

**ALTERNATOR INSTALLATION
ON**

**MOONEY M-18C
N4122**

INFORMATION PACKAGE

Description of Alternator Installation on Mooney M18-C, S/N 293

For purposes of providing continuous power for the installed VHF com radio, transponder, altitude encoder, loran, ENC headset, and emergency power for position lights; a 12 volt permanent magnet alternator system was installed.

The alternator is a B&C Specialties Products model 9150 with a modified sheave. The design cruise rpm of the alternator is approximately 5000 rpm where it is rated at 12.2 amps output. Power is rectified and regulated to 14 volts with a B&C model PMR-1-14 as recommended by B&C.

The alternator is driven from a sheave bolted to the back side of the rear propeller flange of the tapered shaft Continental A-65-8 engine; and a Gates 5M series Polyflex belt. Design power required by the alternator at 5000 rpm, 12.2 amps., 14 volts, @ 80% efficiency is 213.5 watts or approximately 1/4 horsepower. The belt is rated at 4.94 horsepower capacity for the design configuration.

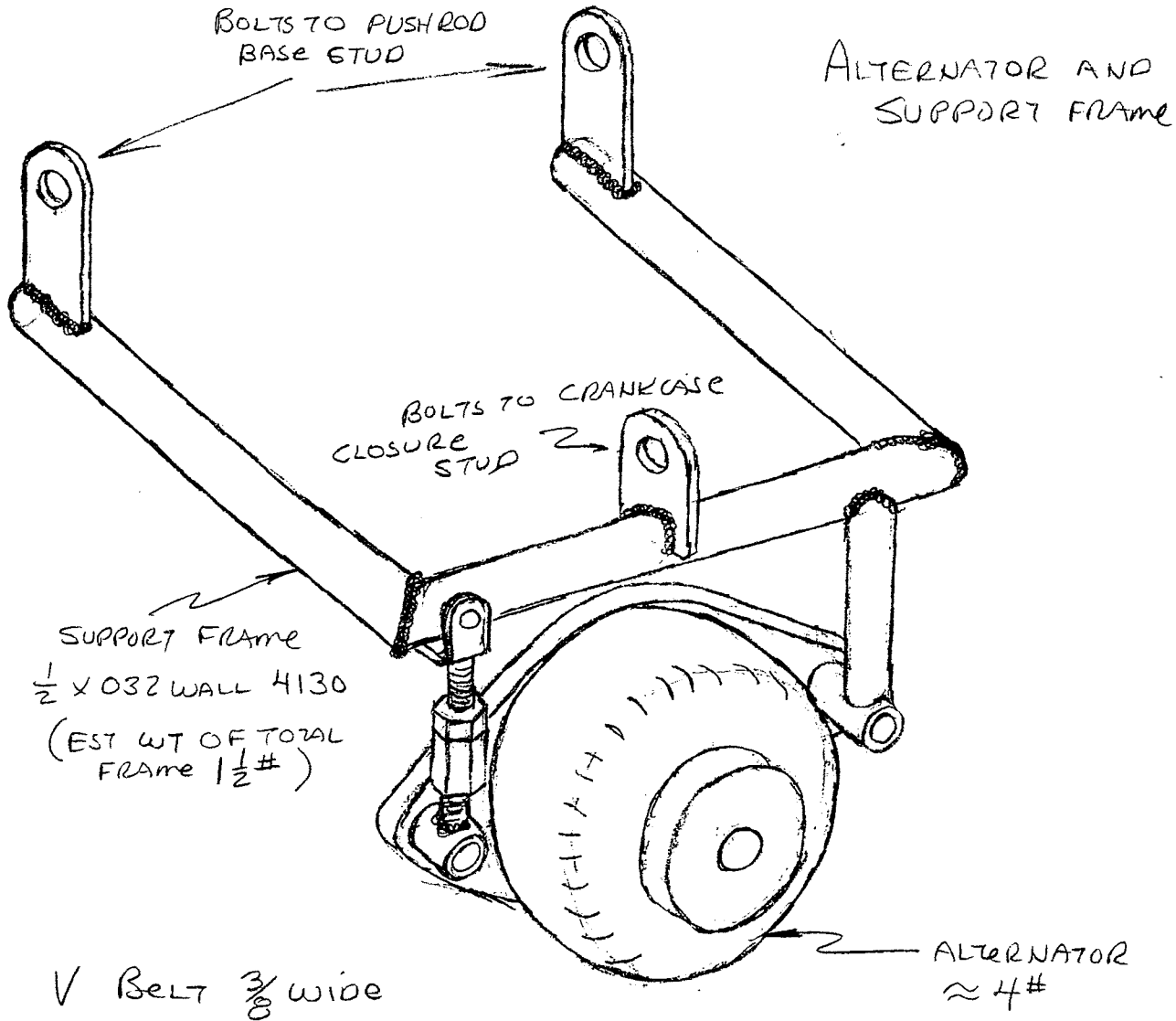
Power from the regulator is carried via a two conductor shielded power cable, through a 15 amp circuit breaker, to a 40 amp contactor, and then to the battery. The voltage regulator and alternator are electrically isolated from the battery when the avionics master switch is in the off position.

The alternator mount is welded from tubing and formed flat SAE 4130 steel, and attached to the engine as shown in the photograph. Other turned components are from stainless steel. AN hardware is used for the installation. A formed .040 3003 aluminum cover attached to the nose bowl with Camlock fasteners provides access for inspection and belt tensioning.

Weight of the installation is 5.6 # including all components and wiring.

Sketches of components and electrical schematics are attached.

