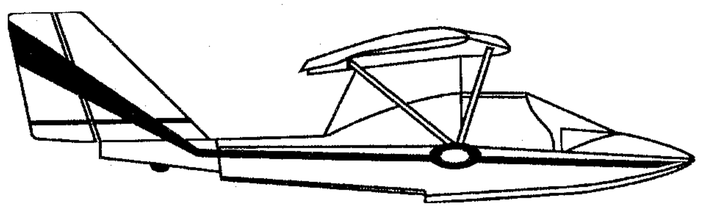

RECOMMENDED FLIGHT MANUAL

COVER PAGE

Nationality and Identification Number:_____

Manufacturer/Builder:_____

Address of Manufacturer/Builder:_____

_____

_____

Aircraft Type:_____

Kit Manufacturer: Progressive Aerodyne, Inc.
520 Clifton St.
Orlando, FL 32808
U.S.A.

Kit Manufacturer's Serial Number:_____

GENERAL AMENDMENT RECORD SHEET

AMENDMENT NUMBER	PARAGRAPH(S) AFFECTED	SIGNATURE	DATE OF INCORPORATION

NOTE: Amendment numbers may not always be consecutive.

INTRODUCTION

This Flight Manual contains material to be supplied by the owner/builder ("Test Aircraft"), as well as supplemental data supplied by Progressive Aerodyne, Inc. Sample data from the Progressive Aerodyne Demonstration SeaRey ("P/A Demo") is included for reference.

This Flight Manual applies only to the particular aircraft identified by the Identification Number and Serial Number on the cover page and contains limitations and essential data for this aircraft.

This aircraft is registered as an experimental-type aircraft on the basis of the equipment fitted at the time of issue of the Airworthiness Certificate. Any changes in equipment must be listed in the aircraft's logbook and appropriate amendments should be made in this Manual.

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MAXIMUM APPROVED WEIGHTS

	Test Aircraft	(P/A Demo)
Gross Weight:	_____	1370 lbs
Max Take-off Weight:	_____	1370 lbs
Max Landing Weight:	_____	1370 lbs
Max Baggage Weight:	_____	55 lbs
Basic Empty Weight:	_____	850 lbs

ABBREVIATIONS & DEFINITIONS

The following shall apply throughout this Manual:

PRESSURE ALTITUDE is the altitude read from an altimeter when the altimeter's barometric scale has been set to 29.92 H.g. (inches of mercury).

IAS (Indicated Airspeed) is the speed shown on the airspeed indicator.

TAKE-OFF SAFETY SPEED is a speed chosen to ensure that adequate control will exist under all conditions, including turbulence and sudden and complete engine failure, during the climb after take-off.

APPROACH SPEED is a speed chosen to ensure that adequate control exists under all conditions, including turbulence, to carry out a normal flare and touchdown.

Vc – NORMAL OPERATING LIMIT SPEED is the speed that shall normally not be exceeded. Operations above Vc shall be conducted with caution and only in smooth air.

Va – MANUEVERING SPEED is the maximum speed at which you may use abrupt control travel.

Vfe – MAXIMUM FLAP EXTENDED SPEED is the highest speed permissible with wing flaps in a prescribed extended position.

Vno – MAXIMUM STRUCTURAL CRUISING SPEED is the speed that should not be exceeded except in smooth air, then only with caution.

ENGINE	Test Aircraft	(P/A Demo)
Manufacturer:	_____	Bombardier Rotax
Model:	_____	Rotax 912UL
Type:	_____	See Engine Manual
RPM Full Throttle:	_____	5800 rpm
PROPELLER		
Manufacturer:	_____	R.P.M.
Type:	_____	2 Blade Wood
Diameter:	_____	70 inches
Pitch:	_____	Fixed 38 inches
FUEL		
Grade:	_____	93 Oct. Auto Gas
Capacity, Total:	_____	18 gal.
Capacity, Useable:	_____	17 gal.
OIL		
Grade:	_____	See Engine Manual
Capacity:	_____	3.5 qt.

SECTION 2 – LIMITATIONS

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Vs – STALL SPEED or the minimum steady flight speed at which the aircraft is controllable.

Vso – STALL SPEED or the minimum steady flight speed at which the aircraft is controllable in the landing configuration at the most forward center of gravity.

AIRCRAFT PERFORMANCE & FLIGHT PLANNING TERMINOLOGY

USABLE FUEL is the fuel available for flight planning.

UNUSABLE FUEL is the quantity of fuel that can not be safely used in flight.

WEIGHT & BALANCE TERMINOLOGY

For complete Weight & Balance terminology, see Section 6 of this manual.

REFERENCE DATUM is an imaginary vertical plane from which all horizontal distances are measured for balance purposes.

ARM is the horizontal distance from the reference datum to the center of gravity of an item.

MOMENT is the product of the weight of an item multiplied by its arm.

CENTER OF GRAVITY (C.G.) is the point at which an aircraft, or equipment, would balance is suspended. Its distance from the reference datum is found by dividing the total moment by the total weight of the aircraft.

CENTER OF GRAVITY LIMITS are the extreme C.G. locations within which the aircraft must be operated at a given weight.

BASIC EMPTY WEIGHT is the weight of the aircraft including unusable fuel, full operating fluids and full engine oil.

GROSS WEIGHT is the maximum weight to which the aircraft can be loaded for taxi, take-off, flight and landing.

AIRSPEED INDICATOR MARKINGS

	Test Aircraft	(P/A Demo)
White Arc:	_____	40-85 mph

Full Flap Operating Range. Lower limit is at Gross Weight. Vso in landing configuration. Upper limit is maximum speed permissible with flaps extended.

Green Arc:	_____	50-100 mph

Normal Operating Range. Lower limit is at Gross Weight. Vs at most forward C.G. with flaps retracted. Upper limit is maximum structural cruising speed.

Yellow Arc:	_____	100-115 mph

Operations must be conducted with caution and only in smooth air.

Red Line:	_____	115 mph

Maximum Speed. Not to be exceeded.

