

We have now sold nearly 500 "Cricket" and the reports which have come in to us from all over the world indicate that beginners are indeed learning to fly much faster than with previously available choppers. Just as important, though, "Cricket's" maneuverability is also endearing it to the expert as his second machine to be used when he wants to relax or when he needs to fly in restricted spaces.

Reports from some owners, however, indicate problems occurring with their machines which have prevented the full potential of "Cricket" from being achieved. This bulletin will summarize the most common problems being encountered and will describe some 'fixes' for them. We hope that, if you are having any problems, this bulletin will provide the information which you need to put them right so that you can enjoy the full performance and pleasure which "Cricket" can provide. By the way, there were seven "Cricket" at the AMA 'Nats' and reports are now coming in of "Cricket" flying at altitudes as high as 10,200 feet!!! This with an O. S. .25 Max FSR, of course. So it is now clear that "Cricket" is very adequately powered with a .25 Schnerle for any average altitude, and that a standard .19 engine may well provide plenty of power at sea level.

Flying Rearwards and to the Left After Take Off

This behaviour has, in all cases, been due to a slightly stiff rotor head system. It is vital in any helicopter that the rotor head pivots very freely as it rotates. Any significant friction in the 5/32" dia. pivot pin or in side plate pivots can cause the helicopter to back up and go left. "Cricket's" parts are manufactured to very close tolerances and sometimes a combination of tolerances at their limits can cause an initial tightness. So to fix this one, disassemble the rotor head and, if necessary, use some fine emery paper to polish the 5/32" dia. pin. Reassemble and use some light machine oil on all pivots and bearings. "Cricket" should then behave properly, which means that it will lift up into a stationary and stable hover. It will also maneuver equally well in all directions. Do note, however, that the swashplate must be tilted slightly to the right to offset the sideways pull to the left of the tail rotor. This is normal with all helicopters.

Slowness in Response

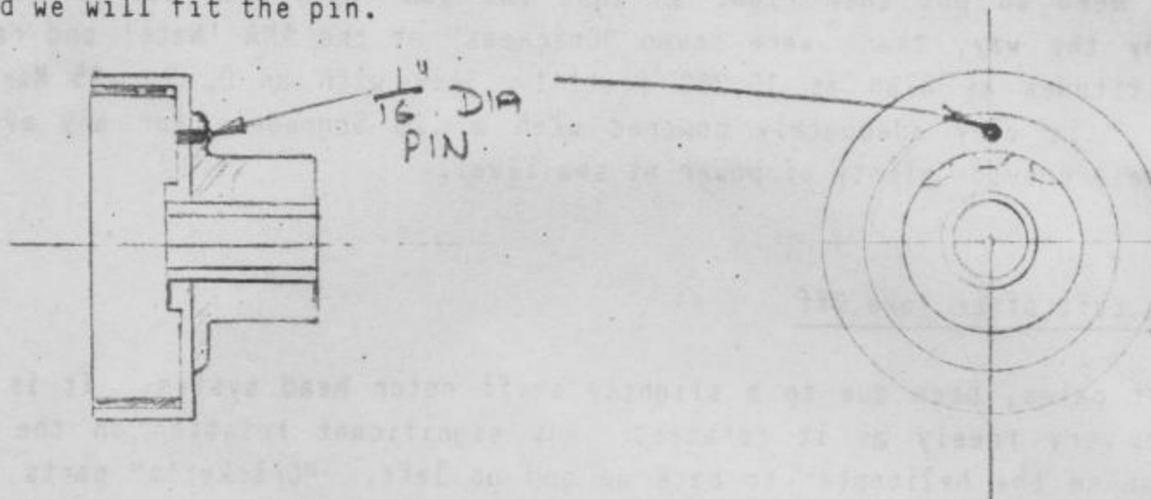
As stated in the setting up instructions, all of "Cricket's" controls must be absolutely free to move, especially around the center. A very small movement of the transmitter stick (1/16" of so) must result in a positive movement of the appropriate control. For instance, a 1/16" movement of the transmitter pitch stick to the rear should result in the paddles rotating (when they are positioned fore and aft of the helicopter center line). By the way, don't forget that the paddles must be lined up with each other and parallel to the swash plate. Same with roll and yaw. If this doesn't happen, your linkages may be rubbing somewhere or your servo/radio may not be performing properly. It is vital with an R/C helicopter that the transmitter sticks are very closely linked to the flight controls. Check also that your swashplate movements are, at least, plus and minus 15 degrees; 20 degrees is better. Your manual covers this point also but we have still found some builders who attempt to fly "Cricket" with total swashplate movements of plus and minus 5 degrees, and then wonder why the response is poor!!! So, if you are experiencing a slow response of "Cricket", then look into these points listed above.

Vibration

Of course, a tendency to vibrate is natural in any helicopter. Everything must be extremely well balanced to avoid it. Your main rotor system must be balanced both with and without the main rotor blades fitted (see the instructions). Tail rotor blades must also be balanced separately. A bent main shaft can cause very severe vibration so check for this, especially if you have recently had a tip over. There is one other cause of vibration which can occur when the main rotor blades are fixed to the rotor seesaw with a single screw. This technique, used in "Cricket", greatly reduces the breakages of main rotor blades but, unless the tightening of the bolt is adjusted carefully, a rapid lead/lag variation can occur which in turn produces a severe vibration. The solution is to tighten the single blade fixing bolt and nut until the blades are firmly held but can just fold back if the blades hit the ground. When the bolt is this tight you may have to line up both the blades before flying, although centrifugal force will usually line them up for you.

"Slipping" Clutch

Several reports have been received of "slipping" clutches. Some builders have even reglued the linings of their clutches to try and cure the problem. However, even though an oily clutch can slip, the culprit has most times been that an overheated engine has caused the nylon drive pulley, fitted to the clutch, to slip on the clutch bell housing bearing. This has only occurred in a limited number of "Cricket" which did not have a steel pin to positively locate this pulley to the clutch housing. If you have a clutch and pulley which do not have a locating pin fitted, then here's how you can fit one and cure the problem. If you would rather we did it for you, then return your clutch bell and we will fit the pin.

Lubrication

It has been pointed out that we did not specify any lubrication for "Cricket" - you're right, we forgot. The shielded ball bearings are already grease filled and should last a long time before they would need replacing. The tail gearbox is already greased but you can add some more high temperature gearbox grease from time to time. Naturally, every few months, or about 100 flying hours, the gearbox should be disassembled, cleaned and relubricated. As we stated earlier, the head should be lubricated with a light machine oil as should the control plate bush on the tail gearbox. Ball link balls can be lightly greased. The tail drive shaft should have a little grease applied before it is inserted into the tail tube and some more at the intermediate bearing bracket. Certainly keep "Cricket" well lubricated and clean and it will fly that much better for you. Sorry we forgot these points in our instructions.