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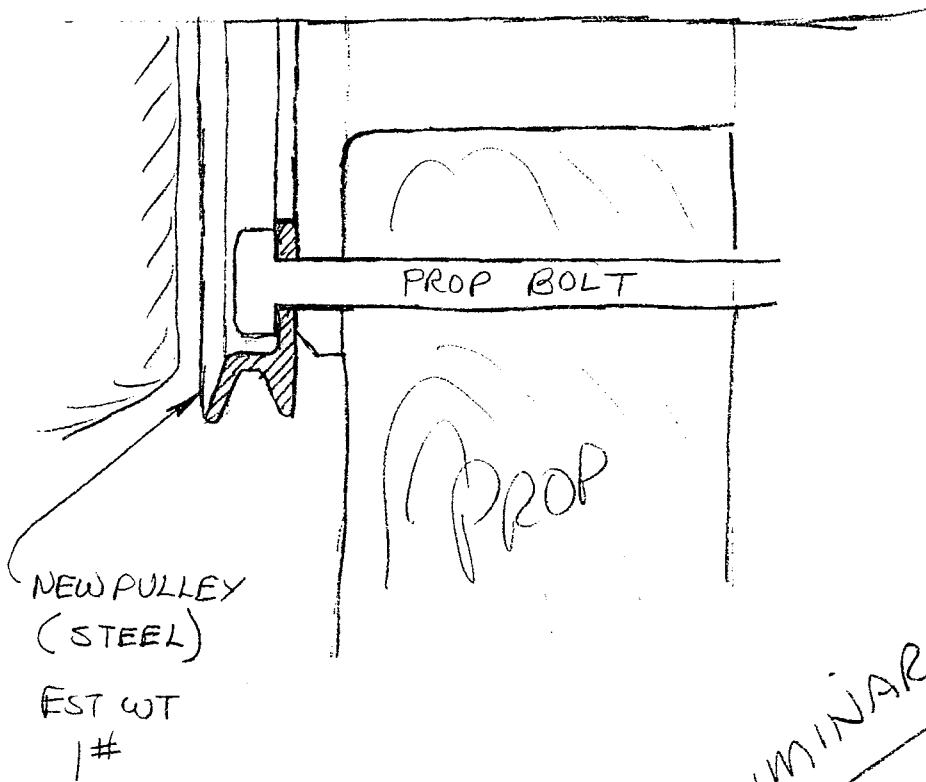
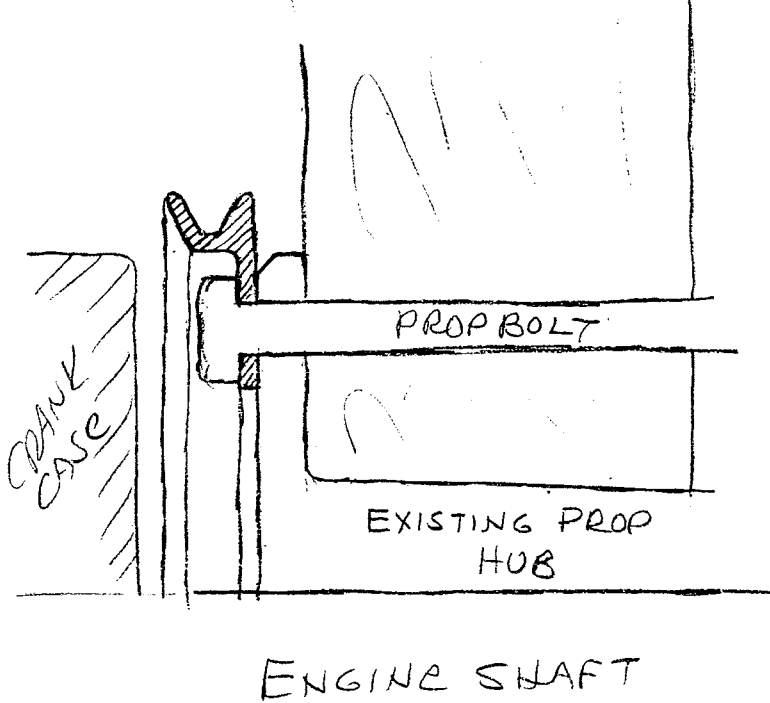


