TP 6980E

Issue 1/2003

Aging Aircraft

feedback

Canadian Aviation Service Difficulty Reports

table of contents table of contents table of contents

fixed wing

BEECH 200 SUPER KING AIR

Starter-Generator Terminal Block Cover Jammed FCU

SDR # 20020828011

During a routine landing approach, the pilot reduced engine power on both #1 and #2 power levers however, for some unknown reason, all the parameters for #1 engine increased. The pilot immediately advanced the #1 power lever and all engine parameters responded accordingly and returned to normal.

In an attempt to confirm the problem, the pilot cycled the #1 power lever several times and confirmed that at each time engine power was reduced, the engine parameters increased. The #1 engine was shut down and an uneventful landing was carried out.

Upon opening the #1 engine cowling, the maintenance engineer immediately identified the cause of the problem. The terminal block cover had come off the starter-generator and fallen into the engine control linkage cluster. The cover had landed in such a way, that when the #1 engine power lever was brought back, it tipped the terminal block cover which then forced the FCU fuel control arm forward and scheduled more fuel to the #1 engine.

Transport Canada reminds maintainers to check for proper security of these terminal block covers.

BOMBARDIER (CANADAIR) CL 600 2B16 (601 3A)

Hydraulic Pump Wiring Shorted

SDR # 20020923001

During pre-flight checks, the hydraulic pumps were selected "on" and the cockpit lighting dimmed. A heavy current load could be heard coming from the ground power cart. Hydraulic pump 3B C/B tripped. Two attempts were made to reset the C/B, each having the same effect as previously noted, but would not reset. Smoke was noticed coming from the avionics bay, and power was removed from the aircraft.

Investigation revealed the main power feed wire to the 3B hydraulic pump in the avionics bay around Station 281 had shorted to a clamp that secured that wire bundle.

Proper installation practices of wire bundle clamps must be strictly adhered to with thorough inspections. Do not hesitate to move that wire bundle and inspect where the wires pass through clamps for chafed or pinched wires.

BRITISH AEROSPACE 3112

Nose Gear Switch Wiring Broken

SDR # 20020404002

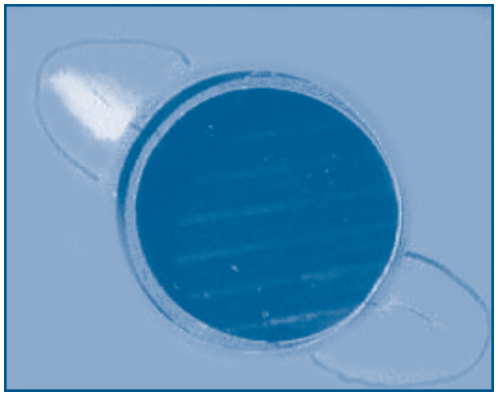
On approach, the pilot noticed that the nose gear was not indicating down and locked. After cycling the gear with no change in the indication, a fly-past was carried out to determine the gear status. After deciding that the gear was likely down and locked, a landing was attempted with ERS on stand-by. The landing was successful. Upon an investigation a wire was found to be broken about 12 inches from the switch.

A search of the SDR database returns in excess of 100 similar occurrences on this aircraft type only. Transport Canada reminds all maintainers to be diligent when inspecting wiring that is in SWAMP (Severe Water and Moisture Prone) areas, subject to flexing, or other installations that may lead to premature failure. Gear indications snags are costly for the operator and may indirectly affect the safe operation of an aircraft.

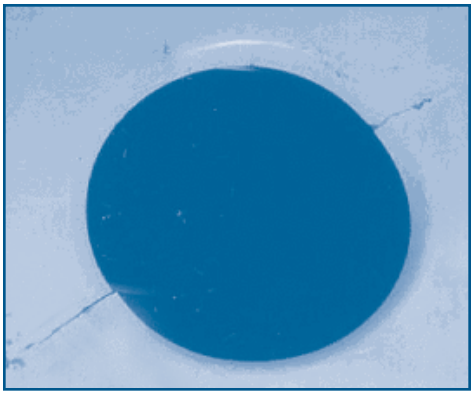
CESSNA 172P

Stabilizer Cracks SDR # 20020116004

Cracks were found during a scheduled inspection of the aircraft at 8239 hrs in the area of the front spar of the stabilizer, at the lightening hole between the two nose ribs (P/N 0532001-50). The skin stabilizer center (P/N 10532001-23) was also found cracked in the same area.



Cracks at the front spar of the stabilizer of a C172 aircraft



The SDR database contains many reports of similar cracking in this area. Transport Canada reminds maintainers pay close attention when inspecting this area.

CHAMPION 7ECA

Swaged Rudder Cable Failure SDR # 20021029008

The R/H forward rudder cable attached to the mico-sleeve (Nicopress) let go during taxi. Upon AME inspection, the mico-sleeve was found not to be crimped down to the proper dimension. The mico-sleeve was replaced and crimped properly.

All mico-sleeves on the aircraft were checked for the proper crimp, and it was found that the left forward rudder cable attachment was not crimped to the proper dimension either. All other mico-sleeves on the aircraft were at the proper dimensions. The factory was notified and they are submitting a Service Difficulty Report (SDR) as well.

This incident illustrates the importance of closely following standard practices when completing what some may consider "routine tasks". Complete installation of compression or swage-type fittings on cables must include the inspection of the finished product. Use of Go-No-Go gauges is a quick and efficient method of checking for the final dimension of these fittings. Manufacturers' instructions must be closely followed in order to prevent this type of occurrence (Ref: AC 43 13-1B 7-148).

FOUND BROS FBA 2C

Wing Spar Corrosion SDR # 20020718010

Transport Canada has received a report of substantial corrosion found on the wing spar, centre section, lower forward cap angle vertical flange leg where it was riveted to the spar web. A 25% loss of thickness in several areas, probably due to inter-granular stress corrosion, was present. The operator checked another wing and severe corrosion was also present.

