MODELS: Douglas DC-2 (Army C-32, C-32A, C-34; Navy R2D-1), Army C-39, C-42

T.C. NUMBER: ATC 540

I - Model DC-2 (Army C-32, C-32A, C-34; Navy R2D-1), 16-17-18 PCLM

Engines	2 Wright Cyclones (a) SGR-1820F-3; or (b) SGR-1820F-3A; or (c) SGR-1820F-2 (below serial No. 22747); or (d) SGR-1820F-2 (serial No. 22747 and up); or (e) SGR-1820F-53; or (f) SGR-1820F-52 (except serial Nos. 25319 thru 25322) or SGR-1820F-2B; or (g) SGR-1820F-3B; or (h) GR-1820F-2A or GR-1820F-52 (serial Nos. 25319 thru 25322 and 29103)
Engine limits (See NOTES 9 and 10)	(Using 87 minimum octane aviation fuel (See NOTE 6) (a) F-3: Maximum continuous 34-1/2 in. Hg., 1950 rpm (700 hp) Takeoff (one minute) 37-1/2 in. Hg., 1950 rpm (710 hp) (b) F-3A: Maximum continuous 33-1/2 in. Hg., 1950 rpm (700 hp) Takeoff (one minute) 36 in. Hg., 1950 rpm (700 hp) (c) F-2: Maximum continuous 34-1/2 in. Hg., 1950 rpm (720 hp) Takeoff (one minute) 37-1/2 in. Hg., 1950 rpm (750 hp) (d) F-2: Maximum continuous 36-1/2 in. Hg., 1950 rpm (750 hp) Takeoff (one minute) 37-1/2 in. Hg., 1950 rpm (750 hp)

(e) F-53:
Maximum continuous 34 in. Hg., 2100 rpm (730 hp)
Takeoff (one minute) 37-1/2 in. Hg., 2200 rpm (770 hp)
(f) F-52 or F-2B:
Maximum continuous 34-1/2 in. Hg., 2100 rpm (760 hp)
Takeoff (one minute) 39 in. Hg., 2200 rpm (875 hp)
(g) F-3B:
Maximum continuous 34 in. Hg., 2100 rpm (730 hp)
Takeoff (one minute) 37-1/2 in. Hg., 2200 rpm (770 hp)
(h) F-2A or F-52:
Maximum continuous 35 in. Hg., 1950 rpm (750 hp)
Takeoff (one minute) 36-1/2 in. Hg., 1950 rpm (750 hp)

Propellers — Controllable metal (standard installation for engine geared 16:11, Hamilton Standard hubs 3E50 or 8452, blades 6111A-6. For old type engine geared 8:5, Hamilton Standard, hubs 3E40 or 50001, blades 6111A-6) (See also items 85, 127, 133, and 134, NOTES 9 and 10.)

Airspeed limits

(a) For weights up to and including 18,560 lbs.
Level flight or climb - 190 mph True Ind.
Glide or dive - 284 mph True Ind.
Flaps extended - 100 mph True Ind.
(b) For weights between 18,560 lbs. and 19,000 lbs.
Level flight or climb - 184 mph True Ind.
Glide or dive - 219 mph True Ind.
Flaps extended - 100 mph True Ind.

Ceiling — May be realized under conditions shown:

A. Constant speed propeller - Hamilton Standard
For engines geared 16:11 - Hubs 3E50 or 8452,
Blades 6111A-6, 6105A-18 or 6105A-24
For engines geared 8:5 - Hubs 3E40 or 50001,
Blades 6111A-6, 6105A-18 or 6105A-24

Engine (Item)	Weight (lbs.)	Ceiling Ft. (absolute)
(a), (b)	18,560	7600
(a), (b)	18,200	8500
(c), (d), (h)	18,200	6000
(c), (d), (h)	18,560	5100
(g), (e)	18,200	9500
(g), (e)	18,560	8600
(f)	18,200	8000
(f)	18,560	7100

Additional conditions:
1. Standard air
2. 87 octane fuel
3. Either engine inoperative
4. Inoperative propeller idling at 750 rpm

