



# *CASTLEBERRY Instruments & Avionics*

## **MODEL 300-14EL SELECTION AND INSTALLATION GUIDE**

### **APPLICABILITY**

Before installing the Model 300-14EL gyro, determine that it is appropriate for the application. This gyro comes either as a 14 Volt or a 28 Volt model. Select the part number that is right for the voltage of the aircraft. Also this gyro is designed for use in fixed wing aircraft with shock mounted panels. It is not intended for use in acrobatic flying. This gyro can travel unrestricted 360 degrees through the roll axis but is limited to  $\pm 90$  degrees of pitch travel.

This product conforms to FAA technical specifications TSO C4c. It is responsibility of the installer and their authority to determine proper use, purpose, and documentation required to install this product. We do recommend that installers become familiar with FAA advisory circular AC91-75 and special airworthiness information bulletins CE-05-15 and CE-05-41 since these documents relates to purpose for recent applications of installing this product.

There are no life limited parts or periodic scheduled maintenance requirements on this product to generate a need for continued airworthiness procedures.

### **OPTIONS**

Panel tilt is an important specification required to be known when ordering or installing a panel mounted attitude gyro in an aircraft. If panel tilt is not known, the manufacturer of the aircraft should be able to provide that information. This gyro can be calibrated for a panel tilt from zero to fourteen degrees and should be specified when ordering. A label is attached to the gyro to indicate the tilt calibration of each unit. If a newly installed attitude gyro settles more than  $\pm 1\frac{1}{2}$  degrees pitch above or below where the expected horizon should be, then panel tilt or aircraft trimming issues should be suspected. Note that the gyro comes in a zero degree p/n or a custom tilt p/n that should be selected when any tilt other than zero degrees is desired. Voltage type (14 or 28 Volt) provides other p/n variance.

### **LIGHTING**

The 300-14EL is integrally lighted with externally selectable light tray. The unit comes with a light tray of the same operating voltage as the gyro, however it may be replaced with other voltage types. Castleberry Instruments has 5, 14 and 28 Volt types available. The wiring to lights is via flying leads that can be easily connected by installer's choice of connectors to the lighting buss. Lamps are of incandescent type and may be operated by either AC or DC Voltages. The polarity does not matter.

### **ELECTRICAL**

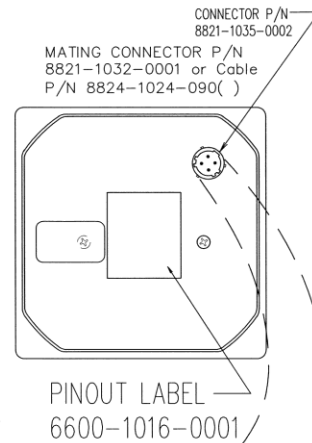
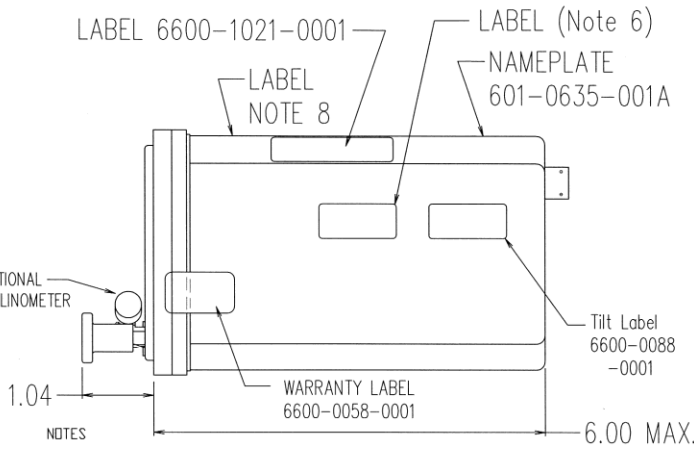
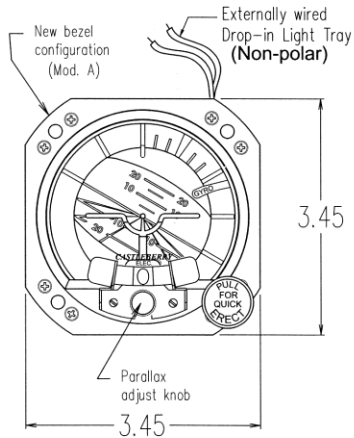
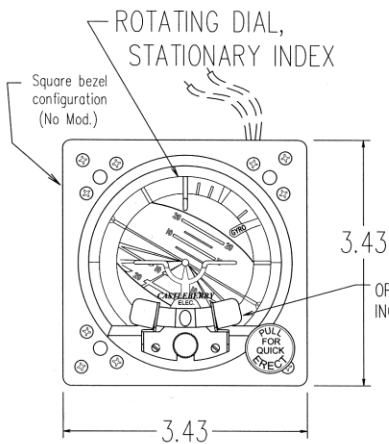
This model uses approximately 28 Watts starting and 17 Watts running. Therefore current rating for the 14 Volt model is 2 Amps maximum and the 28 Volt model 1 Amp maximum. Power to gyro is applied through a common 4 pin circular connector on rear of unit as shown on the drawings of following pages. Supplied with a new unit is mating connector Castleberry P/N 8821-1032-0001 or cable 8824-1024-090(x) (either a -0901 for a 14V unit or -0902 for a 28V unit). The industrial part number for the mating connector is MS3116F8-4S or PT06E8-4S(SR). Recommended wire size is 22 to 20 AWG and should be of aircraft approved type. Circuit breaker or protection devices must be large enough to support the maximum current for voltage type but small enough to protect aircraft wiring. Note that pin out is different for the two different voltage models to prevent accidentally applying wrong voltage. Ground or Negative is always to pin "A" and +14 Volts to pin "B" for the 14 Volt models and +28 Volts to pin "C" for the 28 Volt models.

