

**PREFLIGHT INSPECTION****CABIN**

1. Documents/Hobbs/Tach/Squawks—CHECK
2. For **30 Day VOR Accuracy** - CHECK
2. Pilot's Operating Handbook and **Flyaway Book** --IN AIRPLANE
4. Control Wheel Lock--REMOVE
5. Ignition Switch--OFF place keys on glare shield
6. **Avionics Master Switch--OFF**
7. Circuit Breakers--IN
8. Electrical Switches--OFF
9. Master Switch--ON
10. Flashing Beacon--ON / CHECK
11. Fuel Quantity Indicators--CHECK FUEL QUANTITY.

**NOTE**

**IF ADDITIONAL FUEL IS REQUIRED, DEFER ALL PREFLIGHT ACTIONS RELATED TO FUEL SAMPLING AND CONFIRMATION OF QUANTITIES UNTIL REFUELING HAS BEEN COMPLETED.**

**NOTE**

Visually check airplane for general condition during walk-around inspection. In cold weather, remove even small accumulations of frost, ice or snow from wing, tail and control surfaces. Also, make sure that control surfaces contain no internal accumulation of ice or debris. Prior to flight, check that pitot heater (if installed) is warm to touch within 30 seconds of battery and pitot heat switches on. If a night flight is planned, check operation of all lights, and make sure a flashlight is available. Check the surrounding area for debris which may be drawn into or blown about by the propeller. If necessary, position the airplane to avoid creating a hazard to buildings, vehicles or persons by the propeller blast

**WARNING**

When turning on the master switch, using an external power source, or pulling the propeller through by hand, treat the propeller as if the ignition switch were on. Do not stand, or allow anyone else to stand within the arc of the propeller, since a loose or broken wire, or a component malfunction, could cause the propeller to rotate.

12. Fuel Selector Valve--**CHECK movement**, SET TO ON
13. Flaps--EXTEND
14. Exterior and Interior Lights (for night flight)--CHECK
15. Master Switch--OFF

**EMPENNAGE**

1. Rudder Gust Lock—REMOVE if installed
2. Tail Tie-Down—DISCONNECT
3. Control Surfaces--CHECK freedom of movement and security
4. Trim Tab—CHECK for security
5. Antennas—CHECK for security and general condition

**RIGHT WING Trailing Edge**

1. Flap--CHECK for security and damage
2. Aileron--CHECK freedom of movement and security

**RIGHT WING**

1. Wing Tip and Lights--CHECK
2. Wing Tie-Down--DISCONNECT
3. Main Wheel/Tire--CHECK brakes, tire condition/inflation, chocks
4. Fuel Sample--CHECK for water, sediment, proper fuel grade & color (After refueling if needed)
5. Fuel Quantity--CHECK with dipstick for desired level. (After Refueling if needed)
6. Fuel Filler Cap—SECURE **(this should be a vented cap)**
7. Cabin Vent--CHECK

**NOSE**

1. Engine Oil Level--CHECK, **do not operate with less than four quarts.** Fill to six quarts for extended flight
2. Fuel Strainer--DRAIN before first flight of the day **and after each refueling if required.** Pull out strainer knob for about four seconds to clear fuel strainer of possible water and sediment. CHECK STRAINER DRAIN CLOSED
3. Propeller and Spinner--CHECK for nicks and security
4. Engine Cooling Air Inlets—CLEAR of obstructions, check for cylinder cooling baffle integrity, oil leaks, alternator belt security and tension
5. Cowling--CHECK FOR SECURITY
6. Landing/Taxi Lights--CHECK condition and cleanliness
7. Carburetor Air Filter--CHECK for restrictions, dust, or foreign matter
8. Nose Wheel Strut and Tire--CHECK condition, inflation, and security
9. Nose Tie-Down--DISCONNECT, remove chocks
10. Static Port (left side of fuselage)--CHECK for blockage

**LEFT WING**

1. Wing Tip and Lights--CHECK
2. Wing Tie-Down--DISCONNECT
3. Main Wheel/Tire--CHECK brakes, tire condition/inflation, chocks
4. Fuel Sample--CHECK for water, sediment, proper fuel grade & color (After refueling if needed)
5. Fuel Quantity--CHECK with dipstick for desired level. (After Refueling if needed)
6. Fuel Filler Cap—SECURE **(this should be a vented cap)**
7. Cabin Vent--CHECK

