

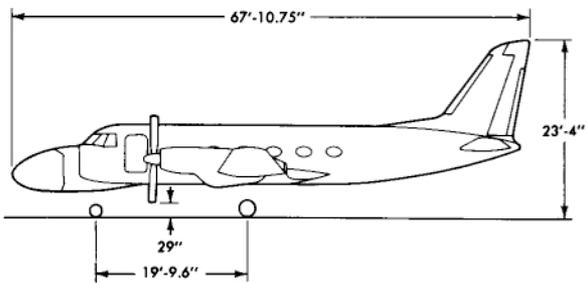
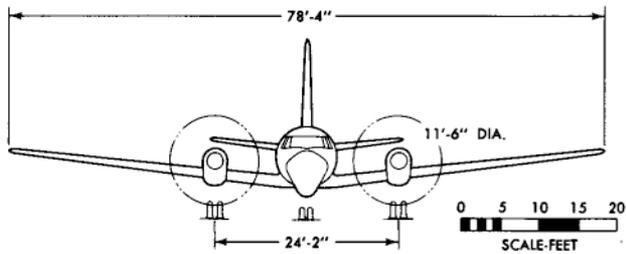
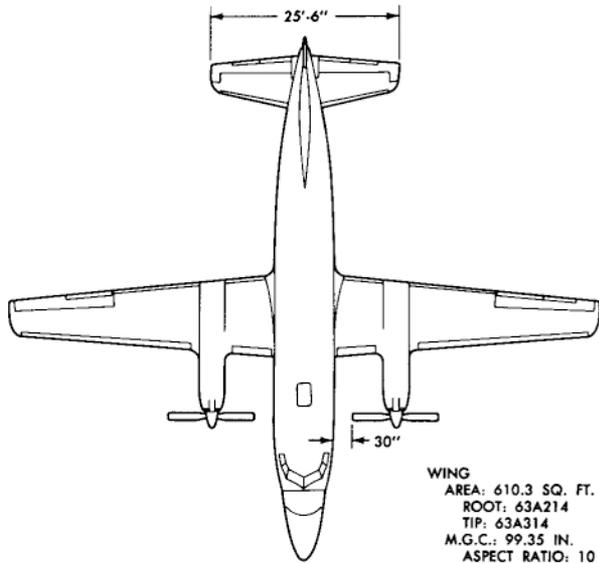


STANDARD AIRCRAFT CHARACTERISTICS

TC-4C

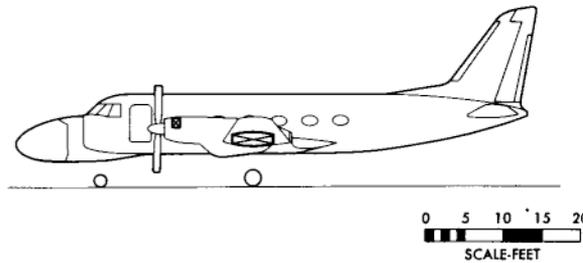
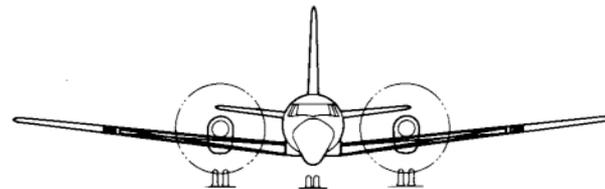
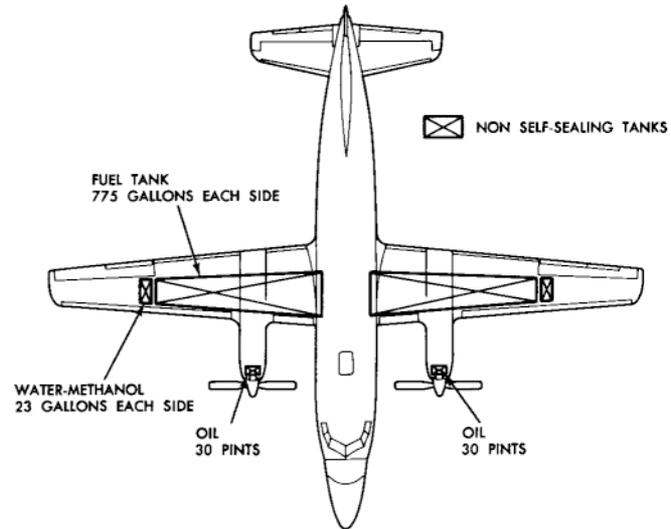
GRUMMAN

