

Vivitar®

Service Manual



**Modular Dedicated Flash
System With Standard Head
Model 4600**

Publication No. 3746179 / June 1982

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This publication consists of the following pages:

Page	Revision	Date
Front Cover	Orig	6/82
Page A	Orig	6/82
i, ii	Orig	6/82
1 – 25	Orig	6/82

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Parts are illustrated on exploded view drawings where each part is identified by a reference number or designator. These reference numbers appear in sequence in the parts lists where they are cross-referenced to the part numbers and descriptions.

When a part is not available separately it will be so indicated by a footnote and can be obtained by ordering the assembly containing it. The part number of that assembly may be shown immediately to the right on the same line in an "Included in Assembly" column or at the end of the parts list(s).

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SECTION 1 INTRODUCTION AND DESCRIPTION

1.1 GENERAL

This publication is the Service Manual with Illustrated Parts List for the Vivitar Modular Dedicated Flash System Model 4600 with Standard Head. The manual contains specifications for the system; detailed troubleshooting instructions; complete instructions for disassembly, cleaning, repair, reassembly, and adjustment; and information for identifying and ordering replacement parts.

The Model 4600 Flash System with Standard Head is sold under Vivitar Marketing Stock Number 0234351 and further identified by Vivitar Part Number 3900494. Other components of the system include the Dedicated Modules which are covered in Vivitar Publication No. 3746164 (Automatic Electronic Flash Model 3500 and Dedicated Modules). Future publications will cover the Motorized Zoom Head, the Power Pistol Grip and other accessories that are also components of the system.

1.2 SPECIFICATIONS

GENERAL SPECIFICATIONS*

Guide Number	ASA100/ft.	DIN21/meters	Equivalent Focal Length Coverage
<u>Standard Head</u>			
Normal	100	30	35mm
with EW/A-1	70	21	28mm
with Super Wide (FA-3)	50	15	21mm
<u>Motor Zoom Head Setting</u>			
T	140	42	105mm
50mm	120	36	50mm
35mm	100	30	35mm
W	70	21	28mm
Super Wide	50	15	21mm
<u>Bare Bulb</u>	: 60W/sec. maximum at full power		

F-Stop Setting		Automatic Operating Ranges		
Color Mode	ASA100 / DIN 21	Normal (35mm)	Standard (50mm)	Wide (28mm)
Red	f2	6–50 ft. (2–15m)	8–60 ft. (2.5–18m)	5–35 ft. (1.5–10m)
Blue	f4	3–25 ft. (1–7.6m)	4–30 ft. (1.2–9m)	2–18 ft. (0.7–5.3m)
Orange	f8	2–12 ft. (0.7–3.8m)	3–15 ft. (1.0–4.5m)	1.6–9 ft. (0.5–2.5m)
		Superwide (21mm)	Tele (105mm)	
		5–25 ft. (1.5–7.6m)	10–70 ft. (3–21m)	
		2–13 ft. (0.7–3.8m)	5–35 ft. (1.5–10m)	
		1.6–6 ft. (0.5–1.9m)	4–18 ft. (1.3–5.3m)	

*Specifications are subject to change without notice.

**Modular Dedicated Flash System
Model 4600 With Standard Head**

Bounce Angle	
<u>Horizontal</u>	
Right:	0° , 15° , 30° , 45° , 60° , 75° , 90°
Left:	0° , 15° , 30° , 45° , 60° , 75° , 90° , 105° , 120° , 135° , 150° , 165° , 180°
<u>Vertical</u>	
-10° lock, 0° , 45° , 60° , 75° , 90°	

NOTE: When the head is set at -10° position, the head should not be moved horizontally.

		Recycle Time		Number of Flashes	
Power Source		Automatic	Manual	Automatic	Manual
<u>Main Unit Only</u>					
4AA Alkaline (AP-1)		0.2–12 sec.	12 sec.	up to 700	90
NC-2		0.2–6.5 sec.	6.5 sec.	up to 300	40
<u>With PPG-1</u>					
PPG-1	Main Unit	Recycle Time		Full Power Flashes	
Alkaline	Alkaline	0.2–6 sec.		200	
Alkaline	NC-3	0.2–5 sec.		110	
NC-3	NC-3	0.2–4 sec.		80	
NC-3	Alkaline	0.2–5 sec.		110	

Angle of Coverage		
<u>Standard Head</u>	Vertical	Horizontal
Normal Head (35mm)	45°	60°
with EW/A-1 (28mm)	53°	70°
with FA-3 (21mm)	67°	85°
<u>Motor Zoom Head</u>		
Standard (50mm)	34°	46°
Normal (35mm)	45°	60°
Wide (28mm)	53°	70°
Super Wide (21mm)	67°	85°
Tele (105mm)	20°	27°

Flash Durations (seconds) Manual: 1/1,000; Automatic: 1/1,000 to 1/30,000

Sensor Measuring Angle Approximately 18 degrees

Motorized Zoom Head Capability 4 position switch setting (W/N/S/T) capability of
coupling with super module

Accessories Included EW/A-1 (w/normal head only), AP-1 (w/body only),
Super Wide (w/motor zoom head only)

Optional Accessories FA-3 (FK-2 & WFK-2), MFS-1, PPG-1, PG-1, HVP-1, SB-4, NC-3,
DSC-1, PC-1, Dedicated modules, Vari-slave module

1.3 DESCRIPTION

The Model 4600 Automatic Electronic Flash is a thyristor-controlled modular flash system designed to operate in conjunction with the Vivitar 3000 Series Dedicated Modules. The heart of the system is the flash body containing most of the electronics and four size AA cells to power the unit. The selected 3000-series dedicated module is attached to the bottom of the flash body; and any of the three optional flash heads, each with its own main power capacitor, is attached to the top to make a functioning flash unit. The unit can then be mounted in the hot shoe of the camera or on an accessory pistol grip bracket, which contains additional batteries to extend battery life.

The standard flash head and the motorized flash head can be tilted up to vertical and down to ten degrees below horizontal and rotated around a vertical axis for a variety of bounce lighting effects. The bare bulb flash head is fixed and distributes the light in all directions for a daylight effect. Angular coverage for the standard head without accessories is suitable for lenses as wide as 35mm. Wider coverage is obtained with accessory panels. The motorized zoom head has a four-position switch plus a wide-angle panel to provide coverage for lenses from 105mm to 21mm focal length. (See instruction sheet packed with the unit for detailed description of features and operating instructions.)

1.4 CIRCUIT BLOCK DIAGRAM

A block diagram (See Figure 3-5 page 14.) illustrates the functional relationship between various parts of the electronic circuit of the 4600 main body, standard head, motorized zoom head, and dedicated module. The primary components of each section of the electronic circuit are listed on the diagram.

SECTION 2 DISASSEMBLY AND REASSEMBLY

2.1 GENERAL

This section contains procedures for disassembly, cleaning, electronic and mechanical component removal, and reassembly of Vivitar Model 4600 Automatic Electronic Flash. Disassemble the unit only to the extent necessary for operational checkout, troubleshooting, and repair. Complete exploded view and PC board plan drawings are provided in Section 4. Reference numbers in this section correspond with reference numbers used in the exploded view drawings.

2.2 DISASSEMBLY

2.2.1 Main Body Disassembly

- A. Remove battery cover (37) completely by sliding open and pressing past retaining stop. Remove battery holder (40) from compartment. (Figure 2-1)

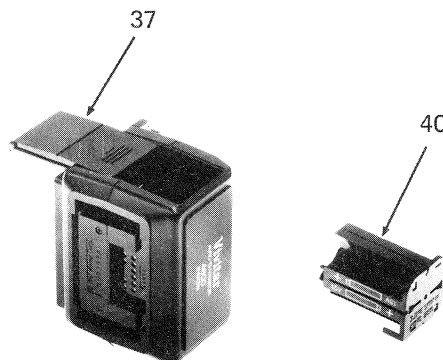


Figure 2-1. Battery Holder Removal

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- B. Remove two screws (21) at the bottom of main body. Remove two screws (21) on the main body (Body case MD side). Separate body case MC (3) from body case MD (4). (Figure 2-2)

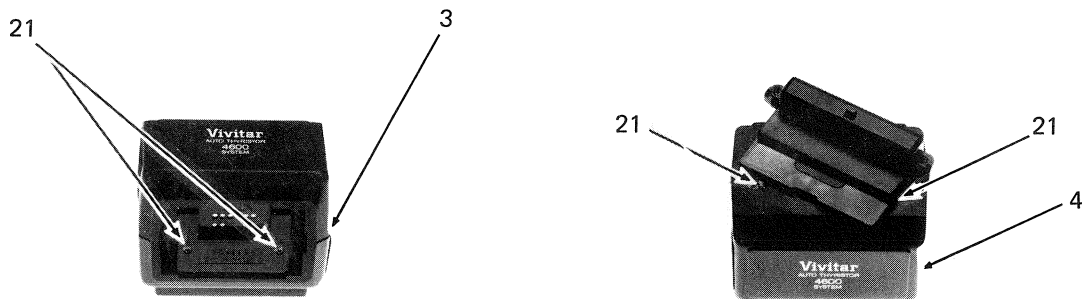


Figure 2-2. Separation of Body Cases MC and MD

- C. Lift battery case (7) out of body case MC, and detach battery terminals (43) and (44) from battery case. (Figure 2-3)

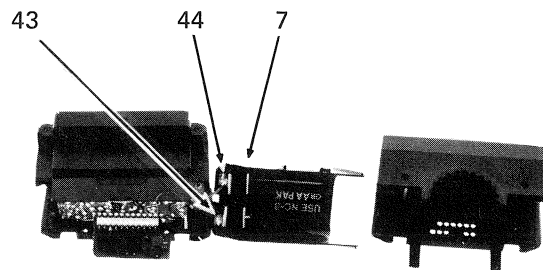


Figure 2-3. Battery Case Removal

- D. Remove one Screw (22) from PC board A (56). Remove AC socket cap (12). The PC boards can now be lifted out of case. (Figure 2-4)

