



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

# **Aviation Maintenance Alerts**

**AC No. 43-16A**

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A large, stylized graphic of a wing or tail section, rendered in black, positioned to the left of the word 'ALERTS'.

# **ALERTS**

**ALERT NO. 248  
MARCH 1999**

**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.

**AIRPLANES**

**AEROSPATIALE**

**Aerospatiale (Socata); Model TB-10; Tobago;  
Cabin Entry Door Defects; ATA 5210**

During an annual inspection, the technician discovered the left and right cabin entry doors were severely cracked.

The cracks ran along the door hinge line on the inside structure of each door. The left door crack was approximately 12-inches long, and the right door crack was approximately 14-inches long. The approved structural repair manual does not discuss the procedure to repair this defect.

Before this aircraft could be repaired and returned to service, it was necessary to design a repair scheme and obtain an FAA field approval.

This area deserves special attention during scheduled inspections.

Part total time-2,502 hours.

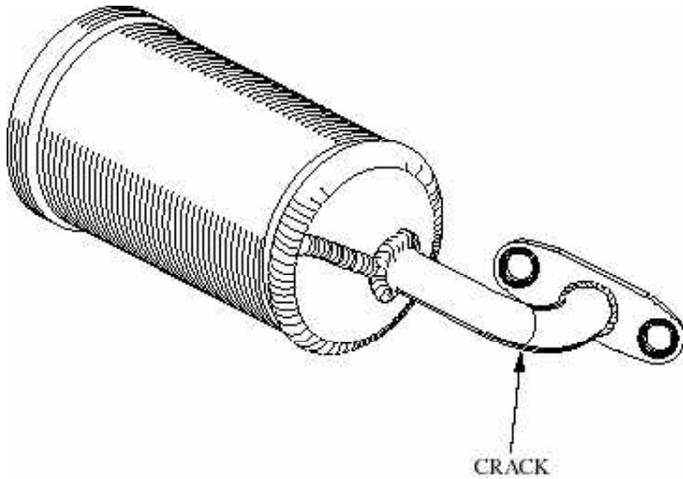
**Aerospatiale (Socata); Model TB-21TC;  
Trinidad; In Flight Loss of Engine Oil;  
ATA 8120**

During flight, the pilot noticed a severe engine oil leak. Before engine damage occurred, the pilot made an uneventful landing.

The engine (a Textron Lycoming TIO-540) lost approximately 9 quarts of oil. The oil loss was traced to the turbocharger oil return line located on the lower side of the engine. The oil return line, which runs from the turbocharger to a "can-type" reservoir, was cracked around approximately 300 degrees of its circumference at the point where it makes a 90-degree bend. It appeared the crack began at the outside of the 90-degree bend radius. (Refer to the following illustration.)

The submitter speculated this defect was caused by metal fatigue resulting from vibration. This area deserves special attention during scheduled inspections.

Part total time-1,738 hours.



where the baffle was attached and caused the leak. This was the second occurrence of this defect experienced by the submitter.

During flight, this defect may lead to serious hazards such as fires/explosions and engine fuel starvation.

Part total time-2,123 hours.

**AMERICAN CHAMPION**

**American Champion; Model 7GCAA; Citabria; Engine Exhaust System Interference; ATA 7120**

During an annual inspection, the technician discovered the engine exhaust system was chafing on engine mount bolts.

Both the left and right exhaust pipes were rubbing on the lower engine mount bolts at the firewall. The submitter checked several like aircraft and found the same problem on all the aircraft.

The submitter suggested that operators of like aircraft inspect their aircraft for the presence of this defect.

Part total time not reported.

**American Champion; Model 8KCAB; Decathlon; Fuel Leak; ATA 2810**

After the technician filled the fuel tanks, he noticed a leak in the area of the left fuel tank filler neck.

An investigation revealed the baffle inside the fuel tank (P/N 7-1537-1) was broken loose. Evidently, a crack developed at the point

**BEECH**

**Beech; Model E-90; King Air; Elevator Control Cable Failure; ATA 2730**

During flight, the pilot heard a loud pop, the control column fell against the forward stop, the aircraft pitched noseup, and the elevator control was limited to "up." The pilot declared an emergency and made a safe landing.

An investigation disclosed the elevator-down cable chafed on an electrical wire beneath the pilot's seat. The wire insulation was penetrated, and the resulting electrical arc severed the elevator cable. The wire (H16A10) supplied electrical power to the copilot's windshield deice system. It was determined that the wire was "loosely" and improperly secured.

The operator inspected the remaining fleet of aircraft and discovered aircraft with serial numbers above LW-232 had adequate security for the underfloor wiring; however, aircraft with serial numbers below LW-232 were questionable.

The submitter suggested that all operators of like or similar aircraft inspect the underfloor wiring for security and condition. This defect may be present in all 90-series aircraft with serial numbers below LW-232.

Aircraft total time-10,536 hours.

**Beech; Model 200; King Air; Fire Detector System; ATA 2612**

After the aircraft had climbed through 15,000 feet during a heavy rain storm, the left engine fire warning light illuminated. The pilot returned to the departure airport and made a safe landing.

Maintenance personnel inspected the aircraft; however, they did not find any evidence of fire. When an operational test of the fire warning system was conducted, the system operated normally. All of the system components were inspected and were found serviceable. The problem could not be duplicated by maintenance personnel.

This anomaly was attributed to excessive rain water shorting the system and causing a false indication.

Part total time-8,983 hours.

**Beech; Model B300; King Air; Wing Structure Cracks; ATA 5713**

During a scheduled inspection, a crack was found on the upper surface of the right wing at wing station (WS) 93.

Further investigation revealed the rib (P/N 101-120020-35) under the skin was also cracked. This damage was repaired in accordance with the manufacturer's technical data.

During a scheduled inspection of another like aircraft, "working" rivets were found on the left wing at WS's 93, 85, and 75.5. These rivets are used to secure the ribs. Further investigation disclosed cracks in the stringers at these locations. Also, there was a crack in the rib on the right wing at WS 93. There were no surface skin cracks found on this aircraft. The cause of these defects was not determined.

The submitter suggested that operators of like aircraft inspect the areas for similar damage during regular and frequent intervals.

Aircraft total times-3,967 and 1,884 hours.

**Beech; Model 1900C; Airliner; Engine Fuel Leak; ATA 2820**

During a scheduled inspection, a fuel line on the left engine was found leaking.

The fuel line (P/N 3040637) runs from the fuel control unit to the fuel flow transmitter. When the line chafed against the starter/generator cooling air duct, the wall thickness was penetrated. Since the starter/generator cooling air duct is on the opposite side of the right engine, this defect is associated with the left engine only.

