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Regulations

Airworthiness and InOp Equipment

How well do you know

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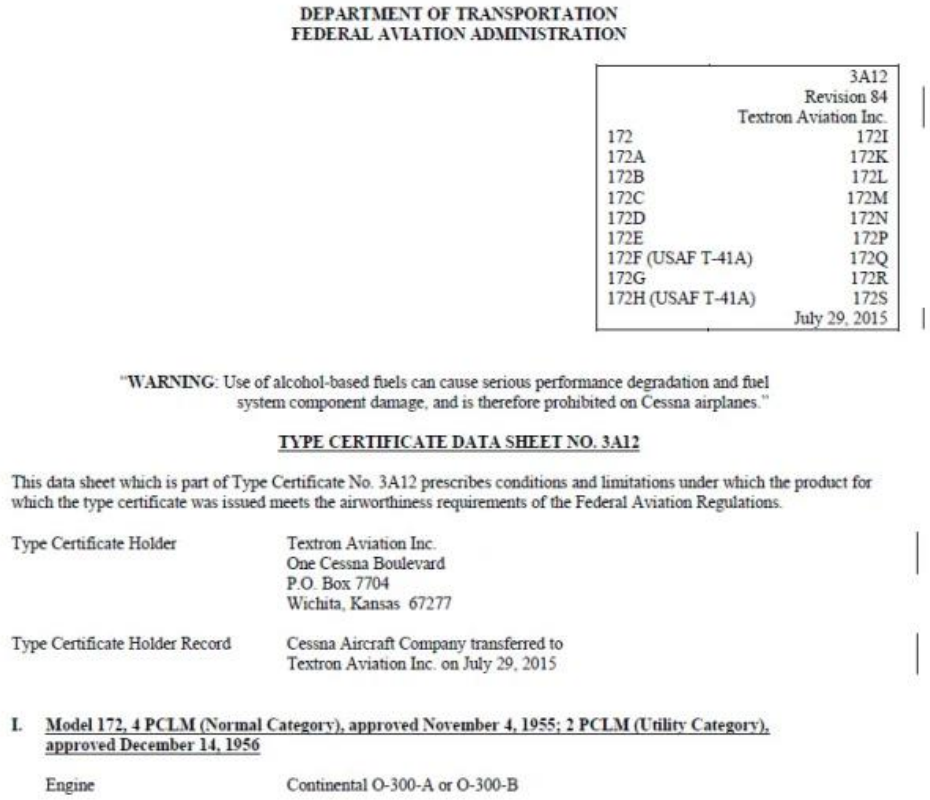
Airworthiness – General Determination

An airplane must conform to it's type certificate at all times



DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

	3A12 Revision 84 Textron Aviation Inc.
172	172I
172A	172K
172B	172L
172C	172M
172D	172N
172E	172P
172F (USAF T-41A)	172Q
172G	172R
172H (USAF T-41A)	172S
	July 29, 2015

"WARNING: Use of alcohol-based fuels can cause serious performance degradation and fuel system component damage, and is therefore prohibited on Cessna airplanes."

TYPE CERTIFICATE DATA SHEET NO. 3A12

This data sheet which is part of Type Certificate No. 3A12 prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder	Textron Aviation Inc. One Cessna Boulevard P.O. Box 7704 Wichita, Kansas 67277
Type Certificate Holder Record	Cessna Aircraft Company transferred to Textron Aviation Inc. on July 29, 2015

