

# CHRISTAVIA MK4 INFO PACK



**A CONVENTIONAL DESIGN, STRONG AND SAFE THAT ANYONE CAN BUILD AND FLY.  
 FULL SIZE FOUR SEAT WITH DUAL CONTROLS POWERED BY A 150 HP LYC.  
 A FURTHER DEVELOPMENT OF THE WELL PROVEN TWO SEAT CHRISTAVIA MK1.  
 DESIGNED AS A PLANS BUILT AIRCRAFT USING STANDARD A/C MATERIALS.  
 CHECK THE PERFORMANCE FIGURES TAKEN FROM THE FLIGHT TEST PROGRAM.**

<i>Max Gross Weight.....</i>	<i>2100 lbs.</i>	<i>Normal Empty Weight .....</i>	<i>1150 lbs.</i>
<i>Average Cruise Speed .....</i>	<i>118 mph</i>	<i>Max Cruise Speed.....</i>	<i>126 mph</i>
<i>Stall Speed Clean.....</i>	<i>42 mph</i>	<i>Stall Speed 20 Flap.....</i>	<i>35 mph</i>
<i>Average Rate of Climb clean.....</i>	<i>800 fpm</i>	<i>Average Landing Roll.....</i>	<i>500 ft.</i>
<i>Average Take Off Roll.....</i>	<i>450 ft</i>	<i>Range St. 150 hp.....</i>	<i>350 mls</i>
<i>Fuel Quant. imp gls.....</i>	<i>30 gls</i>	<i>Service Ceiling.....</i>	<i>17,000 ft.</i>

<i>AVERAGE TIME TO BUILD .....</i>	<i>2000-2500 HRS</i>
<i>AVERAGE COST TO BUILD .....</i>	<i>\$10,000-\$12,000</i>

Flight tested under all flight and weather conditions.  
 Responsive yet very stable, the ideal family cruiser with all the advantages of a tail dragger.

**WRITE TO:  
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# CHRISTAVIA MK-4 LICENSE AGREEMENT

For and in consideration of the sum of \$ \_\_\_\_\_ Aircraft Spruce & Specialty Co. of Corona, California, does agree to extend to \_\_\_\_\_ the right to build one Christavia MK-4, said airplane to bear serial number \_\_\_\_\_. Aircraft Spruce & Specialty Co. further agrees to supply one set of construction drawings and an illustrated parts catalog.

Your Customer order  
number is:  
\_\_\_\_\_

*This section to be signed by Aircraft Spruce representative*  
By \_\_\_\_\_  
Title \_\_\_\_\_  
Date \_\_\_\_\_

I, \_\_\_\_\_ Address \_\_\_\_\_

do agree to the conditions set forth above and in consideration thereof I further agree that said drawings, instructions, and manuals will remain the property of Aircraft Spruce & Specialty Co., and specifically agree to the following:

- A. I will build one airplane only from these drawings and manuals and that said aircraft will conform to the specifications set forth in these drawings and manuals.
- B. I will not allow another party the use of these drawings and manuals to build a second airplane or part thereof.
- C. I will not transfer these drawings to another party without prior approval of Aircraft Spruce & Specialty Co.
- D. I will not allow these drawings, manuals or instructions to be duplicated.
- E. I will not use or permit the use of these drawings in the design, construction or manufacture of another aircraft.

It is further agreed and I understand that Aircraft Spruce & Specialty makes no warranty, expressed or implied, as to the quality or the safety of this airplane. The buyer understands that no warranty, express or implied, is being given by the Seller or the Buyer as to the accuracy, airworthiness, suitability or flyability of the Plans or the aircraft or engine to be built with the Plans or that the airplane or engine once built is able to be licensed by the Federal Aviation Agency. The Buyer of the Plans shall accept full legal liability or damages whatsoever the principals, owners and employees of Aircraft Spruce and Specialty Company and Ron Mason, designer. Further understand that any aircraft constructed with the Plans shall only be built and operated in strict compliance with the Federal Air Regulations promulgated by the Federal Aviation Agency. It is also agreed that while Aircraft Spruce will try to direct any questions regarding the Plans and construction to experienced builders, Aircraft Spruce itself cannot provide any technical builder support on the Christavia MK-4. All subsequent buyers, heirs, successors, or assigns are also bound by all terms of this agreement.

