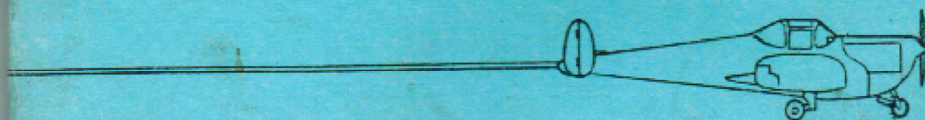


Gill G-25
25 Amps

Aircoupe

OWNER'S MANUAL

Ercoupe



SECTION I

OPERATING CHECK LIST

One of the first steps in obtaining the utmost performance, service, and flying enjoyment from your Aircoupe is to familiarize yourself with your aircraft's equipment, systems, and controls. This can best be done by reviewing the equipment while sitting in the airplane.

This section lists, in Pilot's Check List Form, the steps necessary to operate your aircraft efficiently and safely.

BEFORE ENTERING AIRCRAFT

- (1) Make an exterior inspection in accordance with the Exterior Inspection diagram.

BEFORE STARTING ENGINE

- (1) Seat Belts - Adjust and Lock.
- (2) Wheel Brakes - Test and Set.
- (3) Fuel Valve Handle - On.
- (4) Batter Master Switch - On.
- (5) Check the area around and in back of aircraft before engaging the starter.

STARTING ENGINE

- (1) Carburetor Heat - Cold.
- (2) Mixture - Rich.
- (3) Prime - As required. *close & lock*
- (4) Ignition Switch - Both.
- (5) Throttle - Open 1/8 to 1/4 inch.
- (6) Propeller Area - Clear.
- (7) Starter Handle - Pull.

BEFORE TAKE-OFF

- (1) Throttle Setting - 1700 RPM.
- (2) Engine Instruments - Within green arc and ammeter showing charge.
- (3) Magnetos - Check (75 RPM Maximum differential between magnetos.)
- (4) Carburetor Heat - Check operation.
- (5) Flight Controls - Check operation.
- (6) Trim Tab - Adjust for take-off.
- (7) Flight Instruments and Radios - Set.

TAKE-OFF

- (1) Carburetor Heat - Cold (Normal weather conditions)
- (2) Throttle - Full Open.
- (3) Climb Speed - Minimum 60 MPH IAS.

VR 65 mph IAS

CLIMB

Normal

- (1) Airspeed - 80 MPH IAS
- (2) Throttle - Full Open.
- (3) Mixture - Rich (unless engine is rough; lean as required).

Maximum Performance Climb

- (1) Airspeed - 60 MPH IAS.
- (2) Throttle - Full Open.
- (3) Mixture - Rich (unless engine is rough; lean as required).

BEFORE LANDING

- (1) Mixture - Rich.
- (2) Carburetor Heat - Apply full heat before closing throttle.
- (3) Airspeed - 70 to 80 MPH IAS.

LANDING

- (1) Touch Down - Main wheels first.
- (2) Landing Roll - Lower nose wheel gently.
- (3) Braking - Maximum braking as required.

AFTER LANDING

- (1) Carburetor Heat - Cold.

SECURE AIRCRAFT

- (1) All Switches - Off.
- (2) Parking Brake - Set.

For altitudes up to 10,000 feet, at 59 degrees, add 1 per cent for every 500 feet. At 6000 feet add to this indicated airspeed of 95 MPH, 12×95 , or 11.40 MPH, making 106.40 MPH. Since the temperature at 6000 feet is 89 degrees the 2.85 MPH correction should also be added, making 109.25 MPH.

There is also a correction for a change in barometric pressure. If the barometer at sea level is down 0.6 inch below the normal 29.92, another 1 per cent is added. Therefore, if the barometer reads 29.62 at sea level, add $1/2 \times 95$, or 47 MPH to the 109.25 MPH, making 109.72 MPH the true airspeed.

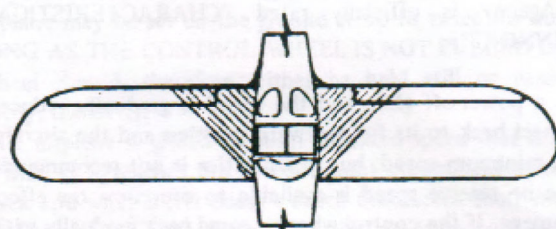
The carburetor mixture control is operated by means of a push-pull knob on the instrument panel near the throttle.

At altitudes above 5000 ft., the decreased density of the air may cause the mixture to become too rich for best power. This may be investigated by moving the mixture control from full rich position while checking the constant load RPM. If the RPM does not increase as the mixture is made leaner, the control should be returned to the full rich position. For average operation below 5000 ft. altitude, the carburetor should be left in the full rich position. When at part throttle, the fuel consumption may be improved by leaning the mixture, but in no case should the control be moved far enough to decrease the engine RPM. The control should always be moved back to full rich before any change in throttle setting. The richer mixture reduces exhaust gas temperatures, thereby increasing the life of the engine valves.

