

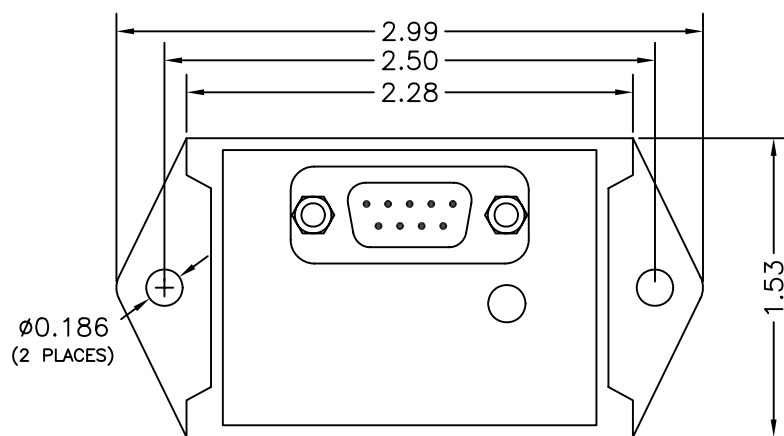
AEC9011
LOW VOLTAGE/
OVER VOLTAGE
CONTROL MODULE
FOR
GENERATORS

(PRELIMINARY DATA)

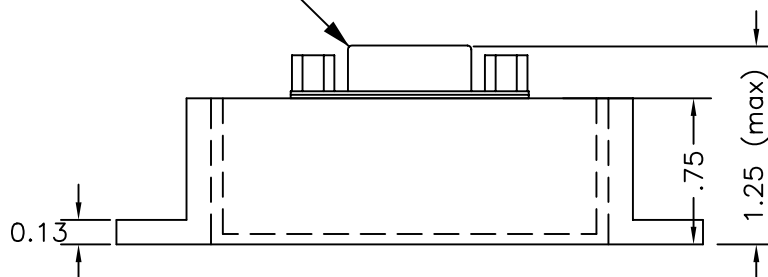
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REV -C- 02/28/06
REV -B- 02/04/06
REV -A- 01/22/06

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9011 LV/OV CONTROL MODULE	1.0



D9P CONNECTOR MATES WITH
D9S ON HARNESS.



- (-1) LV/OV CONTROL MODULE (14V)
- (-2) LV/OV CONTROL MODULE (28V)

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9011 ENVELOPE DRAWING	2.0

NOTES:

1. THIS PRODUCT IS DESIGNED TO OFFER AN ISOLATED, NORMALLY CLOSED SET OF CONTACTS THAT MAY BE WIRED IN SERIES AT ANY POINT IN A DC GENERATOR SYSTEM WHERE AN EFFECTIVE SHUT DOWN CAN BE EFFECTED. THIS IS GENERALLY IN SERIES WITH THE GENERATOR FIELD WIRE.
2. SYSTEM OPERATION IS AS FOLLOWS:
 - (A) FOR BUS VOLTAGES BELOW DECREASING LOW VOLTAGE SETPOINT, THE BUS VOLTS LOW WARNING LIGHT WILL FLASH AT APPROXIMATELY 3 FLASHES PER SECOND.
 - (B) FOR BUS VOLTAGES BETWEEN THE INCREASING LOW AND HIGH VOLTAGE SETPOINTS, ALL LAMPS ARE DARK AND OPTIONAL RELAY IS DE-ENERGIZED.
 - (C) IF BUS VOLTAGE EXCEEDS HIGH VOLTAGE SETPOINT LONGER THAN 100mS, THE BUS VOLTS HI LAMP WILL ILLUMINATE. OPTIONAL GENERATOR/ALTERNATOR RELAY WILL LATCH IN AN ENERGIZED STATE. IF A SUCCESSFUL SHUTDOWN OF ALT/GEN HAS OCCURRED, THE LOW VOLTAGE LAMP(S) WILL BEGIN TO FLASH A FEW SECONDS AFTER THE TRIP DEPENDING ON SYSTEM LOADS AND BATTERY CONDITION. IF OPTIONAL RELAY IS NOT INSTALLED, PILOT HAS A FEW SECONDS TO REACT AND SHUT THE ALTERNATOR DOWN.

