# DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

2A1 Revision 5 MULTITECH D-16 D-16A

September 23, 2010

### AIRCRAFT SPECIFICATION NO. 2A1

Type Certificate Holder American Navion Society, LTD. Reissued July 8, 1977, April 25, 2005

PMB 335

16420 SE McGillivray #103

Vancouver, Washington 98683-3461

Type Certificate Holder of Record Multitech Engineering Corporation Reissued May 23, 1966

P.O. Box 2503

Airport Station

Oakland, California 94614

Universal Aircraft Industries Reissued January 9, 1959

Temco Aircraft Corporation Issued April 8, 1955

### I - Model D-16 (See NOTE 3), 4 PCLM (Normal Category), Approved August 26, 1953

Engines 2 Lycoming O-320 (See Item 107 for optional engines)

Fuel 80/87 Min. grade aviation gasoline Engine limits For all operations, 2700 rpm (150 hp)

Airspeed limits Maximum structural cruising 153 mph (133 knots) C.A.S.

Never exceed 190 mph (165 knots) C.A.S. Flaps and gear extended 100 mph (87 knots) C.A.S.

C.G. range (+94.0) to (+98.0). Effect of gear retraction (+1480 in. lbs.)

(See NOTE 4 for increased C.G. range)

Maximum weight 2950 lbs. (See NOTE 4 for increased weight)

No. of seats 4 (2 at +96 and 2 at +132) Maximum baggage 134 lbs. (+30), 180 lbs. (+159)

Fuel capacity 59.5 gals. total. (See NOTE 6 for additional fuel)

Oil capacity 4 gals. (2 gal./engine) (+54)

Control surface movements Elevator Up 33° Down 17°

Elevator tab Up  $22^{\circ}$  Down  $34^{\circ}$  Aileron Up  $25^{\circ}$  Down  $17^{\circ}$  Rudder (Measured from fuselage centerline) Left  $20^{\circ}$  Right  $20^{\circ}$ 

Rudder tab bungee - Rig with 47.5 lbs.

tension with rudder and trim control neutral. Flaps Down 35°

Serial Nos. eligible Serial Nos. TTN-1 thru TTN-38, and TTN-40 thru TTN-47. (See NOTE 3(a)) Riley Aircraft Corporation: Serial Nos. TN-1 and up.

Required equipment In addition to pertinent required basic equipment specified in

CAR 3, the following items of equipment must be installed: 1(a), 2(a) or (b); 102(a), (c) and (e); 103(a) or (b), 105(a), 106(A) or (B), 201(a), 202(a), 205(a), 206(a); 301(a), (b) or (c);

302(a), (b) or (c); 303(a), 401(a).

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# II - Model D-16A, 4 PCLM, (Normal Category), Approved April 8, 1955

2 Lycoming O-340-A1A (See NOTE 5 for required carburetor Engines

modification)

Fuel 91/98 Min. grade aviation gasoline Engine limits For all operations, 2700 rpm (170 hp)

Airspeed limits Never exceed 190 mph (165 knots) C.A.S.

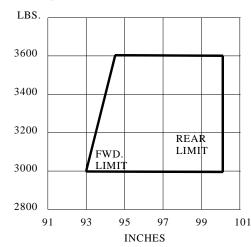
Maximum structural cruising 153 mph (133 knots) C.A.S. Maneuvering 149 mph (129 knots) C.A.S. Flaps and gear extended 116 mph (101 knots) C.A.S.

C.G. range (+94.6) to (+100.0) at 3600 lbs.

(Gear extended) (+93.0) to (+100.0) at 3000 lbs. or less

Straight line variation between points given.

Effect of gear retraction (+1480 in.lbs.)



Empty weight (+94.0) to (+94.6)

C.G. range When empty weight C.G. falls within the above range, it is (gear extended)

unnecessary to check forward and aft C.G. for standard D-16A

arrangement.

3600 lbs. Maximum weight

4 (2 at +96 and 2 at +132) No. seats 134 lbs. (+30), 180 lbs. (+159) Maximum baggage

104.5 gals. total: Fuel capacity

39.5 gals. (+103), 65 gals. (two 32.5 gal. nacelle tanks) (+96)

(See item 108(i) for additional fuel)

Oil capacity 4 gals. (2 gal./engine) (+54)

Control surface movements Elevator 17° Up 33° Down

Elevator tab 22° Up Down Aileron Up 25° Down 17° Rudder (Measured from fuselage centerline) Left 20° Right 20° Right Rudder tab Left 45° 45° Flaps Down 35°

Serial Nos. eligible Serial Nos. TTN-39, TTN-48 and up.

Required equipment CAR 3.655 plus the following items of equipment must be installed.

1(b), 2(a), (b) or (c), 3, 102(b) and (d), 103(a), 105(b),

106(C), 201(a), 202(b), 205(a), 206(b); 301(d), 302(c), 303(b),

401(c).

