

Kobé Kiko

ROBINSON R22HP

TEST REVIEW
by *The Editor*



Specifications:

Main rotor rad: 1500 mm
Tail rotor rad: 260 mm
Total length: 1210 mm
Total weight: 3.9kg 8.6lb
(9.0lb with gyro)
Gear ratio: 9.6:1.0:4.5
(Engine: m/rotor: T/rotor)
Engine: .40-.61 or 21cc petrol
Radio: 4 Channel and 5 servos
Auto rotation: Standard
Fuel tank: 300cc (10.7oz)
Complete with scale exhaust and
cockpit internals.

Out of all the model helicopter kits on the market, to my mind there is none so exquisitely designed and manufactured as this latest offering from Kobé Kiko of Japan. It has, without doubt or question, the most precise flybarless rotor head to date. Having known about the full size Robinson R22 for some time and the intricacies and excellence of its design and manufacture by Frank Robinson, I can only congratulate Kobé Kiko. Their ability to have designed the beautiful miniature model helicopter rotor head, as they have here, can only be praised. It is certainly revolutionary and as it is called an R22HP, then obviously the HP must stand for High Performance.

As it is scale – in every aspect – the model helicopter pilot who is looking for the challenge to build and fly a model with many new concepts, will not be disappointed. Firstly, the rotor head. It comes fully assembled and is very impressive. It is of course flybarless and fully articulated (patent pending) with free-hinged hub, which includes six bearings and metals, with excellent damping rubber. With its flapping hinges/blades, teeter and spindles for feathering axis which is offset forward of the main mast, this undoubtedly makes it the most advanced head, of this kind. This is a solid piece of engineering and it is unlikely that it would be necessary to disman-

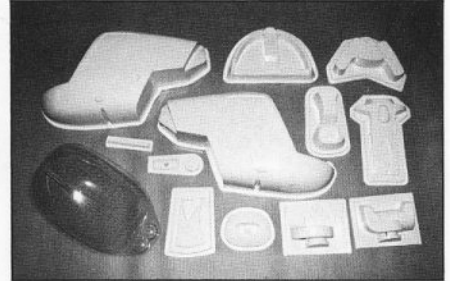
tle the components for some time. As per full size, it is designed for long life before maintenance. The only parts that could get damaged are the pitch arms which are quite robust, though if bent or misaligned for whatever reason, then will certainly cause havoc in tracking and create severe vibration. Also be very gentle when connecting/disconnecting pitch rods. The main rotor blades are tapered with wash out and come with black blade covering which can be heat shrunk, in preference to the steam shrink method as described in the instructions. The steam method would cause the blades to increase their density by condensation and thus affect their balance. The blades are weighted on the leading edge, though do not weigh any more than standard blades such as Hirobo 808 or Kalt Baron 50/60 ones. They are weighted to obtain the correct centre of gravity.

There is an excellent pitch change/cyclic control system called 'MCS' (Micro Control System) (patent applied) which gives total direction in control thereby ensuring the high performance with full accuracy. Moving parts throughout are few and the entire frame design has been kept simple. Parts, ie frames, nuts and bolts etc, are very strong, though very light weight. Servos fit into predrilled and machined plates with a plastic tray under the throttle and cyclic servos, to hold the receiver and batteries. You can either use a .50 or .61 or in fact, Kobé Kiko say that a .40 would be powerful enough to drive this model, and of course with the toothed starting belt which is provided, starting is simple though as the engine is inverted then flooding is possible. There is also a petrol engine version kit which comes complete with an Echo 20GP electronic ignition engine and this kit is understandably more expensive than the glow version.

