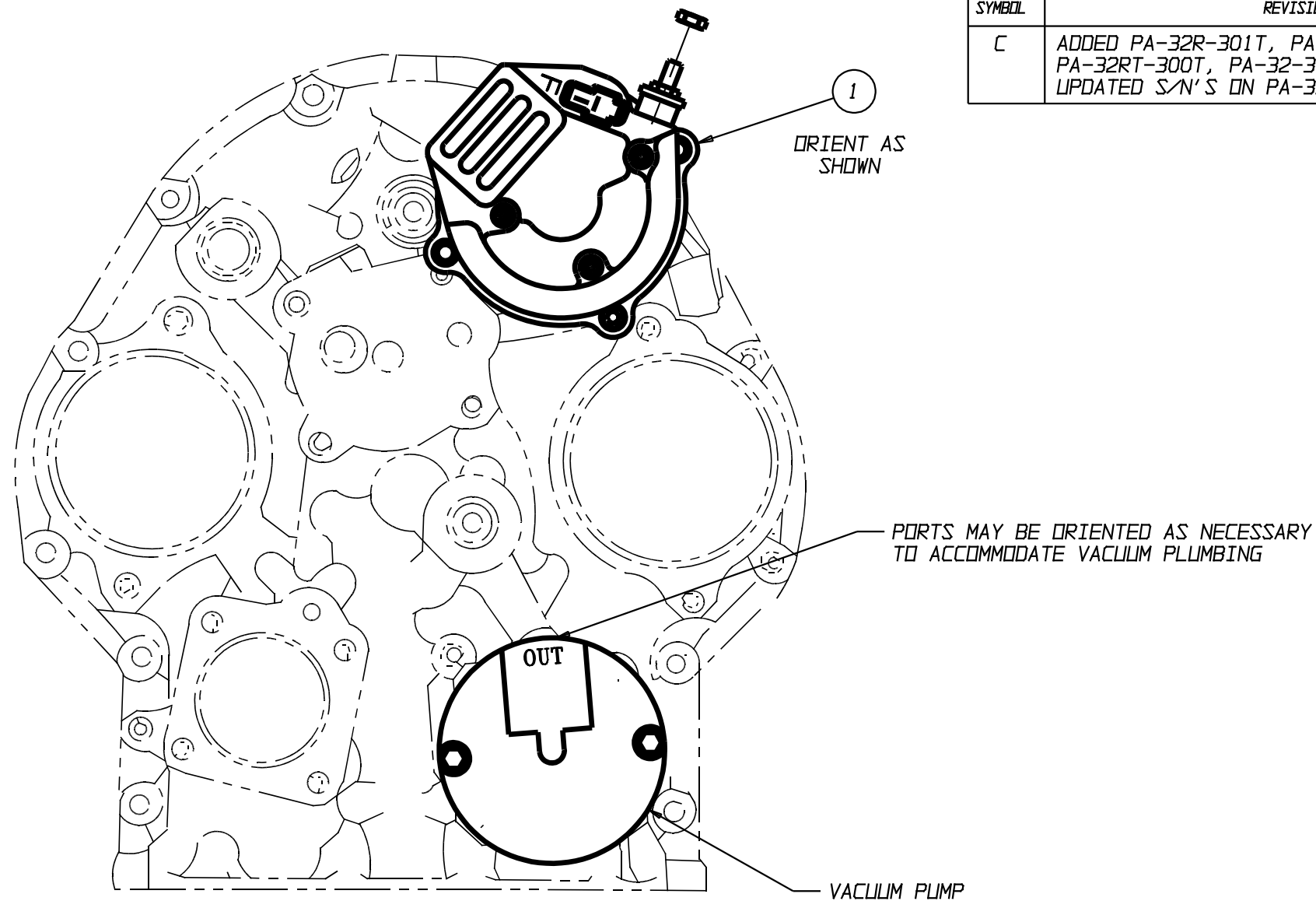


SYMBOL	REVISION	DRAWN	APPRVD
C	ADDED PA-32R-301T, PA-32-301T, PA-32RT-300T, PA-32-301XTC, PA-32-301FT UPDATED S/N'S ON PA-32-301	TH	10/11/06



