



PRO-TECH ADVISORS INC.  
AVIATION CONSULTANTS

**EXECUTIVE SUMMARY  
AMERICAN AIRLINES  
B727-223 ADV  
REG. N849AA S/N 20990**

The physical inspection of this aircraft was completed by **Pro-Tech Advisors, Inc.** at the specific request of **Pegasus Aviation, Inc.** Our physical inspection was conducted on August 30, 2001 at American Airlines' terminal gates located at the Dallas-Fort Worth International Airport in Dallas, Texas. At the time of our inspection, the aircraft was on a routine overnight layover.

This Boeing 727-223 aircraft, line number 1184, was first flown on April 27, 1976 and delivered to American Airlines on May 26, 1976. In February 1981, General Electric Capital Corporation purchased the aircraft, with an immediate lease back to American Airlines. American Airlines purchased the aircraft on October 2, 1995. In December 1995, the aircraft was withdrawn from use and placed in storage in Amarillo, Texas. The aircraft is currently in operation with American Airlines.

The aircraft has a Federal Aviation Administration Airworthiness Certificate in the transport category. A single exemption to the Type Certificate "Number 1834 CAR4b.356 (b) Removal of Ventral Aisle Strap" is listed on this certificate. This certificate is valid as of May 10, 1976.

The Certificate of Registration indicates that the aircraft is registered to American Airlines. This certificate was issued on October 6, 1995.

## EXECUTIVE SUMMARY

*continued*

The inspection performed included a detailed visual walk-around of both the interior and exterior of the aircraft. The overall condition of the aircraft is average based on age (25.3 years), total airframe hours (66,863 as of August 31, 2001), total airframe cycles (41,879 as of August 31, 2001), and current maintenance status. The aircraft was rated on a five (5) point scale ranging from poor, fair, average, good, to excellent. The rating is based on comparison with other aircraft having similar age, total aircraft time, and total aircraft cycles.

The purpose of this inspection is to verify the general condition, configuration, and status of the aircraft in an effort to identify any condition of non-compliance, non-standard configuration, significant defects, corrosion, damage, abnormal deterioration, and significant or substandard repairs that would detract from the aircraft's overall value.

The aircraft is equipped with the standard Boeing 727-200 flight instrumentation, navigation, communications, and auto flight control systems. At the time of our inspection, no "inoperative" placards were placed on the installed equipment. In addition to the standard equipment, the aircraft is equipped with a Bendix RDR-1F weather radar, a Honeywell Enhanced TPA-81A Alert and Collision Avoidance System (ACAS II), a Bendix / King TRA-67A ATC mode "S" transponder, a Sundstrand Mark VII Ground Proximity Warning System (GPWS) which incorporates windshear detection functions, a single Trimble HT9100 Global Positioning System (GPS), and a Lear Siegler Performance Monitoring System (PMS). The aircraft is also equipped with a Smith Industries Digital Fuel Quantity Indicating System, which is displayed in pounds.

The installed ACAS II system incorporates Change 7.0, which is a current European requirement. Honeywell's new system is enhanced because the TCAS and Mode S transponder contain not only Change 7.0 improvements but additional improved features. The Enhanced TPA-81A processor contains the functionality and growth provisions necessary to meet all existing and anticipated user requirements for the next ten years.

## EXECUTIVE SUMMARY

*continued*

American has reported that the flight data recorder is currently recording 19 parameters, meeting current FAR Part 121 requirements.

The installed avionics equipment appears to be intact, complete, and in compliance with current FAR Part 121 regulations.

The overall condition of the main cabin is average to good. The main cabin is equipped to accommodate a total of one hundred thirty-eight (138) passengers in a dual class configuration. The first class compartment accommodates twelve (12) passengers and the economy class compartment accommodates one hundred twenty-six (126) passengers.

The overall condition of the galleys and adjacent areas is average. The main cabin is equipped with four (4) galley units arranged in two (2) complexes. The forward right galley complex consists of an aft facing G-1 unit; a forward facing windscreen is located aft of the R-1 door. The aft galley complex consists of an aft facing G-3 unit and a forward facing G-4 unit, which are located forward and aft of the aft left service door, as well as an inboard facing G-4A unit which is located just aft of the G-4 unit.

The overall condition of the flight attendant stations is good. This aircraft is equipped to accommodate a total of five (5) flight attendants in three (3) locations. One (1) aft facing double occupancy flight attendant seat is located just forward of the main entry door (L-1 door), one (1) forward facing single occupancy seat is located on the center aisle wall of the G-3 galley, and one (1) forward facing double occupancy seat is located on the aft ventral door.

The overall condition of the lavatories is good. The aircraft is equipped with three (3) lavatories; one (1) is located in the forward right section of the main cabin and two (2) are located in the aft left and right sections of the cabin.

## EXECUTIVE SUMMARY

*continued*

The forward, mid, and aft fuselage areas are structurally sound and in average condition overall, both structurally and cosmetically. Numerous small dents and gouges were noted in these areas. It is recommended that these areas be examined to ensure these are within SRM limitations.