The FAA Service Difficulty Reporting data base contains four other occurrences of this defect. It is recommended that maintenance personnel give this area special attention at every opportunity.

Part total time not reported.

**Beech; Model 1900C; Airliner; Defective Wheel Brake System; ATA 3243**

The pilot reported that the left wheel brake was "very weak."

The technician bled the brake system, and the operational test was satisfactory. The next day, during a preflight inspection, the technician noticed the upper flexible brake hoses (P/N MS28741-4-0184) in the left and right landing gear wells were leaking. The fluid was leaking through the hose walls at several locations. The age of these hoses was not given.

Part total time not reported.

**Beech; Model 1900C; Airliner; Defective Oil/Fuel Heater; ATA 7312**

Approximately 1 hour into a flight, the right engine "low oil pressure" light flickered, and the oil pressure gauge fell to 60 PSI. The pilot reduced the right engine power and made a safe landing at a nearby airport.

An investigation by maintenance personnel revealed the oil level was low and the oil/fuel heater (P/N 1058FSB08) was leaking. When

the oil/fuel heater was removed, the technician discovered the source of the leak in a weld seam.

This area deserves your full attention during scheduled inspections.

Part time since overhaul-1,745 hours.

## BELLANCA

### **Bellanca; Model 14-19-2; Cruisemaster; Flying Wire Failure; ATA 5550**

During level flight, the aircraft suddenly pitched up without command. The pilot made a safe landing.

When the technician inspected the empennage, a broken flying wire support was discovered. The left forward upper tail wire failed at approximately midspan. A visual inspection of the available evidence indicated the wire failed in tension. An examination of the broken wire, using a 10-power magnifying glass, revealed an area of metal discontinuity. This discontinuity may have been caused by an inclusion in the metal during manufacture.

All eight of the tail flying wires had been replaced approximately 2 years prior to this occurrence. It is recommended that technicians and owners of like aircraft conduct a receiving inspection on flying wires, as well as all other parts, to include a pull test of suspect areas. Additionally, inspections at regular intervals may reveal service damage before it reaches the point of failure.

Part total time-100 hours.

### **Bellanca; Model 17-30; Viking; Landing Gear Failure; ATA 3213**

The aircraft sustained substantial damage when the left main landing gear collapsed during landing.

The technician discovered the lower scissors attachment bolt (P/N 19404-4) was missing, and it could not be found. This allowed the

lower landing gear segment to rotate 180 degrees which exerted extreme forces on the assembly. The forces culminated in gear failure. From the available evidence, the technician could not determine whether the scissors attachment bolt broke or the nut came off and allowed the bolt to migrate out of the hole.

It would be wise to examine this assembly at every opportunity.

Part total time not reported.

## CESSNA

### **Cessna; Model 152; Improper Procedures; ATA None**

During a cross-country flight, the engine began to run rough, the engine performance steadily deteriorated, and an off-airport landing was necessary. The aircraft was not damaged, and the pilot was not injured.

An investigation revealed that all four of the lower spark plugs were severely fouled. No other engine problems were found. The engine mixture control was still in the "full rich" position.

It was evident the pilot neglected to lean the engine fuel mixture after takeoff. In this case, there was an apparent lack of proper training and/or complacency which contributed to this incident.

The submitter stated: "This was definitely a red-faced item on the checklist. During flight training, we are taught a rigorous routine of inspections, procedures, and checklists which we soon commit to memory. When we feel our memory is sufficient, our eyes may be on the checklist, but we don't see the words! Possibly this pilot was distracted by other thoughts or circumstances and just didn't see or remember the mixture control even when the engine

began running rough. Flying deserves your full attention and concentration because complacency is a killer!"

Aircraft total time-200 hours.

**Cessna; Model 172R; Skyhawk; Engine Compartment Baffle Damage; ATA 7112**

During maintenance, technicians found a damaged baffle (P/N 0555228-24).

The alternator positive battery wire chafed a hole in the baffle located in the right forward section of the engine compartment. The submitter did not give the condition of the wire or any information concerning electrical arcing. A hazardous condition could result if this defect had not been detected. This aircraft was relatively new, and the submitter suggested that the manufacturer issue a Service Bulletin or that the FAA issue an Airworthiness Directive concerning this subject.

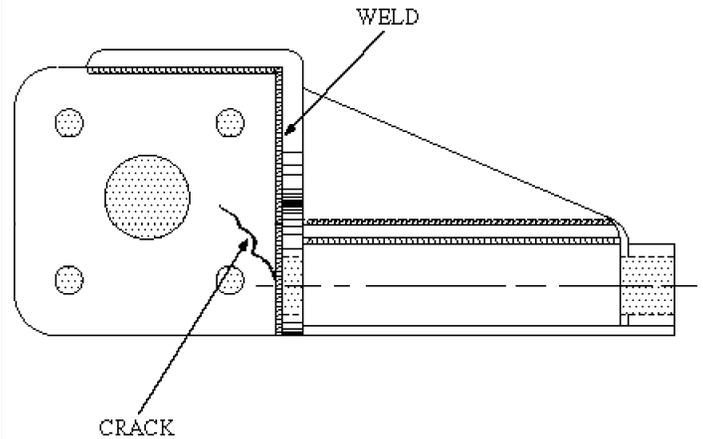
Part total time-337 hours.

**Cessna; Model P206B; Super Skylane; Defective Alternator Support Bracket; ATA 2410**

During an engine change, the technician found a cracked alternator support bracket.

The crack was approximately 1.25-inches long, and it appeared to originate at a weld. (Refer to the following illustration.) The alternator support bracket (P/N 1250213-15) has been superseded by the manufacturer in accordance with Airworthiness Directive (AD) 79-25-07 and Cessna Service Information Letter SE 79-5. The new part is included in Cessna Service Kit No. SK210-84. The new integral engine mount and alternator support bracket is designed to improve the alternator service life. The old part number support bracket is no longer available from Cessna.

Part total time-5,186 hours.



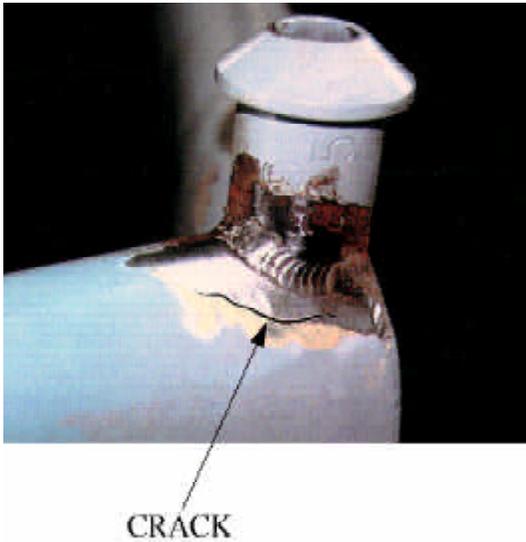
**Cessna; Model 208; Caravan; Engine Mount Ring Damage; ATA 7120**

During a scheduled inspection, a technician found a crack in the engine mount ring assembly (P/N 2651022-15).

