



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

1. Aircraft	Make Cessna	Model 140
	Serial No. 13913	Nationality and Registration Mark N1728V
2. Owner	Name (As shown on registration certificate) Riverside Aircraft Sales Edward L. Moore Ouida Y. Moore	Address (As shown on registration certificate) 327 South Lewis Ave. Philadelphia, MS 39350

3. For FAA Use Only
The data identified herein complies with applicable airworthiness requirements
and is approved for the above described aircraft subject to a conformity
inspection by a person authorized in FAR 43, Section 43.7.
Edward L. Moore *06.02.2010*
Aviation Safety Inspector ACE-FSDO-19 Date

4. Unit Identification				5. Type	
Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	(As described in Item 1 above)				
POWERPLANT	Continental	O-200A	251835-A-48		X
PROPELLER					
APPLIANCE	Type				
	Manufacturer				

6. Conformity Statement		
A. Agency's Name and Address Edward L. Moore 4175 Gann Store Road Hixson, TN 37343	B. Kind of Agency <input checked="" type="checkbox"/> U.S. Certified Mechanic <input type="checkbox"/> Foreign Certified Mechanic <input type="checkbox"/> Certified Repair Station <input type="checkbox"/> Manufacturer	C. Certificate No. A&P1299567

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 May 26, 2010	Signature of Authorized Individual <i>Edward L. Moore</i>
----------------------	--

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 <input type="checkbox"/> APPROVED <input type="checkbox"/> REJECTED					
BY	FAA Fit. Standards Inspector	Manufacturer	Inspection Authorization	Other (Specify)	
	FAA Designee	Repair Station	Person Approved by Transport Canada Airworthiness Group		
Date of Approval or Rejection		Certificate or Designation No.	Signature of Authorized Individual		

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.)

N1728V

Serial #13913

May 26, 2010

- 1. This Form 337 seeks field approval of the use of engine crankcase mount arm boss adapters to preclude the requirement to change the aircraft engine mount in an STC approved engine replacement/upgrade to this aircraft.**
- 2. The original Continental (TCM) 85 HP, C85-12F, engine in this aircraft is being replaced with a TCM, 100 HP, 0-200A engine as approved under STC SA547EA. This engine change will result in minimum weight change and, in fact, it will probably result in an engine gross weight decrease since a modern lightweight starter and an alternator are on the 0-200A rather than the heavier Delco-Remy starter and generator used on the C85. TCM data indicates that there is less than two pound weight difference in the two basic engines.
The C85-12 engine mounting arm end bosses have front and rear conical recesses for the TCM 22387 conical rubber bushings. (see attachment 1 photo 1 & 2). The arm bosses of the 0-200A crankcase are bored through and counterbored for Lord J-3608-1 mount bushing assemblies. (see attachment 1 photo 3 & 4). Due to the increase in length of the Lord bushing over the TCM bushing, (see attachment 1 and compare photo 1 with photo 4), STC SA547EA requires the original engine mount to be replaced with a Cessna 0451111 mount (see attachment 2) which is approximately 1" shorter (firewall to engine) to compensate for the increase length of the Lord bushing assemblies.**
- 3. It is proposed to use four pair of owner produced engine case mount arm boss, machined aluminum, adapters as inserts to reconfigure the 0-200A engine arm bosses to accept the original TCM 22387 conical bushings. (see attachment 1 photo 5). The TCM 22387 bushings are, in fact, approved for and used on other specified 0-200A engines. (see attachment 3). A TCM technical representative ("Ron" @ 1-888-826-5465) researched the 0-200A database and confirmed that certain aircraft manufacturers specified the 0-200 engines with mounting arm boss configurations that used the TCM 22387 conical bushings.**
- 4. In this engine change, use of the TCM 22387 bushing should result in less engine movement in the aircraft enclosed cowling as opposed to the Lord bushing. TCDS E-233, C75 through C85 series engines**

X Additional Sheets Are Attached

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.