The aircraft is painted in American Airlines' livery. The overall condition of the paint is average. The entire fuselage and empennage are polished aluminum, with three (3) horizontal stripes running from nose to tail. A blue stripe is painted at the window belt, with a white stripe and red stripe painted below it. American Airlines' logo is painted on both sides of the vertical stabilizer. The engine cowls and nacelles are also polished aluminum. The upper and lower surfaces of the wings and horizontal stabilizers are painted light gray. Minor erosion of the paint was noted on the leading edge devices. The lower belly skins are in need of cleaning and polishing.

The cargo compartments are equipped with a smoke detection and fire suppression system as is required per current Federal Aviation Regulations (FARs).

The overall structural and cosmetic condition of the nose and main landing gear is average. No visible identification plates were found on the three (3) landing gear assemblies.

This aircraft meets FAR Part 36 Stage III noise requirements with the installation of the Raisbeck Lightweight Noise Reduction Kit per STC No. ST00555SE.

A general documentation review was accomplished by Pro-Tech Advisors, Inc. Our documentation review consisted of the review of limited information in the form of computerized data and summaries provided by American Airlines. All records reviewed appear to be accurate, complete, and in compliance with the requirements of FAR Part 121. No discrepancies were noted. It should be noted that our documentation review did not include detailed research to verify accuracy of the supplied information and component life limited traceability was not established or verified.

## **EXECUTIVE SUMMARY**

*continued*

The aircraft is being maintained on American Airlines' maintenance program which consists of "A" checks at 65 hour intervals; "B" checks at 475 hour intervals; "C" checks at 3,000 hour intervals; and Heavy "C" checks at 14,000 hour intervals.

The last "C" check was accomplished at TAT: 64,537. The last "HC" check was accomplished at TAT: 54,081.

Please direct any questions or comments regarding this report to the undersigned.

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Philip Lynch  
**Pro-Tech Advisors, Inc.**



**PHYSICAL SURVEY REPORT  
AMERICAN AIRLINES  
B727-223 ADV  
REG. N849AA S/N 20990**

**1.0 INTRODUCTION**

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This Boeing 727-223 aircraft, line number 1184, was first flown on April 27, 1976 and delivered to American Airlines on May 26, 1976. In February 1981, General Electric Capital Corporation purchased the aircraft, with an immediate lease back to American Airlines. American Airlines purchased the aircraft on October 2, 1995. In December 1995, the aircraft was withdrawn from use and placed in storage in Amarillo, Texas. The aircraft is currently in operation with American Airlines.

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## 1.0 INTRODUCTION

*continued*

The inspection performed included a detailed visual walk-around of both the interior and exterior of the aircraft. The overall condition of the aircraft is average based on age (25.3 years), total airframe hours (66,863 as of August 31, 2001), total airframe cycles (41,879 as of August 31, 2001), and current maintenance status. The aircraft was rated on a five (5) point scale ranging from poor, fair, average, good, to excellent. The rating is based on comparison with other aircraft having similar age, total aircraft time, and total aircraft cycles.

The purpose of this inspection is to verify the general condition, configuration, and status of the aircraft in an effort to identify any condition of non-compliance, non-standard configuration, significant defects, corrosion, damage, abnormal deterioration, and significant or substandard repairs that would detract from the aircraft's overall value.

The following report includes a detailed narrative of the aircraft condition by section. In addition, photographs of specific areas and sections of the aircraft are included to provide the reader with a visual perspective.

This report also includes specific information regarding the aircraft specifications and summarized data obtained during the documentation review. The following additional information is included:

- Executive Summary
- Aircraft Specifications
- Aircraft Condition Checklist
- Avionics Inventory
- B727-200 Series Detailed Technical Specifications
- JT8D Series Engine Detailed Technical Specifications
- Interior Configuration Diagram
- Maintenance Program Description
- Hard Time Component Listing
- Repetitive / Open Airframe Airworthiness Directives Summary
- Aging Airplane Structural Modification Program
- Aging Airplane Corrosion Prevention and Control Program
- Engine Data
- Photographs

## 2.0 COCKPIT

The cockpit is inspected for overall condition and irregularities. Cockpit components such as instrument panels, instruments, switches, and controls are inspected for excessive wear, damage, non-standard configuration, and conformity to current regulations. In addition, interior panels and trim are inspected for deterioration, damage, and cleanliness. Cockpit seats, seat floor tracks, and floor panels are inspected for excessive wear, corrosion, and damage. Cockpit windows are visually inspected for obvious defects and delamination. Emergency equipment and furnishings are checked for compliance with current Federal Aviation Regulations (FARs).

The overall condition of the cockpit is good. The cockpit seating accommodates the captain, co-pilot, flight engineer, and two (2) observers.