Transport Canada considers this a significant safety issue, and recommends all owners of this aircraft inspect this area to ensure structural integrity of the spar and attach fittings. Most transport category aircraft operating in Canada have in place special inspection requirements, a corrosion protection program, and special Structural Inspection or similar program mandated by airworthiness directive or other documents.

Small aircraft, many of which are operated in environments conducive to corrosion propagation, are not affected by

these regulations and, as such, have no specific special inspection requirements specifically for corrosion of structural elements.

Transport Canada reminds operators of older general aviation aircraft to ensure all structural areas are closely inspected for corrosion.

PIPER PA31T

Uncommanded De-pressurization SDR # 20020910001

During descent, the aircraft de-pressurized. Upon further inspection, the forward clamp on the fresh air tube (P/N 8124402) was found loose and the tube disconnected.

This clamp is of the type containing a threaded rod and nut assembly for securing the clamp.

Part total time: 3318 hours and 3011 cycles.

The SDR database contains other similar reports, both on this aircraft and others where clamps have become loose, resulting in de-pressurization.

Transport Canada reminds maintainers when installing this type of clamp to ensure the self-locking feature of the nut is adequate, the components are correctly aligned, and the clamps are correctly torqued. Specifications for these locking values can be found in the manufacturer's product support manuals or in AC 43.13-1B.

SWEARINGEN SA226TC

Avionics Relay Wiring Chafed SDR # 20020923007

During taxi after an uneventful flight, smoke was detected in the cockpit. The aircraft was shut down, evacuated, and the smoke eventually dissipated.

A subsequent inspection revealed that the avionics relay wire #2a10a had chafed through and then arced on a hydraulic line in the area below the floor, just aft of the co-pilot's seat. The wiring and the line were repaired and the aircraft returned to service.

AMEs are reminded to inspect, protect, and secure wires. This is especially important in areas that you may access frequently and, as a result, disturb exposed wire runs.

AME SYMPOSIA / TRADE SHOWS / WORKSHOPS 2003

CENTRAL *March 5 & 7*	WESTERN *March 27 & 28*	ATLANTIC *May 2 & 3*
Best Western Victoria Inn (Winnipeg Airport) 1808 Wellington Avenue Winnipeg, MB R3H 0G3	Coast Plaza Hotel & Conference Centre 1316 - 33rd Street NE, Calgary, AB T2A 6B6	Delta St. John's Hotel & Conference Centre 120 New Gower Street, St. John's, NF A1C 6K4
Tel: (204) 786-4801 **Fax:** (204) 786-1329	**Tel:** 1-800-661-1464 or (403) 248-8888 **Fax:** (403) 248-0749	**Tel:** 1-800-268-1133 or (709) 739-6404 **Fax:** (709) 570-1622

AEROSPATIALE AS 350B2

Tail Rotor Teleflex Cable Binding

SDR # 20020507006

While on approach to a heli-skiing site, the pilot noticed that he did not have full tail rotor authority. A landing was not attempted because of the confined area, and the aircraft returned to base without further incident.

The rotorcraft was brought into the hangar for inspection and functional checks of the flight control system were initiated. During the check, the maintenance engineer noticed that the tail rotor Teleflex cable (P/N 704A34 130 18 0, Ref: IPC, Chapter 67.20.15, Pages 8 & 9, Item 110, Control, Rotor Pitch, Flexible) felt "ratchety" and appeared to be binding. This ball-type Teleflex cable is routed from the tail rotor pedals through the fuselage and connects to the tail rotor servo-control input lever located at the tailboom/fuselage interface.

As the rotorcraft warmed up to room temperature, the teleflex cable appeared to function much better with no apparent binding. The cable assembly was replaced and the aircraft returned to service. This problem may not be temperature related because there have been two other reports of a similar nature during this past summer.

Transport Canada recommends that maintenance personnel be extra vigilant in their assessment of conditions of the Teleflex cable upon report of similar malfunctions or discrepancies. Teleflex are "routing" sensitive and can bind if not installed with appropriate radius bends.

BELL 214B

Wiring Chafed

SDR # 20021108017

While hovering during heli-logging operations, the pilot noticed smoke and sparks originating from the left overhead circuit breaker panel. The pilot initiated an unscheduled landing and shut down the helicopter without further incident.

It was later determined that a wire bundle clamp, located in the left overhead circuit breaker panel had failed. The power wire (#12 gauge) for the landing light was found chafed through its insulation and caused an electrical short to ground. The heat generated by the shorted landing light power wire then melted the insulation of the adjacent wires, causing them to also short to ground. It appears that the cascading effect happened faster than the circuit breakers could trip open.

Transport Canada cautions all maintainers and operators to remain vigilant with respect to the security of wire bundles. When a wire bundle is routed through a clamp, the bundle must be held within the rubber lining of the clamp, and no wires should be pinched between the flanges of the clamp. Pinching of the wire could cause the insulation to be damaged and a short circuit could result.

MCDONNELL DOUGLAS HELICOPTERS (MDHI) 369D

Tail Rotor Torque Tube Cracked

SDR # 2002043004
and AC65-12A, p. 444

As the rotorcraft was entering into a hover condition, the pilot noticed that the tail rotor pedals felt "spongy" and immediately noticed a loss of tail rotor authority. The helicopter was successfully landed and shut down.

A further detailed inspection found that the subject tail rotor assembly torque tube (P/N 369H7531-9) was cracked almost 360 degrees in circumference. This crack originated from underneath the torque tube Magnesium fitting (P/N 369A7511), where the attachment hole is located.

A review of the SDR database revealed several similar reports of (P/N 369H7531-9) defects such as torque tube and sleeve found with elongated holes, cracked torque tube at fitting bolt hole, and other worn parts.

