

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

A-717
Revision 7

HOWARD
DGA-15P (Army UC-70;
Navy GH-1, GH-2,
GH-3, NH-1)
DGA-15J (Army UC-70B)
DGA-15W

August 17, 2009

AIRCRAFT SPECIFICATION NO. A-717

Holder of Type Certificate: Howard Aircraft Foundation
P.O. Box 649
Washington, OK 73093

Type Certificate Holder Record: Jobmaster Co. transferred ownership to Howard Aircraft December 10, 2003.

I - Model DGA-15P (Army UC-70; Navy GH-1, GH-2, GH-3, NH-1), 5 PCLM, Approved Feb. 20, 1940

See NOTE 2 regarding conversion of military models.

Engine	P & W Wasp Jr. SB with one 4 1/2N and one 9N damper. See Item 113 for optional engines.
Fuel	80 min. grade aviation gasoline. 87 min. grade for takeoff at 450 hp.
Engine limits	Maximum continuous, (Sea level) 34.5 in. Hg., 2200 rpm (400 hp) (Straight line manifold pressure variation with altitude to 5000 ft.) 33.5 in. Hg., 2200 rpm (400 hp) Takeoff (one minute), (80 grade fuel) 34.5 in. Hg., 2200 rpm (400 hp) (87 grade fuel) 36.5 in. Hg., 2300 rpm (450 hp)
Airspeed limits	Level flight or climb 200 mph (174 knots) True Ind. Glide or dive 270 mph (235 knots) True Ind. Flaps extended 108 mph (94 knots) True Ind.
C.G. range	(+10.5) to (+21.8)
Empty weight C.G. range	Not available
Maximum weight	Serials 500 to 574: 4350 lbs. (These serials eligible at 4500 lbs. when oil cooler, Item 105c, air scoop installation, Howard Dwg. E-215, and revised stabilizer screw, Howard Dwg. C-138, are installed. Serials 701 and up: 4500 lbs. (See Item 222 for increased wghts.)
No. seats	5 (two at +14 and three at +56). See Item 401 for six-seat arrangement, and Item 402 for eight seat arrangement.
Maximum baggage	125 lbs. (+84). Compartment aft of rear seats.
Fuel capacity	151 gals. max. Three tanks in fuselage. See Item 206 for individual tank capacities (standard and optional).
Oil capacity	8 gals. (-30)
Control surface movements	Elevators 26° Up 22° down (measured from centerline of stabilizer when chord line of stabilizer is parallel to thrust line) Rudder 28° right 28° left Rudder tab 19° right 19° left (Item 601) Ailerons 26° up 21° down Stabilizer 2° up 4° down (Serials 500 to 574) 2° up 9° down (Serials 701 and up) Wing flaps 45° down

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Serial Nos. eligible 500 to 574, 701 and up, and all AAF and Navy serial numbers. Use manufacturer's model and serial number when converting from military to civil status. (See Notes A & 2)

Required equipment In addition to the pertinent required basic equipment specified in CAR 4(a) the following items of equipment must be installed:
Items 101(a), 102, 103(a), (c), (d) or (e), 105(a) or (c) (Serial Nos. 500 to 574), 105(c) (Serial Nos. 701 and up); 106(a), (b) or (c), 107(a) or (b), 108, 109(a) and (b) or (d), 110 and 111.

II - Model DGA-15J (Army UC-70B); 5 PCLM, Approved Feb. 20, 1940

See NOTE 2 regarding conversion of military model.

Engine Jacobs L-6MB
Fuel 80 min. grade aviation gasoline.
Engine limits Maximum continuous,
(Sea level) 24.5 in. Hg., 2100 rpm (300 hp)
(Straight line manifold pressure variation with altitude to 3700 ft.) 23.5 in. Hg., 2100 rpm (300 hp)
Takeoff (one minute), 26.0 in Hg., 2200 rpm (330)
Airspeed limits Level flight or climb 190 mph (165 knots) True Ind.
Glide or dive 261 mph (227 knots) True Ind.
Flaps extended 108 mph (94 knots) True Ind.
C.G. range (+10.5) to (+21.8)
Empty weight C.G. range Not available
Maximum weight 4350 lbs.
No. seats 5 (two at +14 and three at +56).
Maximum baggage 125 lbs. (+84). Compartment aft of rear seats.
Fuel capacity 151 gals. max. Three tanks in fuselage. See Item 206 for individual tank capacities (standard and optional).
Oil capacity 8 gals. (-30)
Control surface Elevators 28° Up 22° down (measured from centerline of stabilizer when chord line of stabilizer is parallel to thrust line).
Rudder 28° right 28° left
Ailerons 24° up 21° down
Stabilizer 2° up 4° down
Wing flaps 45° down

