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Federal Aviation Administration

Aviation Maintenance Alerts

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Improve Reliability-Interchange Service Experience

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

AVIATION MAINTENANCE ALERTS

The Aviation Maintenance Alerts provide a common communication channel through which the aviation community can economically interchange service experience and thereby cooperate in the improvement of aeronautical product durability, reliability, and safety. This publication is prepared from information submitted by those who operate and maintain civil aeronautical products. The contents include items that have been reported as significant, but which have not been evaluated fully by the time the material went to press. As additional facts such as cause and corrective action are identified, the data will be published in subsequent issues of the Alerts. This procedure gives Alerts' readers prompt notice of conditions reported via Malfunction or Defect Reports. Your comments and suggestions for improvement are always welcome. Send to: FAA; ATTN: Designee Standardization Branch (AFS-640); P.O. Box 25082; Oklahoma City, OK 73125-5029.

PAPER COPIES OF ALERTS

ALERTS IN PAPER COPY SUBSCRIPTION

Many of our readers voiced their concern when, due to a budget reduction, it was necessary to stop printing and distributing paper copies free of charge.

The Government Printing Office (GPO) agreed to print and distribute the Alerts. However, there will be a 1-year subscription charge for this service. The charge will be $25 per year for domestic mailings and $31.25 per year for foreign mailings.

The mailing list for the Alerts is current, and when this agreement is finalized, all past recipients will be notified by mail. At the present time, there are over 30,000 people on the mailing list, and we hope you will consider subscribing to the Alerts.

As always, we hope you will continue to support this program by sending in your reports concerning defective aviation products. Your participation in this program allows us to pass along your information and experiences to the entire aviation community. We thank each and every one of you for your support.

NOTE: The Alerts are still available free via the Internet. The Internet address is:

http://www.mmac.jccbi.gov/alerts/index.html

AIRPLANES

AMERICAN CHAMPION

American Champion; Models All: Bellanca Models 7GCB, 7GCBC, and 8GCBC; Chafing Fuel Lines; ATA 2820

The Federal Aviation Administration (FAA) Aircraft Certification Office, ACE-118C, located Des Plaines, Illinois, furnished the following article.

While investigating the cause of an aircraft incident, inspectors discovered the fuel lines were severely chafed.

The damaged area of the fuel lines (P/N 7-1476-1) was located at the wing root. When the flaps were extended, or retracted, the wing flap pulley segments rode hard against the fuel lines. American Champion issued Service Letter (SL) 419, dated

February 5, 1999, which provides instructions for inspecting, through the full range of flap travel, the clearance between the fuel lines and the flap pulley segments.

Operators should comply with SL 419 as soon as possible.

Part total time-75 hours.

BEECH

Beech; Model D-18S; Fuel Leak; ATA 2820

While conducting weight-and-balance procedures, the technician placed the aircraft in a "level flight" attitude and noticed fuel leaking from the left side of the fuselage in the wing-root area.

When the technician lowered the empennage, the leak stopped. An investigation revealed the aluminum fuel line, from the left fuel tank going to the fuselage, was routed under the battery box. Battery acid and fumes caused corrosion which penetrated the wall thickness of the fuel line and caused a pinhole leak. Fuel only leaked during a "level flight" attitude.

This area is difficult to access; however, it is important that technicians expend the extra effort required to inspect this area for fuel leaks and structural corrosion.

Part total time-4,800 hours.

Beech; Model E-33; Bonanza; Engine Oil Loss; ATA 7930

During takeoff, ground observers spotted a smoke trail coming from the engine compartment and notified the pilot via radio. The pilot made a safe landing at the departure airport.

After the technician inspected the aircraft, he discovered approximately 6 quarts of oil were expelled. The pilot stated the engine's oil pressure remained "in the green" during this incident. Further investigation disclosed the engine's oil pressure indicating supply line was broken at the engine end. The line was made of 1/8-inch copper tubing and was flared at each end. The flare at the engine fitting was broken around the entire circumference. The line did not completely separate from the "B" nut which explains the supply of oil to the pressure indicator. However, oil sprayed from the fitting onto the engine muffler, causing smoke and the potential for a catastrophic fire.

The submitter speculated the line failed due to age, vibration, metal fatigue, and possibly the use of an "improper technique" when the line was manufactured.

Part total time-4,450 hours.

Beech; Model A-36; Bonanza; Landing Gear Malfunction; ATA 3230

Immediately after takeoff, the pilot selected the "up" position on the landing gear, the transit light illuminated, and the landing gear circuit breaker opened. The pilot manually extended the landing gear and made a safe landing.

An investigation revealed the electrical contact points, in the landing gear's "dynamic brake relay," were fused together; therefore, continuous electrical power was supplied to the landing gear motor.

Since the aircraft is used for training, the landing gear is subjected to frequent retractions and extensions. Other aircraft in the fleet experienced landing gear relay failure, but the contact points were not fused together.

The submitter recommended testing or replacing the relay at 2,000-hour intervals.

Part total time-3,131 hours and approximately 15,000 landing gear cycles.

Beech; Model 65; Queen Air; Engine Oil Leak; ATA 7260

This aircraft has Textron Lycoming, Model IO-720A1A engines installed in accordance with Supplemental Type Certificate (STC) SA444SW.

While inspecting the right engine, the technician discovered an oil leak in the accessory case area. The leak originated at the hydraulic pump adapter (Lycoming P/N LW-12540), and the technician removed the adapter and discovered a crack. The submitter stated the weight of the vacuum pump, which mounts to the hydraulic pump adapter, caused excessive stress on the adapter.

The submitter suggested the manufacturer design a replacement adapter which is structurally sufficient to bear the load. The FAA Service Difficulty Program data base contains four additional reports of hydraulic pump adapter failures.

Part total time not reported.

Beech; Model B99; Airliner; Landing Gear Door Wear; ATA 3231

While inspecting the landing gear, the technician discovered the left main landing gear inboard door was excessively worn.

The gear door hinge lobes were worn and allowed fore-and-aft movement of the door. This resulted in excessive travel of the door when the landing gear was in the "down" position, and some of the door linkage was worn beyond acceptable limits.

The submitter stated the damage was caused by age, vibration, and normal operation over an extended period of time.

Part total time not reported.

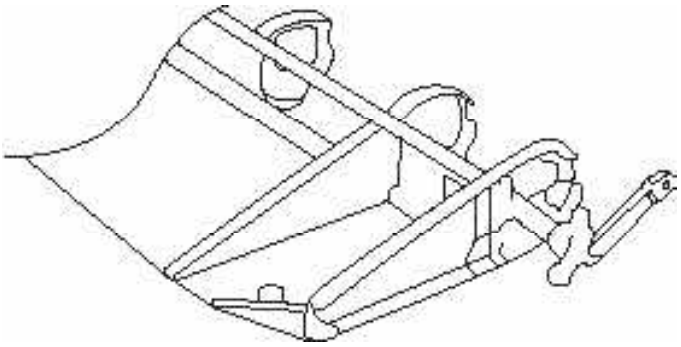
Beech; Model B99; Airliner; Defective Elevator Control System; ATA 2730

During a scheduled inspection, the technician discovered the elevator torque tube support was cracked.