AIRSPEED LIMITATIONS

	Test Aircraft	(P/A Demo)
Va – Design Maneuvering Speed:	_____	85 mph
Vc – Design Cruising Speed:	_____	85 mph
Vfe – Maximum Flap Extended Speed: (Flaps 20°/30°)	_____	80 mph
Vle – Maximum Landing Gear Extended Speed:	_____	None
Vlo – Maximum Landing Gear Operating Speed:	_____	None
Vlof – Lift-off Speed: (Flaps 20°)	_____	52 mph
Vne – Never Exceed Speed:	_____	115 mph
Vno Maximum Structural Cruising Speed:	_____	100 mph
Vr – Rotation Speed: (Flaps 20°)	_____	50 mph
Vso – Stall Speed in Landing Configuration: (Flaps 30°)	_____	38 mph
Vx – Speed for Best Angle of Climb: (Flaps 20°)	_____	65 mph
Vy – Speed for Best Rate of Climb: (Flaps 10°)	_____	70 mph
Best Speed for Approach: (Flaps 10°/20°)	_____	70 mph
Speed to Raise/Lower Landing Gear in Water: (Engine at Idle)	_____	Dead Slow
Best Approach for Short Field Landing: (Flaps 10°/20°)	_____	62 mph

NOTE: Take-off and landing on water should be done using 20° of flaps under all conditions.

EXPERIMENTAL-TYPE CATEGORY

This aircraft is accepted in the Experimental Type Category Only.

Aerobatic maneuvers including spins are not permitted.

WEIGHT LIMITATIONS	**Test Aircraft**	**(P/A Demo)**
Maximum Take-off Weight:	_____	1370 lbs
Maximum Landing Weight:	_____	1370 lbs
Baggage Compartment Loading Max. Permissible Compartment Load:	_____	55 lbs
Maximum Occupant Loading Maximum Combined Occupant Load:	_____	380 lbs
Minimum Occupant Loading Min. Occupant Load to be not less than:	_____	116 lbs

CENTER OF GRAVITY LIMITATIONS
Center of Gravity Range

Forward Limit Aft of Datum:	_____	97.5 in.
Rear Limit Aft of Datum:	_____	105 in.

Datum, Test Aircraft: _____

_____

(P/A Demo Datum used above is 70 inches forward of the wing root leading edge.)

ENGINE LIMITATIONS

Power, Pressure and Temperatures:

	Test Aircraft Minimum	Maximum	**(P/A Demo)** Minimum	Maximum
Take-off Power Setting for 5 min.			---	5,800 rpm
Minimum Safe Idling			1,400 rpm	---
Oil Pressure Green Arc 22-58 psi			22 psi Red Line	58 psi Red Line
Oil Temp. Green Arc 130°-240°F			130° F Red Line	280° F Red Line
Cylinder Head Temperatures			---	300° F Red Line

FUEL LIMITATIONS

	Test Aircraft	**(P/A Demo)**
Take-off/Climb Configuration Unusable Fuel:	_____	.5 Gal.
Cruise Configuration Unusable Fuel:	_____	1.5 Gal.
Landing/Descent Configuration Unusable Fuel:	_____	3 Gal.
Fuel Grades:	_____	See Engine Manual

PLACARDS
The following information must be displayed:

EXPERIMENTAL AMATEUR BUILT AIRCRAFT placard (listing Model, Serial No., Date of Manufacture, Empty Weight, Gross Weight, Engine, Horsepower, and Name and Address of Builder) installed in full view either internally or externally. Recommended installation: on center pylon.

PASSENGER WARNING placard (stating "This aircraft is amateur built and does not comply with the federal safety regulations for standard aircraft"), installed in full view of passenger. Recommended installation: on instrument panel.

EXPERIMENTAL decal installed in full view of passenger. Recommended installation: on lower outboard cockpit tube or floor pan.

DOCUMENTATION
The following documentation must be carried on aircraft and accessible in the cockpit at all times: The Airworthiness Certificate and the Registration. Recommended: waterproof covering.

FLIGHT LOAD FACTOR LIMITS

	Test Aircraft	(P/A Demo)
Normal Category		
Flight Load Factors:	_____	+3.8g, -1.52g

Avoid coarse control movements above Va = 80 mph to ensure these limit load factors are not exceeded.

KINDS OF OPERATION LIMITS
This aircraft is approved for day VFR and may be equipped for night VFR operations.

OTHER LIMITATIONS

Flap Limitations
Flap setting for take-off and landing,
Land & Water, Normal Operations: _____ 20°

Crosswind Component
Maximum permissible crosswind
component for take-off and landing: _____ 17 mph

Smoking
Smoking is not permitted at any time.

AIRSPEEDS FOR EMERGENCY OPERATION

	Test Aircraft	(P/A Demo)
Engine Failure After Take-off:		
Wing Flaps, Up	_____	69 mph
Wing Flaps, Down 20°	_____	64 mph
Landing Without Engine		
Wing Flaps, Up	_____	69 mph
Wing Flaps, Down 20°	_____	64 mph

ENGINE FAILURES

During Take-off Run

1.	Throttle	_____	CLOSE
2.	Brakes	_____	APPLY
3.	Ignition Switch	_____	OFF

Immediately After Take-off

1.	Airspeed – Flaps UP	_____	69 mph
	Airspeed – Flaps DOWN	_____	64 mph
2.	Fuel	_____	OFF
3.	Ignition Switch	_____	OFF
4.	Wing Flaps	_____	AS REQ'D

Other Procedures:

a. If sufficient runway/strip/waterway is available, lower the nose sufficiently to maintain speed and make a normal landing straight ahead.

b. If over the airport boundary and/or in a position where obstacles are in the path of the aircraft and height permits, a slight change in heading may be made to line up on the most suitable landing area.

c. If time permits, carry out the engine failure checks listed on Page 3.2 – *Initial Checks*.

