



Instructions for Continued Airworthiness

FAA-STC SA10364SC

Beech King Air Model C90, C90A, and E90 Aircraft With P&W PT6A-135A Engines And McCauley 4-Blade Propellers

REV. A

NOTICE

This document must be referenced on Block 8 of FAA form 337 and added to the aircraft permanent record as required by 14 CFR Part 91, §91.417(a)(2)(vi) when the reference FAA-STC modification is accomplished on eligible aircraft. This document complies with the requirements of 14 CFR Part 23, §23.1529, in accordance with 14 CFR Part 23, Appendix G.

Aircraft Serial No.

Aircraft Registration No.



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LOG OF REVISIONS

| Rev No. | Revision Date | Review | Affected Pages | Description of Revision |
|---------|----------------|-----------------------|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IR | March 15, 2004 | <i>Caugh. E. Hoff</i> | All | Initial Release |
| A | Nov 14, 2007 | MLM | 5-7 7-8 9 10-13 As Req'd All | 1. Add engine rigging instructions (5.D) 2. Add low pitch torque charts (5.E, 5.F) 3. Add ground performance chart (5.G) 4. Add parts list (Sect. 8) 5. Change references to Hawker Beechcraft Corp. as required 6. Updated page numbers |



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1. INTRODUCTION:

This document provides instructions for the continued airworthiness (ICA) for Blackhawk Modifications, Inc. STC no. SA10364SC to install two Pratt & Whitney PT6A-135A engines and any of the following propellers listed in Section 2 on Beechcraft King Air C90, C90A, and E90 aircraft.

NOTICE:

Section 15, titled "Airworthiness Limitations" is FAA approved and specifies maintenance required under 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved. To remain in compliance with the STC, the aircraft shall be maintained in accordance with these limitations.

This document supplements or supersedes the Hawker Beechcraft Corp. King Air 90 Series Maintenance Manual, only in those areas listed herein for the appropriate aircraft model and serial number.

2. DESCRIPTION:

The STC replaces the original engines with two Pratt & Whitney PT6A-135A engines. Any of the following propellers may be reinstalled or newly installed.

| Propeller | Spinner | Min./Max. Diameter (in.) |
|---------------------------------------------------|---------|--------------------------------|
| MCCAULEY 4-BLADED MODEL NO. 4HFR34C762/94LMA-4 | E-5722 | 89.0 / 90.0 |
| MCCAULEY 4-BLADED MODEL NO. 4HFR34C768/94LMA-4 | E-5722 | 89.0 / 90.0 |

3. SPECIAL PROCEDURES:

None

4. SERVICING INFORMATION:

The total oil capacity is increased from 28 to 29 quarts. The useable oil capacity remains at 12 quarts.



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5. MAINTENANCE INSTRUCTIONS:

- A. Maintain PT6A-135A engines in accordance with Pratt & Whitney Maintenance Manual, part number 3043512 issued October 31, 1997 or later approved revision.
- B. Maintain cowlings and nacelles in accordance with Hawker Beechcraft, Corp. King Air Model 90 Series Maintenance Manual part number 90-590012-13B revised August 1, 2007 or later approved revision.
- C. Maintain propellers and propeller de-icing system per Hawker Beechcraft Corp. King Air Model 90 Series Maintenance Manual and appropriate McCauley Propeller and De-Ice Brush Assembly Maintenance Manual.
- D. Engine Rigging
Note: Rig all engine and propeller controls per the King Air Maintenance Manual, Chapter 76 and below. Adjust all engine operation parameters per the PT6A-135A Maintenance Manual, Chapter 71-00 and below.
1. Adjust low pitch stop accordingly.
Caution: Use the low pitch torque chart appropriate for the propeller model Installed.
Note: If you do not do this check during zero wind conditions, take an average of the upwind and downwind readings to obtain correct results.
 - a.) Record outside air temperature, pressure altitude (29.92 set in altimeter), and torque value from the appropriate low pitch torque chart in Section 5.E thru 5.G for the appropriate propeller.
 - b.) With the engines running, generators, ice doors, bleed air off and the propeller levers fully forward, advance the power levers for both engines until the propellers reach 1800 rpm. Let the engines stabilize for a minimum of one minute and record indicated torque values in the following table.
 - c.) The indicated torque value for each engine must be +40/-0 ft-lbs from the torque value obtained in step a.). The difference between right and left torque indications on the engines should not exceed 20 foot-pounds.



