US Department
of Transportation
Federal Aviation
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MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

Form Approved	Electronic Tracking Number					
OMB No. 2120-0020	,					
2/28/2011						
For EAA Use Only						

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U.S. Department of Transportation Federal Aviation Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

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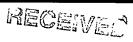
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NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

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U.S Department of Transportation Federal Aviation Administration

MAJOR REPAIR AND ALTERATION (Airframe, Powerplant, Propeller, or Appliance)

Form Approved
OMB No. 2120-0020
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NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

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Supplement to Mooney M20E Garmin GNS-430 GPS/VOR/ILS Navigation System

FAA APPROVED FLIGHT MANUAL SUPPLEMENT GARMIN GNS 430 VHF COMMUNICATIONS TRANSCEIVER / VOR/ILS RECEIVER / GPS RECEIVER

AIRCRAFT MAKE: Mooney

AIRCRAFT MODEL: M20E

AIRCRAFT SERIAL NO.: 690027

This Supplement must be attached to the FAA approved Mooney M20E Airplane Flight Manual when the Garmin GNS-430 system has been installed in accordance with FAA Form 337 Dated nr. 2 0 1999

For aircraft with an FAA Approved Airplane Flight Manual, this document serves as the FAA Approved Flight Manual Supplement for the GARMIN GNS 430. For aircraft that do not have an approved flight manual, this document serves as the FAA Approved Supplemental Flight Manual for the GARMIN GNC 430.

The Information contained herein supplements or supersedes the basic Airplane Flight Manual only in those areas listed herein. For limitations, procedures, and performance information not contained in this document, consult the basic Airplane Flight Manual.

Clanell Lugles

APPROVED BY

Darrell Hughes
Principal Avionics Inspector
Dallas Flights Standards District
3300 Love Field Drive
Dallas, TX 75235

DATE OF APPROVAL <u>Schools</u>, 1999

FAA Approved OCT 2 0 1999 ROA

Page 1 of 7

Supplement to Mooney M20E Garmin GNS-430 GPS/VOR/ILS Navigation System

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Supplement to Mooney M20E Garmin GNS-430 GPS/VOR/ILS Navigation System

SECTION I GENERAL

- 1. The GNS 430 System is a fully integrated, panel mounted instrument, which contains a VHF Communications Transceiver, a VOR/ILS receiver, and a Global Positioning System (GPS) Navigation computer. The system consists of a GPS antenna, GPS Receiver, VHF VOR/LOC/GS antenna, VOR/ILS receiver, VHF COMM antenna and a VHF Communications Transceiver. The primary function of the VHF Communication portion of the equipment is to facilitate communication with Air Traffic Control. The primary function of the VOR/ILS Receiver portion of the equipment is to receive and demodulate VOR, Localizer, and Glide Slope signals. The primary function of the GPS portion of the system is to acquire signals from the GPS system satellites, recover orbital data, make range and Doppler measurements, and process this information in real-time to obtain the user's position, velocity, and time.
- 2. Provided the GARMIN GNS 430's GPS receiver is receiving adequate usable signals, it has been demonstrated capable of and has been shown to meet the accuracy specifications for:
 - VFR/IFR enroute, terminal, and non-precision instrument approach (GPS, Loran-C, VOR, VOR-DME, TACAN, NDB, NDB-DME, RNAV) operation within the U.S National Airspace System in accordance with AC 20-138.
 - North Atlantic Minimum Navigation Performance Specification (MNPS) Arrapace in accordance with AC 91-49 and AC 120-33.

Navigation is accomplished using the WGS-84 (NAD-83) coordinate reference datum Navigation data is based upon use of only the Global Positioning System (GPS) operated by the United States of America

SECTION II LIMITATIONS

1. The GARMIN GNS 430 Pilot's Guide, P/N 190-00140-00, Rev. A, dated October. The National appropriate revision, must be immediately available to the flight crew whenever navigation is predicated on the use of the system.

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FAA Approved Date:	OCT	2	0	1999	7-04

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2. The GNS 430 must utilize the following or later FAA approved software versions:

Sub-System	Software Version
Main	2.00
GPS	2.00
COMM	1.22
VOR/LOC	1.25
G/S	2.00

The Main software version is displayed on the GNS 430 self test page immediately after turn-on for 5 seconds. The remaining system software versions can be verified on the AUX group sub-page 2, "SOFTWARE/DATABASE VER".

