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Administration**

Aviation Maintenance Alerts

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**ALERT NO. 259
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**Improve Reliability-
Interchange Service
Experience**

CONTENTS

AIRPLANES

AMERICAN GENERAL	1
BEECH	1
CESSNA	4
LOCKHEED	6
MOONEY	6
PANSTWOWE ZAKLADY LOTNICZE (PZL)	7
PIPER	7
SHORT BROS. & HARLAND	11

HELICOPTERS

AMERICAN EUROCOPTER	11
BELL	12
MCDONNELL DOUGLAS	12
SIKORSKY	13

POWERPLANTS AND PROPELLERS

ALLIED SIGNAL	13
TELEDYNE CONTINENTAL	14

AMATEUR, EXPERIMENTAL, AND SPORT AIRCRAFT

ACRO SPORT	14
GLASAIR	14

AIR NOTES

ELECTRONIC AIRWORTHINESS DIRECTIVES	15
ADDRESS CHANGES	15
SUBSCRIPTION FORM	15
IF YOU WANT TO CONTACT US	15
AVIATION SERVICE DIFFICULTY REPORTS	17

**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

AMERICAN GENERAL

**American General; Model AA-5A; Cheetah;
Poor Engine Performance; ATA 7320**

The aircraft owner reported the engine performance deteriorated during flight.

A maintenance technician discovered the carburetor bowl not attached tightly and securely to the throttle body. Even though the locking-tab washers under the attachment screws were properly installed, the screws were loose. The submitter believes the gasket shrunk allowing excessive air to be drawn into the carburetor. Also, it is possible that the attachment screws were not properly tightened during installation.

Part total time not reported.

BEECH

**Beech; Model V35A; Bonanza; Flight
Instrument Failure; ATA 3421**

The pilot reported that the primary flight instruments failed shortly after takeoff. The pilot terminated the flight and made a safe landing at the departure airport.

This aircraft uses a pressurized instrument air system which is plumbed through the instruments and exhausts through a ½ inch plastic tube. The tube is routed through a grommet in the aft wall of the nose gear wheel well. The plastic tube terminates at a point adjacent to the nose gear tire when the tire is in the retracted position. When the technician retracted the landing gear, he discovered the gyro instruments tumbled and the flow meter registered a reading of near zero. He then discovered that the tube migrated into the wheel well far enough to be obstructed by the nose gear tire.

The submitter found evidence of a similar defect on another like aircraft. He suggested the addition of an "Adel" clamp to secure the tube and prevent it from moving into the wheel well.

Part total time not reported.

**Beech; Model A36; Bonanza; Electrical System
Failure; ATA 2434**

The pilot departed on a cross-country flight with marginal visual meteorological conditions (VMC). Shortly after takeoff, the alternator "fail" light illuminated. To make matters even worse, the weather conditions deteriorated. The pilot chose a different route, seeking

better weather for his flight. He flew for approximately 1 hour, using battery electrical power, before finding an acceptable airport.

The technician discovered that the alternator brushes were worn down to the springs. This allowed only momentary and intermittent alternator operation when the brush springs made contact. This aircraft was "in transit;" therefore, the technician was not familiar with the aircraft's maintenance history and could not offer any conclusions concerning this defect.

The submitter stated alternator brushes worn to this extent should have been detected and corrected long before reaching this condition.

Part total time could not be determined.

Beech; Model 58; Baron; Erroneous Landing Gear Position Indication; ATA 3260

During a landing approach, the pilot noticed the nose gear down-and-locked light did not illuminate when he placed the gear lever in the "down" position. The pilot landed the aircraft safely.

A technician discovered that the "fork-end" of the plunger assembly (P/N 35-825094-4), located on the gear retraction rod assembly, was broken. The broken fork on the plunger assembly produced the erroneous position indication.

The submitter suggested inspecting the plunger assembly frequently to make sure it is in a serviceable condition.

Part total time not reported.

Beech; Model 58; Baron; Repetitive Cowl Flap Actuator Failures; ATA 7111

A maintenance technician reported finding a history of cowl flap actuator failures.

The first cowl flap actuator (P/N 96-380021-17) failed after 646.5 hours of operation. Four subsequent failures occurred at 672.4, 704.7, 763.0, and 840.8 operating hours over a 71-day period. This equates to an average actuator

life of 48.575 operating hours per unit. After each failure, the technician replaced the defective actuator with a new or rebuilt component obtained from the aircraft manufacturer. All of these failures occurred under normal operating conditions and could not be attributed to any external condition.

The submitter recommended that the manufacturer investigate the source and cause of this anomaly and take steps to improve the longevity of the cowl flap actuators.

Part total times previously listed.

Beech; Model 58P; Baron; Landing Gear Failure; ATA 3230

While taxiing, the nose landing gear collapsed, followed by the collapse of the right main gear.

Mr. Roger Webb, an FAA Airworthiness Inspector from the Dallas Flight Standards District Office, investigated this incident. He discovered the landing gear gearbox was in the "full-down" position and the nose gear retraction arm (P/N 35-825172-2) was broken. He surmised that when the nose gear retraction arm failed, it released the overcenter tension on the nose gear down-lock and the gear retracted. Failure of the nose gear apparently induced a side load on the right main gear, bending the retraction arm assembly (P/N 35-815125-31) enough to allow the gear to collapse on the closed inner gear door.

Part total time not reported.

Beech; Model 76; Duchess; Main Landing Gear Failure; ATA 3230

During a landing, the right main landing gear failed. There were no personal injuries; however, the aircraft suffered substantial damage before it came to rest.

A technician discovered that the clevis pin (P/N MS20392-1C53), used to secure the landing gear scissors link, was missing. He speculated that the clevis pin broke, causing the lower strut to overextend and pivot, and the gear collapsed.

The submitter recommended removing and inspecting all the landing gear clevis pins for wear and condition during each scheduled inspection.

Part total time not reported.

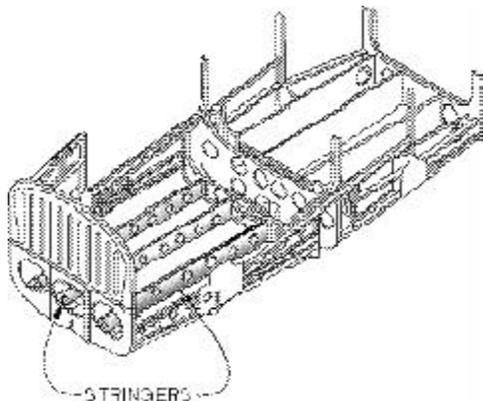
Beech; Model 76; Duchess; Cockpit Structural Anomaly; ATA 5315

During a scheduled inspection, the technician noticed movement of the cockpit floor while moving the left rudder pedals using hand pressure. A check of the right side produced the same result.

The technician disassembled the cockpit and removed the left and right floor panels. An inspection revealed two cracked stringers (P/N's 105-420000-47 right and 169-400005-473 left). (Refer to the following illustration.) The 1-inch long cracks appeared at the point where the rudder pedal torque tube brackets attach to the floor structure.

The submitter found this condition on three other like aircraft from this fleet. Without removing the floor panels, these defects are detectable only by moving the rudder pedals by hand while feeling for movement of the floor panels. He suggested that this inspection method be conducted during appropriate scheduled inspections.

Part total time-8,988 hours.



Beech; Model 99A; Airliner; Deice System Failure; ATA 3010

The flightcrew reported that the cowling deice system circuit breaker opened during operation of the system.

The technician discovered that the right engine's lower inlet deicer boot (P/N 5E1319) was severely burned. The engine cowling was charred and the electrical wires were exposed.

It was apparent to the submitter that the electrical wires lost their insulation which caused a short circuit. He speculated the age of the system parts or an unknown impact with an object caused the damage. It is possible that a combination of these factors contributed to the failure.

Part total time not reported.

Beech; Model BE99; Airliner; Aileron Structural Defect; ATA 5751

During a scheduled inspection, the technician discovered a crack on the top skin of the right aileron.

The submitter stated it appeared the aileron skin (P/N 99-130000-3) crack originated from an improperly installed or secured surface doubler. The manufacturer's technical data recommends applying surface structural epoxy when applying surface doublers to the aileron skin. Adherence to the manufacturer's data may prevent this defect.

Part total time not reported.

Beech; Model 200; King Air; Seat Track Corrosion Damage; ATA 5347

When the technician entered the aircraft, he noticed a very strong mildew odor.

The technician traced the mildew odor to the areas located in the "drip" area of the cockpit windows. The carpet and furnishings were severely deteriorated and the seat track rails were corroded to a nonrepairable state. The screws used to secure the seat track rails

(P/N's 99-420001-97, -93, and -91) to the structure had almost disintegrated from the effects of corrosion. Needless to say, this created a very hazardous situation which could place the flightcrew in great peril.

The submitter stated the mildew and corrosion occurred when moisture from the cockpit windows mixed with the debris from the cockpit floor. Leakage from aircraft windows is a habitual problem which produces a multitude of damage on virtually all aircraft exposed to the atmosphere.

The submitter recommended that this area receive extra attention during scheduled inspections.

Part total time-2,203 hours.

CESSNA

Cessna; Model 172M; Skyhawk; Rough Running Engine; ATA 7322

The pilot/owner delivered the aircraft to the maintenance hangar with a report that the engine ran rough during landing and taxi. Also, black smoke was being expelled from the engine exhaust.

The technician investigated, finding a section of seal material missing from the induction airbox (P/N 0552113) diverter plate. The diverter plate seal was not properly installed and adjusted allowing partial carburetor heat to be applied when the carburetor heat control was closed. The partial carburetor heat produced low static RPM of 2,050. Also, there were a number of "automotive-type pop rivets" missing from a previous repair on the induction airbox.

While checking other engine operating parameters, the technician discovered the magneto timing was not correct. The right magneto was set at 30 degrees before top dead

center (BTDC) and the left magneto was 24 degrees. The manufacturer specifies a setting of 25 degrees BTDC for both magnetos.

