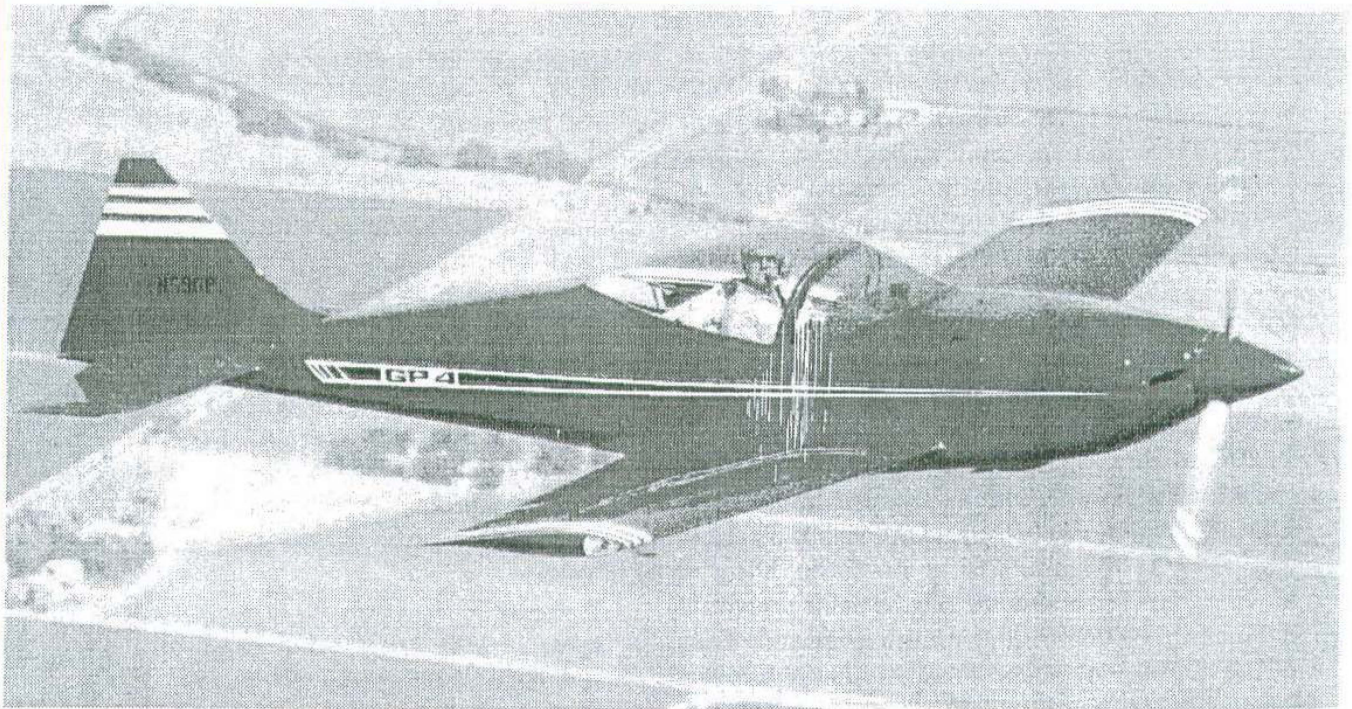




**THE OFFICAL VOICE OF GP-4 BUILDERS ALL OVER THE WORLD**

VOLUME 2

MAY - JUNE 1995



## **GEORGE CRUISING CALIFORNIA IN THE GP-4**

Fellow GP-4 Builders

I presume most of you have received my April 1995 revision, beefing up the walking beam assembly (drawings #28 & #29). If you did not get it for some reason (Like an address change) please send me a SASE and I will send you another revision copy. Please be sure to include your plans serial number and your full correct mailing address so I may update my records.