- 3. IFR enroute and terminal navigation predicated upon the GNS 430's GPS Receiver is prohibited unless the pilot verifies the currency of the data base or verifies each selected waypoint for accuracy by reference to current approved data.
- 4. Instrument approach navigation predicated upon the GNS 430's GPS Receiver must be accomplished in accordance with approved instrument approach procedures that are retrieved from the GPS equipment data base. The GPS equipment database must incorporate the current update cycle.
 - (a) Instrument approaches utilizing the GPS receiver must be conducted in the approach mode and Receiver Autonomous Integrity Monitoring (RAIM) must be available at the Final Approach Fix
 - (b) Accomplishment of ILS, LOC, LOC-BC, LDA, SDF, MLS or any other type of approach not approved for GPS overlay with the GNS 430's GPS receiver is not authorized.
 - (c) Use of the GNS 430 VOR/ILS receiver to fly approaches not approved for GPS require VOR/ILS navigation data to be present on the external indicator.
 - (d) When an alternate airport is required by the applicable operating rules, it must be served by an approach based on other than GPS or Loran-C navigation, the aircraft must have the operational equipment capable of using that navigation aid, and the required navigation aid must be operational.

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Supplement to Mooney M20E Garmin GNS-430 GPS/VOR/ILS Navigation System

- (e) VNAV information may be utilized for advisory information only. Use of VNAV information for Instrument Approach Procedures does not guarantee Step-Down Fix altitude protection, or arrival at approach minimums in normal position to land.
- 5. If not previously defined, the following default settings must be made in the "SETUP 1" menu of the GNS 430 prior to operation (refer to Pilot's Guide for procedure if necessary):
 - (a) dis, spd m kt (sets navigation units to "nautical miles" and "knots")
 - (b) alt, vsft fpm (sets altitude units to "feet" and "feet per minute")
 - (c) map datum .. WGS 84 (sets map datum to WGS-84, see note below)
 - (d) posndeg-min (sets navigation grid units to decimal minutes)

NOTE: In some areas outside the United States, datums other than WGS-84 or NAD-83 may be used. If the GNS 430 is authorized for use by the appropriate Airworthiness authority, the required geodetic datum must be set in the GNS 430 prior to its use for navigation.

SECTION III EMERGENCY PROCEDURES

ABNORMAL PROCEDURES

- 1. If GARMIN GNS 430 navigation information is not available or invalid, utilize remaining operational navigation equipment as required.
- 2. If "RAIM POSITION WARNING" message is displayed the system will flag and no longer provide GPS based navigational guidance. The crew should revert to the GNS 430 VOR/ILS receiver or an alternate means of navigation other than the GNS 430's GPS Receiver.
- 3. If "RAIM IS NOT AVAILABLE" message is displayed in the enroute, terminal, or initial approach phase of flight, continue to navigate using the GPS equipment or revert to an alternate means of navigation other than the GNS 430's GPS receiver appropriate to the route and phase of flight. When continuing to use GPS navigation, position must be verified every 15 minutes using the GNS 430's VOR/ILS receiver or another IFR-approved navigation system.
- 4. If "RAIM IS NOT AVAILABLE" message is displayed while on the final approach segment, GPS based navigation will continue for up to 5 minutes with approach CDI sensitivity (0.3 nautical mile). After 5 minutes the system will flag and no longer provide course guidance with approach sensitivity. Missed approach course guidance may still be available with 1 nautical mile CDI sensitivity by executing the missed approach.

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Supplement to Mooney M20E Garmin GNS-430 GPS/VOR/ILS Navigation System

5. In an in-flight emergency, depressing and holding the Comm transfer button for 2 seconds will select the emergency frequency of 121.500 MHz into the "Active" frequency window.

SECTION IV NORMAL PROCEDURES

1. DETAILED OPERATING PROCEDURES

Normal operating procedures are described in the GARMIN GNS 430 Pilot's Guide, P/N 190-00140-00, Rev. A, dated October 1998, or later appropriate revision.

2. PILOT'S DISPLAY

The GNS 430 System data will appear on the KNI-520 #1 VOR Indicator. The source of data is either GPS or VLOC as annunciated on the display above the CDI key.

3. AUTOPILOT / FLIGHT DIRECTOR OPERATION

This system is not coupled to an Autopilot as installed.

4. POWER

Power for the GNS-430 System is obtained from the Avionics Buss as follows:

GPS via a 5 Amp Circuit Breaker Labeled "GPS" mounted on the Co-Pilot's circuit breaker panel.

Comm via a 15 Amp Circuit Breaker Labeled "Comm 1" mounted on the Co-Pilot's circuit breaker panel

NOTE: Com power is 28 volts supplied through an AK-550-6 14 VDC to 28 VDC voltage converter. This unit is tied to the 15 Amp Circuit Breaker labeled "Comm 1".

FAA Approved OCT 2 0 1999 DH

Page 6 of 7

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Supplement to Mooney M20E Garmin GNS-430 GPS/VOR/ILS Navigation System

SECTION V PERFORMANCE

No change.

SECTION VI WEIGHT AND BALANCE

See current weight and balance data.

SECTION VII AIRPLANE & SYSTEM DESCRIPTIONS

See GNS 430 Pilot's Guide for a complete description of the GNS 430 system.