B. Full feathering propeller:

Engine (Item)	Propeller (Item No.)	Ceiling (ft.)	Weight (lbs.)	RPM	True Ind. Airspeed (MPH)	Surface De-Icers Installed	Propeller De-Icers (Item No.)
(b)	127 (a)	10,000 (abs.)	18,200	-	-	-	None
(b)	127 (a)	9,100 (abs.)	18,560	-	-	-	None
(b)	127 (a)	9,000 (usable)	18,200	1950	100	Yes	135
(b)	127 (a)	8,400 (usable)	18,560	1950	100	Yes	135
(b)	127 (b)	9,250 (abs.)	18,200	-	-	-	None
(b)	127 (b)	9,350 (abs.)	18,560	-	-	-	None
(c,f,g)	127 (c)	9,500 (usable)	19,000	2100	110	-	None
(f)	134 (a)	8,700 (usable)	19,000	2100	110	-	None
(f)	134 (b)	9,100 (usable)	18,200	2100	102	No	None
(f)	134 (b)	8,600 (usable)	18,560	2100	102	No	None
(f)	134 (b)	8,000 (usable)	19,000	2100	102	No	None
(g)	134 (b)	9,500 (usable)	19,000	2100	110	No	None
(g)	134 (c)	9,900 (usable)	19,000	2100	102	No	None

Additional conditions:
1. Standard air
2. 87 octane fuel
3. Either engine inoperative
4. Inoperative propeller fully feathered
5. Carbureton air intake on "Cold Air"
6. Manifold pressure - full throttle

Fuel capacity — 510 gallons (4 tanks in center section wing; 2 main right and left 180 gallons each (+49) and 2 auxiliary right and left 75 gallons each (+84)

Oil capacity — 38 gallons (2 tanks: one in each nacelle 19 gallons

	each) (-25)
No. passengers	14
Baggage	2000 lbs. (compartment forward of cabin 1000 lbs. (-76) and compartment aft of cabin 1000 lbs. (+327))
Maximum weight	Landing 18,000 lbs. or 18,200 lbs. (see NOTE 2) or 18,560 lbs. (See NOTES 2, 3 and 8)
	Takeoff 19,000 lbs. (See NOTES 2, 3, 8, 11)
C.G. limits	(+53) and (+69). Leveling pins for weighing at (+199) and (+219)
Spec. basis	Approved Type Certificate No. 540
Serial Nos.	1237 and up manufactured prior to 9/30/39 eligible. Approval expired as of that date.

EQUIPMENT:
(Datum is center section wing) (* Means net increase)

Class I:			
1.	Two engine collector rings	110 lbs.	(-44)
2.	Two engine ring cowls	96 lbs.	(-49)
3.	Two landing and one warning lights (in nose)	9 lbs.	(-178)
4.	Flares (two 3 minute)	36 lbs.	(+307)
5.	Flare brackets (two)	12 lbs.	(+368)
6.	Oil radiators and scoops (two)	56 lbs.	(-26)
7.	Two starters (electric)	63 lbs.	(-17)
8.	Battery 12V	63 lbs.	(-59.5)
9.	Generator	39 lbs.	(-31.5)
10.	Robot pilot lines and brackets	13 lbs.	(0)
11.	Robot mechanism (mag. cast)	71 lbs.	(-124)
12.	Fourteen serving trays	19 lbs.	
13.	15.00-16 wheels (Bendix mag. dual brakes)	180 lbs.	(+28)
14.	15.00-16 treaded tires 10-ply or 8-ply H.D. (wheels must be placarded for these special tires)	182 lbs.	(+28)
15.	Two cactus-proof 15.00-16 tubes	40 lbs.	(+28)
16.	Two vacuum pumps	12 lbs.	(-30)
17.	Two spark retard solenoids	10 lbs.	(-30)
18.	Wing fairing fillets	60 lbs.	(+84.5)
19.	Wing connection fairings	7 lbs.	(+84.5)
20.	Radio (THA) transmitter and receiver	124 lbs.	(+307)
21.	Radio (TWA) dyn. and h'd sets	50 lbs.	(-70)
22.	Pressure fire extinguisher system	30 lbs.	(-24)
23.	Steam heater system and 5 quarts water	101 lbs.	(-88)
24.	Ventilating system	77 lbs.	(+100)
25.	Cabin rug 17 lbs. and lavatory mat 3 lbs.	20 lbs.	(+120)
26.	Toilet equipment	32 lbs.	(+290)
27.	Container and 4 gallons water	38 lbs.	(+296)
28.	Hold-down straps, etc.	12 lbs.	
29.	Tail wheel plain tube	2 lbs.	(+419)
30.	Tail wheel 8.00-5, 6-ply tire	22 lbs.	(+419)
31.	Tail wheel oleo strut (Bendix 53103)	10 lbs.	(+405)
32.	Oildraulic manually operated retracting landing gear system (including 2 Bendix type FF-1 or FF-1A oildraulic shock struts)	124 lbs.	(+1)
33.	Equipped with wing split flaps (T.E.) oildraulic manually operated system	127 lbs.	
34.	Elevators, rudder, and right aileron equipped with adjustable tabs, manually operated		(+476)
35.	Instruments	81 lbs.	(-98)
36.	Residual fuel and oil system, exclusive of 38 gallon capacity	45 lbs.	(-26)
Class II:			
41.	Steward's folding chair (adjacent to cabin entrance door)	16 lbs.	(+267.5)
42.	Radio operator's chair (in forward companionway; folds under floor)	16 lbs.	(-110)
43.	Radio operator's chair (in baggage compartment)	16 lbs.	(+327)
44.	Radio complete (W.E.)	188 lbs.	
45.	Radio added accessories	3 lbs.	
46.	Radio complete (P.A.A.)	79 lbs.	(-85)
47.	Radio added accessories	3 lbs.	
48.	Radio complete (GP-1)	150 lbs.	(+328)
49.	Navigator's chair (in forward companion way; folds against bulkhead)	5 lbs.	