What brought the revision out was the over torquing of the walking beam axle after loosing most of the air pressure in the uplocks due to an old "O" ring in the air cylinders. The failure went something like this. A very high G+ pull up at high speed was started when the main gear came part way out of the wheel well with the gear handle still in the "UP" position. The uplocks had let go allowing the walking beam

axle to twist. I was able to get the main gear down and make a safe landing but the walking beam assembly had to be re-built. The uplocks are designed to let go with the loss of air pressure so please do not change the system! Just check for air leaks in your inspections. With the heavier axle you should be ok

As most of you know Darry Capps is now building metal components for the GP-4 and the Osprey 2. I flew down to Newman to visit Darry and look over his shop. His big steel lathe, 6 foot centers, large mill with digital optics and all of the bells and whistles is a treat for any one's eyes. It's always an education for me to talk to Darry.

I wanted to show Darry some drawings on a proposed electric hydraulic landing gear for the GP-4. Hey!.....There's nothing wrong with our mechanical gear so stay calm! Some of you have asked me to look into it so that's what I'm doing. It will be almost impossible to retrofit it into a finished wing, so if you are interested don't drill the main spar or install the wing tanks until I get further along. I have started on an accurate mock up, full scale. I will keep everyone posted as thing progress right hear in our newsletter.

On my flight to Newman I flew along side a very nice Vari-EZ belonging to my good friend Ralph Hallenborg. Ralph set the pace truing out at about 185 mph. My digital manifold pressure showed 15.5 inches and fuel flow of 5.8 GPH! If you want to drive your GP-4 around at these speed it's a cheap way to travel. If you are curious my GP-4 is almost twice the empty weight of Ralph's Vari-EZ, but the fuel flow is very close to being the same, within a gallon per hour.

One of the most asked questions about the GP-4 is: "Can I use an auto conversion engine in a GP-4"? With all of the articles and photo's of these new beautiful auto engines available its a fair question. I wish I had all the answers, but I don't. My time spent adapting a Chevy small block V-8 for the GP-5 racer has given me some insight however! Here are a few things that may convince you to stay with the old reliable Lycoming IO-360 series of engines.

The all aluminum aftermarket blocks for the GP-5 cost close to \$4000.00. When you add a forged crankshaft, valve train, aluminum heads, injection, dry sump, six pumps, etc. your in it about \$30,000.00 to \$35,000.00. Our planetary gear reduction drive cost \$5,500.00 and we have doubts about its reliability. Griffin radiator customized a radiator for \$1,800 and we have our fingers crossed on cooling capacity. This weighs up close to 5500 lb.. Obviously this engine is two heavy for the GP-4, but is there a good reliable auto engine for the GP-4?? If there is, you must ask yourself some questions and seek some answers. For instance, where do I put the coolant radiators, if I know the size, so that an efficient divergent plenum will cool the engine with a minimum of cooling drag? I have been working with a professor at California - Davis for months on this problem. It's tough!

Can I find a reduction gear that will drive our Hartzell oil controlled prop or do I have to settle for a fixed pitch or one of the very expensive MT props? Universal has a reduction for \$5,500.00, but it weighs 120 lb..

Will my auto conversion out perform the GP-4 prototype? Will it cost less than a mid or low time Lycoming IO-360? And lastly is it as reliable as an aircraft engine? Hard questions that need answers!

If some of you are concerned about the engine mount and nose gear truss, its going to be available prefabricated. Darry borrowed Mike Traud's IO-360 and is building an accurate jig to reproduce the mount and nose gear truss as per drawings.

I thought our first newsletter was pretty nice. I am sure there will be more articles and news as you builders progress.

Remember the best time to call me if you need help is 7:00 to 9:00 PM or before 9:00 AM (916) 483-3004

Regards to All, George

## NEWSLETTER INPUT!

OK! It's time to talk about newsletter *input*. We are not getting any. Everyone is just standing by waiting to see what everybody else does.

This is your newsletter. It is meant to be a forum for builders to exchange information about the GP-4.

We have had a few send in some photo's with minimal amount of written information. There is plenty of things for everyone to write about and there should be oodles of questions that can be asked, answered and shared with the group.

Some area we can talk about to get thing started are:

1. A update on what stage everyone is at in their construction.
2. How long did it take you to get to this point.
3. Construction difficulties to this point, what was the fix.
4. Any non-structural changes, how and why?
5. Panel layouts
6. Paint schemes
7. Building styles: Are you building one section at time or are you building all the sub-assemblies first?
8. Overviews from people that have flown in the prototype, what did they like best , what did they dislike.