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| | | |
|--------------------------------------------|-------|-----------------|
| Outside air temperature | _____ | °C |
| pressure altitude (29.92 SET IN ALTIMETER) | _____ | ft |
| TARGET torque value from chart FIGURE | _____ | ft-lbs |
| left engine torque | _____ | ft-lbs (+40/-0) |
| right engine torque | _____ | ft-lbs (+40/-0) |
| engine torque difference | _____ | ft-lbs (±20) |

d.) If the torque meter readings are not within these limits, make the adjustments according to (1) or (2) below:

- (1) When the torque change is necessary to bring an engine within the chart limits but the torque difference between the engines does not exceed 20 ft-lbs: disconnect the interconnecting rod for the fuel-topping governor and disconnect the control cable rear clevis from the beta control cam. Adjust the low pitch stop adjuster in or out until the engine torque is within the prescribed limits and the torque of each engine is the same. One full turn IN is approximately 92 ft-lbs. reconnect the inner connecting rod and the rear clevis.
- (2) When a torque change is necessary to bring an engine within the chart limits and the torque difference between the engines exceeds 20 ft-lbs: adjustment of the stop (beta) nut on each of the four low pitch stop rods of the propeller is necessary. All four nuts must be adjusted to an identical setting. One flat of rotation on the beta nuts (clockwise to increase or counterclockwise to decrease) changes engine torque approximately 15 foot-pounds. Adjust the beta nuts as necessary to bring the engine within the prescribed limits.



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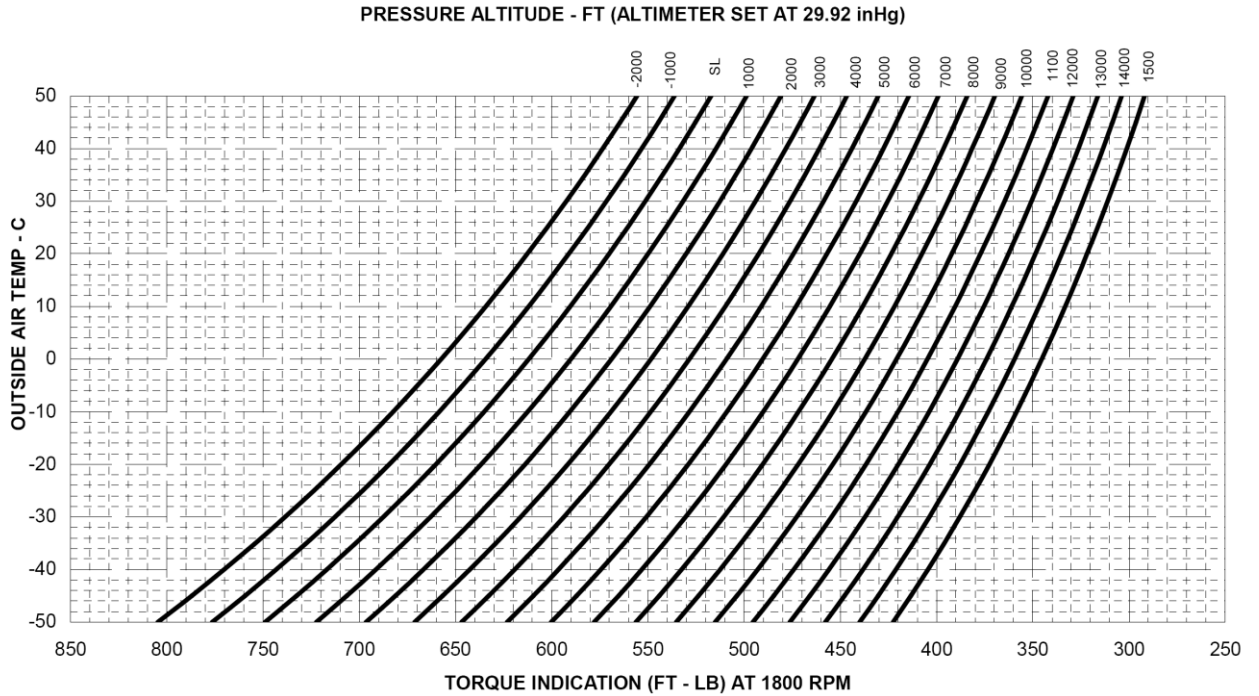
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2. Adjust low idle speed per the basic King Air 90 series maintenance manual for a C90GT. Low idle Ng speed should be set as required to obtain a propeller idle speed of 1100 +50/-0 rpm.
3. Adjust high idle speed to 69 to 71% Ng per the basic King Air 90 series maintenance manual for a C90GT.
4. Adjust FCU minimum fuel flow per Ng/Temperature chart in the PT6A-135A maintenance manual, Chapter 71-00 Figure 508.
5. Check that the oil pressure is within 85-105 psi (95 psi is optimum) per the limits of the PT6A-135A maintenance manual, Chapter 71-00 Table 507..
6. Adjust prop governor for max propeller speed of 1900 RPM per the basic King Air 90 series maintenance manual for a C90GT.
7. Set full reverse to 80-86% Ng, per the basic King Air 90 series maintenance manual for a C90GT.
8. Adjust the reverse not ready light to illuminate at 1760-1780 rpm. It may be necessary to lengthen the slots in the switch mounting bracket.
9. Ensure all linkage is properly saftied.



