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AIRCRAFT ACCIDENT INVESTIGATION REPORT

PIA FOKKER F-27 AP-AUR
ISLAMABAD INTERNATIONAL
AIRPORT
ON

24TH DECEMBER, 1988

CIVIL AVIATION AUTHORITY

AIRCRAFT ACCIDENT INVESTIGATION REPORT

**LANDING ACCIDENT AT ISLAMABAD INTERNATIONAL AIRPORT
TO PIAC AIRCRAFT FOKKER F-27 AP-AUR ON 24TH
DECEMBER, 1988 THAT OCCURRED WHILE
OPERATING PIA DOMESTIC FLIGHT
PK-632 FROM ISLAMABAD TO**

SAIDU SHARIF

**CIVIL AVIATION AUTHORITY
KARACHI, PAKISTAN**

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Authority:- Director General Civil Aviation Authority
Memorandum No.HQ.CAA/1901/91/AIB dated
24.12.1988 (Appendix 'A')

COMPOSITION OF INVESTIGATION TEAM

- | | | |
|----|---|------------------------|
| 1. | Mr.Mohammad Ali Siddiqui
Ops. Investigator
HQ CAA Inspectorate | Investigator-in-Charge |
| 2. | Mr.Taj Mohammad
Sr.Airworthiness Surveyor
CAA Islamabad Airport | Investigator |

SYNOPSIS

Pakistan International Airlines Fokker F-27 aircraft
Registration Marks AP-AUR operating scheduled domestic passenger
Flight PK-632 from Islamabad to Saidu Sharif. Departure from
Islamabad was on schedule with Pilot-in-Command Capt.Iqbal Farid
Orakazi.

The flight between Islamabad and Saidu Sharif was normal.
On approach at Saidu Sharif, when the landing gears were lowered,
the left main gear indicated unsafe. The right main and the nose
gears indicated down and locked. The Pilot initiated an over shoot

and on reaching a safe altitude followed the prescribed check list procedure for unsafe gear indication. A visual inspection by the First Officer, confirmed the indication in the cockpit.

The Captain decided to divert to Islamabad. All concerned agencies including ATC and PIA operations were informed. The Crew sought advise from PIA Engineering on Company channel. In the meantime, the runway was being prepared for a possible gear unsafe landing. At Islamabad during fuel burn off the aircraft made three low passes at the request of ATC and PIA Engineering Staff, so that they could visually inspect the gear position. Cabin Crew was also briefed about the emergency and to ready the passengers for the landing and secure the cabin.

When all necessary precautions had been taken, the ATC was informed and approach to Runway 12 was made. The aircraft touched down on right main gear and then the nose wheel. When the speed dropped the left wing dropped and the fuselage touched the ground. The aircraft veered to the left. In the meantime, the first officer shut down No.1 engine and fired the fire extinguisher followed by shutting down No.2 engine.

The aircraft left the runway and came to a stop on the Kutcha. Immediately the passengers were evacuated. There was no fire and no injuries were caused during the evacuation.

1. AIRCRAFT INFORMATION

1.1. Type of Aircraft	:	Fokker F-27
1.2. Nationality & Registration Marks:	:	AP-AUR
1.3. Constructor's No.	:	10307
1.4. Date of Construction	:	September 1966
1.5. Airframe hrs since New	:	44447.43
1.6. Total landings since New	:	53077
1.7. Airframe hrs since check - V	:	407.30
1.8. Hrs since last 'C of A'	:	Same
1.9. Mod Status upto date	:	All incorporated
1.10. Certificate of Reg No.	:	392 (Rev.I) Valid
1.11. Certificate of A/W No.	:	346 (Rev.I) Valid
1.12. Date of Validity C of A	:	26th September, 1989
1.13. Certificate of Maint date of issue	:	21.12.1988 at 1500 hrs Valid
1.14. Remaining fuel collected from the aircraft after landing	:	189 Gallons
1.15. Left Engg Type Dart 532-7 S.No	:	13262
1.15.1. Hrs since New	:	34965.23
1.15.2. Hrs since last O/H	:	2433.41
1.15.3. Cycle since last O/H	:	3049
1.16. Right Engg type Dart 532-7 S.No	:	24365
1.16.1. Hrs since New	:	36358.55
1.16.2. Hrs since O/H	:	3641.25
1.16.3. Cycle since O/H	:	4437
1.17. Left Prop: S.No.DRG 168/65	:	
1.17.1. Hrs since New	:	33447.39
1.17.2. Since O/H	:	1050.12