During Flight

1.	Airspeed	_____	69 mph
2.	Fuel (Troubleshoot)	_____	CHECK ON
3.	Electric Fuel Pump, if installed	_____	ON
4.	Ignition Switch – If Propeller is stopped	_____	START

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FORCED LANDINGS

Emergency Landing Without Engine Power

		Test Aircraft	(P/A Demo)
1.	Airspeed	_____	69 mph
2.	Fuel	_____	OFF
3.	Ignition Switch	_____	OFF
4.	Radio, if available	_____	Transmit Distress Call
5.	Transponder, if available	_____	Set code 7700
6.	Wing Flaps	_____	20°
7.	Sliding Canopies	_____	Unlatched, Partially Open
8.	Touchdown	_____	LAND-Brake hard
		_____	WATER – As normal, if short, back stick

Other procedures:

a. Convert any excess speed to height and at the same time perform the checks listed on Page 3.2, *Initial Checks*.
b. Place the aircraft at optimum gliding angle/attitude/speed.
c. Select the most suitable field/waterway, bearing in mind height above the ground, wind speed and direction and the availability of assistance after landing.
d. Plan descent in relation to the selected field/waterway – aiming to reach a base leg position – as for a normal glide approach.
e. Keeping within easy gliding distance of the field/waterway, carry out the *Troubleshoot* on Page 3.2, *Initial Checks*.
f. If the engine cannot be restarted, continue as planned, brief the passenger and send distress signal, if radio is available.
g. During descent, use flaps intelligently. Aim to have 10° of flap on base leg – use 20° when you are sure of making the field/waterway – turn off all fuel and electrical switches at a time early enough not to interfere with concentration over the final stages of the emergency landing. Refer to Page 3.2, *Safety Check*.

Note: If intending to use the aircraft radio for communication, make a thorough inspection to ensure that no fuel is spilled that would be likely to cause a fire if the electrical circuits are reactivated.

Restarting The Engine in Flight

General – It is unlikely that the engine will stop during normal maneuvers. However, in the event of the engine stopping in flight the following procedures will normally allow the engine to be restarted without problems.

Using Starter Motor

	Test Aircraft	(P/A Demo)
1. Throttle	_____	OPEN ½"
2. Fuel	_____	CHECK ON
3. Electric Fuel Pump, if Installed	_____	ON
4. Master Switch	_____	ON
5. Ignition	_____	BOTH L & R ON
5. Starter	_____	Turn Key & Start

CAUTION

Because of the high compression ratio of the Rotax four-cycle engines, the propeller will not windmill, even in a steep dive. If the engine cannot be restarted by using the starter motor, carry out the procedure as set out in "*Emergency Landing Without Power*" on Page 3.3.

Engine Failure Checks

Initial Check

Fuel ON – Check contents – Fuel filter bowl, if installed.

Troubleshoot

1. Fuel ON – Contents sufficient
2. Oil pressure & temperature normal
3. Switches – Both ON – Check L & R Ignition
4. Throttle checked for operation – Open

Safety Check

1. Brakes OFF
2. Switches, Ignition and Master OFF
3. Fuel OFF
4. Harness secure – All occupants
5. Canopies/Hatches set for landing
6. Undercarriage – set for landing

FIRE

Action in the Event of Fire
General – due to the high octane fuel carried by the aircraft, there is always the possibility of a violent explosion occurring if an aircraft catches fire. Personnel are therefore warned not to take undue risks in attempting to save an aircraft which is obviously well alight. A small fire extinguisher is only meant to be used on small fires. For large fires, trained personnel with appropriate equipment are required.

Engine Fire on the Ground
1.	Throttle	CLOSED
2.	Ignition	OFF
3.	Fuel	OFF
4.	Master Switch	OFF
5.	Evacuate the aircraft	
6.	Use fire extinguishers as applicable.	

Engine Fire In Flight
Engine Fire – Symptoms confirmed – Shut Down Immediately

1.	Throttle	CLOSED
2.	Ignition	OFF
3.	Fuel	OFF
4.	Landing	Plan EMERGENCY descent and landing
5.	Radio, if available	TRANSMIT MAYDAY CALL
6.	Emergency landing	Refer to Page 3.2, *Safety Check*

Electrical Fire In Flight
1.	Master Switch	OFF
2.	Troubleshoot	Identify and Isolate Faulty Circuit
3.	Canopy	CLOSED
4.	Fire Extinguisher	ACTIVATE (if available)

WARNING: After discharging extinguisher within closed cabin, open sliding canopies to ventilate cabin.

5. Carry out an emergency landing at the nearest appropriate airport/waterway or landing ground.
6. If the fire persists, sideslip away from the flames. Instruct the passenger as necessary and proceed to an early landing.

Electrical Power
Do not turn the generator (if installed) off in flight, except in an emergency.

Precautionary Landing With Engine Power
In the event of a landing having to be made by virtue of deteriorating weather conditions, or for any reason where it is impossible to continue a flight and where no engine malfunction has occurred, proceed as follows:

		Test Aircraft	(P/A Demo)
1.	Airspeed	_____	69 mph
2.	Wing Flaps	_____	20°

Other Procedures:
a. Aim to land the aircraft at the nearest airfield/waterway or authorized landing ground, suitable for the type.
b. If worsening flying conditions make this impossible or a proper landing ground is unavailable, select the largest and best open area for landing (as close as possible to habitation).
c. Where any area other than a recognized airport or waterway is to be used, make dummy runs over the selected approach and landing path. The dummy runs should be flown at various heights where possible. Never carry out dummy runs up and down sloping terrain, always fly across the slope.
d. Where appropriate, carry out a short field landing.

Ditching
1.	Landing Gear:	UP POSITION
2.	Radio, if available:	TRANSMIT DISTRESS CALL
3.	Transponder, if available:	SQUAWK 7700
4.	Baggage, etc.:	SECURE OR JETTISON
5.	Approach:	HIGH WINDS/HEAVY SEAS – Into Wind LIGHT WINDS/HEAVY SWELL – Parallel to swell
6.	Wing Flaps:	20°
7.	Power:	100 FT/MIN DESCENT AT 60 MPH
8.	Passenger	Brief – Headset, Seat Belts, Canopy, Orientation, Cockpit Exit, Life Jacket/Raft, Face Protection, Clothing

ROUGH ENGINE OPERATION OR LOSS OF POWER

Carburetor Icing
A gradual loss of RPM and eventual engine roughness may result from the formation of carburetor ice. If carburetor heat is available: To clear the ice, apply full throttle and pull the carburetor heat knob full out until the engine runs smoothly. Then remove the carburetor heat and adjust the throttle.

Spark Plug Fouling
A slight engine roughness in flight may be caused by one or more spark plugs becoming fouled. This may be verified by turning the ignition switch from BOTH to either L or R position. An obvious power loss in a single ignition operation is evidence of spark plug trouble.