The engine mount ring was repaired in accordance with chapter 71 of the manufacturer's maintenance manual. The repair required stop drilling the crack and installing a doubler for reinforcement. Approximately 100 operating hours later, a crack was found on the opposite side of the mount ring. (Refer to the following illustration.) The submitter discovered similar circumstances on another like aircraft.

The FAA Service Difficulty Reporting data base contains five other reports stating similar defects with the engine mount ring. No cause or cure was given for this defect; however, this area deserves your full attention during inspections and maintenance.

Part total time not reported.



**Cessna; Model 310R; Fuel Quantity System  
Damage; ATA 2840**

During an annual inspection, the technician found the top access panel on the right wing auxiliary fuel tank was leaking.

When the access panel was removed to replace the gasket, the technician noticed the fuel quantity sending unit wires (P/N 991082-19) were exceptionally long. Further examination revealed the insulation had been chafed off of the wires, and the bare wire was exposed at several locations. The same defect was found when an inspection of the left auxiliary fuel tank was conducted. (Refer to the following illustration.)

The submitter stated this damage was caused by the excessive wire length. Since the wires were not secured, they chafed against the fuel tank structure and the components. The submitter stated there are no provisions inside the fuel tank for securing the wires. The aircraft maintenance records indicated the fuel tank components were not changed or replaced since the aircraft was manufactured in 1978.

The sending units and the wire harnesses were replaced with new parts identical in all respects to the parts removed. The submitter suggested that the manufacturer change the fuel quantity indicating system to a float-type system and establish inspection requirements and/or life limits for the wire harnesses. It was also recommended that the manufacturer produce shorter wire harnesses and create provisions for securing the wiring.

Part total time-4,248 hours.

**Cessna; Model P210N; Centurion; Defective  
Main Landing Gear; ATA 3230**

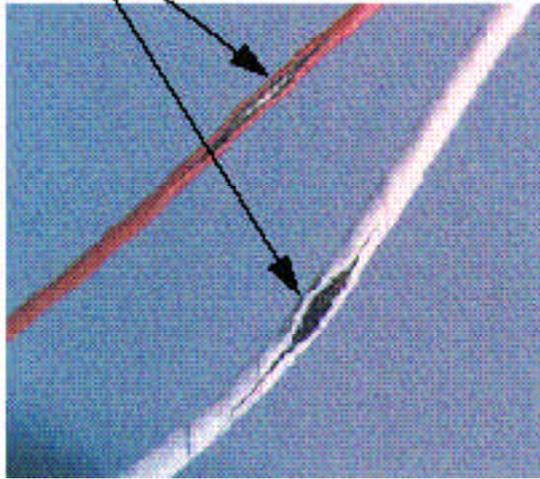
During a landing approach, there was no "green light" indication when the landing gear was extended.

Maintenance personnel discovered the main gear downlock support assemblies (P/N's 1241618-5 and -6) were loose. The mount bolts were not safety wired and were loose which allowed the shim to shift out of position. The panel at the aft doorpost bulkhead was covered with .5 to .75 inch of "Proseal." The submitter believed the "Proseal" was applied when the aircraft was manufactured.

It was recommended that operators of like aircraft check for this defect with the aircraft on jacks and the landing gear in a transit position.

Part total time-2,578 hours.

TYPICAL DAMAGE




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**Cessna; Model T310; Main Landing Gear Collapse; ATA 3230**

The aircraft was inspected by maintenance personnel to determine why the right main landing gear collapsed.

As a result of the inspection, it was determined that parts of the bellcrank assembly (P/N 5041001-12) failed. The bolt (P/N NAS464P4-26), installed at the upper end of the bellcrank, and the end fitting (P/N 0841111-3), located at the lower end of the bellcrank, were broken. The submitter suspected that the right main gear experienced excessive side loads sometime in the past.

It would be wise to give special attention to these parts during inspections and maintenance.

Part total time-1,916 hours.

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**Cessna; Model 414A; Chancellor; Questionable Trim Tab Rigging; ATA 2731**

During a 1,000-hour inspection on the rudder, aileron, and elevator trim tab actuators, performed in accordance with the manufacturer's Service Manual (SM), Revision 31 (R31), dated February 3, 1997, the elevator trim tab travel was changed.

During an initial check, the elevator trim tab travel was 12 degrees up and 21 degrees down. Prior to installing the actuators, the SM R31 was checked for the correct rigging and travel. It was found that the SM R31 changed the elevator trim tab travel from 12 degrees up and 20 + 1 degrees down to 5 degrees up and 30 degrees down. After double checking and consulting the SM revision history, the elevator trim tab was rigged in accordance with SM R31.

During the test flight, the pilot experienced a noseup takeoff that could not be corrected enough by application of full nosedown trim. It required considerable forward force on the control column to maintain level flight. Fortunately, the pilot made a safe landing. The submitter speculated that if passengers had been aboard the aircraft, their weight may have been sufficient to prevent level flight.

Cessna has issued Revision 32, dated August 3, 1998, to the Service Manual which corrects the elevator trim tab travel limits given in Revision 31. All maintenance personnel are advised to make sure they use Revision 32 (or later) when rigging the elevator trim tab travel.

Aircraft total time-3,700 hours.

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**Cessna; Model 560; Citation; Defective Pressurization System; ATA 2130**

The aircraft was brought to the maintenance hangar with a report the pressurization system was functioning erratically.

An investigation of the system revealed that a pneumatic relay (P/N 130358-1) was not working properly, and the relay was replaced

with a new unit. During an operational test, the pressurization system did not produce pressurization of the aircraft. Again, the relay was replaced with a new unit, and an operational test resulted in normal operation.

This shows, once again, that even new parts can fail quickly or not work at all. A functional bench test during a receiving inspection may save a lot of time and trouble later.

Part total time-0 hours.

**Cessna; Model 650; Citation; Inadequate Aileron Cable Tension; ATA 2710**

During a scheduled inspection, technicians found the aileron control cable excessively loose.

The cable had been dragging on the lower wing skin, and the tension measured 18 pounds. The manufacturer's technical data requires aileron cable tension to be 35 plus or minus 5 pounds at 70 degrees. This aircraft was manufactured in 1997, and the submitter speculated that cable tension may not have been correct when it was delivered. The submitter found two other like aircraft with similar defects.

Aircraft total times-178, 329 and 1,076 hours.