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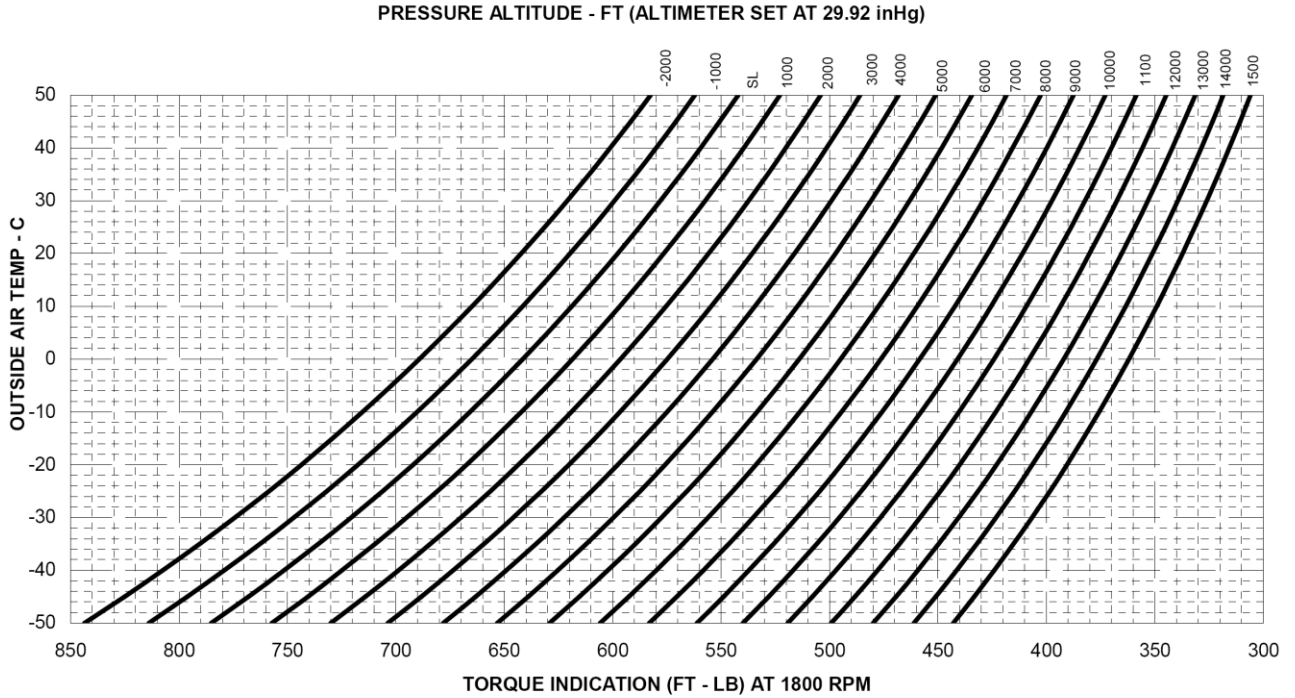
E. Low pitch torque chart for McCauley 4-bladed propeller model no. 4HFR34C762/94LMA-4 at 1800 rpm





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F. Low pitch torque chart for McCauley 4-bladed propeller model no. 4HFR34C768/94LMA-4 at 1800 rpm