50.	Extra battery (installed in forward baggage compartment)	63 lbs.	(-75)
51.	Extra battery box (installed in forward baggage compartment)	7 lbs.	(-75.5)
52.	Extra wiring and conduit	10 lbs.	
53.	Heavy duty battery (under forward baggage compartment - standard location)	78 lbs.	(-60)
54.	Electric hydraulic pump installation	37 lbs.	
55.	Wing landing light installation and reinforcements	63 lbs.	(+15)
56.	Wing landing light installation one side	26 lbs.	(+15)
57.	Oxygen installation (less tanks)	10 lbs.	
58.	Cabin DeLuxe accessories	33 lbs.	(+105)
59.	Cabin accessories (Navy)	14 lbs.	(+106)
60.	Heavier type cabin paneling	39 lbs.*	(+100)
61.	Added cabin paneling	12 lbs.*	(+100)
62.	Cabin light weight sound-proofing Net Decrease	10 lbs.	(+100)
63.	Rations and buffet	51 lbs.	(+300)
64.	15.00-16 wheels (Bendix dural, dual brake)	206 lbs.	(+29)
65.	(a) 15.00-16 non-treaded 10-ply or 8-ply H.D.	203 lbs.	(+28)
	(b) 15.00-16 tire liners	24 lbs.	(+28)
66.	16.00-16 treaded tires 10-ply	215 lbs.	(+28)
67.	16.00-16 cactus-proof tubes	47 lbs.	(+28)
68.	16.00-16 plain tire tubes	29 lbs.	(+28)
69.	Auxiliary brakes on tires	6 lbs.	
70.	8.00-5 cactus-proof tail wheel tube	4 lbs.	(+419)
71.	Tail wheel self-centering device	12 lbs.	(+403)
72.	Tail wheel frame reinforcement	2 lbs.*	(+403)
73.	Robot mechanism (dural castings)	18 lbs.*	(-88)
74.	De-icer installation (fixed portion 61 lbs., removable 60 lbs.) (See NOTE 7)	121 lbs.	
75.	Mechanical safety latch for landing gear	10 lbs.	(+29)
76.	Two extra engine vacuum drive units	24 lbs.	(-30)
77.	One vacuum pump	6 lbs.	(-30)
78.	Heavier type carburetor air scoop	7 lbs.*	(-29)
79.	Fuel system cross feed	12 lbs.*	(+23)
80.	Heavier type ice buffer	9 lbs.*	(-75)
81.	Baggage compartment screen	6 lbs.	(+327)
82.	Additional cockpit heater control	5 lbs.	(-106)
83.	Steam heater system with 11 quarts water	121 lbs.	(-88)
84.	Additions to ventilating system	2 lbs.	(+100)
85.	Propeller blades Hamilton Standard 6105A-18 (replacing Hamilton Standard 6111A-6) (See NOTES 9 and 10)	36 lbs.*	(-70)
86.	(a) Heavier type propeller control	5 lbs.*	(-70)
	(b) Individual propeller controls (in cockpit)	2 lbs.*	(-85)
87.	Special factory installed reinforcement to fuselage and center section wing (See NOTE 3)	25 lbs.	(+87)
88.	Auxiliary radio equipment (W.E.)	17 lbs.	
89.	Outer wing factory built with beaded type ribs (replacing factory wing with riveted type ribs) Net Decrease	30 lbs.	(+94.5)
90.	(a) Small size strong box (installed in forward baggage compartment)	5 lbs.	(-68)
	(b) Large size strong box (installed in forward baggage compartment)	23 lbs.	(-68)
91.	Small type generator	28 lbs.	(-28)
92.	Oil radiator 9 in. type (replacing standard type)	8 lbs.*	(-26)
93.	Heavier gage fuel tanks (replacing standard tanks)	29 lbs.*	(+72)
94.	Additional gyro and horizon instrument installation	10 lbs.	(-157)
95.	Revised vertical control surfaces in accordance with Douglas Drawings 5000642D and 5004183A (replacing standard vertical control surfaces) (When this installation is made, the standard rudder tab control unit must be replaced by revised rudder tab control unit in accordance with Douglas Drawing 5006079 (-141)) (See Item 99)	31 lbs.*	(+436)
96.	Wing reinforcements (outer and center		