Other Engines

The "Cricket" was designed to use the O. S. Max .25 FSR, the Super Tiger X25 and similar engines. The standard O.S. 25 and many other .19 and up engines will fly "Cricket" well but some of these engines have a shorter crankshaft housing and so they must be moved rearwards of the belt pulleys to line up properly. Some builders have done this by using the rear engine mounting holes on "Cricket's" main plate to locate the rear mounting holes of the engine and then they drilled two extra holes in "Cricket's" main plate for the front holes of the engine. Confusing? Well, just move the engine towards the rear of the helicopter about 1/2".

The popular rear exhaust 3.5cc K & B has also been used in "Cricket" by:

- a) Turning the cylinder around so that the exhaust manifold faces the crank shaft end;
 - b) Rotating the crankshaft housing 90 degrees by purchasing the appropriate shaft, which K & B can provide.
- Works well; I have flown it and it has plenty of power.

Heat Sinks

The explosive sales of "Cricket" has temporarily caused a shortage of heat sinks. We have therefore produced our own and heat sinks for O. S. Max .25 FSR and Super Tiger X25 are available from your dealer or from us directly at \$12.50. Do not fly "Cricket" without a heat sink for more than a few minutes.

NEW ITEMS

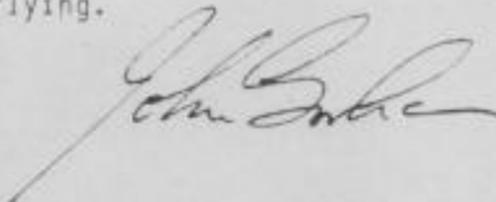
We are currently flying a new 'VQMS' (Very Quiet Muffler System) designed especially for "Cricket" by MAC's Products. It's great - very much quieter than a standard muffler and it gives more power. We hope to have some available in about 6 to 8 weeks. They will cost around \$25.

A new aerobatic rotor head for "Cricket" is also underway as is a new 'STOL' rotary wing aircraft which is still 'top secret'.

Well, that's all for this issue - we hope some of your problems can now be solved and that you will get the use and pleasure from "Cricket" that many hundreds of fliers are now experiencing.

Good luck and keep 'em flying.

Gorham Model Products
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Phone (213) 992-0195

GMP CRICKET

coming up to

the 2000 mark!CRICKET BULLETIN

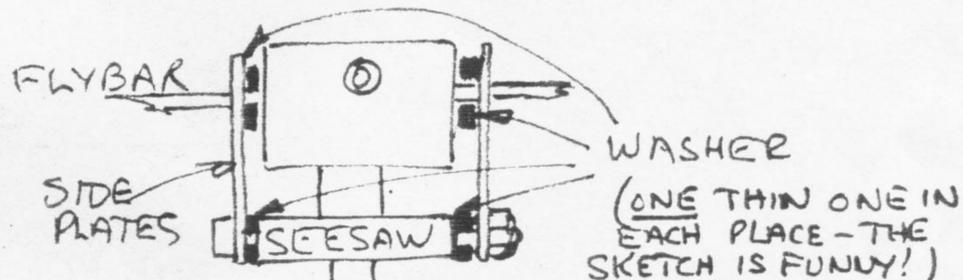
Happy New Year!

This is our third "Cricket" bulletin. We are now well into our 2nd 1,000 "Crickets" and from the many phone calls and very nice letters which we are receiving daily, "Cricket" is giving its owners a lot of fun all over the United States and now in many other countries which include South Africa, New Zealand, England, Austria, Germany, Canada, Sweden, Mexico, South America, etc. We are constantly improving our product, both in quality control and in design features, and we will continue to do so. We believe that many modelers have 'given up' in the past on their R/C choppers as 'impossible' when just a few tips on adjustment or clarification of the manufacturer's instructions could have made all the difference. We don't intend this to happen with "Cricket" - so we will share any significant new owner problems with all of you as often as we can. By this service many more of you can enjoy the remarkable pleasure obtained when you can really fly an R/C chopper.

BACKING-UP AND FLYING LEFT

In a previous bulletin we explained that the main rotor head system of the "Cricket" must be very free if "Cricket" is to respond correctly to input commands. In the few cases where the 5/32 pivot pin is a little stiff some flyers have polished the pin with 600 paper or even toothpaste! Freeing up the head will ensure that "Cricket" flies as it should - a very stable and responsive helicopter. Another place which can cause friction is the plastic ball joint that connects the control rod to the flybar control arm since this ball joint has to pivot on the ball any time that the rotor head pivots. So make sure that this ball joint rotates freely on the steel ball of the flybar control arm.

One final point on freeing up the head - make sure that the head side plates are not rubbing too much against the side of the head block. You can either bend them out slightly or put four small washers to space off the head side plate for the seesaw (2 each side) and one washer on each side between the head side plate and the top 1/8 hole of the rotor block.



This way the seesaw will be spaced away by the thickness of the washer which will eliminate any possibility of rubbing. You only need to do this, however, if "Cricket" is exhibiting the rearward and left flying characteristics (also read the section below first).

SLOWNESS IN RESPONSE

A few flyers have reported slowness in response in "Cricket". Now "Cricket" fundamentally is a very fast responding helicopter, even though it is very stable. This is one of its unique qualities. In every case of a reported slowness of response we have found it due to insufficient movement of the swashplate and/or of the paddles. "Cricket" has a "Hiller" system which does require a paddle movement of at least plus and minus 20 - 25 degrees for full stick throw and your servo arm length and ratio must be adjusted so that these movements are obtained. "Cricket" will then respond to your every command. More important it will stop going in the wrong direction more quickly!

TAIL DRIVE WIRE BREAKAGE

This problem seems to have only occurred with early "Crickets". The tail drive wire was 0.055" dia. then. It has since been increased to 1/16 or 0.062 dia. Also some of the first few 3" intermediate shafts had the hole for the 4mm retaining screw drilled a little too deeply. This formed a drill point depression at the bottom of the hole for the dog point of the 4mm retaining screw. The result of overtightening the screw would be to put a bending movement on the wire which made it weaken and, hence, it would break too easily. If your drive wire continually breaks - look at the bottom of this hole.

