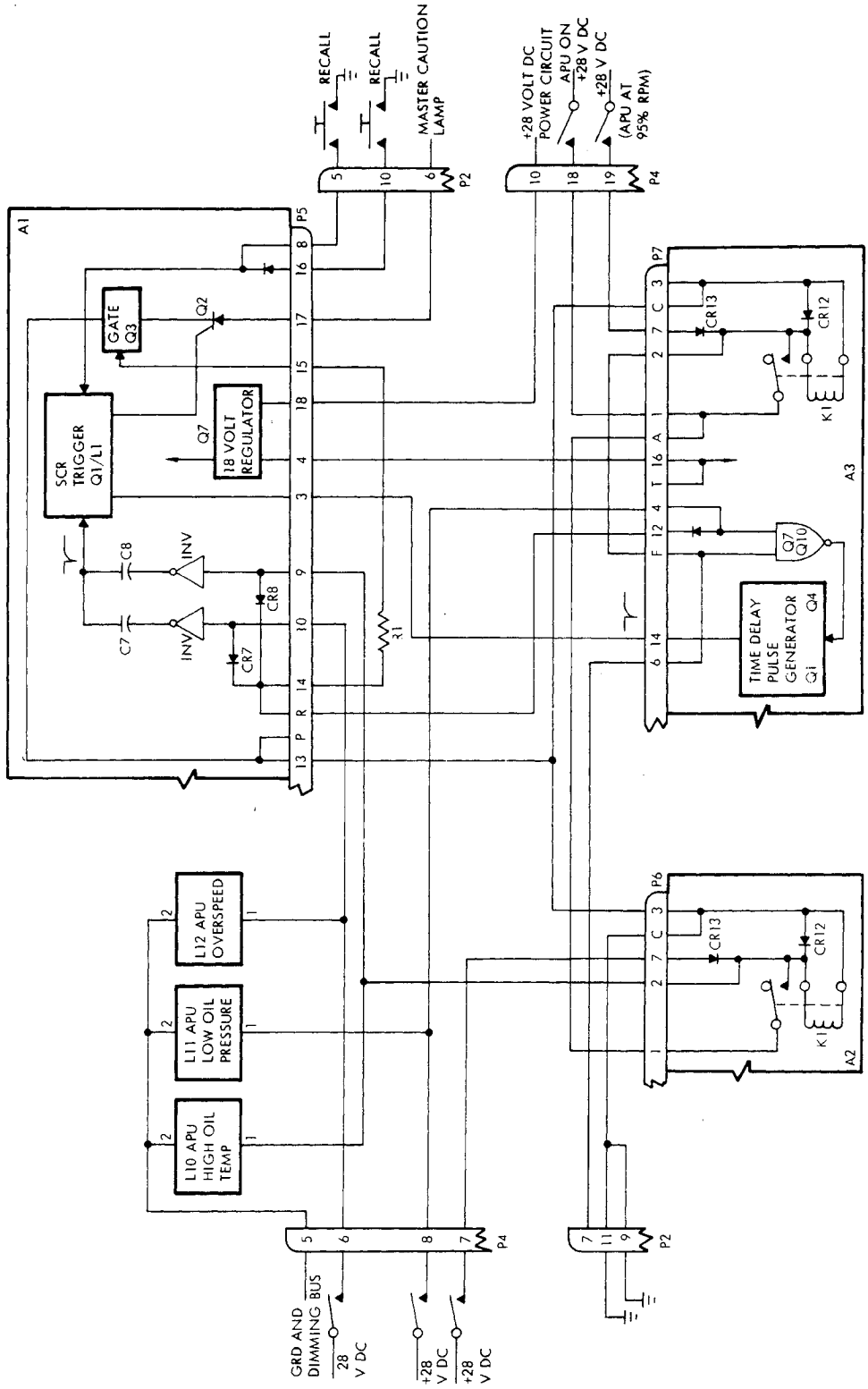
(a) L10, APU High Oil Temperature, is illuminated by +28 volts dc received at pin P4-7. At the same time, the master caution SCR is triggered in card A1, and the master caution ground path gate transistor is turned on through A1CR8 and R1. The input signal also energizes relay A2K1. If the APU control 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 gate is opened. If the APU is at 95% RPM, the other input to the AND is present and the SCR trigger will be actuated 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 illuminated by +28 volts dc received at pin P4-6. At the same time, the SCR trigger is actuated, and the master caution ground path gate transistor is turned on through CR7 and R1.

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, No. 2, and the APU.



L10, L11, L12, Time Delay and Master Caution Circuitry
Figure 3

4. Leading Particulars

Length -- 5.25 inches
Width -- 5.75 inches
Height -- 8.75 inches
Weight -- 5.5 pounds
Operating Voltage -- Refer to TESTING

REPAIR

1. All repair may be accomplished with standard industry practices and procedures contained in 31-10-01 or 20-11-04 except as noted in the following:

   A. If keying plugs (27, Fig. 1101) require replacement, insert into printed circuit assembly connectors:

      (1) P6, P7 (XA2, XA3 on 69-37314-20, -24); at position 15.

      (2) P5 (XA1 on 69-37314-20, -24); at position 6.

   B. If grommet (69, Fig. 1101) requires replacement, bond in place using adhesive type 82 per 20-50-12.

TESTING

1. Test Equipment

   A. Power Supplies

      (1) 28 volts dc

      (2) 18 volts dc

      (3) 400 Hz Signal Generator (Fig. 701A)

         Use either:

         (a) AC ammeter, 1% accuracy (Fluke 8012, or equivalent)

         Or:

         (a) Autotransformer, adjustable - Gen Rad Model M2 (T1), or equivalent

         (b) Transformer, power - Litton Systems, Triad Model F44X (T2), or equivalent

         (c) Digital Multimeter - Fluke 8010A (DVM), or equivalent

         (d) Resistor - 1 ohm + 0.2%, 7 watt (R10)

      (4) 5 volts ac or dc

   B. Volt-Ohm-Milliammeter: Triplett Model 625NA, or equivalent

   C. Test Setup: consisting of the following components

      (1) Switches, SPST (24 required, S1 through S24)

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

      (3) Connectors:

         (a) BACC45FT16-24S6 (J1)

         (b) BACC45FT12-12S (J2)

         (c) BACC45FT16-24S (J3)

         (d) BACC45FT18-31S7 (J4)

      (4) Resistors:

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

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

         (c) RW67G601, or equivalent, 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)

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

(k) DELETED

(5) Capacitors:

(a) CS13BF105K, 1 uf, 35 v dc (C1 and C4)

(b) CS13BF104K, 0.1 uf, 75 v dc (C2)

(c) CS13BF155K, 1.5 uf, 35 v dc (C3)

(d) CS13BF105K, 1 uf, 35 v dc (C4)

(6) Transistors

(a) 2N5415 (Q1)

(b) 2N1701 (Q2)

(c) 2N2904A (Q4)

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

2. Functional Test

NOTE: References to switches and lamps mean those on test set unless otherwise specified. On assembly 69-37314-20 and -24 only, lamp reference designators L1 thru L12 have been replaced by DS1 thru DS12.

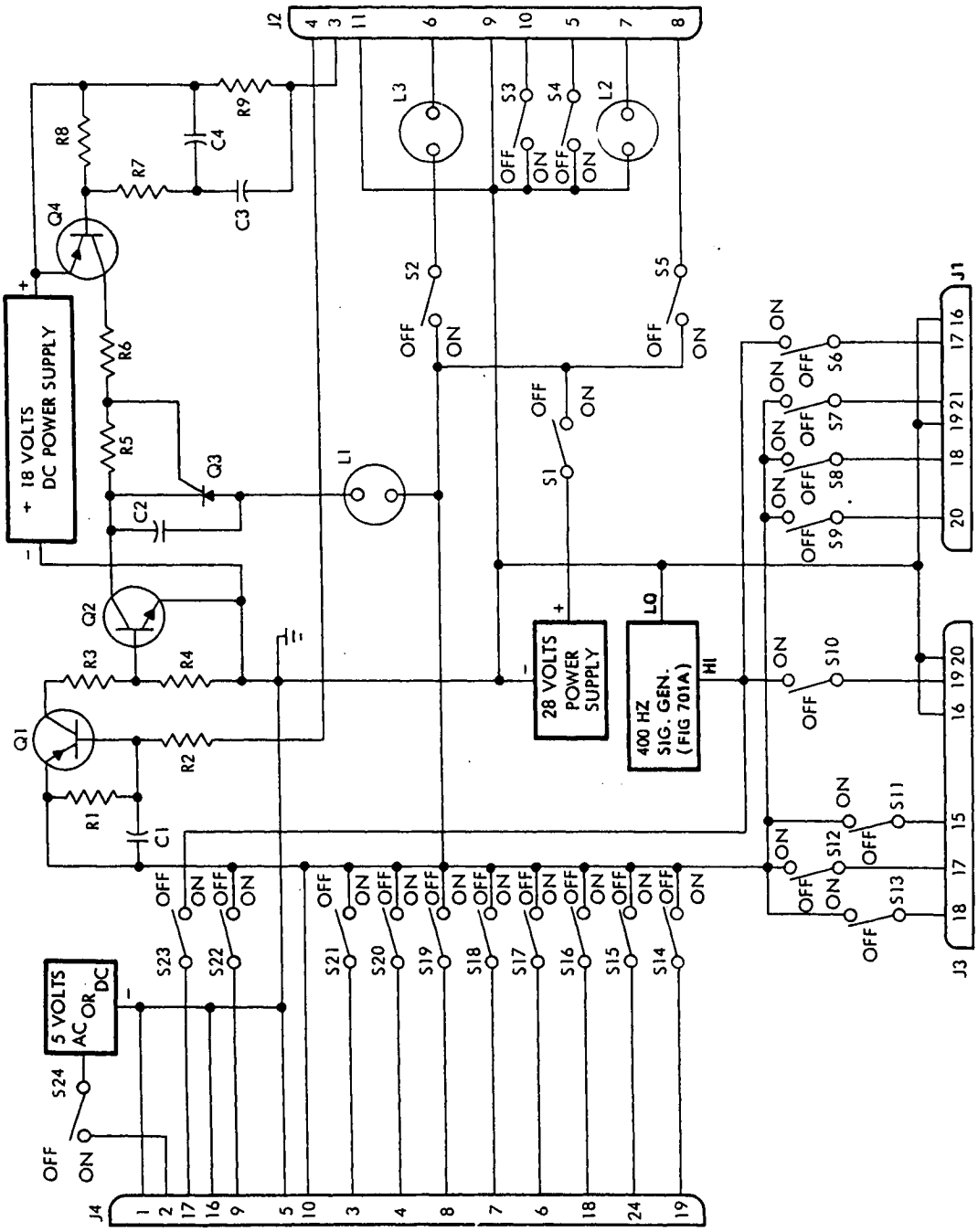
A. Connect module assembly to test setup as shown in Fig. 701. Set all test switches to OFF.

