

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

A36CE
Revision 2
McDONNELL DOUGLAS
C-54A C-54E
C-54B C-54G
C-54D
January 15, 1984

TYPE CERTIFICATE DATA SHEET NO. A36CE

This data sheet which is a part of type certificate No. A36CE 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 Central Air Services, Inc.

Rural Route 1
Rantoul, Kansas 66079

I - Models United States Air Force (McDonnell Douglas) C-54A, C-54B, C-54D, C-54E, and C-54G (Restricted Category),
Approved March 30, 1983. See NOTE 9 regarding modifications required for conversion of military models

Engines and
Engine Limits

4 engines

(a) Pratt & Whitney 2SD-G or R-2000-7 - 2:1 Propeller reduction gearing
Limits:

	RATED BHP	R.P.M.	MP IN.HG.	ALT
Low impeller gear ratio 7.15:1				
Takeoff (2 minutes)	1350	2700	50.0	
Maximum continuous	1100	2550	42.0	S.L.
Maximum continuous	1100	2550	41.0	7100'
High impeller gear ratio 8.47:1				
Maximum continuous	1000	2550	42.0	10000'
Maximum continuous	1000	2550	41.5	12400'

(Straight line manifold pressure variation with altitudes shown)

Placard required: See NOTE 2(b)

(b) Pratt & Whitney 2SD1G or R-2000-9 - 2:1 Propeller reduction gearing
Limits:

	RATED BHP	R.P.M.	MP IN.HG.	ALT
Low impeller gear ratio 7.15:1				
Takeoff (2 minutes)	1450	2700	50.0	
Maximum continuous	1100	2550	38.5	S.L.
Maximum continuous	1100	2550	36.5	8300'
High impeller gear ratio 9.52:1				
Maximum continuous	1000	2550	39.0	10000'
Maximum continuous	1000	2550	37.5	17700'

(Straight line manifold pressure variation with altitudes shown)

Placard required: See NOTE 2(b)

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- (c) Pratt & Whitney R-2000-11 - 2:1 Propeller reduction gearing
Limits:

	RATED BHP	R.P.M.	MP IN.HG.	ALT
Low impeller gear ratio 7.15:1				
Takeoff (2 minutes)	1350	2700	46.0	
Maximum continuous	1100	2550	38.5	S.L.
Maximum continuous	1100	2550	36.5	8300'
High impeller gear ratio 9.52:1				
Maximum continuous	1000	2550	39.0	10000'
Maximum continuous	1000	2550	37.5	17700'

(Straight line manifold pressure variation with altitudes shown)

Placard required: See NOTE 2(b)

- (d) Pratt & Whitney 2SD13G or R-2000-11M2 - 2:1 Propeller reduction gearing
Limits:

	RATED BHP	R.P.M.	MP IN.HG.	ALT
Low impeller gear ratio 7.15:1				
Takeoff (2 minutes)	1450	2700	50.0	
Maximum continuous	1200	2550	42.0	S.L.
Maximum continuous	1200	2550	40.5	5200'
High impeller gear ratio 9.52:1				
Maximum continuous	1100	2550	44.0	7000'
Maximum continuous	1100	2550	45.0	15000'

(Straight line manifold pressure variation with altitudes shown)

Placard required: See NOTE 2(b)

Elevator Control Column Balance Weights required per NOTE 6

- (e) Pratt & Whitney D-5 or R-2000-7M2 - 2:1 Propeller reduction gearing
Limits:

	RATED BHP	R.P.M.	MP IN.HG.	ALT
Low impeller gear ratio 7.15:1				
Takeoff (2 minutes)	1450	2700	50.0	S.L.
Maximum continuous	1200	2550	42.5	S.L.
Maximum continuous	1200	2550	41.5	7000'

(Straight line manifold pressure variation with altitudes shown)

Placard required: See NOTE 2(b)

Elevator Column Balance Weights required per NOTE 6

- (f) Pratt & Whitney D-3 - 2:1 Propeller reduction gearing
Limits:

	RATED BHP	R.P.M.	MP IN.HG.	ALT
Low impeller gear ratio 7.15:1				
Takeoff (2 minutes)	1450	2700	50.0	S.L.
Maximum continuous	1200	2550	42.0	S.L.
Maximum continuous	1200	2550	40.5	5200'

(Straight line manifold pressure variation with altitudes shown)

Placard required: See NOTE 2(b)