FAA Approved
Date: OCT 2 0 1999

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Southwest Avionics, Inc. Lock Box 14, Red Bird Airport Dallas, Texas 75237 Instructions for Continued Airworthiness for Garmin GNS-430

Garmin GNS-430 GPS/ILS/VOR/Comm System

Instructions for Continued Airworthiness

For

N9134V Mooney M20E S/N 690027

Dated 10-20-99

Rev. Original

SWA Doc. ICA99102001 10/20/99

Page 1 of 6

Southwest Avionics, Inc. Lock Box 14, Red Bird Airport Dallas, Texas 75237 Instructions for Continued Airworthiness for Garmin GNS-430

Log of Revisions

Rev. #	Dated	Pages Affected	Approved by
Original		All	

NOTE: All changes are indicated by a black line along the right margin.

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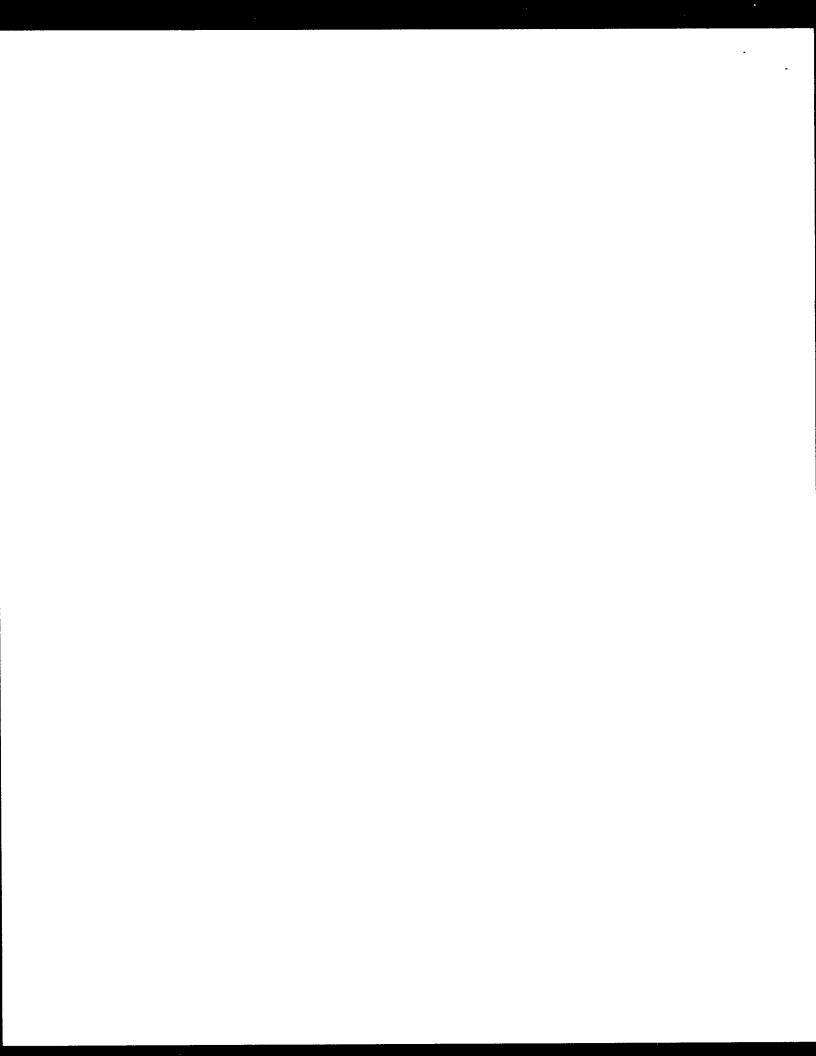


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Southwest Avionics, Inc. Lock Box 14, Red Bird Airport Dallas, Texas 75237 Instructions for Continued Airworthiness for Garmin GNS-430

Section 1: Introduction

Introduction

The purpose of this Document is to provide follow-on Instructions for Continued Airworthiness for the Major Alteration made to this airframe of the equipment identified on the cover.

These are the Instructions for Continued Airworthiness for the Alterations performed by Southwest Avionics to the following aircraft:

Manufacturer: Mooney Model No: M20E Serial No: 690027

Applicable Documents

The manuals listed below are required for compliance with these ICA's. Southwest Avionics has received the manufacturer's permission to reference any manuals listed that contain proprietary information.

Federal Aviation Administration Advisory Circular 43.13-1B

Federal Aviation Administration Advisory Circular 43.13-2A

Garmin GNS-430 Installation Manual P/N 190-00140-02 Rev. E dated June 1999 (or later)

Garmin GNS-430 Operators Guide P/N 190-00140-00 Rev. A dated Dec. 1998 (or later)

Southwest Avionics Drawing # 99102099

The Owner/Operator is responsible for ensuring that all reference materials utilized while completing this ICA is at a current revision status. Federal Aviation Administration approved Repair Nations are required to maintain current publications for each unit on which it performs maintenance.

