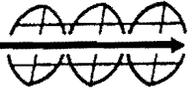


C-123K

TRAINING SYLLABUS

NAT

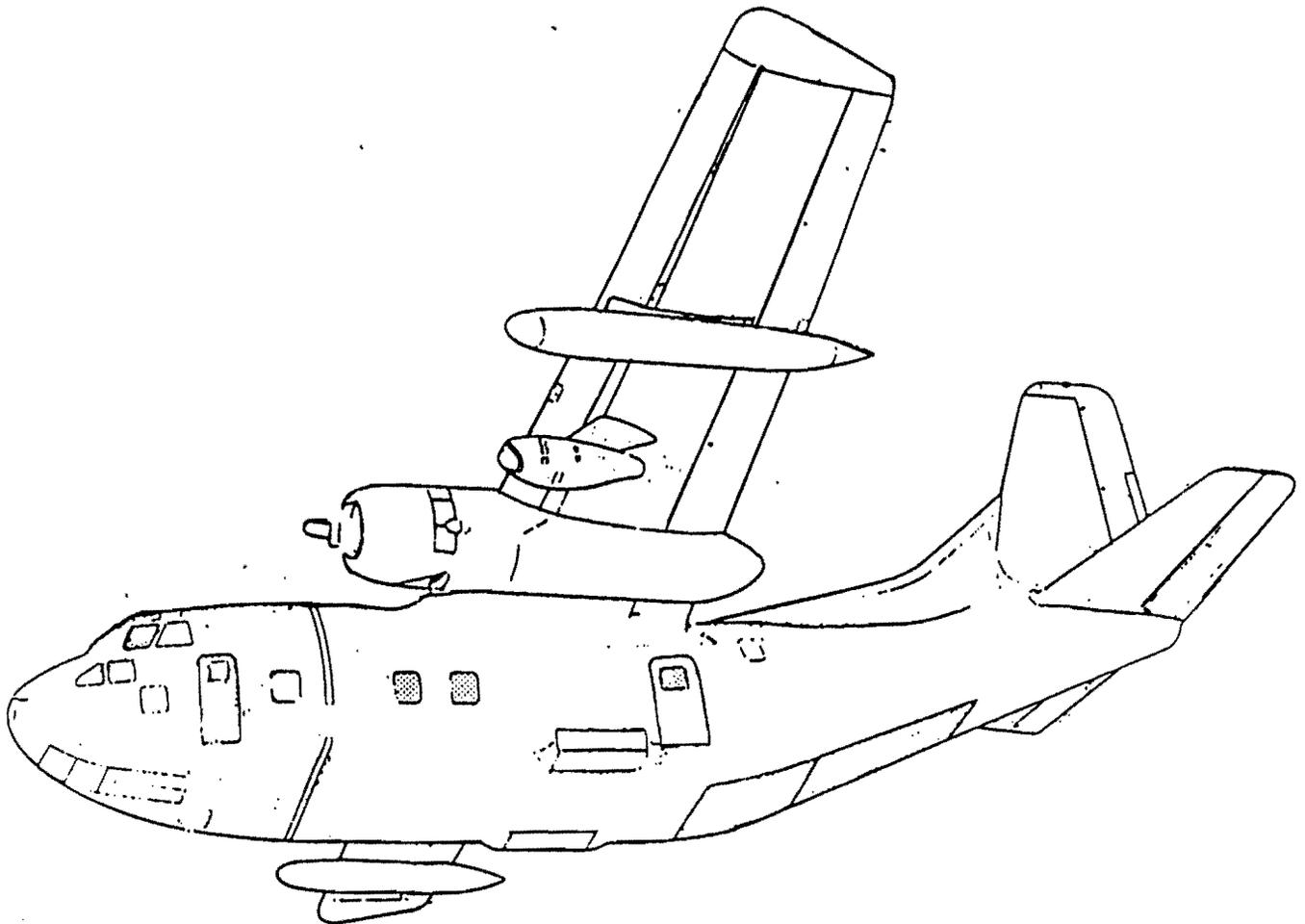
National Air Transport Inc.



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C-123K

TRAINING SYLLABUS



NATIONAL AIR TRANSPORT, INC.

C-123K COURSE OUTLINE AND DESCRIPTION

INTRODUCTION

1. The NAT C-123K flight and evaluation program is presented here in initial format. The certification program will be conducted under the supervision of the NAT C-123K Chief Pilot. Due to the nature of program requirements, company qualifications and upgrade sorties will be conducted in Peru.
2. Flights will cover all appropriate items on the NAT Evaluation Form. These training flights will examine company procedures and policies, flight manual usage, proper inspections and particular idiosyncrasies. Additionally, the pilot will receive receive local and mission area orientations for safe, efficient and proper operation of NAT aircraft.
3. Individual training sorties may be flown in conjunction with operational missions as necessary, therefore several flights may be required to complete one training or upgrade sortie.
4. C-123K recurrent training includes semi-annual competency/proficiency checkrides entailing all maneuvers and events required during initial check-out. Additionally, no-notice company checkrides will be administered by the Chief Pilot or C-123K I/P on an available basis. All checkrides flown will be administered strictly IAW company and aircraft maneuver standards. The NAT evaluation form will be used.
5. The NAT C-123K training syllabus requirements will provide standardization. In the unlikely event a pilot cannot perform to standards, additional training sorties may be awarded at the discretion of the C-123K Chief. However, failure of maneuver standards dictates the pilot may not be used in an operational status until the deficiencies are corrected.