B. Turn on power supplies and set S1 to ON.

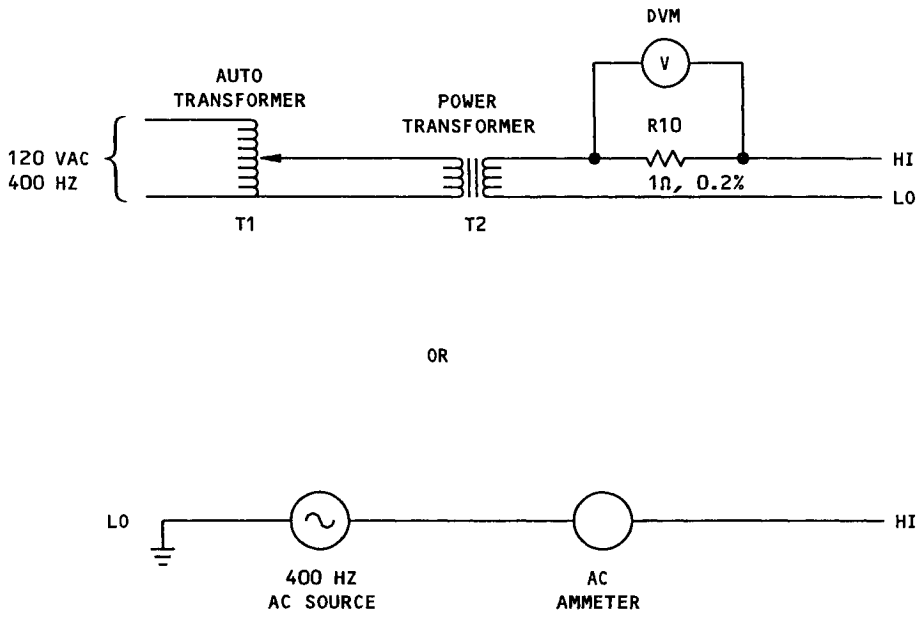
C. Set S2, S16, and S21 to ON. All module indicator lamps shall illuminate.

D. Set S21 to OFF. All module indicator lamps shall extinguish.

E. Press to test each module indicator lamp (L1 thru L12). Each indicator shall illuminate when pressed and extinguish when released.

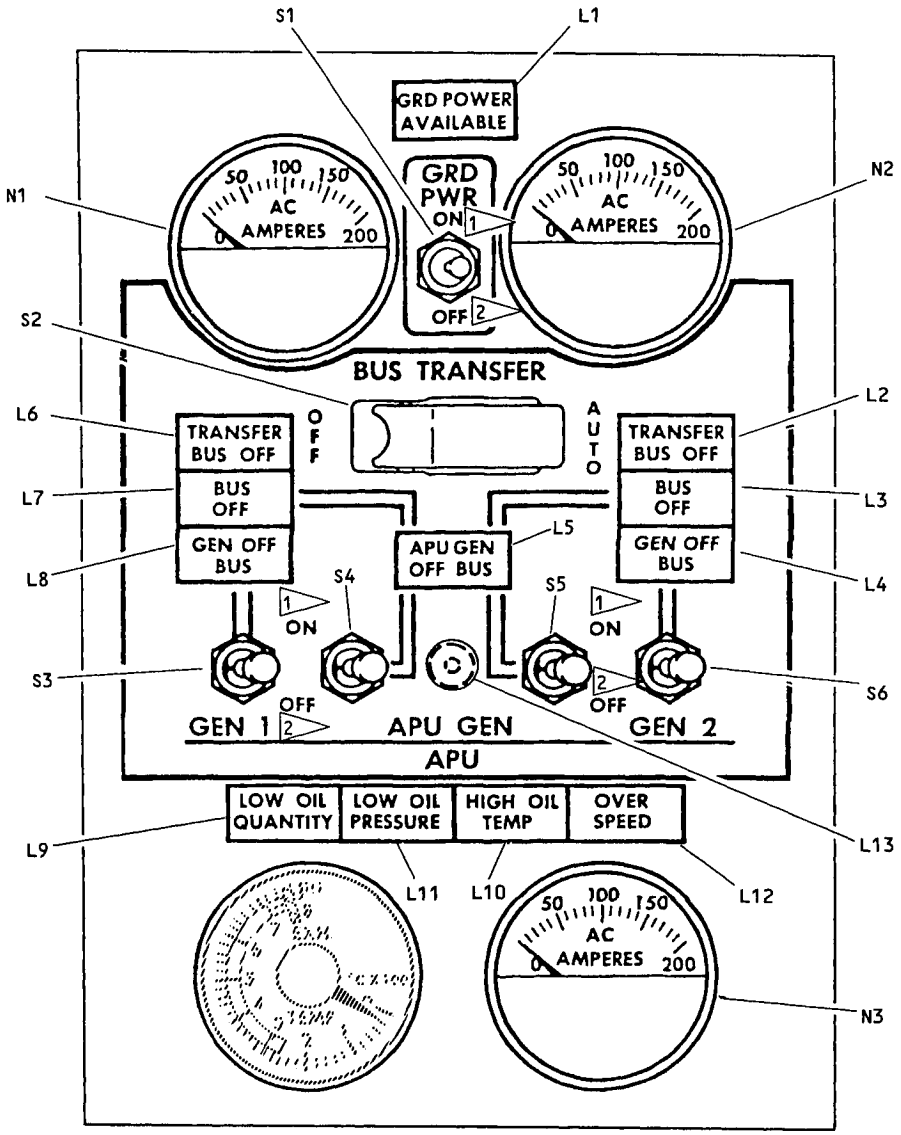


Test Setup
Figure 701



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

400 Hz Signal Generator
Figure 701A



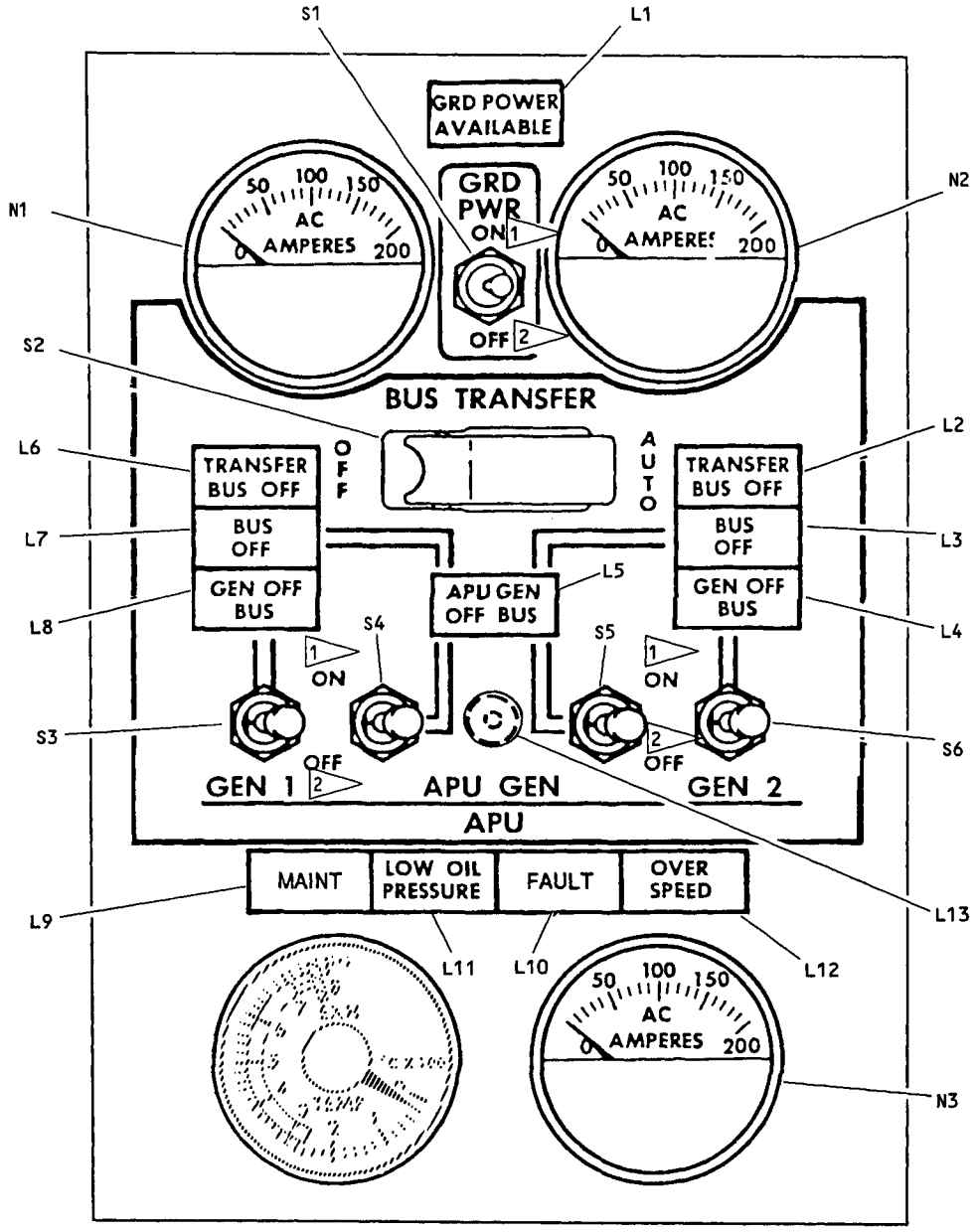
1 OFF FOR 69-37314-13,-16,-19,-23,-28,-31,-35,-38,-41,-49

