FALCON 50



TABLE OF CONTEXT

<u>ITEM</u>

<u>PAGE</u>

ORAL BRIEFING	2
LIMIATIONS	3
PREFLIGHT PROCEDURES	4
GENERAL	5
ELECTRICAL SYSTEM	7
OXYGEN SYSTEM	9
AIR CONDITIONING, PNUEMATIC and PRESSURIZATION	10
APU SYSTEM	13
FIRE DETECTION and PROTECTION SYSTEM	14
FLIGHT CONTROLS and AUTOPILOT SYSTEM	15
FUEL SYSTEM	17
HYDRAULIC SYSTEM	
ICE and RAIN SYSTEM	19
LANDING GEAR and BRAKES SYSTEM	
POWERPLANT SYSTEM	
COMMUNICATION SYSTEM	
NAVIGATION SYSTEM	27
WEIGHT and BALANCE	
PERFORMANCE	
TAKEOFF and LANDING PERFORMANCE	
MMEL	31

ORAL BRIEFING

- REVIEW TRAINING DOCUMENTS
 - GROUND SCHOOL TRAINING COMPLETED
 - FLIGHT TRAINING COMPLETED
 - RECOMMENDATION COMPLETED
- REVIEW FAA FORMS
 - o FAA FORM 8710-1
 - TEMPERARY AIRMEN'S CERTIFICATE
- □ CREW INTRODUCTIONS
- □ REVIEW PILOT DOCUMENTS
 - o PILOTS LICENSE
 - MEDICAL CERTIFICATE
 - PILOT LOGBOOK (only for ATP rating)
 - PASSPORT / PICTURED DOCUMENT / BIRTH CERTIFICATE
- BRIEF CHECK-RIDE PROCEDURES
 - o ORAL
 - PREFLIGHT VIDEO
 - SIMULATOR EVALUATION
 - ROLES AS THE FLYING PILOT AND NONFLYING PILOT
 - ROLE OF THE CHECK AIRMEN / EXAMINER RESPONSIBILITY
 - SIMULATOR MALFUNCTIONS (TREAT SIM. AS A REAL AIRPLANE)
 - CRM
 - CHECKLIST USAGE
 - POSITIVE EXCHANGE OF FLIGHT CONTROLS
- □ BRIEF ACS STANDARDS
 - SATIFACTORY PERFORMANCE
 - UNSATISFACTORY PERFORMANCE OF A MANUEVER
 - LETTER OF DISCONTINUANCE
 - TOLERANCE OF EACH TASK
- ANY QUESTIONS

SECTION I; PREFLIGHT PRPARATION

I. Area of Operation: Preflight Preparation

- A. Task: Equipment Examination
- **B. Performance Limitations**
- **Q** Review Performance calculations
- □ AFM Limitations

General

(W/O SB-161) (SB-161)

\succ	Maximum Ramp Weight?	38,800 lbs	40,780 lbs
\triangleright	Maximum Takeoff Weight?	38,800 lbs	40,780 lbs
\triangleright	Maximum Landing Weight?		
\triangleright	Maximum Zero Fuel Weight?		25,570 lbs
\triangleright	Minimum Flight Weight		18,959 lbs
\triangleright	Maximum Baggage Compt. Weight		2,205 lbs
\triangleright	Maximum Operating Altitude		45,000 ft
\triangleright	Maximum Operating Altitude with (SB-163)		49,000 ft
\triangleright	Airport Pressure Altitude	10	00 ft to +10,000 ft
\triangleright	Airport pressure altitude (SB154)		00 ft thru +14,000ft
\triangleright	Maximum Altitude to extend Flaps or Slats		20,000 ft
\triangleright	Maximum Altitude for Standby Pump		45,000 ft
\triangleright	Maximum Runway Slope		<u>+</u> 2.5%
\triangleright	Maximum Tailwind Component		10 kts
\triangleright	Crosswind (Demonstrated)		
\triangleright	Runway Surface		
≻	Runway surface (SB F50-071-R1)		Unpaved Surface
\succ	Maneuvering Flight Loads	Fla	aps up - +2.6 to -1
		Flap	s down - +2.0 to 0

□ Airspeeds

\triangleright	VMO / MMO	
	> Sea Level	350 KIAS
	SL to 10,000	
	➤ 10,000 to 24,000	
	> MMO	0.86 M above 24,000 ft
\triangleright	VMO/MMO	
\triangleright	Maneuvering speed (VA)	210 KIAS
\triangleright	Min control speed/air (VMCA)	82.5 KCAS
\triangleright	Max gear operating speed (VLo/MLo)	
\triangleright	Max gear extended speed (VLE/MLE)	
\triangleright	Windshield wiper operating speed	205 KIAS
\triangleright	DV window opening speed	
\triangleright	Tire maximum operating speed	180 kts (ground speed)
\triangleright	Slats - Flaps (VFE)	
	 Slats extended	200 KIAS
	Slats extended + flaps 201	190 KIAS
	Slats extended + flaps 481	175 KIAS
13	5 checks:	
	Ops Specs Question: Lasso, Types of approaches	

Section II - Preflight Procedures, In-flight Maneuvers, and Post-flight Procedures

1. Area of Operation: Preflight Procedures

A. Preflight Inspection – Computer walk-around

Remainder conducted in Simulator briefing

GENERAL

Operational, Emergency Equipment & Lighting

AUTHORIZED LIMITATIONS

- Day and night VFR, if permitted by flight regulations of the country over which the airplane is flying.
- IFR and automatic approaches to Cat. I weather minimums.
- Extended overwater and uninhabited terrain.
- Icing conditions.