I. Model 172, 4 PCLM (Normal Category), approved November 4, 1955; 2 PCLM (Utility Category), approved December 14, 1956

Engine	Continental O-300-A or O-300-B

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Type Certificates

Basis for airplane certification – Min installed equipment

Type Certificates

Available here

Required Equipment VFR/IFR/Night

91.205 – If you say TOMATOFLAMES I'll Zap you

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Equipment Lists

Manufacturer – Lists all installed equipment on made date

SECTION 6
WEIGHT & BALANCE / EQUIPMENT LIST

CESSNA
MODEL 172S

ITEM NO	EQUIPMENT LIST DESCRIPTION	REF DRAWING	WT LBS	ARM INS.
	73 - ENGINE FUEL & CONTROL			
73-01-S	EGT/FUEL FLOW INDICATOR	S3277-4	0.6	7.8
	77 - ENGINE INDICATING			
77-01-R	RECORDING TACHOMETER INSTALLATION	S3329-5	1.0	12.1
	78 - EXHAUST			
78-01-R	EXHAUST SYSTEM INSTALLATION	9954100-1	16.3*	-20.0*
	- MUFFLER & TAILPIPE WELD ASSY	9954000-2	4.6	-22.7
	- SHROUD ASSEMBLY, MUFFLER HEATER	9954100-3	0.8	-22.7
	79 - OIL			
79-01-R	OIL COOLER INSTALLATION	0550365-1	3.3*	-11.0*
	- OIL COOLER, STEWART WARNER	10877A	2.3	-11.0
79-02-R	OIL PRESSURE & TEMPERATURE INDICATOR	S3279-1	0.4	16.5

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Kinds of Operation Equipment List - KOEL

Limitations section of the POH – Typically G1000 type

System, Instrument, and/or Equipment	Kinds of Operation				Remarks, Notes, and/or Exceptions
	VFR Day	VFR Nt.	IFR Day	IFR Nt.	
Exhaust Gas Temperature Indication	—	—	—	—	
Fuel Flow Indication	1	1	1	1	
Manifold Pressure Indication	1	1	1	1	
Oil Pressure Indication	1	1	1	1	

Kinds of Operation Equipment List - KOEL

Lists what equipment is required for a type of operation

Form 337 – Major Modification or Repair and STC

The only way to install equipment not original is 337 or STC

MAJOR REPAIR AND ALTERATION
(Airframe, Powerplant, Propeller, or Appliance)

Supplemental Type Certificate

Number

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STC – Supplemental Type Certificate

Blanket FAA approval for a particular thing on specific makes and models

STC – Supplemental Type Certificate

Will include new limitations if applicable – Ex. 172N 180HP

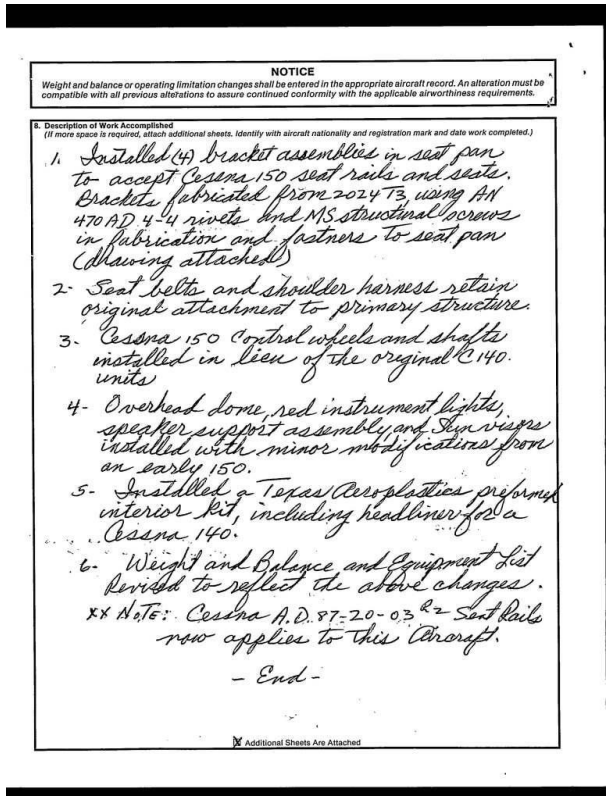
STC – Supplemental Type Certificate

Gross weight increase of 150 lbs.

Airworthiness and InOp Equipment

Form 337 – Major Alteration or Repair

A&P Installs new equipment – Documents on this form



NOTICE

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished
(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

1. Installed (4) bracket assemblies in seat pan to accept Cessna 150 seat rails and seats. Brackets fabricated from 2024 T3, using AN 470 AD 4-4 rivets and MS structural screws in fabrication and fastners to seat pan (drawing attached)
2. Seat belts and shoulder harness retain original attachment to primary structure.
3. Cessna 150 control wheels and shafts installed in lieu of the oreginal C140. units
4. Overhead dome, red instrument lights, speaker support assembly and Sun visors installed with minor modifications from an early 150.
5. Installed a Texas Aeroplastics preformed interior kit, including headliner for a Cessna 140.
6. Weight and Balance and Equipment List Revised to reflect the above changes.

XX NoTe: Cessna A.D. 87-20-03 R2 Seat Rails now applies to this Aircraft.