Low Oil Pressure
If low oil pressure is accompanied by normal oil temperature, there is a possibility the oil pressure gauge or relief valve is malfunctioning. If the condition persists a landing at the nearest airport would be advisable to inspect the source of trouble.

If a total loss of oil pressure is accompanied by a rise in oil temperature, there is every reason to suspect an engine failure is imminent. Reduce engine power immediately and select a suitable forced landing field, using only the minimum amount of power application to carry out the landing.

SPINS

DELIBERATE SPINS ARE PROHIBITED
If an inadvertent spin is encountered, proceed as follows:

1.	Throttle	CLOSED
2.	Ailerons	NEUTRAL
3.	Spin Direction	IDENTIFY
4.	Rudder	FULL OPPOSITE to direction of spin
5.	Stick	Progressively forward until rotation ceases
6.	When rotation ceases	Level wings and recover from dive

ICING

Inadvertent Icing Encounter
1. Turn pitot heat switch ON if installed.
2. Alter course or change altitude to obtain an outside air temperature that is less conducive to icing.
3. Open throttle to increase engine speed and minimize ice buildup on propeller blades.
4. Watch for signs of carburetor icing and apply carburetor heat, if installed, as necessary. Loss in engine RPM could be caused by carburetor ice buildup.
5. If airframe ice formation is rapid or buildup is significant, plan a landing at the nearest airport.
6. Be prepared for a higher stall speed.
7. With ice buildup, make faster landing approach, 69-75 mph.

ELECTRICAL POWER SUPPLY SYSTEM MALFUNCTIONS

Ammeter Shows Excessive Rate of Charge

1.	Generator	OFF
2.	Generator C/Breaker	PULL OFF
3.	Avionics & High Load Equipment	OFF
4.	Flight	TERMINATE

Generator "Out" Light (if fitted) Illuminates During Flight – Ammeter Indicates Discharge

1.	Non-essential Equipment	OFF
2.	Generator C/Breaker	CHECK – IN
3.	Master Switch	OFF
4.	Master Switch	ON
5.	Low Voltage Light	CHECK OFF
6.	Avionics & Equipment	TURN ON AGAIN

If low voltage light illuminates again:

7.	Generator	OFF
8.	All Non-essential Equipment	OFF
9.	Flight	TERMINATE

SECTION 4 – NORMAL PROCEDURES

This Section contains essential information relating to performance and handling characteristics for conducting normal operation of the aircraft.

SPEEDS FOR NORMAL OPERATIONS

	Test Aircraft	(P/A Demo)
Va – Design Maneuvering Speed:	_____	85 mph
Vc – Design Cruising Speed	_____	85 mph
Vfe – Maximum Flap Extended Speed: (Flaps 20°/30°)	_____	80 mph
Vle – Maximum Landing Gear Extended Speed:	_____	None
Vlo – Maximum Landing Gear Operating Speed:	_____	None
Vlof – Lift-off Speed: (Flaps 20°)	_____	52 mph
Vne – Never Exceed Speed:	_____	115 mph
Vno Maximum Structural Cruising Speed:	_____	100 mph
Vr – Rotation Speed (Flaps 20°):	_____	50 mph
Vso – Stall Speed in Landing Configuration: (Flaps 30°)	_____	38 mph
Vx – Speed for Best Angle of Climb (Flaps 20°):	_____	65 mph
Vy – Speed for Best Rate of Climb (Flaps 10°):	_____	70 mph
Best Speed for Approach (Flaps 10°/20°):	_____	70 mph
Speed to Raise/Lower Landing Gear in Water: (Engine at Idle)	_____	Dead Slow
Best Approach for Short Field Landing: (Flaps 10°/20°)	_____	62 mph

NOTE: Take-off and landing on water should be done using 20° of flaps under normal conditions.