# Specifications Pertinent to All Models

Datum Fuselage station O, located 93.25 in. fwd. of the fwd. bolt centerline (jig point), wing

lower surface bolting angle.

Leveling means External lugs on right side of fuselage at stations 58 ad 98.43.

Certification basis Model D-16: Type Certificate No. 782 (CAR 3) and Flight Requirements of Amendment

3-4 dated January 15, 1951.

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Model D-16A: Type Certificate No. 2A1 (CAR 3) and Amendments thereto inclusive of Amendment 3-12 dated May 18, 1954.

Production basis None. Prior to original certification 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.

Export eligibility Eligible for export to all countries, subject to the provisions of MOP 2-4, except as

follows:

(a) Canada - Landplane eligible Skiplane not eligible

Equipment:

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 ACA-186, PMA or other evidence of FAA production approval.

# Propellers and Propeller Accessories

	lers and Propeller Accessories	
1.	Propellers - Hartzell, constant speed, hubs model HC82xG-2 with	
	(a) Blades Model 7636C-2 or 7636D-2	122 lbs. (+31)
	(Eligible on Lycoming O-320 engine only)	
	Diameter: Not over 74 in., not under 72.5 in.	
	No additional cut-off permitted.	
	Pitch setting at 30 in. station: Low 11.3°, high 78°	
	(b) Blades Model 8433-12	125 lbs. (+31)
	(Eligible on Lycoming O-340-A1A engine only)	
	Diameter: Not over 72 in., not under 70 in.	
	No additional cut-off permitted.	
	Pitch setting at 30 in. station: Low 11.1°, high 80°.	
2.	Governors (Required with item 1)	
	(a) 2 Hamilton Standard Model 1Q12	5 lbs. (+58)
	(b) 2 Woodward Model 210065	5 lbs. (+58)
	(c) 2 Woodward Model 210130	5 lbs. (+58)
3.	Spinners (Required with Item 1(b) only - 2 Hartzell domes Model C-888, as	6 lbs. (+27)
	modified per Temco Dwg. TN5201, and Hartzell spinner bulkheads Model C-885.	
Engin	es and Engine Accessories - Fuel and Oil Systems	
101.	•	34 lbs. (+43)
102.	(a) Carburetor air filters, 2 Cessna P/N 40599	1 lb. (+45)
	(Eligible D-16 only)	
	(b) Carburetor air filters, 2 Temco P/N TN-5645	3 lbs. (+37)
	(Eligible D-16A, D-16 with Item 107(b)	
	(c) Carburetor air intake system, 2 Piper P/N 13765-05 modified	2 lbs. (+48)
	per Temco Dwg. TN-5157 (Eligible D-16 only)	
	(d) Carburetor air intake system, 2, per Temco Dwg. TN-5609	2 lbs. (+47)
	(Eligible D-16A, D-16 with Item 107(b))	
	(e) Carburetor air dump tube assy., 2 Temco P/N TN-5214-1	1 lb. (+48)
	(Eligible D-16 only)	
103.	(a) Hydraulic pump, left engine only, New York Airbrake Model 67A025	3 lbs. (+52)
	(b) Hydraulic pump, left engine only, Ryan P/N 145-58020	2 lbs. (+52)
	(Eligible D-16 only)	
104.	Vacuum pump, right engine only, Pesco Model 3P-194F, Type B-11	4 lbs. (+50)
105.	(a) Oil coolers, 2 Piper P/N 455-168 (Eligible D-16 only)	12 lbs. (+38)
	(b) Oil coolers, 2 Harrison P/N 8522277 (Eligible D-16A,	5 lbs. (+52)
	D-16 with Item 107(b))	
106.	Fuel systems	
	(A) Per Riley Dwg. R-402 (Eligible D-16 only)	
	(1) Engine-driven pumps, A.C. P/N 5594068	4 lbs. (+59)
	and (2) (a) Aux. pumps, 2 Adel P/N 20113 or 19372	8 lbs. (+71)
	or (b) Aux. pumps, 2 Airsupply P/N 54609-1	5 lbs. (+96)
	(B) Per Temco Dwg. TN-5229 (Eligible D-16 only)	