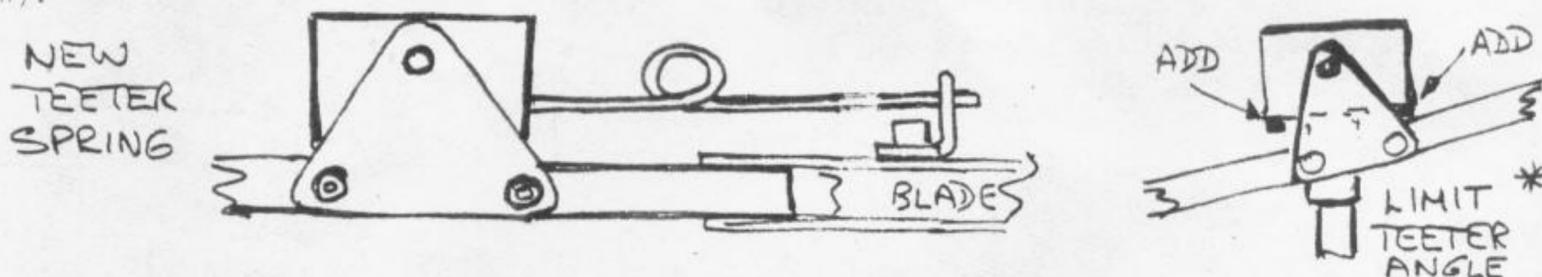
Another important factor in the tail drive system is to be sure that the wire has a really unobstructed run to the tail gearbox. There should be a bend in the wire, but it should be a single bend and should

be adjusted to be a really smooth curve. A good way of setting up the tail drive wire bracket position and the angle of the tail boom is to disconnect the main drive belt from the bottom pulley by removing the starting cone. This will enable you to slip the belt off that bottom pulley. You can then spin the main blades with your fingers and make adjustments until you have obtained the minimum friction in the main and tail rotor drives. You should be able to spin the main blades at least 6 to 8 times by a single twist of the fingers when everything is adjusted properly. During this procedure be careful that the tail drive wire is not 'compressed' too much between the gearbox and the front shaft. This can happen when the two ends of the tail drive wire have been secured and then a tail boom adjustment has been made. Or even when a very hard landing has occurred. The solution is to release the front 4mm dog head screw once and then tighten up again. This will allow the tail drive wire to take up its natural length and avoid any binding.

One more point of maintaining low friction in your system is to be sure that the input shaft of the tail rotor gearbox has not been forced backwards into the gearbox at any time because this can cause the gears to bind. If this has happened, you can pull it forward again by clamping the gearbox coupling in a vise or holding it with pliers and pulling the gearbox away from the coupling. This will restore the proper clearance required between the two gears inside the gearbox and free up the whole system.

TEETER SPRING BREAKAGE

Some "Cricket" owners are experiencing teeter spring breakage. We have not yet fully determined the cause of this since there are many hundreds of "Crickets" which fly very frequently and don't break a single spring. But there are others that seem to break springs. We are working on this problem but meanwhile, if you have this problem, you may obtain some relief by making yourself a new teeter spring out of .055 dia. music wire. This new teeter spring should be formed around a 1/8 dia. pin, to give one full turn in the middle (as shown in the sketch).



If you fit this teeter spring it will reduce the chance of breakage. Meanwhile we will continue to work on the problem. By the way, "Cricket" still flies okay without the teeter spring; it's just that the response will be slowed. So don't panic if your spring does break in the air.

TAIL BOOM STRIKES

There have also been some cases, especially with beginners, of the tail blades striking the tail boom on landing the helicopter. Often this will 'gather' up the tail control wire and also break the tail gearbox control arm. Again, this is a phenomenon which we are hearing from "Cricket" owners but which we haven't yet experienced ourselves. One hint which will help a bit is to route the tail rotor control wire and its plastic tubing underneath the tail boom, rather than on top. Then if the main rotor blades do come down too near the tail boom they won't scoop up the control wire. Another idea is to drop the tail boom angle by sliding the brace wire clamp back a bit so that there is a bigger clearance between the main blades and the tail boom. Don't forget, when you do this, to relieve the tail drive wire by loosening that 4mm dog point screw again!

Another factor which could be the cause of some "Crickets" and not others having tail boom 'strikes' is a variance in the mechanical 'teetering' of the stop for the main blade system. This mechanical 'stop' which restricts seesaw motion is formed by the lower edge of the rotor block and the top surface of the seesaw. If you have excessive seesaw motion on your particular "Cricket" you can reduce this by adding to the thickness of the main rotor block to restrict the tilt of the seesaw. This can be done by cementing or 'hot stuffing' a small strip of thin material - metal, plastic or even rubber, under both outer and lower edge of the main rotor block. * see sketch above

Alternatively, you could first try loosening the two bolts which hold the side plates to the seesaw and squeezing the block down towards the seesaw as far as the hole clearances will allow. Then tighten up the bolts again. The main rotor blade tips should not be able to come nearer than about 1 1/4" to the tail boom. This one adjustment, by itself, may solve your problem.

TAIL ROTOR SYSTEM CONTROL

There has been some confusion concerning the orientation of the tail blade holders with respect to the rotation of the tail blades. We have helped cause this problem, especially with beginners. The "Cricket" builder who has some experience in building R/C helicopters before probably didn't read our instructions too closely anyway and he set up the tail linkages the way he wanted them. The newcomer to R/C 'choppers' would have found that our 'centerfold' drawing of "Cricket" shows the tail blade holders mounted so that the ball joint faces towards the leading edge of the blades, but the photographs show them mounted so that the projection, and the ball, are towards the trailing edge of the blades. The photographs are correct and the center drawing is wrong. If you install the tail blade holders as shown in the photographs you will then be able to achieve the proper motion of the tail blades relative to the gearbox control wire. If you have to make this 'switch' you will find that the tail blades must now be reversed in the mounts (because the trailing edge will now be facing the direction of rotation) and the servo direction will be incorrect. So you must also 'flip' the blades around so that the leading edge again faces forward and reverse your tail rotor servo direction. You can do this by swapping it with any other servo of an opposite rotational sense or by having your favorite radio repair man reverse the servo for you. Don't forget, whatever you do with the tail rotor installation, the important thing is that the blades should move from around 'zero' pitch for full left stick and about 20/25 degrees for full right stick. Sorry about this mistake. Please call us if you have a problem in this regard.

CG POSITION

As stated in the manual, the CG of "Cricket" should be at the main shaft position. However, we suggested that you put your two fore fingers under the main gear and lift the helicopter to check the CG. We quite forgot that the main gear could be construed as the landing gear! We meant the black plastic main drive gear! Sorry.

SWASHPLATE MOUNTING

"Cricket's" swashplate pivots on a rubber 'O' ring. Some owners have been concerned that swashplate movement can be quite stiff at large angles. Don't worry - this is OK since large angles are seldom needed in your flying. It's just that a large swashplate range is needed so that sensitivity in the center is great enough. The "Cricket" swashplate mounting was carefully thought out to overcome one of the very significant problems in all other 'choppers' - the lost motion in the swashplate control system. "Cricket's" system is 'tight' and this is one of the reasons that it responds so well to control inputs. By the way, if you have been unable to get enough movement in your 'T' lever - try putting a couple of small washers between the lever and the 3mm clamping nut. This will space the 'T' lever outwards and give more clearance to its tilting motion. Current kits have a new modified swashplate locating bracket which avoids this problem completely.