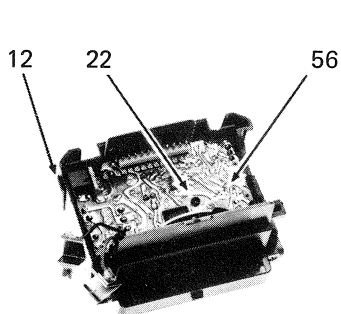


Figure 2-4. Removal of PC Boards

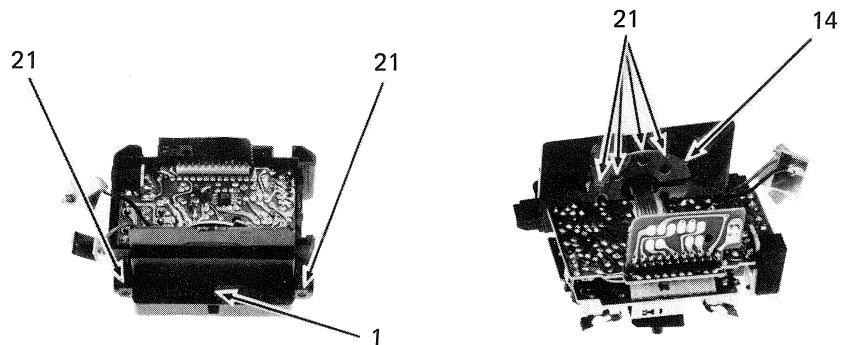


Figure 2-5. Separation of Body Cases MA and MB

- E. Remove two screws (21) on the body case MA (1). Remove four screws (21) on the rotating plate (14). Separate body case MA from body case MB. (Figure 2-5)

2.2.2 Normal Head Disassembly

- A. Take off both bounce axle cover plates (32) by lifting off with thin blade. (Figure 2-6)

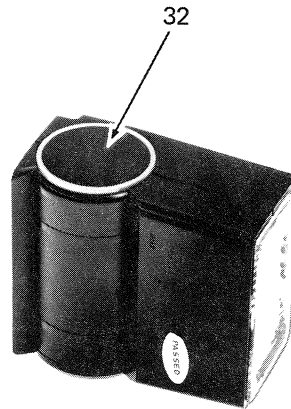


Figure 2-6. Removal of Bounce Axle Plates

- B. Remove two screws (21) on the bounce axle R (30). Lift bounce axle R (30) and bounce axle L (31) out of body case. (Figure 2-7)

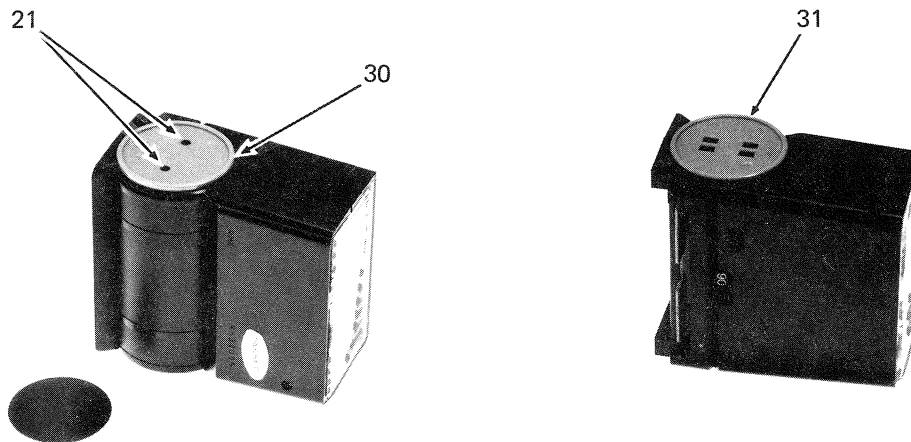


Figure 2-7. Bounce Axles R and L

- C. Remove one screw (36) on the body case NB (25). Lift up body case NB, being careful not to touch the PC board. (Figure 2-8)

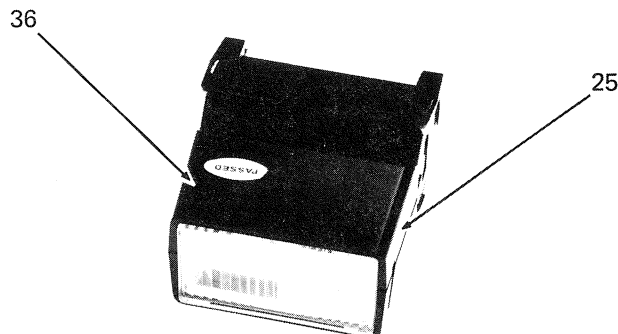


Figure 2-8. Removal of Body Case NB

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- D. Remove two screws (21) at the bottom of body case NC (26). Separate body case NC from body case ND (27). (Figure 2-9)

WARNING

Opening the body case exposes PC board F connected to the main capacitor C21, which presents a serious shock hazard even with the power source removed. Handle the unit with extreme caution until capacitors C21 and C18 have been fully discharged through a 100 ohm, 10 watt resistor.

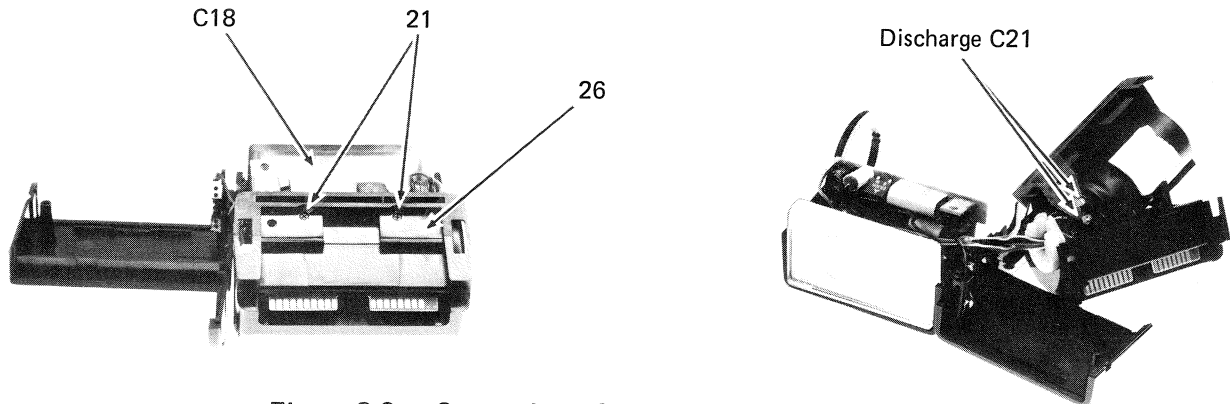


Figure 2-9. Separation of Body Cases NC and ND

2.3 REASSEMBLY

Reassemble the unit by reversing the disassembly procedures and by following the precautions below.

2.3.1 Main Body Reassembly

- A. When reassembling body case MA and MB, make certain that the flexible PC boards A (45) , B (46), and C (47) have not been pinched between the cases. (See Figure 4-3)
- B. Set the calculator light button (10) and open flash button (11) on body case MD. (Figure 4-1)
- C. When replacing PC board B, make certain that the tungsten lamp (La1) is inserted into the tubular projection in the body case.
- D. Position the plastic insulation (15x50mm) between PC board B and flexible PC boards and glue it lightly in place.
- E. Attach PC board A with one screw.
- F. When setting battery terminals on the battery case, check that terminals are correctly clipped onto battery case. The positive terminal is the one with the smaller protuberance and the red wire.

2.3.2 Reassembly Of Normal Head

- A. Slide PC board E (60) (Figure 4-1) into the grooves.
- B. Glue the main capacitor C21 into body case NC.
- C. When reassembling body case NC and ND, make certain that the wires are not pinched and the bounce axle (29) is seated in the body case.

- D. Set the panel switch SW5 and switch post (34) on the body case NB.
- E. Set PC board F and reflector assembly on the body case NB.
- F. Set the plastic insulation (30x50mm) between the PC board F and the reflector.
- G. Set the -10° release button (28) and spring (35) on the body case NA.
- H. When reassembling body case NA and NB, make certain that the lead wires to PC board E are not pinched.

2.4 CLEANING

2.4.1 Mechanical and Electronic Components

Wipe the large surfaces with a clean lint-free cloth. Use low pressure, compressed air to blow dust from hard-to-reach places.

2.4.2 Reflector and Flashtube Lens

To clean the diffuser lens, immerse in warm, soapy water and wipe gently with a clean piece of cotton. Rinse in cold water and BLOT dry (do not wipe) with a clean lint-free cloth or tissue. Do not allow the surface to air dry, which results in water marks. Avoid touching the reflector surface; use dry air or a lens brush to remove dust or lint.

2.5 ELECTRONIC COMPONENT REMOVAL

When removing and replacing electronic components, observe the following precautions:

1. When applying heat, use a heat sink to avoid damaging the components or circuit board due to heat conduction of component leads.
2. Apply heat sparingly to the component lead to be removed and lift the lead clear of the junction.
3. Ensure that new components are placed and dressed the same as the originals.

SECTION 3 CHECKOUT AND TROUBLESHOOTING

3.1 GENERAL

When checking out the Vivitar Model 4600 Automatic Electronic Flash, ensure that all electrical connections are good, that main capacitor C21 has been formed, and that the battery or power supply is of the correct potential.

3.2 OPERATIONAL CHECKOUT

3.2.1 Tools and Test Equipment

No special tools are required for maintenance of the Model 4600 Automatic Electronic Flash Unit. Screwdrivers, diagonal cutters, long nose pliers, soldering irons, and other common hand tools are adequate for repair and replacement of parts.

The following test equipments are required:

- Volt-ohm Meter
- DC Power Supply
- Pulse Photometer

3.2.2 Main Storage Capacitor Forming

Before performing any operational checkout, form the main storage capacitor C21 by switching the unit on, and after the ready light glows, firing the flash 5 times by depressing the open flash button, wait at least 20 seconds between flashes. If the flash is inoperative, see section 3.2.4 for forming capacitor with power supply.

3.2.3 Techniques of External Checkout

Before starting the detailed checkout of the circuit, look for obvious things; broken wires, broken or discolored components, or evidence of physical damage. Faults such as arcing and burned-out resistor or transistor can often be detected by visual observation. Voltage, current and resistance measurements will speedily isolate most common circuit defects. Isolate the defect of the circuit responsible. An operational check will demonstrate which portions of the circuit are operating correctly. Observe the action of switches and indicators to isolate the faults. Troubleshooting data charts are provided in Section 3.3. After you have isolated the defective section of the circuit, isolation of the component responsible for the malfunction can be quickly made. Consider which components, if faulty, could cause the voltage or currents to be as you find them. Refer to the electronic schematic as necessary.

3.2.4 External Check of Main Capacitor Voltage

Main capacitor C21 voltage can be checked without opening the unit. Remove bounce axle cover plate (32) at right side. Remove two screws and take off bounce axle (R) (30) and supply rated power (6V, 1.5A) with Regulated DC power supply. To check the main capacitor voltage, insert a long-pointed positive meter probe into a hole of bounce axle (touch "A" terminal of the main capacitor), and touch the negative probe against the battery terminal (—).