MAXIMUM PASSENGERS

- Maximum number of passenger seats 19
- Max. no. passengers for flight above 45,000 ft
 12 (for airplanes incorporating SB F50-163, maximum altitude 49,000 ft)
- What is the minimum crew required for flight?
- How many emergency exits are on the Falcon 50? 2 (two)
- Does this airplane meet Part 36, Stage 3 noise requirements? YES
- What are the maximum number of passengers? Above 45,000 ft?
 - 19 passengers and above 45,000 ft only 12
- How many over-wing emergency exits are installed on the Falcon 50?
 2 (one over each wing)
- How is the aircraft's emergency lighting activated when the system is armed? Simultaneous loss of electrical power to the A and B buses
- What is the ground operational limits for the landing lights?
 - 15 minutes on then 45 minutes off
- How can the taxi light be turned off?

The cockpit overhead switch or by retraction of the landing gear

- Can the cockpit dome light be turned on with the battery switches turned off? Yes, but the number 3 generator switch must be on and the "D" bus tied
- Are life vests required to be on-board the aircraft?
 - No, only for overwater flights
- How is the overhead C/B panel illuminated?
 - Two spot lights located on the outboard side the aircraft behind each pilots seat
- The cockpit dome light is powered from which aircraft's electrical bus? The battery bus.
- How many fire extinguishers are installed on the Falcon 50 and where are they located?
 - 2 fire extinguishers
 - 1 fire extinguisher in the cockpit and 1 located in the main cabin for access by the passengers
- Is there a crash axe installed in the aircraft?

No, is an option

• How many smoke hoods are required for this aircraft?

None Is a first aid kit required to be aboard this aircraft? 2 (two) - one pilot and one copilot

FORCED LANDING

- 1. Transmission of distress signal MAYDAY
- 2. ATC transponder Mayday code
- 5. Cockpit jump-seat, if possible Unoccupied and stowed

ENG TAB Page E-6

DITCHING

1	Transmission of distress signal	
	ATC transponder	
	Passengers	
	Life-jackets	
5.	FASTENT BELTS and	light pushbuttonsOn
6. 0	Cockpit jump seat, if possible	Unoccupied and stowed
5.	FASTENT BELTS and	light pushbuttonsOn

7. AUDIO WARN C/B's Pulled

ENG TAB Page E-7

SMOKE IN BAGGAGE COMPARTMENT

1.	Bleed Air BAG	OFF
	FIRE BAG COMP Switch	
3.	OMEGA	Off

ENV TAB Page E-33

EMERGENCY SHUTDOWN AND EVACUATION

1.	ATC/Ground Crew/Passeng	ers ADVISE OF INTENTIONS
2.	Parking Brake	SET FULL AFT
3.	Pilot MonitoringII	NITATE PASSENGER EVACUATION
4.	Airbrakes	RETRACTED
5.	Cabin Pressure Selector	DUMP
6.	Power Levers (3)	CUTOFF
7.	FIRE PULL Handles (3)	PULLED
8.	Fire Extinguisher Switches.	POS 2 (FOR AFT FIRE)
9.	BAT Switches	OFF
10.	Aircraft	EVACUATE

INST TAB Page E-94

ELECTRICAL SYSTEM

Operational, Limitations, Controls & Indications

ELECTRICAL LIMITATIONS

٠	Electrical
	Maximum DC voltage
	Max. generator output:
	• Up to 39,000 ft
	 Above 39,000 ft
	 Transient (1 minute maximum)
٠	Inverter
	 Maximum output750 V_A
٠	Battery temperature:
	 Amber light (WARM) at or above
	 Red light (HOT) at or above150°F
	 Red light (HOT) (SB 295) at or above 160 °F
٠	GPU StartMax. 1,000 Amps and 28 VDC
٠	What type of batteries are approved for installation in the Falcon 50EX?
	Nickel Cadmium or Lead Acid
٠	In-flight what are the normal electrical sources that power the LH Main Bus?
	Battery 1
	Generators 1 and 2
٠	How many attempts can be made to reset a failed generator?
	One if the switch is tripped, otherwise two
٠	What is the maximum transient generator output?350 amps for one minute
•	Up to what altitude may you use a maximum generator output of 300 amps and what must the amperage output be to when climbing higher?
	Up to 39,000 ft – 300 amps
	Above 39,000 ft – 250 amps
٠	At what altitude must you reduce the maximum amperage of the generators?
	Above 39,000 feet
٠	When providing power from the GPU will the main bus tie automatically?
	No (except with SB-317)
٠	What is the maximum voltage for the DC electrical system? 32 volts DC
٠	Are you allowed to reset any circuit brakes? Yes, any CB less than 5 amps
٠	What does the Voltmeter read? Highest voltage on BUS Ammeter? Power source
٠	With the Battery plugged in without APU or GPU supplying power to the aircraft, what is powered? Can the FBO refuel the aircraft?

Only the Battery Bus, Yes

• When should you use a GPU or pre-heat the batteries?

