U.S. Department
of Transportation
**Federal Aviation
Administration**

Aviation Maintenance Alerts

AC No. 43-16A

ALERT NO. 244
NOVEMBER 1998

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 NOTIFICATIONS

UNAPPROVED PARTS NOTIFICATION NUMBER 97-159

BELL HELICOPTERS

The FAA's Suspected Unapproved Parts Program Office, AVR-20, located in Washington, DC, issued Unapproved Parts Notification Number 97-159 on September 3, 1998. This notification concerns Bell Helicopter Textron, Inc., Model 47 series and 204 series helicopters, and is published as issued.

The purpose of this notification is to advise all helicopter owners, operators, and maintenance entities that parts produced by Agusta, of Cascina Costa, Italy, are not eligible for installation on U.S. registered and U.S. type certificated helicopters. During an unapproved parts investigation, it was disclosed that numerous parts were manufactured by Agusta for various military organizations. These parts were introduced into the U.S. and offered for sale as eligible for installation on Bell 47 and 204 series helicopters. No parts produced by Agusta for these helicopters are eligible for installation even though the Agusta part numbers may be the same as the Bell part numbers. Some of these parts were shipped to customers located outside the U.S., and some parts were accompanied by an erroneously completed FAA Form 8130-3, Airworthiness Approval Tag. The possibility exists that these parts could re-enter the U.S.

FAA regulations require that U.S. type certificated products conform to their type design. Helicopter owners, operators, maintenance organizations, manufacturers, and parts suppliers should inspect their U.S. type certificated and registered helicopters and/or parts inventory for Agusta manufactured parts that appear to be genuine Bell parts. If items are installed on U.S. type certificated and registered helicopters, appropriate action should be taken. If found in existing aircraft parts stock, it is recommended that the parts be quarantined to prevent installation.

If questions arise regarding the manufacturing origin of a particular serialized part that may be considered for, or already installed on, a Bell 47 or 204 series helicopter, please contact the Bell Unapproved Parts Hotline at 1-800-BELL-250.

Further information may be obtained from the FAA, Flight Standards District Office (FSDO), 2260 Alliance Blvd., Fort Worth, TX 76177-4300, telephone (817) 491-5014.

UNAPPROVED PARTS NOTIFICATION NUMBER 97-321

LIFERAFTS

The FAA's Suspected Unapproved Parts Program Office, AVR-20, located in Washington, DC, issued Unapproved Parts Notification Number 97-321 on September 3, 1998. This notification concerns liferafts manufactured by Survival Products, Inc., and is published as issued.

The purpose of this notification is to advise all owners, operators, maintenance entities, and parts suppliers that Survival Products of Hollywood Florida, has been manufacturing liferafts without FAA approval. An unapproved parts investigation revealed that Survival Products, Inc., manufacturers liferafts and advertises them for sale in popular aviation publications as light weight, compact, and "Government Approved." The "yellow tags" attached to the rafts give the appearance that Survival Products, Inc., is a certified repair station and that the liferafts were inspected and approved for return to service. Survival Products, Inc., does not hold an FAA production approval for liferafts, or an FAA repair station certificate.

Aircraft owners, operators, maintenance entities, and parts suppliers are encouraged to inspect their aircraft and/or aircraft parts inventory for liferafts which may have been manufactured, repaired, inspected, and/or overhauled by Survival Products, Inc. Appropriate action should be taken to ensure that these liferafts are not utilized for aircraft operations that require an FAA-approved liferaft.

Further information may be obtained from the FAA Flight Standards District Office (FSDO) located at 1050 Lee Wagener Blvd., Fort Lauderdale, FL 33315, telephone (954) 356-7520, extension 126, FAX (954) 356-7531.

The FAA appreciates any information regarding the source leading to the discovery of the referenced unapproved liferafts, the means used to identify the source, and the action taken to remove the liferafts from aircraft stock.

AIRPLANES

BEECH

Beech; Model B23; Musketeer; Improper Mixture Control Cable Security; ATA 7602

The pilot reported the engine intermittently ran lean during flight and ground operations.

The technician investigated and found that the mixture control cable housing slipped inside the clamp (P/N PP561DS4). Evidently, a previous technician replaced the clamp with an improper clamp. This allowed the carburetor mixture to vary as the cable housing moved in the clamp.

After the technician installed the proper clamp and rigged the mixture control cable, the system functioned normally.

Part total time not reported.

Beech; Model A36; Bonanza; Frayed Rudder Control Cable; ATA 2720

During a scheduled inspection, the technician discovered a severely frayed rudder control cable.

The technician discovered that a previous technician routed the rudder cable (P/N 002-524000-23) through the aft pulley bracket,

under the forward cable guard, over the pulley, and over the aft cable guard (P/N NAS427K11). The resulting friction due to movement of the cable caused fraying of the cable and cracking and wear to the cable guard. The technician found the damage 14 inches from the forward end of the rudder cable.

The submitter stated attention to details could have prevented this type of defect.

Part total time-487 hours

Beech; Model B36-TC; Bonanza; Fuel Pump Failure; ATA 2822

After a normal takeoff, the pilot turned off the electric fuel boost pump and the engine failed.

Maintenance personnel discovered a sheared engine-driven fuel pump (P/N 649368-9A2) drive shaft (P/N 653359). The friction between the two pieces of the broken drive shaft allowed the engine to operate at lower power settings; however, the pump could not sustain enough fuel supply for operation at higher power settings.

Part total time-236 hours.

Beech; Model 58P; Baron; Horizontal Stabilizer Structural Damage; ATA 5510

While conducting a scheduled inspection, the technician found cracks in the left horizontal stabilizer.

The technician found the cracks in the upper and lower horizontal stabilizer support channel radii. A previous technician stop drilled the cracks; however, the drill bit passed through the spar (P/N 002-440023-73). This damage required replacement of the spar and the support channel.

Part total time-4,400 hours.

