AC NO. 20-7P

GENERAL AVIATION inspection AIDS

SUPPLEMENT NO. 11

JULY 1978

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Flight Standards Service

GENERAL AVIATION INSPECTION AIDS

CUMULATIVE INDEX

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ADVISORY CIRCULAR
AC 20-7P CH 11

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, D.C. 20590

GENERAL AVIATION INSPECTION AIDS

SUPPLEMENT No. 11
JULY 1978

This is the home of the General Aviation Inspection Aids. The publication is prepared from information submitted by those of you who operate and maintain civil aeronautical products. The content of this publication includes select items that have been reported to be significant but were not fully evaluated by the time the material went to press. As additional facts, such as cause and corrective action, are identified, the data will be brought to your attention in subsequent issues of the Aids. This action has been implemented to give Aids' readers the earliest notice of reported conditions received via Malfunction or Defect Report, FAA 8330-2. Computers will constantly monitor these conditions during the period of evaluation for cause and corrective action. Your comments and suggestions for improvement are always welcome. If you wish to share in such material, please send to: Flight Standards National Field Office, Attn: Safety Data Branch, AFS-580, P. O. Box 25082, Oklahoma City, Oklahoma 73125.

AIRCRAFT

CESSNA

Cessna Model 310L (Australian Registry)	Exhaust Fairing and Shield, P/Ns 0851816-21 and -34	The left inboard exhaust fairing and shield were lost during flight. Inspection showed indications that pop-rivets, P/N TLP/D/424BS had been installed at overhaul instead of approved solid rivets, P/Ns MS20450-C8-4 or -5. Total time in service - 2776 hours.
Cessna Model 404 (Australian Registry)	Stabilizer Skin	The horizontal stabilizer upper and lower skins were found cracked at station 72. Adjacent ribs were also cracked. Total time in service - 200 hours. Cessna Service Letter ME77-26 relates to this subject.

DON'T WASTE THAT EXPERIENCE, PUT IT TO GOOD USE. Send in the facts and photos via an FAA Form 8330-2, Malfunction or Defect Report, available at Flight Standards District Offices and most aircraft maintenance facilities.

Let us hear from you soon! Send to Department of Transportation, Federal Aviation Administration, Flight Standards National Field Office, Safety Data Branch (AFS-583), Post Office Box 25082, Oklahoma City, Oklahoma (73125).

GRUMMAN - AMERICAN

Grumman-American Model G-164A	Aileron Cable Assembly, P/N 1860-101	During routine inspection, at 1530 hours aircraft time in service, the left aileron balance cable was found frayed. The wear was evident at the wing root pulley where the cable change direction 45 degrees.

HUGHES

Hughes Model OH6A (369)	Over-Running Clutch Assembly Bearing, P/N 369A5361	It has been reported that grease used to lubricate the over-running clutch drive shaft bearing, in accordance with Hughes Service Information Letter HN118 (Airworthiness Directive 77-21-04), will not remain in the bearing for more than ten hours of operation. The grease becomes fluid and the bearing then runs dry.
Hughes Model 369D	Main Rotor Hub Pitch Housing, P/N 369D21300-5	During inspection of the main rotor, the upper end of one pitch control rod was found loose where it attaches to the pitch housing horn. The bolthole in the outboard ear of the pitch housing was worn approximately .035 oversize, and the bolt was loose. The ball on the rod end, P/N 369A1011, was tight and hard to move in comparison with the other four pitch change rod ends. Total time in service - 38 hours. This inspection was prompted by an identical report on another aircraft with 60 hours time in service.

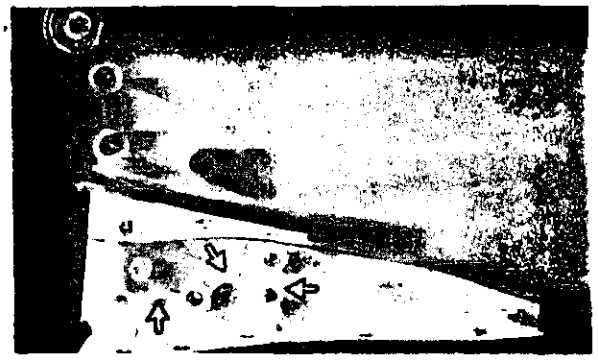
McDONNELL DOUGLAS

McDonnell Douglas Model DC-9-14	Cabin Door Link, P/N 49186133	The main cabin door would not open. Passengers deplaned through the over wing emergency exits. Inspection disclosed that the cabin door over-center link was bent and broken.