When the temp. is between -15° to -35°C

- Battery switch ON: Nothing happens possible causes?
 - 1. Battery not connected
 - 2. Battery voltage less than 18 volts
 - 3. GPU switch depressed.
- What could cause the battery to be drained if left hooked-up?

Applicable Hot Bat Bus items. Compartment & Stair Lights, Pressure refueling, Emer. & Normal Slats (Remaining items ENG & Fuel SOVs, Batt Switch)

If the battery is drained, can we hook up the GPU to recharge it?
 No, unless the aircraft is modified

• What does a GEN 1 light mean?

Low volts < 25, or generator contactor open

ELECTRICAL - Phase 1s

ELECTRICAL SMOKE OR FIRE

- 1. Crew oxygen masks Donned 100% + Emergency
- 2. Smoke goggles Donned Vent valve open
- Microphone Selector......MASK Tested
 Ight pushbutton.....On
- Only if no flame in cabin
- 5. PASSENGER OXYGEN controller.....OVERRIDE
- 6. Passenger masksDonned Checked

DC ELEC TAB Page E-38

THREE GENERATORS INOP

- 1. C and D bussesOff
- 2. LH-RH bus tie rotary selectorFLIGHT NORM
- 3. Attempt separate resetting of each generator (no more than 2 attempts)

DC ELEC TAB Page E-39

OXYGEN SYSTEM

Operational, Limitations, Controls & Indications

- At what pressure is oxygen supplied to the pilots oxygen masks? 70psi
- At what cabin altitude does oxygen pressure increase from low to high to the passenger oxygen mask?

18,000 feet

- At what cabin altitude are the passenger masks automatically deployed? 11,500 ±500 feet
- What is the normal service pressure for the oxygen bottle?

1,850 psi

AIR CONDITIONING, PNUEMATICS & PRESSURIZATION SYSTEM

Operational, Limitations, Controls & Indications

PRESSURIZATION

- What is the maximum differential pressure? 9.1 psi or (9.5 psi with SB-163)
- Is the radome pressurized and if so for what reason?

Yes, for the radar

- Is it possible to turn off both the low pressure and high pressure bleed air being produced by a particular engine?
 - Low Pressure No

High Pressure – Yes

- What holds the outflow valves "open" on the ground?
 - Vacuum produced from a jet pump supplied by bleed air from the #1 or the #2 engine or the APU
- In the manual mode, what controls the cabin rate of climb or descent? The UP-DN know on the emergency pressurization panel.
- If the cabin is depressurized using the "DUMP" switch the cabin will attempt to stabilize at what altitude?

12,500 ±500 feet (or 14,500 ±500 feet w/ SB-154)

AIR CONDITIONING

- Is the baggage compartment temperature controlled? No
- How many ECU units are installed in the Falcon 50EX?

Two (2)

• What happens to the water extracted by the ECU water separator?

It is sprayed onto the air to air heat exchanger to provide increased efficiency.

What do the PAX & Crew Air conditioning switches do?

Auto: hot & cold valves automatically controlled

Off: closes the hot & cold valves (shuts the ECU system off)

• The Crew and Passenger Valves do what and why during a full power takeoff?

The valves first go fully closed. This allows the engines to develop maximum power for takeoff period by stopping the bleed air used for pressurization to the cabin and cockpit. After 1 $\frac{1}{2}$ minutes the valves will start to slowly open regaining their full open position by 2 $\frac{1}{2}$ minutes.

• An ECU can receive it's air from what sources?

All three engines and the APU

• What do the Crew & Pax AC Mode Switches do?

Auto: activates automatic cabin/crew computers (sensor input)

Remote: Pax. control

Manual: Man. Computer activated (direct control of H/C Valves)

What does the PAX or CREW lights mean?

Failure of: 1. Cabin/Pax computer (Manual turns light out)

- 2. Manual Computer's processor
- 3. Valve or Sensor

• What does the CABIN annunciator Indicate?

Cabin altitude exceeds 10,000 +/- 500 ft

• What does DUMP do?

Opens outflow valves - max alt 14,500' ±500

- What does the ECU OVHT light mean and what can you do about it?
 +235c, Condition Emerg. turns off
- What does the CON'D EMERG switch do and when else would you use it?
 - 1. Turns ECU OFF, also used for A/C smoke.
 - 2. Disables automatic computers and powers manual computers
 - 3. Closes the Cold valves, opens Hot to wherever the rheostat is positioned.
- How many air conditioning computers are used?

Three (3)

• There are visual and aural warnings if the cabin exceeds what altitude? 10,000ft +/- 500ft

AIR CONDITONING, PNEUMATICS & PRESSURIZATION – Phase 1s

RAPID DEPRESSURIZATION

1.	Crew oxygen	masks	Donned -	100%
----	-------------	-------	----------	------

- 2. Microphone selector MASK Tested
- 3. FASTEN BELTS and Light pushbuttons......On
- 4. PASSENGER OXYGEN controller.....OVERRIDE
- 7. Passenger masksDonned Checked
- 5. Emergency descent Initiated

ENV TAB Page E-32

EMERGENCY DESCENT

- 1. Autopilot......DISENGAGEED
- 2. Power Levers.....Idle
- 3. Airbrake Handle.....Position 2
- 4. Descent Airspeed V_{MO} / M_{MO} (Smooth air conditions)
- 5. ATC transponderMAYDAY CODE