N1728V

SERIAL # 13913

MAY 26, 2010

8. Description of Work Accomplished

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

provides a caution statement in Note 4, line 4, regarding engine movement while using the Lord flexible mounts: " C75-15 and C85-15 series engines are identical to the C75-12 and C85-12 series except they incorporate modified mounting lugs for for the Lord flexible mount assemblies. Increased engine motion results and must be provided for in the installation." (see attachment 4). This aircraft cowling was originally designed for use of the TCM 22387 bushings and continued use of this bushing should result in less engine engine movement with less cowling wear/stress.

- 5. Each of the identical eight adapters is machined from 5056 aluminum stock. As seen in attachment 1 photo 6, each adapter outside shell has an end flange, a shoulder step, and a straight shank. When inserted into the engine mounting arm end boss, the flange end seats against the outer end of the boss, the shoulder step rests against the boss inner counterbore recess step where the Lord bushing inner washer would normally rest. The adapter outer shank is machined to fit inside the 0-200A arm boss. (see attachment 5 photo 1). The inner bore of the adapter is machined to accept the TCM 22387 conical bushing with a close fit. (see attachment 5 photo 2 and 3). When installed, the compression load, due to engine mount bolt torque, on the TCM 22387 bushing causes it to swell to a tight fit inside the adapter. (see attachment 5 photo 4 for a loose-fit mock-up of the proposed configuration on an 0-200A engine arm).**
- 6. When installing the 0-200A engine using the Lord mounts, the engine mount bolt nuts are torqued to 180-190 inch-pounds. With the TCM 22387 bushing/adapters installed, the torque will be reduced to 60-80 inch-pounds as specified in the TCM Overhaul Manual, X-30010, tightening torque table.**
- 7. Therefore, use of the above owner produced adapters in conjunction with the TCM 22387 conical rubber mounts will result in reduced overall engine length and, thus, permit the continued use of the original engine mount.**
- 8. Upon completion of the engine change, the aircraft will be weighed and a new weight and balance schedule prepared.**

-----END-----

X Additional Sheets Are Attached

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.)

N1728V

SERIAL #13913

MAY 26, 2010

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

Since this field approved alteration only addresses the use of owner produced engine mount arm boss adapters to preclude a required mount change per STC SA547EA, the instructions for continued airworthiness are limited to the original engine mount, the engine crankcase mount arm boss adapters, TCM 22387 rubber bushings, and engine mount bolt nut torque requirements.

1. The engine mount is not changed as required by STC SA 537EA but the original mount is retained. Any repair/maintenance to said mount should follow procedures outlined in applicable Cessna service manuals or AC43.13-1B.
2. The owner produced adapters become a permanent configuration change to the engine mount arm bosses in this aircraft. The only maintenance for these adapters is the usual condition inspections during required periodic inspections.
3. The rubber mount bushings are stock TCM 22387 parts and can be readily obtained and replaced "on-condition" as required during periodic inspections.
4. Per paragraph 6 of this Form 337 field approval, use of the adapters and TCM 22387 bushings require a reduced torque of 60-80 inch-pounds on the engine mount bolt nuts as specified in the TCM Overhaul Manual, X30010, tightening torque table.
5. Any changes or revisions to this document will be submitted to the appropriate FAA FSDO for approval.