2.1.6. Rating:-

- 2.1.6.1. Type(s) held : F-27 and Boeing (P-2)
- 2.1.6.2. Type current : F-27
- 2.1.6.3. Flight Instructor Rating : On F-27 (expired)
- 2.1.6.4. Flight Engr Instr : _
- 2.1.6.5. Check Rating : Route check Pilot on F-27

2.1.7. Flying Experience:-

- 2.1.7.1. Grand total : 6045
- 2.1.7.2. Total in Command : 3059
- 2.1.7.3. Total in Command/
Co-Pilot/Flight Engr
on the type of
accident/incident
occurred : 2659

2.1.8. Where trained : PAF/PIA

2.1.9. Date of Joining the Org. : February, 1977

2.2. CO-PILOT

- 2.2.1. NAME : Syed Mansoor Ahmed
- 2.2.2. Position in the Cockpit : F/O (Co-Pilot)
- 2.2.3. Date of Birth : 1.5.1950
- 2.2.4. Type of Lic and No. : ALTP No.653
- 2.2.5. Medical date with status : 12.9.1988

2.2.6. Rating:-

- 2.2.6.1. Type(s) held : F-27, C-150, 185, 421
- 2.2.6.2. Type current : F - 27
- 2.2.6.3. Flight Instructor : F.I.R. (Expired)

/2.2.6.4. Flight

2.2.6.4. Flight Engr Inst. : -

2.2.6.5. Check rating : -

2.2.7. Flying Experience:-

2.2.7.1. Grand total : 3887

2.2.7.2. Total in command : 3390

2.2.7.3. Total in command/ : 497.00
Co-Pilot/Flt.Engr
on the type accident
incident occurred

2.2.8. Where trained : PAF and PIA

2.2.9. Date of Joining the Org : June, 1987

3. PASSENGER AND LOAD INFORMATION

3.1. Total number of passengers on board were 18.

3.2. Aircraft load information is as follows:

3.2.1. Weight of the Passengers : 1116 Lbs

3.2.2. Weight of Cargo and Baggage : 350 Lbs

3.2.3. Total Pay load : 1466 Lbs

3.2.4. Maximum take off gross weight: 43000 Lbs

3.2.5. Empty weight. 23000 Lbs

/4.HISTORY

4. HISTORY OF ACCIDENT

- 4.1. On 24th December 1988, PIA aircraft F-27 Nationality and Registration Marks AP-AUR was scheduled to fly PK-632 from Islamabad to Saidu Sharif.
- 4.2. The take off was on schedule and the flight was normal. The aircraft was serviceable and no discrepancy of any kind was reported before the departure. However on approach to Saidu Sharif, when the gears were lowered, the left main gear showed unsafe in the cockpit indicator. The Captain executed an overshoot and reaching a safe altitude check-list procedure for unsafe gear was followed.
- 4.3. Captain Orakzai asked his first officer Mr. Mansoor to carry out a visual inspection of the left landing gear. On visual inspection, the lock strut was found to be misaligned indicating and confirming that the gear was not down and locked.
- 4.4. Both Saidu Sharif Tower and Cherat approach were informed of the problem and the decision of the Captain to return to Islamabad.
- 4.5. At 25 NM from Islamabad the aircraft orbitted at a point called 'Tipon' and the emergency was discussed between the crew. The Maintenance Engineer was contacted on the Company channel and instruction given by him to lock the

/landing

landing gear were followed. When all attempts to lock the gear down, failed, the Captain decided to make a unsafe gear landing at Islamabad Airport. Foam was asked to be laid on runway 12 by the Captain. While the runway was being prepared, extra fuel was burnt overhead the field to minimise risk of fire after landing.