**LEFT WING Leading Edge**

1. Pitot Tube Cover--REMOVE, check opening for blockage
2. Fuel Tank Vent Opening--CHECK for stoppage
3. Stall Warning Opening--CHECK for stoppage. To check operation, place a handkerchief over the vent opening and apply suction; a sound from the warning horn will confirm system operation
4. Wing Tie-Down--DISCONNECT
5. Wing Tip and Lights--CHECK

**LEFT WING Trailing Edge**

1. Aileron--CHECK freedom of movement and security
2. Flap--CHECK for security and damage

**REFUELING C152 AIRCRAFT**

1. **Tow Aircraft to Fuel Pump.**
2. **Chock Main Wheel.**
3. **Attach Fueling Ground Wire to Aircraft.**
4. **Position Ladder at Initial Wing Tank Location.**
5. **Unlock and Turn on Pump.**
6. **Add desired Quantity to selected Tank and Verify Quantity with Dipstick.**
7. **Reposition Ladder and repeat Step 6 on remaining Tank.**
8. **Store Hose and ladder, Turn off pump, Lock and note Fuel Quantity.**
9. **Perform fuel sampling of each tank and Carburetor drain in nose for contamination. Drain as required to assure clean fuel.**

## SECTION 4

# NORMAL PROCEDURES

**SPEEDS FOR NORMAL OPERATION**

Unless otherwise noted, the following speeds are based on a maximum weight of 1670 pounds and may be used for any lesser weight. However, to achieve the performance specified in Section 5 for takeoff distance, the speed appropriate to the particular weight must be used.

Takeoff, Flaps Up:	<u>K IAS</u>
Normal Climb Out.....	65-75
Short Field Takeoff, Flaps 10°, Speed at 50 Feet.....	54
Enroute Climb, Flaps Up:	
Normal.....	70-80
Best Rate of Climb, Sea Level .....	67
Best Rate of Climb, 10,000 Feet .....	61
Best Angle of Climb, Sea Level thru 10,000 feet.....	55
Landing Approach:	
Normal Approach, Flaps Up .....	60-70
Normal Approach, Flaps 30° .....	55-65
Short Field approach, Flaps 30° .....	54
Balked Landing:	
Maximum Power, Flaps 20° .....	55
Maximum Recommended Turbulent Air Penetration Speed:	
1670 Lbs.....	104
1500 Lbs.....	98
1350 Lbs.....	93
Maximum Demonstrated Crosswind Velocity:	
Takeoff or Landing.....	12

**BEFORE STARTING ENGINE**

1. Surrounding Area--CHECK FOR PERSONNEL AND HAZARDS;  
REMOVE CHOCKS AND TOW BAR

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2. Preflight Inspection--COMPLETE
3. Seats--ADJUST AND LOCK
4. Seat Belts and Shoulder Harnesses--ADJUST and LOCK
5. Passengers--BRIEFED
6. Fuel Selector Valve—CHECK ON
7. Electrical Equipment—CHECK OFF
8. Circuit Breakers--CHECK IN
9. **Avionics Master --CHECK OFF**

**CAUTION**

**AVIONICS MASTER SWITCH MUST BE OFF DURING ENGINE START TO PREVENT POSSIBLE DAMAGE TO AVIONICS**

10. Flashing Beacon Switch --RECHECK ON
11. Brakes--TEST and SET

**STARTING ENGINE**

1. Mixture--RICH
2. Carburetor Heat--COLD
3. Master Switch--ON
4. Prime--AS REQUIRED (3 strokes normally, (4-6 or more when cold))
5. Throttle--OPEN 1/2 INCH (Do not pump)
6. Propeller Area--CLEAR
7. Ignition Switch--START (release when engine starts), set 1000 RPM
8. Oil Pressure--CHECK
9. Flashing Beacon and Navigation Lights--ON as required
10. **Avionics Master Switch - ON**
11. Radios, SET- & CHECK OPERATION
12. Electrical Equipment--ON as required
13. Flaps--RETRACT