Rich Ferguson
Rich Ferguson
Director of Training

E. G. Adams
E. G. Adams
C-123K Chief

John C. McRainey
John McRainey
C-123K I/P

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C-123K COURSE OUTLINE

GROUNDSCHOOL

SUBJECT

AIRCRAFT GENERAL
POWERPLANT AND SYSTEMS MANAGEMENT
FLIGHT CONTROLS
HYDRAULIC SYSTEMS
FUEL SYSTEM
FIRE PROTECTION
LIGHTING
ICE AND RAIN PROTECTION
ELECTRICAL SYSTEM
ENVIRONMENTAL SYSTEM
AERIAL DELIVERY SYSTEM
WEIGHT AND BALANCE
AVIONICS
PREFLIGHT
REVIEW

COCKPIT PROCEDURES TRAINER

SUBJECT

NORMAL PROCEDURES
ABNORMAL / EMERGENCY PROCEDURES

FLIGHT TRAINING

TRANSITION FLIGHT TRAINING

TO PROFICIENCY

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C-123K TRAINING SYLLABUS

GRUNDSCHOOL

AIRCRAFT GENERAL

An analysis of the C-123K aircraft features, structures and systems.

POWERPLANT AND SYSTEMS MANAGEMENT

The Pratt & Whitney R-2800-99W radial engine and the J85-GE-17 turbine engine, their related systems and components are covered in detail. Included are the engine fuel, lubrication, electrical and standard instrumentation features of the aircraft.

FLIGHT CONTROLS

Operation of the flight control system including flap usage and reversing.

HYDRAULIC SYSTEMS

A presentation and inspection of the components and operation of the hydraulic system, including the related indicating and warning systems is covered.

FUEL SYSTEM

The airframe fuel system components, operation, controls, indicating and warning systems are covered in this analysis and presentation.

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C-123K TRAINING SYLLABUS

GRUNDSCHOOL (cont'd)

FIRE PROTECTION

The presentation discusses components and operation of the fire detecting and extinguishing systems for the powerplants. Also discussed are the related testing systems and related emergency action procedures.

LIGHTING

Components, operation, control and use of the interior and exterior lighting systems is thoroughly detailed in this presentation.

ICE AND RAIN PROTECTION

Operation of the anti-ice system, the pitot/static heater system, windshield anti-ice system, and windshield wipers is presented in this discussion.

ELECTRICAL SYSTEMS

Electrical system components, controls, indications and operation of the DC and the AC electrical power systems are thoroughly presented and analyzed in this lesson. Troubleshooting techniques and corrective actions are additionally presented.

ENVIRONMENTAL SYSTEMS

Components, indications, controls and operation of the aircraft heating and ventilating system is explained in-depth.

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C-123K TRAINING SYLLABUS

GRUNDSCHOOL (cont'd)

AERIAL DELIVERY SYSTEM

A presentation and discussion of the aerial delivery system including para-drop procedures.

PERFORMANCE AND LIMITATIONS

A presentation using the aircraft Flight Manual to discuss aircraft inflite performance and limitations. Performance charts are analyzed individually.

WEIGHT AND BALANCE DATA

The aircraft Flight Manual is used to discuss proper aircraft weight and balance data for all configurations of flight.

AVIONICS

The communications and navigation equipment, controls and operation are covered in this segment.

PREFLIGHT

A classroom presentation utilizing the aircraft Flight Manual to discuss a comprehensive preflight inspection, to include company policies and aircraft directives.

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C-123K TRAINING SYLLABUS

COCKPIT PROCEDURES TRAINING

NORMAL PROCEDURES

A CPT lesson is provided covering normal procedures as related to the pre-start, starting engines, systems checks, pre-takeoff, takeoff, inflight, before landing and shutdown checklists. An oral emergency procedures test is given to each student during this presentation.

ABNORMAL AND EMERGENCY PROCEDURES

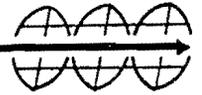
A CPT lesson covering normal procedures and introducing malfunctions, abnormal and emergency situations which have been discussed during the presentations and which the student must be able to successfully diagnose and apply proper corrective action.

FLIGHT TRAINING

Company Flight Training will be To Proficiency and cover all appropriate items on the company training and evaluation forms. Pilots experienced and current will generally require less training hours than pilots who are not current or who do not have prior experience in the C-123K aircraft. Training may be flown in conjunction with operational missions at the C-123K Chief's discretion.



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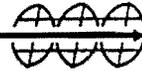


EVALUATION FORM

DATE	NAME		
FLIGHT MANEUVERS			
GRADING LEGEND (All applicable items must be graded S, U or W)			
S-SATISFACTORY		U-UNSATISFACTORY	
W-WAIVED			
PREFLIGHT		INSPECTOR/EXAMINER	
		AIRCRAFT	SIMULATOR
1.	EQUIPMENT EXAMINATION (oral)		
2.	PREFLIGHT INSPECTION		
3.	TAXIING		
4.	POWERPLANT CHECKS		
TAKEOFFS			
5.	NORMAL		
6.	INSTRUMENT		
7.	CROSSWIND		
8.	WITH SIMULATED POWERPLANT FAILURE		
9.	REJECTED TAKEOFF		
INSTRUMENT PROCEDURES			
10.	AREA DEPARTURE		
11.	HOLDING		
12.	AREA ARRIVAL		
13.	ILS APPROACHES		
14.	OTHER INSTRUMENT APPROACHES		
15.	CIRCLING APPROACHES		
16.	MISSED APPROACHES		
INFLIGHT MANEUVERS			
17.	STEEP TURNS		
18.	APPROACHES TO STALLS		
19.	SPECIFIC FLIGHT CHARACTERISTICS		
20.	POWERPLANT FAILURE		
LANDINGS			
21.	NORMAL		
22.	FROM AN ILS		
23.	CROSSWIND		
24.	WITH SIMULATED POWERPLANT(S) FAILURE		
25.	REJECTED LANDING		
26.	NO FLAP APPROACH		
27.	FROM CIRCLING APPROACH		
28.	ACCURACY APPROACHES AND SPOT LANDINGS		
29.	HOVERING MANEUVERS		
30.	RAPID DECELERATIONS (Quick stops)		
31.	AUTOROTATIONS (Single engine helo, only)		
32.	NORMAL AND ABNORMAL PROCEDURES		
33.	EMERGENCY PROCEDURES		
34.	JUDGEMENT		
REMARKS			

