

DOCKET NO. SA-516

EXHIBIT NO. 11D

**NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.**

TIME CONTROL SERVICE

(PAGES D-1 THRU D-7)

Work Sheets Audited By [Signature] Date 4/18/96

Note: Visual check constitutes a check for obvious discrepancies such as damage, foreign object damage, abnormal wear, security and/or improper service.

Mechanic

- 55062 A. **COCKPIT AND CABIN**
- 55062 1. On aircraft that will lay over six (6) hours or more, pull the circuit breaker for standby attitude on "P7" overhead panel.
- 55062 2. Visually check cockpit and upper deck cabin interior including crew slide, gas generator freon level, rain repellent supply (50-2110) and windshield reservoir (50-1080).
- 55062 ✓ 3. Check all oxygen system pressures as follows:
 - a. crew bottle,
 - b. passenger bottle(s)
- 55052 ✓ 4. Check the following emergency equipment in cockpit and upper deck:
 - a. crew protection goggles,
 - b. portable fire extinguishers,
 - c. portable oxygen bottles (pressure),
 - d. demonstration oxygen masks.
- 55052 ✓ 5. Fill cockpit mask cleaning tissue holder (92-7826) to capacity.
- 55052 ✓ 6. Visually check main deck cabin.
Note: Baggage restraints and flotation placards required at all passenger seats.
- 55052 ✓ 7. Check slide (raft) bottle pressure and door emergency power bottle pressures at doors 1 thru 5, left and right.
- 55052 ✓ 8. Check portable fire extinguishers, portable oxygen bottles pressure, and demo oxygen masks.
- 55052 ✓ 9. Clean hostess demo masks with Sani-Corn tissue. Replace any damaged demo masks (96-0654).
- 82248 10. Perform the following on any aircraft that will be making a transoceanic flight before the next maintenance operation:
 - a. Operational check of HF,
 - b. Operational check of fire warning.
- 55052 ✓ 11. Perform a "click" check on each megaphone to make certain batteries are installed. On each megaphone check for presence of date sticker indicating date of last functional check. Notify MCIMD to have any missing sticker replaced.
- 55052 ✓ 12. Check Flight Information Bulletin (FIB) holder or F/E desk for minimum of six TCAS Pilot Event Questionnaire sheets (64-5619). If supply is low replenish as needed.
- 71184 6-0110 (13. Perform emergency light check per M47-33-01.

Mechanic

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A. COCKPIT AND CABIN (continued)

14. Perform emergency egress light operational check, M.M. 33-59-00.
15. Push lavatory firex bottle squib test button and check that green light illuminates.
Ref: M.M. 26-27-00.
- a. LAV E
 - b. LAV J
 - c. LAV K
 - d. LAV N
 - e. LAV Q
 - f. LAV S
 - g. LAV U1

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B. EXTERIOR, FUSELAGE, WINGS, GEAR, EMPENNAGE

1. Visually check aircraft exterior including fuselage, wings, tail, control surfaces, antennas, pitot heads and static ports.
2. Check static dischargers for blunted or broken tungsten points. Plastic pin guards are not required.
Note: Ref: M.M. 23-61-00 for details on the number of dischargers installed as it varies between A/C type.
3. Check the lavatory service panel areas for blue lavatory fluid streaks. Remove stains. If leaks indicated, check for leaks using M47-38-06 and repair as required. If leaks are not repaired, drain and lockout lavatory, then placard per MEDP.
M47-38-06 completed (Check one): Yes _____ No X
4. Perform operational check of exterior lights; navigation, anti-collision, logo, landing and taxi lights.
5. Perform operational check of cargo compartment lights (MM 33-37-00).
6. (747-131/156 only)
Check surge tank protection system indicators.
7. Check front and rear cargo compartments and doors.
Note: Tears/holes not allowed in cargo compartments.
8. Check latch cam viewpoint lenses at FWD and AFT cargo doors to assure a clear view through each lens.
CAUTION: IF LENS REQUIRES CLEANING, DO NOT USE SOLVENTS OR AMMONIA BASE CLEANERS.
Note: If lens is crazed, lens may be polished, but replacement is preferable;
Ref: M.M. 52-34-21.
FWD Cargo Doors
AFT Cargo Doors
9. At FWD and AFT cargo doors, check latch cams on doors and latch pin fittings on fuselage to assure that the "Latches Closed" alignment markings are legible and correctly positioned at each location; Ref: M.M. 52-34-21. (Tape S/N 47-9547)
FWD Cargo Doors
AFT Cargo Doors