CRICKET ENGINES

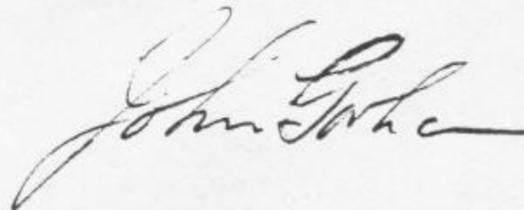
We have now tested the following engines for "Cricket":

- | | |
|---------------------|------------------------|
| 1) O.S. Max 25 FSR | 5) K & B 40 Standard |
| 2) Super Tiger X25 | 6) Super Tiger X21 Car |
| 3) H.P. Gold Cup 20 | 7) OPS 3.5 Speed Car |
| 4) K & B 3.5cc | |

We also now manufacture and stock a super heat sink at \$12.50 which works well, and we have some new mufflers in the works for super quiet operations. See your local dealer for these items.

OTHER "CRICKET" DEVELOPMENTS

Because keeping up with the extraordinary demand for "Cricket" has taken all our time, we are behind on the accessory development. But now that we have geared up to a high production volume we plan to get back to the design and production of the "Cricket" seat, the "Cricket" floats, the "Cricket" new rotor head, and a couple of new configuration surprises which we think will please you. So stay with us and tell your friends that to buy a "Cricket" is to buy support and help when needed.



STOP PRESS

We have had a few reports of tail booms cracking at the slot where the drive wire enters the boom. We are looking into this one as fast as we can. Certainly, this only appears to be happening with a certain batch of "Cricket", but we cannot yet identify the point in production when this might have started. Our supplier changed material on us, we now find, but I am flying a "Cricket" with a tail boom made of this material with no problem. It could be a poor quality quality control on the aluminum manufacture itself - aluminum is a funny material. Anyway, we are working hard on this one - any help from the field will be appreciated and rest assured that we will get it fixed. Meanwhile some flyers are wrapping the boom with fiberglass around the slot area or epoxying a short length of thin steel or aluminum tube over the area where the slot is. Of course you have to cut another slot for the wire to get in and out of the tube!!!

'HELI-CENTER WEST'

23961 Craftsman Road • Calabasas, CA 91302



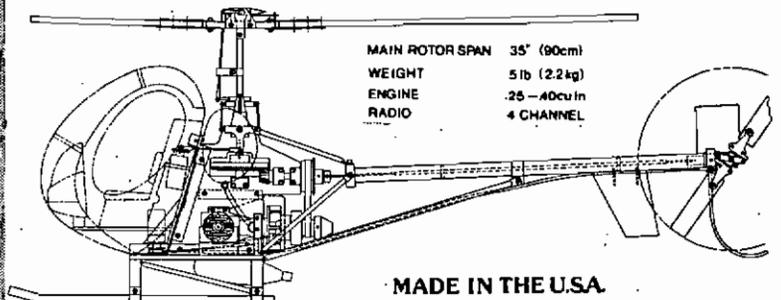
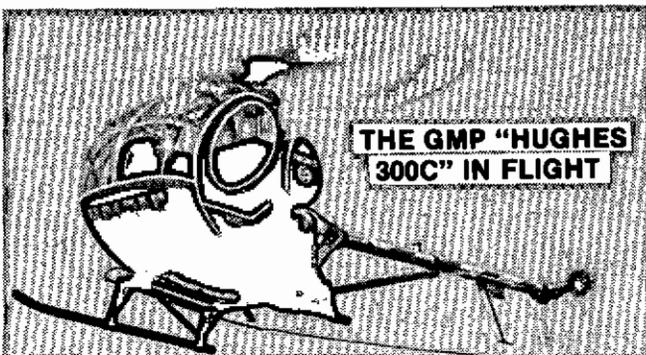
CRICKET BULLETIN

GMP HUGHES 300C Part #H300

We spent much time last fall and winter figuring how we could produce a small, very simple scale helicopter with the durability of "Cricket" since we believe that this would be of interest to a lot of people. Then it occurred to us that the transmission of "Cricket" was ideally suited to be the heart of a scale "Hughes 300C". The 300C, we believe gives the best of both worlds, as far as scale is concerned, because it is a metal frame helicopter and, hence, if we do make piloting mistakes (oops!) at least we don't have a lot of fiberglass work to do to repair after we pick it all up.

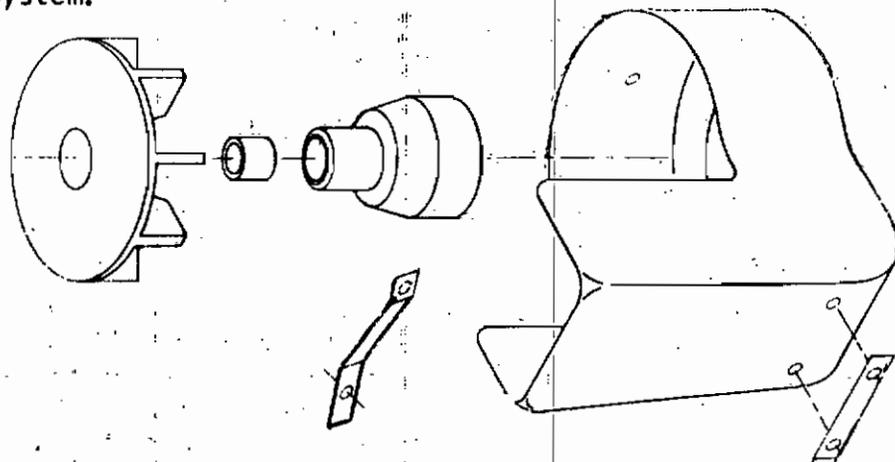
Anyway, we went "back to the drawing board" with the "Cricket" design to see if we could just add a few bits here and there to "Cricket". We finally realized that to make "Cricket" really look like a "Hughes" we had to make some major changes. A new main plate for instance, a larger main shaft, a new tail boom, lots of new struts, a new canopy, a plastic interior consisting of moulded seat and instrument console...all became part of the new "Hughes 300C" creation. However, all the way through this design process, we kept in mind that "Cricket" owners all over the world would probably like to have a "Hughes 300C" and, so that they could do this at a minimum cost, we did preserve the use of as many "Cricket" components as we possibly could. This means that the "Cricket" tail gearbox, swashplate, controls, main drive, intermediate shaft, complete rotor head system...will all be identical.

Then it occurred to us that we could produce a "conversion" kit for "Cricket" owners so that you could change your "Cricket" into a "Hughes 300C" at a minimum cost. This update kit is now available at the very low cost of just \$99.95! This kit will now enable "Cricket" owners to change their "Crickets" into "Hughes 300Cs" (and, of course, back again if they wish) for a very low cost. In the conversion kit you get all the scale interior parts, new canopy, plywood, landing gear, tail boom and struts, etc. And the GMP "Hughes 300C" sure looks sharp in the air.