Serial Nos. eligible 500 to 574, 701 and up, and all AAF and Navy serial numbers. Use manufacturer's model and serial number when converting from military to civil status. (See Notes A & 2)

Required equipment In addition to the pertinent required basic equipment specified in CAR 4(a) the following items of equipment must be installed:
Items 101(b), 102, 103(b), 104(b), 105(b), 106, 107(a) 108, 109(a) and (c), 110 and 111.

III - Model DGA-15W, 5 PCLM, Approved Feb. 3, 1941

Engine Wright R760-E2
Fuel 80 min. grade aviation gasoline.
Engine limits Maximum continuous, 2200 RPM (320 HP)
Takeoff (one minute), 2400 rpm (350)
Airspeed limits Level flight or climb 190 mph (165 knots) True Ind.
Glide or dive 261 mph (227 knots) True Ind.
Flaps extended 108 mph (94 knots) True Ind.
C.G. range (+10.5) to (+21.8)
Empty weight C.G. range Not available
Maximum weight 4350 lbs.
No. seats 5 (two at +14 and three at +56).
Maximum baggage 125 lbs. (+84). Compartment aft of rear seats.
Fuel capacity 151 gals. max. Three tanks in fuselage. See Item 206 for individual tank capacities (standard and optional).
Oil capacity 8 gals. (-30)

Control surface	Elevators	28° Up	22° down (measured from centerline of stabilizer when chord line of stabilizer is parallel to thrust line)
	Rudder	28° right	28° left
	Ailerons	24° up	21° down
	Stabilizer	2° up	4° down
	Wing flaps		45° down
Serial Nos. eligible	500 to 574, 701 and up, and all AAF and Navy serial numbers. Use manufacturer's model and serial number when converting from military to civil status. (See Notes A & 2)		
Required equipment	In addition to the pertinent required basic equipment specified in CAR 4(a) the following items of equipment must be installed: Items 101(b) and (c), 102, 103(b), 104(c), 105(b), 106, 107(a) 108, 109(a) and (b), 110 and 111.		

Specifications Pertinent to All Models

Datum	Leading edge of wing
Leveling means	Bottom longeron under stabilizer
Certification basis	Type Certificate No. 717 (CAR 4a requirements)
Production basis	None. Prior to original certification of any aircraft manufactured subsequent to November 7, 1944, a FAA representative must perform a detailed inspection for workmanship, materials, and conformity with the approved technical data and a check of the flight characteristics.

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

Approval for the installation of all items 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 conformity must be determined if the item is not identified by a Form FAA-186, PMA or other evidence of FAA production approval.

<u>Propellers and Propeller Accessories</u>		<u>DGA-15P</u>	<u>DGA-15J</u>	<u>DGA-15W</u>
101.	Propeller			
(a)	Ham. Std. hub 2D30 with: Blades 6167-15 or 6167-16 Dia.: Max. 8' 3-1/8" Min. allowable for repairs 8' 7/8". No further reduction permitted. Low pitch setting 10.5°	152 lbs.	(-64)	-----
or	Blades 6101-21 or 6101-22 Dia.: Max. 8' 3-1/8", Min. allowable for repairs 8' 7/8". No further reduction permitted. Low pitch setting 10.5°	152 lbs.	(-64)	-----
(b)	Ham. Std. hub 2B20 with: Blades 6135-9 or 6135-10 Dia.: Max. 8' 3-1/8", Min. allowable for repairs 8' 7/8". No further reduction permitted. Low pitch setting 14°	110 lbs.	-----	(-66)
or	Blades 6135-12 or 6135-13 Dia.: Max. 8' 1/8", Min. allowable for repairs 7' 9-7/8". No further reduction permitted. Low pitch setting 12°	110 lbs.	-----	(-67)
(c)	Constant speed control	5 lbs.	(-34)	(-32)
(d)	Ham. Std. 2D30 hub with: Blades 6101-12 to 6101-14 Dia.: Max. 9' 0", Min. allowable for repairs 8' 9-3/4". No further reduction permitted. Pitch setting: Low 9°, High 24°	162 lbs.	(-64)	-----
or	Blades 6101-12S to 6101-14S Dia.: Max. 9' 0" Min. allowable for repairs 8' 9-3/4". No further reduction permitted. Pitch setting: Low 8°, High 23°	162 lbs.	(-64)	-----

Note: For installation of this propeller on landplane or skiplane with Item 223, the landing gear shock struts must be modified in accordance with Jobmaster Dwg. LG-44J to provide adequate ground clearance.