The submitter speculated that the atmospheric conditions during the previous flight may have induced carburetor ice. Carburetor ice, coupled with the other discrepancies were considered the cause for the poor engine performance.

Part total time not reported.

Cessna; Model 172M; Skyhawk; Poor Engine Performance; ATA 7322

During a scheduled inspection, the maintenance technician discovered the screws used to secure the carburetor bowl to the throttle body were loose. He found the screw locking tabs in place and properly installed.

The technician removed the carburetor and did not find any other defects. After installing a new gasket and screw-locking tabs, he tightened the fasteners to the specified torque.

The submitter stated this is the second time he has seen this defect. He attributed this defect to gasket shrinkage and/or possible undertorque of the fasteners during installation.

Part time since overhaul-1,320 hours.

Cessna; Model 172R; Skyhawk; Rudder Control Defect; ATA 2720

While investigating a report stating the rudder control "did not feel right," the technician discovered a broken return spring.

The left rudder pedal return spring (P/N 0310196-5) broke at the rudder pedal attachment point.

The submitter stated this is the second time he has seen a broken spring in the fleet of four like aircraft. He did not give the cause of this defect; however, it is possible that the spring

material did not receive proper heat treatment. This area deserves special attention during scheduled inspections.

Part total time-1,509 hours.

Cessna; Model 172RG; Cardinal; Rudder/Brake Pedal Failure; ATA 2720

The pilot reported the left rudder/brake pedal broke during a local flight.

A maintenance technician discovered that the pilot's left rudder/brake pedal (P/N 2467001-1) attachment tube broke adjacent to a welded joint. When the tube broke, it completely separated from the pedal.

The submitter speculated this defect resulted from the aircraft's age and the high number of operating cycles. He suggested this part receive special attention during scheduled inspections.

Part total time-6,263 hours.

Cessna; Model 172S; Skyhawk; Fuel Shut-Off Control Failure; ATA 2823

During a preflight inspection, the pilot moved the fuel shut-off control out of the "off" position. The control remained in the "off" position, and the cable came out of the housing.

The technician discovered that the cable broke at the fuel shut-off valve lever. With the cable clamped tightly against the fuel shut-off valve lever, it could not move freely when the pilot activated the control. It appeared that the cable bent back and forth with the control until the metal cable became work-hardened and broke.

The submitter stated it is important to securely clamp the cable to the bolt on the valve lever. However, it is important to allow the bolt to pivot freely on the lever.

Part total time-263 hours.

Cessna; Model 207; Skywagon; Loss of Propeller Spinner; ATA 6113

The pilot reported the propeller spinner separated from the aircraft during cruise flight.

While examining the available evidence, the maintenance technician found that the spinner (P/N 1250909K201) cracked midway between the backing plate and the forward support.

The submitter speculated the spinner did not receive a "snug fit" during the last installation as required by the manufacturer's manual. Refer to the applicable technical data for the proper installation procedure.

Part total time not reported.

Cessna; Model T210K; Centurion; Landing Gear Failure; ATA 3233

After takeoff, the pilot selected the landing gear to the "up" position and the gear failed to retract. All efforts to extend the landing gear failed, and he landed the aircraft in the "intermediate" position.

An inspection revealed that the landing gear actuator (P/N 1281006-1) ruptured through the entire length of the "forging seam."

The submitter did not offer a cause for the actuator failure. However, he suggested carefully inspecting the actuator seam area during scheduled inspections and maintenance.

Part total time not reported.

Cessna; Model 310K; Flight Control Push-Pull Tube Corrosion; ATA 2700

During an accident investigation, inspectors found several severely corroded push-pull tubes.

The aileron, elevator, and rudder push-pull tubes exhibited corrosion of the interior surfaces. These tubes used a forked terminal on each end, and the tube remained open to the atmosphere. The open tubes invite the

migration and accumulation of water and other contaminants into the interior causing the propagation of corrosion. The tubes, in this case, did not have internal corrosion protection.

Part total time-2,000 plus hours.

Cessna; Model 310/320; Low Aileron Cable Tension; ATA 2710

During a scheduled inspection, the technician discovered slack in the aileron cables.

The loose cables rubbed on the stringers located under the cockpit floor. The cable tension would not register on a tensionometer.

The submitter did not offer a cause for this defect; however, he stated this is the second similar occurrence within the operator's fleet. He suggested that this area receive special attention during inspections and maintenance. These circumstances may apply to Cessna Model 310 or Model 320 aircraft.

Part total time not reported.

Cessna; Model 550; Citation; Wheel Brake Failure; ATA 3240

The pilot reported that after stopping on the taxiway and receiving takeoff clearance, the aircraft would not move.

A maintenance technician investigated and found a cracked right wheel brake inboard stator (P/N 133-893-1). The stator cracked across its width, and the crack opened enough to allow the stator's cracked edge to catch on a wheel-drive key. If this defect occurred during a landing, it could have resulted in the loss of aircraft control.

Part total time-445 hours.

LOCKHEED

Lockheed; Model 1329-25; Jetstar II; Nose Gear Steering Actuator Failure; ATA 3250

After the nose gear steering actuator failed many times, the aircraft owner asked a maintenance technician to disassemble and evaluate the unit.

The maintenance technician discovered a cracked nose gear steering actuator (P/N JL1501-4), end cap (P/N JL1957-1), and a severely corroded interior. The submitter stated this aircraft had experienced five previous failures which resulted in extensive damage to this aircraft. He recommended all operators of like aircraft conduct a one-time inspection of the nose steering actuator and recurrent inspections at 3-year intervals.

The FAA Service Difficulty Reporting (SDR) program data base revealed only one report which makes it possible that there were other unreported failures. We urge everyone involved with aviation to submit defect reports. The SDR data base requires continuous feeding of accurate information to produce a reliable product. The value of the information produced is directly related to the accuracy and volume of the input information. To put it simply, you can make your experiences available to the entire aviation community by fully utilizing this FAA service.

Part total time not reported.

MOONEY

Mooney; Model M20D; Landing Gear Control Failure; ATA 3230

While taxiing at approximately 5 MPH, all three landing gears collapsed. The landing gear control was in the "down" position, and the green light indicated the gear was down and locked.

An investigation revealed the landing gear retraction handle (Johnson Bar) (P/N 560011) broke at the point where it attaches to the

bellcrank arm. This area is below the cockpit floor. The broken area of the handle appeared to be a fresh break with no indication of prior damage. The submitter did not give a cause for this failure.

Part total time not reported.

Mooney; Model M20K; Aileron Trim System Binding; ATA 5752

The aircraft owner took the aircraft to a maintenance shop complaining that the aileron trim system was very stiff to operate manually.

The technician discovered the bearing assembly (P/N 047-04143-0000) frozen; therefore, the trim system torque tube could not rotate freely. He replaced the assembly and restored normal trim system operation. Although the technician decided not to use the bearing assembly again, he cleaned and lubricated the old unit and it rotated freely.

The submitter recommended that this unit be included in the regular inspection and lubrication schedule for the flight control trim systems.

Part total time-1,532 hours.

PANSTWOWE ZAKLADY LOTNICZE (PZL)

PZL; Model 150A; Koliber; Nose Landing Gear Failure; ATA 3222

The pilot reported after landing that: the nose landing gear began to shimmy violently, the nose gear axle broke, and the wheel assembly separated from the aircraft.

The nosewheel axle (P/N LF880.42.0.041) is hollow at the point where it broke. The failure appears to be the result of a pre-existing crack. The aircraft maintenance records revealed a technician replaced the nose gear axle approximately 4 years prior to this occurrence. The submitter did not speculate concerning the cause of the crack or the

ultimate failure of the nosewheel axle. However, an improper landing technique (nose gear first) or an anomaly in the metal structure of the axle may have contributed to this failure.

Part total time-376 hours.

PIPER

Piper; Model PA22-108; Colt; Engine Compartment Fire; ATA 2821

The pilot experienced an in-flight fire in the engine compartment. He closed the fuel firewall shut-off valve, and the fire subsided. The aircraft lost engine power; however, the pilot made a safe emergency landing.

While inspecting the aircraft, the technician determined a fuel leak in the gascolator caused the fire. The gascolator rubber seal was severely swollen and extruding out of position. This aircraft was being operated using "auto-fuel" by authority of a Supplemental Type Certificate (STC). The owner/pilot did not conduct a test of the "auto fuel" for the presence of alcohol prior to refueling the aircraft.

The submitter recommended frequent inspection of all fuel system seals, hoses, and other rubber parts when using "auto-fuel." It is also important to test the content of the "auto-fuel" in accordance with the applicable STC. Another important factor to consider is the pilot/owner's storage facility for the "auto-fuel." For example, a barrel hauled around in the open bed of a truck exposes the product to many environmental conditions.

Aircraft total time not reported.

Piper; Model PA28-140; Cherokee; Defective Engine Oil Filter; ATA 8550

During an annual inspection, the technician changed the engine (Textron Lycoming O-320) oil and filter. An engine operation test revealed an oil leak which was attributed to the newly installed filter. Another new oil

filter was installed and again leaked when tested. The old filter was reinstalled and did not leak when tested.

The technician investigated by measuring the depth of the oil filter base adapter (P/N 77852) and the male threaded portion of the oil filter (P/N Champion 48110). The new oil filter (P/N 48110) is an alternate for the old filter (P/N 48111). This revealed that the new oil filter threads "bottomed out" before the sealing surfaces were properly mated. The technician used the appropriate torque value when installing the new filter.

Champion, the filter manufacturer was contacted and their representative conducted an extensive investigation. It was determined that the vendor/manufacturer was producing the filters (P/N 48110) using the maximum thread length allowed by the drawings and specifications. The reason for using the maximum thread length was to aid in the manufacturing process. The extra stud length was minimal. The oil filter adapter thread length was in the mid range of the drawing limits. The combination of these factors was sufficient to prevent proper sealing of the gasket.