Section 2: Alteration Description

A Garmin GNS-430 GPS/VOR/ILS/Comm/Moving Map unit was installed coupled to a KNI-520 VOR Indicator. GPS Navigation data and VOR/ILS data is displayed on the KNI-520 VOR Indicator. HSI navigation source selection is annunciated on the GNS-430 as an integral operation of the GPS Receiver. For further system operation instructions reference Flight Manual Supplement identified with this approval.

Reference Southwest Avionics Drawing # 99102099 for systems interconnect data

Section 3: Operation and Control

Refer to Garmin GNS-430 Operators Guide P/N 190-00140-00 Rev. A dated Dec 1998 (or later)

Refer to FAA Approved Flight Manual Supplement identified on this certification for system interface operation instructions.

Section 4: Servicing Information

The Garmin GNS-430 unit shall be maintained IAW Manufacturers Maintenance data

Refer to the FAA Approved Flight Manual Supplement identified on this certification

Refer to Garmin GNS-430 Installation Manual P/N 190-00140-02 Rev. E dated June 1900 (or later).

Reference Southwest Avionics Drawing # 99102099

Southwest Avionics, Inc. Lock Box 14, Red Bird Airport Dallas, Texas 75237 Instructions for Continued Airworthiness for Garmin GNS-430

Section 5: Maintenance and Inspections

Refer to Garmin GNS-430 Installation Manual P/N 190-00140-02 Rev. E dated June 1999 (or later) for Removal and Reinstallation instructions. At present no field repair facilities have been identified for unit repair.

Section 6: Troubleshooting information

Refer to Garmin GNS-430 Installation Manual P/N 190-00140-02 Rev. E dated June 1999 (or later) for troubleshooting assistance.

Reference Southwest Avionics Drawing # 99102099

Section 7: Removal and Replacement Information

Refer to Garmin GNS-430 Installation Manual P/N 190-00140-02 Rev. E dated June 1999 (or later) for Removal and Replacement data.

Section 8: Diagrams

Refer to Garmin GNS-430 Installation Manual P/N 190-00140-02 Rev. E dated June 1999 (or later) for generic installation diagrams.

Refer to Southwest Avionics Drawing # 99102099 for specific installation diagrams.

Section 9: Special Inspection requirements

N/A

Section 10: Protective Treatments

N/A

Section 11: Structural Fastener Data:

Reference Federal Aviation Administration Advisory Circular 43.13-1B and Federal Aviation Administration Advisory Circular 43.13-2A for common practices.

Section 12: Special Tools

N/A

Section 13: Miscellaneous data

N/A

Section 14: Recommended Overhaul Periods

N/A

Section 15: Airworthiness Limitations

N/A

Section 16: Procedure for Revision

The following procedure shall be complied with when revising this ICA.

SWA Doc. ICA99102001 10/20/99

Page 5 of 6

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Southwest Avionics, Inc. Lock Box 14, Red Bird Airport Dallas, Texas 75237 Instructions for Continued Airworthiness for Garmin GNS-430

A letter will be submitted to the local FSDO with a copy of the revised FAA Form 337 and revised ICA. The FAA Inspector accepts the change by signing Block 3 and including the following statement:

"The attached revised/new Instructions for Continued Airworthiness (date_____) for the above aircraft or component major alteration have been accepted by the FAA, superceding the Instructions for Continued Airworthiness (date_____)." Once the revision has been accepted, a maintenance record entry will be made, identitying the revision, its location, date of the Form 337.

