

DYNAMIC AVIATION GROUP, INC.

Modification / Repair / Inspection Procedure

Title: **INSTALLATION – AUXILIARY POWER TAP**

RIP No. **02-24-01**

REV.: **NONE**

DATE: **11/22/02**

Aircraft/Engine Type: BEEHCRAFT 65-A90-1 & -4	Problem: NEED ELECTRICAL POWER FOR SPECIAL MISSION EQUIPMENT
Part Nomenclature: AUXILIARY POWER TAP	Permanent Repair Primary Structure Time Limited Repair <input checked="" type="checkbox"/> Secondary Structure Inspection <input checked="" type="checkbox"/> Alteration/Modification
Part Number: 02-24-01	<input checked="" type="checkbox"/> Major Minor N/A
Aircraft Time Hours: N/A Cycles: N/A	Basis of Approval: FAA FORM 8110-3, CTA , DATED 12/18/02
References: BEECH 65-A90 IPC TM 55-1510-209-23P-1 & MAINT. MAN. TM 55-1510-209-23-1 & -2	Weight Change: SEE INSTRUCTIONS
Manager: _____ Date: _____ Prepared By: TRAVIS COFFEY Date: 11/22/02	All work completed - Date: _____ Inspector: _____

INTRODUCTION THE KINGAIR 65-A90-1 AND -4 HAVE A 250 AMP STARTER GENERATOR MOUNTED ON EACH ENGINE SUPPLYING 500 AMPS TOTAL TO THE ELECTRICAL BUSS. WITH THE AIRCRAFT CONFIGURED FOR NIGHT OPERATIONS IN ICING CONDITIONS (INTERIOR LIGHTS AND ELECTRICAL DE-ICE AND ANTI-ICE ON) THE MAXIMUM LOAD ON THE ELECTRICAL BUSS DOES NOT EXCEED 225AMPS. THIS LEAVES 375 AMPS OF THE TOTAL POWER AVAILABLE UNUSED.

THE NEED TO POWER SPECIAL MISSION EQUIPMENT FROM THE AIRCRAFT ELECTRICAL BUSS OFTEN ARISES. THE MISSION EQUIPMENT VARIES MOSTLY BEING COMPRISED OF AGRICULTURAL APPLICATORS, AERIAL SURVEYING OR SCIENTIFIC MEASURING DEVICES. PAST EXPERIENCE HAS SHOWN THAT A 150 AMP POWER TAP WOULD BE SUFFICIENT. THE MAXIMUM POWER REQUIREMENTS OF THE AIRCRAFT PLUS THE 150AMPS FOR MISSION EQUIPMENT REQUIRES 75% OF THE TOTAL POWER OUTPUT BELOW THE STANDARD MAXIMUM OF 80% OF TOTAL OUTPUT.

INSTALLATION INSTRUCTION THE AUXILIARY POWER TAP CIRCUIT IS COMPRISED OF AN P/N ANL BURNDY CURRENT LIMITER, EATON 6401H189 200 AMP CONTINUOUS DUTY RELAY, EATON A123K12KZQ OR ALCO MTL106D RELAY CONTROL SWITCH, MS27212-5-8 TERMINAL STRIP, (MS25244, MS24510, OR MS26574) SECONDARY CIRCUIT PROTECTION (IF NEEDED) AND END CONNECTOR.

THE CURRENT LIMITER PROTECTS THE WIRING FROM THE LIMITER TO THE TERMINAL STRIP. MOUNTING LOCATION IS DEPENDENT ON AIRCRAFT MODEL. THE A MODEL AIRCRAFT MOUNT IS UNDER THE COPILOTS FLOOR ON THE LONGITUDINAL FRAME BESIDE THE GENERATOR BUSS TIE CURRENT LIMITER. A TWO GAUGE WIRE IS THEN ROUTED FROM THE BATTERY BUSS TO THE AUXILIARY POWER CURRENT LIMITER. THE H MODEL AIRCRAFT'S LIMITER IS LOCATED IN THE LEFT-HAND WING ROOT INBOARD OF THE NACELLE. IT IS MOUNTED BESIDE THE LEFT-HAND GENERATOR BUSS TIE LIMITER. A TWO-GAUGE WIRE IS ROUTED FROM THE BATTERY BUSS SIDE OF THE GENERATOR BUSS TIE LIMITER TO THE AUXILIARY POWER LIMITER. ATTACHMENT IN BOTH MODELS IS THE SAME. TWO AN5091032 (OR EQUIVALENT) COUNTERSUNK SCREWS WITH SELF-LOCKING NUTS AND WASHERS INSTALLED THROUGH LIMITER MOUNT AND FRAME WEB. A 150 AMP CURRENT LIMITER IS INSTALLED.

