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**Federal Aviation
Administration**

General Aviation Airworthiness Alerts

AC No. 43-16

A large, stylized graphic of a wing or tail section, composed of several black, pointed shapes that taper to the right, creating a sense of motion and direction.

ALERTS

**ALERT NO. 216
JULY 1996**

**Improve Reliability-
Interchange Service
Experience**

CONTENTS

AIRCRAFT

AMERICAN CHAMPION	1
BEECH	1
CESSNA	4
FOUGA	7
HELIO	8
LEAR	8
MOONEY	9
PIPER	9
SIAI-MARCHETTI	11
SUKHOI	12

HELICOPTERS

BELL	12
AMERICAN EUROCOPTER	13
ENSTROM	13
McDONNELL DOUGLAS	13

AMATEUR, EXPERIMENTAL, AND SPORT AIRCRAFT

AVIAT	14
KIT FOX	14
CHRISTEN	14

HOT AIR BALLOONS

HEAD	15
------------	----

POWERPLANTS AND PROPELLERS

HARTZELL	15
PRATT AND WHITNEY	15
TEXTRON LYCOMING	16

ACCESSORIES

SLICK MAGNETOS	16
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AIR NOTES

A & P EXPERIENCE VERIFICATION	16
OSHKOSH '96	17
ADVISORY CIRCULAR 43.13 UPDATE	17
FAA FORM 337 INFORMATION	18
GOOD NEWS FROM THE FCC	18
SUBSCRIPTION REQUEST FORM	LAST PAGE

Contents of this publication are informational only. Due to the need for extensive distribution of the General Aviation Airworthiness Alerts, only one copy will be provided to an addressee. This publication may be duplicated as required.

An investigation found the throttle was still jammed. The throttle was thawed, and some movement was obtained; however, the cable was still binding. The cable was removed and replaced. Disassembly of the cable revealed the inner cable was bent, stretched, and dirty. The submitter speculated the most likely cause for this defect was dirt and moisture buildup and the low operating temperature. It was stated the replacement cable (P/N 169-380084-13) appeared to be "superior in design."

(P/N MS20667-2) was bent in the threaded area. The bend distortion was approximately 20 degrees. This finding prompted an inspection of the right uplock cable, and the same results were found. The submitter speculated this damage was caused by screwing the cable terminal too far into the clevis end fitting, which left the other end with an excessive amount of exposed threads. (Refer to the following illustration.)

Part total time-2,966 hours.

**Beech
Model B24R
Sierra** **Landing Gear
Failure
3230**

The pilot reported that when the landing gear was retracted after takeoff, the red indicator light remained illuminated. All normal procedures failed to extend the landing gear, and an emergency extension was necessary. After an uneventful landing, the aircraft was turned over to maintenance.

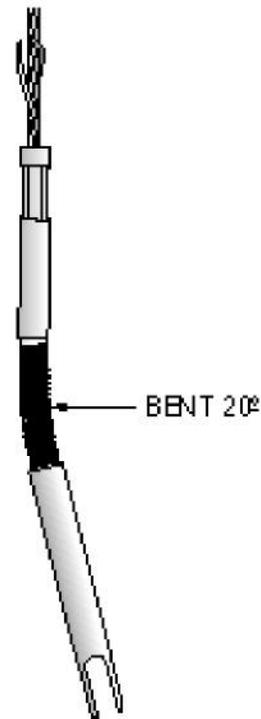
During the investigation, the landing gear's pump motor (P/N 105932B) was removed and disassembled. Both of the motor brushes were found worn to the point of being nonfunctional. After replacing the brushes and reassembly, the motor functioned properly. The submitter stated the manufacturer's service manual does not list brush wear or inspection/overhaul times for the landing gear pump assembly. It would be wise to inspect this assembly at regular intervals, especially on high time components.

Part total time-2,723 hours.

**Beech
Model A-36
Bonanza** **Landing Gear
Damage
3230**

During an annual inspection, the left main landing gear uplock cable (P/N 35-815109) was found to have low tension.

Further examination revealed three broken cable strands, and the terminal fitting



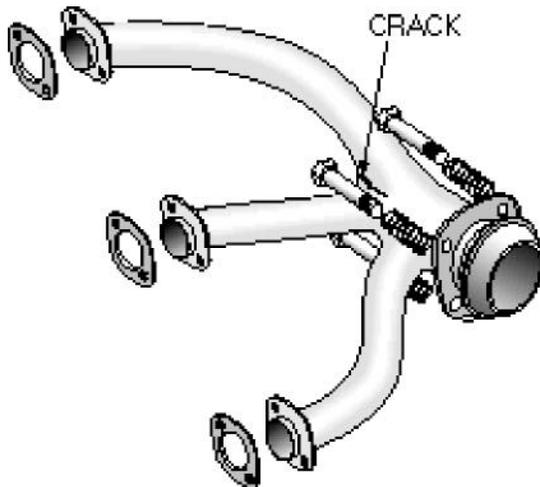
**Beech
Model A-36
Bonanza** **Engine Exhaust
System Failure
7810**

During a scheduled engine oil change, the technician discovered exhaust stains in the area of the vacuum pump.

A closer inspection revealed the right exhaust stack (P/N 35-950005-39) was cracked and split. (Refer to the following illustration.) It

appeared the crack originated adjacent to a welded seam and progressed to a split which was approximately 4 inches long and .5 inch wide. The defect was located directly below the area where three cylinders dump into the exhaust stack. The submitter cautioned that unrelated defects may be discovered by paying close attention to the area surrounding the subject of your work.

Part total time not reported.



Beech Model 55 Baron **Wing Flap Structural Damage 5753**

During an annual inspection, the right wing flap leading edge skin was found cracked.