ENV TAB Page E-32

AIR CONDITIONING SMOKE

- 1. Crew oxygen masks Donned 100% + Emergency
- 2. Smoke gogglesDonned Vent valve open
- 3. Microphone Selector...... MASK Tested
- 4. Light pushbutton.....On
- 5. PASSENGER OXYGEN controller.....OVERRIDE
- 8. Passenger masksDonned Checked

ENV TAB Page E-28

	SMOKE REMOVAL				
1.	Crew oxygen masks	Donned – 100% + Emergency			
2.	Smoke Goggles	Donned – Vent valve oper			
3.	Microphone Selector	MASK – Testec			
4.	Light Pushbutton	Or			
5.	Crew Air Gaspers	Oper			
	Only if no flame in cabin				
6.	PASSENGER OXYGEN controll	erOVERRIDE			

Passenger masksDonned – Checked
 Passenger cabin air gaspersOpen

ENV TAB Page E-29

APU SYSTEM

Operational, Controls & Indications

◆ AUXILIARY POWER UNIT (ALLIEDSIGNAL GTCP 36–100A)

- The APU must be operated on the ground only.
- Speed:
 - Maximum rated 100 %
 - Maximum allowable......110 %
- Exhaust gas temperature limit:
- With BLEED switch in on position, do not perform engine or airframe anti-ice tests.
- Can the APU be used for in-flight operations? NO
- What are the limitations for APU operations on the ground with passengers aboard the aircraft?

A crewmember must be present to monitor the APU system

- Where does the APU receive its fuel?
 No. 2 engine fuel supply
- What are the shutdown features of the APU?
 - * Low oil pressure
 - Overspeed
 - Over temperature
 - * APU Fire
 - * Excessive generator load
 - Loss of 28VDC
- What does the APU "BLEED" light mean? The electric valve did not close
- Is the APU generator interchangeable with the engine driven generators? YES

APU - Phase 1s

	APU FIRE	
1.	APU MASTER	Depressed
	FIRE APU switch	
	ENG TAB Page E-23	

FIRE DETECTION AND PROTECTION SYSTEM

Operational, Controls & Indications

- When tested does the fire detection system check the condition of the fire bottle squibs? Yes
- How is a fire in the baggage compartment detected?
 A smoke detector
- If fire protection provided for the aft compartment?

Yes.

• How many and where must the hand held fire extinguishers be located in the interior of the aircraft?

Two (2), one in the cockpit and one in the cabin.

 Placing the center engine's fire extinguisher switch to position 1 will discharge how many of the fire extinguisher bottles?

One (1)

FLIGHT CONTROLS AND AUTOPILOT SYSTEM

Operational, Controls & Indications

- What is the VFE (slats and flaps extension) speeds?
 - Slats extended200 KIAS
 - Slats extended + flaps 20°.....190 KIAS
 - Slats extended + flaps 48°.....175 KIAS
- Are the flight controls still effective after a complete hydraulic failure? Yes (mechanical reversion)
- What is an Arthur Q unit?

A devise that provides tactile feed back to the pilots flight controls considering the airspeed of the aircraft

- Which flight controls incorporate the Arthur Q units? Elevator and Aileron
- What is the limitation of the airbrake extension in-flight?
 - Within 500 feet from the ground is not recommended
- What causes the Aileron Zero light to illuminate?

The emergency aileron trim is not set to the center position

- Maximum speed for airbrake extension? None
- Is it ok to takeoff with Autopilot engaged? NO
- With the airbrakes extended during a stall, what happens to the airbrakes? Retract
- Will the airbrakes extend again after recovery from a stall?
 NO
- AUTOMATIC PILOT LIMIATIONS

The autopilot **must not** be engaged for take-off or landing.

Take-off is not permitted with yaw damper not centered.

The autopilot is certified to the minimum height as follows :

- Minimum Use Height after take-off 1,000 ft
- Minimum Use Height in cruise...... 1,000 ft

- Minimum altitudes while using the autopilot coupled during an ILS approach?
 50' if RA works, 160' RA inoperative (Non-procession approach? 250')
- Can the autopilot be used for landing?

No

• Can the autopilot be engaged on the ground?

Yes

- How many actions are required to complete a disconnect of the autopilot?
 2 (two)
- What is the minimum autopilot height during a precision approach with a working radar altimeter?

80 feet (note: radar altimeter is not specified)

 Descending to 11,000' & AP overshooting, pull back on the control column to disconnect? No

- + How many ways are there to disengage the Autopilot?
 - AP On/Off
 - Go-Around Button
 - Gang Bar
 - Either of 3 Pitch Trim Switches
 - Aircraft Stalls
 - exceed 22° pitch attitude
 - >40° bank
- AP Autopilot failed or manually disengaged
- AP Trim Fail A/P can't trim aircraft
- Due to a slat malfunction, you have extended the slats using the emergency slats switch. Is it ok to then retract them? No.
- Is the emergency aileron trim, indicated on the trim panel?
 NO, that's the reason for AIL ZERO
- Which aileron moves when using the emergency aileron trim? Left aileron
- How would you handle a Pitch Trim Runaway?
 - Opposite trim, hold control wheel firmly, Emergency trim
- What is the difference in position 1 and 2 of the "AIRBRAKES"?
 - Position 1 Center airbrake panel on each wing
 - Position 2 All three panels are extended on each wing
- What does the AIRBRAKE mean? Any of the (6) airbrake panels not retracted
- What happens to the "AIRBRAKES" if they are extended and you loose both hydraulic systems?