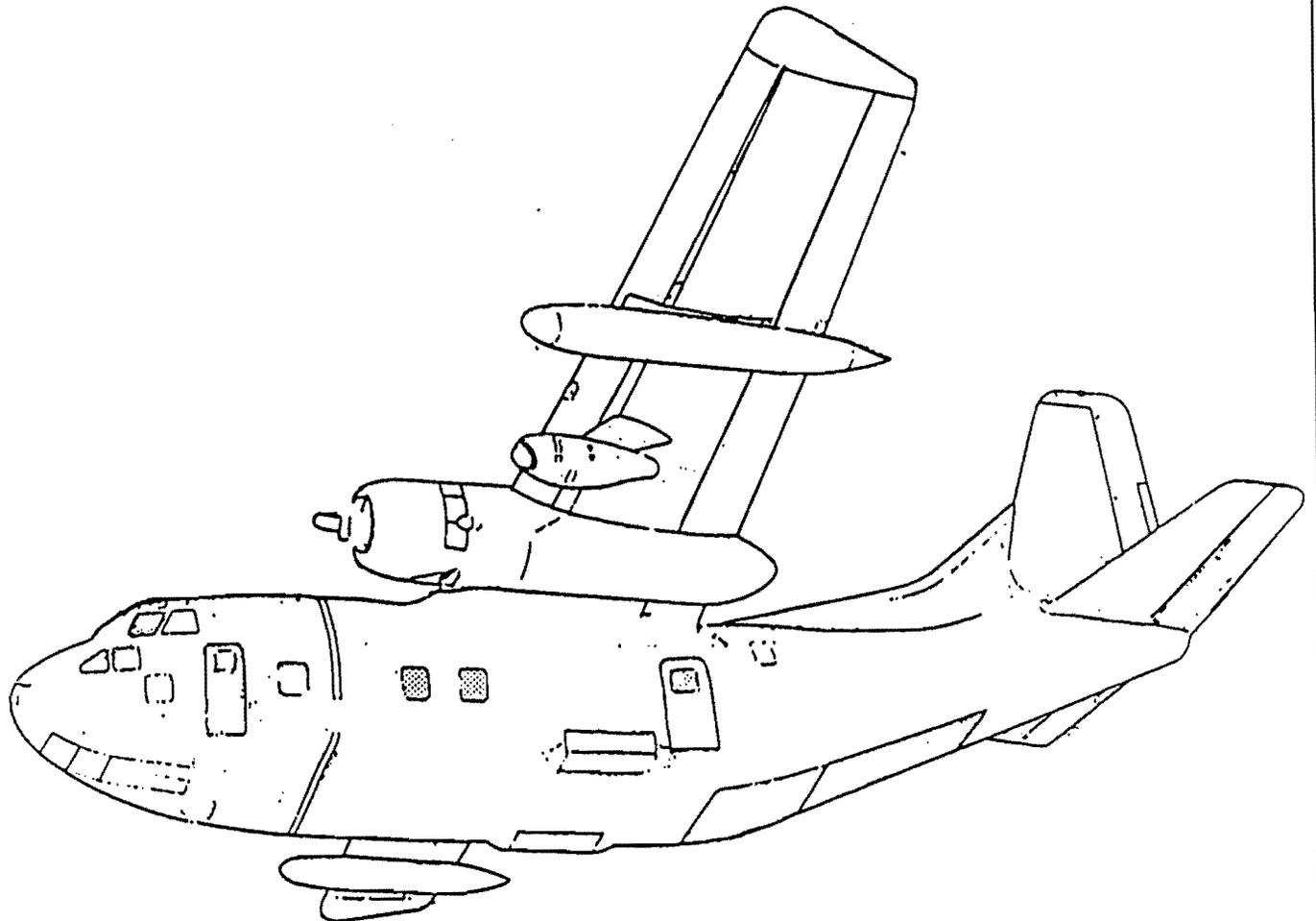
NAT

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C-123K

OPEN BOOK STUDY GUIDE



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The purpose of this guide is not that of a test, but to lead you through the -1. On completion of the guide you will have covered the entire manual, normal and emergency procedures plus performance. After, using the reference key and discussion, you can check your responses and reinforce your understanding of the C-123K.

1. The design gross weight of the C-123K is _____ lbs.
2. The maximum gross weight of the C-123K is _____ lbs.
3. Match the following:

Wing span	_____	8 ft.
Length	_____	9 ft.
Height	_____	12½ ft.
Tread width	_____	13½ ft.
Cargo bay length (with ramp)....	_____	26½ ft.
Cargo bay length (without ramp).	_____	34½ ft.
Cargo bay width at wheel wells..	_____	35 ft.
Cargo bay maximum width	_____	76 ft.
Cargo bay maximum height	_____	110 ft.
4. Developed brake horsepower of the R-2800-99W is;
 - a. 2500 bhp @ 2800 rpm
 - b. 2300 bhp @ 2800 rpm
 - c. 2050 bhp @ 2700 rpm
 - d. all of the above.
5. To select reverse thrust, the pilot must:
 - a. Lift the pilots throttles slightly, and move rearward.
 - b. Use the co-pilots throttles in the above manner.
 - c. First, move the red painted throttle lock tab.
 - d. Bring the throttles to idle stop, then push down. 1¼", then retard to the idle range.
6. The flight control throttle stop:
 - a. Precludes moving the throttles beyond 35" MAP in reverse thrust.
 - b. Is used to lock the flight controls.
 - c. Limits one throttle to approximately 35" MAP.
 - d. Limits both throttles to approximately 35" MAP.
7. One 3 position starter switch is provided for engine starting.
 - a. T
 - b. F