The cockpit seats are in average to good condition. The seats are covered with a gray fabric; this fabric is fairly clean with only normal wear and tear noted. The cockpit seat movement mechanisms were functionally checked for smooth operation and found in good working order. The cockpit floor panels are structurally sound and in average to good condition, with no defects or damage noted. The non-skid material applied is peeling around the edges. Beverage spillage was noted on the floor panels around the control columns.

The captain's and co-pilot's upper and lower instrument panels were examined and found in average condition. The center instrument panel and center pedestal / throttle quadrant show normal signs of wear. The flight engineer's upper and lower instrument panels are clean and in average condition, showing normal wear and tear. The overhead and sidewall panels are in average condition with no excessive wear or tear noted.

The cockpit fixed and sliding windows are in excellent condition. No damage, delamination, or evidence of overheating was noted on the cockpit windows, with the exception of minor scratches on the left and right fixed side windows. These windows are located aft of the sliding windows.

## 2.0 COCKPIT

*continued*

The aircraft is equipped with the standard Boeing 727-200 flight instrumentation, navigation, communications, and auto flight control systems. At the time of our inspection, no “inoperative” placards were placed on the installed equipment. In addition to the standard equipment, the aircraft is equipped with a Bendix RDR-1F weather radar, a Honeywell Enhanced TPA-81A Alert and Collision Avoidance System (ACAS II), a Bendix / King TRA-67A ATC mode “S” transponder, a Sundstrand Mark VII Ground Proximity Warning System (GPWS) which incorporates windshear detection functions, a single Trimble HT9100 Global Positioning System (GPS), and a Lear Siegler Performance Monitoring System (PMS). The aircraft is also equipped with a Smith Industries Digital Fuel Quantity Indicating System, which is displayed in pounds.

The installed ACAS II system incorporates Change 7.0, which is a current European requirement. Honeywell’s new system is enhanced because the TCAS and Mode S transponder contain not only Change 7.0 improvements but additional improved features. The Enhanced TPA-81A processor contains the functionality and growth provisions necessary to meet all existing and anticipated user requirements for the next ten years.

American has reported that the flight data recorder is currently recording 19 parameters, meeting current FAR Part 121 requirements.

The installed avionics equipment appears intact, complete, and in compliance with current FAR Part 121 regulations.

All cockpit emergency equipment and furnishings appear to be intact, complete, and in compliance with current FARs. All cockpit placards, instrument panels, and circuit breaker panels are legible and display only minor paint deterioration associated with normal wear.

*(Photos 1 thru 5)*

### 3.0 MAIN CABIN

The main cabin and interior components are inspected for general condition, cleanliness, abnormal deterioration, configuration, significant defects, and substandard or excessive repairs. The inspection includes the general condition of interior items such as ceiling and sidewall panels, passenger service units (PSUs), overhead storage compartments, door covers, floor panels, interior trim, and windows. In addition, interior components such as passenger seats, flight attendant seats, dividers, closets, galleys, and lavatories are inspected for general condition and configuration. All emergency equipment is inspected for configuration and conformity to current FARs.

Specific attention is given to the floor structure around cabin door thresholds, lavatories, and galleys to detect evidence of corrosion.

The main cabin is equipped to accommodate a total of one hundred thirty-eight (138) passengers in a dual class configuration. The economy class is separated from the first class by a partition that is located on both sides of the cabin.

The first class compartment accommodates a total of twelve (12) passengers. This compartment is configured with three (3) rows of double seat assemblies on both the left and rights sides of the main cabin. These seats were originally manufactured in 1984 by Fairchild Burns and carry model number FBC 2020-2-57, with part numbers 86663001 (left) and 86663002 (right). The seats were modified in April, 1992 with the airfone installation and then in 1997 to comply with Service Bulletin 1353. The seats were re-identified; the current placards indicate part numbers 866631001 (left) and 866631002 (right).

The first class seats are covered with dark blue leather. The seat covers are in good condition showing normal wear and tear. The condition of the primary and secondary structure of the seats, including seat frames, side panels, plastic trim, tray tables, seat belts, and associated hardware, is average to good. The seat assemblies were inspected and found to be manufactured to, and display compliance with, Technical Standard Order (TSO) C39b after the modification. A spot check of the seat cushions revealed that they are fire-blocked as required per FAR 25.853c. The seat cushions are the flotation type.

### 3.0 MAIN CABIN

*continued*

The economy class compartment accommodates a total of one hundred twenty-six (126) passengers. This compartment is configured with twenty (20) triple seat assemblies on both the left and right sides of the main cabin. Three (3) double seat assemblies are also installed on the right side of the cabin. The seats were manufactured by Weber in 1981 and carry part numbers 827533-401 (left) and 827533-402 (right), with specific dash numbers dependent upon installation location. The seats were modified in April, 1992 with the airfone installation and then in 1997 to comply with TSO C39b. The seats were re-identified; the current placards indicate part numbers 827533-417 (left) and 827533-418 (right), with specific dash numbers dependent upon installation location.