	section) (See NOTE 3)	14 lbs.	(+85)
97.	Factory installed alternate electric installation Net Decrease	20 lbs.	
98.	External paint (trimming)	78 lbs.	
99.	Aileron hinge fittings, Douglas Drawing 125387, revision G, may be replaced with aileron hinge fittings, Douglas Drawing 125387, revision F (This replacement is recommended whenever installation of Item 95 is made.)	No change in weight	
100.	Reworked thicker type rudder (Douglas Drawing 570729)	No change in weight	
101.	Floating rib reinforcement	5 lbs.*	(+73)
102.	(a) Fuel dump valves and controls (Douglas Drawing No. 432077) (See NOTE 8)	9 lbs.	(+49)
	(b) Fuel dump valve chute (Douglas Drawing No. 5046038) (See NOTE 3)	12 lbs.	(+115)
	(c) Extendable type fuel dump chute installation in accordance with Douglas Drawing No. 5080140 (See NOTE 3)	22 lbs.	(+165.5)
103.	Estimated addition (service pickup)	55 lbs.*	
104.	Synchoroscope (Magneto)	2 lbs.*	(-98)
105.	Estimated weight of wing repair	3 lbs.*	(+45)
106.	Valve lubricating harness	18 lbs.*	(-52)
107.	Baggage compartment and floor reinforcement	14 lbs.*	(-74)
108.	Extra leather trim (doors)	5 lbs.*	
109.	Additional carburetor air intake heaters	10 lbs.*	(-32)
110.	Miscellaneous item (minor alterations, distributed throughout airplanes)	30 lbs.*	
111.	Heavier type collector ring 3 in. intensifier	18 lbs.*	(-40)
112.	Floor reinforcement	3 lbs.*	(+34)
113.	(a) Hamilton Standard constant speed propeller governor on engine	9 lbs.	(-60)
	(b) Heavier engine nose case with governor pad	44 lbs.*	(-60)
	(c) Hamilton Standard 20 degrees propeller brackets replacing 10 degree brackets	27 lbs.*	(-74)
114.	Addition to heating system	3 lbs.*	(-39)
115.	Wright air scoops	30 lbs.	(-39)
116.	15.00-16 smooth tread tires, extra duty, 10-ply	184 lbs.	
117.	Oleo (landing gear) heavier type	10 lbs.*	(+29)
118.	(a) Two F-53 engines (replacing two F-3 engines)	70 lbs.*	(-52)
	(b) Two F-3B engines (replacing two F-3 engines)	70 lbs.*	(-52)
	(c) Two F-3B engines (replacing two F-3A engines)	17 lbs.*	(-52)
119.	Two F-52 engines (replacing F-3 engines)	70 lbs.*	(-52)
120.	Collector ring with 2 in. double intensifier tubes	10 lbs.*	
121.	Flap reinforcement	5 lbs.*	(-149)
122.	Miscellaneous items as noted in approved weight and balance report.		
123.	Propeller de-icer (includes 2 slinger rings and tank with 3 gallons fluid in forward baggage compartment. Total (Forward baggage may be reduced 43 lbs. in lieu of C.G. check for this installation)	43 lbs.	
124.	Two 45 in. streamline wheels and tires	136 lbs.*	(+11)
125.	Anilol supply tank with 10 gallons anilol installed under roof of front baggage compartment per Pan American and Fuel Development Corp. Drawing DA3 Complete installation (Forward baggage may be reduced 90 lbs. in lieu of C.G. check for this installation)	100 lbs.	
126.	Aileron slot fairings installed in accordance with Douglas Drawing No. 5015631	21 lbs.	(+150)
127.	(a) Two Curtiss full feathering electric props, hubs C532D, blade		