PIPER

Piper Models PA-23-235 and PA-23-250	Engine Baffle Tie Rod, P/Ns 14513-02 and -03	The subject baffle tie rods loosen during operation, and chafe through the engine rocker box oil drain lines.
Piper Model PA-23-250	Main Wheel, Cleveland P/N 161-50	At approximately 250 hours aircraft time in service, excessive wheel noise was reported during taxi. Investigation revealed five of the right wheel bolts and two of the left wheel bolts were broken. Uneven torque or over torque of the bolts is believed to be the cause of failure.

Piper Model PA-23-250	Stabilator Tab Horn Brackets	When complying with paragraph (c) of Airworthiness Directive 78-02-03, at 1000 hours aircraft time in service, the attachment brackets for the left and right stabilator tab horns were found severely cracked.

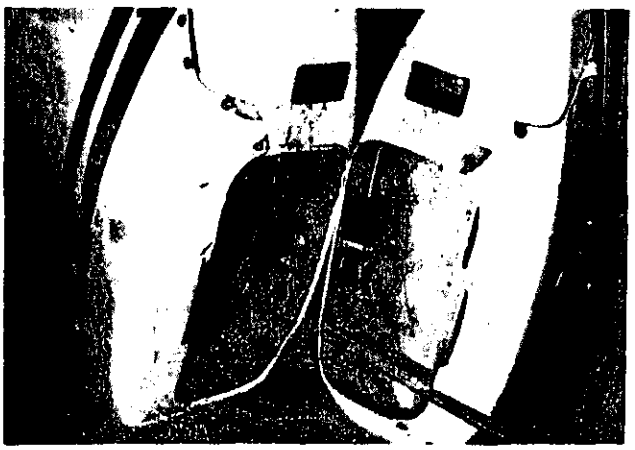


Piper Model PA-23-250	Rudder Pedal Torque Tube Assembly, P/N 32372-00	The cause for loss of rudder control was traced to failure of the rudder pedal torque tube assembly. The break occurred at the inner tube weld to the diagonal member, immediately inboard of the torque tube bearing block, P/N 17203-03. The failure occurred during flight at 6768 hours aircraft time in service.
Piper Model PA-24	Nose Landing Gear Rod Clevis Bolt	The nose landing gear would not extend using either normal or emergency procedures. Inspection revealed too long a clevis bolt had been installed in the nose landing gear rod assembly, P/N 21109-00. The clevis bolthead caught on the access hole in the left side of the nose wheel well, preventing full extension of the gear.
Piper Model PA-24-400	Landing Gear Transmission	The landing gear system circuit breaker "popped" during gear extension. Subsequent investigation disclosed ravelings from the cockpit floor carpet had wrapped around the landing gear transmission jackscrew, causing the transmission to jam.
Piper Model PA-25-235	Fuselage Vertical Tubular Members	Aircraft inspection, performed at 1965 hours time in service, revealed severe corrosion of the left and right fuselage vertical tubular members, just aft of the hopper and forward of the windshield. The corrosion occurs between the tubing outside wall and the "U" channel strips, used for fuselage fabric attachment, particularly at the lower ends of the vertical tubes where they are welded to the longerons.
Piper Model PA-25-235	Exhaust Stack Assembly, P/N 64039	The cause for reported exhaust fumes in the cockpit was attributed to failure of the right exhaust stack assembly. A piece of the stack in the area of the heat shroud support lug had broken away, allowing engine exhaust to exit into the shroud or heat muff. The part had been in service for appxoimately 250 hours.
Piper Model PA-28-140	Nose Landing Light Retainer Screw	A propeller strike incident occurred when the landing light fell forward, due to loosening of the retaining screw. Frequent removal of the screw is associated with servicing of the carburetor air filter, resulting in deterioration of the locking properties of the self-locking nut. Safety wiring of the wing type thumb screw might be considered as an alternative for increased safety.

Piper
Model PA-28-181

Main Wheel
Fairing, P/Ns 37878-02 and -03

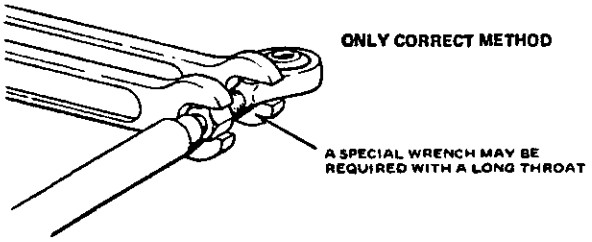
The main wheel fairings were found to be cracked.
Total time in service - 50 hours.