Maintenance personnel should be aware of these circumstances when installing and tightening these oil filters. Also, this defect may affect other aviation applications.

Part total time not applicable.

Piper; Model PA28-161; Cadet; In-Flight Engine Failure; ATA 2810

Just after lift-off, during an instructional flight, the engine failed. The instructor declared an emergency and made a safe landing.

While inspecting the aircraft, a technician found that the gascolator drain valve was stuck in the "open" position. The drain valve displayed signs of "varnishing." When he operated the drain valve, it was very stiff and binding. The submitter suggested that during

scheduled inspections special emphasis be placed on all the fuel drain valves to check for stiffness, "varnishing," and proper operation.

Part total time not reported.

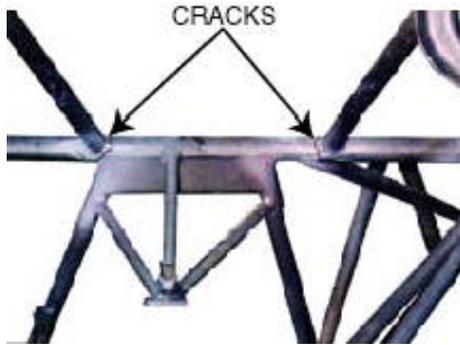
Piper; Model PA28R-200; Arrow; Defective Engine Mount Tubes; ATA 7120

During other maintenance, the technician noticed cracks at the base of the two vertical engine mount support tubes.

The two vertical tubes were cracked adjacent to the weldment joining them to the engine mount assembly (P/N 67119-57). After removing the engine, cleaning the area, and a dye penetrant inspection the technician discovered that the tubes were completely broken around the circumference of their respective welds. These defects were not visible initially because they were covered by paint. (Refer to the following illustration.)

The submitter attributed this defect to hard landings and the use of the aircraft for commercial flight training. Also, there was some suspicion that the support tubes had not been properly welded during a previous major repair. The major repair and hard landings were not documented in the aircraft maintenance records. The submitter has knowledge of a prior landing gear collapse incident and he speculated that the major repair was accomplished to repair damage which resulted from the gear collapse. It was recommended that the engine mount area be checked closely during scheduled inspection, especially on aircraft used for flight training. Also, proper documentation of the aircraft maintenance records is not only necessary, it is required by Title 14 of the Code of Federal Regulations (14 CFR) part 43.

Part total time not reported.



Piper; Model PA31-350; Chieftain; Main Landing Gear Anomaly; ATA 3260

When the pilot lowered the landing gear for landing, the right main gear did not indicate down and locked. The landing gear selector did not return to the neutral position when the pilot applied normal or emergency hand-pump operation. He made a safe landing and summoned maintenance personnel.

After an inspection of the system, the technician discovered a defective right main gear down-and-locked switch (P/N 1CH21-4). The defective switch prevented the green down-and-locked light from illuminating and the inner landing gear doors from closing. It appeared that the defective switch was installed as original equipment. The submitter speculated that the switch failed due to age and normal wear.

This report gives credence to the importance of "preventive maintenance." According to my "Old Aviation Mechanics Dictionary of Common Sense," (a fictitious title), the definition of "preventive maintenance" is fixing things before they break!

Part total time-3,591 hours.

Piper; PA32R-300; Cherokee Lance; Engine Oil Leak; ATA 7921

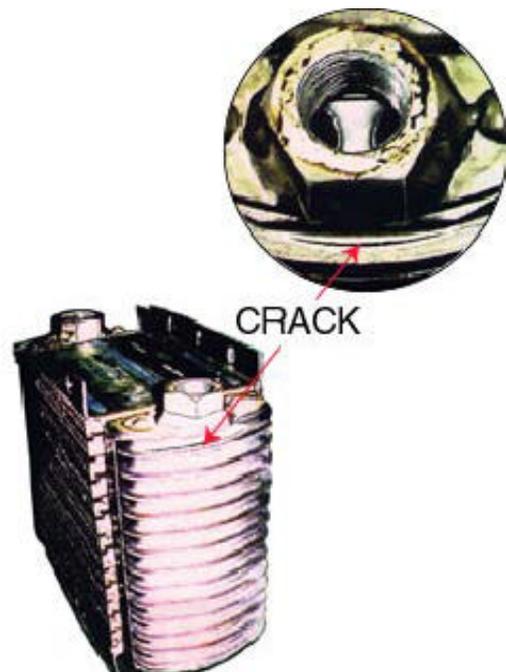
After landing, following a 4-hour overwater flight, the pilot noticed engine oil dripping from the left side of the aircraft.

The technician found approximately 4 quarts of oil in the engine. A crack in the oil cooler (P/N 20006A) caused the leak. Supplemental Type Certificate (STC) SA3736WE was installed on this aircraft which incorporated a cowling modification and included installation of an oil cooler on the engine. The Niagara Development and Manufacturing Company manufactures the oil cooler. The Lopresti Speed Merchants own the STC and distribute the oil cooler.

The oil cooler cracked at the base of the top cooling fin just below the hose fitting base. (Refer to the following illustration.)

An FAA-certified repair station, the manufacturer, and the STC owner evaluated the oil cooler and could not determine the exact cause of the defect. There are several possible causes (e.g., normal engine vibration, the unsupported length of the hose and fitting, and preload stress imposed on the oil cooler structure during installation).

Part total time-463 hours.



Piper; Model PA32R-301T; Turbo Saratoga; Defective Fuel Quantity System; ATA 2842

The pilot brought the aircraft to maintenance personnel reporting the right fuel quantity indicator operated erratically.

He defueled the aircraft and replaced the inboard and outboard right inboard fuel tank sending units (P/N 486-467). When the technician attempted to calibrate the system, the system indicated 10 gallons. However, the tank was empty and it was impossible to complete the calibration process. The technician discovered that the inboard sending unit float arm rested on a cutout in the rib before it contacted the roll-pin stop on the sending unit. After repositioning the float arm, the unit functioned properly, and the calibration process proved successful.

The submitter stated, "It is common to find interference between the rib cutout and the sending unit arm." He recommended that all operators of like aircraft conduct a one-time inspection to determine that there is sufficient clearance to allow full travel of the sending unit float arm.

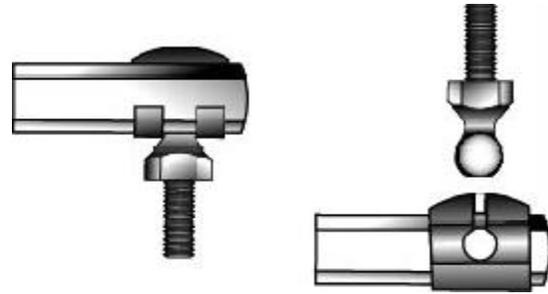
Part total time not reported.

Piper; Model PA34-200; Seneca; Engine Throttle Control Failure; ATA 7603

The pilot reported that during flight, the right engine suddenly went to "full power" and could not be controlled. He secured the engine and made a safe landing.

A technician discovered that the throttle cable arm separated from the rod-end (socket) (P/N 89307-00) attachment at the fuel servo. (Refer to the following illustration.) The maintenance records indicated this was a relatively new part and should not have been subject to excessive wear or damage. The submitter did not offer a reason for this premature failure.

Part total time-35 hours.

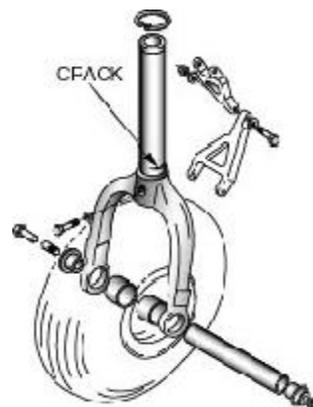


Piper; Model PA34-220T; Seneca; Nose Landing Gear Failure; ATA 3222

While towing the aircraft, the nosewheel assembly (P/N 39461-03) separated from the aircraft.

The evidence indicated a pre-existing crack on the nose gear lower strut tube which caused complete failure of the tube. The crack was located on the aft side of the strut tube and ran horizontally. The strut tube separated just above the scissor attachment point. (Refer to the following illustration.) The submitter operates a fleet of three like aircraft. He found the nose gear lower strut tubes cracked at similar locations on all three aircraft. This crack location seems odd, since the major loads imposed on the strut tube should be aft and upward. The submitter did not give a possible cause for this defect.

Part total time-1,346 hours.



Piper; Model PA44-180; Seminole; Defective Engine Mount; ATA 7120

During a scheduled inspection, the technician discovered a broken engine mount.

The right engine mount (P/N 86212-02) broke at the top left, just below the "lord" mount. While inspecting the left engine, he discovered the same defect. The submitter did not offer a cause for these defects. Several factors may have contributed to this defect (e.g., age, hard landings, environmental operating conditions, and exposure to corrosive elements). A proper "inspection for condition" should lead to the discovery of defects such as this prior to complete failure.

Part total time-4,913 hours.

SHORT BROS. & HARLAND**Short; Model SD3-30; Sherpa; Engine Power Lever Control Failure; ATA 7603**

After climbing to cruising altitude, the pilot discovered the right engine power lever could not be retarded or advanced. He shut down the number 2 engine and executed a safe landing at the departure airport.

A maintenance technician discovered the power lever control cable (P/N 28500-3) literally frozen in place. After the cable thawed, he cleaned, dried, lubricated, and re-rigged the system. An operational check revealed the system functioned properly and he returned the aircraft to service.

The submitter did not speculate on the source of the frozen moisture. However, rain or condensation, caused by abrupt changes in the atmospheric environment, may have caused this problem.

Part total time not reported.

HELICOPTERS**AMERICAN EUROCOPTER****American Eurocopter; Model BK117-A3; Cyclic Jackshaft Corrosion; ATA 6710**

While using a magnet to retrieve a screw, the technician discovered a large amount of corrosion coming from the inside of the cyclic jackshaft.

