

REGULATOR AND ACU SPECIFICATIONS

15 VOLT ELECTRO-MECHANICAL REGULATOR SPECIFICATIONS (C611001-0102)

TYPE: Two unit design, a voltage limiter and field relay. For use with self current limiting alternator.

TERMINALS: Four, blade type, quick-disconnect.

VOLTAGE LIMITER: Double contact, electro-mechanical, (vibrating type).

<u>Ambient Air Temperature °F.</u>	<u>Lower Contacts Voltage Limits</u>
50	14.1 to 14.8
75	13.9 to 14.6
100	13.8 to 14.5
125	13.6 to 14.3
150	13.4 to 14.1
175	13.3 to 14.0
Voltage Shift (Upper Contact Voltage)	Not higher than; but 0.5 maximum, lower than; the voltage setting of the lower contacts.

FIELD RELAY: Single contact, normally open.

Closing Voltage	2.5 to 6 at 75°F
Opening Voltage	0.5 V Min. at 75°F

15 VOLT SEMI-SOLID STATE REGULATOR SPECIFICATIONS (C611001-0201)

TYPE: Two unit design, a solid state voltage limiter and field relay. For use with self current limiting alternator.

TERMINALS: Four, blade type, quick disconnect.

VOLTAGE LIMITER: Solid State - Adjustable by turning screw driver adjustment clockwise to raise voltage (counter-clockwise to lower voltage).

<u>Ambient Air Temperature °F.</u>	<u>Voltage Limits</u>
50	14.3 to 14.8
75	14.1 to 14.6
100	13.9 to 14.4
125	13.7 to 14.2
150	13.5 to 14.0
175	13.3 to 13.8

FIELD RELAY: Single contact, normally open.

Closing Voltage	2.5 to 6 at 75°F (Ford Type) 2.5 to 9.6 at 75°F (Electrodelta Type)
Opening Voltage	0.5 V Min. at 75°F

28 VOLT TRANSISTOR VOLTAGE LIMITER REGULATOR SPECIFICATIONS (C611002-0105)

TYPE: Transistorized for use with self current limiting alternator.

TERMINALS: Multiple connector incorporated in harness.

VOLTAGE LIMITER: Adjustable by turning screw driver adjustment counterclockwise to raise voltage (clockwise to lower voltage).

REGULATOR AND ACU SPECIFICATIONS

28 VOLT SOLID-STATE REGULATOR SPECIFICATIONS (C611004-0101 AND C611004-0102)

TYPE: Two unit design, solid state voltage regulator with integrated transistorized voltage limiter. For use with self current limiting alternator.

TERMINALS: Two pin connector and ground terminal.

VOLTAGE LIMITER: Adjustable by rotating screw driver, or Allen wrench, adjustment counterclockwise to raise voltage (clockwise to lower voltage).

VOLTAGE SETTING: 27.7 \pm 0.3 volts (C611004-0101)
28.8 \pm 0.3 volts (C611004-0102)

VOLTAGE REGULATION: \pm 0.4 Volts

FIELD CURRENT: 3.0 Amps Maximum Continuous

OPERATING TEMPERATURE: -40° F to +155° F

OPERATING ALTITUDE: Sea Level to 35,000 Ft.

WEIGHT: 0.5 Lbs. Maximum

ALTERNATOR CONTROL UNIT SPECIFICATIONS (C611005-0101, C611005-0102 & C611005-0103)

TYPE: Solid state, combination 28-volt voltage regulator with high and low voltage sensing circuits.

TERMINALS: Seven pin connector and ground terminal.

ENVIRONMENTAL REQUIREMENTS

1. OPERATING TEMPERATURE RANGE: -25° F to +175° F
2. STORAGE TEMPERATURE RANGE: -65° F to +200° F
3. ALTITUDE: Sea level to 35,000 Ft

ELECTRICAL REQUIREMENTS

1. SYSTEM POLARITY: Negative ground

PRESET FACTORY VOLTAGE SETTINGS

1. REGULATOR SPECIFICATIONS
 - a. Voltage Set Point - 27.7 \pm 0.3 volts DC at 70° F on Units manufactured prior to 5-15-78 and 28.8 \pm 0.2 volts DC at 70° F on Units manufactured on 5-15-78 and on.
2. HIGH VOLTAGE SENSOR SPECIFICATION
 - a. Static Tripout Set Point - 31.8 \pm 0.3 volts DC at 70° F
3. LOW VOLTAGE SENSOR SPECIFICATION
 - a. Set Point - 24.5 \pm 0.15 volts DC at 70° F

NOTE

A Voltmeter specifying .01 volt accuracy must be used to verify that Regulator or ACU are regulating at specified voltage.