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Mechanic

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B. EXTERIOR, FUSELAGE, WINGS, GEAR, EMPENNAGE (continued)

- 10. Visually check landing gear assemblies and wheel wells.
Note: Gear door drop not required.
- 11. Check air pressure of landing gear struts. Use charts in wheel wells to determine correct pressure.
 - a. NLG Strut.
 - b. Left Wing Landing Gear Strut.
 - c. Left Body Landing Gear Strut.
 - d. Right Wing Landing Gear Strut.
 - e. Right Body Landing Gear Strut.
 Note: Pressure gages installed on Landing Gear Strut are not to be used for strut servicing.

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- 12. With brakes on, check brake wear indicator.

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- 13. Visually check tires.

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- 14. Accomplish M47-32-05, Tire Pressure Check.

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- 15. Clean chrome on MLG and NLG using clean rag soaked with proper fluid. Wipe with a clean dry rag.
 - a. Shock strut chrome and gland nut overhang recess.
Note: Some shock struts are filled with Skydrol, others have MIL-H-5606. Be sure to use proper fluid.
 - b. MLG truck positioner pistons, body gear actuator piston. (Skydrol)

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- 16. (747-131 only)
Check MLG alternate extension bottle pressure.

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- 17. OP Check APU anti-ice valve.
Note: Applicable September thru April only.
 - a. Turn battery switch and APU master switch on P4 panel to "On."
 - b. Remove DS78 connector from S7B anti-ice switch.
 - c. Check that APU anti-ice valve (V192) butterfly position indicator is in closed position.
 - d. Jumper pins 1 and 2 on DS78 connector.
 - e. Check that APU anti-ice indicator moves to "Open" position.
 - f. Remove jumper and observe that valve moves to "Closed" position.
 - g. Re-install DS78 connector and safety.
 - h. Turn APU master switch on P4 panel to "Off."

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- 18. Perform test MLG alternate extension electric actuator (Ref. M.M. 32-35-01).

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- 19. Perform operational check of the NLG alternate system drive unit. Ref. M.M. 32-36-00.
Note: RII item, if unit disturbed.

C. ENGINES AND STRUTS

1 54074 2 50228
3 54074 4 54074

- 1. Visually check engines air inlets, exhaust, nacelles and black horizontal nacelle alignment stripes between all nacelle/aft fairings for alignment, IB/OB side, all nacelles.

Mechanic

C. ENGINES AND STRUTS (continued)

1 820702 2 50228
3 54933 4 82950

2. Check CSD oil level and filter indicators.
Note: Oil add is required if level is more than 0.25 inch below the aximum fill level. Do not overfill.

1 89040 2 50228
3 88183 4 82950

3. Replenish oil in the hydraulic air driven pump turbine drive.
Note: Fill full - do not use oil level indicator.

1 89090 2 50228
3 54933 4 82950

4. Drain starter oil and reservice with 8 ounces of clean oil, Mobil 254, 50-9990. Use Packing (32-5146), if required.

1 89040 2 50228
3 54933 4 82950

5. Check engine starter magneic plug for contamination.
Packing (32-4984), if required.

1 89040 2 50228
3 54933 4 88183

6. Remove forward fairing.
Note: Thrust reverser pneumatic oil servicing may be deferred if time and/or manpower is not available. Notify MCIMC to re-schedule servicing.