SECTION 4 – NORMAL PROCEDURES

TABLE OF CONTENTS PAGE

DAILY PREFLIGHT INSPECTION

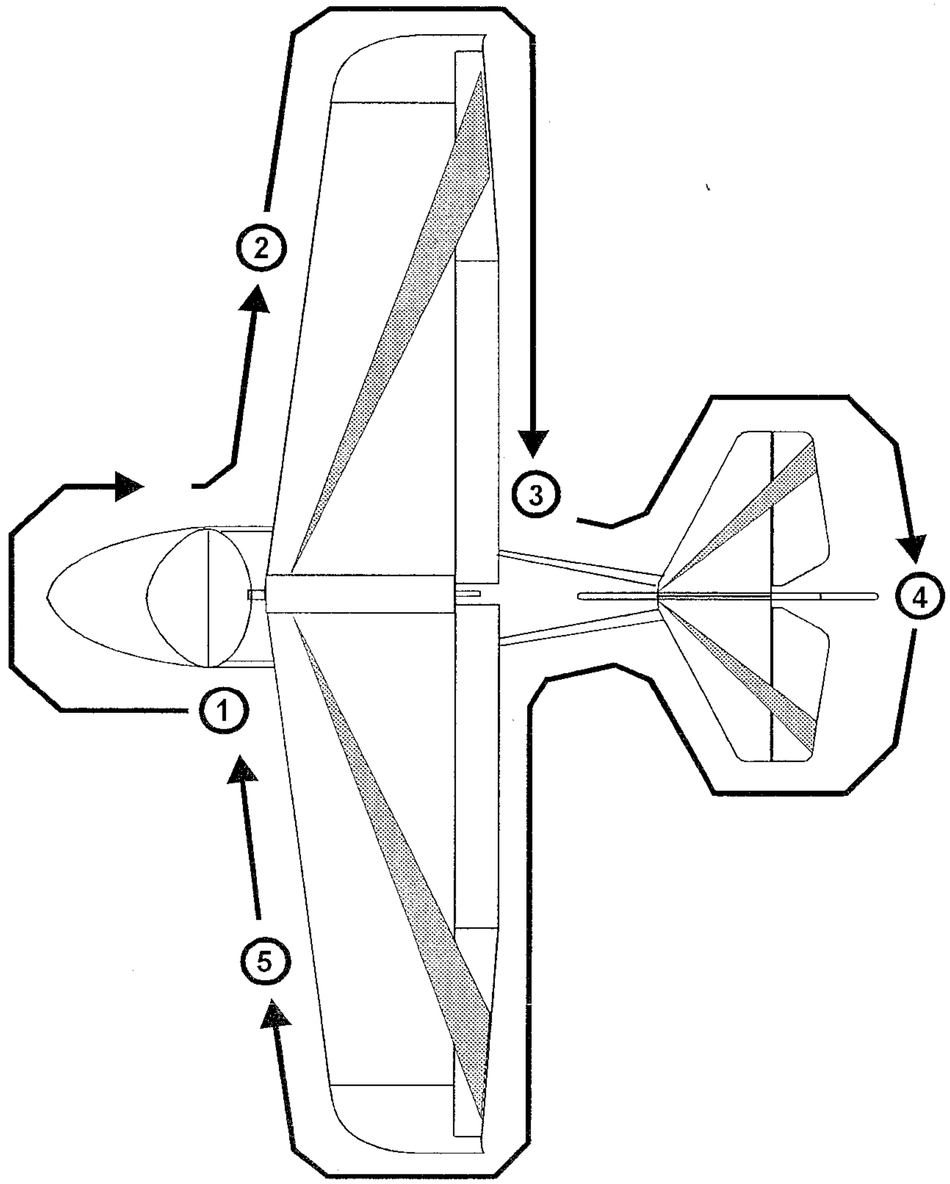
1. Cockpit & Forward Fuselage

		Test Aircraft	(P/A Demo)
1.	Flight Manual & Aircraft Documentation	_____	AVAILABLE
2.	Control Lock (if fitted)	_____	REMOVE
3.	Ignition Switch	_____	OFF
4.	Master Switch	_____	ON
5.	Fuel Quantity Visual Quantity & Gauge	_____	CHECK
6.	Electric Trim Operation	_____	CHECK
7.	Bilge Pump Operation & Hull Water - Drain Any Accumulated Water	_____	CHECK
8.	Master Switch	_____	OFF
9.	Carburetor Heat Actuation (if fitted)	_____	FREE
10.	Undercarriage Overcenter	_____	LOCKED
11.	Flight Control Full & Free Movement	_____	CHECK
12.	Aileron Push Rods, Bolt Ends & Cables	_____	SECURE
13.	Fuel Filter/Glass Bowl-Leaks, Contamination	_____	CHECK
14.	Check Fuel for Contamination if Fitted with Fuel Drain or Gascolator	_____	N/A
15.	Instruments Free of Damage & Secure	_____	CHECK
16.	Static Ports Clear of Blockage & Obstruction	_____	CHECK
17.	Windshield Cracks & Clean	_____	CHECK
18.	Seat Belts, Inertia Reels Secure & Functional	_____	CHECK
19.	Hull Sides & Underside Free of Damage	_____	CHECK

2. Starboard Wing

1.	Starboard Tire Inflation, Condition, Attachment	_____	CHECK
2.	Lower Strut/Fuselage Attachment Bolts	_____	SECURE
3.	Outer Strut & Jury Strut Attachment	_____	SECURE
4.	Wing Float, Braces & Secure Attachment	_____	CHECK
5.	Aileron Outer Push-Pull Rod Attachment	_____	SECURE
6.	Aileron Movement	_____	FREE
7.	Flap & Push-Pull Attachment	_____	SECURE
8.	Wing to Aft Fuselage Brace Cable	_____	SECURE
9.	Wing Tie-Down	_____	REMOVE

AIRCRAFT SKETCH – PREFLIGHT INSPECTION



COCKPIT SECURITY

Before starting the engine and conducting any operation, ensure that all articles and equipment are stowed safely and secured.

This is of particular importance in the event of any object exiting the cockpit, which could cause damage to the propeller because of the pusher configuration of this aircraft.

BEFORE STARTING ENGINE

		Test Aircraft	(P/A Demo)
1.	Preflight Inspection	_____	Complete
2.	Pull Through Prop – Minimum 2 Revolutions	_____	Complete
3.	Seat Belts & Shoulder Harnesses Adjusted	_____	CHECK
4.	Fuel Selector Valve	_____	ON
5.	All Radio Equipment & Avionics Power	_____	OFF
	CAUTION – Damage to avionics equipment can occur during engine start if avionics are left on.		
6.	Brakes or Chocks as Required	_____	SET
7.	Circuit Breakers In	_____	CHECK

STARTING ENGINE

1.	Master Switch	_____	ON
2	Prime (none if engine warm)	_____	AS REQD
3.	Electric Fuel Pump, if Fitted	_____	ON
4.	Throttle ½" approx.	_____	OPEN
5.	Propeller Area	_____	CLEAR
6.	Ignition Switch to Both Position, then	_____	START
7.	Oil Pressure	_____	CHECK
8.	Radio & Electrical Equipment as Required	_____	ON

DAILY PREFLIGHT INSPECTION, CONTINUED

3. Engine

		Test Aircraft (P/A Demo)	
1.	Oil Level (Run engine 3 min prior to checking)	_____	CHECK
2.	Propeller – Nicks, Cracks & Security	_____	CHECK
3.	Carburetor Attachment & Induction System	_____	SECURE
4.	All Pipes & Hoses – Leakage, Wear & Security	_____	CHECK
5.	Exhaust & Muffler Springs, Cracks, Attachment	_____	CHECK
6.	Coolant Level & Color	_____	CHECK
7.	Engine Mounts	_____	SECURE
8.	Electrical Cables – Wear & Security	_____	CHECK

4. Empennage

1.	Stabilizer Leading Edge Trim Attachment	_____	CHECK
2.	Elevator Push-Pull Tubes & Horn Attachment	_____	CHECK
3.	Elevators & Rudder – Free Movement, Security	_____	CHECK
4.	Upper & Lower Tail Cables	_____	SECURE
5.	Tail Wheel for Inflation & Wear	_____	CHECK
6.	Tail Tie-Down	_____	REMOVE

5. Port Wing

In addition to carrying out checks as for the Starboard Wing:

1.	Fuel Cap Securely Attached	_____	CHECK
2.	Pitot Tube Clear of Obstruction-Cover Removed	_____	CHECK

BEFORE TAKE-OFF

Test Aircraft (P/A Demo)