The economy class seats are covered with a blue decorative patterned fabric, with dark blue leather head rests. The seat covers are in average to good condition with normal wear and tear noted. The condition of the primary and secondary structure of the seats, including seat frames, side panels, plastic trim, tray tables, seat belts, and associated hardware, is average to good. The seat assemblies were inspected and found to be manufactured to TSO C39a, and modified to meet TSO C39b. A spot check of the seat cushions revealed that they are fire-blocked as required per FAR 25.853c. The seat cushions are the flotation type. Each of the “middle” seat back structures has a Flite-Fone unit installed.

The main cabin windows are in good condition with no defects, other than minor scratches, noted. No visible moisture was noted trapped between the window panes.

The aircraft is equipped with the large “carry all” type overhead storage compartments. These compartments are clean and in average condition, with no major defects noted. The compartments are placarded for a capacity of one hundred eighty (180) pounds (82 kilograms).

The passenger service units (PSUs) are in good condition and appear serviceable; only normal signs of passenger usage were noted.

### 3.0 MAIN CABIN

*continued*

The main cabin ceiling panels were inspected and found in good condition; no evidence of staining was noted. The sidewall panels are in average condition with no evidence of damage or excessive wear noted. Minor defects were noted to the floor level vents.

The main cabin carpet is in average condition with light soiling noted. At the time of our inspection, no evidence of soft flooring was noted throughout the center aisle.

A forward entry hanging closet is located just aft of the L-1 door. This unit was manufactured by C & D Interiors in 1985 and carries part number 1891001-101. The closet is in average condition with no defects noted.

A forward galley storage type compartment is located just aft of the forward entry hanging closet. This unit was manufactured by C & D Interiors in 1985 and carries part number 1871001-101. This unit has two (2) storage shelves and a large drawer. The compartment is in average condition with no defects noted.

A second forward entry hanging closet is located just aft of the above described units. This unit was manufactured by C & D Interiors in 1985 and carries part number 1861001-101. This unit also houses a wheelchair. The closet is in average condition with no defects noted.

The emergency escape path lighting system installed in the main cabin is a floor mounted lighting system. This system extends along the entire length of the main cabin center aisle, on the right side. Appropriate colored lights are installed in the system to indicate passenger escape paths.

The aircraft is equipped for limited over water operations with under the seat life vests; no life rafts are installed.

The fixed and loose equipment appears to comply with FAR Part 121 regulations. All equipment appears intact, serviceable, and complete. This equipment is properly stored at various locations throughout the main cabin.

### 3.0 MAIN CABIN

*continued*

This aircraft is equipped with the four (4) standard sized entry and galley service doors for a Boeing 727-200 aircraft. The doors are located in the forward left and right fuselage and the aft left and right fuselage. The doors are typically referred to as L-1 / R-1 and L-2 / R-2, respectively. The L-1 door is the main passenger entry door. All main cabin doors are equipped with emergency escape slides. The aircraft is also equipped with the standard B727 aft ventral airstair door and four (4) overwing emergency exits. This aircraft is not equipped with forward airstairs.

The doors and door surround structures are in average condition and free of obvious defects and major repairs. The door seals and door seal strikers are in average condition. The door hinges, latches, and operating mechanisms are serviceable and appear free of defects, with only normal wear and tear noted. The overwing exits are in good condition with all required placards installed.

*(Photos 6 thru 14)*

#### 3.1 Galleys

The main cabin is equipped with four (4) galley units arranged in two (2) complexes. The forward right galley complex consists of an aft facing G-1 unit; a forward facing windscreen is located aft of the R-1 door. The aft galley complex consists of an aft facing G-3 unit and a forward facing G-4 unit, which are located forward and aft of the aft left service door, as well as an inboard facing G-4A unit which is located just aft of the G-4 unit.

The G-1 galley unit was manufactured by Weber and carries part number 832521-401. This unit is equipped with two (2) ovens, three (3) full sized service cart positions, two (2) coffee makers, one (1) waste compartment, and one (1) miscellaneous storage compartment. The G-1 galley and floor structure are in average condition with no evidence of corrosion noted.

The forward right windscreen was manufactured by Weber in August, 1985 and displays part number 832522-401. This unit is equipped with two (2) fold down tables and two (2) fold down coffee pot holders. This unit is in average condition with no corrosion noted.

### 3.1 **Galleys** *continued*

The G-3 galley unit was manufactured by Weber and carries part number 832524-401. This unit is equipped with two (2) half sized service cart positions, two (2) coffee makers, two (2) waste compartments, and three (3) miscellaneous storage compartments. The G-3 galley and floor structure are in average condition with no evidence of corrosion noted.

