OVERVIEW

The CE-525B is certified under what parts of the FAR's?

Part 23 Commuter Category & Part 36 Noise Requirements.

Can you fly a CJ1 or CJ2 with the CE-525 Type rating?

Yes, both

Are you required to take a 61.58 check to fly as PIC?

This applies to Part 91 operations. A PIC must pass a 61.58 check every 12 calendar months. A check in type must have been passed within the preceding 24 calendar months if the pilot is current in more than one type.

What is required to operate Single Pilot?

CE-525 S Type Rating
61.58 check (see above)
Checklist (FAA Approved)
Autopilot (Must be operable)
Storage accessible from pilot's station for plates and charts
Headset with boom microphone (Worn)

PREFLIGHT

What documents must be on board the aircraft?

AFM (latest revision with all appropriate supplements)
Weight and Balance Data
Airworthiness Certificate
Registration
Radio Station License
Collins FMS 3000 Manual & Garmin GPS 500 Manual (if installed)
Collins Pro Line 21 Avionics System Operators Guide
MEL – If one is approved for the aircraft/operator

Prior to flight, who is responsible to make sure that the AFM is current?

PIC

Are the advisory items in Section VII, Advisory Information, of the AFM Mandatory?

No, Section VII of the AFM is not regulated. However, failure to reference this section has been noted as a contributing factor in an aircraft accident report.

When is the best time to check the engine oil level?

Within 10 minutes after shutdown.

What are the Tire Pressure limitations?

Nose 125 +/- 5 psi
Mains 137 +/- 3 psi

When should a tire be replaced?

Replace a tire when cuts, exposed cords, or separation of tread is detected.

With the Battery switch selected to BATT, what should be the indication on the power brake accumulator gauge in the nose baggage compartment?

Dark green arc

With the Battery switch selected to BATT, what would you see in the power brake fluid reservoir sight gauges?

Top Gauge	*some or no fluid visible – ball may be at bottom of gauge*
Bottom Gauge	*Fluid level full – ball at top of sight gauge*

How many fuel sump drains does the CJ3 have?

10 (5 on each side)

How many static wicks may be missing?

No more than 2 total , 1 per control surface.
Refer to approved MEL for MEL guidance.

Is the First Aid Kit required to be filled and on board?

Yes

You got called for a pop-up trip. You call ahead and ask the FBO to hook up a GPU. When you arrive, the GPU is hooked up and running. What indication will you have in the cockpit with a GPU connected and running while the battery is still disconnected? Can the engines be started?

Turning on the Battery Switch will power all systems. The engines can be started.

What are the requirements for a Generator Power Unit (GPU)?

28VDC & 800-1100 amps

CE-525B LIMITATIONS

Weight Limitations (lbs.):

Max Ramp	14,070
Max Takeoff	13,870
Max Landing	12,750
Max ZFW	10,510
Nose Baggage	400
Aft Cabin	100
Tail cone Baggage	600

Altitude Limitations:

Max Operating	45,000Ft
Takeoff	10,000Ft (14,000Ft with SL525B-73-02)
Landing	10,000Ft (14,000Ft with SL525B-73-02)
Yaw Damper Inop	30,000Ft
Gear/Flap Extension	18,000Ft

Minimum Autopilot Use:

Cruise	1000Ft
ILS Approach	180Ft
Non-precision Approach	350Ft
Takeoff/Go-Around	350Ft

Speed (KIAS):

V_{mca} (AFM Section IV)	88 *(81 with Flaps set to Takeoff & Approach)*
V_{mcg} (AFM Section IV)	89
V_{mo} below 8000	260
V_{mo} above 8000	278
M_{mo} above 29300	0.737M
V_{fe} Takeoff & Approach	200
V_{fe} Land	161
V_{fe} Failed Ground	140 *(prohibited in flight/emergency only)*
V_{lo}/V_{le}	200
Max Tire Groundspeed	165
Icing Conditions	180 *(Minimum, except for approach & landing)*
Turbulent Air Penetration	180

Wind:

Max Tailwind for Engine Start	12 *(10 with SL525B-73-02)*
Max Crosswind for Engine Start	16 *(10 with SL525B-73-02)*
Max Tailwind for Landing	10
Max Crosswind for Landing	25 *(demonstrated, not a limitation)*

Temperature:

Minimum for engine start	-40 ° C
Minimum for T/O & Ldg	-54 ° C
Tail De-Ice Boots (Minimum)	-35 ° C (RAT)

LIGHTING

How can the crew activate the Emergency Lights manually?