Transport Canada has contacted the responsible foreign airworthiness authority with our concerns. Additionally, we caution all maintainers to remain vigilant for cracks in this area.

Horizontal Stabilizer - Tip Cap Failures SDR # 20020729001

While in steep descent, the pilot observed the right hand horizontal stabilizer Tip Plate assembly depart the aircraft and impact the ground. The rotorcraft continued the descent and made a normal power landing.

Recovery and inspection of the Tip Cap Plate assembly revealed recent cracking at the forward edge of the Tip Cap (P/N 369D23633-12). There was no indication of birdstrike or other ground impact damage.

A review of the SDR database revealed another in-flight departure of a Tip Cap. In this case, the pilot noticed a vibration on the floor which later went away. After landing, it was then noted that a portion of the Tip Cap had departed during flight.

The manufacturer has stated that the root cause of these cracks may be as a result of tail rotor vibrations that have not been adequately resolved.

Transport Canada has reported these Tip Cap failures to the responsible foreign airworthiness authority. In the interim, it is recommended that operators pay close attention to this area for any evidence of cracks.

miscellaneous

PLASTIC "TY-WRAPS" AGAIN!!... SDR # 20020122003
SDR # 20020122004

Upon descent, the pilot of the Beech 1900D noticed that he had no aural warnings for decision height, altitude, alert, overspeed, gear warning, or stall warning. Maintenance personnel inspected plugs for aural amplifiers, and nothing appeared to be wrong. Wiring was inspected and one wire (Code 24A22) for 28VDC input of the aural annunciator amplifier (P/N 207), and another wire at plug W314P8 for co-pilot speakers, had been chafed by large plastic ty-wraps. The wires in question were "ty-wrapped" at a point where the bundle was bending. If the ty-wraps were 1 cm on either side of the bend, this would not have happened.

In another incident, an ELT remote switch indicator light was on in the hangar with no aural signal being received on comm frequency 121-5. The ELT and the wiring were inspected at Zone 312, and the wires 3150-12, 3150-13, 3150-15 were found chafed and were grounding out. Plastic ty-wraps, and plastic clamps cutting into the wiring were the cause of the problem.

Transport Canada continues to receive SDRs on plastic wire ties that, due to incorrect installation, have damaged adjacent wiring, structure, or components. Plastic wire retention devices, although more convenient that the lacing method for certain installations, often are installed quickly and as a result, not in the optimum position, leading to the chafing of adjacent wires or structures.

Manufacturers' Instructions for Continuing Airworthiness and/or AC 43.13 2B, Chapter 11, Aircraft Electrical Systems, covers wire installation and inspection, and includes information on the use of wire ties.

feedback feedback feedback

Friends and staff in Continuing Airworthiness wish

Paulette Thanase, former Editor of feedback magazine,
and
Gerry Villiers, former Manager of the SDR Program,

All the Best in your Future Endeavours

AGING AIRCRAFT

Ramon (Ray) Raoux, P. Eng.

Background

Aging aircraft have been with the aviation community for many years. On the basis of the generally accepted definition that an aircraft can be considered "aged" when it becomes 20 years old, we must then accept that we have been living with aging aircraft (and their issues) for over 70 years. It must be a certainty that the designers never expected their aircraft to remain in service indefinitely, but some have. Their structural integrity is being assured by the safe life, fail-safe and damage tolerance concepts as indicated; more extensive information on these concepts can be found in Advisory Circular 25.571-1C.

The life concept is applied to components that the design and inspection concepts for ensuring structural integrity have evolved over the years. The safe life concept is applied to components that are not normally subject to any inspection programs related to fatigue, but is rarely applied in the structure of transport category aircraft. Landing gears are the exception and are typically designed around the safe life concept.

The fail-safe concept is based upon designed-in redundancy in the structure such that a fatigue failure in one component will not result in a catastrophic failure, i.e., the loads are then transferred to other structural components. General maintenance programs to cater for normal wear and tear usually address the airworthiness of fail-safe components and it was assumed that the designed redundancy would not have deteriorated.

Damage tolerance concepts are based on the ability of structure to tolerate deterioration (such as due to corrosion) until any fatigue can be detected based upon specific and mandatory inspections as determined by fracture mechanics and probability of detection.

Aging aircraft issues have really only come to the forefront of the aviation community in the past 25 years and they have essentially been associated with large transport (FAR 25) category aircraft. It was the 1977 in-flight structural failure of a Boeing 707 air freighter in Africa that reminded the aviation community of the special needs of older aircraft. In conjunction with previous criticism over the retirement life approach applied to aircraft originally certified as being fail-safe (but with major safe-life components), this African accident of a fail-safe aircraft led to the issuance of Airworthiness Notice (AN) No. 89 in 1978 by the British Civil Aviation Authority. The intent of AN No. 89 was to permit the continual certification (and hence eligibility for a Certificate of Airworthiness) of older aircraft without having restrictions applied to their operational life. The essence of AN No. 89 was to require a "structural integrity audit" or "review" where fail-safe structural members were considered to be critical. This review was also to consider other aspects that could affect the structure such as the effects of operational damage and environmental deterioration including corrosion. In effect, this was the regulatory forerunner of the requirement for what we know of today as Supplemental Inspection Programs (SIPs) (additional maintenance requirements developed to inspect for fatigue cracks) and the corresponding Supplemental Structural Inspection Documents (SSIDs).

Canadian Experience

Aging aircraft issues were brought to the attention of the Canadian aviation community in 1987 when a 43 year old DC-3 experienced an in-flight wing separation near Pickle Lake in northern Ontario. The wing separation occurred at a location that was the subject of mandatory periodic radiographic inspections; the radiographs from the previous inspection indicated the presence of fatigue cracking and missing fasteners. The investigation findings led to corrective action in several areas. Foremost, it was recognized that reliance on inspections indefinitely could not be accepted, if terminating actions or structural modifications can negate the need for inspections. Also, a better understanding of the capability of various non-destructive testing (NDT) methods by personnel involved with all aspects of aircraft maintenance was recognized and regulatory changes were implemented to address this need.