The cracks were located in the area where the flap actuator attaches to the flap. Further investigation revealed the adjacent rib (P/N 35-16505-84) and actuator attachment bracket were also broken. The submitter stated the location of the rib is not visible for inspection, and damage is usually not detected until the outer skin cracks. Also, rib repair and replacement is difficult since there is no access provided. It was stated this defect is

caused by people stepping on the flap while entering or exiting the aircraft. The submitter suggested the manufacturer issue a service bulletin on this subject and design a reinforcement for this area. This report has been sent to the responsible FAA aircraft certification office for action.

Part total time-4,735 hours.

Beech Model C55 Baron **Nose Steering Failure 3250**

The pilot reported that during taxi prior to flight, directional control was difficult to maintain. The planned flight was continued, and during landing, the nose landing gear scissor broke. Steering control was maintained with differential braking, and no further damage was done.

An investigation revealed two bolts (P/N AN4H4A/M) were broken, which caused the original steering problem. It appeared the scissor (P/N 96-820020-1) broke during landing. The submitter speculated the cause of the bolts breaking was exceeding the turn limits while towing the aircraft.

Part total time-8,000 hours.

Beech Model 58 Baron **Engine Oil Filter Seized 8550**

During the first engine oil change, after engine installation, the oil filter was extremely difficult to remove.

Two technicians were required to physically "untorque" the filter. The submitter speculated this was caused by not lubricating the filter seal during the initial filter installation. It was suggested the manufacturer's recommended procedures be followed when installing oil filters. Although less severe, the right engine oil filter was also difficult to remove.

Part total time-22 hours.

**Beech
Model 95B55
Baron** **Landing Gear
Failure
3210**

The pilot reported the left main landing gear collapsed during landing.

An investigation disclosed the left main gear tire had failed, as evidenced by a severe flat spot in the tread area. The landing gear downlock tension was found set at approximately 18 pounds. The manufacturer's service manual requires the tension to be set between 45 and 65 pounds. The submitter speculated the gear failure was caused by a combination of low downlock tension and excessive loads applied to the downlock mechanism caused by "skidding" the tire on the runway.

Part total time not reported.

**Beech
Model F90
King Air** **Oxygen System
Failure
3520**

During routine maintenance, the oxygen mask system's "autodeploy system" was activated.

All of the oxygen masks failed to deploy. An investigation disclosed the "new" headliner material installed in the cabin was thicker than the original headliner. The additional thickness prevented the oxygen system mask actuator plunger from contacting the striker plate on the mask container cover.

Considerable force was required to free each of the oxygen mask container covers. The new interior had been installed 28 months prior to this test, and this was the first time the system had been actuated since the new interior was installed. The submitter recommended the oxygen system's "autodeploy" function be tested for proper operation after completion of interior refurbishment.

Part total time-295 hours.

**Beech
Model 400
Beechjet** **Landing Gear Door
Hinge Cracks
5280**

During a scheduled inspection, hairline cracks were detected on both left and right main landing gear door end cap beams.

The cracks were in the area of the forward door hinges. Further examination disclosed the forward hinges (P/N's 45A30380-9 and -10) were also cracked. The submitter did not offer a cause or cure for this defect; however, it would be an excellent idea to closely scrutinize these hinges and the surrounding area during maintenance and inspections. Failure of a landing gear door hinge, especially in the forward position, could cause serious damage to the aircraft and possibly endanger safety of flight.

Part total time-1,459 hours.

CESSNA



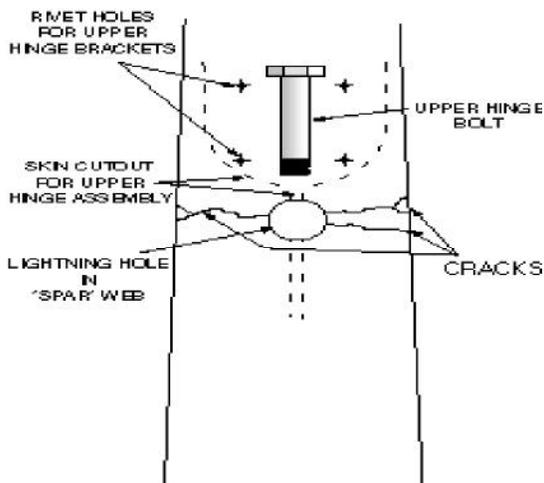
**Cessna
Model 152
Aerobat** **Rudder Structural
Cracks
5540**

During an annual inspection, the rudder's forward skin was found cracked.

The cracks were located adjacent to the lightning hole at the upper hinge point. (Refer to the following illustration.) This skin (P/N 0433010-6) acts as the forward rudder spar, and this defect seriously compromised the structural integrity of the rudder. The cracks traveled horizontally from both sides of the lightning hole and extended to the bend radius. A review of the service difficulty data base revealed, since March 1991, there have been 15 similar failures reported. The

manufacturer has issued Service Bulletin (SB) SEB 94-3 which deals with this issue. It is recommended that operators of these aircraft review the contents of the SB.

Part total time-7,687 hours.



Cessna Model 172F Skyhawk Elevator Bellcrank Failure 2730

After being tied down, during a strong wind, the elevator was found to be unresponsive.

An inspection revealed the elevator bellcrank (P/N 0513063-3), located under the cockpit floor, was broken. The strong tailwind evidently caused excessive force on the elevator, and that energy was transmitted to the bellcrank. A thorough operational inspection of the flight control system should be accomplished any time the aircraft is exposed to these conditions.

Part total time-5,000 hours.

Cessna Model 172M Skyhawk Defective Aileron Cable 2710

During an annual inspection, the left aileron cable (P/N 0510105-13) was found severely frayed.

Approximately 50 percent of the cable strands were broken. This damage was located in the cabin above the headliner, where the cable passes over three pulleys. There was no evidence of the cable chafing on other components, and all three pulleys rotated freely. The cause of this defect could not be determined.

