DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

A-669
Revision 32

BOEING
DC3A-SCG
DC3A-SC3G
DC3A-S1CG
DC3A-S1C3G
(Army C-41, C-41A, C-48, C-48A,
C-52, C-52A, C-52B, C-52C,
C-53, C-53B, C-53C, C-53D, C-68;
Navy R4D-3, R4D-4)
DC3A-S4C4G
DC3C-SC3G
DC3C-S1C3G, -S4C4G
(Army C-47, C-47A;
Navy R4D-1, R4D-5)
DC3C-R-1830-90C
(Army C-47B, Navy R4D-6)
DC3D-R-1830-90C
(Army C-117A)

September 27, 2010

AIRCRAFT SPECIFICATION NO. A-669

Type Certificate Holder	The Boeing Company 4000 Lakewood Boulevard Long Beach, California 90808
Type Certificate Holder Record	McDonnell Douglas Corporation, Long Beach, California merged with The Boeing Company in 1997. Transferred Type Certificate to the Boeing Company on September 27, 2010. Douglas Aircraft Company, Inc., Long Beach, California merged with McDonnell Aircraft Corporation August 25, 1967

I - Model DC3A-SCG-app. 9 Feb. 1940 or DC3A-SC3G app. 1 May 1939.

Models DC3A-SCG and DC3A-SC3G become models DC3A-S1CG and DC3A-S1C3G, respectively or vice versa, depending only upon the grade of the fuel used. Pertinent aircraft and engine model designations and engine ratings apply without changing the nameplates. Ignition timings should be 20° BTC with 87 grade fuel and 25° BTC with 91 grade fuel.

Engines	2 P&W Twin Wasps SCG or SC3G, geared 16:9, with one 3-1/2 N damper
Fuel	87 min. grade aviation gasoline
Engine limits	Maximum continuous, (Sea level) 36.0 in. Hg, 2550 rpm (900 hp) (Straight line manifold pressure variation with altitude to 12,000 ft.) 34.0 in. Hg, 2550 rpm (900 hp) Take-off (one minute), 42.0 in. Hg, 2700 rpm (1050 hp)
Airspeed limits	(a) For weights up to and including 24,800 lbs.: Level flight or climb 217 mph (189 knots) True Ind. Glide or dive 262 mph (228 knots) True Ind. Flaps extended 112 mph (97 knots) True Ind.

(See NOTE 11 for partial flap speeds)

(b) For weights between 24,800 lbs. and 25,200 lbs.:
Level flight or climb 211 mph (184 knots) True Ind.
Glide or dive 257 mph (224 knots) True Ind.
Flaps extended 112 mph (97 knots) True Ind.
(See NOTE 11 for partial flap speeds)

Usable ceiling — May be realized under conditions shown. See Items 502(f), (g), (h), (i) and NOTE 6 for reduction necessitated by de-icing equipment.

Ceiling (ft.)	Weight (lbs.)	RPM	Manifold Pressure	T.I.A.S. mph - knots	Propellers installed (items)	L.E. De-Icers
c	24,400	2550	Full throttle	117 - 102	1(a) or 1(b)	Yes but not operating
10,000	25,200	2559	METO	117 - 102	1(a) or 1(b)	Yes but not operating

Additional conditions:
(1) Standard air
(2) Either engine inoperative
(3) Inoperative prop. fully feathered
(4) Carburetor air intake on "Cold Air"
(5) Fuel 87 grade.

C.G. range — (+47.1) to (+70.6)

Max. Occupants — See 14 CFR § 91.607

Maximum weights *(See NOTE 13 for certification under SR-407)*

(a) For Air Carrier operation under the non-transport category performance operation limitations of 14 CFR § 121.
Landing 25,200 lbs.
Take-off 25,200 lbs.

(b) For passenger operation other than Air Carrier:
Landing 25,200 lbs.
Take-off 25,200 lbs.

(c) For cargo operation under the non-transport category performance operation (limitations FAR 121.
Landing 25,200 lbs.
Take-off 25,200 lbs.

See NOTE 5 for increased weights when de-icers are installed.

Maximum baggage — Maximum capacity of compartments:
2 adjacent compts. fwd. of cabin, right 1250 lbs. (-63)
2 adjacent compts. fwd. of cabin, left 700 lbs. (-45)
Aft of cabin 1500 lbs. (+354)
See NOTE 1 for additional restrictions and placards.

Fuel capacity — 822 gals. (4 tanks in CS wing: 2 main, including fuel system, 210 gals. each (+48) and 2 aux. 201 gals. each at (+83.5)).
See NOTE 2 regarding fuel loading procedures.

Oil capacity — 66-1/2 gals. (One tank in each nacelle at 33-1/4 gals. each (-8), including capacity of oil system)

Serial Nos. eligible — 1900 and up
(See NOTE 14)

Required equipment — Items 1(a), 2(a), (e) and (j), 103(a), 104(a), 108, 201(a), 202(a), 203(a), 204, 205(a), 206, 207(a), 208(a), 301(a) and 302(a).

II - Model DC3A-S1CG or DC3A-S1C3G (Army C-41, C-41A, C-48, C-48A, C-52, C-52A, C-52B, C-52C, C-53, C-53B, C-53C, C-53D, C-68; Navy R4D-3, R4D-4), approved October 31, 1937 and May 1, 1939, respectively.

See NOTE 7 for modifications required for conversion of military models. Models DC3A-S1CG and DC3A-S1C3G become models DC3A-SCG and DC3A-SC3G, respectively or vice versa, depending only upon the grade of the fuel used. Pertinent aircraft and engine model designations and engine ratings apply without changing the nameplate. Ignition

timings should be 20° BTC with 87 grade fuel and 25° BTC with 91 grade fuel.

Engines — 2 P&W Twin Wasps S1CG or S1C3G, geared 16:9, with one 3-1/2 N damper
See Item 101.(a) and (c) for optional engines.

Fuel — 91 min. grade aviation gasoline

Engine limits — Maximum continuous,
(Sea level) 41.5 in. Hg, 2550 rpm (1050 hp)
(Straight line manifold pressure variation with altitude to 7500 ft.) 39.5 in. Hg, 2550 rpm (1050 hp)
Take-off (one minute),
48.0 in. Hg, 2700 rpm (1200 hp), or
47.0 in. Hg, 2750 rpm (1200 hp)

Airspeed limits (T.I.A.S)

	Up to and including 24,800 lbs.	Between 24,800 lbs. and 25,200 lbs.	Between 25,200 lbs. and 26,900 lbs. (cargo only)
Level flight or climb	217 mph (189 knots)	211 mph (184 knots)	200 mph (174 knots)
Glide or dive	262 mph (228 knots)	257 mph (224 knots)	241 mph (210 knots)
Flaps extended	112 mph (97 knots)	112 mph (97 knots)	112 mph (97 knots)

See Note 11 for partial flap speeds.

Usable ceiling — May be realized under conditions shown. See Items 502(f), (g), (h), (i) and NOTE 6 for reductions necessitated by de-icing equipment.

Ceiling (ft.)	Weight (lbs.)	RPM	Manifold Pressure	T.I.A.S. mph - knots	Propellers installed (items)	Fuel grade	L.E. De-Icers
11,600	25,200	2550	Full throttle	112 - 97	1(a), (b) or (d)	91	Yes
10,000	25,200	2550	Full throttle	103 - 90	1(c)	91	No
9,500	26,900	2550	Full throttle	112 - 97	1(a), (b) or (d)	91	Yes
7,900	26,900	2550	Full throttle	103 - 90	1(c)	91	Mp

Additional conditions:
(1) Standard air
(2) Either engine inoperative
(3) Inoperative propeller fully feathered
(4) Carburetor air intake on "Cold Air"
(5) Where L.E. De-icers are installed, they are not being operated.

C.G. range — (+47.1) to (+70.6)

Max. Occupants — See 14 CFR § 91.607

Maximum weights *(See NOTE 13 for certification under SR-407)*

(a) For Air Carrier operation under the non-transport category performance operation limitations of FAR 121.
Landing 25,200 lbs.
Take-off 25,200 lbs.
(b) For passenger operation other than Air Carrier:
Landing 25,200 lbs.
Take-off 25,200 lbs.
(c) For operation under the conditions set forth in NOTE 12:
Landing 26,000 lbs.
Take-off 26,200 lbs. (dump valves not required)
(d) For cargo operation under the non-transport category performance operation limitations (of FAR 121 and the conditions set forth in Note 10:
Landing 26,900 lbs.
Take-off 26,900 lbs.
(e) For cargo operation under conditions other than those set forth in NOTES 10, 12, 13:
Landing 25,200 lbs.
Take-off 25,200 lbs.

See NOTE 5 for increased weights when de-icers are installed.

Maximum baggage — Maximum capacity of compartments:
2 adjacent compts. fwd. of cabin, right 1250 lbs. (-63)
2 adjacent compts. fwd. of cabin, left 700 lbs. (-45)
Aft of cabin 1500 lbs. (+354)
See NOTE 1 for additional restrictions and placards.

Fuel capacity — 822 gals. (4 tanks in CS wing: 2 main, including fuel system, 210 gals. each (+48) and 2 auxiliary, 201 gals. each at (+83.5)).
See NOTE 2 regarding fuel loading restrictions.