NAVAL AIR SYSTEMS COMMAND
NAVY DEPARTMENT



DESCRIPTIVE ARRANGEMENT

NAVAL AIR SYSTEMS COMMAND
NAVY DEPARTMENT



ARMAMENT AND TANKAGE

POWER PLANT	MISSION AND DESCRIPTION	WEIGHTS																					
<p>Number and Model _____ (2) Dart Mark 529-8X Manufacturer _____ Rolls Royce Prop Gear Ratio _____ 0.093:1 Number of Blades _____ 4 Propeller Diameter _____ 11 ft. 6 in. Propeller Manufacturer _____ Rotol Propeller Blade Design No. _____ 57DS 0015</p> <p style="text-align: center;">RATINGS</p> <table border="0"> <tr> <td></td> <td style="text-align: center;">MIN SHP</td> <td style="text-align: center;">RPM</td> </tr> <tr> <td>Maximum Continuous</td> <td style="text-align: center;">1910</td> <td style="text-align: center;">15,000</td> </tr> <tr> <td>Take-Off Dry</td> <td style="text-align: center;">1910</td> <td style="text-align: center;">15,000</td> </tr> </table> <p>AUXILIARY POWER UNIT Manufacturer _____ Airesearch Model _____ GTCP85-134 Rating _____ 105 SHP, Output Shaft 6000 RPM</p> <p>The auxiliary power unit is for use with A-6A electronics only.</p>		MIN SHP	RPM	Maximum Continuous	1910	15,000	Take-Off Dry	1910	15,000	<p>The TC-4C is an A-6A Bombardier/Navigator (B/N) trainer version of a standard Grumman Gulfstream I aircraft. This trainer, fitted with an A-6A radome housing the search and track radar antennas, retains the basic Gulfstream fail-safe designed airframe, power plants, and associated aircraft systems. It is equipped with a simulated A-6A cockpit, complete A-6A electronic navigation/attack system, and four B/N radar navigation training consoles to provide efficient and realistic training for A-6A aircrews. The aircraft has a pressurized cabin and can operate under IFR, icing and night flight conditions.</p> <p>The simulated A-6A cockpit is located in the aft section of the TC-4C cabin. The DIANE nav/attack weapon system installed in the cockpit provides simultaneous pilot and B/N crew training in most phases of the A-6A mission. Four identical Bombardier/Navigator training consoles are located forward of the simulated A-6A cockpit. Each console is equipped with two major training displays; a direct view radar indicator (DVRI) and a set of navigation readouts. The DVRI presents to the student the same display selected by the Bombardier/Navigator in the simulated A-6A cockpit. Navigation data, computed by the DIANE computer, are displayed on a set of four readouts which are similar in size, shape and location to the navigation display in the simulated A-6A cockpit. Information displayed at the console is selected by the A-6A B/N and consists of wind speed, ground speed, wind direction or latitude, longitude and altitude of either the aircraft's present position or cursor intersection.</p> <p>Cabin and electronic cooling is provided by two bootstrap air cycle systems. The first system, driven by an engine-mounted compressor, provides in-flight heating or cooling to the occupied compartments, as required. The second system, driven by an auxiliary power unit, provides cooling to the A-6A electronic equipment and electrical power for the avionics. The A-6A power distribution system for the TC-4C aircraft supplies 20 KVA, 3-phase power regulated in both frequency and amplitude. The distribution system is provided with circuit breakers and protective controls to ensure safe and proper operation of all electrical and electronic equipment.