The complete GMP "Hughes 300C" kit is now available at your dealer with a list price of \$249.95. Bear in mind this machine is really a very impressive, scale looking small helicopter which can be flown with a variety of engines from a 0.25 to 0.40. We have also added a cooling fan system to our "Hughes" because of the extra cabin width, the extra weight of the helicopter and the extra work which the engine is doing.

We decided to make this forced air cooling system available for "Cricket" owners, too, at \$25.95. For this you get a new flywheel/fan assembly, a cooling shroud and the metal brackets to mount it to your "Cricket". You will have to file a little metal off your main frame but it's no big deal at all to fit your "Cricket" with a forced air cooling system.



FORCED AIR COOLING
SYSTEM KIT, PART #655

VIDEO TAPES

We have just had a new professional video tape made. This tape was produced for us by Mike Mas of "Video Effects Inc." and he surpassed himself. Those of us who watch the tape can still see it time and time again and not get tired. It is full of helicopter flying of all types: "Crickets", Lamas, "Competitors", etc., all flown by beginners and by experts, with lots of action and a good musical background. You will also have a chance to see the GMP factory and the way in which "Cricket" and our other helicopters are produced and supported. If you'd like a copy of this tape, we are making a special offer to "Cricket" owners, by means of this bulletin, for \$39.95 (we will pay the postage). If you really want to see R/C helicopters in action, this is one way to do it. So send for yours right away. Please be sure to specify VHS or BETA format (overseas please specify VHS PALS or SECAM). And don't forget you get your money back if you return the tape within 30 days. This tape does not teach you to build or fly but a new one is coming soon which will specifically discuss and show building and learning to fly your "Cricket". Watch the 'ads' for news of this new tape.

GYRO

We have just tested a brand new, miniature gyro for helicopters. It is now being imported by "Kraft Systems". The new gyro has some most impressive qualities, such as:

- 1) It weighs only 3 ounces.
- 2) It is extremely efficient around threshold levels.
- 3) It is filled with a ball bearing gimbal ring.
- 4) It is "stick preferential", meaning that it won't 'fight' you if you want to apply tail rotor
- 5) It costs only \$69.95!

NEW CRICKET KITS

For "Cricket" owners who are contemplating buying their second "Cricket" we have found that there is a growing interest in having an extra special appearance. So we are now producing a new "Super Custom Cricket" kit with a black and gold anodized finish. This kit includes the new completely assembled "Gold Custom" rotor head and "Crickets" built from these kits really do look gorgeous in their black and gold finish.

TECHNICAL TIPS

There have been so many technical hints and tips provided by "Cricket" owners that we have decided, in this bulletin, to present some of them in a tabulated form. Those of you that are flying "Cricket" will, we hope, understand them well enough to be able to try them if they are applicable to your problem.

- 1) Always lubricate the flybar, head, tail gearbox, pitch plate, swashplate, "T" lever and all moving parts frequently. Also the bearing in the tail blade holders. This is just good general practice for any R/C helicopter and not specific to "Cricket" (read section 15 later on).
- 2) Be sure that the swashplate locating bracket is formed (bent) in such a way that it just clears the swashplate arm but also provides enough slot length so that the swashplate can tilt through the largest angle possible in either direction (right and left roll).
- 3) If your carrier becomes worn in any way by the flybar control arm, this will usually be caused by a dirty or "dragging" swashplate. The cure is to clean or replace the swashplate bearing. By the way, since the swashplate bearing is an 'open' bearing it should be cleaned now and then depending upon your flying habits. No ball bearing can run well if it's dirty or the lubricant has thickened up.
- 4) There have been cases of non-GMP rotor blades being offered as suitable for the "Cricket" helicopter. We are not familiar with these blades, but it should be borne in mind that "Cricket's" performance is based very heavily upon the blades being of correct airfoil section and also of a very light weight. Heavier blades on the "Cricket" will destroy its handling qualities.
- 5) Setting your carburettor: this has been covered in a previous bulletin but please be sure that your idle is set so that when you blow through the fuel tube leading to the carburettor there is just a small amount of air coming through the carburettor. Closing the throttle trim should cause the air to be cut off.

At the high speed end the mixture must be set to be just lean enough so that the helicopter lifts off okay but not so lean so that the engine tends to sag after a few minutes of running. Getting this setting correct for a helicopter can be quite a delicate operation but it is very necessary with all helicopters in order to get that slightly rich mixture which will ensure that you avoid overheating your engine, while still preserving adequate power for good flight characteristics.

By the way, "Cricket" will not overheat if the throttle is set right and the fuel is a cool running fuel. There are some brands on the market which run "hot" in any helicopter. We strongly believe in a fuel mixture of 22% KLOTZ, 12% NITRO, 66% METHANOL. Of course, there are many other mixes which will work well too. But if you have problems, try our suggestion.

- 6) Be sure that your paddles are both parallel to the swashplate and in line with each other. Check frequently in case they loosen up on you. "Cricket", or any other 'copter for that matter, don't fly too well if the paddles are misaligned.
- 7) If your tail control rod is mounted above your tail fin, re-route it and have it so that it runs under the tail fin. This will prevent it being "scooped up" by the main rotor blades if you are unfortunate enough to get a blade strike.
- 8) The alignment of the flywheel and starting shaft is quite important to reduce vibration. Don't forget that the average engine is not designed to have an exactly parallel surface on the prop backplate. So it may be necessary to "fiddle" around with

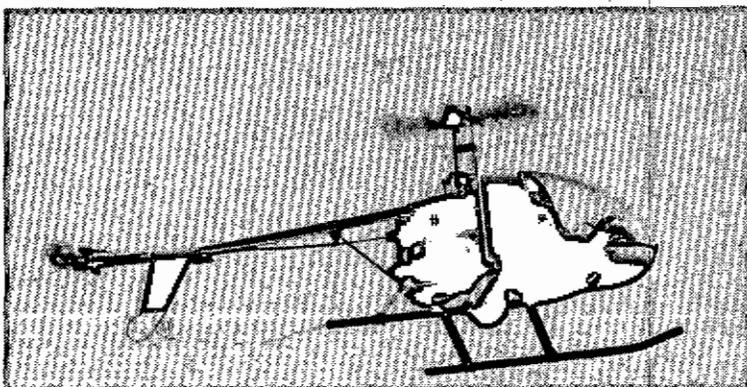
the flywheel positioning on the main shaft in order to have the flywheel and hence the clutch shaft running true. It is not possible, as a kit manufacturer, for us to take account of all the eccentricities which can exist on different model engines so you may have to carry out a few 'adjustments' of your own. Wish we had a universal solution to this one. Maybe one day we'll come up with one.