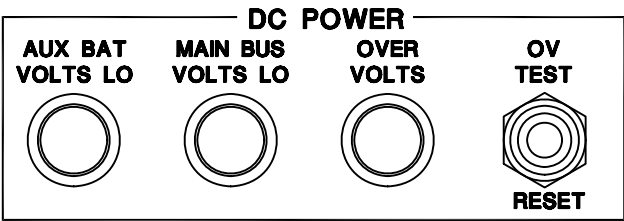
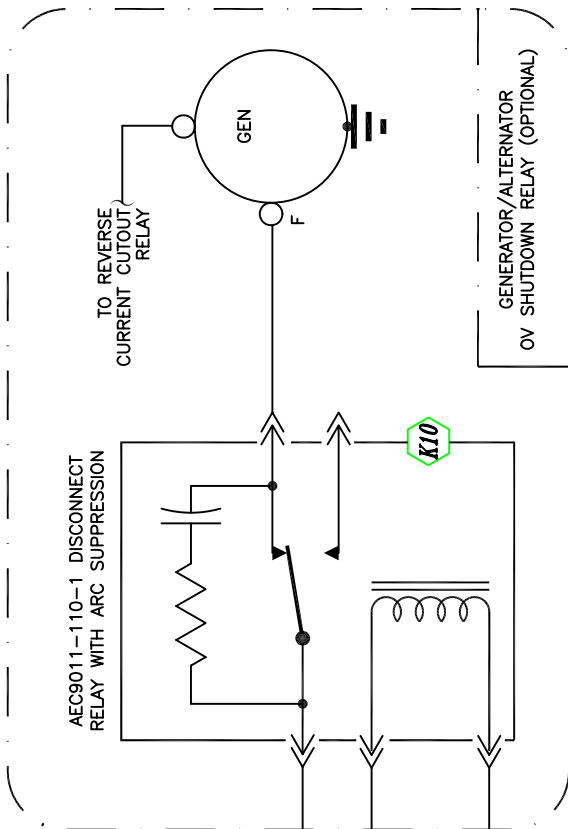
CAUTION

A SUCCESSFUL MANUAL SHUTDOWN OF THE ALTERNATOR/GENERATOR IS DEPENDENT ON THE BATTERY BEING OF SUFFICIENT CAPACITY TO RESIST THE ALTERNATOR/GENERATOR'S EFFORTS TO ELEVATE BUS VOLTAGE TO VALUES BEYOND DO-160 LIMITS.