International Focus

It was the Aloha Airlines B737 accident in 1988 that put aging aircraft issues onto the international stage and introduced this concern to the global traveling public. This accident not only highlighted the adverse effect of undetected corrosion on the original design criteria that served as the basis of certification, but also confirmed the existence of widespread fatigue to the aviation industry. This was now recognized as an issue(s) too big to be addressed by just one organization (Federal Aviation Administration (FAA)) and the result was the establishment of a series of working groups for eleven aircraft models to formally address all the factors that could prevent an aircraft from being operated indefinitely.

These working groups were comprised of representatives of airworthiness authorities (FAA, Transport Canada and several European civil aviation authorities), aircraft manufacturers (Airbus, British Aerospace, Boeing, Douglas, Fokker, Lockheed), and airlines (Air Canada, American, Canadian, United etc.); in effect, the aviation industry came together to address a common concern. One of the first areas to be looked at was existing non-mandatory service bulletins that provided information on inspections, and modifications that served as terminating action for the inspections. Experience had shown that inspecting to detect a known problem could only be considered a temporary solution that should not be relied upon indefinitely; the preferred solution was to modify or fix the problem permanently.

Supplemental Inspection Programs had been developed for many aircraft during the previous eight years; they were reviewed and updated to address potentially new locations of fatigue damage. These SIPs were doing their job but they were based on otherwise essentially pristine structure and it became clear that additional measures were needed for older aircraft.

Corrosion Protection and Control Program

The development of Corrosion Prevention ("Protection") is probably a more accurate term) and Control (CPC) Programs was the initial major addition to the on-going maintenance requirements for older aircraft. These CPC Programs comprise a series of repetitive maintenance actions (Corrosion Tasks (CT)) specifically dedicated to inspecting for the presence of corrosion and its removal from, or replacement of, the affected component. The inspection interval for these CT, depending upon the area, can vary from 1.5 to 10 years. The CT frequently includes the application of a CPC compound such as Dinitrol or LPS-3.

Repairs, rather that outright replacement, to aircraft structure are a common aircraft maintenance practice; however, it was recognized that not all repairs were designed to be damage tolerant (i.e., to be inspectable) and they could subsequently be the source of future grief. Hence, Repair Assessment Programs were developed to assess and categorize pressurized fuselage repairs as being:

- acceptable/permanent (inspectable as is);
- acceptable/permanent, but requiring supplemental inspections to ensure continued airworthiness;
- temporary/time limited, requiring supplemental inspections pending rework or replacement.

Widespread Fatigue Damage

Widespread fatigue damage (WFD), affecting large aging transport aircraft over 75,000 pounds, is being addressed by FAA rulemaking. The WFD concern relates to a scenario where a series of small fatigue cracks, in the absence of highly-reliable small crack detection techniques, could lead to unacceptable reduction in residual strength below the damage tolerance safety requirements. The objectives of a WFD program are to identify the primary structures susceptible to WFD, to predict the time the WFD is expected to occur and to establish additional maintenance actions (inspections and modifications/replacements) as necessary to preclude WFD.

The maintenance requirements that were developed and became mandatory have created an extensive, but not unbearable, workload for operators of large transport category aircraft. However, it was felt that compliance with these additional maintenance activities were needed to ensure the continual structural airworthiness of these aircraft as they aged; the efforts of the working groups that developed these additional programs have been vindicated. These additional maintenance requirements were initially applicable only to 11 specific large transport category aircraft models, but the lessons learned are being used to assess the structural integrity of commuter and business jet category aircraft as they age.

There are also lessons that can be applied to general aviation aircraft as well. The most obvious would be the selective use of CPC compounds such as in areas where corrosion has subsequently been found or areas that could be prone to corrosion. A subsequent Feedback article will review the currently on-going activities to address concerns with aging aircraft systems (presently wiring issues) and lessons that can be applied to all aircraft.

***Ray Raoux** is the Manager, Corrective Action Support, Continuing Airworthiness, Aircraft Certification,*
Transport Canada

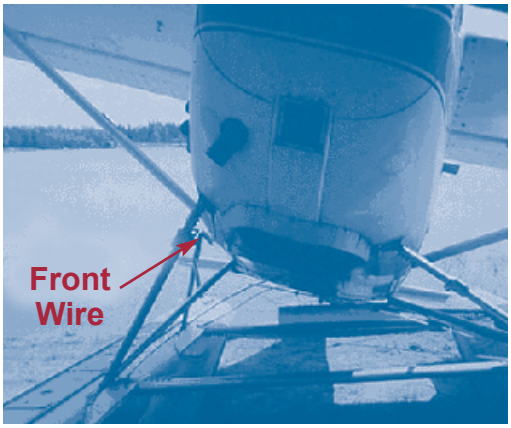
***Photos:** Courtesy of J.R. (Rod) Digney*

heads up

While taking off from a lake near the owner's home, the Cessna 172 float plane settled and touched hard on the water causing considerable damage.

OWNER'S DESCRIPTION OF THE INCIDENT:

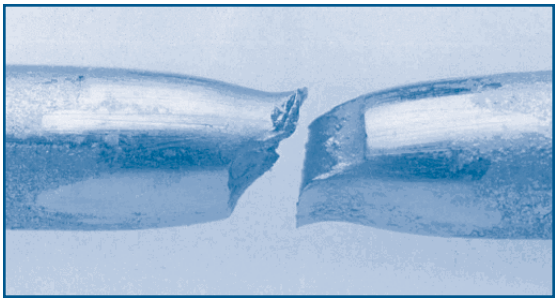
"Toward the end of the takeoff run, with the aircraft up approximately two feet off the water, the aircraft settled back down due to unstable air. At this point, a noise was heard and the aircraft became unstable on its gear. I then aborted takeoff. As the aircraft slowed down and the lift dissipated, the left wing suddenly dipped down and came in contact with the water. This caused the aircraft to veer left abruptly, displacing a considerable amount of water, but I managed to keep the aircraft from inverting. This caused all the fittings on the float struts to fail. The final resting position of the aircraft was engine pointing up, tail and left wing partially submerged. The aircraft was towed back to my property where it was beached. Upon inspection it was found that both cross wires were broken (left lower to right upper side)."