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		(1) Engine-driven pumps, 2 A.C. P/N 5594068	4 lbs. (+59)			
,	(C)	(2) Aux. pumps, 2 Airsupply P/N 54609-1 Per Temco Dwg. TN-5608 (Eligible D-16A, D-16 with Item 405(a))	5 lbs. (+96)			
(	(C)	(1) Engine-driven pumps, 2 A.C. P/N 5594068	4 lbc (+50)			
			4 lbs. (+59)			
		and (2) Aux. pumps, Bendix P/N 47087	4 lbs. (+70)			
(	(D)	Per Temco Dwg. TN-5687 (Eligible D16 only)	4.11 (1.50)			
		(1) Engine-driven pumps, 2 A.C. P/N 5594068	4 lbs. (+59)			
		(2) Aux. pumps, 2 Bendix P/N 47087	4 lbs. (+70)			
		or (3) Aux. pumps, 2 Air Supply, P/N 54609-1	5 lbs. (+96)			
		Eligible with O-290 & O-320 engines only)	0.11 (.101)			
		(4) Transfer pump, Bendix P/N 47087	2 lbs. (+121)			
		(Required with fuselage tanks, Ref. NOTE 6)				
	e e e e e e e e e e e e e e e e e e e					
(	(a)	2 Lycoming O-290-D2A (Eligible on D-16 only, serial Nos. TTN-1 thru	No weight change			
		TTN-15, and Riley TN-1 and up)				
		Engine limits: Takeoff (one minute), 2750 rpm (139 bhp)				
		Maximum continuous, 2600 rpm (135 bhp)				
		Propeller: Item 1(a) except blade model 7636C-2 only.				
		Pitch at 30 in. station: Low 10.5°, high 78°				
		Item 102(e) not required. Item 401(e) required.				
(	(b)	2 Lycoming O-340-A1A	501 lbs. (+47)			
		(Eligible on D-16 with gross weight limitations as specified in NOTE 4 and				
		carburetor modification as specified in NOTE 5)				
		Engine limits: For all operations, 2700 rpm (170 bhp)				
		Required equipment: 1(b), 2(a), (b) or (c), 3, 102(b)				
		and (d), 103(a), 105(b), 106(c) or (d), 301(c) or (d), 303(b), 401(g)				
		iliary fuel tank installation (See NOTES 2, 6 and 7 for required				
I	plac	ard, description and installation of fuel systems)				
I	plac	ard, description and installation of fuel systems) 20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo.,	10 lbs. (+59)			
I	plac	ard, description and installation of fuel systems) 20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only)	10 lbs. (+59)			
I	plac	ard, description and installation of fuel systems) 20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard:	10 lbs. (+59)			
I	plac	ard, description and installation of fuel systems) 20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard: "Maximum Baggage compartment load:	10 lbs. (+59)			
I	plac	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo.,  Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only)  Substitute following for baggage placard:  "Maximum Baggage compartment load:  Auxiliary fuel tank empty, 170 lbs.	10 lbs. (+59)			
! *(	placa (a)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard: "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs. Auxiliary fuel tank full, 50 lbs.				
! *(	placa (a)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard: "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs. Auxiliary fuel tank full, 50 lbs.  20 gal. as per Ryan Dwgs. 145-482201A and 145-48225A	10 lbs. (+59) 19 lbs. (+151)			
! *(	placa (a)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard: "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs. Auxiliary fuel tank full, 50 lbs.  20 gal. as per Ryan Dwgs. 145-482201A and 145-48225A (Eligible on D-16 only)				
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! *(	placa (a)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard: "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs. Auxiliary fuel tank full, 50 lbs.  20 gal. as per Ryan Dwgs. 145-482201A and 145-48225A (Eligible on D-16 only) Substitute following for baggage placard: "Maximum baggage compartment load: Auxiliary fuel tank empty, 161 lbs. Auxiliary fuel tank full, 41 lbs.	19 lbs. (+151)			
I *(	plac: (a) (b)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard: "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs. Auxiliary fuel tank full, 50 lbs.  20 gal. as per Ryan Dwgs. 145-482201A and 145-48225A  (Eligible on D-16 only) Substitute following for baggage placard: "Maximum baggage compartment load: Auxiliary fuel tank empty, 161 lbs. Auxiliary fuel tank full, 41 lbs.  20.4 gal. as per Ryan Dwg. 145-89067 (Eligible D-16 only)	19 lbs. (+151) 20 lbs. (+130)			
I *(	plac: (a) (b)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard: "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs. Auxiliary fuel tank full, 50 lbs.  20 gal. as per Ryan Dwgs. 145-482201A and 145-48225A  (Eligible on D-16 only) Substitute following for baggage placard: "Maximum baggage compartment load: Auxiliary fuel tank empty, 161 lbs. Auxiliary fuel tank full, 41 lbs.  20.4 gal. as per Ryan Dwg. 145-89067 (Eligible D-16 only) 20 gal. as per Dwg. and Installation Kit No. CJKM 3100,	19 lbs. (+151)			
