

Sept. 15, 02

TESSA IN FRONT

CHALLENGER ON WHEELS

Aviation Turbulence

CHALLENGER II WEIGHT AND BALANCE ON PUDDLE JUMPER FLOATS

		From Datum	Moment
Left wheel weight	289 lbs	93.5 inches	27021.5 inch/lbs
Right wheel weight	297 lbs	93.5 inches	27769.5 inch/lbs
Nose wheel weight	10 lbs	22 inches	220 inch/lbs
Tail wheel weight	0 lbs	216 inches	0 inch/lbs
Total dry weight	596 lbs	Total Moment	55011 inch/lbs

Dry weight CG 92.3003 Inches from Datum

CHALLENGER FLYING WEIGHT AND BALANCE

		From Datum	Moment
Front seat Pilot	175 lbs	50 inches	8750 inch/lbs
Rear seat Pilot	0 lbs	77 inches	0 inch/lbs
Fuel	60 lbs	103 inches	6180 inch/lbs
Bagage over the tank	lbs	inches	0 inch/lbs
Bagage under motor	lbs	inches	0 inch/lbs
Front backrest bag	lbs	inches	0 inch/lbs
Belly Bag	lbs	inches	0 inch/lbs
Nose Bagage	lbs	inches	0 inch/lbs
Bagage other	lbs	inches	0 inch/lbs
Bagage other	lbs	inches	0 inch/lbs
Bagage other	lbs	inches	0 inch/lbs

Fuel Weight Calculation

Enter qty in appropriate line
 10 us gallons
 imp gallons
 liters
 60 lbs

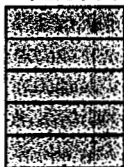
Fuel tank from Datum

Turbulence tank, enter 99
 Quadcity tank, enter 103
ENTER----> 103

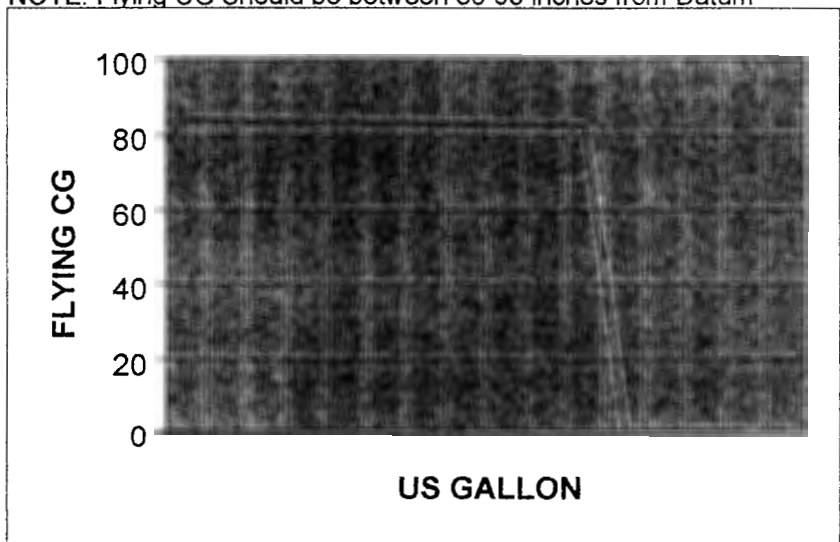
Total flying weight **831** lbs Total Flying Moment 69941 inch/lbs

Flying weight CG 84.1649 Inches from Datum

US GAL	CG
10.00	84.1649
9.00	84.0279
8.00	83.8889
7.00	83.7478
6.00	83.6047
5.00	83.4594
4.00	83.3119
3.00	83.1622
2.00	83.0102
1.00	82.8559
	82.6991



NOTE: Flying CG Should be between 80-90 inches from Datum



Aviation Turbulence
CHALLENGER II WEIGHT AND BALANCE

INSTRUCTIONS

Using 1 or 3 scales, the plane should be level all the time lengthwise and crosswise. The best place to check level is on the longeron just at rear seat backrest location.

- 1- Weight your plane and report readings to the appropriate cell.
- 2- Add pilot and passenger weight.
- 3- Using the blue framed cells, write in the fuel quantity in the line of your choice (liter/usgal/impgal) but one only.
- 4- Now, in the bottom right corner, write the datum distance for the tank.
- 5- Write bagages weight and their datum distance.

Note: Knowing main gear distance from datum (90") measure your bagage location from this point and subtract, if its forward, or add, if its rear gear legs crosstube location.

Now you can read total weight and CG location. If any of these results go off limits, they will be printed in red.

Chart will show the CG displacement while fuel is burn.

If you find any mistakes or have any problems,
please e-mail me at: turbulence@netaxis.ca

Have nice and safe flights.
Jean-Claude Lachance

(DO-TEST)

- 1. test E.L.T. + hook up antenna (write in log book)
- 2. adjust frequencies for up band - + trim adjustment

9/28/02 ✓ 3. weight + Balance -

4. check wheel retract for floats -

9/28/02 ✓ 5. Run engine - test since changing carbs.

6. detail interior -

7. Wax + clean -

8. check list for take off -

9/30/02 ✓ 9. Charge Battery in Radio -

C.K. 9/30/02 ✓ 10. Check Spark plugs + caps - Safety wire

9/28/02 ✓ 11. Charge Battery in plane

* 12. Laminar Reg. + air work, cut pipe. Put in plane

13. Check water in floats -

weight + Balance on floats

9/28/02

14. Check oil level - float bowls -

Drained fuel tank only 1 gal

15. BLOW UP TIRES

Left wheel 28.0 #

Right wheel 29.5 #

front wheel 0 #

16. Put Papers Back in plane -

Craftsmans — Corner

WEIGHT & BALANCE "QUICK CHECK"

Edited by Chuck Larsen, Designee Director

TOO MANY ACCIDENTS and incidents are the result of aircraft being operated outside their normal weight and/or center of gravity range. A great deal has been written about the importance and determination of aircraft weight and balance. Definitions and detailed information are available from many authoritative sources.

The purpose of this article is to provide a format for weighing and determining the center of balance for a completed aircraft with an established maximum weight, datum and center of balance range. It is to be used only as a "quick check" against the "official", required weight and balance information. It is hoped the simplicity of this procedure will bring its readers to consider and check this important aspect of the status of their aircraft.

Preparations for weighing should include a thorough cleaning and servicing of the aircraft. Oil and hydraulic systems should be full and the fuel level drained to at least the minimum usable fuel. All accessories should also be in place. At least one, and preferably three, accurate scales with the appropriate capacity and blocks or other materials to put the plane in level, flying position for weighing are also required.

Weighing and data recording. The aircraft should be placed on the scales using blocking (Tare Weight) to place the craft in a level flying attitude. A single scale may be used by moving it to the three weighing positions taking care to block the two other support points in the same relative positions. Record the weights and arms (distance from datum) of each in the appropriate blocks of CHART A.

NOTE: Weights located ahead of the datum have minus arms/moments. Those behind the datum have plus arms/moments. These moments are combined to determine the total moments.

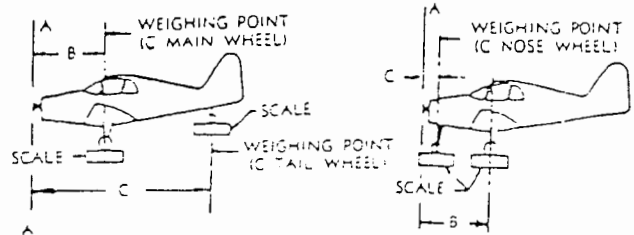


CHART A

AIRCRAFT N: _____

CHALLENGER II

Maximum Allowable Gross Weight 8000 lb.
 Center of Balance Range from 80" to 90" inches from the datum.
 (Gross Weight & C.B. range are established by the designer or manufacturer.)