**DIAMOND**

**Diamond; Model DA 20-A1; Katana; Improper Wing Guide "A" Bolt Fit; ATA 5740**

During an inspection of the wing alignment "A" bolt, the washer (P/N AN960-C616) listed in the manufacturer's manual, page 1-53-2, was incorrect in size.

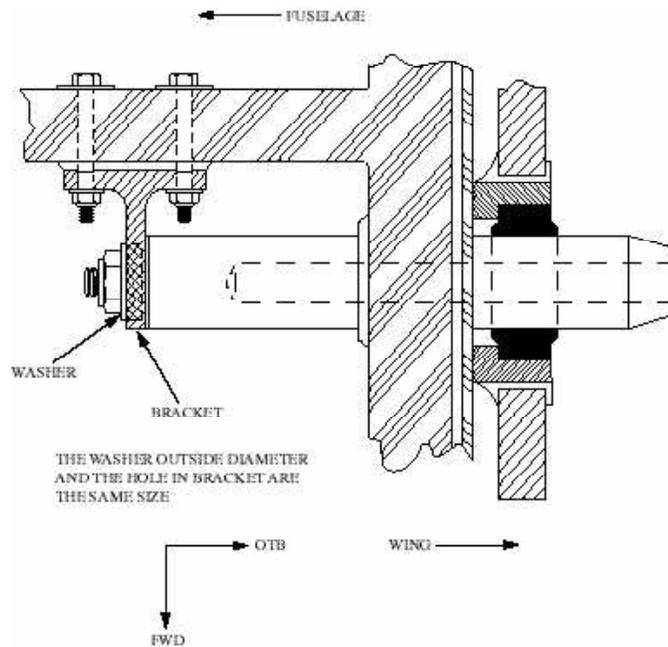
The small outside diameter of the washer allowed the "A" bolt (P/N 20-5300-00-02) washer to pull into the bracket (P/N 20-5300-00-01). (Refer to the following illustration.)

During a telephone conversation with the aircraft manufacturer's representative, it was determined that the washer listed was not

correct for this installation. The representative stated the manufacturer is currently revising the manual. The representative suggested using washer (P/N MS 16212-13) for this assembly.

The submitter recommended that all operators inspect this installation to ensure the assembly is correctly installed.

Part total time-990 hours.



**EMBRAER**

**Embraer; Model 120RT; Brasilia; Engine Nacelle Frame Cracks; ATA 5411**

During a routine inspection, cracks were found on both engine nacelle no. 1 frames.

The left engine nacelle no. 1 frame was cracked on the lower side of the stiffening web between the top outboard mounting bolt hole and the outboard edge of the frame. The crack was approximately .225-inch long. The right engine nacelle no. 1 frame was cracked in the

same location. The crack was approximately .25-inch long. This operator found two other aircraft in the fleet which had nacelle frame cracks. Altogether this operator found six engine nacelle no. 1 frames cracked. It is suspected that engine torque and vibration contributed to these defects.

This area should be inspected at frequent and regular intervals using the proper nondestructive testing technique.

Part total time not reported.

### NAVION

**Navion; Model A; Unserviceable Fuel Hose; ATA 2820**

During an annual inspection, the hose assembly used to supply fuel to the electric fuel pump was removed.

The hose (P/N 75685) material was extremely frayed, weathered, stiff, and brittle. The support wire was broken at several locations and protruded through the outer cover. The attached identification tag indicated the hose assembly was manufactured in January 1947 and was probably installed as original equipment on this aircraft in 1948. Needless to say, the hose should have been changed many years ago. With the age and condition of this hose, it was amazing that it was not leaking. The hose assembly is almost impossible to see which probably contributed to its neglect.

Part total age-51 years. Part total time-3,481 hours.

### PIPER

**Piper; Model PA18A-150 (PA18); Super Cub; Cracked Exhaust Port; ATA 7810**

While inspecting the aircraft, the technician noted a crack on the no. 2 cylinder exhaust stack (P/N 12457-12) mounting flange.

The technician suspected this defect may present a fire hazard. The technician called the manufacturer since this was such a low time part. The manufacturer stated that this portion of the line was subcontracted to another manufacturer, and they would look into it.

If you service or operate a similar make or model aircraft, pay close attention to this area.

Part total time-201 hours.

**Piper; Model PA18-150; Super Cub; Wing Lift Strut Failure; ATA 5730**

A report was submitted by the National Transportation Safety Board (NTSB) as a result of an accident investigation. The information is provided for your attention and appropriate action.

While attempting a banner tow pickup, the left wing structure failed. The aircraft sustained substantial damage, and the pilot suffered serious injuries.

The wing structure failed at the point where the lift strut attached to the wing. An examination of the wreckage disclosed the left wing lift strut attachment fitting (P/N 14192-00) forward bracket failed. A panel is provided for inspection of the aft bracket; however, no inspection panel is provided for the forward bracket. The broken bracket displayed evidence of severe corrosion. The bracket was sent to the NTSB laboratory for complete metallurgical testing.

As a result of this accident, the aircraft owner conducted an inspection on his fleet of 12 like aircraft. In order to properly inspect the area, it was necessary to cut a hole in the vicinity of the forward left and right lift strut fitting brackets. Two additional aircraft were found with severe corrosion on the lift strut fitting brackets. We do not advocate cutting an inspection hole through the fabric and leading edge aluminum skin.

The NTSB has recommended that the FAA issue an Airworthiness Directive (AD), with a recurring inspection interval, to require an

immediate inspection of all wing strut attachments on Piper fabric-covered aircraft. At this time, the FAA has not responded to the NTSB recommendation. If this AD is issued, it may contain instructions for adding an inspection panel to facilitate inspection of the forward fitting bracket.

This aircraft was covered with Ceconite fabric for more than 20 years prior to this accident. Properly installed Ceconite fabric may test within limits even after 30 years of service. As in this case, hidden problems unrelated to the fabric can develop over time and have catastrophic results.

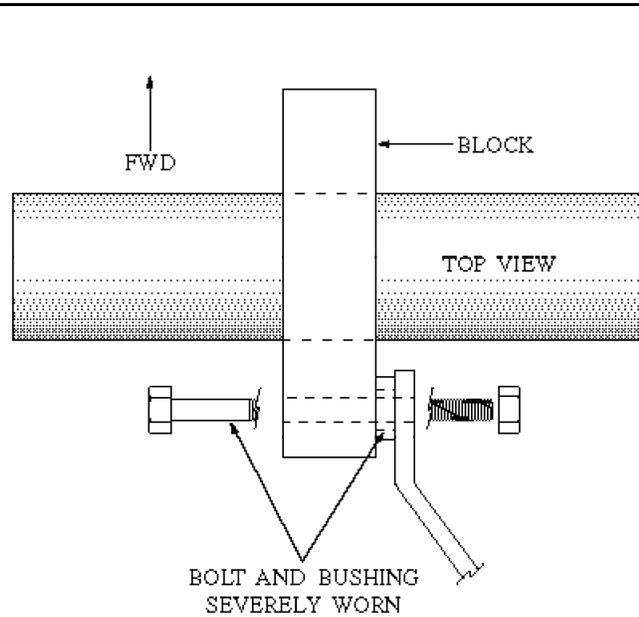
**Piper; Model PA23-250 (PA27); Aztec; Stabilizer Flutter; ATA 5500**

During a high speed descent, the pilot felt a control flutter.