The airbrakes will brow to the trailing position

• Once the airbrakes retract from a complete hydraulic failure, will the extend again upon flaring during landing?

No, they will remain in the trailing position and held there by the airbrake accumulator

COLLINS APS80 AUTOPILOT – NOSE DOWN HARDOVER

- 1. Autopilot..... DISENGAGE
- 2. Aircraft Trim Retrim

FLT CONT TAB Page E-63

FUEL SYSTEM

Operational, Controls & Indications

<u> </u>			
٠	Fuel CapacityW/O SBSB 496		
	Total fuel lbs15,514 lbs15,458 lbs		
	◆ Left Wing		
	◆ Left Feeder1,404 lbs		
	Total Left System5,152 lbs5,124 lbs		
	 Right Wing		
	 Left Feeder		
	Total Right System5,152 lbs5,124 lbs		
	 Wing Center Section2,750 lbs2,750 lbs 		
	Center Feeder2,460 lbs2,460 lbs		
	Total Center System5,210 lbs5,210 lbs		
٠	Maximum fuel unbalanced for flight:		
٠	Pressure fueling system (single point) Maximum 50 PSI		
٠	Fuel computers must be operational for takeoff except per AFM, Annex 5.		
٠	When the fuel indication reads zero is not safely usable in- flight conditions.		
٠	What is the total fuel capacity? 15,514 lbs (15,458 lbs with SB-496 dry sump modification)		
٠	Which engines bleed air are used to pressurize the fuel tanks? Engine 1 and 2		
٠	What is the maximum fuel truck pumping pressure when refueling?		
	50 psi (3.5 bars)		
٠	How are the fuel tanks pressurized? With either No 1 or No 2 engines running		
٠	What does the FUEL LOW light indicate?		
	300 or less pounds of fuel in any feeder tank		
٠	Which bus provides electrical power for vent valves operation? The battery bus		
٠	Are anti-icing additives required when refueling the aircraft? NO		
٠	Can anti-icing additive be used when fueling the aircraft? YES		
٠	Does the battery have to be turned "ON" to refuel the aircraft? No (only connected)		
٠	Could you refuel the aircraft with the battery not installed or hooked up?		
	No requires BAT plugged in		

When opening the refueling panel door, the **STOP FUELING** light illuminates, is this normal ٠ and if so, what does it mean?

Normal condition, indicating that the vent valves are closed.

- FUEL 1 LIGHT Low Pressure (4.64) ٠
- LO FUEL LIGHT Less than 300 pounds
- **FUELING** 1 or 2 vent valves open, 1 or 2 refueling doors open, refueling switches not off, fueling ٠ lever not off, de-fueling switch on
- **LEVEL** Low fuel indicator lights (1000 lbs. fuselage center section) ٠
- ٠ What is the minimum in-flight fuel temperature?

Inflight tank fuel temperature must be maintained at least 3°C above the freezing point of fuel being used

HYDRAULIC SYSTEM

Operational, Controls & Indications

- Maximum altitude for the Stand-by pump operation 45,000 ft
- Hydraulic fluid...... MIL-H-5606 (NATO H515 or H520)
- You notice that your low on hydraulic fluid, is Skydrol ok? No, must be MIL-L-5606 or AIR 3520
- Which engines are used for the No. 1 Hydraulic system? No. 1 and No. 2 Engine driven pumps
- The standby hydraulic pump can be operated to what altitude limit? 45,000 feet
- How can the amount of hydraulic fluid in the hydraulic reservoir can be determined? Through sight gauge on each reservoir and, The cockpit electrical hydraulic quantity gauge
- What two conditions will cause the Standby Pump warning light to illuminate? The Aft compartment selector valve set to "Ground Test" Continuous operation of the Standby Pump longer than 60 seconds with no hydraulic fluid

• What does Hydraulic System 1 power?

- Landing gear
- Inboard Slats
- Outboard Slats
- Normal Brake
- Flight controls (Elevator, aileron and Rudder)
- Thrust reverser
- Hydraulic system 2?
 - Flaps
 - Airbrakes
 - Nosewheel steering
 - Emergency Outboard Slats
 - Parking brake
 - Emergency brake
 - Flight controls (Elevator, aileron and Rudder)
- When does the Standby pump automatically activate?

Hydraulic pressure drops below 1,680 psi, deactivates above 2,450 psi (cycles)

• If the **ST BY PMP** light illuminates in the air, what does it mean?

#2 hydraulic pressure is low and the standby pump has been running for more than 1 minute: *probably a leak, turn it off.*

HYDRAULICS - Phase 1s

LOSS OF BOTH HYDRAULIC SYSTEMS

- 1. Autopilot and Yaw Damper..... DISENGAGED
- 2. Decrease airspeed to or below 260 KIAS or MI: 0.76

HYD TAB Page E-56

ICE and RAIN SYSTEM

Operational, Limitations, Controls & Indications

- Windshield Wiper speed? 205 KIAS
- What is considered to be icing conditions?
 - 1. Ground <10 OAT
 - 2. In-flight < 10 C TAT & visible moisture
- ENG & Wing Anti-ice should not be used above what temperature? 10° C
- What does illumination of the yellow windshield XFR light indicate?
 - The windshield temperature sensor or one of the two windshield heat regulators has failed.
- Engine Anti-ice can be used on the Air/Ground/Both? Both
- Wing Anti-ice can be used on the Air/Ground/Both?
 - Air only, except for maintenance & checking on the ground
- What two conditions must be met before selecting the windshield heat "MAX" position? Aircraft in-flight and normal position is sufficient to prevent windshield icing.
- How many of the cockpit windows are heated?
 - All (7 window panels)
- When can the airframe (wing heat) anti-ice be turned on and used?
 In-flight only, temperatures less than 10°C TAT and in visible moisture
- What is the main source of bleed air to warm the S-Duct? The #2 engine.
- After selecting the engine anti-ice on, what does a green anti-icing light mean? The engine anti-ice valve has opened and the bleed air in the line is at least 4psi
- Wing anti-ice steady AMBER means?