9) Please check that the pitch angle of the main rotor blades is just a little less than 4 degrees, measured on the under surface, to the flybar angle. While it is possible to operate with slightly higher settings at high altitude, this angle is correct for nearly every other situations and you should not need to vary it much. If your helicopter doesn't lift off at this setting, it's probably because you have an engine which is either set too rich, too lean, or has inadequate power. The other possibility is there is excessive friction somewhere in your drive system. To really check this - remove the starter cone, flip off the drive belt and then you can spin the blades to check for smooth running.

10) Make sure that the drive belt between the engine shaft and the intermediate shaft is adjusted to be quite slack. The manual gives a distance of 3/4" when you squeeze the two sides together and this setting should be maintained. The belt is toothed so it doesn't have to be set tight like an automobile belt. (That's why we use a toothed belt, see?)

11) When you have become proficient with "Cricket" you can reduce the width of the landing gear by increasing the bend angle of the landing gear struts. This will give a higher ground clearance and also make your helicopter look a little more purposeful. Many experts are making this change.

12) If your "Cricket" does not fly "beautifully" then there is something wrong. Check with the local expert and let him handle it for you. "Cricket" does have delightful flight characteristics and this is built into every kit. There is no reason why you shouldn't achieve the same results. If all else fails, please don't hesitate to call us at the factory. We want "Crickets" to fly, not sit in the back of your garage (or other places even worse!).



13) The modification of fitting a brass tube around your tail drive wire (Bulletin #5) seems to be working well for some people. It's relatively easy to fit so, if you are having tail drive wire "slapping" problems, we suggest you try this modification. However, bear in mind that the tail drive wire is secured at both ends by the 4mm set screws and so, if a heavy landing occurs which drops the tail boom at all, this will tend to compress the tail drive wire and "bow" it. After that it can hardly do anything but run erratically. So, after a heavy landing or if you have any doubt, release the front drive wire's 4mm screw and let the wire settle to be straight again, and then tighten up once more.

14) Do make sure your control system is "tight". That is to say, when you move the levers on your transmitter the controls (the paddles and/or tail blades) on your "Cricket" should move instantly. If this doesn't happen then you will have a "hard to handle" helicopter on your hands. This is true of all helicopters, large or small.

15) If you are having "slow" head problems read the following:

ROTOR HEADS AND SLOW/INCONSISTENT CONTROL RESPONSE

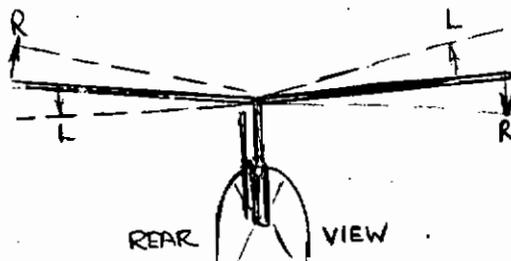
What is it?

The symptom of slow or inconsistent response of "Cricket" to control inputs has been reported from time to time. Most of us who are already heli flyers haven't had the problem and so have been unable to give advice to those who have. Those that do have the problem are often beginners who have not yet realized how important it is to have smooth mechanics and controls if control response is to be fast and flight is to be accurate and so we usually tell them to take the rotor head apart, polish the parts, lubricate well and try again. So far as we can tell, in nearly every case, this approach has worked. Recently there have been a few more reports, but of course there are now over 6,000 "Cricket" out there.

Have I Got It?

One more problem is for a beginner to recognize a slow or diminished response because he has no background experience to compare against. Usually it shows up as a need for a large right sideways tilt on the swashplate. Of course, this can be due to an excessive amount of pitch in the main rotor blades; setting these accurately can cause beginners problems too. So it is hard for us sometimes to diagnose the problem and give proper advice. Anyway, if your swashplate is tilted a lot to the right and your main rotor blade pitch is correct - you may have it!

One way to check if you have a slow response head is to squat down so that you are just above eye level with the rotor head (and, of course, at least 10 - 15 feet away). The 'rev' up until the chopper is light on its skids (but still firmly on the ground). Now move the cyclic roll stick on your transmitter right and then left. The horizontal plane of the rotor blades should tilt correspondingly (see sketch).



If the response is very small, then chances are that you have "slow head plague". All of the above supposes that your swashplate moves the right amount, the paddles are set right, the main blades incidence angles are set right, etc. In other words, all of the setting-up instructions of the kit have been followed and double checked.

What is it caused by?

The cause is nearly always due to dry (non-lubricated) or sticky/dirty rotor head parts. The flybar must be free to rotate rapidly according to the swashplate tilt even when increased friction is caused by the weight of the helicopter acting upon the bearings of the flybar rod. A clean, free, and well lubricated rotor head will give excellent response. A dirty, stiff or dry head can drive you nuts!

What Shall I Do?

Well, if you keep all the head bearings and parts free, clean and oiled (light machine oil or "W D 40" works well), this should do it. But, you may have to disassemble the head, clean it thoroughly and very carefully reassemble it making sure that all moving parts can move with almost zilch friction. Then, lubricate all moving parts. By the way, slow response doesn't seem to happen frequently at all but when it does it can demoralize a learner very fast. If you'd like to have everything done for you and then some - we now have the "Gold Custom Rotor Head". This new rotor head for "Cricket" has

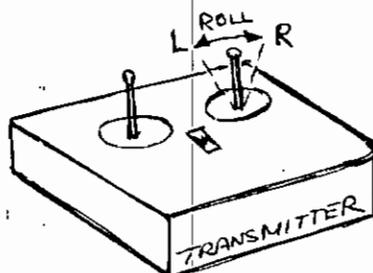
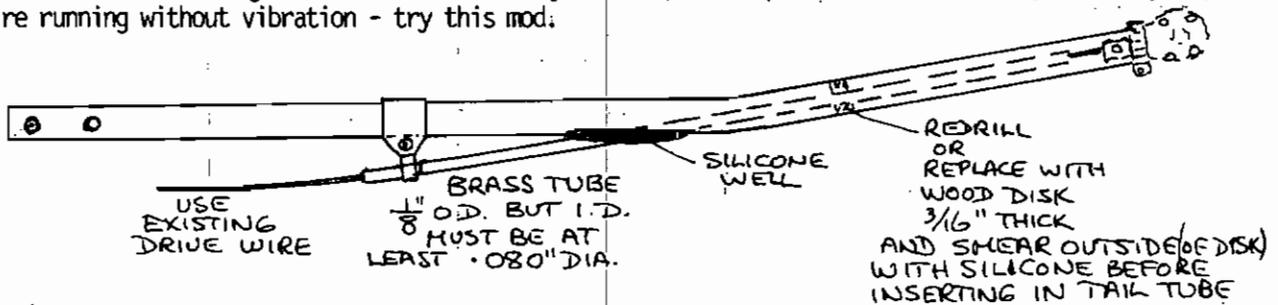
extra bearings to reduce friction and it is factory assembled for you. The cost is \$39.95 s if you'd like one of these, see your local dealer and ask him for the "Gold Custom Rotor Head".