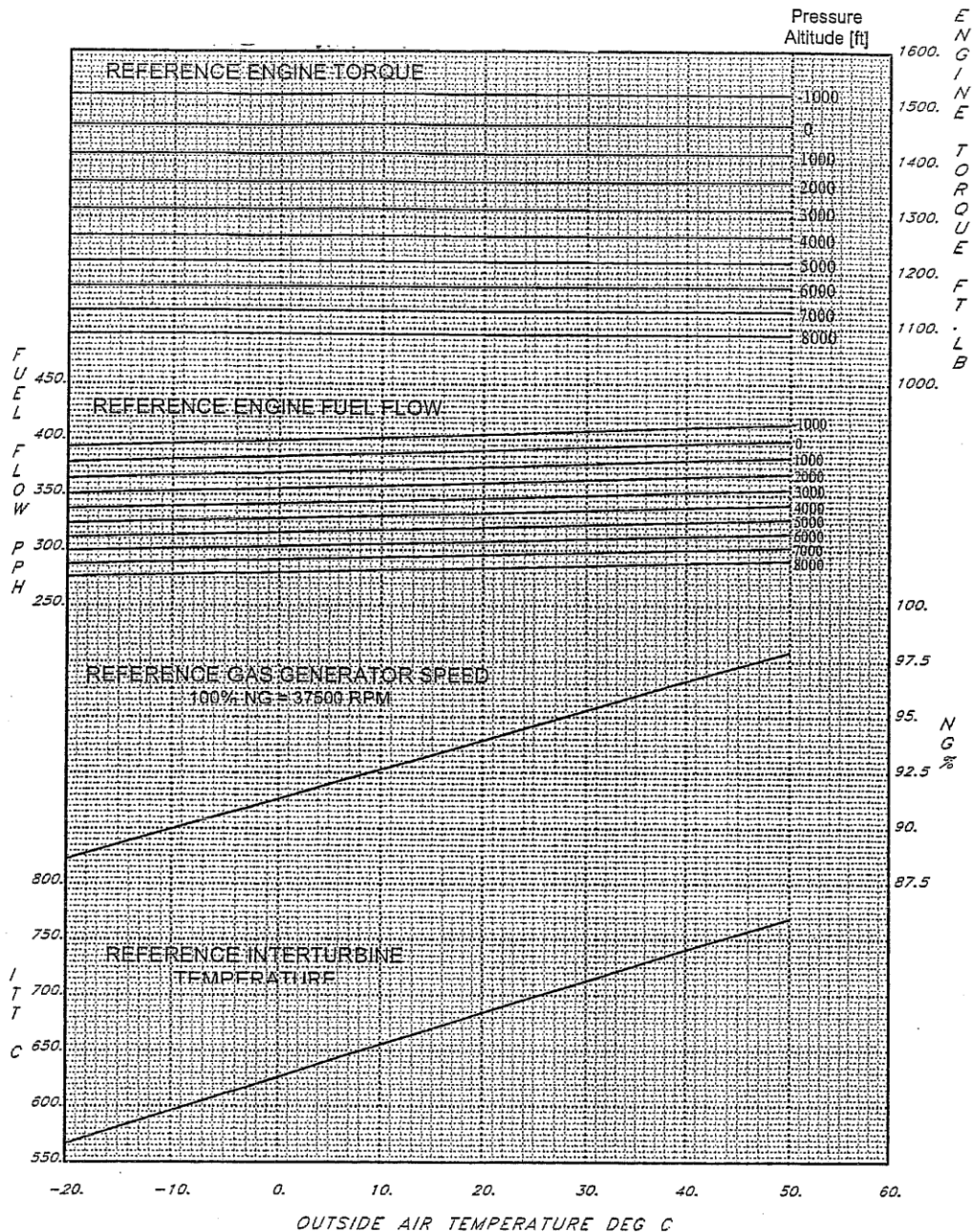




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G. GROUND PERFORMANCE CHART. Conduct ground performance checks per basic manual but use the following chart.

PT6A-135A
 GROUND PERFORMANCE CHECK CHART
 STATIC, INSTALLED, PROP SPEED = 1900 RPM
 THIS GRAPH IS NOT TO BE USED TO ACCEPT OR REJECT AN ENGINE





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6. TROUBLESHOOTING:

Troubleshooting guidance may be found in the documents listed in section 5. Otherwise, contact Blackhawk Modifications, Inc. for assistance.

