U.S. Department
of Transportation
**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.

UNAPPROVED PARTS NOTIFICATION

NO. 97-042, JANUARY 12, 1999

SUBJECT: Unapproved replacement vernier mixture control assemblies.

AFFECTED COMPONENT: Carbureted reciprocating engines typically installed in general aviation aircraft.

PURPOSE: To notify owners, operators, maintenance entities, and aircraft parts distributors that an undetermined number of unapproved replacement vernier mixture control assemblies were fabricated for installation in type certificated aircraft. The Federal Aviation Administration (FAA) determined these control assemblies were produced without Parts Manufacturer Approval (PMA).

BACKGROUND: While conducting a Suspected Unapproved Parts (SUP) investigation, it was concluded that Aero Trim Inc., 1130 102nd Street, Suite No. 6, Bay Harbor, FL 33154, manufactured and sold aircraft mixture control assemblies. Aero Trim Inc. does not hold an FAA production approval for the mixture control assemblies. Aero Trim Inc. fabricated and supplied the unapproved mixture control assemblies to Chief Aircraft of Grantspass, Oregon and to San Val Discount, Inc., of Van Nuys, California.

THE AFFECTED PARTS ARE:
Part Name: Vernier mixture control assemblies
Part Numbers: 93881 and 93882
Approved FAA PMA Holder: Alcor Inc., or Alcor Aviation Inc., San Antonio, Texas
Application: Airframe

RECOMMENDATIONS: Aircraft owners, operators, maintenance entities, and aircraft parts distributors who purchased, received, or installed vernier mixture control assemblies from Aero Trim Inc., Chief Aircraft, or San Val Discount Inc., should determine if any of these unapproved mixture control assemblies were installed in type certificated aircraft. FAA regulations require that type certificated aircraft conform to their type design. Consider mixture control assemblies without traceability to an approved source suspect and take appropriate action.

FURTHER INFORMATION: The FAA Manufacturing Inspection District Office (MIDO) would appreciate information from any source concerning the discovery of these parts, the means used to identify the source, and the actions taken to remove the parts from aircraft and/or stock.

This notice originated from the Orlando MIDO, 5950 Hazeltine National Drive, Room 405, Orlando, FL 32822, telephone (407) 855-9050, fax (407) 438-1900. It was published through the Suspected Unapproved Parts Program Office, AVR-20, telephone (703) 661-0580, fax (703) 661-0113.

AIRPLANES

BEECH

Beech; Model T-34; Mentor; Strobe Light Installation; ATA 3340

After a Whelen strobe light system was installed, the maintenance technician reported that it was difficult to connect the wiring harness to the power supply.

The power supply (P/N HAD-CF-14/28), the wire harness, and the jumper sockets could not be pushed into the receptacle without dislodging the receptacle inside the power supply box. The power supply box cover was removed to re-engage the receptacle. Even though minimal hand pressure was applied, this problem occurred twice.

The submitter suggested the manufacturer improve the method of securing the receptacle in the power supply box.

Part total time-0 hours.

Beech; Model 200; King Air; Defective Wing Attachment Bolt; ATA 5740

During a scheduled inspection, the wing attachment bolts were removed and inspected in accordance with the applicable technical data.

The required nondestructive test revealed a crack at the junction of a bolt head and the shank. The defective bolt (P/N VCN0014) was installed in the right aft lower position. The bolt was originally installed as part of a manufacturer-supplied kit (P/N 101-4026-3).

Part total time-2,475 hours.

Beech; Model 300; King Air; Engine Oil Loss; ATA 7921

Just after takeoff, the left engine lost engine oil pressure. The pilot secured the engine and made a safe landing at the departure airport.

An investigation revealed the fuel/oil heat exchanger (P/N 10585F) was cracked. The crack was approximately 1 inch long and was adjacent to a weld. The crack penetrated the oil cavity in the assembly and allowed the loss of oil overboard.

The submitter speculated this defect was the result of vibration, metal fatigue, and/or age.

Part total time-6,060 hours.

Beech; Model 1900C; Commuter; Wing Spar Corrosion; ATA 5711

During a scheduled inspection, maintenance personnel discovered severe corrosion on the lower main spar cap.

The corrosion was located where the spar (P/N 118-100013-1) passes through the fuselage from wing station 0 to right wing station 27. This location is directly beneath the air-conditioner, and the submitter speculated that condensation caused the corrosion. It appeared evident that the corrosion became more severe over a long period of time.

It might be a good idea to give this area special attention during inspections.

Part total time-23,378 hours.

Beech; Model 1900C; Airliner; Water Accumulation in Wings; ATA 5700

After completing several scheduled inspections, the submitter found an accumulation of standing water in the wings during each inspection.

The wing construction does not allow trapped water to drain from the trailing edge of the fuel storage area. This area is located between wing stations 171.29 and 183.07.

Accumulated water may pose problems of freezing, contamination, deterioration, and/or corrosion. Also, depending on the quantity of water, an unknown amount of weight may be added.

The submitter suggested the manufacturer change the design to provide a drain path for this area.

Part total time not reported.

CESSNA

Cessna; Model 172RG; Cutlass; Broken Nosewheel Bolt; ATA 3222

During an instructional flight involving takeoff-and-landing practice, the pilot received a radio call from another aircraft informing him that the nosewheel of his aircraft had fallen off. The pilot made a safe emergency landing.

The subsequent inspection revealed the nosewheel axle bolt (P/N AN5-47) failed. The remains of the bolt stayed in the right side of the nosewheel's fork assembly. Indications suggest the fracture was present for some time before the failure.

The submitter stated the bolt failure may have occurred earlier in the month when the aircraft was involved in a hard landing; however, no damage was discovered at that time.

