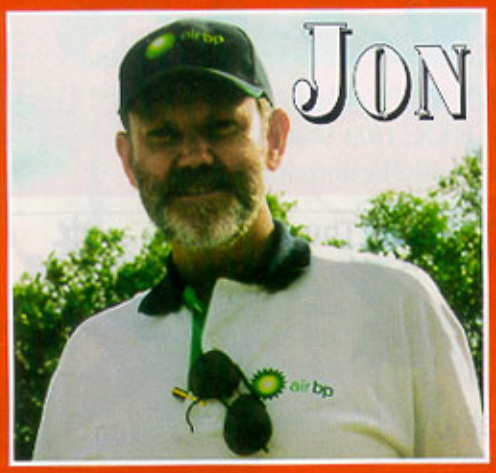


Jon Johanson ~ Aiming High

The Australian aviator Jon Johanson can best be described as a quiet achiever. Very few people would know of the exploits of this South Australian, yet he has flown twice around the world and over the North Pole in his RV-4, an aircraft that he built himself. He holds over forty world records and is the recipient of numerous national and international awards. He has overcome prejudice and ridicule and his own doubts and fears, to pursue his love of flying and his belief that anything is possible if you dare to dream.

Jon spent his early years in country Victoria and it was at Horsham that he went on his first joy flight in a Cessna 172 and his love-affair with flying began. On leaving school he completed a carpentry apprenticeship but then decided to become a nurse, eventually specialising in midwifery. He also began flying lessons, eventually gaining his pilot's licence. Jon volunteered to go to Thailand to care for Cambodian refugees and before he returned to Australia he visited America where he met Richard Van Grunsven, the designer of the RV aircraft and he knew that one day he would build his own RV-4.

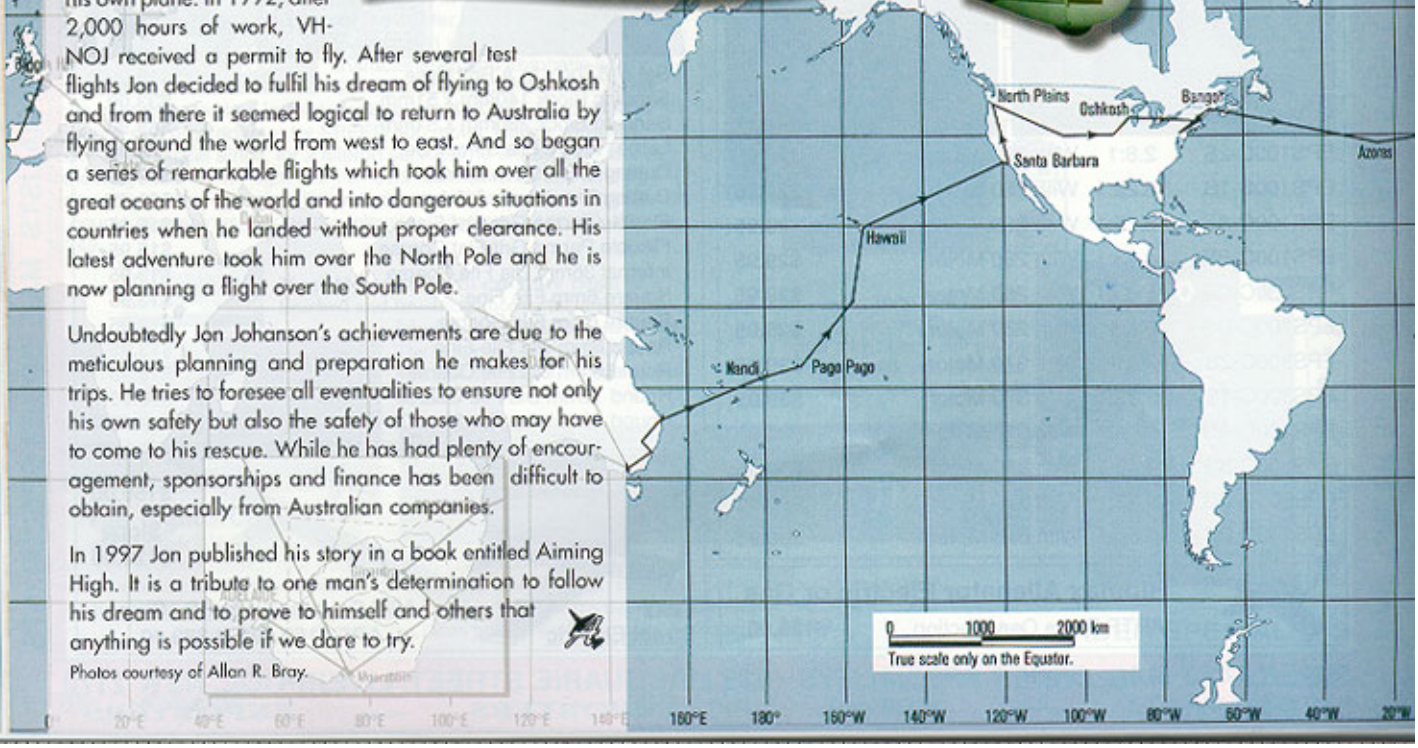
Back in Australia Jon worked in NSW and then in the Northern Territory both as a nurse and as a pilot. In 1989 with very little money but lots of encouragement from friends he began to build his own plane. In 1992, after 2,000 hours of work, VH-NOJ received a permit to fly. After several test flights Jon decided to fulfil his dream of flying to Oshkosh and from there it seemed logical to return to Australia by flying around the world from west to east. And so began a series of remarkable flights which took him over all the great oceans of the world and into dangerous situations in countries when he landed without proper clearance. His latest adventure took him over the North Pole and he is now planning a flight over the South Pole.