Blackhawk Modifications, Inc.
 7601 Karl May Drive
 Waco, Texas 76708
 254.755.6711

7. REMOVAL AND REPLACEMENT:

Remove and replace as specified in Blackhawk drawing 19005-01, Rev. A, dated 03/15/04 or later FAA approved revision. For replacement parts refer to section 7 or contact Blackhawk at the following address.

Blackhawk Modifications, Inc.
 7601 Karl May Drive
 Waco, Texas 76708
 254.755.6711

8. PARTS LIST:

| ITEM | QTY/ ACFT | PART NO.: | NOMENCLATURE: | NOTES: |
|------|--------------|-----------------------------------------|--------------------------------------|--------------------------------------------------------|
| 1. | 2 EA. | PT6A-135A | ENGINE, TURBOPROP | PRATT & WHITNEY CANADA |
| 2. | 4 EA. | FA5830-1 | EXHAUST STUB ASSY (OPT) | FRAKES AVIATION PER STC SA8710SW |
| 3. | 2 EA. | 100-389021-1 | TORQUE TRANSDUCER | BEECHCRAFT |
| 4. | 2 EA. | 100-384116-5 | TORQUE INDICATOR | BEECHCRAFT |
| 5. | 2 EA. | CTA008-DT1400-59.1 | TORQUE TRANSDUCER | CENTEX AEROSPACE STC SA10339SC |
| 6. | 2 EA. | CTA008-2080-F15.20(K) | TORQUE INDICATOR | CENTEX AEROSPACE STC SA10339SC |
| 7. | 2 EA. | 160647-1 | TORQUE INDICATOR | BLACKHAWK STC SA01946LA |
| 8. | 2 EA. | ATPE-2B-2250-85D | TORQUE TRANSDUCER | BLACKHAWK STC SA01946LA |
| 9. | 2 EA. | EXSISTING PER AIRCRAFT SERIAL NUMBER | ITT INDICATOR | BEECHCRAFT REMARKED PER AFMS 19005 |
| 10. | 2 EA. | EXSISTING PER AIRCRAFT SERIAL NUMBER | PROPELLER TACHOMETER INDICATOR | BEECHCRAFT RECALIBRATE & REMARK PER DWG 19005-01 |



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| ITEM | QTY/ ACFT | PART NO.: | NOMENCLATURE: | NOTES: |
|------|--------------|-----------------------------------------|----------------------------------|---------------------------------------|
| 11. | 2 EA. | EXSISTING PER AIRCRAFT SERIAL NUMBER | OIL PRESSURE/ TEMPERATURE | BEECHCRAFT REMARKED PER AFMS 19005 |
| 12. | 2 EA. | 19003-002 | SPRING, ELEV HOLD DOWN | MFG. PER BLACKHAWK SPEC 19003-002. |
| 13. | 2 EA. | 100801X7-0218 | BUSHING | BEECHCRAFT |
| 14. | 2 EA. | 100801X4-0240 OR NAS42HT6B-15 | BUSHING | BEECHCRAFT |
| 15. | 1 EA. | B-45018 | TIMER, PROPELLER DE-ICE | MCCAULEY |
| 16. | 1 EA. | B-60010 | MOUNTING PLATE, TIMER | MCCAULEY |
| 17. | 2 EA. | C-40536 | BRACKET ASSY, PROP DE-ICE | MCCAULEY |
| 18. | 2 EA. | C-40257 | BRUSH BLOCK ASSY, PROP DE-ICE | MCCAULEY |
| 19. | 4 EA. | AN960-10 | WASHER, FOR BRACKET ASSY | |
| 20. | A.R. | AN960-PD-10L | WASHER, FOR BRACKET ASSY | |
| 21. | 4 EA. | AN503-10-18 | SCREW, FOR BRACKET ASSY | |
| 22. | 4 EA. | B-40024-9 | SPACER, FOR BRACKET ASSY | MCCAULEY |
| 23. | 8 EA. | B-40330 | HARNESS ASSY, PROP DE-ICE | MCCAULEY; FOR C762 HUB |
| 24. | 8 EA. | B-40585 | HARNESS ASSY, PROP DE-ICE | MCCAULEY; FOR C768 HUB |
| 25. | 8 EA. | A-2873-10 | CLAMP, FOR HARNESS | MCCAULEY |
| 26. | 16 EA. | AN960-8 | WASHER, FOR HARNESS CLAMP | |
| 27. | 16 EA. | AN503-8-10 | SCREW, FOR HARNESS CLAMP | |
| 28. | 16 EA. | MS3367-1-9 | TIE STRAP, ON PROP BLADE ROOT | |
| 29. | 16 EA. | AN503-6-8 | SCREW, BOOT HARNESS CONNECT | |
| 30. | 32 EA. | AN960-6L | WASHER, BOOT HARNESS CONNECT | |
| 31. | 32 EA. | B-5024 | INSULATOR, BOOT HARNESS CONN. | MCCAULEY |
| 32. | 16 EA. | MS21083-N06 | NUT, BOOT HARNESS CONN. | |
| 33. | 8 EA. | AN503-10-8 | SCREW, BOOT HARNESS CONN. | |
| 34. | 8 EA. | AN960-10L | WASHER, BOOT HARNESS CONN. | |
| 35. | 8 EA. | A-2873-9 | CLAMP, BOOT HARNESS CONN. | MCCAULEY |
| 36. | 8 EA. | MS21083-N3 | NUT, BOOT HARNESS CONN. | |



