Skycraft (UK) Ltd.

SOLE U.K. DISTRIBUTORS

SCOUT

'trail bike of the air'

INSTRUCTIONS FOR SKYCRAFT "SCOUT" AIRCRAFT

Ex-crate assembly instructions. Engine instructions — fuel, running-in, lubrication, etc. Rigging instructions for tail plane and wing, etc. Handling notes including hints for initial flights.

79/81 Prestwick Road,
Ayr KA8 8LH,
Scotland.

Tel. (0292) 82685

SKYCRAFT "SCOUT" AIRCRAFT - EX-GRATE ASSEMBLY INSTRUCTIONS

Remove fabrics and wing spars from crate. Carefully remove the fuselage and its sub-assemblies, which are connected by the control cables.

DO NOT REMOVE NUTS, BOLTS, WASHERS, ETC. from ANY component until you are ready for the assembly of that particular part. DO NOT REMOVE the terylene lanyards from the rudder control cables.

With the fuselage upright and the cylinder head resting on a block, erect the king post at "A" (Fig. 1). Refer to Fig. 2. Assemble the forward top cables as shown at "B". Push down on the fuselage, as indicated, and assemble the aft top cable, as shown at "B".

For ease of assembly, it is recommended that the forward end of the fuselage be suspended about four feet above floor level by means of a rope.

Assemble the vertical A-frame truss (ref. Fig. 3), including the landing wheels springs and the forward brace cables, as shown, and attach to the fuselage at "C" (Fig. 1).

Raise the vertical column and assemble to the fuselage at "D". Make sure that the control cables are not twisted around the column.

Enter the forward end of the torque tube into its spigott bearing and attach the horizontal struts to the axle beam at "E" and "E", engaging the footrest by means of the same bolts, Refer to assembly detail Fig. 4.

Remove the nyloc nut and washer at "F" on Fig. 1 and assemble the rear end of the horizontal strut, as shown. DO NOT OVERTIGHTEN the nyloc nut.

Dismantle the turnbuckle on the bottom aft cable and assemble the eyebolt and turnbuckle half at "G" (Fig. 1). Check forward cables and top and bottom aft cables to ensure that they are not twisted, as shown in Fig. 5. Re-engage the turnbuckle evenly and screw to tighten until both top and bottom cables register tension. Apply three or four more turns to the turnbuckle. DO NOT OVERTIGHTEN. Secure the turnbuckle lock nuts and lead up the safety wire, so as to engage both fork ends and the centre section, as shown.

Assemble the incidence bar at "H", Fig. 1.

The steel shackle-bracket should be fitted on top of the fuselage with the hole towards the rear. To give clearance for fixing the elevator drag wire shackle, twist the steel shackle-bracket by about 45 degrees.

Assemble the throttle control with lever upwards.

Connect the push-on terminals to the ignition switch.

Apply grease to the exhaust stub. Push flexible pipe onto stub. Assemble the extension pipe to the fuselage, as shown at "J". Rotate pipe, so that discharge holes are on top. Tighten clamp band on exhaust stub.

Raise rear of fuselage, so that the airframe rests on axle and propeller shaft. Assemble pilot seat to four holding lugs on the horizontal struts.

Clean and oil landing wheels' axles and assemble landing wheels. Spread lower ends of split pins against outside retaining washers.

RUDDER: Refer to Fig. 6. Insert the spar stub (1) into the bottom spar and secure with self-tapping screw (2). Pull the fabric back along the spar stub, so that the holes in the fabric and the spar are lined up. Enter the screws (3) and tighten. Secure the lower rib batten with thread provided.

REFER NOW TO THE ATTACHED RIGGING INSTRUCTIONS FOR TAIL PLANE.

Rig the Rudder. Rig the Elevators. NOTE: When rigging the ELEVATORS, hold the extension of the left hand trailing spar against your left knee - reach over and pull the right hand spar towards you; enter the pin into the spar end. Push the Elevators DOWN. (Damage to the drive tubes could occur, if the Elevators are permitted to adopt the "up" position before the bottom cables are shackled to the skeg).

CAUTION: Refer again to Fig. 5. Have your assistant operate both Elevators and Rudder, while you carefully trace the travel of all control cables over their directing pulley wheels.

CHECK all control fittings, shackle pins, cotter pins, split pins, etc. Dismantle Elevators and Rudder.

IMPORTANT: CHECK every attach point on the airframe and engine mountings for general security. CHECK every attach point on wing spars for general security. Then HAVE A COMPETENT PERSON RE-CHECK the entire aircraft.

BE CAREFUL not to crush tubular components by overtightening nyloc nuts. Use a good screwdriver to check shackle screws on the wing spars. ALWAYS use a small adjustable spanner to tighten spade-end shackle pins, as used on tail plane rigging and flying wires. (FINGER TIGHT IS NOT GOOD ENOUGH).

With spark plug removed, fill fuel tank with recommended fuel mixture. Remove hexagon barrel nut and gasket at base of carburettor. Turn on fuel and allow to flow through carburettor. Replace barrel nut and gasket.

Stand behind the propeller on the right hand side of the aircraft. Rotate the propeller by pulling down smartly with the right hand. (This is the recommended engine starting procedure. Never stand in front of the propeller to start the engine). As the cylinder may lack adequate lubrication, rotate the propeller several times, so as to induce oil mixture into the cylinder. Turn off fuel.

SKYCRAFT "SCOUT" - DRIVE SYSTEM - FITTING & ADJUSTMENT

Fitting of propeller and Ployflex 'V' belts

1. Check the distance between the shaft centres - this should be 7 3/8 (approx.) If incorrect see belt adjustment procedure.
2. Secure the nylon prop pulley to prop boss with the set-screws provided - (nuts towards the front).
3. Push the propeller on to the prop shaft - the spacer washers should be left on the shaft before pushing the prop home. Tighten the prop nut (again leaving the washers in position on the front bearing) until the prop is fully home. With a straight edge held against the engine pulley, check the alignment of the pulleys. If not aligned, adjust by moving one of the outer spacer-washers from back to front of the prop boss or vice versa. Ensure that the two washers next to the bearing in the prop boss on both sides are arranged so that the smaller washer is innermost followed by the larger one.