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8. Cowl flap positions are:
 1. OPEN: full travel open.
 2. CLOSED: in trail, approximately 6° open.
 3. Auto: automatically adjusted to hold a preset temp.
 4. TAKEOFF: Set to 14° open.
 5. COLD: Thermostatically set to 180° C.
 - a. 1, 2 & 3
 - b. 2, 3 & 4
 - c. 1 & 4
 - d. 1, 2, 3, 4 & 5
9. The jet engines
 - a. Use Jet-A or JP-4 or -5 jet fuel from the drop tanks.
 - b. Develop increased thrust with altitude.
 - c. Develop less thrust horsepower as true airspeed increases.
 - d. Suffers loss of rated thrust on alternate fuel.
 - e. None of the above.
10. The jet engine start switch should be immediately turned back (counter-clockwise) to "crank to 5% rpm" if starting EGT approaches 900° C.
 - a. T
 - b. F
11. When motoring jet engines, the jet boost pump should be
 - a. On to provide motoring power.
 - b. On for lubrication.
 - c. Off to prevent line overpressure.
 - d. Off to prevent inadvertant start.
12. The feathering switches are three position, push button type.
 - a. Depressing initiates a solenoid timer to hold the switch depressed 18 seconds while feathering takes place.
 - b. The switch should return to normal after the feathering action.
 - c. Pulling out the feathering switch causes the propeller to un-feather
 - d. All of the above.
13. Selecting reverse
 - a. Locks the elevators and rudder.
 - b. Shuts down the jets.
 - c. Closes the shutters.
 - d. All of the above.
14. Propeller reverse pitch indicating lights
 - a. Show throttle position only, not actual propeller pitch.
 - b. Illuminate when the propeller blades have moved a specific amount toward reverse.
 - c. Are press-to-test lights on the pilots panel.
 - d. B & C.

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15. Engine oil for the reciprocating engines is contained in external tanks and
 - a. Quantity may be read on the co-pilots auxiliary panel.
 - b. Is warmed on start by rapid flow through the engine of the entire tank contents.
 - c. May be transferred from the right tank to the left and visa versa.
 - d. May be used to replenish propeller oil.
 - e. None of the above.

16. The oil temperature switches
 - a. Have four positions: AUTO, HOT, COLD and unmarked OFF.
 - b. Are deactivated and doors closed when fire extinguishing agent is discharged.
 - c. Are deactivated and doors opened when fire emergency shutdown handle is pulled.
 - d. All of the above.

17. The fuel crossfeed switch allows
 - a. Transfer of fuel from one nacelle to another.
 - b. Transfer of fuel from droptanks to nacelle tanks.
 - c. One nacelle tank boost pump to supply fuel to each of the four engines engine driven fuel pumps (requires HI boost).
 - d. One nacelle tank boost pump to supply fuel to both reciprocating engines engine driven fuel pumps (requires LO boost).
 - e. None of the above.

18. A separate system of boost pumps and crossfeed is provided for the jet engines.
 - a. T
 - b. F

19. Drop tank fuel may be fed
 - a. Into the respective nacelle tank.
 - b. To the opposite drop tank using crossfeed.
 - c. To the jet engines only.
 - d. A & B

20. Fuel is transferred from the drop tanks by means of
 - a. Gravity flow in the event of a complete electrical failure.
 - b. By engine driven suction pump.
 - c. By an air compressor mounted center bottom of the respective tank.
 - d. none of the above.

21. The drop tank pumps provide vacuum relief and also prevent building of excessive tank pressure, thus balancing internal pressure with ambient pressure.
 - a. T
 - b. F

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31. When starting jet engines, the reciprocating engine driven generator loadmeters will show an overload. What overload is permitted? _____% for _____min.
 _____% for _____sec.
- 32 With operation on only the flight emergency bus
 a. Normal UHF, VHF and intercom are provided automatically.
 b. Normal UHF, VHF and intercom are automatically de-energized.
33. Generator voltage output may be read from the respective loadmeter.
 a. T
 b. F
34. Using only the flight emergency bus, which of the following functions are available.
- | | <u>Yes</u> | <u>No</u> |
|--------------------------------------|------------|-----------|
| a. Normal intercom | _____ | _____ |
| b. Pilot C-4 light | _____ | _____ |
| c. Pitot heat | _____ | _____ |
| d. VOR | _____ | _____ |
| e. Co-pilot turn and bank | _____ | _____ |
| f. Radios on emer. comm. bus..... | _____ | _____ |
| g. Windshield heat | _____ | _____ |
| h. APU starting | _____ | _____ |
| i. Spare inverter | _____ | _____ |
| j. Pilots 3 phase inverter | _____ | _____ |
| k. Single phase main inverter | _____ | _____ |
| l. Propeller reversing | _____ | _____ |
| m. Landing gear controls and warning | _____ | _____ |
| n. Cowl flaps | _____ | _____ |
| o. Fire detection | _____ | _____ |
| p. Radar altimeter | _____ | _____ |
| q. Boost pumps | _____ | _____ |
| r. Tank jettison | _____ | _____ |
| s. Co-pilot instrument lighting | _____ | _____ |
35. Relating to the battery
 a. The EMERGENCY position of the battery switch has the same function as "ON".
 b. 18v of battery power is required to connect the battery to the flight emergency bus in order for the battery to take a charge from the APU generator.
 c. The EMERGENCY position of the battery switch will connect a low voltage battery (under 18v) to the bus for charging.
 d. A & B