Work Ph. \_\_\_\_\_ Signed \_\_\_\_\_  
Home Ph. \_\_\_\_\_ Date \_\_\_\_\_  
Fax \_\_\_\_\_ Witness \_\_\_\_\_  
E-Mail \_\_\_\_\_ Address \_\_\_\_\_

Inasmuch as Aircraft Spruce & Specialty Co. has no opportunity to supervise the manufacture, installation or maintenance of the parts supplied by it, nor any opportunity to participate in the design or manufacture of the various certificated and homebuilt aircraft in which its parts are utilized, the purchaser by placing this order and accepting said merchandise from Aircraft Spruce & Specialty Co. agrees that all materials purchased will be solely at purchaser's risk and that purchaser will indemnify and hold Aircraft Spruce & Specialty Co., its owners and employees, free and harmless from all loss, liability or damage resulting from claims brought by reasons of any alleged failure or defect of any part or parts supplied by Aircraft Spruce & Specialty Co.

This form must be mailed back to Aircraft Spruce in order to process an order for plans.

# Bush Flier for Four

## Ron Mason's new four-place Christavia delivers outstanding performance.

BY KEN ARMSTRONG

SEP 1988

**D**esigner-builder Ron Mason's decades of fascinating aviation experiences range from his first homemade hang glider of bamboo and paper, which he flew off a cliff and crashed at age seven, to his latest creation, the four-place Christavia Mk 4. In between, his training included Air Cadets and a stint as a pilot in the Royal Air Force.

Unable to find a cockpit job, he moved from England in 1958 to Canada where he became a teacher.

Since the April, 1983, first flight of the Mk 1, more than 300 sets of plans have been sold with more than 50 currently flying. Mason notes that this is a much higher completion ratio than is normal, testifying to the ease of construction and the popularity of the design.

Mason designed the Mk 1 as a light aircraft that could operate from very small strips "to provide Aviation for Christ (Christavia)." The design called for short takeoff and landing capability, a small engine with low fuel consumption, a low stall speed, good cruise speed, good rate of climb, a large cabin area, low maintenance and "a high safety factor in the event of a forced landing." The Christavias are also devised for easy conversion from wheels to skis to floats.

With the tremendous success of the Mk 1, it was only a matter of time until the demand for a four-place version sent Mason back to his basement drawing board.

Enough details. It was time to evaluate this aircraft for myself. Donning my crash helmet (for the ride to the airfield), we motored out to Belleville Airport. Owner Jimmy Marker likes the homebuilders so much that he gives them free tiedown space. Ron Mason and the Christavias are popular with the locals; there's

quite a fleet of Mk 1s, in addition to the prototype Mk 4, on the airfield. Somehow, a taildragger looks so much more natural on a grass field than a tricycle looks on the asphalt.

After the preflight inspection, we gained easy access to the Mark 4 through a pair of very large doors. There is one on each side of the cabin. The doors have a hinge-axis geometry that holds them open, presumably to facilitate loading large pieces of cargo. Made of aircraft-grade wood, the doors surround Plexiglass windows that "can be pushed in or out in an emergency." The interior is spacious with its 41-inch width (similar to a Cessna 172) and the individually adjustable, foam-cushioned and leatherette-covered seats.

Firing up my favorite aircooled engine, the Lycoming O-320, and completing the pretaxi checks was straightforward in this entirely conventional, go-anywhere "bush plane." While visibility over the nose is fairly good for a taildragger, this driver selected taxiing turns to clear the wooden propeller's arc from possible obstacles. The fully castering tail-wheel geometry, combined with toe brakes, allowed sharp turns on the way to Belleville's 3000-foot east-west turf runway.