PRELIMINARY

TOTAL SYSTEM WEIGHT
EST 7#

MOONEY MITE M18C
ALTERNATOR
INSTALLATION SKETCH
TED TEACH NOV 15, 96
SHEET 1

PAGE 3



EST WT
1#

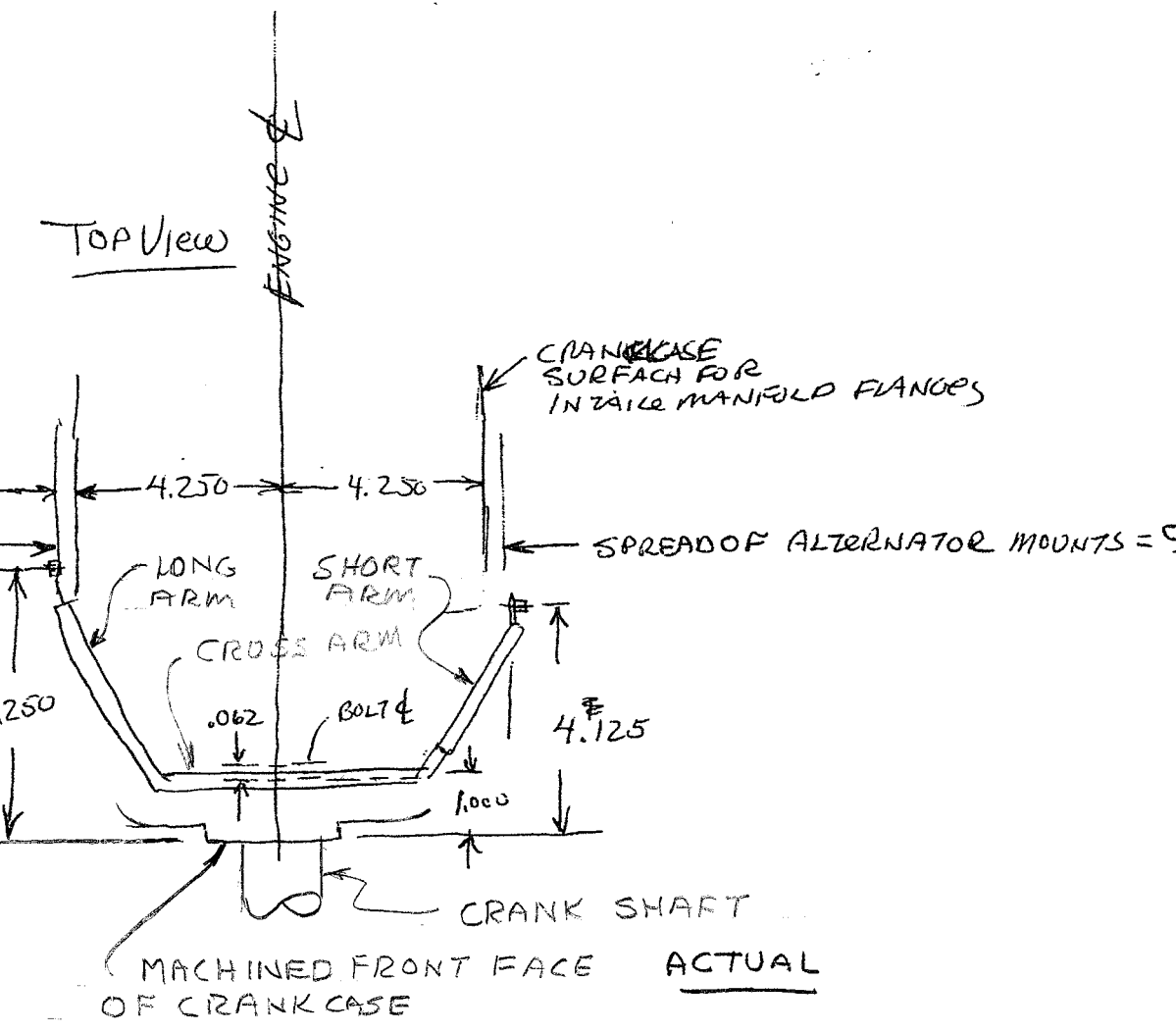
PRELIMINARY

MOONEY MIBC
ALTERNATOR DRIVE
PULLEY SKETCH

TED TEACH NOV 94
SHEET 2

4.250

TOP VIEW



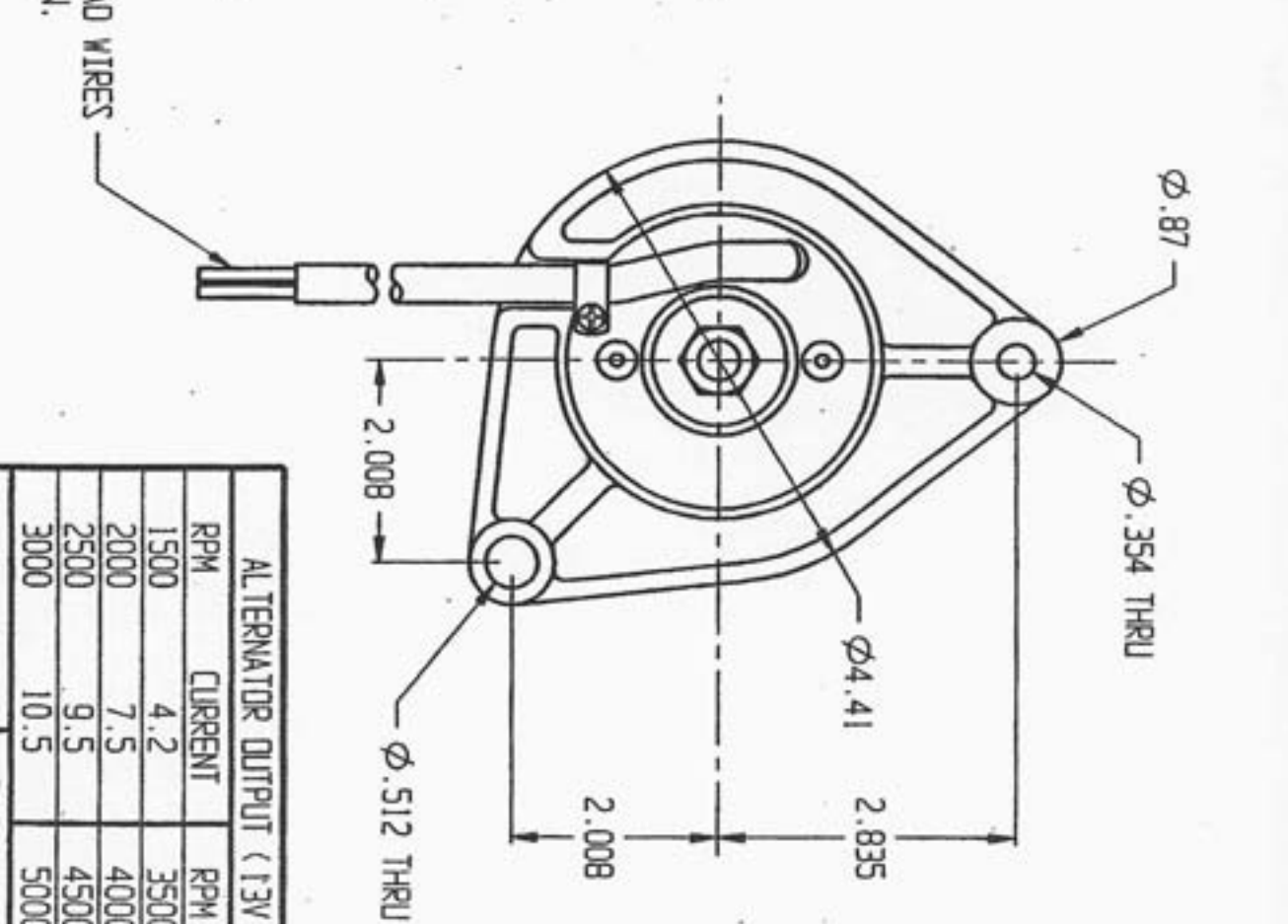
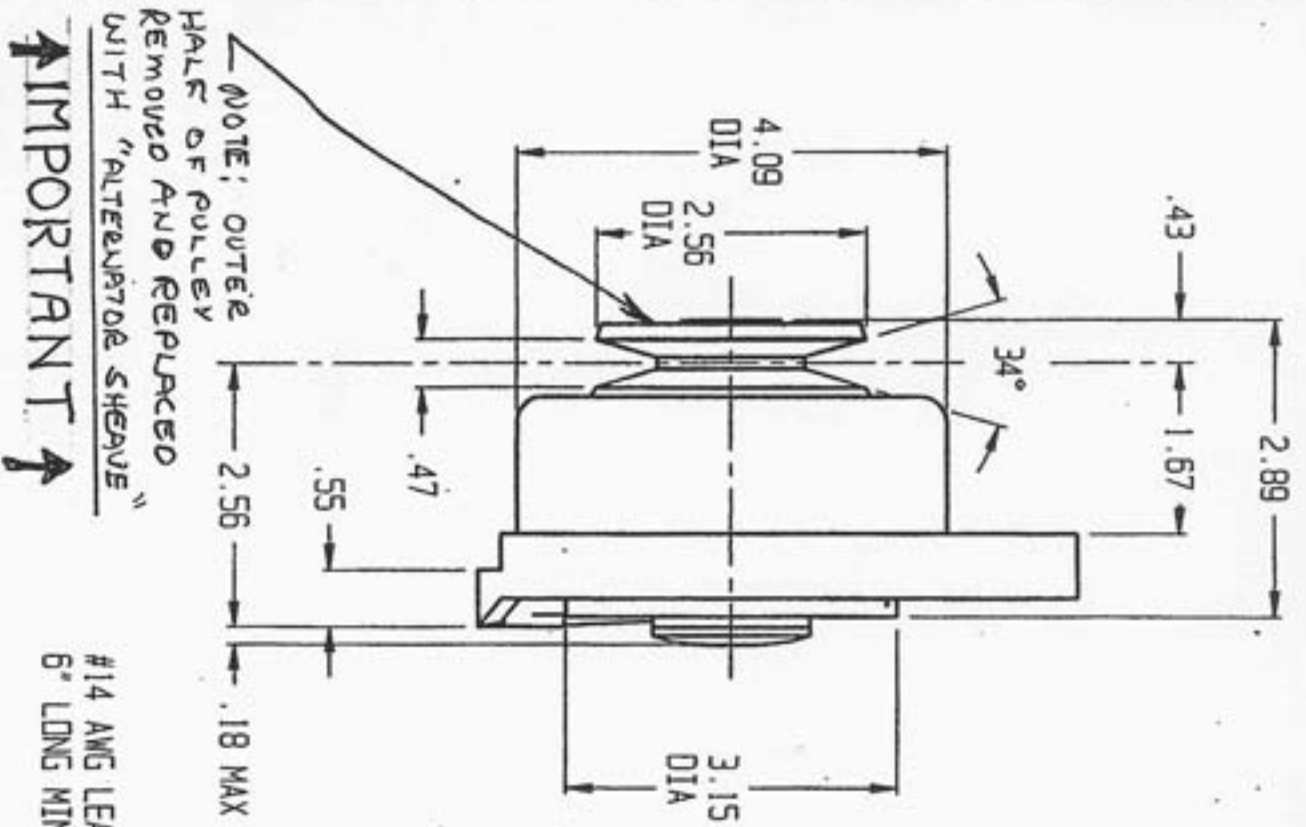
TOP VIEW OF MOUNTING FRAME AND ENGINE