Beech; Model 58P; Baron; Nose Landing Gear Door Failure; ATA 5280

When the pilot retracted the landing gear after takeoff, the nose gear doors remained open. The pilot extended the landing gear and made a safe landing.

An inspection of the nose gear door assemblies disclosed a broken door retraction pin (P/N 002-82001639). The submitter speculated the defect occurred due to improper door rigging.

Part total time not reported.

Beech; Model 58TC; Baron; Engine Exhaust Shield Security; ATA 7800

During an annual inspection, maintenance personnel found a loose engine exhaust heat shield.

The loose heat shield (P/N 102-910063-7) on both engine exhaust systems damaged an engine mount (P/N 102-910026-137). The damage required the technician to replace an engine mount on each engine. The submitter did not offer a cause for the loose heat shields. It is wise to check the security of this installation at every opportunity.

Part total time not reported.

Beech; Model D95A; Travel Air; Engine Oil Line Failure; ATA 7920

During flight, the pilot noticed the right engine began emitting smoke and the oil pressure began to decline. He shut down the engine and made a safe landing.

Maintenance personnel discovered two ruptured engine oil system hoses. Excessive heat from the engine exhaust system burned through both the inlet and outlet oil hoses connected to the oil cooler. A previous technician secured these oil hoses to the engine cowling. When someone closed and latched the upper cowl half, the cowling pulled inward causing the oil hoses to contact the engine exhaust. The submitter recommends maintaining proper oil hose

routing to provide sufficient clearance from the engine exhaust system. The submitter did not give any information concerning the oil hoses' age or time in service.

Part total time not reported.

Beech; Model 200; King Air; Defective Wing Attachment Bolt; ATA 5741

During a scheduled inspection, maintenance personnel discovered a defective right wing attachment bolt.

As a part of the inspection, the technician removed and inspected the wing attachment bolts using dye penetrant. The bolt was found cracked at the radius of the bolt shank and the head. The submitter advises giving this area special attention during maintenance and inspections.

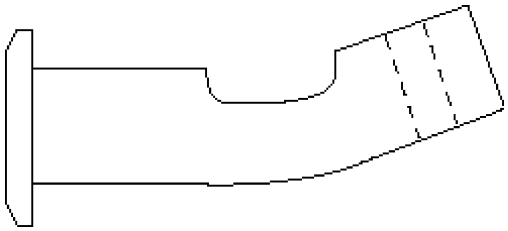
Part total time-2,475 hours.

Beech; Model 300; King Air; Defective Entrance Door Latch; ATA 5210

During ground operations, the cabin door annunciator light illuminated.

An investigation revealed a bent and worn clevis pin in the forward upper door latch hook mechanism. (Refer to the following illustration.) The technician speculated that age and use contributed to failure of the clevis pin. During scheduled inspections and maintenance, pay close to the cabin door latching mechanism.

Part total time-4,500 hours.



CESSNA

Cessna; Model 140; Carburetor Icing; ATA 7322

Airworthiness Directive (AD) No. 98-18-03 affected this aircraft with a Teledyne Continental Model O-200 engine installed. This required the installation of a one piece venturi in the Marvel Schebler Model MA-3SP carburetor.

The submitter stated that after installing the one piece venturi, carburetor icing and high fuel consumption occurred. Prior to installation of an overhauled carburetor with the one piece venturi, carburetor heat was needed only during landing. After complying with AD 93-18-03, carburetor heat was needed for takeoff and every few minutes during most flight conditions. Several carburetor overhaul companies have developed various modifications designed to eliminate the icing problem; however, none have yet been successful. The FAA issued AD No. 98-01-06 that supersedes AD No. 93-18-03 allowing the installation of the two-piece venturi which appears to solve both the icing and high fuel consumption problems. The two-piece venturi installation still requires recurring inspections.

Part total time not applicable.

Cessna, Models All Single-Engine High-Wing Aircraft; Fuel System Anomalies; ATA 2810

As the result of FAA Safety Recommendation 96-259, the FAA Aircraft Certification Office (located in Wichita, Kansas) submitted the following information.

A pilot reported a fuel exhaustion incident. An obstruction in the primary vent inlet resulted in fuel being siphoned overboard during flight.

Many older model high-wing aircraft have fuel tank vents mounted on the fuel caps or above the wing. It is difficult, if not impossible, to observe these vents during flight. Fuel siphoning may occur if the fuel cap installation is backwards or if the primary above-wing forward-facing vent becomes obstructed.

The FAA has discouraged the continued use of above-wing primary fuel vent inlets on recently type certificated aircraft. Also, the FAA has written and issued regulatory directives to remove these devices from some of the older model aircraft.

To ensure proper fuel vent operation, the FAA encourages technicians and pilots to be vigilant during preflight, annual, and routine inspections.

Part total time not applicable.

Cessna; Model 172; Skyhawk; Excessive Rudder Hinge Wear; ATA 5550

During a scheduled inspection, the inspector discovered excessively worn lower rudder attachment point hinges.

The available evidence indicated the lower attachment point hinge (P/N 0531018-3) hole had been drilled oversize to all three attachment points for alignment. Improper installations such as this can cause catastropic results. Usually, it is no more difficult to complete the job at hand correctly than incorrectly.

Part total time-192 hours.

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

The pilot reported hearing a rattling noise when engaging the carburetor heat during flight. After landing, he could not shut down the engine using the mixture control.

While investigating this problem, maintenance personnel discovered that all of the carburetor bowl attachment bolts had come loose. The carburetor bowl locking tabs retained the bolts. This caused a gap of approximately .030 inch between the bowl and the upper flange that allowed the engine to draw in fuel. The submitter recommended checking the carburetor and fasteners for security during inspections and maintenance.

Part total time-1,375 hours.

Cessna; Model 172R; Skyhawk; Multiple Flight Control Defects; ATA 2700

While complying with Cessna Service Bulletin (SB) 98-27-06, maintenance personnel discovered many defects related to the flight control systems.