The submitter further stated that inspection by visual means alone may not detect this type of crack. Since this incident, the flight school adopted a policy of replacing this bolt any time the nosewheel tire is replaced.

Part total time unknown.

Cessna; Model 172RG; Cutlass RG; Landing Gear Pivot Assembly Failure; ATA 3230

During an approach for landing, the pilot looked down from the cockpit and noticed the right landing gear was not in its normal position but was hanging down. The pilot made a gear-up landing. The occupants were not injured; however, the aircraft sustained minor damage.

An inspection revealed the internal gear of the right main landing gear's pivot assembly was sheared.

Since this aircraft is used for pilot training, the submitter speculated the damage may have occurred during a hard landing.

Part total time not reported.

Cessna; Model 177B; Cardinal; Shimmy Dampner Failure; ATA 3220

While performing touch-and-go landings, the pilot reported the nosewheel wobbled excessively during the last landing.

The technician discovered a cracked nosewheel shimmy dampner (P/N 1743020-3) housing. The crack occurred at the outer portion of the outer retaining ring flange.

Part total time-2,505 hours.

Cessna; Model R182; Skylane; Corroded Oil Line; ATA 7920

The technician discovered the aluminum line (P/N 0700099-37) running from the firewall to the oil pressure gauge was badly pitted from corrosion.

The line is located behind the instrument panel in an area that is very difficult to inspect; therefore, the area may be overlooked during routine inspections. The submitter stated the corrosion is a recurring problem and has been discovered in several other similar aircraft.

The defroster duct directly above the line caused the corrosion. The duct which touched the line was an old style “scat type” duct. The duct was made of cotton material and iron forming wire. When the cotton deteriorated, the iron wire poked through the cotton, rusted, and came into direct contact with the aluminum line, which resulted in dissimilar metal corrosion.

This is a potentially dangerous condition. Close attention should be given to this area during inspections.

Part total time-2,754 hours.

Cessna; Model 206F; Stationair 6; Improper Rudder Assembly; ATA 2700

During an annual inspection, the technician noticed that the rudder came into contact with the elevator assembly when both were at approximately one-half their travel.

Although the rudder travel appeared to be within normal limits, further investigation revealed a seaplane rudder was installed on the aircraft. It was known that the aircraft was equipped with a seaplane rudder; however, when the aircraft was previously rigged, the Cessna 206 service manual made no distinction between rigging a standard rudder and a seaplane rudder.

The type certificate data sheet indicated, that because of its longer chord, the seaplane rudder had a total of 4 degrees reduction in its travel (2 degrees in each direction).

The submitter stated the manufacturer should amend the service manual and aircraft specification chart to reflect the difference in the standard rudder rigging procedure and the seaplane rudder rigging procedure.

Part total time-1,665 hours.

Cessna; Model 421; Golden Eagle; Sheared Rivet; ATA 5751

During a routine inspection, the submitter discovered all the rivets that attach the outboard aileron hinge (P/N 5021002-12/13) to the wings were sheared.

The last rib on each wing was unsupported because the rivets passed through the last rib and the spar for aileron hinge support. The skin in that area was beginning to crack.

The submitter stated spar failure may have occurred if the defect was not detected. This area deserves your special attention on similar aircraft.

Part total time-3,582 hours.

Cessna; Model 421C; Golden Eagle III; Oil Cooler Leak; ATA 7921

While the aircraft was parked, an oil leak was discovered below the oil cooler.

Recently, the engine was overhauled, the oil cooler was removed, and the gasket was replaced. When the aircraft was returned to service, the oil was still leaking. The operator replaced the entire oil cooler with another recently overhauled replacement part; however, the replacement part also leaked. The submitter installed two more overhauled oil coolers; however, they also leaked.

The submitter stated all four coolers were overhauled by the same company. An inspection revealed all of the oil cooler’s mating surfaces were machined in a concave fashion to a depth greater than the thickness of the gasket.

These defective coolers were sent to another overhaul facility for evaluation and another overhaul. The facility discovered machining errors of as much as 3/8-inch existed, and one oil cooler had an internal hole in its core.

An inspection of another operator’s Cessna 421 revealed similar oil cooler leaks. All operators of like equipment should conduct an inspection of the oil cooler(s). One of these problems resulted in an engine failure.

Part total time not reported.

Cessna; Model C550; Citation II; Faulty Antiskid Brake Pressure Switch; ATA 3241

During a daily inspection, the aircraft's power was turned on. The antiskid brake pump began to run; however, it would not turn off, as normal, when the pressure reached its normal operating range between 900 and 1,300 pounds per square inch.

A closer inspection revealed that a faulty inline pressure switch (P/N 1206P27) caused the pump to run continuously. The switch's location places it in an area that experiences a wide range of temperature variations from a hot ramp to a frigid high altitude.

The submitter feels that a switch with greater tolerance to temperature variations may avert this problem.

Part total time-459 hours.

Cessna; Model 650; Citation III; Broken Oil Filter Elbow; ATA 7920

During an inspection, the technician noted the oil filter had separated from its mounting flange at the end of the elbow fitting (P/N 20544-4-70).

The separation allowed the filter to slide out of place which eliminated the filter's effectiveness. The submitter discovered three other defective elbow fittings on similar make and model aircraft.

Until this assembly's quality is improved or a replacement interval is established, this is an area worthy of extra attention during 1,200 hour removal inspections.

Part total time-6,024 hours.

Cessna; Model 650; Citation III; Oil Line Leak; ATA 7920

The pilot reported the left engine's oil pressure dropped when the thrust lever position was changed. The pilot shut down the left engine and made a safe landing.

Investigation revealed the "No. 6 bearing" pressure oil line (P/N 3072749-1) was chafing against the bleed air line (P/N 6214506-1). The chafing wore a hole in the oil line. The oil leaked and caused the subsequent drop in oil pressure.