Part total time-2,856 hours.

Cessna Model 172P Skyhawk Defective Fuel Quantity Transmitter Float 2842

During a 100-hour inspection, the left fuel quantity transmitter float was found defective.

The fuel quantity transmitter (P/N C668050-0802) had been removed to accommodate replacement of a gasket and screw seals. The composite transmitter float was found to contact the top and bottom of the fuel tank. A large amount of black residue, from the float, was found floating in the residual fuel. The submitter stated this problem would present a potentially dangerous situation, not only from possible blockage of the fuel supply to the engine, but also, the possibility of inaccurate fuel quantity indications. An examination of the fuel transmitter floats during scheduled inspection would be prudent.

Part total time-1,034 hours.

Cessna Model 182Q Skylane Brake Failure 3242

The pilot reported there was no braking action while taxiing the aircraft.

Since the aircraft was being operated in winter environments, it was suspected that ice and snow may have caused the problem. The master cylinder was checked, and no contamination was found. The aircraft was then moved into a heated hangar, and all the brake fluid was drained. This revealed there was more water in the system than brake fluid. Considering the amount of water present in the system, the submitter suspected the cause of this contamination was not from condensation. It was speculated the water came from contaminated service equipment. We take great effort to eliminate contamination from all of the aircraft systems, and the same care should be given to the equipment used to service the aircraft.

Part total time not reported.

Cessna Model 207A Stationair	Propeller Spinner Failure 6113
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The pilot reported the propeller spinner separated from the aircraft during flight.

An inspection disclosed the propeller spinner's dome stabilizer (P/N 0550340-1) had worn through the spinner. This caused weakening of the structure and led to the failure. The submitter suggested the cause may have been improper shimming of the stabilizer. It was suggested the manufacturer's maintenance manual be followed whenever the spinner is removed and reinstalled.

Part total time-13,600 hours.

Cessna Model 310R	Loose Main Landing Gear Attachment 3221
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During unrelated maintenance, the left main landing gear attachment was found loose and "working."

The four mounting screws, used to attach the landing gear trunnion support to the wing, displayed evidence of "working" over a substantial period of time. Further inspection revealed 7 of approximately 50 screws had the

nut "bottomed out" on the threads. It would be wise to give this area special attention during scheduled inspections and maintenance.

Part total time not reported.

Cessna Model 340A	Landing Gear Crack 3211
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During an annual inspection, the left main landing gear torque tube (P/N 5045010-19) was found cracked.

The crack was approximately 2 inches long and was located around the circumference of the weld at the clevis boss for the overcenter link. This was the fifth such finding by the submitter on like aircraft. No cause or cure was offered by the submitter. This would be a good area to give special attention during scheduled inspections and maintenance.

Part total time-3,706 hours.

Cessna Model 402C Businessliner	Passenger Seat Failure 2520
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While loading for the first flight of the day, a passenger leaned against the Number 4 seat back, and the seat bucket separated from the pedestal.

This seat (P/N 5219125-14) had been installed, in accordance with Supplemental Type Certificate (STC) SA2715CE, approximately 3 months prior to this occurrence. The submitter recommended that operators using these seats should inspect them on a daily basis. Special attention should be given to the area around the "hourglass" seat pedestal. This was the second occurrence of this type experienced by this operator.

Part total time-244 hours.

Cessna Model 560 Citation	Wheel Half Tie Bolt 3246
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During a preflight inspection, the pilot found two adjacent wheel half tie bolts broken.

The wheel was disassembled, and the bolts were found broken approximately four threads from the shank. Prior to failure, these bolts were checked (by magnetic particle inspection) at 43.5 hours of operating time and 42 cycles. The bolts had been through seven new tires and had a total of 1,463 operating hours since they were new. Proper lubrication had always been used during installation and torquing, and there was no evidence of overtightening. This operator has initiated a policy of installing new bolts after five tire changes and checking by magnetic particle inspection after the third tire change.

Part total time as previously stated.

FOUGA

**Fouga Fuel Contamination
Model CM 170 2810**

Information for the following article was furnished by the FAA's Flight Standards District Office (FSDO) located in Riverside, California.

This aircraft was a former French Air Force twin-engine jet trainer which had been imported into the U.S. The aircraft lost power on both engines during takeoff and collided with the terrain approximately 2,000 feet from the departure end of the runway.

An investigation of the wreckage revealed small particles and water in a fuel sample. The design of the aircraft fuel system does not accommodate preflight fuel sampling from the bladder fuel cells located in the fuselage. The following is a suggested and acceptable means by which an operator can minimize the possibility of fuel contamination and perform a fuel sampling.

1. The addition of a fuel additive, in accordance with the manufacturer's instructions, which will hold water in solution

on a regular basis or at the time of every fueling, based on operating environment and utilization schedule.

2. Keep fuel tanks full to help exclude condensation.

3. Take a fuel sample prior to flight if the aircraft has not been operated for 30 days or longer, or at a minimum monthly if the aircraft is operated frequently.

4. A maintenance record entry should be made each time a fuel additive is used and when fuel samples are taken.

A fuel sample may be taken by the following procedure:

1. Remove inspection cover "39F," located in the bottom center of the fuselage just aft of the rear cockpit and nacelle intakes.

2. Remove the fuel drain cap by rotating the attached arm 90 degrees.

3. Place a clear container under the drain hole located on the belly skin directly below the fuel drain.

4. Press the fuel drain upward while avoiding interference with the downward stream of fuel.

5. Examine the fuel sample for contamination, and if none is found, replace the fuel drain cover cap.

CAUTION: Do not use excessive force while reinstalling the cap, as damage to the seal may occur.

NOTE: Tools are not required for removal or replacement of the fuel cap. The rubber cap seal should be checked for condition while the cap is removed.