**TAXI CHECK**

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1. Radio— **Contact FSS and Activate Flight Plan** prior to taxi
2. Taxi-- REQUEST Taxi Clearance or announce intentions
3. Brakes--CHECK during initial movement
4. Maintain 1000 RPM, minimum, lean mixture during taxi to reduce plug fouling
3. Nose Wheel Steering--CHECK
4. Ailerons--POSITION for crosswind taxi
5. Magnetic Compass, Directional Gyro, Turn Coordinator—CHECK

### BEFORE TAKEOFF

1. Parking Brake--SET
2. Seats, Seat Belts, Shoulder Harnesses--CHECK SECURE
3. Cabin Doors and Windows--CLOSED and LOCKED
4. Flight Controls--FREE, and CORRECT
5. Flight Instruments--SET (Attitude Ind, Directional Gyro, Altimeter)
6. Primer--IN and LOCKED
7. Fuel Quantity--RECHECK
8. Fuel Selector Valve--RECHECK ON
9. Mixture--RICH (below 3000 feet)
10. Elevator Trim --SET FOR TAKEOFF
11. High/Low Voltage Light/Alternator Function--CHECK
12. Throttle--1700 RPM
  - a. Magnetos--CHECK (RPM drop should not exceed 125 RPM on either magneto or 50 RPM differential between magnetos)
  - b. Carburetor Heat--CHECK for RPM drop
  - c. Engine Instruments and Ammeter--CHECK
  - d. Suction Gauge—CHECK
13. Throttle--1000 RPM Minimum- Relean mixture for extended taxi
14. Navigation Lights --ON as required
15. Flaps--AS REQUIRED
16. Throttle Friction Lock—ADJUST
17. Radios (comm and nav)--SET, Contact Tower for Takeoff Clearance or Announce Intentions
15. Transponder --SET CODE & SQUAWK ALTITUDE

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18. Record Time Off

### LINE-UP CHECK

1. **Taxi into position –Perform Visual Check of runway final approaches for conflicting Traffic.**
2. Compass and Directional Gyro Heading—CHECK
3. Landing / Taxi Lights--AS REQUIRED
4. Brakes—RELEASE

### TAKEOFF

#### NORMAL TAKEOFF

1. Wing Flaps--0°-10°
2. Carburetor Heat--COLD
3. Throttle--FULL OPEN - **Confirm Max RPM and Oil pressure early in takeoff roll**
4. Elevator Control--LIFT NOSE WHEEL at 50 KIAS
5. Climb Speed--65-75 KIAS

#### SHORT FIELD TAKEOFF

1. Wing Flaps--10°
2. Carburetor Heat--COLD
3. Brakes—APPLY
4. Throttle--FULL OPEN - **Confirm Max RPM and Oil pressure early in takeoff roll**
5. Mixture--RICH (above 3000 feet LEAN to obtain maximum RPM)
6. Brakes--RELEASE
7. Elevator Control--SLIGHTLY TAIL LOW
8. Climb Speed-54 KIAS (until all obstacles are cleared)
9. Accelerate to Best Rate 67 KIAS if appropriate
10. Wing Flaps--RETRACT slowly after reaching 60 KIAS

#### SOFT FIELD TAKEOFF

1. Wing Flaps--10°

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1. Carburetor Heat--COLD
3. Use ROLLING TAKEOFF Technique
4. Throttle--FULL OPEN - **Confirm Max RPM and Oil pressure early in takeoff roll**
5. Elevator Control--LIFT AIRCRAFT off ground as soon as practical
6. LEVEL AIRCRAFT just above runway surface
7. ACCELERATE to Appropriate Airspeed for Climb
8. Wing Flaps--RETRACT slowly after reaching 60 KIAS and positive rate of climb

### NORMAL CLIMB

1. Airspeed--70-80 KIAS
2. Throttle--FULL OPEN
3. Mixture-- RICH (3000 feet and higher, LEAN to obtain maximum RPM)

#### NOTE

**If a maximum performance climb is necessary, use speeds shown in the rate of climb chart in section 5**

### CRUISE

1. Power--1900-2550 RPM (no more than 75%)
2. Elevator and Rudder Trim (if installed)--ADJUST
3. Mixture--LEAN for maximum RPM
4. Directional Gyro--CHECK / SET