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36. 115v, single phase, 400 cycle, AC inverters
- a. provide engine instrument operation in both 26 and 115 voltages.
 - b. Switch automatically between SPARE-MAIN, MAIN-SPARE.
 - c. Switch automatically only from SPARE to MAIN.
 - d. A & B
37. Three phase inverters provide AC instrument power and
- a. The spare inverter will automatically replace either the pilot's or the co-pilot's inverter in the event of a single inverter failure.
 - b. In the event the spare inverter is powering the co-pilot's instruments and the pilot's inverter fails, the three-phase changeover test switch must be thrown.
 - c. The spare inverter will power both sets of instruments in the event both pilot's and co-pilot's inverters fail.
 - d. All of the above.
38. Hydraulic pressure is used to operate the following systems.
- _____
- _____
- _____
39. Auxillary hydraulic pressure is supplied from
- a. The left jet engine accessory section.
 - b. The APU engine driven hydraulic pump.
 - c. Air pressure in the hydraulic reservoir.
 - d. None of the above.
40. Auxillary hydraulic pump pressure are _____ psi to _____ psi in AUTO
_____ psi in MANUAL
41. Which control surfaces are locked by the flight control lock?
- a. Rudder and elevator
 - b. Elevator and ailerons
 - c. Rudder and ailerons
 - d. All control surfaces
42. During reversing, automatic locking of which flight controls is provided?
- a. Rudder and elevator
 - b. Elevator and ailerons
 - c. Rudder and ailerons
 - d. All control surfaces

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43. Flight control trim is effected by
- Manual control wheel for each flight control surface.
 - Electric trim through aileron boost and manual control wheel for rudder and elevator.
 - Rudder and elevator trim through manual control wheel and ailerons by ground set trim tabs.
 - None of the above.
44. The flight control lock lever, in addition to locking flight controls in wheel and rudder commanded positions also _____
-
45. If reverse has been used on landing, will rudder be available for crosswind control?
- No, because the rudder will be locked.
 - Yes, but only during the reverse cycle. Once the throttles are brought forward, the rudder and elevator will be locked.
 - No. Not until the right throttle reverse light is extinguished.
 - No. Not unless MAP is kept below 35" hg.
46. By what methods may the reverse lock be disengaged?
- By advancing the right throttle to 35"Hg MAP in the forward thrust range.
 - By pulling the pilot's emergency release handle.
 - By positioning the reverse lock valve actuating lever to emergency.
 - Any of the above.
47. Wing flaps are
- Electrically actuated, hydraulically operated.
 - Mechanically actuated, hydraulically operated.
 - Electrically actuated, electrically operated.
48. To ensure proper take off flap deflection of 20% under takeoff air load
- Set 20%, the blow up compensator will maintain the 20% setting up to flap limit speed.
 - Set to 22% to allow for slight blow up at take-off.
 - Set to 20% and engage flap lock.
49. The C-123K landing gear is
- Mechanically actuated, hydraulically operated
 - Hydraulically actuated, hydraulically operated
 - Electrically actuated, hydraulically operated
 - Electrically actuated, electrically operated

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50. Normal gear actuation requires power from _____.
51. How and when is supplemental hydraulic system pressure provided to the landing gear system. _____
_____.
52. The Landing Gear Lever Emergency Release Knob
a. Is used in normal gear retraction.
b. Must be used for gear raising in the event of primary bus failure.
c. Nose gear drag link failure.
d. B & C
53. In the event of electrical failure
a. Gear may be raised and lowered hydraulically by manual positioning.
b. Gear locking may be effected by pulling the nose gear emergency down lock.
c. Main gear may be handcranked to downlock.
d. All of the above.
54. The four landing gear emergency handles are
Two _____ handles located _____
One nose gear _____ handle, located _____
_____ and one nose gear _____
_____ handle, located at _____
55. Nosewheel steering provides 60% deflection either side and requires
a. Mechanical input and hydraulic pressure only.
b. 28v DC primary bus power.
c. Only hydraulic pressure.
d. A & B
56. Increased steering authority is gained by increasing turning force or by overturning steering wheel.
a. T
b. F
57. Brake pressure may be obtained from
a. Normal or auxiliary hydraulic pressure.
b. Air pressure in the brake accumulator (one application at 850 psi)
c. From air pressure in the emergency air brake system (three applications when fully charged).
d. All of the above.
58. If no air or hydraulic pressure is available the brakes may be applied in an emergency by pulling the parking brake handle.
a. T
b. F

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59. If the parking brake is set with no pressure in the system, the brakes will not be applied when the system is pressurized.
- a. T
 - b. F
60. Operation of the emergency air brakes
- a. Is accomplished by pulling both handles rearward.
 - b. May be applied to right and left brakes -- independantly or simultaneously.
 - c. Bypasses the anti-skid system.
 - d. All of the above.
61. Fire detection ssystems require _____v_____ (AC or DC) power from the _____ bus.
62. Pulling the fire emergency shutdown handle will shutdown the respective engine, accomplishing action
- a. Propeller _____
 - b. Fuel _____
 - c. Hydraulic _____
 - d. Water _____
 - e. Air cooler doors _____
 - f. Cowl flaps _____
 - g. Extinguishing agent.. _____
63. Discharge of the extinguishing agent requires first _____, then _____
64. When the fire extinguishing agent switch is placed to DISCHARGE, the respective cowl flaps and oil cooler doors move to
- a. Open
 - b. Closed
 - c. They are not affected.
65. The alarm bell draws power from the
- a. Battery - directly
 - b. Flight emergency bus.
 - c. Primary DC bus.
 - d. NICAD emergency lighting system battery.
66. What is the logic behind the WARNING statement on page 2-11 or 2-36 about brake loss. _____
- _____
- _____