I *(	plac: (a) (b)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard: "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs. Auxiliary fuel tank full, 50 lbs.  20 gal. as per Ryan Dwgs. 145-482201A and 145-48225A  (Eligible on D-16 only) Substitute following for baggage placard: "Maximum baggage compartment load: Auxiliary fuel tank empty, 161 lbs. Auxiliary fuel tank full, 41 lbs.  20.4 gal. as per Ryan Dwg. 145-89067 (Eligible D-16 only) 20 gal. as per Dwg. and Installation Kit No. CJKM 3100, Neo Air Inc., Metropolitan Airport, Van Nuys, Calif.	19 lbs. (+151) 20 lbs. (+130)			
! *( ( *(	plac: (a) (b) (c) (d)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard: "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs. Auxiliary fuel tank full, 50 lbs.  20 gal. as per Ryan Dwgs. 145-482201A and 145-48225A  (Eligible on D-16 only) Substitute following for baggage placard: "Maximum baggage compartment load: Auxiliary fuel tank empty, 161 lbs. Auxiliary fuel tank full, 41 lbs.  20.4 gal. as per Ryan Dwg. 145-89067 (Eligible D-16 only) 20 gal. as per Dwg. and Installation Kit No. CJKM 3100, Neo Air Inc., Metropolitan Airport, Van Nuys, Calif. (Eligible D-16 only)	19 lbs. (+151) 20 lbs. (+130) 14 lbs. (+132)			
! *( ( *(	plac: (a) (b) (c) (d)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard: "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs. Auxiliary fuel tank full, 50 lbs.  20 gal. as per Ryan Dwgs. 145-482201A and 145-48225A  (Eligible on D-16 only) Substitute following for baggage placard: "Maximum baggage compartment load: Auxiliary fuel tank empty, 161 lbs. Auxiliary fuel tank full, 41 lbs.  20.4 gal. as per Ryan Dwg. 145-89067 (Eligible D-16 only) 20 gal. as per Dwg. and Installation Kit No. CJKM 3100, Neo Air Inc., Metropolitan Airport, Van Nuys, Calif. (Eligible D-16 only) 20 gal. as per Dwgs. 503A, 503B and 503C and "Instruction for	19 lbs. (+151) 20 lbs. (+130)			
! *( ( *(	plac: (a) (b) (c) (d)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard: "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs. Auxiliary fuel tank full, 50 lbs.  20 gal. as per Ryan Dwgs. 145-482201A and 145-48225A  (Eligible on D-16 only) Substitute following for baggage placard: "Maximum baggage compartment load: Auxiliary fuel tank empty, 161 lbs. Auxiliary fuel tank full, 41 lbs.  20.4 gal. as per Ryan Dwg. 145-89067 (Eligible D-16 only) 20 gal. as per Dwg. and Installation Kit No. CJKM 3100, Neo Air Inc., Metropolitan Airport, Van Nuys, Calif. (Eligible D-16 only) 20 gal. as per Dwgs. 503A, 503B and 503C and "Instruction for Install. Long Beach Airmotive Auxiliary Fuel Tank Kits in North	19 lbs. (+151) 20 lbs. (+130) 14 lbs. (+132)			
! *( ( *(	plac: (a) (b) (c) (d)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard: "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs. Auxiliary fuel tank full, 50 lbs.  20 gal. as per Ryan Dwgs. 145-482201A and 145-48225A     (Eligible on D-16 only)     Substitute following for baggage placard:     "Maximum baggage compartment load:     Auxiliary fuel tank empty, 161 lbs.     Auxiliary fuel tank full, 41 lbs.  20.4 gal. as per Ryan Dwg. 145-89067 (Eligible D-16 only) 20 gal. as per Dwg. and Installation Kit No. CJKM 3100,     Neo Air Inc., Metropolitan Airport, Van Nuys, Calif.     (Eligible D-16 only) 20 gal. as per Dwgs. 503A, 503B and 503C and "Instruction for Install. Long Beach Airmotive Auxiliary Fuel Tank Kits in North American Navion," Long Beach Airmotive, Long Beach, Cal.	19 lbs. (+151) 20 lbs. (+130) 14 lbs. (+132)			
! *( *( *( *(	plac: (a) (b) (c) (d)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard:  "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs. Auxiliary fuel tank full, 50 lbs.  20 gal. as per Ryan Dwgs. 145-482201A and 145-48225A  (Eligible on D-16 only) Substitute following for baggage placard:  "Maximum baggage compartment load: Auxiliary fuel tank empty, 161 lbs. Auxiliary fuel tank full, 41 lbs.  20.4 gal. as per Ryan Dwg. 145-89067 (Eligible D-16 only)  20 gal. as per Dwg. and Installation Kit No. CJKM 3100, Neo Air Inc., Metropolitan Airport, Van Nuys, Calif. (Eligible D-16 only)  20 gal. as per Dwgs. 503A, 503B and 503C and "Instruction for Install. Long Beach Airmotive Auxiliary Fuel Tank Kits in North American Navion," Long Beach Airmotive, Long Beach, Cal. (Eligible D-16 only)	19 lbs. (+151) 20 lbs. (+130) 14 lbs. (+132) 12 lbs. (+132)			
! *( *( *( *(	place: (a) (b) (c) (d) (e)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard:  "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs. Auxiliary fuel tank full, 50 lbs.  20 gal. as per Ryan Dwgs. 145-482201A and 145-48225A  (Eligible on D-16 only) Substitute following for baggage placard:  "Maximum baggage compartment load: Auxiliary fuel tank empty, 161 lbs. Auxiliary fuel tank full, 41 lbs.  20.4 gal. as per Ryan Dwg. 145-89067 (Eligible D-16 only)  20 gal. as per Dwg. and Installation Kit No. CJKM 3100, Neo Air Inc., Metropolitan Airport, Van Nuys, Calif. (Eligible D-16 only)  20 gal. as per Dwgs. 503A, 503B and 503C and "Instruction for Install. Long Beach Airmotive Auxiliary Fuel Tank Kits in North American Navion," Long Beach Airmotive, Long Beach, Cal. (Eligible D-16 only)  20 gal. as per Symons Engr. Dwg. SY-102 and Installation	19 lbs. (+151) 20 lbs. (+130) 14 lbs. (+132)			