1.	Hatches as Required (closed but not locked during water operation)	_____	CHECK
2.	Seat Belts & Shoulder Harness On	_____	SECURE
3.	Trim – Full Up for Take-off	_____	SET
4.	Fuel – Double Check	_____	ON
5.	Electric Fuel Pump, if Fitted	_____	ON
6.	Flaps - 20°	_____	SET
7.	Engine Run Up 3500 RPM	_____	COMPLETE
	L & R Ignition - RPM drop-not less than 300	_____	CHECK
	Carb Heat, if fitted – note RPM drop	_____	CHECK
	Engine Instruments (Temps) & Ammeter	_____	CHECK
	Minimum Oil Temperature 130 ° F	_____	CHECK
8.	Throttle Reduced to Idle	_____	1700 RPM
9.	Radios Frequencies etc., if Fitted	_____	SET
10.	Transponder (if fitted)	_____	SET
11.	Strobe Lights (if fitted)	_____	ON
12.	Clearance	_____	AS REQD

BEFORE TAKE-OFF – (ADDITION FOR WATER OPERATION)

1.	Undercarriage UP & LOCKED	_____	CHECK
2.	Bilge Pump	_____	ON/OFF

TAKE-OFF

1.	Throttle Maximum 5800 RPM	_____	OPEN
2.	LAND ONLY: Elevator Control Forward to Lift Tail	_____	AS REQD
3.	Lift Off	_____	46-52 mph
4.	Accelerate to	_____	65 mph
5.	Climb Out and When Established Retract Undercarriage (Ground Operation)	_____	COMPLETE
6.	At Safe Height Reduce Flaps to 10°	_____	

ENROUTE CLIMB

1.	Airspeed	_____	63 mph
2	Throttle	_____	5500 RPM
3.	Flaps Set	_____	UP
4.	Fuel Pump	_____	OFF

CRUISE

1.	Throttle As Required	_____	4900 –5200 rpm
2.	Speed	_____	80-90 mph
3.	Trim	_____	AS REQD

DESCENT

Test Aircraft (P/A Demo)

1.	Fuel Contents	_____	CHECK
2.	Throttle Set	_____	AS REQD
3	Carb Heat to Prevent Icing	_____	AS REQD

BEFORE LANDING – DOWN WIND CHECK

1.	Canopies Closed but Not Locked	_____	CHECK
2.	Seat Belts & Shoulder Harnesses	_____	SECURE
3.	Carburetor Heat (if fitted)	_____	AS REQD
4.	Fuel Contents	_____	CHECK
5.	Fuel Pump	_____	ON
6.	Undercarriage for GROUND LANDING	_____	**DOWN**
	Over Center Lock	_____	CHECK
	Undercarriage for WATER LANDING	_____	**UP**
	Over Center Lock	_____	CHECK
7.	Flaps Set	_____	10°

LANDING – LAND OPERATIONS

1.	Airspeed Approach	_____	65-75 mph
2	Flaps Set	_____	20°
3.	**Undercarriage – DOUBLE CHECK**	_____	**DOWN**
4.	Touchdown	_____	46-52 mph

LANDING – WATER OPERATIONS

1.	Airspeed Approach	_____	65-75 mph
2	Flaps Set	_____	20°
3.	**Undercarriage – DOUBLE CHECK**	_____	**UP**
4.	Canopies Closed But Not Locked	_____	CHECK
5.	Touchdown – CARE in Glassy Water Conditions	_____	46-52 mph

AFTER LANDING

1.	Wing Flaps	_____	UP
2.	Fuel Pump	_____	OFF
3.	Strobe Lights	_____	AS REQD

SECTION 5 – PERFORMANCE

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AFTER LANDING – Water Operations – Docking & Beaching

In the case of Docking or Beaching the following points are recommended to assist in effective & safe operation.

		Test Aircraft (P/A Demo)
1.	Radio	_____ OFF
2.	Headsets	_____ REMOVE
3.	Seat Belts & Harnesses	_____ RELEASE
4.	Undercarriage DOWN/UP & LOCKED	_____ AS REQD
5.	Canopies	_____ OPEN
6.	Ropes	_____ READY
7.	Ignition – When Required	_____ OFF
8.	Master Switch	_____ OFF

SHUT DOWN

1.	Radio	_____ OFF
2.	All Electrical Equipment	_____ OFF
3.	Ignition Switch	_____ OFF
4.	Master Switch	_____ OFF

SECURING AIRCRAFT

1.	All Radio & Electrical Equipment	_____ OFF
2.	Ignition Switch	_____ OFF
3.	Master Switches	_____ OFF
4.	Controls Tethered with Seat Belt	_____ SECURE
5.	Canopies	_____ LOCKED
6.	Pitot Tube Cover	_____ FITTED
7.	Chocks	_____ LOCATED
8.	Tie-Downs	_____ SECURE
9.	Cockpit/Engine Covers Fitted	_____ AS REQD

TAKE-OFF PERFORMANCE CHART – TEST AIRCRAFT

Pressure Altitude – 0 Feet						
	59° F. OAT			86° F. OAT		
Wind – mph	0	10	20	0	10	20
Ground Roll – Feet						
Distance to 50 Feet						

Pressure Altitude – 2,500 Feet						
	59° F. OAT			86° F. OAT		
Wind – mph	0	10	20	0	10	20
Ground Roll – Feet						
Distance to 50 Feet						

Pressure Altitude – 5,000 Feet						
	59° F. OAT			86° F. OAT		
Wind – mph	0	10	20	0	10	20
Ground Roll – Feet						
Distance to 50 Feet						

Pressure Altitude – 7,500 Feet						
	59° F. OAT			86° F. OAT		
Wind – mph	0	10	20	0	10	20
Ground Roll – Feet						
Distance to 50 Feet						

PERFORMANCE CHARTS – INTRODUCTION

The charts in this Section contain data establishing runway and waterway lengths for take-off, landing and climb performance at a gross weight of 1370 lbs.

TAKE-OFF PERFORMANCE – GENERAL

The maximum gross weight for take-off shall not exceed the maximum take-off weight specified in Section 2 of this Manual.