SWA Doc. ICA99102001 10/20/99

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#	QTY	Nomenclature	P/N	Source	MODEL
1	1	VOR/ILS Indicator	066-3011-01	Allied Signal	KNI-520
2	1	GPS/COMM/NAV	011-00280-00	Garmin	GNS-430
3	1	Connector Kit	011-00351-00	Garmin	
4	1	GPS Circuit Breaker	7277-2-5	Klixon	7277-2-15
5	1	GPS Antenna	011-00134-00	Garmin	GA-56
6	1	Voltage Converter	AK-550-6	Ameriking	AK-550-6
7	1	Comm Circuit Breaker	7277-2-15	Klixon	7277-2-15
8	9 Ea.	General Purpose Diode	1N4001	Motorola	1N4001
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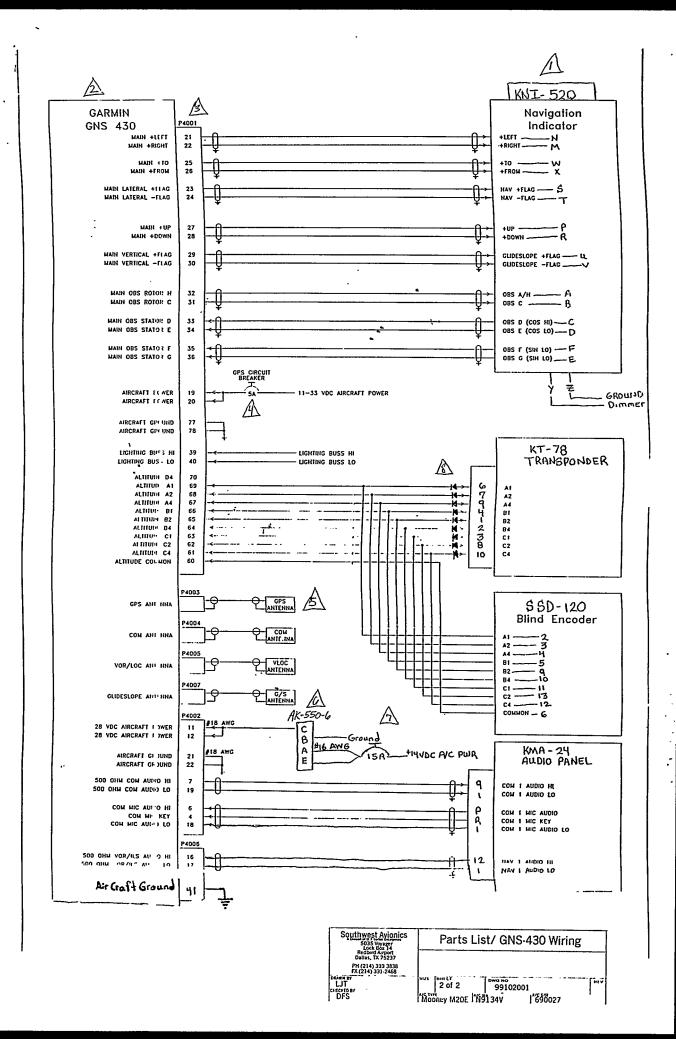
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Southwest Avionics A Dimition of D. of Sorber Enterprises 5035 Voyager Lock Box 14	Parts List/ GNS-430 Wiring				5
Redbird Airport Dallas, TX 75237 PH (214) 333-3838 FX (214) 331-2468					
DRAWN BY LJT	SIZE	1 of 2	99102	001	REV
DFS	A/C TY MO	onev M20E	^\\9134V	1690027	

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MAJOR REPAIR AND ALTERATION (Airtrame, Powerplant, Propeller, or Appliance)

Form Approved OMB No. 2120-0020

For FAA Use Only dentification

Federal Aviation				7- 17 				TEB	FTU	1 FSD0
and disposi	IONS: Print or type at tion of this form. This ch violation (Section	report is required	by law (4	19 U.3	5. G. 1421). r	and AC 43.9-1 ailure to repo	(or subsequent rt can result in a	revision th civil penal	nereof) for ins ty not to exce	structions ed \$1,000
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	Moor	ney .					M20E	-		
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	690	D27					9134V			, ,
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		in The Land		. #	1.9	5727	Harvest	Hill	#1042	
2. Owner	William	A. Kidd				וופח	as, Texa	s 75	230	
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PO Box						Repair Station		1000	287191	
	sville, Tex	as 76233			Manufacture			4000	50/ 12T	•
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Date 09 /	10/94			Sigi	nature of Au	torized Indiv		ngor -	Fr	
		•			al for Return					
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BY F.	AA Fit. Standards spector	Manufacturer-	x	Insp	ection Autho	rization	Other (Specify	()	6 .	
F.	AA Designee	Repair Station		Can	ada Airworth			<u> </u>		
	oval or Rejection	Certificate or Designation No.		Sign	nature of Au	thoused Indiv	elected the	shipon		
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Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished
(If more space is required, attach additional sheets, Identify with aircraft nationality and registration mark and date work completed.) Installed Brackett Aircraft Co. BA-6310 filter assembley in accordance with installation instructions no. BA-6304 per stc SA716L.

Additional Sheets Are Atlached M.

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Ad	FAA	Fit. Standards		Manufacturer		Inspection Authoriz	ation	Other (Specify,)		
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Signature of Authorized Individual

Certificate or Designation No. I KBR028F

Date of Approval or Rejection 6/1/92

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished
(If more space is required, attach additional sheets, Identify with aircraft nationality and registration mark and date work completed.)

Removed Micrologic Loran System.