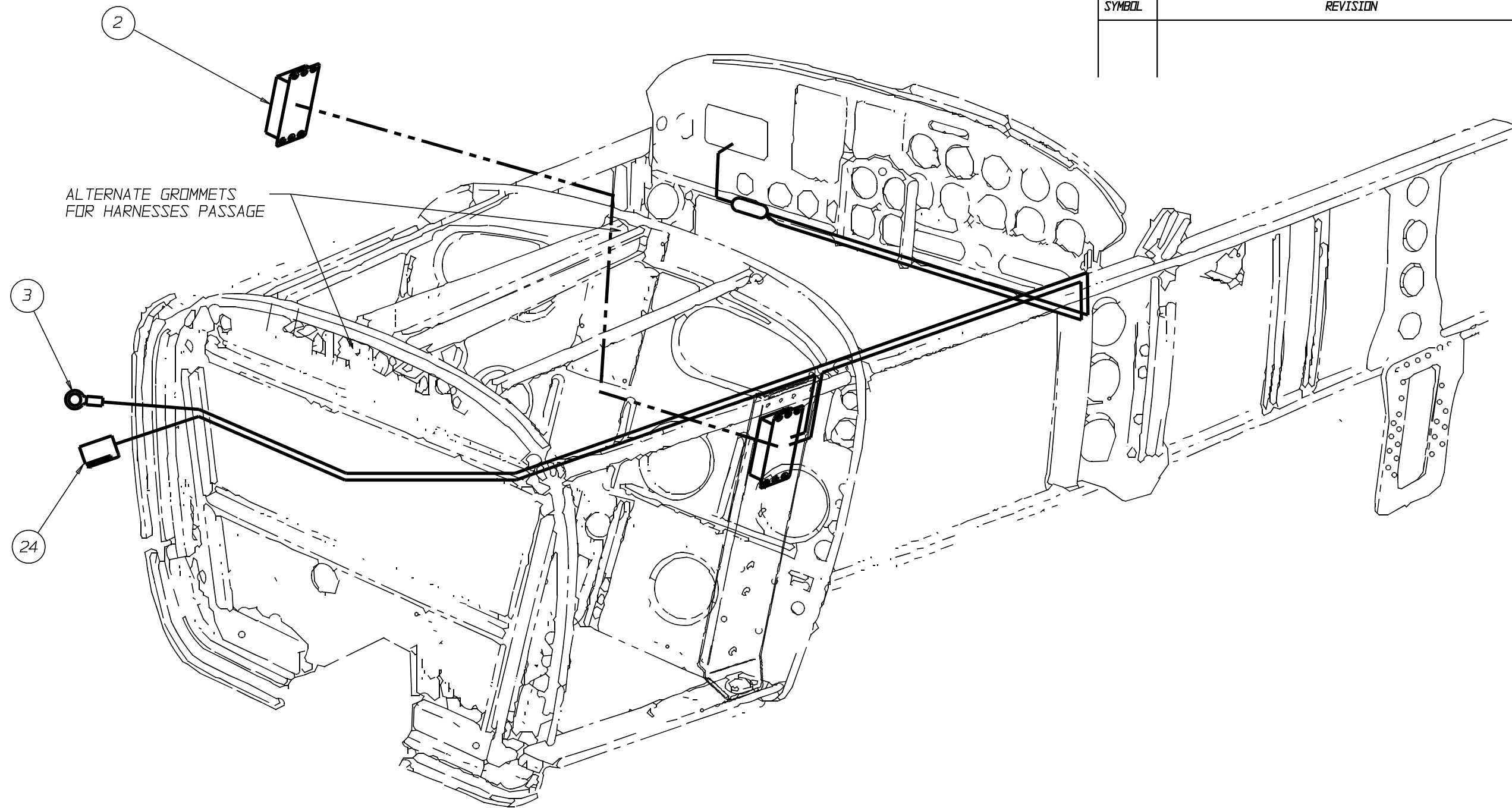
ALTERNATOR INSTALLATION INSTRUCTIONS (D-540-E4B5, ID-540-K1A5, ID-540-K1G5, & TID-540-AH1A ENGINES):

- DISCONNECT VACUUM PUMP. REMOVE VACUUM PUMP FROM ACCESSORY ADAPTER. REMOVE COVER PLATE FROM LOWER ACCESSORY CASE DRIVE AREA. RETAIN ALL HARDWARE. REMOVE ALL OLD GASKET MATERIAL FROM ALL GASKET SURFACES BEING CAREFUL NOT TO DAMAGE ALUMINUM SURFACES.
- INSTALL HYDRAULIC PUMP DRIVE ADAPTER ON LOWER ACCESSORY CASE DRIVE PAD PER LYCOMING SERVICE MANUAL. D-540 HYDRAULIC DRIVE CONSISTS OF:

HOUSING, LYC P/N 71675;	GEAR, LYC P/N 72964
THRUST WASHER, LYC P/N 71596;	SEAL, LYC P/N 06A19956
GASKET, LYC P/N 68315	
- PLACE A NEW GASKET, ITEM 14, ON STUDS OF EACH ACCESSORY DRIVE ADAPTER. INSTALL VACUUM PUMP THAT IS SUITABLE FOR CLOCKWISE ROTATION ON LOWER ACCESSORY DRIVE ADAPTER. INSTALL ALTERNATOR ON UPPER ACCESSORY DRIVE ADAPTER WITH OUTPUT POST CLOCKED TO THE POSITION SHOWN.
- SECURE THE VACUUM PUMP AND ALTERNATOR WITH NUTS, LOCKWASHERS, AND FLAT WASHERS RETAINED FROM STEP 1 ABOVE. TORQUE NUTS TO 90 - 110 IN-LBS.
- RE-PLUMB VACUUM HOSES TO APPROPRIATE PORTS OF VACUUM PUMP.

ITEM	QUANTITY	DESCRIPTION
	-1	PART NO.
		DESCRIPTION
UNLESS OTHERWISE SPECIFIED		B & C Specialty Products P.O. Box B, Newton, Kansas 67114
DIMENSIONS ARE IN INCHES TOLERANCES ARE: DECIMAL 0.XX = ±0.03 DECIMAL 0.XXX = ±0.005 ANGLES = ±0.5 DEGREES		TITLE INSTALLATION, BC410 ON PIPER PA32/32R SERIES ACFT
	NAME	DATE
ENGINEER		
DRAWN	TH	5/14/01
CHECKED	TH	5/14/01
PROJECT		
DRAWING NO. 410-506		REVISION
SCALE FULL		DATE
JOB NO.		PAGE 2 OF 7

SYMBOL	REVISION	DRAWN	APPRVD



1. ROUTE THE 10 GA. OUTPUT (ITEM 3) AND FIELD (ITEM 24) HARNESSES FROM THE BC410 AFT TO THE CONTROLLER AND CIRCUIT BREAKER. USE ADEL CLAMPS, ITEM 21, TO ATTACH THIS HARNESS TO THE BACK SIDE OF THE AFT ENGINE Baffle OR FIREWALL. ROUTE THE HARNESSES THROUGH EXISTING GROMMETS WHERE POSSIBLE.
2. ROUTE THE #10 OUTPUT CABLE TO THE NEW BREAKER LOCATION ON THE BUSS. ROUTE THE FIELD HARNESS AND THE THREE COLOR CODED CURRENT SENSOR WIRES TO THE STANDBY ALTERNATOR CONTROLLER, ITEM 2.
3. MOUNT THE CONTROLLER (ITEM 2) IN THE BAGGAGE COMPARTMENT OR BETWEEN THE BAGGAGE COMPARTMENT AND THE INSTRUMENT PANEL. THE LOCATION SHOWN SHOULD BE AVAILABLE ON LATER AIRCRAFT. ALTERNATE LOCATIONS ARE ACCEPTABLE.

4. DRILL 2 TO 4 ATTACHMENT HOLES FOR MACHINE SCREWS, ITEM 11. USE THE CONTROLLER MOUNTING BASE AS A TEMPLATE. AT LEAST ONE FASTENER ON EACH END OF THE CONTROLLER IS REQUIRED.
5. USE NUTS, ITEM 13, AND WASHERS, ITEM 12, AS PROVIDED TO SECURE CONTROLLER TO AIRFRAME.
6. CONNECT AN AIRFRAME GROUND TO THE STUD UNDER THE TERMINAL STRIP. THIS GROUND MUST BE SEPARATE FROM MOUNTING SCREWS OR THE GROUND ON TERMINAL 7.