The torque tube assembly (P/N 115-610010-325) support cracked where it is attached to the elevator. (Refer to the following illustration.)

Structural failure at this location can result in a loss of aircraft control.

Part total time not reported.



Beech; Model BE-99A; Airliner; Rudder Hinge Damage; ATA 5554

While conducting a scheduled inspection, the technician discovered the rudder hinge brackets were loose.

Further investigation disclosed a crack in the left aft corner of the top end rib (P/N 115-640000-1) of the vertical stabilizer. The crack was approximately ½-inch long. Some of the vertical stabilizer spar attachment fasteners, in the area of the top rudder hinge attachment fitting, were loose.

Since this was an older, high-time aircraft, the submitter stated metal fatigue caused the defect.

Part total time-33,008 hours.

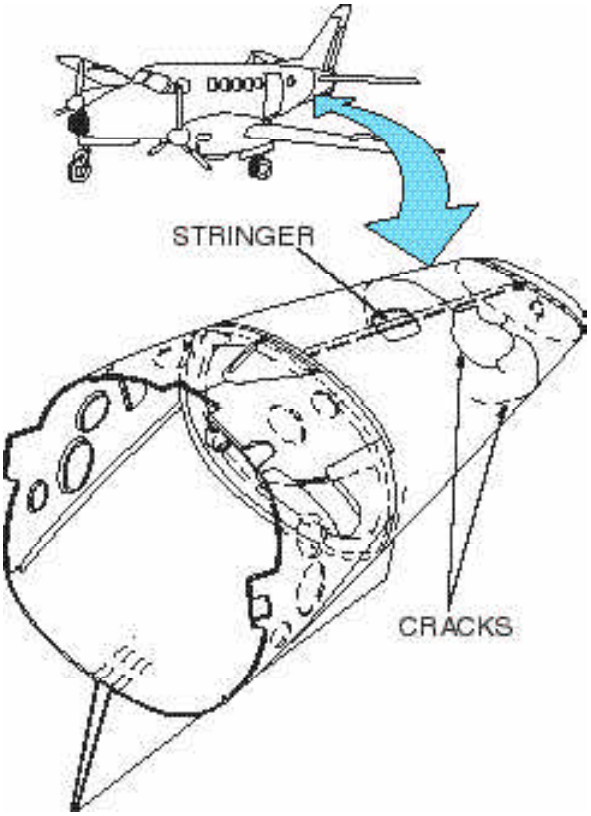
Beech; Model B100; King Air; Tail Cone Structural Damage; ATA 5500

The pilot reported the aircraft vibrated and fluttered during flight.

An investigation revealed the tail cone (P/N 50-410052-9) was cracked around approximately 60 percent of its circumference. The crack was located about 18 inches from the aft end of the tail cone. There were several smaller cracks originating at the

stringer fasteners. The stringer (P/N 115-440029-85) was broken, at two locations, where the skin crack intersected. (Refer to the following illustration.) There was evidence of chafing wear on the broken ends of the stringer which appeared to be the starting point of the cracks.

Part total time not reported.



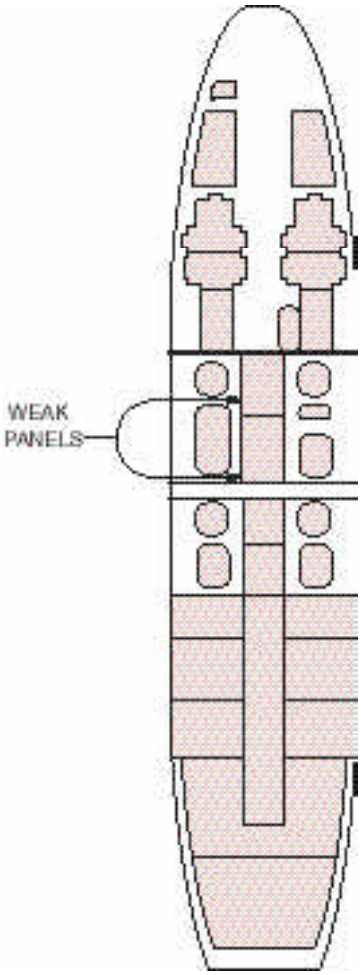
Beech; Model B200; King Air; Weak Floor Panel Structure; ATA 5321

Two of the fuselage's center floor panels, which are attached by a "Camlock" fastener, flexed downward under normal passenger weight.

The panels were very "spongy," and the forward panel flexed downward enough to contact the plastic cover on the electrical system's current-limiter panel. (Refer to the following illustration.) The technician contacted the manufacturer and recommended the installation of cross braces to prevent floor panel flexing.

The submitter stated older B200 models used a single floor panel instead of two floor panels. The single floor panel design was more structurally substantial and did not flex. Even though the single floor panel design is more difficult to remove, it does not flex and allow interference with electrical components.

Part total time-491 hours.



CANADAIR

Canadair; Model CL-604; APU Battery Charger Malfunction; ATA 4940

During flight, the crew noticed the "APU BATT CHGR FAIL" status light illuminated. The system indicated the auxiliary power unit (APU) was not charging the battery. The APU status message came on and off five times during the remainder of the flight. After the fifth APU status message indication, the circuit breaker marked "APU BATT CHARGER" opened and was not reset.

The technician reset the circuit breaker, and it immediately opened. An investigation revealed the APU battery charger's wiring harness was melted and "fused" together. When the technician touched a connector (P11PA), it separated from the wiring harness. The wire insulation was melted and severely burned, and the surrounding 10-inch area was blackened from the heat and soot. The technician also found several melted electrical connector (J11PA) pins.

The manufacturer and the operator are investigating the cause of this hazardous condition. We will pass along any substantial findings when they are reported.

Part total time-859 hours.

CESSNA

Cessna; Model 152; Nonstandard Carburetor Hardware; ATA 7322

While disassembling the Marvel Schebler carburetor for repair, the technician discovered nonstandard hardware was installed.

All of the cotter pins were standard steel hardware. The manufacturer's technical data requires the use of stainless steel cotter pins inside the carburetor (Model MA-3PA). The standard steel cotter pins can corrode inside the carburetor which could lead to an engine failure.

A "magnet" check of the stock room cotter pin bin might prevent a reoccurrence of this situation.

Part total time since overhaul-641 hours.

Cessna; Model 170B; Fuel Leak; ATA 2823

During an annual inspection, the technician found a leaking fuel selector valve.

In accordance with a Supplemental Type Certificate, "auto fuel" was being used in this aircraft. The technician stated the fuel selector valve (P/N 0513120-5) gasket was the source of the leak. The red dye in the "auto fuel" led the technician to the source of the leak.

Part total time not reported.

Cessna; Model 172N; Skyhawk; Carburetor Security Failure; ATA 7322

When the aircraft touched down on the runway, the engine failed and would not restart.

An investigation revealed all four of the nuts, flat washers, and lockwashers, used to secure the carburetor to the intake manifold studs, were missing. The submitter stated, "The current combination of nuts and washers is not sufficient to withstand engine vibrations."

The submitter stated the manufacturer should issue data requiring a periodic torque check and/or provide a new locking device for these fasteners.

Part time since overhaul-291 hours.