To find and repair the problem, the submitter removed the thrust reverser's afterbody and the stainless steel shroud that forms the inside of the bypass duct.

The submitter suggested the implementation of better quality control and workmanship during engine buildup. The submitter also suggested following more astute investigation techniques during major periodic inspections.

Part total time-6,620 hours.

DIAMOND

Diamond; Model DA20-A1; Katana; Defective Fuel Cell; ATA 2810

After removing the fuel cell to accommodate rigging of the rudder control system, the technician noticed the fuel cell internal baffle spot welds were cracking through to the outer skin.

Fuel leaks had occurred at several locations, and the fuel cell (P/N 20-2811-00-00) was repaired in accordance with the manufacturer's technical data. There are no provisions for inspecting this area without removal of the fuel cell. Fuel leaks of any kind present a very dangerous hazard.

The submitter recommends that all operators remove the fuel cell and inspect the seams and spot weld areas for evidence of cracking and/or leakage as soon as possible. Also, it is advisable to establish a recurring inspection interval for the fuel cell.

Part total time-990 hours.

Diamond; Model DA20-A1; Katana; Defective Radiator Overflow; ATA 1240

While performing other maintenance, the technician noticed the radiator water level was empty.

An inspection revealed that the radiator overflow was melted. The damage was located at the lower inboard forward corner. The submitter stated he had found this condition, in various stages of damage, on several other like aircraft.

The submitter suggests the manufacturer redesign the radiator overflow system using heat-resistant material.

Part total time-994 hours.

MITSUBISHI

Mitsubishi; Model MU-2; In Flight Loss of Crew Door; ATA 5220

During a climb, at approximately 18,000 feet, the right crew door separated from the aircraft. There was no prior indication of an unsafe door condition. The aircraft was pressurized before the door was lost. The pilot made a safe landing.

A short time before this incident, the door was installed in accordance with Supplemental Type Certificate (STC) SA1338GL. The door was not recovered; however, an inspection of this aircraft and others in the operator's fleet revealed several possible factors which may have contributed to this failure.

The door-latch indicating micro switch can be closed without engaging the door-handle locking mechanism. The mechanical lock, which must be released prior to rotation of the door handle, uses a "HI-LOCK" fastener which can be installed in two ways. One way of installing the "HI-LOCK" fastener impedes the travel of the door-locking shaft. A new door shipped from the STC holder had the "HI-LOCK" fastener installed opposite others in the operator's fleet. There are no lubrication requirements provided with the STC kit (or the instructions for continued airworthiness) for the door handle or the locking mechanism. The door-locking mechanism on one other aircraft was found binding and sticking.

The submitter recommends that operators using this STC door installation check the door-locking mechanism for proper engagement and operation and set up a lubrication schedule.

Part total time-22 hours.

PIAGGIO

Piaggio; Model P180; Avanti; Wing Flap Malfunction; ATA 2750

During flight, with the wing flaps full down, the wing flaps stopped at a midrange position when the "full up" position was selected.

An investigation determined that the malfunction was due to high electrical resistance in the internal microswitch of the flap drive unit (P/N C136066-45). The submitter stated the manufacturer is aware of this anomaly, and this was not an isolated case.

The old flap drive unit was removed and replaced with a new flap drive unit (P/N C152550-1) which was improved by the manufacturer.

Part total time-1,134 hours.

PIPER

Piper; Model PA 28-140; Cherokee; Abrasion Strip Installation; ATA 5700

While walking on the aircraft parking ramp, a maintenance technician noticed the aircraft's wing and stabilator leading edges were covered with what appeared to be abrasion strips.

A closer inspection revealed that duct tape had been used for abrasion strips, and the duct tape was loose and deteriorated. The aircraft's owner was notified of the problem and told that the loose and deteriorated duct tape should be removed.

The owner "fixed" the problem by using "super glue" on the loose duct tape. The "super glue" compounded the problem by causing a rough surface under the duct tape. It is important to remember that any change in the aerodynamic lifting surface creates an unknown condition that could be hazardous to your health.

Apparently, this aircraft passed through several annual inspections with this obvious condition.

Aircraft total time not reported.

Piper; Model PA 28-161; Warrior; Defective Flight Control Bearing; ATA 2730

During an annual inspection, maintenance personnel discovered the stabilator bearing was excessively worn.

When hand pressure was applied to the outboard end of the stabilator, approximately 2 inches of up-and-down free play was detected. The bearing (P/N 452-394) was replaced.

The hand pressure test may be useful in detecting structural damage and worn bearings which are not visible. It is not necessary to exert excessive pressure to the stabilator or the horizontal stabilizer. In fact, excessive pressure may cause damage. During this test, any free play or "canning" of the skin should be thoroughly investigated and repaired prior to approving the aircraft for return to service.

Part total time not reported.

Piper; PA 28-161; Warrior; Engine Fuel Leak; ATA 7322

The aircraft was delivered to maintenance with a report of a fuel leak in the engine compartment.

The fuel leak originated at the junction of the carburetor (Marvel-Schebler P/N MA4-SPA) throttle body and the fuel bowl. The locking tabs, designed to retain the bolts, were not effective, and the bolts became loose. The submitter stated this was the third time he has found these bolts loose due to defective locking tabs.

The submitter recommends the manufacturer install bolts at this location which can be safety wired for security.

Part total time-900 hours.

Piper; Model PA 28-181; Archer; Carburetor Air Intake Defect; ATA 7160

During a scheduled inspection, the carburetor air box bushing and grommet were found severely worn.

The nylon bushing (P/N 453-491) and the grommet (P/N 434-134) were worn completely through. The submitter stated: "This is a recurring problem. These bushings and grommets have to be replaced every 50 to 100 hours of operation."