The elevator trim tab cables were improperly routed. The elevator trim tab down travel was 19 degrees—the limit is 15 degrees ±1 degree. The elevator trim tab cable tension was 22 pounds—the limit is 15 pounds +5 -0 pounds. All four trim tab actuator attachment screws were loose and one was in by only two threads and was cross-threaded into the nutplate. The elevator travel was 30 degrees down—the limit is 28 degrees ±1 degree. The elevator down travel was 26 degrees—the limit is 23 degrees ± 1 degree. Both aileron cables were on the same pulley in the left wing root.

The submitter did not allude to the origin of these defects or if the pilot flew the aircraft in this condition. This situation placed extreme peril on occupants and the aircraft had a flight been attempted.

Part total time-426 hours.

Cessna; Model 182Q; Skylane; Hydraulic System Fluid Depletion; ATA 2910

During flight, the pilot experienced sudden hydraulic fluid discharge into the cockpit. This condition depleted the hydraulic system fluid, and the pilot could not extend the landing gear resulting in a gear up landing.

An investigation disclosed the installation of a hydraulic system pressure indicator using a “Tee” fitting on the hydraulic power pack. The flared end of the line failed at the indicator and separated from the “B” nut. The submitter did not comment on the condition or quality of the flare on the end of the hydraulic line.

Part total time not reported.

Cessna; Model R182; Skylane RG; In-Flight Fire; ATA 2820

After experiencing an in-flight engine compartment fire, the pilot closed the fuel selector valve and made a safe emergency landing.

An inspection revealed a broken nipple fitting (P/N AN-9112D) used to connect the carburetor "finger screen" to the fuel supply line. Fuel sprayed into the engine compartment and ignited. The fire burned a hole in the lower aircraft skin just aft of the firewall. After exhausting the fuel supply, the fire extinguished itself.

Part total time not reported.

Cessna; Model 177RG; Cardinal; Main Landing Gear Failure; ATA 3230

As the result of FAA Safety Recommendation 98-015, the FAA Aircraft Certification Office (located in Wichita, Kansas) submitted the following information. The problem described affects aircraft manufactured from 1971 through 1978.

During an investigation of a gear-up landing, the pilot stated the main landing gear did not extend when the pilot placed the selector in the "down" position. Further investigation disclosed the main gear actuator rod-end bearing failed, the actuator disengaged from the sector arm, and the main gear could not extend.

On December 15, 1980, Cessna issued Service Letter (SL) SE79-37R1. This SL contains instructions for replacing the main gear actuator rod-end with a higher strength part (P/N S2426-6). Owners, operators, and maintenance personnel should ensure they are in compliance with this SL during the next scheduled inspection, or sooner.

Part total time not applicable.

Cessna; Model 310C; Main Landing Gear Failure; ATA 3230

After an uneventful landing, the left main landing gear collapsed.

Maintenance personnel discovered a broken bellcrank assembly (P/N 0841000-77) at both of the strut connection points. The submitter suggested that technicians closely inspect the bellcrank assemblies for stress and/or fatigue cracks. A dye penetrant inspection may prevent an incident such as this.

Aircraft total time-5,300 hours.

Cessna; Model T337; Turbo Skymaster; Defective Emergency Hand Pump; ATA 3230

During an annual inspection, maintenance personnel discovered a defective emergency landing gear hand pump lever.

The landing gear hand pump lever (P/N 2080007-201) had several cracks emanating from the area of the forks. There are two attachment holes with bushings installed in each of the forks. The bushings were loose in the worn holes causing excessive free play in the assembly. It appeared excessive force being applied to the lever during operation may have caused this damage.

Part total time-1,200 hours.

GULFSTREAM

Gulfstream; Model G-III; Cockpit Side Window Delamination; ATA 5610

After the aircraft returned from an overseas trip, the flightcrew reported a 1.5- by 8- inch delamination and crack in the cockpit's right side window.

The crack originated in the upper forward corner of the window (P/N 1159SCB3100-4). By reference to the manufacturer's maintenance manual, the technician determined that the delamination did not

cause this defect. The technician contacted the manufacturer's technical representative, and the representative stated the damage was actually a structural failure of the acrylic outer pane. The representative stated the window was no longer serviceable.

The technician ordered a new and improved window (P/N 1159SCB3100-12) which replaced the (-4) window. When the technician removed the damaged window, he discovered numerous cracks in the outer pane. The cracks traveled through 14 of the 28 bolt holes used to secure the window. Most of the cracks were along the forward and lower edges of the window. One installs this window with bolts (P/N AS1580A3T23), washers, and nuts through an aluminum bushing pressed into the acrylic window.

The later version of this window, which is a (-6), has the aluminum bushing bonded into the acrylic window with a silicone rubber compound. The compound allows a "float" condition, thus the bushings do not contact the window directly. Evidently, this modification stopped the cracking problem.

To identify impending failure, the submitter recommends frequent inspections to all side windows (P/N's 1159SCB3100-3 or -4).

Part total time not reported.

Gulfstream; Model 690B; Twin Commander; Broken Rudder Cable; ATA 2720

During compliance with Twin Commander Service Bulletin No. 195b, the technician discovered that both aft rudder cables (P/N's 500012-251 & 253) had numerous cable strands broken.

The submitter states that the instructions in the SB No. 195b do not address the removal or inspection as outlined in AC 43.13-1A, chapter 4, paragraph 198, figure 4-14; and that this procedure is the only way to properly inspect those cables.

The submitter has found many aircraft with cable strands broken beyond the limits specified in the service bulletin while inspecting the cables in this manner. The submitter further suggests that owners and/or operators of similar make and model aircraft comply with Service Instructions - No. 199 which allows for the installation of larger pulleys in that location, which produce a gentler radius and less cable fraying.

Total part time — 2,400 hours

Gulfstream; Model 690; Twin Commander; Catastrophic Window Failure; ATA 5610

While the airplane was flying at 13,000 feet with a 4.2 pounds per square inch cabin differential and at an indicated airspeed of 250 knots, the copilot's side window failed catastrophically.