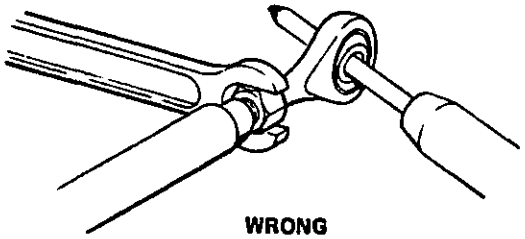


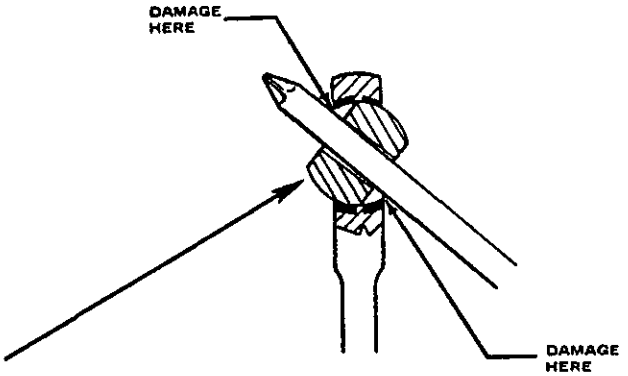
Piper
Model PA-31 Series

Landing Gear Lock
Rod End Fittings

The aircraft manufacturer has advised that the rod end fittings for the landing gear downlock actuator rod assemblies can be damaged if the proper tools are not used when tightening the fitting jam nuts. The end fitting must be supported with one wrench while the jam nut is tightened with another wrench. Inserting a tool through the end fitting bearing ball can damage the race and result in stiff operation and subsequent malfunction of the landing gear downlocks.

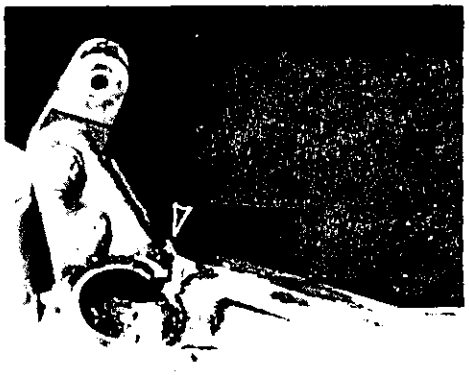






Piper
Model PA-31P

Main Landing Gear
Downlock Hook Assembly,
P/N 41983-01



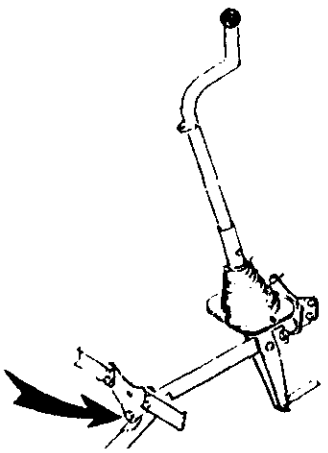
When the landing gear was retracted during takeoff, the right main gear failed to retract. Subsequent investigation revealed the rivets that secure the forward and aft clips, P/N 41092-02, and -03, to the downlock hook sheared, preventing the hook from releasing. This condition caused excessive load to be imposed on the forward side link assembly, P/N 40279-09, by the landing gear actuator, resulting in failure of the link assembly. Binding of the downlock actuating rod and hook assembly, due to accumulation of residue, is considered to be a factor contributing to the downlock hook rivet failure. Piper Service Letter No. 755 calls for 100 hour inspection, cleaning and lubrication of the downlock actuating rod assemblies, a practice that should be applied to the downlock hook assemblies and linkages.

Piper Model PA-32R-300	Stabilator Stop Bolt and Locknut	During flight, the stabilator up travel was restricted. After landing, an investigation revealed the stabilator up travel stop bolt had backed out approximately 1 1/2 inches and the lock nut was loose. Total time in service - 230 hours.
Piper Model PA-36-285	Engine Mount Fitting	Cracks were found at the edge of the weld where the engine upper right and left mount fittings are welded to the fuselage structure. The cracks are located at the inboard lower area of the fittings.

Piper
Model PA-36-285

Control Stick Torque
Tube Bolt, P/N AN4-13A

A pilot reported partial loss of elevator control during flight. Investigation revealed the forward control stick torque tube-to-bearing plate bolt had backed out. The bolt was the proper length, and the barrel nut was found inside the torque tube. Airworthiness Directive 75-20-07, which pertains to the subject, did not apply by serial number to this aircraft.



Piper Model PA-38-112	Rudder Assembly, P/N 77611-02	The rudder controls jammed when deflected approximately half travel to the left during flight. A significant amount of pressure had to be applied to the right pedal in order to free the controls. Subsequent ground investigation revealed the leading edge skin of the rudder upper fairing had caught on the top of the vertical stabilizer. The difficulty was experienced at approximately 65 hours aircraft time in service.