If the bushings and grommets fail, material could be ingested into the engine. The submitter suggests the manufacturer redesign the installation of bushings and grommets to prevent premature wear and possible ingestion of the worn parts.

Part total time-86 hours.

Piper; Model PA 28RT-201; Arrow; Defective Wing Walk Structure; ATA 5730

During a scheduled inspection, maintenance personnel found the right wing walk (P/N 62061-2) area severely cracked and corroded.

The inner and outer doubler plates, under the walk area, were cracked through their full length. The corrosion on these and associated parts had advanced to a severe state which compromised the structural integrity of the aircraft.

The submitter stated he found the same condition on another like aircraft.

Part total time-3,886 hours.

Piper; Model PA 31-T1; Cheyenne; Deice System Electrical Failure; ATA 3010

During flight, the pilot smelled an "electrical burning" odor, smoke filled the cockpit, and the circuit breakers opened. The pilot evacuated the smoke from the cockpit and made a safe landing.

An investigation disclosed the left engine's deice system deflator motor (P/N 4577-001) was shorted internally. The associated electrical wires were burned from the motor all the way to the cockpit's overhead electrical panel. The submitter did not provide the cause of this defect.

Part total time-3,562 hours.

Piper; Model PA 31-350; Chieftain; Main Landing Gear Failure; ATA 3230

A maintenance report stated the right main landing gear operated intermittently in the up cycle. The landing gear would sometimes fail to complete the up cycle.

During a retraction test, the landing gear was "slow cycled," and the right main gear would not engage the uplock. Further inspection revealed the right main gear actuator attachment fork bolt (P/N 41789-00) was broken. The fork bolt failed where it attaches to the forward drag link. If the bolt had been dislodged, with the gear retracted, extension of the right main gear would not have been possible. The submitter did not offer a cause or cure for this defect.

Part total time-10,000 hours (approximate).

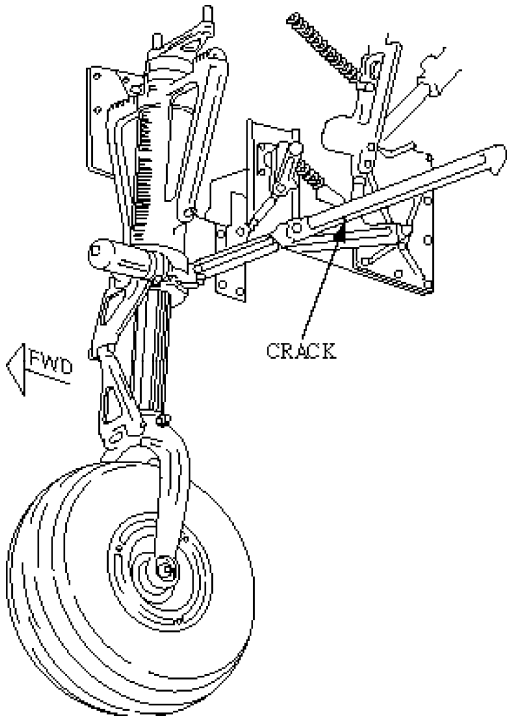
Piper; Model PA 31-350; Chieftain; Nose Landing Gear Defect; ATA 3230

While cleaning and inspecting the landing gear, a nose landing gear drag brace was found cracked.

The right upper drag brace link assembly (P/N 40336-00) was cracked where the actuator was attached. (Refer to the following illustration.) This was the second drag brace assembly the submitter found cracked.

Maintenance personnel, owners, and operators should give this area special attention at every opportunity.

Part total time-8,994 hours.



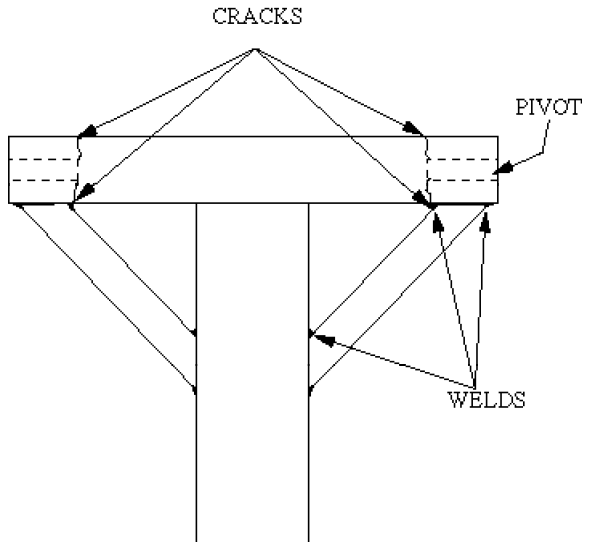
Piper; Model PA 34-200; Seneca; Nose Landing Gear Trunnion Cracks; ATA 3221

During a scheduled inspection, the maintenance technician discovered cracks in the nose landing gear trunnion.

The cracks were located at the trunnion (P/N 95713-04) pivot point attachments on each side. (Refer to the following illustration.) The cracks were approximately .5 inch long and were adjacent to the brace weld area.

The submitter stated this was the fourth like defect found on Seneca aircraft with similar time in service. It is recommended this area be inspected at every opportunity.

Part total time-8,800 hours.