INVESTIGATOR'S NOTES:

"During my follow-up to this incident, I discovered several interesting points:

1. These floats had not been removed from the aircraft in at least 10 years. They had been inspected but no hardware was removed for detailed inspection.
2. During a conversation with a very experienced local AMO, I was told that (in his opinion) this was not a particularly uncommon problem, (he had seen at least 2 others) and that it was also easy to over-torque these wires causing damage to both the wire and the aircraft structure.
3. The broken wires in question and one additional wire from another incident were forwarded to the Transport Safety Board (TSB) lab for analysis. The report stated that the failures were "consistent with overload failure of a nominally ductile material" in the area just below the hex-shaped wrench flats below the threads.
4. In the mid 1970s (73?) EDO changed the size of the wires as the result of a couple of incidents on the west coast of the USA where the wires broke and the float rigging collapsed.
5. EDO never sent out a bulletin, or service letter, that I am aware of, describing this problem, or advising of the new stronger (5/16") wires.



Lab photo of one damaged wire
(Note the reduction in diameter at the area of the break)

EDO drawing # 69480 dated 12/27/68; change order 1306-1 (dated 1973) shows the 5/16" wire as an alternative.

- Original forward wire P/N 3392-4924, 1/4 dia tensile strength 3400 lbs (no longer available from EDO)
- Replacement forward wire P/N 3394-4900, 5/16 dia tensile strength 6100 lbs (current part available from EDO)
- Original aft wire P/N 3392-5150, 1/4 dia tensile strength 3400 lbs (no longer available from EDO)
- Replacement aft wire P/N 3394-5125, 5/16 dia tensile strength 6100 lbs (current part available from EDO)

It is my understanding that only 5/16 wires have been supplied by EDO as replacements since mid 1970s, although I have been told that 1/4" wires may still available from other sources (used?)."

Transport Canada recommends that owners and maintainers inspect these float brace wires carefully for any signs of damage in this area and be particularly careful for signs of potential overload failure in the area adjacent to the wrench flats, if a hard landing has been reported. Any suspect wires should be replaced with the updated parts from EDO.

FAA unapproved PARTs notification

These notices were published through the FAA SUP Program Office, AVR-20
Telephone (703) 661-0580 Fax (703) 661-0113

UPNs are posted on the Internet at http://www.faa.gov/avr/sups/upn.cfm

NUMBER	MANUFACTURER	AFFECTED PRODUCT	ISSUE DATE (YR/MM/DD)
1999-00310	Reverse Engineering. Inc.	Boeing 747 Engine generator rotor shaft.	2001/07/11
2001-00059	Marchini Instruments Corporation	Aircraft parts that were repaired, overhauled, or inspected and approved for return to service by Marchini Instruments Corporation	2001/12/06
2001-00163	T.V.K. Aviation Supply Inc. (TVK)	Rolls-Royce Allison 501 D-13 turbine engines.	2001/12/06
2000-00152	Cadmar Aerospace, Inc.	Pratt & Whitney JT8D engines.	2002/01/01
2001-00209	Panaviation, S.r.l.	All aircraft.	2002/02/04
1999-00092	Allied Signal	Boeing 707.	2002/02/24
2001-00143	McRae's Aerocrafts, Inc	Aircraft emergency equipment.	2002/03/04
1999-00154	Goodrich Aerospace	Aircraft appliances that were repaired, overhauled, or inspected and approved for return to service by Goodrich Aerospace Component Overhaul and Repair	2002/04/29
2002-00044	C&M Marine, Inc.	Emergency inflatable life rafts.	2002/07/01
2002-00073	Honeywell/AVCO Lycoming	Honeywell / AVCO Lycoming LF507 series and ALF502 series turbine engines. LF507 and ALF502	2002/07/01
2002-00120	Renzco, Inc (Renzco)	Parts maintained and approved for return to service by Renzco, Inc.	2002/07/25
2001-00089	Nestor Camacho Jetpower Services, Inc.)	Boeing 737.	2002/08/12
2001-00139		Hot air balloons.	2002/09/17
2001-00229	Airframe Component Maintenance, Inc.	Boeing 707, 727, and 737; Douglas DC-8, DC-9, and DC-10.	2002/10/15

suspected *unapproved* PARTs

The submitters of the following Service Difficulty Reports (SDRs), received during the previous quarter, indicated that an unapproved part (SUP) was suspected. The list is provided here for information only and should not be construed as an identification of confirmed unapproved parts. In Canada, SUPs should be reported on a regular SDR form, indicating your suspicion of an unapproved part.