ROCKWELL INTERNATIONAL

ROCKWELL INTERNATIONAL- - MODEL NA-265-40 BRAKE LINES

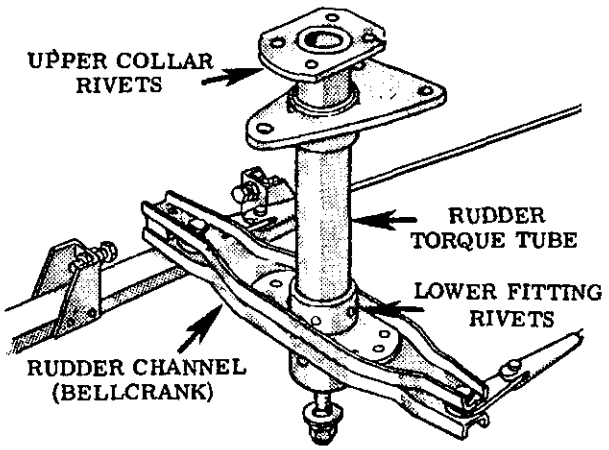
A second occurrence of reversed brake lines has been reported after maintenance was performed. The first occurrence resulted in an incident when control of the aircraft could not be maintained upon landing. Fortunately, the second occurrence was noticed by the flight crew when taxiing.

Maintenance personnel should use extreme care when reconnecting any lines where there is a possibility of getting them reversed or connected wrong. The close proximity of numerous lines in confined areas on the light twin jets promotes the possibility of a mistake. It is always a good maintenance practice to place identification tags on lines as they are disconnected. Then when connecting, whether it be the same person or another mechanic, the possibility of a mistake is lessened.

The aircraft did have a maintenance taxi test after the second occurrence, but the condition went unnoticed because both brakes were applied simultaneously. When it is known that numerous lines and components have been disconnected or removed, the taxi test should include independent application of the brakes. Don't be a party to a mistake that could cost a life or cause property damage!

Rockwell International Rudder Control System
Models 500, 500-A,
500-B, 500-U, 500-S,
520, 560, 560-A, 560-E,
560-F, 680, 680-E,
680-F, 680-FL, 680-FL(P),
680-T, 680-V, 680-W,
681, 685, 690, 690-A,
690-B, and 720

There have been instances of rudder channel (bellcrank) failure, as well as shearing of the rivets which attach the lower fitting and the upper collar to the rudder torque tube. Some of the reported failures have occurred shortly after take-off. These failures are attributed to rudder buffeting during high wind conditions while the aircraft is parked without gust locks installed, and in some cases, even when gust locks have been installed.

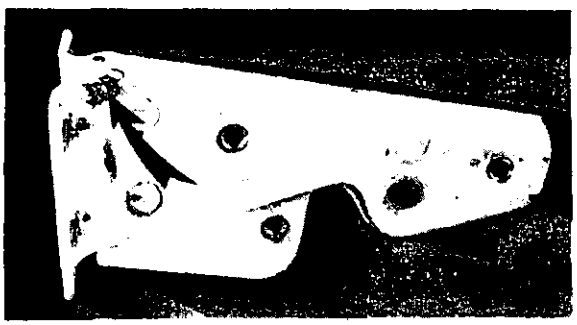


It is suggested that rudder control systems be periodically inspected, particularly after high wind conditions have existed, even if gust locks were installed. It is recommended that walkaround preflight inspections be conducted with a control lock on the rudder pedals and the rudder gust lock removed. If significant rudder movement is apparent when pushed from side to side by hand, the rivets may be sheared, and need for further, more detailed inspection is indicated.

VARGA

Varga (Morrisey) Model 2150A — Elevator Horn

During preflight inspection, a crack was found in the radius of the elevator horn flange at attachment to the elevator.



ACCESSORIES

BENDIX

Bendix Fuel Injector Model RSA-10FBI	Mixture Control Shaft Seal	No leakage was evident during a normal check with the fuel booster pump on. However, severe external fuel leakage was noted when slight side pressure was applied to the fuel injector mixture control shaft. Pulling slightly on the mixture control shaft would also result in severe external fuel leakage. The fuel injector had been in service 180 hours.

Good MAINTENANCE - Prime SAFETY Factor

Bendix Magneto Model S4LN-200	Oil Seal, P/N 10-27448	During routine inspection, at 200 hours time in service, the magneto was found full of oil. Inspection disclosed that the housing forward oil seal had failed. An identical condition was reported with another magneto at approximately 300 hours time in service.
Bendix Magneto Model S4LN-1209	Coil Wedge, P/N 10-349219	Excessive RPM drop was experienced on the right magneto during preflight check. Inspection revealed the magneto distributor rotor and block were severely damaged because an extra coil wedge was evidently left in the magneto during assembly. The discrepancy was found at 232 hours magneto time in service.