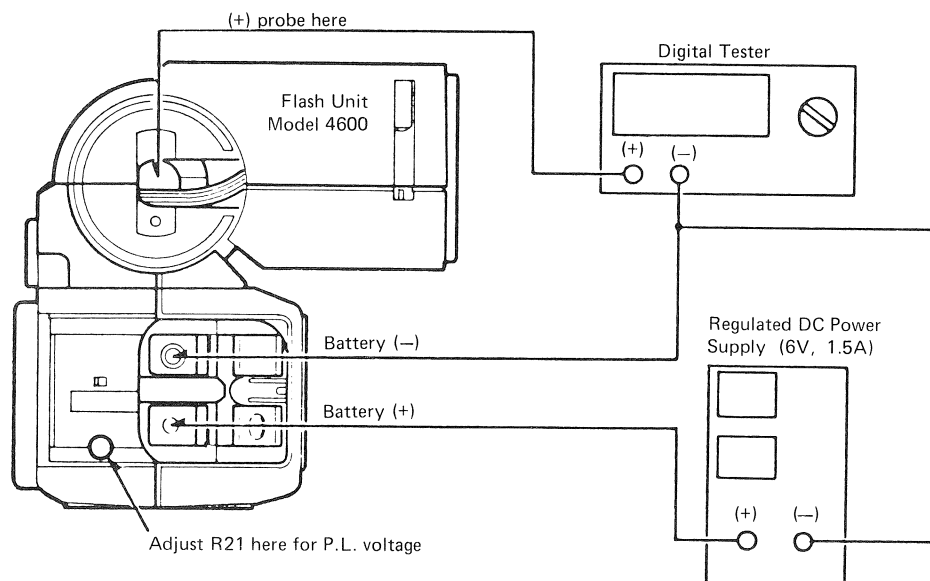


Figure 3-1. Voltage Checks Before Disassembly

3.2.5 Main Capacitor Leakage Check

- Disconnect main capacitor C21 from the circuit (after discharging it through a 100 ohm, 10W resistor) and connect it to the test circuit as shown in Figure 3-2.
- Form the capacitor for two minutes (switch closed, power supply set to 330VDC).
- Open switch and read the leakage current, by measuring voltage across the 1,000 ohm resistor. Voltage should measure less than 1mA.
- If the leakage current is greater than 1mA, main capacitor C21 should be replaced.

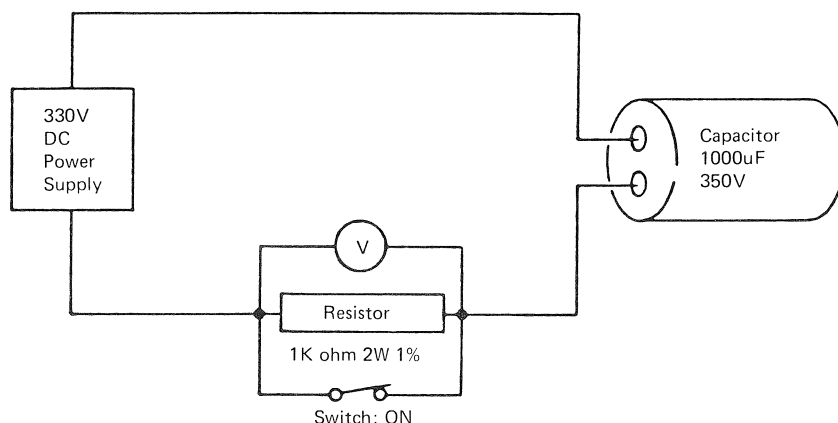


Figure 3-2. Main Capacitor Leakage Check

3.2.6 Ready Light

The pilot lamp (Red LED) should light when the voltage across main capacitor C21 reaches the following potential:

The Voltage for P.L. Lighting: $270\text{VDC} \pm 3\text{VDC}$

3.2.7 Energy Saving Circuit

The Model 4600 is equipped with an energy saving circuit to conserve battery life. After 30 ± 12 seconds from ready light (Red LED) on, the flash ready light should change from Red to Green and the power will automatically turn off until the control circuit determines that the capacitor has lost the equivalent of one f-stop (-1EV). At this point the power will be restored automatically, and the flash ready light will change from Green back to Red, starting the normal operating cycle again.

3.2.8 Recycle Time

The time to recycle to the ready light voltage will depend on the operational mode and the type of power supply. Recycle time at each mode and power supply is detailed in Section 1.2, GENERAL SPECIFICATIONS.

NOTE

Adjustment of the auto circuit (Para. 3.2.9) and autowinder circuit (Para. 3.2.10) must be done at the dedicated module.

3.2.9 Calibrating The Auto Circuit

To check the auto circuit in three auto modes, set up the unit at a distance of 6 feet from the sensor of a pulse photometer in an environment that is nonreflective except for the target. The target should have a reflectance of 25 percent and measure a minimum of 4 by 4 feet. See that the unit is optically level with the target and flash it 5 times to assure full power in the main capacitor. Set the calculator dial of the unit on ASA100, and test three color auto modes at the f-stops indicated with the dial. All should test within a tolerance of $\pm 1.0\text{EV}$.

Test Blue auto mode first, then Red and Orange; this sequence should require the least amount of adjustment after the Blue mode has been calibrated. The appropriate f-stop at ASA 100 / DIN 21 and the permissible upper and lower limits of the tolerance in f-stop are:

ASA100 / DIN21

Blue mode at	F4 $\pm 1.0\text{EV}$
Red mode at	F2 $\pm 1.0\text{EV}$
Orange mode at	F8 $\pm 1.0\text{EV}$

3.2.10 Calibrating The Autowinder Circuit

To check the autowinder circuit, set up the unit as described in paragraph 3.2.9. Set the Yellow (▽) mode of the dial on ASA100, and set the module mode selector switch of the Dedicated Module to autowinder (Δ) position. Test if the f-stop is within a tolerance of $\pm 1.0\text{EV}$. The appropriate f-stop at ASA100 / DIN21 and the permissible upper and lower limits of the tolerance in f-stop is:

ASA100 / DIN21

Yellow ▽ mode at	F3.5 $\pm 1.0\text{EV}$
------------------	-------------------------

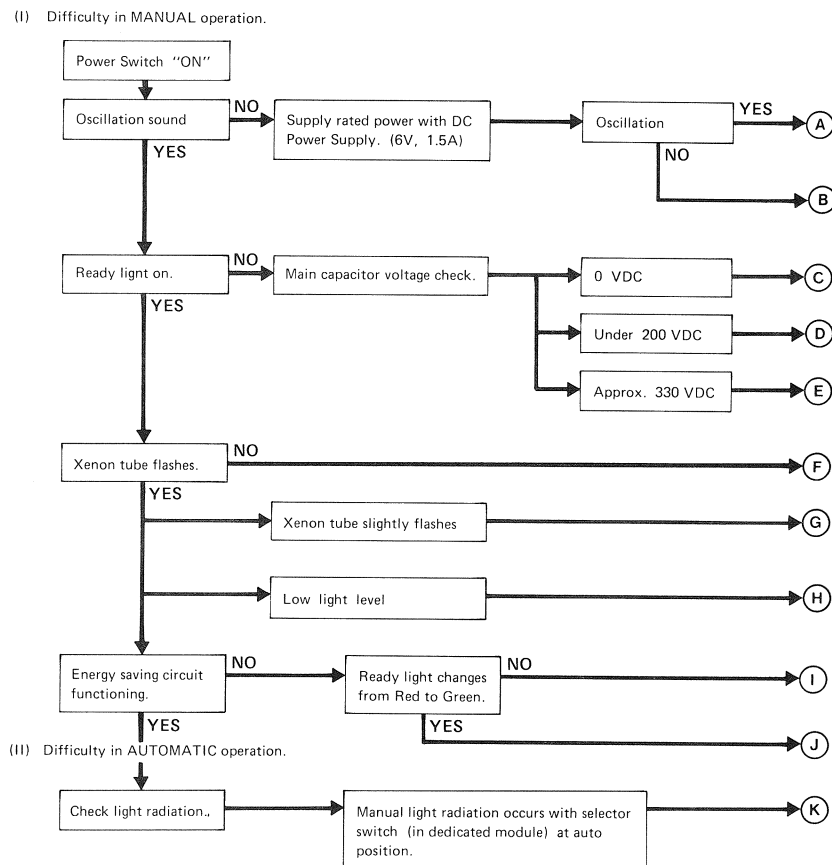
3.2.11 Full Power Light Output Check

If components that may affect the light output have been replaced, or there is some question concerning this, check it with a pulse photometer. In the manual mode, full power output at the rated guide number should be *192 lux-seconds. The allowable variation, however, can be minus half a f-stop, or as low as *136 lux-seconds, when measured 10 feet from a photometer sensor.

*With standard head or with motorized head at the 35 setting.

3.3 TROUBLESHOOTING DATA

Check the flash unit with fresh batteries in the following manner:



NOTE

In case of some other trouble about light radiation, check the dedicated modules.

**Modular Dedicated Flash System
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	ACTION	INDICATION	REMARKS
A	Check battery holder.	Terminals are corroded or reversed.	Clean, replace or reposition.
	Check battery's polarity.	BAD	Reposition.
B	Check contact between main body and normal head.	BAD	Reset.
	Check transistor Q1.	Opened	Replace Q1.
	Check transformer T1.	Opened	Replace T1
	Check power switch's continuity.	BAD	Repair or replace SW2
	Check continuity between terminals and PC board.	Wires for broken, or connections on board for bad solder.	Repair or replace
C	Check diode D3.	Opened	Replace D3
	Check diode D19 and D20	Opened	Replace D19 and/or D20
D	Check main capacitor C21 for leakage.	Leaked	Replace C21
	Check capacitor C18.	Shorted	Replace C18
E	Check vari. resistor R21 for misadjustment.	Ready light (Red LED) turns on at 270 ± 3 VDC.	Adjust R21 correctly
	Check LED D5.	BAD	Replace D5
	Check transistor Q5, Q6.	BAD	Replace Q5 and/or Q6
F	Short the A-K terminals of SCR3.	Xenon tube flashes No flash, but a spark occurs. No flash, no spark	Replace SCR3 (opened) Replace Q8 (opened) Replace T2 (opened:secondary) Replace FT1 Replace T2 (opened:primary) Replace C23 Replace SCR3
G	Check SCR2	BAD	Replace SCR2 (opened)
H	Check capacitor C21 for leakage and capacitance.	BAD	Replace C21
	Check flashtube FT1 for discoloration.	Discolored	Replace FT1
I	Check IC1 for malfunction.	BAD	Replace IC1
	Check transistor Q4.	BAD	Replace Q4 (opened)
J	Check transistor Q2.	BAD	Replace Q2
K	Check transistor Q9.	BAD	Replace Q9 (shorted)
	Check transistor Q10.	BAD	Replace Q10 (shorted)
	Check SCR1.	BAD	Replace SCR1 (opened)
	Check capacitor C18.	BAD	Replace C18