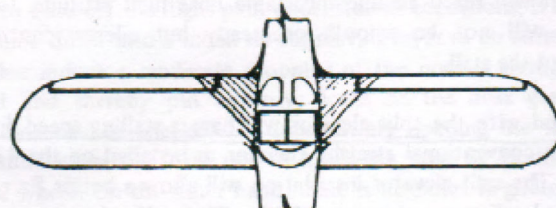
STALLS

The unusual stall stability characteristics has been designed and built into all Ercoupes by the use of a limited upward elevator travel and in addition the exact manner in which the wing approaches the stall condition. With the low wing monoplane the stall or breaking of the airflow is most likely to start at the junction of the wing with the fuselage if no fillet is used. With the Ercoupe specially designed fillet the airflow starts burbling at the rear of the fillet when the speed of the aircraft is reduced to a point a few miles per hour above the minimum speed, and the stalled portion gradually spreads out over the wing as the speed is reduced. The outer tip portion does not stall even when the unusual amount of maximum upward elevator is used, and so the stability and aileron control are satisfactory. The burble flow over the central portion of the wing serves another useful purpose in that a warning is given to the pilot that an approach to a stalling condition exists. As the speed is reduced to about 5 MPH above the minimum a mild form of buffeting occurs which increases somewhat as the speed is reduced further. This buffeting automatically warns the pilot that he has a little reserve speed left for such purpose as to recover from the stalling condition. The recovery from all stalls in the Ercoupe are the same as used in recovering from stalls in the conventional aircraft.

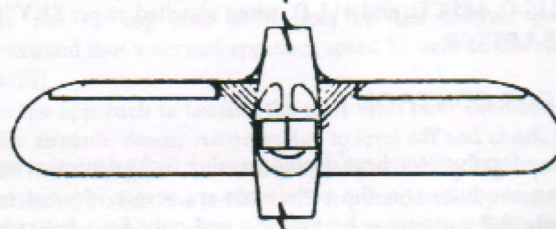
The limited elevator control not only insures stability and controlled flight conditions throughout the low speed flying range, but it prevents spinning as



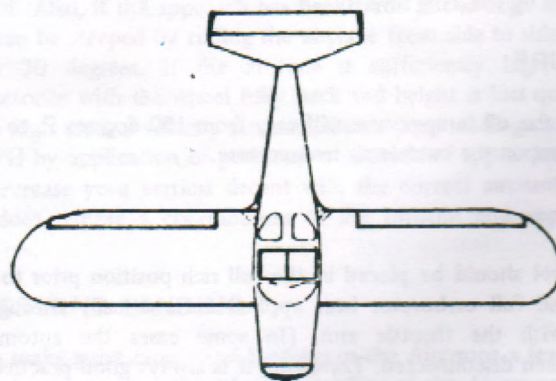
45 TO 40
M.P.H.



50
M.P.H.



55
M.P.H.



60
M.P.H.

well. The aircraft is designed in such a manner that it will not balance or trim in a spin. It has been tested under the most unusual and extreme conditions and has never shown any signs of spinning. Therefore the aircraft licensed by the Federal Aviation Agency is officially rated "CHARACTERISTICALLY INCAPABLE OF SPINNING".

If the airplane is in a power-off glide and the speed is gradually reduced by easing the control wheel back to its full rearward position and the aircraft will fly satisfactorily at a minimum speed, but this practice is not recommended at low altitudes because no reserve speed is available to overcome the effects of gusty air or misjudgement. If the control wheel is eased back gradually with full power on the aircraft will reach an uncomfortable nose high attitude. In this position the flying will not be smooth or steady but aileron control is maintained throughout the stall.

The Ercoupe equipped with the split elevator will have a stalling speed 5 to 6 MPH slower than the conventional straight elevator as installed on the 415-C, and 415-CD models. The split elevator installation will allow a better flare-out, and a more positive landing on the rear wheels. This split elevator can be installed on models 415-C, 415-CD, and 415-D, when installed as per SKYPORT AIRCOUPE SERVICE LETTER.

CARBURETOR HEAT CONTROL

The continuous use of carburetor heat during cruising flight decreases engine efficiency. Unless icing conditions in the carburetor are severe, do not cruise with the heat on. Apply full carburetor heat slowly and only for a few seconds at intervals determined by the icing severity.

OIL TEMPERATURE

In cruising flight, the oil temperature will vary from 100 degrees F. to 220 degrees F., depending upon the outside air temperature.

LANDING

The mixture control should be placed in the full rich position prior to the landing approach, and full carburetor heat applied automatically through a linkage connected with the throttle arm. (In some cases the automatic carburetor heat has been disconnected. Therefore, it is always good practice to apply heat manually before closing the throttle).

The elevator trim tab may be adjusted in the glide to relieve elevator control pressure. In glides, the cylinders should be cleared periodically by opening the throttle to cruising RPM to prevent spark plug fouling.

A good airspeed reading during the approach to a landing is one between 70

SECTION III

AIRCRAFT FILE AND LIMITATIONS

AIRPLANE FILE

There are miscellaneous data information and licenses that are part of the aircraft file. The following is a check list of the file. In addition, periodic checks should be made of the latest Federal Air Regulations to insure that all data requirements are met.