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67. Normal ground idle
- Should not exceed 1000 rpm.
 - May be increased to a maximum of 1200 rpm to expedite oil warm-up.
 - May include the closing of the cowl flaps to expedite warm-up.
 - A & B
 - All of the above.
68. Manifold purge must be accomplished
- Below field barometric pressure.
 - Above field barometric pressure.
 - At 1000 rpm or above.
 - B & C
69. In starting jets, advance start switch to shutdown if
- EGT exceeds _____°C.
 - No light-off within _____ seconds.
 - No light with fuel flow reaching _____ lbs per hr.
70. After an aborted jet engine start
- At 15%, motor engine with motoring switch for 20 seconds.
 - At 20%, motor engine with CRANK to 5% position for one minute, maximum.
 - Either of the above.
 - Neither of the above.
71. Take-off may be made with any combination of three engines, so long as total thrust is equalized with differential jet engine rpm.
- T
 - F
72. On unprepared surfaces, jet engines should be started before reciprocating engine power checks in order to prevent propeller damage.
- T
 - F
73. On unprepared runways, if runway length permits
- Advance reciprocating engines before jet engines.
 - Advance jet engines before reciprocating engines.
74. Minimum jet engine rpm above 5000 ft., except when shutting down engines, should be no less than _____ rpm.
75. The gear warning horn will sound in the traffic pattern until the gear handle is placed in the GEAR DOWN position.
- T
 - F

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76. Jet engines should be reduced to idle on final (if left operating for go-around potential) to reduce latent thrust.
a. T
b. F
77. In sideslip or wing low approach for crosswind, reference the airspeed indicator on the upwind side to ensure sufficient air flow for gust control (1.2 Vs).
a. T
b. F
78. Explain how the right and left hydraulic systems are checked at engine start and engine shutdown. _____

_____.
79. Alarm bell signals are
a. For bail out preparation _____
b. For bail out _____
c. For ditching preparation _____
d. 10 seconds prior to ditching _____
80. A control factor that drastically lowers charted minimum control airspeed is timely application of
a. 5% bank into the good engine
b. Max power on the remaining operating engine.
c. Feathering.
d. None of the above.
81. What is the maximum available charted airspeed with
a. Single engine, no jets, 2050 bhp. _____
b. Single engine, jets at 100%, 2050 bhp _____
82. If above 50 ft. and committed to a crash landing, jettison
a. Nacelle tanks first.
b. Only pylon tanks.
c. Nacelle tanks and drop tanks if they contain fuel.
d. None of the above.
83. If electing to takeoff following loss of reciprocating engine power, four immediate steps are required to maintain directional control. They are
a. _____
b. _____
c. _____
d. _____
84. If fuel pressure drops and the engine continues to operate normally, the greatest danger is that of
a. Fire if airflow pattern changes.
b. Immediate flameout
c. Engine overspeed
d. A requirement to drastically reduce rpm.

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85. To increase glide distance, jettison nacelle tanks.
a. T
b. F

For questions 86 thru 88 use maximum
glide charts on pages 3-16 and 3-17

86. Best glide speed, engines feathered, at 60,000 lbs is _____.
87. Sink rate, engines feathered, at 55,000 lbs is _____.
88. Glide range from 10,000 ft is _____ nm.
89. To balance an asymmetrical fuel load when fuel will not feed from a pylon tank, with 1500 lbs in the right pylon tank and the left pylon tank empty, the difference in the nacelle tanks should be
a. 3555 lbs.
b. 2850 lbs.
c. 355 lbs.
d. 285 lbs.
90. In general, for crash landing or ditching, passengers and and non-essential crewmembers should bailout for
a. Crash landing
b. Water ditching
c. Both
d. Neither
91. Flight with loss of a landing light cover requires
a. Higher speed for safe flight.
b. No special precautions.
c. Close-in, full flap pattern.
d. Slowest possible speed to reduce buffet.
92. If a nacelle tank boost pump fails, select crossfeed and set remaining boost pump to LO. To assist fuel balancing, if jet engines are being used
a. Use differential jet thrust.
b. Use differential reciprocating thrust.
c. Use jet fuel crossflow to move fuel to tank with inoperative boost pump
d. Crossfeed jet fuel opposite direction of recip fuel.
93. In the event of flight emergency bus relay failure, battery power may be depleted and essential electrical components fail. Which of the following is true.
a. The co-pilot should perform the Flight Emergency Bus Relay check during cruise.
b. In the event of relay failure, the APU generator can provide flight emergency bus power.
c. The jet engine generators can be used to provide flight emergency bus power.
d. All of the above.