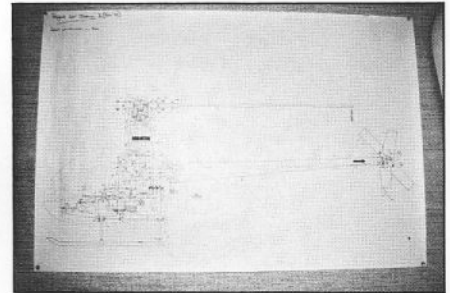
With a simple one belt-drive system which is installed to a one way clutch this incorporates synchronized drive of the main and tail rotors. This is of course very useful for engine idle/engine off autorotations. The tail gear box which is also factory assembled except for the requirement of adding grease, is of polished alloy and has an excellent pitch change system. The coaxial swashplate slides onto a 10mm polished main shaft, most of which is enclosed by the conning tower. (See photos.) The skids are



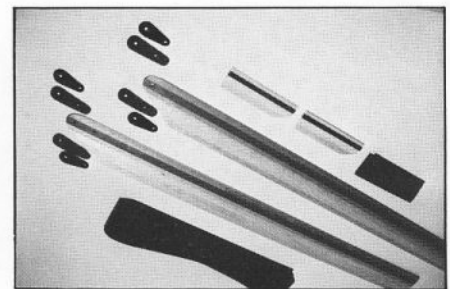
The kit contents after unpacking the box. Each bag is numbered – follow the system and you can't go wrong.



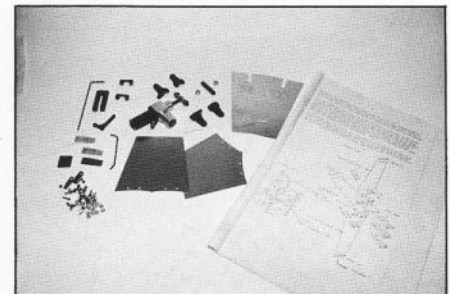
The superbly detailed cabin/canopy housing. Everything is to absolute scale. Patience is much required when trimming each piece to size.



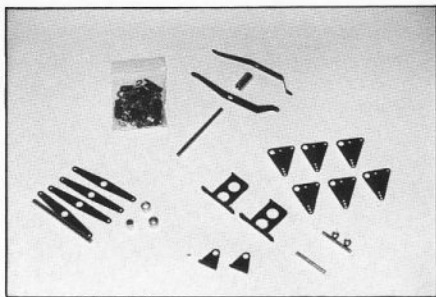
The 1/2 size highly detailed plan/drawing.



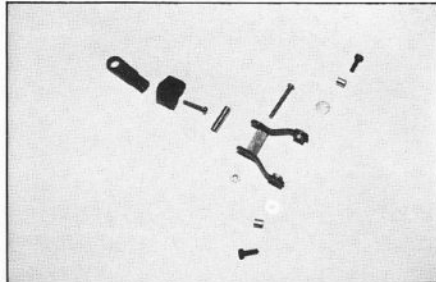
The almost ready finished blades with washout, and lead along the leading edges. Ensure the weights are well epoxied into the slots.



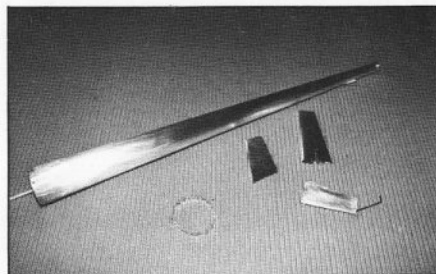
The vertical and horizontal tail sections. The thin sheets of aluminium are pre-cut to size and are easily formed to the correct shape – with care of course.



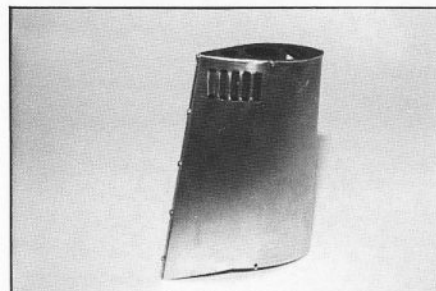
The mixing levers for cyclic and collective. This requires accurate and slop-free assembly. Precision is a must. Take time.



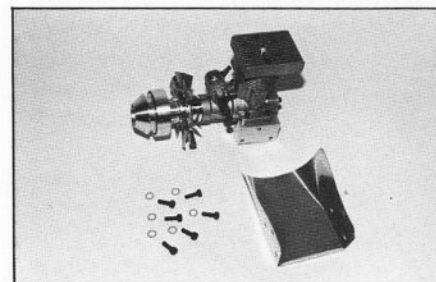
Lowers scissor arm assembly.