Oil capacity — 66-1/2 gals. (One tank in each nacelle at 33-1/4 gals. each (-8), including capacity of oil system)

Serial Nos. eligible — 1900 and up. And C-41 S/N 2053; C-41A S/N 2145 (see NOTE 14).

Required equipment — Items 1(a), 2(a), (e) and (j) or (l); or (b), (e) and (j) or (l); or (b), (f) and (k); or (c), (f) and (k); 103(a), 104(a) or (b), 108, 201(a), 202(a), 203(a), 204, 205(a), 206, 207(a), 208(a), 301(a) or (b), and 302(a).

III - Model DC3A-S4C4G, approved February 18, 1942

Engines — 2 P&W Twin Wasps S4C4G, geared 16:9, with one 3-1/2 N damper.
NOTE: These engines are equipped with 2 speed superchargers. The supercharger speed controls must be positively safetied for operation in low gear ratio only. (See Item 101.(b) and (c) for optional engines).

Fuel — 91 min. grade aviation gasoline

Engine limits — Maximum continuous,
(Sea level) 41.5 in. Hg, 2550 rpm (1050 hp)
(Straight line manifold pressure variation with altitude to 7500 ft.) 39.5 in. Hg, 2550 rpm (1050 hp)
Take-off (one minute),
48.0 in. Hg, 2700 rpm (1200 hp), or
47.0 in. Hg, 2750 rpm (1200 hp)

Airspeed limits (T.I.A.S)

	Up to and including 24,800 lbs.	Between 24,800 lbs. and 25,200 lbs.	Between 25,200 lbs. and 26,900 lbs. (cargo only)
Level flight or climb	217 mph (189 knots)	211 mph (184 knots)	200 mph (174 knots)
Glide or dive	262 mph (228 knots)	257 mph (224 knots)	241 mph (210 knots)
Flaps extended	112 mph (97 knots)	112 mph (97 knots)	112 mph (97 knots)

See NOTE 11 for partial flap speeds.

Usable ceiling — May be realized under conditions shown. See Items 502(f), (g), (h), and (i) and NOTE 6 for reductions necessitated by de-icing equipment.

Ceiling (ft.)	Weight (lbs.)	RPM	Manifold Pressure	T.I.A.S. mph - knots	Propellers installed (items)	Fuel grade	L.E. De-Icers
11,600	25,200	2550	Full throttle	112 - 97	1(a) or (b)	91	Yes but not operating
9,500	26,900	2550	Full throttle	112 - 97	1(a) or (b)	91	Yes but not operating

Additional conditions:
(1) Standard air
(2) Either engine inoperative
(3) Inoperative propeller fully feathered
(4) Carburetor air intake on "Cold Air"

C.G. range — (+47.1) to (+70.6)

Max. Occupants	See 14 CFR § 91.607
Maximum weights *(See NOTE 13 for certification under SR-407)*	(a) For Air Carrier operation under the non transport category performance operation limitations of FAR 121. Landing 25,200 lbs. Take-off 25,200 lbs. (b) For passenger operation other than Air Carrier: Landing 25,200 lbs. Take-off 25,200 lbs. (c) For operation under the conditions set forth in NOTE 12: Landing 26,000 lbs. Take-off 26,200 lbs. (dump valves not required) (d) For cargo operation under the non-transport category performance operation limitations of FAR 121 and the conditions set forth in Note 10: Landing 26,900 lbs. Take-off 26,900 lbs. (e) For cargo operation under conditions other than those set forth in NOTES 10, 12, 13: Landing 25,200 lbs. Take-off 25,200 lbs. *See NOTE 5 for increased weights when de-icers are installed.*
Maximum baggage	Maximum capacity of compartments: 2 adjacent compts. fwd. of cabin, right 1250 lbs. (-63) 2 adjacent compts. fwd. of cabin, left 700 lbs. (-45) Aft of cabin 1500 lbs. (+354) *See NOTE 1 for additional restrictions and placards.*
Fuel capacity	822 gals. (4 tanks in CS wing: 2 main, including fuel system, 210 gals. each (+48) and 2 aux. 201 gals. each at (+83.5*) See NOTE 2 regarding fuel loading procedures.*
Oil capacity	66-1/2 gals. (1 tank in each nacelle at 33-1/4 gals. each (-8), including capacity of oil system)
Serial Nos. eligible	1900 and up. (See NOTE 14).
Required equipment	Items 1(a), 2(a), (e) and (j), 103(a), 104(a), 108, 201(a), 202(a), 203(a), 204, 205(a), 206, 207(a), 208(a), 301(a), and 302(a).

IV - Model DC3C-SC3G and DC3C-S1C3G, app. 10 July 1944 or DC3C-S4C4G (Army C-47, C-47A; Navy R4D- 1, R4D-5) Approved 16 Jan. 1948.

See NOTE 8 for modifications required for conversion of military models. Model DC3C-SC3G becomes model DC3C-S1C3G and vice versa, depending only upon grade of fuel used. Pertinent aircraft and engine model designations and engine ratings apply without changing the nameplate. Ignition timing should be 20° BTC with 87 grade fuel and 25° BTC with 91 grade fuel.

Engines	2 P&W Twin Wasps SC3G, S1C3G or S4C4G, geared 16:9, with one 3-1/2 N damper. (See Item 101.(a), (b) and (c) for optional engines.) *NOTE: S4C4G engines are equipped with 2 speed superchargers. The supercharger speed controls must be positively safetied for operation in low gear only.*
Fuel	87 min. grade aviation gasoline (DC3C-SC3G). 91 min. grade aviation gasoline (DC3C-S1C3G & DC3C-S4C4G).

Engine limits

DC3C-SC3G

Maximum continuous,
(Sea level) 36.0 in. Hg, 2550 rpm (900 hp)
(Straight line manifold pressure variation with altitude to 12,000 ft.) 34.0 in. Hg, 2550 rpm (900 hp)
Take-off (one minute),
42.0 in. Hg, 2700 rpm (1050 hp)

DC3C-S1C3G (limits covered in "(a)" are for manual mixture control only. Those covered in "(b)" are for automatic rich operation with PD12H1 or PD12H4 carburetors with either -1 or -11 settings).

Maximum continuous,
(a) (Sea level) 41.5 in. Hg, 2550 rpm (1050 hp)
(Straight line manifold pressure variation with altitude to 7500 ft.)
39.5 in. Hg, 2550 rpm (1050 hp)
(b) (Sea level) 42.0 in. Hg, 2550 rpm (1050 hp)
(Straight line manifold pressure variation with altitude to 7000 ft.) 41.0 in. Hg, 2550 rpm (1050 hp) or (10,000 ft.)
38.0 in. Hg, 2700 rpm (1000 hp)
Take-off (one minute)
48.0 in. Hg, 2700 rpm (1200 hp) or
47.0 in. Hg, 2750 rpm (1200 hp)

DC3C-S4C4G

Maximum continuous,
(Sea level) 41.5 in. Hg, 2550 rpm (1050 hp)
(Straight line manifold pressure variation with altitude to 7500 ft.) 39.0 in. Hg, 2550 rpm (1050 hp)
Take-off (one minute),
48.0 in. Hg, 2700 rpm (1200 hp) or
47.0 in. Hg, 2750 rpm (1200 hp)

Airspeed limits (T.I.A.S)

	Models DC3C-SC3G, DC3C-S1C3G and DC3C-S4C4G up to and including 24,800 lbs.	Models DC3C-SC3G, DC3C-S1C3G and DC3C-S4C4G Between 24,800 lbs. and 25,200 lbs.	Models DC3C-S1C3G and DC3C-S4C4G only between 25,200 lbs. and 26,900 lbs. (cargo only)
Level flight or climb	217 mph (189 knots)	211 mph (184 knots)	200 mph (174 knots)
Glide or dive	262 mph (228 knots)	257 mph (224 knots)	241 mph (210 knots)
Flaps extended	112 mph (97 knots)	112 mph (97 knots)	112 mph (97 knots)

See NOTE 11 for partial flap speeds.

Usable ceiling

May be realized under conditions shown. See Items 502(f), (g), (h), (i) and NOTE 6 for reductions necessitated by de-icing equipment.

Ceiling (ft.)	Weight (lbs.)	RPM	Manifold Pressure	T.I.A.S. mph - knots	Propellers installed (items)	Fuel grade	L.E. De-Icers
DC3C-SC3G							
12,000	24,400	2550	Full throttle	117 - 102	1(a)	87	Yes but not operating
10,000	25,200	2550	M.E.T.O.	117 - 102	1(a) or (b)	87	Yes but not operating

Ceiling (ft.)	Weight (lbs.)	RPM	Manifold Pressure	T.I.A.S. mph - knots	Propellers installed (items)	Fuel grade	L.E. De-Icers
DC3C-S1C3G							
11,600	25,200	2550	Full throttle	112 - 97	1(a), (b) or (d)	91	Yes but not operating
10,000	25,200	2550	Full throttle	103 - 90	1(c)	91	No
9,500	26,900	2550	Full throttle	112 - 97	1(a), (b) or (d)	91	Yes but not operating
7,900	26,900	2550	Full throttle	103 - 90	1(c)	91	No
DC3C-S4C4G							
11,600	25,200	2550	Full throttle	112 - 97	1(a) or (b)	91	Yes but not operating
9,500	26,900	2550	Full throttle	112 - 97	1(a) or (b)	91	Yes but not operating

Additional conditions:
(1) Standard air
(2) Either engine inoperative
(3) Inoperative propeller fully feathered
(4) Carburetor air intake on "Cold Air"

C.G. range

(+47.1) to (+70.6)

Maximum Occupants

See 14 CFR § 91.607.