The airplane lost approximately 50 percent of the window, causing some secondary damage to the propeller, leading edge of the wing, and the fuselage.

The technician could not identify the cause by examining the window frame. The submitter recommends a prism/oil check of all pressure windows at each 100-hour inspection to reveal any cracks that may develop in the area of the fastener holes.

Total part time — Not reported

Gulfstream; Model 695A; 1000 Jetprop; Gear Truss Attach Angle Crack; ATA 3211

During a 100-hour inspection, the technician found the right main landing gear inboard truss attach angle to have a .9 inch radius crack, located approximately 1 inch from the aft end. The technician stop-drilled this crack and installed a doubler and radius block.

The cracks appear to be a result of normal wear. Because of this, the submitter recommends close inspection of all four angles at regular intervals.

Total part time — 4,682 hours

Gulfstream; Model 112A; Improperly Torqued Cylinder Stud; ATA 8500

While in flight the pilot noted that the nose gear would not extend normally. After a fly-by, the control tower operators confirmed no extension of the nose gear.

Use of the emergency gear extension procedure allowed the pilot to extend the gear and make a safe landing.

The subsequent inspection of the Lycoming IO-360C1A6D engine revealed that the exhaust stud (P/N 31C12) from the No. 4 cylinder had fallen out with the nut and a helicoil still attached. The stud had become lodged in the door hinge slot of the nose gear. This prevented the gear from extending normally.

Logs indicated that technicians replaced the No. 4 cylinder gasket and possibly improperly torqued the stud causing the helicoil to strip from the hole.

Total part time — Not reported

Gulfstream/Commander; Model 500S; Shrike; Engine Mount Corrosion; ATA 7120

This is an excerpt from a letter from the Portland, Maine, Flight Standards District Office to the Manager of the Aviation Data Systems Branch, AFS-620.

While performing a base inspection at a repair station, the repair station personnel notified this office that the lower side of the engine mounts had severe corrosion. The technician found the corrosion under the bottom engine cowling mounting plate. The engine mount has a cavity machined out of the mount and covered by a cowling mounting plate. Moisture enters the cavity through a small hole at the top of the plate where the plate comes in contact with the engine mount. Once moisture enters the cavity, it has no means of draining. Upon inspection, two aircraft inspectors found corrosion under the plates. One engine mount had to be replaced due to the amount of corrosion present. Technicians repaired the other engine mount using approved data. The manufacturer modified the new mounts by eliminating the cavity area trapping water.

In accordance with FAA Order 8020.11, chapter 7, and in the interest of safety, it is this office's recommendation that the technicians inspect the engine mounts for corrosion and repair or replace them, as necessary. In addition, technicians should fill the cavity with a corrosion preventative compound and inspect it at a regular intervals.

Total part time — 5,000 average hours

PIPER

Piper; Model PA28-140; Cherokee; Corrosion; ATA 5712

Upon removal of the left wing fuel tank (P/N 65998-16) in conjunction with the replacement of the fuel vent hoses, the technician noted that there was an excessive amount of corrosion on the outboard side of the false rib (nose rib).

The corrosion appeared blistered which prompted still further investigation with a pointed scribe. The corrosion appeared quite severe because with only the lightest of hand pressure the metal could be completely penetrated.

Since no evidence of fuel leakage existed, it would be difficult to detect this problem without the assistance of Alert articles like this, prompting technicians to check the same make and model aircraft for similar situations.

Total part time — 3017 hours

Piper; Model PA31; Chieftain; Wheel Well Obstruction; ATA 3200

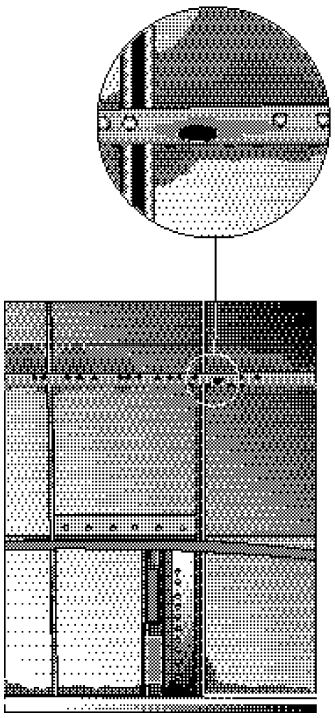
When the pilot retracted the gear, the brake caliber fitting (P/N 754-857) went past its center position. This allowed it to extend into a rib (P/N 74009-06) area. Because of this, the left main gear would not extend when selected to the down position.

The pilot had to utilize a “G force” maneuver to get the gear loose and extended. The technician notified the manufacturer and an engineer from that company approved clearance modification to avoid further problems with similar aircraft in the future.

The manufacturer equipped the aircraft with heavy-duty Cleveland brakes. The aircraft also has Boundary Layer Research Incorporated STC SA00202SE installed. This STC allows for the main strut to extend farther than the stock strut. This allows the brake line fittings located at the bottom of caliper to contact the wing rib located at wing station 39.5.

Boundary Layer issued Service Bulletin No. 103 to address this problem by providing a cut-out (see the following illustration) for additional clearance. The submitter also feels that the location and condition of the rubber bumper the gear is designed to rest against in the up-cycle process contribute to this problem.

Total part time — Unknown



Piper; Model PA31-TIA-500; Cheyenne IA; Wiring Short; ATA 2572

During a preflight ground check, the cockpit filled with smoke and something tripped numerous de-ice system circuit breakers. The pilot secured the aircraft systems and exited the aircraft. No further fire incident occurred.

A detailed inspection revealed that a connector (E426) in the forward avionics bay had melted. This caused the 14-gauge wires used for the intake lip de-ice system to short with the 14-gauge control wires in the de-ice system switches in the overhead panel. Also, the 22-gauge wires melted in several places between the connector in the forward avionics bay and the overhead switch panel.