N.B. - Before fitting the belts ensure that your hands and the belts, pulleys etc. are free from oil or grease - any oil on these belts will cause slippage.

4. Remove prop and slip the two belts over the nylon pulley. Re-fit prop. Tighten the nut to push prop home then back off nut half a turn and fit slip pin. The bearings should turn freely without any excess free play.
5. To fit the belts arrange one to hang either side of top pulley. Fit onto bottom pulley and holding belt on the top pulley with fingers, turn prop

until belt snaps on. Repeat with the other belt.

6. These belts should be tight. By parting the belts against each other in their running plane using forefingers and thumbs, the gap between the two should not exceed ¼". If tension is incorrect remove the two lock-bolts on front engine mounting forks. (Two top ones). Back off the front nut on top crankcase bolts sufficient to allow inner nut to be slackened. Adjust belt tension by moving the engine up or down as required. When tension is correct, check alignment of pulleys with straight edge, and adjust by moving the front of engine upwards or the rear down as required. Re-tighten nuts and fit top lock-bolts.

N.B. - The crankshaft pulley has already been tightened, should you ever need to remove either the crankshaft pulley or the flywheel mag. you will require special tools to hold the part being removed. NEVER tighten or slacken by holding one against the other - this will distort the crankshaft. The engine is now ready for the running-in procedure.

SKYCRAFT "SCOUT" AIRCRAFT

"PIXIE" 173c.c. ENGINE

FUEL MIX

Do NOT use ready mixed blends of two-stroke fuel. ADD ONE THIRD PINT of CASTROL SUPER TWO-STROKE OIL to ONE GALLON of SUPER GRADE PETROL (40ml.:litre).

RUNNING-IN PERIOD: It is advisable to run the engine for about half an hour at quarter throttle before using the aircraft in flight.

Procedure:

1. Fasten the aft end of the fuselage securely with a stout rope.
2. Start the engine and run at a fast idle for three ten minute periods, allowing the engine to cool completely between each running period.
3. With the engine quite cold, tighten the four nuts at the base of the cylinder. (Spanner size - 7/16" A.F.).
4. Check the four cylinder head bolts for tightness.
5. Drain carburettor, inspect main jet and clean, if necessary. Tighten all screws and fuel line connections.

Check all nuts, bolts, screws, split-pins, etc.

Spark Plug: Bosch No. W.145-T1. Gap: 0.020".

General: Drain fuel tank frequently, particularly in cold weather.

COMPUTERISED IGNITION SYSTEM

Your "SCOUT" Aircraft is fitted with the Computerised Ignition System, which eliminates points and condenser. The system requires NO adjustment whatsoever. The intensity of the spark may be checked by rotating the propeller briskly (spark plug removed) and, at the same time, holding the H.T. lead about 1/8" from any earth point on the aircraft fuselage.

WARNING! Do NOT use a coil tester - it will destroy the system, and, A flywheel spanner, which engages the squared lugs on the back of the flywheel MUST BE used when removing or

replacing the flywheel retaining nut.

BE SURE TO: Lubricate the LANDING WHEELS, by squirting oil directly into the axle tubes, and the TAIL WHEEL, frequently. All moving parts of the control system should be kept clean and lightly oiled.

ADJUSTMENTS FOR DIAPHRAGM CARBURETTOR

The following procedure must be adopted with a new aircraft.

Fill fuel tank with prescribed mix.
Be sure that the ignition cut-out switch is in the OFF position (DOWN).
Loosen the screw retaining the plastic filler bowl on the underside of the carburettor.
Turn on the fuel tap to allow the fuel to run down the fuel line and drain from the base of the carburettor.
When air bubbles in the fuel line have been eradicated, tighten up the fuel bowl screw.
Remove spark plug from engine.
Open the throttle full; spin the propeller with the palm of one hand over the inlet of the carburettor until the carburettor floods. This will ensure that the carburettor is primed.
Spin the propeller over several times with the inlet open to discharge excess fuel from the engine.
Replace the spark plug and start the engine, as per the Instructions.

WHEN YOU RECEIVE YOUR AIRCRAFT, THE ENGINE HAS BEEN RUN UP AND THE CARBURETTOR ADJUSTED.

However, there are three adjustments on the carburettor with which the Owner should be familiar:-

1. The idle speed regulating screw.
2. The idle adjustment screw, marked "L".
3. The main adjustment screw, marked "H".

The idle speed regulating screw should be screwed inwards to increase the engine revolutions at idle.