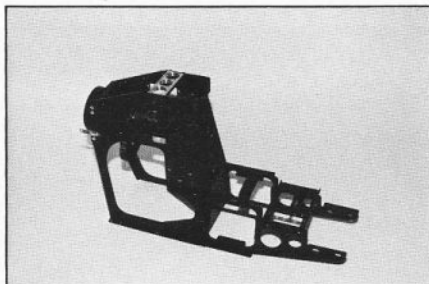
The aluminium tail boom – simply perfect. Will dent fairly easily, however, repairs to it are also quite easy as it is reasonably robust.



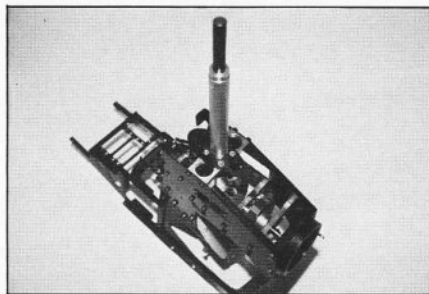
The conning tower! At this stage you might be forgiven if you thought you were building a submarine. Again, the aluminium sheet forms to the shape easily.



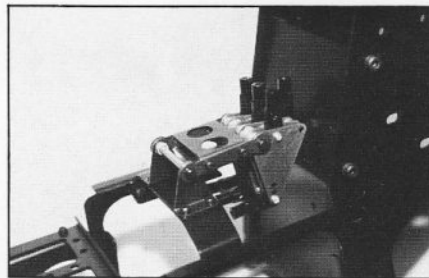
The excellent OS MAX .50H engine. The model can also be flown with a .61. Another kit comes with a petrol engine. Clutch and fan are well engineered.



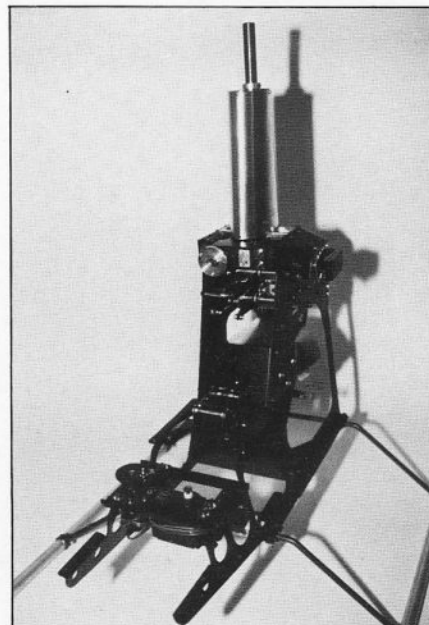
The main frames assembled. Virtually the complete chassis of this machine, everything is neat and to hand and very well laid out.



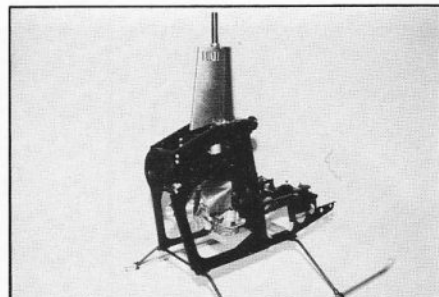
Looking down between the frames we can see the tail drive and main gear units and the main shaft. Tail boom is attached to the circular moulding.



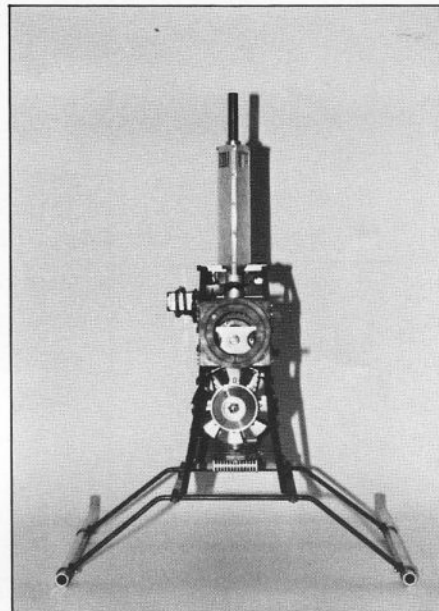
The assembled pitch up/cyclic mechanism.