		89303-18 or 89305-18, including slinger rings, wiring, controls, governors, relays, brackets, etc. for F3A engines only (See Item 135)	807 lbs.	
	(b)	Two Curtiss full-feathering electric props, hubs C5315S, blades 614Cc1.5-12A or 614-1C1.5-12 or 614-1C1.5-12 Change A (or later) (11 ft. diameter), including slinger rings, wiring, controls, governors, relays, brackets, etc., for F3A engines only	706 lbs.	
	(c)	Two Curtiss full-feathering electric propellers, hubs C5315S, blades 614Cc1.5-6 or 614-1C1.5-6 Change A (or later) (11 ft. 6 in. diameter), including wiring, controls, governors, brackets, etc. for F-2B, F-3B, F-52, and F-53 engines only (low pitch setting 19-1/2 degrees). Net Decrease	106 lbs.	
128.		Conversion of two Wright SGR-1820F-3 engines to SGR-1820F-3A engines	53 lbs.*	(-52)
129.		.018 stainless steel inner ring cowl, Douglas Drawing No. 5076264 (replacing .040 aluminum alloy cowl)	11 lbs.*	(-36.5)
130.		Engine driven hydraulic system installed in accordance with Douglas Drawing No. 5039858 dated 1/3/39, or later	27 lbs.*	(-35)
131.		Aileron hinge arm and trim tab cut-out cover plates installed in accordance with Douglas Drawing No. 5080776	2 lbs.*	(+145)
132.		Intake de-icing system using anilol in accordance with Braniff Drawing 428H. Complete installation (forward baggage may be reduced 25 lbs. in lieu of C.G. check for this installation)	25 lbs.	
133.		Propeller blades Hamilton Standard 6105A-24 (See NOTES 9 and 10)		
134.	(a)	Two Hamilton Standard hydromatic full feathering propellers, hubs 23E50, blades 6153A-18 (11'6" diameter) or 6261A-2 (11'4" diameter) including controls. (See NOTES 9 and 10)	91 lbs.*	
	(b)	Two Hamilton Standard hydromatic full feathering props, hubs 33D50, blades 6259A-0 including controls (See NOTES 9 and 10)	308 lbs.	
	(c)	Two Hamilton Standard hydromatic full feathering propellers, hubs 33D50, blades 6495A-18 or equivalent, (See NOTE 6, Propeller Specification No. 749) including controls. (See NOTES 9 and 10)	338 lbs.	
135.		Goodrich propeller de-icing shoes for use with propeller item 127(a) only. Must not extend beyond propeller 60 inch station.		

NOTE 1. Weight and balance report including list of equipment included in certificated weight empty, and loading instructions when necessary, must be submitted for each aircraft with original inspector's report and each subsequent report covering change in equipment.

NOTE 2. All airplanes eligible must be equipped with the reworked stronger type landing gear upper structure in accordance with Douglas Drawing No. 530553. The reworked structure may be identified by the No. "18200" stamped on the lower inboard forging. Until this change is made the airplane standard weight shall be limited to 18,000 lbs. Airplanes bearing serial numbers 1290 to 1300, inclusive, 1307 to 1316, inclusive, 1319, 1322 and up have been or will be equipped at the factory with the reinforced structure.