#QTY

MATL 4130 STEEL

1	SHORT ARM	$3\frac{1}{2} \times \frac{1}{2} \text{ O.D.} \times \text{OBS WALL}$	4130
1	LONG ARM	$5\frac{3}{8} \times \frac{1}{2} \text{ O.D.} \times \text{OBS WALL}$	"
2	ARM TABS	$\frac{1}{2} \times .062 \times \frac{1}{4}$	"
1	CROSS ARM	$7\frac{18}{16} \times \frac{1}{2} \text{ O.D.} \times \text{OBS WALL}$	"
1	CENTER TAB	$\frac{9}{16} \times \frac{3}{8} \times .062$	"
1	POST (VERTICAL)	$1\frac{9}{16} \times \frac{1}{2} \text{ O.D.} \times .062 \text{ OBS WALL}$	"

MOUNTING FRAME MATERIALS



- NOTES**
1. ROTATION: CW OR CCW.
 2. SPEED: 1000 TO 5000 RPM.
 3. WEIGHT: 3.8 LBS. (ALT. AND REG.)

IMPORTANT

ALTERNATOR OUTPUT (13V MIN, 62 F)			
RPM	CURRENT	RPM	CURRENT
1500	4.2	3500	11.2
2000	7.5	4000	11.7
2500	9.5	4500	12.0
3000	10.5	5000	12.2

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:

DECIMAL .XX = 0.03
 DECIMAL .XXX = 0.010
 ANGLES = 1 DEGREE

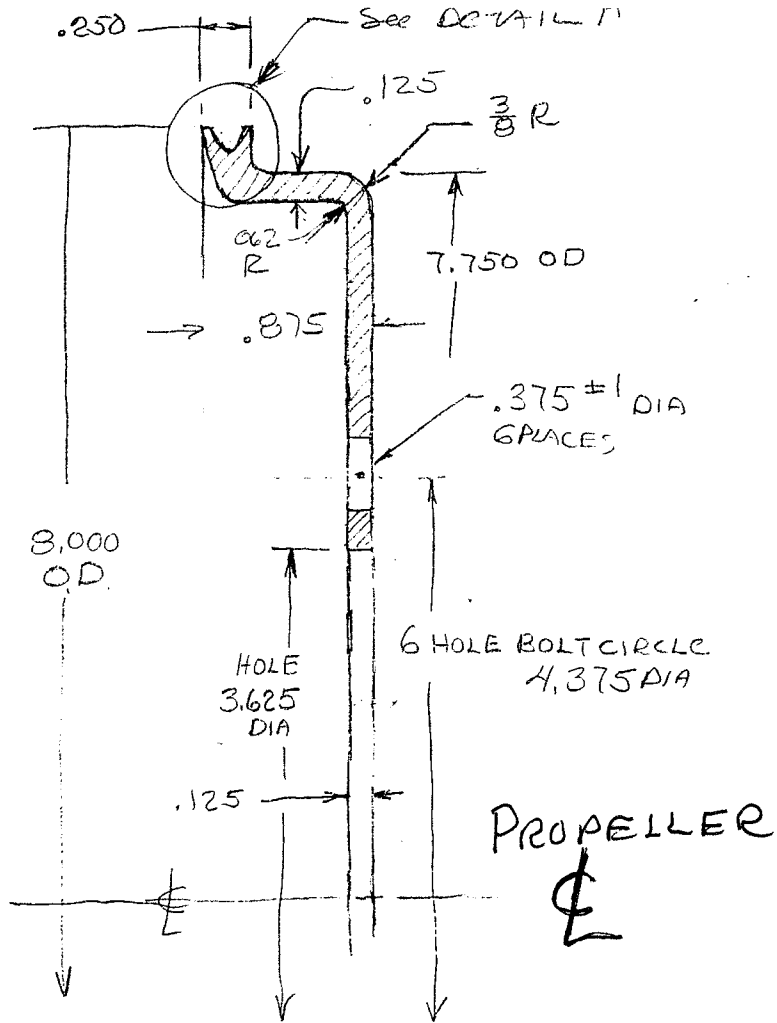
DRWN BY: OLS
 SCALE: 1:2
 DATE: 11-4-92

B&C SPECIALTY PRODUCTS
 123 E. 4TH, HENTON, KS, 67114 (316) 283-8000

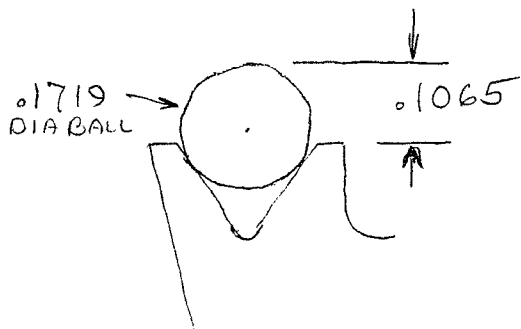
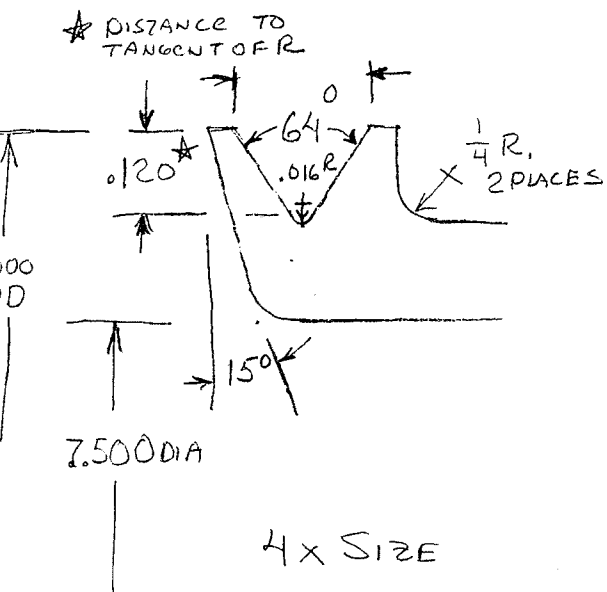
FILENAME: PWA-12A.PRT
 REVISION:

ALTERNATOR #9150

DRAWING NUMBER:



$\frac{1}{2}$ OF PULLEY
SHOWN



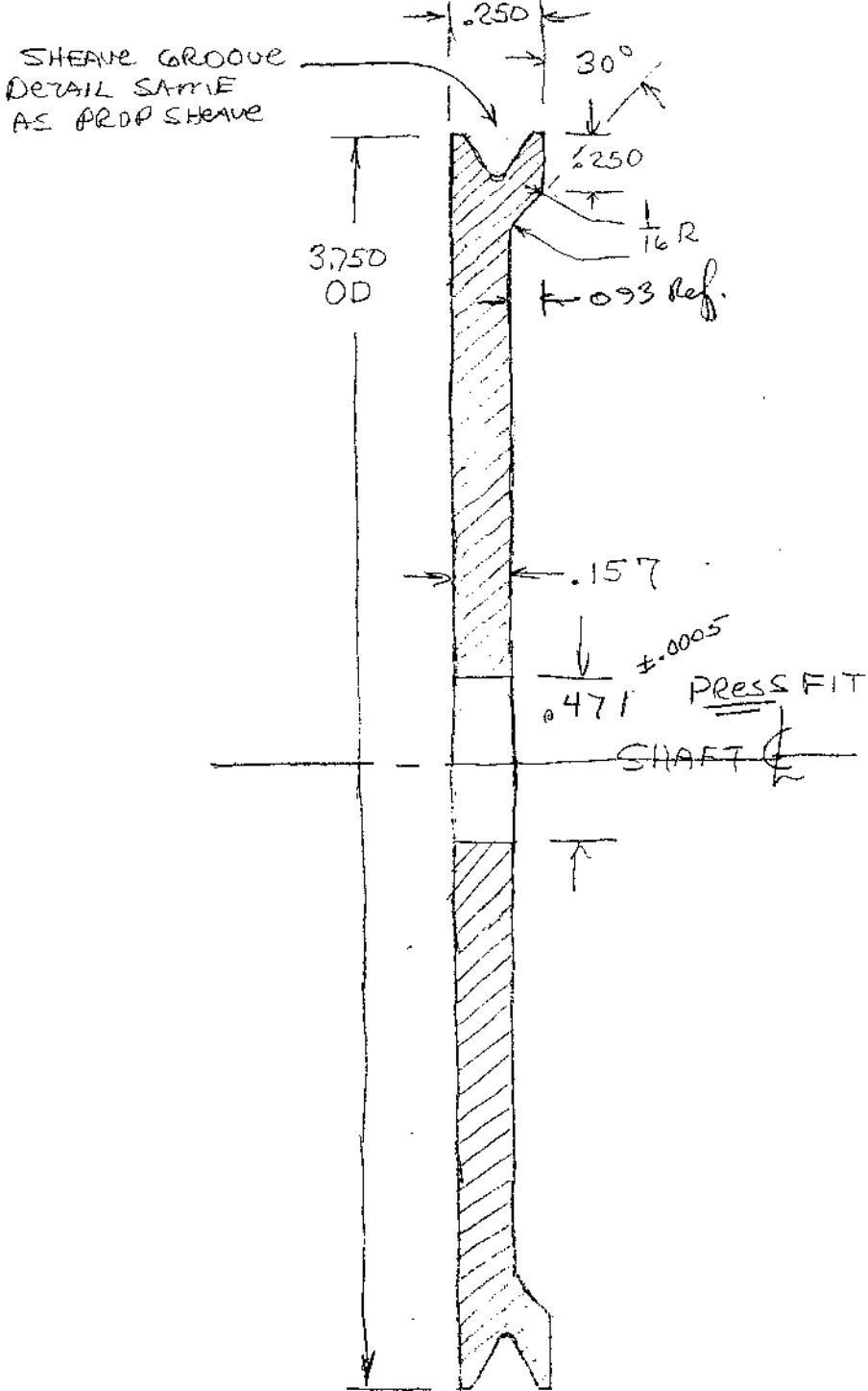
WT. .65#

PROP SHEAVE

1 Reqs 6061-T6

HARD ANODIZE

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WT

ALTERNATOR SHEAVE

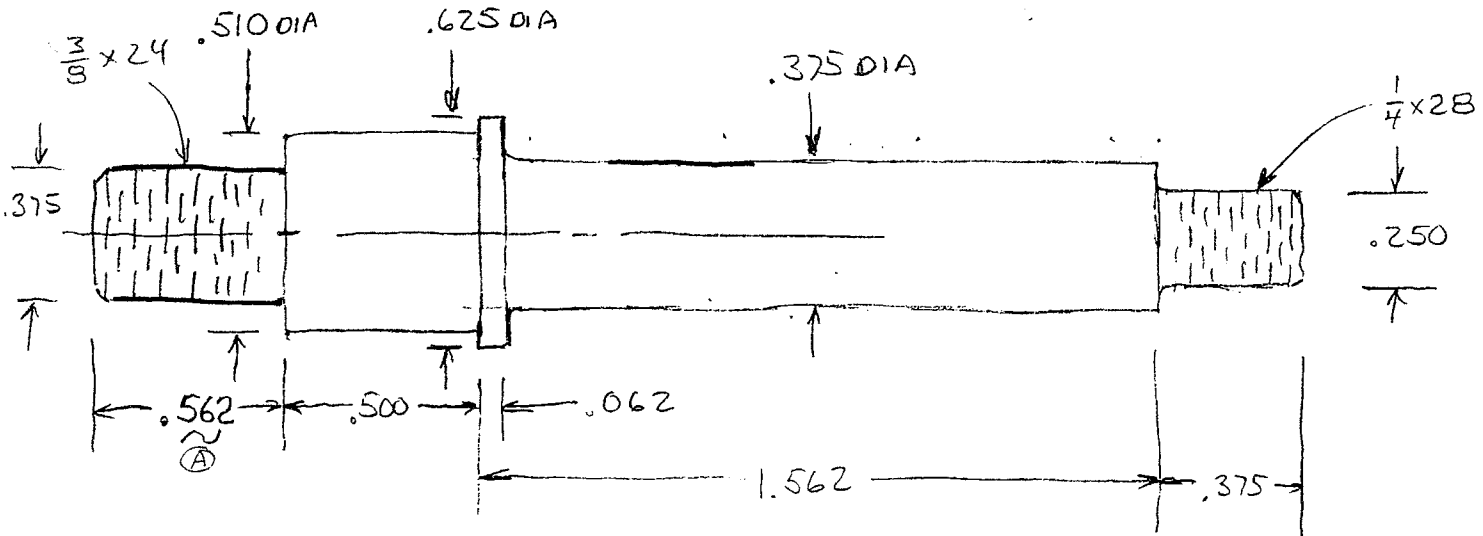
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HARD ANODIZE