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94. Normal jet engine starts require at least _____ reciprocating engine generators on the line.
95. In the event of the failure of 4 reciprocating engine generators, a battery start of the APU must be immediately made
- a. T
 - b. F
96. In the event of a complete electrical failure, jet engines
- a. Are shutdown
 - b. May be airstarted on windmilling rpm at airspeed over 160 kts.
 - c. If running are uncontrollable.
 - d. None of the above.
97. In the event of main hydraulic system failure prior to landing
- a. Keep anti-skid on.
 - b. Turn anti-skid off.
 - c. Hydraulic accumulator should provide one full application of the brakes.
 - d. B & C
98. Wing and tail anti-icing is provided by
- a. Boots inflated by the hydraulic reservoir accumulator compressor.
 - b. Bleed air from the jet engines 8th stage bleed air.
 - c. Hot air from the aircraft heaters.
 - d. A grid of electrical heating coils.
99. Ailerons are de-iced by
- a. Boots inflated by the hydraulic reservoir.
 - b. Bleed air from the jet engines 8th stage bleed air.
 - c. Hot air from the aircraft heaters.
 - d. A grid of electrical heating coils.
100. Propeller de-icing is provided through
- a. 28v DC heating elements.
 - b. A glycol or alcohol wash system.
101. Jet engines are provided with
- a. Anti-icing systems
 - b. De-icing systems
 - c. Both of the above
 - d. Neither of the above.
102. The jet engine anti-icing systems use
- a. Hot air
 - b. Electrical elements.
 - c. Both of the above
 - d. Neither of the above.

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103. If cockpit noise level prevents aural indications of an APU start, the APU must be handcranked by the flight mechanic.
a. T
b. F
104. Alternate fuel
a. Is 115/145
b. Reduces low blower rpm to 2700
c. Allows a higher manifold pressure for takeoff
d. A & C
105. Gross weight of the aircraft is determined structurally rather than by performance limits.
a. T
b. F
106. There are a number of configurations and control factors that affect minimum controllable airspeed and drag in an engine out situation. Some of these are

107. Compute power off stall speed under the following conditions.
a. Flaps up _____ kts.
b. Out of ground effect _____ kts.
c. 25° bank _____ kts
d. 60,000 lbs _____ kts
108. Flight in moderate to heavy icing conditions is permitted if pylon tank heat is available and used.
a. T
b. F
109. When using prime to establish power peak, if TOP rises then falls when prime is used, then
a. RICH is at or richer than best power.
b. RICH is leaner than best power.
110. When manual leaning use
a. Best chemical mixture, 3 psi TOP below best power.
b. Best economy, a leaner mixture than best power.
c. A mixture that gives 7 psi TOP below best power.
d. B & C
111. When using alternate fuel, maximum bhp is attained at
a. 2600 rpm.
b. 2700 rpm.
c. 2800 rpm
d. 2850 rpm

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112. Carburetor icing can form
a. When a cold soaked aircraft enters warm, moist air.
b. At a temperature as high as 15% C.
c. Neither of the above
d. Both of the above.
113. Calculate total reciprocating bhp with 2800 rpm, each engine developing 103 TOP.
a. 1760 bhp.
b. 3520 bhp.
c. 1825 bhp.
d. Not enough information provided.
114. Drop tank fuel transfer begins quicker with full tanks than with partially full tanks.
a. T
b. F
115. Power necessary to insure anti-icing to the jet engines is
a. 1500 rpm on the reciprocating engines.
b. 70% rpm on the jets
c. 115v, 400 cycle AC power.
d. B & C
116. Turbulent air penetration calls for
a. Cruise rpm and airspeed.
b. 2300 rpm, 130-140 KIAS
c. 2100 rpm, approximately 145-155 KIAS (depending on weight)
117. What bhp should we get in METO power at 2500 ft, +25% C, and 48" MAP.
a. 2050
b. 1830
c. 1790
d. 1720
118. On takeoff from Tingo Maria, METO power gives 2600 rpm and TOP of 100 per engine. What total reciprocating horse power are we developing.
a. 1645
b. 3830
c. 2050
d. 1790
119. Given: Max power (dry), sea level, +25% C, dewpoint +25% C, We can expect TOP to be
a. 112
b. 120
c. Either of the above.
d. None of the above.

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120. If bhp per reciprocating engine is 1000, what is approx. fuel flow per engine, RICH, at 20,000 feet?
- a. 510 pounds per hour.
 - b. 550 pounds per hour.
 - c. 600 pounds per hour.
 - d. 620 pounds per hour.
121. Our jet fuel flow is considerably less than that charted on fig. A2-29. If our fuel flow at 5000 feet, 140 KTAS is 2300 pph per engine, our developed thrust is probably nearer _____ thp per engine than the thp charted for a 2500 pph fuel flow.
- a. 1000
 - b. 900
 - c. 800
 - d. 700
122. If we pull only 103 psi TOP, and have a jet fuel flow on takeoff equivalent to that charted for an altitude of 7,000 feet, what is our takeoff roll with gross weight at 60,000 pounds?
- a. 1700 feet
 - b. 3400 feet
 - c. 2500 feet
 - d. 4500 feet
123. What is the critical field length with a 55,000 lb gross weight at 7,000 equivalent altitude (established to compensate for our reduced jet fuel flow), 103 psi TOP, with no wind?
- a. 2500 feet
 - b. 3500 feet
 - c. 4500 feet
 - d. 5500 feet
124. Maximum wind for landing on Runway 18 with wind from 220 degrees is approximately
- a. 18 knot gusts.
 - b. 18 kilometer per hour gusts
 - c. 18 knots with higher gusts allowable.
 - d. 18 kilometers per hour with higher gusts allowable.

C-123 K ORIENTATION OUTLINE

A. Aircraft Description

- 1 - Gross weight 60,000 Lbs.
- 2 - Wing Span 110'0
- 3 - Length 76.3'
- 4 - Tail Height 34.51'
- 5 - Questions

B. Performance

- 1 - Payload 8-15,000 Lbs.
- 2 - Speed 160 Kts (our Flight Plan)
- 3 - Performance (1JetInop) -15 Kts.
- 4 - Max. Alt.w/1RecipInop +18,000 ft.
- 5.- Questions

C. Pax. Briefing

Give Briefing from AFS Manual with more detail and soliciting questions.