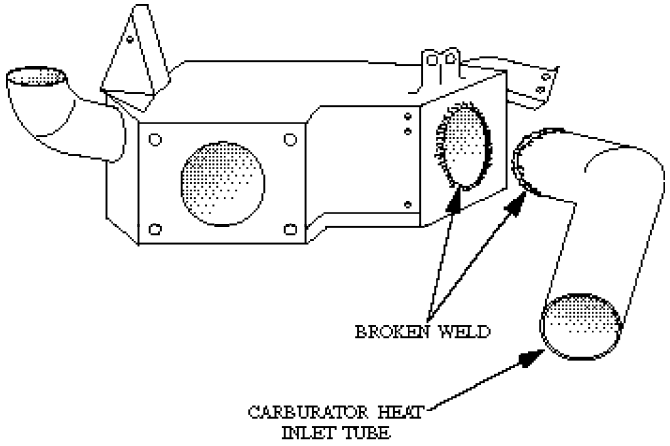
Piper; Model PA 44-180; Seminole; Broken Carburetor Intake Air Box; ATA 7160

During a scheduled inspection, the technician found the right engine carburetor intake air box was broken.

The air intake box assembly (P/N 86245-34) was broken where the carburetor heat inlet tube is attached by a weld. (Refer to the following illustration.) The submitter speculated this failure was due to a "poor welding" technique. During the first 100-hour inspection, at 99.6 hours total aircraft time, the left engine air intake box was found in the same condition.

This area should be closely checked at every opportunity.

Aircraft total time-195 hours.



RAYTHEON

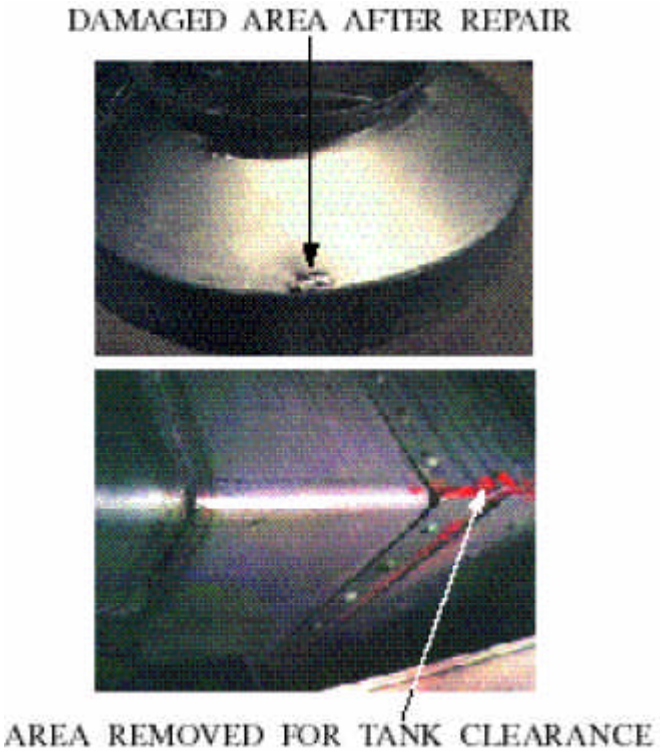
Raytheon; Model BAE 125-800A; Oil Leak; ATA 4990

The aircraft was delivered to maintenance with a report of an oil leak.

Evidence indicated the leak source was in the auxiliary power unit (APU) bay. An investigation disclosed that the APU oil sump tank had a hole chafed in the top section, and the oil tank had chafed against the engine mount beam sheet metal. (Refer to the following illustration.)

The oil tank was repaired, and the sheet metal was trimmed to provide adequate clearance.

Part total time-2,257 hours.



HELICOPTERS

AMERICAN EUROCOPTER

American Eurocopter; Model AS350BA; Ecureuil; Binding Tail Rotor Spider; ATA 6420

An overhauled tail rotor spider had been installed for 19 hours of operation when maintenance personnel discovered excessive stiffness in the assembly.

Over 80 pounds of force was required to slide the tail rotor spider assembly (P/N 350A33-2004-05). The manufacturer's maintenance manual specifies a maximum of 30 pounds of force is required to slide the spider assembly.

Another overhauled spider assembly was installed. However, after 40 hours of operation, it took 75 pounds of force to slide that spider assembly.

The manufacturer was presented with this problem and stated the difficulty was probably caused by "Proseal." "Proseal" is used to install the Teflon bearings into the spider assembly. The manufacturer recently added the use of "Proseal" as a procedural change. The manufacturer recommended that the spider assembly be removed and cleaned.

After maintenance personnel removed, cleaned, and replaced the spider assembly, the spider moved freely. However, after a similar operating time interval, the spider assembly was binding again.

The manufacturer's representative could not offer any other advice except to remove and clean the assembly when the required movement force exceeds 30 pounds of force. The manufacturer's representative stated this condition had been seen at the factory and was not an isolated case.

Part total times previously stated.

American Eurocopter; Model AS350BA; Ecureuil; In Flight Panel Loss; ATA 5340

While in flight, the aft lower access panel separated from the helicopter and struck the tail rotor. The pilot and a passenger were not injured, and the pilot landed the helicopter safely.

An inspection disclosed the panel's left side latches were loose and failed to retain the panel during flight conditions. The latches on the right side of the panel were torn from the structure.

The submitter speculated that a passenger mistook the access panel for a baggage compartment and failed to secure the latches after opening the panel. Damage to the tail boom and rotor was not given.

Part total time-1,470 hours.