LEAR SIEGLER

LEAR SIEGLER--STARTER/GENERATOR, P/N 23032-010

During inspection, the starter/generator clutch hub, P/N 23032-1900, was found cracked. Inspection disclosed that the clutch hub did not seat properly on the tapered portion of the drive shaft. Several additional hubs were checked and the same condition was found.

MARVEL - SCHEBLER

MARVEL-SCHEBLER--CARBURETOR, P/N 10-5135

During approach for landing, the throttle could not be retarded from cruise position. The engine had to be shut down and an emergency landing executed. Subsequent investigation revealed one of the two screws which secures the carburetor throttle (butterfly) valve to its shaft fell out. This condition allowed the butterfly valve to cock and prevent the throttle from closing.

EQUIPMENT

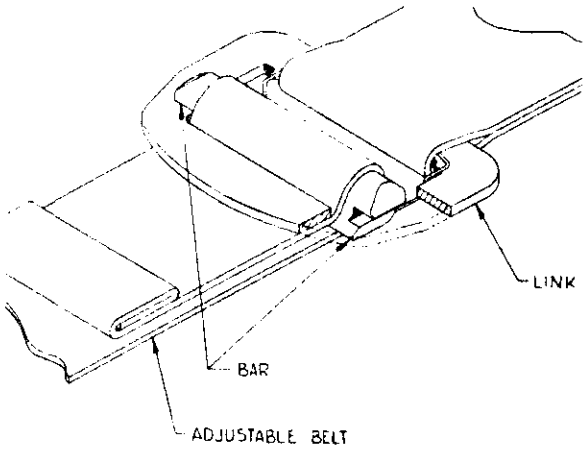
NARCO

Narco Emergency Locator Transmitter Model ELT-10	External Antenna	The manufacturer has advised that some ELT-10 units have been installed in aircraft using only the self contained antenna. This antenna is meant for use by survivors after the ELT is removed from the aircraft, and will not radiate the signal sufficiently when installed and activated by an emergency condition. Narco Service Bulletin ELT-10 No. 8, dated March 27, 1978, pertains to the subject, and recommends that an external antenna be used with all ELT-10 installations.

PACIFIC SCIENTIFIC

Pacific Scientific 1101 Series Lap Belt and 1101 and 0101 Series Shoulder Harnesses — Adjustment Take-up Devices

A routine inspection of two helicopters showed that the seat belts and shoulder harnesses were improperly assembled. The improper assembly reduces the strength of the belt to a point well below its intended strength. This condition is not readily discernable unless a study of the fitting and cross-bar is made. This problem appears to be brought on by removal and reassembly of the belt for maintenance purposes, and is believed to be quite prevalent. Pacific Scientific Company Service Bulletin No. 042, dated January 11, 1972, covers this subject, and was published as follows:



"Doc. No. 042
Date: 11 January 1972

"SERVICE BULLETIN

"Pacific Scientific Company 1101 Series Lap Belt, and 1101 and 0101 Series Shoulder Harness Utilizing Adjustment Take-up Devices.

"PURPOSE: To issue WARNING that the take-up BAR shown in the sketch must be installed as shown, or the load requirements will not be met. Specifically, the heavier, rounded section of the BAR must be on the top side of the LINK so that it will be the pull-off load-carrying section. If the BAR is 'upside down' from the sketch position, the thin, flat section will not withstand the load requirement.

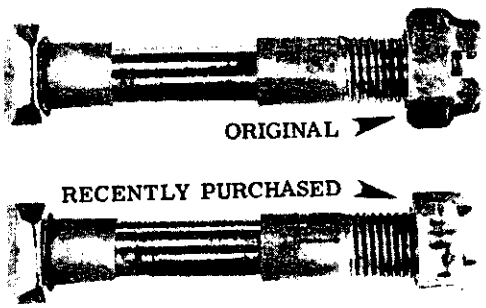
'RECOMMENDED ACTION: Visually examine in-service lap belts and shoulder harnesses using this adjustment design to determine that BAR is correctly installed. Visually examine same items for correct BAR installation if, for any reason, disassembly and maintenance and reassembly has taken place. Insert this bulletin in applicable maintenance and overhaul instructions."

ENGINES

CONTINENTAL

Continental Model A-65 — Connecting Rod Nut, P/N 24804

It has been reported that when attempting to torque the connecting rod bolt nut to the manufacturer's specified requirements, the nut distorts and damages the threads on both the nut and the bolt. These nuts were purchased from a parts distributor in California, and were advertised as genuine Continental parts. The accompanying photograph shows a comparison of the original nut (steel), and the recently purchased nut.



Continental Model TSIO-360E (Australian Registry)	Oil Pressure Relief Valve Spring	Low oil pressure was reported on both engines. Oil pressure valves were adjusted progressively, over a number of flights, until no further adjustment was possible. Relief valve springs were removed and found worn on the outer circumference to within 50 percent of the wire diameter. Total time in service - 756 hours.