It appears that service personnel complied with Piper Service Bulletin (SB) No. 795A although not indicated by a log entry. This bulletin requires that the 14-gauge wire run through three pins on the connector. It is unknown what caused the connector to melt and this problem is being forwarded to the appropriate ACO for further investigation.

Total part time — Not submitted on the M or D form.

Piper; Model PA31T1; Cheyenne I A; Rudder Torque Tube Corrosion; ATA 2720

During a phase inspection the technician discovered a corroded rudder torque tube. He removed the rudder for further investigation.

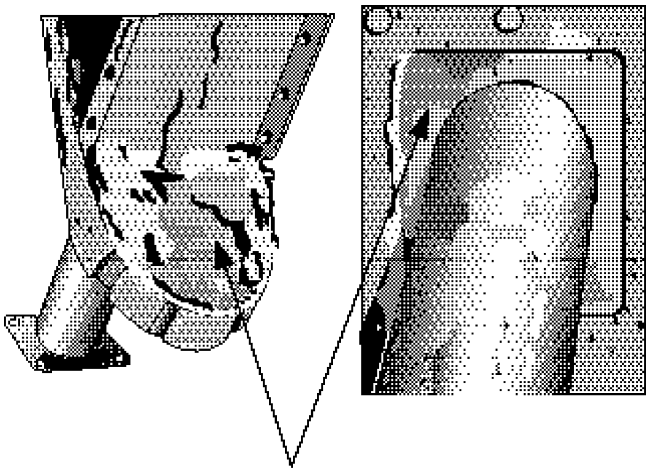
Closer inspection revealed heavy corrosion to the torque tube assembly (see the following illustration), and the technician determined that it was not fit for service. He also discovered that corrosion affected the bottom rib of the rudder.

The technician found residue of paint stripper when he removed the skin. Maintenance personnel painted the aircraft 5 years earlier according to the aircraft records.

The submitter feels that the residue of paint stripper, the dissimilar metal of the torque tube and the surrounding rib section, and the

fact that no drainage hole exists in the bottom of the rib added to the acceleration of the corrosion.

Total part time — 2706 hours



Piper; Model PA31T2; Cheyenne IIXL; Missing Gear Actuator Bolt; ATA 3230

During gear extension, the pilot received no down and locked indication in the cockpit. He attempted manual hydraulic extension, but was not effective. He then activated the pneumatic extension system and was successful in producing a downlock indication. He made an uneventful landing.

During inspection of the left landing gear, the technician found the landing gear extension actuator bolt missing. A closer examination revealed that the bolt had sheared.

The submitter recommends that the bolt be closely inspected and/or replaced during routine inspections.

Total part time — not submitted

Piper; Model PA38-112; Tomahawk; Broken Crankshaft; ATA 8520

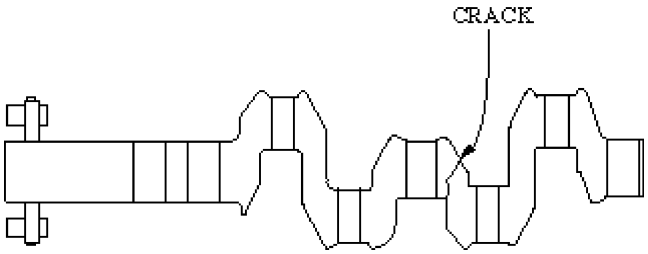
This aircraft was destroyed during a forced landing due to an engine crankshaft (S/N L-21202-15) failure.

An investigation revealed a resulting fatigue crack adjacent to the center main bearing journal. (See the following illustration.)

This engine had two previous propeller strikes, but did not require a crankshaft inspection.

The submitter recommends revising AD 91-14-22 requiring crankshaft inspection in accordance with Lycoming's Service Bulletin No. L163C, following any propeller strike.

Total part time – 6462 hours



Piper; Models PA-28-140 and PA-28R-180; Cherokee and Arrow; Wing Flap Control Failure; ATA 2750

We recently received two reports concerning wing flap control failure. The PA-28-140 (Cherokee) report resulted from an aircraft accident, and the PA-28R-180 (Arrow) report involved an incident. In both cases, the pin used to hold the flap handle in the selected position failed.

The Cherokee report stated the technician could not find the flap latching pin, and it appeared the pin fractured at the roll pin hole.

The Arrow report stated the following:

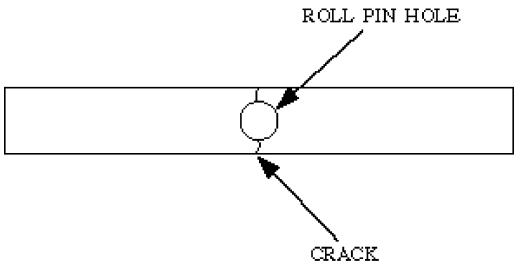
During a landing approach, the pilot selected the second notch of the flaps, heard a loud bang, and the aircraft pitched down suddenly. The pilot noticed that the flap handle had

retracted to the “zero” flap position. The pilot regained aircraft control and made a safe landing.

During an investigation, maintenance personnel discovered a broken flap handle latching pin. The latching pin broke at the .062-inch diameter roll pin hole. (Refer to the following illustration.) The roll pin retains the latching pin in the plug (P/N 62734-00). The area of the latching pin containing the roll pin is impossible to inspect. The technician cannot remove the roll pin for inspection without destroying the latching pin and plug.

Failures such as these may have disastrous results if they occur during a short final approach.

Arrow part total time-2,555 hours. Cherokee part total time not reported.



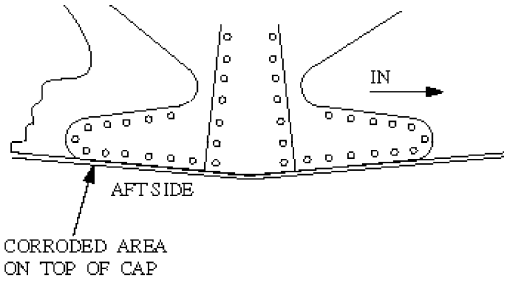
Piper; Model PA28-140; Cruiser; Inboard Main Spar Corrosion; ATA 5711

An inspection of the lower aft inboard section of the main spar cap (see the following illustration) revealed the presence of severe exfoliation corrosion.