NOTE 3. The landing weight may be increased to 18,560 lbs. provided Items 96, 87, and 72 are installed. Item 96 (wing and fuselage reinforcement) and Item 87 must be installed in accordance with Douglas Drawings Nos. 50000717, 530536 revision Y, and 531027 revision M.

NOTE 4. Deleted - 5/12/43.

NOTE 5. Eligible for export as follows subject to inspection for required equipment (9/30/39):
(a) Canada
- Landplane
- Skiplane - not eligible.
(b) All other countries except New Zealand.

NOTE 6. 80 Minimum octane aviation fuel may be used provided no engine is operated at more than 550 hp (operating instructions should be prepared accordingly). This applies to F-2, F-2A, F-3, and F-3A engines only.

NOTE 7. Landing and takeoff weights may be increased by an amount equal to .006 x landing weight when complete de-icer is installed.

NOTE 8. The following operational limitations shall be observed:
a. If provisions other than items 102(a) and (c) are made for dumping, the fuel dump valves shall be made positively inoperative.
b. If items 102(a) and (c) are installed, the aircraft operation record shall incorporate one of the following statements, as the case may be.
(1) Non-Air Carrier. "Fuel shall not be dumped except in accordance with the provisions of CAR 60.900."
(2) Air Carrier.
(a) With authorized weight in excess of landing weight "Landing shall not be made at a weight in excess of landing weight except in accordance with CAR 61.7811. Fuel shall not be dumped except in accordance with CAR 61.7811 and then only if the pilot deems it safer than landing at a weight in excess of landing weight."
(b) With authorized weight not in excess of landing weight "Fuel shall not be dumped except in accordance with CAR 61.7811."

NOTE 9. Continuous operation is to be avoided in accordance with the following table:

Propeller Model	Engine Model	Geared	One Rear Damper Pin Dia.	Avoid Continuous Operation Between the Following Engine RPM
All propellers	All		None	1300 and 1600
Ham. Std. blades				
6105A				See NOTE 10
6111A-5	All	16:11		1750 and 1850
6153A-18	F2B,F52	16:11	1.023"	1500 and 1600
6261A-2	F2B, F52	16:11	1.023"	1500 and 1600
6259A-0	F2B,F52,F3B	16:11	1.023"	No restrictions
6495A-18	F3B	16:11	1.000"	1750 and 2150 (Takeoff should be only at 2200 RPM)
6495A-19	F3B	16:11	1.023"	No restrictions

NOTE 10. (a) Item 85 eligible on F-3, F-3A, F-2 and F-2A engines only.
(b) Items 85 and 133 eligible on F-62 or F-2B engines with the following takeoff limit: 38-1/2 in. Hg., 2100 rpm (835 hp).
(c) Items 85 and 133 eligible on F-53 or F-3B engines with the following takeoff limit: 36-1/2 in. Hg., 2100 rpm (735 hp)
(d) Item 134(a) eligible on F-2B or F-52 engines only.
(e) Item 134(b) eligible on F-2B, F-3B, or F-52 engines only.
(f) Item 134(c) eligible on F-3B engine only.

NOTE 11. Aircraft may be operated at a takeoff weight of 19,000 lbs. provided NOTES 2, 3 and 8 are complied with. F-2B, F-3B, F-52, or F-53 engines geared 16:11 must be installed and operated with 87 minimum octane fuel; and Item 127(c), 134(a), 134(b) or 134(c) must be installed. Items 102(a) and (c), or equivalent, must also be installed.

II - Army Model C-39 and C-42, 16-17 PCLM (See NOTE 3)

Engine	2 Wright Cyclones GR-1820-55 or GR-1820G-2
Fuel	91 minimum octane aviation gasoline
Engine limits	GR-1820-55:
	Maximum, except takeoff
	(S.L.) 34.5 in. Hg., 2100 rpm (805 hp)
	(3900 ft.) 34.5 in. Hg., 2100 rpm (635 hp)
	Takeoff (one minute)
	40.0 in. Hg., 2200 rpm (975 hp)
	GR-1820G-2:
	Maximum, except takeoff
	(S.L.) 34.5 in. Hg., 2100 rpm (820 hp)
	(5800 ft.) 34.5 in. Hg., 2100 rpm (850 hp)
	Takeoff (one minute)