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THE 200 AMP RELAY CONNECTS AND DISCONNECTS THE AUXILIARY POWER TAP FROM THE AIRCRAFT ELECTRICAL BUSS. THE POSITIVE SIDE OF THE COIL IS CONNECTED TO THE BUSS SIDE OF THE RELAY THROUGH A 5 AMP INLINE FUSE. MOUNTING LOCATION IS DEPENDENT ON AIRCRAFT MODEL. THE A MODEL AIRCRAFT MOUNT IS UNDER THE COPILOTS FLOOR ON THE LATERAL FRAME AT B.L. 15.0 AND F.S. 120.5. A TWO-GAUGE WIRE IS THEN ROUTED FROM THE AUXILIARY POWER TAP CURRENT LIMITER TO THE RELAY. THE H MODEL AIRCRAFT'S RELAY IS LOCATED IN THE LEFT-HAND WING ROOT INBOARD OF THE NACELLE. IT IS MOUNTED HALF WAY BETWEEN THE NACELLE AND FUSELAGE BEHIND THE LEADING EDGE COVER. A TWO-GAUGE WIRE IS ROUTED FROM THE AUXILIARY POWER TAP CURRENT LIMITER TO THE RELAY. ATTACHMENT IN BOTH MODELS IS THE SAME. TWO AN3 (OR EQUIVALENT) BOLTS WITH SELF-LOCKING NUTS AND WASHERS INSTALLED THROUGH RELAY MOUNT AND FRAME WEB. LABEL THE RELAY "AUX POWER"

THE RELAY CONTROL SWITCH CONTROLS THE 200 AMP RELAY BY SWITCHING THE GROUND SIDE OF THE COIL. THE SWITCH IS MOUNTED IN THE COCKPIT CENTER PEDESTAL ON THE PILOT'S SIDE OF THE AUTOPILOT CONTROLLER. ONE SIDE OF THE SWITCH IS CONNECTED TO THE NEGATIVE SIDE OF THE 200 AMP RELAY COIL WITH A 20 GAUGE WIRE. THE OTHER CONNECTED TO THE PEDESTAL GROUNDING POINT WITH A 20 GAUGE WIRE. ADJACENT TO THE SWITCH INSTALL A PLACARD THAT READS "AUX POWER-OFF WHEN ENGINE OR GENERATOR FAILS"

THE TERMINAL STRIP IS LOCATED UNDER THE FORWARD CENTER AISLE ACCESS PANEL. IT IS FABRICATED BY CUTTING OFF A SECTION OF MS27212-5-8 TERMINAL STRIP (OR EQUIVALENT) HAVING TWO STUDS AND THREE MOUNTING HOLES. IT IS MOUNTED TO THE ELECTRICAL EQUIPMENT SHELF WITH THREE NAS1329-6 RIVNUTS (OR EQUIVALENT) AND THREE MS35206-6-32C SCREWS (OR EQUIVALENT). A 1/16" PHENOLIC SPACER CLEARANCE DRILLED FOR THE RIVNUTS IS USED TO SHIM BETWEEN THE SHELF AND THE TERMINAL STRIP. ADD A PLACARD ADJACENT TO THE STRIP "AUX POWER". ROUTE A TWO-GAUGE WIRE FROM THE AUXILIARY POWER RELAY TO ONE OF THE TERMINALS AND MARK THAT TERMINAL POSITIVE. ATTACH A SECOND TWO-GAUGE WIRE TO THE SHELF WITH AN AN4 BOLT. THE SURFACE OF SHELF SHOULD BE CLEAR AND FREE OF PAINT TO INSURE A GOOD ELECTRICAL CONNECTION, REFERE TO AC 43.13-1B, CHAPTER 11, SECTION 15. CONNECT THE OTHER END OF THE WIRE TO THE SECOND TERMINAL AND LABEL NEGATIVE.