Undoubtedly Jon Johanson's achievements are due to the meticulous planning and preparation he makes for his trips. He tries to foresee all eventualities to ensure not only his own safety but also the safety of those who may have to come to his rescue. While he has had plenty of encouragement, sponsorships and finance has been difficult to obtain, especially from Australian companies.

In 1997 Jon published his story in a book entitled Aiming High. It is a tribute to one man's determination to follow his dream and to prove to himself and others that anything is possible if we dare to try.

Photos courtesy of Allan R. Bray.

SPECIFICATIONS	
Length	1190mm (47 in)
Wing Area	42dm² (640 sq in)
Wingspan	1500mm (59 inch)
Weight	3 to 3.2kg (7 - 7.5lbs)
Engine	.45 - .60 2 cycle (7.5 - 10cc)
Radio	4 - 5 channel / 5 - 6 servos required



VMAR RV-4

by Mark Sills

Produced by Vans Aircraft Inc., of North Plains, Oregon, the RV series has been available since 1973, in the form of plans and kits for homebuilders. RV-4, which entered the market in 1981 as a high performance single engine homebuilt monoplane and has just been released as an ARF radio control model by Vmar Manufacturing and is the subject of this review.

What's in the box?

If you were one of the first 200 modeller's to purchase a Vmar RV-4 you received a limited offer of a 294 page autobiography which provides you with a detailed look and Jon Johanson's experiences. It is fascinating reading and is a welcome addition to the kit.

This has to be the best scale ARF ever produced by the VMAR manufacturing company.

The new RV- 4 ARF is the very realistic scale version of this famous homebuilt plane which utilises a new revolutionary ECS. (polycote) covering.

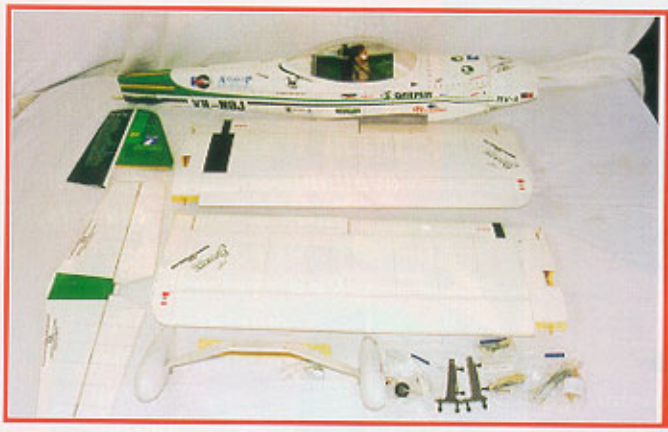
ECS is a brand new Enhanced Covering System engineered in Canada specifically for use on VMAR ARF planes. It utilises Ultratough Polyester with enhanced graphics and detailing, the covering is totally fuel proof, high strength, lightweight and durable. The revolutionary technique of getting graphics and detailing inside the covering adds an extra touch of class to each of the major components. A life like representation of Jon Johanson along with some cockpit details are encapsulated under the bubble canopy. The fuselage is adorned with the many sponsors logos who have contributed to the epic flights that have helped make this 'plane famous around the world and adds to the overall appeal. Factory installed pushrods inside the built up fuselage exit the tail through plastic guides; these significantly reduce assembly time.

The near symmetrical wing features a parallel cord and is fitted with both flaps and barn door ailerons that will require 3 servos for operation. The tail plane has all the hard work completed leaving you the simple task of gluing them into the slots pre-cut into the fuselage. Moving surfaces use pin hinges, which are glued and pinned for added security, this safety feature is common place on VMAR aircraft and saves you time on the building table. Remaining items include a fibreglass cowl along with a comprehensive hardware pack that contains all the quality items to assist with the assembly. They include clamp style motor mount, that needs no drilling or taping, tank, wheels, axles, wheel spats spinner, control bolts and screws and a fully comprehensive assembly manual.