Installed Apollo Flybuddy 800 plus System in the existing radio rack in accordance with II Morrow installation manual P/N #560-0071B Rev. $_{\odot}2$

Installed Narco DME-890 in the existing radio rack in accordance with Narco's installation manual P/N #03314-0600

All of the above installed in accordance with AC 43.13.1A Chapter 11, AC 43.13.2A Chapter 1 and 2

All circuit breakers, switches, wires and methods of installation are in accordance with AC 43.13.1 Chapter 11, Sections 1 and 2

Existing DME antenna was used and checked in accordance with AC 43.13.1, Chapter 3 $\,$

Installed A-16 Loran antenna on top of uselage in accordance with AC 43.13-2 Chapter 3 $\,$

Instrument panel placarded "Loran-C VFR only" as outlined in AC 20-121

Electrical load checked completed in accordance with AC 43.13-2 para: 27 and is within limits

Weight/Balance along with equipment list changed and entered in logbook

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☐ Additional Sheets Are Attached

+U.S.GPO:1989-0-663-171

	u.s	DEPARTMENT OF TRA	NSPORTATION INISTRATION		Form Approved Budget Bureau		
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	(Airframe, Po	werplant, Prop	eller, or Applian	ce)	·		100
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D. I ce	rtify that the repair a	nd/or alteration ma een made in accorda	de to the unit(s) idea nce with the requirem rue and correct to the	ntified in item 4 sents of Part 43 of best of my know	above and describ f the U.S. Federal vledge.	ed on the re Aviation Reg	verse o gulation
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Weight and balance or operating limitation changes shall be entered in the appropriate a recraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. DESCRIPTION OF WORK ACCOMPLISHED (If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

Installed Micrologics Loran in the center radio rack where Narco DNE-840 was removed. All work was done in reference to manufacturer's installation manual and AC 43.12.1A Chapter 11, AC 43.13.2A imm Chapters 1 and 2.

Installed A-16 antenna on top of fuselage in accordance with AC 43.13.2 Chapter 3.

Instrument panel placarded VFR ONLY.

All circuit breakers, switches, wires and methods of installation are in accordance with AC 43.13-1 Chapter 11 sections 2 and 3.

Electrical load checked completed in accordance with AC 43.13-2 Chapter 2 para. 27 and is within limits.

Weight/balance along with equipment list changed and entered in logbook.

0-1 SUPR NG2 M-1
0-2 RECEIVED M-2
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ADDITIONAL SHEETS ARE ATTACHED

FAA AC 72-4906

U.S. GPO 1981 775-332-47

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Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

- 8. DESCRIPTION OF WORK ACCOMPLISHED (If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)
 - 1. INSTALLED NARCO DME 890 IN RIGHT SIDE OF INSTRUMENT PANEL IN ACCORDANCE WITH MANUFACTURERS INSTALLATION MANUALS.
 - 2. CONNECTED PRIMARY POWER TO CIRCUIT BREAKERS AND LABELED ACCORDINGLY.
 - 3. ELECTRICAL LOAD DOES NOT EXCEED 65% OF THE AIRCRAFT ALTERNATOR CAPACITY.
 - 4. EQUIPMENT INSTALLED AND COMPASS CALIBRATION CHECKED PER FAR 23, 1301, 1327 AND 1431, AND AC 43:13-2, PARA. 927-929.
 - 5. COMPUTED NEW WEIGHT AND BALANCE, UPDATED EQUIPMENT LIST, AND ENTERED IN AIR-CRAFT PAPERS.
 - 6. THIS INSTALLATION MADE IN ACCORDANCE WITH AC 43:13-1A PARA. 227, 228, 230, 231, 406, 410, 424, 426, 428, 429, 442, 443, 445, 447-451, 464, 514-519, 656, 657, 659, 662, 750, 840, 842, 27, 929; AND AC 43:13-2 PARA. 1-12, 21-27, AND 42.
 - 7. INSTALLATION MEETS FAR 23.561 REQUIREMENTS.
 - 8. ALL SYSTEMS GROUND AND FLIGHT TESTED AND MEET FAR 23-1301 REQUIREMENTS. NO ADVERSE EFFECTS ON OTHER SYSTEMS.

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ADDITIONAL SHEETS ARE ATTACHED

\$11.S. Government Printing Office 1976-771-980/65

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Form Approved. Budget Bureau No. 04-R058.2

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Verified by Operator 448



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Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. DESCRIPTION OF WORK ACCOMPLISHED (If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

ADDITIONAL SHEETS ARE ATTACHED

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Weight and balance or operating limitation changes shall be entered in the appropriate aircroft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