HELIO

**Helio
Model H-295
Super Courier**

**Accident
Investigation
Results
2700**

Information for this article was furnished by Mr. David Sexton, an Aviation Safety Inspector with the FAA Flight Standards District Office located in Columbia, South Carolina and Mr. Jeff Kennedy from the National Transportation Safety Board (NTSB). The following information resulted from investigation of an aircraft accident.

The aircraft struck the terrain approximately 300 feet from the departure end of the grass runway. It appeared the aircraft was in a nosedown attitude, and the engine was producing power when the impact occurred. A preliminary investigation of the wreckage did not reveal a possible cause for the accident.

A technician, who worked on the aircraft, disclosed the pilot typically used a "dry wall screw" as a device to lock the flight controls when the aircraft was parked. During another examination of the wreckage, the remnants of the "dry wall screw" were found still installed in the pilot's control column. With the control column locked, it was held in almost the full forward or "nosedown" position. This was identified by the NTSB as the cause of the accident.

There were at least two mistakes, which led to this accident. First, the proper control lock should have been used, with a streamer or placard stating: "REMOVE BEFORE FLIGHT." Second, a preflight inspection of the flight controls should have been made, to check for freedom of movement, which would have disclosed the presence of a control lock.

Aircraft accidents involve fatalities, injuries, and/or damage to a valuable piece of equipment. For these reasons, we should all keep operational safety at the top of our

priority list. The lessons of this type of accident should be taken to heart and reverently observed. Aircraft accidents are the least favorite job of the FAA inspectors and NTSB investigators.

LEAR

**Lear
Model 35A
Centry III**

**Accident
Investigation
Results
2400**

An article was printed in the July 1995 edition of this publication concerning the use of this aircraft as an "electronic target plane" in support of military operations. At the time of the previous writing, an accident investigation was in progress, and the cause of the accident had not been determined by the National Transportation Safety Board (NTSB). This article will provide an update to the previous information.

The aircraft was operating as "Public Use" and had been modified by installing electronic equipment (required by the mission). The NTSB stated the "probable causes" of the accident were:

1. "Improperly installed electrical wiring for special mission operations that led to an in-flight fire that caused airplane systems and structural damage and subsequent airplane control difficulties."
2. "Improper maintenance and inspection procedures followed by the operator."
3. "Inadequate oversight and approval of the maintenance and inspection practices by the operator in the installation of the special mission systems."

The following statement was taken from the NTSB report. "The Safety Board believes that a qualified mechanic should not have

overlooked basic electrical power wire installation practices, such as ensuring proper current overload protection for the entire system. Similarly, the failure of the avionics inspector to compare the actual installation with the specified installation instructions is inexcusable. The instructions for the work specified the proper installation; however, it was not followed by the mechanic, and the IA did not meet his inspection responsibilities. These failures, coupled with the fact that 14 additional airplanes had been modified incorrectly, reflects on the competence of the individuals involved and a lack of adequate oversight by the operator's maintenance management personnel."

MOONEY

**Mooney
Model M-20E
Chaparral**

**Elevator Control
System Failure
2730**

During an annual inspection, an operational test of the flight control system disclosed restricted movement of the elevator.

After moving the elevator through five cycles of its full travel, movement became unrestricted. Further investigation revealed the threaded end of a rod-end bearing (P/N M34-14) had broken at the elevator control tube located aft of the adjustable tail section joint. The fracture occurred in the threaded section of the rod-end approximately six threads from the jamnut end. The bearing in the rod-end was "frozen," and exhibited evidence of corrosion and lack of lubrication. To prevent recurrence of this defect, it was recommended that all rod-end bearings be properly lubricated in accordance with the manufacturer's technical data.

Part total time-2,329 hours.

PIPER



**Piper
Model PA 23**

**Cockpit Fuel Fumes
2140**

The pilot reported strong fuel fumes in the cockpit when the heater was turned on after starting the engines. The heater was immediately shut off, and the engines were secured.

An investigation revealed fuel was leaking from the heater's fuel strainer assembly (P/N 460-755) which was located in the nose compartment. The sediment bowl was found cracked and severely corroded. The corrosion and crack were located in the bottom of the bowl, and the crack traveled "circumferentially" around the bowl. According to the maintenance records, the fuel screen was cleaned during the last annual inspection. It appeared the corrosion had weakened the metal bowl, which was "crushed" when the nut was tightened.

The fuel strainer assembly is mounted above the heater in the nose of the aircraft. Fuel leaking onto the heater, as in this case, created a very hazardous condition which could have caused fire, serious injuries, and destruction of the aircraft. It was recommended that the condition of the fuel strainer bowl be checked when the fuel screen is cleaned during annual inspections. Everyone should be alert for the possibility of fuel leaks in this area.

Part total time not reported.

**Piper
Model PA 24-250
Comanche**

**Uncontrollable
Propeller In Flight
6120**

The pilot reported the propeller RPM went from 2,350 to 2,700 without command, and

could not be decreased with the propeller control. A safe landing was made, and the aircraft was delivered to maintenance.

An inspection disclosed the propeller control ball joint (P/N 19987-00) had separated from the propeller governor. A review of the maintenance records revealed the joint was replaced during the last annual inspection, which was approximately 5 months prior to this occurrence. The ball joint was severely corroded, and there was no evidence that it had ever been lubricated. The manufacturer's maintenance manual requires lubrication of this ball joint at 100-hour intervals. To avert recurrence of this defect, the submitter suggested following the manufacturer's requirements.

Part total time not reported.

Piper Model PA 28-150 Cherokee	Fuel Line Deterioration 2820
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During an annual inspection, the fuel lines connecting the tank to the fuselage broke while the fuel tank was being removed.