BELL

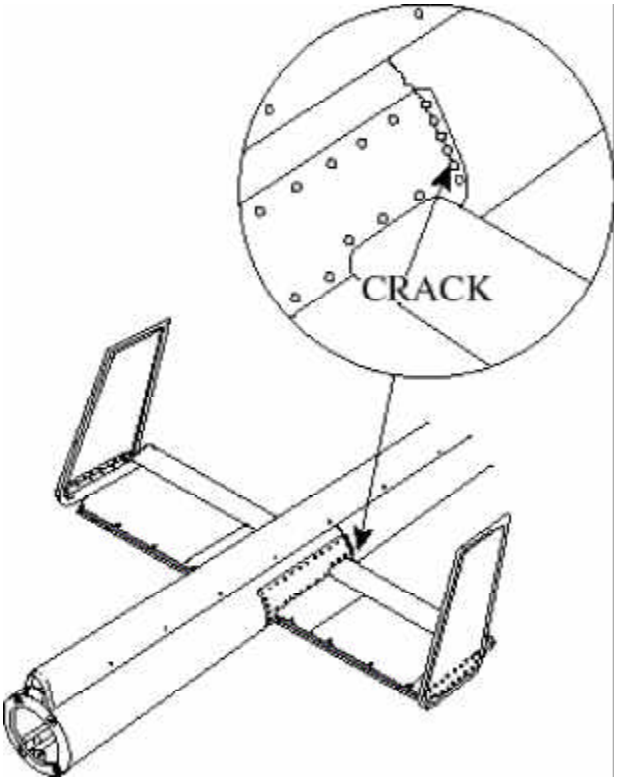
Bell; Model 206l-1; Long Ranger; Tail Boom Crack; ATA 5302

During an inspection, the technician discovered a crack in the tail boom.

The crack was located at the aft end of an access panel on the left side, and the crack ran vertically. The crack originated at the fifth panel fastener hole down from the top of the panel, ran upward passing through the other fastener holes, and terminated in the upper part of the tail boom. (Refer to the following illustration.)

The submitter did not offer a cause for this defect.

Part total time-9,945 hours.



Bell; Model 206l-4; Long Ranger; Engine/Transmission Oil System Defect; ATA 8550

While carrying passengers, the pilot noticed the high engine oil pressure light was illuminated, and the transmission oil pressure low light was flickering. The pilot reduced the engine power, and the flight continued. After 10 minutes of flight, the transmission low pressure light illuminated. The pilot made a safe, precautionary off-airport landing.

No oil was visible in the transmission oil sight gage, and the engine oil level was high. An investigation determined the freewheeling unit (P/N 406-040-500-13) seal failed and allowed transmission oil to be transferred to the engine.

The engine oil system was drained and serviced. The transmission oil supply was replenished, and the aircraft was ferried back to its home base.

Part total time-1,504 hours.

MCDONNELL DOUGLAS

McDonnell Douglas (Hughes); Model 369D; Tail Rotor Failure; ATA 6510

During ground operation, the tail rotor drive shaft failed and severed the tail boom.

Excessive wear of the tail rotor conical bearings (P/N 369A1726/7) caused this incident. Bearing failure caused the tail rotor drive shaft to flex and bounce until the shaft broke and severed the tail boom. The conical bearings were inspected 96 hours prior to this occurrence, and they were found serviceable.

The submitter suggested that the conical bearings be inspected at 100-hour intervals, and special attention should be given to the tail rotor drive assembly during preflight inspections.

Part total time-596 hours.

ROBINSON

Robinson; Model R22; Mariner; Cyclic Control Wear; ATA 6700

During an inspection, the cyclic control push-pull tubes were found excessively worn.

The damaged area was located at the upper frame forward bolt heads adjacent to the firewall. The push-pull tubes were worn far beyond acceptable limits. This helicopter was approximately 1 year old. The submitter did not offer a cause for this defect.

Part total time-57 hours.

AMATEUR, EXPERIMENTAL, AND SPORT AIRCRAFT

CHRISTEN

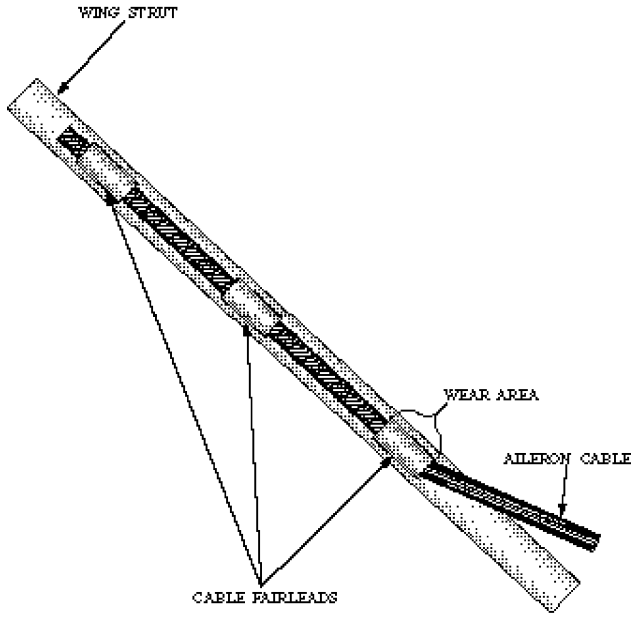
Christen; Model A-1; Aileron Cable Routing; ATA 2710

During a scheduled inspection, the technician found a “slightly flat spot” on an aileron control cable.

The flat spot was on the right aileron cable adjacent to the inboard fairlead on the wing strut. After cleaning the cable, a rag test revealed broken and badly worn cable strands. The left aileron control cable was also inspected, and it exhibited the same type of damage. The damaged area on the left cable was not easily detected because material, which was abraded from the adjacent fairlead, filled in the cable. After the cable was cleaned, the damage was evident.

It appeared that the aileron cable damage on both sides was due to the misalignment of the cable and the fairlead. (Refer to the following illustration.) The submitter stated that a pulley installed at this location would eliminate interference of the cable and fairlead.

Part total time-392 hours.



RANS

Rans; Model S-10; Sakota; Engine Compartment Fuel Tubing; ATA 2820

The submitter stated the “highly flammable vinyl/plastic tubing” used in the engine compartment caused an aircraft accident.

This tubing was supplied with the original aircraft kit. An engine fuel supply tube came in contact with the engine exhaust system, melted, and caused a fire. The aircraft sustained substantial damage; however, there was no mention of personal injuries. It was recommended that the manufacturer use nonflammable material for engine compartment tubing.