2 ON FOR 69-37314-13,-16,-19,-23,-28,-31,-35,-38,-41,-49

69-37314-12,-13,-15,-16,-18,-19,-22,-23,-28,
-30,-31,-35,-38,-40,-41,-42,-49

P5-4 Front Panel Components
Figure 701B

386858



1 > OFF FOR 69-37314-43,-50,-53

2 > ON FOR 69-37314-43,-50,-53

69-37314-43,-44,-50,-53,-54

P5-4 Front Panel Components
Figure 701C

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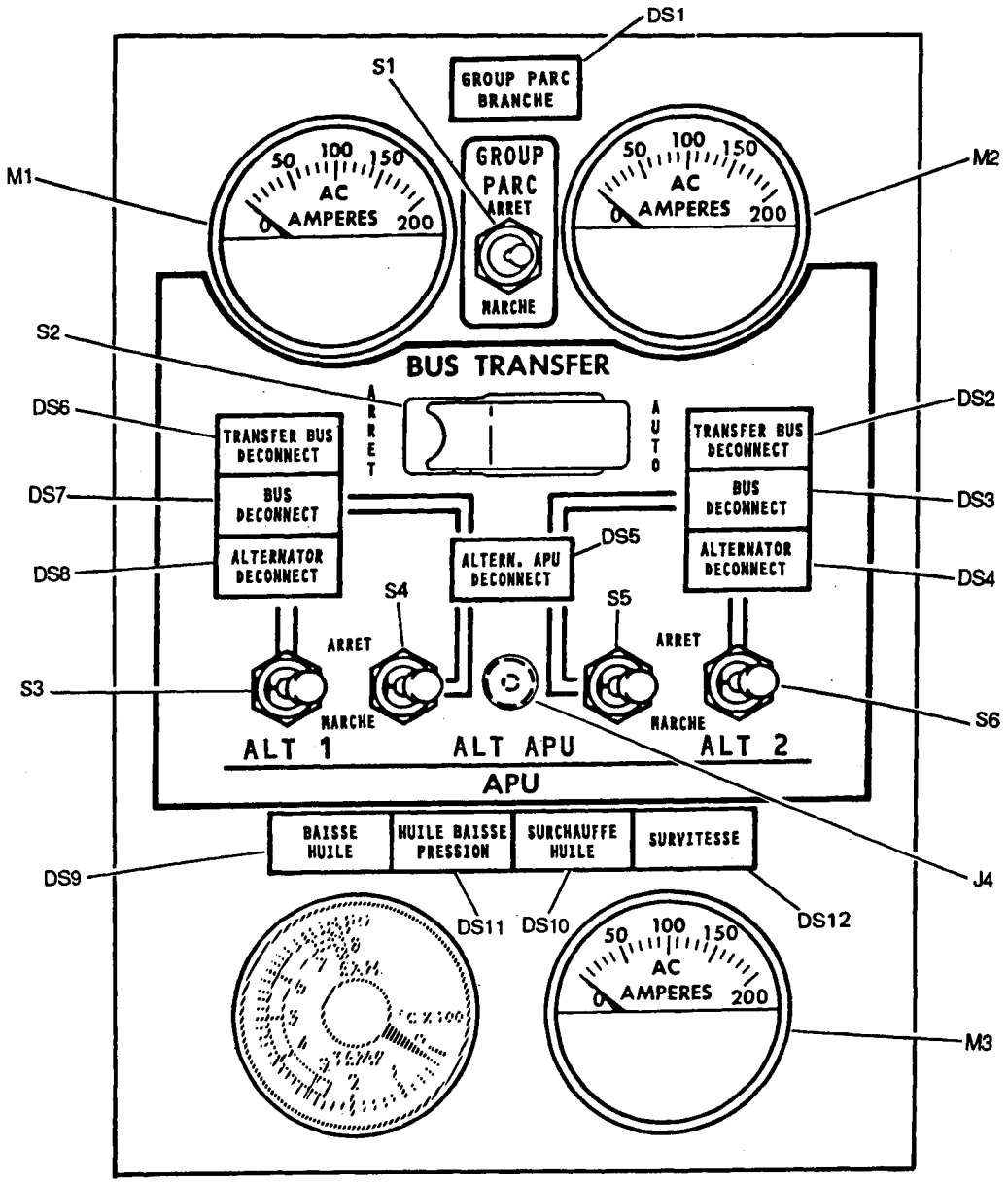


69-37314-20, -24

P5-4 Front Panel Components
Figure 701D

F. Test auxiliary power unit indicator lamp and master caution circuitry per Fig. 702.

Step	Procedure	Module Lamps		Test Lamps	
		Illum.	Not Illum.	Illum.	Not Illum.
1	Set S18 to ON	L10		L3	
2	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 *[1] then set S16 to ON	L10 *[1]			L3 *[1]
3	Set S18 to OFF	L10			L3
4	Set S16 to OFF momentarily		L10		L3
4A	Set S4 to ON			L3	
4B	Set S4 to OFF				L3
5	Set S17 to ON	L12		L3	
6	Set S2 to OFF momentarily	L12			L3
7	Set S4 to ON momentarily	L12		L3	
8	Set S2 to OFF momentarily	L12			L3
9	Set S3 to ON momentarily	L12		L3	
10	Set S2 to OFF momentarily; and set S17 to OFF		L12		L3
11	Set S19 to ON	L11			
12	Set S14 to ON (L3 shall illuminate 0.5 to 2.0 seconds after L2)	L11		L2, L3	
13	Set S14 to OFF	L11		L2, L3	
14	Set S19 to OFF		L11	L2	L3
15	Set S16 to OFF momentarily		L11		L2, L3

*[1] 69-37314-43, -44, -50, -53, -69

APU Indicator Lamp and Master Caution Tests
Figure 702

G. Test time delay circuits per figure 703.

Step	Procedure	Module Lamps		Test Lamps	
		Illum.	Not Illum.	Illum.	Not Illum.
1	Set S8 to ON (L1 shall illuminate 0.5 to 2.0 seconds after L6)	L6		L1	
2	Set S8 to OFF		L6		L1
3	Set S9 to ON (L1 shall illuminate 0.5 to 2.0 seconds after L7)	L7		L1	
4	Set S9 to OFF		L7		L1
5	Set S11 to ON (L1 shall illuminate 0.5 to 2.0 seconds after L2)	L2		L1	
6	Set S11 to OFF		L2		L1
7	Set S12 to ON (L1 shall illuminate 0.5 to 2.0 seconds after L3)	L3		L1	
8	Set S12 to OFF		L3		L1

Time Delay Tests
Figure 703

H. Test module lamps L1, L4, L5, L8, and L9 per Fig. 704.

Step	Test Switch	Position	Module lamp Illuminated	Module Lamp Extinguished
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	S20	ON	L9	
8	ALL	OFF		ALL

Indicator Lamp Tests
Figure 704

I. Verify greater than 1 megohm resistance between pins P4-24 and P2-8. Reverse multimeter leads and verify same resistance.

J. Test ammeters N1, N2, and N3 as follows:

NOTE: See Fig. 701A for test setup (use either AC ammeter or voltmeter and transformers).

CAUTION: DO NOT EXCEED 1.85 VOLT INDICATION ON DVM (1.6 AMP ON AC AMMETER) OR FULL SCALE ON GENERATOR AMMETERS IN FOLLOWING STEPS. EXCESS CURRENT MAY DAMAGE GENERATOR AMMETERS.

(1) Set S6 to ON.

(2) Slowly adjust auto transformer T1 (or the 400HZ 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 amp on the AC ammeter). Adjust T1 back to 0 volts.

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

(4) Slowly adjust auto transformer T1 (or the 400HZ 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 amp on the AC ammeter). Adjust T1 back to 0 volts.

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

(6) Slowly adjust auto transformer T1 (or the 400HZ 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 DVM (or 1.6 +/-0.25 amp on the AC ammeter). Adjust T1 back to 0 volts.

(7) Set S23 to OFF.