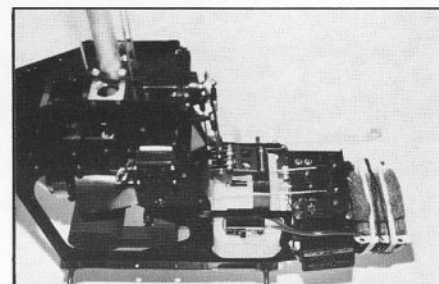
The model with some of the servos installed.



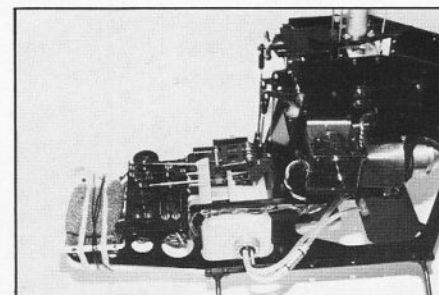
Looking at the semi built model from the rear gives a solid impressive feel.



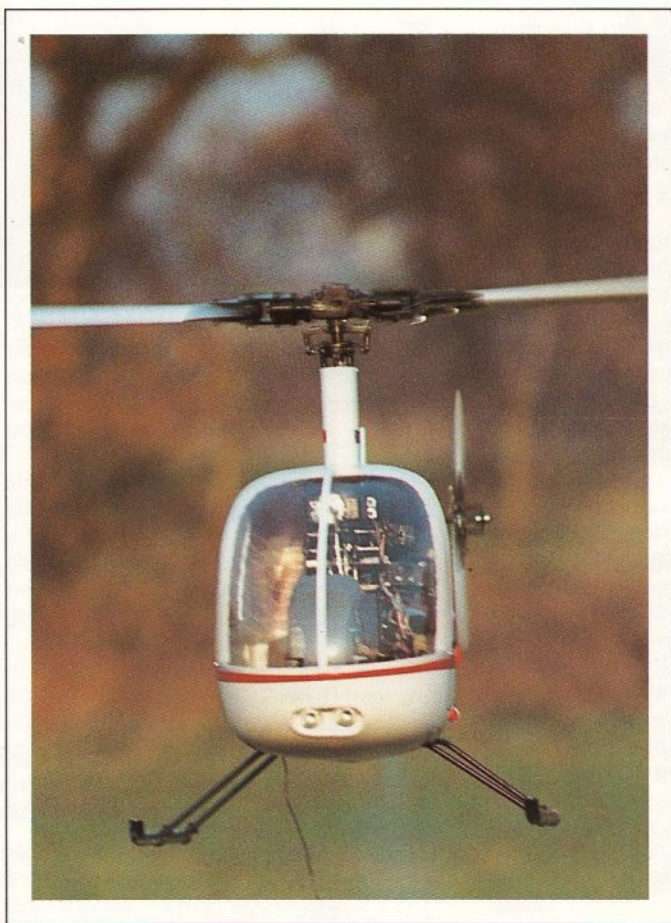
Looking at the model directly from the rear of the main frame assembly. Very narrow – but neat and precise.



Here we can see the assembled servos and pitch up/cyclic mechanism with gyro on/off switch, receiver switch, range selector and receiver tray.