After removing the cyclic jackshaft (P/N 117-41201-01), the technician discovered a large amount of corrosion residue inside the jackshaft. He removed the residue and found severe pitting inside the jackshaft. The jackshaft on the pilot's side of the aircraft displayed the most damage; however, the copilot's cyclic jackshaft also displayed serious damage.

The manufacturer's technical data allows .4 millimeter of corrosion damage on the cyclic jackshaft. Because the corrosion damage was inside the jackshafts, it was virtually impossible to accurately measure the damage. The technician sent the assemblies to a nondestructive testing shop for evaluation. At the time of this report, the test results were not available; however, the submitter believes both units are damaged well beyond acceptable limits.

It appeared the interiors of the jackshafts were not adequately protected from corrosion when the parts were originally manufactured and installed. Each jackshaft has a casting at each end, and each casting is at a 45-degree angle upward. The submitter stated this configuration allows the collection and retention of liquid contaminants since there is no drainage provision. The submitter stated the manufacturer should use a corrosion-preventive treatment on the jackshaft interior, make provision to seal the cyclic jackshaft to exclude contaminants, and provide a drain hole to eliminate any buildup of condensation.

Part total time-6,173 hours.

American Eurocopter; Model AS350; Engine Low Oil Pressure Light Illumination; ATA 7931

During a flight, the pilot noticed the engine "low oil pressure" light illuminate. The pilot made a safe precautionary landing and summoned a maintenance technician.

The technician inspected the engine oil pressure system and conducted a ground engine operational test. The operational test resulted in normal engine oil temperature and pressure indications. Further investigation led the technician to discover that a "cannon" plug located at the oil pressure transmitter contained an ample amount of moisture to which this defect was attributed. The "cannon" plug and the oil pressure transmitter were inspected, cleaned, reinstalled, and no further problems were experienced.

Part total time not reported.

BELL**Bell; Model 206B III; Jet Ranger; Tail Rotor Vibrations; ATA 6400**

While investigating the cause of a persistently recurring tail rotor vibration report, the technician discovered defective thrust plugs.

On several occasions, the technicians dynamically balanced the tail rotor hub and blades. However, the vibration returned after a few hours of operation. Finally, the technician removed and disassembled the tail rotor assembly. An inspection revealed the composite thrust plugs (P/N 206-011-810-153) were either mismanufactured or improperly installed. For assembly, the manufacturer requires "pinch" fit of .002 to .004 inch. This assembly lost all preload and had a loose fit due to plug wear.

Part total time-414 hours.

Bell; Model 407; Tail Boom Stabilizer Structural Defect; ATA 5302

During a preflight inspection, the pilot and technician found a crack in the horizontal stabilizer structure.

The crack was located in the tail boom structure, near the right forward end of the horizontal stabilizer upper mounting support bracket (P/N 407-023-800-118). Evidently, preload stress induced this defect when a technician installed the support bracket.

This publication and other aviation publications have documented this type of structural defect. Maintenance personnel should give this area due consideration and attention during inspections.

Part total time-696 hours.

MCDONNELL DOUGLAS**McDonnell Douglas; Model 369D; Main Rotor Hub Structural Defect; ATA 6220**

During a scheduled inspection, the technician found one leg of the main rotor strap pack assembly (P/N 369D21210-501) cracked.

The crack was located in the lag (trailing edge) leg of the assembly. Reviewing the maintenance history of this unit revealed similar defects on two previous occasions. The previous cracks were found at 226 and 542 hours operating time since overhaul. The submitter could not determine any specific cause for these cracks.

The manufacturer issued Service Bulletin (SB) DN-154 which gives inspection procedures for this unit. All operators of like helicopters are encouraged to comply with this SB as soon as possible, including the recurrent inspections given.

Helicopter total time-6,034 hours. Part time since overhaul-579 hours.

SIKORSKY

Sikorsky; Model S-64E; Skycrane; Main Rotor Gearbox Failure; ATA 6320

After the main rotor gearbox failed, the maintenance technician removed and disassembled the unit for inspection.

The technician found large amounts of ferrous metal fragments in the sump and screen. The metal fragments resulted when both inner bearing races of the duplex bearing (P/N SB1060-102), installed on the right intermediate bevel gear shaft, disintegrated.

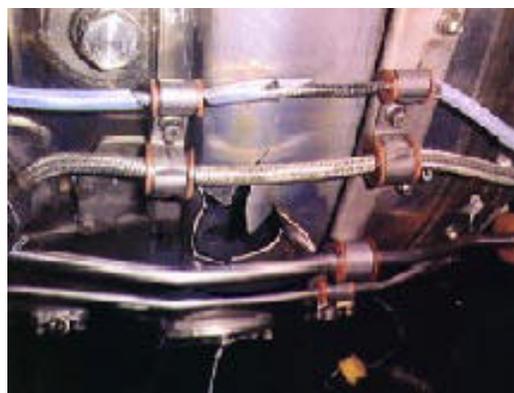
The available evidence revealed that spalling caused the bearing race failure. The lower bearing, installed on the intermediate bevel gear shaft, displayed more spalling than the inner bearing race, installed in the upper position. The submitter stated this is the third similar main rotor gearbox failure in a 3-month period. This helicopter is used mainly for logging operations.

Part total time-792 hours.

2 inches in diameter. This failure did not occur at a material edge or a weld seam. (Refer to the following illustration.)

The engine was in operation approximately 45 minutes before this incident happened and all operating parameters were in the normal range. A technician recently installed this new air bleed manifold. The technician removed the damaged part and sent it to the manufacturer for an evaluation.

Part total time since overhaul-59 hours.



POWERPLANTS AND PROPELLERS

ALLIED SIGNAL

Allied Signal; Model ALF502R5; Bleed Manifold Failure; ATA 7240

While operating this engine on the test cell, the operator heard a loud bang, saw sparks, and immediately shut down the engine.

An inspection revealed the combustor air bleed manifold (P/N 2-131-149-05) skin ruptured at the 5 o'clock position. The resulting hole measured approximately

TELEDYNE CONTINENTAL

Teledyne Continental; Model TSIO 360; Piston Failure; ATA 8520

This engine was installed in a Mooney, Model M20K aircraft. During a climb, the engine lost power resulting in an off-airport landing.

A maintenance technician discovered that number 1 cylinder was broken and separated approximately 2 inches above the base. The piston was broken through the piston pin bore and the upper portion of the piston remained in the cylinder while the lower portion was consumed and disintegrated by the internal engine moving parts. The submitter speculated that the piston failed first causing

the damage described above. This engine had attained the "time between overhauls" published by the manufacturer.

Engine total time-1,800 hours.

AMATEUR, EXPERIMENTAL, AND SPORT AIRCRAFT

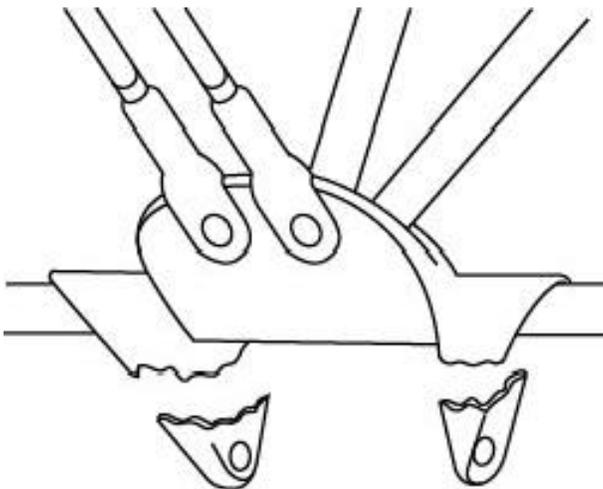
ACRO SPORT

Acro Sport; Model Acro Sport I; Main Landing Gear Failure; ATA 3211

During landing, the right main landing gear collapsed causing minor aircraft damage.

While inspecting the aircraft, a technician found the right main gear forward attachment point broken. (Refer to the following illustration.) The failure occurred adjacent to a weld on both of the attachment ears. The submitter did not offer a reason for this failure; however, a metallurgical evaluation of the broken gear attachment might reveal some interesting information!

Part total time-433 hours.



GLASAIR

Glasair; Model SH-2R; Landing Gear Failure; ATA 3230

During a landing sequence, the nose gear collapsed, the propeller struck the runway, and both main landing gears collapsed.

While investigating, the technician discovered a broken fitting (P/N AN822-4D) on the left main gear actuating cylinder. Apparently, the fitting broke when the pilot extended the landing gear causing total loss of hydraulic fluid. It appeared the left gear side brace arm contacted the down hydraulic line attached to the fitting causing a preload condition and ultimate fitting failure. The location of the fitting makes it very difficult to inspect when the main gear strut fairing is installed.

The submitter recommended inspecting the landing gear plumbing and fittings for condition and for any sign of contact with landing gear components.

Part total time-1,091 hours.

AIR NOTES

ELECTRONIC AIRWORTHINESS DIRECTIVES

In the past, we have published the Airworthiness Directives (AD's) that were issued during the preceding month. Now, the

AD's have been included in the ever-growing volumes of electronic media information systems.

The internet site for AD's is:
<<http://av-info.faa.gov>>

This site opens the FAA Flight Standards Service, Aviation Information web site home page. There are six selections across the top of the page, and the "Aircraft" selection will take you to the page where the AD's are located.

ADDRESS CHANGES

In the past, the Designee Standardization Branch (AFS-640) maintained the mailing list for this publication. Now, the Government Printing Office (GPO) sells this publication and maintains the mailing list; therefore, please send your address change to:

U.S. Government Printing Office
ATTN: SSOM, ALERT-2G
710 N. Capital Street N. W.
Washington, DC 20402

You may also send your address change to GPO via FAX at: (202) 512-2168. If you FAX your address change, please address it to the attention of: **SSOM, ALERT-2G**.

Whether you mail or FAX your address change, please include a copy of your old address label, and write your new address clearly.

SUBSCRIPTION FORM

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

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

IF YOU WANT TO CONTACT US

We welcome your comments, suggestions, and questions. You may use any of the following means of communication to submit reports concerning aviation-related occurrences.

