DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

4A15 Revision 6 MITCHELL

(L-13) Centaur 101 Centaur 102

October 20, 1978

TYPE CERTIFICATE DATA SHEET NO. 4A15

Type Certificate Holder Mitchell Trimotor Aircraft Corporation

> % Unipunch Products 370 Babcock Street Buffalo, New York 14206

NOTE: For administrative purposes the Atlanta Central Region will maintain all

reports, drawings and records for this Type Certificate.

I. - Model Centaur 101 (Longren L-13), 4 PLCM (Normal Category), Approved May 16, 1956

Engine Lycoming R-680-E3 Series

Fuel 87 min. grade aviation gasoline

Engine Limits Takeoff (Two minutes), 2300 rpm (300 hp)

> All other operations, 2200 rpm (285 hp)

114 mph (99 Knots) Airspeed Limits Maneuvering

Design Cruising 118 mph (102 Knots) Never Exceed 150 mph (130 Knots) 89 mph (77 Knots) Flap Speed

C. G. Range (+106.8) to (+117.0)

Empty Weight C.G. Range None

Maximum Weight 3550 lb.

Number of Seats 4. Two at (+107) and two at (+151)

Maximum Baggage 159 lb. (+192)

112.5 gallon total and usable. Two wing tanks, 52.5 gallons each (+121), Fuel Capacity

> one header tank in fuselage, 7.5 gallons (+118). 60.0 gallons total and usable for airplanes with a single 52.5 gallon wing tank and the 7.5 gallon header tank.

Oil Capacity 5 gallons (+52)

Control Surface 35° Down Flaps

32° Up 20° Down Elevator **Movements** 20° Up Elevator Tab 14° Down 30° Up Aileron 30° Down

21° Up 21° Down Aileron Tab Left Side 11" Left Rudder 11" Right 1.5" Left Rudder Tab 1.5" Right

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Serial Numbers Eligible Consolidated Vultee Aircraft Corp. Serial numbering retained. All C.V.A.C. military

models L-13 series aircraft when modified in accordance with Centaur Aircraft

Company approved data.

Required Equipment In addition to the pertinent required basic equipment specified in CAR 3, the following

items of equipment must be installed: Items 1(a), 1(b), 102, 103, 201(a), 205, 301, 302,

303 and 304.

II. - Model Centaur 102, 6 PLCM (Normal Category), Approved September 29, 1961.

Same as Model 101 except for engine installation and interior arrangement.

Engine Jacobs R-755-A2

Fuel 80 min. grade aviation gasoline

Engine Limits All operations 2200 rpm (300 hp.)

Airspeed Limits Maneuvering 114 mph (99 Knots)
(True Ind.) Design Cruising 118 mph (102 Knots)
Never Exceed 150 mph (130 Knots)
Flap Speed 89 mph (77 Knots)

<u>C.G. Range</u> (+106.8) to (+117.0)

Empty Weight C.G. Range None.

Maximum Weight 3550 lbs.

Number of Seats 6. Two at (+101) and two at (+133) and two at (+163)

Maximum Baggage 159 lb. (+188.5)

Fuel Capacity 60 U.S. gallons total and usable. One wing tank, 52.5 gallons (+121), and one header

tank in fuselage 7.5 gallons (+118).

Oil Capacity 6.5 gallons (+101.8)

Control Surface Flaps 35° Down 32° Up Movements Elevator 20° Down 20° Up Elevator Tab 14° Down Aileron 30° Up 30° Down Aileron Tab Left Side 21° Up 21° Down 11" Rudder Right 11" Left 1.5" Right 1.5" Left Rudder Tab

Serial Numbers Eligible Consolidated Vultee Aircraft Corp. Serial numbering retained. All C.V.A.C. military

models L-13 series aircraft when modified in accordance with Centaur Aircraft

Company approved data.

Required Equipment In addition to the pertinent required basic equipment specified in CAR 3, the following

items of equipment must be installed: Items 1(c), 1(d), 103, 104, 105, 201(a), 205, 304,

306, 307 and 308.