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

K. Verify switch and relay wiring continuity between pins listed in Fig. 705.

From Pin	To Pin
P1-3	P1-4
P1-5	P1-6
P1-5	P1-7
P1-9	P1-10
*[1] P1-13	P4-12
P3-3	P3-4

From Pin	To Pin
P3-5	P3-6
P3-5	P3-7
P3-9	P3-10
P4-11	P4-31
P4-21	P4-26
P4-21	P4-28

*[1] All except 69-37314-35

Wiring Continuity Tests
Figure 705

L. Test switches and relays per Fig. 706.

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

Step	Connect Ohmmeter 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		
			69-37314-28,-30,-35,-38,-40,-41,-42,-43,-44,-49,-50,-53, -54 only		
21	P3-11	P3-12	Set S2 to AUTO	Con	S2
22	P1-13	P1-14	Set S2 to AUTO	Con	S2
22A	P3-23	P3-24	*[1] Set S2 to AUTO	Con	S2
22B	P3-23	P3-24	*[1] Set S2 to OFF	No Con	S2
23	P1-13	P1-14	Set S2 to OFF	No Con	S2
24	P3-11	P3-12	Set S2 to OFF	No Con	S2
			All Except 69-37314-28,-30,-35,-38,-40,-41,-42,-43,-44, -49, -50,-53,-54		
21	P3-12	P1-14	Set S2 to AUTO	Con	S2
22	P3-12	P1-14	Set S2 to OFF	No Con	S2
23	P3-11	P1-13	Set S2 to OFF	No Con	S2
24	P3-11	P1-13	Set S2 to AUTO	Con	S2

Switch and Relay Contact Continuity Tests
Figure 706 (Sheet 1)

Step	Connect Ohmmeter between Pins		Test Procedure	Test Indication	Component Tested
			All Configurations		
25	P1-4	P1-5		No Con	S3
26	P1-4	P1-5	Hold S3 to OFF	Con	S3
27	P1-10	P1-11	Hold S3 to ON	Con	S3
28	P1-10	P1-11	Release S3	No Con	S3
29	P3-4	P3-5		No Con	S6
30	P3-4	P3-5	Hold S6 to OFF	Con	S6
31	P3-10	P3-13	Hold S6 to ON	Con	S6
32	P3-10	P3-13	Release S6	No Con	S6
33	P4-22	P4-23		No Con	S4
34	P4-22	P4-23	Hold S4 to ON	Con	S4
35	P4-25	P4-31	Hold S4 to ON	Con	S4
36	P4-25	P4-11	Hold S5 to ON	Con	S5
37	P4-25	P4-11	Release Switches	No Con	S5
38	P4-25	P4-31		No Con	S4
39	P3-14	P4-20	Hold S4 to OFF and S5 to ON	Con	S4,S5,K2
40	P3-14	P4-20	Hold S4 to ON and S5 to ON	No Con	S4,S5,K2
41	P4-20	P4-21	Release switches	No Con	S4
42	P4-20	P4-21	Hold S4 to OFF	Con	S4
43	P4-27	P1-12	Hold S4 to ON	No Con	S4,S5,K1
44	P4-27	P1-12	Hold S4 to ON and S5 to OFF	Con	S4,S5,K1
45	P4-20	P4-27	Hold S4 and S5 to OFF	Con	S4,S5
46	P1-12	P4-27	Hold S4 to ON and S5 to OFF	Con	S4,S5,K1
47	P4-29	P4-30	Release switches	No Con	S5
48	P4-29	P4-30	Hold S5 to ON	Con	S5
			69-37314-38,-41 thru -44,-49,-50,-53,-54 only		
49	P1-14	P4-12	Set S2 to AUTO	Con	S2
50	P4-22	P4-23	Hold S4 to ON	Con	S4
51	P4-29	P4-30	Hold S5 to ON	Con	S5
52	P4-20	P3-14	Hold S4 to OFF and S5 to ON	Con	K2,S4,S5
53			Hold S6 to ON and apply +28 volts dc to P3-7 and P3-8		
54	P3-14	P4-20	Hold S5 to ON, S4 to OFF	No Con	K2,S4,S5
55			Remove power from P3-7 and P3-8		
56	P2-1	P4-20	Hold S1 to ON and S4 to OFF	Con	K1,S1,S4
57			Hold S3 to ON and apply +28 volts dc to P1-7 and P1-8		
58	P4-20	P2-1	Hold S1 to ON, S4 to OFF	No Con	K1,S1,S4
59			Remove power from P1-7 and P1-8		

*[1] Except 69-37314-28, -30

Switch and Relay Contact Continuity Tests
Figure 706 (Sheet 2)

M. Verify continuity between pin P1-2 and center contact of power connector L13 (J4 on 69-37314-20 and -24).

N. Verify continuity between outer rim of power connector L13 (J4 on 69-37313-20 and -24) and pin P1-1.

O. Verify no continuity between pins P1-1 and P1-2.

P. 69-37314-38, -40 thru -44, -49, -50, -53, -54 only - Test diode CR3 and CR4 per Fig. 707

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

Diode Tests, 69-37314-38,-40 thru -44,-49,-50,-53,-54
Figure 707

Q. Turn off all power supplies and remove all connections.

TROUBLE SHOOTING

1. 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 69-37314-20 and -24 only, lamp reference designators L1 thru L12 have been replaced by DS1 thru DS12.

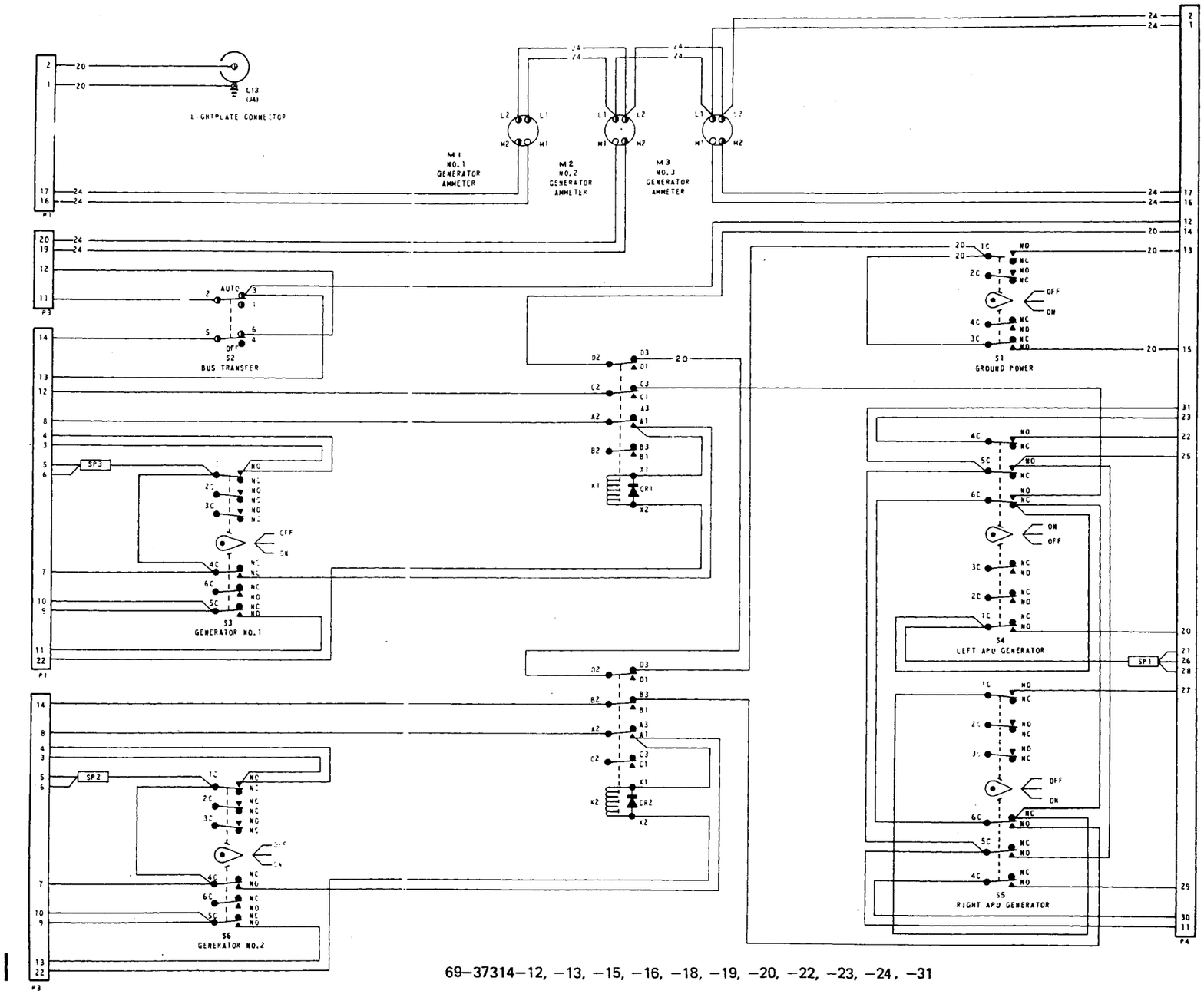
Trouble	Possible Cause	Correction
A. Par. 2.C., lamp not illuminated	Lamp	Replace lamp
B. Par. 2.D.		
Module lamp L10 remains illuminated	Relay A2K1	Repair or replace A2
Test lamp L2 illuminated	Relay A3K1	Repair or replace A3
C. Par. 2.E., lamp not illuminated	Lamp	Replace lamp