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You can access current and back issues of this publication from the internet at:

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

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

The "Fedworld" web site is:

<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, 00, etc.). The more recent files are in Adobe Acrobat (PDF) format and can be viewed and downloaded. To download individual monthly files, place 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, and click the left mouse button. 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.

AVIATION SERVICE DIFFICULTY REPORTS

The following are abbreviated reports submitted between December 18, 1999, and January 24, 2000, which have been entered into the FAA Service Difficulty Reporting (SDR) System data base. This is not an all inclusive listing of Service Difficulty Reports. The full SDR reports can be found on the internet at: <<http://www.fedworld.gov/pub/faa-asi/faa-asi.htm>>. This internet address takes you to the FAA ASI Library and the SDR reports are listed by weekly entries. This data base is maintained by the FAA, Regulatory Support Division, Aviation Data Systems Branch, AFS-620 located in Oklahoma City, Oklahoma. The mailing address is:

FAA
Aviation Data Systems Branch, AFS-620
PO Box 25082
Oklahoma City, OK 73125

These reports contain raw data that has not been edited. If you require further detail please contact AFS-620 at the address above.

SERVICE DIFFICULTY REPORT DATA

Sorted by aircraft make and model and then engine make and model. This report derives from unverified information submitted by the aviation community without FAA review for accuracy.

ACFT MAKE ACFT MODEL REMARKS	ENG MAKE ENG MODEL	COMP MAKE COMP MODEL	PART NAME PART NUMBER	PART CONDITION PART LOCATION	DIFF-DATE FAA REPORT NO.	T TIME TSO
			SEAL	FAILED	12/21/1999	1845
		50105201	7010FS9545708 BRAKE		2000010800176	
BRAKE ASSEMBLY, PN 5010520-1, FAILED PREMATURELY. ONE EACH PISTON LEAKING FROM INSULATOR AREA. PISTON INTERNALLY FILLED WITH FLUID. EVIDENCE OF T-SEAL FAILURE. THIS IS A CONTINUAL DISCREPANCY. FACTORY NEW BRAKE ASSEMBLY. NOTE: OEM PARTS INSTALLED IN BRAKE ASSY AND THE MOST RECENT BRAKE CONFIGURATION, P/N 5010520-1.						
		BFGOODRICH	RESERVOIR	WRONG PART	12/21/1999	
		7A1298001	4A31924	ESCAPE SLIDE	2000010800188	
EVACUATION SLIDE RECEIVED IN FOR REPAIR. INSPECTION REVEALED THE RESERVOIR INSTALLED IS NOT PER THE MFG (BFG) DRAWING, P/N 4A3192. THE RESERVOIR DOES NOT HAVE THE BF GOODRICH P/N 4A3192-4 IDENTIFIED ON THE RESERVOIR IDENTIFICATION LABEL. THIS RESERVOIR IS BEING TREATED AS ANY UNAPPROVED BF GOODRICH PART.						
			SEAL	FAILED	12/21/1999	1898
		50105201	7010FS9545708 BRAKE		2000010800506	
BRAKE ASSEMBLY PN 5010520-1 FAILED PREMATURELY. ONE EACH PISTON LEAKING FROM INSULATOR AREA. PISTON INTERNALLY FILLED WITH FLUID. EVIDENCE OF T-SEAL FAILURE. NOTE: OEM PARTS INSTALLED IN BRAKE ASSEMBLY AND THE MOST RECENT BRAKE CONFIGURATION.						
		BFGOODRICH	STATOR	FAILED	12/23/1999	763
		21585	1331096	MLG	2000010800507	
BRAKE ASSEMBLY PN 2-1585 FAILED PREMATURELY. NR 1 STATOR BROKEN THROUGH AND BINDING IN TORQUE TUBE KEY SLOTS. NOTE: OEM PARTS INSTALLED IN BRAKE ASSEMBLY AND THE MOST RECENT BRAKE CONFIGURATION PN						
			TUBE	MISMANUFACTURE	12/29/1999	
			212061107013	HYD SYSTEM	2000012200464	
NEW TUBE THAT COULD NOT BE USED ON AIRCRAFT DUE TO CORROSION OR POSSIBLE DEFECT WHICH OCCURRED DURING MANUFACTURING. LENGTHWISE PITTING.						

GE	SHROUD	DISBONDED	12/28/1999	
CF680C	9392M86G08	TURBINE	2000012200368	400
3 EACH CF6-80C2 STG 2 HPT SHROUDS WITH 40 CYCLES AND 2,000 HOURS WERE RECEIVED AND EXHIBITED PARTIAL DISBONDMENT OF WEARCOAT MATERIAL FROM SUBSTRATE. PW ENGINEERING STATED THIS IS NOT A FLIGHT SAFETY ISSUE. ROOT CAUSE IS STILL UNDER INVESTIGATION.				
AMD	GARRTT	TURBINE	FAILED	01/03/2000 10452
FALCON10	TFE7312	30720152	30720141	ENGINE 2000012200397
ONE EACH, THIRD STAGE LOW PRESSURE TURBINE BLADE FAILED DUE TO STRESS RUPTURE. AIRCRAFT LANDED SAFELY. POSSIBLE CAUSE WAS THE OPERATION OF BLADE IN EXCESS OF RECOMMENDED HOURS AS SET IN ALLIED SB 72-3494. RECOMMEND ENGINE MFG INCLUDE TURBINE BLADES IN SB 72-300, 'SERVICE LIFE LIMITED OF CRITICAL LIFE LIMITED COMPONENTS' AS THIS BULLETIN IS THE ONLY MANDATORY SB LISTED IN ENGINE TYPE CERTIFICATE DATA				
AMD	AUXILEC	BEARING	FAILED	12/20/1999 267
FALCON50MYST	8060300	410964	STARTER/GEN	2000011500627
STARTER/GENERATOR ANTI-DRIVE END BEARING FAILED PREMATURELY UNDER NORMAL OPERATING CONDITIONS CAUSING DAMAGE TO (ANTI-DRIVE END) END BELL.				
BAG	LYC	DRIVESHAFT	WORN	12/22/1999 16255
BAE146100A	ALF502R3	MFP45	105476	FUEL PUMP 2000012200363
ENGINE SHUTDOWN IN-FLIGHT. DRIVE SPLINES ON FUEL PUMP SEVERELY WORN. PUMP TO BE OVERHAULED. HIGH OPERATING TIME LED TO FAILIURE.				
BELL		BOOST PUMP	FAILED	12/28/1999
206B3		1C274	FUEL SYSTEM	1999123100326 59
HORIZON HELICOPTERS HAD NOTICED FUEL CONTAMINATION AFTER A BOOST PUMP FAILURE ON 4 OCCASIONS. THE FILTER IS FULL OF BLACK CARBON. SUBMITTER BELIEVES THE BOOST PUMP INTERNAL BREAKDOWN IS THE SOURCE OF CONTAMINATION AND HAS SAMPLE PUMP AND FILTER AT FACILITY FROM THIS AIRCRAFT.				
BELL		HOUSING	MISMANUFACTURE	12/30/1999
206L3		206040525007	M/R GEARBOX	2000012200400
HOUSING ASSY MISMANUFACTURED. FILTER AREA NOT FINISHED, FILTER ELEMENT AREA CANNOT BE INSTALLED.				
BELL	ALLSN	HMU	FAILED	12/20/1999 817
206L3	250C47B	23069551	ENGINE	2000010800129
RESTART FAULT AND DEGRADE LIGHTS ILLUMINATED. ENGINE RPM HAD TO BE REDUCED FROM 100 PERCENT TO CUT OFF IN MANUAL MODE (WOULD NOT RESPOND IN AUTO) DAILY OVERSPEED CHECK WOULD NOT WORK. (REMOVED FROM AIRCRAFT) INSTALLED SERVICEABLE HMU.				
BELL		TACH	INTERMITTENT	01/06/2000
212		32005007	ENGINE	2000011500612
TACHOMETER/GENERATOR CAUSES N2 GAUGE TO BE INTERMITTENT.				
BELL		WARINING BOX	FAILED	01/07/2000
212		2090755265	NR 2 ENGINE	2000011500619
WARNING BOX IS INOPERATIVE. NR 2 ENGINE LIGHT STAYS ON.				
BELL		WARINING BOX	FAILED	01/07/2000
212		2090753265	NR 2 ENGINE	2000011500621
NR 2 ENGINE OUT LIGHT INTERMITTENTLY.				
BELL		STROBE	INTERMITTENT	01/07/2000
212		7028511	FUSELAGE	2000011500622
STROBE ASSY IS INTERMITTENT.				
BELL		SENSOR	MALFUNCTIONED	12/30/1999
214ST		214074104101	SCAS SYSTEM	2000012200398
SCAS YAW KICKS OFF IN TURBULENCE. PART IS BAD FROM STOCK. WAS INSTALLED FOR TROUBLESHOOTING AND CAUSED A DIFFERENT PROBLEM. TIME SINCE REPAIR 0:00.				