Maximum weights *(See NOTE 13 for certification under SR-407)*

(a) For Air Carrier operation under the non-transport category performance operation limitations of FAR 121.
Landing 25,200 lbs.
Take-off 25,200 lbs.
(b) For passenger operation other than Air Carrier:
Landing 25,200 lbs.
ake-off 25,200 lbs.
(c) For operation under the conditions set forth in NOTE 12:
Landing 26,000 lbs.
Take-off 26,200 lbs. (dump valves not required)
(d) For cargo operation under the non-transport category performance operation limitations of FAR 121 and the conditions set forth in Note 10:
Landing 26,900 lbs.
Take-off 26,900 lbs.
(e) For cargo operation under conditions other than those set forth in NOTES 10, 12, 13:
Landing 25,200 lbs.
Take-off 25,200 lbs.
See NOTE 5 for increased weights when de-icers are installed.

Maximum baggage

L.H. (Nav.) compartment 650 lbs. (-45)
R.H. compartment 400 lbs. (-77)
Cabin *(See approved loading schedule)*

Fuel capacity

804 gals. (4 tanks in CS wing: 2 front incl. fuel system, 202 gals. each (+48) and 2 rear 200 gals. each (+83.5))
See NOTE 2 regarding fuel loading restrictions.

Oil capacity

58 gals. (1 tank in each nacelle at 29 gals. each (-8), including capacity of system)

Serial Nos. eligible *(See NOTE 15)*
C-47(R4D-1); 4200 thru 4799; 6000 thru 6258; 7365 thru 7386; 9000 thru 9149
C-47A(R4D-5); 9150 thru 10269; 11779 thru 13912; 18899 thru 20598; 25224 thru 25523; 43073 thru 43092 and 43154

Required equipment
Items 1(a), 2(a), (e) and (j) or (l); or (b), (e) and (j) or (l); or (b), (f) and (k); or (c), (f) and (k); 103(e), 104(b), (d) or (e); 108, 201(f), 202(a), 203(a), 204, 205(b), 206, 207(b), 208(b), 301(e), (f) or (g), and 302(a) or (b).

V - Model DC3C-R-1830-90C (Army C-47B, Navy R4D-6), approved November 13, 1945; Model DC3D-R-1830- 90C (Army C-117A), 25 PCLM, Approved January 15, 1946. Models are the same except for interior arrangement and equipment. The DC3D-R-1830-90C has a light weight cabin floor and small main cabin door. See NOTE 8 (DC3C-R-1830-90C) and 9 (DC3D-R-1830-90C) for modifications required for the conversion of military models.

Engines
2 P&W Twin Wasps R-1830-90C spline coupled, 16:9, reduction gear with one 3-1/2 N damper
(See Item 101.(b) and (c) for optional engines.)
NOTE: These engines are equipped with two speed superchargers. The supercharger speed controls must be positively safetied for operation in low gear only.

Fuel
91 min. grade aviation gasoline (ignition timing must be modified to 20° to use 91 min. grade fuel).

Engine limits
Maximum continuous,
(Sea level) 41.5 in. Hg, 2550 rpm (1050 hp)
(Straight line manifold pressure variation with altitude to 7500 ft.) 39.0 in. Hg, 2550 rpm (1050 hp)
Take-off (one minute),
48.0 in. Hg, 2700 rpm (1200 hp), or
47.0 in. Hg, 2750 rpm (1200 hp)

Airspeed limits (T.I.A.S)

	Up to and including 24,800 lbs.	Between 24,800 lbs. and 25,200 lbs.	Between 25,200 lbs. and 26,900 lbs. (cargo only)
Level flight or climb	217 mph (189 knots)	211 mph (184 knots)	200 mph (174 knots)
Glide or dive	262 mph (228 knots)	257 mph (224 knots)	241 mph (210 knots)
Flaps extended	112 mph (97 knots)	112 mph (97 knots)	112 mph (97 knots)

See NOTE 11 for partial flap speeds.

Usable ceiling
May be realized under conditions shown. See Items 502(f), (g), (h), and (i) and NOTE 6 for reductions necessitated by de-icing equipment.

Ceiling (ft.)	Weight (lbs.)	RPM	Manifold Pressure	T.I.A.S. mph - knots	Propellers installed (items)	Fuel grade	L.E. De-Icers
11,600	25,200	2550	Full throttle	112 - 97	1(a) or (b)	91	Yes but not operating
9,500	26,900	2550	Full throttle	112 - 97	1(a) or (b)	91	Yes but not operating

Additional conditions:
(1) Standard air
(2) Either engine inoperative
(3) Inoperative propeller fully feathered
(4) Carburetor air intake on "Cold Air"

C.G. range
(+47.1) to (+70.6)

Max. Occupants
See 14 CFR § 91.607

Maximum weights
(See NOTE 13 for certification under SR-407)

(a) For Air Carrier operation under the non-transport category performance operation limitations of FAR 121.
Landing 25,200 lbs.
Take-off 25,200 lbs.
(b) For passenger operation other than Air Carrier:
Landing 25,200 lbs.
Take-off 25,200 lbs.
(c) For operation under the conditions set forth in NOTE 12:
Landing 26,000 lbs.
Take-off 26,200 lbs. (dump valves not required)
(d) For cargo operation under the non-transport category performance operation limitations of FAR 121 and the conditions set forth in Note 10:
Landing 26,900 lbs.
Take-off 26,900 lbs.
(e) For cargo operation under conditions other than those set forth in NOTES 10, 12, or 13:
Landing 25,200 lbs.
Take-off 25,200 lbs.
See NOTE 5 for increased weights when de-icers are installed.

Maximum baggage

DC3C-R-1830-90C

L.H. (Nav.) compartment	650 lbs. (-45)
R.H. compartment	400 lbs. (-77)
Cabin (see approved loading schedule)	

DC3D-R-1830-90C

2 adjacent compartments fwd of cabin, right	1,250 lbs. (-63)
1 compartment fwd of cabin, left	500 lbs. (-35½)
Aft of cabin	1,070 lbs. (+368)

Fuel capacity

804 gals. (4 tanks in CS wing: 2 main tanks located fwd of center spar, 202 gals. ea. (+48) and 2 auxiliary tanks aft of center spar 200 gals. each at (+83.5)).
See NOTE 2 regarding fuel loading restrictions.

Oil capacity

58 gals. (One tank in each nacelle at 29 gals. each (-8), including capacity of system)

Serial Nos. eligible
(See NOTE 15)

DC3C-R-1830-90C: 20599 thru 20898, 25524 thru 27223, 32527 thru 33626, 34134, 34135, 34137 thru 34144, 34146 thru 34167, 34169 thru 34190, 34192 thru 34211, 34213 thru 34233, 34235 thru 34249, 34251 thru 34263, 34265 thru 34277, 34279 thru 34290, 34292 thru 34304, 34306 thru 34317, 34319 thru 34409.
DC3D-R-1830-90C: 18548 thru 18564, 34129 thru 34133, 34136, 34145, 34168, 34191, 34212, 34234, 34250, 34264, 34278, 34291, 34305, 34318, 42954 thru 42981.

Required equipment

DC3C-R-1830-90C: Items 1(a) or (d), 2(c), (f) and (k), 103(e), 104(b), (d) or (e), 108, 201(f), 202(a), 203(a), 204, 205(b), 206, 207(b), 208(b), 301(e), (f), or (g), and 302(b).
DC3D-R-1830-90C: Items 1(a) or (d), 2(c), (f) and (k), 103(f), 104(b) or (e), 108, 201(f), 202(a), 203(a), 204, 205(b), 206, 207(b), 208(b) and 302(b).

Specifications Pertinent to All Models

Datum	Leading edge of center section of wing.
Leveling means	Pins at (+198) and (+219)
Certification basis	Type Certificate No. 669 (Aero. Bulletin 7A requirements)
Production basis	Production Certificate No 27.
Export eligibility	Eligible for export to all countries subject to the provisions of MOP 2-4 except as follows: Canada: Landplane eligible Skiplane not eligible

Equipment: A plus (+) or minus (-) sign preceding the weight of an item indicates no weight change when that item is installed.

Approval for the installation of equipment listed herein has been obtained by the aircraft manufacturer except those items preceded by an asterisk (*). The asterisk denotes that approval has been obtained by someone other than the aircraft manufacturer. An item marked with an asterisk may not have been manufactured under a FAA monitored or approved quality control system, and therefore attention should be paid to workmanship and conformity with pertinent data called for in this specification.