Steady = Low pressure, Flashing = Overpressure and/or temp

• Wing Heat ON & **Steady** is normal, does this mean that the *engines* are producing enough power for wings?

No, means pressure is above 4 psi.

What are some operational consideration for departing from a snowy or slush covered runway?

Delay gear for 15 seconds. Cycle gear if necessary.

LANDING GEAR and BRAKE SYSTEM

Operational, Controls & Indications

Landing gear

- ◆ Max. landing gear operating speed: V_{L0}/M_{L0}
- Max. landing gear extended speed: V_{LE}/M_{LE}
- Brake Kinetic Energy Limit
 - Normal RTO Stop..... 14,697 kJ
 - Maximum RTO Stop..... 18,249 kJ
- Nose wheel must be equipped with chinned tires.
- Anti-Skid Must be operative.
- The landing gear can be lowered in how many ways and what are they?
 - Electrical Hydraulic
 - Manual Hydraulic
 - Manual Gravity
- While taxing the landing gear is held in the extended position by? Mechanical down locks and continuous hydraulic pressure
- While in-flight the landing gear is held in the up position by?
 - Mechanical up locks
- If the three green gear down and locked indicator lights fail to function explain the back-up method using the landing gear handle light to assure the landing gear is down and locked?

Place the landing gear handle I the down position and continue to watch the red flashing light in the gear handle. When the red flashing light stops, all three landing gears are down and locked. Press the landing gear panel test button and observe the red light flashing again. Pressing the test button assures the red light bulb's integrity.

How many Air/Ground proximity switches are on each landing gear?

Two (a total of six)

• What is the special requirement for the two nose tires?

Each tire requires one chine to its outboard side

How many degrees can you during the nose wheel with the nose wheel torque link disconnected during towing?

90 degrees maximum

- What is the maximum degrees will the Nose Wheel turn while making a turn with the tiller?
 60 degrees maximum with the tiller
- Are all towbarless towing devices approved for this aircraft and if not, where can you find which type are?

No, basically the strap type are not (cannot rape strap around the strut) Ground Service Manual 3

<u>Brakes</u>

- How many tach generators are used in the aircraft's anti-skid system? Four (one for each main gear tire)
- Can the anti-skid system be used if you select the #2 braking system? No
- What is the normal parking brake accumulator nitrogen pressure? 1,000 psi
- What stops the main landing gear tires rotation during retraction of the landing gear? Landing gear hydraulic snubbing pressure
- If using the parking brake handle to stop the airplane the pilot should take care to? Not pull the handle beyond the first detente
- You have selected gear down, and you get 2 green and no red lights. What will you do? Check gear panel for burned out bulbs
- Can the aircraft be taxied prior to aligning the IRS's? No, normal braking will not be available

LANDING GEAR & BRAKES - Phase 1s

WHEEL WELL OVERHEAT

- 1. Establish an airspeed not greater than...... Below 190 KIAS (V_{LO})
- 2. Landing gear..... Extend
- 3. Airspeed.....Below 220 KIAS (V_{LE}) LNDG GEAR TAB Page E-59

POWERPLANT SYSTEM

Operational, Controls & Indications

POWERPLANT

<u>P0</u>	DWERPLANT	
٠	Honeywell (Garrett)TFE 731-3-1C(D)	
٠	Thrust Rating (Uninstalled, Sea Level, ISA)	
	◆ Takeoff	
	Continuous	
٠	N-1 is used as the thrust setting parameter	
•	Engine Synchronizer must not be used during takeoffs, landings, and misse	d approach
•	Rotor Speed limits	
·	 Takeoff / Maximum Continuous 	
	◆ N1	
	◆ N2	
	 ♦ Max. N1 transient 	
	 103% (1minute max allowable) 	
	 105% (5 second max allowable) 	
	 Max. N2 transient 	
	 103% (1minute max allowable) 	
	 105% (5 second mas allowable) 	
•	Inter-stage Turbine Temperature (ITT) limits (-3)	
•	◆ STARTING – GROUND/AIR	<u>3D-1C</u>
	◆ Normal	00 10
	 Transient (10 sec. max)	929 ⁰ C
	 Transient (5 sec. max)	971 ^o C
	 ◆ TAKEOFF 3C-1C	571 0
	 ♦ Normal (5 min. max)907°C	
	 Transient (10 sec. max)	
	 Maximum Continuous	
•	STARTING LIMITS:	
·	Ground Start	
	 From 10% N2, speed to light-off	
	 From Light-off to Idle	
	 Wind-milling start N2 – 60%	
٠	Oil Pressure Limits	
	Minimum Takeoff or Continuous	
	Maximum Takeoff, Continuous or Idle	
	Minimum Idle25 psi	
	Max. Transient (less than 3 minutes)55 psi	
٠	Oil Temperature Limits	
	 Sea Level to 30,000 ft (maximum)	
	• Above 30,000 ft (maximum)	
	Transient for less than 2 minutes (max.)	
	♦ Minimum 40 °C	
	Minimum for power above idle+30 °C	
٠	What type of engines are on the Falcon 50? TFE 731-3-1C	
٠	What is the normal ITT for engine starting? 907°C	
٠	What is the maximum ITT during takeoff (5 minute limit)? 907°C	
٠	What is the takeoff thrust rating? 3700 lbs	

• What are the approved oils for these engines?