TO BE DISPLAYED IN THE AIRCRAFT AT ALL TIMES

1. Form FAA-1362B - Aircraft Airworthiness Certificate
2. Form FAA-500-1 - Aircraft Registration Certificate
3. Form FCC-404-2 - Aircraft Radio Station License
(If transmitter is installed)

TO BE CARRIED IN THE AIRCRAFT AT ALL TIMES

1. Flight Operations Limitation Manual
(Model 415-D, E, G, F-1, F-1A, A-2, and A-2A)
(Model 415-C, and CD Form ACA-309 or ACA-309A or Copy)
2. Form ACA-337, Repair and Alteration (If applicable)
3. Aircraft Equipment List
4. Aircraft Log Book
5. Engine Log Book

LIMITATIONS

OIL PRESSURE

Minimum Idle	10 P.S.I. (Red Line)
Maximum	100 P.S.I. (Red Line)

OIL TEMPERATURE

Maximum	225° F. (Red Line)
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AIRSPPEED LIMITS

<i>VNE</i>	Never Exceed	144 MPH TIAS (Red Line)
<i>V_{N1}</i>	Structural Cruise Maximum	114 MPH TIAS
<i>V_A</i>	Maneuver Maximum	108 MPH TIAS
	Caution Speed Range	114 to 144 MPH TIAS (Yellow Arc)
<i>V_C</i>	Normal Speed Range	58 to 114 MPH (Green Arc)

FLIGHT LOAD FACTOR

Positive	3.8 G Maneuver 3.6 G Gust
Negative	-1.52 G Maneuver
Center of Gravity Limits	26.4 to 30.3 (Datum, Firewall) to 1400 lbs. 27.0 to 30.1 (Datum, Firewall) Linear variations between 1400 to 1450 lbs.
Maneuvers	No acrobatic maneuvers approved.

WEIGHTS

GROSS WEIGHT

415-C (65 HP)	1175 lbs.
415-C & CD (75-85 HP)	1260 lbs.
415-D, E, G, F-1	1400 lbs.
F-1A, A-2	1450 lbs.

BAGGAGE

40 lbs.
65 lbs.
75 lbs.
75 lbs.

FUEL AND OIL

FUEL CAPACITY

415-C (65 HP)
415-C, CD, D, E, & G
F-1, F-1A, A-2, A-2A

GALS. GAS

14 gals.
24 gals.
24 gals.

OIL

4 qts.
4½ qts.
5½ qts.

SPECIFICATIONS

DIMENSIONS (All Models)

Wing Span	30 feet
Wing Chord	.5 feet
Length	20 feet 2 inches
Height (at cabin)	5 feet 6 inches
Height (at tail)	6 feet 3 inches

AREAS (All Models)

Wing	142.6 square feet
Stabilizer	10.2 square feet
Elevator	9.6 square feet
Rudders (2)	.6 square feet
Fins (2)	3.3 square feet
Ailerons (2)	16.8 square feet

WEIGHTS (All Models)

Weight, empty	approximately 800 pounds*
Passenger and pilot	340 pounds
Oil	.8 pounds
Baggage, maximum	65 pounds
	(except G, F-1, F-1A 75 lbs.)
Fuel, maximum	144 pounds
Allowable gross	1260 pounds
Allowable gross (normal category)	1400 pounds
	D**E and G, F-1
	1450 pounds
	F-1A, A-2

*See FAA Weight and Balance Form for each Ercoupe.

**Subject to FAA approval.

CAPACITIES (All Models)

Fuel capacity (steel tanks)	23 gallons
(aluminum tanks)	24 gallons
Right wing tank	9 gallons
Left wing tank	9 gallons
Fuselage tank (steel)	5 gallons
(aluminum)	6 gallons
Oil tank	1 gallon
	(4.5 qts. - C85)
	(5.5 qts. - C90)

SECTION VII

FLIGHT MANUALS

MODEL 415-C FLIGHT MANUAL

The Model 415-C, having been manufactured under Part 04 of the C.A.R., does not employ a flight manual, and none is available. Supplement No. 6 of F.A.A. No. 43 dated August 15, 1942, requires that Operation Limitations formerly included in their form ACA 309 or 309A be accessible to the pilot at all times in a manner which is legible and is not easily erased or disfigured. The following information is required:

REQUIRED INFORMATION FOR 75-H.P. MODEL 415-C

Engine Limits 2275 r.p.m.
Airspeed Limits 108 m.p.h. maneuvering speed
114 m.p.h. maximum structural cruising
144 m.p.h. never exceed
Maximum Weight 1260 lbs.
Empty Weight To be determined for individual airplane
Useful Weight To be determined for individual airplane
Datum Forward face of firewall
Center of Gravity Range 26.4" to 30.3"
Empty Center of Gravity
. To be determined for individual airplane
Any Special Limitations
. "This airplane is characteristically incapable of spinning."
This information is to be made out and signed by the local
D.A.M.I. or F.A.A. inspector.

MODEL 415-D, E, G, F-1, F-1A, A-2, and A-2A

The above models were provided with a Flight Operations Limitations Manual. These manuals were in the form of a small booklet.