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REFERENCE LIST FOR FIGURES 3-3 AND 3-4					
C1	0.1uF, 12V	D13	10D-1	R15	10K, 1/8W
C2	220uF, 6.3V	D14	10D-8	R16	150K, 1/8W
C3	0.05uF, 12V	D15	MZ-333	R17	5.6K, 1/8W
C4	330pF, 500V	D16	MA-150	R18	3.3K, 1/8W
C5	1uF, 50V	D17	10D-8	R19	1.5K, 1/8W
C6	1uF, 50V	D18	10D-8	R20	120K, 1/8W
C7	22uF, 6.3V	D19	10D-8	R21	100K, VR
C8	1uF, 50V	D20	10D-8	R22	1K, 1/8W
C9	1000pF, 50V	D21	10D-8	R23	22K, 1/8W
C10	1000pF, 50V	FT1	D-361BL	R24	180, 1/8W
C11	220uF, 6.3V	IC1	uPC393G	R25	1.5K, 1/8W
C12	0.15pF, 35V	L1	272L1	R26	100, 1/8W
C13	1uF, 50V	La1	60mA, 5V	R27	100K, 1/4W
C14	0.22uF, 50V	Q1	2SB936	R28	56K, 1/4W
C15	4.7uF, 50V	Q2	2SA1115	R29	1.8M, 1/4W, 1%
C16	0.033uF, 350V	Q3	2SC2603	R30	2.2K, 1/4W
C17	470pF, 500V	Q4	2SA1115	R31	1M, 1/4W
C18	3.3uF, 350V	Q5	2SA1115	R32	470, 1/4W
C19	0.047uF, 350V	Q6	2SC2603	R33	470, 1/4W
C20	0.068uF, 350V	Q7	2SC2603	R34	1.2M, 1/4W
C21	1000uF, 350V	Q8	2SA1115	R35	22K, 1/4W
C22	0.033uF, 350V	Q9	2SC2603	R36	10K, 1/4W
C23	0.047uF, 350V	Q10	2SC2603	R37	100K, 1/4W
C24	0.05uF, 12V	Q11	2SA1115	R38	10K, 2W
CR1	3300pF, 470 ohm	R1	8.2K, 1/8W	R39	15K, 1W
CR2	0.047uF, 22 ohm	R2	150, 1/4W	R40	1K, 1/4W
D1	MA-23B	R3	10K, 1/8W	R41	100, 1/4W
D2	MZ-303	R4	27K, 1/8W	R42	5.6K, 2W
D3	S1R-150	R5	3.3K, 1/8W	R43	560K, 1/4W
D4	MA-150	R6	470, 1/8W	R44	22, 1/4W
D5	LN16WP	R7	10K, 1/8W	R45	1K, 1/4W
D6	MZ-320A	R8	10K, 1/8W	SCR1	CR3CM-8
D7	MA-150	R9	1.8M, 1/8W	SCR2	CR3JM-8
D8	MA-150	R10	100, 1/8W	SCR3	CRO2AM-8
D9	MA-150	R11	4.7K, 1/8W	SW2	SKM-24MP-8N
D10	10D-8	R12	8.2K, 1/8W	T1	1946
D11	10D-8	R13	330, 1/8W	T2	Nc-850
D12	MA-150	R14	470, 1/8W		

NOTE

These parts are listed in Section 4 where they are fully identified with part numbers and complete descriptions.

Modular Dedicated Flash System Model 4600 With Standard Head

SERVICE NOTE

The order in which the interconnectors between the main body and the interchangeable heads as depicted on the electrical schematics differs from the actual order used on the units. See Figures 4-2 and 4-3 for identification of each interconnect point between the main body and standard head.