! *( *( *( *( *(	place: (a) (b) (c) (d) (e)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard:  "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs. Auxiliary fuel tank full, 50 lbs.  20 gal. as per Ryan Dwgs. 145-482201A and 145-48225A  (Eligible on D-16 only) Substitute following for baggage placard:  "Maximum baggage compartment load: Auxiliary fuel tank empty, 161 lbs. Auxiliary fuel tank full, 41 lbs.  20.4 gal. as per Ryan Dwg. 145-89067 (Eligible D-16 only)  20 gal. as per Dwg. and Installation Kit No. CJKM 3100, Neo Air Inc., Metropolitan Airport, Van Nuys, Calif. (Eligible D-16 only)  20 gal. as per Dwgs. 503A, 503B and 503C and "Instruction for Install. Long Beach Airmotive Auxiliary Fuel Tank Kits in North American Navion," Long Beach Airmotive, Long Beach, Cal. (Eligible D-16 only)	19 lbs. (+151) 20 lbs. (+130) 14 lbs. (+132) 12 lbs. (+132)			
! *(  ( *( *( *( *( *( *( *( *( *( *( *( *	place: (a) (b) (c) (d) (f) (g)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only)  Substitute following for baggage placard: "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs.  Auxiliary fuel tank full, 50 lbs.  20 gal. as per Ryan Dwgs. 145-482201A and 145-48225A  (Eligible on D-16 only)  Substitute following for baggage placard: "Maximum baggage compartment load: Auxiliary fuel tank empty, 161 lbs. Auxiliary fuel tank full, 41 lbs.  20.4 gal. as per Ryan Dwg. 145-89067 (Eligible D-16 only)  20 gal. as per Dwg. and Installation Kit No. CJKM 3100, Neo Air Inc., Metropolitan Airport, Van Nuys, Calif. (Eligible D-16 only)  20 gal. as per Dwgs. 503A, 503B and 503C and "Instruction for Install. Long Beach Airmotive Auxiliary Fuel Tank Kits in North American Navion," Long Beach Airmotive, Long Beach, Cal. (Eligible D-16 only)  20 gal. as per Symons Engr. Dwg. SY-102 and Installation Instructions (Eligible on D-16 only)  40 gal. as per Temco Dwg. TN-5217 (Eligible D-16 only)	19 lbs. (+151)  20 lbs. (+130) 14 lbs. (+132)  12 lbs. (+132)  10 lbs. (+130) 39 lbs. (+145)			
*( *( *( *( ( ( ( ( ( ( ( ( ( ( ( ( ( (	place: (a) (b) (c) (d) (f) (g)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only) Substitute following for baggage placard: "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs. Auxiliary fuel tank full, 50 lbs.  20 gal. as per Ryan Dwgs. 145-482201A and 145-48225A (Eligible on D-16 only) Substitute following for baggage placard: "Maximum baggage compartment load: Auxiliary fuel tank empty, 161 lbs. Auxiliary fuel tank full, 41 lbs.  20.4 gal. as per Ryan Dwg. 145-89067 (Eligible D-16 only) 20 gal. as per Dwg. and Installation Kit No. CJKM 3100, Neo Air Inc., Metropolitan Airport, Van Nuys, Calif. (Eligible D-16 only)  20 gal. as per Dwgs. 503A, 503B and 503C and "Instruction for Install. Long Beach Airmotive Auxiliary Fuel Tank Kits in North American Navion," Long Beach Airmotive, Long Beach, Cal. (Eligible D-16 only)  20 gal. as per Symons Engr. Dwg. SY-102 and Installation Instructions (Eligible on D-16 only) 40 gal. as per Temco Dwg. TN-5217 (Eligible D-16 only) 50 gal. as per Temco Dwg. TN-5273 (Eligible D-16 only)	19 lbs. (+151) 20 lbs. (+130) 14 lbs. (+132) 12 lbs. (+132) 10 lbs. (+130)			
*( *( *( *( ( ( ( ( ( ( ( ( ( ( ( ( ( (	place: (a) (b) (c) (d) (f) (g) (h)	ard, description and installation of fuel systems)  20 gal. as per Toth Aircraft and Accessories Company, Kansas City, Mo., Dwgs. 1 thru 5, 34 and approved Installation Instructions. (Eligible on D-16 only)  Substitute following for baggage placard: "Maximum Baggage compartment load: Auxiliary fuel tank empty, 170 lbs.  Auxiliary fuel tank full, 50 lbs.  20 gal. as per Ryan Dwgs. 145-482201A and 145-48225A  (Eligible on D-16 only)  Substitute following for baggage placard: "Maximum baggage compartment load: Auxiliary fuel tank empty, 161 lbs. Auxiliary fuel tank full, 41 lbs.  20.4 gal. as per Ryan Dwg. 145-89067 (Eligible D-16 only)  20 gal. as per Dwg. and Installation Kit No. CJKM 3100, Neo Air Inc., Metropolitan Airport, Van Nuys, Calif. (Eligible D-16 only)  20 gal. as per Dwgs. 503A, 503B and 503C and "Instruction for Install. Long Beach Airmotive Auxiliary Fuel Tank Kits in North American Navion," Long Beach Airmotive, Long Beach, Cal. (Eligible D-16 only)  20 gal. as per Symons Engr. Dwg. SY-102 and Installation Instructions (Eligible on D-16 only)  40 gal. as per Temco Dwg. TN-5217 (Eligible D-16 only)	19 lbs. (+151)  20 lbs. (+130) 14 lbs. (+132)  12 lbs. (+132)  10 lbs. (+130)  39 lbs. (+145) 48 lbs. (+148)			