- End -

X Additional Sheets Are Attached

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Form 337 – Major Alteration or Repair

Approved by an IA, DAE or FAA Inspector

Form 337 – Major Alteration or Repair

Temporary installations (Velcro etc.) don’t require a 337

Required Inspections/Tests

AVIATED

Required Inspections/Tests

Annual – 12 Cal Mos. – 91.409

Required Inspections/Tests

VOR Test – Every 30-Days – 91.171


VOR TEST RECORD

FAR 91.171 VOR equipment check for IFR operations.

N ____ CAP– ____ PAGE # ____

DATE	PLACE	TYPE	BEARING ERROR(S)		SIGNATURE / INITIALS
			NAV 1	NAV 2	

TYPE OF VOR CHECK: V = V.O.T. S = SIGNAL B = DUAL VOR (GROUND OR AIR) A = AIRBORNE

VOR CHECK	TOLERANCE
VOT (V), Airport Designated Check Point (S), Dual VOR Comparison Check (B)	±4
Airborne Check Point (A)	±6

CAPT 70-4 VOR TEST RECORD 91 DEC 21

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Required Inspections/Tests

100 Hour – Each 100 hours (usually tach) – 91.409

Required Inspections/Tests

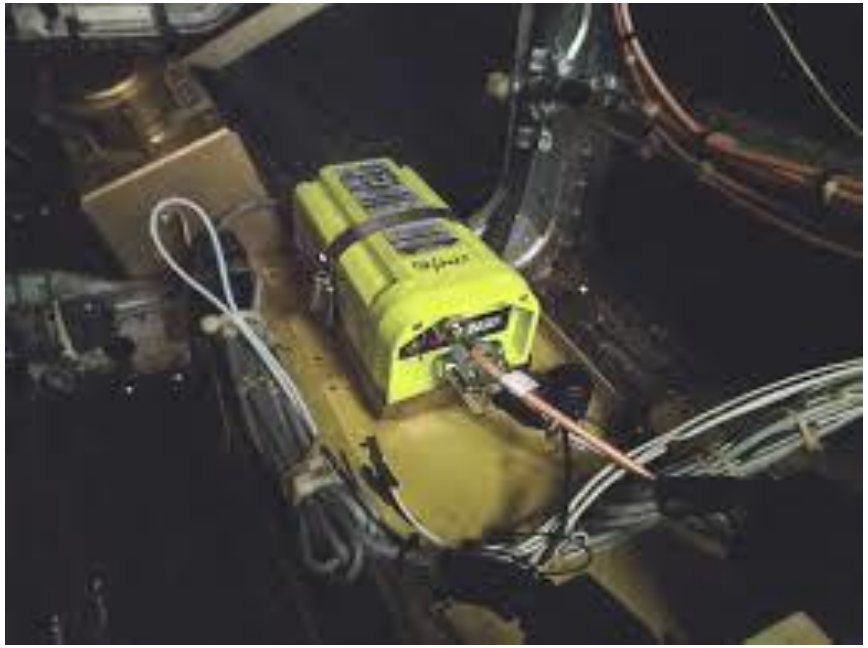
Altimeter Static Inspection/Test – 24 Cal Mos. – 91.411

Required Inspections/Tests

Transponder Inspection/Test – 24 Cal Mos. – 91.413

Required Inspections/Tests

ELT Inspection – 12 Cal Mos. – 91.207(d)



Required Inspections/Tests

ELT Battery Replacement – 1 hr cumulative use, 50% life if rechargeable or battery replacement date - 91.207(c)