<u>Engines and Engine Accessories - Fuel and Oil System</u>			<u>DGA-15P</u>	<u>DGA-15J</u>	<u>DGA-15W</u>
102.	Engine ring cowl (NACA type)	35 lbs.	(-42)	(-50)	(-50)
103.	Starter (a) Eclipse F-141	25 lbs.	(-31)	-----	-----
	(b) Eclipse E-80	25 lbs.	-----	(-37)	(-37)
	(c) Eclipse E-160	32 lbs.	(-31)	-----	-----
	(d) Eclipse 400-17	33 lbs.	(-31)	-----	-----
	(e) Eclipse 401-17B	34 lbs.	(-31)	-----	-----
105.	Oil cooler (a) UAP U-3160-B3	15 lbs.	(-29)	-----	-----
	(b) Howard Dwg. E-75	7 lbs.	-----	(-48)	(-48)
	(c) UAP U-6007-S30	19 lbs.	(-31)	-----	-----
108.	Carburetor air heater	7 lbs.	(-37)	(-37)	(-37)
109.	Fuel pumps (a) Hand (Romec D2-2)	5 lbs.	(-30)	(-30)	(-30)
	(b) Pesco R-400 BMB	3 lbs.	(-36)	-----	(-36)
	(c) Pesco R-400 BLH	3 lbs.	-----	(-36)	-----
	(d) AN Type H2E3	3 lbs.	(-36)	-----	-----
113.	Engines				
	(a) Pratt & Whitney Wasp Jr. SB-2 (Limits same as for SB)	Use act. wt. chg.	-----	-----	-----
	(b) Pratt & Whitney Wasp Jr. SB-3 (Limits same as for SB)	Use act. wt. chg.	-----	-----	-----
	(c) Pratt & Whitney Wasp Jr. T1B3 Fuel: 87 min. grade aviation gasoline Limits: Maximum continuous, (Sea level) 34.2 in.Hg., 2300 rpm (400 hp) (Straight line manifold pressure variation with alt. to 5400 ft.) 32.5 in.Hg., 2300 rpm (400 hp) Takeoff (1 min.), 37.5 in.Hg., 2300 rpm (450 hp)	Use act. wt. chg.	-----	-----	-----
	(d) Pratt & Whitney Wasp Jr. T1B2 (Limits same as T1B3)	Use act. wt. chg.	-----	-----	-----
	(e) Military R-985-AN-4 (Limits same as SB)	Use act. wt. chg.	-----	-----	-----
	(f) Military R-985-AN-6 or -AN-6B (Limits same as SB)	Use act. wt. chg.	-----	-----	-----
	(g) Military R-986-AN-12B or -AN-12B (Limits same as SB)	Use act. wt. chg.	-----	-----	-----
	(h) Military E-985-AN-14B (Limits same as SB)	Use act. wt. chg.	-----	-----	-----
	(i) Military R-985-25 (Limits same as T1B3)	Use act. wt. chg.	-----	-----	-----
	(j) Military R-985-AN-1 or -AN-3 (Limits same as T1B3)	Use act. wt. chg.	-----	-----	-----
206.	Fuel tanks (a) Front tank (std.) - 30 gal.	17 lbs.	(-10)	-----	-----
	(b) Main tank (std.) - 88 gal.		(+29)	-----	-----
	(c) Rear tank (std.) - 33 gal.	16 lbs.	(+65)	-----	-----
	(d) Main tank (opt.) - 74 gal.		(+29)	-----	-----
	(e) Rear tank (opt.) - 18 gal.	12 lbs.	(+65)	-----	-----

