



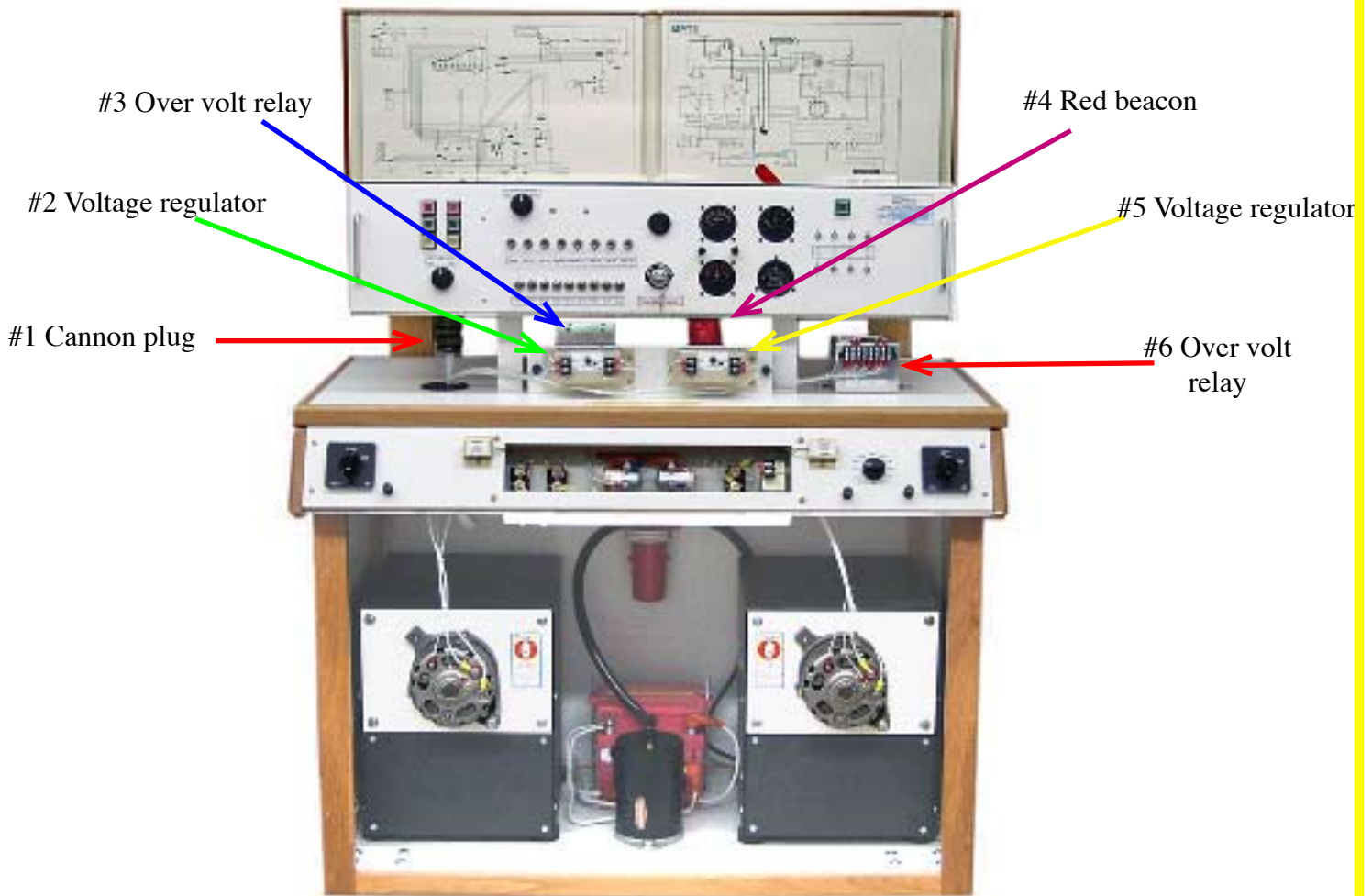
# Electrical Systems Trainer



*This PDF is a representation of only a selection of the operating manual or curriculum.  
All information is subject to change as we further develop our trainers.*