MAKE/MODEL	ATA	PART NAME	PART NO.	PART CONDITION	CTRL NO.	RGN
AEROSPATIALE						
AS 350BA	5302	LOWER FRD SKIN	182704	FRACTURED	20010228009	PAC
AS 350B2	2000	CABLE ASSY6	503270411	WORN	20021029005	WST
ALLISON						
250-C20	7323	GOVERNOR	252466715H	FAILED	20020501012	ONT
250-C20B	7250	PT INNER SHAFT	A23037403	FAILED	20011030007	CTR
501-D13	7300	LOCK GEAR ASSY	8575472	WORN-PIN HOLE	20020612004	CTR
AVCO LYCOMING						
IO-360-L2A	7314	GAS PUMP	LW15473	FAILED	20020610004	QUE
O-320-B2C	8550	OIL FILTER	CH48108	SEPARATED	20021115002	PAC
O-320-E2D	8011	SHAFT BEARING	0	MISSING	20020325003	PAC
TIO-540-J2BD	7414	CASE	1068291013	BROKEN	20011203001	ATL
T5313B	7100	COMPRSR CASE	110121004	UNAPPROVED	20020320001	PAC
T5313B	7100	1ST STG GP BLADE	110013206	CRACKED	20020320002	PAC
T5313B	7200	2ND GP NOZZLE	112000014	FAILED	20021113003	OTT
T5313B	8510	IMPELLER HOUSING	110137003	UNAPPROVED	20020320003	OTT
T5317A	7200	1ST-STG PT NOZZLE	119005007	FAILED	20021113004	PAC
BEECH						
	1000	WASHER ASSY	6147514435	FAILED	20020913005	WST
A100	0000	HSI	RD444	FAILED	20020408010	QUE
A100	1400	L/H AFT CABLE AS	1155240653	DOUBLE CUT THREAD	20020426002	ONT
A100	2435	STARTER GEARSHAFT	3021565	WORN	20020624002	ONT
C90A	3020	ANTI-ICE TUBE	9091009913	CRACKED	20021030004	ONT
1900D	3211	SOCKET	5081032019	CRACKED	20020705002	PAC
23	2000	BOLT	AN6H43AS	NEW THREAD CUT	20011109016	ONT
300	3230	ELECTRIC MOTOR	710501	FAILED	20020828006	PAC
BELL						
204B	6420	STATIC STOP	20401077411	NO SPLINES	20011121003	WST
212	6230	MAST SEAL PLATE	204040369009		20020104023	PAC
212	6510	BOLT	204040612001	BENT	20011211002	WST
407	6220	CASE ASSEMBLY.	406040406109	NEW	20020605007	OTT
427	6520	CASE ASSEMBLY	406040406109	NEW	20020610008	OTT
BF GOODRICH						
3D147211	3000	DIODE	IN5550	FAILED	20020109004	WST
BOEING						
69B962589	2000	GEARBOX ASSY	69B962589	UNABLE TO FIT	20010814001	OTT
767 35H	2133	GEAR SHAFT SPUR	20473124	SPLINE MISSING	20010105002	PAC
BULKHEAD FITTING						
	0000	BULKHEAD FITTING	3561823	FAILED	20020527002	WST
CANADAIR						
CL600 2A12(601)	2133	SECOND.OUTFLOW	62344	FAILED	20020220012	ONT
CESSNA						
A185E	2842	FUEL TRANSMITTER	774000068	FAILED	20021004008	WST
172RG	3211	PIVOT	0	UNAPPROVED	20020325004	WST
208B	2497	INLINE CONNECTOR	0	HEAT DAMAGED	20020607008	WST
208B	5310	LWR FWD DOUBLER	26530351	CRACKED	20020128004	WST
208B	5713	STRINGER, LEFT H	262200063	CRACKED	20021210003	ONT
401B	2000	SPACER	85921701	WRONG PART	20010921009	CTR
DEHAVILLAND						
DHC 2 MKI	2731	BOLT-STAINLESS	AN3C6A	SHEARED	20020104001	PAC
DHC 6	2510	FORK LAP BELT	C3FF3143	FAILED	20020304003	WST
DIAMOND						
DA 20 C1	5540	RUD HINGE BRACKET	2055450300	CRACKED	2 SDRs	ONT
DOUGLAS						
DC9 83	2910	HYDRAULIC LINE	7936907530	CRACKED	20021007012	QUE
DYNAMICAIR						
M4582C1	0000	BEARING	K271B200L	UNAPPROVED	2 SDRs	OTT
ELECTROMECH						
EM630	0000	BEARING	900012	UNAPPROVED	2 SDRs	OTT
EMBRAER						
EMB 110P1	3243	PARK BRAKE VALVE	13450A	LEAKING	20020222003	QUE
	0000	FITTING ASSEMBLYY	7955300	INCORRECT PARTS	20020722011	ONT
GARRETT						
TPE331-10UA-511G	7261	PUMP DRIVE SHAFT	8971973	SUB STND PART	20011109010	CTR
GENERAL ELECTRIC						
CF34-3A1	7500	SENSING LINE	6019801455	LEAKING	20021015005	ONT

suspected unapproved PARTs (cont'd)