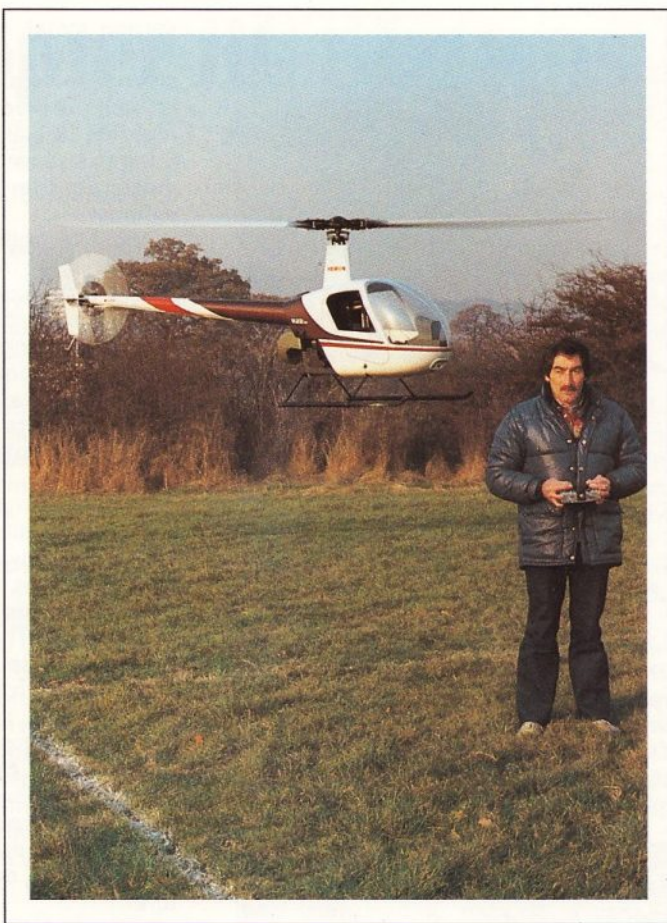


The gyro is fitted to the left frame. The plastic tray in front holds receiver and batteries. The fuel tank slides in between frames and held by servo tape.



With its solid engineering and robust frame assembly the R22 will delight the expert flier with its beautiful scale flying characteristics.

Photo – The Editor.



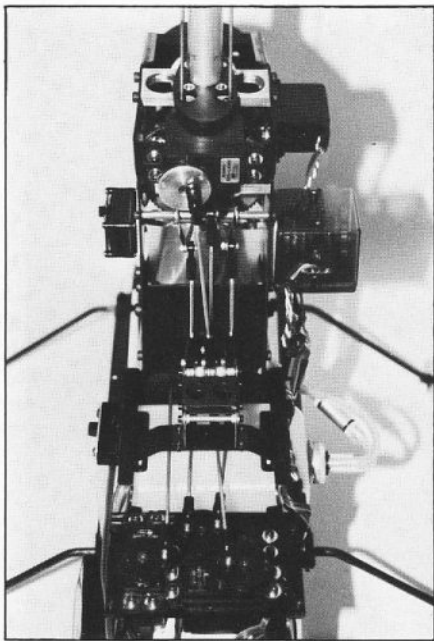
Dave Nieman with his .61 powered R22. Dave likes the model quite a lot but does point out that although the best flybarless model around – it is not a piece of cake to fly.

Photo – The Editor.

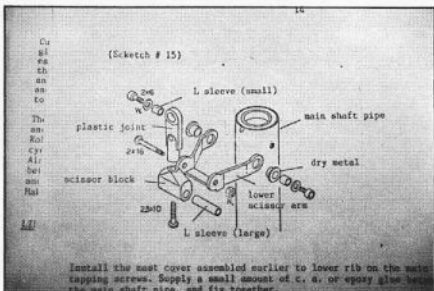


Mr. Furuichi of Kobé Kiko with a colleague giving a demonstration of their superb new model of the Robinson R22.

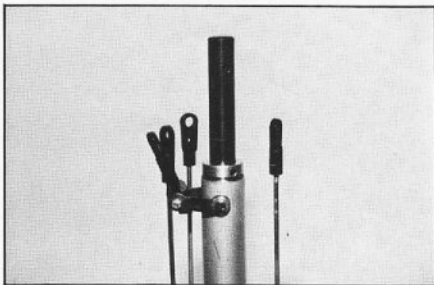
Photo – courtesy Kobé Kiko.



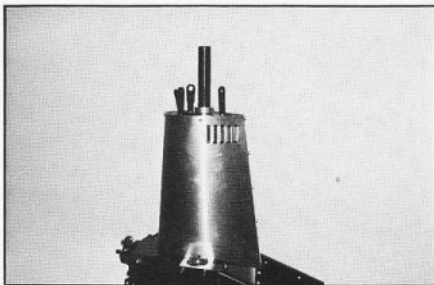
The pitch up/cyclic mechanism and related servos with gyro on the left and switch on the right of the model. On/Off switch for receiver also on right of the model.