BELL	ACTUATOR	MALFUNCTIONED	12/30/1999	
214ST	214001540117	SCAS	2000012200399	
SCAS YAW KICKS OFF AFTER ENGAGED. SUSPECT LOCKED SOLENOID. TIME SINCE REPAIR 0:00.				
BELL	STARTER	FAILED	01/05/2000	
214ST	214060056103	ENGINE	2000012200401	
STARTER SPINS, BUT WILL NOT ENGAGE ENGINE.				
BELL	BRUSHES	WORN	12/20/1999	869
407	206062200113	STARTER/GEN	2000010800154	
STARTER/GENERATOR FAILED 300 HOUR INSPECTION. BRUSHES WERE EXCESSIVELY WORN AND COMMUTATOR WAS				
BELL	BRUSHES	WORN	12/20/1999	2562
407	206062200123	STARTER/GEN	2000010800155	
STARTER/GENERATOR FAILED 300 HOUR INSPECTION. BRUSHES WERE EXCESSIVELY WORN.				
BELL	PANEL	CRACKED	12/20/1999	
407	407030734101	OIL COOLER	2000010800158	
REPAIRED CRACKED OIL COOLER DECK ON FUSELAGE.				
BELL	LINK	WORN	01/05/2000	
407	406312103101	TAIL ROTOR	2000012200402	
LINK WORN. SERIAL NUMBERS REMOVED ARE NHFS-4444 AND NHFS-4552. REPLACED WITH SERIAL NUMBERS NHFS-4333 AND NHFS-4373.DMR NR 65595700 AND 65595701.				
BELL	FUEL FILTER	DEFECTIVE	01/05/2000	
407	222366621103	FUEL SYSTEM	2000012200410	
FUEL FILTER LIGHT STAYS ON.				
BELL	BEARING	SEPARATED	01/06/2000	
407	407312100101	TAIL ROTOR	2000012200418	
ELASTOMERIC SEPARATION ON BEARING.				
BELL	CROSSHEAD	DAMAGED	01/06/2000	
407	407012109101	TAIL ROTOR	2000012200419	
T/R CROSS HEAD GROOVED WHERE P/C LINK ATTACHES.				
BELL	SWITCH	MALFUNCTIONED	01/06/2000	
407	407362005103	COCKPIT	2000012200420	
LOW LEVEL LIGHT COMES ON WITH 400 POUNDS OF FUEL.				
BELL	FLOAT	LEAKING	01/06/2000	
407	407350301101	LT MLG	2000012200421	
LEFT FLOAT BAG LEAKING.				
BELL	GAUGE	STICKING	01/06/2000	
407	212073905001	FLOAT	2000012200423	
GAUGE PRESSURE NEEDLE STICKS.				
BELL	GAUGE	DAMAGED	01/07/2000	
407	212073905001	FLOAT	2000012200424	
INDEX CARD LOOSE ON PRESSURE GAUGE.				
BELL	BEARING	SEPARATED	01/07/2000	
407	407312100101	TAIL ROTOR	2000012200427	
ELASTOMER SEPARATION ON BEARING				

BELL 407	VALVE 222366649101	LEAKING SUMP DRAIN	01/07/2000 2000012200428
SUMP DRAIN LEAKING THROUGH VALVE.			
BELL 407	BEARING 406010417101	WORN MAIN ROTOR	01/07/2000 2000012200429
BEARING WORN. REPLACED WITH SERIAL NUMBERS A-2319 AND A-1979.			
BELL 407	POWER SUPPLY A490A	INTERMITTENT COCKPIT	01/07/2000 2000012200430
POWER SUPPLY WORKED INTERMITTENTLY.			
BELL 407	COVER 206050247131	DAMAGED FLOAT	01/07/2000 2000012200436
VELCRO DETACHING ON FLOAT COVER ASSY.			
BELL 407	COVER 206050247131	DAMAGED FLOAT	01/07/2000 2000012200437
VELCRO RIPPING OFF OF FLOAT COVER ASSY. PART SCRAPPED.			
BELL 407	INDICATOR 407375001105	STUCK M/R DRIVE	01/07/2000 2000012200438
MGT INDICATOR STUCK ON ZERO DURING START-UP FOR 10 TO 15 SECONDS.			
BELL 407	BEARING 407012110101	DAMAGED MAIN ROTOR	01/07/2000 2000012200439
ELASTOMER IN FLAPPING BEARING. PART SCRAPPED.			
BELL 407	PANEL 407070620137	CRACKED CREW DOOR	01/07/2000 2000012200440
CREW PANEL DOOR CRACKED AND WORN. PART SCRAPPED.			
BELL 407	PANEL 407070620125	CRACKED CREW DOOR	01/07/2000 2000012200441
COLLECTIVE PANEL CRACKED. PART SCRAPPED.			
BELL 407	LINK 406312103101	WORN TAIL ROTOR	01/07/2000 2000012200442
LINK HAD WORN BEARINGS. SERIAL NUMBERS REMOVED ARE NHFS-3233 AND NHFS-3283. REPLACED WITH SERIAL NUMBERS NHFS-4667.			
BELL 407	BELLCRANK 407001732101	DAMAGED M/R HEAD	01/07/2000 2000012200444
BELLCRANK ASSY HAD GROOVE WORN INTO CLEVIS FROM ROD ENDS (2 PLACES).			
BELL 407	SWITCH 214040806003	STICKING M/R GEARBOX	01/07/2000 2000012200449
PRESSURE SWITCH STICKS IN OPEN POSITION.			
BELL 407	FILTER 206076035103	FAILED HYD SYSTEM	01/07/2000 2000012200450
BYPASS WILL NOT EXTEND ALL THE WAY ON FILTER ASSY.			
BELL 407	FILTER ASSY 206076035103	MISMANUFACTURE FUEL SYSTEM	01/07/2000 2000012200451
FILTER ASSY LEAKS FROM FILTER BOWL.			

BOLKMS		SHAFT	WORN	12/20/1999	183
BO105S		4638302093	FREEWHEEL	2000012200458	
FREEWHEEL SHAFT'S SPECIAL COATING WORN OFF, WHERE SEAL RIDES.					
BOLKMS		SHAFT	LEAKING	12/27/1999	
BO105S		4638302093	FREEWHEEL	2000012200459	
FREEWHEEL SHAFT'S SPECIAL COATING WORN, CAUSING SEAL TO LEAK.					
BOLKMS		TIE BOLT	FLAKING	01/05/2000	
BO105S		A23008020	MLG	2000012200460	
NEW TIE BOLTS FROM STOCK THAT COULD NOT BE USED ON AIRCRAFT DUE TO PLATING FLAKING OFF ON MUTE.					
BOLKMS		SHAFT	WORN	01/05/2000	33
BO105S		4638302093	FREEWHEEL	2000012200461	
SPECIAL COATING WORN OFF AND SHAFT ONLY HAS 32.6 HOURS TT.					
BOLKMS		BLADE	FLAKING	01/06/2000	791
BO105S		10531791	TAIL ROTOR	2000012200453	
PAINT ON TAIL ROTOR BLADE FLAKING.					
BOLKMS		SHAFT	WORN	01/06/2000	28
BO105S		4638302093	FREEWHEEL	2000012200462	
NEW FREEWHEEL SHAFT WITH 27.9 HOURS THAT HAS SPECIAL COATING WORN.					
BOLKMS		SHAFT	DAMAGED	01/06/2000	477
BO105S		4638302093	FREEWHEEL	2000012200463	
SPECIAL COATING ON FREEWHEEL SHAFT HAS A GROOVE WHERE SEAL RIDES.					
CESSNA	LYC	AIRBOX	MISREPAIRED	01/05/2000	
172M	O320E2D	1552113	ENGINE	2000010800520	
AIRCRAFT LANDED WITH A ROUGH RUNNING ENGINE WITH BLACK SMOKE EXITING FROM THE EXHAUST PIPE. UPON INSPECTION OF THE AIRBOX, NOTED THERE WAS SEAL MATERIAL MISSING FROM THE DIVERTER SEAL AND THAT A NUMBER OF AUTOMOTIVE STYLE POP RIVETS WERE MISSING FROM A PREVIOUS REPAIR ON THE AIRBOX. THE SEAL WAS ALSO ADJUSTED WRONG SO THERE WAS PARTIAL CARBURETOR HEAT BEING APPLIED WHEN THE DASH CONTROL WAS IN THE CLOSED POSITION. THE CESSNA MM WAS USED AS A TROUBLESHOOTING GUIDE AND IT WAS DETERMINED THAT WITH PARTIAL CARBURETOR HEAT, THERE WAS LOW STATIC RPM RUN-UP, 2,050 RPM, MAG TIMING WAS OFF, RT MAG WAS SET FOR 30 - 31 DEGREES BTDC AND THE LT MAG WAS SET FOR 24 DEGREES BTDC, FACTORY SPEC IS 25					
CESSNA	LAMAR	CONTROL UNIT	FAILED	12/27/1999	686
172R	MC012A	AC2101	ALTERNATOR	2000012200353	
PILOT DETECTED ALTERNATOR OUT LIGHT IN-FLIGHT AND NO OUTPUT ON METER. CYCLED ALT SWITCH AND ALTERNATOR OUT LIGHT STAYED OFF, BUT METER WENT TO FULL CHARGE DEFLECTION. PILOT LANDED WITH NO PROBLEMS. UPON INVESTIGATION, FOUND ALT CONTROL UNIT MELTED INTO AREA OF CONNECTOR. ALL WIRES IN CONNECTOR WERE SEVERELY BURNED AND ARCED. REGULATOR WAS SHORTED TO MAXIMUM OUTPUT OF ALTERNATOR. POWER JUNCTION BOX SHOWS SIGNS OF EXTREME HEAT AND SMOKE. REPLACED ALTERNATOR OUT SENSOR AND POWER JUNCTION BOX. OPS CHECKED OK. THIS AIRCRAFT HAS HAD SB 99-24-01 C/W. ACFT TT: 1,683.5					
CESSNA		PIVOT ASSY	FAILED	01/06/2000	7365
172RG		24411091	LT MLG	2000012200355	
A 1 1/4 ALUMINUM SHAFT THT ATTACHES THE ACTUATOR TO THE LEFT MAIN GEAR STRUT FAILED UPON RETRACTION. THIS RESULTED IN A CONDITION IN WHICH THE GEAR WAS HANGING OUT AND COULD NOT BE RETRACTED OR EXTENDED. THE INSTRUCTOR HAD STUDENT HANG OUT THE DOOR OF THE AIRCRAFT AND PULL THE GEAR FORWARD UNTIL IT LOCKED IN THE DOWN POSITION. THE AIRCRAFT LANDED WITHOUT FURTHER INCIDENT. THE ENDS OF THE BROKEN PART APPEAR TO HAVE FAILED IN FATIGUE. THOUGH I AM NO METALURGIST, I THINK ISEE					

CESSNA SCREW CORRODED 12/20/1999 15674
 310R MS35206251 ELEVATOR 1999123100345
 SCREWS (P/N'S MS35206-251 AND MS35206-333) SECURING ELEVATOR TRIM TAB HORN, SEVERELY CORRODED AND RUSTED AWAY TO A THICKNESS NO LARGER THAN A PENCIL LEAD. THE SPANNER BLOCK THEY PASS THROUGH WAS CRACKED AND IN TWO PIECES WHEN REMOVED.