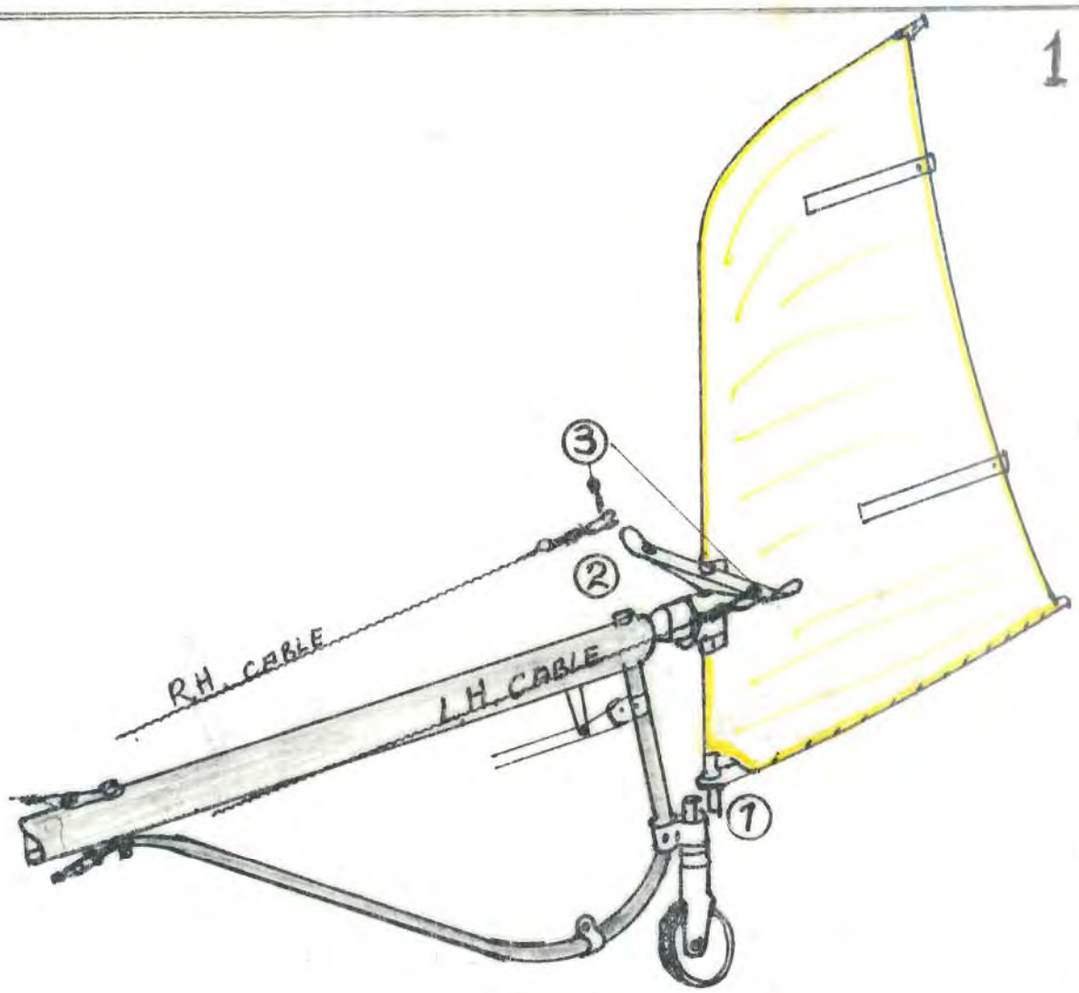
The idle adjustment screw should be set at turns anti-clockwise.

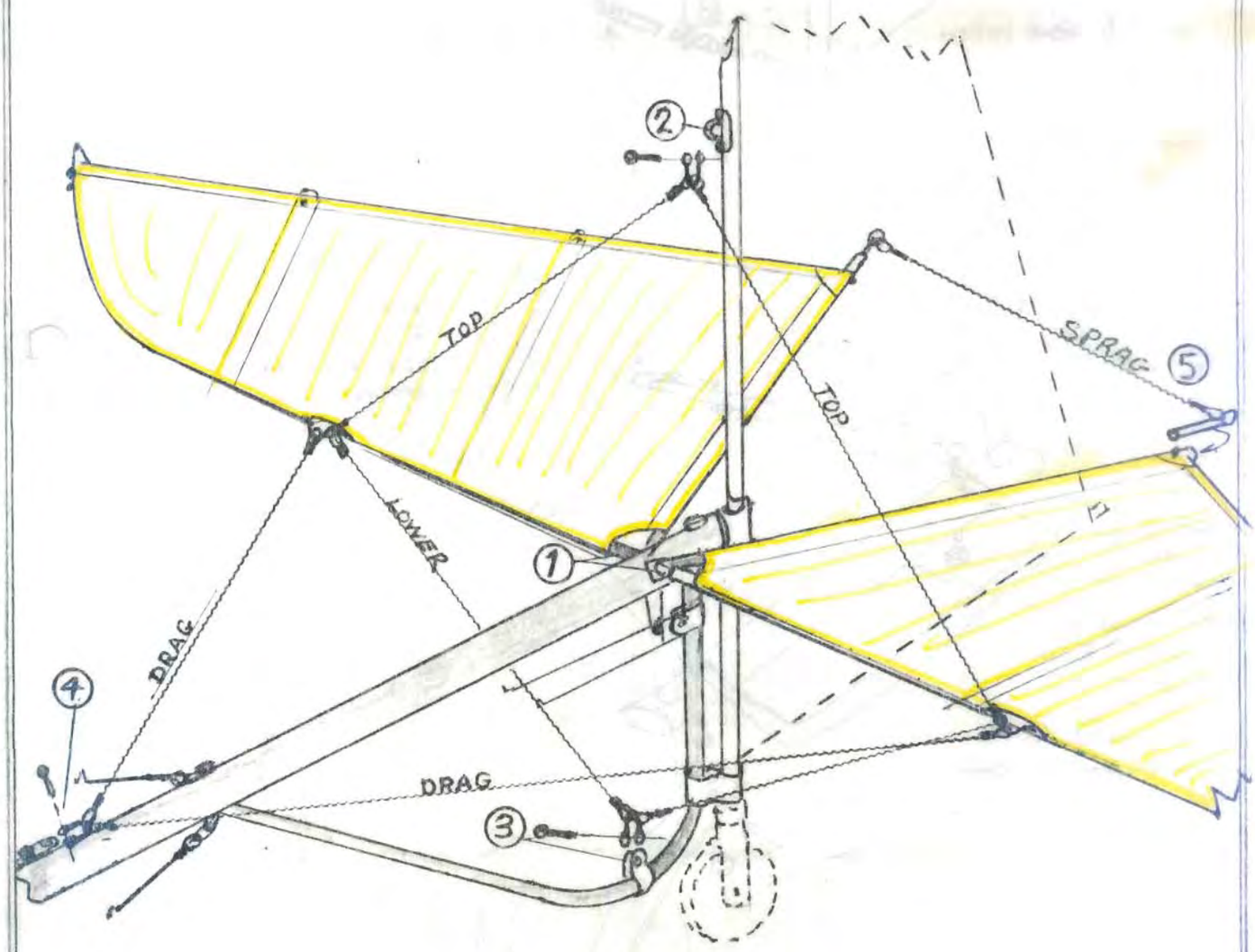
The main adjustment screw should be set at not less than 1-1/4 turns anti-clockwise.