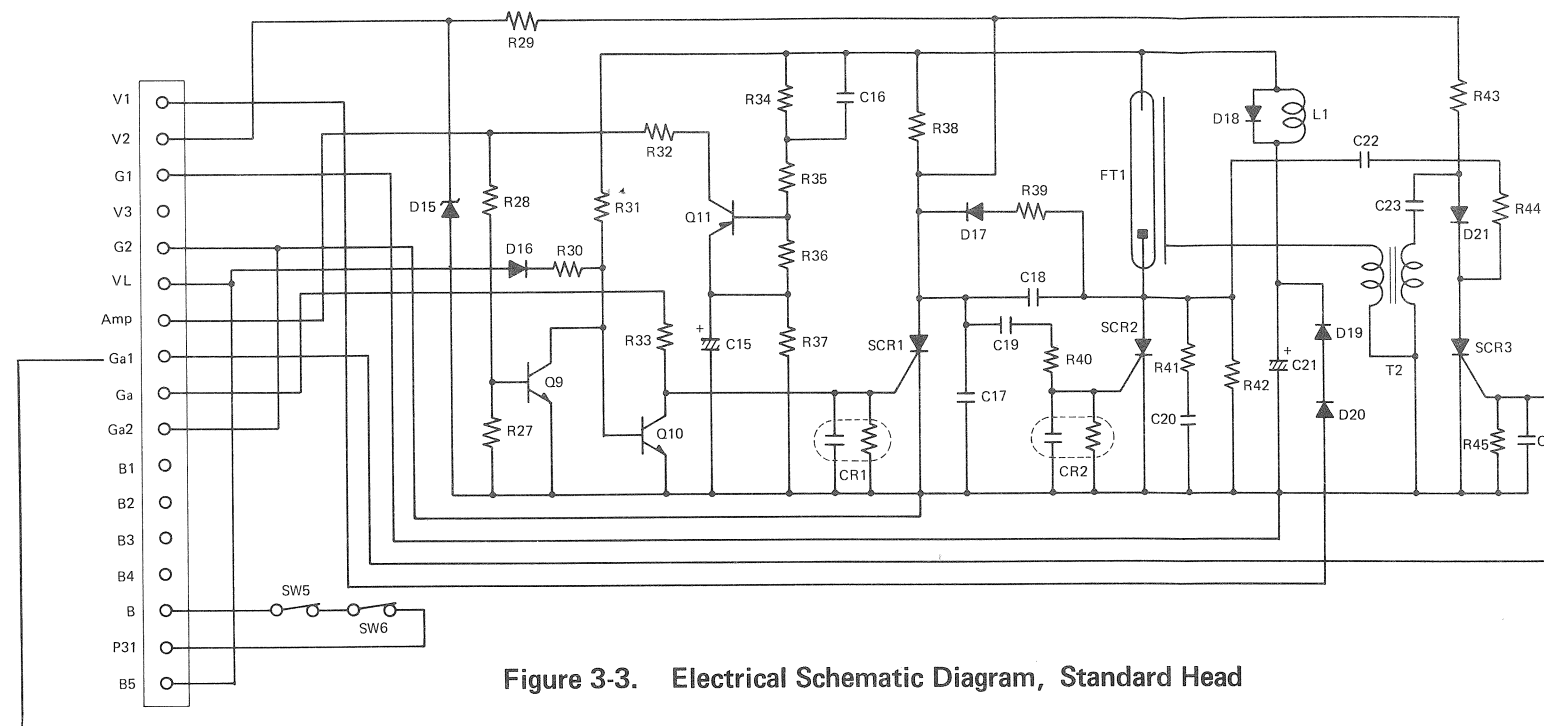


Figure 3-3. Electrical Schematic Diagram, Standard Head

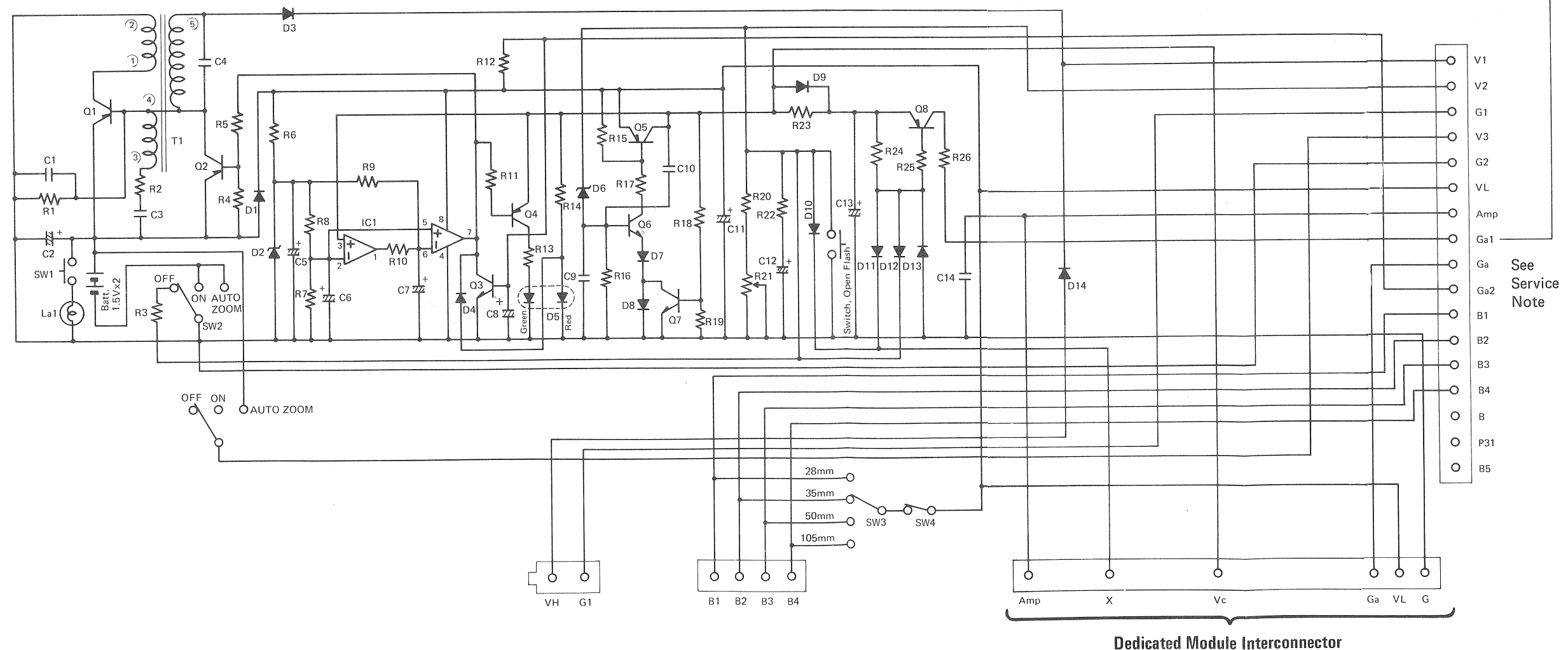


Figure 3-4. Electrical Schematic Diagram, Main Body

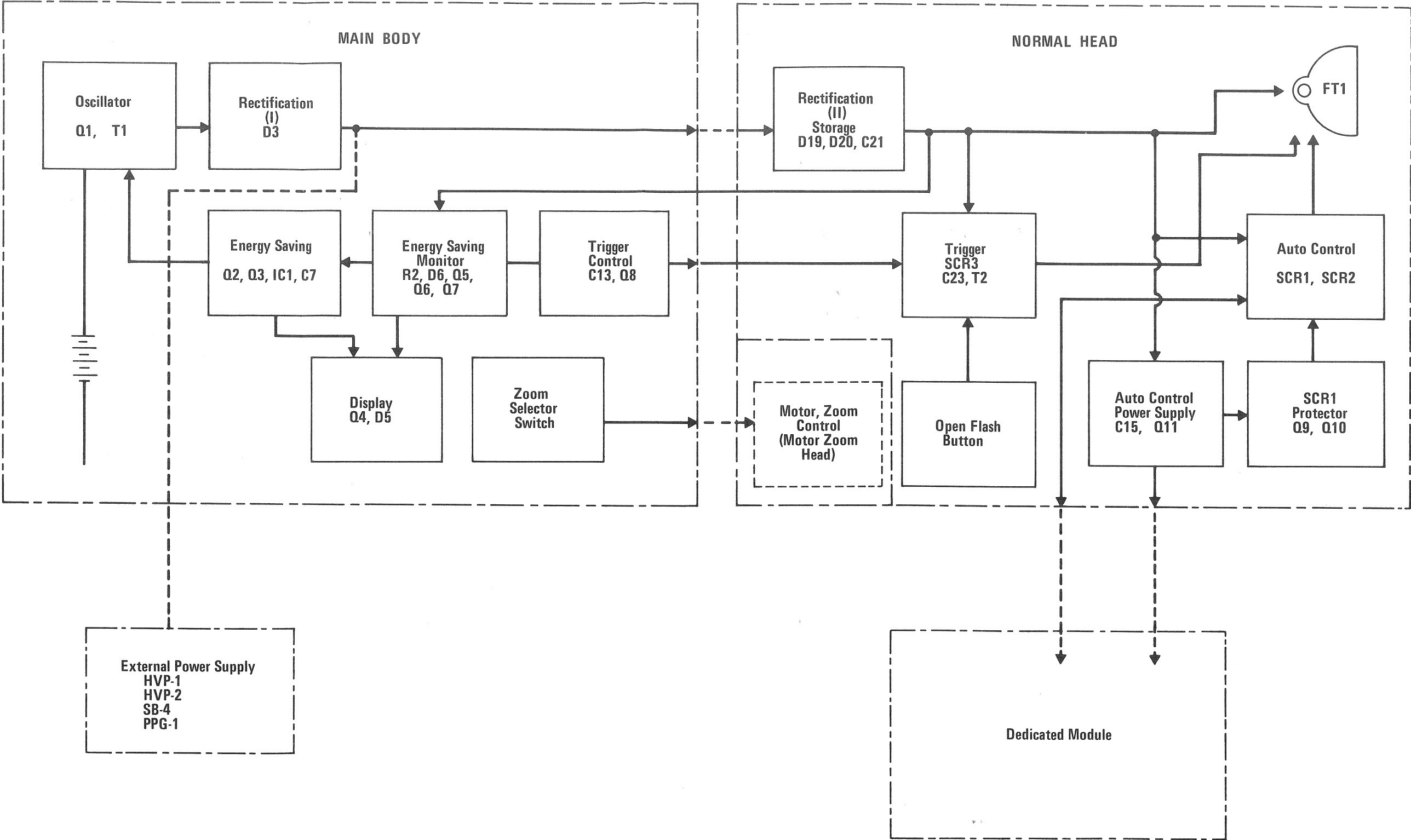


Figure 3-5. Circuit Block Diagram

SECTION 4 ILLUSTRATED PARTS LIST AND WIRING DIAGRAMS

4.1 GENERAL

This section contains exploded view drawings, PC boards and wiring connections, an electronic schematic, and a parts list for the Vivitar Model 4600 Automatic Electronic Flash. Reference in the drawings are cross-indexed in the parts list to their description and part number. Use the list to determine whether the part is available separately or only as an assembly. Please note that this section is based on production data at time of publication, and that details may vary with production changes.

4.2 PARTS LIST

When ordering parts, please indicate model number of equipment, part number, part description, and quantity required.

**Modular Dedicated Flash System
Model 4600 With Standard Head**

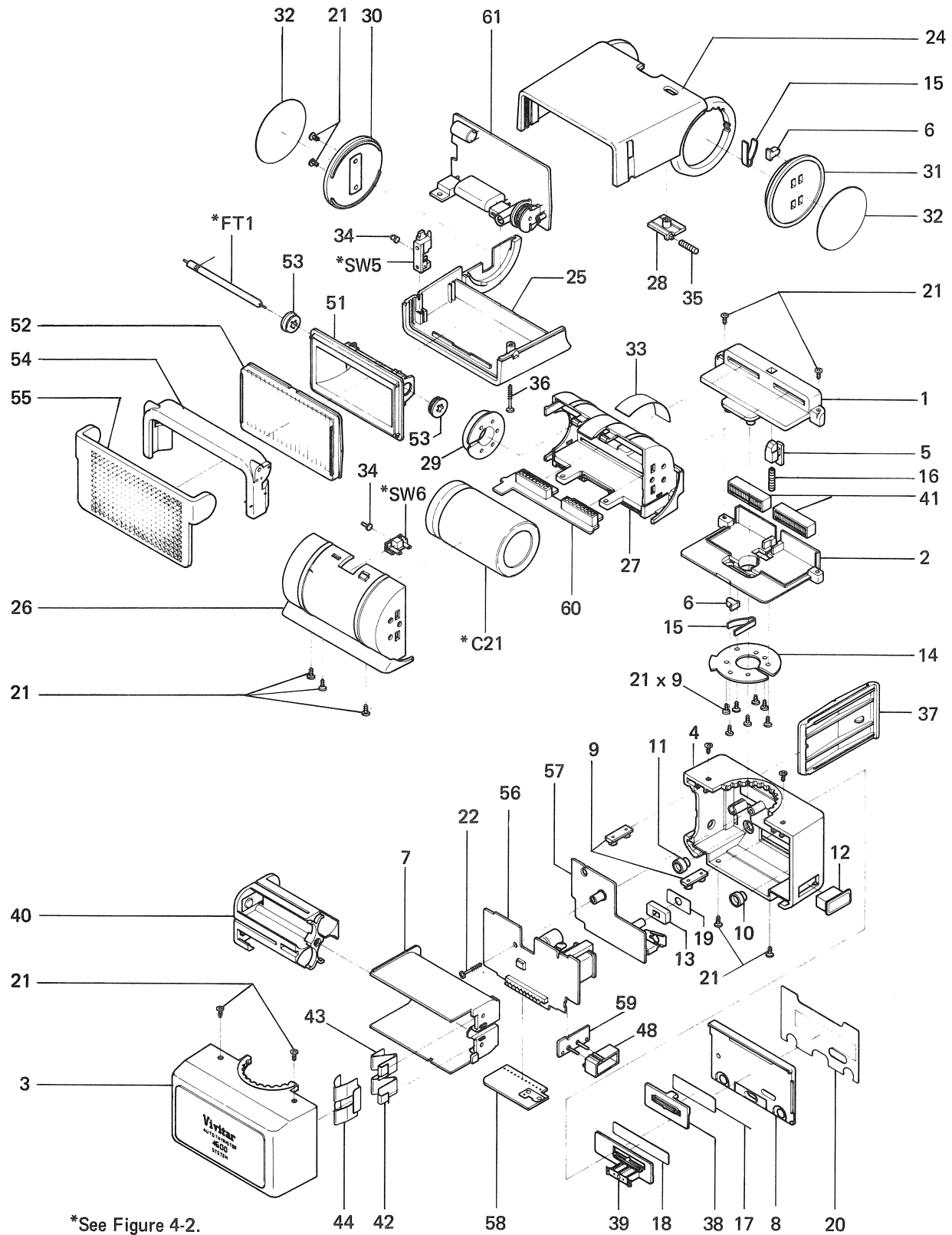
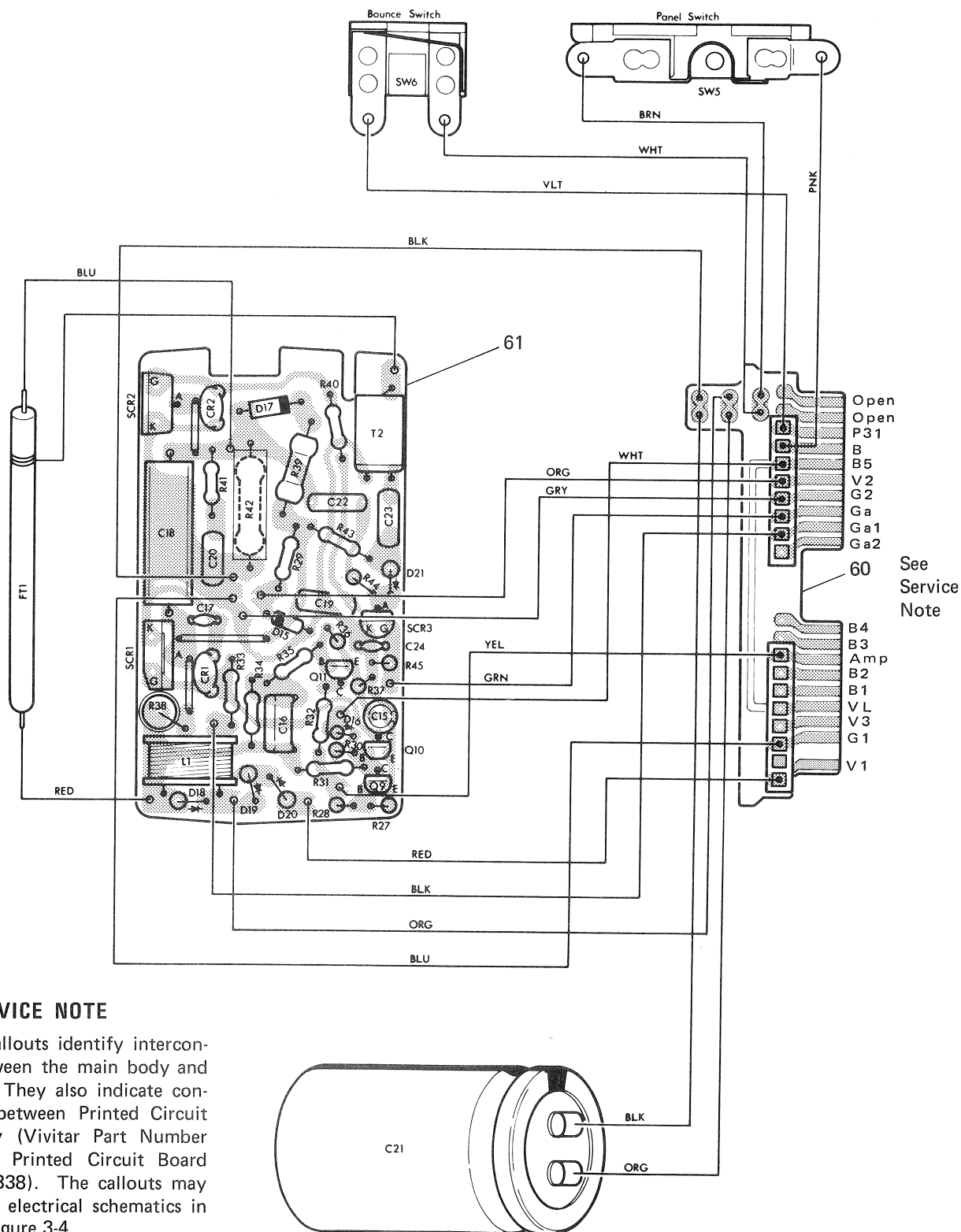