CESSNA ELECTROSYS CAPACITOR FAILED 12/23/1999
 421C FR88D812EL 57D27 HEATER 2000011500639
 UPON INITIAL INSTALLATION OF FACTORY REBUILT COMBUSTION HEATER ASSEMBLY, ATTEMPTED OPERATIONAL CHECK OF HEATER. ATTEMPTED TO ENERGIZE HEATER IGNITION CIRCUIT RESULTED IN IMMEDIATE TRIP OF HEATER CIRCUIT BREAKER. FOUND CAPACITOR SHORTED.PART TOTAL TIME UNKNOWN. TIME SINCE FACTORY REBUILD:

CESSNA LUG BROKEN 01/03/2000 2927
 550 L2020001A THRUST REVERSER 2000012200396
 ON PRE-FLIGHT, CREW FOUND LEFT LOWER THRUST REVERSER DOOR HANGING DOWN. MAINTENANCE FOUND LUGS BROKEN ON BLOCKER DOOR 'BIRDCAGE' ASSEMBLY. FAILURE DUE TO IMPROPER BOLT ANTI-ROTATION DEVICE INSTALLATION PREVIOUSLY C/W. BLOCKER DOOR POSSIBLY WOULD HAVE LEFT AIRCRAFT ON NEXT FLIGHT. THRUST REVERSER ASSY CHANGED.

CESSNA SWITCH FAILED 01/04/2000
 550 031002220008 COCKPIT 2000010800177
 BOTH TRANSPONDERS OPERATE SIMULTANEOUSLY. OPERATOR HAD SELECTED NR 1 TRANSPONDER AND PUT NR 1 IN STANDBY WITH 7700 CODE SELECTED. BOTH MODE A CODES SEEN BY RADAR. POSSIBLE CAUSE WAS TRANSPONDER SELECT SWITCH NOT FALLING IN UP POSITION.SITUATION CAN BE MOST LIKELY TO OCCUR IF THERE IS NOT ENOUGH CLEARANCE BETWEEN SWITCH AND OVERLAY PANEL CAUSING BINDINGOF SWITCH MOVEMENT. SWITCH SHOULD BE REPLACED WITH A 'BREAK BEFORE MAKE' TYPE SWITCH. ALSO, ENLARGE HOLE IS OVERLAY PANEL IF REQUIRED.

CESSNA WELD ASSY WRONG PART 12/28/1999 573
 560CESSNA 6619282124 FUSELAGE 2000011500662
 RIGHT FORWARD 8 INCH CLOSET WAS REMOVED FOR ACCESS TO WIRING AND INSPECTION UNDER FLOOR. IT WAS DISCOVERED THE SIX SCREWS ATTACHING THE P/N 6619282-124 WELD ASSEMBLY FOR THE CM2-80AST SHOCK MOUNT WERE TOO SHORT, IN THAT ONLY A THREAD OR TWO OF EACH SCREW WAS ENGAGED IN THE NUTPLATE. IPC CALLS OUT AN MS 24694S53 SCREW. S52 AND S51 LENGTH SCREWS WERE INSTALLED. THIS WAS ORIGINAL FROM THE CESSNA

CESSNA RAPCO WIRE DAMAGED 12/28/1999 573
 560CESSNA COCKPIT 2000011500663
 CABIN READING LIGHT CIRCUIT BREAKER, RIGHT, LOCATED IN AFT CLOST J-BOX, WOULD INTERMITTENTLY TRIP. CABIN LOWER TRIM PANELS AND RIGHT FORWARD CLOSET WERE REMOVED TO CHECK WIRING. A PINCHED AND BARE WIRE WAS FOUND OUTBOARD OF THE FORWARD RIGHT CLOSET ASSOCIATED WITH THIS CIRCUIT BREAKER. IT WAS NOTED VERY FEW OF THE WIRE BUNDLES WERE TIED UP PROPERLY EVEN THOUGH THERE WERE EXISTING CABLE TIE ANCHORS IN THE VICINITY. CESSNA ALSO USED VARIOUS ELECTRICAL BULKHEAD CONNECTORS IN THE WIRE BUNDLES AND FAILED TO TIE THEM UP. WHEN TOILET ASSEMBLY WAS REMOVED, NONE OF THE WIRE BUNDLES WERE FASTENED. THE WIRE BUNDLES WERE RUBBING ON THE METAL FRAME OF THE TOILET ASSEMBLY.

CESSNA SCOTT FITTING LOOSE 12/28/1999 573
 560CESSNA 83357802 BS 358 2000012200360
 DURING A SCHEDULED INSPECTION TO FUNCTIONALLY CHECK THE PASSENGER OXYGEN MASKS, NOTICED OXYGEN WAS FLOWING BEFORE ANY OF THE PINTLE PINS WERE REMOVED. IT WAS DISCOVERED THE FITTING ON THE AFT OXYGEN DROP-OUT BOX ASSY WAS NOT EVEN FINGER TIGHT. THE SEALING O-RING WAS VISIBLE AND THE FITTING LEAKING OXYGEN. CABIN CEILING REMOVED TO GAIN ACCESS TO FITTING.FITTING WAS TIGHTENED AND LEAK STOPPED. THE MAGNITUDE OF THE LEAK WOULD HAVE SERIOUSLY SHORTENED THE OPERATIONAL TIME OF THE

CESSNA TOILET MISMANUFACTURE 12/28/1999 573
 560CESSNA 99190091 LAVATORY 2000012200361
 EXTERNALLLY SERVICEABLE TOILET ASSY P/N 9919009-1 WAS BEING CHANGED OUT. DURING PROCESS, DISCOVERED THERE WAS A RATCHETING SCREWDRIVER STUCK IN THE P/N 9914632-2 WASTE PIPE ADAPTER, AND A .3750 INCH SOCKET BETWEEN THE FLOOR AND TANK BOTTOM THAT POSSIBLY COULD HAVE BEEN USED TO LEVEL THE TOILET ASSY. NOTED THE NEW TOILET ASSY WOULD NOT FIT CORRECTLY ON THEFLOOR LOCATOR SHEAR PINS P/N 4611026-3 (3 EACH). THE ORIGINAL TOILET MOUNT HOLES WERE AUGURED OUT AT THE FACTORY.

CESSNA ENG WOULD NOT ALLOW NEW TOILET ASSY TO BE 'MODIFIED' IN THE SAME WAY. AN ENGINEERING ORDER ALLOWED FLOOR RAIL TO BE REPAIRED WITH A DOUBLER AND THE SHEAR PINS HAD TO BE CORRECTLY LOCATED IN ORDER FOR THE NEW

DHAV	BFGOODRICH	CARRIER	BROKEN	01/04/2000	
DHC8*	21565	2445902	BRAKE	2000012200385	
BRAKE ASSY P/N 2-1565 FAILED PREMATURELY. NR 1 CARRIER AND LINING ASSY BROKEN IN HALF. THIS IS A CONTINUAL DISCREPANCY. OEM PARTS INSTALLED IN BRAKE ASSY AND THE MOST RECENT BRAKE CONFIGURATION					
EMB	BFGOODRICH	STATOR	FAILED	12/22/1999	
EMB120	21585	1331096	BRAKE	2000010800192	
BRAKE ASSEMBLY, P/N 2-1585, FAILED PREMATURELY. NR 1 STATOR BROKEN THROUGH AND BINDING IN TORQUE TUBE KEY SLOTS. HEATSTACK WARPED WITH UNEVEN WEAR. THIS IS A CONTINUAL DISCREPANCY. BRAKE ASSEMBLY SHOULD LAST 2,500 CYCLES. NOTE: OEM PARTS INSTALLED IN BRAKE ASSY AND THE MOST RECENT BRAKE					
EMB	BFGOODRICH	STATOR	BROKE	12/29/1999	1056
EMB120	21585	1331096	BRAKE	2000011500630	
BRAKE ASSEMBLY, P/N 2-1585, FAILED PREMATURELY. NR 1 STATOR BROKEN THROUGH AND BINDING IN TORQUE TUBE KEY SLOTS. THIS IS A CONTINUAL DISCREPANCY. BRAKE ASSEMBLY SHOULD LAST 2,500 CYCLES. NOTE: OEM PARTS INSTALLED IN BRAKE ASSEMBLY AND THE MOST RECENT BRAKE CONFIGURATION, P/N 2-1585.					
EMB	BFGOODRICH	STATOR	BROKEN	12/30/1999	2931
EMB120	21585	1331096	BRAKE	2000011500631	
BRAKE ASSEMBLY, P/N 2-1585, FAILED PREMATURELY. NR 1 STATOR BROKEN THROUGH AND BINDING IN TORQUE TUBE KEY SLOTS. THIS IS A CONTINUAL DISCREPANCY. NOTE: OEM PARTS INSTALLED IN BRAKE ASSEMBLY AND THE MOST RECENT BRAKE CONFIGURATION, P/N 2-1585.					
HUGHES		HUB	WORN	01/06/2000	
369D		369A17255	TAIL ROTOR	2000011500595	
TAIL ROTOR HUB IS WORN EXCESSIVELY.					
HUGHES		DAMPER	WEAK	01/06/2000	
369D		369D26301	MLG	2000011500599	
MLG DAMPER IS WEAK.					
HUGHES		TACH	FAILED	01/06/2000	4610
369D		389A4517	ENGINE	2000011500602	
TACHOMETER/GENERATOR MAKES N1 GAUGE HANG AT ZERO..					
HUGHES		MOTOR	SLOW	01/06/2000	
369D		369A717011	LATERAL TRIM	2000011500605	
HIGH SPEED MOTOR INSTALLED DELAY IN ACTION.					
HUGHES		VOLT	ERRATIC	01/06/2000	
369D		369A4652	BATTERY BOX	2000011500606	
FIELD VOLTAGE INTERMITTENT, OVERVOLTAGE CONDITION.					
HUGHES		LINK ASSY	WORN	01/06/2000	
369D		369D2172313	TAIL ROTOR	2000011500609	
T/R LINK ASSY IS WORN EXCESSIVELY.					
HUGHES		MOTOR	WEAK	01/06/2000	
369D		369A717011	LATERAL TRIM	2000011500610	
MOTOR IS SLOW AND WEAK.					
HUGHES		SWASHPLATE	NOISY	01/06/2000	
369D		369A21800501	TAIL ROTOR	2000011500613	
SWASHPLATE IS NOISEY, SLIGHT CLICKING NOISE WHEN ROTATING TAIL ROTOR.					