</p> <p>The aircraft's endurance, at the training altitude and airspeed, enable the B/N trainees to obtain a total of four hours of instruction. The aircraft has a range, when flying at the training altitude and airspeed, of 996 nautical miles.</p> <p>First Flight _____ June 1967 Service Use (estimated) _____ January 1968</p>	<p style="text-align: center;">WEIGHTS</p> <p>LOADINGS LBS.</p> <table border="0"> <tr> <td>Empty</td> <td style="text-align: right;">24,575</td> </tr> <tr> <td>Design</td> <td style="text-align: right;">36,000</td> </tr> <tr> <td>Basic</td> <td style="text-align: right;">36,000</td> </tr> <tr> <td>Combat (60% fuel)</td> <td style="text-align: right;">32,140</td> </tr> <tr> <td>Take-Off (normal)</td> <td style="text-align: right;">36,000</td> </tr> <tr> <td>Landing Design</td> <td style="text-align: right;">34,285</td> </tr> </table> <p>All weights based on Detail Specification.</p>	Empty	24,575	Design	36,000	Basic	36,000	Combat (60% fuel)	32,140	Take-Off (normal)	36,000	Landing Design	34,285
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ELECTRONICS	DIMENSIONS	FUEL AND OIL																					
<p>GFE ELECTRONICS</p> <p>TACAN _____ AN/ARN-52 UHF Comm _____ AN/ARC-51AX Radar Altimeter _____ APN-141(V) Radar Navigation Set _____ APN-153(V) Compass System _____ MA-1 VGI System _____</p> <p>CFE ELECTRONICS</p> <p>Auto Pilot _____ SPERRY SP-40 Gyro Compass _____ SPERRY C9 VHF Transceiver _____ COL. 618M-1A Marker Beacon _____ COL. 51Z4 VHF NAV and ILS Receiver _____ COL. 51RV-1 LF/ADF _____ COL. DF-203 ATC Transponder _____ COL. 621A-3</p>	<p>Wing</p> <table border="0"> <tr> <td>Area</td> <td style="text-align: right;">610.3 sq. ft.</td> </tr> <tr> <td>Span</td> <td style="text-align: right;">78 ft. 4 in.</td> </tr> <tr> <td>MGC</td> <td style="text-align: right;">99.35 in.</td> </tr> <tr> <td>Length</td> <td style="text-align: right;">67 ft. 10.75 in.</td> </tr> <tr> <td>Height</td> <td style="text-align: right;">23.33 ft.</td> </tr> <tr> <td>Tread</td> <td style="text-align: right;">24 ft. 2 in.</td> </tr> <tr> <td>Prop Ground Clearance</td> <td style="text-align: right;">20.75 in.</td> </tr> </table>	Area	610.3 sq. ft.	Span	78 ft. 4 in.	MGC	99.35 in.	Length	67 ft. 10.75 in.	Height	23.33 ft.	Tread	24 ft. 2 in.	Prop Ground Clearance	20.75 in.	<p style="text-align: center;">FUEL AND OIL</p> <p>No. Tanks _____ 2 Location _____ Wing Total Capacity _____ 10,462 lbs. Maximum Usable Available _____ 10,390 lbs.</p> <p style="text-align: center;">OIL</p> <p>Capacity _____ 113 lbs/engine</p>							
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		<p style="text-align: center;">WATER-METHANOL</p> <p>No. Tanks _____ 2 Location _____ Wing Capacity _____ 180 lbs/side Total _____ 46 gallons</p>																					
ELECTRONICS	DIMENSIONS	CARGO CAPACITIES																					
		<p>Useful Load _____ 11,425 lbs Crew _____ 1620 lbs Consisting of: Pilot and Copilot (2), Students (5), Instructors (2).</p>																					