1 820702 2 50228
3 54933 4 54921

7. Service thrust reverser pneumatic drive oil level, motor bearing reservoir and gearbox reservoir. (Mobil 254, 50-9990, packings 32-5198 and 70-1945, if required.
Note: Oil level is determined by dipstick on fill plug.

1 89523 2 89573
3 54933 4 54921

8. Install forward fairing.

1 89040 2 50228
3 54933 4 82950

9. Check case drain filter Delta "P" indicator. (2 each pylon.)

1 89040 2 50228
3 54933 4 82950

10. Check engine hydraulic pressure filters Delta "P".
(1 each pylon.)

1 89040 2 50228
3 54921 4 54919

11. Check pressure of engine fire extinguishing bottles.

1 89040 2 50228
3 54933 4 82950

12. Check angle gearbox, NR 3 BRG and NR 4 BRG scavenge chip detectors for metal contamination. Check detector magnetism; must support its own weight. Reinstall chip detectors. Angle Gearbox O-Ring 24-1794, 2 each, Nr 3 & Nr 4 bearing O-Ring 32-5194, 2 each per chip detector. If metal is found, MCIEE must be notified before further flight. List detectors with metal: NONE

1 89040 2 50228
3 88061 4 9164

13. Perform "Tap-Torque" check on engine driven fuel pump quad ring using M.M. 73-11-01 procedure.

1 55030 2 50228
3 55030 4 35030

14. Clean or replace flow divider screen and clean fixed orifice. Flow divider removal is not necessary. Ref: M.M. 75-32-03.
Note: Clean fixed orifice in screen cavity using a metal orplastic bristled pipe cleaner (Dill P/N 11024 or Bryco AAH727 screen P/N 752383 (Stk Nbr 26-8367) or P/N 260300 (Stk Nbr 21-1170) seal Stk Nbr 26-4185.

Mechanic

C. ENGINES AND STRUTS (continued)

1 89070 2 50228
3 54933 4 55030

15. Remove fuel heater drain plug and check for fuel, (refer to M.M. 73-14-01 pg. 600, gasket Stk. Nbr. 42-4060).

1 89070 2 50228
3 55030 4 55030

16. Retorque the CSD QAD ring. Safety wire after retorque.

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1 89070 2 50228
3 55030 4 55030

17. Retorque the engine generator qad-ring bolt and then safety refer to MM 24-21-01 page 401.

1 89070 2 55030
3 55030 4 55030

18. Check the EVC3 water traps PS3 & PT3. Replace the packing Stk Nbr 32-5056. Ref: M.M. 75-31-01/201

1 89070 2 50228
3 54933 4 55030

19. Check ignitor leads for deterioration and tip cleanliness and that the cooling air flex hose is not kinked. (Ref: M.M. 74-21-02 for proper cleaning procedure.)

1 89070 2 50228
3 54933 4 55030

20. Replace LH and RH ignitor plugs (Stk Nbr 79-0868).
CAUTION: ASSURE COOLING HOLES IN IGNITION LEADS ARE NOT LOCKED OFF ON REINSTALLATION.

Notes: a. Return used ignitors - do not discard.
b. Check ignitor leads for deterioration and tip cleanliness and that the cooling air flex hose is not kinked. (Ref: M.M. 74-21-02 for proper cleaning procedure.)

1 80348 2 80348
3 80348 4 80348

21. Make aural check of ignition system.

1 89070 2 50228
3 55030 4 82950

22. Depress "RABS" switch and feel for solenoid operation.
Notes: a. On engines with single RABS switch, solenoid is located directly forward of switch under diaphragm.
b. On 7A engines with two RABS switches, solenoid is located at 7:30 position on engine directly forward of left ignition exciter box.