The corrosion began approximately 1 inch under the outboard end of the wing attach doubler and extended to approximately 4 inches out from that point.

A crack resulted from the corrosion in the aft end of the spar cap which was approximately 1/8 inch in depth. Very mild surface corrosion occurred on the rest of the wing structure, which was consistent with normal wear of a 32-year-old aircraft.

Total part time — Unknown to the submitter



Piper; Model PA24; Comanche 180; Cracked Weld; ATA 7810

After take-off, the pilot reported smoke in the cockpit. After making a safe emergency landing, the pilot reduced the power and the smoke seemed to clear.

After the technician removed the cowling, he noted that the exhaust pipe was off the muffler (P/N 21092-08) as a result of a broken weld of the No. 3 riser at the carburetor heat shroud end. The submitter speculates that the unsupported muffler and pipe assembly put undue stress on the affected area.

The submitter recommends a thorough inspection of the entire exhaust system at every annual inspection.

Total part time — 4426 hours

Piper; Model PA-60-600; Aerostar; Defective Engine Throttle Cable Attachment; ATA 7603

During flight, the right engine failed to respond to movement of the throttle. The pilot made a safe landing and reported the problem to maintenance personnel.

An inspection disclosed that a previous technician did not connect the throttle control cable to the throttle arm at the engine. The technician discovered that attaching hardware was missing. The required hardware includes a bolt (P/N AN3-10A) with an undrilled head

and a steel locknut (P/N MS20365-1032C) to secure the throttle cable to the throttle arm. The submitter speculated the steel locknut lost its locking ability and vibration allowing it to back out of the bolt threads.

The submitter suggested that the manufacturer revise this installation to include a drilled shank bolt with a castellated nut secured by a cotter pin.

Part total time not reported.

HELICOPTERS

BELL

Bell; Model 47-G3B1; Main Transmission Defect; ATA 6320

During an inspection, the technician discovered excessive backlash in the fan drive assembly (P/N 47-620-497-1).

When the technician removed the fan drive quill assembly, a new gear pattern was evident. The new gear pattern was aft and high and ran off the heel of the "530" gear. After removing the clutch assembly, the technician found that the duplex bearing failed due to improper installation of the clutch assembly.

The technician installed the duplex bearing set with the thrust side of each bearing outboard, in accordance with the manufacturer's Technical Bulletin No. 47-75-4, revision A, page 4. The manufacturer also indicates the correct orientation is indicated on the bearing race.

The submitter suggested closer attention to detail during installation procedures.

Part total time-57 hours.

Bell; Model 206L3; Long Ranger; Hydraulic System Failure; ATA 2916

During flight, the airplane experienced a total hydraulic system failure, but the pilot made a safe emergency landing.

While inspecting the hydraulic system, the technician discovered the flexible suction line (P/N Bell 70-053J00T106) running from the reservoir to the hydraulic pump failed internally. The exterior of the line did not reveal any visible defects, and the hydraulic fluid did not leak. The interior hose lining collapsed and blocked the flow of hydraulic fluid.

The submitter suggested checking all flexible aircraft hoses at every opportunity and replacing aircraft hoses after 5 years in operation.

Part total time-1,938 hours.

Bell; Model 412; Corrosion Damaged Bolts; ATA 6700

During a 300-hour inspection, the technician discovered one of the bolts securing the "boosted cyclic" displayed wear and required replacement.

The technician obtained a new replacement bolt (P/N 212-001-323-001) from stock. When the technician opened the sealed package containing the new bolt, he noticed etching corrosion damage on the bolt shank area. The technician stated three new bolts remained in stock, but two of the bolts also displayed etching corrosion damage on the shank area.

After discussing the problem with the Bell quality control department, the technician packaged the rejected bolts and sent them to Bell for analysis.

We will publish the Bell analysis results when they become available.

Part total time-0 hours.

MCDONNELL DOUGLAS

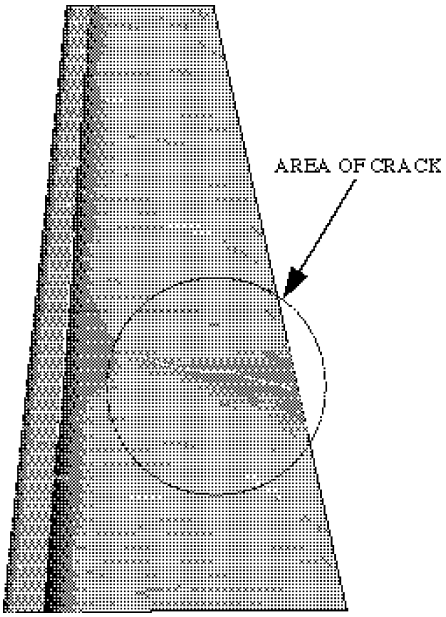
McDonnell Douglas; Model 369HS; Main Rotor Blade Defect; ATA 6210

While inbound for landing, the pilot detected a vibration and landed the helicopter safely.

The technician inspected the helicopter and found a crack on a main rotor blade. The crack ran from the blade trailing edge to the blade main spar on the top and bottom surfaces of the blade. (Refer to the following illustration.) The technician found the crack at station 71 and stated the crack appeared to originate from a 1/32-inch nick in the trailing edge of the blade. The technician found a slight dent, of unknown origin, along the length of the crack.

This helicopter underwent a 100-hour inspection less than 6 hours before this incident. At that time, the helicopter did not display any damage or cracking. The technician recommended that all operators and technicians give full attention to the main rotor system during inspections and maintenance.

Part total time-1,106 hours.