Last but not least on the subject of rotor heads. If you have learned to fly "Cricket" and you want a really fast head then consider the "Aerobatic Head System Kit". This kit includes the "Gold Custom Rotor Head", plus a pair of new aerobatic paddles and a new shorter flybar. With this combination you can really go to town - loops, of course, and rolls, too! See earlier section on this one.

16) Many "Cricket" flyers, indeed heli-flyers in general, seem to set-up the fore and aft pitch cyclic control to be too sensitive. Then they get into a 'seesawing' fore and aft motion of control. As a general guide the pitch angle of movement of an R/C helicopter should always be less than the roll movement. Large pitch movements can readily be de-stabilizing but large roll movements don't affect stability anywhere near as much.

Also having the tail control too sensitive can lead to a 'twitchy' and overactive tail motions. Most of the top flyers set their sensitivities to be just enough for the maneuvers they want to perform. A ship set-up to be too hot will also look jerky during forward flight.

There is one hint which has been tried to smooth out tail wire drive vibrations and this is to fit a brass tube about 12 inches long (as shown below) for the tail drive wire to run in. This may help in several ways. First, there would be less chance of the tail drive wire 'slapping' around so the wire will have less chance of breaking. Second, it seems that boom fatigue and breaking is mainly caused by the tail drive wire resonating and so it may help those of you who have had this problem. Finally, a smoother running tail drive will always use up less power. So it really can't get your tail drive wire running without vibration - try this mod:



"Cricket" Rigid Blade Straps

The "Cricket" has free swinging blade straps, as you know. This is great for the beginner because it saves blades breaking. It is also okay for fast or aggressive flying if the main blades are identical in all respects - not just balanced across the span. Sometimes this is not so and a vibration of the helicopter results. If this happens with a particular set of blades you can tighten up hard the single fixing bolt and set the blades to be exactly opposite each other (180 degrees). This will eliminate vibration in hovering and during slow forward flight. For aggressive flying (tight turns, quick stops, loops, etc.) even this doesn't fix it because one blade will be pulled out of line with the other and, of course, it now stays that way until we land because we tightened up the bolts! So we get vibration again. So the safest way for the guy who flies around Fast with his heli is to attach the blades rigidly to the head. We have now in production a new blade strap with a double hole at the seesaw end. You only really need two of these new straps (not four) and you fit them on each side on the top only. Then you must drill corresponding holes in the seesaw and fit two 3mm bolts and nuts. The part number for the new straps is 188 and they come two in a package for \$1.95

"Cricket" Aerobatic Head

As many of you may have seen at the trade shows, we have now developed a really neat, independent blade feathering, 'Bell-Hiller' rotor head. This could give "Cricket" more aerobatic performance and, if fitted with several more rods and levers, collective pitch control too. But now "Cricket" will weigh about 8 - 10 ounces more and will be much more complex to set-up. We are now coming around to the opinion that we should keep "Cricket" as it is - a simple, light, remarkably responsive helicopter. But don't get disappointed yet. We are now flying a very simple new 'Bell-Hiller' head which will only add about 2 ounces of weight and which will improve "Cricket's" handling and aerobatic ability. This head could also sell for much less money - say \$30 instead of \$60 for the fully feathering one. So please be patient a little longer and we will advise you through your dealer and/or by advertising on what we came up with. Oh, the new collective/'Bell'/'Hiller' super head. Well, we have a real good use for it. Watch us for its use in something really new in R/C choppers available in the fall.

Now to the support part of this bulletin - for those who are having problems. We will cover the building problems first.

BUILDING

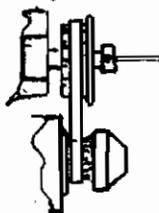
General

We still come across some "Crickets" which reportedly don't fly very well and we find, in nearly every case, the builder hasn't quite ~~realized~~ realized that his building must be precise and exactly to instructions (unless he has a prior expertise in R/C helicopters). No model R/C helicopter can fly if the linkages are too stiff or too sloppy or if the tail drive wire is jammed between the front and rear bearing so that it is compressed and bowed all the time it is running. Or if the main shaft has been bent but not corrected. Or if the control movements are much too small. Be fair, fellows (or girls), "Cricket" must be built accurately and the instructions must (at least initially) be followed. We guarantee it will make all the difference in the world. If you cannot quite get it together, it's worth even a longish journey to get with an experienced flier and seek his help. "Cricket" will for sure fly and fly well if it is built and adjusted properly.

Engines

We have now tested the following engines in "Cricket": 'O S 25 FSR', 'Super Tiger X25', 'O P S 21 Car', 'H B 21 POP', 'K & B 3.5', 'H P Gold Cup 20', 'Webra Speed 20' and 'Enya 21 X TV'.

When you install any engine just be sure that the two plastic pulleys, which carry the belt drive, line up vertically so that the belt cannot foul on the main plate or the starting cone. You can obtain extra spacing washers, part number 137, if you need them or you may have to drill new mounting holes in the main frame to suit your engine. We try to cater for most popular engines, but a little custom work may be needed for some installations.



Center of Gravity

"Cricket" was carefully designed so that the 'CG' would fall on the main shaft (where it should be) when a pilot doll, a seat and a standard radio with a 450 mAhr battery are used. Naturally, extra weight must be added in the nose as far forward as possible if the doll is omitted or is lighter, etc. So please do balance "Cricket" carefully so that the CG is in the correct position. Check it by pivoting the helicopter on the under surface of the black plastic gear (fingers are okay as a pivot point). This is the most accurate way. Suspending "Cricket" by its flybar can give misleading results because a large CG error will only result in a very small angular tilt in the helicopter (honest!).

Plywood Parts

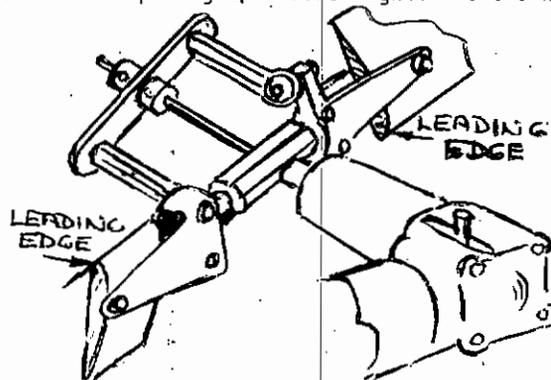
Originally it was intended that the four servo mounting parts should be glued together, but that this unit should not be glued to the rear bulkhead. However, if you glue the whole lot together it does make a more rigid front end and it seems to present no problems when removing the whole front radio installation. You just have to remove the screws holding in the front bulkhead, too.