- 4.6. Flight crew Operators manual and the check list was consulted and discussed by the crew. The cabin crew was advised of the landing procedures. The cabin crew in turn briefed all the passengers individually of the emergency procedure and the brace position. Pillows were distributed and all sharp and loose items were stowed away so as not to cause any injury to any occupant.
- 4.7. The aircraft orbitted overhead Islamabad for approximately two hours and the crew had plenty of time to discuss the emergency in detail. During this period, the Captain made three low passes at the request of Maintenance Engineer and the ATC to confirm the gear position.
- 4.8. When all precautions had been taken, the Captain made the final approach on Runway 12 at the computed speeds. The aircraft touched down on right main wheel and then the nose wheel. The left wheel collapsed and soon after the aircraft veered to the left. The first officer followed the prescribed procedures of shutting down the engines and firing the fire extinguisher bottles.

4.9. The aircraft came to a halt on the left side of Runway 12 on the grassy surface. There was not fire and all passengers evacuated safely followed by the cabin crew and then the cockpit crew.

4.10. Crash Tenders and Ambulances reached the scene of the accident immediately. Runway remained closed from 1115 PST to 1513 PST. At 1513 PST Runway was opened for operations of Boeing 737 and below this weight category of aircraft. At 1935 PST the crashed F-27 was towed away and the runway was opened to all other aircraft.

5. INJURY TO PERSONS

5.1. There was no injury caused either to the passengers or the crew. No third person was injured as a result of the accident.

6. DAMAGE TO THE AIRCRAFT

6.1. Fokker F-27 aircraft Registration Marks AP-AUR, alongwith its engines sustained substantial damage as a result of accident, complete damage report is at Appendix 'M'.

7. OTHER DAMAGE

7.1. No other damage was caused to property on the ground as a result of the accident.

8. METEOROLOGICAL CONDITIONS

8.1. Weather at the time of accident was fair with 3 Oktas

Alto Cumulus clouds at 10,000 ft. The visibility was 5 Km., with smoke haze. The wind was reported calm (Appendix V₁&V₂).

8.2. Weather was not a factor in this accident.

9. AIDS TO NAVIGATION

9.1. All radio navigation aids were serviceable at the time of the accident.

9.2. Radio Navigation aids were not a factor in this accident.

10. COMMUNICATIONS

10.1. Radio Communications between the aircraft and ATC were normal. The aircraft was all the time in contact with ATC till the evacuation of all occupants from the aircraft. (See the transcripts of the ATC tape at Appendix 'C').

11. AERODROME AND GROUND FACILITIES

11.1. Islamabad International Airport is a PAF, CAA joint user airfield. The elevation is 1667 ft AMSL. Fire protection is category VII. The runway direction is 30/12. ILS is available on Runway 30. Radio Nav.Aids include VOR & NDB. All radio and Navigation Aids facilities were serviceable and available.

12. FLIGHT RECORDER

12.1. Although this aircraft is equipped with both Flight Data Recorder and Cockpit Voice Recorder, the need for their read out was not consideration necessary for this investigation.

13. WRECKAGE

NIL

14. FIRE

14.1. No fire occurred during or after the accident.

14.2. Foam was laid, starting 500' to 2500' on Runway 12 from beginning.

14.3. The Captain orbitted overhead Islamabad to burn excess fuel so as to minimise chances of fire after touch down. The first officer soon after the aircraft landed, shut down No.1 engine and then No.2 engine and fired both the bottles of fire extinguishers.

14.4. Crash Tenders were standing by and reached the scene of accident immediately.

15. SURVIVAL ASPECTS

15.1. The accident was a survivable one.

15.2. There were only 18 passengers on board all of whom were shifted to the right side before the landing. This was done to keep the weight on the right main gear and to avoid any injuries to any passenger should the left wing of the aircraft broke on impact.

15.3. All the passengers and the members of the crew evacuated the aircraft without any injury.

16. TEST AND RESEARCH

16.1. After the accident on visual inspection of the left main landing gear, it was found that the drag strut upper fork end fitting had broken at the upper shear bush location.