ITEM	-1		PART NO.	DESCRIPTION
	USED ON			
UNLESS OTHERWISE SPECIFIED				B & C Specialty Products P.O. Box B, Newton, Kansas 67114
DIMENSIONS ARE IN INCHES TOLERANCES ARE: DECIMAL 0.XX = ±0.03 DECIMAL 0.XXX = ±0.005 ANGLES = ±0.5 DEGREES				TITLE INSTALLATION, BC410 ON PIPER PA32/32R SERIES ACFT
	NAME	DATE	DRAWING NO.	REVISION
ENGINEER			410-506	
DRAWN	TH	5/14/01		DATE
CHECKED	TH	5/14/01		
PROJECT			SCALE FULL	JOB NO.
				PAGE 3 OF 7

SYMBOL	REVISION	DRAWN	APPRVD

PRELIMINARY FUNCTIONAL TEST

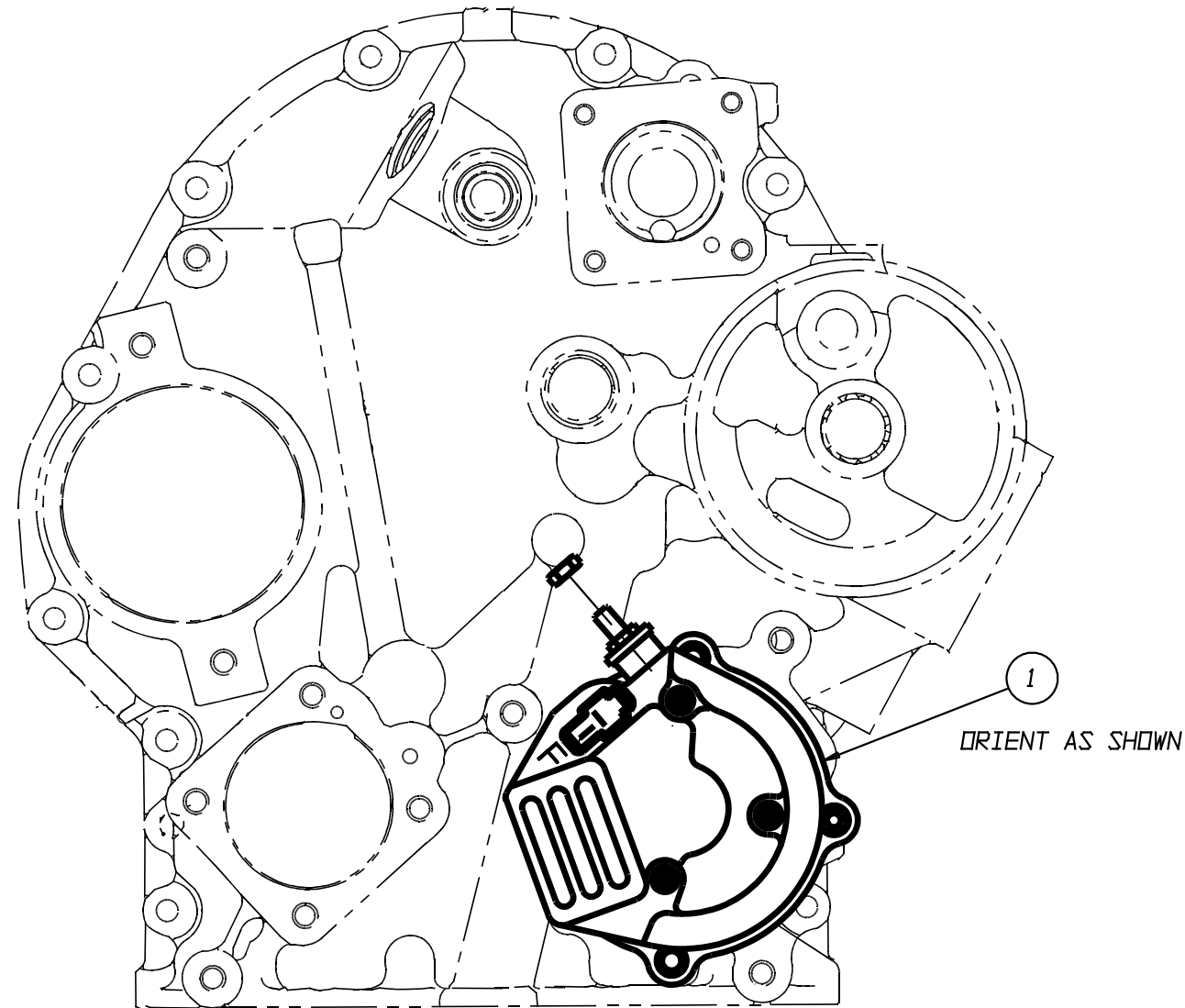
- 1. REFER TO AIRCRAFT OWNERS OR MAINTENANCE MANUAL AND RE-CONNECT THE BATTERY. THE MAG SWITCH SHOULD REMAIN OFF.
- 2. CLOSE THE "STBY ALT", "FIELD" AND "SENSE" CIRCUIT BREAKERS AND THE "STBY ALT" MASTER (OR FIELD) SWITCH.
- 3. TURN ON THE BATTERY MASTER SWITCH. CHECK THAT NEITHER STANDBY ALTERNATOR BREAKER TRIPS. CHECK THAT THE "STBY ALT ON" ANNUNCIATOR ILLUMINATES.
- 4. USING A HIGH IMPEDANCE VOLTMETER (PREFERABLY DIGITAL) CHECK THE VOLTAGE BETWEEN PIN 7 OF THE REGULATOR AND BOTH THE AIRFRAME AND THE BATTERY NEGATIVE POST. THE VOLTAGE SHOULD BE NEAR 0 VDC.
- 5. USE PIN 7 OF THE REGULATOR OR AIRFRAME AS NEGATIVE REFERENCE. MEASURE THE VOLTAGE ON PIN 1 OF THE BC203-2A OR PIN 3 OF THE BC217-1 AS APPROPRIATE. THE VOLTAGE SHOULD BE EQUAL TO THE BUS VOLTAGE.
- 6. USE PIN 7 OF THE REGULATOR OR AIRFRAME AS NEGATIVE REFERENCE. CHECK THE VOLTAGE ON PIN 6 OF THE REGULATOR. THE VOLTAGE SHOULD BE WITHIN 1.0 VOLT OF THE BUS VOLTAGE.