An inspection of the flight surfaces revealed excessive play in the left stabilator tube (P/N 16040-00). (Refer to the following illustration.) This problem was initially difficult to detect due to the spring loads on the bellcrank.

A closer investigation revealed the bearing (P/N 21831-03) and hole in the attachment block for the stabilator tube were worn where they attach to the trim bellcrank (P/N 33972-08). This allowed the trim tab to move which caused movement in the stabilator, and the pilot felt the flutter in the control yoke.

Part total time not reported.



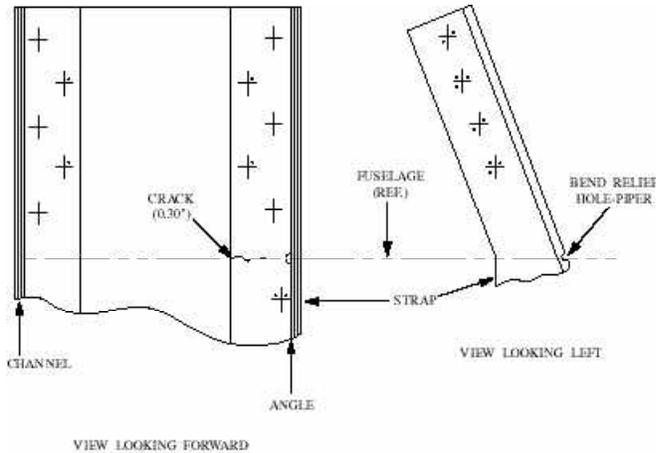
**Piper; Model PA24-250 (PA24); Comanche 250; Cracked Vertical Fin Attach Point; ATA 5553**

During an annual inspection, the technician discovered a 0.3-inch crack in the vertical fin forward attach spar (fuselage) angle (P/N 20749-08). This damage occurred aft of the channel assembly. (Refer to the following illustration.)

Airworthiness Directive (AD) 75-12-06 requires that maintenance inspect the bend-relief holes in this channel and the associated straps (P/N 207-9-506). No cracks were noted in these parts. The aircraft logs show no indication of prior damage to the fin or its attach points.

After the technician installed new parts, the aircraft was returned to service.

Part total time-3,930 hours.



**Piper; Model PA28R-200 (P28R); Arrow 200; Overtorqued Studs; ATA 3221**

During the test flight following an annual inspection, the main landing gear indicated an unsafe condition. The pilot was unable to effectively lower the gear manually. An emergency landing was required, at which point the right main landing gear collapsed. There was minimal damage to the aircraft.

During the annual inspection, the technician determined the side brace studs were not torqued tightly enough, and he tightened the side brace studs to remove what he thought was "excessive play." He performed a gear retraction/extension check, and everything seemed to operate correctly.

After the incident, the technician performed another gear retraction/extension check, and the gear operated correctly hydraulically; however, it would not completely extend during the free-fall check. When the assemblies were removed, it was apparent the assemblies were overtightened.

Airworthiness Directive (AD) 97-01-01, requires inspection and reinstallation of the older style side brace studs. Upon review of the Piper manual, it was discovered that maintenance of the side brace stud assemblies is not addressed, except for service tolerances of the components.

The submitter cautions not to misdiagnose the parts as loose. If you are unfamiliar with the Piper landing gear system, seek assistance from a technician who has experience with the side brace stud assembly.

The submitter recommends that any time maintenance is performed on the main landing gear system, several free-fall checks should be performed to ensure the main gear will lock down when manually extended.

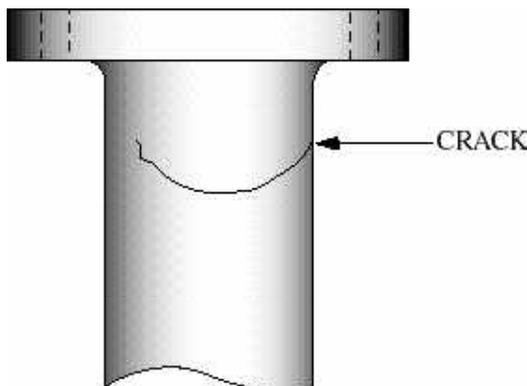
Part total time not reported.

**Piper; Model PA28-140 (P28A); Cherokee; Cracked Exhaust Pipe; ATA 7810**

While in flight, the pilot noted an increase in engine noise. The pilot checked the engine instruments and noted no unusual indications related to the noise. The pilot made a safe landing.

The technician inspected the aircraft for indications of damage or part failure. The technician discovered the no. 1 cylinder's exhaust pipe had cracked at a point where a reinforcement weld secured the exhaust pipe (P/N 63666-02) to the attaching flange. (Refer to the following illustration.)

Part total time-2,346 hours.



**Piper; Model PA28RT-201 (P28T); Arrow IV; Hi-Shear Rivets; ATA 5530**

During inspection, the technician discovered that the hi-shear rivets (P/N 522-995) on the vertical fin casting support assembly (P/N 35697-02) and the fitting assembly (P/N 78927-02) could be turned by hand.

The submitter recommends close attention be given to this area during inspections. The submitter also suggests that hi-lock bolts might serve as better fasteners in this area.

Part total time-3,886 hours.

**Piper; Model PA31T (PAY2); Cheyenne II; Cabin Pressure Problem; ATA 2132**

The pilot reported the pressurization would not reach 5.5 pounds per square inch of differential pressure. The cabin altitude appeared to be correct for the aircraft's physical altitude.

An inspection of the system revealed the pressure gauge (P/N 46319-03) had a crack behind its bezel. The crack allowed air to leak from the cabin into the gauge which gave an erroneous indication, even though the cabin pressure was functioning properly.

Part total time - 3,195 hours.