16.2. In order to prevent failures and the establish integrity of end fittings of gear drag strut on Fokker F-27 type aircraft in the liveries of PIA, a campaign inspection was ordered by Civil Aviation Authority. This inspection was started on 25th December, 1988 and completed on 2nd January, 1989. During this campaign 5 more fork ends and 2 eye ends were found cracked and were replaced.

16.3. Initially the Manufacturers recommended normal fluorescent penetrant tests were done but the cracks were not located. However later on eddy current tests, which is superior to the fluorescent penetrant inspection was conducted on end fittings of the drag strut. Cracks were detected through this method.

16.4. Cause of failure of upper end fitting of Drag strut was due stress corrosion cracking at two places.

A. FORK END FITTINGS

S/N	A/C & POSN	DRAG STRUT SERIAL NO	FORK END PART NO.	SERIAL NO	LANDINGS SINCE NEW
01	AP-ALW	DRG/16/71	200275201	DSF/15/97	32533 (Shop Visit)
02	AP-BBF(LH)	DRG/1/65	-do-	DSF/21/88	30404
03	AP-AXB(LH)	DRG/18/65	-do-	DSF/10/87	23928
04	AP-AXB(LH)	DRG/363	200275200	DSF/20/88	14190
05	AP-ATW(RH)	DRG/8/63/67R	200275201	DSF/20/88	21569

B. EYE END FITTING

01	AP-AXB(LH)	DRG/18/65	200485201	DSE/11/87	23928
02	AP-BAL(LH)	DRG/4/63	200485201	DSE/10/87	13275

From the above it is evident that majority of cracks have occurred between a life of 21000 to 30000 landings since new.

17. OBSERVATION

17.1. This is first case of Fork end fitting failure in PIA Operations. Drag Strut Sr.No.GS/DRG/3/72 was released from the shop on 27th January 1986 vide RN.NO.LG/OH/02/86 after complete overhaul at 25809 landings since new. During overhaul process Fork end fittings PN 200275201, Sr.No.DSF/01/86 was tested for cracks using the recommended procedure by the manufacturer which is fluorescent penetrant inspection. There were no cracks detected by this method and the part was released as satisfactory. Since then the unit was operated for 2575 landings.

18. INVESTIGATION

- 18.1. On 24th December, 1988 at 1204 PST Pakistan International Airlines aircraft Fokker F-27 AP-AUR operating scheduled domestic flight PK-632 from Islamabad to Saidu Sharif made an unsafe gear landing at Islamabad International Airport. There were a total of 24 souls on board the aircraft including the crew.
- 18.2. Investigators were immediately appointed (Appendix 'A'). The Investigator-in-Charge arrived at Islamabad from Karachi at 1600 hrs PST on 25th December, 1988. Mr. Taj Mohammad, Senior Airworthiness Surveyor who was appointed as a technical member and investigator was present at Islamabad Airport at the time the aircraft was making unsafe gear landing. He immediately commenced with the investigation by taking photographs of the aircraft and the failed part of the landing gear. He also made rough recordings of the sequence of events that took place alongwith the investigation of the failed part of the landing gear.
- 18.3. Soon after arrival at Islamabad, the Investigator Incharge proceeded to the scene of occurrence. From an initial survey of the site and the marks it became apparent that the aircraft touched down at approximately 2800' and gradually started to veered to the left. At approximately 4000' it left the runway and came to a stop in the Kutchha 75' from the left shoulder of R/W 12. The aircraft was removed from the site at 1935 LT.

18.4. The failed part of the aircraft was removed and was sent for various tests to ascertain the cause of failure. The manufacturer recommended test which is normal fluorescent penetrant test was carried out. The test did not indicate any stress, corrosion or cracks.

18.5. Later on Eddy current test, which is superior to the fluorescent penetrant inspection was conducted on end fittings of the drag strut. Cracks and signs of corrosion was detected through this method.

18.6. The failed part was later on sent to the manufacturer for their analysis. The preliminary report confirms the cause of failure as stress corrosion. However the final report is still awaited.