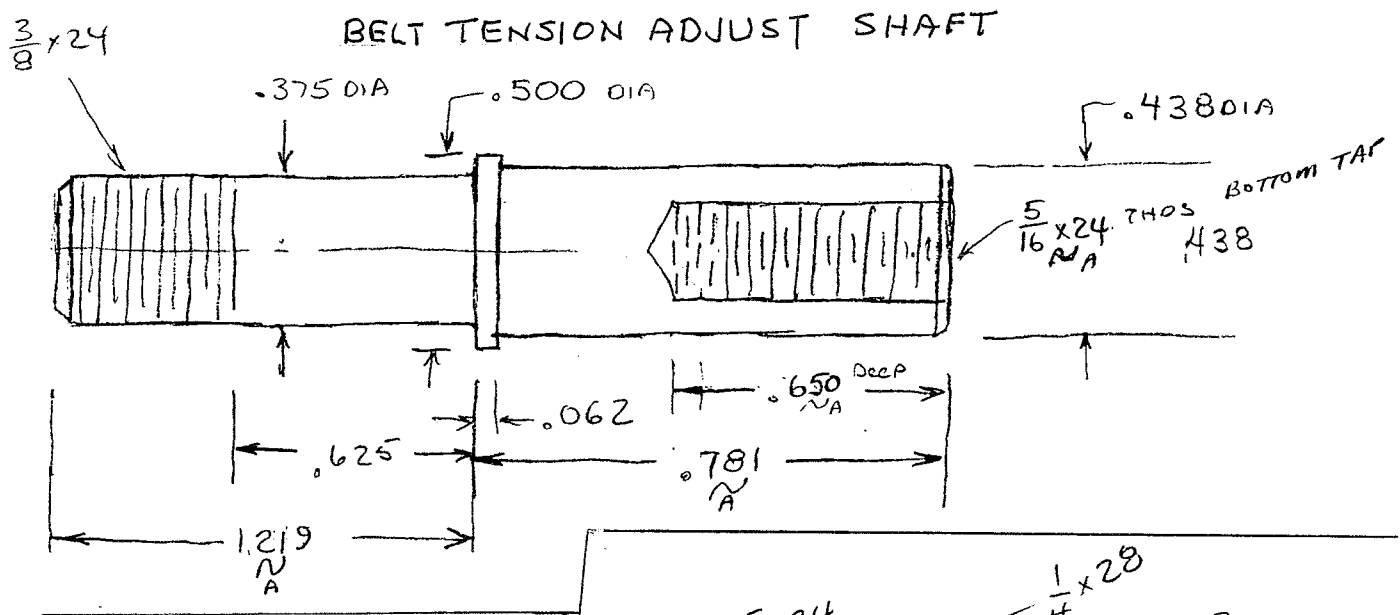
Mooney ALTERNATOR MOUNTING HARDWARE

ALL MATL 303 STAINLESS

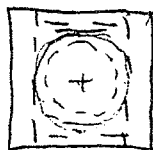
ACUANCE 4-8-98



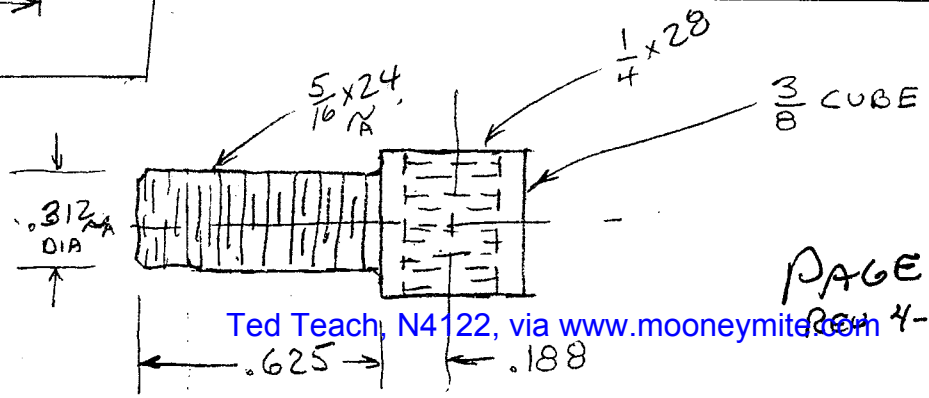
ALTERNATOR PIVOTING SHAFT



BELT TENSION ADJUST SHAFT

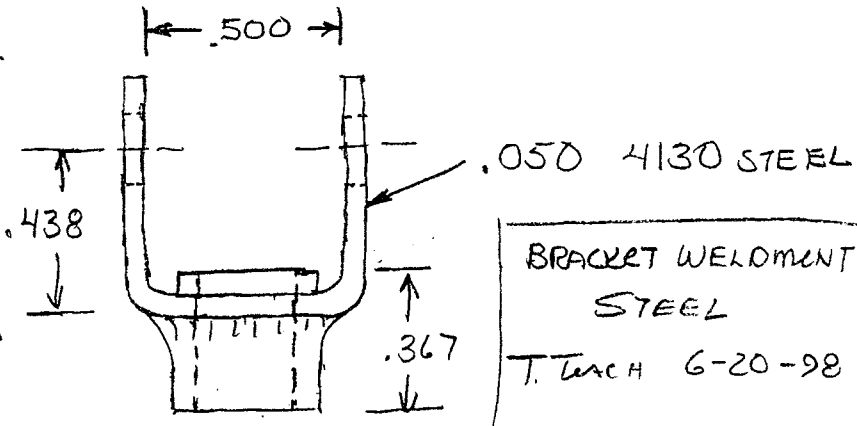
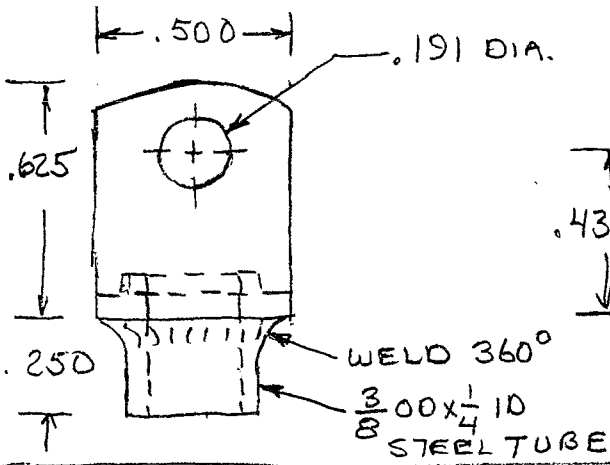