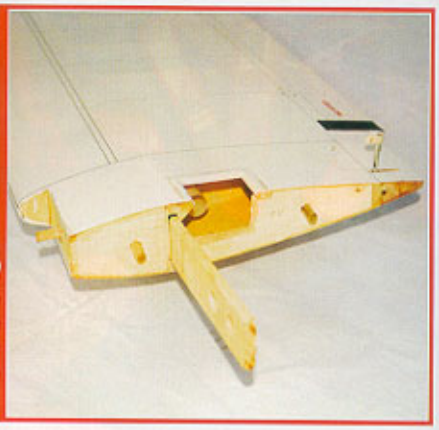
Assembly

A perusal of the highly detailed instructions with over 100-colour photos gives you the knowledge needed to assemble you new aircraft. Although Jon took 2 1/2 years to construct the full size version, VMAR have reduced the final assembly of the model down to an average of a few hours. Using 30 minute epoxy begin by gluing the dihedral brace and aligning dowels into one wing half. You may wish to take advantage of the epoxy drying time to fit you're Aileron servo's to the flush mounts in each wing panel. Simply screw a standard servo the mount and, using the drawstring, pull your servo and extension lead through the conduit to the centre. With the control bolts installed on each aileron you can connect up the pushrod the servo before it is fitted back into the wing. With both panels wired up, mix up some more 30 minute epoxy to join the wing panels as one. Make sure they are held in correct alignment until the glue dries.

With any excess epoxy removed using methylated spirits and a rag you can cover the join with the trim tape supplied. Fitting



Left: All components come well packaged with detailed graphics already printed onto the covering giving a great finish.



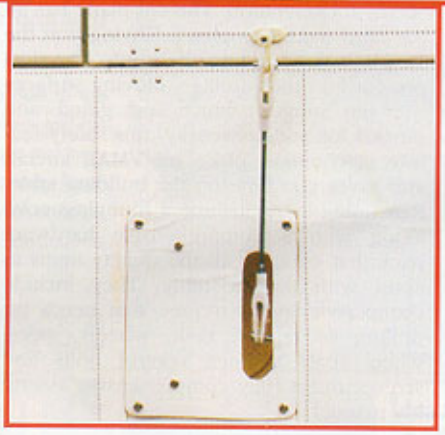
Right: Wing joiner, (dehedral brace), should be a snug fit into both wing halves and is then epoxied into place. Note the tube for the aileron extention lead.

a flaps servo is the last task for the wing, you may of course chose to fix these in the neutral position and take advantage of them at a later stage.

Now you can move onto the fuselage where I began to fit the motor and tank. VH-NOJ (Jon spelt backwards) was fitted with a 160 HP engine and carried 470 litres of fuel. The model is ideally suited to a GMS 47 combined with the 10cc tank to easily give 10 minutes of flying pleasure. The power-pod method has been a brilliant idea for VMAR and the RV-4 has again adopted this technique for the power plant. The removable firewall has only the tank mounts drilled allowing you to select the position of the motor you like best. The recommended 25 degrees off centre is ideally suited for a standard motor and muffler, as does the inverted position. I decided to mount the GMS 47 to the recommended thrust line at 90 degrees and use an in-cowl muffler. I found it easier to attach the split clamp style mount to the rails of the GMS then position the assembled motor and mount on the firewall. Once the location of the prop-shaft lines up with the thrust line the clamp holes are drilled allowing the motor assembly to be fixed into position. While putting together the tank I drilled a third line into the stopper to be used as a filling point. You may wish to use an in-line valve or a 'T' piece into the tank line but I like to keep the fuel delivery as simple as possible. The fuel tank is housed on 2 dowels attached to the firewall and once held into position the entire power-pod is attached to the fuselage via 4 bolts. Because of my choice to side mount the motor, one bolt needed to be relocated to clear the motor mount. Now we come to the three piece fibreglass cowl. There are several different ways to fit a cowl but I like to draw a reference line on the fuselage, along with a distance to define the location of the glow plug. Next, I removed the head and carburettor from the motor, which enables the cowl to slide into location without any obstruction. With the cowl positioned and fixed in place then I transpose the markings to the cowl and drill a hole for the head and mixture screw. Now, simply remove the cowl; re-fit the head and carby minus the mixture screw. The two fuselage cheeks are rebated to slide under the back edge of the cowl; this means that only one screw is needed to hold them in place. With the mixture screw re-fitted, an aluminium spinner and an 11 x 6 APC prop was added to complete pointy end. The fibreglass undercarriage along with the wheel spats assemble as per the instructions and easily screw to the fuselage using the supplied hardware.