Type II

- What is the oil pressure range when the engine is at idle? 25 to 46 psi
- What is the oil pressure range for this engine at all times other than idle?
 38 to 46 psi
- What is the maximum oil pressure ad for how long during transient conditions?
 55 psi for less than 3 minutes
- What is the maximum oil temperature from sea level to 30,000 ft? 127°C
- What is the maximum oil temperature from above 30,000 ft? 140°C
- What is the maximum oil temperature and for how long during transient conditions? 149°C for less than 2 minutes
- What is the minimum oil temperature required before takeoff power is applied? 30°C
- Explain the thrust reverser limitation for the Falcon 50?

The thrust reverser is approved for ground use only (Permitted adhering to Annex 4) Not to be used to reverse taxi

MAXIMUM ENGINE ROTOR SPEEDS N1 AND N2

Condition of use	N1	N2
Take-off – Maximum continuous	100.1 %	101 %
Transient 10 seconds max. allowable	100.5 %	102.5 %
100 % N1 = 21,000 RPM – 100 % N2 = 31,173 RPM		

• MAXIMUM INTERSTAGE TURBINE TEMPERATURE (ITT)

Ground start	991°C
Air start	991 ⁰ C
Take–off 5 minutes max.	1,013 ⁰ C
Maximum continuous	991 ⁰ C
Maximum cruise	974 ⁰ C

• STARTING TIME

Ground start

From 10 % N2 speed to light-off

- From light-off to idle
- 10 seconds maximum
- 60 seconds maximum

Wind-milling airstart

No time limit

• Starter assist airstart:

From initial fuel flow N2 speed to 60 % N2 45 seconds maximum

• FUEL CONTROL COMPUTERS

Engine fuel control computers must be operative for take-off

• ENGINE SYNCHRONIZER

The engine synchronizer system must not be used during take–off, landings and missed approaches

THRUST REVERSER

- Thrust reverser is approved for ground use only.
- Thrust reverser must not be used for taxiing in reverse
- On Landing do not attempt a go-around after selecting thrust reverse.
- Full thrust reverse is usable to a complete stop.
- Recommend 30 seconds maximum continuous usage and 4.5 minutes between consecutive uses.

POWERPLANT - Phase 1's

ENGINE FIRE

2. 3. 4.	FIRE PULL Airspeed Fire extinguisher ENG	CUT-OFF Pulled Below 250 KIAS Position 1
	If the fire warning persists	
5.	Fire extinguisher ENG	Position 2

ENG TAB Page E-23

INADVERTENT FLIGHT THRUST REVERSAL

- 1. Engine 2.....Idle
- 2. Thrust reverser NORM / STOWSTOW

ENG TAB Page E-24

ALL ENGINES OUT CONDITION

- 1. C and D buses.....Off
- 2. Communications VHF / ATC 1
- 3. Establish airplane within airstart envelope.
- 4. Switch off as many services as necessary to decrease the battery load down to 50 A per battery.
- 5. Relight all three engines per procedure.

ENG TAB Page E-5

APPROACH AND LANDING – TWO ENG INOP

- 2. Enroute Climb Gradient DETERMINED, PAGE E-19
- 5. Fuel System Situation......CHECK
- 7. Electrical Load (SEE NOTE BELOW) REDUCE

NOTE: For quick reduction: Galley, Landing Light, Side Window Heat, XFR Pumps and Floor HeatALL OFF

ENG TAB Page E-18

GO-AROUND – TWO ENG INOP

- 1. Takeoff N1 thrust......SET

cu.....

ENG TAB Page E-19

COMMUNICATION SYSTEM

Operational, Controls & Indications

- Can the cockpit speakers be used at the same time as the headsets are in use? No
- In the Falcon 50 is it possible to receive two radios transmissions at the same time? Yes
- How many minutes of conversation can be recorded on the cockpit voice recorder?
 Only the last 30 minutes are retained
- What is the rule concerning missing or broken static wicks? Two may be missing but not in the same area
- Explain what the crew must do to communicate if required after donning their oxygen masks? Select the "MASK" button on the ICS panel and selecting speaker or out there headset back on

NAVIGATION SYSTEM

Operational, Controls & Indications

INSTRUMENTS

Pressing the Go-Around button at either pilots station does what to the flight director command bars?

Places both flight director to ROLL (wings level) and GA for pitch to 14^o nose up attitude

• When checking the emergency standby batteries what is the minimum voltage?

24 Volts DC

• After an altitude is placed in the ASEL, the flying pilot must look where to confirm the new altitude setting?