The G-4 / G-4A galley was manufactured by Weber and carries part number 832525-401. The G-4 unit is equipped with four (4) full sized service cart positions, two (2) ovens, and two (2) miscellaneous storage compartments. The G-4 galley and floor structure are in average to good condition with no evidence of corrosion noted. This area is in need of resealing. The G-4A unit is equipped with two (2) full sized service cart positions and two (2) storage compartments with tray positions. The G-4A galley and floor structure are in average condition with no evidence of corrosion noted.

The galleys and adjacent areas were checked for obvious damage, soft flooring, and evidence of floor structure corrosion. The overall condition of the galleys is average. The adjacent areas are in average condition and free of defects. No evidence of corrosion was noted. The galley floors are covered with carpet. The carpet is in fair condition. The edges do not appear properly sealed to prevent fluids from leaking into the primary structure of the aircraft.

*(Photos 15 thru 18)*

### 3.2 **Flight Attendant Stations**

This aircraft is equipped to accommodate a total of five (5) flight attendants in three (3) locations. One (1) aft facing double occupancy flight attendant seat is located just forward of the main entry door (L-1 door), one (1) forward facing single occupancy seat is located on the center aisle wall of the G-3 galley, and one (1) forward facing double occupancy seat is located on the aft ventral door.

### 3.2 Flight Attendant Stations *continued*

The condition of the flight attendant stations is good. The stations are well maintained, showing normal wear and tear. The required emergency and loose equipment is installed, intact, and appears serviceable. The interphones and controls located at each station operate normally and appear in serviceable condition.

The forward flight attendant station consists of a dual place, aft facing seat which is installed forward of the L-1 door. This seat, when not in use, folds up in a retracted position to maintain maximum aisle width. The seat structure is sound and free of damage. The seat is covered with dark blue leather, which is in good condition. The seat lap belts, shoulder harnesses, and buckles are in good condition and operate normally.

The mid cabin flight attendant station consists of a single place, forward facing seat which is installed on the center aisle wall of the G-3 galley. This seat, when not in use, folds up in a retracted position to maintain maximum center aisle width. The seat structure is sound and free of damage. The seat is covered with dark blue leather, which is in good condition. The seat lap belts, shoulder harnesses, and buckles are in good condition and operate normally.

The aft flight attendant station consists of a dual place, forward facing seat that is attached to the forward side of the aft ventral door. This seat, when not in use, folds up in a retracted position to allow for door opening / closing as well as maximum aisle space. The seat structure is sound and free of damage. The seat is covered with dark blue leather. The seat covers are in good condition showing minimal wear and tear. The seat lap belts, shoulder harnesses, and buckles are in good condition and operate normally.

*(Photos 19 and 20)*

### **3.3 Lavatories**

The aircraft is equipped with three (3) lavatories; one (1) is located in the forward right section of the main cabin and two (2) are located in the aft left and right sections of the cabin. Each lavatory is equipped with the required placards, an electronic smoke detector system, and a trash fire extinguishing system as required per current FARs.

The overall condition of the lavatories is good. The lavatories and adjacent areas were checked for obvious damage, soft flooring, and evidence of floor structure corrosion. No defects were noted. All interior sidewalls, ceiling panels, floor coverings, door frames, sinks, and mirrors are serviceable and in good condition.

The lavatory flooring, commonly called “floor pan”, is intact and well sealed. This floor pan helps protect the underfloor primary structure from the leakage of corrosive fluids from inside the lavatory compartment.

*(Photos 21 thru 23)*

## **4.0 FUSELAGE**

The physical inspection conducted was limited to a detailed walk-around type inspection with specific attention to structurally significant areas prone to high levels of corrosion and fatigue. These areas include the lower belly skins, longitudinal lap joints, circumferential butt splices, and external repairs.

External repairs located on the lower belly skins are generally installed to correct damage caused by internal corrosion. External repairs located around door cutouts are generally installed as preventive modifications to deter cracking and fatigue related defects. Repairs to the fuselage side panels and wing leading edges are generally installed to correct accidental damage caused by contact from ground support vehicles or incidental damage caused by the aircraft’s operating environment.

## 4.0 FUSELAGE

*continued*

A detailed inspection was given to external repairs for quality of workmanship and conformity to the manufacturer's structural repair manual requirements. Please refer to the Photographs section of this report for further details on specific repairs.

### 4.1 Forward Fuselage

The forward fuselage area includes the upper, side, and lower fuselage structure extending from the nose of the radome to the leading edge of the wings. The overall structural condition of the forward fuselage is average.

The forward belly skins appear to be free of active / latent corrosion and evidence of abnormal structural deterioration or major damage. The forward belly skins, including lap joints, production splices, and seams, are free of wrinkling, bulges, loose / missing fasteners, and other indications of significant fatigue / corrosion related damage or deterioration.

The forward fuselage sides, above the belly skin area and extending upward to the visible areas above the passenger compartment window belt line, as viewed from the ground, are in average condition and free of abnormal structural deterioration and other significant structural defects or damage; however, numerous small dents and gouges were found in this area. It is recommended that this area be examined to ensure these are within SRM limitations.