Propellers and Propeller Accessories (Except De-icing Equipment)

1. Propellers

(a) (241 a)	Ham. Std., hubs 23E50, blades 6153-18. (Douglas Dwgs. 5073247 or 5081682 or UAL Dwg. 15U-63) For interchangeable blade models see Prop. Spec. No. 603 (NOTE 6). Dia.: Max. 11'6-3/8", min. allowable for repairs 11'3-3/8". No further reduction permitted. Min. low pitch getting 16° at 42 in. sta. Placard required: "Avoid continuous operation between 1900 and 2050 rpm." Additional placard required unless engines equipped with spline type reduction gears: "Avoid continuous operation between 1550 and 1650 rpm and avoid take-off operation between 2450 and 2700 rpm." Eligible with molded shank fairings per NOTE 6.	Use actual wt. change
(b) (241 f)	Ham. Std., hubs 33D50, blades 6495-18. For interchangeable blade models see Prop. Spec. No. 749 (NOTE 6). Min. Low pitch setting 16° at 42 in. Sta. Dia.: Max. 11'7", min. allowable for repairs 11'4". No further reduction permitted. Placard required unless engines are equipped with spline type gears: "Avoid take-off operation between 2450 and 2700 rpm."	337 lbs. ea. (-83)
(c) (241 g)	Ham. Std., hubs 23E50, blades 6519-18. For interchangeable blade models see Prop. Spec. No. 603 (NOTE 6). Dia.: Max. 11'6-3/8", min. allowable for repairs 11'3-3/8". No further reduction permitted. Min. Low pitch setting 16° at 42 in. sta. For P&W S1C3G engines with 16:9 spline coupled reduction gears and with 3 1/2 N dynamic damper.	455 lbs. ea. (-83)
(d) (241 h)	Ham. Std. hubs 23E50, blades 6477-0. For interchangeable blade models see Prop. Spec. No. 603 (NOTE 6). Dia.: Max. 11'6-3/8", min. allowable for repairs 11'3-3/8". No further reduction permitted. Min. Low pitch setting 16° at 42 in. sta. Eligible only on engines with 16:9 spline coupled reduction gears. Item 2(c) is required when this item is installed.	446 lbs. ea. (-83)

(e) (241 i) Ham. Std., hubs 33D50, blades 6571-0. 332 lbs. ea. (-83)
Dia.: Max. 11'7", min. allowable for repairs 11'4".
No further reduction permitted.
Min. low pitch setting 18.5° at 42 in. sta.
For P&W S1C3G engines with 16:9 spline coupled reduction gears.

(f) (241 j) Ham. Std., hubs 23E50, blades 6565-18. Use actual wt. change
Dia.: Max. 11'6-3/8", min. allowable for repairs 11'3-3/8".
No further reduction permitted.
Min. Low pitch setting 16° at 42 in. sta.
Placard required unless engines are equipped with spline type reduction gears: "Avoid continuous operation between 1550 and 1650 rpm and avoid take-off operation between 2450 and 2700 rpm."
Eligible with molded shank fairings per NOTE 6.

2. Propeller Controls

(a) (111 a)	Constant speed propeller control (12 volt)	18 lbs. (-74.0)
(b) (111 d)	Constant speed propeller control (24 volt)	18 lbs. (-74.0)
(c) (111 h)	Constant speed propeller control - Ham. Std. 4G8 (double capacity)	19 lbs. (-74.0)
(d) (241 d)	Propeller constant speed controls (5073247)	22 lbs. (-67.5)
(e) (111 b)	Propeller feathering controls, switches, fittings, tubing, wiring, and conduits (12 volt)	14 lbs. (-40.5)
(f) (111 e)	Propeller feathering controls, switches, fittings, tubing, wiring, and conduits (24 volt)	14 lbs. (-40.5)
(g) (241 b)	Propeller feathering controls, tubing, wiring, brackets, etc. (12 volt)	21 lbs. (-40.5)
(h) (241 e)	Acrotorque propeller feathering system (including residual hydraulic fluid of 6 lbs. (5073247 and 5077566-500)	49 lbs. (-79.5)
(i) (241 c)	2 oil pumps (12 volt) (for feathering propellers)	45 lbs. (-21.5)
(j) (111 c)	2 feathering oil pumps and brackets (Pesco 280, 12 volt)	48 lbs. (-21.5)
(k) (111 f)	2 feathering oil pumps and brackets (Ham. Std. 54772-2, 24 volt)	48 lbs. (-21.5)
(l) (111 g)	2 feathering oil pumps and brackets (Ham. Std. 53235-2, 12 volt)	48 lbs. (-21.5)

Engines and Engine Accessories - Fuel and Oil Systems

101. Optional Engines (Installation of optional engines does not require a change of the aircraft model designation).

*(a) (292) Interchangeable with the S1C3G engines. Ratings are same as S1C3G. 100 min. grade fuel must be used unless carburetor setting is revised to permit use of 91 grade fuel. All must have 16:9 reduction gearing:
(1) R-1830-49 (4) R-1830-57
(2) R-1830-82 (5) R-1830-96
(3) R-1830-92

*(b) (293) Interchangeable with the S4C4G engine at identical ratings. Ignition timing must be modified to 20° for 91 grade fuel. All must have 16:9 reduction gearing:
(1) S3C4G (4) R-1830-90C (7) R-1830-65
(2) R-1830-43 (5) R-1830-90D (8) R-1830-86M2
(3) R-1830-67 (6) R-1830-43A

Note: Except for minor installation details because of the longer rear case, optional 101.(b) engines are interchangeable with optional 101.(a) engines.

*(c) (305) P&W R-1830-75 or R-1830-94 with 16:9 splined coupled reduction gearing. Eligible when installed in conjunction with prop. item 1(a), 1(d) or 1(f).
Placard deleted.
Fuel - Grade 100/130
Engine Limits:

			MP	
Low Blower	HP	RPM	IN.HG	ALT.
Take-off (2 min.)	1200	2700	47.0	S.L.
Max. continuous	1100	2600	43.5	S.L.
Max. continuous	1100	2600	42.7	7400
High Blower**				
Max. continuous	1000	2600	42.2	10000
Max. continuous	1000	2600	41.5	14250

**(R-1830-75 has low blower only. When high blower operation is desired on the -94 engine, contact the FAA Engineering & Manufacturing Branch, P.O. Box 90007, Los Angeles 9, California, for the "Single Engine Determination" curve which is required for this operation. The new single engine ceiling of the airplane with high blower is 10,300 ft.)
(Note:To obtain approval for utilization of 1350 hp at 2800 rpm and 52.0 in. Hg., for take-off which is available for either of these engines, see NOTE 13.)

* (d) P&W R-2000-7M2 or -D5
Propellers - Ham. Std., hubs 43D50, blades 6863-1 or 7033-1. (Blades 6863 and 7033 may be installed in same hub.) Diameter: Max. 11'6", min. allowable for repairs 11'3". No further reduction permitted.
Placard required: "Avoid Continuous Ground Operation of Engines in Range of 2100 to 2250 rpm. Avoid Continuous Operation of Engines between 2310 and 2510 rpm."
Fuel - Grade 100/130
Engine Limits:

	HP	RPM	MP IN.HG	ALT.
Take-off (2 min.)	1450	2700	50.0	S.L.
Max. continuous	1100	2550	39.3	S.L.
Max. continuous	1100	2550	37.5	9800

Installation must be made in accordance with PAA Report #462 and airplane must be modified to comply with all structural, airspeed and weight limitations of NOTE 13 of this specification. FAA Approved Airplane Flight Manual dated September 15, 1954, which is contained in PAA Report #462, is also required.

*102.	(a) (294)	Deleted.	
103.	Oil Coolers		
	(a) (103)	Two oil radiator, 11" dia. (UAP U-2050), scoops, etc.	101 lbs. (-22)
	(b) (257 a)	Two oil radiator, scoops, etc. AiResearch 11" 2D301	101 lbs. (-22)
	(c) (257 b)	Two oil regulators, AiResearch 12", No. 1E-587	115 lbs. (-22)
	(d) (257 c)	Two oil regulators, AiResearch 11", No. 19632	58 lbs. (-22)
	(e) (269)	Two oil radiators, 11" dia., (Doug. Dwg. 1119784), and scoops, etc.	111 lbs. (-23.5)
	(f) (288)	Two oil temperature regulators (Doug. Dwg. 1204274)	90 lbs. (-24.0)
104.	Starters		
	(a) (104 a)	Two Eclipse Type E-160, 12 volt, and brackets	67 lbs. (-38.5)
	(b) (104 b)	Two AAF Spec. 95-32304, Type G-6, 24 volt, and brackets	67 lbs. (-38.5)
	(c) (263)	Two combination starters and feathering pumps (12 volt)	80 lbs. (-40)
	(d) (270 a)	Two Type C-21 (12 volt) and brackets	74 lbs. (-38.5)
	(e) (270 c)	Two Type JH-3R (24 volt) and brackets	72 lbs. (-38.5)
105.	Fuel Dump System		
	(a) (215)	Dump valve chute installation per Doug. Dwg. No. 5044285. *See NOTE 3 for restriction on dump valves.*	12 lbs. (+115)
	(b) (222)	Extendible dump valve chute installation in accordance with Douglas Dwg. No. 5080140. See NOTE 3 for restrictions on dump valves.	22 lbs. (+141.5)
	(c) (302)	Extendible dump valve chute installation in accordance with Doug. Dwg. No. 5315914, (DC3C, C-47 series and DC3D, C117 series). *See NOTE 3 for restrictions on dump valves.*	22 lbs. (+141.5)
*106.	Outer Wing Tank Installation		
	(a) (306 a)	Two tanks in each wing totalling approximately 400 gals. of fuel per AiResearch Dwg. #4900-11-E. (AiResearch Aviation Service Co., 5907 West Imperial Blvd., Los Angeles, 45, Calif.	Use actual wt. chg.
	(b) (306 b)	Two tanks in each wing totalling approximately 400 gals. of fuel per Grand Central Dwg. #10878 or Dwg. #20458. (Grand Central Aircraft Company, 1314 Airways, Glendale, California.	Use actual wt. chg.
	(c) (306 c)	Multi-cell fuel tanks (34 gals. to 400 gals.) per Executive Aircraft Service Dwg. #35267NS. (Executive Aircraft Service, Inc., P.O. Box 7307, Dallas, Texas)	Use actual wt. chg.
107.	(239)	Dual fuel system including weight increase of pressure carburetors Stromberg PD12-B6 or PD12-B8 (2 at +15 lbs. each) (Douglas Dwgs. 4085318 and 5081756).	+85 lbs. (+3)
108.	(123)	Residual fuel and oil in drained system (Oil 32 lbs., fuel 19 lbs.)	51 lbs. (-17.5)