Cessna; Model 172R; Skyhawk; Seat Lock Failure; ATA 2500

During a scheduled inspection, the technician discovered the pilot's seat would not function properly.

The seat lock control assembly (P/N MC194-24) cable was broken. The submitter operates a fleet of 15 like aircraft, and stated this was the third broken seat lock cable he has found.

The seat lock assembly, including the cable, should be checked during scheduled inspections.

Part total time-583 hours.

Cessna; Model 208B; Caravan; Restricted Aileron Movement; ATA 2710

During a scheduled inspection, the technician discovered an unusually high resistance in the aileron control system.

The technician isolated the source of resistance to the left aileron, and replaced both of the aileron pivot bearings (P/N MS24462-4). The outboard bearing was severely corroded and was almost to the point of seizing. This was a sealed bearing, and the technician did not find an outward sign to indicate the internal condition of the bearing.

It would be prudent to check for unusual resistance in the aileron control system during scheduled inspections.

Part total time-996 hours.

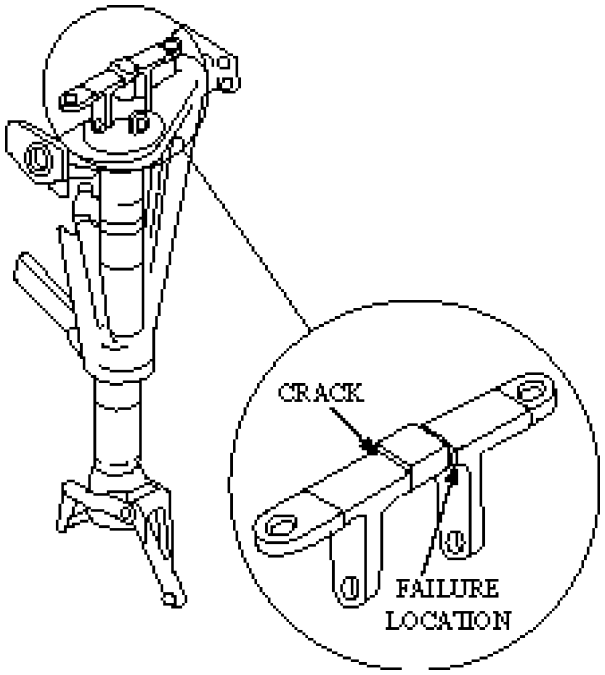
Cessna; Model T303; Crusader; Nosewheel Steering Failure; ATA 3250

While taxiing for takeoff, the pilot discovered the nosewheel steering would not turn the aircraft to the left. The aircraft was returned to the parking ramp.

A technician inspected the steering system and discovered the bellcrank (P/N 2543012-1) located at the top of the strut housing was broken. The bellcrank was damaged on both sides of center, the right side was cracked, and the left side was broken. (Refer to the following illustration.)

On page 7, of the December 1998 edition of this publication, an article recounted a very similar occurrence on a Cessna, Model 402B aircraft. A bit of research indicates that although the Model 303 lists a different bellcrank part number than the Model 402B, the parts appear to be the same. The FAA Service Difficulty Program data base contains 12 additional failure reports listing part number 5042010-1 and one additional failure report listing part number 2543012-1. The 5042010-1 part numbers are used on Cessna Models 310R, T310R, T310Q, 402A, 402B, 404, and possibly others. It would be an excellent idea to check these bellcranks closely at every opportunity.

Part total time-2,281 hours.



Cessna; Model 340; Wing Flap System Damage; ATA 2750

While installing new electronic equipment, an avionics technician found the wing flap torque tubes were damaged.

The new equipment installation required removal and relocation of the Robertson conversion wing flap transmission unit which had been installed in accordance with Supplemental Type Certificate (STC) SA474NW. When the flap torque tubes were removed, severe chafing damage was noticed on both the right and left torque tubes. The torque tubes are constructed of 3/8-inch outside diameter aluminum tubing. The left

torque tube fuselage "Garlock" seal failed and allowed the tube to contact the seal assembly housing. The chafing action caused the left torque tube to be cut through approximately one-half of its diameter. The right torque tube displayed similar, although much less severe, damage over a ½-inch area.

This defect may be present on other aircraft that incorporate STC SA474NW and the fuselage "Garlock" seal. The wing flap torque tubes should be disassembled and checked closely during scheduled inspections.

Part total time not reported.

Cessna; Model 401; Wing Flap Control System Damage; ATA 2750

While conducting a 100-hour inspection, the technician discovered the wing flap control system pulley was severely damaged.

The flap actuator's return cable pulley (P/N AN210-4A), located under the battery box, was frozen and broken. The battery acid leaked from the broken battery box's drain line, and disintegrated the flap cable pulley's outer-bearing race. The submitter stated the cable traveled over the inner-bearing race; however, the submitter did not report damage to the cable.

The submitter stated this area deserves special attention during scheduled inspections and maintenance.

Part total time not reported.

Cessna; Model 550; Citation; Rudder Structural Damage; ATA 5540

After removing the lower left rudder inspection panel, the technician discovered structural rib damage.

The technician stated the interspar rib (P/N 553311-60) was cracked across its entire width, and it was apparent metal fatigue caused the crack. The cracked rib allowed a transfer of stress concentration which caused another crack in the rudder skin. The age and number of operating hours may have contributed to this defect. Structural metal fatigue and corrosion can create a serious degradation of structural integrity and are more prevalent on older aircraft.

During inspections, this category of aircraft deserves your rigorous attention before the structure is compromised to the point of failure.

Part total time-5,921 hours.

Cessna; Model 560; Citation; Missing Landing Gear Hardware; ATA 3260

During a scheduled inspection, the technician discovered hardware was missing from both of the main landing gears.

The "squat switch" jamnut (P/N 6641000-36) was missing from the left and right main gears. The jamnut secures the rod-end to the torque link. If the jamnut is not in place, the switch can turn and move out of position.

More attention to detail may preclude a reoccurrence of this defect.

Part total time-614 hours.

DORNIER

Dornier; Model DO328-100; Propeller Blade Setscrew Failures; ATA 6111

One submitter initiated 13 reports concerning the same subject. In all of the cases, the propeller blade setscrew was either loose, worn, or broken. This aircraft, as well as others, uses a Hartzell, Model HD-E6C-3B propeller.

The defect is usually manifested by a loose propeller blade. When the propeller is disassembled, damage to the setscrews (P/N A-3204-1) is evident. Even though the locknut remains attached, the setscrew may back out approximately .5 inch. The submitter stated some of the setscrews were broken, and the locknut was still attached. The submitter stated there was minimal damage on the

preload plates (P/N C-6066-1); however, the damage was within acceptable limits.

All of the defective parts were removed and sent to the manufacturer for evaluation. Since other aircraft may use this propeller, it is wise to inspect for this defect at every opportunity.

The part total times varied from a low of 155 hours to a high of 2,408 hours.

FOKKER

Fokker; Model F27 Mark 400; Friendship; Engine Oil Leak; ATA 7311

Shortly after takeoff, the flightcrew noticed the number 1 engine's oil pressure was dropping. While returning to the departure airport, the number 1 engine's "low oil pressure" light illuminated. The pilot shut down the engine, and made an uneventful single-engine landing. The total flight time was approximately 30 minutes.