The submitter stated there was no corrosion on the spar or tanks. It was speculated the lines became brittle due to their age (as well as corrosion) and broke when a small amount of pressure was applied. It is necessary to inspect these fuel lines with a flashlight and mirror, and the submitter suggested they be inspected as soon as possible. It was stated: "If the lines haven't been replaced since the aircraft was built, they should be."

Part total time-3,627 hours.

Piper Model PA 30 Twin Comanche	Engine Failure 7160
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The pilot reported the right engine lost power during takeoff. After a safe landing, the aircraft was sent to maintenance.

An investigation revealed the engine induction system's alternate air door had separated from the hinges and had been "sucked" into the induction duct. This severely restricted airflow to the engine. It is suggested the condition of the alternate air door hinge be checked at every opportunity.

Part total time-5,180 hours.

Piper Model PA 31T3	Nose Landing Gear Malfunction 3230
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The pilot reported the nose landing gear would not remain up and locked when the gear selector was returned to the "neutral" position after retraction. All other landing gear functions were normal, and the aircraft was safely landed.

During an investigation, excessive moisture was found under the "dust boots" on the normal and emergency uplock hook retraction rods (P/N's 41949-00 and 81947-02). It seems apparent that the moisture froze and prevented the uplock mechanism from functioning properly. After the rod assembly boots were dried and lubricated, the system functioned normally. During cold weather operations, it would be wise to check for moisture accumulation in these areas.

Part total time-8,061 hours.

Piper Model PA 32R-301T Turbo Saratoga	Oxygen Bottle Bracket Failure 5345
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During a scheduled inspection, all four brackets, used to attach the oxygen bottle rack to the side of the rear fuselage, were found cracked.

The submitter speculated the brackets are not strong enough to support the oxygen bottle's weight. This may be especially true when the "G loads" imposed during flight are considered. It was recommended these

brackets be made of a thicker material. This would be a good area to check during scheduled inspections and maintenance. This report and the recommendations have been sent to the responsible FAA aircraft certification office for action.

Part total time-2,400 hours.

Piper Model PA 32RT-300T Turbo Lance	Vacuum System Filter Contamination 3710
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During an annual inspection, the vacuum system's regulator filter was found discolored.

While removing the filter element, it disintegrated. The maintenance records gave no indication of the filter ever being changed. The location of this filter makes it difficult to access, which could have been the reason it was never changed. A little extra effort to check, and if necessary, change this filter may prevent a later instrument malfunction.

Part total time-2,170 hours.

Piper Model PA 34-200T Seneca II	Cracked Wing Flap Actuation Lever
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During a scheduled inspection, the wing flap actuation lever was found cracked.

The crack was located at the forward lower bend radius, adjacent to the attachment point on the floor. The submitter did not offer a cause or cure for this defect; however, considering the number of operating hours on the aircraft, it seems likely that metal fatigue was a factor. It would be wise to closely scrutinize this area during maintenance and inspections.

Part total time-16,429 hours.

Piper Model PA 38-112 Tomahawk	Main Landing Gear Attachment 3211
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During an annual inspection, the left and right main landing gear attachment bolts

(P/N AN7-17A) and one saddle bolt (P/N AN6H-14A) on each side were found bent.

The submitter stated the only logical cause for this type of damage was a hard landing. This defect had been discovered by the submitter on several other occasions. From this experience, the operator has initiated a policy of removing these bolts each 100 hours of operating time for a damage inspection. The submitter recommended pilots be more forthright in reporting and documenting hard landings.

Part total time not reported.

Piper Model PA 44-180 Seminole	Oil Drain Plug Missing 8550
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The pilot reported the right engine lost oil pressure during flight. The engine was secured, and a safe landing was made.

An investigation by maintenance technicians revealed the oil sump drain plug was missing. This was a new aircraft, and the submitter speculated the plug was not "safety wired" at the factory. The left engine was inspected and also found with no safety wire on the oil sump plug. Although this was apparently an omission by the factory when the aircraft was delivered, it lends credence to accomplishing a thorough acceptance inspection when purchasing an aircraft.

Part total time-45 hours.

SIAI-MARCHETTI

SIAI-Marchetti Model S205/22R	Exhaust System Failure 7820
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During an accident investigation, the left side engine exhaust system's muffler was found to have an internal baffle (end plug) broken.

This allowed exhaust gases to be vented directly into the exhaust pipe. It was believed this condition caused back pressure on the

engine and degraded performance. During inspections, it is recommended that a careful check of the baffle and diffusers be made to assure their security.

Part total time-919 hours.

SUKHOI

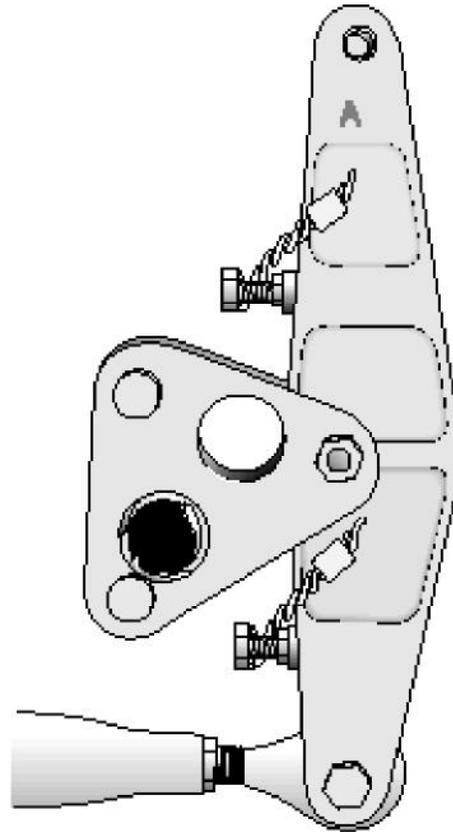
**Sukhoi
Model SU-29**

**Aircraft Accident,
Possible Elevator
Failure
2730**

The National Transportation Safety Board (NTSB) recently investigated a fatal aircraft accident. This aircraft was built in Russia and imported into the U.S. Approximately 5 weeks prior to this accident, a Sukhoi Model SU-31 suffered an in-flight breakup. The SU-31 and the SU-29 were both engaged in aerobatic maneuvers prior to their respective accidents.