-----END-----

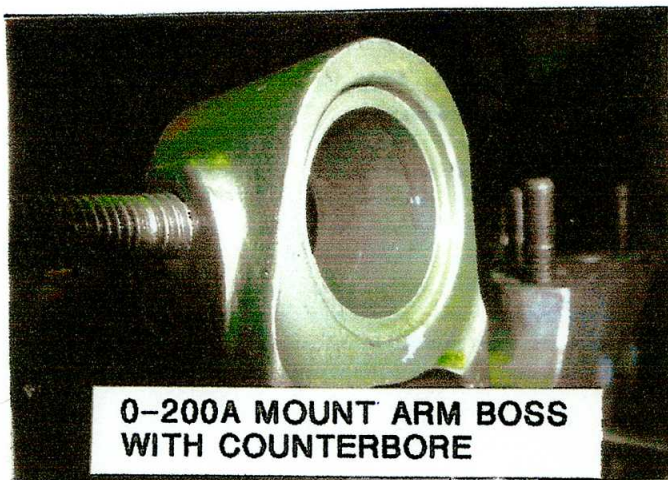
X Additional Sheets Are Attached



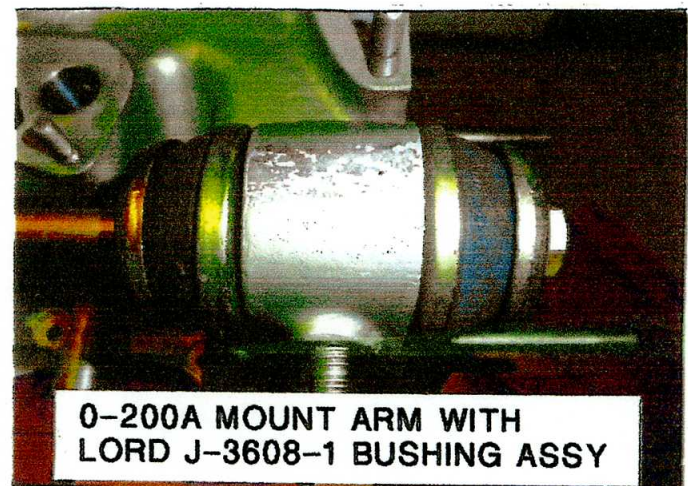
1



2



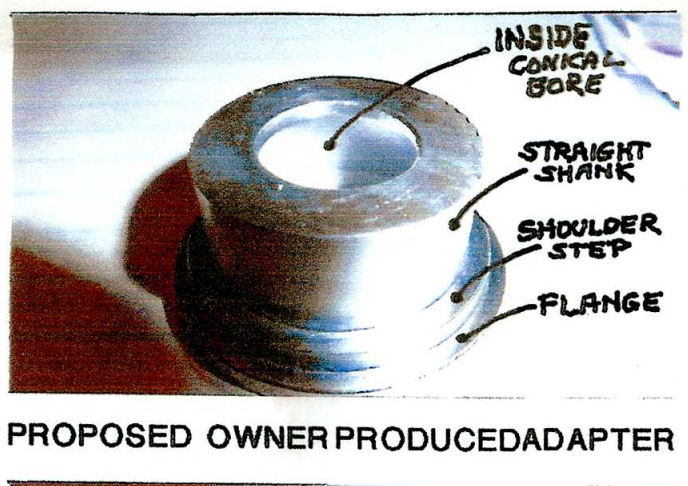
3



4



5



6

Thompson's Air
4275 Six R Road
Anderson, California 96007

July 8, 2005

INSTALLATION INSTRUCTIONS (STC SA547EA)

Install a Continental O-200A engine in a Cessna 120,140 or 140A as follows:

1. Install a Cessna Engine Mount, part number 0451111, on the firewall using NAS 145 or AN-5 hardware as specified in the Illustrated Parts Catalog.
2. Install a Continental O-200A Engine on this mount using Lord Mounts. (Dynaflex Engine Mount Kit # 52-3-137 or equalivant)
3. Install the same engine baffling as used on the original engine.
4. Install a Blast Tube (Cessna Part Number 0450240 or equalivant) as on the C90-14F Engine and Baffle Installation.
5. Install a Cowling Doubler. (Part Number 0452208 or equalivant) as per Cessna Installation Instructions for that doubler.
6. Remark the engine instruments to the following limits:

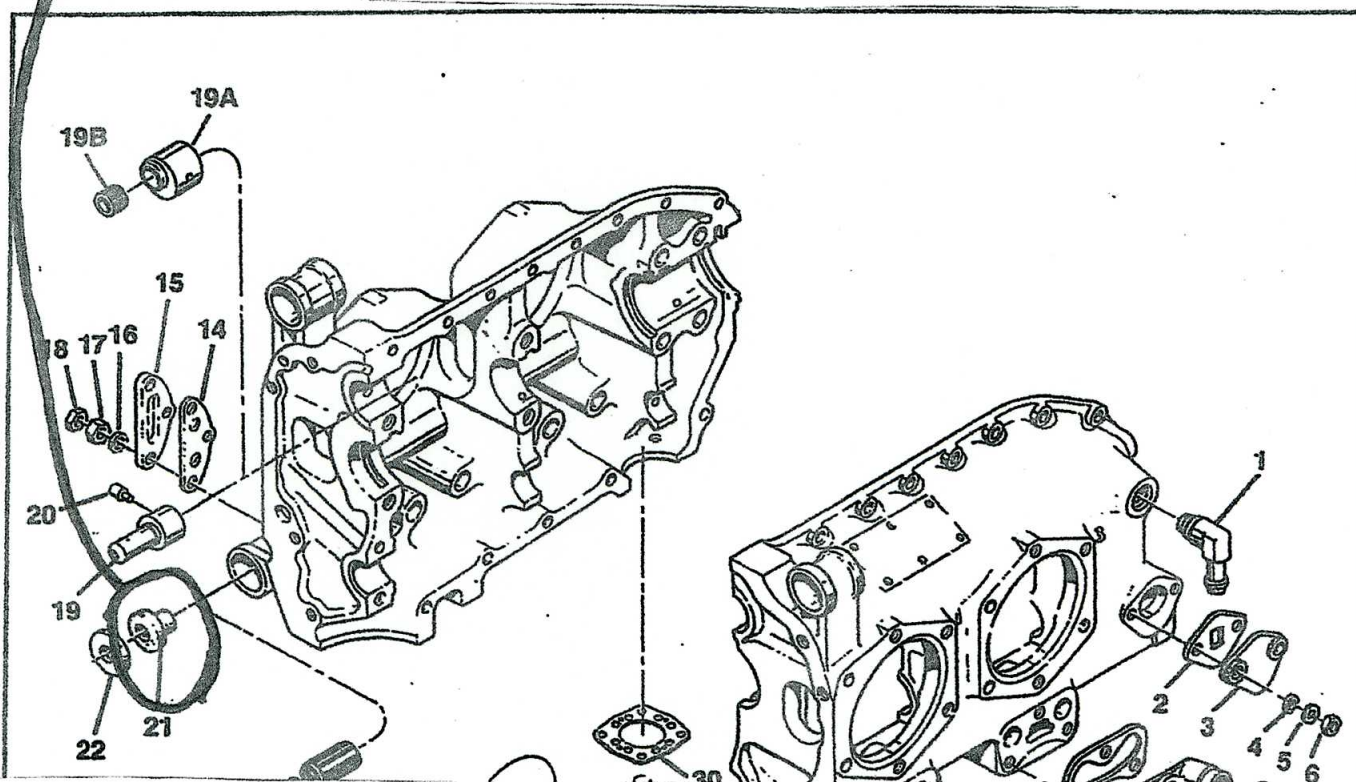
Oil Temp	225 degree F. Red Line
Cylinder Head Temp	525 degree F. Red Line
	(When this instrument is used)
Oil Pressure	30-60 PSI, Red Line @60PSI
Maximum RPM	2750 RPM Red Line
7. Install a mixture control cable (Cessna Part Number 0411090-22 or equalivant), cut to necessary length, clamping it to the engine mount in two places, aft of the oil sump and to the right side of the exhaust stack brace with Adel clamps.
8. Install the same engine exhaust mufflers as used on the Continental C-90-14F.
9. Connect the carburetor heat hose to the heater muff. Do not connect this heat muff to a pressure scoop assembly #0450266 (Heater Air Intake), as this assembly will lower the carburetor air heat rise below the minimum.
10. Install one of the following propellers:
 - A. McCauley 1A100 set to dimensions 6950-54 21lbs (-50)
 - B. McCauley 1A101 set to dimensions 6948-54 21lbs (-50)
 - C. Sensenich 69CK set to dimensions 6948-52 24lbs (-50)
(Re-calculate weight and balance adding 3 lbs at -50 inch moment)