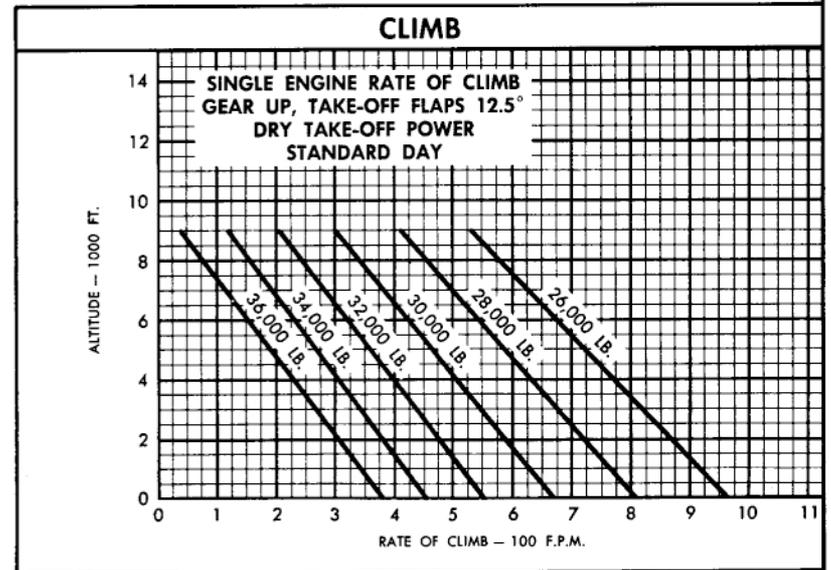
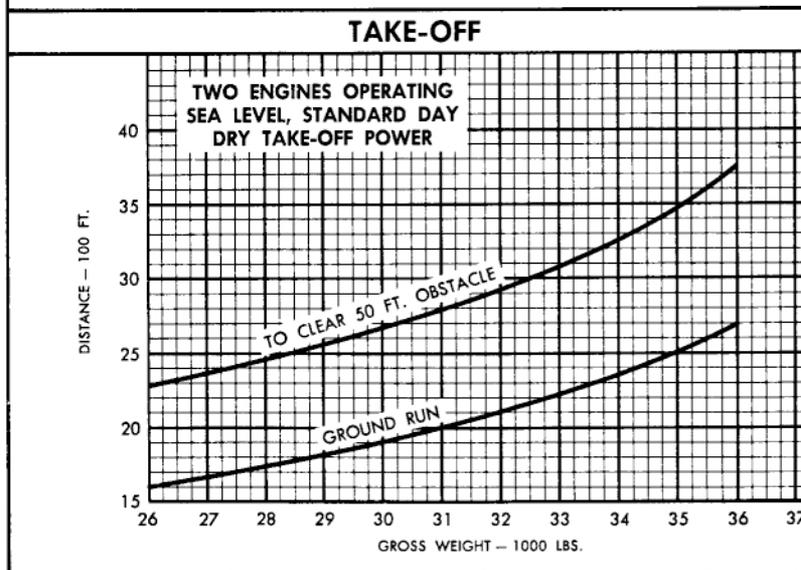
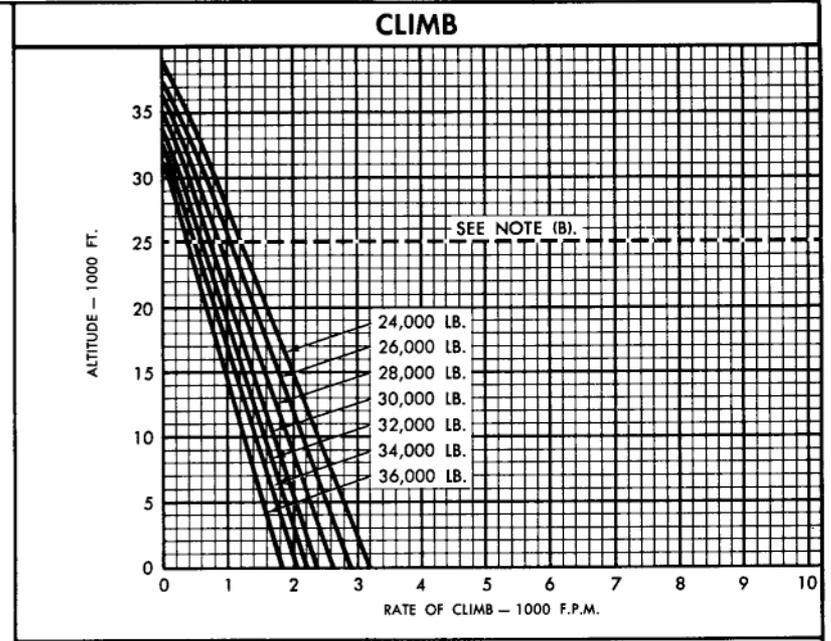
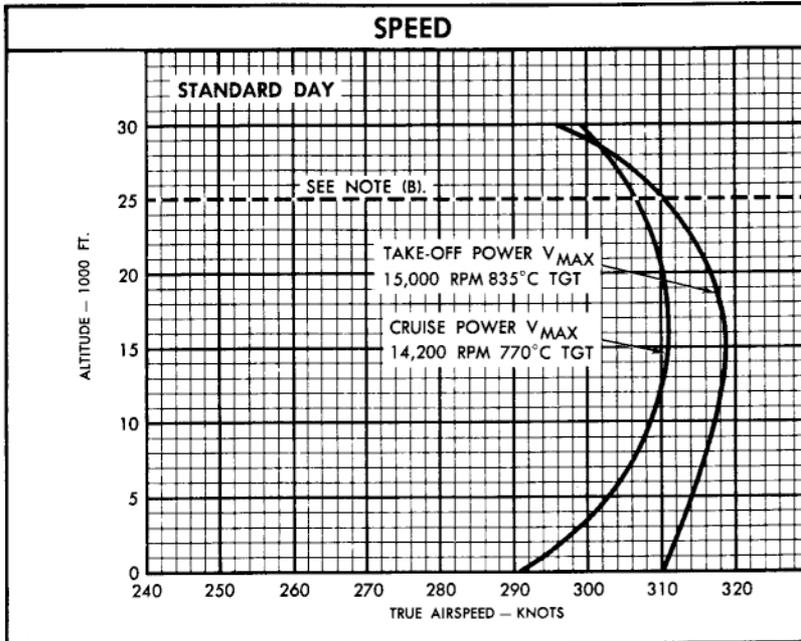
FLIGHT

PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION		① BASIC MISSION CRUISE AT 5000 FT	② FERRY MISSION		
TAKE-OFF WEIGHT	lb.	36,000	36,000		
Fuel aircraft/auxiliary power unit (A)	lb./lb.	8771/804	10,390/0		
Payload	lb.	11,425			
Wing loading	lb./sq. ft.	59.03			
Stall speed-power-off flaps 33°	kn.	88			
Take-off run at S.L. — standard day (C)	ft.	2700			
Take-off to clear 50 ft. — standard day (C)	ft.	3750			
Max. speed/altitude true airspeed	kn./ft.	312/5000			
Rate of climb at S.L.	fpm.	1880			
Time: S.L. to 5000 ft.	min.	2.9			
Time: S.L. at 25,000 ft.	min.	21.9			
Service ceiling (100 fpm) (B)	ft.	30,000			
Range	n. mi.	996	See Chart		
Average cruising speed	kn.	250			
Cruising altitude(s)	ft.	5000			
Endurance time/altitude	hrs./ft.	4/5000	7.51/25,000		
LOADING CONDITION		③ BASIC MISSION CRUISE AT 5000 FT	④ FERRY MISSION		
COMBAT WEIGHT	lb.				
Engine power					
Fuel	lb.				
Combat speed/combat altitude	kn./ft.				
Rate of climb/combat altitude	fpm/ft.				
Combat ceiling (500 fpm)	ft.				
Rate of climb at S.L.	fpm.				
Max. speed at S.L.	kn.				
Max. speed/altitude	kn./ft.				
LANDING WEIGHT	lb.	27,321	26,550		
Fuel	lb.	896	940		
Stall speed—power-off/approach power	kn./kn.	77.3/ 68	76/ 67		
Landing distance—ground roll/over 50 ft. obst.	ft./ft.	1505/2150	1460/ 2080		