Although the composite wing spar was fractured and separated into numerous pieces, the SU-29 had no evidence of an in-flight breakup. During examination of the remnants of the elevator control system, a bellcrank was found with the upper attaching holes showing no visible deformation and no visible bending of the ears; however, the upper control tube attachment bolt and rod-end were missing. (Refer to the following illustrations.) This bellcrank was the only component of the elevator and aileron control systems that did not display some impact damage. A laboratory examination revealed that, at one time, a bolt had been installed; however, there was no indication a bolt was installed at the time of the accident. The bolt, intended for use in the bellcrank, requires a castellated nut and a cotter key.

There is concern over the issuance of airworthiness certificates for foreign-manufactured aircraft, which the FAA has no surveillance of during the manufacturing process and no agreement with the CAA of the country of manufacture.



BELLCRANK AS FOUND IN WRECKAGE

HELICOPTERS



JETRANGER

BELL

**Bell
Model 222, 222B,
222U, And 230**

**Main Rotor Hub Grip
Retaining Bolt
Torque
6114**

The following article was submitted by the FAA's Rotorcraft Certification Office (ASW-170) located in Fort Worth, Texas.

A Bell Model 230 operator reported a crack in the tang of the main rotor grip (P/N 222-012-104-101) at the junction with the pitch horn. Subsequent investigation revealed the fatigue crack was caused by heavy fretting due to loss of torque of the attaching hardware. The main rotor part numbers (P/N's 222-012-101-103 and -107) are similar to the hub assembly used on Bell Model 230 aircraft and spare replacements for Bell Models 222, 222B, and 222U.

On December 4, 1995, Bell Helicopter released Alert Service Bulletin (ASB) 222-95-78 for Models 222 and 222B; ASB 222U-95-49 for Model 222U; and ASB 230-95-10 for Model 230 aircraft. These ASB's advised customers to perform an initial bolt torque inspection and additional bolt torque inspections of the main rotor grip retaining bolts (P/N 222-310-127-101) after 5 to 10 hours of operation following each installation, and every 150 hours thereafter. If any fretting is evident, consult the Bell BHT-222-CR&O-2 Manual for instructions on further inspections, replacement, or repair.

Copies of this bulletin may be obtained, upon request, from Bell Helicopter Textron, Inc.; P.O. Box 482; Fort Worth, TX 76101.

AMERICAN EUROCOPTER

American Eurocopter Model AS350B Ecureuil	Aft Horizontal Stabilizer Skin Cracked 5510
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While replacing the aft horizontal stabilizer skins (P/N's 350A13-0020-61 and -62) for other defects, it was discovered that the skins were cracked at the upper inboard attachment area. The submitter recommended closer attention to the adjacent stabilizer attachment upper and lower surfaces during routine inspections.

Part total time-5,604 hours.

American Eurocopter Model BK117A3 Space Ship	Fuel Pump Bearing Failure 7314
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Internal leakage of the fuel pump washed grease from the fuel pump bearing into the fuel control unit, which caused it to fail. This, in turn, caused the engine go into an overspeed condition and fail. The submitter stated, this is the second incident, of this type, within a 6 day period.

Part total time-500 hours.

ENSTROM

Enstrom Model 28-F Falcon	Tail Rotor Cable Frayed 6720
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While performing a visual inspection, it was discovered that the tail rotor cables were frayed where they pass over the aft alignment pulleys in the tail cone. The submitter stated the pulleys were lubricated, free, and turning when the discrepancy was noted. It was suspected that vibration caused the cables to "rattle" in the pulley guides and eventually caused these cables to fray. The submitter suggested that cables in this area be inspected at 100-hour inspections or annual inspections.

This Malfunction or Defect Report applies to Models F28C, F28C-2, F28-F, F280F, and 280FX.

Part total time-1200 hours.

McDONNELL DOUGLAS

McDonnell Douglas Model 369E 500E	Skid Adapter Sleeve Corroded 3211
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While performing an inspection, the left-hand skid sleeve was noted to be loose. After removal of the sleeve, a closer inspection revealed it was severely corroded to the point

of penetration and complete failure. The submitter stated this is the second problem, of this type, found on two separate aircraft.

Part total time-3,849 hours.

**AMATEUR AND
EXPERIMENTAL AIRCRAFT**

AVIAT

Aviat Models S-2A, S-2A, And S-2S Pitts	Longerons Aft Rear Cabane For Cracks 5713
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Excerpts of the following article were taken from a recent Airworthiness Directive (AD) AD 96-09-08.

SUMMARY: Date Effective: May 20, 1996. This AD is applicable to Aviat Aircraft, Inc., airplanes, formerly Pitts Aircraft. This action requires an inspection of the longerons aft of the rear cabane struts for cracks. If these longerons are discovered to be cracked, they must be repaired prior to further flight. Reports of longeron failure, caused by fatigue aft of the rear cabane struts, prompted this AD. The actions specified by this AD are intended to prevent cracking and subsequent failure of the longerons, resulting in possible loss of control of the airplane. (Aviat Service Bulletin No. 24, dated February 8, 1996, is part of this AD.)

KIT FOX

Kit Fox Model IV Speedster	Metal Filings Around Trigger Points 7414
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The following article was submitted by the FAA's Flight Standards District Office located in Sacramento, California.