- 7. USE PIN 7 OF THE REGULATOR OR AIRFRAME AS NEGATIVE REFERENCE. IF THE REGULATOR IS A BC203-2A, CHECK THE VOLTAGE ON PIN 5. THE VOLTAGE SHOULD BE 13 TO 15 VOLTS. IF THE REGULATOR IS A BC217-1 CHECK THE VOLTAGE ON PIN 4. IT SHOULD BE 1.2 VOLTS LESS THAN THE VOLTAGE ON PIN 6.
- 8. CHECK THAT PULLING THE STANDBY ALTERNATOR "FIELD" CIRCUIT BREAKER CAUSES THE VOLTAGE ON PIN 6 TO GO TO ZERO AND THE "STBY ALT ON" ANNUNCIATOR TO GO OFF. CLOSE THE CIRCUIT BREAKER.
- 9. CHECK THAT OPENING THE "STBY ALT" MASTER CAUSES THE VOLTAGE ON PIN 6 TO GO TO ZERO AND THE "STANDBY ALT ON" ANNUNCIATOR TO GO OFF. CLOSE THE "STANDBY ALT" MASTER SWITCH.
- 10. CHECK THAT PULLING THE STANDBY ALTERNATOR "SENSE" CIRCUIT BREAKER CAUSES THE VOLTAGE ON PIN 1 OF THE BC203-2A OR PIN 3 OF THE BC217-1 TO GO TO ZERO AND THE "STBY ALT ON" ANNUNCIATOR TO GO OFF. CLOSE THE BREAKER.
- 11. MOVE TO THE ENGINE COMPARTMENT. USING A CLEAN ENGINE GROUND FOR NEGATIVE REFERENCE, CHECK THE VOLTAGE ON THE ALTERNATOR FIELD TERMINAL. THE CONNECTOR MUST NOT BE DISCONNECTED FOR THIS MEASUREMENT. USE A THIN PROBE OR SMALL WIRE TO ACCESS THE TERMINAL THRU THE CONNECTOR. THE VOLTAGE SHOULD MEASURE WITHIN 1.0 VOLT OF THE VALUE ON PIN 5 OF THE BC203-2A OR PIN 4 OF THE BC217-1 AS APPROPRIATE.
- 12. USING ENGINE GROUND AS NEGATIVE REFERENCE CHECK THE VOLTAGE ON THE "B" LEAD (OUTPUT TERMINAL) OF THE ALTERNATOR. THE VOLTAGE SHOULD BE EQUAL TO THE BUS VOLTAGE.
- 13. TURN OFF THE BATTERY MASTER.