Emergency Light Switch on pilot's panel (ON position)
Passenger Safety Switch
Entry Light Switch under the door latch
Entry Light Switch on the refreshment center cabinet

When the Emergency Light Switch is placed in the ARMED position, what will trigger the emergency lights to activate automatically?

Loss of normal DC power
Lateral impact (2G) sensors

Where is/are the wing ice inspection light(s) located?

The wing ice inspection light is located on the left side of the fuselage. An optional wing ice inspection light may be installed on the right side of the fuselage.

FLIGHT CONTROLS

What does the control lock secure?

Ailerons, Rudder, and Elevator lock in the Neutral position. Throttles will lock in the cutoff position if they are off when lock is engaged.

What are the nose wheel tow limits with the control lock engaged?

60 degrees either side of center.

When does the FLAPS > 35 Annunciator illuminate?

In flight when flaps are greater than LAND
On the ground when Flaps greater than Land and both throttles > 85% N2

When does the stick shaker activate?

Approximately .83 AOA (10% before the stall).

State Memory Items for:

Autopilot Malfunction

AP TRIM DISC Button	*PRESS and RELEASE*

Electric Elevator Trim Runaway

AP TRIM DISC Button	*PRESS and RELEASE*
THROTTLES	*As REQUIRED*
SPEEDBRAKES	*As REQUIRED*
MANUAL ELEVATOR TRIM	*As REQUIRED*
PITCH TRIM CB (L PANEL)	*PULL*

What is the location of the Pitch Trim CB?

Pilot's CB Panel, second row up from the bottom, 3rd circuit breaker aft.

What will cause the speed brakes to retract automatically?

Throttle lever position greater than 85% N2
Flaps selected from GROUND to LAND

Will the landing gear and flaps operate normally with both generators offline and the Battery switch selected to EMER?

Yes

ELECTRICAL

What is the maximum airport elevation for a battery start?

10,000Ft (14,000Ft with SL525B-73-02)

What is the battery cycle limitation?

3 starts per hour

Does a generator assisted cross start count as a battery start?

1/3 of a battery start

Does a GPU start count towards the battery cycle limitation?

No

What is the minimum battery voltage for starting?

24 Volts

What is the limitation for each starter?

3 starts in 30 minutes with a 60 second rest period between starts.

What is the voltage rating of the system?

29 VDC

Can the Battery Disconnect Switch be used to disconnect the battery for overnight storage of the aircraft?

No. The disconnect solenoid is battery powered and will discharge the battery.

What items are powered by the Hot Battery Bus?

Forward and aft baggage compartment lights
Emergency exit lights
Voltmeter
Wing anti-ice over-temperature sensors and wing anti-ice valves

Name at least 5 items available with the battery switch in EMER (dual generator failure)?

Voltmeter
COM 1
NAV 1
Audio Panels (Both)
Copilot Pitot Heat
Standby Pitot Heat
Flood Lights
Standby N1

RTU #1(STBY HSI)
RTU #2
RIU L-B
Copilot ADC
Standby ADC
Copilot AHRS
Garmin GPS 500
(If installed)

Flap Control
Gear Control
Hydraulic Control
(Landing Gear & Flaps ONLY)
Standby Flight Display
(Dedicated battery, 88 minutes)

State the memory items for:

Battery O'Temp:

VOLT/AMP	NOTE
BATTERY Switch	EMER
VOLT/AMP	NOTE DECREASE

Emergency Evacuation:

Parking Brake	SET
Throttles	BOTH OFF
L/R ENG FIRE Buttons	BOTH PRESS
Illuminated BOTTLE ARMED Buttons	BOTH PRESS
	(If fire suspected)
Battery Switch	OFF
ELT	MAKE SURE SYSTEM IS ACTIVATED
Airplane and Immediate Area	CHECK FOR BEST ESCAPE ROUTE
IF THRU CABIN DOOR	OPEN
	Move away from Airplane
IF THRU EMERGENCY EXIT DOOR	REMOVE and THROW EXIT DOOR OUT OF AIRPLANE
	Move away from Airplane

FUEL SYSTEM

What is the fuel capacity of the CJ3?