MAKE/MODEL	ATA	PART NAME	PART NO.	PART CONDITION	CTRL NO.	RGN
GOODRICH						
23048015	0000	ARMATURE	230481030	BREAKDWN OF SHAFT	20021101010	WST
HARTZELL						
HC-E2YR-2RBSF	6120	NUT	B3807NO	TORQUE	20011003001	OTT
HC-E4A-3I	6114	SETSCREW	B70192	CRACKED	20021121007	ONT
HINGE HALF						
	0000	HINGE HALF	C6TE105329	WRONG PART	20020507016	WST
HONEYWELL						
113063024	0000	POWER SHAFT	110080004	SPLINE WORN	20020220005	PAC
113063024	0000	POWER SHAFT BOLT	114006714	SATISFACTORY	20020220002	PAC
113063024	0000	SIDE SUPPORT	115028007	SATISFACTORY	20020220003	PAC
13063024	0000	2ND STG GP NOZZLE	112000014	SATISFACTORY	20020220004	PAC
HUGHES						
369D	6310	SPRAG ASSY	369D25351	BROKEN	20020430005	PAC
369D	6520	T/R OUTPUT GEARSHAFT	369D25430	BROKEN	20011012009	PAC
LEARJET						
45	5210	BELLCRANK	4552100164001	MISSING	20020418002	ONT
LUCAS						
23046020	0000	BEARINGS	03601018	UNAPPROVED	20020903015	OTT
MAGNETIC PLUG						
	0000	MAGNETIC PLUG	2005T33P01	NEW	20021203010	PAC
MCCAULEY						
1A102/OCM6948	6111	BLADE	0	WELDED	20021119005	ONT
P&WC						
3036376	0000	NIL/UNKNOWN	0		20020418003	OTT
PILATUS						
PC 12 45	2435	STARTER-GENERATOR	23085024	WRONG CONFIGURATION	20011217013	ONT
PIPER						
PA28 161	0000	BATTERY	G30S	NEW	20020508006	ONT
PA42	3246	BOLT	AN620A	CRACKED	20020405005	ONT
557361	0000	CONNECTOR	0		20020910003	OTT
7959102	2500	BELLCRANK ASSY	7634700	CRACKED	20020617005	ONT
PLESSEY						
BP1RSMK6	0000	BEARING	501413303	UNAPPROVED	4 SDRs	OTT
PLIATS						
	0000	ANCHOR NUTS	9384237203	BROKEN	2 SDRs	WST
PRATT & WHITNEY						
PT6	0000	3016992	0	UNAPPROVED	20021022001	OTT
PT6	7200	LCF PARTS	0	FAILED	20021127004	OTT
PT6A-20	7314	GEAR & COUPLING	0	WORN	20021120007	ONT
PT6A-21	7160	ANTI-ICE TUBE	9091009913	CRACKED	20021022003	ONT
PT6A-21	7510	ANTI-ICE TUBE	9091009913	CRACKED	3 SDRs	ONT
PT6A-34	7240	FUEL NOZZLE	301474	FAILED	20020903002	QUE
PT6A-67B	7313	FUEL NOZZLE	3038495X	RUSTY	2 SDRs	PAC
PWC						
VARIOUS	0000	RIVET, TUBULAR	3031098	NEW	20021223002	OTT
ROLLS ROYCE						
	0000	FUEL CONTROL	252464429	OVERHAULED	2 SDRs	OTT
	0000	NONE	0		2 SDRs	OTT
TAY MK 611-8	7230	FAN BLADE	JR31983	UNAPPROVED	20020322001	OTT
23057344	0000	FCU	0		20021009004	OTT
23057344	0000	FUEL CONTROL	252464429	OVERHAULED	16 SDRs	OTT
SUNSTRAND						
5007024620	0000	BEARING	13863352	UNAPPROVED	20020903014	OTT
TURBOMECA						
ARRIEL 1B	7421	IGNITER	9550175400	UNSERVICEABLE	20021024002	QUE
UNITEDINST						
5934P3A83	0000	GLASS, COVER	1114300700	UNAPPROVED	20020926004	OTT
UNKNOWN						
UNKNOWN	2550	SIDE PLATES	UNKNOWN	UNAPPROVED	20020917007	PAC
UNKNOWN	7414	CARBON BRUSH	AM3215	FAILED	20020607010	WST
UNKNOWN						
MS208194	0000	SLEEVE	MS208194	FAILED	20021101012	WST

equipment ADs

Transport Canada endeavours to send copies of new ADs which are applicable in Canada to the registered owners of the affected products. This type of AD is often only distributed to our regional offices because the owners of aircraft affected by equipment/appliance ADs are not generally known.

The following new equipment ADs have been received by Transport Canada in the last three months. Maintainers and Operators of the affected products are encouraged to obtain further information or a copy of the ADs from their regional TC office, their local TCC, their PMI, or from the Civil Aviation AD website at:

http://www.tc.gc.ca/civilaviation/certifcation/continuing/ad.htm

MANUFACTURER	AD NUMBER	ORIGIN	DESCRIPTION
ANJOU AERONAUTIQUE	2002-104(AB)	FR	SAFETY BELTS & RESTRAINT SYSTEMS TYPE 343-1 ANJOU AERONAUTIQUE SB 343-1-25-01
ANJOU AERONAUTIQUE	2002-105(AB)	FR	SAFETY BELTS & RESTRAINT SYSTEMS TYPE 343 SB 343-25-02
APIC	2002-453(B)	FR	AUXILARY POWER UNIT EXHAUST TAILPIPE EJECTION CRACKS IN INNER LINER
B/E AEROSPACE	002-11-2001	UK	SKYLUXE II (AA2) PASSENGER SEATS - HYDROLOK PIN ORIENTATION.
BREEZE EASTERN AERO	2002-20-05	US	ALL HELICOPTERS - RESCUE HOIST, PART BL-16600 BREEZE EASTERN CUSTOMER AEROSPACE CAB-100-56
BRITAX SELL GMGHB	2000-379/2	GY	GALLEY EQUIPMENT- WATER BOILER, COFFEE MAKER, REMOTE WATER BOILER, & BEVERAGE MAKER
BRITISH AEROSPACE	002-12-2001	UK	SUTTON HARNESS: DETERIORATED SAFETY HARNESSES - REFER ALSO TO CAA AD 007-03-99
CHELTON	001-05-2001	UK	VOR/LOC HIGH PASS FILTER PART NO. 7-429/1 INST'N -- REF: MSB NO. CEL 01/2001 ISS.2
COLLINS AVIONICS	91-10-01	US	TCAS II MODIFICATION OF COLLINS TTR-920 COMPUTER
DUNLOP AEROSPACE LTD	AHA1837-32-1157 Rev 3	UK	MAIN WHEEL P/N AHA1837 - MODIFICATION TO MAINTENANCE LUBTORQUE
EUROCOPTER CANADA	CF-2000-06R1	CF	TRANSPORT CANADA STC SH96 32 - EUROCOPTER CANADA LEFT-SIDE PILOT CONFIGURATION KITS
GARMIN INTERNATIONAL	2001-23-17	US	MODIFICATION OF GARMIN GNS 430 UNITS SERVICE BULLETIN 9905 REVISION A
GENERAL AIRCRAFT	CF-81-29R2	CF	EMERGENCY LOCATOR TRANSMITTER - REMOVAL OF LITHIUM BATTERIES - AIRWORTHINESS NOTICE # BO14
GENERAL AIRCRAFT	CF-1978-01	CF	SUPERSEDED BY AD CF-81-29R2
GENERAL AIRCRAFT	CF-1983-26	CF	SUPERSEDED BY CF-83-30
GENERAL AIRCRAFT	CF-1983-30	CF	SUPERSEDED BY CF-83-31R2 - LAVATORY FLUSH PUMP
GOODYEAR	2001-18-05	US	INSPECT / REPLACE GOODYEAR FLIGHT EAGLE TIRES SN# 0168XXX THRU 0185XXX-- GY SB 2001-32-006
GPI	2002-367(B)R1	FR	ALL 2M2N CARGO NETSP/N# M1.13.01.2000.1300B & 2G1N CARGO NETS P/N# G1.13.03.2000.1300.A
HAMILTON SUNDSTRAND	2002-15-02	US	FORMERLY SUNDSTRAND, TURBOMACH, AND SOLAR -T62T SERIES AUXILIARY POWER UNITS
HONEYWELL	2002-13-07	US	INERTIAL REFERENCE UNITS-POWER LOSS, - ASB HG1075AB-34-A0013, OR -A0005
HONEYWELL	2001-10-09	US	KC 225 AFCS - UNDESIRABLE AUTOTRIM COMMAND - BULLETIN NO. 472 ALERT REV. 1