Many of you gentlemen have built previous airplanes and some of those have been of wood construction. I can't believe you don't have something to offer. Once we get a positive flow of information, then this will create other question and ideas. Then we will be on track to a successful newsletter.

Let's get writing (**Yes, this means YOU!**) guy's without your input we just don't have a newsletter. George and Spud can't do it all. It's up to **YOU!** - Spud

## COMPOSITE PARTS

### ● Prefabricated composite parts

Hello Spud and Fellow GP-4 builders,

Here is the current pricing on the prefabricated parts that I make for the GP-4. A builder may buy the components individually or they can purchase them as a package at a considerable savings. I hope the cost of the materials do not increase in the future so I can continue to make these parts as inexpensively as possible for the GP-4 builders. It takes three to four days to make all of the components. Nothing is pre-made and we suggest you ample time for construction, packaging and shipping.

Prices are as follows:

Engine cowling	\$700.00
Exhaust blisters	\$100.00
Inlet ramps	\$100.00
Tailcone	\$100.00

Buy all components for \$925.00 SAVE \$75.00

Crating for all components shipped at same time \$75.00. All freight charges are F.O.B. CA.

If anyone has any question please don't hesitate to call, I'll be glad to help where ever I can.

Regards.

Jake Jackson

1052 Hayer Court

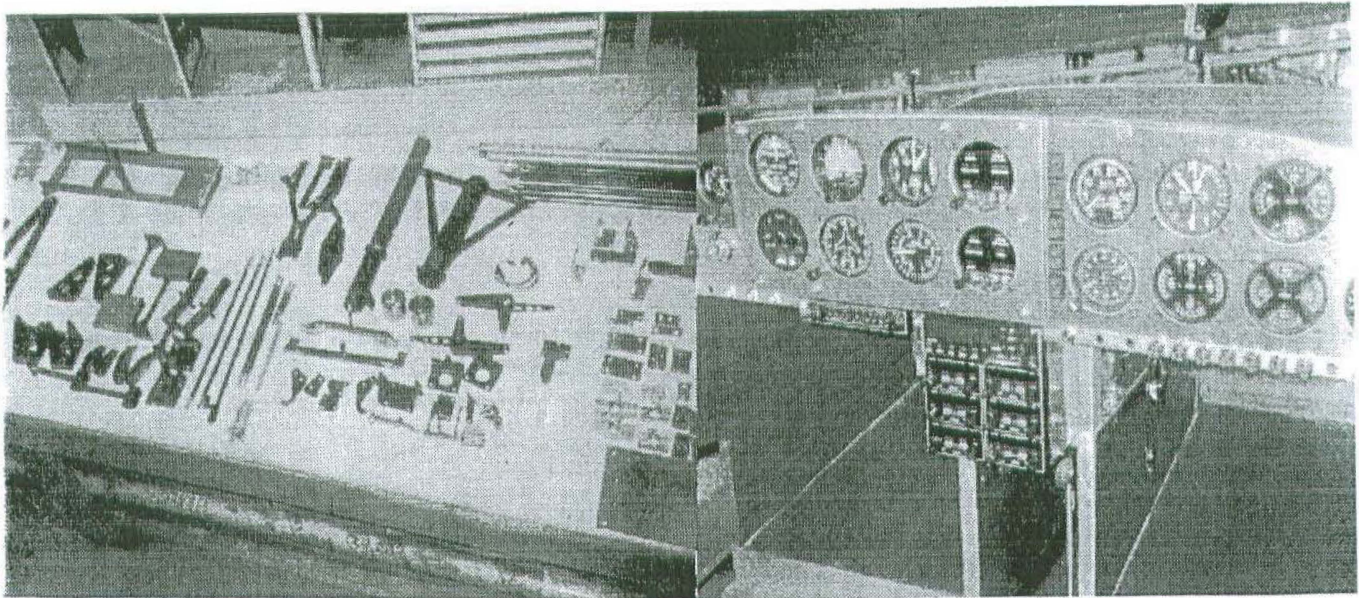
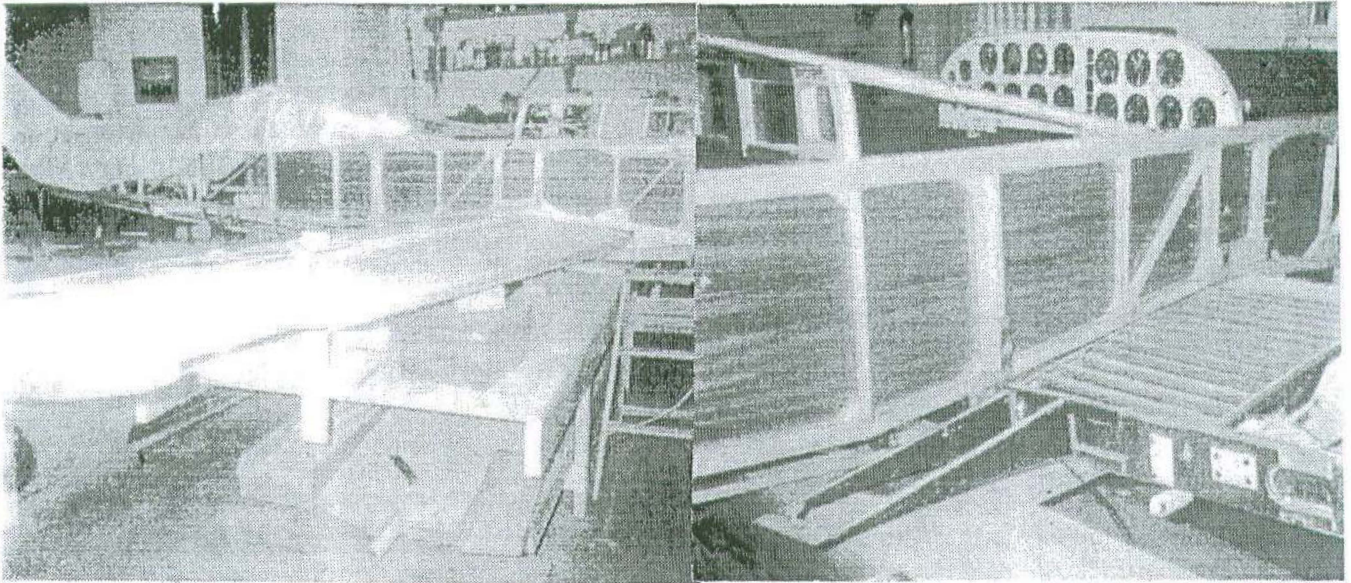
Rio Linda, CA 95673

(916) 992-0608



## BILL BERRICK OF OMAHA, NEBRASKA

Here are some photo's of Bill Berrick of Omaha, NE progress. Looks like he's moving hard and fast. Maybe we can count on Bill to supply us with some more details on his GP-4 in a future issue of GP4BFN. - SPUD



## 95-07-01 Textron Lycoming: Docket No. 95-ANE-14

Applicability: The following Textron Lycoming reciprocating engine models, assembled on or after February 15, 1994, and that contain connecting rod bolts shipped directly or indirectly from Superior Air Parts, Inc., on or after February 15, 1994:

O-360-A1A, -A1AD, -A1C, -A1D, -A1F6, -A1F6D, -A1G6, A1G6D, -A1LD, -A2A, -A2D, -A2E, -A2F, -A2G, -A3A, -A3AD, -A4A, -A4G, -A4J, -A4K, -A4M, -A4N, -A5AD, -B2A, -C1A, -C1C, -C1E, -C1F, -C1G, -C2A, -C2C, -C2D, -C2E, -D2A, -D2B, -F1A6; IO-360-A1A, -A1B, -A1B6, -A1B6D, -A1C, -A1D, -A1D6, -A2A, -A2B, -A3B6D, -B1A, -B1B, -B1D, -B1E, -B1F, -B2F, -B2F6, -B4A, -C1A, -C1B, -C1C6, -C1D6, -C1E6, -C1F, -J1A6D; A1O-360-A1A, -A1B, -B1B; LO-360-A1G6D; HO-360-B1A, -B1B; H1O-360-A1A, -B1A, -C1A, -C1B, -E1AD, -E1BD; L1O-360-C1E6; T1O-360-A1B; AE1O-360-A1E, -B1G6, -H1A; O-540-A1A, -A1A5, -A1B5, -A1C5, -A1D, -A1D5, -A2B, -A3D5, -B1A5, -B1B5, -B2B5, -B2C5, -B4B5, -E4A5, -E4B5, -E4C5, -F1A5, -F1B5, -G1A5, -G2A5, -H1B5D, -H2B5D, -J1A5D, -J3A5D, -J3C5D, -L3C5D; IO-540-A1A5, -B1A5, -B1C5, -C1B5, -C4B5, -C4C5, -C4D5D, -D4A5, -E1A5, -E1B5, -G1A5, -G1B5, -G1C5, -G1D5, -G1E5, -G1F5, -J4A5, -K1A5, -K1A5D, -K1B5, -K1C5, -K1D5, -K1E5, -K1K5, -M1A5, -N1AF, -P1A5, -R1A5, -T4C5D, K1F5, K1F5D, -K1G5, -K1G5D, -K1J5D, K1K5, M1QA5, -M1B5D, N1A5, P1A5, -R1A5, -S1A5, -T4A5D, -T4B5D, -T4CTD, -V4A5D, -W1A5D, -W3A5D, -AA1A5; T1O-540-A1A, -A1B, -A2A, -A2B, -A2C, -C1A, -E1A, -G1A, -H1A, -J2B, -F2BD, -J2BD, -N2BD, -R2AD, -S1AD, -AA1AD, -AB1AD; L1O-540-J2B, -F2BD, -J2BD, -N2BD, -R2AD; IVO-540-A1A; AE1O-540-D4B5; T1O-541-A1A, -E1A4, -E1B4, -E1C4; IO-720-A1A, -A1B, -B1B, -B1BD, -C1B, and -D1B.

**These engines are installed on but not limited to the following aircraft:**

Aero Commander (Intermountain, Callair, Aeronautical Agricola Mexicana, Twin Commander Aircraft Corp.) series A-6, A-9, 100, 500  
 Aerostar Aircraft Corp. (Piper, Ted Smith)  
 Augustair (Montanair, Inc.) 2150  
 Avions Mudry et Cie CAP 10  
  
 Beech series 95, 23, 76, 60  
 Bellanca (American Champion Aircraft Corp) 8GCBC, 8KCAB  
 Brantly Helicopters Industries U.S.A. Co., Ltd. 305  
  
 Christen A-1, (Pitts) S1T  
  
 Dornier Luftfahrt GmbH DO-28 series  
  
 Enstrom F-28 series  
  
 Found Brothers Aviation Ltd. FBA-2C, FBA Centennial "100"  
 Fuji Heavy Industries, Ltd., FA-200 series

Grumman American (American General Aircraft Holding Co., Inc.) AA-5 series

Lake Aircraft Corporation (Consolidated Aero., Inc., REVO) series C-2, LA-4

Maule Aerospace Technology Corp. series MX-7, M5, M-6  
 Mooney Aircraft Corp. series M-20, M-22  
 Moravan ZLIN Z 242L