It is possible that proper routing and security of the tubing may have prevented this accident. Also, since this was an amateur built aircraft, the builder was at liberty to use aviation-quality tubing in the engine compartment instead of the kit-supplied tubing.

Part total time not reported.

THORPE

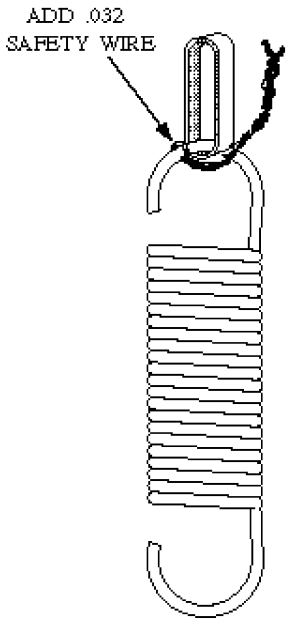
Thorpe; Model T-18; Tailwheel Spring Retention Clip Security; ATA 3222

NOTE: The October 1998 edition of this publication included an article on Aeronca tailwheel spring retention clip security. Since the publication of the article, we have received several responses stating the retention clips should be safety wired to prevent disengagement.

This aircraft sustained substantial damage while landing on a rough runway surface. The aircraft had just been completed. A friend of the owner was experienced in this type of aircraft, so the friend made a solo flight test off of a smooth, hard surface runway. The owner and friend made approximately 12 landings at the same airport, and then they flew back to their home airport. The home airport had a rough landing surface, and the tailwheel bounced hard. The spring retention clip rotated and came loose from one of the tiller springs. The pilot applied the brakes; however, the other tiller spring steered the aircraft off the runway. The aircraft hit a large boulder and landed upside down in a small pond. The submitter stated: “You know you have a problem when you are upside down and under water.” Luckily, no one was seriously injured.

This problem may manifest itself in any aircraft configured with similar tailwheel spring retention clips. It was recommended that the retention clips be safety wired for security. (Refer to the following illustration.)

Aircraft total time not reported.



POWERPLANTS AND PROPELLERS

GARRET

Garret; Model TPE331-6; Plenum Case Failure; ATA 7240

This engine was installed in a Beech King Air Model B100 aircraft.

When the pilot advanced the throttle levers for takeoff, he heard a loud pop. The right engine turbine inlet temperature (TIT) rose rapidly, and flames were observed coming from the right engine nacelle. An attempt to shut down the engine with the emergency cutoff failed because the lever was jammed. The engine was shut down normally, the firewall shutoff valve was closed, and the fire extinguisher was discharged to subdue the fire.

An inspection revealed that the plenum case ruptured beginning at approximately the "2-o'clock" position and opened the case radially toward the top of the engine. The opened part of the plenum case was jammed behind the emergency cutoff lever rendering it inoperative. Further inspection of the plenum case suggested the damage may have originated from a crack at the point where the welds for the cabin bleed air and the P3 bleed air bosses come close together. These two bosses are next to each other with welds forming a "figure eight" around them. The crack progressed to a point where the plenum ripped open under pressure. The total length of the torn metal was approximately 24 inches. There was minor damage to nearby engine components.

An inspection of other like engines disclosed that most had a reinforcement plate installed at the location of the bosses. It would be wise to give close attention to this area during inspections and maintenance.

Part total time-9,187 hours.

HARTZELL

Hartzell; Model HC-C4YR-2; Cracks; ATA 6120

While completing a propeller overhaul, a magnetic particle inspection revealed two crack indications.

The cracks radiated from the area of the pitch rod bore and ran across the forward surface of the fork (P/N C4503). The cracks were located in the forged surface and did not penetrate into the pitch rod bore. The submitter did not offer a cause for this defect.

Part total time-1,735 hours.

MCCAULEY

McCauley; Model D3A32C88; Defective Operation; ATA 6114

The pilot reported the propeller had been "sluggish" for the past year. Finally, the propeller would not return to the "low pitch" position during an engine run.

When the propeller was disassembled, the technician found water inside the hub. The actuating pins were severely corroded and were binding in the links. Also, the propeller blade races were severely corroded. During an inspection, most of the internal propeller parts were rejected. The submitter stated it had been several years since the last propeller overhaul.

Part total time not reported.

TELEDYNE CONTINENTAL

Teledyne Continental; Model TSIO-520; Scored Cylinder; ATA 8530

This engine was installed in a Beech Model BE-58P aircraft at the No. 2 position.

While complying with the borescope inspection requirements of Critical Service Bulletin (CSB) 97-10A, the technician found the No. 2 cylinder (P/N 654652A1) severely scored.

The cylinder scoring covered approximately 50 percent of the cylinder wall surface and was well beyond the piston pin wear area. High amounts of aluminum shavings were found in the engine oil filter. Airworthiness Directive (AD) 97-15-01 does not apply to this engine. However, the same cylinder-coating process is used on these cylinders as that used on the IO-520 cylinders covered by AD 97-15-01. This cylinder was ordered new from the manufacturer and installed a short time before this discovery.

The submitter recommended that AD 97-15-01 be revised to include all cylinders using this coating process.

Part total time-20 hours.

TURBOMECA

Turbomeca; Model Arriel 1B; Separated Part; ATA 7230

During a daily inspection, the technician found a piece of metal on the engine deck. The piece of metal appeared to be part of the engine.

A visual inspection revealed the piece did not come from the external portion of the engine. The object was sent to the engine manufacturer who identified it as a centrifugal compressor cover bridge. Evidently, this part exited the engine through the compressor bleed valve.

The submitter suggested that a periodic borescope inspection of the centrifugal compressor cover be accomplished.

Part total time not reported.