The technician found a large amount of oil, in and on, the left engine cowling, and oil was running from the engine cowling drains. The technician removed the cowling and washed the engine. After the technician serviced the oil system with 8 quarts of engine oil, he "motored" the engine to locate the source of the leak. The technician noticed oil was coming from the oil cooler's (P/N RK198A) air exit duct drain holes. The technician discovered the oil cooler tube was ruptured, and he replaced the oil cooler.

The technician suspected the oil cooler's pressure relief valve failed and exposed the oil cooler to excessive pressure. The scavenge pump supplies pressurized oil to the oil cooler, and the oil drains (via gravity) into the engine oil tank. Only in cases of high oil viscosity (low temperatures) or clogged spaces between the oil tubes, should the pressure relief valve open to relieve excessive internal pressure.

Part total time since overhaul-1,370 hours.

LAKE

Lake; Model LA250; Nose Landing Gear Actuator Rod Crack; ATA 3230

During an inspection, the technician discovered the nose landing gear actuator rod was cracked.

The crack was located at the bottom of the thread groove below the jamnut fitting (P/N 2-4420-001). The submitter found similar cracks on actuators of other aircraft. In some of those cases, the actuator separated at the bottom of the thread groove. Also, cracks have been found below the threaded area on some actuators.

This area should be examined visually by using a 10-power magnifying glass. To properly inspect the thread groove, it is necessary to remove the actuator from the aircraft, and remove the fitting and jamnut from the actuator.

Part total time-892 hours.

LEAR

Lear; Model 35; Nosewheel Steering Failure; ATA 3251

The Federal Aviation Administration (FAA) Aircraft Certification Office, ACE-118W, located in Wichita, Kansas, furnished the following report.

Following a landing rollout, the pilot stated the nosewheel steering was inoperable. An investigation revealed the nose landing gear strut was "flat" prior to beginning the last flight. When the strut is not serviced to full pressurization, the nose gear steering will not engage in the air or on the ground.

During preflight inspections, operators should ensure the aircraft exhibits proper nose gear strut inflation.

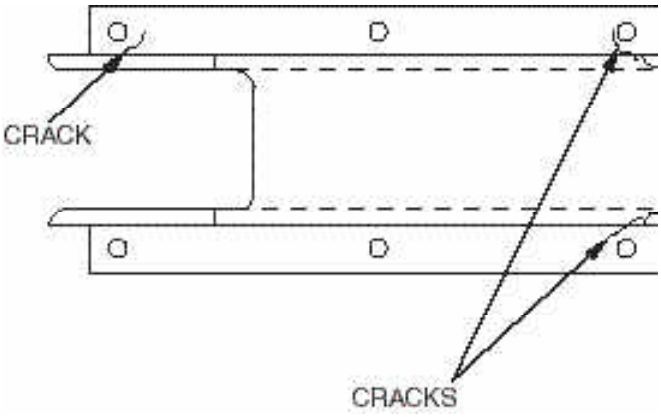
Part total time not reported.

PIPER

Piper; Model PA28-140 (PA28A); Cherokee 140; Cracked Flap Handle Bracket; ATA 2700

While performing routine maintenance in compliance with Airworthiness Directive (AD) 96-11-03 pertaining to the flap handle attach bolts the technician discovered that three of the four corners of the flap lever bracket (P/N 62738-00) were cracked. The cracks emanated at the radius stress-relief cuts on the mounting flanges. (Refer to the following illustration.)

Part total time-3,452 hours.



Piper; Model PA28-181 (PA28A); Archer II; Oil Cooler Leak; ATA 7921

During a preflight inspection, the pilot noticed oil leaking from the engine.

The technician discovered the oil cooler was cracked at the lower hose-attach fitting. Piper issued Service Bulletin (SB) 1019 which addresses this type of defect.

Part total time-215 hours.

Piper; Model PA28R-200 (P28R); Arrow 200; Vacuum Pump Failure; ATA 3700

After the shuttle valve failed (S/N 1895), the technician discovered the internal valve portion caused the failure.

The technician disassembled the valve and discovered the probable cause of the failure was attributed to a rivet head that migrated downstream to the engine-driven vacuum pump. The vacuum pump subsequently failed after ingesting a foreign object.

The submitter stated the system should be visually inspected on an annual basis, and the system should be limited to approximately 1,000 hours of operation.

Part total time not reported.

Piper; Model PA28R201 (P28R); Arrow III; Broken Fuel Pump Actuator Arm; ATA 7314

While in flight, the engine failed; however the pilot made a safe, uneventful landing.

The technician discovered the forward engine-driven fuel pump's actuating arm was broken at the pivot point. The technician retrieved a piece of the broken arm from the sump and examined the sump for additional contamination. The technician replaced the failed part and returned the aircraft to service.

Part total time-11 hours.

Piper; Model PA31T (PAY1); Cheyenne I; Cracked Elevator Butt Rib; ATA 5521

While performing the tasks required by Piper Service Bulletin (SB) 897, the technician discovered the left and right elevator (P/N 55016-02 and -03) butt ribs (P/N 54755-002) were cracked.

The aircraft records revealed cracked butt ribs were discovered and replaced at 3,311 aircraft hours and at 4,005 aircraft hours.

The submitter stated every PA31 he had inspected displayed cracked butt ribs in addition to cracks in the elevator spar or false spare. This area deserves your close attention during inspections.

Part total time-694 hours.

Piper; Model PA31-350 (PA31); Chieftain; Fuel Shut-Off Leak; ATA 2140

While conducting routine maintenance on the rear heater, the technician removed the fuel shut-off solenoid (P/N 44008) cover and noticed fuel leaking from a grommet on the solenoid's body.

Due to the proximity of the electrical wiring, a fuel leak in this area can result in a fire. This area deserves your close attention during inspections.

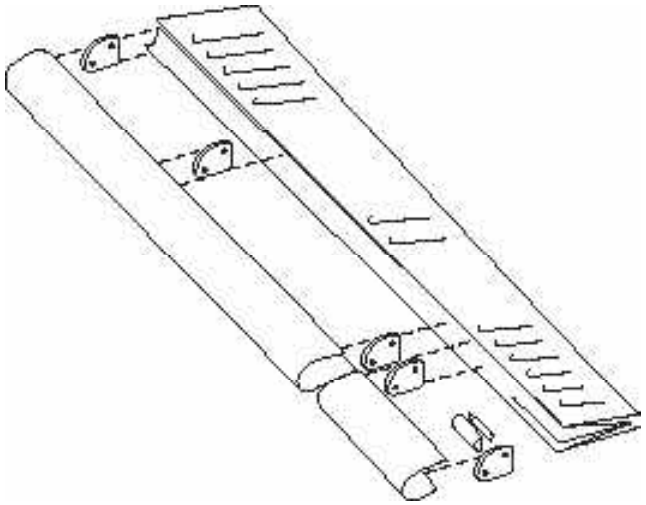
Part total time unknown.