Figure 4-1. Mechanical and Functional Parts

Parts List for Figure 4-1. Mechanical and Functional Parts

Ref.	Vivitar Part No.	Description	Quantity	Part Code
1	3110307	CASE MA, BODY	1	SS092-45
2	3110308	CASE MB, BODY	1	SS092-46
3	3110309	CASE MC, BODY	1	SS092-47
4	3110310	CASE MD, BODY	1	SS092-48
5	3110311	BUTTON, FLASH HEAD LOCK	1	SS201-11
6	3110312	STOPPER, CLICK	2	SS038-74
7	3110313	CASE, BATTERY	1	SS038-70
8	3110314	BASE, CALCULATOR PLATE	1	SS038-71
9	3110315	FIXTURE, BODY CASE	2	SS038-72
10	3110316	BUTTON, CALCULATOR LIGHT	1	SS004-33
11	3108849	BUTTON, OPEN FLASH	1	SS004-29
12	3108852	CAP, EXTERNAL POWER CONNECTION	1	SS017-24
13	3108853	SPACER, SWITCH	1	SS036-13
14	3110317	PLATE, ROTATING	1	SS102-65
15	3600215	SPRING, SET, BOUNCE ANGLE	2	SS178-09
16	3110318	SPRING, LOCK BUTTON	1	SS164-22
17	3110319	PLATE, F-STOP	1	SS206-98
18	3110320	PLATE, DISTANCE	1	SS206-99
19	3110321	PLATE, POWER SWITCH	1	SS227-01
20	3110322	PLATE, CALCULATOR	1	SS806-20
21	3110323	SCREW, PANHD, 2.0x5.0, BR	20	SG022-56
22	3110218	SCREW, PANHD, TAP, 2.0x15	1	SG022-08
24	3110325	CASE NA, BODY	1	SS092-49
25	3110326	CASE NB, BODY	1	SS092-50
26	3110327	CASE NC, BODY	1	SS092-51
27	3110328	CASE ND, BODY	1	SS092-52
28	3110329	BUTTON, -10 DEGREE RELEASE	1	SS038-77
29	3110330	AXLE, BOUNCE	1	SS013-20
30	3110331	AXLE (R), BOUNCE	1	SS013-21
31	3110332	AXLE (L), BOUNCE	1	SS013-32
32	3110333	PLATE, BOUNCE AXLE	2	SS227-02
33	3110334	SEAL, BOUNCE ANGLE	1	SS806-21
34	3110335	POST, SWITCH	2	SS035-52
35	3110336	SPRING, RELEASE BUTTON	1	SS164-34
36	3600063	SCREW, PANHD, TAP, 2.0x22, BR	1	SG032-01
37	3110353	LID, BATTERY COMPARTMENT	1	SS037-35
38	3110354	KNOB, ASA SELECTOR	1	SS008-96
39	3110355	DISTANCE KNOB ASSY	1	SS008-97
40	3600247	HOLDER, BATTERY	1	SS001-58
41	3110356	CONNECTOR, SE	2	SS012-50
42	3600259	TERMINAL, BATTERY, +	1	SS109-64
43	3600260	TERMINAL, BATTERY, -	1	SS109-65
44	3600007	TERMINAL, BATTERY, COMMON	1	SS109-24
48	3110360	RECEPTACLE, EXTERNAL POWER	1	SS008-98
51	3110363	REFLECTOR	1	SS003-71
52	3110364	DIFFUSER	1	SS055-58
53	3110365	BUSHING, XENON TUBE	2	SS011-48
54	3104517	HOLDER, WIDE DIFFUSER	1	SS055-09
55	3104518	DIFFUSER, WIDE	1	SS055-10
56	3110337	PRINTED CIRCUIT BOARD (A) ASSY	1	SS302-97
57	3110338	PRINTED CIRCUIT BOARD (B) ASSY	1	SS302-98
58	3110339	PRINTED CIRCUIT BOARD (C) ASSY	1	SS302-99
59	3110304	PRINTED CIRCUIT BOARD (D) ASSY	1	SS303-01
60	3110341	PRINTED CIRCUIT BOARD (E) ASSY	1	SS303-02
61	3110342	PRINTED CIRCUIT BOARD (F) ASSY	1	SS303-03

**Modular Dedicated Flash System
Model 4600 With Standard Head**



SERVICE NOTE

The reference callouts identify interconnect points between the main body and standard head. They also indicate connection points between Printed Circuit Board (A) Assy (Vivitar Part Number 3110337) and Printed Circuit Board (B) Assy (3100338). The callouts may be referenced to electrical schematics in Figure 3-3 and Figure 3-4.

Figure 4-2. PC Board and Wiring Connections, Standard Head

Parts List for Figure 4-2. PC Board and Wiring Connections, Standard Head

Ref.	Vivitar Part No.	Description	Quantity	Part Code
60	3110341	PRINTED CIRCUIT BOARD (E) ASSY	1	SS303-02
61	3110342	PRINTED CIRCUIT BOARD (F) ASSY	1	SS303-03
C15	3109739	CAPACITOR, ELECTRO, 4.7uF, 50V (K)	1	SC000-06
C16	3110391	CAPACITOR, MD, 0.033uF, (M35-IID)	1	SC101-51
C17	3104535	CAPACITOR, CERAMIC, 470pF, 500V	1	SC002-05
C18	3110392	CAPACITOR, MD, 3.3uF, (M35-IT)	1	SC101-43
C19	3108896	CAPACITOR, MD, 0.047uF (M35-IID, E)	1	SC101-57
C20	3110393	CAPACITOR, MD, 0.068uF (M35-IID, E)	1	SC101-60
C21	3110394	CAPACITOR, MAIN, 1000uF, 350V	1	SS505-04
C22	3110391	CAPACITOR, MD, 0.033uF (M35-IID)	1	SC101-51
C23	3108896	CAPACITOR, MD, 0.047uF (M35-IID, E)	1	SC101-57
C24	3100043	CAPACITOR, SEMICON, 3.05uF, 12V	1	SC004-01
CR1	3110395	C-R COMBINATION, 3300pF/470	1	SC031-04
CR2	3110396	C-R COMBINATION, 0.047uF/22	1	SC031-03
D15	3110400	DIODE, ZENER, MZ-333	1	SC006-28
D16	3100353	DIODE, SILICON, MA-150	1	SC005-48
D17	3100100	DIODE, SILICON, 10D-8	1	SC005-05
D18	3100100	DIODE, SILICON, 10D-8	1	SC005-05
D19	3100100	DIODE, SILICON, 10D-8	1	SC005-05
D20	3100100	DIODE, SILICON, 10D-8	1	SC005-05
D21	3100100	DIODE, SILICON, 10D-8	1	SC005-05
FT1	3100158	FLASHTUBE, D-361BL	1	SS500-25
L1	3100165	INDUCTOR, 14mm, 272L1	1	SC021-10
Q9	3104147	TRANSISTOR, 2SC2603	1	SC003-50
Q10	3104147	TRANSISTOR, 2SC2603	1	SC003-50
Q11	3104146	TRANSISTOR, 2SA1115	1	SC003-49
R27	3110371	RESISTOR, CRBN COMP, 100K, 1/4W	1	SC007-63
R28	3110372	RESISTOR, CRBN COMP, 56K, 1/4W	1	SC039-71
R29	3110373	RESISTOR, CRBN COMP, 1.8M, 1/4W, 1%	1	SC039-72
R30	3110374	RESISTOR, CRBN COMP, 2.2K, 1/4W	1	SC007-51
R31	3110375	RESISTOR, CRBN COMP, 1M, 1/4W	1	SC007-70
R32	3110376	RESISTOR, CRBN COMP, 470, 1/4W	1	SC039-44
R33	3110376	RESISTOR, CRBN COMP, 470, 1/4W	1	SC039-44
R34	3110377	RESISTOR, CRBN COMP, 1.2M, 1/4W	1	SC007-53
R35	3110378	RESISTOR, CRBN COMP, 22K, 1/4W	1	SC007-96
R36	3110379	RESISTOR, CRBN COMP, 10K, 1/4W	1	SC007-82
R37	3110371	RESISTOR, CRBN COMP, 100K, 1/4W	1	SC007-63
R38	3110380	RESISTOR, METAL OXIDE, 10K, 2W	1	SC019-11
R39	3103727	RESISTOR, METAL OXIDE, 15K, 1W	1	SC008-78
R40	3110381	RESISTOR, CRBN COMP, 1K, 1/4W	1	SC007-57
R41	3110382	RESISTOR, CRBN COMP, 100, 1/4W	1	SC009-39
R42	3110383	RESISTOR, METAL OXIDE, 5.6K, 2W	1	SC019-13
R43	3110384	RESISTOR, CRBN COMP, 560K, 1/4W	1	SC039-51
R44	3110385	RESISTOR, CRBN COMP, 22, 1/4W	1	SC007-93
R45	3110381	RESISTOR, CRBN COMP, 1K, 1/4W	1	SC007-57
SCR1	3103730	SCR, CR3CM-8	1	SC023-32
SCR2	3102813	SCR, CR3JM-8	1	SC023-31
SCR3	3100038	SCR, CR02AM-8	1	SC023-04
SW5	3110404	SWITCH (A) ASSY	1	SC304-08
SW6	3110405	SWITCH (B) ASSY	1	SC304-09
T2	3100356	TRANSFORMER, TRIGGER, NC-850	1	SS508-25