4710lbs

What is the maximum fuel imbalance under normal/emergency conditions?

200lbs / 600lbs (Demonstrated, not a limitation)

Is Prist (EGME/DIEGME) required? Why not?

No, Fuel to Oil heat exchanger.

With the FUEL BOOST switches set to NORM, when will the boost pumps activate automatically?

Engine start
Fuel transfer
Low fuel pressure

When does the FUEL LOW LEVEL annunciator illuminate?

This annunciator will illuminate when 190 +/- 20lbs of fuel remains in the associated fuel tank.

Name potential causes for the FUEL FILTER BYPASS annunciator to illuminate?

Ice in fuel or contaminated fuel

The left fuel gauge indicates 200lbs less than the right tank. Explain the balancing process and what indication you will have that fuel is being transferred.

Turn the Fuel Transfer knob from Right tank to Left Tank. The FUEL TRANSFER and FUEL BOOST ON R annunciators will illuminate. Monitor the fuel quantity until the transfer attains the desired level, then turn the FUEL TRANSFER knob off. The lights will extinguish.

HYDRAULIC SYSTEM

What type of hydraulic fluid is approved?

MIL-PRF-83282 (Braco)

What is the capacity of the hydraulic system and where do you check it?

2 liters/2.3 quarts
Inspect the sight gauge located at the hydraulic reservoir.

What systems are operated by the Hydraulic System?

Flaps, Landing Gear, & Speed Brakes

Are the wheel brakes connected to the main hydraulic system?

No, the brake system is a separate hydraulic system.

During cruise, the HYD PRESS ON light illuminates. What do you do?

The hydraulic system is pressurized. Refer to the checklist.

During flight, the HYD FLOW LOW L AND R annunciators both illuminate. What hydraulic systems are affected?

Total Hydraulic System Failure - Possible rupture of a hydraulic line and loss of hydraulic fluid.

Refer to the checklist.

Flaps: Remain in last position
Speed brakes: Cannot be extended, but will trail if retract is selected.
Landing gear: Cannot be retracted but can be extended using the auxiliary backup system.

LANDING GEAR and BRAKES

Name several functions associated with the landing gear squat switches.

Landing gear handle solenoid

Outflow valves operate in ground mode

Cross generator start disabled in flight

Flight hour meter

Anti-skid

Ground flaps (annunciator)

AOA (stick shaker) test.

Emergency pressurization inoperative on the ground

What does pulling the Emergency Landing Gear Extension T-Handle do?

Manually releases the uplocks.

What does pulling the collar do?

It provides nitrogen pressure to the extension side of the gear actuators ensuring down lock and provides an alternate path for the hydraulic fluid to travel back to the reservoir.

Why does the checklist call for the pilot to pull the Gear Control circuit breaker prior to emergency landing gear extension?

This will prevent inadvertent retraction of the landing gear. Follow the checklist!

If both pilots apply pressure to the brakes, who controls the amount of braking?

The pilot pushing the hardest.

Should you turn on or test the Anti-skid while moving?

No, the system will not activate nor test unless the aircraft is completely stopped.

After landing, when does the touchdown protection allow the pilot to apply pressure to the wheel brakes?

Wheel Spin up (59 Kts) or 3 seconds

Below what speed is the Anti-skid system deactivated?

De-Activated below 12 Kts

After lowering the gear, the POWER BRAKE LOW PRESS and ANTISKID INOP annunciators illuminate. What does this mean? What do you do?

This combination of annunciators indicates low or no pressure in the power brake system. The Anti-skid system is also inoperative.

How does the emergency brake system work?

It uses nitrogen pressure from the emergency air bottle.

What precautions would you use while using the emergency brakes?

No Anti-skid Protection
Limited use – Each pull reduces the amount of nitrogen pressure available.
Do not taxi to the ramp.
Keep feet off the brake pedals.

PRESSURIZATION & AIR CONDITIONING

What is the maximum cabin differential pressure?