REGULATOR AND ACU SPECIFICATIONS

Model T303 and 210 Series Dual Alternator Control Unit Specifications (C611007-0101)

The alternator control unit has been designed to provide long lasting and trouble free operation. The alternator control unit is a non-repairable item and is to be replaced with a new unit when found to be defective.

Type: Solid state, provides voltage regulation plus high voltage protection and low voltage sensing as well as containing a paralleling circuit for load sharing between the alternators.

Environmental Requirements:

1. Operating Temperature Range: -25°F to $+175^{\circ}\text{F}$ (-31.6°C to $+79.4^{\circ}\text{C}$)
2. Storage Temperature Range: -65°F to $+200^{\circ}\text{F}$ (-53.8°C to $+99.3^{\circ}\text{C}$)
3. Altitude Range: Sea Level to 35,000 Ft.

Electrical Requirements:

1. Connector: A sixteen pin connector which utilizes pins 1 through 12 and pins 13 through 16 are not used.
 - Pin 1: Connected to the Field Exciter circuit of ACU.
 - Pin 2: Connected to + Remote Sensor circuit of ACU.
 - Pin 3: Connected to + Power In circuit of ACU.
 - Pin 4: Connected to Low Voltage Annunciator Lite circuit of ACU.
 - Pin 5: Connected to - Remote Sense circuit of ACU.
 - Pin 6: Connected to Alternator OFF Annunciator Lite circuit of ACU.
 - Pin 7: Connected to Alternator OFF Sense circuit of ACU.
 - Pin 8: Connected to Low Voltage Sense circuit of ACU.
 - Pin 9: Connected to Line Contactor circuit of ACU.
 - Pin 10: Connected to - Current Sense circuit of ACU.
 - Pin 11: Connected to Equalizer circuit of ACU.
 - Pin 12: Connected to Power Ground circuit of ACU.
2. Supply Voltage: Operating voltage ranges from 22 to 33-volts DC. Unit will not trip out with supply voltage ranging from 10 to 30-volts DC.
3. Supply Current: 5-amperes maximum DC in normal operation.
4. System Polarity: Negative Ground System.
5. System Battery: Unit will operate without a battery connected to the aircraft bus. With no battery connected, the unit operates normally except regulation is degraded 10%. (See the following "Regulation Section" for regulation range of operation.) Paralleling is not available without a battery.
6. Regulation Section: The Regulator is designed to sense a voltage at the alternator and regulate a field current output.
 - a. Voltage Set Point: $28.7 \pm 0.5 / -0.5$ volts DC at $70^{\circ}\text{F}(21^{\circ}\text{C})$.
 - b. Regulation: $28.7 \pm 0.4 / -0.8$ volts DC throughout operating temperature range and load range. Load range is 10-amps minimum to maximum rated alternator output.
7. Low Voltage Sensor Section: The low voltage sensor is designed to sense a voltage between pins 8 and 12 and supply a warning signal.
 - a. Low Voltage Sensor Set Point: 24.5 ± 0.50 volts at $70^{\circ}\text{F}(21^{\circ}\text{C})$.
 - b. Low Voltage Sensor Reset Point: 25.0 ± 0.50 volts. Switching point does not vary more than ± 1.0 volts throughout the temperature range.
8. High Voltage Sensor Section: The high voltage sensor section is designed to sense a voltage between pins 10 and 5 and interrupt as follows:
 - a. High Voltage Dynamic Tripout Set Point: 31.8 ± 0.6 volts DC at $70^{\circ}\text{F}(21^{\circ}\text{C})$. Trip point does not vary more than ± 1.0 volts from $70^{\circ}\text{F}(21^{\circ}\text{C})$ set point throughout the temperature range. In no case will the trip point exceed 32.2 volts.
9. Secondary High Voltage Circuit: The circuit is designed to disconnect the power input of pin 3 if line contactor and field excitation voltage is still being supplied when a high voltage condition is sensed.
 - a. Secondary High Voltage Circuit Trip Point: 34.5 ± 3.0 volts DC.
9. Overcurrent Protection Circuit: Designed to sense current through the power input (Pin 3) and protect the line contactor circuit and regulation circuit.
10. Alternator OFF Sensor Section: The alternator OFF sensor is designed to sense a voltage between pins 7 and 12 and supply a warning.
11. Line Contactor Circuit Section: The unit is designed to sense a voltage between pins 10 and 5 and operate the coil of the line contactor.
12. Paralleling Circuit: The unit contains a circuit to sense alternator current output through an external shunt and influence the field output of the regulator in order to assure balanced alternator load sharing.
13. Selective Trip Capability: The unit incorporates circuitry that, in the event of an overvoltage condition, will trip only the ACU/Alternator system that is causing the problem, off the line.
14. Voltage Regulation, Overvolt Protection, Alternator Out Sensing, Line Contactor Circuitry, Paralleling Circuitry and Low Voltage Warning: These circuits are designed to be independent to the extent that failure of any one does not disable the other circuits.