- A = Datum — A fixed line from which we measure.
 B = Arm in inches — Distance from datum to main wheel axle center.
 C = Arm in inches — Distance from datum to auxiliary wheel axle center.

	WEIGHT (lbs.)	TARE (Blocking)	NET WEIGHT	ARM (inches)	MOMENT (inch/lbs.)
Left Wheel	-	=		x 90"	=
Right Wheel	-	=		x 90"	=
Auxiliary Wheel	-	=		x 216"	=

Total empty or operating weight _____ Total or empty operating moments _____

Empty operating
 Center of Gravity = $\frac{\text{Total Moment (inch/lbs.)}}{\text{Empty Weight (lbs.)}}$ = _____ = _____ (in. from datum)

The flying weight and center of balance can then easily be determined by completing CHART B.

CHART B

Total Aircraft — WEIGHT _____ ARM _____ MOMENT _____
 (Empty or operating figures from CHART A.)

Front Seat(s)	x	50"	=
Rear Seat(s)	x	77"	=
Fuel (6 pounds per U.S. Gal.)	x	103"	=
Baggage	x		=

Aircraft Gross Weight _____ Total Aircraft Moments _____
 Center of Gravity = $\frac{\text{Total Moment (in./lbs.)}}{\text{Empty Weight (lbs.)}}$ = _____ = _____ (in. from datum)
 A: Take-Off

The center of balance at landing can be determined by completing another CHART B using the weight and moments of the fuel at the time of the final landing and re-computing the center of gravity for landing.

The gross weight and center of balance should then be compared with the designers or manufacturers data to determine if the aircraft is within safe operational ranges.

WORK SHEET

DAILY INSPECTION

PRE FLIGHT CHECK

1	Check ignition switched off.	→	1	Check ignition switched off.
2	Drain water from fuel tank sump and/or water trap (if fitted).	→	2	Check fuel content.
3	Check carburettor rubber socket or flange for cracks and secure attachment.		3	
4	Check carburettor float chamber for water and dirt.		4	
5	Check security and condition of intake silencer and air filter.		5	
6	Check security of radiator mounting. Check radiators for damage and leaks.	→	6	Visual check for coolant leaks.
7	Check coolant overflow bottle level and security of cap.		7	
8	Check coolant hoses for security, leaks and chafing.		8	
9	Check engine for coolant leaks (Cylinder head, cylinder base and water pump).		9	
10	Check oil content for rotary valve gear lubrication and security of oil cap.	→	10	Check oil tank content (oil injection engines).
11	Check oil hoses for security, leaks and chafing. (Rotary valve gear lubrication system and oil injection system.)	→	11	
12	Check ignition coils / electronic boxes for secure mounting. Check ignition leads and all electrical wiring for secure connections and chafing.	→	12	Check spark plug caps for security.
13	Check electric starter for secure mounting, check cover for cracks.		13	
14	Check engine to airframe mounting for security and cracks.		14	
15	Check fuel pump mounting for security. Check all fuel hose connections filters, primer bulbs, & taps for security, leakage, chafing & kinks.		15	
16	Check fuel pump impulse hose for secure connections, chafing & kinks.	→	16	Visual check of engine and gearbox for oil leaks.
17	Check wire locking of gearbox drain & level plugs.	→	17	Visual check of engine and gearbox for loose or missing nuts, bolts and screws.
18	Check rubber coupling for damage & ageing (C type gearbox only).	→	18	Check security of gearbox to engine mounting.
19	Rotate engine by hand & listen for unusual noises. (Double check ignition OFF first.)		19	
20	Check propeller shaft bearing for play by rocking propeller.	→	20	Check propeller for splits and chips. If any damage, repair and/or rebalance before use.
21			21	Check security of propeller mounting.
22	Check throttle choke & oil pump lever cables for damage (end fittings, outer casing, and kinks).	→	22	Check throttle, oil injection pump and choke actuation for free and full movement.
23			23	Check cooling fan turns when engine is rotated (air cooled engines).
24			24	Check exhaust for cracks, security of mounting, springs and hooks for breakage and wear, check wire locking of springs.
25			25	Start engine after ensuring area clear of bystanders.
26			26	Single ignition engines - check operation of ignition switch (Flick ignition off and on again at idling).
27			27	Dual ignition engines - check operation of both ignition circuits.
28			28	Check operation of all engine instruments during warm up.
29			29	If possible, visually check engine and exhaust for excessive vibration during warm up (indicates propeller out of balance).
30			30	Check engine revs full power rpm during take off roll.

Quad City Ultralight Aircraft Corp.

Challenger 50 Hour Inspection Report

Aircraft: Registration: Date:

Airframe Serial #: Engine Type: Engine Serial #:

T.T. Airframe: T.T. Engine: TSOH Engine:

1.1) Check journey log and snag book for crew entered defects and correct.....

ENGINE:

- 2.1) Overhaul single ignition Rotax engines at 150 hours, dual ignition engines at 300 hours.....
- 2.2) Check timing, fan belt tension and adjust as necessary
- 2.3) Gap and replace spark plugs (ensure tightness of threaded plug tips and receptacles in caps)..
- 2.4) Check intake boot(s) for cracks (change at 100 hrs.) and carburetor for tightness.....
- 2.5) Check carburetor main jet needles for wear at clips (change both every 100 hours)
- 2.6) Change fuel filter.....
- 2.7) Check fuel lines for leaks, wear and tightness.....
- 2.8) Check that carburetor(s) reach idle and full throttle positions.....
- 2.9) Check spark plug leads for condition and tightness.....
- 2.10) Clean and recoil air filter(s) and secure with lockwire.....
- 2.11) Check muffler and mount for cracks, springs and retainers for wear and lockwire
- 2.12) Lubricate exhaust ball joint(s) with Loctite anti-seize compound
- 2.12) Check all wiring for chafing, security, etc.....
- 2.13) Check engine mounts for integrity.....
- 2.14) Check starter cord for condition (recoil starters).....
- 2.15) (ADS electric starters only - not required on GPL starter), Check and replace or regrease starter clutch bearing, reinstall starter turning casing bolt counter clockwise only

DRIVE SYSTEM:

- 3.1) If cog belt has 100 hours or 1 year in service, replace.....
- 3.2) Check belt(s) for wear and tension and lockwire tensioning bolt
- 3.3) Ensure tightness of top pulley nut (100 ft/lbs), lockwire or cotter pin.....
- 3.4) Check top pulley for excessive bearing play, replace bearings as necessary.....
- 3.5) Check marks on lower pulley bolt for signs of turning
- 3.6) Check propellor for condition, cleanliness, balance and mounting bolts for lockwire
- 3.7) Check belt(s) for alignment on top and bottom pulleys

COCKPIT:

- 4.1) Check operation of all controls and adjust tightness of pivot points.....
- 4.2) Check rudder , aileron and throttle cables for condition, lubricate with WD 40.....
- 4.3) Check pushrods, stick(s) and cable safeties and lubricate pivot points.....
- 4.4) Check nosewheel shaft bearing, lubricate with grease and retighten.....
- 4.5) Check instruments, lines and wiring for integrity.....
- 4.6) Check seat and seat belt condition and attach points.....
- 4.7) Check windshield, (doors) for cleanliness, cracks.....
- 4.8) Drain and clean fuel tank.....
- 4.9) Check fuel tank and lines for chafing, kinking and integrity.....
- 4.10) Check fuel tank cap vent hole is unobstructed.....
- 4.11) Check strut attach bracket bolts for tightness, nuts inside fuselage, heads outside.....
- 4.12) Check fabric for condition and cleanliness.....