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acco inst A. B. C.	all the following equipment in existing cutouts and rac rdance with FAA AC 43.13-2. Chapter 2 and 3 and manufac allation manuals. Narco MK 24 VHF transceiver with VOA-9 omni converter/ Narco MK24 VHF transceiver with VOA-8 omni converter/i Narco UGR-2 Glide slope receiver. Bendix T-12C ADF Genava Delta 300 Marker receiver	turers
3. A11 AC 4	Genave TAU-81 audio amplifier alectrical wiring fabricated and installed in accordance 3.13-1, Chapter 11, Section 3 and manufacturers install	ation manua
exce alte	raft electrical loading in accordance with FAA AC 43.13 Section 2, par. 239. Maximum probable continuous load ed 80% of alternator output. Aircraft is equipped with rnator. tional tested per FAR 23.1431 and 23.1301.	does not
Sect	etic compass calibration checked per FAA AC 43.13-1, Ch lon 5, par. 513. eight and balance computed.	apter 16.
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	MAJOR REPAIR AN (Airframe, Powerplant, Pre	D ALTERATION	arm Approved Budget Bureau FOR FAA OFFICE IDENTIF	USE ONLY
INSTRUCT	TONS: Print or type rll entries. See ons and disposition of this form.	FAR 43.9, FAR 43 Appendix B, and AC	43:9-1 (or subsequent	revision diereol
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2. OWNER	NAME (As shown on registration certifice BSL, Inc.	ADDRESS (As she	own on registration cert	ificate)
		3. FOR FAA USE OHLY		
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D. I certify to attachmen and that t	hat the repair and/or alteration made ts hereto have been made in accordan he information furnished herein is tru 10/72	e to the unit(s) identified in item 4 above with the requirements of Part 43 of the and correct to the best of my knowled SIGNATURE OF AUTHORIZED INFO	ove and described on the U.S. Federal Aviati dge.	TREE TO SERVICE
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Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

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· 10 1	ADDITIONAL SHEETS ARE ATTACHED	U.S. GOVERNMENT PRINTING OFFICE : 1007 OF -872-005

DEPARTMENT OF TRANSPORTATION . FEDERAL AVIATION ADMINISTRATION

MAJOR REPAIR AND ALTERATION

Form Approved Budget Bureau No. 04-R060.1

FOR FAA USE ONLY

OFFICE IDENTIFICATION GADO (Airframe, Powerplant, Propeller, or Appliance) INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. MAKE H 20B Footery 1. AIRCRAFT NATIONALITY AND REGISTRATION MARK SERIAL NO. 690027 ADDRESS (As shown on registration certificate) NAME (As shown on registration certificate)
Charles R. Allen Co. 2. OWNER lonistille, Ky. 3. FOR FAA USE ONLY 4. UNIT IDENTIFICATION 5. TYPE ALTER SÉRIAL NO. MODEL UNIT ATION -× eeee (As described in item 1-above) AIRFRAME POWERPLANT PROPELLER APPLIANCE MANUFACTURER 6. CONFORMITY STATEMENT B. KIND OF AGENCY C. CERTIFICATE NO. A. AGENCY'S NAME AND ADDRESS U.S. CERTIFICATED MECHANIC AGE 1365013 R. C. Malley FOREIGN CERTIFICATED MECHANIC Bosman Field CERTIFICATED REPAIR STATION Louisville, Ky. 40205 MANUFACTURER D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge. SIGNATURE OF AUTHORIZED INDIVIDUAL DATE <u>5-18-71</u> 7. APPROVAL FOR RETURN TO SERVICE Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is APPROVED REJECTED OTHER (Specify) FAA FLT STANDARDS MANUFACTURER CANADIAN DEPARTMENT OF TRANSPORT INSPECTOR FAA DESIGNEE REPAIR STATION OF AIRCRAFT CERTIFICATE OR SIGNATURE OF AUTHORIZED INDIVIDUAL DATE OF APPROVAL OR REJECTION DESIGNATION NO. 1454664 IA 5-18-71 (8320) FAA Form 337 (7-67)

NOTICE
Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record.
An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

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ADDITIONAL SHEETS ARE ATTACHED

FAA Form 337 (1-65) OBSOLETE PREVIOUS EDITION

FEDEL AVIATION AGENCY MAJOR REPAIR AND ALTERATION FOR FAA USE ONLY OFFICE IDENTIFICATION (Airframe, Powerplant, Propeller, or Appliance) INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subs for instructions and disposition of this form. MAKE MODEL H 20B Hooney . AIRCRAFT NATIONALITY AND REGISTRATION MARK SERIAL NO 690027 NAME (As shown on registration Genzies R. Allen Ge. ADDRESS (As shown on registration certificate) 2. OWNER Louisville, Ly. 3. FOR FAA USE ONLY The state (Centilise Gerein complied and the testing meet radium enter series and established early of the the above described for the above described for the above described for the above described as described for a described and the above described for a d DATE 2-3-20 4. UNIT IDENTIFICATION TYPE UNIT ALTER ATION AIRFRAME POWERPLANT PROPELLER APPLIANCE MANUFACTURER 6. CONFORMITY STATEMENT AGENCY'S NAME AND ADDRESS B. KIND OF AGENCY C. CERTIFICATE NO C. Melley AAE 1365013 U.S. CERTIFICATED MECHANIC an Field FOREIGN CERTIFICATED MEEHANIC Louisville, Ky. 40205 CERTIFICATED REPAIR STATION MANUFACTURER D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge: SIGNATURE OF AUTHORIZED INDIVIDUAL DATE 1-26-70 & Mullo 7. APPROVAL FOR RETURN TO SERVICE Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Agency and is APPROVED REJECTED FAA FLT. STANDARDS OTHER (Specify) MANUFACTURER INSPECTION AUTHORIZATION BY CANADIAN DEPARTMENT OF TRANSPORT INSPECTOR FÃA DESIGNEE REPAIR STATION OF AIRCRAFT DATE OF APPROVAL OR CERTIFICATE OR SIGNATURE OF AUTHORIZED INDIVIDUAL REJECTION DESIGNATION NO. 1-26-70 1454664 IA