When the time came, we didn't use much turf. Takeoff acceleration was brisk, and that new airfoil wanted us airborne by 40 mph! By the time we reached the end of the strip, we were ready to turn crosswind at 500 ft. AGL. All of this was after a climb that likely exceeded a 30° deck angle, and it occurred with a 10-mph crosswind and standard weather conditions (sea level pressure altitude and 59°F temperature).

Initial rate of climb exceeded 1200 fpm. That 35.5-foot wing still gives 100 fpm at the 19,000-foot service ceiling. On 150 hp, this is amazing. With this sort of takeoff and climb performance, it was likely that stalls would be gentle and at very low

airspeeds . . . but would the Mk 4 be able to top 100 mph in cruise? Would the exceptional low-speed handling be worth the trouble if it took forever to fly cross-country? We would find out shortly.

During the cruise climb to 2000 feet, visibility was good and the sound level was moderate. The noise, muted by good headsets and an intercom, was reasonable for a cross-country flight that could traverse 400 miles or more.

Ailerons and elevator controls are lightly balanced and a pleasure to wave around in the maneuvers we flew later. The rudder is moderately heavy all of this adds up to a control balance that I prefer. Because humans' legs are stronger than arms, rudder forces should be heavier to balance the relative efforts. Otherwise, aviators would be waving their tails around the skies like migrating whales.

Light turbulence caused by daytime heating persisted with the result that we weren't able to pin down our cruise airspeed exactly. However, the Mk 4 is able to top 125 mph at full power and 120 mph at 2450 rpm (that's approximately 75% power and 7.5 Imperial gph fuel flow). For those wishing to extend their range to approximately 600 miles, we indicated 110 to 115 mph burning five gph at 2250 rpm.

Because the fixed rudder trim tab needed adjustment, I had to use a little pressure on the rudder to maintain the Christavia straight on its vertical axis. Elevator trim was linear and smooth in operation with the control mounted overhead in the cabin. The Mk 4 was a delight to throw into turns with the light controls and Frise-type ailerons; however, a little rudder was required to overcome the smidgen of adverse yaw. Diving to the 140-mph  $V_{NE}$  resulted in no tendency toward control flutter. While the flight manual says aerobatics are prohibited, Mason will admit that limited aerobatics can be accommodated. However, pilots should be aware the aircraft was designed as a utility workhorse, and thus does not have a great margin of strength to allow sloppy recoveries that could overstress the aircraft and subsequently its occupants.

Slow-speed handling was ac-



completed at 60 mph, with, it turned out, a large margin above stall. Under these conditions, the Christavia was very maneuverable, and was able to negotiate very small radius turns, similar to an ultralight. Controls were very responsive showing no tendency towards sluggishness. Next, we entered the bottom part of the envelope for some stalls. The only surprise was how low the airspeed was when the nose dropped. Perhaps a second surprise was the effectiveness of the ailerons, even after the stall; more Mason magic in the wings. The power-off, flaps-up stall had very little warning buffet and occurred at 40 mph. Manually deploying the flaps to their 20° limit caused a slight nose-up pitch change and then reduced the stall speed to a Cub-like 35 mph. Remember, this is a four-place aircraft! Spin entry and recovery are conventional but not recommended on other than test flights and not with four on board.

Well, there wasn't much more to do, other than to see if I could land it. With the addition of flaps, it wouldn't be necessary to incur those huge sideslip angles and 2000-fpm rates of descent the Mk 1 was capable of—but those slips were a lot of fun. . . . So, we flew this multi-passenger plane back to the airport, selecting the first 10° of flap below 85 mph and the second below 80 mph.