Landing Gear and Floats

110.	7.50-10 wheels (Goodyear 10HBM) with 8.50-10 6-ply tires (wheels must be placarded for these tires)	76 lbs.	(-2)	(-2)	(-2)
111.	10 in. smooth contour tail wheel (Hayes or General) with 6-ply tire (wheel must be placarded for this tire)	8 lbs.	(+195)	(+195)	(+195)
112.	Wheel streamlines	24 lbs. +10 lbs.	(-2) (-2)	(-2) (-2)	(-2) (-2)
207.	Cactus proof tires and tubes		Use act. wt. chg.	-----	-----
222.	Edo Model Ya-6235, Yd-6470, 58-4580, or WA-4665 floats with or without water rudder and seaplane fins when installed on Model DGA-15P in accordance with FAA Approved Jobmaster Technical Data.		Use act. wt. chg.	-----	-----
	Airspeed limits (T.I.A.S.)	Level flight or climb Glide or dive Flaps extended	152 mph (132 knots) 182 mph (158 knots) 108 mph (94 knots)		
	C.G. range	(+18.6) to (+21.4) at 5076 lbs. (+10.5) to (+21.4) at 4000 lbs. or less Straight line variation between points given			
	Maximum weight Serial Nos. eligible	4800 lbs. (5076 lbs. when wing is reinforced per Dwgs. J-70 and J-71) 701 and up and all AAF and Navy numbers. Serial Nos. 500 to 574 eligible with installation of airscoop per Howard Dwg. E-215 and revised stabilizer screw per Howard Dwg. C-138.			
	Required equip.	101(a) or (d), 101(c), 102, 103(a), (c), (d) or (e), 105(c), 106(a), (b) or (c), 107(a) or (b), 108, 109(a) and (b) or (d), 222.			
223.	Two Western Aircraft Equipment GS-5000A skis (complies with the supplementary conditions for skiplanes of CAR 3 when installed per Dwg. JS-A500).				

Electrical and Radio Equipment

			<u>DGA-15P</u>	<u>DGA-15J</u>	<u>DGA-15W</u>
104.	Generator (a) Eclipse D-1 or 308 (b) Eclipse LV-180 (c) Eclipse G-2 (d) Eclipse E5A (e) Eclipse NM-1B	17 lbs. 17 lbs. 17 lbs. 21 lbs. 25 lbs.	(-37) ----- ----- (-37) (-38)	----- (-37) ----- ----- -----	----- ----- (-37) ----- -----
106.	Battery (a) 12V (b) 24V (c) 2-12V (24V)	(use actual wt) (use actual wt) (use actual wt)	(+108) (+108) (+108)	(+108) ----- -----	(+108) ----- -----
107.	Flap motor (a) Bodine NSE-12-Rh (b) Dumore KLA-7	8 lbs. 59 lbs.	(-22) (-22)	(-22) -----	(-22) -----
201.	Landing lights (Grimes ST-250)	8 lbs.	(+19)	(+19)	(+19)
205.	Electrical bonding	4 lbs.	(+15)	(+15)	(+15)
213.	Battery (Exide 6XT-13-1, 65A-Hours)	+28 lbs.	(+108)	(+108)	(+108)
215.	Generator (Eclipse 309)	+5 lbs.	(-37)	(-37)	(-37)

Interior Equipment

202.	Flares (Four 1 1/2 minute)	25 lbs.	(+108)	(+108)	(+108)
203.	Pressure fire extinguisher	10 lbs.	(+14)	(+14)	(+14)
204.	Cabin heater	3 lbs.	(-35)	(-35)	(-35)
214.	Combination rear seat and bed	*33 lbs.			
	(a) Right rear seat	19 lbs.	(+56)	(+56)	(+56)
	(b) Left seat and bed - Folded	38 lbs.	(+56)	(+56)	(+56)
	Extended	38 lbs.	(+56)	(+56)	(+56)
216.	Camera installation. Baggage compartment and rear seats are removed for this installation.	*25 lbs.	(+84)	(+84)	(+84)
217.	Two rear seats. See NOTE 3 regarding eligibility for this item with Item 219, stretcher.				
	(a) Right rear seat	18 lbs.	(+59.5)	(+59.5)	(+59.5)
	(b) Left rear seat	18 lbs.	(+44)	(+44)	(+44)