Omega Aircraft Corporation BS-12D1

Pacific Aerospace Corp., Ltd. FU-24-954 series

Partenavia series P-68

Pilatus Britten-Norman BN-2 series

Piper series PA-24, PA-44, PA-28, PA-34, PA-23, PA-25, PA-32, PA-60, PA-31

Procaer series F 15; SOCATA series TB10, MS-893, 235, TB20, TB21

Robinson R-44 series

Rockwell (Commander Aircraft Company) series 112, 114

Schweizer Aircraft Corp. (Hughes, McDonnell Douglas) 269A series

Siai-Marchetti (Agusta S.p.A) series S205, S210, D260, S.208

Slingsby Aviation Limited T67M

Spinks Industries, M.H. Spinks, Sr. Rawdon T-1

SOCATA series TB10, MS-893, 235, TB20, TB21

Sud Aviation G4-180

Teal Aircraft Corporation (Bohica) TWC-1

**NOTE:** This AD applies to each engine identified in the preceding applicability provision, regardless of whether it has been modified, altered or repaired in the area subject to the requirements of this AD. For engines that have been modified, altered or repaired so that the performance of the requirements of this AD is affected, the owner/operator must use the authority provided in paragraph (g) to request approval from the FAA. This approval may address either no action, if the current configuration eliminates the unsafe condition, or different action necessary to address the unsafe condition described in this AD. Such a request should include an assessment of the effect of the changed configuration on the unsafe condition addressed by this AD. In no case does the presence of any modification, alteration, or repair remove any engine from the applicability of this AD.

**Compliance:** Required as indicated, unless accomplished previously.

To prevent engine failure due to connecting rod bolt failure, which could result in damage to or loss of the aircraft, accomplish the following:

- Prior to further flight, determine if the engine has been assembled on or after February 15, 1994. This AD does not apply to engines assembled prior to February 15, 1994.
- For the purpose of this AD, assembled is defined as the construction of an engine from its component parts for any purpose, such as but not limited to overhaul and inspection.
- For engines assembled on or after February 15, 1994, prior to further flight, determine if any connecting rod bolts were placed during assembly. This AD applies only to engines that had connecting rod bolts replaced on or after February 15, 1994.

**FURTHER EXPLANATION:** These connecting rod bolts failed with no particular pattern. The head of the bolt sheared off on some, while others failed at the threads and some at the shank. Examination of test specimens indicate that these connecting rod bolts were fabricated by machining bar stock material, including the head region, thus exposing end-grains in the head-to-shank radius. These connecting rod bolts exhibit extremely small fillet radii, numerous deep machining grooves and inadequate material selection.

In a letter dated December 15, 1994, Superior Air Parts, Inc., advised the FAA that several connecting rod bolts had fractured in service on a Cessna 177RG on December 9, 1994. The pilot completed a power-off landing with no injuries. In a letter dated January 24, 1995, Textron Lycoming advised the FAA that their laboratory analysis indicated that the failed connecting rod bolts appeared to be suspected unapproved parts. A Superior Air Parts, Inc., report of their own laboratory analysis, dated January 3, 1995, was presented to the FAA in mid-February. Another connecting rod bolt failure was identified during maintenance on a Piper PA-60 on February 21, 1995. Superior Air Parts, Inc., advised the FAA of the second failure on the following day. The FAA had already initiated an independent laboratory analysis of a sample of suspect unapproved connecting rod bolts and received a report on February 23, 1995, which concluded that the connecting rod bolts did not meet material or design specifications. That report corroborated Superior Air Parts, Inc.'s and Textron Lycoming's earlier findings. Subsequent investigation revealed that of the 3,382 connecting rod bolts in the original Superior Air Parts, Inc. inventory, 2,473 had been shipped. The FAA considered all possible actions and concluded that the only prudent course of action was to issue this priority letter AD.

These connecting rod bolts were shipped from Superior Air Parts, Inc., between February 15, 1994 and December 20, 1994 as replacements for Textron Lycoming connecting rod bolts, Part Number (P/N) 75060, or Superior Air Parts, Inc., connecting rod bolts, P/N SL75060, or Aircraft Technologies, Inc. P/N AL75060. However, the failed parts have no markings to identify them. The traceability of these bolts is extremely difficult, and the FAA has determined that the vast majority of the bolts distributed cannot be recovered, nor can they be identified by a routine records search of engines which have been overhauled since February 15, 1994. The FAA has concluded that all engines which may have been overhauled using these connecting rod bolts must be visually inspected for the installation of unmarked connecting rod bolts. Further, since it is impossible to analytically determine how long these connecting rod bolts as installed may remain intact, this AD must be complied with before further flight. Therefore, all connecting rod bolts with no markings must be considered suspect unapproved parts. This condition, if not corrected, could result in engine failure due to connecting rod bolt failure, which could result in damage to or loss of the aircraft.