Then, powering along with a sedate 80 mph on final and 65 over the threshold, we floated for a considerable time, while easily correcting for the crosswind. The extra speed above the 40 mph stall was carried to overcome the possible wind shear and gusts in the turbulent air. Even with the extra knots, we were always stopped in less than half the runway's length. For true short-field operations, using 10° of flap, the Mk 4 can get off in 450 feet and land in 650 feet at gross weight according to the flight manual. With the very low stall speeds, this writer has no doubt that this performance can be achieved by most pilots.

The powerful rudders on the Christavias made all of the crosswind landings a piece of cake! They also created such sizeable yaw angles, which developed substantial sideslips when coupled with unlimited bank.

A number of circuits and landings showed that this bird had no hidden vices when it came to returning to the nest. That spring leaf seemed to absorb any bad judgement or rough terrain as if it were planned that way. . . .

Taxiing back to the Christavia fleet allowed a few minutes of wonderment concerning the Mk 4's performance. If one were to compare published specifications between the Mk 4 and Piper's Super Cub the Christavia comes out a hands-down winner (both use the 150-hp Lycoming and carry 36 U.S. gallons of 80/87).

The homebuilt carries triple the passenger load, cruises faster, stalls slower, uses less runway, flies farther, carries more useful load and costs less than a tenth of Piper's \$60,000+ price. (A recent press release advises that the Super Cub will now be available as a kit for approximately \$30,000 U.S.) The only way to account for these superior achievements is to give credit to the advanced capabilities of the Mason wing.

Pennies per pound, speed per shekel or performance per piaster, no matter where you live, the Mk 4 Christavia provides the maximum honest four-place aircraft for the minimum money. Mason completed his prototype in 1986 for \$8300 Canadian (\$5893 U.S.)! Currently, Mk 1 plans are \$175 while the Mk 4 are \$200 and information packs for each aircraft are \$10 each.

Complete kits are available from Aircraft Spruce and Specialty, and a Mason-built nose cowling should be available soon. □

**FOR MORE INFORMATION CONTACT:**

*Aircraft Spruce & Specialty Co.*  
(complete kits)  
225 Airport Circle  
Corona, CA 92880  
(951) 372-9555





## Elmwood Aviation Math: Christavia 2 Plus 2 Seats Equals Christavia 4

BELLEVILLE, ONT. — When Transport Canada relaxed its regulations governing homebuilt aircraft, raising the weight limit to 4,000 lbs. and the capacity to four places, it was only logical that Ron Mason's Elmwood Aviation should move to develop a four-place version of his highly successful two-place Christavia design.

Some 20 of the Mk. 1 Christavia 2 models are now flying with another 200-plus under construction worldwide. The reputation established by the two-place aircraft plus the added appeal of four places and increased payload capacity may be expected to ensure a similar popularity for the larger aircraft.

Design work on the Christavia 4 began in 1984 and the prototype made its first flight last December. The recently completed flight test program revealed the need for only one minor change in the form of a reduction in flap travel to 20 deg. maximum. Designer Ron Mason says that the flaps are large and effective but are not often required. In terms of trouble-free operation, the new aircraft seems to be following the path of the Christavia 2, the prototype of which has now logged about 800 hours without any problem, according to Mason.

The Christavia 4 has been designed to the same concept as the two-place

model, which was inspired by a need perceived by Mason for a safe and sturdy aircraft for use in mission field work — hence the name. The aircraft had to be inexpensive to build, capable of being constructed in a single-car garage with basic hand tools, using standard off-the-shelf materials, and following standard aircraft practice.

True to these specifications, little or no machining is required and no exotic skills. The only jig necessary is for the truss-type wing ribs, which are made from Sitka spruce. The wing spars are of one inch spruce, reinforced with 3/16 inch drill rod. The fuselage and tail are of welded steel tube construction.

Inexpensive to build the Christavia 4 is. Mason reckons a novice homebuilder could finish the job for under \$10,000. The prototype in fact cost only \$8,300 to complete.