**WARNING:** Applying power to gyro reverse polarity or allowing a voltage spike exceeding 39 VDC will blow an internal fuse to protect the gyro circuitry. If fuse becomes blown, unit must be repaired and tested before returning to service.

**CAUTION:** This device is an avionics item and should get power from a buss that is not powered during engine start up.

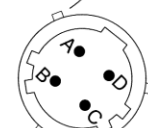
### **MECHANICAL**

Panel cut out and mounting hole information are on following pages. This gyro is designed to be installed rear mounted on a shock mounted panel. Be sure that installation screw length penetrates into gyro bezel approximately 1 inch after considering panel thickness including any shim or wedge application. Read all notes on following outline drawings to be aware of any limitations or specifications that may apply to your installation requirements.



NOTES

- CERTIFICATION : UNIT CERTIFIED UNDER F.A.A. T.S.D. C4c.
- WEIGHT : 3.0 LB. MAX.
- POWER REQUIREMENT : D.C. VOLTAGE PER LONG PART NUMBER AND CONNECTOR PINOUT. 28 watts max. starting , 17 watts running typical.
- FINISH : ALL INDICATING GRADUATIONS & NUMERALS MATTE WHITE PER CIA SPEC. 045-0007-021. UPPER HALF OF MASK, DIAL, POINTER BAR & "CASTLEBERRY ELEC." BLUE PER 045-0007-008. LOWER HALF BROWN PER 045-0007-029. ROLL INDICE & MINIATURE AIRPLANE TIPS BLAZE ORANGE PER 045-0007-023. INDICATOR CENTER DOT ROCKET RED PER 045-0007-004. INDICATOR FLAG ROCKET RED PER 045-0007-004 WITH BLACK LETTERS. ALL NON-FUNCTIONAL SURFACES OF BEZEL & CAGING KNOB MATTE BLACK PER 045-0007-014. CAGING KNOB LETTERS SILVER.
- LIGHTING : BLUE-WHITE EXTERNALLY-WIRED LIGHTING. BEZEL GLASS REFLECTION-REDUCING COATING CONFORMS TO MIL-C-14806. PLEASE SPECIFY LIGHTING VOLTAGE WHEN ORDERING. LIGHT INSERT P/Ns, SQUARE BEZEL: 28v 6622-0015-0001. 14v 6622-0015-0004. 2 watts max. LIGHT INSERT P/Ns, ROUND BEZEL: 28v 6622-0029-0001. 14v 6622-0029-0005. 2 watts max.
- Unit calibrated for low speed, high speed or helicopter application, as SPECIFIED BY CUSTOMER.
- MOUNTING : REAR-MOUNTED IN SHOCK-MOUNTED PANEL. INSTALLATION SCREWS TO BE 6-32UNC-2A x 1" (3 EACH).
- LABEL : "CAUTION GYROSCOPE - PLEASE HANDLE WITH EXTREME CARE" P/N 6600-0055-0001.
- REFERENCE ENGINEERING SPEC. 0043-1029 AND QUALITY ASSURANCE TEST DATA SHEET 0044-1029.
- INITIAL ERECTION : GYRO SHOULD BE MANUALLY CAGED WITH THE "PULL FOR QUICK ERECT" KNOB. THE KNOB IS SPRING-LOADED TO PREVENT INADVERTENTLY LOCKING THE GYRO IN THE ERECTED POSITION.
- Gyro warning flag does not go out-of-view until rotor is up to speed per Engineering Specification (note 9).