WINGS:

- 5.1) Check wing and aileron leading and trailing edges for dents, straightness.....
- 5.2) Check fabric (and dope) for condition and appearance.....
- 5.3) Check polytips and attach rivets for condition (Dacron wings).....
- 5.4) Check wing spar attach bolts for play, safeties.....
- 5.5) Check struts, jury struts for dents, straightness.....
- 5.6) Check strut attach brackets for cracks, play
- 5.7) Check aileron hinges for condition, ends pinched, lubricate with WD 40.....
- 5.8) Check aileron pushrods, bellcranks for condition, safeties.....
- 5.9) Check clearance sufficient between pushrods, gap cover (Stits wings).....

EMPENNAGE GROUP:

- 6.1) Check stabilizers, fin and dorsal attach points for play, safeties.....
- 6.2) Check strut attach brackets for cracks, play and safeties.....
- 6.3) Check stabilizers, elevators, rudder, fin, and dorsal frames for dents, integrity.....
- 6.4) Check stabilizer fin weldments for integrity.....
- 6.5) Check elevator, rudder hinges for integrity, play, safeties.....
- 6.6) Check rudder cables for safeties, wear, cleanliness, lubricate (change cables every 500 hrs)...
- 6.7) Check elevator pushrods, bellcranks, horns for play, safeties.....
- 6.8) Check fabric, dope for condition and cleanliness.....
- 6.9) Check tailwheel for integrity.....

LANDING GEAR:

- 7.1) Check main gear legs for straightness, cracks.....
- 7.2) Check main gear weldments for integrity.....
- 7.3) Check main gear axle weldments for straightness, integrity.....
- 7.4) Check nose gear shaft, fork for straightness, integrity.....
- 7.5) Check all wheel bearings, wheels, tires for condition and integrity.....
- 7.6) Check tire pressures, free rotation of wheels, clearance from wheelpants.....
- 7.7) Check brakes, cables for wear, proper adjustment.....
- 7.8) Check wheelpants, attach brackets for cracks, and cleanliness.....

GENERAL:

- 8.1) Service bulletins, advisories complied with.....
- 8.2) Registration, stainless steel data plate on board.....
- 8.3) Journey log entries current, this inspection signed out.....

IMPORTANT NOTES: Always use AN type aircraft hardware only on your Challenger. Do not reuse nyloc nuts or cotter pins. Ensure that at least one thread protrudes through nyloc nuts for secure attachment. Do not overtighten fasteners. Use only castle nuts and cotter pins on rotating parts. Where locking type fasteners can not be used, use Loctite on the threads of fasteners. Use only stainless steel rivets for all structural applications.

REMARKS:

I hereby certify that all requirements in this engineering and inspection report have been met, and I have determined the aircraft to be airworthy.

DATE: _____

SIGNATURE _____

LICENSE # _____

Section 19) Daily and pre flight check for all ROTAX UL-engines

	DAILY INSPECTION		PRE FLIGHT CHECK
1	Check ignition switched off.	→	Check ignition switched off.
2	Drain water from fuel tank sump and/or water trap (if fitted).	→	Check fuel content.
3	Check carburettor rubber socket or flange for cracks and secure attachment.		
4	Check carburettor float chamber for water and dirt		
5	Check security and condition of intake silencer and air filter.		
6	Check security of radiator mounting. Check radiators for damage and leaks.	→	Visual check for coolant leaks.
7	Check coolant overflow bottle level and security of cap.		
8	Check coolant hoses for security, leaks and chafing.		
9	Check engine for coolant leaks (Cylinder head, cylinder base and water pump).		
10	Check oil content for rotary valve gear lubrication and security of oil cap.		
11	Check oil hoses for security, leaks and chafing. (Rotary valve gear lubrication system and oil injection system.)	→	Check oil tank content (oil injection engines).
12	Check ignition coils / electronic boxes for secure mounting. Check ignition leads and all electrical wiring for secure connections and chafing.	→	Check spark plug caps for security.
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19	Rotate engine by hand & listen for unusual noises. (Double check ignition OFF first.)		
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21			Check security of propeller mounting.
22	Check throttle choke & oil pump lever cables for damage (end fittings, outer casing, and kinks).	→	Check throttle, oil injection pump and choke actuation for free and full movement.
23			Check cooling fan turns when engine is rotated (air cooled engines).
24			Check exhaust for cracks, security of mounting, springs and hooks for breakage and wear, check wire locking of springs.
25			Start engine after ensuring area clear of bystanders.
26			Single ignition engines - check operation of ignition switch (Flick ignition off and on again at idling).
27			Dual ignition engines - check operation of both ignition circuits.
28			Check operation of all engine instruments during warm up.
29			If possible, visually check engine and exhaust for excessive vibration during warm up (indicates propeller out of balance).
30			Check engine reaches full power rpm during take off roll.

Craftsmans—Corner

WEIGHT & BALANCE "QUICK CHECK"

Edited by Chuck Larsen, Designee Director

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Weighing and data recording. The aircraft should be placed on the scale(s) using blocking (Tare Weight) to place the craft in a level flying attitude. A single scale may be used by moving it to the three weighing positions taking care to block the two other support points in the same relative positions. Record the weights and arms (distance from datum) of each in the appropriate blocks of CHART A.

NOTE: Weights located ahead of the datum have minus arms/moments. Those behind the datum have plus arms/moments. These moments are combined to determine the total moments.

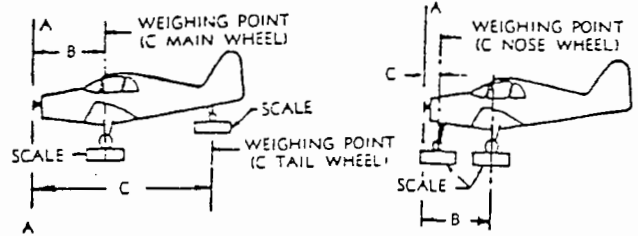


CHART A

AIRCRAFT N- _____
CHALLENGER II

Maximum Allowable Gross Weight 8001 lb.
Center of Balance Range from 80" to 90" inches from the datum.
(Gross Weight & C.B. range are established by the designer or manufacturer.)

A = Datum — A fixed line from which we measure.
B = Arm in inches — Distance from datum to main wheel axle center.
C = Arm in inches — Distance from datum to auxiliary wheel axle center.

	WEIGHT (lbs.)	TARE (Blocking)	NET WEIGHT	ARM (inches)	MOMENT (inch/lbs.)
Left Wheel	-	=		x 90"	=
Right Wheel	-	=		x 90"	=
Auxiliary Wheel	-	=		x 216"	=

Total empty or operating weight _____ Total or empty operating moments _____

Empty, operating
Center of Gravity = $\frac{\text{Total Moment (inch/lbs.)}}{\text{Empty Weight (lbs.)}}$ = _____ = _____ (in. from datum)

The flying weight and center of balance can then easily be determined by completing CHART B.

CHART B

Total Aircraft — WEIGHT _____ ARM _____ MOMENT _____
(Empty or operating figures from CHART A.)