In establishing the design parameters of the Christavia 4, Mason looked to the example of the Cessna 172, which he regards as a very practical aircraft of excellent design with a good record of service. The influence of this respect for the 172's character is reflected in the Christavia 4's strong basic airframe and same general flying characteristics and performance as the Cessna airplane, though stall speed is much reduced at 42 mph clean and about 35 mph with full flap (vs. 57 mph and 51 mph respectively).

The Christavia 4, like its older but smaller brother, is a high wing, strut-braced fabric-covered monoplane taildragger, based on tried and true Thirties and Forties technology. And like the factory-built 172 that Ron Mason admires for its solid and reliable qualities, the Christavia 4 offers family-man performance.

With the recommended 150 hp Lycoming O-320, the airplane provides an honest 120 mph normal cruise and a max. cruise of 128 mph. Average rate of climb is 800 fpm. Other performance data include a take-off roll of 425 ft. and a landing roll of 500 ft., both average figures. Service ceiling is 19,000.



At top is new four-place Christavia 4, showing a marked family resemblance to earlier two-place Christavia 2, above.

Two wing tanks with a total capacity of 30 imp. gal. allow an endurance of four hours.

Specifications are: gross weight 2,150 lbs.; empty weight 1,100 lbs.; length 22 ft.; span 35.5 ft.; wing area 177.5 sq. ft.; wing loading 12.1 lb./sq./ft.

Belleville-based Elmwood Aviation is not in the parts kit business but offers sets of plans. A full drawings kit comprises 24 large (2'x4') of high quality blue prints. All fittings are shown full size, and templates are provided for most unit parts. Construction details and information sheets are also provided to help in fabrication.

Information kits made up of sample drawings, flight manual photo, etc., are available for US\$10 from Ron Mason, Elmwood Aviation, RR 4, Elmwood Dr., Belleville, Ont. K8N 4Z4.

1986





## WHAT'S INVOLVED IN BUILDING THE CHRISTAVIA MK4 AEROPLANE

The idea that any person of average ability is capable of building and flying an aeroplane is no longer a fallacy. Hundreds of people across the globe have done it. However; these hundreds when compared to the population of the globe, turn out to be a select few. Life is short and work is hard, therefore the average person spends the time left over being entertained. This of course is good for entertainers, who draw fantastic sums of money and are able to purchase their own personal jet. The rest of us tend to sit back in our lazy-boy with a large pizza watching the evil eye. At some point along life's way, some folk get motivated to ask that question "What is the purpose of life" or something like that. "Why do some seem to be fulfilled, while others accept the norm?" I suppose there are some that do and some that wish they had. Well enough philosophy for one day. If you are the kind of person that has always had more than a passing interest in aviation, and you tremble a little inside when you hear an aeroplane fly overhead, then maybe it's time you got serious about it. The business of building your own aircraft is not beyond reach, but it does require you to think it through before rushing out, then wishing you hadn't. The cost of flying today has gone out of sight for most family people and that in part is why the amateur built industry has produced more light aircraft than the big commercial operators in recent years. However; one must set some priorities first, then consider just what is involved.

Any large building project requires careful planning and one should start with ones spouse to get an agreement at least in principle. Some poor souls have found out the hard way that this step is vital. If possible involve the whole family in whatever way you can. Choosing an aircraft also requires much thought and preparation. Often talking to other owners and builders will help you make the correct decision. Do join a chapter of EAA or RAAC and seek guidance from members who have completed aircraft. At this point, you have heard about the Christavia line of plans built aircraft, and wish to know a little more about them. Elmwood Aviation is a small family operated business that sells design packages to amateur builders across the world. We have two basic aircraft designs, the Christavia Mk 1, a two place in tandem sport aeroplane and the Christavia Mk 4, a four place family cruiser. The Christavia Mk 1 prototype was built back in 1981 to fill a need as a mission field work horse in third world countries. A number are now flying this duty in Africa and South America. The prototype became so popular in Canada, many people asked that it might become available to amateur builders. A number of aircraft were built in my local area so that I could keep track of progress and offer help as was required. As a result, a number of changes were introduced in the drawings and the construction guide. We have tried to cover all the important details and methods of fabrication, and if builders experience problems along the way, a phone call can save a long and time consuming letter. I would much rather you call me than wished you had!

