CFI Bootcamp

Flight Instructor Training

Systems

Engine and Systems Monitoring

More than Just "In the Green"

CFI Bootcamp
Flight Instructor Training

Today's Bootcamp+ Network Programming

What's on for Today?

Live Show – 1st Hour – Wings Credit
Open Mic – 2nd Hour – End
Monitor the Chat – Links/Info
Wings Credit - End of the Live Show

CFI Bootcamp
Flight Instructor Training

Today's Bootcamp+ Network Programming

What's New?

PH Rebroadcasts Wed – 8 pm EDT

Power Hour Podcasts – Full shows

4th July Sale Now – 25% Off Sitewide

CFI Bootcamp
Flight Instructor Training

Concentration on the 172N, S, G1000

- Brief the Instruments that need to be monitored
- Discuss normal indications for varying conditions of flight
- Discuss abnormal indications
- Annunciators
- Offer up a checklist to cover critical task and indications

CFI Bootcamp
Flight Instructor Training

Cessna 172N

- Tachometer
- Fuel Gauges L/R
- Oil Pressure
- Oil Temperature
- Ammeter
- Vacuum

CFI Bootcamp
Flight Instructor Training

Cessna 172S – Instrument are Combined

- Tach – Solo
- Fuel Gauges L/R
- Oil Pressure and Temperature
- Fuel flow and EGT
- Suction and Ammeter

CFI Bootcamp
Flight Instructor Training

Cessna 172S – Annunciator Panel

- Volts
- Low Fuel L/R
- Lov Vac L/R
- Low Oil Pressure
- Pitch Trim – Autopilot Issue

CFI Bootcamp
Flight Instructor Training

Cessna 172S – G1000 – Left Side of MFD

- Tach
- Oil pressure
- Oil temperature
- Vacuum

CFI Bootcamp
Flight Instructor Training

Cessna 172S – G1000 – Left Side of MFD

- Bus voltages
- Bus currents
- Fuel L/R
- Fuel Flow
- EGT

CFI Bootcamp
Flight Instructor Training

Cessna G1000 – Annunciators in each Gauge

- No color - Normal
- Green - Normal
- Yellow – Caution - out of range
- Red - Failure

CFI Bootcamp
Flight Instructor Training

What All Gauges Must Indicate

- Limitations
- Normal values
- Caution range
- Redline limits

Pilot's Operating Handbook
and
FAA Approved Airplane Flight Manual

THIS PUBLICATION MUST BE CARRIED IN THE AIRPLANE AT ALL TIMES.

The Cessna Aircraft Company

Model 172S

Serial No. 17259271

Registration No. N5308A

This publication includes the material required to be furnished to the pilot by FAR Part 23 and constitutes the FAA Approved Airplane Flight Manual.

FAA APPROVAL

FAA APPROVED UNDER FAR 21 SUBPART J
The Cessna Aircraft Co.
Delegation Option Manufacturer CE-1

Executive Engineer

Date: July 10, 1998

Member of GAMA

COPYRIGHT © 1998
The Cessna Aircraft Company
Wichita, Kansas USA

Original Issue - 8 July 1998

CFI Bootcamp
Flight Instructor Training

Section 2 of the POH/AFM - Limitations

- Contains all limitations – also check the supplements section
- Some older planes don't have limitations in a handbook – They use placards and gauge markings instead.

POWERPLANT LIMITATIONS

Engine Manufacturer: Textron Lycoming.
Engine Model Number: IO-360-L2A.
Maximum Power: 180 BHP rating.
Engine Operating Limits for Takeoff and Continuous Operations:
Maximum Engine Speed: 2700 RPM.

NOTE

The static RPM range at full throttle is 2300 - 2400 RPM.

Maximum Oil Temperature:	245°F (118°C).
Oil Pressure, Minimum:	20 PSI.
Maximum:	115 PSI.