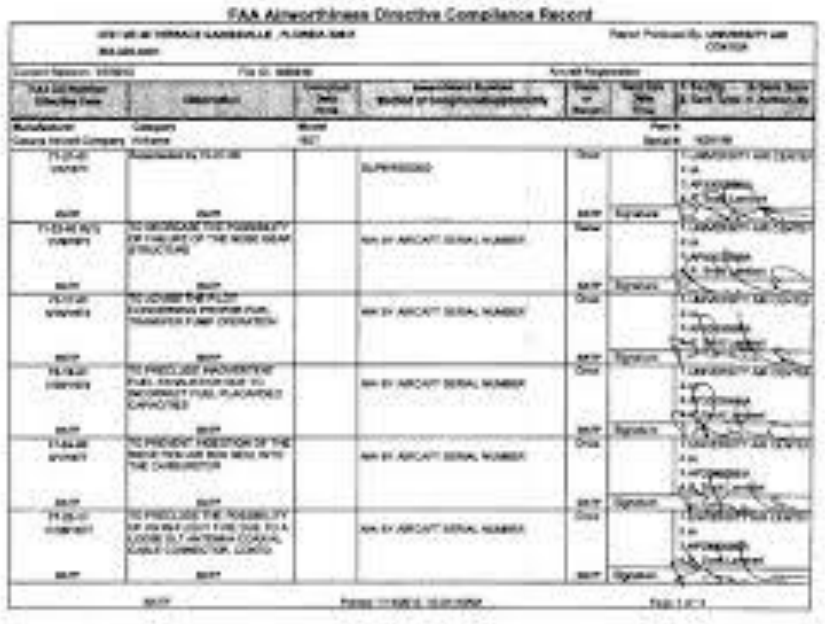
Required Inspections/Tests

ADs – Airworthiness Directives – One time or Recurring

All about ADs from FAA Here

Required Inspections/Tests

Logged by AD number, date and method of compliance and date/time of next action in the logbook or other record


FAA Airworthiness Directive Compliance Record

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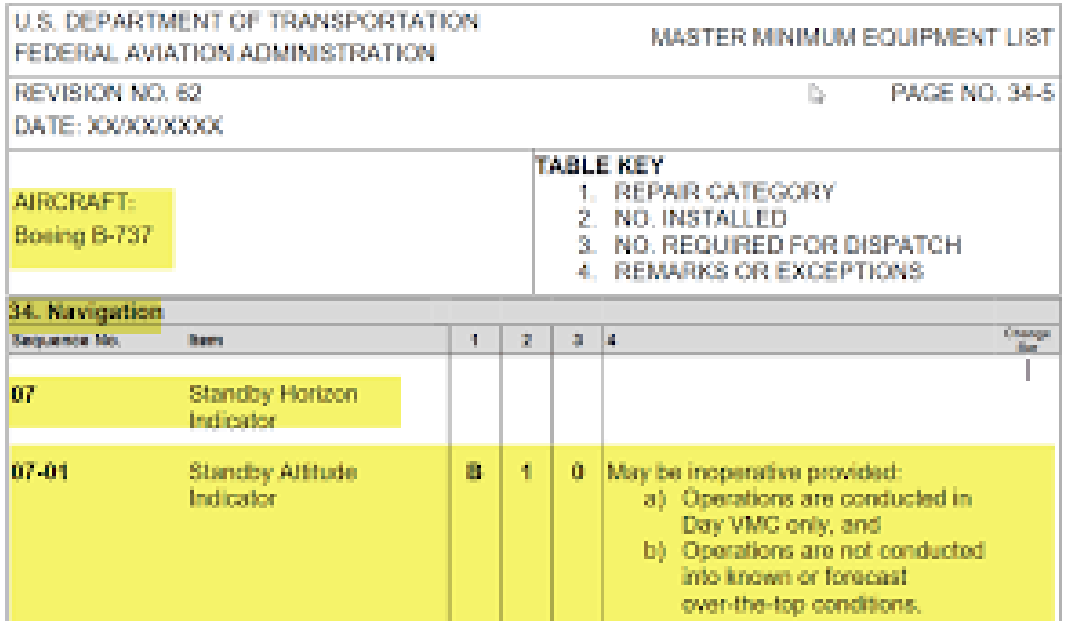
Minimum Equipment List

Manufacturer developed – User Modified – FAA approved



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

MASTER MINIMUM EQUIPMENT LIST

REVISION NO. 62
DATE: XX/XX/XXXX

PAGE NO. 34-5

AIRCRAFT:
Boeing B-737

TABLE KEY
1. REPAIR CATEGORY
2. NO. INSTALLED
3. NO. REQUIRED FOR DISPATCH
4. REMARKS OR EXCEPTIONS

34. Navigation

Sequence No.	Item	1	2	3	4	Change Bar
07	Standby Horizon Indicator					
07-01	Standby Attitude Indicator	B	1	0	May be inoperative provided: a) Operations are conducted in Day VMC only, and b) Operations are not conducted into known or forecast over-the-top conditions.	