WHEN MAKING SUBSEQUENT ADJUSTMENTS, IF NECESSARY, DO NOT FORCE THE ADJUSTMENT SCREWS "L" AND "H" INTO THEIR SEATS.

EXAMPLE: To adjust main adjustment screw "H", turn the screw clockwise until it bears on its seat; then turn the screw 1-1/2 turns anti-clockwise.

Repeated UNNECESSARY adjustments to the Carburettor COULD RESULT IN DAMAGE to the NEEDLE ADJUSTMENT SEATS.


3
2
RH CABLE
LH CABLE
1


2
TOP
TOP
SPRAG
5
LOWER
1
DRAG
4
DRAG
3

A.

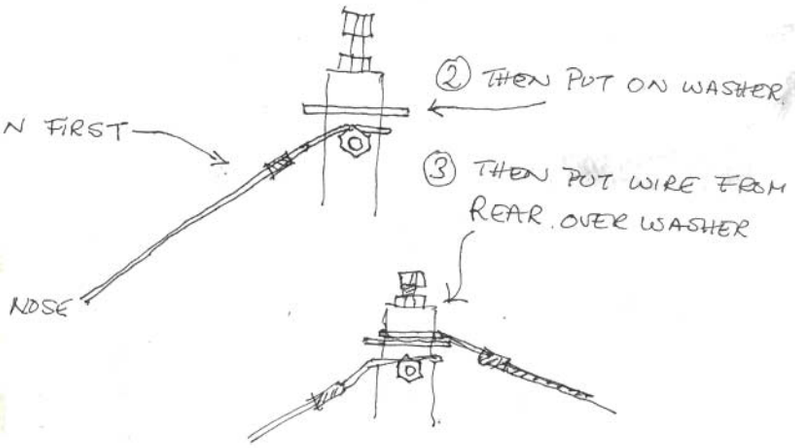
FIX KING POST FIRST.

(1) PUT FRONT TOP WIRE ON FIRST

(2) THEN PUT ON WASHER

(3) THEN PUT WIRE FROM REAR OVER WASHER

NOSE



B.

Back

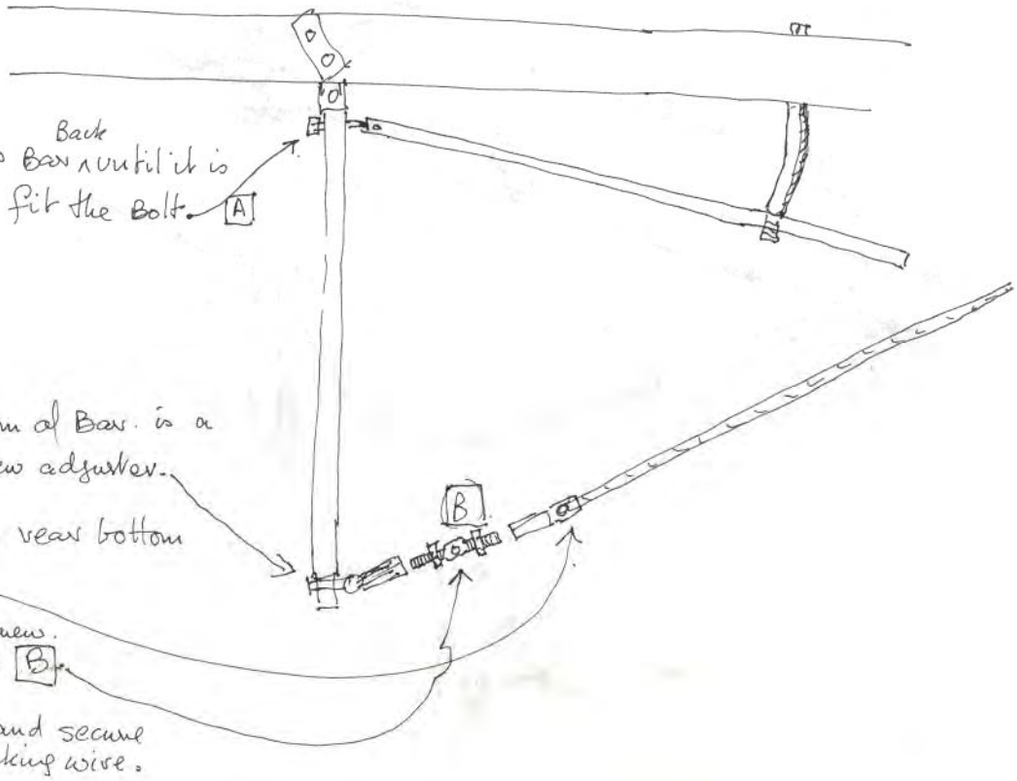
Roll this Bar until it is able to fit the Bolt. [A]

at bottom of Bar is a bottle screw adjuster.

1 connect rear bottom wire

2 with screw marked [B]

3 tighten and secure with locking wire.