Continental
Model TSIO-520-E

Piston, P/N 632585

The No. 3 piston land failed. Also, a hole was found in the piston underneath the compression rings. Several pistons in this engine showed evidence of a lean operation. Total time in service - 400 hours.

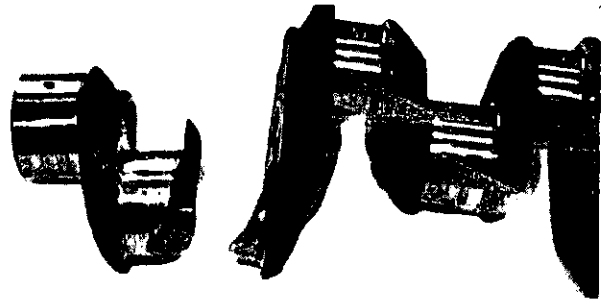
LYCOMING

Lycoming Model IO-360-C1C (Australian Registry)	Piston Cooling Nozzles, P/N 73772	Low oil pressure during flight was reported. Investigation disclosed that the piston cooling nozzle ball valves were being held open by globules of silastic compound which had been used on the crankcase mounting flanges. In addition, silastic globules were found throughout the engine oil system. Total time since overhaul - 102 hours. Refer to Lycoming Service Instruction No. 1125 for recommended sealants.

Lycoming
Model IO-360-C1C

Crankshaft,
P/N 74708

Investigation following a reported partial engine power loss revealed zero compression for No. 4 cylinder. Further inspection disclosed the crankshaft had failed at the No. 4 connecting rod journal through the rear crank cheek radius. The engine had been in service approximately 959 hours since factory remanufacture.



Lycoming Model IGSO-480-A and IGSO-540-A Series	Fuel Filter, P/N 74639	The cause for a fire in the nacelle, which occurred during engine start, was traced to severe fuel leakage at the fuel injector nozzle in-line filter assembly. Evidently, the unit had not been properly tightened when re-installed following the last screen inspection. Avco Lycoming Service Instruction No. 1079A, dated October 25, 1968, pertains to the subject, and provides caution notes intended to minimize the possibility of filter damage, leakage, and possible fire hazards.

Lycoming Model TSIO-541-E1C4	Wastegate Valve Assembly, AiResearch P/N 476927-5	The cause for fluctuating manifold pressure has, on several occasions, been traced to the wastegate butterfly valve loosening on its shaft. Sticking, cracking and breaking away of the valve assemblies have also been experienced.

PRATT & WHITNEY

PRATT & WHITNEY MODEL PT6A--OIL BREATHER PROBLEMS

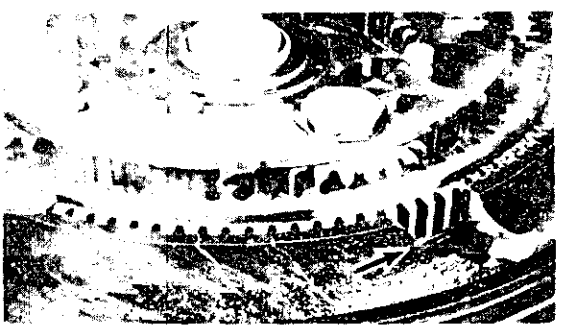
Industry comments indicate a number of oil breather problems were caused by a damaged starter-generator carbon seal assembly. Many of these carbon seal problems occurred immediately after a starter-generator had been installed. This unit is heavy and hard to handle, and if care is not exercised in mating the splines, the carbon seal will be damaged. While the carbon seal is relatively easy to replace, proper installation technique of the starter-generator is necessary to avoid seal damage.

One way to reduce the possibility of damage to the seal is to have an assistant slowly turn the NI rotor while meshing the starter-generator splines with the gearbox.

Pratt & Whitney
Model PT6A-41

Propeller Reduction
Gearbox Housing,
P/N 3028266

The engine was removed at 957 hours time in service because of metal particles found in the oil screen. Engine disassembly revealed the source of metal to be failure of the rear case of the propeller reduction gearbox housing. A piece of the case containing 4 helical splines was broken out of the casting and cracks were evident radiating from other splines.



PROPELLERS

HARTZELL

Hartzell
Model BHC-C2YF-2CH

Spring Retainer,
P/N B1592

Ten hours of operation after overhaul, the propeller was removed due to loss of bearing preload. Inspection disclosed that the spring retainer was severely worn. Metal particles from the retainer damaged the "O" ring seal.