The L-1 and R-1 doors and door surround structures are free of significant damage and major repairs. The door sill plates are in average condition and appear well sealed at the sill plate to fuselage body mating surfaces.

The Electronics and Equipment (E & E) compartment was physically inspected for damage and irregularities. The installed avionics, electrical controls, control cables, and equipment are in average condition and free of obvious damage and defects. The compartment floor is fairly clean, with some evidence of fluid spillage noted.

#### 4.1 Forward Fuselage *continued*

The following repairs were noted in the forward fuselage area:

- An external doubler repair, measuring approximately 7" x 10", is installed on the forward fuselage left side at Body Station (BS) 367.
- An external doubler repair, measuring approximately 10" x 8", is installed on the right nose section at BS 277.
- An external doubler repair, measuring approximately 10" x 11", is installed on the right nose section at BS 280.
- An external doubler repair, measuring approximately 12" x 9", is installed on the right nose section at BS 282.
- An external doubler repair, measuring approximately 12" x 9", is installed on the right nose section at BS 330.
- An external doubler repair, measuring approximately 12" x 9", is installed on the forward fuselage right side at BS 390.
- An external doubler repair, measuring approximately 9" x 9", is installed on the forward fuselage right side at BS 450.
- An external doubler repair, measuring approximately 11" x 8", is installed on the forward belly skins at BS 560.
- An external doubler repair, measuring approximately 20" x 13", is installed on the forward belly skins at BS 650.

#### 4.2 Mid Fuselage

The mid fuselage area includes the upper, side, and lower fuselage structure extending from the wing leading edge to the wing trailing edge. This structure is in average condition with no evidence of repairs or active / latent corrosion noted.

The mid belly skins and wing-to-body fairings appear to be free of active / latent corrosion and evidence of abnormal structural deterioration, composite panel delamination, or other major damage. The mid belly skins, including lap joints, production splices, and seams, are free of wrinkling, bulges, loose / missing fasteners, and other indications of significant fatigue / corrosion related damage or deterioration. The composite and fiberglass wing-to-body fairings and other secondary structure are in average condition with no obvious defects or damage noted. The fairings are aerodynamically clean with all fasteners installed.

## 4.2 Mid Fuselage *continued*

It should be noted that a heavy accumulation of hydraulic fluid residue was found on the lower left wing-to-body fairing. The electric standby hydraulic pump that is located nearby should be inspected to determine if the leakage is originating from there.

The mid fuselage sides, above the wings and extending upward to the visible areas above the passenger compartment window belt line, as viewed from the ground, are in average condition and free of abnormal structural deterioration and other significant structural defects or damage.

The mid fuselage window belt line and window frames are free of major repairs and other damage. The emergency overwing exit doors and surround structures are free of significant repairs and damage. The visible areas of the upper crown skin appear to be free of major doubler repairs and evidence of abnormal structural deterioration. The fuselage lap joints, production splices, stringer and circumferential attach points, and other primary structural joints are free of major repairs, with no evidence of active or latent corrosion noted. No repairs were noted in the mid fuselage area.

## 4.3 Aft Fuselage

The aft fuselage area includes the upper, side, and lower fuselage structure extending from the wing trailing edge to the aft portion of the empennage. The overall structural condition of the aft fuselage is average.

The aft belly skins appear to be free of active / latent corrosion and evidence of abnormal structural deterioration or major damage. The aft belly skins, including lap joints, production splices, and seams, are free of wrinkling, bulges, loose / missing fasteners, and other indications of significant fatigue / corrosion related damage or deterioration. Due to hydraulic fluid residue, this area is extremely dirty.

### 4.3 Aft Fuselage *continued*

The aft fuselage sides, above the belly skin area and extending upward to the visible areas above the passenger compartment window belt line, as viewed from the ground, are in average condition and free of abnormal structural deterioration and other significant structural defects or damage; however, numerous small dents and gouges were found in this area. It is recommended that this area be examined to ensure these are within SRM limitations.

The L-2 and R-2 doors and door surround structures are free of significant damage and major repairs. The door sill plates are in average condition and appear well sealed at the sill plate to fuselage body mating surfaces.

The aft fuselage window belt line and window frames are free of major repairs and other damage. The visible areas of the upper crown skin appear to be free of major doubler repairs and evidence of abnormal structural deterioration. The fuselage lap joints, production splices, stringer and circumferential attach points, and other primary structural joints are relatively free of major repairs, with no evidence of active or latent corrosion noted.

The following repairs were noted in the aft fuselage area. These repairs are considered typical, are of good quality, and appear to conform to the manufacturer's repair manual practices / procedures and approved repair criteria.

- An external doubler repair, measuring approximately 16" x 9", is installed on the aft fuselage left side at BS 1085.
- An external doubler repair, measuring approximately 8" x 6", is installed on the aft fuselage right side at BS 1010.
- An external doubler repair, measuring approximately 14" x 6", is installed on the aft belly skins at BS 1092.