Front Seat(s)	x	50"	=
Rear Seat(s)	x	77"	=
Fuel (6 pounds per U.S. Gal.)	x	103"	=
Baggage	x		=

Aircraft Gross Weight _____ Total Aircraft Moments _____
Center of Gravity = $\frac{\text{Total Moment (in./lbs.)}}{\text{Empty Weight (lbs.)}}$ = _____ = _____ (in. from datum)

A: Take-Off Empty Weight (lbs.)

The center of balance at landing can be determined by completing another CHART B using the weight and moments of the fuel at the time of the final landing and re-computing the center of gravity for landing.

The gross weight and center of balance should then be compared with the designers or manufacturers data to determine if the aircraft is within safe operational ranges.

WORK SHEET



U.S. Department
of Transportation
**Federal Aviation
Administration**

Flight Standards District Office
1 Airport Way, Suite 110
Rochester, NY 14624
~~(716)~~ 436-3880, Fax: (716) 436-2322
585 -

Date: August 17, 2001

Builder: Nolan R. Bradbury
Model: Challenger II
Serial Number: CH2-0197-1558
Registration Number: N2250C

Owner: Nola R. Bradbury
Address: Box 218 Cty Rt 37
Brewerton, NY 13029

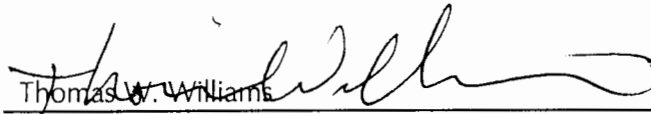
EXPERIMENTAL OPERATION LIMITATIONS - PHASE II

1. No person may operate this aircraft for other than the purpose of meeting the requirements of § 91.319(a), (c) & (d), and for recreation and education. In addition, this aircraft shall be operated in accordance with applicable air traffic and general operating rules of part 91 and all additional limitations herein prescribed under the provisions of part 91.319(e). These operating limitations are a part of the FAA Form 8130-7, special airworthiness certificate, and are to be carried in the aircraft at all times for availability to the pilot in command of the aircraft.
2. Except for takeoffs and landing, this aircraft may not operate over densely populated areas or in congested airways.
3. Unless appropriately equipped for night and/or instruments flight in accordance with FAR 91.205 this aircraft must be operated Day VFR only.
4. Aircraft instruments and equipment installed and used under § 91.205 must be inspected and maintained in accordance with the requirements of part 91. Any maintenance or inspection of this equipment must be recorded in the aircraft maintenance records.
5. No person may operate this aircraft for carrying persons or property for compensation or hire.
6. The pilot in command of this aircraft shall advise each person carried of the experimental nature of this aircraft, and explain that it does not meet the certification requirements of a standard certificated aircraft.
7. This aircraft is prohibited from operating in congested airways or over densely populated areas unless directed by Air Traffic Control, or unless sufficient altitude is maintained to effect a safe emergency landing in the event of a power unit failure, without hazard to persons or property on the surface.
8. This aircraft shall contain the placards, markings, etc. as required by § 91.9.
9. The following placard shall be displayed in the cockpit in full view of all occupants "Passenger Warning" - this aircraft is amateur-built and does not comply with Federal Safety Regulations for standard aircraft.
10. The aircraft is prohibited from aerobatic flight; i.e., an intentional maneuver involving an abrupt change in the aircraft's attitude, an abnormal attitude, or abnormal acceleration not necessary for normal flight.

11. The pilot in command of this aircraft shall hold an appropriate category/class rating and type rating. If required, the pilot in command must also hold a type rating per 14 CFR, part 61, or a "Letter of Authorization" issued by an FAA Flight Standards Operations Inspector.
12. The pilot in command of this aircraft shall hold a category/class rating, or an authorized instructor's logbook endorsement. The pilot in command must meet the requirements of § 61.31(e), (f), (g), (h), (i), and (j) as appropriate.
13. After incorporating a major change as described in § 21.93, the aircraft owner is required to re-establish compliance with § 91.319(b). All operations will be conducted day VFR in a sparsely populated area. The aircraft must remain in flight test for a minimum of 5 hours. Persons non-essential to the flight shall not be carried. The aircraft owner shall make a detailed log book entry describing the change prior to the test flight. Following satisfactory completion of the required number of flight hours in the flight test area, the pilot shall certify in the records that the aircraft has been shown to comply with § 91.319(b). Compliance with § 91.319(b) shall be recorded in the aircraft records with the following or a similarly worded statement: *"I certify that the prescribed flight test ;hours have been competed and the aircraft is controllable throughout its normal range of speeds and throughout all maneuvers to be executed, has no hazardous operating characteristics or design features, and is safe for operation. The following aircraft operating data has been demonstrated during the flight testing: Speeds Vso ____, Vx ____, and Vy ____, and the weight ____ and CG location ____ at which they were obtained."*
14. This aircraft shall **not** be used for glider towing, banner towing, or intentional parachute jumping.
15. This aircraft does not meet the requirement of the applicable, comprehensive, and detailed airworthiness code as provided by Annex 8 of the International Civil Aviation Organization (ICAO). The owner/operator of this aircraft must obtain written permission from another country's Civil Aviation Authority (CAA) prior to operating this aircraft in or over that country. That written permission must be carried aboard the aircraft together with the U.S. airworthiness certificate and, upon request, be made available to an FAA Inspector or the CAA in the country of operation.
16. No person shall operate this aircraft unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with the scope and detail of appendix D to part 43, or other FAA approved programs, and found to be in a condition for safe operation. This inspection will be recorded in the aircraft maintenance records.
17. Condition inspections shall be recorded in the aircraft maintenance records showing the following or a similarly worded statement: *"I certify that this aircraft has been inspected on (insert date) in accordance with the scope and detail of appendix D to part 43 and found to be in a condition for safe operation."* The entry will include the aircraft total time in service, and the name, signature, certificate number, and type of certificate held by the person performing the inspection.
18. An experimental aircraft builder certificated as a Repairmen for this aircraft under § 65.104, or an appropriately rated FAA certificated mechanic, may perform the condition inspection required by these operating limitations.
19. Application must be made to the geographically responsible FSDO or MIDO for any revision to these operating limitations.

20. The pilot in command of this aircraft shall notify air traffic control of the experimental nature of this aircraft when operating into or out of airports with an operational control tower. When filing IFR the experimental nature of this aircraft shall be listed in the remarks section of the flight plan.

INSPECTOR:


Thomas W. Williams

TITLE: Principal Airworthiness Inspector

OFFICE: AEA-FSDO-23, Rochester, NY



U.S. Department
of Transportation
Federal Aviation
Administration

Mike Monroney
Aeronautical Center

P.O. Box 25504
Oklahoma City, Oklahoma 73125

Identification Number Assignment and Registration of
Amateur-Built Aircraft: _____

U.S. identification number N _____ has been ASSIGNED RESERVED.

A U.S. identification number of our choice may be assigned, free of charge, to your amateur-built aircraft when you submit a complete description of the aircraft. The form on the back of this letter may be used, as it meets our requirements for both description and registration purposes. Authority to use a number assigned free of charge expires 90 days after the date it is issued unless the aircraft is registered within that period.

A U.S. identification number of your choice may be reserved, if available, for one year by sending a written request and a \$10 fee for each number to be reserved. Please list 5 numbers, in order of preference, in case your first choice is not available. If the number is not assigned to an aircraft prior to the end of the year, the reservation will expire, but may be renewed from year to year upon request and payment of a \$10 renewal fee.

NOTICE: This number may not be assigned or painted on an aircraft until approval is received from this office.

Your written request to assign the reserved number to a particular aircraft must include a complete description of the aircraft. The form on the back of this letter may be used.