109.	(233)	Two 29 gal. oil tanks constructed in accordance with Douglas Dwg. No. 4077559, replacing standards 33-1/4 gal. tanks.	-8 lbs. (-8)
*110.	(307)	Two sets, cowl flap linkage, Miner's Aircraft & Engine Service, Inc., P/N 3-892, installed per Dwg. 3-892-1A.	+6.3 lbs. (-51)

Landing Gear

201.	Main Wheel and Brake Assemblies		
	(a) (116)	Two 17:00-16 wheels (Bendix mag.) with expander tube brakes (Goodrich G-1430 or Hayes)	243 lbs. (+28)
	(b) (226)	Two 45 x 20-10 wheels (Goodyear, with L.P. disc type brakes - 7, 9, or 11 discs)	216 lbs. (+28)
	(c) (254)	Two 17.00-16 Bendix wheels with cast drums and expander tube brakes (Goodrich H-2-445 or H-2-449)	229 lbs. (+28)
	(d) (259)	Two 17.00-16 wheels, (Bendix mag. TC34)	254 lbs. (+28)
	(e) (265)	Two 45 x 20-10 Goodyear wheels with high pressure disc types brakes (7 or 9 discs)	230 lbs. (+28)
	(f) (274)	Two 17.00-16 Bendix B-3 wheels and duo-servo brakes	263 lbs. (+28)
	*(g) (304)	Two Goodyear Model CL16HBM (Cross Wind) Wheel Assembly No. 9560031 Brake Assembly No. 9540307 (Installation per Goodyear Dwg. No. 283AX50-500, Rev. D.) *(Note: When this item is installed, airplane is approved for cross wind landings in wind components up to 40 mph.)*	+173 lbs. (+28)
	*(h)	Two 17.00-16 Goodrich wheels H-3-269M-1 and Brakes H-2-415, H-2-445 or H-2-449	252 lbs. (+28)
	*(i)	Two 17.00-16 Goodyear wheels 530975M and Brakes 530961, 9540137, 9540356 or 9540363	216 lbs. (+28)
	*(j)	Two 17.00-16 Goodyear wheels 9540547 and Brakes 9540385	273 lbs. (+28)
202.	Main Wheel Tires		
	(a) (117)	Two 17.00-16, 10-ply H.D. (treaded)	257 lbs. (+28)
	(b) (227)	Two 45x20-10, 10-ply (treaded)	296 lbs. (+28)
	(c) (243)	Two 45x20-10, 10-ply (smooth)	268 lbs. (+28)
	(d) (282)	Two 17.00-16, Vaned (Goodrich)	260 lbs. (+28)
	(e)	Two 17.00-16, 10-ply (treaded)	239 lbs. (+28)
	(f)	Two 17.00-16, treaded 12-ply (ribbed safety)	275 lbs. (+28)
	(g)	Two 45x20-10, 12 ply	310 lbs. (+28)
203.	Main Wheel Tubes		
	(a) (118)	17.00-16 plain	38 lbs. (+28)
	(b) (228)	45 x 20-10 plain	40 lbs. (+28)
	(c) (260)	Two 17.00-16, cactus-proof	56 lbs. (+28)
204.	Tail Wheel		
	(a) (120)	9.00-6	9 lbs. (+455.5)
205.	Tail Wheel Tire		
	(a) (121)	9.00-6 8-ply	18 lbs. (+455.5)
	(b) (231)	9.00-6 8-ply (treaded)	24 lbs. (+455.5)
	(c) (253)	19.00 streamline 8-ply	12 lbs. (+455.5)
206.	(122)	9.00-6 tail wheel tire tube, cactus-proof	5 lbs. (+455.5)
207.	Main Gear Shock Struts		
	(a) (115)	Four Bendix, Nos. 53420 or 53585	223 lbs. (+28)
	(b) (273)	Four Bendix, (No. 65900)	228 lbs. (+28)
208.	Tail Gear Oleo Strut		
	(a) (119)	(Doug. Dwg. 3006620 or Cleveland Dwg. A-6356)	12 lbs. (+449)
	(a) (220)	(Doug. Dwg. 5044046 or 5115222)	23 lbs. (+449)

Electrical Equipment

301. Generators

(a) (105 a)	One 50-amp. (Eclipse Type E-5 or E-7, 12-volt)	31 lbs. (-38.5)
(b) (105 b)	Two 50-amp. (Type M-2, 24 volt)	37 lbs. (-38.5)
(c) (224)	Two 50-amp. (Eclipse M-3400) (12 volt)	62 lbs. (-38.5)
(d) (264)	Two 100-amp. and generator supports and increase for control boxes and wire (12 volt)	98 lbs. (-37.5)
(e) (271 a)	Two 50-amp. 12 volt (Eclipse 310-5)	63 lbs. (-38.5)
(f) (271 b)	Two 50-amp. 24 volt (Eclipse 314-15)	68 lbs. (-38.5)
(g) (271 c)	Two 100-amp. 24 volt (AAF Type 0-1)	64 lbs. (-38.5)
*(h) (271 d)	Two 200-amp. 28 volt (P-1 or equivalent)	88 lbs. (-31.5)

(Reference FAA Aeronautical Center Standardization Dwg.Wiring Diagram Page No. 34)

302. Batteries

(a) (106)	Two 65 amp. (6-TX-19) (12 volt)	126 lbs. (-65)
(b) (225)	Two 88 amp. (Exide 6-FHM-13) (12 volt)	155 lbs. (-65)
(c) (248)	One 50 amp. (Exide 6-X-9) (12 volt)	63 lbs. (-65)
(d) (251)	Two Presto-O-Lite 105 amp. (R-1213G) (12 volt)	182 lbs. (-65)
(e) (258)	One 88 amp. (Exide 6-FHM-13) (12 volt)	78 lbs. (-65)

401. (Reserved)

402. Automatic Pilot (See NOTE 13(g) for Aircraft Certificated under provisions of SR-407)

(a) (210) Hydraulic Servo unit model No. C-8-D3-B — 65 lbs. (-140)

*(b) (303 a) Sperry type A-12 — 205 lbs. (+93)

Main Servo Units:

Aileron: Servo unit model NR. 656542 (S-1-180-60-D)
Pulley size: 4.25" drum pitch diameter.

Rudder: Servo unit model NR. 656542 (S-1-148-40-D)
Pulley size: 4.25" drum pitch diameter.

Elevator: Servo unit Model NR. 656542 (S-1-104-20-D)
Pulley size: 4.25" drum pitch diameter.

Elevator Trim Tab Servo Unit:
Servo unit model NR. 661202 (S-3-2000-3.5-E)
Pulley size: 4.25" drum pitch diameter.

(Sperry Dwg. Nos. 5245-90052B, -90053D and -90029B)

(1) Servo stall force installation values (+0 or -3%) at the pilot's controls: Rudder 70 pounds, elevator 40 pounds, aileron 23 pounds.

(2) The following placard should be installed in a conspicuous place near the automatic pilot controller: "When using auto-pilot in normal operation (except approach), minimum terrain clearance is 500 feet. When using auto-pilot during an approach, minimum altitude is 200 feet, pilot's seat belt fastened and hand on control wheel. Minimum altitude for each case does not override any higher minimum operational altitudes."

*(c) (303 b) Lear

(1) Model L-5 automatic pilot, altitude controller and approach coupler installed in accordance with Lear Dwg. 82784.. — 92 lbs. (+113.0)

(2) Model L-2C automatic pilot and altitude controller (optional equipment) installed in accordance with Lear Dwg. 91326. — 68 lbs. (+147.5)

The following placard should be installed in a conspicuous place near the automatic pilot controller:

"When using autopilot in normal operation (except approach) minimum terrain clearance is 500 feet. When using auto-pilot during an approach, minimum altitude is 200 feet, pilot's seat belt fastened and hand on control wheel. Minimum altitude for each case does not overrride any higher minimum operational altitude."