Piper; Model PA32-301 (PA32); Saratoga; Erroneous Aileron Hinge Reference; ATA 5751

Piper Service Bulletin (SB) No. 1011 requires an inspection of the "inboard" hinge area. While complying with SB No. 1011, the submitter noted the area requiring inspection is actually the "outboard" hinge area. (Refer to the following SB No. 1011 illustration.)

The submitter stated the drawing is correct; however, the first page of SB No. 1011 erroneously refers to the "inboard" hinge when it should address the outboard hinge.

Part total time not reported.



Piper; Model PA34-200T (PA34); Seneca II; Misaligned Downlock Bushing; ATA 3230

While performing an annual inspection, the technician noted the nose gear downlock bracket's pivot bushing was not properly aligned.

The submitter stated misalignment can cause premature wear, and the gear may collapse. This area deserves your attention during inspections.

Part total time-189 hours.

Piper; Model PA46-350P (PA46); Malibu Mirage; Broke Alternator Mount; ATA 2400

While inspecting the aircraft before flight, the pilot noticed the left alternator (P/N AW 8421RS) belt displayed very little tension, and the mount ear was broken.

The technician performed a more extensive inspection, and discovered the link between the alternator and the freon compressor was excessively worn. The submitter stated this area is prone to wear even when the hardware is securely tightened.

A Lycoming Service Bulletin (SB) 511 was issued to fix a similar problem on the alternator's right side. The submitter stated, "Until the hardware is redesigned to alleviate this problem, the torque of the hardware should be checked at each oil change."

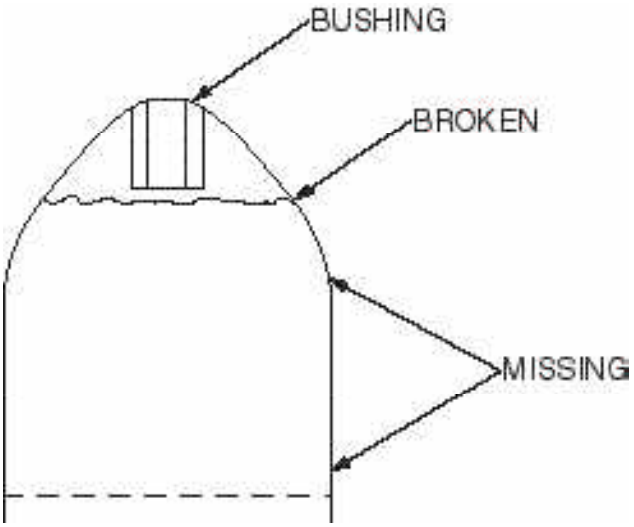
Part total time-258 hours.

Piper; Model PA46-350P (PA46); Malibu Mirage; Separated Clip; ATA 8100

While performing an annual inspection, the technician noted the left intercooler clip (P/N 89082-003) was separated from its attach point. When the clip separated, the majority of the clip was missing, and only the screw and welded bushing remained. (Refer to the following illustration.)

The submitter suggested the manufacturer should consider bonding the clip to the side of the intercooler with a high-temperature adhesive which would prevent the device from separating.

Part total time unknown.



HELICOPTERS

BELL

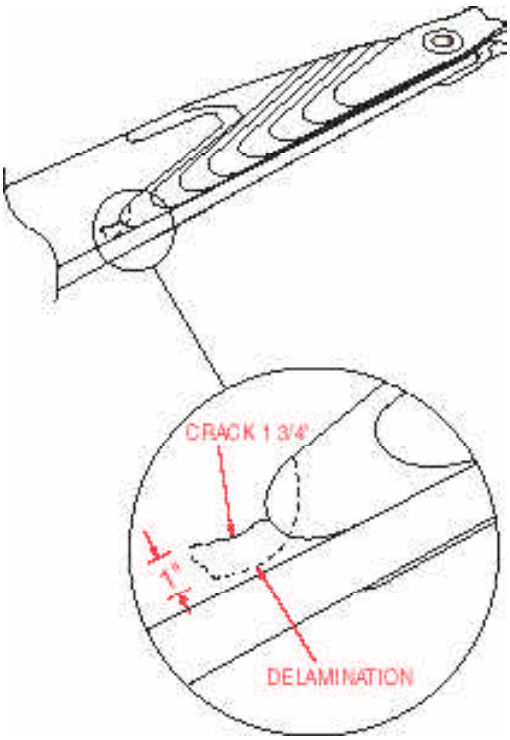
Bell; Model 206L-1; Long Ranger; Main Rotor Blade Damage; ATA 6210

During a daily inspection, a technician discovered a crack in the lower skin of a main rotor blade (P/N 206-015-001-107).

The crack was approximately 1.75 inches long, and it appeared to originate at the end of a "finger doubler" on the lower blade surface. Also, an area of approximately 1 inch by .5 inch was discovered under the doubler. (Refer to the following illustration.)

The technician replaced the blade, but he did not give a cause for this defect.

Part total time-2,522 hours.



Bell; Model 407; Tail Boom Crack; ATA 5500

After the last flight of the day, maintenance personnel discovered a crack in the tail boom structure.

The tail boom (P/N 407-030-801-101) was cracked at the forward edge of the horizontal stabilizer mount area. It appeared the crack originated under the horizontal stabilizer support bracket and ran approximately 2.5 inches. The damage found on this helicopter is almost identical to the damage found on Bell 206 "L" series helicopters. The Bell 206 "L" series helicopters are covered by Priority Letter Airworthiness Directive (AD) 99-02-01.

This condition may present a serious flight-safety hazard and deserves your prompt attention.

Helicopter total time-1,621 hours.

Bell; Model 407; Suspect Pitch Change Link Hardware Installation; ATA 6220

The Federal Aviation Administration (FAA) Rotorcraft Certification Office, ASW-170, located in Fort Worth, Texas, furnished the following report.

Bell Helicopter issued Alert Service Bulletin (ASB) 407-99-25, dated January 6, 1999, dealing with suspect hardware installation used for the main rotor pitch horn's (P/N 407-010-103-101) attachment to the pitch change links. The ASB applies to helicopter serial numbers 53000 through 53321 and 53323 through 53326.

The ASB provides the proper procedure for examining the floating bushing and the proper procedure for installing the floating bushing. Improper installation of the floating bushing can cause severe damage to the pitch horn.

All operators of affected helicopters are urged to comply with ASB 407-99-25.

AGRICULTURAL AIRCRAFT

AYRES THRUSH

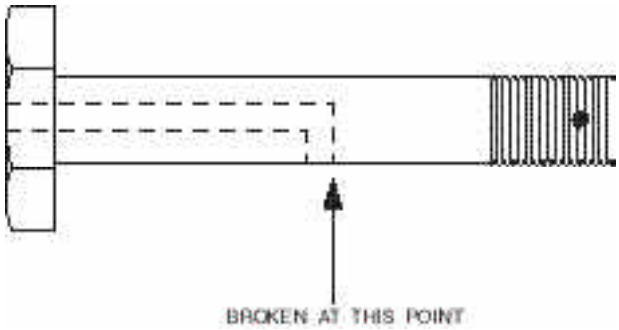
Ayres Thrush; Model S2R; Commander; Main Landing Gear Attachment Failures; ATA 3211

While conducting an annual inspection, the technician discovered four broken main landing gear attachment bolts.