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Landi	ng Gear				
201.	2 Main wheel-brake assemblies, 7.00-8				
	(a) Goodrich	(+114)			
	Wheel Assy. Model G-3-637-MD-1				
202	Brake Assy. Model D-2-559-1	(.114)			
202.	(4)	(+114)			
205	(b) 7.00-8 6-ply rating tires Nose gear wheel	(+114) (+46)			
205.	(a) Wheel Assy., Firestone Model 6C-5	(+40)			
	(b) Wheel Assy., Goodrich Model 613-MD				
206.	(a) 6.00-6 4-ply rating tire (Eligible D-16 only)	(+46)			
200.	(b) 6.00-6 6-ply rating tie	(+46)			
*210.	Tennes-Navion landing gear-wheel fairing kit. (Eligible D-16 and D-16A)	8 lbs. (+114)			
	Landing gear fairing fabricated and installed in accordance with	,			
	Dwgs. T-100 and T-101, and wheel fairing fabricated and installed in				
	accordance with Dwgs. T-200-F and T-200-F1 for Firestone wheels or				
	in accordance with Dwgs. C-T-200-G and T-200-G1 for Goodrich (Hayes) wheels.				
*211.	Nose gear enclosure	6 lbs. (+60)			
	Main wheel enclosures, both wheels	5 lbs. (+114)			
	(Eligible D-16 and D-16A)				
	Installed per Long Beach Aeromotive Dwgs. LB505a and LB505b.				
*212.	Landing gear fairing installation, Ryan Dwg. 145-33301				
	(Eligible D-16 and D-16A)				
	(a) Nose gear fairing	6 lbs. (+60)			
*010	(b) Main gear fairing	5 lbs. (+114)			
*213.	Landing gear fairing installation, Symons Engineering Installation				
	Dwgs. SY-105-A and SY-105-B, Symons Engineering, Box 2262, El Segundo, Calif.				
	(Eligible D-16 and D-16A) (a) Nose gear fairings	2 lbs (+50)			
	(a) Nose gear rainings (b) Main gear fairings	3 lbs. (+50) 4 lbs. (+114)			
	(b) Hain gear fairings	7 103. (1117)			
Electr	ical Equipment				
301.	Generators				
	(a) Per Riley Dwg. No. R-604-19, 2 Delco Remy P/N 1101891 (20 amp)	21 lbs. (+44)			
	(Eligible D-16 Riley TN-1 and up only)				
	(b) Per Temco Dwg. TN-5025, 2 Delco Remy P/N 1101891 (20 amp)	21 lbs. (+44)			
	(Eligible on D-16 Riley TN-1 and up, and Temco				
	TTN-1 thru TTN-13 only)				
	(c) Per Temco Dwg. TN-5025, 2 Delco Remy P/N 1101900 (35 amp)	38 lbs. (+44)			
	(Eligible D-16 only)				
	(d) Per Temco Dwg. TN-5801, 2 Delco Remy P/N 1101900 (35 amp)	38 lbs. (+44)			
	(Eligible D-16A only)				
302.	Voltage regulator and paralleling relay	1.7.11 (40)			
	(a) Per Riley Dwg. R-604-19 (Voltage regulator only), 2 Delco Remy	1.5 lbs. (+48)			
	P/N 1118882 (20 amp) (Eligible with Item 301(a) only)	2.11- (+.40)			
	(b) Per Temco Dwg. TN-5025, (Eligible with item 301(b) only) (1) 2 Delco Remy P/N 1118882 (20 amp)	2 lbs. (+48)			
	(1) 2 Delco Remy P/N 1116887				
	(c) Per Temco Dwg. TN-5025 and TN-5801,	2 lbs. (+48)			
	(1) 2 Delco Remy P/N 1118840 (35 amp)	2 103. (140)			
	(2) 1 Delco Remy P/N 1116887				
	(Eligible with item 301(c) and (d) only)				
303.	Battery				
	(a) 12 volt - 33 amp-hour (Eligible D-16 only)	27 lbs. (+151)			
	(b) 12 volt - 55 amp-hour	51 lbs. (+151)			
304.	Landing lights, 2 Grimes P/N M-4509	3 lbs. (+9)			
305.					