SPECIFICATIONS PERTINENT TO ALL MODELS

<u>Datum</u> 86.5 in. forward of win leading edge. (Fuselage Station 0)

<u>Leveling Means</u> Use plane of cabin floor.

<u>Certification Basis</u> Type Certificate No. 4A15 (CAR 3), 1949, Amendments 1 through 14.

Production Basis

None. Prior to original certification of aircraft converted in the United States, a FAA representative must perform a detailed inspection for workmanship, materials, and conformity with the approved technical data and a check of the flight characteristics.

Equipment

A plus (+) or minus (-) sign preceding the weight of an item indicates net weight change when that item is installed.

Propellers and Propeller Accessories

1.	Propeller
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(a) Ham. Std. hub 2B20 with 6135A-6 to 6135A-10 blades
Diameter Limits: Max. 8'2".

No further reduction permitted.

Pitch Setting at 42" station:

with 6135A-6, -7 and -8 blades 19° High, 6½° Low with 6135A-9 and -10 blades 19° High, 8° Low

and (b) Ham. Std. constant speed governor, 1M12

4 lb. (+24)

24 lb. (+51)

(c) Ham. Std. hub 2B20 with 6135-15. -16 blades

Diameter Limits: Max. 93", Min. allowable for repairs 91-1/8".

No further reduction permitted.

Pitch Setting at 42" station: 10.3° to 12° low, 25.3° to 27° high.

and (d) Propeller governor, Hamilton Model 1A4G5.

Engine and Engine Accessories - Fuel and Oil System

101.	Starter electrical, Eclipse Type E80	20 lb. (+53)
102.	Fuel pump engine driven, Thompson Type AM-4100	2.5 lb. (+45)
103.	Fuel pump wobble, hand D2, Model TDF-400-1	3 lb. (+66)
104.	Vacuum pump, Pesco Type B-2A	4 lb. (+55)
105.	Fuel pump, Pesco Model No. 2P-R400 Romec RD-4140	
<u>Gear</u> 201.	2 Main wheel-brake assemblies, 27 in, Type I (SC)	

Landing Gear

201.	2 Main wheel-brake assemblies, 27 in. Type I (SC)		
	(a) Hays Model G31A, 6 or 8-ply tires	127 lb.	(+86)

205. 1 Tail wheel, 10 in. 6-ply smooth contour 6 lb. (+356)

Electrical Equipment

301.

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302.	Regulator, Bendix Model 17 style "A"	2 lb. (+72)
303.	Reverse current relay, AN3025-1	1 lb. (+65)
304.	Battery 24 volt, 12AC7D	34 lb. (+195)
305.	Landing Lights, GE4523	1 lb. (+95)

306. Generator, Leece Neville L3 24V 35 AMP

Generator, Bendix Type N-75-2SB

307. Reverse current relay, AN3025-1

308. Voltage regulator, Eclipse 1042-7A or AN3206

- NOTE 1. Current weight and balance report including list of equipment included in certificated empty weight, and loading instructions when necessary, must be in each aircraft at the time or original certification and at all times thereafter (except in the case of air carrier operators having an approved weight control system).
- NOTE 2. The following placards must be displayed:

A. For Model 101:

- (a) On instrument panel in full view of the pilot:
 - (1) "This airplane must be operated as a normal category airplane in compliance with FAA approved operating limitations in the form of instruction markings and placards. No acrobatic maneuvers including spins approved."
- (b) Below airspeed indicator:
 - (1) "Maneuvering speed 114 mph."
- (c) In baggage compartment:
 - (1) "Maximum baggage allowable 159 lb."
- (d) On left door panel or readily visible:

"Maximum Weight and C.G. Range"

Maximum weight 3550 lb.

Most Fwd., C.G. +106.8" from datum Most Aft, C.G. +117.0" from datum Datum is 86.5" fwd of wing leading edge.

Airspeed Limits

Vne Maximum glide or dive 150 mph. TIAS

Vc Maximum design cruising speed 118 mph. Vp Maneuvering Speed 114 mph. Vf Maximum flap down speed 89 mph.