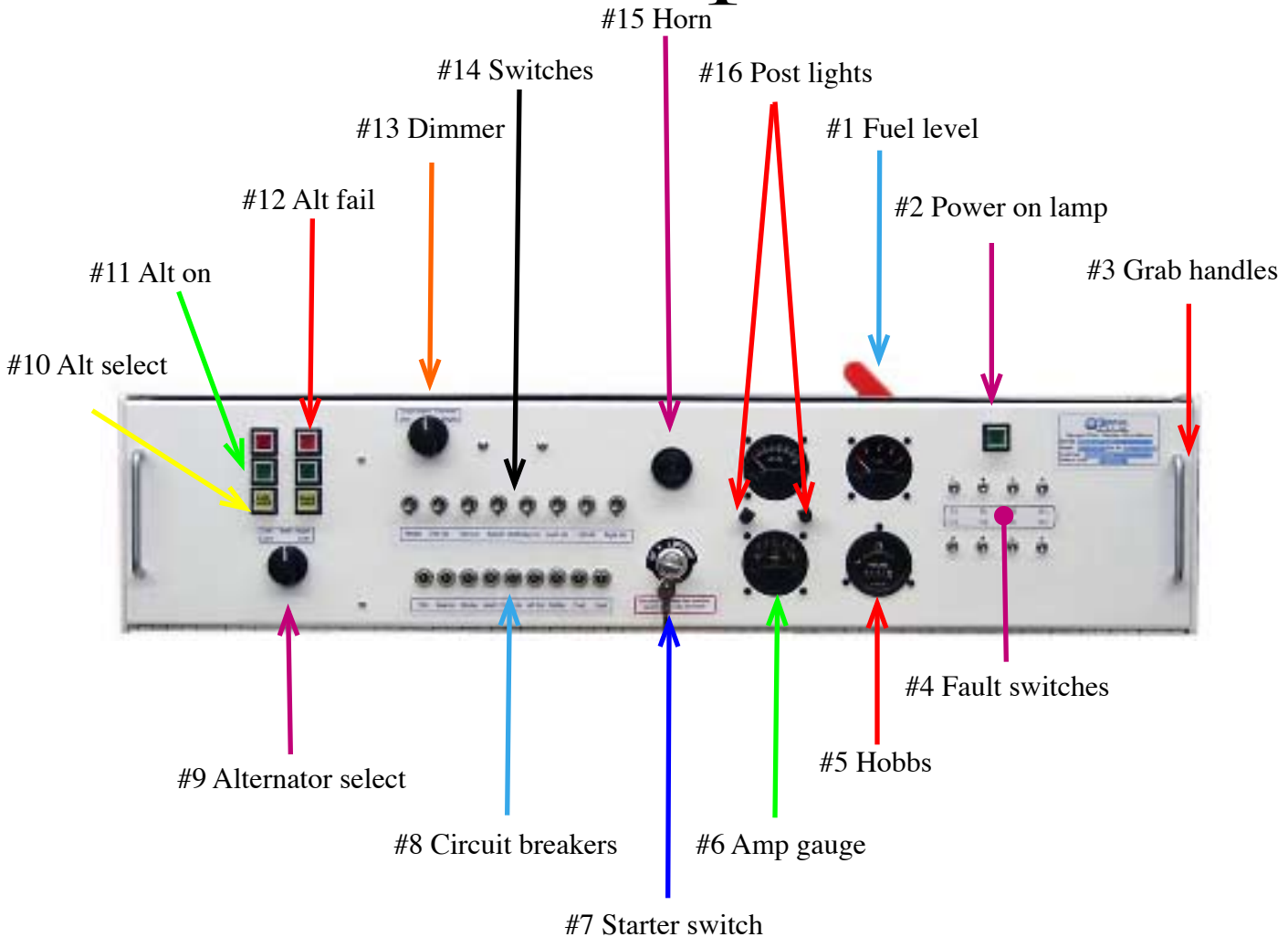
# Component Location

## Front view



- 1) Cannon plug for disconnecting the wing
- 2) Left voltage regulator
- 3) Over volt relay box for faulting the voltage regulators
- 4) Red flashing beacon
- 5) Right voltage regulator
- 6) Over voltage regulator for the right alternator Note: Two regulators are contained inside.