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### **Interior Equipment**

401. One of the following CAA Approved Airplane Flight Manuals and any applicable supplement or revisions must be carried in the aircraft at all times: (a) AFM dated August 26, 1953 (for D-16 with Lycoming O-320 engines and 2950 lbs. gross weight) (b) AFM dated March 8, 1954 (for D-16 with Lycoming O-320 engines and 3350 lbs. gross weight) (c) AFM's dated February 25, 1955, and December 1, 1955 (for D-16A with Lycoming O-340-A1A engines and 3600 lbs. gross weight). (d) Supplement to Items 401(a), (b) and (e) dated June 25, 1954. Required when Item 402(a) is installed. Not eligible with Item 401(c). (e) AFM dated December 17, 1952 (for D-16 with Lycoming O-290-D2A engines, item 107(a).) \*(f) Mitchell AFM Supplement to Items 401(a), (b), (c) and (e) dated August 19, 1955, required when Item 402(b) is installed. (g) Supplement 1 to Item 401(b) dated February 14, 1956 (For D-16 with Lycoming O-340-A1A engines, Item 107(b).) \*(h) Tulsair AFM Supplement to Item 401(c) dated February 24, 1956. (Required when Item 402(c) is installed.) 402. Automatic pilot (a) Lear L-2B per Lear Dwg. 700150, Revision A 42 lbs. (+165) 1404 or 2203 altitude controller optional as per Lear Dwg. 82984 26 lbs. (+182) Three axis servo motor and gear train No. 121C, servo pulley size 1-3/8in. Servo stall torques (in.lbs.)  $\pm$  5% measured at servo clutch: Aileron 25 in.lbs., elevator 30 in.lbs., rudder 55 in.lbs. Placard required: "Do Not Operate Autopilot During Single Engine Operation." Eligible only: (1) On Model D-16 (2) To gross weight up to 3350 lbs. (3) At all C.G. limits including those specified in NOTE 4(a). (4) With Item 401(d) \*(b) Mitchell Co-Pilot Model AK045 in accordance with Mitchell 10 lbs. (+59) Industries, P. O. Box 17, Mineral Wells, Texas, Bulletin No. 104. Does not include horizon and directional gyros. (Item 401(f) required.) \*(c) Lear L-2B in accordance with Tulsair Distributors, Inc. 58 lbs. (+165) P.O. Box 2146, Tulsa, Okla., Dwg. No. 416A-1000. Eligible on Model D-16A only. Three axis servo motor and gear train No. L121C, servo pulley size 1-3/8 in. Servo stall torques ± 5% measured at servo clutch: Aileron 25 in. lbs., elevator 32 in. lbs., rudder 55 in. lbs. (Item 401(h) required). Placard required: "DO NOT OPERATE AUTO-PILOT DURING SINGLE-ENGINE OPERATION." 403. Heater installation (a) Per Temco Dwg. TN-5104 12 lbs. (+48) (b) Per Temco Dwg. TN-5702 16 lbs. (+48) (c) Per Temco Dwg. TN-5791 16 lbs. (+48) 404. (a) 2 Front Seat Assemblies, Temco P/N TN-5704 (Eligible D-16 only) 48 lbs. (+99) (b) 2 Front Seat Assemblies, Temco P/N TN-5705 44 lbs. (+99) 405. (a) TN-5000-16-8 Interior and instrumentation. (Eligible D-16 with use actual weight Item 107(b), Item 404(b) required). and arm (1) TN5504 Instrument panel installation (2) TN5703 Console installation. (3) TN5694 Fuel selector valve installation. (4) TN5510 Rudder trim installation. (TN5509 rudder and elevator installation required). 406. Baggage compartment door installation per Temco Dwg. TN5546 9 lbs. (+170)

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407. Flare installation

(a) 4 International MK-1 parachute flares and Kilgore Mfg. Co.Model R4M switch per Temco Dwg. TN5978-1

(b) 3 International MK-1 parachute flares Kilgore Mfg. Co. Model R3M switch per Temco Dwg. TN5978-2 16 lbs. (+188)

#### Miscellaneous (Not listed above)

601. Heated pitot installation, Kollsman 373D-01, per Temco Dwg. TN5145

2 lbs. (+130)