Elevator Column Balance Weights required per NOTE 6

Fuel

100 min. grade aviation gasoline

Propeller and propeller limits	4 propellers Hamilton Standard, hubs 23E50, blades 6507-0, 6507A-0, 6501A-0, or 7147A-0 Diameter: Max. 13'3/8", min. allowable for repairs 12'9" No further reduction permitted Min. low pitch setting at 12 in. sta.: 21° Placard required for all Pratt & Whitney Twin Wasp and R-2000 series engines: See NOTE 2(b)
Airspeed limits (IAS)	Vne 180 knots Vno 170 knots Vb 148 knots Vp 148 knots Vmax DROP 140 knots Vdoor OPEN 140 knots
C.G. range	16% MAC (381.4) to 29.8% MAC (404.0)
Maximum Weights	68,000 lbs. For 3-engine ferrying, see NOTE 8
Minimum Crew	2, pilot and copilot at +108.0
Fuel Capacity (Without Stoner- Mudge Sealing)	2 inboard inner wing tanks 508 gals. ea. 3048 lbs. ea. (+400.9) 2 outboard inner wing tanks 431 gals. ea. 2586 lbs. ea. (+404.1) 2 outer wing tanks 499 gals. ea. 2994 lbs. ea. (+404.5) Fuselage fuel tanks 464 gals. ea. 2784 lbs. ea. (+301.0) and (+381.0) (Models C-54A, C-54B, and C-54D) Fuselage fuel tanks 362 gals. ea. 2172 lbs. ea. (+397.5) (Models C-54E and C-54G) (When Stoner-Mudge Sealing is incorporated, see pertinent report referred to in NOTE 4)
Oil Capacity	20 gals. in each outboard nacelle 150 lbs. ea. (+327.0) 20 gals. in each outboard nacelle 150 lbs. ea. (+357.0) 50 gals. in fuselage tank 375 lbs. (+223.3) See NOTE 5 regarding fuel load when fuselage oil tank is removed.
Control Surface Movements	Rudder + or - 20° Elevators Up 25° Down 15° Ailerons Up 15° Down 11 1/2° Flaps Down 45° All trim tabs + or - 15°
Serial Nos. Eligible	Model C-54A - 3054 to 3059 incl., 3064 to 3074 incl., 3076 to 3110 incl., 7445 to 7469 incl., 7471 to 7189 incl., and 10270 to 10424 incl. Model C-54B - 18324 to 18398 incl., 27227 to 27251 incl., and 10425 to 10544 incl. Model C-54D - 10545 to 10869 incl. and 22149 to 22203 incl. Model C-54E - 27242 to 27376 incl. Model C-54G - 35929 to 36090 incl.
<u>Data Pertinent to All Models</u>	
Datum	3 inches aft of nose
MAC	163.6 inches L.E. of MAC is (+355.2)
Leveling Means	Leveling brackets are located in the nose wheel well and aft of the aft belly cargo compartment. The rear leveling bracket may be reached through the access door in the aft bulkhead cargo compartment.

- Certification basis FAR 21.25(a)(2) effective February 1, 1965, plus Amendments 21-1 through 21-56.
Restricted Category Type certificate issued on March 30, 1983.
Date of Application: February 28, 1983.
- Aircraft must be modified in accordance with Central Air Services, Inc. Drawing List No. 1000 dated March 15, 1982, special purpose of forest service fire fighting which is incidental to the business of the airplane owner which is other than air transport.
- Aircraft certificated under this type certificate are not eligible for multiple airworthiness certification under FAR 21.187 unless it has been modified to conform to TC A762.
- Production basis None - Prior to original certification of each aircraft an FAA representative must perform an inspection for workmanship, materials, and conformity with the approved technical data characteristics.
- Equipment: The basic required equipment as prescribed in the applicable Airworthiness Regulations (See Certification Basis) must be installed in the aircraft for certification. The FAA Approved Airplane Flight Manual Supplement for Forest Service Fire Fighting is required in addition to the operating limitations specified in Section V of the following:
- T.O. 1C-54D-1 dated August 30, 1963, with change dated November 1, 1965, is applicable to all C-54 series airplanes.
T.O. 1C-C54A-1 for the C-54A
T.O. 1C-C54B-1 for the C-54B
T.O. 1C-C54D-1 for the C-54D
T.O. 1C-C54E-1 for the C-54E
T.O. 1C-C54G-1 for the C-54G
- NOTE 1. (a) Current weight and balance report including list of equipment included in certificated empty weight, and loading instructions, must be in each aircraft at the time of original certification and at all times thereafter (except those operators having an approved weight control system).
- (b) "System Fuel and Oil," which must be included in the empty weight, is that amount required to fill both systems and the tanks up to the tank outlets to the engines, when the airplane is in the level attitude. The propeller feathering oil is not considered usable oil, and is included in the "System Fuel and Oil." The nacelle oil tank capacities shown in this specification include only the usable oil for which the tanks are to be placarded.
- NOTE 2. The following placards shall be placed on the instrument panel in full view of the pilot:
- (a) "This airplane shall be operated in accordance with U.S. Air Force Technical Order** and the Airplane Flight Manual Supplement. T.O. 1C-54D-1 dated August 30, 1963, with change dated November 1, 1965, is applicable to all C-54 series airplanes.
- **T.O. 1C-54A-1 for the C-54A
T.O. 1C-54B-1 for the C-54B
T.O. 1C-54D-1 for the C-54D
T.O. 1C-54E-1 for the C-54E
T.O. 1C-54G-1 for the C-54G
- (b) "Avoid continuous operation between 1550 and 1750 R.P.M. and between 2310 and 2510 R.P.M. During ground running, avoid operation between 1550 and 1800 R.P.M. when the blades are off the low pitch stops."
- NOTE 3. (a) The movable parts of the flap well may be secured in the closed position by disconnecting the flap actuating linkage and safetying the actuator mechanism in the closed position.