Figure 702 Test Step Failure

D. Step 1		
Both lamps not illuminated	A2CR13	Repair or replace A2
Module lamp L10 not illuminated	L10	Replace L10
L3 not illuminated	A1 or R1	Remove A1 and verify 300 ohms across R1. If correct, A1 defective
E. Step 2, L3 not extinguished	SCR A1Q2 conducting without trigger	Repair or replace A1
F. Step 3, module lamp L10 extinguished	Relay A2K1 not holding	Repair or replace A2

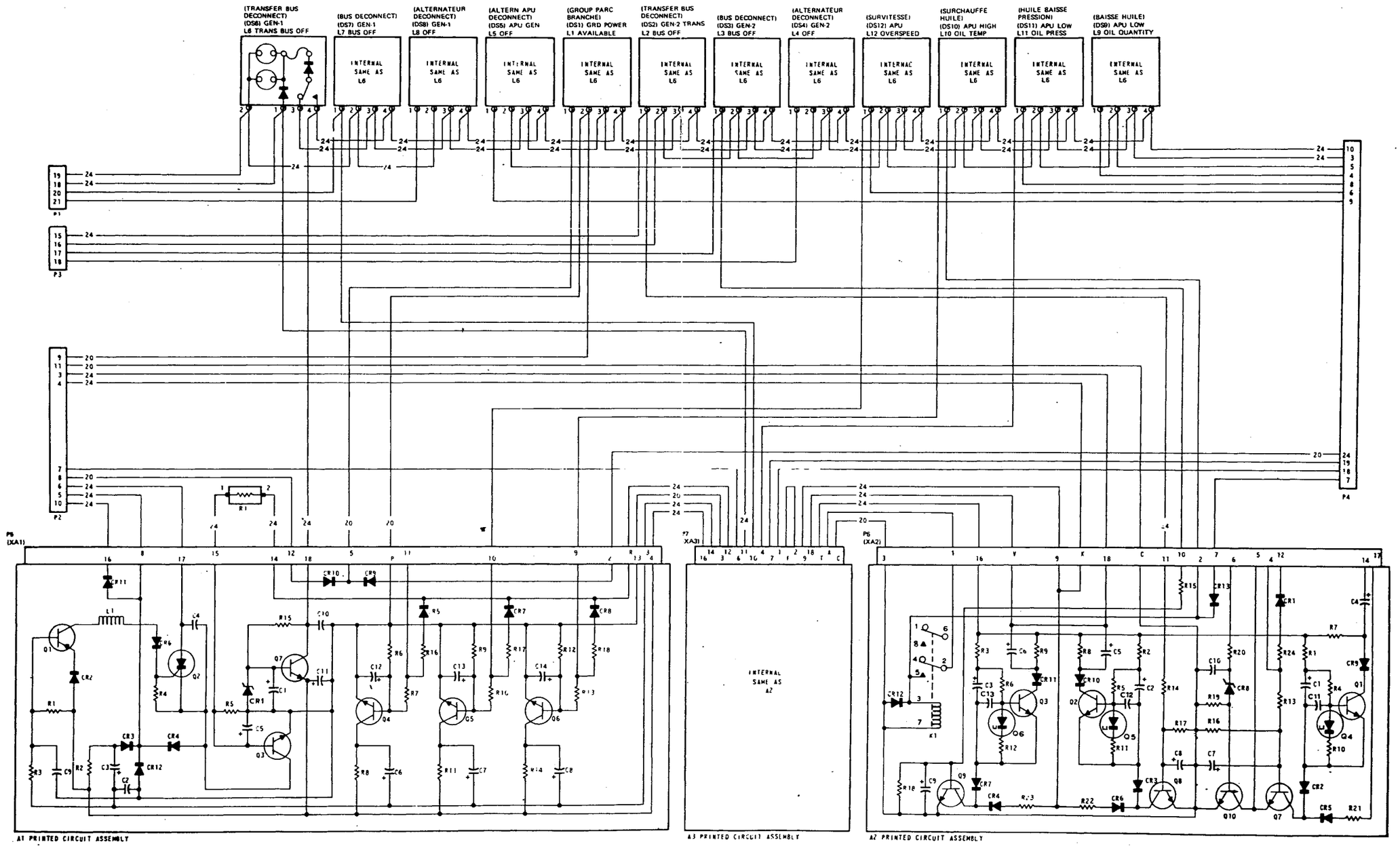
	Trouble	Possible Cause	Correction
G.	Step 5		
	Module lamp L12 not illuminated	L12	Replace L12
	L3 not illuminated	A1	Repair or replace A1
H.	Step 7, L3 not illuminated	SCR A1Q2 not retriggered	Repair or replace A1
I.	Step 9, L3 not illuminated	A1CR11	Repair or replace A1
J.	Step 11, module lamp L11 not illuminated	L11	Replace L11
K.	Step 12		
	L2 and L3 not illuminated	A3CR13	Repair or replace A3
	L3 not illuminated	A3	Repair or replace A3
	L3 illuminated but time delay incorrect	A3C1 and tunnel diode A3Q4 not performing timing function for A3Q1 turn-on	Repair or replace A3
L.	Step 13		
	L2 and L3 not illuminated	Relay A3K1 not holding	Repair or replace A3
M.	Step 14, L3 not extinguished	A1Q3 conducting without base voltage	Repair or replace A1
N.	Step 15, L2 not extinguished	Relay A3K1	Repair or replace A3

Trouble	Possible Cause	Correction
Figure 703 Test Step Failure		
O. Steps 1 thru 4		
Module lamp not illuminated	Module lamp	Replace lamp
L1 not illuminated, time delay incorrect or L1 fails to extinguish	A3	Repair or replace A3
P. Steps 5 thru 8		
Module lamp not illuminated	Module lamp	Replace lamp
L1 not illuminated, time delay incorrect or L1 fails to extinguish	A2	Repair or replace A2
Q. Figure 704 test step failure	Lamp	Replace lamp
R. Para 2.I. test failure	Diode A1CR9 or CR10	Repair or replace A1
S. Para 2.J. test failure	Ammeter	Replace ammeter
T. Figure 705 step failure	Wiring	Repair wiring
U. Figure 706 step failure	Component, or wiring	Replace listed component after checking wiring
V. Para 2.M. or 2.N. test failure	L1	Repair or replace L1
W. Figure 707		
Step 1 and 2	CR3	Replace CR3
Step 3 and 4	CR4	Replace CR4



69-37314-12, -13, -15, -16, -18, -19, -20, -22, -23, -24, -31

Schematic Diagram
Figure 801 (Sheet 1)

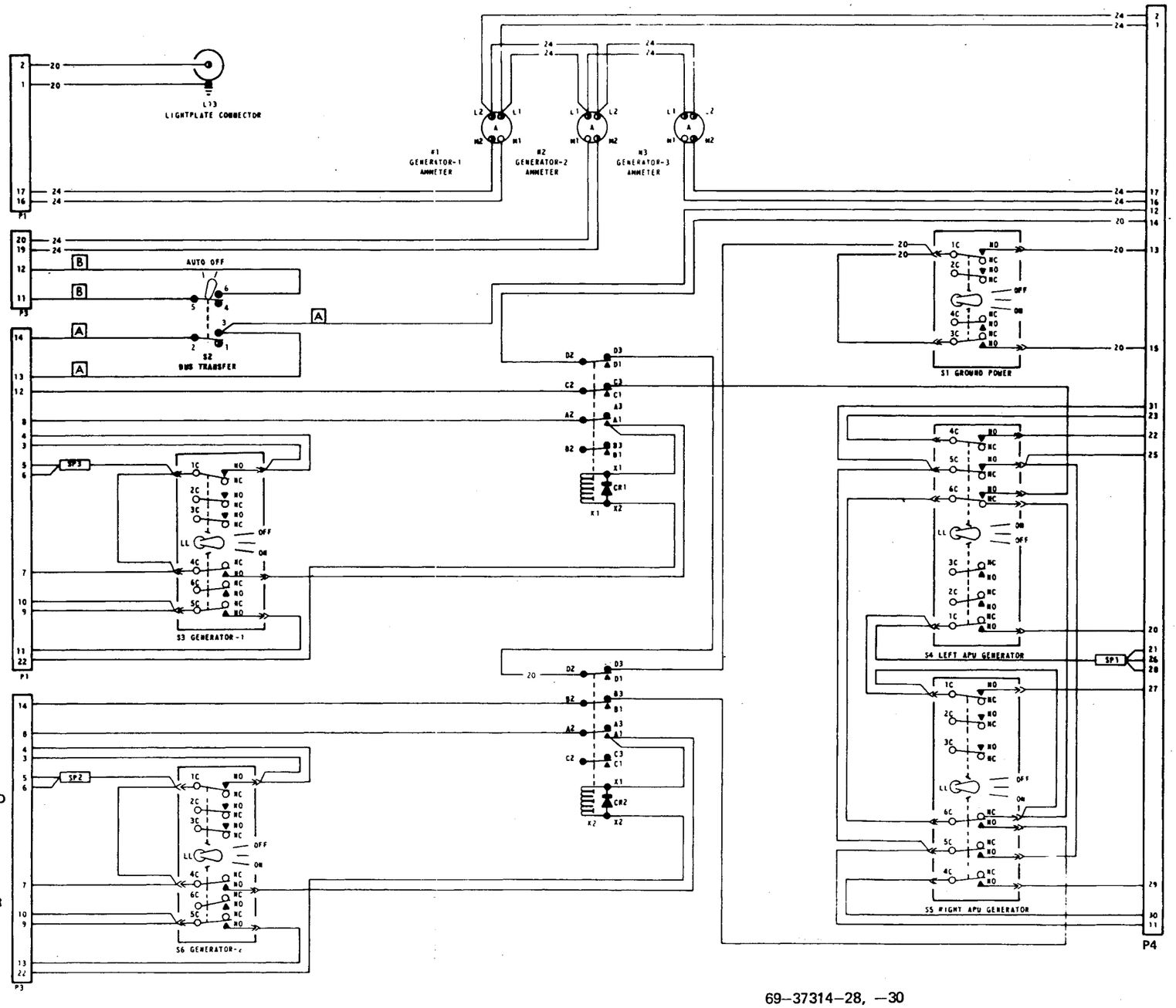


69-37314-12, -13, -15, -16, -18, -19, -20, -22, -23, -24, -31

NOTE: REFERENCE DESIGNATORS IN PARENTHESES ( ) ARE FOR 69-37314-20 AND -24 ONLY

NOTE: WIRE SIZE AWG 22 EXCEPT AS NOTED

Schematic Diagram
Figure 801 (Sheet 2)