**Piper; Model PA32RT-300T (P32T); Turbo Lance II; Poor Engine Performance; ATA 2820**

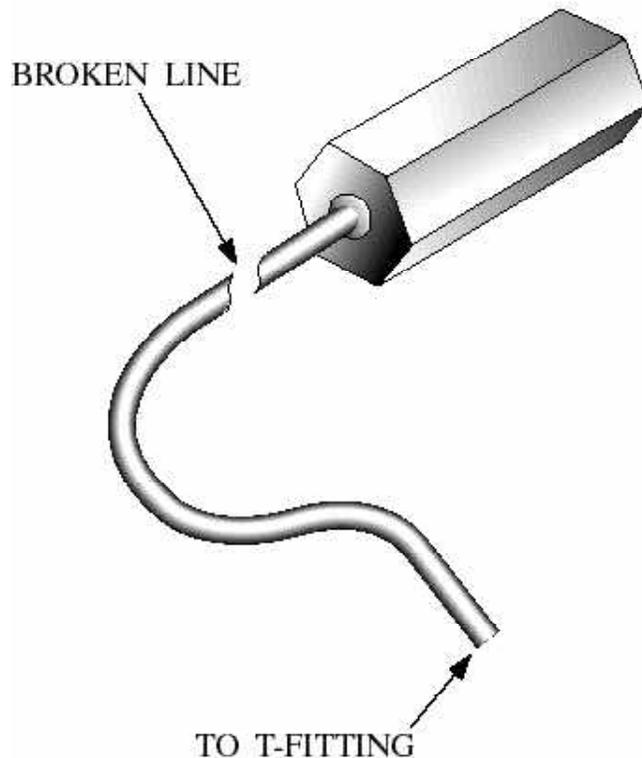
After a report of a rough running engine, the top cowling was removed to reveal the no. 3 cylinder fuel injection line (P/N LW12098-0-100) had broken away from the weld which attached the line to the fitting. (Refer to the following illustration.)

The technician discovered the fuel line had chafed a hole in the no. 4 cylinder's oil return line. Also, the no. 2, no. 4, and no. 6 cylinders' fuel injection fittings were loose and in need of tightening.

The submitter speculated the probable cause of the break was harmonic vibration due to inadequate clamping of the line.

Part total time-1,767 hours.

#3 CYLINDER  
(INJECTOR NOZZLE)

**Piper; Model PA44-180 (PA44); Seminole; Cracked Wing Ribs; ATA 5712**

A careful inspection of the wing revealed several ribs (P/N's 78475-00, 01, 06, and 07) were cracked at the radius where they attach to the spar. This is at a point where the main landing gear retract bracket assemblies (P/N's 95643-08 and 09) are located.

The submitter speculated the gear cycling process is stressing the ribs and causing the metal failure in the attach radius. Due to concern about the possibility of spar failure in this area, the submitter has provided the manufacturer with a product condition report.

If you service or operate a similar make and model aircraft, pay particular attention to signs of failure in this area during subsequent inspections.

Part total time-5,492 hours.

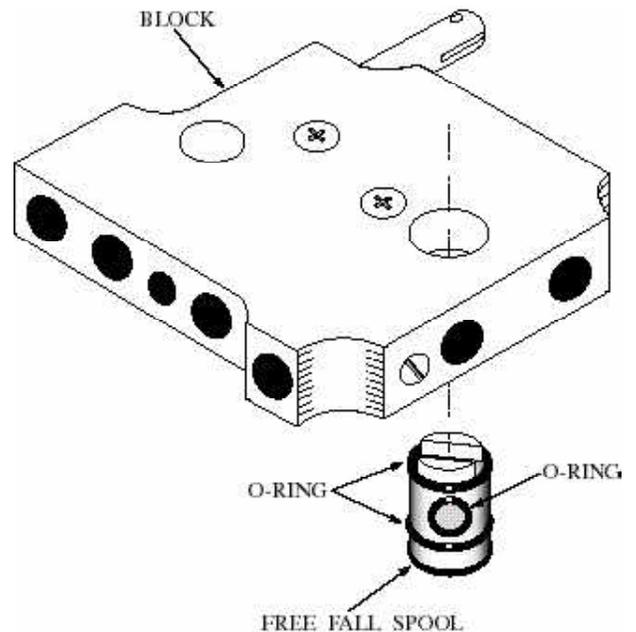
**Piper; Model PA46-310P (PA46); Malibu; Faulty Landing Gear Valve; ATA 3230**

During a certification check ride, the emergency gear handle was utilized. After the gear was extended, the gear was retracted; however, the hydraulic pump continued to run and cycle the gear. As a precaution to prevent the pump motor from overheating, the circuit breaker was pulled.

The maintenance technician placed the aircraft on jacks, and the landing gear was cycled. In the process, the pressure reduced to only 600 pounds per square inch. The landing gear valve assembly (P/N 83767-02) was repaired; however, during the flight check, the same problem occurred. (Refer to the following illustration.) The valve assembly was disassembled again and checked more closely. The inspection revealed the "o-ring" had ruptured. The submitter speculated the rupture was caused by burrs on the sides of the hole that the "o-ring" came in contact with during operation.

The submitter suggested better quality control to eliminate burrs and improve the quality of the "o-ring" material.

Part total time not reported.



## HELICOPTERS

### AMERICAN EUROCOPTER

**American Eurocopter; Model AS350-B1; Ecureuil; Tail Rotor Drive Shaft Bearing Support Loose; ATA 6510**

A scheduled inspection revealed the no. 5 tail rotor drive shaft bearing support was loose, and the right support mount bolt (P/N 22208BC060012L) was worn.

The accelerometer is mounted for short-shaft balancing in this area, and it is possible that the bolt was not properly torqued after the last balancing operation.

It was recommended that all drive shaft support mount bolts be "torque checked" every 100 hours, as required.

Part total time-5,334 hours.

**BELL****Bell; Models 206L, 206L-1, 206L-3, 206L-4;  
Suspect Main Rotor Blades; ATA 6210**

Information for the following article was furnished by the FAA Rotorcraft Certification Office, ASW-170, located in Fort Worth, Texas.

Bell Helicopter Textron issued Alert Service Bulletin (ASB) 206L-98-113, dated November 11, 1998, which deals with suspect main rotor blades.

The main rotor blades, listed below by serial number, were delivered on production aircraft or as spares through September 1998. Some of the blades may have skin on the upper and lower surfaces of the tip assembly that exhibit low peel values. With time, the skin could become unbonded.

Part I of ASB 206L-98-113 lists an initial check of the blade tip assembly for delamination to be accomplished prior to the next flight. A daily check is to be performed until Part II of the ASB is accomplished.

Part II of ASB 206L-98-113 gives procedures for installing rivets in the blade tip assembly. Part II is to be accomplished within the next 300 hours of time in service; however, Part II should be accomplished no later than March 31, 1999.