- (b) The elevator bungee may be deleted provided the C.G. is maintained between 16% MAC (381.4) to 32% MAC (407.6). Extended C.G. range not allowed without bungee installed as per Douglas instructions.

NOTE 4. Prior to certification in accordance with Type Certificate (TC) A762, the requirements for certification as outlined in the following listed reports for the particular model must be complied with:

C-54A-DC	Douglas Report No. SM11157
C-54B-DC	Douglas Report No. SM11158
C-54D-DC	Douglas Report No. SM11159
C-54E-DC	Douglas Report No. SM11147
C-54G-DC	Douglas Report No. SM11160

Because the requirements for original certification are different for each model, the original model designation should be retained regardless of whether the engine is the same as originally installed or whether a different engine is installed. (See "Optional Equipment" items in A762 for each model for alternate engine installations.)

NOTE 5. When fuselage oil tanks are removed, the airplane must be placarded to avoid carrying more than 2400 gallons of fuel when the nacelle oil tanks are filled to their total usable capacity of 80 gallons, thereby insuring a fuel oil ratio of not over 30 to 1. The auxiliary fuel tanks should be placarded for the quantity of gasoline not to exceed the difference between 2400 gallons and the total capacity of the main fuel tanks. On aircraft which have only the four center wing integral tanks and with not more than one fuselage fuel tank installed, the fuselage oil tank may be removed and the above placard will not be necessary.

NOTE 6. When Elevator Control Column Balance Weights are installed in accordance with the Douglas Drawings listed below, the rear C.G. may be extended to (407.6) with gear retracted for enroute operation:

All C54-DC Series Dwg. 5327119

NOTE 7. Aircraft must be serviced and maintained in accordance with the following:

USAF T.O. 1C-54A-2-1 for the C-54A
 USAF T.O. 1C-54B-2-1 for the C-54B
 USAF T.O. 1C-54D-2-1 for the C-54D
 USAF T.O. 1C-54E-2-1 for the C-54E
 USAF T.O. 1C-54G-2-1 for the C-54G

NOTE 8. (a) Ferry permits may be issued to all Model C54 series aircraft on which one engine is inoperative with its propeller removed or feathered under the following conditions:

- (1) Operation of aircraft shall be in accordance with pertinent limitations contained in the applicable portion of the CAA Approved Airplane Flight Manual, pertinent CAA approved appendices submitted by Delta Airlines, and existing instructions.
- (2) Maximum takeoff weight 51,000 lbs. (except when limited by runway lengths specified in manual).
- (3) C.G. range: 16% MAC (381.4) to 32% MAC (407.6)

(b) Ferry permits may also be issued to Model C54 series aircraft equipped with Pratt & Whitney 2SD13G or R-2000-9 engines on which one engine is inoperative with its propeller removed or feathered under the following conditions:

- (1) Operation of aircraft shall be in accordance with pertinent limitations contained in the applicable portions of the CAA Approved Airplane Flight Manual, pertinent CAA approved appendix submitted by American Airlines or KLM, and existing instructions.
- (2) Maximum takeoff weight 55,700 lbs. (except when limited by runway lengths specified in manual).
- (3) C.G. range 16% MAC (381.4) to 24.8% MAC (395.8)

NOTE 9. Airplanes approved under this type certificate must be modified in accordance with Central Air Services, Inc. Drawing List No. 1000 dated March 15, 1982.

NOTE 10. Required and optional equipment is listed in Central Air Services, Inc. C-54 Drawing List 1000 dated March 18, 1983.

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