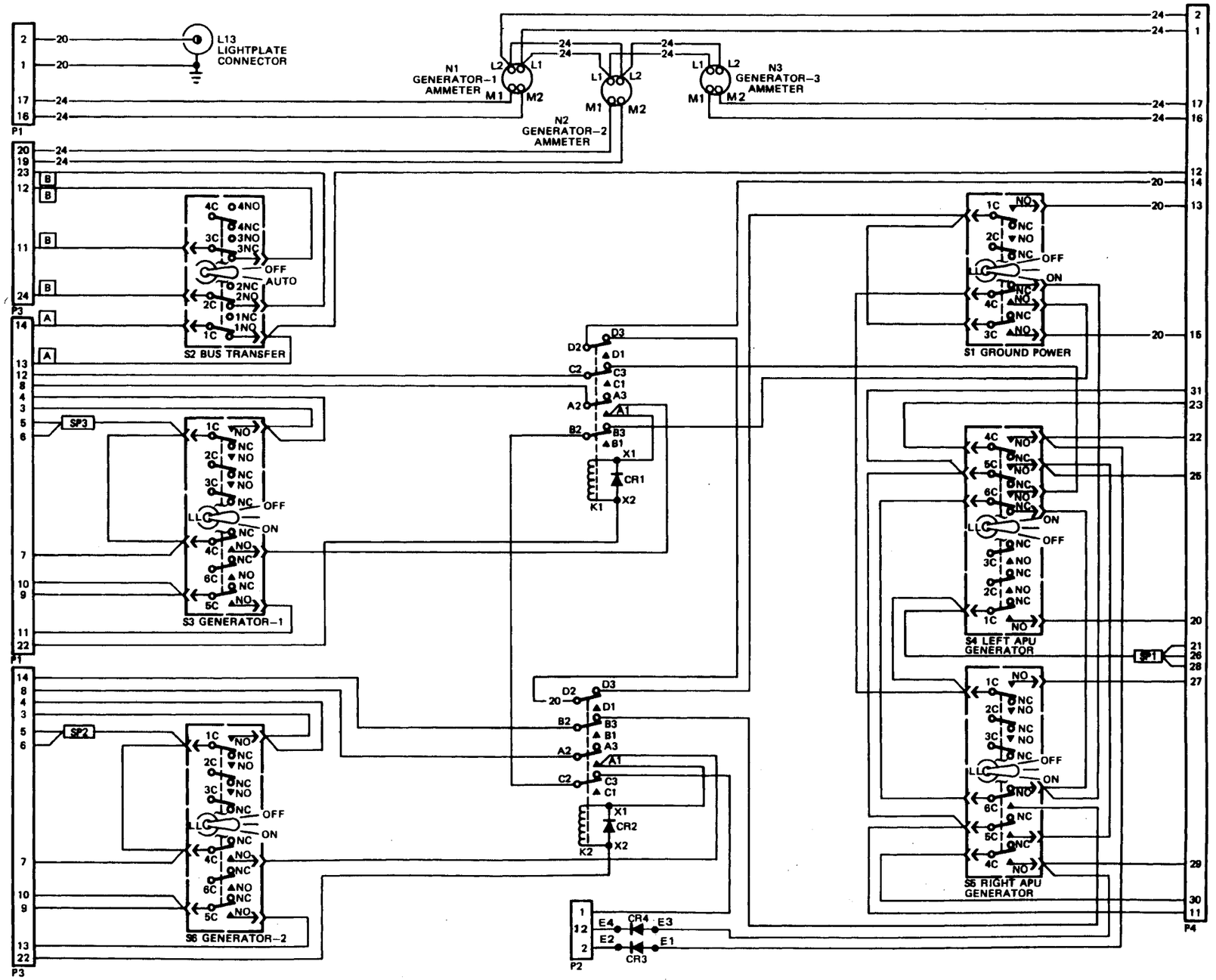


69-37314-28, -30

NOTE:

WIRE SEPARATION AND IDENTIFICATION REQUIRED
[A] - SYSTEM 1 AND IS TO BE IDENTIFIED WITH RED TY-RAPS OR RED STRING TIES.
[B] - SYSTEM 2 AND IS TO BE IDENTIFIED WITH YELLOW TY-RAPS OR YELLOW STRING TIES.
[A] AND [B] ARE TO BE SEPARATED FROM EACH OTHER AS FAR AS POSSIBLE.
REMAINING WIRES MAY BE BUNDLED WITH EITHER [A] OR [B]

Schematic Diagram
Figure 802 (Sheet 1)



NOTE:

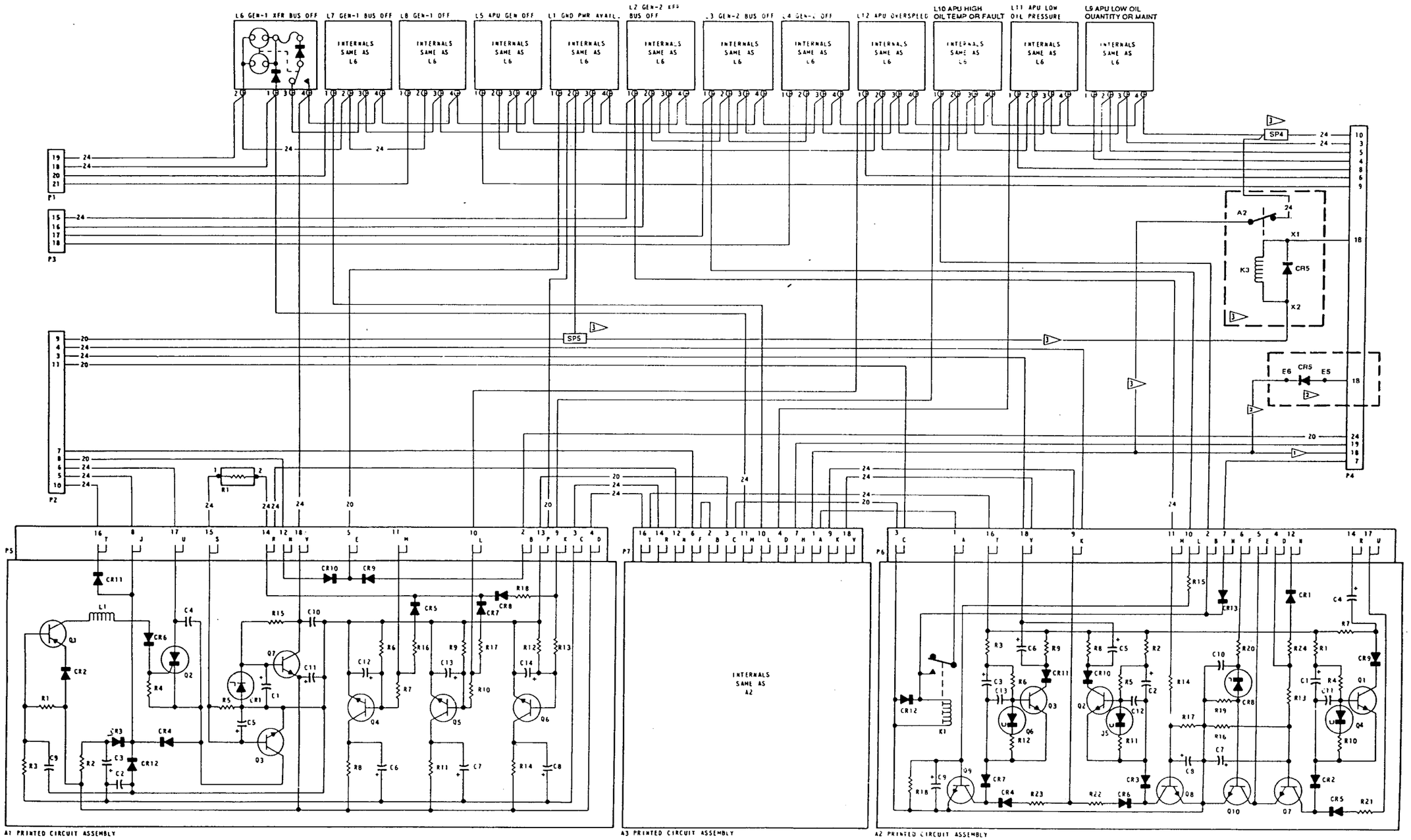
WIRE SEPARATION AND IDENTIFICATION REQUIRED
[A] = SYSTEM 1 AND IS TO BE IDENTIFIED WITH RED TY-RAPS OR RED STRING TIES.