equipment ADs (cont'd)

MANUFACTURER	AD NUMBER	ORIGIN	DESCRIPTION
INNOVINT INTERIORS	2001-351(B)	FR	BABY BASSINETS - PIP PIN MODIFICATION SB 7250-25-002 AND SB 7250-25-003
JANAERO	2001-08-01	US	14D11 OR 23D04 FUELREGULATOR AND SHUTOFF VALVES INSTALLED TO B SERIES CUMBUSTION HEATERS
JANAERO	2001-17-13	US	14D11 OR 23D04 SERIS FUEL REGULATOR AND S/O VALVES INSTALLED TO B SERIES CUMBUSTION HEATERS
MARS SPOL SRO	T-039/2002R1	CK	RESCUE PARACHUTE - EXCLUSION FROM OPERATION P/N# ATL-88, ATL 88/92-S, ATL-88/90
OVERLAND AVIATION	2001-22-14	US	FIRE EXTINGUISHING SYSTEM BOTTLE CARTRIDGES INSTALLED TO WALTER KIDDE FIREX BOTTLES
POLTRONE	2001-479	IT	VISUAL INSPECTION ACCORDING TO AVIOINTERIORS SERVICE BULLETIN N.312/912-05 REV.1
RIBECO CARGO EQUIP'T	2002-303	GY	PRODUCTIION OF AIR CARGO PALLETS AND AIR CARGO NETS WITHOUT THE REQUIRED AUTHORIZATION AIR CARGO PALLET 7-2ALP-L-30-(X)
ROCKWELL COLLINS	2002-14-19	US	AIR DATA COMPUTERS:ADC-85, ADC-85A, ADC-850D, ADC850F - SERVICE BULLETIN NO. 62 R2
ROCKWELL COLLINS	2001-15-17	US	CTL-92 TRANSPONDER CONTROL PANELS- MODIFY THE ALTITUDE ENCODER INPUTS SB.33(CTL92-34-33)
ROCKWELL COLLINS	2002-06-05	US	MODE C 621A-3 TRANSPONDER P/N 522-2703-(ALL) SERVICE BULLETIN 621A-3-34-21 REV 1.
ROCKWELL COLLINS	2002-06-06	US	TDR-94 MODE S TXDR - CPN P/N 622-9352-004 TDR-94D MODE S TXDR - CPN P/N 622-9210-004
ROCKWELL INTL	2002-20-09	US	ADAPTIVE FLIGHT DISPLAY UNITS - AFD-3010 - PREMATURE FAILURE OF ASIC DEVICE
ROCKWELL INTL	2002-22-13	US	MODEL FMC-4200, -5000, -6000 RETENTION OF ORIGINAL INFORMATION FOLLOWING EDITING
SICMA AERO SEAT	2002-504(AB)	FR	CRACKS FOUND ON CENTRAL SPEADERS SEAT TYPES 90XX AND 92XX SB 92-25-005
SICMA AERO SEAT	2001-605(AB)	FR	PASSENGER SEAT BACKREST LINKS - LIFE LIMIT (16 G SEATS) SERVICE BULLETIN 90-25-012 R3
SICMA AERO SEAT	2001-613(AB)	FR	PASSENGER SEAT BACKREST - LINK REPLACEMENT (9G SEATS) SERVICE BULLETIN 90-25-013R2
SICMA AERO SEAT	2002-471(AB)R1	FR	PASSENGER SEATS - MODIFICATION OF BELTS ATTACHMENT FITTINGS
SICMA AERO SEAT	2002-505(AB)	FR	PASSENGER SEATS 9801 AND 9802 SERIES SB 98-25-014R1, 98-25-009, 98-25-008
STRATOS 07 S.R.O	048/2002	CK	PILOT RESCUE PARACHUTE JU-40. REMOVE FROM SERVICE PARACHUTES PRODUCED AFTER 1997/04/01
TITEFLEX CORPORATION	2002-22-12	US	INSPECTION OF ALL HIGH AND MEDIUM PRESSURE HOSES AS PER TITEFLEX CORPORATION SB 73-2
UPS AVIATION	2001-14-51	US	DSP SOFTWARE - APOLLO SL30 VHF NAV/COMM RADIO UPS AVIATION TECHNOLOGIES, INC. SB 2001-003