#### **4.4 Fuselage Paint**

The aircraft is painted in American Airlines' livery. The overall condition of the paint is average. The entire fuselage and empennage are polished aluminum, with three (3) horizontal stripes running from nose to tail. A blue stripe is painted at the window belt, with a white stripe and red stripe painted below it. American Airlines' logo is painted on both sides of the vertical stabilizer. The engine cowls and nacelles are also polished aluminum. The upper and lower surfaces of the wings and horizontal stabilizers are painted light gray. Minor erosion of the paint was noted on the leading edge devices. The lower belly skins are in need of cleaning and polishing.

*(Photos 24 thru 40)*

### **5.0 CARGO COMPARTMENTS**

Cargo compartments are inspected for general condition of flooring, sidewall liners, and ceiling panels. Cargo compartments are checked, when possible, for proper lighting, weight placards, and security and condition of the compartment floor and sidewall liners. Visible door structures, frames, hinges, and door operating and lock mechanisms are inspected for condition, defects, and corrosion.

The overall condition of the cargo compartments is average. The aircraft is equipped with two (2) cargo compartments; one (1) in the forward lower fuselage and one (1) in the aft lower fuselage. Each compartment is accessed through an outward and upward opening cargo door located approximately in the center of each compartment, on the right side of the aircraft.

The forward cargo compartment is generally referred to as the C-1 compartment. This compartment is in average condition. The fire resistant liner shows normal wear and tear. Seam taping is in place and compartment placards and weight limitations are applied. The compartment floor appears structurally sound. Baggage nets were located in the compartment at the time of our inspection.

## 5.0 CARGO COMPARTMENTS

*continued*

The C-1 door, door surround structure, door seals, and door operating mechanisms are serviceable and free of corrosion and obvious damage. The cargo door stainless steel sill plates and adjacent fuselage structure display minor scratches and dents, which have occurred from ground handling and baggage loading / off loading. The door was operated and found to operate smoothly, without binding or other mechanical interference. The C-1 door appears properly rigged.

The aft cargo compartment is generally referred to as the C-2 compartment. This compartment is in average condition. The fire resistant liner shows normal wear and tear. Seam taping is in place and compartment placards and weight limitations are applied. The compartment floor appears structurally sound and free of repairs. Baggage nets were located in the compartment at the time of our inspection.

The C-2 door, door surround structure, door seals, and door operating mechanisms are serviceable and free of corrosion and obvious damage. The cargo door stainless steel sill plates and adjacent fuselage structure display minor scratches and dents, which have occurred from ground handling and baggage loading / off loading. The door was operated and found to operate smoothly, without binding or other mechanical interference. The C-2 door appears properly rigged.

The lighting in both compartments is serviceable. All light bulbs and fixtures are protected to prevent them from coming into contact with cargo or baggage.

The cargo compartments are equipped with a smoke detection and fire suppression system as is required per current Federal Aviation Regulations (FARs).

*(Photos 41 thru 44)*

## 6.0 LANDING GEAR / WHEEL WELLS

Landing gear assemblies and wheel wells are inspected for general condition, obvious damage, excessive wear, corrosion, significant or substandard repairs, and level of preventive maintenance. A general inspection was performed on doors, linkages, electrical components, electrical wiring, and hydraulic plumbing, with specific attention given to structurally significant areas and components. The wheel wells and landing gear support structure are inspected for corrosion, cracks, damage, and loose or missing fasteners. Landing gear components, such as shock struts, drag and side struts, torque links, and trunnions, are inspected for excessive wear, corrosion, and moving or migrating parts. Wheels, brakes, and tires are inspected for general condition and serviceability.

The nose and main landing gear shock struts and visible portions of the piston assemblies are free of corrosion and protected with paint or chrome plating as required. These sub-assemblies are free of obvious damage, repairs, and abnormal wear and tear. The landing gear drag links, swivels, actuators, and other secondary structural components are in average condition and free of obvious defects and damage.

The nose gear doors, door hinges, and actuating mechanisms are in average condition. The gear doors are free of delamination and major repairs. The door hinges show normal wear and are free of excessive side play or other irregularities. The gear door operating mechanisms appear serviceable and free of binding, operational interference, and excessive wear.

The landing gear tires, wheels, and brakes are in average condition showing normal wear and tear. The aircraft is equipped with a combination of Bridgestone and Goodrich 225 mph rated tires.

The nose and main landing gear wheel wells are structurally sound with no major damage or major repairs noted. The wheel well structures are clean; no treatment of corrosion preventive compounds has been applied. No evidence of hydraulic fluid leakage was noted.

## 6.0 LANDING GEAR / WHEEL WELLS

*continued*

The installed components in the main wheel wells, including hydraulic / electrical components, valves, actuators, cable driven components, and flap drive gear boxes, are free of fluid leakage, damage, and other irregularities.

All three (3) landing gear assemblies are extremely dirty and have excessive amounts of lubrication applied.