Older aircraft were equipped with lubrication points for the attachment section of the main gear. However, newer models incorporate attachment bolts (Ayres P/N 21418T005, AN10-23A) which are center drilled through the head approximately 1.5 inches into the bolt shank and side drilled. The hole is filled with "Alimite" material which supplies lubrication to the bolt shank. (Refer to the following illustration.) All four of the bolts failed at the location of the side-drilled hole.

It is possible the damage was caused by a hard landing. The main landing gear attachment deserves your full attention during inspections and maintenance.

Part total time not reported.



AMATEUR, EXPERIMENTAL, AND SPORT AIRCRAFT

FLYBABY

Flybaby; Model 1; Structural Defect; ATA 5540

During a preflight inspection, the pilot discovered a broken bracket at the base of the rudder post.

The bracket serves as the attachment point for the tail brace wires, and the bracket slid approximately 2 inches forward on the tailwheel leaf spring. When the technician applied slight hand pressure, the tail brace wires loosened enough to allow 8 inches of up-and-down movement at the horizontal stabilizer's outboard end.

The submitter determined the bracket failed because the weld was of poor quality and suggested that all operators ensure these welds are sound and in accordance with the kit manufacturer's data.

Aircraft total time not reported.

LANCAIR

Lancair; Model 235; Nose Landing Gear Failure; ATA 3221

During a landing approach, the pilot selected the gear-down position, the landing gear's control switch handle broke off, and the landing gear's extension system failed to operate. The pilot activated the manual gear-extension system; however, the nose gear would not extend.

During the initial investigation, the submitter discovered the engine mount/nose gear support tube was broken at the left side of the nose gear. The nose gear's position shifted enough to bind in the wheel well and prevented it from moving to the "down" position. The cause of the broken support tube was not determined.

Part total time-178 hours.

THORP

Thorp; Model T-18; Defective Rudder Control; ATA 2720

During an after-landing roll, an inadvertent "ground loop" occurred. The pilot attempted rudder input to regain directional control of the aircraft.

The rudder control mixing unit in the empennage shifted, and the rudder jammed. Continued and increasing pressure on the rudder pedals caused the left rudder pedal to break at the crossover bar. The left wing struck the ground causing substantial damage; however, the pilot was not seriously injured.

The submitter suggested that all operators check the security and installation of the flight control mixing unit at the next opportunity.

Part total time not reported.

VARIEZE

Varieze; Defective Propeller Pitch Actuator; ATA 6114

During flight, the RPM increased, the airspeed decreased, and the rate of descent increased. The pilot made a safe landing.

The technician removed the propeller and discovered the propeller hub's pitch actuator was melted. The pitch actuator is constructed from a plastic material. With the pitch actuator damaged, oil was free to go to the forward position in the hub and allowed the RPM to vary.

The submitter speculated excessive engine heat caused the pitch actuator to melt.

Part total time-1 hour.

POWERPLANTS AND PROPELLERS

TELEDYNE CONTINENTAL

Teledyne Continental; Model W670-16; Master Rod Failure; ATA 8520

This engine was installed in a Boeing, Model B75-A75N1 aircraft. Just prior to touchdown, after practicing touch-and-go landings, a catastrophic engine failure occurred. The pilot escaped injury, and the aircraft was not damaged.

An investigation revealed the engine seized, and the master rod (P/N A40083) broke. (Refer to the following illustration.) The available evidence indicated there was a pre-existing crack in the area of the master rod failure. The submitter stated metal fatigue caused the crack. Also, there was a large area of "nonductile" metal separation at the separation point.

Maintenance records indicated this was a "serviceable" master rod which was installed during an overhaul at 219 operating hours prior to this event. Prior to installation, the master rod was "magnafluxed" as required. The engine was in an oil-sampling program, and there was no evidence of contamination.

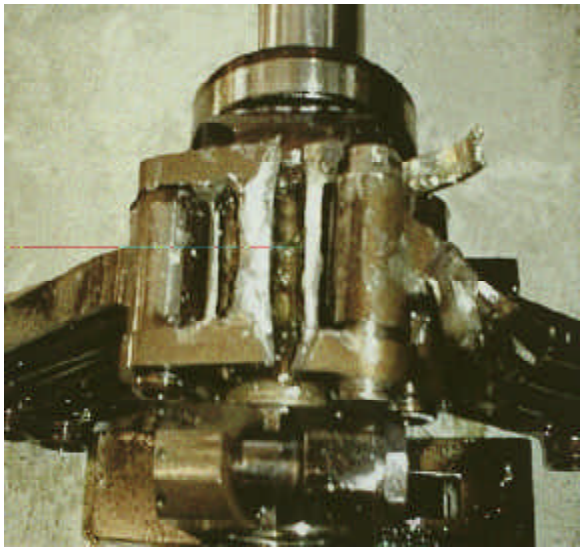
The engine failure resulted in several significant findings, and all maintenance technicians and owner/operators should be aware of the findings.

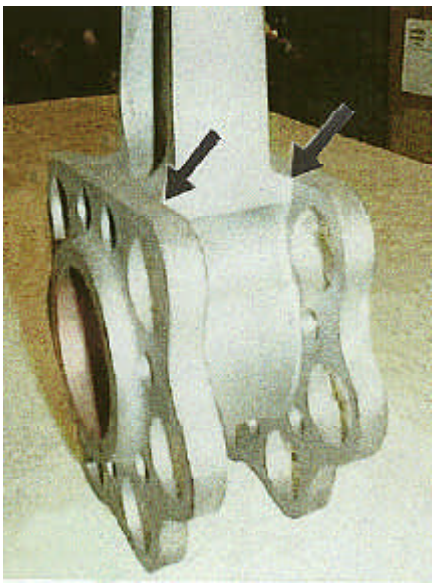
1. The master rods are no longer manufactured, and most existing parts are over 50 years old. It is difficult to find serviceable master rods.

2. The rod casting's sharp radius should be "stress relieved" to eliminate a starting point for the formation of cracks.

3. Due to the depth of the holes and the locations of the holes, it is difficult to properly magnaflux the area.

Part total time since overhaul-219 hours.



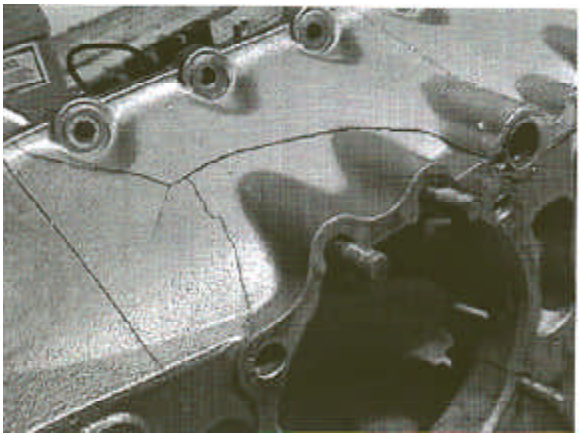


Teledyne Continental; Model IO-520; Engine Case Failure; ATA 8520

This engine was installed in a Beech, Model 58 Baron aircraft. The pilot reported that during flight, the right engine began running rough. The pilot made a safe landing.