AGRICULTURAL AIRCRAFT

GRUMMAN

Grumman; Model G-164; Ag Cat; Engine Power Loss; ATA 7603

The National Transportation Safety Board (NTSB) submitted this information for publication.

During flight, the engine lost power requiring a forced landing. The landing resulted in substantial damage to the aircraft and fatal injuries to the pilot.

An examination revealed the carburetor throttle arm was in the “idle” position while the throttle lever in the cockpit was in the “full throttle” position. The carburetor arm did not respond to movement of the throttle lever. When the bolt and nut holding the ball end of the cable to the carburetor were removed, the ball end and approximately 8 inches of the push-pull control came out of the cable housing.

A metallurgical examination of the throttle cable disclosed wear and fatigue cracking at the fractured ends. When installed, the throttle cable makes two 90-degree bends. The cable housing prevents inspection of the throttle cable and checking the connections at the throttle quadrant and the carburetor will not reveal cable wear and/or cracking.

There is no established life limit for the throttle; however, the NTSB recommended removing and replacing the cable prior to reaching 10,000 hours of operation.

Part total time-10,002 hours.

AMATEUR, EXPERIMENTAL, AND SPORT AIRCRAFT

AVID

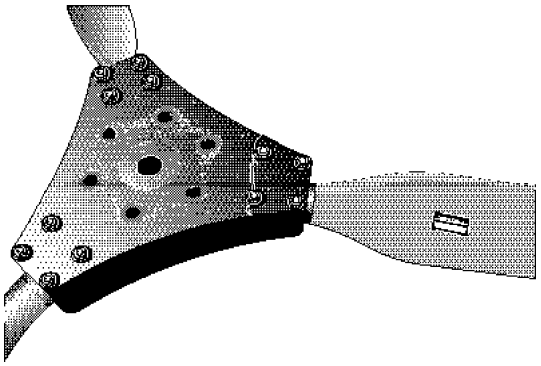
Avid; Model Magnum; Engine: Textron Lycoming; Model O-360-B1A; Propeller: Warp Drive; Model T6801; Severe In-Flight Vibration; ATA 6111

During cruise flight, a severe vibration developed. The pilot reduced engine power and landed at a nearby airport.

An investigation disclosed that one of the three propeller blades was out of track approximately 2 inches to the rear. After removing the propeller, the technician discovered the rear mounting plate displayed a crack across both inboard blade mount holes. (Refer to the following illustration.)

The submitter speculated "overtorquing" the mount bolts caused this damage. Before this occurrence, a technician loosened and tightened the blade mount bolts several times while adjusting the pitch for proper engine loading. The submitter suggested that the propeller manufacturer emphasize the importance of using a torque wrench to prevent overtorquing damage to the rear mounting plate.

Part total time-55 hours.



PROPELLERS AND POWERPLANTS

ROTAX

Rotax; Model 912; Connecting Rod Failure; ATA 8520

This engine was installed in a Diamond Model DA-20A1 aircraft.

During a missed-approach landing and a go-around, the pilot heard a loud "bang" and lost a significant amount of engine power. A fire erupted in the engine compartment, smoke filled the cabin during the final approach, and the engine seized just prior to landing. The pilot landed the aircraft safely, evacuated the aircraft, and extinguished the fire. The aircraft received considerable damage to the engine compartment and structure.

An inspection revealed that a connecting rod broke away from the crankshaft, and the engine case broke. Engine oil was thrown out of the engine and ignited by the exhaust system. The submitter did not offer a cause for this failure.

Part total time-900 hours.

ACCESSORIES

EMERGENCY LOCATOR TRANSMITTER

This article addresses the installation of a Leigh Sharc 7, Model 754-193 emergency locator transmitter (ELT) in a Cessna Model 172 aircraft.

During a preflight inspection, the pilot discovered the contents of one battery cell on the baggage compartment carpet. Further investigation disclosed an explosive force

expelled the Artex battery (P/N 00-04-006A) from the ELT. The ELT case broke, and the technician could not make the repair.

The submitter did not offer a cause for this failure.

Battery total time-47 hours.

ENGINE OIL FILTERS

A recent report, concerning Champion oil filters, stated technicians are finding metal "hair-like" burrs on the outlet tube.

The submitter speculated that a "machining operation" during manufacture caused the burrs. If the burrs detach, they can cause engine oil contamination. In this case, the filter is model No. CH48110; however, this defect may be present in other oil filter makes and models.

The submitter suggests inspecting new oil filters for burrs or other anomalies before installing the filters.

Part total time-0 hours.

AIR NOTES

ADVISORY CIRCULAR 43.13-1B UPDATE

The FAA, Flight Standards Service, AFS-1, signed the final draft of Advisory Circular (AC) 43.13-1B, Acceptable Methods, Techniques, and Practices-Aircraft Inspection and Repair, authorizing publication. This document should be available through the Government Printing Office (GPO) later this year. This will revise the current AC 43.13-1A, dated 1972. The aviation industry has long anticipated this document's release.

The FAA expanded the information in this publication approximately three fold and updated it to include new technology. When issued, AC 43.13-1B will be available in paper copy, and possibly through the internet. At this time, the Government Printing Office has not established the cost of the document. You may contact Mr. George Torres, AFS-610, if you have questions or comments. The telephone number for Mr. Torres is (405) 954-6923, FAX number (405) 954-4104.

CARE AND USE OF TORQUE WRENCHES

Mr. Richard Gill wrote and submitted the following article.