- 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 must be shown in locations specified:
  - (a) In front of and in clear view of the pilot:
    - (1) "This airplane must be operated in compliance with the FAA Approved Operating Limitations."
    - (2) "Normal Category (G.W. <u>as applicable</u> lbs.) No acrobatic maneuvers including spins approved."
    - (3) "Do not use auxiliary tanks for take-off or landing." (Model D-16A only)
    - (4) (Model D-16 only) "Do not use auxiliary tanks for take-off or landing" or "Use auxiliary tanks level flight only." (Not required when Item 108(g) or (h) installed)
    - (5) Placard for item 402 if installed.
  - (b) On the left hand canopy track 7 1/2 inches from windshield and in clear view of the occupants: "Do not open enclosure beyond this point while in flight except in emergency."
- NOTE 3. (a) All of the aircraft covered by this specification are conversions of the single- engine Navion, Aircraft Specification A-782. The aircraft herein described as the Model D-16 were originally approved for the Dauby Equipment Company under NOTE 3 of A-782. Subsequently, the Riley Aircraft Corporation and later Temco obtained modification rights from Dauby for the conversion of these aircraft. Therefore, all aircraft previously modified in accordance with NOTE 3 of A-782 are eligible for certification under Model D-16 of this specification which supersedes NOTE 3 of A-782. All model D-16 aircraft carry, in addition to Temco or Riley serial number, the original Navion serial number. All aircraft eligible under Specification A-782 are eligible for remanufacture to this specification.
  - (b) All Model D-16A aircraft covered by this specification are conversions of the single- engine Navion, Aircraft Specification A-782. Aircraft produced under this type certificate will be identified by Temco nameplate only, and airworthiness considerations pertaining to the single-engine Navion only do not apply to the Temco Model D-16A.
- NOTE 4. Model D-16 is eligible for the following maximum weights and C.C. ranges:
  - (a) 3350 lbs. when modified in accordance with Temco Dwg. TN-5240. Lycoming O-320 or Lycoming O-340-A1A engines and appropriate Airplane Flight Manual (Ref. Item 401) are required.

Applicable C.G. range: (+97.5) to (+100.0) at 3350 lbs.

(+93.0) to (+100.0) at 2900 lbs. or less (Straight line variation between points given)

(b) 3600 lbs. when modified in accordance with Temco Dwg. TN-5906. Lycoming O-340-A1A engines and appropriate Airplane Flight Manual (Ref. Item 401) are required.

Applicable C.G. range: (+95.0) to (+100.0) at 3600 lbs.

(+93.0) to (+100.0) at 3000 lbs. or less (Straight line variation between points given)

- NOTE 5. The Lycoming O-340-A1A engines installed in Model D-16A and D-16 must be modified to include a carburetor throttle stop which limits the throttle opening to 6° from full open in order to provide optimum fuel distribution.
  - (a) MA-4-5 carburetors through Serial No. 3982035 externally modified per Temco Dwg. TN-5682.
  - (b) MA-4-5 carburetors Serial No. 3982036 and subsequent internally modified by Marvel.

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- NOTE 6. The standard fuel capacity on Model D-16 aircraft is 59.5 gals. This is composed of 39.5 gals. in standard Navion wing tanks located at 103 in. and 20 gals. either in underseat tank (Item 108(c), (d), (e) or (f) or baggage compartment tank Item 108(a) or (b).) If additional fuel is desired one of the following installations can be accomplished:
  - (1) For 79.5 gals. total fuel capacity: (Eligible all TN and TTN D-16 airplanes)
    - (a) Install baggage compartment tank if standard system has underseat tank.
  - or (b) Install underseat tank if standard system has baggage compartment tank.
  - or (c) Install auxiliary tank Item 108(g).
  - (2) For 89.5 gals. total fuel capacity: (Eligible all TN and TTN D-16 airplanes).
    - (a) Install auxiliary tank Item 108(h).
  - (3) For 99.5 gals. total fuel capacity: (Eligible all TN and TTN D-16 airplanes modified per NOTE 4 (a) or (b).)
    - (a) Install underseat tank (Item 108(c), (d), (e) or (f).)
  - or (b) Install baggage compartment tank (Item 108(a) or (b).)
    - (c) Install tip tanks (Item 108(i).)
    - (d) Fuel system Item 106(d) required.
  - (4) For 104.5 gals. total fuel capacity (Eligible all TN and TTN D-16 airplanes modified per NOTE 4 (a) or (b).)
    - (a) Install nacelle tanks (Item 108(j).)
    - (b) Fuel system Item 106(d) required.
  - (5) For 144.5 gals. total fuel capacity: (Eligible all TN and TTN D-16 modified per NOTE 4(b).)
    - (a) Install nacelle tanks (Item 108(j).)
    - (b) Install tip tanks (Item 108(i).)
    - (c) Fuel system Item 106(c) required.

Removal of any auxiliary tanks not called out in the desired system above is required.

NOTE 7. All fuselage fuel installations, Items 108(a) thru (f), must be installed in accordance with Temco Service Bulletin No. 2 and Temco Dwg. No. TN-5962. Weight change is 2 lbs. at the appropriate arm.

.....END.....