Plans building is really the best of all worlds for the person a little strapped for cash. You can pay as you go and not get yourself in trouble, or you can purchase kits either individual or a complete package from reputable suppliers such as Spruce Specialty of California. All materials are standard aircraft types and are available from many aircraft suppliers in North America. Since no machining is required, expensive lathes or mills are not needed. There are no special parts or components that you must purchase from a supplier. In fact every part of the airframe can be made by hand in your workshop. Items such as wheels, brakes, instruments etc can be



purchased new or may be picked up used but serviceable at the many flymarkets and flyins across the country.

By far the largest investment is the engine and of course is the most important single item. My suggestion is not to be in a hurry, as in every case, the right one will be there when you need it. The question I am asked the most, is which auto conversion do I recommend? My stock answer is lengthy, but in short, unless you have the necessary skills to convert an auto engine, don't. I do want to make it clear that some conversions are well designed and fabricated. The best insurance is to contact a builder who has used one without any problem for at least five hundred hours. In my experience, I have heard some real horror stories with some auto conversions. There are some great publications and books on this subject which should help one make the correct decision. As you will have guessed, I still recommend a Continental or Lycoming engine over anything I have seen to date. Of course this is only my opinion. The Continental A-65 through O-200 engines are still available in relatively good numbers and parts for these engines are available from many suppliers at very good prices. This engine can be purchased used, time exed, and rebuilt in your shop for 2,000 hrs plus of trouble free flying for the price of many conversions. The Lycoming engine is also very reliable, but parts are more expensive. The Lycoming O-320 150hp is recommended for the Mk 4, four seat aircraft.

Other often asked questions are, how long will it take to build it and how much will it cost to complete it? These are difficult questions to answer as you can guess, because it depends on....??? Taking average times though, it is fair to say that the Mk1 will require between 1500 and 2000 hours of work to complete. Now if you have built an aircraft before and have most of the skills required, you can cut this time estimate down. If you can put in large blocks of time, you will find this will help also. The Mk 4, will require about another 500 hours due to its greater complexity. The cost to build each aircraft again depends on what you purchase new, or what you can find used. A good start is to call Spruce Specialty in California and ask for a current price list of parts, materials and kits. Again the most expensive single item is the engine. Using average completions, the Mk 1, a ball park will be \$8,000 to 11,000 depending on the avionics package. The Mk 4, will be around \$10,000 to 14,000 depending on the engine price and avionics package.

Finally, what tools and facility is required? Both our aircraft have been designed to utilize a standard 12 X 20 foot single car garage. Anything bigger is a bonus. It should have a heat supply for those cold winter nights. As mentioned, no special tools are needed other than a table saw and gas welding equipment. Normal hand and small power tools are much used and of course a good workbench and grinder. A band saw and drill press are nice to have, but not essential. The mention of welding will cause some concern to some I'm sure. Trust me when I say that you can learn the skill quickly with the help of a friend who is competent, or take a night course at you local evening school. It is not difficult and is a great skill to acquire. If you don't wish to spend a bundle on new equipment, try putting an ad in the local newspaper, it always works for me.

Many first time builders who contact me have trouble making up their minds which aircraft is best for them. All too often, the idea of a four place aircraft seems paramount and most desired. After some conversation it often works out that the two seat version is what is most realistic and desirable. If 65% of your flying requires four seats, then the four place is practical. If 50% of



your flying requires four seats, then you might consider the two seat version. The operating costs of the Mk 4, are about twice that of the Mk 1. Insurance is much much more because you must insure all four seats whether you use them or not. Fuel costs are just about twice the amount of the Mk 1. Yes you can use auto fuel providing certain engine and fuel system modifications are done.