Servo stall torques measured at rudder, aileron and elevator Servos: 150 in. lbs. minimum, 200 in. lbs. maximum.

Servo drum pitch diameters for all three axes ware 2.67 inches.

	*(d) (303 c)	Pioneer PB-10 (three main servo units 15601, one elevator tab servo unit 15602 and two throttle servo units 15602). (Reference Pioneer Pub. No. 95-14, 511-18, 05-8G, 88-31 and FAA Aeronautical Center Standardization Drawings.) (1) Servo stall forces measured in pounds at the pilot's controls: Rudder 75 Elevator 39 Aileron 23 These forces are satisfactory for automatic approach. (2) When using autopilot in cruise configuration the minimum terrain clearance is 500 feet. When using auto-pilot in approach configuration the minimum terrain clearance is 200 feet, pilot's seat belt fastened and hand on control wheel. The minimum altitude for each case does not overrride any higher minimum operational altitude.	Use actual wt. change
	*(e) (303 d)	Minneapolis-Honeywell Model MH-6 (3 servos MG7001A1; 1 servo MG7009A3) installed in accordance with Minneapolis-Honeywell drawing ET-1924. (1) Servo stall forces at pilot's controls: Rudder 120 + or - 5 lbs. Aileron 40 + or - 5 lbs. Elevator 30 + or - 5 lbs. (These forces are satisfactory for automatic approach.) (2) The following should be included on a placard installed near the automatic pilot controller: "Pilot's Operating Manual dated April 21, 1953, for the MH-6 automatic pilot is required. Maximum speed demonstrated for use of automatic pilot is 165 mph. Do not use automatic pilot below 300 feet above the terrain for cruise configurations or 200 feet for approach."	189 lbs. (+31.5)
403.	(109)	Two flares (3-min.) Type III Wiley A-8 (including brackets, etc. 15 lbs.)	53 lbs. (+389)
404.	(238)	Buffet compartment structure and fittings (Capacity 200 lbs. at +331.5) When this item is installed, rear baggage capacity must be reduced to 1070 lbs. (+368).	38 lbs. (+331.5)
405.	(249)	Radio operator's seat and table installation and rework of left front compartment, Douglas Dwgs. 5072972 and 5072964. When this item installed, forward left front baggage compartment capacity must be reduced from 200 lbs. to 140 lbs.	25 lbs. (-91.5)

<u>De-Icer Equipment (Propeller, Wing and Windshield)</u>

501.	(a) (209 a)	Fixed portion wing and fuselage lines	54 lbs. (+17)
	(b) (209 b)	Fixed portion controls, brackets, etc., and lines in nacelles	14 lbs. (+23)
	(c) (209 c)	Removable portion tail surface boots and attachment	16 lbs. (+466.5)
	(d) (209 d)	Optional wing and fuselage lines	43 lbs.
	(e) (209 e)	Optional arrangement pumps, controls, valves, lines, clips and brackets forward of firewalls (12 volt)	30 lbs.
502.	Additional de-icer equipment as follows:		
	(a) (211 a)	Carburetor and windshield system	11 lbs. (-72)
	(b) (211 b)	Propeller slinger rings (two)	4 lbs. (-76)
	(c) (211 c)	Propeller system	20 lbs. (-60.5)
	(d) (211 d)	Windshield defroster fan (12 volt)	2 lbs. (-113)
	(e) (211 e)	Provision for propeller slinger rings (Doug. Dwg. 5082021) including 4 gal. tank and lines	15 lbs. (-97)
	(f) (211 f)	Goodrich No. 37572 propeller fluid feed strips. Goodrich No. 36889 feed rings may be used on round shank blades. With S1CG, S1C3G, S4C4G, R-1830-90C or equivalent engines, the strips shall not extend beyond the 45 in. sta. on the propeller blades, and the usable ceiling must be reduced by 200 feet when installed. Strips and rings should be installed on the blades in accord with Goodrich Installation Manual furnished with the strips.	

(g) (211 g)	Goodrich No. 37572 propeller fluid feed strips. Goodrich No. 36889 feed rings may be used on round shank blades. With SCG or SC3G engines the strips shall not extend beyond the outside diameter of the engine cowl on the propeller blades and the usable ceiling must be reduced by 1,000 feet when installed. Strips and rings should be installed on the blades in accord with Goodrich Installation Manual furnished with the strips.	
(h) (211 h)	Firestone No. YRE-75J99 propeller fluid feed strips. With S1CG, S1C3G, S4C4G, R-1830-90C or equivalent engines, the strips shall not extend beyond the 45 in. sta. on the propeller blades and the usable ceiling must be reduced by 200 feet when installed. Strips should be installed in accord with Firestone instructions furnished with the strips.	
(i) (211 i)	Firestone No. YRE-75J99 propeller fluid feed strips. With SCG or SC3G engines the strips shall not extend beyond the outside diameter of the engine cowl on the propeller blades and the usable ceiling must be reduced by 1,000 feet when installed. Strips should be installed in accord with Firestone instructions furnished with the strips.	
(j) (278)	Propeller system including 4 gal. alcohol tank (Dwg. 5110551, 5110519, 5110574)	16 lbs. (-93)
(k) (279)	Windshield system including 6 1/2 gal. alcohol tank (Dwg. 5110552)	14 lbs. (-85.5)
(l) (280)	Carburetor system (Dwg. 5139641, 5139642, 5139643)	30 lbs. (-63)
(m) (295)	Wing (Goodrich Type 12, model 149)	54 lbs. (+17)
(n) (301)	Removable portion wing boots and attachment valve	82 lbs. (+47)

Miscellaneous (not listed above)

601.	Heating System		
	(a) (113)	Steam system and 7 qts. water	107 lbs. (-29.5)
	(b) (272)	Steam system and 4 qts. water	87 lbs. (-10)
	*(c) (267)	Stewart-Warner heater (Douglas Dwg. 5144982) (Replaces item 601-a when installed)	54 lbs. (-30)
	(d) (289)	Hot air heating and ventilating system (Douglas Dwg. 5188282, 5189184, 5188763, 5188318, 5188354) and carbon monoxide indicator unit (Mines 42516) (Douglas 5188491)	186 lbs. (+35.5)
	(e) (291)	Hot air heating and ventilating system (Douglas Dwgs. 5202279, 5141467, 5142300, 5141983 and 5141551 - less flame dampener)	157 lbs. (+3.0)
*602.	Geared Rudder Tab Installation		
	(a) (308 a)	AiResearch Dwg. No. C-7100-19 "Instal-Geared Rudder Tab", Airesearch Aviation Service Company, 5907 W. Imperial Blvd., Los Angeles, 45, California	Use actual wt. change
	(b) (308 b)	Executive Aircraft Service Dwg. No. 35283, Executive Aircraft Service, Inc., P.O. Box 7307, Dallas, Texas	Use actual wt. change
*603.	(309)	Windshield Inst., Dwg. No. 352544GDA Executive Aircraft Service, Inc.	Use actual wt. change

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

(b) When item 238 is installed, the rear baggage compartment capacity must be reduced to 1070 lbs. at (+368) and so placarded.

(c) When item 249 is installed, the forward left front baggage compartment capacity must be reduced from 200 lbs. to 140 lbs. and so placarded.

NOTE 2. Fuel must be loaded in front tanks and then in rear tanks and used in the reverse order except for take-off and landing, unless the carburetor overflow return line is routed to the rear tanks, in which case, the fuel loading and usage procedure must be reversed.

NOTE 3. Fuel Dumping. Fuel dump valves (Items 105(a), 105(b) or 105(c)) must be installed for operation of the airplane at weights in excess of the maximum landing weight, unless otherwise noted in this specification.

NOTE 4. (a) Stewardess' or steward's seat not to be occupied by passengers. Placard accordingly.
(b) Placard lavatory door as follows: "THESE ROOMS NOT TO BE OCCUPIED DURING TAKE-OFF OR LANDING."

NOTE 5. Maximum landing (and maximum take-off) weight may be increased 146 lbs. when complete de- icer is installed, except that no allowance may be made for de-icers that will result in take-off or landing weights higher than 25,346 lbs.

NOTE 6. Hamilton Standard propeller blades 6153-18 or equivalent (See NOTE 6 of Propeller Specification No. 603) are eligible with molded shank fairings. Blades with fairings will be indicated by a letter and a dash preceding the model designation. On S1CG, S1C3G, S4C4G, R-1830-90C and equivalent engines only, fairings may incorporate de-icing fluid grooves and grooved extension strip. (The complete assembly shall not extend beyond 45 in. station on the blade.) Reduce usable ceiling by 200 ft. when fairings are grooved.

NOTE 7. Military models C-53, C-53B, C-53C, C-53D and R4D-3 are the same as model DC3A-S1C3G except for the cabin interior, cargo compartments and minor structural differences. Model C-53C is the same as models C-53 and R4D-3 except for minor instrument changes. Model C-53D is equipped with a 24 volt electrical system instead of the 12 volt system which is standard on all other models. The remainder of the military models listed

under model DC3A-S1C3G were originally built as commercial aircraft but were converted for military use prior to delivery from the factory.