- 1 - Firearms:Empty-Clear & Safe. Do this outside A/C
- 2 - Fasten Seatbelt at all times until Parked at Destination
- 3 - There shall be NO SMOKING at all times.
- 4 - There is a relief tube in the right rear of A/C
- 5 - If you are Airsick-ask the Loadmaster for a Sick Bag
- 6 - Do not operate any radios or other electronic devices while onboard the A/C
- 7 - Do not try to open any doors or tamper with any aircraft equipment
- 8 - If the A/C is going to Crash Land, tighten seat belt and lean forward
- 9 - When the A/C climbs above 12,000 ft.(4,000 meters) you will be given an oxygen mask - Do not tamper with the regulators of valves
- 10 - Please put all trash in the receptacles aboard the A/C or carry outside with you at the end of the flight
- 11 - If you have any questions-Please ask the Loadmaster

D. Aircraft Systems

During a walkaround inspection of the aircraft, the Instructor will explain the operation of the various aircraft systems with emphasis on how they sound or feel to the passengers. (Example- Jet engine noise followed by thrust -or lack of- during T.O. or Decent.

- 1 - Hydraulic
- 2 - Electrical
- 3 - Propeller
- 4 - Heat and Anti-Ice
- 5 - Jet Engines
- 6 - Recip Engines
- 7 - Questions

Weight & Balance PNP-020

The Basic Operating Weight of PNP-020, based on actual aircraft weighing on 31 Jan 89, is 38,305 lbs.. This is arrived at by:

Empty Weight	:	35,979
Recip. Oil	:	570
Jet Oil	:	56
Pax. Oxy.- 6 Bottles	:	900
4 Crew	:	800
		<u>38,305</u> Lbs.

With Full Fuel (13,770 lbs.) out of LIMA, this aircraft can be loaded with 7,925 lbs. of Passengers OR Cargo.

38,305	BOW
13,770	Fuel
<u>7,925</u>	Load
60,000	Max. Normal Gross Weight

This 60,000 lb. NORMAL Gross Weight limitation is based on the Landing Gear strength limitation for Taxiing and Ground Handling. The design of the nose gear axles is such that the axles are capable of sustaining loads imposed in turning at this gross weight. If the center of gravity falls within 20.1%-32% MAC, extrapolation of data indicates the landing gear will withstand a landing gross weight of 72,500 lbs. at a contact sinking rate of 8 fps ultimate. In that 72,500 lbs. is considerably higher than the limitations imposed by maximum overload take-off conditions, it can be seen that the limit imposed by the gear is based on Taxi and Ground Handling Limits. Operations at weights above this recommended loading should be avoided unless the dictates of the mission require it.

Fuel requirements in the past have been based on Full Fuel upon departure from LIMA. This requirement is indicated by the need to have sufficient reserves to fly to Destination - Search for 1 hour - and return to Lima with adequate fuel to alternate. With a Standby Fuel Source located at Pucallpa and absolute accurate weather reporting from destination, if mission requirements dictate then fuel reserves can be trimmed and cabin load increased by 5,232 lbs. (Drop Tank Fuel Weight)

NOTE: Although the charts indicate the structural limitations involved in the loading of the aircraft, the authority for operation of the aircraft at a given gross weight remains the responsibility of the Captain at all times.

C-123K PERFORMANCE

The Engine Out performance at weights below 60,000 lbs. should allow us to maintain our cruise minimum altitude of 19,000 ft. with one Jet inoperative.

With one Reciprocating engine inoperative at 60,000 lbs., our charts indicate (with Standard conditions) we could maintain 18,000 ft. - which would give us a comfortable Clearance Altitude. We can, from this point, argue numerous variables. However if we rigidly adhere to the Max. Gross Take-Off Weight of 60,000lbs. we will never find ourselves at 19,000 ft. at 60,000 lbs. and as the fuel burn decreases our Gross Weight - our Emergency Service Ceiling increases.

We have also implemented an Emergency Procedure that allows us to jettison our cargo load in less than two minutes. All cargo is secured to two load bearing pallets on roller conveyers which are secured to the aircraft with four chains attach points. These points can be released - the Ramp lowered - and Door raised in less than 2 minutes.

017 Addendum

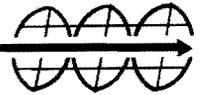
Aircraft FP-017 has an Estimated basic weight of 40,000 lbs.

This places the maximum cabin load at 6,230 lbs. to reach the 60,000 lb. mark with full fuel.

Tingo Maria - Tocache loads can safely exceed 15,000 lbs. - depending on the weather.



National Air Transport Inc.



C-123
BRIEFING OUTLINE
LIMA VISIT

The visiting team will consist of the following:

DEA
John O'Neil
Dave Ashton
Ben Dixon
Dave Thomas

INM
Ron Merriott
John Elben

The briefing will consist of several site visits at various locations.

A. NATI A.I.D. BUILDING - C-123 PROGRAM

1. Site visit of NATI operations center
2. Flight records and training records systems
3. Discussion of normal and emergency procedures
4. Flight operations - Normal and emergency procedures

B. NATI C-123 OFFICE-TRAINING ROOM SITE VISIT

1. Review of procedures
 - a. Flight training
 - b. Flight operations

C. AIRPORT SITE VISIT (LIMA)

1. Review of maintenance procedures
2. Overview of parts facility and office
3. Visit and review of passenger and cargo inspection area

D. MISSION PROCEDURES

1. Review of weather briefing and flight planning
2. Review of route selection
3. Walk around pre-flight inspection
4. Cargo area orientation
5. Cockpit orientation

E. OUT BRIEFING

1. Should be conducted by INM/NAU to cover observations, comments or suggestions.