SPECIAL EQUIPMENT WITH A SINGLE POWER CONNECTION CAN HAVE A WIRE CONNECTED TO THE POSITIVE TERMINAL ON TERMINAL STRIP AND ROUTED TO THE CONNECTION POINT ON THE EQUIPMENT. IF THE WIRE GAUGE IS REDUCED INSTALL THE CORRECT BURNDE CURRENT LIMITER IN HOLDER INSTALLED ABOVE FOR THAT WIRE GAUGE. SEE AC 43.13-1B, CHAPTER 11, SECTION 4.

IF SINGLE OR MULTIPLE LOW AMP CONNECTIONS ARE NEED A CIRCUIT BREAKER BOX CAN BE FABRICATED FROM 6061 ALUMINUM AND FITTED WITH THE APPROPRIATE CIRCUIT BREAKERS NEEDED. BOX SHOULD BE CONSTRUCTED WITH TWO OPPOSING MOUNTING FLANGES, WITH TWO MOUNTING HOLES IN EACH FLANGE. INSTALL HOLES IN BOX FOR ROUTING OF WIRE IN AND OUT OF BOX. HOLES SHOULD BE LINED WITH ANTI-CHAFE MATERIAL. THE BOX CAN BE MOUNTED BETWEEN ANY TWO FORMERS ALONG THE SIDE WALL OF THE CABIN AREA. FABRICATE AN.063" 2024 ALUMINUM PLATE WITH .5 INCH FLANGES AND ATTACH TO THE FORE AND AFT FORMER FLANGES WITH FOUR AN525-10-32 SCREWS (OR EQUIVALENT), TWO IN EACH FLANGE. ATTACH THE BREAKER BOX TO THE MOUNTING PLATE WITH FOUR AN525-10-32 SCREWS (OR EQUIVALENT). PLACARD THE BOX "AUX POWER". SEE FIGURE 1 FOR GENERAL ARRANGEMENT OF BOX AND MOUNTING PLATE.

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CONNECT EITHER ONE TWO-GAUGE WIRE OR TWO FOUR-GAUGE WIRES TO THE POSITIVE TERMINAL ON THE TERMINAL STRIP. ROUTE WIRE TO CIRCUIT BREAKER BOX AND CONNECT TO LARGEST CIRCUIT BREAKER IN BOX. BOND ALL CIRCUIT BREAKERS TOGETHER WITH APPROPRIATELY SIZED WIRE OR COPPER STRAP.

IF ANY SIDE WALL MOUNTED POWER CONNECTORS ARE NEEDED, FABRICATE AND ATTACH MOUNTING PLATE BETWEEN THE TWO CLOSEST FORMERS IN THE SAME MANNER AS MOUNTING PLATE ABOVE. PUNCH HOLE IN PLATE FOR ATTACHMENT OF ELECTRICAL CONNECTOR. SEE FIGURE 2 FOR GENERAL ARRANGEMENT. PLACARD THE CABIN LINER ADJACENT TO THE CONNECTOR "AUX POWER".

ROUTE THE APPROPRIATELY SIZED WIRE FROM CIRCUIT BREAKERS TO WALL OUTLETS OR EQUIPMENT AS NEEDED. FOLLOW AC43.13-1B, CHAPTER 11, SECTIONS 1,3,6,8,9,11,12 AND 14 FOR WIRE ROUTING SECURING AND CONNECTIONS.

FOLLOW AC43.13-1B, CHAPTER 11, SECTIONS 1, 3 & 17 FOR MOUNTING OF CONNECTOR AND CIRCUIT BREAKER BOX.