#### NOTE

**WHEN CRUISING AT 75% OR LESS POWER, MIXTURE MAY BE LEANED TO MAXIMUM RPM AT ANY ALTITUDE (INCLUDING BELOW 3000 FEET)**

### DESCENT

1. Power--AS DESIRED
2. Mixture--ADJUST for smooth operation
3. Fuel Selector Valve—ON

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4. Carburetor Heat—ON as required to proven icing

### BEFORE LANDING

1. Seats, Seat Belts, Shoulder Harnesses--SECURE
2. Fuel Selector Valve—CHECK ON
3. Mixture--RICH
4. Carburetor Heat--ON (apply full heat before reducing power below bottom of green arc))

### LANDING

#### NORMAL LANDING

1. Airspeed--60-70 KIAS (flaps up)
2. Wing Flaps--AS DESIRED (below 85 KIAS)
3. Airspeed--55-65 KIAS (flaps down)
4. Touchdown--MAIN WHEELS FIRST
5. Landing Roll--LOWER NOSE WHEEL GENTLY
6. Braking--MINIMUM REQUIRED

#### SHORT FIELD LANDING

1. Airspeed 60-70 KIAS (flaps up)
2. Wing Flaps--30° below 85 KIAS
3. Airspeed--MAINTAIN 54 KIAS
4. Power--REDUCE to idle after clearing obstacle
5. Touchdown--MAIN WHEELS FIRST
6. Brakes--APPLY HEAVILY (But do not lock or skid)
7. Wing Flaps—RETRACT

#### SOFT FIELD LANDING

1. Normal Approach and Landing Configuration

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2. Power—AS REQUIRED on final approach and through touchdown (Approx 1400-1500 RPM)
3. Touchdown—SOFTLY on main wheels. Maintain nose high attitude with minimum weight on nose wheel through roll-out
4. Brakes—NONE unless absolutely necessary

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13. Control Lock—INSTALL
14. Clean Cabin, Store Belts, Replace Sun Screens and Covers –CHECK
15. Collect Keys and Airplane Book, pilot gear –CHECK
16. Log Aircraft back in—CHECK. Note Squawks, fuel, oil, flight time.
17. Return keys to Key box - CHECK

### **BALKED LANDING**

1. **Throttle--FULL OPEN (Smoothly)**
2. **Carburetor Heat--COLD**
3. **Wing Flaps--RETRACT to 20° immediately**
4. **Climb Speed--55 KIAS**
5. **Wing Flaps--RETRACT SLOWLY after reaching a safe altitude**

### **AFTER LANDING**

1. Wing Flaps--UP
2. Carburetor Heat—COLD
3. Maintain 1000 RPM minimum during taxi (lean mixture to reducing fouling)
4. Transponder—STANDBY
5. Landing / Taxi Lights –OFF (as required at night)
6. Radio Call--TAXI INSTRUCTIONS / INTENTIONS
7. Close Flight Plan after Tower Frequency Release

### **SECURING AIRPLANE**

1. Follow Taxiway Centerline to appropriate tiedown location
2. **Avionics Master Switch - OFF**
3. Electrical Equipment--OFF
5. Mixture--IDLE CUT-OFF
6. Ignition Switch--OFF remove keys and place on glare shield
8. **Master Switch—OFF**
9. Use Towbar to park aircraft
10. Tiedown Wings, then tighten tail tiedown –CHECK
11. Chock Main wheel- CHECK
12. Hobbs, Tach, and Squawks--RECORD

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# SECTION 3

## EMERGENCY PROCEDURES

### AIRSPEEDS FOR EMERGENCY OPERATION

	<u>KNOTS IAS</u>
Engine Failure After Takeoff: .....	60
Maneuvering Speed:	
1670 Lbs.....	104
1500 Lbs.....	98
1350 Lbs.....	93
Maximum Glide.....	60
Precautionary Landing With Engine Power .....	55
Landing Landing Without Engine Power:	
Wing Flaps Up .....	65
Wing Flaps Down.....	60