The submitter stated an engine oil leak was very evident, and approximately 9.5 quarts of oil was lost. The source of the oil leak was a multiple fracture in the engine case at the base of the number 4 cylinder. The technician removed and disassembled the engine, and discovered cracks running through the case stud boss area. (Refer to the following illustration.) The cracks allowed the cylinder base stud nut to loosen, and the stud migrated inward until it contacted a crankshaft throw. The stud was propelled outward causing a "star-burst" shaped series of cracks. The opposite case half showed signs of hairline cracks at several of the stud bosses. Hairline cracks at these locations, which are not visible if the cylinders are installed, may indicate pending failure.

Part total time since overhaul-870 hours.



TEXTRON LYCOMING

Textron Lycoming; Model O-360; Valve Failure; ATA 8530

This engine was installed in a Piper, Model PA 28-181 aircraft.

The pilot reported that during flight, the engine began running rough, and a precautionary landing was made.

While investigating, the technician discovered the number 2 cylinder had "0" compression. When the technician removed the cylinder, he discovered the exhaust valve was severely burned, and part of the valve face was missing.

The submitter did not give the operating environment or the fuel type being used.

Aircraft total time-3,375 hours, and engine total time since overhaul-1,376 hours.

ACCESSORIES

ALLIED SIGNAL

Allied Signal; Turbocharger; Model TH08A67; Shaft End Play; ATA 8120

Two reports were received from a submitter who found the same defect on two different aircraft. One of the reports involved a Cessna, Model 414A and the other was on a Cessna, Model 340A. Both of these aircraft used Teledyne Continental Model TSIO 520 engines.

In both cases, the turbocharger shaft was found to have excessive axial-end play. The turbochargers were removed and sent to the manufacturer for evaluation. The results indicated the thrust bearings, installed in both turbochargers, were excessively worn. These defects were manifested by less than specified boost and engine power surges during flight.

Part total times not reported.

SLICK MAGNETOS

Slick Magnetos; Model 6320; Corrosion; ATA 7414

This report involved a twin-engine Cessna Model 340 aircraft with Teledyne Continental Model TSIO 520 engines installed.

The left engine began running very rough, the pilot made a precautionary landing, and shut down the engines on the parking ramp.

Maintenance personnel could not get either engine to start. An investigation revealed the left magneto on the left engine was severely corroded internally. The right magneto on the left engine and both magnetos on the right engine were in a similar condition; however, they had not yet failed. The technician replaced all four magnetos on this aircraft.

Part total time not reported.

AIR NOTES

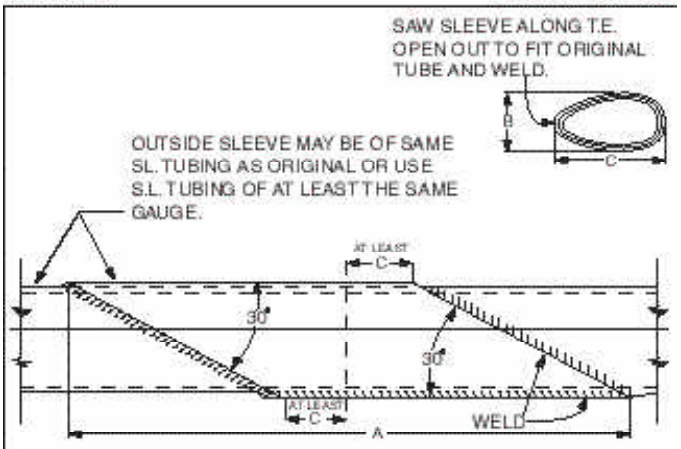
CORRECTION TO AC 43.13-1B

An error was identified in the recently-revised Advisory Circular (AC) 43.13-1B, Acceptable Methods, Techniques, and Practices—Aircraft Inspection and Repair.

The error appears on page 4-74, figure 4-43, of Chapter 4, Metal Structure, Welding, and Brazing. A table is included in figure 4-43, and the numbers in the table are not correct. (Refer to the following "corrected" table.)

This notice is intended to provide the correct data until AC 43.13-1B is revised. If you have questions or comments, please contact Mr. George Torres, AFS-610. The telephone number is (405) 954-6923, and the FAX number is (405) 954-4104.

AC 43.13-1B CORRECTED 3/10/99



A-Minimum Length of Sleeve
B-Streamline Tube Length of Minor Axis.
C-Streamline Tube Length of Major Axis.

S.L. Size	A	B	C
1"	7.324"	.572"	1.340"
1-1/4	9.128	.714	1.670
1-1/2	10.960	.858	2.005
1-3/4	12.784	1.000	2.339
2	14.594	1.144	2.670
2-1/4	16.442	1.286	3.008
2-1/2	18.268	1.430	3.342

Figure 4-43. Streamline tube splice using split sleeve (applicable to wing and tail surface brace struts and other members).

AIRWORTHINESS DIRECTIVES (AD's) ISSUED IN FEBRUARY 1999

99-03-05; Textron Lycoming; Engine: O-540-F1B5

99-03-11; Raytheon (Beech); Model 60

99-04-04; Textron Lycoming; Engine: O-540-B2B5, B2C5, E4B5, E4C5, G1A5, G2A5, IO-540-K1A5, K1B5, and K1G5

99-04-08; Raytheon (Beech); 1900, 1900C, 1900C(C-12J), and 1900D

99-04-15; PL Porsche; Engine: PFM 3200 N01, N02, and N03

98-19-04; Agusta (figure); Rotorcraft: A109C, A109E, and A109K2

99-01-09; Sikorsky; Rotorcraft: S-76C

99-04-12; McDonnell Douglas; Rotorcraft: 369D, 369E, 369FF, 369H, MD500N, and MD600N

99-04-13; Bell; Rotorcraft: 214ST

99-04-14; Schweizer; Rotorcraft: 269C-1

99-04-20; Agusta; Rotorcraft: A109K2

99-04-21; British Aerospace; Jetstream 3101 and 3201

99-05-01; PL Sikorsky; Rotorcraft: S-76C

SUSPECTED UNAPPROVED PARTS (SUP) SEMINAR

As announced in previous editions of the Alerts, the Designee Standardization Branch, AFS-640, is once again presenting the Suspected Unapproved Parts (SUP) seminar. A schedule of the seminars and information for requesting a SUP seminar in your area is listed in this article.

Seminar dates will be announced in the Alerts, the Designee Update newsletter, and on the Internet under FedWorld.gov. You may access the FedWorld BBS directly at (703) 321-3339. You may access the Alerts through the Internet, using the Regulatory Support Division, AFS-600, "HomePage" at the following address.

http://www.mmac.jccbi.gov/afs/afs600

The seminar will discuss the following:

1. Introduction to the policy of the Suspected Unapproved Parts Program Office, AVR-20.
2. What is an approved part/unapproved part?
3. How can approved parts be produced?
4. What is a suspected unapproved part?
5. How is a suspected unapproved part reported in accordance with FAA Order 8120.10A, Suspected Unapproved Parts Program, and utilizing FAA Form 8120-11, Suspected Unapproved Parts Notification?
6. How do you determine the status of parts?
7. What is the procurement process?
8. How do you use the Internet and FedWorld to find a list of unapproved parts?