ILLUSTRATED PARTS CATALOG

FIG. INDEX	PART NUMBER	1 2 3 4 5	DESCRIPTION	C 7 5	C 8 5	C 9 8	0 2 0 0 A	0 2 0 0 B
3- 7	530928	\$ ①	Gasket	4	4	4	4	4
- 8	530163		Flange	4	4	4	4	4
ATTACHING PARTS								
- 9	20522		Washer, Plain 1/4 Inch	12	12	12	12	12
-10	MS35337-44		Washer, Lock 1/4 Inch	12	12	12	12	12
-11	646605		Nut, 1/4 Inch	12	12	12	12	12
-12	539840	\$	Connector	8	8	8	8	8
-13	536388-1.25		Clamp	16	16	16	16	16
-14	22344	\$	Gasket, Oil	1	1	1	1	1
-15	35033	①	Cover	1	1	1	1	1
ATTACHING PARTS								
-16	2473		Washer, Plain 5/16 Inch	3	3	3	3	3
-17	MS35337-45		Washer, Lock 5/16 Inch	3	3	3	3	3
-18	2439		Washer, Plain 5/16 Inch	3	3	3	3	3

-19	23487	①	Pivot, Starter Pinion	1	1	1	1	1
-19A	643231	④②	Adapter Assembly, Starter Clutch				1	1
-19B	633609-8	②	Bearing, Needle				1	1
-20	637832	①	Dowel	2	2	2	2	2
-21	22387	\$	Bushing	8	8	8	8	8

FIGURE 3. CRANKCASE ASSOCIATED PARTS



DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

EXCERPT

E-233
Revision 17
CONTINENTAL
C75-8, -8F, -8FH, -8FJ, -8J
C75-12, -12F, -12FH, -12FJ, -12J
C75-12B, -12BF, -12BFH
C75-15, -15F
C85-8, -8F, -8FHJ, -8FJ, -8J
C85-12, -12F, -12FH, -12FHJ, -12FJ, -12J
C85-14F
C85-15, -15F
August 15, 1973

TYPE CERTIFICATE DATA SHEET NO. E-233

Engines of models described herein conforming with this data sheet (which is part of type certificate No. 233) and other approved data on file with the Federal Aviation Administration, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Federal Aviation Regulations provided they are installed, operated and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

Type Certificate Holder

Teledyne Continental Motors
Mobile, Alabama 36601

Model Type	C75-8 4H0A	C75-12, -15 --	C85-8 --	C85-12, -14, -15 --
Rating, ICAO or ARDC standard atmosphere				
Max. continuous hp., r.p.m., full throttle at sea level pressure altitude	75-2275	--	85-2575	--
Takeoff hp., 5 min., r.p.m. full throttle at	75-2275	--	85-2575	--

NOTE 4. The C75-8 series engines are similar to the C75-12 and C85-12 series except that they do not incorporate provisions for generator and starter drives.

The C85 series engines are similar to the corresponding C75 series except for rating and a different carburetor setting.

The C75-12B engine is similar to the C75-12 except that it incorporates a Stromberg PS-3 pressure carburetor (P/N 40284) at weight increase of 53 lb. See NOTE 3 for fuel pump.

The C75-15 and C85-15 series engines are identical to the C75-12 and C85-12 series except that they incorporate modified mounting lugs for Lord flexible mount assemblies. Increased engine motion results and must be provided for in the installation.

The C85-14F is the same as the C85-12F except that it incorporates provisions for modified mounting lugs for Lord flexible mounting assemblies that are used on the C90-14F engine.

Those models listed in the heading of this data sheet suffixed by letters F, H and J, differ from the basic model designation as follows:

"F" denotes an SAE No. 1 flanged crankshaft rather than 0 taper, at weight increase of 1 lb.