The main rotor blade serial numbers affected are: A-2726, A-2728, A-2730 thru A-2745, A-2747 thru A-2758, A-2760 thru A-2785, A-2787, A-2789 thru A-2806, A-2808 thru A-2821, A-2823 thru A-2826, A-2829 thru A-2843, A-2845 thru A-2846, A-2848 thru A-2882, A-2884 thru A-2888, A-2890 thru A-2892, A-2896 thru 2900, A-2903 thru 2907, A-2911, A-2915, A-2918, A-2920 thru A-2921, A-2923, A-2925, A-2927, A-2929, A-2931 thru A-2932, A-2940 thru A-2947, A-2951, A-2958, A-2960, A-2977, A-2982, A-2986, A-2997 thru A-2999, and A-3001.

**MCDONNELL DOUGLAS****McDonnell Douglas; Model 369D; Bearing Cap  
Crack; ATA 6710**

During a scheduled inspection, the bearing cap for the main rotor collective torque tube inboard support bracket was found cracked.

Since the bearing cap and the support bracket (P/N 369A7304) are machined as a matching assembly, it was necessary to replace the entire bracket assembly and the bungee bracket.

The submitter stated the replacement parts were more substantially constructed; therefore, future defects in this area may be alleviated.

Part total time-9,306 hours.

**ROBINSON****Robinson; Models R22 and R44; Special Pilot  
Caution; ATA 6710**

The following information was received in a letter dated January 20, 1999, from Robinson Helicopter Company.

Some sprags in the overrunning clutches have been found cracked in service. All R44 clutches and those R22 clutches manufactured or overhauled after January 1, 1997, may be affected.

A broken sprag could conceivably prevent the clutch from overrunning when entering autorotation. The sprag clutch manufacturer is currently investigating the problem. Until this discrepancy is resolved, do not enter practice autorotations by rapidly closing or "chopping" the throttle. "Chopping" the throttle could result in a sudden loss of rotor RPM if the clutch fails to overrun.

Enter autorotations by first lowering the collective and then rolling off just enough throttle to produce a small visible split between the rotor and the engine tachometer

needles. If the clutch fails to overrun, immediately complete a power recovery. Perform hovering autorotations only after checking the function of the overrunning clutch prior to lift-off, then smoothly rolling off the throttle from a low hover with the skids no more than 2 feet above the ground.

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**Robinson; Model R22; Beta; Severe Vibration; ATA 6420**

During flight, the pilot noticed severe vibrations which seemed to come from the tail rotor. The pilot made a safe landing.

An investigation revealed a bolt (P/N NAS1304-38) in the tail rotor hub assembly had broken. The submitter speculated the bolt failed because of corrosion which weakened the bolt and set up stress points. It was recommended that the assembly be inspected every 100 hours.

Part total time-889 hours.

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**SIKORSKY**

**Sikorsky; Model S76A; Defective Main Rotor Gearbox; ATA 6320**

During flight, the main gearbox chip detector light illuminated. The pilot made a safe landing.

An initial investigation revealed the chip detector had picked up a sheared bolt/nut combination. Further examination of the gearbox with a borescope disclosed the upper web on the spur gear assembly was cracked. Also, the four bolts which are used to secure the web to the shaft of the spur gear assembly were missing. This was the second similar failure experienced by this operator.

At the time of this report, the submitter had not completed a disassembly and full inspection; therefore, the cause of this defect was not offered.

Part time since overhaul-247 hours.

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**GLIDERS**

**DG FLUGZEUGBAU**

**DG Flugzeugbau; Model DG 800-B; Elevator Control Failure; ATA 2730**

During a landing approach, the glider landed short of the runway. The pilot stated that elevator control was lost and he could not control aircraft pitch during the landing attempt. The pilot was not injured; however, the aircraft sustained substantial damage.

An inspection revealed that a bolt and locknut were missing from the elevator bellcrank in the aft fuselage. The bolt was found in the lower fuselage; however, the locknut was not located. Since this was a new aircraft, the submitter speculated that the locknut may not have been installed at the factory.

Aircraft total time-4 hours.

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**AMATEUR,  
EXPERIMENTAL, AND  
SPORT AIRCRAFT**

**KITFOX**

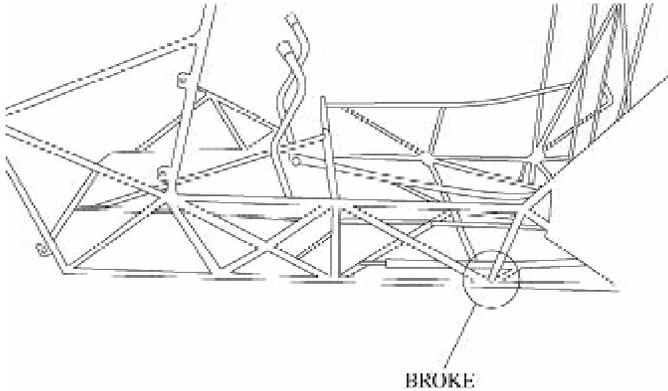
**Kitfox II; Fuselage Structural Failure; ATA 5311**

When the aircraft weight was placed on the runway during landing, the pilot heard a "popping" sound, and the left side of the aircraft seemed to sag.

An examination disclosed the fuselage had buckled in the area of the left main landing gear. After disassembly, a structural tube was found broken loose from the remaining members. (Refer to the following illustration.) The structural tube ran diagonally and had separated just above a weldment.

The available evidence indicated that excessive heat had been used during the welding process, and hydrogen embrittlement adjacent to the weld caused this failure.

Part total time not reported.



## LONG-EZ

### Long-EZ; Fatal Accident; ATA 2823

It was believed that the cause of a fatal aircraft accident was the location of the fuel selector valve handle.

Since this was an experimental amateur-built aircraft, there was no standard location for component controls. The fuel selector valve was located behind the pilot's left shoulder. This location required the pilot to release the seat restraint, twist, and reach with the right hand to actuate the fuel selector valve handle. In this case, when the pilot attempted to

operate the fuel selector valve handle, he inadvertently applied right rudder and lost control of the aircraft.

It is possible to select a much more accessible location for the fuel selector valve. One such location is below the seat between the pilot's legs. The fuel selector valve handle and the fuel quantity sight gauges were not marked.

During the accident investigation, the pilot's diversion of attention, inadequate transition training, preflight planning, and lack of experience in this type of aircraft were considered contributing factors.

Aircraft total time not applicable.

## POWERPLANTS AND PROPELLERS

### TELEDYNE CONTINENTAL

#### Teledyne Continental; Model O-470-R; Piston Damage; ATA 8530

This engine was installed in a Cessna Model 182G aircraft. During an annual inspection, the technician completed an engine compression test and discovered that all six pistons were cracked.