FOLLOW AC43.13-1B, CHAPTER 11, SECTIONS 1,4,5,6 & 15 FOR PROPER WIRE AND CIRCUIT PROTECTION SELECTION AND PROPER GROUNDING AND BONDING.

FOLLOW AC43.13-1B, CHAPTER 4, SECTION 4 FOR GUIDANCE FOR BOX AND MOUNTING PLATE FABRICATION.

UPDATE AIRCRAFT WEIGHT AND BALANCE WHEN COMPLETED. RETURN THE AIRCRAFT TO SERVICE WITH FAA FORM 337 AND AN APPROPRIATE LOG BOOK ENTRY AS A MAJOR ALTERATION.

CONTINUING MAINTENANCE INSTRUCTIONS INSPECT THE INSTALLATION AT THE SAME FREQUENCY AS THE ADJACENT ELECTRICAL SYSTEMS USING AC43.13-1B, CHAPTER 11, SECTION 1 AS A GUIDE.

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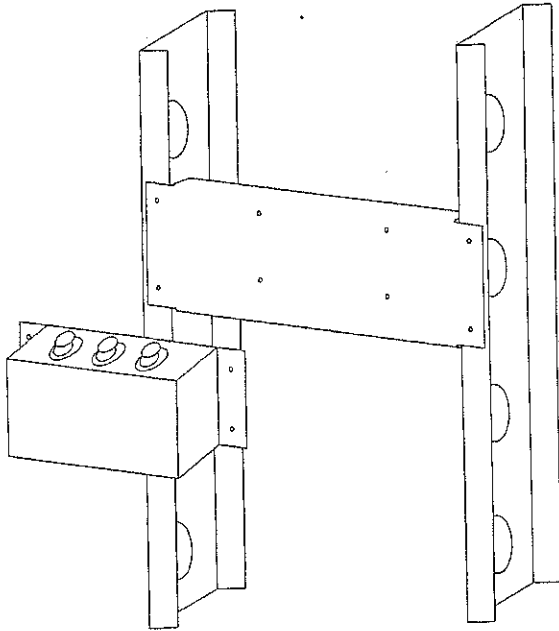


Figure 1

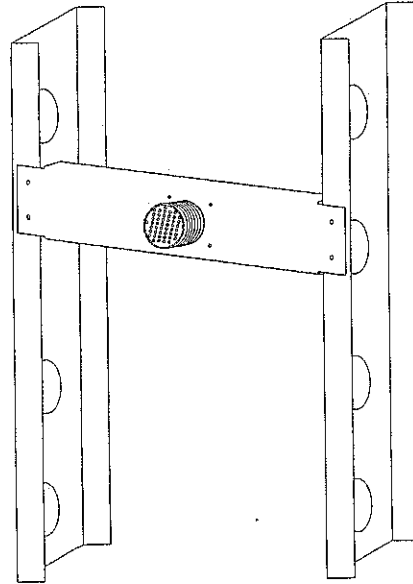


Figure 2

DYNAMIC AVIATION GROUP, INC.

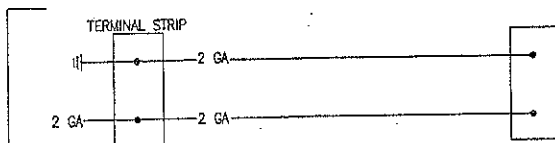
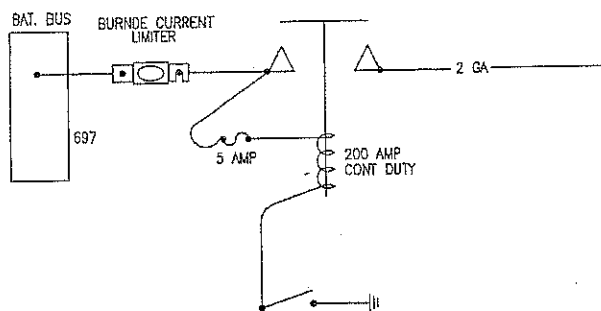
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