### OPERATIONAL CHECKLISTS

#### ENGINE FAILURES

##### ENGINE FAILURE DURING TAKEOFF RUN

1. Throttle--IDLE
2. Brakes--APPLY HEAVILY
3. Wing Flaps--RETRACT
4. Mixture--IDLE CUTOFF
5. Ignition Switch--OFF

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6. Master Switch--OFF

##### ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

1. Airspeed--60 KIAS
2. Mixture--IDLE CUTOFF
3. Fuel Selector Valve--OFF
4. Ignition Switch--OFF
5. Wing Flaps--AS REQUIRED
6. Master Switch--OFF

##### ENGINE FAILURE DURING FLIGHT

1. Airspeed--60 KIAS
2. Carburetor Heat--ON
3. Fuel Selector Valve--ON
4. Mixture--RICH
5. Master Switch--ON
6. Ignition Switch--BOTH (or START if prop is stopped)
7. Primer--IN and LOCKED
8. Radio--TRANSMIT "MAYDAY" CALL 121.5
9. Transponder--7700

### FORCED LANDINGS

##### EMERGENCY LANDING WITHOUT ENGINE POWER

1. Airspeed-- 65 KIAS (flaps UP)  
60 KIAS (flaps DOWN)
2. Mixture--IDLE CUTOFF
3. Fuel Selector Valve--OFF
4. Ignition Switch--OFF
5. Wing Flaps--AS REQUIRED (30° recommended)
6. Master Switch--OFF
7. Seat Belts/shoulder harnesses--FASTENED
8. Doors--UNLATCH PRIOR TO TOUCHDOWN
9. Touchdown--SLIGHTLY TAIL LOW
10. Brakes--APPLY HEAVILY

##### PRECAUTIONARY LANDING WITH ENGINE POWER

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1. Airspeed--60 KIAS
2. Wing Flaps 20°
3. Selected Field--FLY OVER, noting terrain and obstructions, then retract flaps upon reaching a safe altitude and airspeed
4. Radios and Electrical Switches--OFF
5. Wing Flaps--30° (on final approach)
6. Airspeed--55 KIAS
7. Master Switch--OFF
8. Doors--UNLATCH PRIOR TO TOUCHDOWN
9. Touchdown--SLIGHTLY TAIL LOW
10. Ignition Switch--OFF
11. Brakes--APPLY HEAVILY

### DITCHING

1. Radio--TRANSMIT MAYDAY on 121.5 MHz , giving location and intentions and SQUAWK 7700
2. Heavy Objects --SECURE OR JETTISON
3. Approach--High Winds, Heavy Seas--INTO THE WIND  
Light Winds, Heavy Swells--PARALLEL TO SWELLS
4. Wing Flaps--30°
5. Power--ESTABLISH 300 FPM DESCENT at 55 KIAS
6. Cabin Doors--UNLATCH
7. Touchdown--LEVEL ATTITUDE AT ESTABLISHED RATE OF DESCENT
8. Face--CUSHION at touchdown with folded coat
9. Airplane--EVACUATE through cabin doors. If necessary, open window and flood cabin to equalize pressure so doors can be opened.
10. Life Vests and Raft—INFLATE

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## CESSNA 152

### FIRES

#### DURING START ON GROUND

1. Cranking--CONTINUE to get a start which would suck the flames and accumulated fuel through the carburetor and into the engine.

#### If Engine Starts:

2. Power--1700 RPM for a few minutes
3. Engine--SHUT DOWN and inspect for damage

#### If Engine Fails to Start:

4. Cranking--CONTINUE
5. Fire Extinguisher--OBTAIN  
(have ground attendants obtain if not installed)
6. Engine--SECURE
  - a. Master Switch--OFF
  - b. Ignition Switch--OFF
  - c. Fuel Selector Valve--OFF
7. Fire--EXTINGUISH using fire extinguisher, wool blanket or dirt
8. Fire Damage--INSPECT, repair damage or replace damaged components or wiring before conducting another flight

#### ENGINE FIRE IN FLIGHT

1. Mixture--IDLE CUT-OFF
2. Fuel Selector Valve--OFF
3. Master Switch--OFF
4. Cabin Heat and Air--OFF (except overhead vents)
5. Airspeed--85 KIAS (If fire is not extinguished, increase glide speed to find an airspeed which will provide an incombustible mixture)
6. Forced Landing--EXECUTE (as described in Emergency Landing without Engine Power)

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**ELECTRICAL FIRE IN FLIGHT**