An experimental Kit Fox IV crashed after experiencing a loss of engine power, shortly after departing the runway. There was substantial damage to the airplane. The pilot stated the engine began to "run rough" shortly after reaching a 300 foot altitude. The pilot applied fuel boost, to alleviate the roughness, but to no avail. The pilot executed a forced landing.

After the accident, an investigation of the engine (Rotax 912UL) revealed the following:

1. Metal filings around the trigger points, which grounded out the ignition system.
2. The left carburetor slide valve was found installed 90 degrees off its proper position. (The right throttle slide valve was installed according to the manufacturer's maintenance manual.)
3. The right carburetor choke arm nut was missing and the choke was partially open.
4. The carburetor vent lines were extended, and did not comply with the manufacturer's installation recommendations.

A Rotax manufacturing representative stated the left-hand carburetor slide valve and right carburetor activated choke would result in excessive vibration, engine stumbling, and possible stoppage. It was also stated, the incorrectly routed fuel vent lines would create a differential pressure between the carburetor intakes and float bowl chambers, which would also create unstable fuel delivery, rough running, excessive vibration, and possible stoppage of engine functions.

Part total time-60 hours.

CHRISTEN

Christen Model A-1	Induction Air Filter Assembly Crack 7160
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The following article was submitted by High Plains Aero Service of Amarillo, Texas.

While performing an annual inspection, after removal of the induction air filter element (P/N BA-4111), a vertical 3.5-inch crack was discovered in the element retaining screen. The submitter stated that if pieces of the element had broken loose, they could have been ingested into the carburetor. This was a steel mesh screen which was not covered by Airworthiness Directive 81-15-03.

This filter element is compatible to several other types of aircraft such as Aeronca, Cessna, Christian Husky, Luscombe, Mooney, Morrisey, Piper, Shinn, Taylorcraft, Univar Universal and Varga.

Part total time-481 hours.

HOT AIR BALLOONS

HEAD

Head Model AX8-88	Faulty Basket Suspension Cables 5102
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During an annual inspection, the basket suspension cable eyes were found elongated.

This condition clearly falls outside the manufacturer's criteria for airworthiness.

When replacement cables were received from the manufacturer, it was evident that incorrect cables were originally installed. No other information was given concerning the usage of the incorrect cables.

Use of the wrong parts could endanger the crew, passengers, and people on the ground.

Part total time-82 hours.

PROPELLERS AND POWERPLANTS

HARTZELL

Hartzell Model PHC-C3YF-1RF	Abnormal Propeller Wear And Damage 6114
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While disassembling the propeller for its first overhaul, the cotter pin used to lock the piston retention nut was found in several pieces.

The piston nut was loose, and the piston rod bore of the hub was abnormally worn. The submitter stated this was the third propeller found with this type damage and wear. The other two occurrences were first-time overhauls and all three propellers were installed (by STC) on Continental IO-520 engines in Beech Bonanza model aircraft. It was stated, that installation of a stainless steel cotter pin may prevent this defect from reoccurring; however, it would be more appropriate to contact the STC holder or FAA engineer for a suitable fix for the problem.

Part total time-1,500 hours.

PRATT AND WHITNEY

Pratt and Whitney Model PT6A-42	Engine Failure 7261
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This engine was installed in the left position on a Beech Model B200 aircraft.

The pilot reported the low fuel pressure light illuminated, followed by an "autofeather" of the left engine. The engine was shut down, and an uneventful single-engine landing was made.

Investigation revealed the oil quantity was low, there was oil in the exhaust case, and metal particles were found in the oil filter. Further inspection revealed the engine oil scavenge pump shaft (P/N 3008127) was sheared. The engine was removed from service for an overhaul. No cause for this failure was given by the submitter.

Part time since overhaul-2,730 hours.

TEXTRON LYCOMING

Textron Lycoming	Exhaust Valve
Model TIO-541-E1C4	Failure
	8530

This engine was installed on the left side of a Beech Model B-60 aircraft.

When the pilot advanced power for takeoff, the left engine died. A boroscope inspection disclosed the exhaust valve in the Number 4 cylinder was not opening. When the rocker box cover was removed, several broken parts were found. The following broken parts were found in the bottom of the rocker box; exhaust valve rocker shaft, rocker shaft boss casting, and the rocker tang (which holds the rocker shaft in place). The submitter speculated the rocker shaft's retaining clip broke, allowing the rocker shaft to migrate out of the outboard casting boss.

Part total time-829 hours.

ACCESSORIES

SLICK MAGNETOS

These magnetos were installed on TCM Model TSIO-520 engines used on a Cessna Model 414A aircraft.

The aircraft owner presented the aircraft for a 100-hour inspection and stated the right magneto on the right engine was "rough."

An investigation revealed severe corrosion on the points, gears, capacitor, and bearings. This led to disassembly and inspection of the remaining three magnetos. All were found in the same condition. The submitter speculated this defect was caused by the use of air from the turbochargers for pressurization.

Part total time not reported.

AIR NOTES

A & P EXPERIENCE VERIFICATION

Have you ever been asked to verify maintenance experience for someone? If so, you should be well aware of your responsibilities to document only the actual experience required by Title 14 of the Code of Federal Regulations (14 CFR) section 65.77. This regulation states, in part, that an applicant for a mechanic certificate must present documentary evidence (satisfactory to the Administrator) of at least 18 months of practical experience in airframe or powerplant, appropriate to the rating sought. Also allowed, is 30 months of practical experience concurrently performing the duties appropriate to both the airframe and powerplant ratings. You should review section 65.77, and all other applicable regulations, before your name is signed to an applicant's experience verification statement. Your responsibilities for this verification should not be taken lightly. However, if you feel an applicant has met the experience requirements, and you have verified documentation, you may give your endorsement, support, and encouragement.