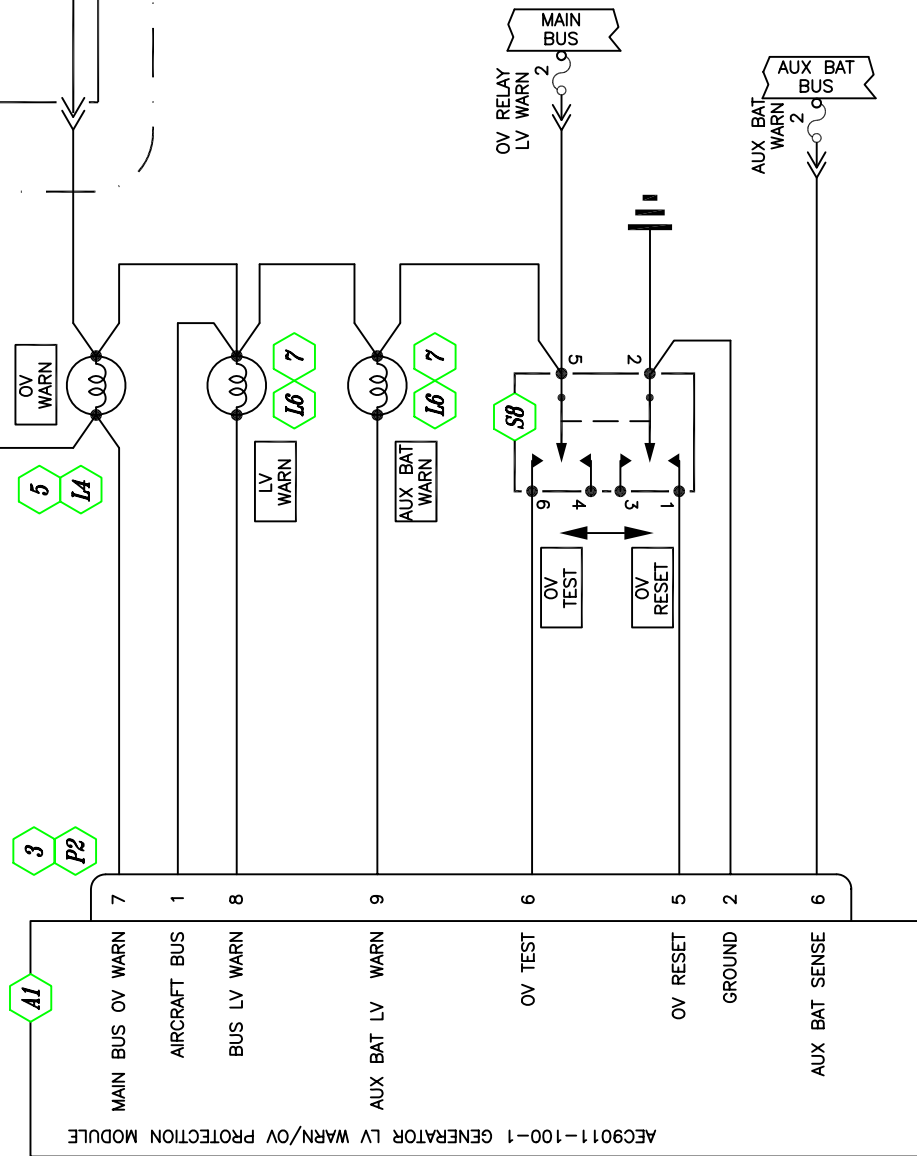
- (D) AFTER AN OV TRIP, THE SYSTEM MAY BE RESET BY EXERCISING THE "OV RESET" FUNCTION ON THE TEST/RESET SWITCH. IF THE GENERATOR IS ON AND THE OV CONDITION PERSISTS, THE SYSTEM MAY TRIP AGAIN AS IN (C) ABOVE. IF THE GENERATOR HAS BEEN TURNED OFF, THE OV LIGHT WILL REMAIN OFF AND THE LV WARNING LIGHTS WILL BEGIN TO FLASH.
 - (E) IF THE TEST FUNCTION ON THE TEST/RESET SWITCH IS EXERCISED, THE SYSTEM WILL GO INTO AN OV TRIP CONDITION, ILLUMINATE THE OV LIGHT AND ENERGIZE THE GENERATOR DISCONNECT RELAY (IF INSTALLED). KNOW THAT THE TEST FUNCTION IS A FULL-UP CONFIRMATION OF THE OV SENSING, ANNUNCIATION AND MITIGATION.
 - (F) AFTER THE BATTERY IS TURNED ON BUT BEFORE THE GENERATOR COMES ON LINE. BOTH LOW VOLTS WARNNIG LIGHTS WILL BE FLASHING.
 - (G) FOR AUX BAT VOLTAGES DECREASING BELOW LOW VOLTAGE SETPOINT, THE AUX BAT LOW VOLTS WARNING LIGHT WILL FLASH AT APPROXIMATELY 3 FLASHES PER SECOND.
 - (H) ALL SENSE AND ANNUNCIATION FUNCTIONS ARE EXCLUSIVE AND INDEPENDENT OF EACH OTHER. ONE MAY INSTALL THIS PRODUCT TO PROVIDE ANY COMBINATION OF THE FUNCTIONS OFFERED.
3. OPERATING VOLTAGE: 8 TO 35 VOLTS DC (DO-160D LIMITS FOR CATEGORY Z IN 14V SYSTEMS, CATEGORY B IN 28V SYSTEMS, 60V SURGE MAX)
4. OPERATING CURRENT: 0.01 AMPS MAX (NOT INCLUDING LAMP OR RELAY LOADS)
5. OPERATING TEMPERATURE: -40 TO +70 C
6. LOW VOLTAGE SETPOINT (DECREASING): 13.0 ± 0.2 (14V) OR 26.0 ± 0.4 (28V)
7. LOW VOLTAGE SETPOINT (INCREASING): 13.5 ± 0.2 (14V) OR 27.0 ± 0.4 (28V)
8. HIGH VOLTAGE SETPOINT: 16.5 ± 0.3 (14V) OR 33.0 ± 0.5 (28V)
9. SIGNAL OUTPUTS: OPEN DRAIN PULL TO GROUND. 500 mA MAX FOR A CONDUCTING STATE, 40 VOLTS MAX FOR A NON-CONDUCTING STATE.
10. VIBRATION: NO PRACTICAL LIMITS - POTTED ASSEMBLY
11. HUMIDITY: NO PRACTICAL LIMITS - POTTED ASSEMBLY
12. ALTITUDE: NO PRACTICAL LIMITS
13. RF EMISSIONS: EXCEEDINGLY LOW POWERED MICROCONTROLLER WITH VERY SMALL RADIATION GEOMETRY. PROBABILITY OF DIFFICULTY VERY LOW
14. RF SUSCEPTIBILITY: VERY SMALL CAPTURE GEOMETRY. TESTED WITH CLOSE PROXIMITY VHF COMM HAND-HELD WITH NO OBSERVABLE EFFECTS.
15. DIMENSIONS: SEE ENVELOPE DRAWING
16. WEIGHT: 3 OZ.

REV -B- 02-05-06
REV -A- 01-23-06

TITLE	PAGE
9011 SPECIFICATIONS	3.0



EXEMPLAR INDICATORS AND CONTROL LAYOUT



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REV -A- 01-23-06

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9011 A/C WIRING DIAGRAM	4.0