No visible identification plates were found on the three (3) landing gear assemblies.

*(Photos 45 thru 50)*

## 7.0 WINGS

Upper (when accessible) and lower wing surfaces are inspected for general condition, damage, repairs, evidence of fuel leaks, paint condition, and evidence of corrosion. Flight control surfaces and visible mechanisms are inspected for general condition, damage, excessive wear, and repairs. Specific attention is given to composite control surfaces, wing-to-body fairings, and fillet panels to determine if delamination or substandard repairs are present. Our inspection was conducted with the leading and trailing edge devices extended.

The upper wing skin surfaces were not detail inspected due to a lack of access during this inspection. These areas were checked for obvious existing major repairs and other significant damage as viewed through the overwing emergency exit windows, from inside the main cabin. No major repairs or other significant damage was detected during our inspection. The upper sides of the ailerons, aileron tabs, flaps, spoilers, and leading edge devices are free of structural and obvious mechanical damage.

The lower wing skins were detail inspected and found free of blending and other repairs. The lower wing skins are in average condition and free of significant defects and other damage. The lower wing surfaces are free of indications of previous or active fuel leaks and external fuel tank repairs.

## **7.0 WINGS**

*continued*

The lower sides of the wing mounted flight controls and high lift devices are in average condition and free of damage. The lower sides of the ailerons, aileron tabs, flaps, flap vanes, flap canoe covers / fairings, and leading edge devices are in average condition and free of impact damage, major repairs, and other significant structural defects.

The leading edges of the wings are aerodynamically clean. The leading edge devices are painted. Several flush repairs were noted on the leading edge devices of the No. 4, No. 5, No. 6, No. 7, and No. 8 slats, as well as on the No. 1 and No. 6 Krueger flaps.

*(Photos 51 thru 54)*

## **8.0 ENGINES / PYLONS**

Engines are inspected for general exterior condition, obvious damage, or repairs to inlets, cowls, thrust reversers, and pylons. First stage fan blades and inlet guide vanes are given cursory inspections, when accessible, for evidence of any major impact damage.

The engines installed on the aircraft at the time of our inspection may or may not be the engines associated with this particular aircraft transaction. Please refer to the Engine Data section of this report for the remaining disc life status of the engines associated with this aircraft.

Three (3) engines are installed on the Boeing 727 aircraft; two (2) pylon mounted engines on the left and right sides of the aft fuselage and an aft fuselage mounted center engine. The center engine is connected through an "S-duct" to an inlet located in the forward area of the vertical stabilizer. The left and right pod engines are commonly referred to as No. 1 and No. 3, respectively, and the center engine as No. 2.

The inlet rings of the engines are free of impact damage and repairs. The visible areas of the No. 1 and No. 3 engine inlet fan blades were inspected for any existing impact damage or evidence of any previous damage, of which none was noted.

## 8.0 ENGINES / PYLONS

*continued*

The engine cowls are free of significant damage and show only minimal ground handling damage caused by installation / removal. The cowlings are free of fluids along the bottom of the cowlings, giving indication that the engines are free of obvious fluid or air leaks.

The engine thrust reversers and associated fairings are in average condition with no significant repairs or other irregularities noted. No abnormal leakage or fluid accumulation was noted on the exhaust sections of the engines.

The left and right pylons are in good condition and free of major external repairs. The pylon fairings and secondary structures are in good condition with no significant repairs or other damage noted.

This aircraft meets FAR Part 36 Stage III noise requirements with the installation of the Raisbeck Lightweight Noise Reduction Kit per STC No. ST00555SE.

*(Photos 55 and 56)*

## 9.0 EMPENNAGE

The empennage includes any fuselage structure aft of the aft pressure bulkhead, the vertical and horizontal stabilizers, and associated flight control surfaces. Due to accessibility, this area is typically inspected from the ground only for general condition, obvious damage, and repairs.

The leading edges of the left and right horizontal stabilizers are in average condition with no damage noted. The lower surfaces of the horizontal stabilizers are free of major repairs and obvious damage. The stabilizer skin panels appear structurally sound and defect free. The lower sides of the elevators and the elevator tabs are in average condition with no evidence of damage, delamination, or repairs noted.

## 9.0 EMPENNAGE

*continued*

The leading edge of the vertical stabilizer is aerodynamically clean with no evidence of impact damage or repairs noted. The primary structure of the vertical stabilizer, including the visible skin panels, appears serviceable and free of significant defects and other damage. The sides of the rudder and rudder tabs are in average condition with no signs of obvious defects or damage noted. No evidence of previous hydraulic leaks was noted in the rudder power unit areas.

The empennage is in average condition. The empennage paint scheme consists of a polished vertical stabilizer with the American Airlines logo displayed on both sides.

The aft ventral airstair area is extremely clean; no fluid leakage or other defects were noted. It should be noted that sidewall curtains / panels are not installed in this area.

*(Photos 57 thru 59)*