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Minimum Equipment List

Lists all equipment that CAN be Inop

Minimum Equipment List

Actions that must be taken prior to flight

Minimum Equipment List

Time/Days the item can be inop

Minimum Equipment List

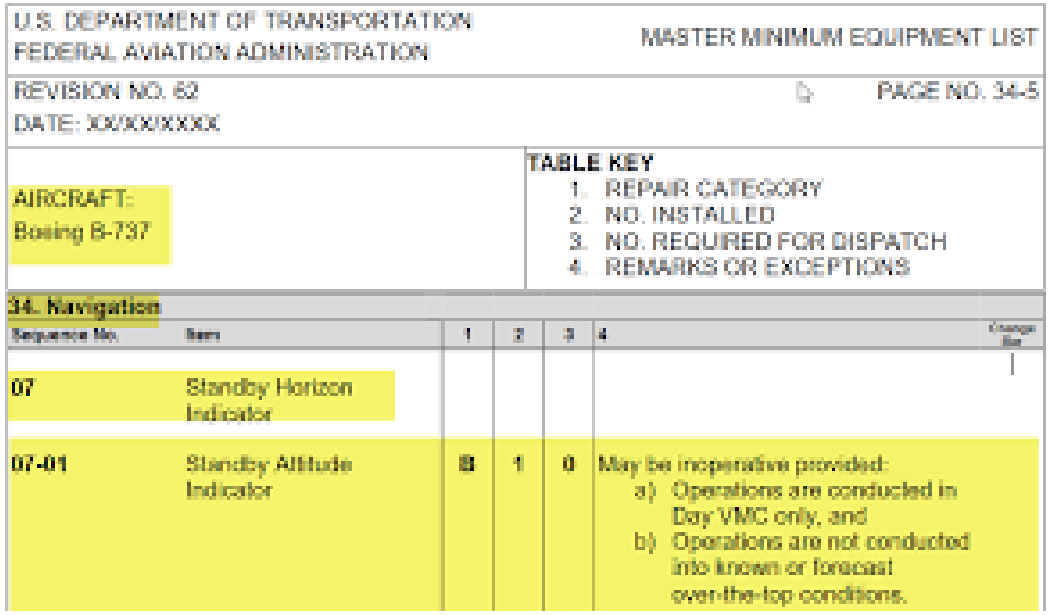
Becomes a required document in the airplane

Operating an Airplane with Inoperative Instruments or Equipment

91.213(c) – Instructions if an MEL has been approved

Operating an Airplane with Inoperative Instruments or Equipment

Use the MEL to determine what needs to be done



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

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Operating an Airplane with Inoperative Instruments or Equipment

91.213(d) – Operations without an approved MEL

Operating an Airplane with Inoperative Instruments or Equipment

Are the instruments part of 91.205 for the flight?

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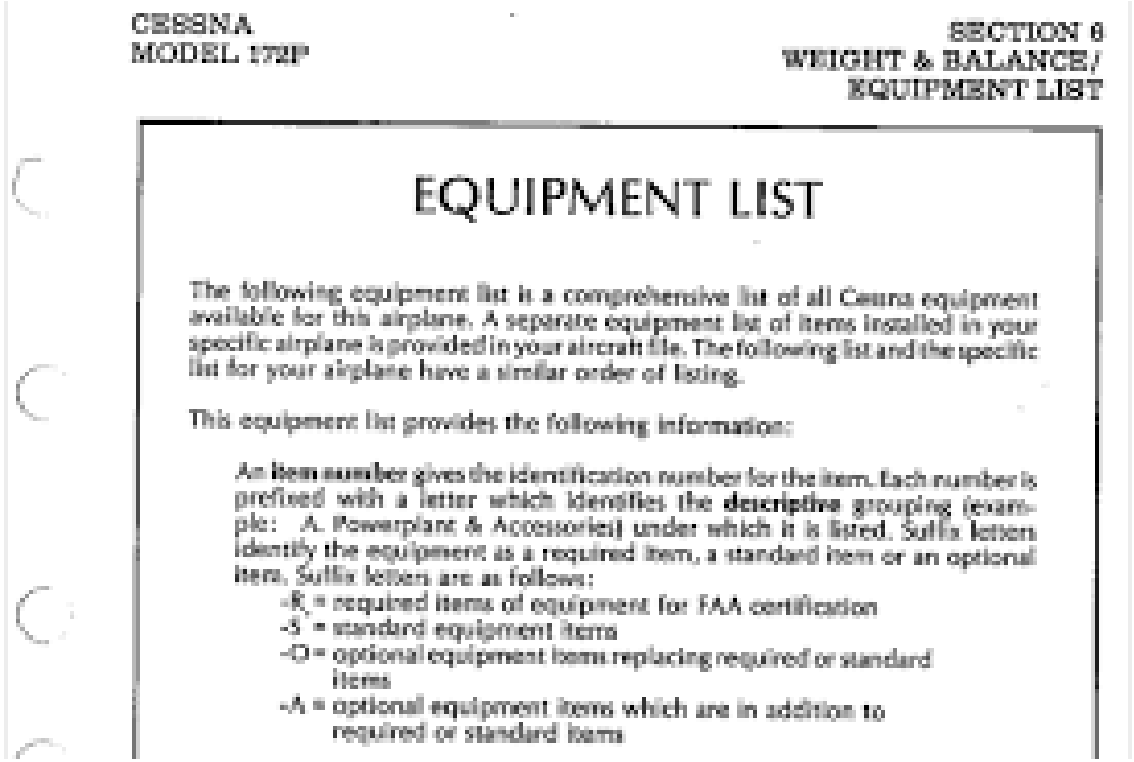
Operating an Airplane with Inoperative Instruments or Equipment