8.9 PSIG

If pressurization is operating in manual mode, what system protections are available?

Outflow valves will close if the cabin altitude reaches 14,500ft +/- 500. In addition, the over pressure safety valve will open if the differential pressure exceeds 8.9 PSIG.

What switches will allow the Freon vapor cycle system to operate?

AC Selected to AUTO – Compressor will cycle automatically.
DEFOG FAN – Compressor will run regardless of the position of the AC switch.

Where is the temperature sensor for the automatic temperature controller?

In the inlet of the aft evaporator fan, located in the dropped aisle at the rear pressure bulkhead.

What is the temperature range for automatic temperature control?

65-85°F (18-29°C)

State the memory Items for the CABIN ALT annunciator:

Oxygen Masks	*Don & 100%*
Microphone Select Switches	*MIC OXY MASK*
Emergency Descent	*As REQUIRED*
Passenger Oxygen	*MAKE SURE PAX ARE RECEIVING O_2*

State the memory items for an Emergency Descent:

AP TRIM DISC BUTTON	*PRESS and RELEASE*
Throttles	*IDLE*
Speedbrakes	*EXTEND*
Airplane Pitch Attitude	*INITIALLY TARGET 7.5° NOSE DOWN*

State the memory items for Environmental Smoke or Odor:

Oxygen Masks	*DON and EMER*
Microphone Select Switches	*MIC OXY MASK*

FIRE PROTECTION

What preflight tasks should be accomplished on the Fire System?

Check fire bottle pressure in the tail cone
Rotary test
Check portable fire extinguishers (pressure and inspection date).

State the memory items for a FIRE WARNING:

Throttle (Affected Engine)	IDLE
IF LIGHT REMAINS ILLUMINATED:	
ENGINE FIRE BUTTON (Affected Engine)	LIFT COVER and PUSH
Either Illuminated BOTTLE ARMED Button	PUSH

What actions take place when a FIRE BUTTON is pushed?

Fuel Firewall Shutoff valve closes
Hydraulic Firewall Shutoff valve closes
Generator field relay trips
Both Fire Bottles arm

If the aircraft loses normal DC power, will the fire detection system alert the crew to an engine fire?

No

AVIONICS

Can the autopilot be engaged after suffering an AHRS failure?

No, use of the autopilot requires both AHRS computers.

What do you do if the Pilot's PFD goes blank?

Use the reversion switch to display the information on the MFD.

Explain the meaning of the yellow E and A warning annunciators with an arrow above the airspeed tape on either PFD.

Autopilot out of trim indicators

If a VOR approach is flown using green needles, what mode(s) must be selected on the Flight Mode Annunciator?

APPR or HDG

Must BARO minimums be entered separately by each pilot?

Yes

What avionics manuals are required to be on board the aircraft?

Pro Line 21 Operators Guide
FMS-3000 Operators Guide
GPS-500 Operators Guide (if installed)

OXYGEN SYSTEM

Where is the Oxygen Bottle Serviced?

The oxygen bottle is serviced using a Schrader Valve located in the nose baggage compartment on the right side of the airplane.

How do you turn on the Oxygen System?

The bottle is located under the floor of the nose baggage compartment. Flight Crews normally do not access the shutoff valve. The Crew Masks should be checked for oxygen flow.

How do you know the oxygen bottle has exceeded its rated pressure?

The green blow-out disc located on the lower right side of the fuselage will be missing if the oxygen bottle has discharged its contents overboard.

Will the passenger oxygen masks deploy automatically?

Yes, if the Oxygen Control Valve is in NORMAL and cabin altitude exceeds 14,500ft +/- 500.

What is the maximum cabin altitude for continuous use of the passenger O_2 masks?

25,000ft.

What is the max cabin altitude for continuous use of the EROS Masks?

40,000ft.

What is the Cabin temperature limitation for the passenger oxygen masks?

Cabin temperature must be at or above 0°C prior to flight above 24,000ft.

Cabin temperature must be at or above 0°C for a minimum of 20 minutes prior to takeoff if the aircraft has been cold soaked on the ground for a period of 2 hours or longer at -10°C or below.

ICE AND RAIN

What is the definition of icing conditions on the ground?