19. DISCUSSION OF EVIDENCE

19.1. During descend at Saidu Sharif, when the landing gears were selected down, unsafe indication appeared in the cockpit. The Pilot executed overshoot and on reaching a safe altitude followed the check list procedure for unsafe gears.

19.2. The landing gears were recycled. When up selection of the gears were made, the left main gear failed to retract fully. Thus the Pilot was left with no option but to make an unsafe gear landing at Islamabad Airport. He therefore decided to divert back to Islamabad Airport.

19.3. When the decision to make an unsafe gear landing was made,

the Pilot asked for the foam to be laid on R/W 12 at Islamabad. He also contacted the Maintenance Engineer on company frequency for any advise. All possible actions to lock the gears in down position were taken.

19.4. Flight Crew operators manual and check list was followed to the last detail. (Appendix _).

19.5. Excess fuel was burnt so as to minimise any risk of fire.

19.6. The decision of the Pilot to move all passengers on the right side of the cabin to keep all the weight on the right landing gear was appropriate and in order.

19.7. TECHNICAL DETAIL

19.7.1. After the accident the failed part of the left landing gear was removed and investigated. The fork end of the drag strut was found fractured. On closer inspection evidence of stress corrosion was found on the end fitting which resulted in fracture of the part. The crack had developed from upper bush hole hidden in bell mouth end of the main drag strut and travelled circumferentially through 360 degrees until it was broken into two pieces. Signs of corrosion are evident at the initiation of the crack.

19.7.2. All metals are subject to chemical and Electro-chemical attack which converts them into metallic compounds such as oxides, hydroxides, carbonates, sulphate or other salts. Some metals resist attack better than others but the resistance of most metals may vary with such factors as physical environment, applied or internal stress, heat treatment state or working temperature. Although many of the metals used in aircraft construction have reasonable resistance to corrosion, it is essential that all possible action is taken to prevent its occurrence and to detect and remedy any corrosive attack, even if it appears to be insignificant.

19.7.3. As corrosion may arise from many different causes and can affect all kinds of metallic structures and components. Each affected part must be determined by its nature and its function in the particular aircraft. Guidance on the repair and reprotection of corroded parts should be obtained from the appropriate Manufacturer's Publications, but whenever doubt exists, the Manufacturer should be consulted.

19.8. TYPES OF CORROSION

19.8.1. Corrosion is largely an electro-chemical phenomenon and is liable to occur whenever a difference in potential exists between two dissimilar metals or a

metal and substances in its vicinity in the presence or an electrolyte. It can also occur when a difference in potential exists between separate regions of a single piece of metal or between the different constituents of an alloy. The degree of corrosion experienced will depend on external conditions and in some environments will be negligible serious attacks usually takes place only if moisture is present to act as an electrolyte between the poles created by any difference in potential. Two changes then occur, the metal that is attached, suffers a chemical change, some of it being converted into a metallic compound, whilst the cathodic pole of the circuit may be reduced.

19.9. DIRECT CHEMICAL ATTACK

19.9.1. When metals combine with atmospheric oxygen or are attacked by acids, the anodic and cathodic changes occur at the same point. Impurities in the atmosphere can be responsible for this type of corrosion. Thus, aircraft operating industrial atmospheres has a markedly deleterious effect on some exposed metallic surfaces. There is also the possibility of accidental contact with harmful substances. Where this form of attack occurs, the attacked metal is converted into a chemical compound by the corrosive agent, e.g. aluminium may be converted to aluminium sulphate by battery acids.

19.10.ELECTRO-CHEMICAL ATTACK

19.10.1.The close proximity of dissimilar metals in aircraft, aided by the presence of conductive media such as water, encourages the establishment of circuits and results in the metal which is anodic to the other being attacked. In some cases, such as when aluminium alloy and magnesium alloy are in contact, both metals may be corroded. Electro-chemical attack will be encouraged by the existence of stray currents from electrical apparatus or electrostatically -charged bodies.