HOT AIR BALLOONS

AEROSTAR

Aerostar; Models All; Basket Retention Pin Failures; ATA 5102

This article provides information on all Aerostar models with a "Classic" basket (gondola) which uses aluminum basket retention (or interface) pins.

The aluminum pins (P/N 51518) are used to attach the basket to the envelope through a tubing structure at each of the four corners of the basket. Several basket retention pin failures have been reported. It was recommended that the pins be inspected at each 100 hours of operation and/or during an annual inspection. The pins should also be inspected after any operation that subjected them to unusual stress such as inflation during high wind or gusty conditions and windy or hard landings. The pins should be removed and visually inspected for cracks, hole elongation, deformation, wear, and general condition using at least a 10-power magnifying glass.

An FAA Safety Recommendation has been submitted concerning this subject.

Part total time not applicable.

AIR NOTES

AIRWORTHINESS DIRECTIVES (AD's) ISSUED IN DECEMBER 1998

98-21-28; British Aerospace; Jetstream 3101

98-25-02; BFGoodrich Avionics Systems (figure); Appliance: Top-Mounted Antenna

98-25-10; Aircraft Belts (figure); Appliance: Seat Restraint Systems

98-26-02; Sikorsky; Rotorcraft: S-61A, D, E, L, N, NM, R, and V

98-26-06; PL Schweizer; Rotorcraft: 269D

98-25-13; McCauley Accessory Division; Propellers: 2A36C23/84B-0 and 2A36C82/84B-2

98-26-05; British Aerospace; B.121 Series 1, 2, 3

98-26-16; Raytheon; 1900, 1900C, 1900C (C-12J), and 1900D

98-26-17; British Aero (Jetstream); 3201

99-01-02; Westland Helicopter; Rotorcraft: Westland 30 Series, 100 and 100-60

99-01-05; New Piper; TG-8 (Army TG-8, Navy XLNP-1), E-2, F-2, J3C-40, J3C-50, J3C-50S,

(Army L-4, L-4B, L-4H, and L-4J), J3C-65 (Navy NE-1 and NE-2), J3C-65S, J3F-50, J3F-50S, J3F-60, J3F-60S, J3F-65 (Army L-4D), J3F-65S, J3L, J3L-S, J3L-65 (Army L-4C), J3L-65S, J4, J4A, J4A-S, J4E (Army L-4E), J5A (Army L-4F), J5A-80, J5B, (Army L-4G), J5C, L-14, AE-1, HE-1, PA-11,PA-11S, PA-12, PA-12S, PA-14, PA-15, PA-16, PA-16S, PA-17, PA-18, PA-18S, PA-18 "105" (Special), PA-18S "105" (Special), PA-18A, PA-18 "125", (Army L-21A), PA-18S "125", PA-18AS "125", PA-18 "135" (Army L-21B), PA-18A "135", PA-18S "135", PA-18AS "135", PA-18 "150", PA-18A "150", PA-18S "150", PA-18AS "150", PA-18A (Restricted), PA-18A "135" (Restricted), PA-18A "150" (Restricted), PA-19 (Army L-18C), PA-19S, PA-20, PA-20S, PA-20 "115", PA-20S "115", PA-20 "135", PA-20S "135", PA-22, PA-22-108, PA-22-135, PA-22S-135, PA-22-150, PA-22S-150, PA-22-160, PA-22S-160, PA-25, PA-25-235, and PA-25-260

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

AIRWORTHINESS DIRECTIVES (AD's) ISSUED IN JANUARY 1999

98-08-25 R1; Twin Commander; 500S, 500U, 680F, 680V, 681, 690, 690A, 690B, 690C, 690D, 695, and 695A

98-17-15; Sikorsky; Rotorcraft: S-76A, B, and C

98-19-13; Bell Helicopter; Rotorcraft: 407

99-01-03; Raytheon; 1900, 1900C, 1900C(C-12J), 1900D

99-01-04; Avions Pierre Robin; R2160

99-01-11; Uninsured Relative Workshop; Appliance: Vector II and III Parachute Systems

99-01-14; Honeywell; Appliance: Integrated Avionics Computer

99-02-01; PL Bell Helicopter (figure); Rotorcraft: 206L, 206L-1, 206L-3, and 206L-4

99-02-02; Robinson Helicopter; Rotorcraft: R22

99-02-09; Agusta Rotorcraft: A109C and A109K2

98-11-14; Bell Helicopter; Rotorcraft: 205A-1 and 205B

98-11-15; Bell Helicopter; Rotorcraft: 212

98-12-30; McDonnell Douglas Helicopter; Rotorcraft: MD-900

98-24-31; Bell Helicopter; Rotorcraft: 430

98-26-06; Schweizer; Rotorcraft: 269D

99-02-13; Eurocopter France; Rotorcraft: AS332C, L, and L1

99-02-14; Raytheon (Beech); 2000

99-02-16; Raytheon (Beech); B300 and B300C

99-02-17; Bell Helicopter; Rotorcraft: 214B and 214B-1

99-03-01; Schempp-Hirth; Sailplane: Standard Cirrus, Nimbus-2, JANUS, Mini-Nimbus HS-7

99-03-10; PL Agusta; Rotorcraft: A109E

WRIGHT BROTHERS

December 17, 1998, marked the 95th anniversary of the Wright brothers first powered flight. The aircraft was powered by an engine designed by Charles Taylor.

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
759907	Feb 10	San Antonio, TX
759908	Feb 11	San Antonio, TX
759909	Mar 3	Cincinnati, OH
759910	Mar 4	Cincinnati, OH
759927	Mar 17	Jackson, MS
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.

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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

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MALFUNCTION OR DEFECT REPORT

OPER. Control No.
ATA Code
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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.)

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

☐ Accident; Date _____ ☐ Incident; Date _____

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