With 30 minute epoxy applied, the wing halves held together with the adhesive has cured. The centre wing servo is for flaps.

Below: The eingine is mounted onto the supplied engine mount and an incowl muffler is used to keep the aircraft looking sleek.



The main wing is re-installed to the fuselage as a reference so the tail surfaces can be trial fitted and aligned. Once positioned correctly, mark it so that the covering may be removed to ensure a firm glue joint. The same procedure is adopted for the fin before both surfaces are perminatly fixed into location using epoxy. With the control bolts and tail-wheel fitted the steel pushrods can be connected leading you the final job of the radio bay. Vmar's removable servo tray is pure luxury and allows you fit your servo's externally if you wish. It is then fitted to the RV-4 permitting you to connect the moving surfaces with your servos. The battery and receiver were wrapped in foam then cable tied to the bulkhead behind the tank. This enabled the balance point to be located at the recommended 30% of the wing cord. The suggested deflection amounts were set up on low rates giving some more generous movements the chance to reside on high rates switch.

With meticulous detail Jon Johanson checked every nut and bolt twice to

Aileron servos are flush mounted under each wing. You will need extension leads for these.

ensure that all was in order so I followed his lead and went over everything to ensure all was in order before the next days flight.

THE TEST FLIGHT

Arriving at the freshly mown field I was greeted by a gusty cross wind. Normally I wouldn't think of testing on such a bad day, but the review deadline was drawing closer and I needed to get some flying shots in a hurry. The nerves grew as I checked everything while assembling the RV- 4 and while doing the usual range check I got the feel for how Jon must have felt before this test flight. With a tank of fuel and a flick of the prop the VH NOJ (the model version) was making its way out to the strip to see if it could at least taxi in such poor conditions. As I taxied out holding in some up elevator the rudder response was good and it tracked well despite the crosswind. Holding very little up elevator and a heap of right rudder, I advanced the throttle forward while easing off the elevator, and most of the rudder. The GMS 47 had the plane on its main gear in no time, and as I gave some up elevator the RV4 just lifted off with no fuss. As soon as it was airborne, I couldn't believe how steady it was, it felt like a high wing trainer, but I guess being a non aerobatic plane this would be how the real home built plane would fly. The usual click of the transmitter trims had the RV-4 flying hands off despite the fluctuating crosswind. While the full size plane is not rated for aerobatics, thankfully this was not the case with Vmar's version. The GMS 47 gives a very fast top speed, into wind

loops were good with no change of heading throughout the manoeuvre. Rolls were actual and stall turns looked graceful thanks to the good rudder response. Gaining some height it was time to see what the flaps would do. Pointed into the strong wind and with the GMS at idle the flaps were deployed to 20 degrees the RV-4 begin fly backwards! With a nose high attitude and no sign of dropping a wing, this was one stable aircraft. Opening the throttle and flicking to high rates had the RV-4 ready to accept any challenge. Spiral dives are reasonably paced and control is easily regained as the ground approaches. Inverted flight requires minor correction to maintain altitude and knife-edge flight is achievable for short periods. Snap rolls are my favourite test for any aircraft and the RV-4 accepted the challenge with ease. I turned one snap roll into an almost flat spin which saw full control regained once the sticks were neutralised. With a smile from ear to ear (which the full size pilots call the 'RV grin') it was time to see how Vmar's latest flying success would land.

As I set up for a landing the wind was now at 90 degrees to the strip. For the first landing in not very ideal conditions I chose to leave the flaps up and come in little hot until I was low and over the threshold. Holding in a little rudder, I started to throttle back and let the RV-4 flare out resulting in a very nice touch down with no thought of bouncing. So did the RV4 fly as good as it looks? No, it flew better!

SUMMARY

So, are you in the market for a new ARF plane that looks fantastic? You want it to go together well, have an amazing flight envelope but with the stability of an advanced trainer. Then this latest production from the Vmar Manufacturing company is for you.

The RV-4 's new Enhanced Covering System is the most advanced covering system ever used on a model eliminating the need for decals on film. Flying is a dream, from the moment you lift of you have the stability for the Sunday flier and with the flick to high rates the RV-4 can do some impressive manoeuvres which will keep the devil in you satisfied. Landings are very stable and with the flaps down, amazingly slow. The tail dragger configuration provides good ground handling and the spats proved not to be a hinderance. Vmar Manufacturing, with its ongoing commitment to quality has combined a great looking plane with excellent flight charcastice to produced what is sure to be a most popular ARF.

Distributed by the Australian Model Aerodrome, Melbourne.