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| ITEM | QTY/ ACFT | PART NO.: | NOMENCLATURE: | NOTES: |
|------|--------------|--------------|-------------------------------|------------|
| 37. | 2 EA. | 101-960029-1 | BRACKET, PROP SYNC | BEECHCRAFT |
| 38. | 8 EA. | 90-960028-11 | TARGET, PROP SYNC | BEECHCRAFT |
| 39. | 16 EA. | AN3-3A | BOLT, PROP SYNC TARGET | |
| 40. | 16 EA. | AN960-10 | WASHER, PROP SYNC TARGET | |
| 41. | 16 EA. | NAS-1291-3 | NUT, PROP SYNC TARGET | |
| 42. | 4 EA. | 90-960028-5 | BALANCE WEIGHT, PROP SYNC | BEECHCRAFT |
| 43. | 2 EA. | E-5722 | SPINNER, PROPELLER | MCCAULEY |
| 44. | 1 EA. | E-5643 | DRAWING, SPINNER INSTALLATION | MCCAULEY |
| 45. | 1 EA. | 7270-5-25 | SWITCH, PROP DE-ICE C.B. SW | KLIXON |

THE FOLLOWING NEW ITEMS WILL ONLY BE REQUIRED ON AIRCRAFT CONVERTING FROM PT6A-28 ENGINES.

| ITEM | QTY/ CFT | PART NO.: | NOMENCLATURE: | NOTES: |
|------|-------------|---------------------------------------------|-----------------------|------------|
| 46. | 1 EA. | 90-380014-9 | LH IDLE CONTROL CABLE | BEECHCRAFT |
| 47. | 1 EA. | 90-380014-11 | RH IDLE CONTROL CABLE | BEECHCRAFT |
| 48. | 2 EA. | 102933S4ZS0250 | SPACER | BEECHCRAFT |
| 49. | 2 EA. | 109-940001-5 | IDLE CONTROL ARM ASSY | BEECHCRAFT |
| 50. | 2 EA. | 50-944073-71 | IDLE CONTROL BRACKET | BEECHCRAFT |
| 51. | 2 EA. | RA1039C | CLIP-IDLE CONTROL | BEECHCRAFT |
| 52. | 1 EA. | 130F001-4S0254 OR TSO-C53 TYPE C EQUIVALENT | DRAIN HOSE ASSY | STRATOFLEX |
| 53. | 2 EA. | AN919-3 | ADAPTER/UNION 4 TO 5 | |
| 54. | 2 EA. | MS51521B4 | SWIVEL NUT, 90° ELBOW | |
| 55. | 2 EA. | AN833-4 | 90° BULKHEAD FITTING | |
| 56. | 2 EA. | 130001-4S0204 OR TSO-C53 EQUIVALENT | DRAIN HOSE ASSY | STRATOFLEX |
| 57. | 2 EA. | AN807-4 | BULKHEAD FITTING | |
| 58. | 2 EA. | AN924-4 | NUT | |



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THE FOLLOWING NEW ITEMS WILL ONLY BE REQUIRED ON AIRCRAFT CONVERTING FROM PT6A-6/20, PT6A-20A, AND PT6A-20 ENGINES.