Lower scissor arm assembly drawing.



Lower scissor arm assembled on mast cover.



That conning tower again - with periscope! Main shaft and cyclic/collective rods poking through the top - all superbly designed.

sprung metal, and although they look skimpy, they are in fact very, very strong. The main canopy is plastic and is well formed with scale detail. It requires care and precision when trimming to size as do the plastic parts that make up the dummy scale engine exhaust.

The tail boom is light aluminium sheet, ready shaped and made up. So also are the conning tower, the horizontal and vertical tail fins but these require forming to shape. Quite simply, here we have a superb kit which has been beautifully designed with excellent parts and will give you a model helicopter that is rewarding to build and fly.

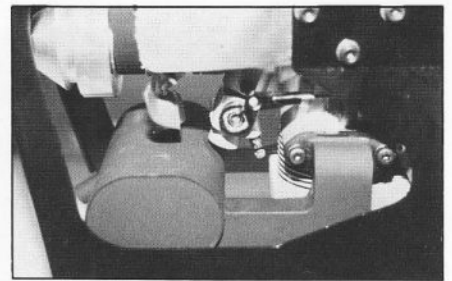
Out of the many kits on the market, this one actually provides instructions which, if followed as they are - stage by stage, then the kit will go together precisely. This in itself gives great satisfaction. They even give you the measurements of all the rod lengths for the controls, to the millimetre, which when assembled should not need adjusting. The accuracy of all parts and by following the assembly instructions provides a model that certainly gives you your money's worth - without any cause for complaint to its designers or manufacturer.

In issue 4 there will be a report on the kit I built, using an OS MAX .50 FSRH engine. This will also include flying tests in comparison with the model fitted with an OS MAX .61 FSRH engine, and also the petrol engine version, both of which have been built and flown by Dave Nieman. Dave also flew my model for the photo session that I had with Sloane Helicopters when shooting the model and full size for this issue's front cover and the centre spread.

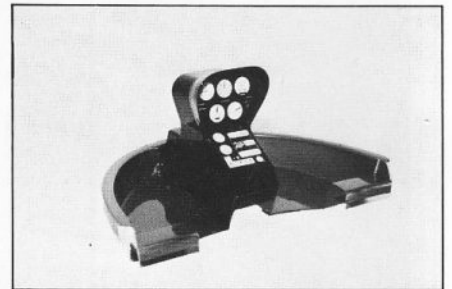
As the model is very lightweight and although the tail boom and tail fins are sound enough to be straightened or tapped back into shape in the event of an accident of any kind, it might be advantageous to the cautious to do the following. This involves using the head on another model - say one of the many pod and boom types that have a 10mm main shaft or the possibility of using a smaller diameter shaft with a 10mm insert for the KKK head. One can then practise flybarless flying without damaging an excellent scale model. As you will find out in the next issue, the hover is the trickiest part of flying without the stability of a flybar. Circuit flying is straightforward - however it still takes a tremendous amount of skill.

Stop Press

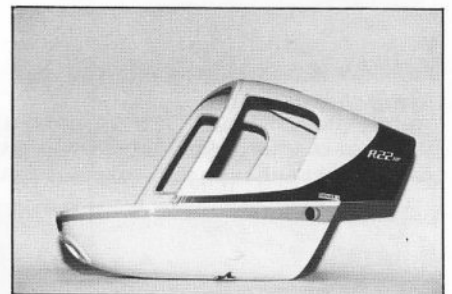
Franz Fletcher of Jamaica won the Static Scale part of the contest at the Tangerine Competition in Florida, and came second overall in the Scale event, with a KKK Robinson R22HP model - and he didn't even have time to finish the interior/cockpit. Well done Franz.



The exhaust - muffler/silencer designed especially for the model and the OS MAX .50 and .60H engines.



The instrument panel and forward and interior housing. Decals are provided for the instruments and they are also to scale.



The main canopy/cabin housing.



The completed model less tail boom and main blades and clear plastic windshield/canopy.