	40.0 in. Hg., 2200 rpm (1000 hp)
Airspeed limits	Level flight or climb - 176 mph True Ind. Glide or dive - 211 mph True Ind. Flaps extended - 100 mph True Ind.
Ceiling	(See CAA Approved Operating Manual)
C.G. range	(+53.3) to (+66.2)
Datum	Leading edge of center section wing
Leveling means	Pins at (+199) and (+219)
Maximum weight	21,500 lbs. (Air Carrier Passenger) 23,000 lbs. (Air Carrier Cargo)
Baggage	1000 lbs. maximum in compartment between fuselage stations 62 and 118.5 (-76)
Cargo	700 lbs. maximum per floor beam in main cabin, uniformly distributed
Fuel capacity	702 gallons (4 tanks in CS wing; 2 main including fuel system, 184 gallons each (+48) and 2 auxiliary, 167 gallons (+84) (See NOTE 3)
Oil capacity	58 gallons (1 tank in each nacelle of 29 gallons (-6) including capacity of oil system)
Control surface movements	Elevator 30 degrees up 25 degrees down Elevator tabs 10 degrees up 10 degrees down Aileron 29 degrees up 15 degrees down Aileron tabs (right) 12 degrees up 12 degrees down Rudder 27 degrees right 27 degrees left Rudder tab 13 degrees right 13 degrees left
Serial Nos. eligible	(C-39) 2057 through 2059, and 2061 through 2092; (C-42) 2060
Required equipment	100, 101, 102, 103, 200, 201, 202, 203, 204, 205, 206, 207, 300, 301, 302, 303, 304, 305, 306, 400, 401, 402, 501(a) and (b), 502, 503, 700
Export eligibility	Eligible for export as follows subject to inspection for equipment specified in Chapter XII of Inspection Handbook: (a) Canada - Landplane - Skiplane - not eligible. (b) All other countries except Australia and New Zealand.

EQUIPMENT:

Propellers and Propeller Accessories (Except De-Icing Equipment):

100.	Two Hamilton Standard 3-blade metal propellers, hubs 23E50, blades 6353A-18 (including slinger rings), low pitch setting 16 degrees at 42 in. station. For interchangeable blade models see NOTE 6 of Propeller Specification No. 603.	795 lbs.	(-73)
101.	Constant speed propeller controls (Hyd. Hamilton Standard) (Douglas Drawing 5075580)	15 lbs.	(-71)
102.	Propeller feathering control (Douglas Drawing 5075580)	16 lbs.	(-34)
103.	Two hydraulic propeller feathering pumps (Pesco)	44 lbs.	(-24)

Engine and Engine Accessories (Except De-Icing Equipment):

200.	Two vacuum pumps (Type B-3)	10 lbs.	(-48)
201.	Two exhaust collector rings	153 lbs.	(-53)
202.	Two starters (Eclipse C-21)	61 lbs.	(-31)
203.	Pressure fire extinguishers and system (Lux)	35 lbs.	(-88)
204.	Two 9 in. oil coolers, scoops, etc. (5075035)	68 lbs.	(-27)
205.	Oil dilution system		
206.	Two engine driven fuel pumps (Pesco G-1)		
207.	Wobble pump (Type D-12)		

Landing Gear and Floats:

300.	Two 16.00-16 wheels (B-1) with 14x3 duo servo brakes	269 lbs.	(+29)
301.	Two 16.00-16, 10 or 12 ply treaded tires	225 lbs.	(+28)
302.	Two 16.00-16 tubes, cactus proof	45 lbs.	(+28)
303.	Four landing gear shock absorber struts (Drawing 5014049)	221 lbs.	(+29)
304.	18x8-5 tail wheel (Variety)	7 lbs.	(+427)
305.	8.00-5, 6-ply tail wheel tire and cactus proof tube (inflation pressure of 56 psi required)	20 lbs.	(+427)
306.	Tail wheel shock strut (Drawing 5075133)	12 lbs.	(+413)
307.	Two 17.00-16 wheels (B-1) with		