At times, you may be pressured to sign an endorsement that cannot be verified. This may come from coworkers, superiors, pilots, or someone "requesting a favor." These are the times when your integrity is on the line, and you must deal with your conscience and the legality of your action. Just ask yourself the following question. *How hard did I have to work to earn my ticket?*

An excellent article, entitled "Squeezed," appeared in the January/February 1996 edition of *Aircraft Maintenance Technology* magazine. This article was written by Mr. Bill O'Brien of the FAA Aircraft Maintenance Division, AFS-300, located in Washington, DC. You are encouraged to read this article, and other reference material, before signing your name. Your experience verification, for an A & P applicant, will be closely scrutinized by the FAA Airworthiness Inspector, and if the facts do not "add up," you may be asked some embarrassing questions.

OSHKOSH '96

Once again, it is time for the annual celebration of aviation, affectionately known throughout the aviation world as OSHKOSH! About this time each year, for the past 43 years, this Wisconsin community is transformed into the aviation Mecca of the world.

This year's event will, as always, be held at Wittman Regional Airport in Oshkosh, Wisconsin, and is scheduled to begin August 1, 1996 and conclude August 7, 1996.

The Experimental Aircraft Association (EAA) sponsors this annual event. Officials from their organization, the FAA, and many other groups, organizations, and manufacturers will be available to offer information, educational programs, and material. The staff of this publication will be present to distribute information and accept your questions and comments. Seminars, workshops, and forums

will be presented continually each day. Many evening events will be held at the "Theater in the Woods."

This year, there will be a salute to the Korean and Vietnam veterans which will include both aerial and static displays of aircraft from each era. Also, there will be a salute to test pilots. Many well-known pilots will be on hand to present forums and relate some of their experiences.

In 1995, more than 830,000 people and 12,000 aircraft, including 2,719 showplanes, attended this event. This year, expectations are very high for a record setting attendance and successful show. No matter what your aviation interest may be, there will be many items which will grab your attention and possibly spark a new idea.

We look forward to seeing you at Oshkosh '96.

ADVISORY CIRCULAR 43.13 UPDATE

The process of revising *AC 43.13-1, Acceptable Methods, Techniques, And Practices--Aircraft Inspection and Repair*, has been a long and arduous task involving many hours of research and the efforts and expertise of many people. The importance of this publication to aircraft maintenance requires that it provide accurate and current information which is acceptable for aircraft inspection, repair, and alteration.

At the time of this writing, the third draft was ready for "Public Comment." A notice appeared in the *Federal Register* in May 1996, with a notice as to the due date for comments. To request a draft copy of the document for review, you may contact Mr. George Torres by writing to:

FAA, Regulatory Support Division
ATTN: GEORGE TORRES, AFS-610
 P.O. Box 25082
 Oklahoma City, OK 73125

You may also contact Mr. Torres by telephone or FAX.

The numbers are:

(405) 954-6923 (voice line)
(405) 954-4104 (FAX line)

Your comments and questions will be appreciated.

FAA FORM 337 INFORMATION

After reviewing numerous submissions of FAA Form 337, Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance), it was obvious that a clarification of the proper use of FAA Form 337 was necessary. The information was furnished by the FAA Aircraft Maintenance Division, AFS-300, located in Washington, DC.

It seems there may be some confusion concerning the necessary data and signature blocks 6 and 7. In the case of a Supplemental Type Certificate (STC) installation, the technician should verify that the data and parts supplied are complete. If there is any doubt, a call to the STC holder should provide the answer. When the installation is complete, the technician certifies the installation conforms to the STC data by signing block 6 of FAA Form 337.

A technician with Inspection Authorization (IA), or other authorized personnel, returns the aircraft (or product) to service by signing block 7 of FAA Form 337. By this action, the person certifies the aircraft is in a condition for safe operation and meets its properly altered type design.

Although an FAA Airworthiness Inspector may sign block 7 of FAA Form 337, this rarely happens. However, in many cases, the FAA Inspector will review the FAA Form 337, the technical data used for installation of the STC, and inspect the installation. Without the STC holder's complete technical data for STC

installation, a technician should not engage in the performance of the STC.

Additional guidance material regarding FAA Form 337 can be found in *AC 43.9-1E, Instructions For Completion Of FAA Form 337 (OMB NO. 2120-0020), Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance)*.

GOOD NEWS FROM THE FCC

On February 8, 1996, the Telecommunications Act of 1996 was signed into law. This Act gives the Federal Communications Commission (FCC) discretion to eliminate the individual radio station licensing requirement for ships and aircraft operating domestically which are not required by law to carry a radio. On April 12, 1996, the FCC released a Notice of Proposed Rule Making (NPRM) in WT Docket number 96-82, FCC 96-145, asking for public comment concerning the elimination of the radio station licensing requirement. The comment period for this NPRM closed May 20, 1996. At the time of this writing, the outcome had not been determined by the FCC.

Pending a final decision in this matter, the FCC has issued an interim rule temporarily eliminating the individual licensing requirement for recreational ships and private aircraft operating domestically which are not required by law to carry a radio.

The term "private aircraft" was defined to include aircraft that are not required by law to carry a radio. Also included, are aircraft weighing less than 12,500 pounds maximum certified takeoff gross weight which are not operated as air carriers.

What does all this mean? There is no need to cancel your present radio station license, return it to the FCC, or request a refund at this time. If you operate a private aircraft domestically, you are not required to apply for a new license or renew your current license at this time.

If the individual licensing requirement is not eliminated by the NPRM, the FCC will allow sufficient time to obtain a license. It seems hard to imagine that any negative comments would be received on this subject. The FCC has set up a toll-free Customer Assistance Hotline with a recorded message explaining

the latest information on this subject. Simply dial (800) 322-1117, press the number "2," then press the number "1." Update information is also available via the internet on the FCC's World Wide Web homepage at:
<http://www.fee.gov/wtb/avmarsrv.html>.

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