19.11.EVIDENCE OF ATTACK

19.11.1.Both types of corrosive attack start on the surface of the metal but can work their way into the core if undetected. Corrosion can progress in the following ways:—

19.11.1.1. **SURFACE CORROSION.** This may take the form of a uniform etching of the surface, pitting or exfoliation of the surface grain boundaries. Light alloys are usually blotched by white or grey powdery deposits, whilst ferrous materials other than stainless steels become covered with reddish-brown rust and a greenish powder forms on copper. Surface corrosion reduces the amount of sound material remaining and so

weakens the structure, but, since there is usually an indication of its existence, it is possible for it to be remedied by careful and systematic maintenance.

19.11.1.2. INTERGRANULAR CORROSION. The detection of this type of corrosion is difficult as the surface evidence may only be visible through a magnifying glass. (Considerable experience is required for correct recognition, and often a metallurgical microsection examination; will be necessary). The attack penetrates into the core of the material along the boundaries of the metal grains. As the material at the boundaries is usually anodic to the grain centres, the corrosion products often become concentrated at the boundaries, although sometimes the attack is transgranular and its is the material adjacent to the boundary which is attacked. The rate of attack is not limited by the lack of oxygen but is accelerated if applied or residual stress is present. Repeated tensile or fluctuating stresses encourage separation of the boundaries, so accelerating the spread of intergranular corrosion and giving rise to corrosion fatigue. As a result higher stress concentrations occur in the remaining sound material, cracks spread and complete failure follows. As there is no effective method of limiting

or determining the loss of strength that occurs through this form of corrosion, material or parts showing any signs of it, must be rejected immediately.

19.11.1.3. FILIFORM AND EXFOLIATION (OR LAMINAR) CORROSION.

Filiform corrosion usually occurs under thin oil, grease or varnish films, and appears like "worm casts" on aluminium and magnesium alloys. Exfoliation appears as eruptions or flakiness on extruded alloys. It is a relatively less harmful form of intergranular attack.

20. FINDING

20.1. When the aircraft was making approach to land at Saidu-Sharif Airport, partial crack had developed in the drag strut fork end fitting which caused the left main undercarriage, not locking down on its down selection. As such the left landing gear unsafe light (Red colour) did not go off. On return to Islamabad Airport emergency procedure followed thereafter by the flight crew resulted complete separation of the fitting from drag strut tube during landing.

20.2. Upper end fitting Part No.200275201 of left main under carriage drag strut Part No.200261-001 S.No.GS/DRG.3/72 was found sheared from the drag strut tube. Visual examination of the upper end indicated the fitting had

/cracked

cracked at mid position of upper shear bush hole of approximately 1" in length on its one side and hair line crack of approximately $\frac{1}{2}$ " in length on other side of the hole. The former crack was partially covered with yellow substance presumably jointing compound. The other side of the same shear bush hole indicated stressed/fatigue corrosion upto a length of approximately 2.5". Remaining portion of the fitting was found freshly sheared. Separation of the fitting was covered by the drag strut outer tube.

- 20.3. The failed part was sent to its manufacturer (dowty rotol) for detailed analysis. Initial report from the manufacturer has confirmed that the failure was a result of stress corrosion cracking.
- 20.4. This fitting is made of DTD 5024 material which is an aluminium alloy and is prone to stress corrosion. The manufacturer of the part had come out with a modification No.(c) AC.6981 issued under service bulletin No.32-69B (Revision 3) dated June 5, 1979. This modification has changed material of the part to steel (S99), which is corrosion resistive. This modification is primarily ment to accommodate F-27 aircrafts, modification issued vide service bulletin No.F-27/54-29 Revision 1 dated 26th March, 1979. This has been introduced to re-inforce attachment fitting on bulk head frame sta 2572 and installation of a spherical bearing to prevent increased

bending loads caused by the drag strut side movements on MK.500 which is a stretched version aircraft. The manufacturer requires all other MK aircraft to be modified accordingly.