0052-025-8000 (8320)

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. DESCRIPTION OF WORK ACCOMPLISHED (If more space is required, attach additional sheets. Identify with airicraft nationality and registration mark and date work completed.)

Installed Harco UDIA. All work done in escerdance with AC 43.13-2.

The radio is installed in such a samer that it can withstend the required loads. The wiring is installed in such a manner on to minimise the possibility of fire and emoke hazard. All necessary functional tests have been purfermed. Interconnection wires and publics are supported to avoid chaffing. The equipment is located there it will pits a sufficient cooling and where it will not be a smoke hazard or ignite readily the flammable parts of the sirplane.

73049 + 1610.5 = 45.3 C. C.

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The continuous electrical load is within the allemble inte of the 60 asp. elternator.

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ADDITIONAL SHEETS ARE ATTACHED

1.S. GOVERNMENT PRINTING OFFICE : 1965 OF-761-74

FEDERAL AVIATION AGENCY

MAJOR REPAIR AND ALTERATION

Form Approved Budget Bureau No. 04-R060.1 FOR FAA USE ONLY

OFFICE IDENTIFICATION (Airframe, Powerplant, Propeller, or Appliance) INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. MODEL M20E **Money** 1. AIRCRAFT NATIONALITY AND REGISTRATION MARK 690027 N 9134V NAME (As shown on registration certificate)
Mooney Corporation ADDRESS (As shown on registration certificate)

Box. 72 2. OWNER Kerrville, Teres 3. FOR FAA USE ONLY His cata identified herein compiled with applicable of workliness requirements and its approved only for the above described with above described without society to conformate insertion by as person authorized in 1920-17. ENTE 3-26 -4. UNIT DENTIFICATION 5. TYPE . UNIT MAKE SERIAL NO. REPAIR ATION x AIRFRAME ◆◆◆ (As described in item 1 above) ◆◆◆◆◆◆ **POWERPLANT** PROPELLER APPLIANCE MANUFACTURER 6. CONFORMITY STATEMENT A. AGENCY'S NAME AND ADDRESS
R. C. Mulloy C. CERTIFICATE NO. B. KIND OF AGENCY &**~ 1365013** U.S. CERTIFICATED MECHANIC Bowman Field-FOREIGN CERTIFICATED MECHANIC Louisville, Ky. CERTIFICATED REPAIR STATION MANUFACTURER D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge. DATE SIGNATURE OF AUTHORIZED INDIVIDUAL Harch 20, 1969 7. APPROVAL FOR RETURN TO SERVICE Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Agency and is TAPPROVED REJECTED FAA FLT. STANDARDS MANUFACTURER INSPECTION AUTHORIZATION ΒY CANADIAN DEPARTMENT FAA DESIGNEE OF TRANSPORT INSPECTOR OF AIRCRAFT REPAIR STATION DATE OF APPROVAL OR CERTIFICATE OR SIGNATURE_OF AUTHORIZED INDIVIDUAL REJECTION DESIGNATION NO. March 20, 1969 **1454664 I**A

FAA Form 337 (1-65) OBSOLETE PREVIOUS EDITION

0052-025-8000 (8320)

Weight and balance or operating the model with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. DESCRIPTION OF WORK ACCOMPLISHED (If more space is required, attach additional sheets. Identify with aircraft nationality and registration to the MAC date (work completed.)
Installed Narco Mark XII with VOA4 and Alpha 200. All work done in accordance with AC 43.13-2.

The radios are installed in such a manner that they can withstand the required loads. The wiring is installed in such a manner as to maximise the possibility of fire and smoke hazard. All necessary function tests have been performed. Interconnection wires and cables are supported to avoid chaffing. The equipment is located where it will obtain sufficient cooling and where it will not be a smoke hazard or ignite readily the flammable parts of the airplane.

	- ma			Weight	Arm	Moment
Aircr	elj:			1584		72170
ADD: Alpha	200					Partition of the second
	Mark XII	- panel un		5.3	22.3	67
		- DOMEL ST		7.5	105.8	174
. 4				1601	107.0	312

72823 + 1601 = 45.6 C. G.

An electrical load analysis was performed and the continuous load is within the allowable limits of the 60 amp. alternator.

NO ENTRIES BELOW THIS LINE

ADDITIONAL