	14x3 duo servo brakes	Use actual weight change	
Electrical Equipment:			
400.	Two batteries (Type D-6)	131 lbs.	(-77)
401.	Two generators (Type E-7)	63 lbs.	(-33)
402.	Two landing and one passing lights	17 lbs.	(+23)
Interior Equipment:			
500.	Radio operator's table	12 lbs.	(+303)
501.	(a) One fire extinguisher, Type A-2 and brackets	7 lbs.	(-86)
	(b) One fire extinguisher, Type A-2 and brackets	7 lbs.	(+300)
502.	Standard instruments (including lines and brackets)	90 lbs.	(-116)
503.	Cabin heaters and ventilation system and 6 quarts water (Steam)	167 lbs.	(-7)
504.	Lavatory equipment (See NOTE 2)	38 lbs.	(+342)
505.	Water tank installation (lavatory and 5 gallons water)	51 lbs.	(+356)
506.	Two flares (3 minute) Wiley Type A-8 and brackets	45 lbs.	(+358)
507.	Radio operator's seat (Douglas Drawing 5076133)	12 lbs.	(+279)
De-Icer Equipment (Propeller, Wing and Windshield)			
600.	Windshield de-icer equipment including lines, etc.	7 lbs.	(-114)
601.	Propeller de-icer equipment including lines, tank, etc.	17 lbs.	(-90)
Miscellaneous			
701.	Installation main cabin cargo hold down (5075022)	12 lbs.	(+88)

NOTE 1. 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).

NOTE 2. The following placards should be displayed in locations noted:

(a) Lavatory door:
"THIS ROOM NOT TO BE OCCUPIED DURING TAKE-OFF OR LANDING."

(b) At fuel selector valves:
"FILL REAR FUEL TANKS FIRST AND USE FUEL FROM FRONT TANKS FIRST. NEVER HAVE LESS THAN FULL FUEL IN REAR TANK UNLESS FRONT TANKS ARE EMPTY."

(c) On the instrument panel in full view of the pilot:
"THIS AIRPLANE SHALL BE OPERATED IN ACCORDANCE WITH PART I OF THE CAA APPROVED OPERATING MANUAL FOR DOUGLAS MODEL C-39 AIRPLANE. THIS MANUAL SHALL BE CARRIED IN THE PILOT'S COMPARTMENT."
(Copies of the approved CAA Approved Operating Manual may be obtained from Aircraft Service, CAA, Washington 25, D.C.)

NOTE 3. Prior to certification of the Army Model C-39 or C-42 as a civil aircraft, the following must be accomplished:

(a) Each aircraft must satisfactorily pass an inspection for conformity, possible hidden damage, and for workmanship and materials used in making any repairs and/or alterations. In making the inspection for hidden damage, the outer wing panels must be removed to permit inspection of the doublers and attaching angles for defects and replacement thereof and needed in accordance with the Airworthiness Directives for Douglas DC-3 series aircraft as are pertinent to this aircraft. If any changes have been made which would adversely affect the flight characteristics, the particular airplane must be flight tested.

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

(c) The military litter boxes, litters, and supporting structure should be removed. 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) Flares and flare system as required for the particular operation must be installed.

(e) Any interior or exterior changes made to the primary structure or equipment must be either according to approved Douglas drawings or satisfactorily substantiated.

(f) Approved wing position lights similar to those installed on the Douglas Model DC-3 must be installed, Douglas drawings 5003503, 5006262 and 5160600 may be referred to in making this installation.

(g) The tail light must be replaced with approved unit.

(h) a master switch must be installed in accordance with Douglas Project Sketch 5-840706.

(i) The propeller feathering lines must be revised to conform with Douglas Project Sketch No. 5-840705.

(j) A portable fire extinguisher accessible to the pilot and co-pilot must be installed in the pilot's compartment. The fire extinguisher mounted at station -86.0 (Item 501a) may be moved to the new location. If this is done, the change in balance should be suitably accounted for.

(k) If the aircraft is certificated as ACP, a satisfactory seat belt sign, visible to all passengers, should be installed in the passenger cabin.

(l) The gasoline filler caps should be marked with the word "Fuel" and the "Min. Octane Rating" of the fuel that may be used for the particular engine installation.

(m) The oil filler caps should be marked with the word "Oil".

(n) If the aircraft is to be used in Air Carrier Service, determine whether all hose used in the oil-in line is approved fire-resistant hose, and if not, replace with approved fire-resistant hose as soon as it becomes available.

(o) 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 Chief, Air Carrier Maintenance Division.

Upon completion of the conversion to certificated status, the manufacturer's nameplate on the aircraft should be altered to include the date of conversion. 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.