Prior to certification as a civil aircraft, the following must be accomplished:

(a) Each airplane must satisfactorily pass an inspection for conformity, possible hidden damage, and for workmanship and materials used in making any repairs and/or alterations. All Airworthiness Directive Notes must be complied with.

(b) Instrument markings and placards must be installed as required by this specification and commercial DC-3 practice. Attention should be given to the windshield equipment and it should be determined that a satisfactory windshield wiper is installed.

(c) The following military equipment should be removed: Winterization (except oil dilution system and hopper oil tanks), propane priming, glider tow mechanism in the tail cone, litter boxes, litters, and supporting structure. Such brackets and supporting structure as will not interfere with the safe operation of the aircraft may, at the operator's discretion, be left in the aircraft as long as the equipment has been rendered inoperative.

(d) Each airplane must be weighed to determine its weight and balance and an approved loading chart or device installed. If any changes have been made which would adversely affect the flight characteristics, the particular airplane must be flight tested.

(e) If bullet sealing fuel cells are installed, the following must be complied with:

(1) Inspect the installation to ascertain that tanks are adequately supported, i.e., that tank when empty, retains approximately its full shape and such that the weight of the fuel or cell will not cause sagging or pulling on any connections.

(2) Check tank capacities and gauges. Tanks of this type are known to vary considerably in volume and the main cells may vary from 180 to 200 gallons capacity while the auxiliary cells may vary from 165 to 180 gallons capacity. Gauges and pertinent placards must show correct capacity for cells actually installed. Upon completion of the conversion to certificated status, the manufacturer's nameplate on the aircraft should be altered to include the date of conversion and the new commercial model designation. In case the original nameplate is not sufficiently large to include this additional information, a similar plate should be installed near the original plate. Under no circumstances should the original or any succeeding nameplate be removed from the aircraft.

NOTE 8. Models DC3C-SC3G, DC3C-S1C3G and DC3C-S4C4G (Army C-47, C-47A; Navy R4D-1, R4D-5) are basically the same as models DC3A-SC3G, DC3A-S1C3G and DC3A-S4C4G, respectively. The DC3C-R-1830-90C (C-47B, Navy R4D-6) is basically the same as the C-47A (Navy R4D-5) except for engine installation. Certain production changes have been made in some of the aircraft such as forged engine mounts, forged landing gear trusses, rear brace struts, etc., all of which is interchangeable, are structurally satisfactory for use on any DC3 aircraft. If an operator is doubtful as to the interchangeability of a part, he should contact the manufacturer for his recommendations.

All C-47 or R4D-1 and C-47A or R4D-5 aircraft were constructed with a large fuselage door in the side to permit loading of large pieces of cargo and the floors and floor beams were strengthened to support greater loads than those in the standard DC3. The essential difference in the C-47 (R4D-1) and C-47A (R4D-5) is that the latter model has a 24 volt electrical system instead of the 12 volt system which was standard on the C-47 (R4D-1) and other DC3 aircraft. All of the C-47 (R4D-1) and part of the C-47A (R4D-5) aircraft have the steam heating system similar to the commercial DC3 aircraft, while the remainder of the C-47A (R4D-5) and all of the C-47B (R4D-6) aircraft have a hot air heating system installed.

Prior to certification as a civil aircraft, the following must be accomplished:

(a) Each airplane must satisfactorily pass on inspection for conformity, possible hidden damage, and for workmanship and materials used in making any repairs and/or alterations. All Airworthiness Directive Notes must be complied with. It should also be determined that the production reinforced wing tips are installed. The reinforced tip was installed at the factory on serial No. 9000 of the C-47 (R4D-1) aircraft and all of the C-47A (R4D-5) aircraft (Serial No. 9150 and up) but no rework of the aircraft already in service was ever required. The reinforced tip can be identified from the standard tip since the revisions consisted in changing all stringers in the top surface from 1/2 x 7/16 x .040 to 7/8 x 1/2 x .051. All of the short stringers on the top surface which originally ended in the bays between the ribs in many cases, have been increased in length so that they will end at the rib. The five-inch doubler at the tip joint which was originally .032 has been increased to .051 material. These changes became effective on the "F" change of Douglas Dwg. 5115201. If the wing tips installed are not reinforced, they should be reworked as outlined in Douglas Service Bulletin No. 215 dated September 14, 1943 and Supplement No. 1 dated November 30, 1943 and Douglas Service Letter to operators dated October 19, 1943. The reinforcement used in the production tip is considered too difficult to accomplish in the field and should not be resorted to unless satisfactory tooling is utilized.

Douglas Service Bulletins Nos. C-47-44, C-47-50, C-47-53, C-47-54, C-47-56 and C-47- 75 must be complied with as well as all other applicable Airworthiness Directive NOTES not specifically mentioned herein. In addition to the Service Bulletins mentioned above, Army Technical Orders 01-40NC-82 and 01-40NC-86 must be complied with on the Model C-47B (Navy R4D-6).

Some C-47 wing tips have been reinforced by installing .040 skin on the top surface from the wing tip joint to station 398, and an .020 doubler over the .040 skin from the tip joint to station 368. The .020 doubler is outside the skin, and a tip reinforced in this manner can be easily recognized by inspection without removing any inspection covers. Because of the tooling necessary to perform this rework, it is recommended that this method of reinforcement not be done in the field.

(b) Instrument markings and placards must be installed as required by this specification and commercial DC3 practice. Attention should be given to the windshield equipment and it should be determined that a satisfactory windshield wiper is installed.

(c) The following military equipment should be removed: Winterization (except oil dilution system and hopper oil tanks), propane priming, glider tow mechanism in the tail cone, litter boxes, litters, and supporting structure. Such brackets and supporting structure as will not interfere with the safe operaiton of the aircraft may, at the operator's discretion, be left in the aircraft as long as the equipment has been rendered inoperative.

(d) The non-ram air intake system, if installed, must be made inoperative and must be revised in accordance with Douglas Dwg. 5115226 so as not to interfere with the carburetor hot air intake.

(e) If the aircraft is to be used in scheduled air carrier service, an approved flashing tail light system must be installed. If certification is desired for night operations, all position lights should be approved type lights.

(f) A vacuum gauge or warning system equivalent to that used in commercial DC3 aircraft must be installed in the instrument vacuum system.

(g) Flares and flare system as required for the particular operation must be installed.

(h) If the aircraft is to be used in air carrier service, the acceptability and airworthiness of any radio equipment installed in the particular aircraft must be determined by the pertinent FAA offices.

(i) NOTES 1, 2, 3, 5 and 6 are pertinent to the operation of the airplane.

(j) Any interior or exterior changes made to the primary structure or equipment must be made either according to approved drawings for DC3 type aircraft or satisfactorily substantiated.

(k) Each airplane must be weighed to determine its weight and balance and an approved loading chart or device must be installed. If any changes have been made which would adversely affect the flight characteristics, the particular airplane must be flight tested.

(l) On C-47A (R4D-5), C-47B (R4D-6) and C-117A aircraft having the hot air heating system installed, it must be determined that the duct which carries hot air for cabin heating is insulated within the engine nacelles. The following placard shall be installed near the heater warning light: "Operate emergency valves to spill hot air overboard when light is on."

(m) If bullet sealing fuel cells are installed, the following must be complied with:

(1) Inspect the installation to ascertain that tanks are adequately supported, i.e., that tank, when empty, retains approximately its full shape and such that the weight of the fuel or cell will not cause sagging or pulling on any connections.

(2) Check tank capacities and gauges. Tanks of this type are known to vary considerably in volume and the main cells may vary from 180 to 200 gallons capacity while the auxiliary cells may vary from 165 to 180 gallons capacity. Gauges and pertinent placards must show correct capacity for cells actually installed.

Upon completion of the conversion to certificated status, the manufacturer's nameplate on the aircraft should be altered to include the date of conversion and the new commercial model designation. In case the original nameplate is not sufficiently large to include this additional information, a similar plate should be installed near the original plate. Under no circumstances should the original or any succeeding nameplate be removed from the aircraft.

NOTE 9. The DC3D-R-1830-90C (Army C-117A) model aircraft is basically the same as the DC3C (Army C-47A) aircraft except for the engine installation and cabin interiors, cabin floors and passenger entrance door similar to the commercial DC3 aircraft, which have been installed. A 24-volt electrical system and a hot air heating system are also incorporated instead of the 12-volt system and the steam heating system which were standard on the commercial DC3 aircraft.

Prior to certification as a civil aircraft, the following must be accomplished: All modifications and inspections detailed under NOTE 8(a) (first and second paragraphs only), (b), (c), (d), (e), (f), (g), (h), (j), (k), (l) and (m). All applicable Airworthiness Directive notes not specifically mentioned herein must be complied with. Upon completion of the conversion to certificated status, the manufacturer's nameplate on the aircraft should be altered to include the date of conversion and the new commercial model designation. In case the original nameplate is not sufficiently large to include this additional information, a similar plate should be installed near the original plate. Under no circumstances should the original or any succeeding nameplate be removed from the aircraft.