NOTES

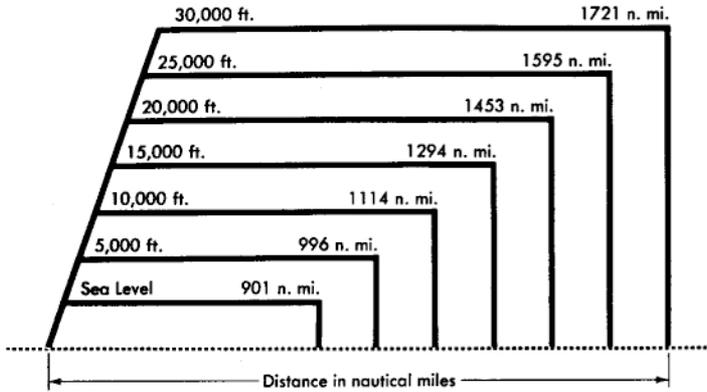
- (A) Maximum available fuel is 10,462 lb.
 (B) Aircraft limited to 25,000 ft. on cabin pressurization basis only & approved to 30,000 ft. on flight characteristics only.
 (C) Performance based on 2 engines operating at take-off power.
 (D) Calculations based on test data obtained for Official Commercial Certification (F.A.A.)



○ LOADING CONDITION COLUMN NUMBER

BASIC MISSION

①



NOTES

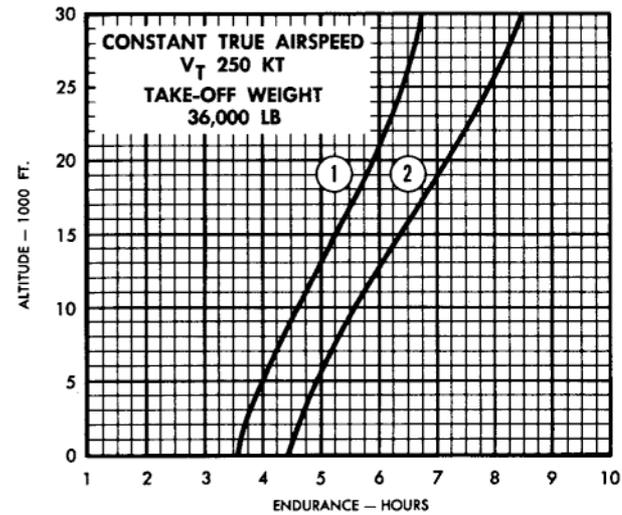
Fuel allowance for starting engines, take-off and accelerate-to-climb is 200 lbs.

Normal rated power climb on course to cruise altitude.

Cruise at airspeed of 250 kts. at fixed altitude utilizing available fuel.

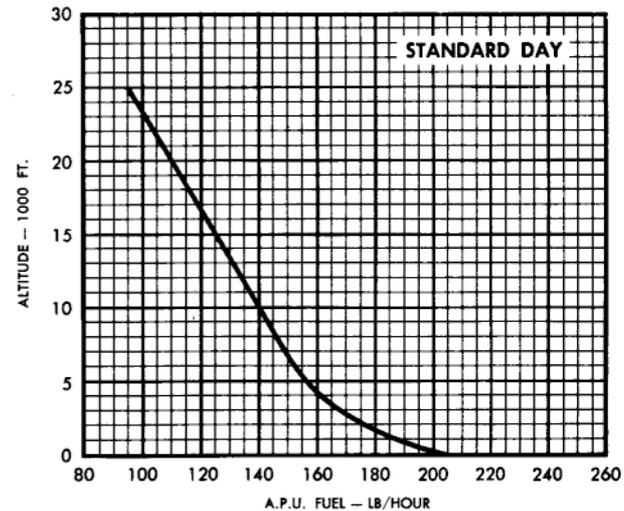
Fuel allowance for reserve and landing is the sum of 5% of the initial internal fuel and fuel required for twenty minutes at speed for maximum endurance at sea level.

ENDURANCE



Note: 8771 lb. fuel for loading condition ① less reserve, and 10,390 lb. fuel for loading condition ② less reserve.

AUXILIARY POWER UNIT



○ LOADING CONDITION COLUMN NUMBER