MAKE FROM 3/8 SQ

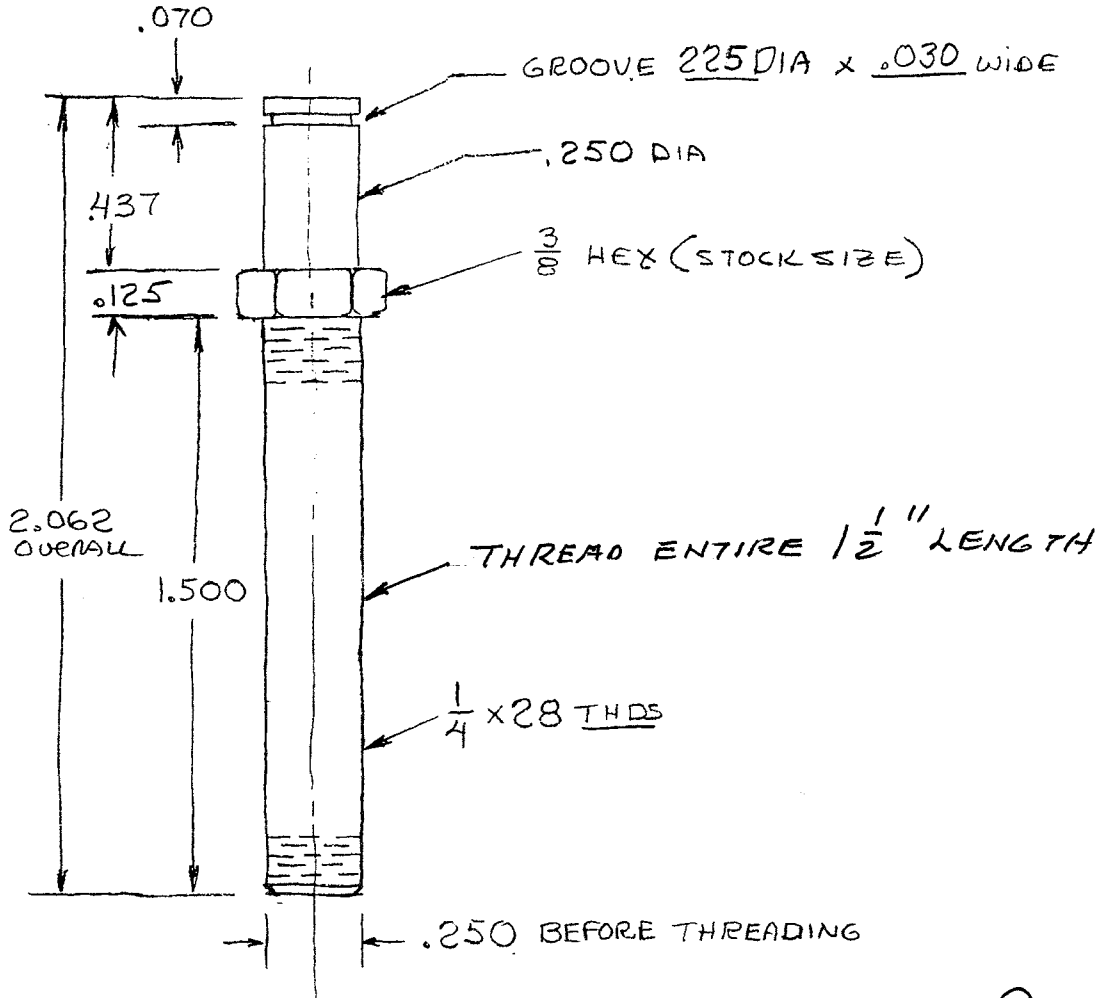


Ted Teach, N4122, via www.mooneymite.com

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Rev 4-3-08



BRACKET WELDMENT
STEEL
T. TEACH 6-20-98



2 X SIZE

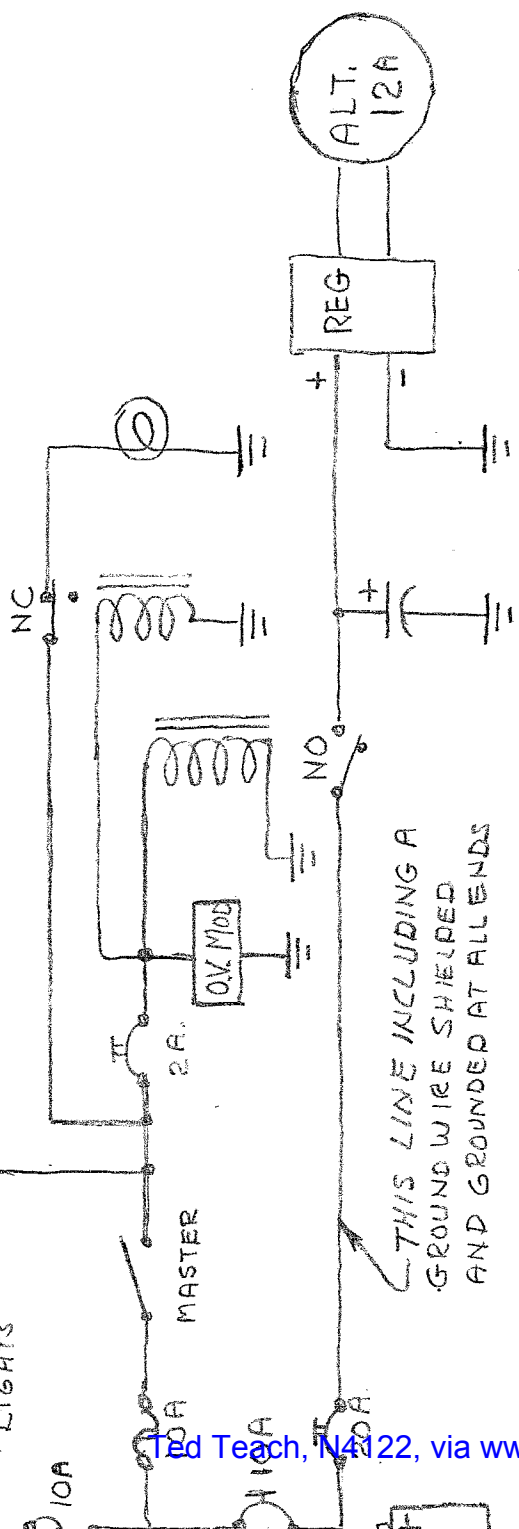
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REV 4-3-08

MAT'L 303 STAINLESS STEEL

BELT ADJUSTMENT SCREW
TED TEACH 3-30-98

TO AVIONIX BUSS

POSITION LIGHTS



THIS LINE INCLUDING A
GROUND WIRE SHIELDED
AND GROUNDED AT ALL ENDS

MOONEY MITE
N4122
ELECTRICAL SYSTEM
Ted Teach 8-20-05

US Department
of Transportation
Federal Aviation
Administration

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

Form Approved
OMB No. 2120-0020

For FAA Use Only

Office Identification

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. This form is required by law (49 U.S.C. 1421). Failure to report can result in a civil penalty not to exceed \$1,000 for each such violation (Section 901 Federal Aviation Act of 1958).

1. Aircraft	Make Mooney	Model M-18-C
	Serial No. 290	Nationality and Registration Mark N4122
2. Owner	Name (As shown on registration certificate) Teech, Ted L.	Address (As shown on registration certificate) 5226 Keilenburger Rd. Dayton, Oh. 45424

3. For FAA Use Only

THE ALTERNATION/ALTERATION IDENTIFIED HEREIN COMPLIES WITH
APPLICABLE REQUIREMENTS AND IS SUBJECT TO INSPECTION
ONLY FOR THE ABOVE DESCRIBED AIRFRAME COMPONENTS
CONFORMITY INSPECTION BY A PERSON AUTHORIZED BY THE FAA

07/21/98 *Darryl G. Kifer*

4. Unit Identification

5. Type

Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	(As described in item 1 above)				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type				
	Manufacturer				

6. Conformity Statement

A. Agency's Name and Address SPECIAL PRODUCTS AVIATION INC 850 9TH AVENUE CONWAY, AR. 72032	B. Kind of Agency <input type="checkbox"/> U.S. Certificated Mechanic <input type="checkbox"/> Foreign Certificated Mechanic <input checked="" type="checkbox"/> Certificated Repair Station <input type="checkbox"/> Manufacturer	C. Certificate No. SPDR118K
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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 07-17-1998	Signature of Authorized Individual M. K. Blalock <i>M. K. Blalock</i>
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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

BY	FAA Fit. Standards Inspector	Manufacturer	Inspection Authorization	COPY Pg 13
	FAA Designee	<input checked="" type="checkbox"/> Repair Station	Person Approved by Transport Canadian Airworthiness Group	

Date of Approval or Rejection 07-23-1998	Certificate or Designation No. Repair Station No. SPDR118K	Signature of Authorized Individual Ted Teach, N4122, via www.mooneymite.com <i>Ted Teach</i>
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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.

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 electrical system in aircraft utilizing B & C Model 91.50 Alternator, B & C Regulator Part No. PMR1-14 and B & C s-12v/15ah Sealed Battery from B & C Aircraft Specialty Products of Newton, Kansas. Mounted Battery under pilot seat on aircraft center of gravity (station 58.7), using 2" x .025 Stainless hold down strap and AN hardware fastened to floor super structure. Installed Potter Brumfield 40 Amp Continuous Duty Master Contactor Part No. cdc12/14-110 serviced by 15 amp Potter Brumfield circuit breaker, through on/off master switch. Used No. 12 AWG aircraft wire to operate circuits. Output source from battery was connected to existing aircraft bus that operates (1) transponder/encoder, and (1) 720 ch communication radio. --- See attached electrical drawing for more detail.

Alternator and Regulator was installed on front of engine --- see attached drawing for more detail.

The maximum continuous electrical load requirements do not exceed 80% of alternator output.

Placard installed on aircraft instrument panel in accordance to FAA Advisory Circular AC 20-40---"WARNING" do not turn alternator off, EXCEPT in case of emergency"

** All work was performed using AC 43.13-1A Chapter 11., as a guide.

** Referenced F.A.A. Advisory Circular AC 20-40.----- copy attached

** Referenced existing previously approved F.A.A. form 337's ----copies attached.

** Referenced FAA Advisory Circular AC 20-33B "Technical Information Regarding Civil Aeronautics Manuals 1, 3, 4a, 4b, 5, 6, 7, 8, 13, and 14.

Continued Airworthiness:

(#) Use AC 43.13 Chapter 11 Section 1. "Care of Electrical Systems".

Section 8. "Storage Batteries"

(#) For troubleshooting and replacement parts use B & C service manual, attached to owners aircraft records.

** NOTE **

This installation is approved for VFR use only. If changes in radios or lighting is added, must re-evaluate amp draw requirements IAW AC 43.13-1A section 2.

Aircraft: Mooney

Model: M-18C

Serial No.: 290

Date: 07-17-1998

ADDITIONAL SHEETS ATTACHED

----- E N D -----

COPY
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