The items checked below are required to complete registration of your amateur-built aircraft:

- Completed and signed Aircraft Registration Application; form is enclosed.
- Registration fee of \$5.
- Affidavit of ownership, signed before a notary public, and showing a description of the aircraft. The form on the back of this letter meets our requirements and may be used if you wish.

Records/Conveyances Examiner

WEIGHT AND BALANCE

ITEM	WEIGHT	ARM	MOMENT
Right Main			
Left Main			
Tail or Nose			
TOTAL			

Aircraft empty weight: _____

Total right main, left main and tail
or nose wheel.

Aircraft center of gravity (in inches): _____

Aircraft useful load in pounds: _____

NOTE: INCLUDE LOAD LIMITS FOR CREW, OIL, FUEL, BAGGAGE, ETC.



U.S. Department
of Transportation

**Federal Aviation
Administration**

Flight Standards District Office
One Airport Way, Suite 110
Rochester, New York 14624
(716) 436-3880, Fax: (716) 436-2322

March 2, 2001

Mr. Nolan Bradbury
PO Box 218
Brewerton, NY 13029

Dear Mr. Bradbury:

We have received your faxed letter dated March 1, 2001. We would like to speak to you, however you did not include a telephone number for us to call you back.

At your convenience, please submit a telephone number so we will be able to call you and schedule an inspection.

I will be out of town from March 5 through March 16.

If you have any questions concerning this matter, please feel free to contact this office. The office hours are from 8:00 a.m. to 4:30 p.m., Monday through Friday and the telephone number is (716) 436-3880, Extension 21.

Sincerely,

A handwritten signature in black ink, appearing to read "Pedro L. Muñoz", written over a horizontal line.

Pedro L. Muñoz
Aviation Safety Inspector, A/W

Enclosures



U.S. Department
of Transportation
**Federal Aviation
Administration**

**ELIGIBILITY STATEMENT
AMATEUR-BUILT AIRCRAFT**

Instructions: Print or type all information except signature. Submit original to an authorized FAA representative. Applicant completes Section I thru III. Notary Public Completes Section IV.

I. REGISTERED OWNER INFORMATION

Name(s) _____

Address(es) _____
No. & Street City State Zip

Telephone No.(s) () () _____
Residence Business

II. AIRCRAFT INFORMATION

Model _____ Engine(s) Make _____

Assigned Serial No. _____ Engine(s) Serial No.(s) _____

Registration No. _____ Prop./Rotor(s) Make _____

Aircraft Fabricated: Plan Kit Prop./Rotor(s) Serial No.(s) _____

III. MAJOR PORTION ELIGIBILITY STATEMENT OF APPLICANT

I certify the aircraft identified in Section II above was fabricated and assembled by _____
Name of Person(s) (Please Print)
 for my (their) education or recreation. I (we) have records to support this statement and will make them available to the FAA upon request.

— NOTICE —

Whoever in any matter within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals or covers up by any trick, scheme, or device a material fact, or who makes any false, fictitious or fraudulent statements or representations, or makes or uses any false writing or document knowing the same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than \$10,000 or imprisoned not more than 5 years, or both (U.S. Code, Title 18, Sec. 1001.)

APPLICANT'S DECLARATION

I hereby certify that all statements and answers provided by me in this statement form are complete and true to the best of my knowledge, and I agree that they are to be considered part of the basis for issuance of any FAA certificate to me. I have also read and understand the Privacy Act statement that accompanies this form.

Signature of Applicant (*In Ink*)

Date

IV. NOTARIZATION STATEMENT



APPLICATION FOR AIRWORTHINESS CERTIFICATE

INSTRUCTIONS — Print or type. Do not write in shaded areas; these are for FAA use only. Submit original only to an authorized FAA Representative. If additional space is required, use an attachment. For special flight permits complete Sections II and VI or VII as applicable.

I. AIRCRAFT DESCRIPTION	1. REGISTRATION MARK	2. AIRCRAFT BUILDER'S NAME (Make)	3. AIRCRAFT MODEL DESIGNATION	4. YR MFR	FAA CODING
	5. AIRCRAFT SERIAL NO	6. ENGINE BUILDER'S NAME (Make)	7. ENGINE MODEL DESIGNATION		
	8. NUMBER OF ENGINES	9. PROPELLER BUILDER'S NAME (Make)	10. PROPELLER MODEL DESIGNATION	11. AIRCRAFT IS (Check if applicable) IMPORT	

II. CERTIFICATION REQUESTED	APPLICATION IS HEREBY MADE FOR: (Check applicable items)										
	A	1	STANDARD AIRWORTHINESS CERTIFICATE (Indicate category)	NORMAL	UTILITY	ACROBATIC	TRANSPORT	GLIDER	BALLOON		
	B		SPECIAL AIRWORTHINESS CERTIFICATE (Check appropriate items)								
		2	LIMITED								
		5	PROVISIONAL (Indicate class)	1	CLASS I						
				2	CLASS II						
		3	RESTRICTED (Indicate operation(s) to be conducted)	1	AGRICULTURE AND PEST CONTROL	2	AERIAL SURVEYING	3	AERIAL ADVERTISING		
				4	FOREST (Wildlife conservation)	5	PATROLLING	6	WEATHER CONTROL		
				7	CARRIAGE OF CARGO	0	OTHER (Specify)				
		4	EXPERIMENTAL (Indicate operation(s) to be conducted)	1	RESEARCH AND DEVELOPMENT	2	AMATEUR BUILT	3	EXHIBITION		
			4	RACING	5	CREW TRAINING					
			0	TO SHOW COMPLIANCE WITH FAR							
			1	FERRY FLIGHT FOR REPAIRS, ALTERATIONS, MAINTENANCE OR STORAGE							
			2	EVACUATE FROM AREA OF IMPENDING DANGER							
			3	OPERATION IN EXCESS OF MAXIMUM CERTIFICATED TAKE-OFF WEIGHT							
			4	DELIVERING OR EXPORT	5	PRODUCTION FLIGHT TESTING					
			6	CUSTOMER DEMONSTRATION FLIGHTS							
C	6	MULTIPLE AIRWORTHINESS CERTIFICATE (Check ABOVE "Restricted Operation" and "Standard" or "Limited," as applicable.)									

III. OWNER'S CERTIFICATION	A. REGISTERED OWNER (As shown on certificate of aircraft registration)		IF DEALER, CHECK HERE →		
	NAME		ADDRESS		
	B. AIRCRAFT CERTIFICATION BASIS (Check applicable blocks and complete items as indicated)				
	AIRCRAFT SPECIFICATION OR TYPE CERTIFICATE DATA SHEET (Give No and Revision No.)		AIRWORTHINESS DIRECTIVES (Check if all applicable AD's complied with and give latest AD No.)		
	AIRCRAFT LISTING (Give page number(s))		SUPPLEMENTAL TYPE CERTIFICATE (List number of each STC incorporated)		
	C. AIRCRAFT OPERATION AND MAINTENANCE RECORDS				
CHECK IF RECORDS IN COMPLIANCE WITH FAR 91.173		TOTAL AIRFRAME HOURS	3 EXPERIMENTAL ONLY (Enter hours flown since last certificate issued or renewed)		
D. CERTIFICATION — I hereby certify that I am the registered owner (or his agent) of the aircraft described above, that the aircraft is registered with the Federal Aviation Administration in accordance with Section 501 of the Federal Aviation Act of 1958, and applicable Federal Aviation Regulations, and that the aircraft has been inspected and is airworthy and eligible for the airworthiness certificate requested					
DATE OF APPLICATION		NAME AND TITLE (Print or type)		SIGNATURE	