1 80348 2 89854/89061
3 89854/89061 4 80348

23. Close cowling. Recheck that oil tank cap is locked.

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6. OIL, HYDRAULIC, WATER SERVICING AND FUEL TANK SUMPING

1. Change the oil in Nr. 1, 2 and 3 air cycle machines EXXON ETO 2380 oil (50-9984). (Packing 84-3570)

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2. Check fluid in hydraulic reservoirs and service if required.

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3. Check air precharge in brake hydraulic accumulator. (1 each)

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4. Check precharge in brake pressure surge accumulators. A/C 17305 has 3 surge accumulators. All other 747's have 2 surge accumulators.

Mechanic

D. OIL, HYDRAULIC, WATER SERVICING AND FUEL TANK SUMPING (Cont'd)

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- 5. Check Delta "P" indicator for the hydraulic return filters.
NR 1 System (NR 1 Pylon Aft Fairing)
NR 2 System (Left Wheel Well)
NR 3 System (Right Wheel Well)
NR 4 System (NR 4 Pylon Aft Fairing)
- 6. Lubricate air conditioning pack exit louver pivot pins with LPS-1 at the NR 1, 2 and 3 air conditioning packs.
Note: Alternate lubricant is CRC-3-36.

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- 7. Check APU oil level - TWA EXXON ETO 2380 (50-9984).

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- 8. Check APU fire extinguisher bottle pressure.

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- 9. Drain the APU fuel line shroud by opening drain valve located on fuselage skin between the body landing gear doors. Maximum fluid permissible (5 drops). If more than 5 drops, pressurize APU fuel feed line and check leakage. Leakage must not exceed 5 drops per minute.

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- 10. Service the potable water system.

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- 11. Drain at least one pint of fuel, or until clean bright fuel is obtained from each fuel tank sump listed below:

Nr. 1R	Nr. 3	Center (2 places)
Nr. 1 (one qt. min)	Nr. 4 (one qt. min)	
Nr. 2	Nr. 4R	

Notify MCIMD whenever any unusual amount of water is found.

- 12. Clean coalescer bag on water separator Nr. 1, 2, 3. (3 each, seal 89-5863, Packing 89-5876).

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- a. NR 1
- b. NR 2
- c. NR 3

Note: Routine replacement of coalescer bag is NOT required. Replace bag ONLY if torn or nap has worn off. (Bag 89-5967)

85212

E. FINAL

- 1. Make walk around check of aircraft to assure all access doors are closed and look for any obvious fluid leaks or damage to the aircraft and cockpit controls are properly positioned.

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- 2. Visually check all engine and fan cowlings for security and for proper installation.

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- 3. Prior to scheduled flight departure time, close the circuit breaker for standby attitude on P7 overhead panel and check that horizon erects properly.

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- 4. Perform M99-00-01, Log Page Audit.

Mechanic

E. FINAL (continued)

85212 5. Logbook write-ups reviewed and corrected as necessary. Work sheets (except fuel load and service record form M-180 and cleaning forms) completed; non-routine 139A and scheduled maintenance M139B and computer generated M139C sheets signed and accounted for. Indicate total number of sheets (pages) including this document (7 pages) of scheduled, non-routine and computer sheets by circling appropriate number.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

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85212 6. "Maintenance Performed" and "Airworthiness Release" blocks completed in the log book. Time 1500 Date 4-18-96 Log page number 22126

Note: The MAINTENANCE PERFORMED and AIRWORTHINESS RELEASE entries must be made in the log book at the same time.

51445 7. Remove bottom tear-off portion of the yellow logbook pages entitled Aircraft Performance/Nav Data on completed logbook pages. Deliver tear-offs to local message-sending unit for transmission of performance data to the computer.

Note: To obtain message mask for transmittal, enter GMMNT/SMC/P6. If performance log has not been completed by the flight crew, it shall be discarded. There is no requirement to transmit the Nav Data.

85212 8. Assure spare and current logbooks are on board aircraft.