Is the equipment listed as required on the equipment list?



CESSNA
MODEL 172P

SECTION 6
WEIGHT & BALANCE/
EQUIPMENT LIST

EQUIPMENT LIST

The following equipment list is a comprehensive list of all Cessna equipment available for this airplane. A separate equipment list of items installed in your specific airplane is provided in your aircraft file. The following list and the specific list for your airplane have a similar order of listing.

This equipment list provides the following information:

An **item number** gives the identification number for the item. Each number is prefixed with a letter which identifies the **descriptive** grouping (example: A. Powerplant & Accessories) under which it is listed. Suffix letters identify the equipment as a required item, a standard item or an optional item. Suffix letters are as follows:

-R = required items of equipment for FAA certification
-S = standard equipment items
-O = optional equipment items replacing required or standard items
-A = optional equipment items which are in addition to required or standard items

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Operating an Airplane with Inoperative Instruments or Equipment

If a KOEL exists – can you operate with this configuration?

Operating an Airplane with Inoperative Instruments or Equipment

Is the equipment required by an AD?

Operating an Airplane with Inoperative Instruments or Equipment

Can the pilot safely operate the airplane without the equipment working?

Operating an Airplane with Inoperative Instruments or Equipment

Can you remove or deactivate the equipment?

Operating an Airplane with Inoperative Instruments or Equipment

Remember that some removals/deactivations would require a certified maintenance person to do this

Operating an Airplane with Inoperative Instruments or Equipment

Deactivation means – Inability to turn the system ON

Operating an Airplane with Inoperative Instruments or Equipment

No longer possible for the equipment to be used in any way

Operating an Airplane with Inoperative Instruments or Equipment

Remove/Deacativate the equipment and Placard INOPERATIVE

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Operating an Airplane with Inoperative Instruments or Equipment

If maintenance is required – Record in the logbook

Operating an Airplane with Inoperative Instruments or Equipment

The airplane may not be flown until the next required inspection

Operating an Airplane with Inoperative Instruments or Equipment

Must be repaired, removed or reinspected at that time

Operating an Airplane with Inoperative Instruments or Equipment

In each case a logbook entry must be made

Special Flight Permit – “Ferry Permit”

Issued by FSDO – Must qualify the airplane

Special Flight Permit – “Ferry Permit”

Used one time to ferry an airplane that is otherwise unairworthy

Special Flight Permit – “Ferry Permit”