McCAULEY

McCAULEY--MODEL 2AF34C55 PROPELLERS INSTALLED ON BEECH MODEL 55 AIRCRAFT

Propellers replaced in compliance with Airworthiness Directive 77-27-04 have hubs filled with an oil mixed with red dye to readily identify sealing flaws and/or impending failures of hub, blade butt, and blade retention area.

It is noteworthy to mention that an overhaul facility cautions against direct contact with the dyed oil, as it is extremely difficult to remove the stain from skin and clothing.

Personnel involved in BE-55 maintenance and observing leakage of dyed oil should use protective material to avoid direct skin contact or permanently stained clothing.

MAINTENANCE NOTES

"MURPHY" DID IT AGAIN

Both engine fire bottles in a Jet Commander were discharged when electrical power was applied to the aircraft prior to transferring it from the hangar to the flight line.

The previous day, maintenance personnel had accomplished the engine fire extinguisher system inspection. Item No. 1 of the inspection is to deactivate the system circuit breakers in the cockpit overhead switch panel and attach safety streamers. Item No. 2 contains the following CAUTION: "Use care when working around the fire extinguisher containers. Do not deactivate reset circuit breaker switches located on the extinguishing agent container mounting bracket. If one of the breakers is deactivated, the adjacent bottle will be discharged."

This CAUTION was apparently ignored, because the reset breakers were deactivated and were not reset when the inspection was completed. The cockpit circuit breakers were reset and the streamers removed, and as the CAUTION states, when power was applied to the aircraft, the bottles were discharged.

Luckily, no one was injured in this incident; however, had someone been working in the "hellhole," the noise would have been deafening, to say the least. A moment of carelessness could very easily cost someone a ruptured ear drum.

RECIPE FOR TROUBLE

Take one part oxygen, add a pinch of grease, and with no further preparation whatsoever, you have made yourself an explosion. During a recent demonstration, a grease fitting, absentmindedly drawn from stock, was installed in the hose assembly of an oxygen servicing cart. When the valve was opened and oxygen (at 2,000 psi) contacted the greasy fitting, our unplanned demonstration became a roaring success instantly. The mechanics in an adjacent room miraculously escaped injury from the barrage of flying parts, one of which was a brass component that went through the ceiling. Investigation of the incident determined that we failed to take the necessary steps to preclude the incident. A packaged repair kit turned out to be the best solution.

SAFE WORK PROCEDURES

The following incident emphasizes the importance of developing and adhering to safe work conditions and habits:

A mechanic who held an Inspection Authorization Certificate was fatally injured, when the landing gear collapsed, while maintenance was being performed on a Piper Aztec main landing gear retraction actuator system. The mechanic removed the left landing gear actuator without placing the aircraft on jacks or using wing supports.

The chain of events that led up to the collapsing of the gear is not known; however, we do know that if jacks or wing supports had been placed under the aircraft, this accident could have been prevented. It is suggested that maintenance personnel review their maintenance and safety procedures to determine if everything possible is being done to avoid accidents of this type.

The following article is reprinted from the AVCO Lycoming "Flyer," dated August 1977:

SOME LUBRICATING OIL RECOMMENDATIONS

As a result of a recent revision of Avco Lycoming Service Instruction No. 1014F, the key parts of that service publication with our lubricating oil recommendations are included in this issue of the Avco Lycoming Flyer in order to update our customers and operators.

Avco Lycoming Specification No. 301E approved lubricating oils for use which conform to both MIL-L-6082B straight mineral type, and MIL-L-22851 ashless dispersant type lubricants for aircraft engines. Any brand name FAA-approved aviation lubricating oil which is in accordance with these specifications is acceptable for use. Proof of such conformity is the responsibility of the lubricating oil manufacturer.

AVERAGE TEMPERATURES - A great deal of personal judgment must be used when selecting the seasonal grade of oil to put into the engines. For example, if a plane is to be flown into an area which is much warmer or much colder, only personal judgment on the part of the operator can determine what grade of oil to use. When oil inlet temperatures approach the maximum allowable during operation, it is a good indication that a higher viscosity oil should be considered.

SINGLE VISCOSITY GRADES - This classification of lubricating oils includes any aviation grade (straight mineral dispersant) that is designated by a single viscosity number. The SAE Grades 20, 30, 40 and 50 shown in the chart are equivalent to Grades 55, 65, 80 and 100 respectively.

ASHLESS DISPERSANT GRADES - This classification includes additive oils with viscosities the same as straight mineral oil at high temperatures, but which provide a lower viscosity at low temperatures. The additives in these oils extend operating temperature range, improving cold engine starting and lubrication of the engine during the critical warm-up period, thus permitting flight through wider ranges of climate change without the necessity of changing oil. The ashless dispersant grades are recommended for aircraft engines subjected to wide variations in ambient air temperatures, particularly the supercharged and turbocharged series, when cold starting of the engine must be accomplished at temperatures of 30 degrees Fahrenheit and below. The SAE Grades 30, 40 and 50 shown on the Chart in Service Instruction No. 1014F are equivalent to grades of 65, 80 and 100 respectively. It must not be presumed, however, that these oils will alleviate all of the problems encountered in extremely cold environments (below +10 degrees Fahrenheit). At these temperatures, preheating of the engine and oil supply tank will be required regardless of the type of oil used.