[B] = SYSTEM 2 AND IS TO BE IDENTIFIED WITH YELLOW TY-RAPS OR YELLOW STRING TIES.

[A] AND [B] ARE TO BE SEPARATED FROM EACH OTHER AS FAR AS POSSIBLE
REMAINING WIRES MAY BE BUNDLED WITH EITHER [A] OR [B]

69-37314-38, -40, -41, -42,
-43, -44, -49, -50, -53, -54

Schematic Diagram
Figure 802 (Sheet 2)



69-37314-28, -30, -35, -38, -40, -41, -42, -43, -44, -49, -50, -53, -54

▷ ASSEMBLIES 69-37314-28, -30, -35, -38, -40, -41, -42

▷ ASSEMBLY 69-37314-49, -53, -54 ONLY

▷ ASSEMBLIES 69-37314-43, -44, -50 ONLY

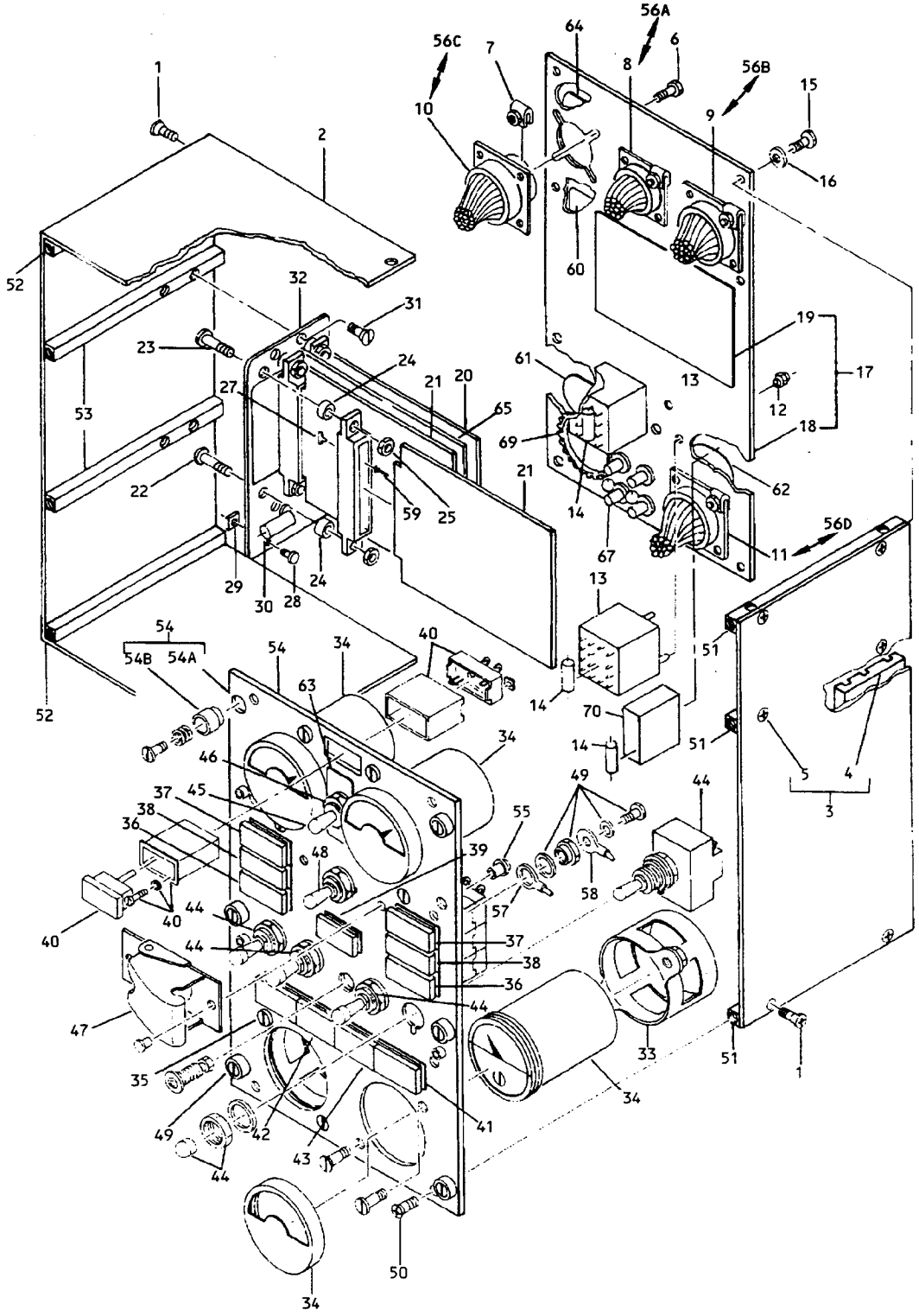
NOTE: ALL WIRE BMS 13-16, SIZE AWG 22 EXCEPT AS NOTED.

Schematic Diagram
Figure 802 (Sheet 3)

ILLUSTRATED PARTS LIST

VENDORS

V00213	NYTRONICS COMPONENTS GRP, INC., SUBSIDIARY OF NYTRONICS, INC., ORANGE ST., DARLINGTON, SOUTH CAROLINA 29532
V00779	AMP, INCORP., 2800 FULLING MILL, HARRISBURG, PENNSYLVANIA 17105-3608
V05617	BELL INDUSTRIES, INC., ILLUMINATED DISPLAYS DIV., 18225 N.E. 76TH ST., REDMOND, WASHINGTON 98073-9756
V14936	GENERAL INSTRUMENTS CORP., POWER SEMI-CONDUCTOR DIV., 600 W. JOHN ST., HICKSVILLE, NEW YORK 11802
V34830	KRATOS INC., AVIATION PRODUCTS DIV., 403 S. RAYMOND AVE., BIN 45, PASADENA, CALIFORNIA 91105-2609
V35344	SEE V58657
V35918	LEWIS ENGINEERING CO., 238 WATER ST., NANGATUCK, CONNECTICUT 06770-2803
V58657	LEACH INTERNATIONAL OF NORTH AMERICA, 6900 ORANGETHORPE AVE., P.0. BOX 5032., BUENA PARK, CALIFORNIA 90622-5032
V72914	GRIMES DIV., MIDLAND-ROSS, 550 STATE ROUTE 55, P.O. BOX 247, CHAMPAIGN COUNTY, URBANA, OHIO 43078
V81590	KORRY ELECTRONIC INC., SUB OF CRITON CORP., 901 DEXTER AVE N., SEATTLE, WASHINGTON 98109-3515
V81640	EATON CORP., AEROSPACE AND COMMERCIAL CONTROLS DIV., 2250 WHITFIELD AVENUE EAST, SARASOTA, FLORIDA 34243-9703
V91637	DALE ELECTRONICS, INCORP., P.O. BOX 609, 1122 23RD ST., COLUMBUS, NEBRASKA 68601-3632
V91929	HONEYWELL, INCORP., MICROSWITCH DIVISION, 11 WEST SPRING ST., FREEPORT, ILLINOIS 61032
V95354	METHODE MANUFACTURING CORP., 1700 SOUTH HICKS RD, ROLLING MEADOWS, ILLINOIS 60008-1229



AC System Generator and APU Module Assembly (P5-4)
Figure 1101

G92387

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
	69-37314-12		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)	A	
	69-37314-13		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)	B	
	69-37314-15		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(POST SB 33-1013) (PRE SB 69-37314-31-01)	C	
	69-37314-16		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(POST SB 33-1013) (PRE SB 69-37314-31-01)	D	
	69-37314-18		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-01)	E	
	69-37314-19		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-01)	F	
	69-37314-20		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-01)	G	
	69-37314-22		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-01)	H	
	69-37314-23		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-01)	I	
	69-37314-24		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-01)	J	
	69-37314-28		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-01)	K	
	69-37314-30		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-01)	L	
	69-37314-31		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)	M	
	69-37314-35		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)	N	
	69-37314-38		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-01) (PRE SB 69-37314-31-02) (PRE SB 69-37314-31-03)	O	
	69-37314-40		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-01) (PRE SB 69-37314-31-03)	P	
	69-37314-41		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-01) (PRE SB 69-37314-31-02) (PRE SB 69-37314-31-03)	Q	
	69-37314-42		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-01) (PRE SB 69-37314-31-03)	R	