We have covered a good deal of ground work so far and I again want to stress the importance of pre planning. Also if you have questions on your mind, feel free to give me a phone call in the evening, rather than write a letter. I get hundreds of letters a month and frankly while I answer every one, I just can't find the time and expense to continue, I am human too. The last section of this information package will deal with each individual aircraft as requested.

I think that building the aircraft in the recommended sequence will go a long way to a successful project. I really do suggest that the wings be built first, for many reasons. While the wings are not overly expensive to build, the time and effort required is great. There are many hundreds of small pieces to be made much like mass production and many hours of repeating the same steps to complete the wing ribs. The important thing about this, is that if you find you have bitten off more than you can chew and don't feel you can finish the project. you have very little invested from the money stand point. In fact if you have done a fair job on the ribs, you will be able to sell them with ease to the next builder. Rib making is a great winter project and can be done in a small part of your house without any complaints from the rest of the family. The only jig required on the entire aircraft, is for the ribs. Also you can take an evening course in welding at the same time.

The wing construction is quite standard for this class of aircraft. It consists of two spars of Sitka Spruce with wood truss type ribs spaced every foot apart. Internal bracing is accomplished by making up diagonal wires from 3/16" drill rod material. 4130 steel tube and plate are used to make most of the fittings, with a few parts fabricated from mild steel. The leading edge is covered the full length of the wing with aluminum sheet, which in effect forms a very strong "D" section to the wing. The ailerons are of the frise type, with a high velocity air slot at its leading edge. It is this design that allows very effective control response at low speeds. All the fuel requirements of the aircraft are carried in two 15 imperial gallon tanks fabricated from fibreglass or if you are proficient with MIG/TIG aluminum. These tanks are located in the root section of each wing. Slotted flaps are employed to reduce the landing speeds. A maximum setting of 20 degrees has been chosen for a safe and controllable speed during the approach and landing phase. A construction guide will take you through each step in the sequence in a logical and workable order.

The fuselage and tail section are fabricated from 4130 steel tube and sheet. 1010 mild steel may be also used for a good part of the lower stressed sections. The drawings are very clear as to what materials may be substituted. The basic fuselage is built just like you used to build a balsa aircraft, you scale from the drawings an outline of the full size fuselage side on your garage floor using chalk. The tubing is then cut with a hacksaw to the sizes shown on the drawings and placed over the outline. The tubes are held in place with house bricks while each joint is spot welded. When one side is completed, it can be placed on saw horses to finish weld each joint. The second side may be built over the first side to ensure that both sides are the same. The two