CFI Bootcamp
Flight Instructor Training

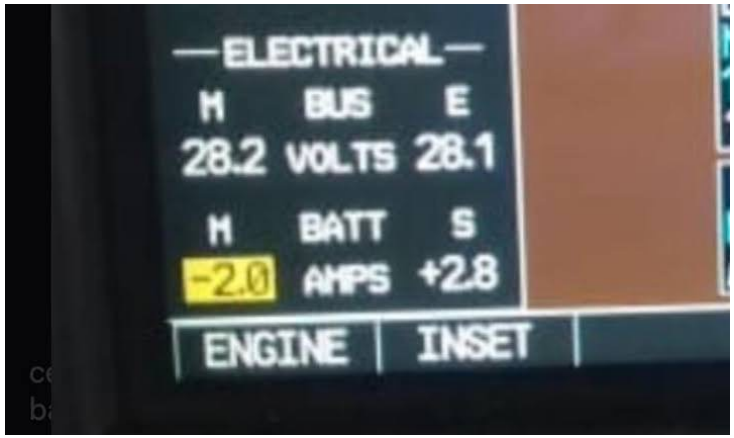
Engine Gauges – What's Normal?
Before Starting Engine – Master On

- No oil pressure
- Possible oil temperature
- Vacuum – zero
- Fuel Flow – zero
- Ammeter - Discharge

CFI Bootcamp
Flight Instructor Training

Engine Gauges – What's Normal?
After Starting – Average Climates

- Bus voltage – Higher than 24 up to 28v
- Bus current – Reflects what is being used – Not Yellow



CFI Bootcamp
Flight Instructor Training

Engine Gauges – What's Normal?
After Starting – Hot Climates

- Oil pressure rises within a few seconds – normal to slightly high
- Oil temperature - Rises quicker than cold climate – May indicate some temperature even before engine start – Hot start procedure
- Ammeter – High rate of charge – begins to lower within a minute

Engine Gauges – What's Normal?
Before Takeoff

- All gauge values - nominal
- Magnetos – total drop and difference per POH
- Zero mag drop indicates a hot mag – even if it's in spec
- Ammeter near zero

Engine Gauges – What's Normal? During Takeoff

- Fuel Flow approximately 16 GPH – 172S
- Climb – monitor temp – shallow climb if too hot – reduce power

CFI Bootcamp
Flight Instructor Training

Engine Gauges – What's Normal?
Cruise

- Gauges - Nominal
- Tach – Set to desired power for TAS/Range
- EGT – Lean mixture to peak EGT then best power - +25°C
- Fuel flow should be close to POH – Re-lean if not
- Ammeter - Nominal

Engine Gauges – What's Normal?
Bad Signs

- Low Oil pressure/high Oil Temp – Potential engine failure imminent
- Sputtering engine due to bad magneto – firing at the wrong time
- Lowering Tach – Intake/Carb Icing – Fouled plugs due to not leaning
- Ammeter shows negative/yellow – Alternator failure – Using battery

CFI Bootcamp
Flight Instructor Training

Introducing “FREEDA”
Enroute Checklist for Critical Tasks and Indications – Perform every 15 min

F **Fuel**

Check quantity remaining and confirm the fuel selector is on the correct tank.

R **Radios**

Test radios as needed and load the next expected frequencies into standby.

E **Engine**

Check temperature and pressure indications, vacuum/suction, and confirm carburetor heat is in the correct position (on or off, as appropriate).

E **Electrics**

Confirm the electrical system is charging normally.

D **Direction Indicator**

Set/cross-check the heading indicator against the magnetic compass.

A **Altimeter**

Set to the current altimeter setting as received from ATC, ATIS, or AWOS/ASOS.

CFI Bootcamp
Flight Instructor Training

Let’s Take a Quiz and Get a Study Guide!

- C172N Quiz
- C172S Quiz
- C172S G1000 Quiz
- Study Guide with Assessment Quiz

CFI Bootcamp
Flight Instructor Training

Special Announcement!

Reminders!

SAFE
SOCIETY OF AVIATION AND FLIGHT EDUCATORS

CFI Study Group on Facebook

NAFI

National Association of Flight Instructors

Join SAFE, NAFI and the CFI Study Group by Clicking on the Images Above

CFI Bootcamp
Flight Instructor Training