**Modular Dedicated Flash System
Model 4600 With Standard Head**

Parts List for Figure 4-3. PC Board and Wiring Connections, Main Body

Ref.	Vivitar Part No.	Description	Quantity	Part Code
23	3110324	JOINER, PC BOARD	1	SG800-05
41	3110356	CONNECTOR, SE	1	SS012-50
45	3110357	PC BOARD (A), FLEXIBLE	1	SS410-97
46	3110358	PC BOARD (B), FLEXIBLE	1	SS410-98
47	3110359	PC BOARD (C), FLEXIBLE	1	SS410-99
49	3110361	CONNECTOR, XH (BM11P-90)	1	SS012-51
50	3110362	CONNECTOR, XH (SB15P-HVQ-28)	1	SS012-52
56	3110337	PRINTED CIRCUIT BOARD (A) ASSY	1	SS302-97
57	3110338	PRINTED CIRCUIT BOARD (B) ASSY	1	SS302-98
58	3110339	PRINTED CIRCUIT BOARD (C) ASSY	1	SS302-99
59	3110304	PRINTED CIRCUIT BOARD (D) ASSY	1	SS302-01
C1	3100218	CAPACITOR, SEMICON, 0.1uF, 12V	1	SC004-04
C2	3110386	CAPACITOR, ELECTRO, 220uF, 6.3V	1	SC000-75
C3	3100043	CAPACITOR, SEMICON, 3.05uF, 12V	1	SC004-01
C4	3110387	CAPACITOR, CERAMIC, 330pF, 500V	1	SC002-25
C5	3108895	CAPACITOR, ELECTRO, 1.0uF, 50V	1	SC000-46
C6	3108895	CAPACITOR, ELECTRO, 1.0uF, 50V	1	SC000-46
C7	3110388	CAPACITOR, ELECTRO, 22uF, 6.3V (K)	1	SC000-45
C8	3108895	CAPACITOR, ELECTRO, 1.0uF, 50V	1	SC000-46
C9	3100097	CAPACITOR, CERAMIC, 1000pF, 50V	1	SC002-11
C10	3100097	CAPACITOR, CERAMIC, 1000pF, 50V	1	SC002-11
C11	3110386	CAPACITOR, ELECTRO, 220uF, 6.3V	1	SC000-75
C12	3110389	CAPACITOR, TANTALUM, 0.15uF, 35V	1	SC020-21
C13	3108895	CAPACITOR, ELECTRO, 1.0uF, 50V	1	SC000-46
C14	3110390	CAPACITOR, TF, 0.22uF (J05-IID)	1	SC103-05
D1	3108945	DIODE, MA-23B	1	SC006-16
D2	3108919	DIODE, ZENER, MZ-303	1	SC006-26
D3	3100003	DIODE, SILICON, S1R-150, ORNG/GLO	1	SC005-31
D4	3100353	DIODE, SILICON, MA-150	1	SC005-48
D5	3110398	LED, LN16UP	1	SC025-39
D6	3110399	DIODE, ZENER, MZ-320A	1	SC006-10
D7	3100353	DIODE, SILICON, MA-150	1	SC005-48
D8	3100353	DIODE, SILICON, MA-150	1	SC005-48
D9	3100353	DIODE, SILICON, MA-150	1	SC005-48
D10	3100100	DIODE, SILICON, 10D-8	1	SC005-05
D11	3100100	DIODE, SILICON, 10D-8	1	SC005-05
D12	3100353	DIODE, SILICON, MA-150	1	SC005-48
D13	3102815	DIODE, SILICON, 10D-1	1	SC005-04
D14	3100100	DIODE, SILICON, 10D-8	1	SC005-05
La1	3110402	LAMP, TUNGSTEN, 60mA, 5V	1	SS502-31
Q1	3110397	TRANSISTOR, 2SB936	1	SC003-69
Q2	3104146	TRANSISTOR, 2SA1115	1	SC003-49
Q3	3104147	TRANSISTOR, 2SC2603	1	SC003-50
Q4	3104146	TRANSISTOR, 2SA1115	1	SC003-49
Q5	3104146	TRANSISTOR, 2SA1115	1	SC003-49
Q6	3104147	TRANSISTOR, 2SC2603	1	SC003-50
Q7	3104147	TRANSISTOR, 2SC2603	1	SC003-50
Q8	3104146	TRANSISTOR, 2SA1115	1	SC003-49
R1	3110343	RESISTOR, SOLID, 8.2K, 1/8W	1	SC016-19
R2	3108933	RESISTOR, CRBN COMP, 150, 1/4W	1	SC039-20
R3	3110344	RESISTOR, CRBN COMP, 10K, 1/8W	1	SC039-33
R4	3110345	RESISTOR, CRBN COMP, 27K, 1/8W	1	SC039-53
R5	3110346	RESISTOR, CRBN COMP, 3.3K, 1/8W	1	SC039-57
R6	3110347	RESISTOR, CRBN COMP, 470, 1/8W	1	SC039-55
R7	3110344	RESISTOR, CRBN COMP, 10K, 1/8W	1	SC039-33
R8	3110344	RESISTOR, CRBN COMP, 10K, 1/8W	1	SC039-33
R9*	3110348	RESISTOR, CRBN COMP, 1.8M, 1/8W	1	SC039-88
R10	3108962	RESISTOR, CRBN COMP, 100, 1/8W	1	SC039-17
R11	3110349	RESISTOR, CRBN COMP, 4.7K, 1/8W	1	SC039-66
R12	3110343	RESISTOR, SOLID, 8.2K, 1/8W	1	SC016-19

*Early production units have 2.7M ohm resistor here.

Parts List continued on following page

Parts List for Figure 4-3, continued. PC Board and Wiring Connections, Main Body

Ref.	Vivitar Part No.	Description	Quantity	Part Code
R13	3110350	RESISTOR, CRBN COMP, 330, 1/8W	1	SC039-64
R14	3110347	RESISTOR, CRBN COMP, 470, 1/8W	1	SC039-55
R15	3110344	RESISTOR, CRBN COMP, 10K, 1/8W	1	SC039-33
R16	3110351	RESISTOR, CRBN COMP, 150K, 1/8W	1	SC039-87
R17	3110352	RESISTOR, CRBN COMP, 5.6K, 1/8W	1	SC039-62
R18	3110346	RESISTOR, CRBN COMP, 3.3K, 1/8W	1	SC039-57
R19	3110366	RESISTOR, CRBN COMP, 1.5K, 1/8W	1	SC039-32
R20	3110367	RESISTOR, CRBN COMP, 120K, 1/8W	1	SC039-69
R21	3108942	RESISTOR, VARIABLE, 100K	1	SC015-41
R22	3110368	RESISTOR, CRBN COMP, 1K, 1/8W	1	SC039-31
R23	3110369	RESISTOR, CRBN COMP, 22K, 1/8W	1	SC039-68
R24	3110370	RESISTOR, CRBN COMP, 180, 1/8W	1	SC039-29
R25	3110366	RESISTOR, CRBN COMP, 1.5K, 1/8W	1	SC039-32
R26	3108962	RESISTOR, CRBN COMP, 100, 1/8W	1	SC039-17
SW2	3110403	SWITCH, SLIDE, SKM-24PM-8N	1	SC300-53
T1	3110401	TRANSFORMER, OSC, 1946	1	SS506-92
IC1	3108966	IC, MPC393G	1	SS514-30

Modular Dedicated Flash System
Model 4600 With Standard Head

SERVICE NOTE

The reference callouts identify interconnect points between the main body and standard head. They also indicate connection points between Printed Circuit Board (A) Assy (Vivitar Part Number 3110337) and Printed Circuit Board (B) Assy (3100338). The callouts may be referenced to electrical schematics in Figure 3-3 and Figure 3-4.