The take-off distance (ground run in feet) with full throttle, flaps deflected 20° and a take-off safety speed of 50 mph can be determined from the following chart. The take-off distances are for a hard surface runway and/or waterway. Soft ground and/or wet grass will increase the land take-off distance and pilots should satisfy themselves that adequate runway is available to cover these conditions.

The take-off distance can be read from the table, at the appropriate values of pressure altitude and outside air temperature. For values of temperature and altitude not listed, interpolation between the values in the table is permitted.

Ground Take-off: Before commencing the take-off roll, check that the gear is in the fully "down" and locked position. To do this check that the over center lock indicator is in the full forward position. After take-off retract the gear only after the take-off safety speed is reached and the aircraft is established in the climb.

Water Take-off: The aircraft may be taxied slowly in the water with the gear in the down position, when transitioning from land or water. Check that the gear is retracted before commencing the take-off run.

CLIMB PERFORMANCE

The climb performance can be determined from the following chart. This chart assumes that maximum take-off power is used.

CLIMB PERFORMANCE CHART

	Test Aircraft	(P/A Demo)
Altitude Feet	ROC f.p.m.	ROC f.p.m.
O	_____	400
1,000	_____	373
2,000	_____	348
3,000	_____	323
4,000	_____	299
5,000	_____	276
6,000	_____	254
7,000	_____	233
8,000	_____	212
9,000	_____	192
10,000	_____	173
11,000	_____	154
12,000	_____	137
13,000	_____	120
14,000	_____	104

Note: Climb Data is for Standard Atmospheric Conditions.
i.e. 59° F and 29.92 H.g.

SAMPLE TAKE-OFF PERFORMANCE CHART – (P/A DEMO)

Pressure Altitude – 0 Feet						
	59° F. OAT			86° F. OAT		
Wind – mph	0	10	20	0	10	20
Ground Roll – Feet	522	312	155	546	326	163
Distance to 50 Feet	1078	742	459	1128	776	480

Pressure Altitude – 2,500 Feet						
	59° F. OAT			86° F. OAT		
Wind – mph	0	10	20	0	10	20
Ground Roll – Feet	683	408	203	714	427	213
Distance to 50 Feet	1411	970	600	1476	1015	628

Pressure Altitude – 5,000 Feet						
	59° F. OAT			86° F. OAT		
Wind – mph	0	10	20	0	10	20
Ground Roll – Feet	906	541	270	948	566	282
Distance to 50 Feet	1872	1287	796	1958	1347	833

Pressure Altitude – 7,500 Feet						
	59° F. OAT			86° F. OAT		
Wind – mph	0	10	20	0	10	20
Ground Roll – Feet	1237	739	368	1294	773	385
Distance to 50 Feet	2555	1757	1087	2673	1839	1137

LANDING PERFORMANCE – GENERAL

	Test Aircraft	(P/A Demo)
Minimum Approach Speed 20° Flap	_____	58 mph
Normal Approach Speed: 20° Flap	_____	63 – 69 mph

The landing distances (ground run in feet) that appear in the chart have been calculated by using the gross weight of 1370 lbs.

The landing distance can be read from the table, at the appropriate values of pressure altitude and outside air temperature. For values of temperature and altitude not listed, interpolation between the values in the table is permitted.

These distances are derived using the above minimum approach speed with 20° of flap and engine at idle. After touchdown maximum braking is used to bring the aircraft to a stop. These distances are for a hard level surface. Wet and/or slippery surfaces will increase these distances and pilots should satisfy themselves that adequate runway length is available to cover these conditions.

In the case of water landings, full reduction of power after touchdown and application of full up elevator below 25 mph will result in best speed reduction and reduced landing distance covered.

Ground Landing: Check that the gear is fully extended in the "down" and locked position. To do this, check that the over center lock indicator is in the full forward position. In the event that the gear cannot be extended, use a grass runway and land the aircraft on the hull. Minimal damage will result.

Water Landing: Check that the gear is fully retracted and locked in the "up" position.

Note: In the interest of safety and good airmanship, pilots should include in the pre-landing check schedule, the habit of double-checking the undercarriage for correct position, particularly when carrying out water landings. This practice is of particular importance.

CLIMB PERFORMANCE

The climb performance can be determined from the following chart. This chart assumes that maximum take-off power is used.

CLIMB PERFORMANCE CHART

	Test Aircraft	(P/A Demo)
Altitude Feet	ROC f.p.m.	ROC f.p.m.
O	_____	400
1,000	_____	373
2,000	_____	348
3,000	_____	323
4,000	_____	299
5,000	_____	276
6,000	_____	254
7,000	_____	233
8,000	_____	212
9,000	_____	192
10,000	_____	173
11,000	_____	154
12,000	_____	137
13,000	_____	120
14,000	_____	104

Note: Climb Data is for Standard Atmospheric Conditions.
i.e. 59° F and 29.92 H.g.

SAMPLE LANDING PERFORMANCE CHART – (P/A DEMO)

Pressure Altitude – 0 Feet						
	59° F. OAT			86° F. OAT		
Wind – mph	0	10	20	0	10	20
Ground Roll – Feet	655	438	265	685	459	277
Distance to 50 Feet	1492	1123	798	1522	1144	810

Pressure Altitude – 2,500 Feet						
	59° F. OAT			86° F. OAT		
Wind – mph	0	10	20	0	10	20
Ground Roll – Feet	718	480	290	751	503	304
Distance to 50 Feet	1555	1165	823	1588	1187	836

Pressure Altitude – 5,000 Feet						
	59° F. OAT			86° F. OAT		
Wind – mph	0	10	20	0	10	20
Ground Roll – Feet	787	527	319	824	551	333
Distance to 50 Feet	1624	1212	851	1661	1236	866

Pressure Altitude – 7,500 Feet						
	59° F. OAT			86° F. OAT		
Wind – mph	0	10	20	0	10	20
Ground Roll – Feet	856	579	350	905	606	366
Distance to 50 Feet	1702	1264	883	1742	1291	899

LANDING PERFORMANCE CHART – TEST AIRCRAFT

Pressure Altitude – 0 Feet						
	59° F. OAT			86° F. OAT		
Wind – mph	0	10	20	0	10	20
Ground Roll – Feet						
Distance to 50 Feet						

Pressure Altitude – 2,500 Feet						
	59° F. OAT			86° F. OAT		
Wind – mph	0	10	20	0	10	20
Ground Roll – Feet						
Distance to 50 Feet						

Pressure Altitude – 5,000 Feet						
	59° F. OAT			86° F. OAT		
Wind – mph	0	10	20	0	10	20
Ground Roll – Feet						
Distance to 50 Feet						

Pressure Altitude – 7,500 Feet						
	59° F. OAT			86° F. OAT		
Wind – mph	0	10	20	0	10	20
Ground Roll – Feet						
Distance to 50 Feet						

WEIGHT AND BALANCE INFORMATION

All aircraft are structurally and aerodynamically engineered for certain load conditions which result from specific weights and forces anticipated to occur in normal operations within its specified flight envelope. An aircraft's handling qualities and structural integrity may be seriously compromised if the weight and balance limits are exceeded in normal operations.