> We use torque wrenches to ensure proper preloading of various types of fasteners. However, are we really accomplishing what we set out to do? We know how to use torque wrenches, and we can figure "indicated torque" from "actual torque" when using different extensions and/or adapters, but a question remains concerning the accuracy of the basic torque wrench itself. Some of us buy torque wrenches without any thought of checking the calibration before using them.
>
> The Standard Aviation Maintenance Handbook, Number EA-2R2-0, published by International Aviation Publishers, page 59 states: "Proper torque may be obtained by using an accurate, recently calibrated torque wrench." FAA Advisory Circular (AC) 43.13-1A, Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair, chapter 5, page 115, section 1, paragraph 227(e)(1) states: "Calibrate the torque wrench periodically to assure accuracy and recheck frequently." The Snap-On Tools catalog states: "Periodic calibration is necessary to maintain accuracy."
>
> I contacted three tool manufacturers: Utica Tools; Consolidated Devices, Inc.; and Snap-On Tools to discuss the calibration of their equipment. All three manufacturers referenced the National Standards.

The American National Standards Institute (ANSI) standards require a torque wrench to maintain accuracy through 5000 cycles. The Federal Standard FED.STD. GGG-W-868 requires a torque wrench to maintain accuracy for three cycles at 20, 40, 60, 80, and 100 percent of the indicator scale. The American Society of Mechanical Engineers (ASME) document B107.14M and the International Standards Organization (ISO) document 6789 require accuracy for three cycles at 20, 60, and 100 percent of the scale.

Torque wrench calibration is subjective and you must establish it considering the nature of application, frequency of use, condition, and time. This does not mean you can send a torque wrench for calibration after you use it 5000 cycles. There are many other factors to consider. If you drop a torque wrench, expose it to vibration, or if it meets with other detrimental conditions, this may affect the calibrated accuracy. Most "standards organizations" recommend that a torque wrench be calibrated at least once a year, and perform an in-house check using a torque tester at 3-month intervals. It is important to remember the torque tester also requires periodic calibration. If you do not have access to a torque tester and you drop a torque wrench, you should calibrate the torque wrench before you use it again.

When you calibrate your torque wrench, you should receive a report that you can use to track its level of accuracy from one calibration date to the next. You can use this information to adjust the frequency of calibration. Remember that calibration may take 2 weeks or more.

A torque wrench is a delicate instrument and one should treat it with care. The following list contains a few special care practices that will extend the life and accuracy of your torque wrenches.

1. Do not clean the torque wrench in the parts washer. Just wipe down the exterior. The torque wrench has a special lubricant inside, and most solvents will remove or degrade its function.

2. If you haven't used the torque wrench recently, cycle the wrench at a midrange torque setting in the direction of torque about ten times to distribute the lubricant on the internal working parts.

3. Torque wrenches are tough; however, they are precision tools. Therefore, you should avoid dropping or subjecting the tool to abuse and make any repairs by a qualified and authorized facility.

4. Do not use the torque wrench to break loose tight nuts and bolts, use a breaker bar.

5. Do not use an extension or "cheater bar" on the torque wrench. If you use an extension handle, you are either outside the design range of the torque wrench or the torque wrench is not operating properly. Use a larger torque wrench or a torque multiplier.

6. Remember authorities consider most torque wrenches accurate only in the upper 80 percent of the indicated scale (i.e., 30 to 150 inch pounds scale is accurate from 54 to 150 inch pounds, 150-30=120 x .8=96, 150-96=54). (Refer to the applicable standard.)

7. Store the torque wrench at the lowest setting in a moisture-free area.

8. Store the torque wrench in the case it came in or in as shock-resistant environment as possible. Do not allow the torque wrench to roll around in a drawer of a tool box.

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

INFORMATION NEEDED

Airframe and Powerplant mechanics seeking an Inspection Authorization (IA) may be omitting information from FAA Form 8610-1, Mechanics Application for Inspection Authorization, which is needed by the FAA, Airmen Certification Branch, AFS-760.

Many times, AFS-760 requests additional address information after FAA Form 8610-1 has been routed through the Flight Standards District Office (FSDO) which causes additional cost and time for the applicant and AFS-760.

If the applicant completes Block 2 of FAA Form 8610-1 with a business address, a P.O. Box, or a rural route, the applicant should also furnish a physical address where the applicant can be reached during normal business hours.

If you prefer using a separate mailing address (other than a residential address) to receive Airworthiness Directives and other FAA information, you must furnish AFS-760 with a residential address for the airmen record.

This action is required by the FAA Drug Enforcement Assistance Act of 1988.

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 an 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 Part 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.	1998	Location
759903	Nov 18	Wichita, KS
759904	Nov 19	Wichita, KS

Seminar No.	1999	Location
759905	Jan 27	Raleigh, NC
759906	Jan 28	Raleigh, NC
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	Ft. Lauderdale, FL
759916	May 13	Ft. Lauderdale, 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: Les Sargent (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 Les Sargent at (405) 954-6494.

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/

In the future, we will establish an E-Mail distribution system for the Alerts. When the system is in place, we will strongly urge you to use it. The system will save printing and mailing costs associated with delivering paper copies. If you would like to switch to the E-Mail distribution system, please tell us by using the subscription form in the back of this publication, so we can delete your name from the paper copy distribution list. We will continue to print paper copies for those who do not have access to the Internet and E-Mail.

If you like the idea of receiving the Alerts via the E-Mail distribution system, please let us know, so we will know how many readers will take advantage of the system. You may contact Phil Lomax by any of the means listed in the following article.

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.

Editor: Phil Lomax
Phone: (405) 954-6487
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

AFS-600 HomePage Internet address:

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

Current and back issues of this publication may still be obtained from the FedWorld Bulletin Board System (BBS) via the Internet at the following address:

http://www.fedworld.gov/ftp.htm

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The distribution list for the Alerts is maintained independently from other FAA distribution lists; therefore, it is very important to notify us when your address changes. Please complete the Subscription Request Form located on the last page of every edition of the Alerts. Be sure to write your name EXACTLY as it appears on the current label.

Also, if you are receiving more than one copy of each edition, please contact Phil Lomax at (405) 954-6487.

FAA FORM 8010-4, MALFUNCTION OR DEFECT REPORT

For your convenience, FAA Form 8010-4, Malfunction or Defect Report, will be printed in every issue of this publication. You may complete the form, fold, staple, and return it to the address printed on the form. (No postage is required.)

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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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