The cost of this 1-day, 8-hour seminar is $60. The seminar may be used for the Inspection Authorization (IA) renewal training requirement specified in Title 14 of the Code of Federal Regulations (14 CFR) part 65, section 65.93(a)(4).

The seminar is open to the aviation industry. Anyone wishing to attend may telephone (405) 954-0138. Payment is required in advance by using VISA, MasterCard, or a check. **When scheduling attendance, please reference the seminar number.**

SCHEDULE FOR SUSPECTED UNAPPROVED PARTS (SUP) SEMINARS

Seminar No.	1999	Location
759911	Apr 14	Albany, NY
759912	Apr 15	Albany, NY
759913	Apr 28	Scottsdale, AZ
759914	Apr 29	Scottsdale, AZ
759915	May 12	Miami, FL
759916	May 13	Miami, FL
759917	Jun 9	Helena, MT
759918	Jun 10	Helena, MT
759919	Jun 23	Minneapolis, MN
759920	Jun 24	Minneapolis, MN
759928	Jul 14	Portland, ME
759921	Aug 11	San Diego, CA
759922	Aug 12	San Diego, CA
759923	Aug 25	Denver, CO

759924	Aug 26	Denver, CO
759925	Sep 15	Little Rock, AR
759926	Sep 16	Little Rock, AR

If you require an ADDITIONAL SUP seminar, please write to: FAA, ATTN: AFS-640, P.O. Box 25082, Oklahoma City, OK 73125. Depending on the availability of AFS-640 personnel, the requests for additional SUP seminars may be authorized. The registration process is the same as that previously discussed in this article. If you have specific questions regarding an ADDITIONAL SUP seminar, please contact Elmer Hunter at (916) 773-2927.

CHANGES TO THIS PUBLICATION

We have created a new Internet web site which includes an electronic version of FAA Form 8010-4, Malfunction or Defect (M or D) Report. You may use the electronic version to send M or D reports to us. The web site also includes a search function for older copies of the Alerts. The address for this web site is:

http://www.mmac.jccbi.gov/alerts/

IF YOU WANT TO CONTACT US

If you want to contact the staff of this publication we welcome your comments, suggestions, and questions. Also, you may use any of the following means of communication to submit reports concerning aviation-related occurrences.

Editors: Phil Lomax (405) 954-6487
and/or
Ed Galasso (405) 954-6471
FAX: (405) 954-4570 or (405) 954-4748

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Oklahoma City, OK 73125-5029

Internet E-mail address:
ga-alerts@mmacmail.jccbi.gov

You can access current and back issues of this publication from the internet at:
http://www.mmac.jccbi.gov/alerts

This web site also has view, search, E-Mail, and M or D submit functions.

The “Fedworld” web site at:
http://www.fedworld.gov/pub/faa-asi/faa-asi.htm

The “Fedworld” web site has approximately 5 years of back issues listed. The files are titled using eight characters. The first three characters are ALT. The second three characters indicate the month (Jan, Feb, etc.). The last two characters indicate the year (98, 99, etc.). The more recent files are in Adobe Acrobat (PDF) format and can be viewed and downloaded. To download individual monthly files, point the mouse pointer at the desired file, and click the right mouse button. This will produce a drop-down menu. Select “save target as” from the drop-down menu. Select a location for the downloaded files to reside. You can print the downloaded file(s). NOTE: The Service Difficulty Report (SDR) files are at the end of the ALT files.

AIRWORTHINESS AVIATION SAFETY PROGRAM MANAGERS

This is a current list of headquarters and regional FAA Airworthiness Aviation Safety Program Managers, and we encourage you to

use their services. They provide a contact in your local Flight Standards District Office (FSDO) where you can learn about programs, seminars, services, and exchange knowledge and experience.

NATIONAL

FAA
Attn: Lee Norvell, AFS-340
800 Independence Ave., S.W.
Washington, DC 20591
(202) 267-8616
FAX: (202) 267-5115

AERONAUTICAL CENTER

FAA
Attn: Eric Baird, AFS-641
P.O. Box 25082
Oklahoma City, OK 73125
(405) 954-6474
FAX: (405) 954-4748

ALASKAN REGION

FAA
Attn: Johnnie Wallace
Federal Building
222 W. 7th Ave., Box 14
Anchorage, AK 99513-7587
(907) 271-5335
FAX: (907) 276-6207

CENTRAL REGION

FAA
Attn: Danny Morford
601 East 12th Street
Kansas City, MO 64106
(816) 426-3237 Ext. 227
FAX: (816) 426-6811

EASTERN REGION

FAA
Attn: Charlie Fowler
Fitzerald Federal Building 111
JFK International Airport
Jamaica, NY 11430
(718) 553-3231
FAX: (718) 995-5696

GREAT LAKES REGION

FAA
Attn: Rich Mileham
2300 East Devon Avenue
Des Plaines, IL 60018
(847) 294-7623
FAX: (847) 294-8001

NEW ENGLAND REGION

FAA
Attn: Tony Janco
12 New England Executive Park
181 S. Franklin Ave., Room 202
Burlington, MA 01803-5299
(781) 238-7229
FAX: (781) 238-7245

NORTHWEST MOUNTAIN REGION

FAA, Seattle FSDO
Attn: Greg Young
1601 Lind Ave., S.W.
Renton, WA 98055
(425) 227-2254
FAX: (425) 227-1200

and/or

FAA, Seattle FSDO
Attn: Lou Lerda
1601 Lind Ave., S.W.
Renton, WA 98055
(425) 227-2887
FAX: (425) 227-1810

SOUTHERN REGION (NONE)

SOUTHWEST REGION

FAA
Attn: Fred Dryden
2601 Meachem Blvd.
Fort Worth, TX 76137-4298
(817) 222-5251
FAX (817) 222-5285

WESTERN PACIFIC REGION

FAA
Attn: Don Green
6650 Belleau Wood Lane
Sacramento, CA 95822
(916) 422-0272
FAX: (916) 422-0462

OMB No. 2120-0003

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

MALFUNCTION OR DEFECT REPORT

OPER. Control No.
ATA Code
1. A/C Reg. No. N-

Enter pertinent data:	MANUFACTURER	MODEL/SERIES	SERIAL NUMBER
2. AIRCRAFT			
3. POWERPLANT			
4. PROPELLER			

5. SPECIFIC PART (of component) CAUSING TROUBLE

Part Name	MFG. Model or Part No.	Serial No.	Part/Defect Location

6. APPLIANCE/COMPONENT (Assembly that includes part)

Comp/Appl Name	Manufacturer	Model or Part No.	Serial Number

Part TT	Part TSO	Part Condition	7. Date Sub.

8. Comments (Describe the malfunction or defect and the circumstances under which it occurred. State probable cause and recommendations to prevent recurrence.)

Optional Information:

Check a box below, if this report is related to an aircraft

☐ Accident; Date _____ ☐ Incident; Date _____

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OTHER	
COMMUTER	
FAR	
UPS.	—
AIR TAXI	( )
HELICOPTER	
OPER.	SUBMITTED BY:
REP. AIR.	TELEPHONE NUMBER:

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