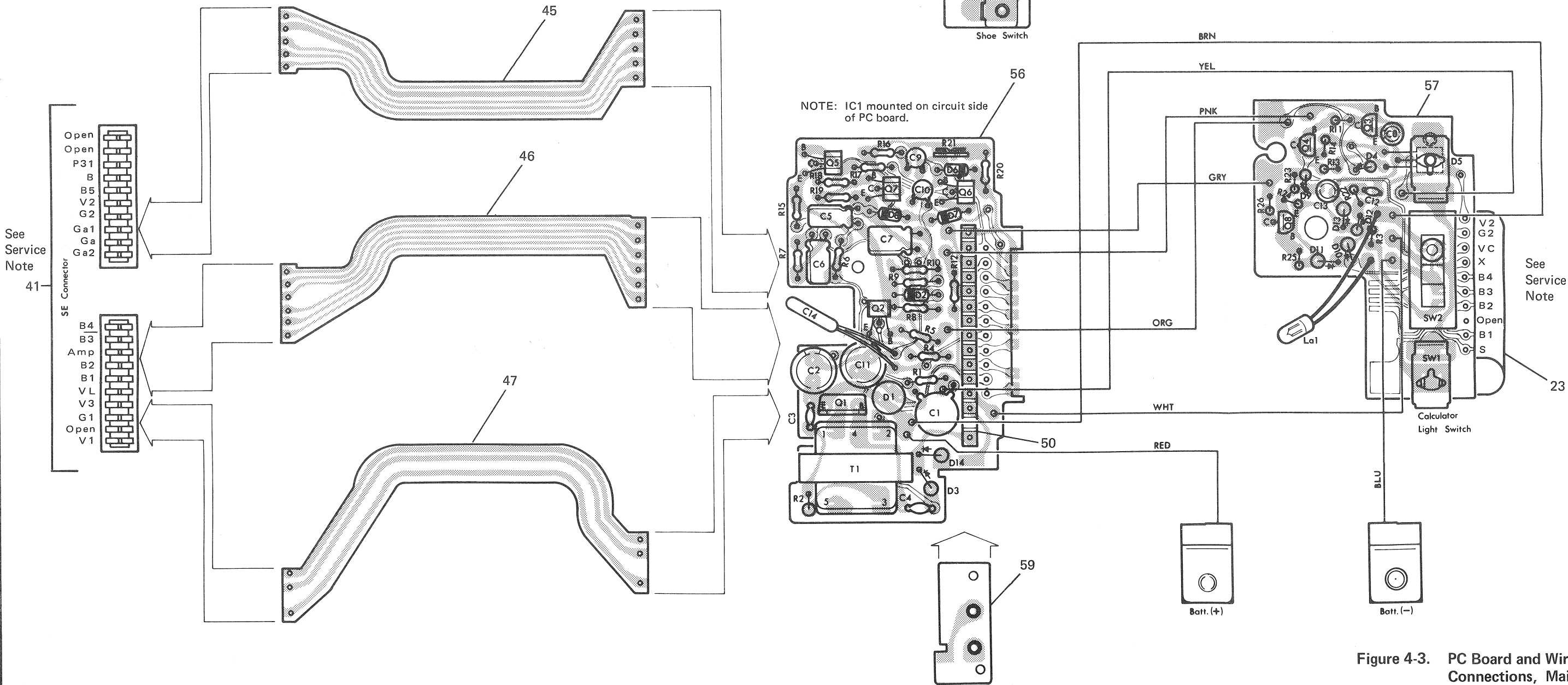


Figure 4-3. PC Board and Wiring Connections, Main Body

COMPLETE PARTS LIST

Vivitar Part No.	Part Code	Description	Quantity
3100003	SC005-31	DIODE, SILICON, S1R-150, ORNG/GLO	1
3100038	SC023-04	SCR, CR02AM-8	1
3100043	SC004-01	CAPACITOR, SEMICON, 3.05uF, 12V	2
3100097	SC002-11	CAPACITOR, CERAMIC, 1000pF, 50V	2
3100100	SC005-05	DIODE, SILICON, 10D-8	8
3100158	SS500-25	FLASHTUBE, D-361BL	1
3100165	SC021-10	INDUCTOR, 14mm, 272L1	1
3100218	SC004-04	CAPACITOR, SEMICON, 0.1uF, 12V	1
3100353	SC005-48	DIODE, SILICON, MA-150	6
3100356	SS508-25	TRANSFORMER, TRIGGER, NC-850	1
3102813	SC023-31	SCR, CR3JM-8	1
3102815	SC005-04	DIODE, SILICON, 10D-1	1
3103727	SC008-78	RESISTOR, METAL OXIDE, 15K, 1W	1
3103730	SC023-32	SCR, CR3CM-8	1
3104146	SC003-49	TRANSISTOR, 2SA1115	5
3104147	SC003-50	TRANSISTOR, 2SC2603	5
3104517	SS055-09	HOLDER, WIDE DIFFUSER	1
3104518	SS055-10	DIFFUSER, WIDE	1
3104535	SC002-05	CAPACITOR, CERAMIC, 470pF, 500V	1
3108849	SS004-29	BUTTON, OPEN FLASH	1
3108852	SS017-24	CAP, EXTERNAL POWER CONNECTION	1
3108853	SS036-13	SPACER, SWITCH	1
3108895	SC000-46	CAPACITOR, ELECTRO, 1.0uF, 50V	4
3108896	SC101-57	CAPACITOR, MD, 0.047uF, (M35-IID, E)	2
3108919	SC006-26	DIODE, ZENER, MZ-303	1
3108933	SC039-20	RESISTOR, CRBN COMP, 150, 1/4W	1
3108942	SC015-41	RESISTOR, VARIABLE, 100K	1
3108945	SC006-16	DIODE, MA-23B	1
3108962	SC039-17	RESISTOR, CRBN COMP, 100, 1/8W	2
3108966	SS514-30	IC, MPC393G	1
3109739	SC000-06	CAPACITOR, ELECTRO, 4.7uF, 50V (K)	1
3110218	SG022-08	SCREW, PANHD, TAP, 2.0x15	1
3110304	SS303-01	PRINTED CIRCUIT BOARD (D) ASSY	1
3110307	SS092-45	CASE MA, BODY	1
3110308	SS092-46	CASE MB, BODY	1
3110309	SS092-47	CASE MC, BODY	1
3110310	SS092-48	CASE MD, BODY	1
3110311	SS201-11	BUTTON, FLASH HEAD LOCK	1
3110312	SS038-74	STOPPER, CLICK	2
3110313	SS038-70	CASE, BATTERY	1
3110314	SS038-71	BASE, CALCULATOR PLATE	1
3110315	SS038-72	FIXTURE, BODY CASE	2
3110316	SS004-33	BUTTON, CALCULATOR LIGHT	1
3110317	SS112-65	PLATE, ROTATING	1
3110318	SS164-22	SPRING, LOCK BUTTON	1
3110319	SS206-98	PLATE, F-STOP	1
3110320	SS206-99	PLATE, DISTANCE	1
3110321	SS227-01	PLATE, POWER SWITCH	1
3110322	SS806-20	PLATE, CALCULATOR	1
3110323	SG022-56	SCREW, PANHD, 2.0x5.0, BR	20
3110324	SG800-05	JOINER, PC BOARD	1
3110325	SS092-49	CASE NA, BODY	1
3110326	SS092-50	CASE NB, BODY	1
3110327	SS092-51	CASE NC, BODY	1
3110328	SS092-52	CASE ND, BODY	1
3110329	SS038-77	BUTTON, -10 DEGREE RELEASE	1
3110330	SS013-20	AXLE, BOUNCE	1
3110331	SS013-21	AXLE (R), BOUNCE	1
3110332	SS013-22	AXLE (L), BOUNCE	1
3110333	SS227-02	PLATE, BOUNCE AXLE	2
3110334	SS806-21	SEAL, BOUNCE ANGLE	1

Modular Dedicated Flash System
Model 4600 With Standard Head

COMPLETE PARTS LIST, Continued

Vivitar Part No.	Part Code	Description	Quantity
3110335	SS035-52	POST, SWITCH	2
3110336	SS164-34	SPRING, RELEASE BUTTON	1
3110337	SS302-97	PRINTED CIRCUIT BOARD (A) ASSY	1
3110338	SS302-98	PRINTED CIRCUIT BOARD (B) ASSY	1
3110339	SS302-99	PRINTED CIRCUIT BOARD (C) ASSY	1
3110341	SS303-02	PRINTED CIRCUIT BOARD (E) ASSY	1
3110342	SS303-03	PRINTED CIRCUIT BOARD (F) ASSY	1
3110343	SC016-19	RESISTOR, SOLID, 8.2K, 1/8W	2
3110344	SC039-33	RESISTOR, CRBN COMP, 10K, 1/8W	4
3110345	SC039-53	RESISTOR, CRBN COMP, 27K, 1/8W	1
3110346	SC039-57	RESISTOR, CRBN COMP, 3.3K, 1/8W	2
3110347	SC039-55	RESISTOR, CRBN COMP, 470, 1/8W	2
3110348	SC039-88	RESISTOR, CRBN COMP, 1.8M, 1/8W	1
3110349	SC039-66	RESISTOR, CRBN COMP, 4.7K, 1/8W	1
3110350	SC039-64	RESISTOR, CRBN COMP, 330, 1/8W	1
3110351	SC039-87	RESISTOR, CRBN COMP, 150K, 1/8W	1
3110352	SC039-62	RESISTOR, CRBN COMP, 5.6K, 1/8W	1
3110353	SS037-35	LID, BATTERY COMPARTMENT	1
3110354	SS008-96	KNOB, ASA SELECTOR	1
3110355	SS008-97	DISTANCE KNOB ASSY	1
3110356	SS012-50	CONNECTOR, SE	2
3110357	SS410-97	PC BOARD (A), FLEXIBLE	1
3110358	SS410-98	PC BOARD (B), FLEXIBLE	1
3110359	SS410-99	PC BOARD (C), FLEXIBLE	1
3110360	SS008-98	RECEPTACLE, EXTERNAL POWER	1
3110361	SS012-51	CONNECTOR, XH (MB11P-90)	1
3110362	SS012-52	CONNECTOR, XH (SB15P-HVQ-28)	1
3110363	SS003-71	REFLECTOR	1
3110364	SS055-58	DIFFUSER	1
3110365	SS011-48	BUSHING, XENON TUBE	2
3110366	SC039-32	RESISTOR, CRBN COMP, 1.5K, 1/8W	2
3110367	SC039-69	RESISTOR, CRBN COMP, 120K, 1/8W	1
3110368	SC039-31	RESISTOR, CRBN COMP, 1K, 1/8W	1
3110369	SC039-68	RESISTOR, CRBN COMP, 22K, 1/8W	1
3110370	SC039-29	RESISTOR, CRBN COMP, 180, 1/8W	1
3110371	SC007-63	RESISTOR, CRBN COMP, 100K, 1/4W	2
3110372	SC039-71	RESISTOR, CRBN COMP, 56K, 1/4W	1
3110373	SC039-72	RESISTOR, CRBN COMP, 1.8M, 1/4W, 1%	1
3110374	SC007-51	RESISTOR, CRBN COMP, 2.2K, 1/4W	1
3110375	SC007-70	RESISTOR, CRBN COMP, 1M, 1/4W	1
3110376	SC039-44	RESISTOR, CRBN COMP, 470, 1/4W	2
3110377	SC007-53	RESISTOR, CRBN COMP, 1.2M, 1/4W	1
3110378	SC007-96	RESISTOR, CRBN COMP, 22K, 1/4W	1
3110379	SC007-82	RESISTOR, CRBN COMP, 10K, 1/4W	1
3110380	SC019-11	RESISTOR, METAL OXIDE, 10K, 2W	1
3110381	SC007-57	RESISTOR, CRBN COMP, 1K, 1/4W	2
3110382	SC009-39	RESISTOR, CRBN COMP, 100, 1/4W	1
3110383	SC019-13	RESISTOR, METAL OXIDE, 5.6K, 2W	1
3110384	SC039-51	RESISTOR, CRBN COMP, 560K, 1/4W	1
3110385	SC007-93	RESISTOR, CRBN COMP, 22, 1/4W	1
3110386	SC000-75	CAPACITOR, ELECTRO, 220uF, 6.3V	2
3110387	SC002-25	CAPACITOR, CERAMIC, 330pF, 500V	1
3110388	SC000-45	CAPACITOR, ELECTRO, 22uF, 6.3V (K)	1
3110389	SC020-21	CAPACITOR, TANTALUM, 0.15uF, 35V	1
3110390	SC103-05	CAPACITOR, TF, 0.22uF (J05-IID)	1
3110391	SC101-51	CAPACITOR, MD, 0.033uF, (M35-IID)	2
3110392	SC101-43	CAPACITOR, MD, 3.3uF (M35-IT)	1
3110393	SC101-60	CAPACITOR, MD, 0.068uF (M35-IID, E)	1
3110394	SS505-04	CAPACITOR, MAIN, 1000uF, 350V	1
3110395	SC031-04	C-R COMBINATION, 3300pF/470	1

COMPLETE PARTS LIST, Continued

Vivitar Part No.	Part Code	Description	Quantity
3110396	SC031-03	C-R COMBINATION, 0.047uF/22	1
3110397	SC003-69	TRANSISTOR, 2SB936	1
3110398	SC025-39	LED, LN16UP	1
3110399	SC006-10	DIODE, ZENER, MZ-320A	1
3110400	SC006-28	DIODE, ZENER, MZ-333	1
3110401	SS506-92	TRANSFORMER, OSC, 1946	1
3110402	SS502-31	LAMP, TUNGSTEN, 60mA, 5V	1
3110403	SC300-53	SWITCH, SLIDE, SKM-24MP-8N	1
3110404	SC304-08	SWITCH (A) ASSY	1
3110405	SC304-09	SWITCH (B) ASSY	1
3600007	SS109-24	TERMINAL, BATTERY, COMMON	1
3600063	SG032-01	SCREW, PANHD, TAP, 2.0x22, BR	1
3600215	SS178-09	SPRING, SET, BOUNCE ANGLE	2
3600247	SS001-58	HOLDER, BATTERY	1
3600259	SS109-64	TERMINAL, BATTERY, +	1
3600260	SS109-65	TERMINAL, BATTERY, -	1