219.	Stretcher installation. See NOTE 3 regarding eligibility for this item with Item 219, rear seats.				
	(a) Lower stretcher	18 lbs.	(+55)	(+55)	(+55)
	(b) Upper stretcher	18 lbs.	(+60)	(+60)	(+60)
* 220.	Three-place rear seat kit - Dwg. No. 1-A-Hoffer's Flying Service, Camden, South Carolina (Seat kits to be installed in accordance with the manufacturer's installation instructions dated Dec. 31, 1946)				
* 221.	Three-place rear seat kit - Model No. 1010 - DGA Incorporated, 617 Murray Bldg., Grand Rapids (2), Michigan. (Seat kits to be installed in accordance with the manufacturer's installation instructions dated March 10, 1947).				
401.	6-seat arrangement in accordance with Jobmaster Dwg. 601	Use act. wt. chg.	-----	-----	-----
402.	8-seat arrangement in accordance with Jobmaster Dwgs. J-6208, J-6209 and J-6210.	Use act. wt. ch.	-----	-----	-----

Miscellaneous (not listed above)

208.	Special cabin door (left)	5 lbs.	(+30)	(+30)	(+30)
209.	Multi-purpose door	+5 lbs.	(+32)	(+32)	(+32)
218.	Special baggage door	+2 lbs.	(+79)	(+79)	(+79)
300.	(a) Aileron trim tab installation per Dwg. I-00,001	(no weight change)			
601.	Rudder trim tab installation (Serial Nos. 701 and up)	7 lbs.	(+88)	-----	-----
602.	Rear controls installation	22 lbs.	(+49)	-----	-----

NOTE A. Contact the Howard Aircraft Foundation for information on eligible manufacturer's serial numbers and corresponding civilian model. The HAF maintains a list of all model DGA-15 aircraft manufactured from 1939 to 1944, including all military versions either impressed into Army service or produced under contract for the Navy.

NOTE 1. Current weight and balance report including list of equipment included in certificated empty weight, and loading instructions when necessary, must be in each aircraft at the time of original certification.

NOTE 2. (a) Navy Models GH-1, GH-2, GH-3 and NH-1 are eligible for certification as Model DGA-15P when finger strainers having not more than 10 meshes per inch are installed in outlets of all fuel tanks and selector valves are placarded as required by pertinent weight and balance report.

Each airplane must be weighed to determine its weight and balance and loading instructions provided, if necessary.

To achieve proper weight and balance, with changes in equipment, either the method described under (1) or under (2) may be used.

- (1) It is permissible to remove the following airplane placards:
- At filler caps -
"Fill front tank first, main tank second, rear tank last".
 - At the fuel selector valve.
"Use rear tank first, main tank second, front tank last".

Placards governing the sequence of fuel tank filling and use and loading schedules will be determined by the individual airplane weight and balance report.

- (2) Lead ballast (not to exceed 33 lbs.) may be installed at the tail post to conform with the specified C.G. range, provided a placard is installed in full view of the pilot, reading "Intentional spins prohibited".

Upon completion of the conversion to certificated status, the manufacturer's nameplate on the aircraft should be altered to include 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. The original or any succeeding nameplate should not be removed from the aircraft.

- (b) Navy GH-1 is identical to DGA-15P.
- (c) Navy GH-2 (Ambulance) is identical to DGA-15P except as follows:
 - (1) 24 volt electrical system.
 - (2) No. passengers 4 (front +14, right rear +70, lower litter +64) or
 - (3) No. passengers 3 (front +14, right rear +70, left rear +64).
- (d) Navy GH-3 (General Purpose) is identical to DGA-15P except as follows:
 - (1) Fuel capacity 122 gals. (If main fuselage tank capacity varies from 74 gals. use actual capacity) (Items 206(a), (d), and (e).
 - (2) No. passengers 3 (front +14, right rear +70, left rear +64).
- (e) Navy NH-1 (Blind Flying Trainer) is identical to DGA-15P except as follows:
 - (1) Fuel capacity 122 gals. (if main fuselage tank capacity varies from 74 gals. use actual capacity) (Items 206(a), (d) and (e).
 - (2) No. passengers 2 (front +14, rear +70).
 - (3) A third set of controls and instruments in rear cockpit (See Item 602).
- (f) Army Models UC-70 and UC-70B are identical to models DGA-15P and DGA-15J, respectively.

NOTE 3. Serial Nos. 550, 551 and 552 eligible with stretcher installation (Item 217(a) and 219) as follows:
 No. Passengers 4 (front +14, right rear +60, lower stretcher +55, upper stretcher +60)
 Baggage None
 and with 217(a) and (b) as follows:
 No. Passengers 3 (front +14, right rear +60, left rear +45)
 Baggage None

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