# Component Location Front panel



- 1) Fuel level red lever will adjust the fuel quantity as desired for faults or display
- 2) Power on lamp is illuminated whenever the battery switch is on and the master switch is on.
- 3) Grab handles are used to open or close the instrument panel located on both sides
- 4) Fault switches are used to induce faults into the systems note; some switches are up for off
- 5) Hobbs meter will run anytime the master switch powers the unit
- 6) Amp gauge will indicate the flow of current to and from the battery or either alternator output
- 7) Starter switch is spring loaded in the start position, it also has magneto selection positions
- 8) Circuit breaker panel
- 9) Alternator select knob selects output of the right or left alternator or the both position indicates battery buss
- 10) Load - left or right as indicated, yellow light indicates the alternator switch selector position
- 11) Alternator green lights indicate the alternator switch is on. Note: light only indicates switch position.
- 12) Alternator fail red light indicates the alternator is off line
- 13) Dimmer control for the instrument lights, rotating the knob will affect the intensity of the post lights
- 14) Switches control the various components on the electrical trainer
- 15) Horn will sound when the stall switch is activated
- 16) Post light illuminate the flight deck at night and are dimmable.



## Instrument lights on - faulted to full bright

### *Drawing # 33-10-01B*

**Pilot squawk:** When I am flying at night, the instrument lights are on full bright and rotating the dimmer knob either way has no effect on them.

**Introduce fault:** Turn on master switch and select the instrument lights switch to on.  
Select FS #3 down and FS # 8 down - to fault the system

**DRAWING 33-10-01B** Shows the Instrument Light circuit FS3 Down which provides an alternative electrical path (least resistance) bypassing the potentiometer control. This allows unregulated buss power to illuminate the post lamps. With the instrument light switch on, the post lamps will remain on full bright.

**Student Diagnostics:** Student will conduct Voltage checks to the post lights, TB2 and the potentiometer. Student will determine that the transistorized control is not functioning.

**Suggested Repair:** Replace Dimmer Control ASSY, PN. B-00396-2, or replace shorted wire.

**Cautions:** Student must exercise caution when doing voltage checks, and turn power off for any continuity checks.

## Alternator control - The right alternator drops off line at 29.5 volts

### *Drawing # 24-20-02i*

**Pilot squawk:** When I am flying The alternators will not stay paralleled, the out put of the right alternators is never matched and sometimes I get an "Alt" fail red light at 29.5 volts on the battery buss.

**Introduce fault:** Turn on master switch, start both of the electric motors and select both alternator switches on, ensure both alternators are online, select rotary fault switch to position # 6, then select FS4 Up. The right alternator will not stay paralleled and will go off line.

**Drawing #24-20-02i** Shows the alternator control circuit with the over voltage relay faulted. With the rotary fault switch in position 6, buss power is supplied through a relay to the battery terminal of the secondary bad over volt relay that is set to trip at 29.5 volts. (There are two over voltage control boards on the right over volt box one set to 31.5 the other set to 29.5 volts). The over-voltage relay operation can be demonstrated by opening the ground to the RH volt regulator (FS4 up). This will cause an over-volt condition and the over-voltage relay will trip at 29.5 volts. Buss power is removed from the “normal” 31.5 volts over-voltage relay.

**Student Diagnostics:** The student will determine that the system is tripping off line at 29.5 volts.

**Suggested Repair:** The student will recommend replacing the right over voltage control.

**Cautions:** Students must exercise caution when doing voltage checks, and turn power off for any continuity checks.