- 20.5. Procedure used during shop check for fluorescent penetrant inspection (FPI) is inadequate as the crack could not be detected during its, last overhaul on 27.1.86 and the component tented after doing 21061 landings since overhaul. The overhaul life is 10,000 landings.
- 20.6. Drag strut end fittings used on other aircraft were checked by eddy current inspection which is a higher NDT, 5 aircraft fork end and 2 aircraft eye end had developed cracks.
- 20.7. Partial crack developed in the end fitting could not be detected during routine maintenance of the aircraft as it was covered by the drag strut tube.
- 20.8. Coming back to the operational findings of above incident. It was found
- 20.8.1. Cabin crew did a good job of keeping passengers calm and quiet. No panic among passengers was observed during emergency landing.

20.8.2. CAA at Islamabad Airport did well to spray foam on the runway within a short time. The fire tender personnels were vigilant and alert during emergency landing of the aircraft.

20.8.3. Cockpit crew from Saidu Sharif to Islamabad kept cool and calm while handling the emergency was handled professionally by both Cockpit and Cabin Crew.

21. CAUSE

21.1. Shearing of the end fitting was caused by stress crossion cracking as the drag strut is subjected to various loads during take offs and landings. The fitting is made of aluminium alloy material DTD 5044 which is prone to stress corrosion.

22. RECOMMENDATIONS

22.1. It is recommended that Dowty Rotol service bulletin NO.32-69B Revision 3 dated June 5, 1979 and F-27 service bulletin No.F-27/54-29 Revision 1 dated 26th march, 1979 which improves the manufacturing material and load bearing capabilities of the aircraft should be incorporated on all F-27 aircraft at its next airframe overhaul.

/22.2.The

- 22.2. The component should be cleaned as per procedure adopted under para 3.B of Dowty Rotol SB.32-152B Revision 6 dated June 23, 1988.
- 22.3. Till such time above S.B are in-corporated, M/s.PIAC should reduce overhauling/maintenance periods of checks/inspection on the drag struts end fittings in consultation with the manufacturers and Airworthiness Wing.
- 22.4. The Investigation Team may re-assemble to make any changes in their recommendations once the final investigation report has been received from M/s.Dowty Rotol Company.



APP. B₁"



APP. B₂"



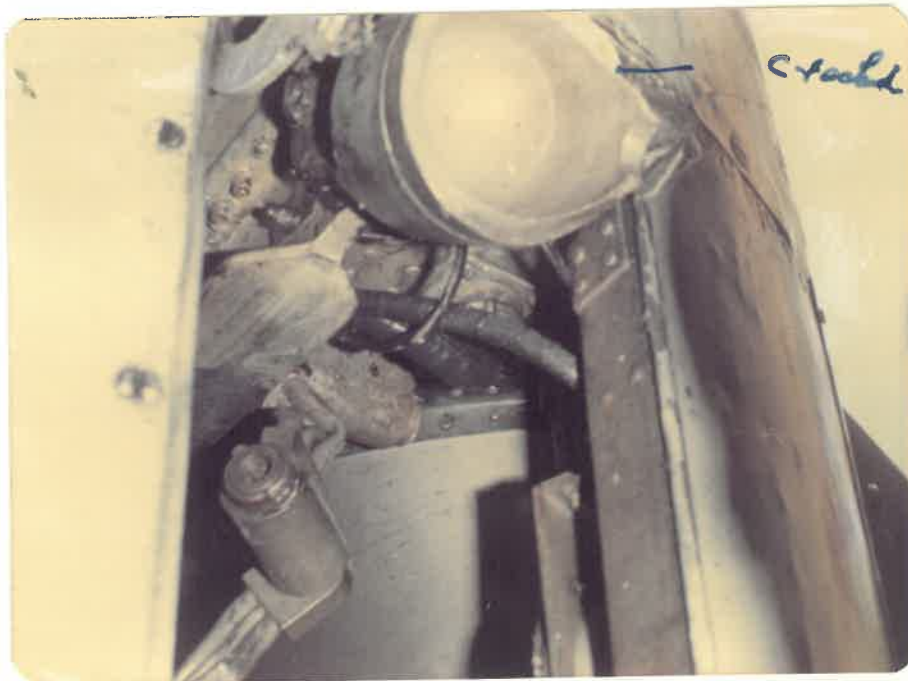
APP. 'B₃'



APP. 'B₄'



APP. B5



APP. B6

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