The display panel over in front of the copilot

NAVIGATION

- Can you dispatch with an inoperative magnetic compass? Yes, but daylight VMC only
- During all phases of flight is the magnetic compass normally reliable?
 No, you must turn off the windshield heat switches to get a reliable reading
- Is the aircraft eligible for IFR auto pilot approaches to CAT II minimums? Yes
- Explain the significance if your EHSI course information is displayed in a yellow color?
 You are using course information from the other pilot
- What is happening when the EHSI is displaying the course information is yellow instead of the normal green color?

The course information has been trnasfered from the other pilots side

UNRELIABLE AIRSPEEDS AT HIGH ALTITUDE

1. Auto Pilot	DISENGAGED		
2. Yaw Damper	DISENGAGED		
Large displacements and rapid movements of flight control			
surfaces	AVOID		
4. Wings	LEVEL		
5. Altitude	STABILIZE,		
Using standby altimeter, if necessary:			
6. Pitch	BETWEEN 1° AND 4° NOSE UP		
7. Power	SMOOTHLY FULL FORWARD		
Warning: Inappropriate flight director guidance may be activated.			
Do not follow corresponding FD.			

INST TAB Page E-77

WEIGHT and BALANCE

- What is the maximum useful load for the Falcon 50? 15,514 lbs
- What is the maximum cargo that may be carried in the baggage compartment? 2,205 lbs. maximum
- What are the standard passenger and crew weights? 170 lbs.
- What is the definition of "Operating Weight Empty"? The Basic Empty Weight plus operational items.
- What is the definition of "Operational Takeoff Weight"? Maximum weight permissible for takeoff based on takeoff field or flight limitations or other associated limitations.
- What is correct regarding the landing weight?

It must not exceed the maximum landing weight [MLW] defined by the structural weight limitations.

- How many compartments are used for baggage storage? There are two compartments, front and rear.
- What is necessary for the rear compartments to be used for baggage or spare parts storage? There must have an approved installation.
- What is the impact of snow accumulation on the aircraft?

Causes the CG to shift aft.

- What would happen to the CG when adding baggage in the baggage compartment? Adding baggage causes the CG to move aft.
- The term " Zero Fuel Weight" is defined as?

The operating empty weight of the airplane plus the payload.

• The origin of the moments are calculated from what point?

25% Mean Aerodynamic Chord

PERFORMANCE

• What would be true of a takeoff made with Slats only?

The runway required is greater than when takeoff is made with Slats/Flaps 20^o

- What adjustment must be made if V_{MBE} is less than the calculated V1? The V1 speed is reduced to the V_{MBE} speed.
- When are the flaps retracted?

Flaps/Slats 20 takeoff V2 + 15 knots

Slats only V2 + 25 knots

- What determines the takeoff pitch attitude? The 2nd segment gradient.
- Takeoff and climb performance charts can be found in? Airplane Flight Manual
- The pre-flight planning objective of the reserve fuel chart is to? Determine the planned destination landing gross weight
- How is First segment climb defined?

Segment extended from the point at which the aircraft becomes airborne to the point at which gear retraction is achieved.

 The steady gradient of climb in landing configuration (landing climb) with all engines operative may not be less than which value?

3.2%

- What is the best speed to climb in the clean configuration? V1.5
- Dassault's reserve fuel chart is based on a cruise to the alternate at what altitude? FL250
- A planned cruise of .80 Mach would assume which climb profile? 300 kts. to M .80
- What would the climb gradient required be with a gain of 304 ft. of height in 1NM? 5%.

TAKEOFF PERFORMANCE

• What are some of the factors affecting aircraft takeoff weights?

Maximum certified takeoff weight (structural)

Maximum takeoff weight permitted by climb requirements (2.7%)

Maximum takeoff weight permitted by takeoff field length

- What is the required gradient that must maintain during the second segment with one engine inoperative? Is it Gross or Net climb gradient?
 - 2.7% Gross climb gradient with speed stabilized at V2
- Unless specified otherwise, required obstacle clearance for all IFR departures is based on the pilot maintaining a minimum climb gradient of?

200 ft per nautical mile. (2.7% gross climb gradient)

LANDING PERFORMANCE

- What are factors affecting the Landing weight? Maximum certified takeoff weight (structural) Maximum landing weight permitted by climb requirements (3.2% approach climb) Maximum landing weight permitted by takeoff field length Maximum landing weight permitted by brake energy limits
- What is the minimum climb gradient required during the missed approach?
 At least 200 ft per nautical mile AIM 5-4-19b
- Is the effectiveness of the thrust reverser figured into the takeoff and landing performance?
 NO

<u>MMEL</u>

• What is the function of an MEL?

Indicates items that maybe inoperative for a flight and under what conditions the flight maybe operated by.

- May a person takeoff with inoperative equipment if they don't have a MEL? NO, (Part 91.213a)
- Does an operator need authorization from the FAA to operate the aircraft with a MEL? YES, (Part 91.213(a)(2))
- Can the aircraft be dispatched with the "Landing gear handle flashing light" inop. ? Yes, providing the landing gear configuration panel and gear aural warning operate normally
- What is the repair interval for a Category C item?
 Repair within 10 consecutive calendar days excluding day the malfunction was reported
- Can the aircraft be flown with any of the static wicks missing?
 Yes (2 may be damaged or missing but not located in same area) MMEL
- Can you dispatch with an inoperative magnetic compass? Yes, daylight VMC only (MMEL)