The cracks were all located in the same area of the upper piston (P/N 626992) pin boss. The cracks ran parallel to the piston pin, and one piston had lost a piece of the casting around the pin which was approximately .25-inch in diameter. Prior to disassembly, there were no operational problems, and it appeared this condition had existed for some time.

Part total time-1,277 hours.

## TEXTRON LYCOMING

### Textron Lycoming; Model O-320; Connecting Rod Excessive Clearance; ATA 8520

After a factory overhauled engine was installed on a Cessna Model 172M, high oil temperature was experienced.

The engine had been operated only a short time when the high oil temperature was noticed. When the engine was shut down, an abnormal noise was heard when the technician turned the propeller by hand. A factory representative was present when the no. 3 and no. 4 cylinders were removed. The no. 3 and no. 4 cylinder-connecting rods had excessive side clearance. The lower end of the connecting rods had rubbed hard against their respective crankshaft journals. No cause or cure was given for this defect.

Part total time not reported.

## ACCESSORIES

### CHAMPION OIL FILTERS

Information for the following article was furnished by the FAA, Aircraft Certification Office located in Atlanta, Georgia.

There have been reports of problems with oil filters manufactured by Champion. The problems include collapsed elements, rubber gasket material inside the filter canister, and other "one-time" events. An investigation was conducted by the manufacturer and the FAA. The investigation revealed that the collapsed elements were caused by the engine oil bypass valve which is installed in some Textron Lycoming engines. This topic was addressed by Champion in Aviation Technical Bulletin (ATB) No. 91-3, dated March 1991. The rubber

gasket material was from the antidrainback valve which, in some cases, had shifted. This problem was the subject of a manufacturer's engineering change issued in April 1994. The number of reported problems has rapidly declined in the last 3 years. However, since some owners, operators, repair stations, and others tend to buy case lots of filters, it is likely that some of the older filters may still be "on the shelf" or in stock. For that reason, this public notification was deemed necessary.

If you own, operate, or maintain a Textron Lycoming engine, it is recommended that you ensure that it is in compliance with Champion ATB No. 91-3 and Textron Lycoming Service Instruction 1442. Regardless of engine manufacturer, for oil filters which have a manufacturing date of July 1996 or earlier, conduct a visual inspection of the threaded hole in the base plate, with a flashlight if necessary, to determine if any material is blocking (even partially) the oil flow path. Do not use any filter that has even partial blockage.

The manufacturing date code can be found on the filter can and consists of eight characters. Example: X07GXXXX. The X's represent letter and number designations which are not germane to this discussion and can be disregarded. The second and third characters indicate the month of manufacture, with 01 being January and 12 being December. The next (fourth) character indicates the year code, with "A" indicating 1990, "B" 1991, and so on. In accordance with this code system, since you will be looking for filters manufactured in July 1996 and previously, you will be checking for a year code of "G" preceded by a month code of 07. Year codes "F," "E," and "D" with any month code should be inspected. This will include all filters manufactured from January 1993 through July 1996. It is doubtful that any filters manufactured earlier than this are still available.

# AIR NOTES

## REVISED ICAO FORMAT

With this issue of the Alerts, you will notice an addition to some model designation portions of the article headers. The new and different aircraft designators in parenthesis are there to familiarize you with the revised International Civil Aviation Organization (ICAO) format. We hope this will allow you to learn the new designators while continuing to see the old, familiar designator. Eventually, as this information becomes more widespread and accessible to the aviation community, we will only show the new ICAO designator.

A list of these new designators may be found in FAA Notice 7110.183, which updates Appendix A, Aircraft Information, of Order 7110.65, Air traffic Control, to introduce changes to aircraft designators agreed upon between the FAA, ICAO, NAV CANADA, and Eurocontrol. These changes will also be published in the ICAO document no. 8643/26. At this time, Notice 7110.183 may be found at the following URL:

<http://www.aopa.org/whatsnew/acdesig.pdf>

## 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

<b>Seminar No.</b>	<b>1999</b>	<b>Location</b>
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.

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

Mailing address:  
FAA  
ATTN: AFS-640 ALERTS  
P.O. Box 25082  
Oklahoma City, OK 73125-5029

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

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

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

The "Fedworld" web site at:  
<http://www.fedworld.gov/pub/faa-asi/faa-asi.htm>

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

**AIRWORTHINESS AVIATION SAFETY PROGRAM MANAGERS**

This is a current list of headquarters and regional FAA Airworthiness Aviation Safety Program Managers, and we encourage you to use their services. They provide a contact in

your local Flight Standards District Office (FSDO) where you can learn about programs, seminars, services, and exchange knowledge and experience.

### **NATIONAL**

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

### **AERONAUTICAL CENTER**

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

### **ALASKAN REGION**

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

### **CENTRAL REGION**

FAA  
Attn: Danny Morford  
601 East 12<sup>th</sup> 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

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**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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DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		OPER. Control No.		3. Comments (Describe the malfunction or defect and the circumstances under which it occurred. State probable cause and recommendations to prevent recurrence.)	FAA DISTRICT OFFICE	OPERATING DENYMENT
<b>MALFUNCTION OR DEFECT REPORT</b>		ATA Code				
		1. A/C Reg. No. <b>N-</b>				
Enter part and class	MANUFACTURER	MODEL/SERIES	SERIAL NUMBER		FAA DISTRICT OFFICE	
2. AIRCRAFT					FAA DISTRICT OFFICE	
3. POWERPLANT					FAA DISTRICT OFFICE	
4. PROPELLER					FAA DISTRICT OFFICE	
5. SPECIFIC PART (of component) CAUSING TROUBLE					FAA DISTRICT OFFICE	
Part Name	MFG. Model or Part No.	Serial No.	Part/Defect Location		FAA DISTRICT OFFICE	
					FAA DISTRICT OFFICE	
6. APPLIANCE COMPONENT (Assembly that includes part)					FAA DISTRICT OFFICE	
Comp/Appl Name	Manufacturer	Model or Part No.	Serial Number		FAA DISTRICT OFFICE	
					FAA DISTRICT OFFICE	
Part TT	Part TSO	Part Condition	T. Date Sub.		FAA DISTRICT OFFICE	
					FAA DISTRICT OFFICE	
				<b>Optional Information:</b> Check a box below, if this report is related to an aircraft <input type="checkbox"/> Accident; Date _____ <input type="checkbox"/> Incident; Date _____	TELEPHONE NUMBER ( ) _____ SUBMITTED BY: _____	

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Use this space for continuation of Block 8 (if required).

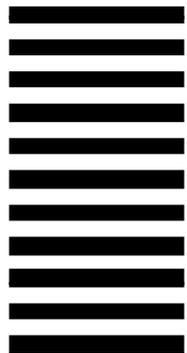
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