OIL RECOMMENDATIONS FOR NEW ENGINE BREAK-IN

ALL MODELS EXCEPT TO-360, TIO and TIGO-541 SERIES - New, or newly overhauled engines should be operated on straight mineral oil during the first 50 hours of operation, or until oil consumption has stabilized. If ashless dispersant oil is used in a new engine, or a newly overhauled engine, high oil consumption might possibly be experienced. The anti-friction additive of some of these AD oils will retard the break-in of the piston rings and cylinder walls. This condition can be avoided by the use of straight mineral oil until normal oil consumption is obtained, then changed to the AD type.

Generally, aircraft manufacturers add approved preservative lubricating oil to protect new engines from rust and corrosion at the time the aircraft leaves their factory. We strongly recommend this preservative oil be removed at the end of the first 25 hours of operation, but it must never be used beyond 50 hours. When adding oil during the period preservative oil is in the engine, use only aviation grade straight mineral oil of the viscosity desired.

CAUTION

All engines except TO-360, TIO and TIGO-541 series must be operated on straight mineral oil, following the replacement of the cylinders, until the oil consumption has stabilized.

RECOMMENDATIONS FOR CHANGING OIL

In engines that have been operating on straight mineral oil for several hundred hours, a change to AD oil should be made with a degree of caution. The cleaning action of some additive oils will tend to loosen sludge deposits and cause plugged oil passages. When an engine has been operating on straight mineral oil and is known to be in an excessively dirty condition, the switch to AD oil should be deferred until after the engine is overhauled.

When changing oil from straight mineral oil to AD oil, other than after initial break-in period, the following precautionary steps should be taken:

Cont'd

a. Do not add additive oil to straight mineral oil. Drain the straight mineral oil from the engine and fill with additive oil.

b. Do not operate the engine longer than five hours before the first oil change.

c. Check all oil screens for evidence of sludge or plugging. Change oil every ten hours if sludge conditions are evident. Resume normal oil drain periods after sludge conditions improve.

CAUTION

Under no circumstances should automotive oil be used. The use of automotive lubricants in Avco Lycoming engines is not recommended because its use could cause engine failure. Do not use any additives in the oil. Any FAA-approved aviation oil has all the necessary ingredients to properly lubricate our engines. It is our recommendation that additives should not be used in the oil.

AVCO Lycoming

This updates the item on page 124 of Supplement No. 9, dated May 1978.

SOMETHING TO THINK ABOUT

SERVICE DIFFICULTY INFORMATION

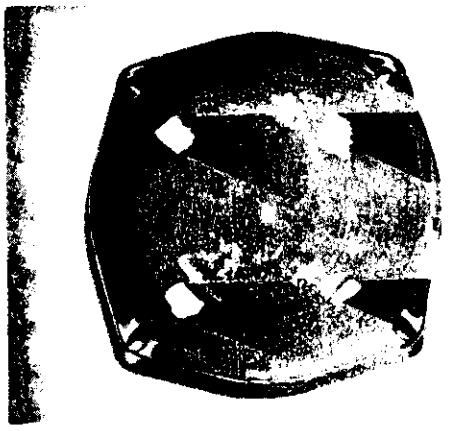
The Federal Aviation Administration (FAA) Service Difficulty Program is primarily an information exchange service designed to promote safety of flight. Reports are received on all types of malfunctions and service problems related to aeronautical products. The information is processed and is available (computer listing) to the general public. This concept of data interchange provides all persons an opportunity to become aware of and correct potential hazards.

If you are interested in the service difficulty history of a particular type aircraft or component, write to the FAA, Aeronautical Center, Safety Data Branch (AFS-580), P. O. Box 25082, Oklahoma City, Oklahoma (73125). For a nominal fee, you can obtain a computer listing of service difficulties for the most recent five years. Your request should be specific, such as, aircraft or engine manufacturer, model, and component.

WOULD YOU BELIEVE IT?

FOUR HOLES IN ONE!

One speaker that is. The owner of a Cessna Model 182 aircraft complained about poor quality sound from the radio speaker. Inspection disclosed that four holes had been cut or punched in the speaker cone to provide access to the brass nuts securing the speaker. Normally, the speaker would have been installed using "U" type speed nuts.



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WOULD YOU BELIEVE IT?

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