FINAL TEST

- 1. PERFORM A NORMAL PREFLIGHT INSPECTION.
- 2. MOVE THE AIRCRAFT TO AN AREA SAFE FOR ENGINE START.
- 3. PERFORM A NORMAL ENGINE START AND ALLOW THE ENGINE TO REACH PROPER TEMPERATURE FOR RUNUP RPM.
- 4. ASSURE THAT THE "STBY ALT" AND "STBY ALT SENSE" CIRCUIT BREAKERS AND "STBY ALT" MASTER SWITCH ARE IN THE ON POSITION.
- 5. REDUCE SYSTEM ELECTRICAL LOADS TO APPROX 10-15 AMPS.
- 6. SET ENGINE TO 2000 RPM MINIMUM.
- 7. SWITCH PRIMARY ALTERNATOR FIELD SWITCH TO OFF.
- 8. CHECK THAT THE "STBY ALT ON" ANNUNCIATOR LIGHTS.
- 9. INCREASE THE ELECTRICAL LOAD TO OVER 20 AMPS. THE "STBY ALT ON" ANNUNCIATOR SHOULD BE BLINKING. REDUCE THE ELECTRICAL LOAD TO LESS THAN 20 AMPS. THE "STBY ALT ON" ANNUNCIATOR SHOULD BE ON STEADILY.
- 10. SWITCH THE PRIMARY ALTERNATOR FIELD SWITCH TO ON. THE "STBY ALT ON" ANNUNCIATOR SHOULD GO OFF.
- 11. RETURN THE ENGINE TO IDLE RPM.

ITEM										
				-1	PART NO.	DESCRIPTION				
	UNLESS OTHERWISE SPECIFIED						B & C Specialty Products P.O. Box B, Newton, Kansas 67114			
	DIMENSIONS ARE IN INCHES TOLERANCES ARE: DECIMAL 0.XX = ±0.03 DECIMAL 0.XXX = ±0.005 ANGLES = ±0.5 DEGREES						TITLE INSTALLATION, BC410 ON PIPER PA32/32R SERIES ACFT			
	ENGINEER		NAME	DATE						
	DRAWN	TH		5/14/01	DRAWING NO.	410-506		REVISION		
	CHECKED	TH		5/14/01				DATE		
	PROJECT				SCALE	FULL	JOB NO.	PAGE 6 OF 7		

SYMBOL	REVISION	DRAWN	APPRVD



ALTERNATOR INSTALLATION INSTRUCTIONS (IO-540-K1A5D, IO-540-K1G5D, AND TIO-540-S1AD):

- REFER TO APPROPRIATE LYCOMING OVERHAUL MANUAL. REMOVE THE COVER PLATE FROM THE LOWER ACCESSORY DRIVE POSITION OF THE ACCESSORY CASE. ASCERTAIN WHETHER THE ACCESSORY DRIVE GEAR IS INSTALLED IN THE ACCESSORY CASE OR WHETHER THE BEARING IS PLUGGED. IF THE BEARING IS PLUGGED, PERFORM STEP 2. IF THE GEAR IS INSTALLED, PROCEED TO STEP 3.
- REFER TO APPROPRIATE ENGINE OVERHAUL MANUAL. REMOVE THE ENGINE ACCESSORY CASE AND INSTALL THE ACCESSORY DRIVE GEAR AND THRUST WASHER IN THE LOWER ACCESSORY DRIVE POSITION. ADDITIONAL PARTS NECESSARY FOR THE ACCESSORY DRIVE GEAR INSTALLATION ARE:
 LYCOMING PART NUMBER LW-10313, GEAR
 LYCOMING PART NUMBER 71596, WASHER
 LYCOMING PART NUMBER 06A19956, SEAL
 RE-ASSEMBLE ACCESSORY CASE TO ENGINE.
- CAREFULLY CLEAN THE GASKET SURFACES. ORIENT THE ALTERNATOR AS SHOWN AND INSTALL IT ON THE ACCESSORY PAD USING A NEW GASKET (ITEM 14), 4 NUTS (ITEM 25), 4 LOCKWASHERS (ITEM 27) AND 4 FLAT WASHERS (ITEM 26). TORQUE THE NUTS TO 90 TO 110 IN-LBS.

ITEM	QUANTITY	DESCRIPTION
	-1	PART NO.
		DESCRIPTION
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		DIMENSIONS ARE IN INCHES TOLERANCES ARE: DECIMAL 0.XX = ±0.03 DECIMAL 0.XXX = ±0.005 ANGLES = ±0.5 DEGREES
		B & C Specialty Products P.O. Box B, Newton, Kansas 67114
		TITLE INSTALLATION, BC410 ON PIPER PA32/32R SERIES ACFT
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		JOB NO.
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