It is the pilot's responsibility to make sure the weight and balance limits are not exceeded as to weight, its location, distribution and security prior to any flight.

DEFINITIONS

EMPTY WEIGHT: The actual weight of the individual aircraft, including the structure, power plant, fixed equipment, any fixed ballast, unusable (in-flight) fuel, lubricants and coolant.

Original Empty Weight is determined by actually weighing the new aircraft before it is flown.

Any time a major alteration, modification, or repair is performed on the aircraft, its new Empty Weight must be determined by either weighing the aircraft again, or by accurate calculation of the weight changes and their effect on Empty Weight Center of Gravity (EWCG) location.

A major alteration or modification results from the addition, deletion, or redistribution of existing equipment and accessories, or from a repair which results in a significant increase of weight of the airframe or engine. For example, addition or removal of battery, radios, installation of a larger fuel tank or engine, painting the airframe, installation of heavier wheels and tires, etc.

GROSS WEIGHT: The maximum total weight for which an aircraft's structure and performance have been approved for normal operations by its manufacturer. It is the maximum weight (Empty Weight plus useful load) at which an aircraft can be safely operated. Maximum take-off weight must never exceed the published Gross Weight.

USEFUL LOAD: The total amount of weight available for pilot, passengers, baggage, cargo and in-flight usable fuel.

MAXIMUM/MINIMUM WEIGHTS: Due to certain balance, structural and aerodynamic considerations, sometimes a maximum or minimum weight may be specified for certain locations on the aircraft.

CENTER OF GRAVITY (C.G.): A point along an aircraft's longitudinal axis at which all the loads and forces are perfectly concentrated and balanced.

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PROCEDURE

All permanent equipment, options and accessories should be installed on the aircraft prior to weighing. All equipment options and accessories installed in the aircraft must be listed on the "installed Equipment List". That list becomes part of Weight and Balance Documents.

Be sure to remove any loose equipment, tools, etc. from the aircraft prior to weighing.

The fuel tank should be empty except for unusable fuel. If the fuel tank is not empty, then the exact amount of usable fuel in the tank must be determined. Usable fuel weight and its moment must be deducted from the empty weight calculations before E.W.C.G. can be accurately determined.

Oil and coolant tanks and reservoirs must be properly filled before weighing. These and any other liquids necessary for normal operations are considered part of an aircraft's empty weight.

If weighing id done outdoors, make sure there is no wind to affect the weight measurements. For best results, weigh indoors.

The scales must be calibrated correctly. All scales must be set on level ground.

Any equipment placed on the scales when weighing the aircraft, such as chocks or blocks, should be weighed separately and the weight deducted from the scale reading. These weights should be noted for reference, if necessary.

The aircraft must be weighed in a level flight attitude, both longitudinally (front to back) and laterally, as shown in the Weight and Balance Data Sheet.

Place a scale under each wheel of the aircraft. Record the weight of each scale on the "Empty Weight and Balance Form", as shown in the Weight and Balance Data Sheet.

Measure the exact horizontal distance from the datum line to center of spindles of wheel axles, as shown in Figure 2. Record these measurements on the Empty Weight and Balance Form.

If only one scale is used for weighing, be sure to level the wheels not being weighed before taking the scale readings. Remember, the aircraft must be in proper level flight attitude to ensure accuracy.

CENTER OF GRAVITY RANGE: The horizontal distance, along an aircraft's longitudinal axis, within which an aircraft has been found to be fully maneuverable at all specified design speeds, weights and loading configurations. All aircraft are designed to operate within a specific center of gravity range.

MAXIMUM FORWARD/MAXIMUM AFT C.G. LOCATIONS: Every aircraft has specified a forward most and rear most center of gravity location, along its longitudinal axis. These center of gravity location limits are given from a convenient reference (datum) on the aircraft.

DATUM: A convenient reference point along the longitudinal axis of an aircraft from which all horizontal measurements are taken.

WEIGHT: Actual individual weight of each item such as airframe, persons, fuel, baggage, cargo, etc., in pounds or kilograms.

ARM: Horizontal distance, along the longitudinal axis, measured between centroids of an object in the aircraft and the datum line.

MOMENT: Obtained by multiplying the weight of an item by its arm.

INSTALLED EQUIPMENT: All optional accessories and equipment permanently installed on an airframe or engine at the time of weighing. These items must be listed in the "List of Installed Equipment". Additions and deletions must be noted in the list each time they are made and new weight and balance calculations performed to determine the magnitude and effect of weight change. Ballast, if permanently installed, must also be listed.

BALLAST: A specific amount of weight attached in a specific location, which can be temporarily or permanently installed in an aircraft, to help bring its center of gravity within the required limits. If temporary ballast must be used for certain operations, the exact amount and its location must be placarded on the instrument panel within clear view of the pilot. The use of ballast increases empty weight and reduces useful load.

LOADING CHART: Used to calculate the actual center of gravity location of a ready to fly aircraft. Care must be taken not to exceed the maximum/minimum weight and balance limits stipulated for the aircraft. These limits are determined by structural, stability and control considerations of a particular design.

Sometimes it is necessary to adjust or reduce fuel, cargo, or passenger weights to remain at or below maximum allowable gross weight. A temporary or permanent ballast is sometimes necessary to bring the C.G. within specified limits. However, the maximum allowable gross weight should not be exceeded under any circumstances.