"H" denotes a special SAE No. 1 flanged crankshaft and special crankcase for installation of hydraulically operated controllable pitch propeller requiring oil supply through crankshaft.

"J" denotes a fuel injector. Ex-Cell-O model A-41 (P/N 40572) or Ex-Cell-O model B-41 (P/N Ex-A40791) instead of a carburetor, at weight increase of 4 lb.

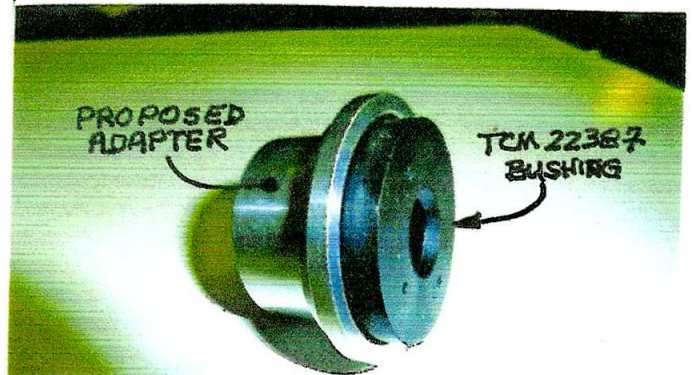
Page No.	1	2	3
Rev. No.	17	17	17

Reformatted 1/95



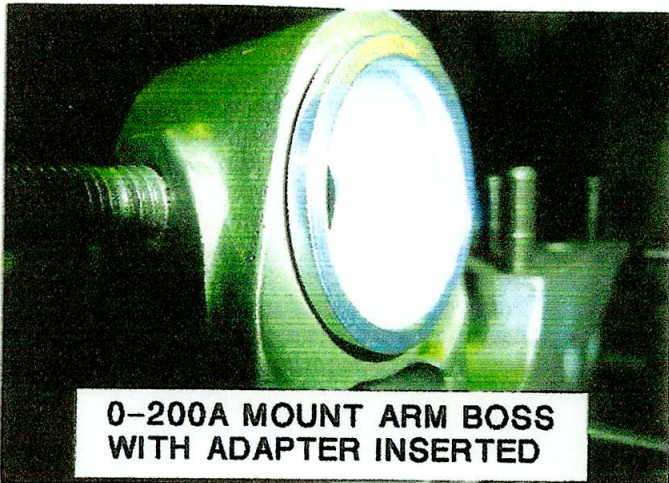
O-200A MOUNT ARM WITH ADAPTER & WITH BUSHING INSERTED

1



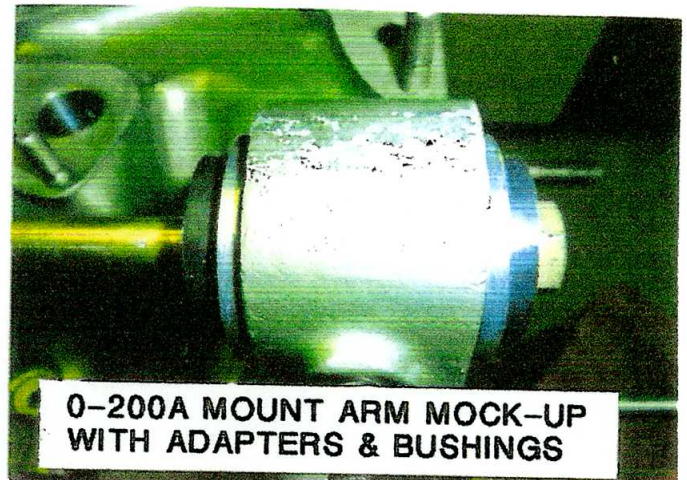
PROPOSED ADAPTER WITH TCM 22387 CONICAL BUSHING

2



O-200A MOUNT ARM BOSS WITH ADAPTER INSERTED

3



O-200A MOUNT ARM MOCK-UP WITH ADAPTERS & BUSHINGS

4