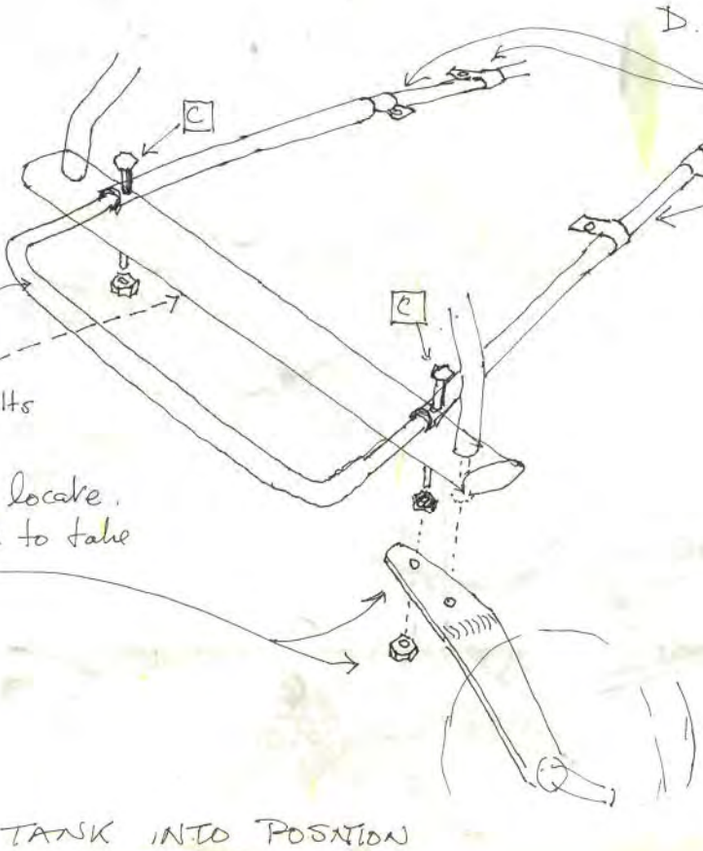


C.

Bottom frame bar now be connected to Front frame By the two Bolts marked [C]