HUGHES		INDICATOR	ERRATIC	01/07/2000
369D		369A45217	TOT	2000011500618
TOT GAUGE ERRATIC.				
HUGHES		LINK ASSY	WORN	01/11/2000
369D		369A76131	TAIL ROTOR	2000011500590
LINK ASSEMBLY IS WORN EXCESSIVELY.				
HUGHES	ALLSN	BLEED VALVE	FAILED	01/06/2000
369D	250C20B	23053176	ENGINE	2000011500603
BLEED VALVE PRODUCES LOW POWER- HIGH N1 SPEED.				
HUGHES	ALLSN	BLEED VALVE	STICKING	01/07/2000
369D	250C20B	23053176	COMPRESSOR	2000011500616
BLEED VALVE STICKING CAUSING COMPRESSOR STALLS.				
HUGHES	ALLSN	GOVERNOR	SLOW	01/07/2000
369D	250C20B	23057870	ENGINE	2000011500617
GOVERNOR SLOW TO RECOVER.				
HUGHES		VOLT	FAILED	01/06/2000
369E		369A4652	BATTERY BOX	2000011500591
VOLTAGE REGULATOR UNABLE TO POWER UP.				
HUGHES		DAMPENER PIN	WORN	01/06/2000
369E		369A10053	M/R HEAD	2000011500607
DAMPENER PIN RIDES UP.				
MAULE	FRNKLN	DONALDSON	ID PLATE	LOOSE
M4220	6A350C1	P107172		CARBURETOR
01/13/2000 2000011500646				
IDENTIFICATION STICKER CAME LOOSE AND LODGED AGAINST CARBURETOR VENTURI. STICKER WAS STUCK IN CARBURETOR HEAT BOX AND WAS NOT SEEN WHEN NEW FILTER WAS INSTALLED. SUBMITTER RECOMMENDED THAT IDENTIFICATION OF FILTER BE STAMPED ON OR ETCHED.				
MTSBSI		SERVO	FAILED	01/03/2000
MU2B		40005238501	AUTOPILOT	2000012200394
AFTER REINSTALLING BENDIX AUTOPILOT SERVOS AFTER FACTORY OVERHAUL BY ALLIED SIGNAL CRS, ROLL CHANNEL INOPERABLE. TROUBLESHOOTING REVEALED BAD SERVO. TEAR DOWN SHOWED CLUTCHES CROSS-WIRES; THEREFORE, SERVO RAN THE OPPOSITE DIRECTION IT WAS SUPPOSED TO.				
MTSBSI	GILLBATT	BATTERY	DISCHARGED	01/03/2000
MU2B			BATTERY BAY	2000012200384
WHILE PERFORMING PERIODIC INSPECTION, FOUND MAIN BATTERIES HAD CASE DAMAGE CAUSED BY OVERHEATING. ALSO, ELECTROLYTE MOSTLY BOILED OUT. AIRCRAFT ELECTRICAL SYSTEM TESTED OK. BATTERIES SERVICED AND CHECKED 97 HRS PREVIOUSLY, OK PER MANUAL. FAILURE POSSIBLY DUE TO AGE. SUBMITTER SUGGESTED TIME CHANGE REQUIREMENTS BE REQUIRED OR MORE DETAILED IN-SERVICE INSPECTION CRITERIA BE REQUIRED (I.E., LOAD TEST) IN ORDER TO DETECT PENDING FAILURES.				
PIPER	LYC	MANIFOLD	LOOSE	01/03/2000
PA23250	IO540C4B5	LW127844274	FUEL INJECTION	2000011500661
FOUND FUEL LINE FITTING ON FUEL INJECTOR LOSE CAUSING FUEL STARVATION TO FUEL MANIFOLD. TIGHTENED FITTING AND RETURNED TO SERVICE.				
PIPER	LYC	CHAMPION	OIL FILTER	MISMANUFACTURE
PA28140	O320E2A	77852	48110	ENGINE
12/22/1999 2000010800508				
OIL FILTER REPLACED AT ANNUAL, 6, 1998. FILTER LEAKED AT START-UP. SECOND FILTER INSTALLED AND LEAKED. OIL AND FILTER CHANGED 8-20-98, ACFT FLEW 24 HOURS. ANNUALED IN 6, 1999, OIL AND FILTER CHANGED. MEASURED DEPTH OF OIL FILTER BASE ADAPTER AND MALE THREADED PORTION OF OIL FILTER SHOWED NEW OIL FILTER BOTTOMING OUT BEFORE SEALING. MEASURED OLDER CH48111 AND FOUND THREADED PORTION SHORTER ALLOWING IT TO SEAL. FOUND THE MFG HAD BEGUN TO PRODUCE THE FILTERS WITH THE STUD LENGTH AT THE 'OUTER LIMITS' OF THE DRAWING. THIS CHANGE WAS TO AID IN THE MFG PROCESS.				

PIPER	LYC	CYLINDER	CRACKED	12/28/1999	250
PA28180	O360A4A		ENGINE	2000012200354	
CYLINDER CRACKED AND SEPARATED CAUSING CATASTROPHIC ENGINE FAILURE. P/N CCST 12 CA AEL65102-12.					
PIPER		TIRE	FAILED	12/23/1999	
PA31P		600X68PLY	NLG	2000011500647	
DURING LANDING, A 'THUMPING' NOISE WAS NOTICED WHEN THE NOSE WHEEL TOUCHED DOWN. INSPECTION REVEALED A BULGE IN THE NOSE TIRE SIDE WALL THAT WAS CONTACTING THE NOSE FORK DURING ROTATION OF THE TIRE. THE TIRE, OTHERWISE, APPEARED TO BE IN GOOD CONDITION.					
PIPER		TRANSMITTER	ERRATIC	12/19/1999	
PA32R301T		486467	FUEL QUANTITY	2000010800125	
RIGHT FUEL QUANTITY ERRATIC. DEFUELED AIRCRAFT AND REPLACED INBOARD AND OUTBOARD SENDERS WITH NEW. ATTEMPTED FUEL QUANTITY CALIBRATION. RIGHT WING WOULD INDICATE 10 U.S. GAL WHEN EMPTY. UNABLE TO CALIBRATE. INVESTIGATED PROBLEM, UPON REMOVAL OF SIGHT GAUGE ON TOP OF RIGHT WING, FOUND FLOAT ARM ON INBD SENDER RESTING ON CUT-OUT IN RIB PRIOR TO CONTACT ROLL PIN STOP ON SENDER. REPOSITIONED ARM AND COMPLETED FUEL CALIBRATION SUCCESSFULLY. SUBMITTER STATED THIS IS SECOND ACFT FOUND WHERE FLOAT ARM WHERE IT PASSES THROUGH THE RIB RESTS ON THE RIB PRIOR TO LIFTING STOP. RECOMMEND ONE-TIME INSP OF ALL NEW SARATOGAS FOR PROPER CLEARANCE, AND A FUEL CALIBRATION IF					
RAYTHN	BENDIX	INDICATOR	MALFUNCTIONED	12/22/1999	
1900D	0660306200		COCKPIT	2000012200365	759
MILIBAR AND INCHES OF MERCURY SCALES DO NOT MATCH (I.E., 29.92 IN HG SHOWS 0993 MB INSTEAD OF 1013 MB).					
RAYTHN		PIN	FAILED	12/28/1999	
76		MS203921C53	MLG	1999123100334	
PIN HOLDING MLG SHOCK ABSORBER TO LOWER MLG TRAILING LINK SEPARATED DUE TO FAILURE OF PART IN BOX 6 WHICH HELD MISSING PART IN PLACE RESULTING IN PARTIAL FOLD-UP OF RIGHT MLG WHICH SUBSTANTIALLY DAMAGED AIRCRAFT. SUBMITTER RECOMMENDED INSPECTION OF ALL LANDING GEAR CLEVIS LOCK PINS FOR WEAR AND CONDITION BY WEAR ON ALL MOVING PARTS, HOUSINGS, AND BEARINGS. REPLACED SUBJECT PIN AT 200-HOUR					
RAYTHN		ALTERNATOR	FAILED	01/14/2000	143
A36		649304	ENGINE	2000011500666	
ALTERNATOR BOUND UP AND CAUSED THE DRIVE COUPLING TO SEIZE. STRONG SMELL OF BURNED ELECTRICAL.					

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3. POWERPLANT						
4. PROPELLER						
5. SPECIFIC PART (of component) CAUSING TROUBLE						
Part Name	MFG. Model or Part No.	Serial No.	Part Defect Location			
6. APPLICABLE COMPONENT (assembly/part or other part)						
Comp/Part Name	Manufacturer	Model or Part No.	Serial Number			
Part ID	Part ID	Part Condition	T. Date Sub.	Optional Information:		
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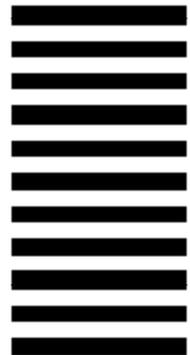
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