IV. INSPECTION AGENCY VERIFICATION	A. THE AIRCRAFT DESCRIBED ABOVE HAS BEEN INSPECTED AND FOUND AIRWORTHY BY: (Complete this section only if FAR 21.183(d) applies)					
	2	FAR PART 121 OR 127 CERTIFICATE HOLDER (Give Certificate No.)	3	CERTIFICATED MECHANIC (Give Certificate No.)	6	CERTIFICATED REPAIR STATION (Give Certificate No.)
	5	AIRCRAFT MANUFACTURER (Give name of firm)				
	DATE	TITLE	SIGNATURE			

V. FAA REPRESENTATIVE CERTIFICATION	(Check ALL applicable blocks in items A and B)		THE CERTIFICATE REQUESTED				
	A. I find that the aircraft described in Section I or VII meets requirements for		4	AMENDMENT OR MODIFICATION OF CURRENT AIRWORTHINESS CERTIFICATE			
	B. Inspection for a special flight permit under Section VII was conducted by:		FAA INSPECTOR		FAA DESIGNEE		
			CERTIFICATE HOLDER UNDER:		FAR 65	FAR 121, 127 or 135	FAR 145
DATE	DISTRICT OFFICE	DESIGNEE'S SIGNATURE AND NO			FAA INSPECTOR'S SIGNATURE		
		4				1	



AIRMAN CERTIFICATE AND/OR RATING APPLICATION

- MECHANIC AIRFRAME POWERPLANT

REPAIRMAN

- PARACHUTE RIGGER SENIOR MASTER SEAT CHEST BACK LAP

(Specify Rating)

APPLICATION FOR: ORIGINAL ISSUANCE ADDED RATING

I. APPLICANT INFORMATION

Form section I containing fields A through N for personal information, including name, address, social security, DOB, height, weight, hair, eyes, sex, nationality, place of birth, and conviction history.

II. CERTIFICATE OR RATING APPLIED FOR ON BASIS OF -

Form section II containing fields A through F for certificate or rating basis, including civil/military experience, school graduation, student progress, and special authorization.

III. RECORD OF EXPERIENCE

Form section III containing fields A through C for record of experience, including military competence, employer/location/work performed table, and parachute rigger applicant information.

IV. APPLICANT'S CERTIFICATION

Form section IV containing certification statement and signature/Date fields.

Form section V containing eligibility statement, date, inspector's signature, and FAA district office.

FOR FAA USE ONLY

Table for FAA use only with columns for Emp, reg, D.O, seal, con, iss, Act, lev, TR, s.h, Srch, #rte, RATING (1-4), and LIMITATIONS.

March 1, 2001

Don Miller, Supervisor
Airworthiness
1 Airport Way, Suite 110
Rochester, N.Y. 14624

Dear Mr. Miller:

I have built an experimental aircraft and would like to set up a time to get it inspected for first flight.

The aircraft has been registered and has the No. N2250C which is on the aircraft.

My logbook has been kept while building the airplane, which I had an EAA member, with experience building this aircraft, checking as I completed each phase. I also have pictures of myself doing all the work and would like a Repairmen's Certificate for the plane.

The plane was purchased in kit form, a Challenger II, 2 place with a Rotax engine. Please let me know what to do next, so that I can get my certificate. Thankyou.

Sincerely,

Nolan Bradbury
P.O. Box 218
Brewerton, N.Y. 13029



3225 Laverdure, Val-David, Qc, Canada, JOT 2N0 • Tel: 819 322-2087 • Fax: 819 322-3440

PRICE LIST

February 2002

DESCRIPTION	MODEL	\$\$\$USD
BAGS		
___ BELLY CARRYING BAG	BB	177.00\$
___ DELUXE FRONT BACK REST BAG SET	DFBR	195.00\$
COVERS		
___ 2 BLADE PROP COVER	2BPC	27.00\$
___ 3 BLADES PROP COVER	3BPC	38.00\$
___ CANOPY COVER	CCOV	150.00\$
___ CHALLENGER COVER ALL	CCAL	743.00\$
___ FUSELAGE COVER	FCOV	225.00\$
___ MOTOR COVER	MCOV	83.00\$
___ TAIL COVER	TCOV	124.00\$
___ WING COVER	WCOV	338.00\$
FUEL SYSTEM		
___ 15 US GAL FUEL TANK COMPOSITE	15CO	533.00\$
___ BACK FORTY FUEL TANK	BFFT	574.00\$
___ DIP STICK	DSTK	15.00\$
___ FUEL GAUGE ONLY	FGON	75.00\$
___ FUEL NECK FAIRING KIT	FNFA	57.00\$
___ FUEL SENDER ONLY	FSON	37.00\$
___ QUICK DRAIN OPT	QDO	57.00\$
___ UNIVERSAL FUEL GAUGE/SENDER	UNFG	111.00\$
INTERIOR		
___ 2"FRONT SEAT ADD-ON	2FSA	42.00\$
___ DELUXE CHALLENGER SIDE PANELS	DSP	289.00\$
___ DORVAL CHALLENGER CUSH. SET	DORS	356.00\$
___ DORVAL CHALLENGER CUSH. BACK	DORB	186.00\$
___ DORVAL CHALLENGER CUSH. FRONT	DORF	171.00\$
___ FIBERGLASS SEAT INSERT	FGSI	75.00\$
___ MIRABEL CHALLENGER CUSH. SET	MIRS	516.00\$
___ MIRABEL CHALLENGER CUSH. FRONT	MIRF	246.00\$
___ MIRABEL CHALLENGER CUSH. BACK	MIRB	270.00\$
MISC		
___ CARBURETOR FILTER COVER	CFCO	27.00\$
___ CHALLENGER FLOAT LIFT	PLIF	495.00\$
___ CHALLENGER I HEATER BOX KIT	HBK1	180.00\$
___ CHALLENGER II HEATER BOX KIT	HBK2	180.00\$
___ DOORS LATCH SYSTEM	DLSY	34.00\$
SKIS		
___ 12 "FIBERGLASS SKIS SET	SKIS	709.00\$
___ HEAVY DUTY FIBERGLASS SKIS (2)	HDSK	675.00\$
___ HEAVY DUTY FIBERGLASS SKIS SET	HDSS	844.00\$