Make sure to locate wheel support to take bolts

D. THEN FIX SEAT ONTO THE FOUR LUGS SHOWN.

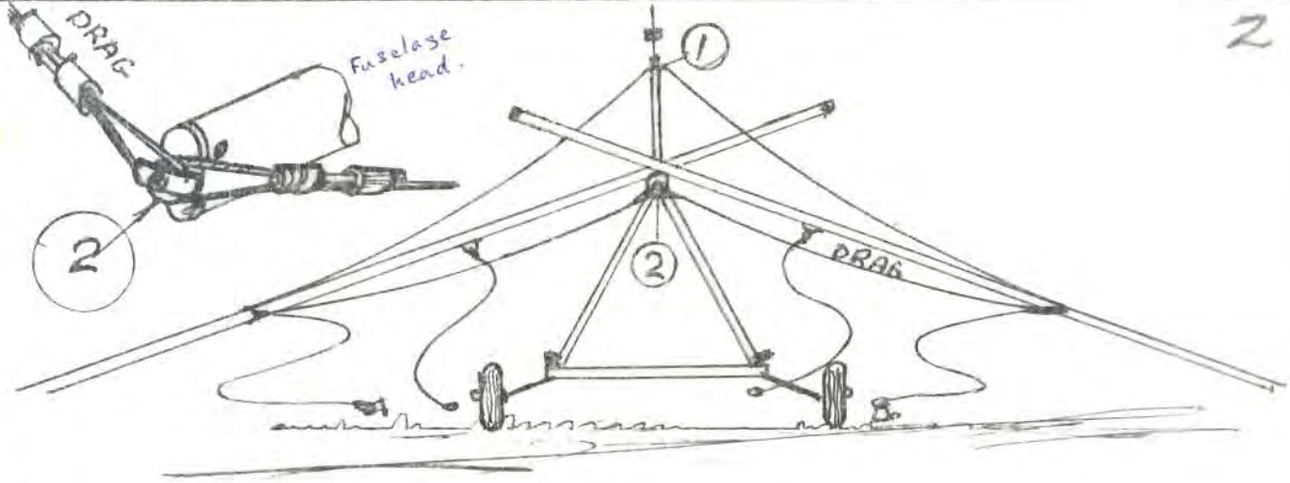


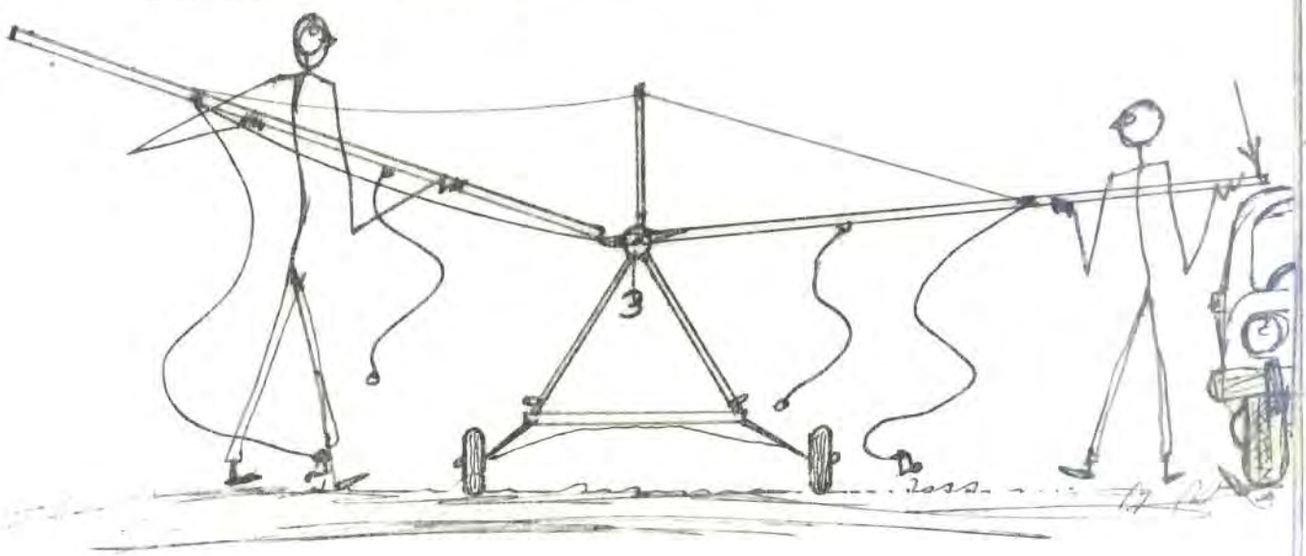
E. PLACE TANK INTO POSITION

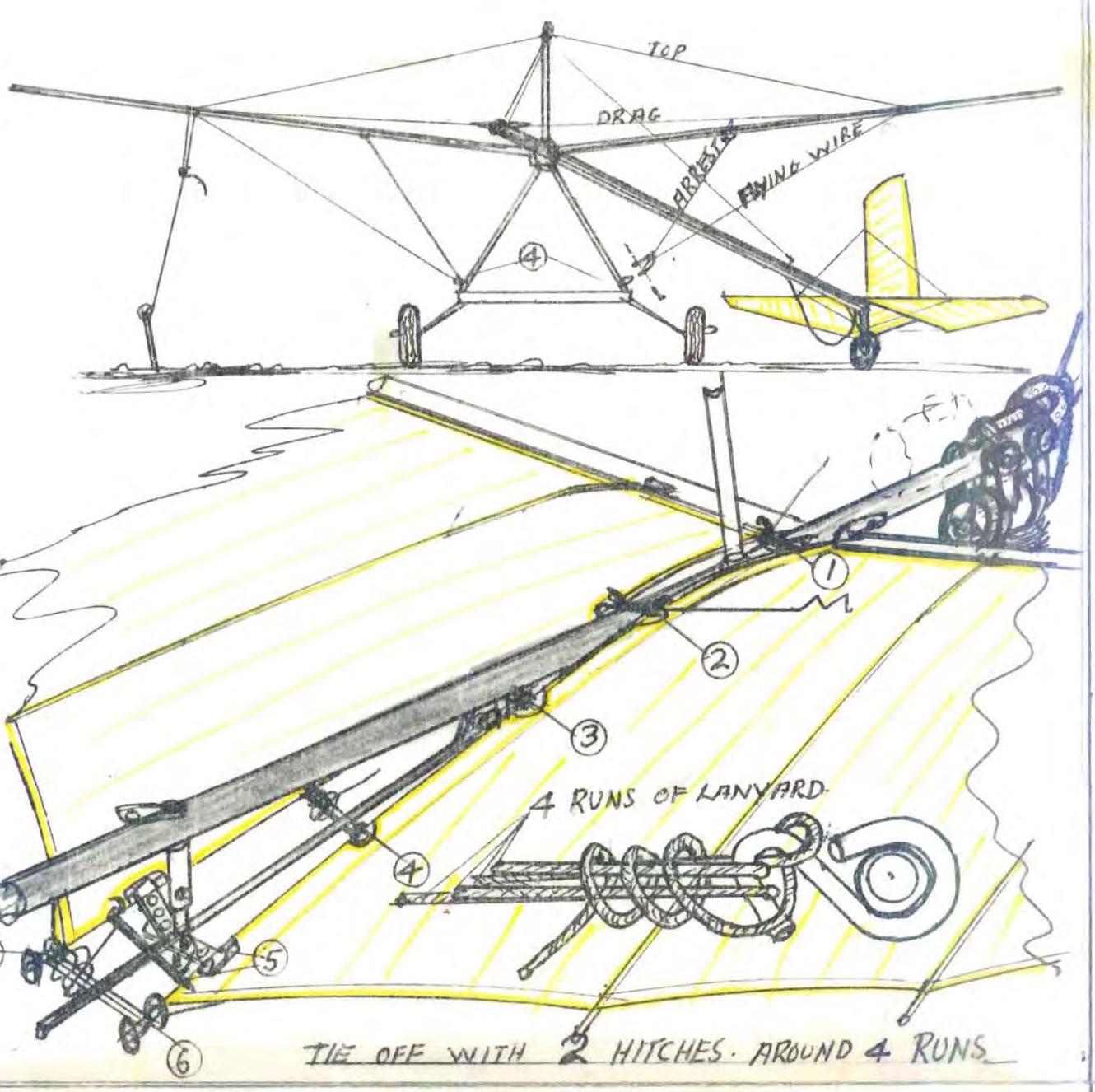
F. FIT EXHAUST.

REFIT PROPELLOR.

GOOD FLYING - BUT CHECK AND DOUBLE CHECK BEFORE FLIGHT.







TIE OFF WITH 2 HITCHES. AROUND 4 RUNS

SKYCRAFT "SCOUT" - RIGGING INSTRUCTIONS

ALWAYS rig the rudder and elevator assembly BEFORE setting up the wing spar and fabrics.

TAIL GROUP - REFER ILLUSTRATION (1)

RUDDER:
Enter tail wheel drive shaft (1).
Enter rudder hinge plug (2).
Shackle rudder cables, left and right (3) and (3).
Tighten shackles, check for general security and operation.

ELEVATORS:
Mount tail spars onto drive shaft (1).
Shackle drag wires at attached point (4).
Shackle top wires at attached point (2).
Enter sprag brace pin into spar at attach point (5).
PUSH ELEVATORS TO FULL DOWN POSITION.
Shackle lower wires at attach point (3).
Tighten shackles, check for general security and operation.

Operate control column and ensure that all control cables are correctly directed and functioning smoothly over control wires sheaves.

WING SPARS AND WING FABRICS - REFER ILLUSTRATION (2)

Cross spars over fuselage, secure top wires to the king post (1) and position the loops of the drag wires over fuselage head pin (2). Lift one spar onto the mounting pin (3). This spar MUST be supported whilst the other spar is being similarly mounted. Enter shackle hoop through arrestor wire and flying wire on one side and secure at attach point (4). Repeat operation on other side.

Check all attach points and fittings for tightness and general security.