1. Master Switch--OFF
2. Radios--OFF
3. All Other Switches (except ignition switch)--OFF
4. Vents / Cabin Air / Heat--CLOSED
5. Fire Extinguisher--ACTIVATE (if available)

**WARNING**

**After discharging an extinguisher in a closed cabin, ventilate the cabin**  
If fire appears out and electrical power is necessary for continued flight:

6. Master Switch--ON
7. Circuit Breakers--CHECK for faulty circuit, do not reset
8. Radios / Electrical Switches--ON one at a time, with delay after each until short circuit is located
9. Vents / Cabin Air / Heat--OPEN when it is ascertained that fire is completely extinguished

**CABIN FIRE**

1. Master Switch--OFF
2. Vents / Cabin Air / Heat--CLOSED (to avoid drafts)
3. Fire Extinguisher--ACTIVATE (if available)

**WARNING**

**After discharging an extinguisher in a closed cabin, ventilate the cabin**

4. Land the airplane as soon as possible to inspect for damage

**WING FIRE**

1. Navigation Light Switch--OFF
2. Pitot Heat Switch (if installed) --OFF
3. Strobe Light Switch (if installed) -- OFF

**NOTE**

Perform a side slip to keep flames away from fuel tank and cabin, and land as soon as possible using flaps only as required on final approach.

**LANDING WITH A FLAT MAIN TIRE**

1. Approach--NORMAL
2. Touchdown--GOOD TIRE FIRST, hold airplane off flat tire as long as possible

**ICING****INADVERTENT ICING ENCOUNTER**

1. Turn pitot heat switch ON (if installed)
2. Turn back or change altitude to obtain an outside temperature that is less conducive to icing
3. Pull cabin heat control full out and open defroster outlets to obtain maximum windshield defroster airflow. Adjust cabin air control to get maximum defroster heat and airflow
4. Open the throttle to increase engine speed and minimize ice build-up on propeller blades
5. Watch for signs of carburetor air filter ice and apply carburetor heat as required. An unexplained loss in engine speed could be caused by carburetor ice or air intake filter ice. Lean the mixture for maximum RPM if carburetor heat is used continuously
6. Plan a landing at the nearest airport. With an extremely rapid ice build-up, select a suitable "off airport" landing site
7. With an ice accumulation of 1/4 inch or more on the wing leading edges, be prepared for a significantly higher stall speed.
8. Leave wing flaps retracted. With a severe build-up on the horizontal tail, the change in wing wake airflow direction caused by wing flap extension could result in loss of elevator effectiveness.
9. Open left window and, if practical, scrape ice from a portion of the windshield for visibility in the landing approach
10. Perform a landing approach using a forward slip, of necessary for improved visibility
11. Approach at 65-75 KIAS depending upon the amount of the accumulation
12. Perform a landing in a level attitude

**STATIC SOURCE BLOCKAGE**  
**(Erroneous Instrument Reading Suspected)**

BREAK GLASS in Vertical Speed Indicator to provide an alternate static source. CAUTION: ALTIMETER AND AIRSPEED READINGS WILL NOT BE AS ACCURATE AS WITH THE NORMAL STATIC SOURCE

## **ELECTRICAL POWER SUPPLY SYSTEM** **MALFUNCTIONS**

### **AMMETER SHOWS EXCESSIVE RATE OF CHARGE**

**(Full Scale deflection)**

1. Alternator—OFF (Left side of Split Master Switch)
2. Nonessential Electrical Equipment--OFF
3. Flight--TERMINATE as soon as practical

### **LOW VOLTAGE LIGHT ILLUMINATES DURING FLIGHT**

**(Ammeter Indicates Discharge)**

#### NOTE

Illumination of the low-voltage light may occur during low RPM conditions with an electrical load on the system such as during a low RPM taxi. Under these conditions, the light will go out at higher RPM. the master switch need not be recycled since an over-voltage condition has not occurred to de-activate the alternator system.

1. Radios--OFF
2. Master Switch--OFF (both sides)
3. Master Switch--ON
4. Low Voltage Light--CHECK OFF
5. Radios--ON

If Low Voltage Light Illuminates Again:

6. Alternator—OFF (Left side of Split Master Switch)
7. Non-essential Radio and Electrical Equipment--OFF
8. Flight--TERMINATE as soon as practical