All about Special Flight Permits from FAA

A look at some Legal Interpretations

Whether an airplane is required to have a 100-hr Inspection

A look at some Legal Interpretations

Whether both the beacon and anti-collision lights must work

A look at some Legal Interpretations

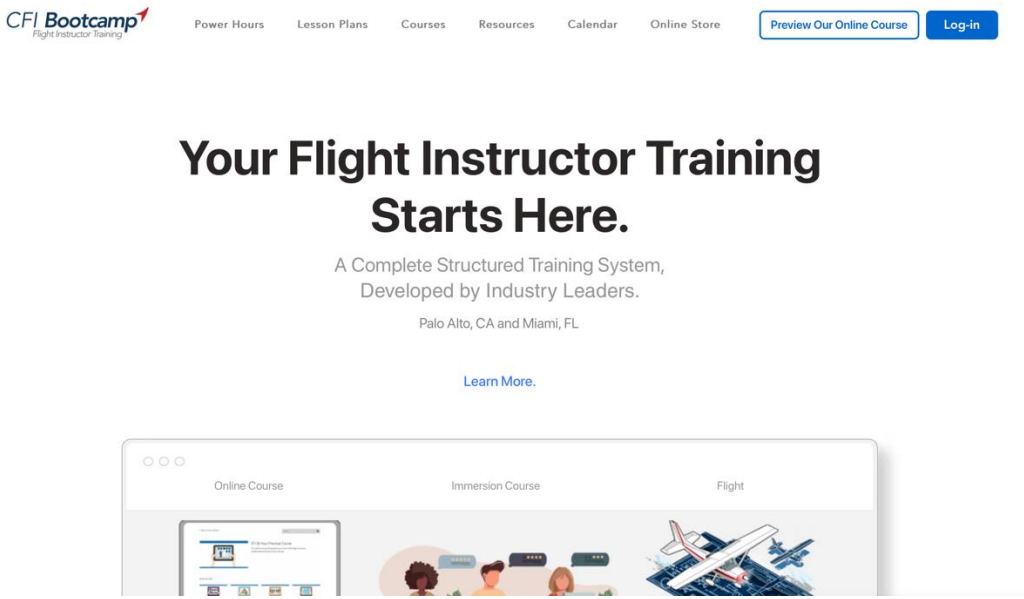
Can the equipment be re-inspected indefinitely?

A look at some Legal Interpretations

When an airplane is flown over the 100-hour inspection – How far can the airplane be flown?

From us to you…

Start your CFI Training and Finish it!



[We get the job done]

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From us to you…

Program

42-hour self-paced online course

42-hour in-person/remote ground school – 7 Days

One week of flight/ground – Dedicated airplanes/CFIs

CFI Bootcamp
Flight Instructor Training

From us to you…

Program

Checkride - Prescheduled

On Campus for 2 to 2.5 weeks

Click Here: We get the job done

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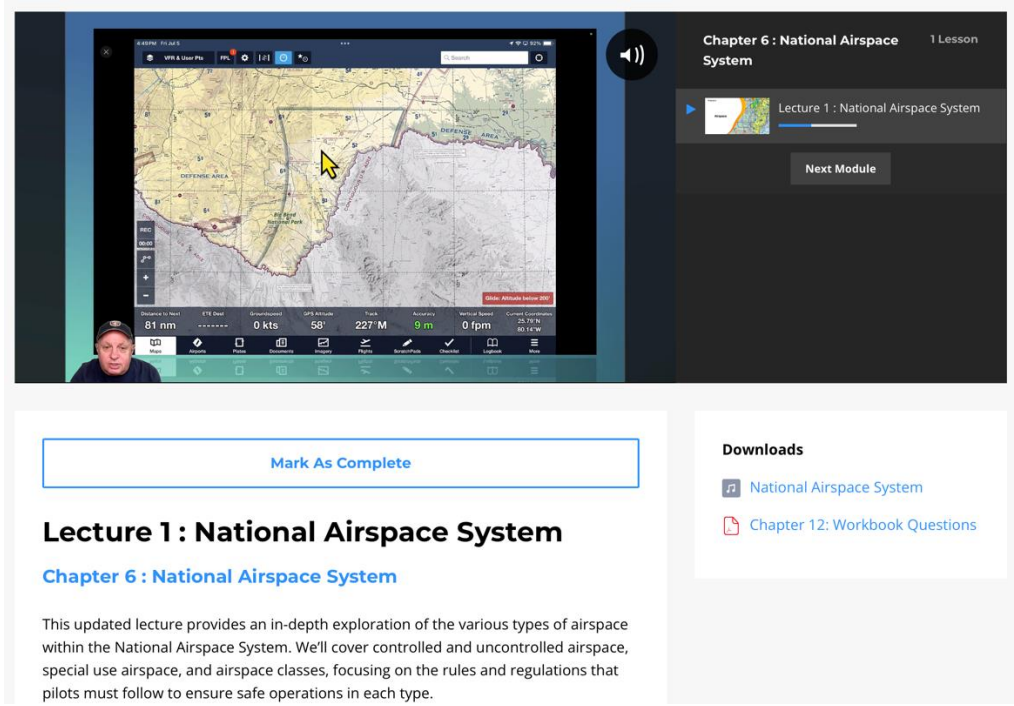
From us to you…