Enter the wing fabrics into the tracks at the outer wing tips. Hold the root rib forks above the tracks and pull the fabrics up to the fuselage. Have your assistant feed the fabrics into the tracks, ensuring that the preventer tabs on the three outer ribs fit under the wing spars and that the end keepers engage with the webs at the spar tips, as shown. Engage the root rib fork ends over the wing spars, as shown. Take three turns of lanyard (1) over the hooks and haul up, working from left and right sides. Take first tension on lanyards (2) and (3). Take four turns over the root ribs at (4) and haul up firmly. Use temporary tie-off knots to retain first tensions. Return to lanyard (1) and haul up to close the gap, at the same time pushing the root ribs towards the fuselage. Take the final tensions on lanyards (2) and (3). While holding the final tension at (4), enter the perforated safety keeper strips over the threaded pin (equal number of holes on each side) and secure with the nut. Be sure to secure the lanyards (1), (2) and (3) with four runs over the hooks and at least four turns around the runs. Finally secure with two hitches or preferred knots. Finish (4) with as many runs as possible and tie off, as previously. Study the illustration showing detail for securing the lanyards around the hooks. Note how the last run of each lanyard is entered into the throat of the hook before taking the turns. When the fabrics are brought to the correct tension, the wing spars should show about one inch of bend to the rear.

FITTING SAFETY WIRES: Each wing tip is provided with a safety wire to engage a threaded stud, which must be located when the aircraft has been rigged and the fabrics fully tensioned. Proceed as follows: with the fabrics rigged, pull the safety wires outwards to the wing tips, adjust safety bolts to correct hole to give slight tension, as shown.

FUEL MIX: DO NOT USE ready mixed blends of two-stroke fuel. ADD one third pint of CASTROL SUPER TWO-STROKE OIL to one gallon of SUPER GRADE PETROL (40ml : litre).

Illustrations:-

HANDLING NOTES - SKYCRAFT "SCOUT" AIRCRAFT

ENGINE: "Pixie Aero", 173c.c.

AIRCRAFT AND ENGINE OPERATING LIMITATIONS:

All up weight:	(Take-off and land) 297 lbs.
Empty weight:	122 lbs.
Centre of gravity:	17½" aft wing spar dowell.
Maximum speed:	42 knots.
Min. manoeuvering speed:	36 knots.
Maximum engine revs.:	5,600.
Max. cross wind component:	8 knots.
Max. tail wind component:	6 knots.
Take-off taxi run:	60 - 70 yds.
Landing roll on:	30 - 40 yds.
Rate of climb:	140 - 180 f.p.m.

PRE-FLIGHT INSPECTION:

1. Visual check airframe and engine for general security.
2. Visual and manual check all attachment points.
3. Check propeller for security.
4. Check drive belts for general condition and correct tension.
5. Check fuel tank, throttle operation, ignition switch.

BEFORE STARTING AIRCRAFT:

1. Safety belt fastened.
2. Check all clear around propeller.
3. Prime carburettor, if required (ignition switch off).
4. Ignition switch on, throttle open 1/4. (fuel cock open).

STARTING AIRCRAFT:

1. Propeller swing to start.
2. Warm-up thirty seconds then open throttle full. Engine must run smoothly at full throttle.
3. Flick ignition switch OFF/ON QUICKLY ONCE ONLY to check operation.

FLIGHT TECHNIQUES:

NORMAL TAKE-OFF:

1. Check wind direction.
2. Open throttle smoothly to full power, keeping aircraft straight with rudder.
3. Firm pressure forward on column until tail rises.
4. Trim aircraft as speed increases, then light pressure back on control column and aircraft will fly itself off ground. LEVEL OUT a few feet above the ground. Allow speed to increase. Maintain light pressure back on column to maintain normal climb.

APPROACH AND LANDING TECHNIQUE:

1. Recommended approach pattern is to come in at half throttle. Increase back pressure on control column at ten feet above ground. Reduce throttle and aircraft will touch down. Control roll-on after landing with increased throttle and coarse use of rudder, if necessary.
2. Ignition switch OFF.
3. Close fuel cock.
4. Secure aircraft with anchor ropes, propeller horizontal, if left unattended.

PRIOR TO UNRIGGING AIRCRAFT:

Ensure fuel cock OFF, ignition switch OFF, spark plug removed, safety belt fastened over seat, exhaust discharge covered, carburettor inlet covered, propeller secured horizontally. ALWAYS dismantle wing fabrics and wing spars before dismantling tail assembly. At this time, check width of tracks at wing spar tips.

Ensure wing spars tracks do not exceed 1/8" at entry. Peen to close with light mallet, if necessary.

HINTS FOR INITIAL FLIGHTS

1. Avoid crowds. The aircraft, yourself and one helper are sufficient.
2. Ideal conditions: little or no wind, ample flat area.
3. Refer "Pre-Flight Inspection", "Before Starting Aircraft" and "Starting Aircraft" (page 1) then check and re-check all attachment points.
4. Initiate "NORMAL TAKE-OFF" procedure into wind until aircraft flies itself off the ground. Fly half the permitted distance of the area at two or three feet. Initiate normal landing procedure. Should aircraft balloon off on touch down, apply full power - repeat and correct landing procedure. Always maintain plenty of distance ahead of the aircraft. Do NOT rudder the aircraft around coarsely near fences or other objects - get out and turn the aircraft around by lifting the tail.

   Perform take-off and landing techniques AT LEAST FORTY TIMES - MORE IF NOT FULLY PROFICIENT.
5. In light cross winds, allow the aircraft to drift to the lee side of the strip, favour the lee side, laying off the drift with rudder to maintain desired direction. Crab angles of 5 degrees - 10 degrees are usual in light winds.
6. Turns 180 Degrees: AFTER perfecting your take-off and landing techniques, extend your flights for distance and altitude progressively. HASTEN SLOWLY. Initiate turn at about 50-60 feet altitude over familiar terrain free from obstacles. To initiate turn, increase speed with slight pressure forward to control column. Apply left or right pressure to control column and slight pressure backwards to keep the nose on the horizon. ALWAYS WATCH THE HORIZON and keep WITHIN GLIDING DISTANCE of the LANDING AREA. If the turn increases beyond the desired effect, hold off the turn with slight opposite rudder. Fly to the leeward end of the landing area, maintaining height. Initiate 180 degree turn and land aircraft.
7. STALL AND ENGINE FAILURE:
   1. Use extreme care NOT to stall the aircraft on take-off.
   2. Should you stall the aircraft, push control column forward immediately. Apply full power until flying speed is regained.
   3. Engine failure: Immediately push control column forward and trim to maintain air speed. If taking-off, do NOT attempt to turn, go straight on. In flight, push control column forward, trim for airspeed, select best possible landing area.
   4. PRACTICE "ENGINE OUT" LANDINGS from TWENTY FEET ALTITUDES progressively.