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
	69-37314-43		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-03)	S	
	69-37314-44		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)	T	
	69-37314-47		DELETED		
	69-37314-48		DELETED		
	69-37314-49		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-01) (PRE SB 69-37314-31-03)	W	
	69-37314-53		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-01) (POST SB 69-37314-31-02) (POST SB 69-37314-31-03)	X	
	69-37314-54		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-01) (POST SB 69-37314-31-03)	Y	
	69-37314-50		AC SYSTEM GENERATOR AND APU MODULE ASSY (P5-4)(PRE SB 69-37314-31-03)	U	
1	NAS514P440-4		. SCREW		14
2	69-41788-1		. COVER	A-KMNO QSUWX	1
2	69-41788-22		. COVER	LPRTY	1
3	69-41788-21		. COVER ASSY	A-KMNO QSUWX	1
3	69-41788-12		. COVER ASSY (OPT)	A-KMNO QSUWX	1
3	69-41788-23		. COVER ASSY	LPRTY	1
4	69-41788-11		. . FOAM (USED ON 69-41788-12)	A-KMNO QSUWX	1
4	69-41788-20		. . FOAM (USED ON 69-41788-21)	A-KMNO QSUWX	1
4	69-41788-19		. . FOAM (USED ON 69-41788-23)	LPRTY	1
5	69-41788-5		. . SIDE COVER	A-KMNO QSUWX	1
5	69-41788-24		. . SIDE COVER	LPRTY	1
6	BACS12CB04-5		. SCREW	A-0Q	8
6	NAS1801-04-5		. SCREW	PR-U W-Y	8
7	BACN10NW1		. NUT, CLIP-ON		8
8	BACC45FN12-12P		. CONNECTOR	A-JM	1
9	BACC45FN16-24P		. CONNECTOR	A-JM	1
10	BACC45FN16-24P6		. CONNECTOR	A-JM	1
11	BACC45FN18-31P7		. CONNECTOR	A-JM	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
12	BACN10JC06		. NUT	LNO-U W-Y	6
12	NAS679A06W		. NUT	A-KM	6
13	BACR13CG4		. RELAY	A-FHI K-UW-Y	2
13	BACR13CG4A		. RELAY	GJ	2
13	KG2A		. RELAY, V35344 (OPT)	A-JM	2
14	1N4385		. DIODE, V14936		2
15	BACS12CB06-5		. SCREW	A-0Q	7
15	NAS1801-06-5		. SCREW	PR-U W-Y	7
16	MS35338-41		. WASHER		7
17	69-41788-16		. BACKPLATE ASSY	A-R	1
17	69-41788-25		. BACKPLATE ASSY	T	1
17	69-41788-25		. BACKPLATE ASSY (OPT)	S	1
17	69-41788-27		. BACKPLATE ASSY	SUW-Y	1
18	69-41788-17		. . BACKPLATE	A-R	1
18	69-41788-26		. . BACKPLATE	SU	1
18	69-41788-28		. . BACKPLATE	W-Y	1
19	69-41788-15		. . INSULATOR		1
20	69-51811-3		. PRINTED CIRCUIT ASSY, POWER SENSING (REF 31-36-36)	AB	1
20	69-51811-5		. PRINTED CIRCUIT ASSY, POWER SENSING (REF 31-36-36)	C-U W-Y	1
20	69-78286-1		DELETED		
21	69-51814-1		. PRINTED CIRCUIT ASSY, APU AND ELECTRICAL SYSTEM (REF 31-36-40)		2
22	NAS514P632-14		. SCREW		3
23	BACS12CB06-14		. SCREW	A-0QSU WX	3
23	NAS1801-06-14		. SCREW	PRTY	3
24	NAS43DD1-17		. SPACER		6
25	NAS679A06W		. NUT	A-KM	6
25	BACN10JC06		. NUT	LN-U W-Y	6
26	582555-1		. CONNECTOR, V00779		3
27	582507-1		. KEYING PLUG, V00779		3
28	BACS12BE02-4		. SCREW		2
29	BACN10DN26		. NUT		2
30	RH5-330-1PCT		. RESISTOR, 330 OHMS ±1%, 5 W, V91367 (PREF)		1
30	3105M330-1PCT		. RESISTOR, 330 OHMS ±1%, 5 W, V00213 (OPT)		1
31	BACS12CB04-4		. SCREW	A-0QSU X	4

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
31	NAS1801-06-3		. SCREW	PRTY	4
32	69-41788-13		. SUPPORT, CONNECTOR		1
33	BACC10EL3		. CLAMP, INSTRUMENT		4
34	124-837		. AMMETER, V34830 (BOEING 10-60757-27) (OPT)		3
34	149LA7		. AMMETER, V35918 (SPEC S231N212-1) (OPT)		3
35	319-619-1002-018		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61305-102)	A-DM	1
35	318-630-1002-020		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-102)	EFHIKL N-RW	1
35	318-630-1002-032		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-213)	GJ	1
35	318-630-1002-093		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-432)	S-UXY	1
36	319-619-1002-001		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61305-2)	A-DM	2
36	318-630-1002-001		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-2)	EFHIKL N-UW-Y	2
36	318-630-1002-030		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-211)	GJ	1
37	319-619-1002-006		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61305-28)	A-DM	2
37	318-630-1002-006		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-28)	EFHIKL N-UW-Y	2
37	318-630-1002-028		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-209)	GJ	2
38	319-619-1002-007		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61305-29)	A-DM	2
38	318-630-1002-007		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-29)	EFHIKL N-UW-Y	2
38	318-630-1002-029		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-210)	GJ	2
39	319-619-1002-009		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61305-31)	A-DM	1
39	318-630-1002-009		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-31)	EFHIKL N-UW-Y	1
39	318-630-1002-031		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-212)	GJ	1
40	319-619-1002-012		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61305-40)	A-DM	1
40	318-630-1002-012		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-40)	EFHIKL N-UW-Y	1
40	318-630-1002-027		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-208)	GJ	1
41	319-619-1002-013		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61305-51)	A-DM	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
41	318-630-1002-013		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-51)	EFHIKL N-UW-Y	1
41	318-630-1002-035		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-216)	GJ	1
42	319-619-1002-004		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61305-6)	A-DM	1
42	318-630-1002-004		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-6)	EFHIKL N-UW-Y	1
42	318-630-1002-033		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-214)	GJ	1
43	319-619-1002-015		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61305-62)	A-DM	1
43	318-630-1002-015		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-62)	EFHIKL N-RW	1
43	318-630-1002-034		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-215)	GJ	1
43	318-630-1002-080		. INDICATOR LIGHT ASSY, V81590 (BOEING 10-61803-383)	S-UXY	1
44	66AT11-7E		. SWITCH, TOGGLE, V91929	A-G	4
44	BACS30ER4E		. SWITCH, TOGGLE (OPT)	A-F	4
44	BACS30ER44E		. SWITCH, TOGGLE (OPT)	G	4
44	66AT22-7E		. SWITCH, V91929	H-UW-Y	4
44	A3-1113-044E1		. SWITCH, V81640 (OPT)	H-UW-Y	4
45	69-44578-2		. CAP, CUSHION		1
46	64AT11-7		. SWITCH, TOGGLE, V91929	A-G	1
46	BACS30EM4		. SWITCH, TOGGLE (OPT)	AB	1
46	BACS30EM44		. SWITCH, TOGGLE (OPT)	C-G	1
46	64AT22-7		. SWITCH, V91929	H-UW-Y	1
46	A3-1110-04-1		. SWITCH, V81640 (OPT)	H-UW-Y	1
47	11170-1		. GUARD, SWITCH, V72914		1
48	MS24524-23		. SWITCH, TOGGLE	A-M	1
48	64AT22-3		. SWITCH, TOGGLE, V91929	N-UW-Y	1
48	A3-1110-05-1		. SWITCH, TOGGLE, V81640 (OPT)	N-UW-Y	1
49	SCN001		. POWER CONNECTOR, V95354	A-JM	1
49	800000121-1		. POWER CONNECTOR, V05617	KLN-U W-Y	1
50	NAS514P632-5		. SCREW		7
51	69-37268-15		. STANDOFF		3
52	69-37268-16		. STANDOFF		2
53	69-37314-4		. STANDOFF		2
54	69-37314-10		. BASEPLATE ASSY	ACEHL P-RTY	1
54	69-37314-11		. BASEPLATE ASSY	BDFGIJ KMNOQS UWX	1

FIG. & ITEM NO.	PART NO.	AIRLINE PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	USE CODE	QTY PER ASSY
1101-					
54A	69-41879-1		. . PANEL		1
54B	BACS21DD1		. . STUD		6
55	BACN10PA06-6		. NUT, PRESS		4
56	69-37314-14		. WIRE BUNDLE	A-FM	1
56	69-37314-21		. WIRE BUNDLE	G	1
56	69-37314-25		. WIRE BUNDLE	HI	1
56	69-37314-26		. WIRE BUNDLE	J	1
56	69-37314-29		. WIRE BUNDLE	KL	1
56	69-37314-36		. WIRE BUNDLE	N	1
56	69-37314-39		. WIRE BUNDLE	O-R	1
56	69-37314-52		. WIRE BUNDLE	S-U	1
56	69-37314-51		. WIRE BUNDLE	GW-Y	1
56A	BACC45FN12-12P		. . CONNECTOR	KLN-U W-Y	1
56B	BACC45FN16-24P		. . CONNECTOR	KLN-U W-Y	1
56C	BACC45FN16-24P6		. . CONNECTOR	KLN-U W-Y	1
56D	BACC45FN18-31P7		. . CONNECTOR	KLN-U W-Y	1
57	BACT12AC		. TERMINAL LUG		AR
58	BACT12S		. TERMINAL LUG		AR
59	66144-2LP		. TAB, TERMINAL, V00779		AR
60	BAC27DCC513		. MARKER		1
61	BAC27DCC244		. MARKER	A-RW-Y	1
62	BAC27DCC245		. MARKER	A-RW-Y	1
63	BAC27DCC33		. MARKER	BDM	1
63	BAC27DCC86		. MARKER	AC	1
63	BAC27DCC567		. MARKER	EHLPTY	1
63	BAC27DCC568		. MARKER	FGIJKN OQ-SWX	1
64	BACM10L00-1CU		. MARKER	A-KMNO Q	1
65	69-37314-32		. INSULATOR		1
66	BACS12CB06-3		. SCREW	OQSTU	4
67	1411A		. INSULATED TERMINAL	O-U	4
67	1411A		. INSULATED TERMINAL	W-Y	6
68	1N5061		. DIODE	O-U	2
68	1N5061		. DIODE	W-Y	3
69	BACG20ZA0440		. GROMMET	QR-U W-Y	AR
70	BACR13CF4A		. RELAY	S-U	1

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* PREFERRED PART