Icing conditions on the ground exist when the OAT or indicated RAT is +10°C (+50°F) or below and, where surface snow, slush, ice or standing water may be ingested by the engines or freeze on engine nacelles, or engine sensor probes.

What is the definition of icing conditions in flight?

Icing conditions may exist when the indicated RAT in flight is +10°C (+50°F) or below, and visible moisture in any form is present (such as clouds, fog with ***visibility of one mile or less****, rain, snow, sleet, or ice crystals).*

What systems are anti-iced and de-iced on the CJ3?

Anti-Ice

- *Wing Leading Edges*
- *Engine Inlets*
- *Pitot Tubes*
- *Static Ports*
- *Drains*
- *PT2/TT2 Probes*
- *Windshields*

De-Ice

- *Tail Boots*

How does the Windshield Rain Removal System Work?

Pull the PULL RAIN Handle, which opens augmenter doors below the windshields to deflect rain, then turn the Windshield Bleed Air on low and open the Manual Valves to the MAX position.

How do you operate the Windshield Bleed Air?

Open the WINDSHIELD BLEED AIR Manual valves
Select the WINDSHIELD BLEED switch to:
LOW (Above -18°C) or
HI (Below -18°C)

What is the limitation for use of Pitot Static Heat on the ground?

2 Minutes

What is the limitation for use of the Wing Anti-Ice on the ground?

1 minute after WING ANTI-ICE light has extinguished.

At night, how do you know ice is forming on the aircraft?

Wing Inspection Light (Left Wing)
Windshield Ice Detection Lights

What is the minimum N2 for effective anti icing?

75%

Explain the ENG and/or WING ANTI-ICE L/R annunciator function.

Temperature is below a safe level. These lights are normal immediately after the system has been activated. The ENG ANTI-ICE annunciator may not appear if the ambient temperature is greater than 10°C. Subsequent illumination of one of these annunciators will trigger the Master Caution.

POWERPLANT

What type of engine is on the CJ3? What is its rated power?

Williams International FJ44-3A
2780 lbs. of thrust (Sea Level & 72°F)

How is the engine controlled?

FADEC

What supplies electricity to the FADECs in the event of loss of normal DC power?

Permanent Magnet Alternators

Provided the IGNITION switches are set to NORM, when will the igniters activate automatically?

Engine Start – When the throttle is moved from cutoff to idle
In flight, when the landing gear is down & throttle setting is below MCT
When the FADEC senses an engine flameout

Note: Client may mention wing/engine anti-ice. This is applicable to non-FADEC aircraft only, but it still appears in the training literature.

How long may the aircraft operate with the throttles in the Takeoff Detent?

Normal Operation – 5 minutes
One Engine Inoperative – 10 minutes

What is the maximum ITT during Engine Start? How is this show on the EIS?

1000°C (Above 900°C for no more than 15 seconds)
Red Triangle

What are the engine indicating parameter colors on the EIS?

Green	*Normal Limits*
Yellow	*Transient Limits (Flashes 5 sec and Number Values also appear)*
Red	*Exceeds limits*

What indicates that an Oil Filter is clogged?

The oil filter bypass button located on each engine. This must be checked during the exterior inspection.

State the memory items for an ENGINE FAILURE OR FIRE OR MASTER WARNING DURING TAKEOFF (SPEED BELOW V1 - TAKEOFF REJECTED):

Brakes	*As REQUIRED*
Throttles	*IDLE*
Speed Brakes	*EXTEND*

State the memory items for an ENGINE FAILURE OR FIRE OR MASTER WARNING DURING TAKEOFF (SPEED ABOVE V1 - TAKEOFF CONTINUED):

Maintain directional control	
Airspeed	*ACCLERATE to V_R*
Rotate at	*V_R climb at V_2*
Landing Gear	*UP (after positive rate of climb)*
WING XFLOW Switch	*WING XFLOW (if Anti-Ice Switches are on)*
Flaps	*RETRACT (at level off altitude and V_2 + 10)*
	ACCLERATE to V_{enr} (V_T)

State the memory items for an ENGINE FAILURE DURING FINAL APPROACH:

Thrust (operating engine)	*INCREASE (as required)*
Airspeed	*V_{APP}*
Flaps	*TAKEOFF AND APPROACH*