PRICE LIST

February 2002

DESCRIPTION	MODEL	\$USD
BAGS		
___ BELLY CARRYING BAG	BB	177.00\$
___ DELUXE FRONT BACK REST BAG SET	DFBR	195.00\$
COVERS		
___ 2 BLADE PROP COVER	2BPC	27.00\$
___ 3 BLADES PROP COVER	3BPC	38.00\$
___ CANOPY COVER	CCOV	150.00\$
___ CHALLENGER COVER ALL	CCAL	743.00\$
___ FUSELAGE COVER	FCOV	225.00\$
___ MOTOR COVER	MCOV	83.00\$
___ TAIL COVER	TCOV	124.00\$
___ WING COVER	WCOV	338.00\$
FUEL SYSTEM		
___ 15 US GAL FUEL TANK COMPOSITE	15CO	533.00\$
___ BACK FORTY FUEL TANK	BFFT	574.00\$
___ DIP STICK	DSTK	15.00\$
___ FUEL GAUGE ONLY	FGON	75.00\$
___ FUEL NECK FAIRING KIT	FNFA	57.00\$
___ FUEL SENDER ONLY	FSON	37.00\$
___ QUICK DRAIN OPT	QDO	57.00\$
___ UNIVERSAL FUEL GAUGE/SENDER	UNFG	111.00\$
INTERIOR		
___ 2"FRONT SEAT ADD-ON	2FSA	42.00\$
___ DELUXE CHALLENGER SIDE PANELS	DSP	289.00\$
___ DORVAL CHALLENGER CUSH. SET	DORS	356.00\$
___ DORVAL CHALLENGER CUSH. BACK	DORB	186.00\$
___ DORVAL CHALLENGER CUSH. FRONT	DORF	171.00\$
___ FIBERGLASS SEAT INSERT	FGSI	75.00\$
___ MIRABEL CHALLENGER CUSH. SET	MIRS	516.00\$
___ MIRABEL CHALLENGER CUSH. FRONT	MIRF	246.00\$
___ MIRABEL CHALLENGER CUSH. BACK	MIRB	270.00\$
___ WIDE BODY REAR PANEL	WBRP	68.00\$
MISC		
___ CARBURETOR FILTER COVER	CFCO	27.00\$
___ CHALLENGER FLOAT LIFT	PLIF	495.00\$
___ CHALLENGER I HEATER BOX KIT	HBK1	180.00\$
___ CHALLENGER II HEATER BOX KIT	HBK2	180.00\$
___ DOORS LATCH SYSTEM	DLSY	34.00\$
SKIS		
___ 12 "FIBERGLASS SKIS SET	SKIS	709.00\$
___ HEAVY DUTY FIBERGLASS SKIS (2)	HDSK	675.00\$
___ HEAVY DUTY FIBERGLASS SKIS SET	HDSS	844.00\$

TESSA IN FRONT

CHALLENGER ON WHEELS

9/28/02
NOZAN'S
CHALLENGER

Aviation Turbulence

CHALLENGER II WEIGHT AND BALANCE ON PUDDLE JUMPER FLOATS

		From Datum	Moment
Left wheel weight	300 lbs	93.5 inches	28050 inch/lbs
Right wheel weight	295 lbs	93.5 inches	27582.5 inch/lbs
Nose wheel weight	0 lbs	22 inches	0 inch/lbs
Tail wheel weight	0 lbs	216 inches	0 inch/lbs
Total dry weight	595 lbs	Total Moment	55632.5 inch/lbs

Dry weight CG 93.5 Inches from Datum

CHALLENGER FLYING WEIGHT AND BALANCE

		From Datum	Moment
Front seat Pilot	200 lbs	50 inches	10000 inch/lbs
Rear seat Pilot	0 lbs	77 inches	0 inch/lbs
Fuel	60 lbs	103 inches	6180 inch/lbs
Bagage over the tank	lbs	inches	0 inch/lbs
Bagage under motor	lbs	inches	0 inch/lbs
Front backrest bag	lbs	inches	0 inch/lbs
Belly Bag	lbs	inches	0 inch/lbs
Nose Bagage	lbs	inches	0 inch/lbs
Bagage other	lbs	inches	0 inch/lbs
Bagage other	lbs	inches	0 inch/lbs
Bagage other	lbs	inches	0 inch/lbs

Fuel Weight Calculation

Enter qty in appropriate line
10 us gallons
imp gallons
liters
60 lbs

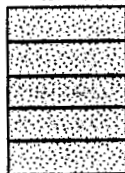
Fuel tank from Datum

Turbulence tank, enter 99
Quadcity tank, enter 103
ENTER----> 103

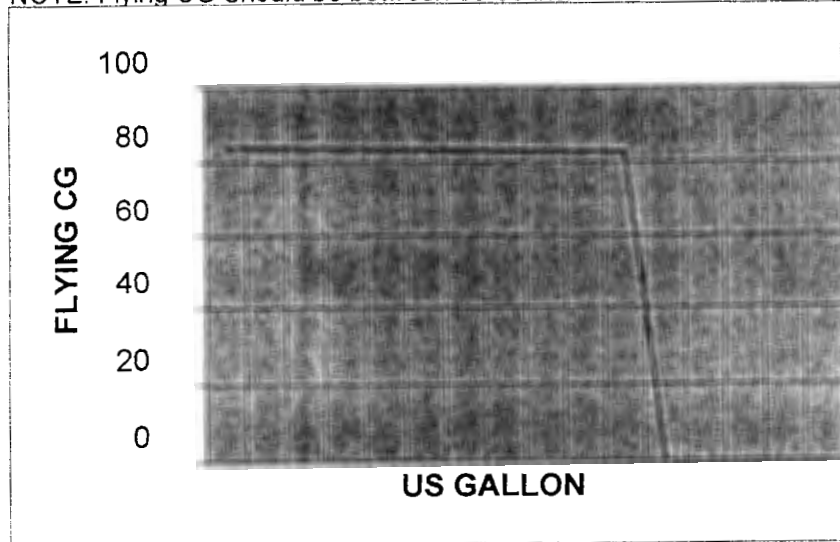
Total flying weight 365 lbs Total Flying Moment 71812.5 inch/lbs

Flying weight CG 83.9912 Inches from Datum

US GAL	CG
10.00	83.9912
9.00	83.8569
8.00	83.7206
7.00	83.5824
6.00	83.4422
5.00	83.3
4.00	83.1557
3.00	83.0092
2.00	82.8606
1.00	82.7097
	82.5566



NOTE: Flying CG Should be between 80-90 inches from Datum



TESSA IN FRONT

CHALLENGER ON WHEELS

9/28/02
NOLAN'S FLOAT
CHALLENGER
WITH
PASSENGERS

Aviation Turbulence

CHALLENGER II WEIGHT AND BALANCE ON PUDDLE JUMPER FLOATS

		From Datum	Moment
Left wheel weight	300 lbs	93.5 inches	28050 inch/lbs
Right wheel weight	295 lbs	93.5 inches	27582.5 inch/lbs
Nose wheel weight	0 lbs	22 inches	0 inch/lbs
Tail wheel weight	0 lbs	216 inches	0 inch/lbs
Total dry weight	595 lbs	Total Moment	55632.5 inch/lbs

Dry weight CG 93.5 Inches from Datum

CHALLENGER FLYING WEIGHT AND BALANCE

		From Datum	Moment
Front seat Pilot	200 lbs	50 inches	10000 inch/lbs
Rear seat Pilot	180 lbs	77 inches	13860 inch/lbs
Fuel	60 lbs	103 inches	6180 inch/lbs
Bagage over the tank	lbs	inches	0 inch/lbs
Bagage under motor	lbs	inches	0 inch/lbs
Front backrest bag	lbs	inches	0 inch/lbs
Belly Bag	lbs	inches	0 inch/lbs
Nose Bagage	lbs	inches	0 inch/lbs
Bagage other	lbs	inches	0 inch/lbs
Bagage other	lbs	inches	0 inch/lbs
Bagage other	lbs	inches	0 inch/lbs