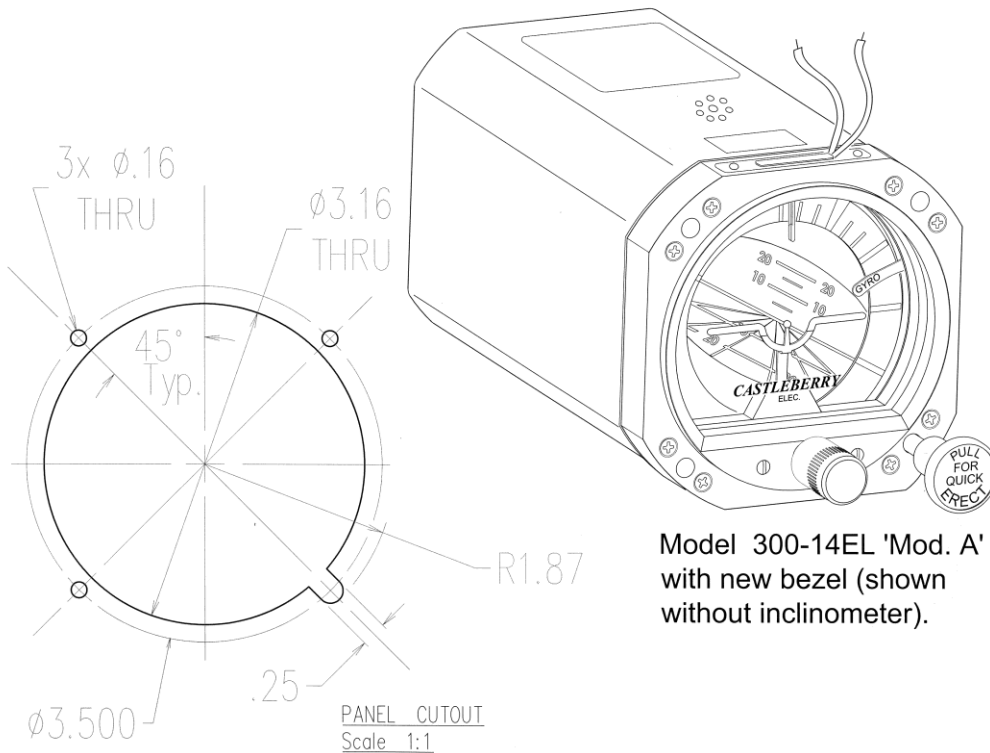


SCALE 2:1

CONNECTOR PINOUT	
	14v 28v
A	GND GND
B	VDC N/C
C	N/C VDC
D	N/C N/C

Mod.	Description	Effective S/N
A	Rounded Bezel	205J03277
B	Ruggedized Erection	206K04645
K	Improved rotor process	208F05648

LONG P/N	DESCRIPTION
504-0006-95154 14vdc	0° Tilt
504-0006-95155 14vdc	Custom Tilt, Specify when ordering
504-0006-95156 28vdc	0° Tilt
504-0006-95157 28vdc	Custom Tilt, Specify when ordering



**CASTLEBERRY Instruments & Avionics**  
Austin, Texas

**LIMITED WARRANTY CERTIFICATE**

**CASTLEBERRY Instruments & Avionics** (herein called **CIA**) warrants each item of new equipment manufactured or sold by it to be free from defects in material and workmanship under normal use for which intended for a period of **15** months from date of shipment by **CIA**. No claim for breach of warranty will be allowed unless **CIA** is notified thereof in writing within thirty (30) days after the material or workmanship defect is found.

**The obligation of CIA shall be limited to replacing or repairing at it's factory, the equipment found defective under the terms of this warranty certificate: providing that such equipment is returned in an approved shipping container, transportation charges prepaid, to:**

**CASTLEBERRY Instruments & Avionics**  
13405 Immanuel Road, Bldg 1, Ste A  
Pflugerville, TX. 78660  
ph (512) 251-5322    fx (512) 252-7322

**or such other location as CIA may authorize. CIA reserves the right to have necessary repairs performed by an authorized agency.**

**This warranty shall not apply to any unit or part thereof which has not been installed or maintained in accordance with CIA instructions, or has been repaired or altered in any way so as to adversely affect its performance or reliability, or which has been subjected to misuse, negligence or accident.**

**This warranty is exclusive and is accepted by buyer in lieu of all other guaranties or warranties of merchantability and fitness for a particular purpose. Buyer agrees that in no event will CIA liability for all losses from any cause, whether based in contract, negligence, strict liability, other tort or otherwise, exceed buyer's net purchase price,, nor will CIA be liable for any special, incidental, consequential or exemplary damages.**

**CIA reserves the right to make changes in design or additions to or improvements in its equipment without the obligation to install such additions or improvements in equipment theretofore manufactured.**