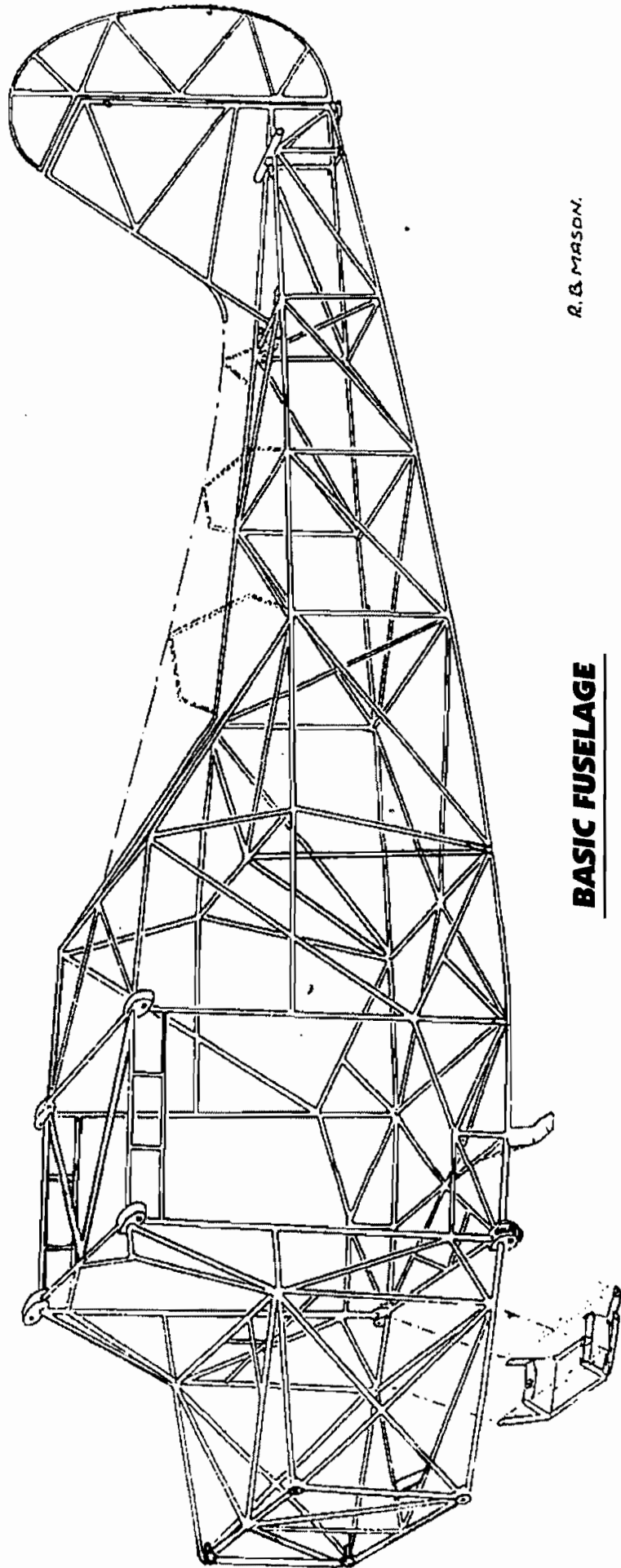
sides are then placed vertical while the cabin crossmembers are welded in place. A little bending with heat, shapes the fuselage to complete the fitting and welding the remaining crossmembers. The tail section and undercarriage is constructed using a similar technique. The undercarriage is designed to make use of the many surplus spring gear legs that have been removed from old Cessna 150s.

By now you will be a most proficient welder, ready to weld the fuselage fittings in place. A time consuming part of the project will be all the stuff you can see such as the instrument panel, the seats, the upholstery the avionics and wiring etc. Finally the most interesting and straight forward part, the covering and painting. Providing you build the aircraft as designed without structural or shape changes, the test flight should be a real highlight in your life and be uneventful. The basic aircraft is most conventional and its type has been proven with many millions of flight hours. The prototype has past the 300 hours mark without a single problem of any kind. All our aircraft designs have followed the standards as specified in the old FAA's Cam 18 to FAR 23 general standard. Each aircraft has been subject to a most in depth flight testing schedule of at least 150 hours. Capable of being flown on wheels, floats and skiis, the Christavia Mk4 will bring many happy and safe hours of flying to their builders. The Mk4 has a very reasonable cost per hour to operate. With a Lycoming O-320 of 150 hp, and base insurance, it is not unusual to fly for \$20.00 per hour. Of course thats with an outside tiedown. Most builder pilots have after the first 500 hours have come to realize that while a full IFR panel looks great, it is not very practical. The recommendation then is that you install only essential VFR instruments and purchase a good GPS. Throw all that heavy old fashioned avionics away and go light. A good quality intercom is worth its weight in gold though and should be wired into the aircraft before covering.

We believe we have thought of just about everything for the first time builder, but should we have missed something you think is important, please let us know and we will include it. Again please feel free to call me evenings, if you have any questions.



**CHRISTAVIA MK4**



R. B. MASON.

**BASIC FUSELAGE**