Fuel Weight Calculation

Enter qty in appropriate line
10 us gallons
imp gallons
liters
60 lbs

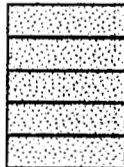
Fuel tank from Datum

Turbulence tank, enter 99
Quadcity tank, enter 103
ENTER----> 103

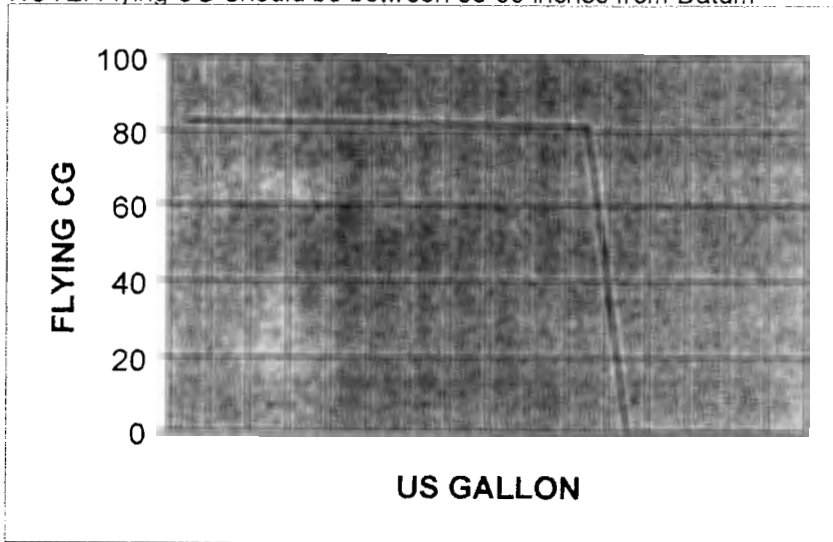
Total flying weight 1035 lbs Total Flying Moment 85672.5 inch/lbs

Flying weight CG 82.7754 Inches from Datum

US GAL	CG
10.00	82.7754
9.00	82.6574
8.00	82.5381
7.00	82.4174
6.00	82.2953
5.00	82.1716
4.00	82.0465
3.00	81.9199
2.00	81.7918
1.00	81.6621
	81.5308



NOTE: Flying CG Should be between 80-90 inches from Datum



Craftsmans—Corner

WEIGHT & BALANCE "QUICK CHECK"

Edited by Chuck Larsen, Designee Director

TOO MANY ACCIDENTS and incidents are the result of aircraft being operated outside their normal weight and/or center of gravity range. A great deal has been written about the importance and determination of aircraft weight and balance. Definitions and detailed information are available from many authoritative sources.

The purpose of this article is to provide a format for weighing and determining the center of balance for a completed aircraft with an established maximum weight, datum and center of balance range. It is to be used only as a "quick check" against the "official", required weight and balance information. It is hoped the simplicity of this procedure will bring its readers to consider and check this important aspect of the status of their aircraft.

Preparations for weighing should include a thorough cleaning and servicing of the aircraft. Oil and hydraulic systems should be full and the fuel level drained to at least the minimum usable fuel. All accessories should also be in place. At least one, and preferably three, accurate scales with the appropriate capacity and blocks or other materials to put the plane in level, flying position for weighing are also required.

Weighing and data recording. The aircraft should be placed on the scales using blocking (Tare Weight) to place the craft in a level flying attitude. A single scale may be used by moving it to the three weighing positions taking care to block the two other support points in the same relative positions. Record the weights and arms (distance from datum) of each in the appropriate blocks of CHART A.

NOTE: Weights located ahead of the datum have minus arm/moments. Those behind the datum have plus arm/moments. These moments are combined to determine the total moments.

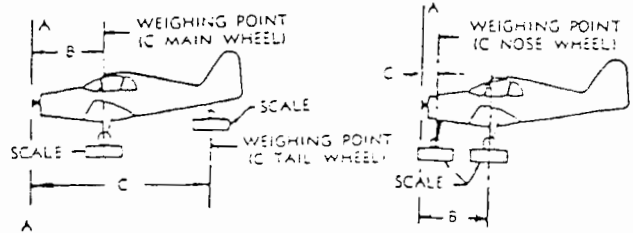


CHART A

AIRCRAFT N: 2250C
CHALLENGER II

Maximum Allowable Gross Weight 8001 lb.
Center of Balance Range from 80" to 90" inches from the datum.
(Gross Weight & C.B. range are established by the designer or manufacturer.)

- A = Datum — A fixed line from which we measure.
- B = Arm in inches — Distance from datum to main wheel axle center.
- C = Arm in inches — Distance from datum to auxiliary wheel axle center.

	WEIGHT (lbs.)	TARE (Blocking)	NET WEIGHT	ARM (inches)	MOMENT (inch/lbs.)
Left Wheel	260	-	= 260	x 90"	= 23400
Right Wheel	260	-	= 260	x 90"	= 23400
Auxiliary Wheel	30	-	= 30	x 216"	= 6480
Total empty or operating weight	<u>550</u>				Total or empty operating moments <u>53280</u>

Empty, operating
Center of Gravity = $\frac{\text{Total Moment (inch/lbs.)}}{\text{Empty Weight (lbs.)}} = \frac{53280}{550} = 96.8$ (in. from datum)

The flying weight and center of balance can then easily be determined by completing CHART B.

CHART B
Total Aircraft — WEIGHT 550 ARM 96.8 MOMENT 53280
(Empty or operating figures from CHART A.)

Front Seat(s)	195	x	50"	=	9750
Rear Seat(s)	0	x	77"	=	
Fuel (6 pounds per U.S. Gal.)	60	x	103"	=	6180
Baggage	0	x		=	

Aircraft Gross Weight 805 Total Aircraft Moments 69210
Center of Gravity = $\frac{\text{Total Moment (in./lbs.)}}{\text{Empty Weight (lbs.)}} = \frac{69210}{805} = 85.97$ (in. from datum)
At Take-Off Empty Weight (lbs.) 805

The center of balance at landing can be determined by completing another CHART B using the weight and moments of the fuel at the time of the final landing and re-computing the center of gravity for landing.

The gross weight and center of balance should then be compared with the designers or manufacturers data to determine if the aircraft is within safe operational ranges.

AUG. 7, 62

(F104S)

WORK SHEET

Sept 15, 02

Aviation Turbulence
CHALLENGER II WEIGHT AND BALANCE ON WHEELS

		From Datum	Moment
Left wheel weight	218 lbs	90 inches	19620 inch/lbs
Right wheel weight	224 lbs	90 inches	20160 inch/lbs
Tail wheel weight	30 lbs	216 inches	6480 inch/lbs
Total dry weight	472 lbs	Total Moment	46260 inch/lbs

Dry weight CG 98.0085 Inches from Datum

CHALLENGER FLYING WEIGHT AND BALANCE

		From Datum	Moment
Front seat Pilot	175 lbs	50 inches	8750 inch/lbs
Rear seat Pilot	0 lbs	77 inches	0 inch/lbs
Fuel	60 lbs	103 inches	6180 inch/lbs
Bagage over the tank	lbs	inches	0 inch/lbs
Bagage under motor	lbs	inches	0 inch/lbs
Front backrest bag	lbs	inches	0 inch/lbs
Belly Bag	lbs	inches	0 inch/lbs
Nose Bagage	lbs	inches	0 inch/lbs
Bagage other	lbs	inches	0 inch/lbs
Bagage other	lbs	inches	0 inch/lbs
Bagage other	lbs	inches	0 inch/lbs
Total flying weight	707 lbs	Total Flying Moment	61190 inch/lbs

Fuel Weight Calculation

Enter qty in appropriate line
 10 us gallons
 imp gallons
 liters
 60 lbs

Fuel tank from Datum

Turbulence tank, enter 99
 Quadcity tank, enter 103
 ENTER----> 103

Flying weight CG 86.5488 Inches from Datum

US GAL	CG
10.00	86.5488
9.00	86.408
8.00	86.2647
7.00	86.119
6.00	85.9707
5.00	85.8198
4.00	85.6662
3.00	85.5098
2.00	85.3505
1.00	85.1884
	85.0232



NOTE: Flying CG Should be between 80-90 inches from Datum