Free Preview of Our Online Course

[Click here to get a Preview of the Online Course]



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In Conclusion…

Past Power Hour Information

[Click here to get outlines of previous power hours]

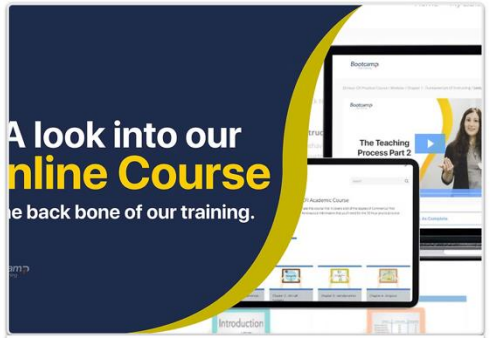
Power Hour Lesson Outlines

Created Around Hour Long Weekly Live Topic Specific Instructional Training.

Powered by Bootcamp +

How to Make Being a Flight Instructor a Career

March 8, 2025 at 12:00:00 PM



A look into the products CFI Bootcamp has to offer

February 22, 2025 at 12:00:00 PM

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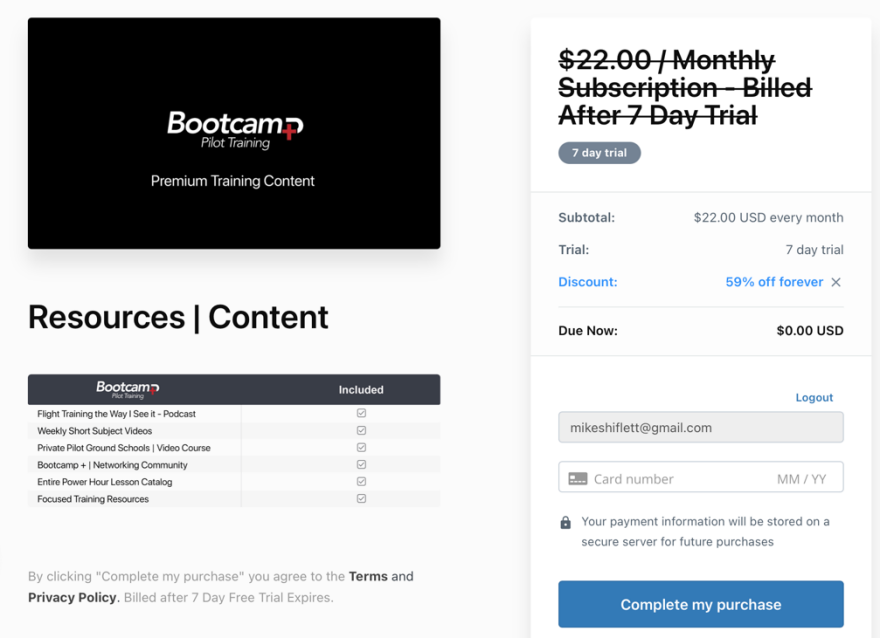
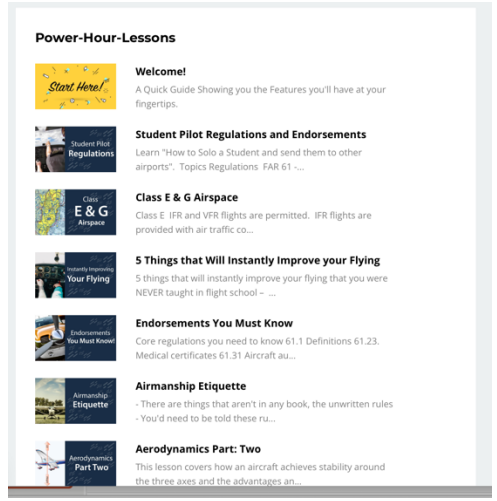
From us to you…

See Every Full-Length Power Hour

[Click here to get a huge discount to our membership site to see every previous power hour – Over 225 of them]



It will work out to be $9/month after the 7-day Free Trlal!



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