NOTE 10. (a) All DC3C and DC3D aircraft are eligible for cargo operation at a maximum take-off and landing weight of 26,900 lbs., when engines having 1050 hp Max. continuous and 1200 hp for take-off are installed, provided the cabin floor is structurally adequate.

(b) All DC3A aircraft are eligible for cargo operation at a maximum take-off and landing weight of 26,900 lbs., when engines having 1050 hp maximum continuous and 1200 hp for take-off are installed, provided the cabin floor is structurally adequate and when the landing weight exceeds 25,200 lbs. and/or the take-off weight exceeds 26,200 lbs., the following structural reinforcements are accomplished:

(1) Install C-47 type upper main landing gear truss in accordance with Douglas Dwg. No. 5110569 or 5141775.

(2) Install C-47 type landing gear retracting strut and mechanical lock in accordance with Douglas Dwg. Nos. 5110586, 5114203, 2114381, 5140045 and 5341742.

(3) Add an .040 doubler plate to each front spar upper landing gear attach point as shown on Douglas Dwg. No. 5116763-18.

(4) It must be determined that the main landing gear wheels and tires have static ratings of at least 13,450 lbs. Wheels listed under Items 201(e), (f), (h), (i) and (j) are satisfactory at the 26,900 lbs. cargo weight. Similarly, the tires listed under the following items are satisfactory for 26,900 lbs. gross weight:

Item No.	Inflation Pressure
202(a)	48 p.s.i.
202(b)	38 p.s.i.
202(c)	38 p.s.i.
202(g)	38 p.s.i.

In case other wheels and tires have been approved for particular installations, the approved static ratings for the wheels (refer to wheel specifications), and tires (refer to Tire and Rim Association Airplane Handbook) should be determined to be at least 13,450 lbs. before authorizing operation at a weight of 26,900 lbs.

(5) The following Douglas DC-3 axles are satisfactory for maximum weights as indicated:

Axle Assembly	Weight
5007396	25,200 lbs.
5007162 with 5007390 torque collar	25,200 lbs.
5007162 with 5007390RW torque collar	26,900 lbs.
5007162 with changes per Douglas S.B. #242 including 5203324 or 5111575 collar and C-47 type keys and lower oleo caps.	26,900 lbs.
5116596 with 5203324 or 5111575 collar	26,900 lbs.
5367124	26,900 lbs.

Douglas Service Bulletin DC-3 No. 261 contains information relative to the identifying characteristics of the above listed axle assemblies.

(c) A flap setting of 15 degrees is required to meet the take-off and climb requirements at weights in excess of 25,200 lbs. at sea level except for those aircraft operated in accordance with a FAA Approved Airplane Flight Manual or those aircraft eligible for operation in accordance with the take-off limitations of FAR 121, in which case a retracted flap position may be used for take-off.

(d) The drawing referenced under (b) are not available to FAA representatives and, in each case, it will be necessary for the applicant to supply the necessary proof of compliance to satisfy the FAA representative that the changes have been incorporated in the individual airplane. (Douglas Service Bulletin No. 242 describes in detail how to complete the rework covered by the drawings listed in parts (1), (2) and (3) above.

NOTE 11. The following partial flap settings and corresponding airspeeds may be used during approach procedures:

Flap Setting	Maximum Speed
1/4	155 mph (135 knots) True Ind.
1/2	114 mph (99 knots) True Ind.
3/4	112 mph (97 knots) True Ind.
Full (45°)	112 mph (97 knots) True Ind.

NOTE 12. Models DC3A, DC3C, and DC3D aircraft with engines installed that are rated at 1050 hp maximum continuous and 1200 hp for take-off and authorized to be operated in accordance with the performance requirements of CAR 4a-T or CAR 4b as specified in FAR 121, are eligible for maximum landing and take-off weights of 26,000 lbs. and 26,200 lbs. respectively, when the conditions as set forth in Items (a), (b) and (d) of NOTE 10 are complied with. For airplanes of U.S. Registry, this applies only to airplanes operated by certificated air carriers. The following airspeed limits are applicable for weights between 25,200 lbs. and 26,200 lbs.:

Level flight or climb	205 mph (178 knots) True Ind.
Glide or dive	251 mph (218 knots) True Ind.
Flaps extended	112 mph (97 knots) True Ind.

See NOTE 11 for partial flap speeds.

An FAA Approved Airplane Flight Manual will be required for airplanes of U.S. Registry operating at these weights.

NOTE 13. The following is applicable to airplanes certificated under the provisions of CAB Special Regulation SR-407:

Models DC3A, DC3C and DC3D aircraft have been determined to meet the structural requirements of CAR 4a as amended April 7, 1950, for a maximum landing and take-off weight of 26,900 lbs., and may be certificated for passenger carrying at weights up to and including 26,900 lbs., when P&W R-1830 series engines are installed whose maximum continuous hp does not exceed 1100 and whose T.O. hp does not exceed 1350, provided that the total weight of the engine-propeller installation forward of the firewall does not exceed 2500 lbs. and the following are accomplished:

(a) The structural modifications and installation of tires and wheels in accordance with NOTE 10(b) are required if the landing weight exceeds 25,200 lbs. or the take-off weight exceed 26,200 lbs.

(b) If not already accomplished, the center wing spars, the tank covers on the bottom of the center wing and the nacelle to wing attach angles must be reworked in accordance with Douglas Project Sketches 10826, 10827, 10828 and 10829 and Douglas Dwg. No. 5162328 on the following aircraft: All serial numbers up to and including 1976, 1979 through 2003, 2009, 2011 through 2016 and 2019 through 2028.

(c) P&W R-1830 type engines having a maximum continuous hp not to exceed 1100 and a T.O. hp not to exceed 1350 are installed. A forged engine mount per Douglas Dwg. No. 5110599 or welded engine mount per Douglas Dwg. No. 5141024, is required. Except for the R-1830-94 which has been determined to be satisfactory, engines incorporating two-speed supercharges must be locked in low blower unless satisfactory cooling tests are conducted and any modifications found necessary to permit high blower operation are incorporated.

(d) Any increase in power above 1200 hp must not adversely affect the flight characteristics of the airplane. It has been determined that the directional controllability and stability of the DC-3 series aircraft is inadequate in the one-engine out condition if engines having more than 1200 hp for take-off are installed. Therefore, suitable modifications must be made to the airplane in a manner acceptable to the Administrator, which will maintain flight characteristics equivalent to those previously approved. One such modification which has been approved for a maximum of 1350 hp for take-off is a geared rudder tab installation which is referred to in Item 602.

(e) An Airplane Flight Manual approved by the FAA is required and must be carried in the airplane at all times. For airplanes using a maximum of 1200 hp for take-off, a maximum weight of 26,200 lbs. has been established and may be approved without further tests. For airplanes using over 1200 hp up to 1350 hp for take-off, if it is desired to increase the maximum weight above 26,200 lbs. to a maximum of 26,900 lbs., performance substantiation is required.

(f) The following airspeed (TIAS) limits are applicable:

		Up to and including 24,800 lbs.	Between 24,800 lbs. and 25,200 lbs.	Between 25,200 lbs. and 26,900 lbs.
V1	(Level flight or climb)	201 mph (175 knots)	195 mph (170 knots)	183 mph (159 knots)
Vne	(Never exceed)	241 mph (210 knots)	233 mph (202 knots)	219 mph (190 knots)
Vf	(Flaps 1/4)	155 mph (135 knots)	155 mph (135 knots)	155 mph (135 knots)
	(Flaps 1/2)	114 mph (99 knots)	114 mph (99 knots)	114 mph (99 knots)
	(Flaps 3/4)	112 mph (97 knots)	112 mph (97 knots)	112 mph (97 knots)
	(Flaps full) (45°)	112 mph (97 knots)	112 mph (97 knots)	112 mph (97 knots)

(g) The DC-3 series aircraft is not structurally satisfactory for take-off weight in excess of 26,900 lbs. Therefore, if take-off weight, up to a maximum of 26,900 lbs., does not exceed the landing weight by more than 105%, dump valves are not required. No allowance for de-icer installation will be permitted at any weight. If an automatic pilot is installed in the airplane, satisfactory flight tests must be completed to determine the effects upon the automatic pilot servo forces of any modification made to the airplane to maintain its flight characteristics. The forces shown in Items 402(b) and (d) of this specification for the Sperry A-12 and Pioneer PB-10 have been demonstrated to be satisfactory when a "geared Rudder Tab" (See Item 602) is installed provided the maximum speed for operation of the automatic pilot is limited to 180 mph.

NOTE 14. The following aircraft models are also eligible for an airworthiness certificate under this specification; DSTA-SCG, -SC3G, -S1CG, -S1C3G and -S4C4G, serial numbers 1900 and up; DSTA-SB3G and -SBG, Serial Numbers 1951 and up; DC3A-SB3G and -SBG, Serial Numbers 1600 and up.

NOTE 15. Correct serial number for a particular airplane may be obtained from the manufacturer if suitable information can be provided relative to its military identification, including military serial number. Page 13 of Douglas Service Magazine for July 1946 contains a list of incorrect serial numbers versus Air Force numbers and correct serial numbers for certain C47A, C47B and C117A aircraft.

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