Also, during the investigation, the FAA determined that only unmarked 75060 connecting rod bolts shipped from Superior Air Parts, Inc., between February 15, 1994 and December 20, 1994, are considered suspect unapproved parts. Approved serviceable parts can be readily identified by raised letters SPS, S, C, or FC, identifying them as Textron Lycoming parts, or SL75060 etched on the head, identifying them as PMA parts manufactured by Superior Air Parts, Inc., or AL75060 forged into the head, identifying them as PMA parts manufactured by Aircraft Technologies, Inc.

Since an unsafe condition has been identified that is likely to exist or develop on other engines of this same type design, this AD requires removal prior to further flight of suspect unapproved connecting rod bolts and replacement with serviceable connecting rod bolts. Suspect unapproved connecting rod bolts may be identified as those bolts that are not clearly marked on the head by raised letters SPS, S, C, or FC, identifying them as Textron Lycoming parts, or not clearly marked with SL75060 etched on the head, identifying them as PMA parts manufactured by Superior Air Parts, Inc., or not clearly forged into the head with AL75060, identifying them as PMA parts manufactured by Aircraft Technologies, Inc.

This rule is issued under 49 U.S.C. Section 44701 (formerly section 601 of the Federal Aviation Act of 1958) pursuant to the authority delegated to me by the Administrator, and is effective immediately upon receipt of this priority letter.

(d) For engines that contain replacement connecting rod bolts installed on or after February 15, 1994, prior to further flight, determine if any of those replacement connecting rod bolts were purchased directly from Textron Lycoming or Aircraft Technologies, Inc. This AD does not apply to engines with replacement connecting rod bolts purchased directly from Textron Lycoming or Aircraft Technologies, Inc. In addition, this AD does not apply to engines that were manufactured or remanufactured at Textron Lycoming.

(e) For engines that contain replacement connecting rod bolts installed on or after February 15, 1994, that were not purchased directly from Textron Lycoming or Aircraft Technologies, Inc., prior to further flight, visually inspect to determine if the connecting rod bolts are clearly identified by raised letters SPS, S, C or FC, identifying them as Textron Lycoming parts, or SL75060 etched on the head, identifying them as PMA parts manufactured by Superior Air Parts, Inc., or AL75060 forged into the head, identifying them as PMA parts manufactured by Aircraft Technologies, Inc. If the connecting rod bolts can be positively identified as provided in this paragraph, no further action is required.

(f) If the connecting rod bolts cannot be positively identified in accordance with paragraph (e) of this AD, prior to further flight remove unapproved connecting rod bolts and replace with serviceable parts.

**NOTE:** Further information may be found in Superior Air Parts Service Bulletin No. 95-002, dated March 3, 1995, or by contacting Superior Air Parts, Inc., 14280 Gillis Road, Dallas, TX 75244-3792, Telephone (800) 487-4884.

(g) An alternative method of compliance that provides an acceptable level of safety may be used if approved by the Manager, Special Certification Office. The request should be forwarded through an appropriate FAA Maintenance Inspector, who may add comments and then send it to the Manager, Special Certification Office. Special flight permits shall not be issued.

**NOTE:** Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the Special Certification Office.

(h) Priority Letter AD 05-07-01, issued March 17, 1995, becomes effective upon receipt.

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**FOR FURTHER INFORMATION CONTACT:** Richard D. Karanian, Aerospace Engineer, Special Certification Office, FAA, Rotorcraft Directorate, 2601 Meacham Blvd., Fort Worth, TX 76137-4298, tel (817) 222-5195, fax (817) 222-5959; or Locke Easton, Aerospace Engineer, Engine and Propeller Standards Staff, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299, tel (617) 238-7113, fax (617) 238-7199.