| ITEM | QTY/A CFT | PART NO.: | NOMENCLATURE: | NOTES: |
|------|--------------|------------------------------------------------------------|---------------------------------|------------------------------|
| 59. | 2 EA. | 3020227 | ADAPTER OIL SCAVENGE | PRATT & WHITNEY CANADA |
| 60. | 2 EA. | 3006515 | OIL TEMPERATURE BULB ADAPTOR | PRATT & WHITNEY CANADA |
| 61. | 2 EA. | 109-910002-5 | PROP SEAL DRAIN TUBE | BEECHCRAFT SI 0769- 241R1 |
| 62. | 2 EA. | 109-910002-7 | REDUCER | BEECHCRAFT |
| 63. | 2 EA. | AN832-4 | BULKHEAD FITTING | |
| 64. | 2 EA. | AN924-4 | NUT | |
| 65. | 2 EA. | AN960-716 | WASHER | |
| 66. | 2 EA. | 130001-450157 OR 330995-4-0157 OR TSO-C53 EQUIVALENT | DRAIN HOSE ASSY | STRATOFLEX AEROQUIP |
| 67. | 2 EA. | 97-910030 | BLEED HOSE ADAPTOR | BEECHCRAFT |
| 68. | 2 EA. | 99-389016-3 | BLEED HOSE | BEECHCRAFT |
| 69. | 2 EA. | 4563-100 | BLEED HOSE CLAMP | BEECHCRAFT |
| 70. | 2 EA. | 97-910031-1 | BLEED HOSE GASKET | BEECHCRAFT |
| 71. | 2 EA. | MS3456L12S3S | CANNON PLUG | |
| 72. | 2 EA. | MS3417-12N | BACKSHELL | |
| 73. | 2 EA. | MS3106E14S2S | CONNECTORS | |
| 74. | 2 EA. | MS3106A14S2S | CONNECTORS | |
| 75. | 2 EA. | MS3057-6A | BACKSHELLS | |
| 76. | 2 EA. | MS3420-6 | RUBBER INSERTS | |
| 77. | 2 EA. | 50-389057-1 OR EQUIVALENT | PROPELLER TACH GENERATOR | BEECHCRAFT |

9. DIAGRAMS:

None

10. SPECIAL INSPECTION REQUIREMENTS:

Conduct routine inspections on the PT6A-135A engines in accordance with Pratt & Whitney Maintenance Manual, part number 3043512 issued October 31, 1997 or later approved revision. Refer to section 72-00-00.

Conduct routine inspections on the cowlings and nacelles in accordance with Hawker Beechcraft Corp. King Air Model 90 Series Maintenance Manual.



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Conduct routine inspections on the propellers in accordance with Hawker Beechcraft Corp. King Air Model 90 Series Maintenance Manual and McCauley Propeller Maintenance Manual.

11. APPLICATION OF SPECIAL TREATMENTS:

None

12. DATA:

None

13. SPECIAL TOOLS:

None

14. ADDITIONAL INFORMATION FOR COMMUTER CATEGORY AIRCRAFT:

Not Applicable

15. RECOMMENDED OVERHAUL PERIOD:

Per Pratt & Whitney PT6A-135A Service Bulletin 1003 rev 28 or later approved revision and per McCauley Service Bulletin SB137AC or later approved revision.

16. AIRWORTHINESS LIMITATIONS:

NOTICE:

This section is FAA approved and specifies maintenance required under 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved. To remain in compliance with the STC, the aircraft shall be maintained in accordance with these limitations.



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There are no changes to the airworthiness limitations of the PT6A-135A engine from those, which are listed in Pratt & Whitney Maintenance Manual, part number 3043512, issued October 31, 1997 or later approved revision.

There are no changes to the airworthiness limitations of the propellers, cowlings, or nacelles from those which are listed in the Hawker Beechcraft Corp. King Air 90 Series Maintenance Manual.

17. REVISION:

Each time this ICA is revised or reissued, the revised ICA will be distributed to operators using a Service Letter/Bulletin by Blackhawk Modifications. This revision will include a new Log of Revisions page along with the revised pages. The lower right hand corner of each revised page will reflect the revision letter. That portion of text or an illustration, which has been revised by the addition of, or change in, information is denoted by a solid revision bar located adjacent to the area of change, and placed along the outside margin of a page. Revision bars show only information changed within latest revision.

18. ASSISTANCE:

For assistance with ICA issues not addressed herein, contact Blackhawk Modifications, Inc. at the following address or phone number.

Blackhawk Modifications, Inc.
7601 Karl May Drive
Waco, Texas 76708
254.755.6711