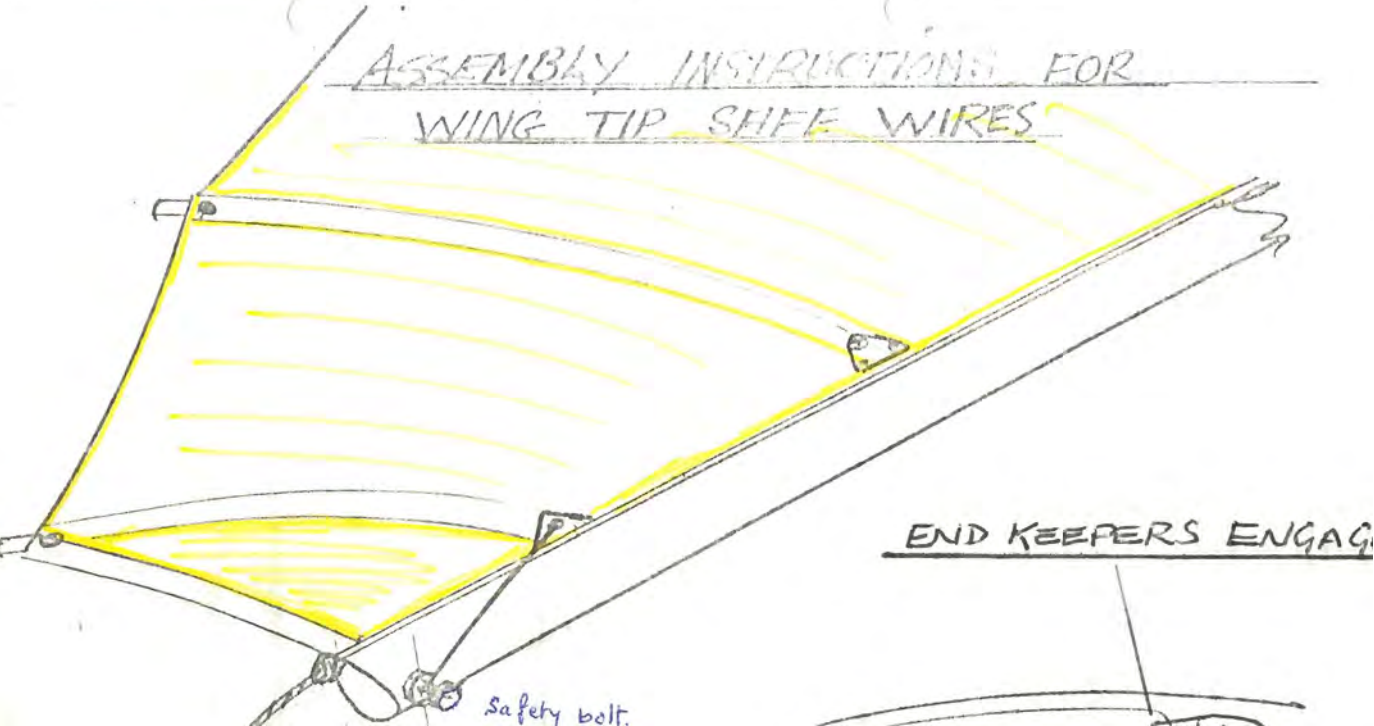
GENERAL MAINTENANCE, ETC.:

It is ESSENTIAL, as with ALL aircraft, that general maintenance procedures be carried out FREQUENTLY.

These include inspection of the airframe, control wires, condition of fabrics and security of the engine, transmission, propeller and all ancillary equipment.

N.B. Refer also, "SCOUT" RIGGING INSTRUCTIONS for rigging, lubrication and fuel mix information and "SCOUT" ENGINE RUNNING-IN INSTRUCTIONS.

ASSEMBLY INSTRUCTIONS FOR WING TIP SHEE WIRES



LAISSEZ-PASSER POUR AERONEF ULTRA LEGER MOTORISE (U L M)

Demande (à remplir par le postulant)

Monsieur, ~~Madame, Mademoiselle~~ (1) THERVILLE Christian

Adresse 3 RUE MAGENTA

Code postal 29200 Localité BREST

Demande la délivrance d'un laissez-passer pour l'U L M dont la définition technique est donnée ci-dessous :

Présentation de l'appareil (à remplir par le constructeur) (4)

Constructeur : Renouvellement

Appellation par le constructeur :

Monoplace - ~~Biplace~~ (1) Numéro de série éventuel : /

Masse à vide (2) 58 Kg Surface alaire (3) 11,7 m²

Référence du laissez passer précédent éventuel : RN 222/82



Date et signature du postulant

Date et signature du constructeur (4)

27.12.83

Renouvellement

Délivrance (cadre réservé à l'Administration)

LAISSEZ-PASSER ULM N° RN05/84 MARQUE D'IDENTIFICATION 29-B

Valable du 6 janvier 1984 au 6 janvier 1985

Délivré conformément à la circulaire du 3 novembre 1983 n° 51.

J.P. MOUSIS

(1) (2) (3) (4) Voir au Verso

(1) Rayer les mentions inutiles

(2) Masse de l'appareil muni de tous ses équipements nécessaires au vol sans personne à bord , sans carburant, sans charge utile.

(3) Surface portante de l'appareil.

(4) Lors du renouvellement du laissez passer, cette déclaration peut être remplie par le postulant qui déclare la masse à vide et la surface alaire réelle tenant compte des modifications éventuelles.

Cadre réservé aux services officiels pour les contrôles du bruit :

Cadre pouvant être utilisé lors de la cession de l'ULM par le vendeur ou donateur en mentionnant : "cédé par M..... à M..... le....."