Issued in Burlington, Massachusetts on March 17, 1995

James C. Jones,  
Acting Manager, Engine and Propeller Directorate,  
Aircraft Certification Service

## LYCOMING ENG. A.D.

On pages 5 and 6 you'll find an A.D. on replacement rod bolts for the Lycoming IO-360 series engine which is what we use in the GP-4. We don't know if they will get all of the bolts completely rounded back up. I first thought to chop down the information, but was concerned I would possibly remove pertinent information. This is why it is a little compressed. - Spud



## THE CLASSIFIEDS

**For Sale:** INSTRUMENT PANEL LAYOUT STICKERS- Trying to lay out your instrument panel and you've forgotten which circle is which? Here's what you need!! A packet of 10 pages of full size photo-repro's of instruments, gauges, switches, etc. Just peel them off and stick them to a mockup of the panel or on the instrument panel itself. A good way to fly the instruments before the plane is finished. Send \$20.00+\$2.50 S/H to Houde Enterprises, 12573 U.S. HWY 26, Riverton, WY 82501 <55-61>

**For Sale:** Pre-fabricated composite components for GP-4. Cowling - \$700.00, exhaust blisters - \$100.00, inlet ramps - \$100.00, tailcone - \$100.00. All four peices for \$925.00. Jake Jackson - Rio Linda, CA (916) 992-0608

**Looking For:** Anyone with artistic talents that could draw up some line drawings and/or characters of the GP-4. Contact Spud (913) 764-5118 after 7:00 CST & weekends.

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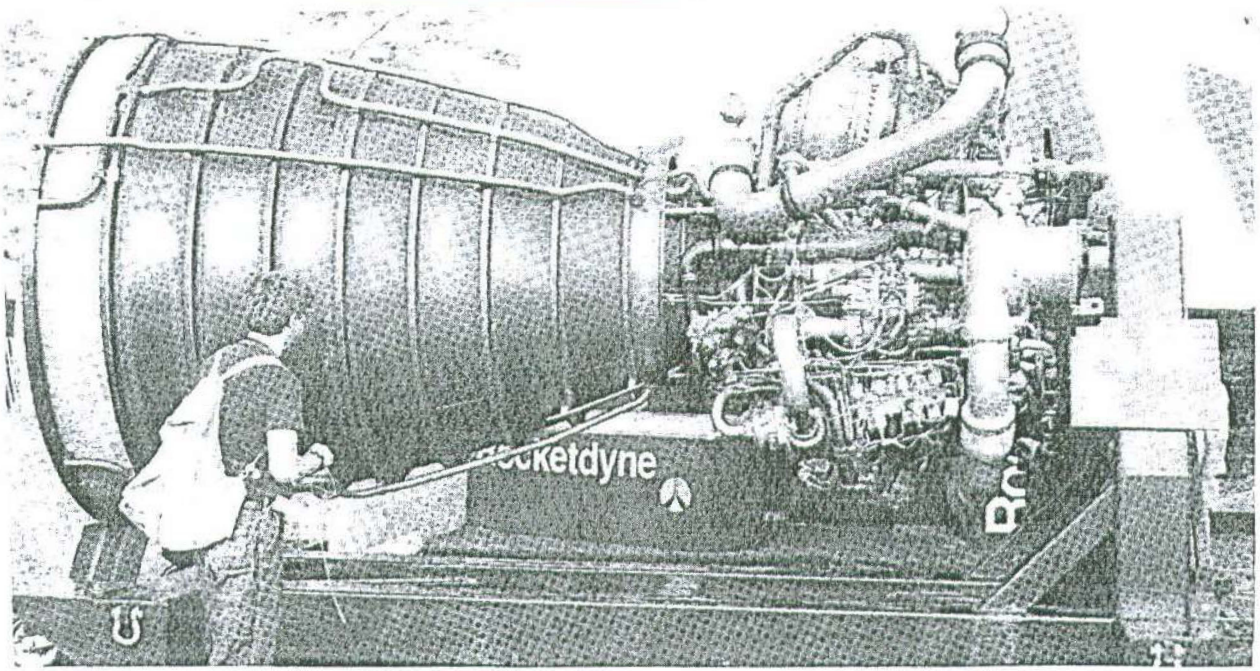
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