Maneuvering Load Factors

Do not exceed 3.8 load factor flaps up
Do not exceed 1.9 load factor flaps down

Instrument Marking

Red Radial -- Maximum or minimum allowable

Yellow Arc -- Cautionary range
Green Arc -- Normal operating range
White Arc -- Flap operating range

Engine and Propeller Limits

Engine Lycoming R-680-E3 Series

Maximum power S.L. 300 BHP at 2300 RPM full throttle 2 min.

Maximum continuous power 285 BHP S.L. at 2200 RPM 28.0" Hg.

Maximum cylinder temperature (head) 525°F or 274°C.

Oil capacity 5 US gallons

Maximum oil temperature 200°F. or 93°C.

Propeller Ham. Std. 2B20 with 6135A-6 to 6135A-10 blades

Diameter Limits: 8' 6" max., 8' 2" min.

Pitch settings at 42" station:

With 6135A-6, -7 and -8 blade 19° High, 6 ½° Low With 6135A-9 and -10 blade 19° High, 8° Low

Fuel System

Use 87 Octane minimum grade aviation fuel.

Fuel system consists of 2 fuel tanks, one in each wing, with a capacity of 52.5 gallons each. One header tank in fuselage, 7 ½ U.S. gallon, fed directly by the wing tanks. The total usable fuel is 112.5 U.S. gallon. If airplane is equipped with one wing fuel tank, the total usable fuel will be 52.5 gallons plus 7 ½ gallons in header tank or 60 U.S. gallon.

NOTE - Fuselage tank (7 ½ gallons) is not gauged. When fuel level is below 7½ gallons in fuselage tank a red light on the instrument panel will come on. Switch to opposite wing tank provided there is fuel remaining in tank.

<u>WARNING</u> - Should red light fail to go out or no fuel remains in wing tanks, land as soon as practical as there is approximately 16 minutes fuel remaining in the aircraft at M.C. power.

Baggage Compartment

Do not exceed 159 lb. at station 192.

B. For Model 102:

(a) On instrument panel in full view of the pilot:

"This airplane must be operated as a normal category airplane in compliance with FAA approved operating limitations in the form of instruction markings and placards. No acrobatic maneuvers including spins approved."

(b) Below airspeed indicator:

"Maneuvering speed 114 mph."

- (c) In baggage compartment:
 - (1) "Maximum baggage allowable 159 lb."
- (d) On left door panel or readily visible:

"Maximum Weight and C.G. Range

Maximum weight 3350 lb.

Most Fwd., C.G. +106.8" from datum Most Aft, C.G. +117.0" from datum Datum is 86.5" fwd. of wing leading edge.

Airspeed Limits

Vne Maximum glide or dive 150 mph TIAS

Vc Maximum design cruising speed 118 mph. Vp Maneuvering speed 114 mph. Vf Maximum flap down speed 89 mph.

Maneuvering Load Factors

Do not exceed 3.8 load factor flaps up Do not exceed 1.9 load factor flaps down

Instrument Marking

Red Radial -- Maximum or minimum allowable

Yellow Arc -- Cautionary range
Green Arc -- Normal operating range
White Arc -- Flap operating range

Engine and Propeller Limits:

Engine Jacobs R755 A2

Max. power, S.L. = 300 bhp at 2200 rpm, full throttle

Max. continuous power, S.L. = 300 bhp at 2200 rpm, full throttle

Max. Cyl. Hd Temp. = 500 deg F (260 deg C)

Max. Oil Temp. = 200 deg F (93 deg C)

Oil capacity - 6.5 US gallon

Prop = Ham. Std. 2b20 Hub, 6135A Blade, 7' 7-1/8" to 7' 9" diameter Stops set for 10.3 to 12 deg low, 25.3 to 27 deg high pitch.

Measured at 42 inch station.

Fuel System

Use 80 octane minimum grade aviation fuel

Fuselage stump tank (7 ½) is not gauged. When Fuel Low Level Warning Light on instrument panel lights (red), fuel is below 7½ gallons. Should red light fail to go out, or no fuel remains in wing tank(s), land as soon as practical as there is approximately 16 minutes fuel remaining at METO power.

Baggage Compartment

Do not exceed 159 lb. at station 188.5"

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