Flying Weight

Weight is the enemy of flight - no one would disagree on this, we suppose. So keep "Cricket" as light as possible. As designed, "Cricket" will weigh between 4.2 and 4.5 pounds. At this weight, with a good 25 engine, it will lift off at sea level about 1/3 throttle. Add more weight and performance suffers. At 5 pounds "Cricket" would just about fly okay at sea level and, if even heavier, it probably won't fly well at any altitude. It was designed to be a 4 to 4½ pound helicopter, without a 20% loss of power for the cooling system. So this is equivalent to a 3 ¾ to 4 pound helicopter with a cooling fan system. Some builders have also installed quite heavy 'training gears' using sticks and balls. Well, okay, except the 'training gear' must be light. Please note that "Cricket's" landing gear was designed to be a training gear. It's very wide and the skids are long. Try learning with just the standard gear.

Tail Blade Installation

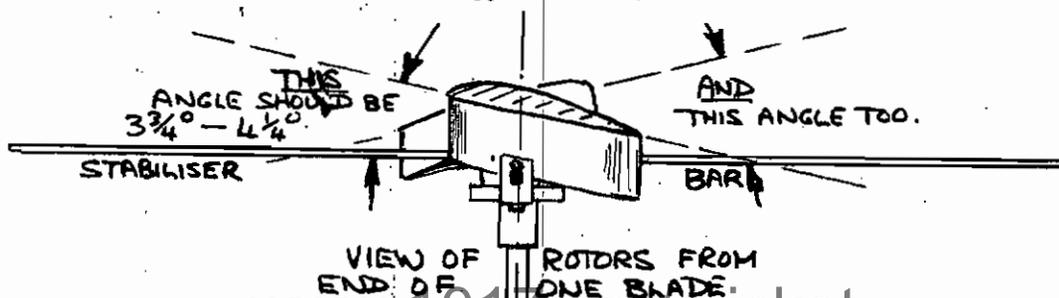
Still more confusion on this one. The center drawing in all "Cricket" manuals (up to a serial number of about 2000) was wrong, even though the text and photographs were right. Here's how the tail blades and holders should be installed:



If your's are reversed to this, it is worth changing since you will be experiencing a limited throw in one direction which will then be corrected.

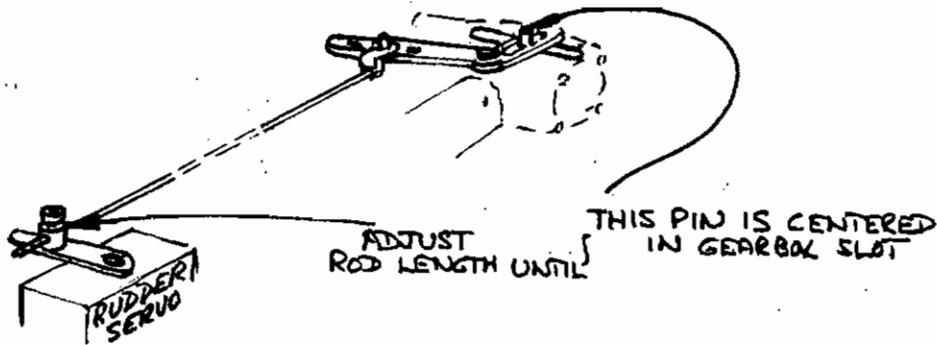
Adjustments

There are still a few "Cricket" builders who are experiencing some set-up problems. Most of them have never built any control models before and our instructions assume a basic knowledge of setting up planes and cars. The two major areas of confusion seem to be setting the pitch of the main blades and setting the pitch and datums of the tail blades. Some builders have suggested a simple sketch of the main blade set-up. Okay, here it is:

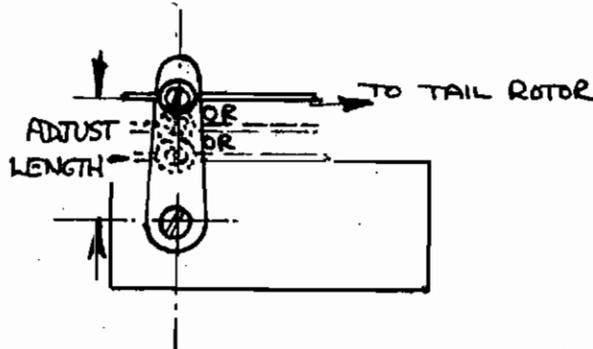


For the tail blades, here it is again:

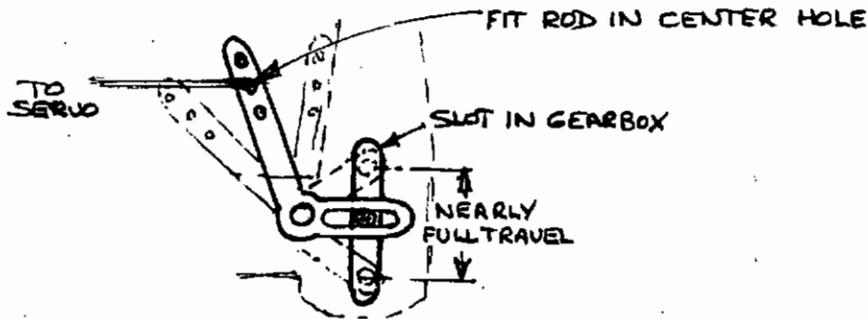
- 1) Set the rudder servo arm at neutral position and, at this setting, the 1/16" dia. control rod from the rudder servo to the tail control lever should be adjusted in length until the pin in the gearbox slot is centered:



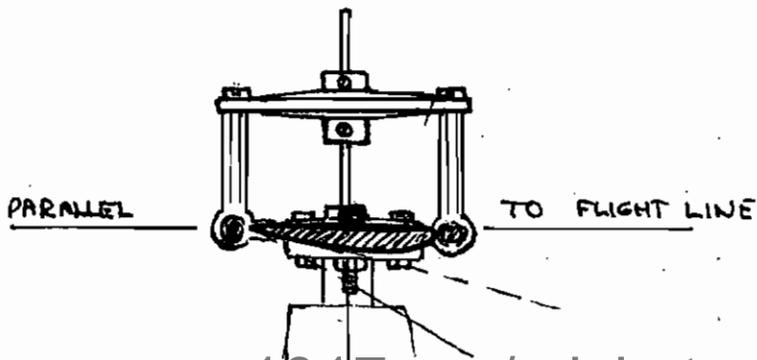
- 2) Now, don't touch the adjustments made in (1) again but do the following: Adjust the length of the rudder servo arm (the distance from the pivot point that the tail wire is fixed)



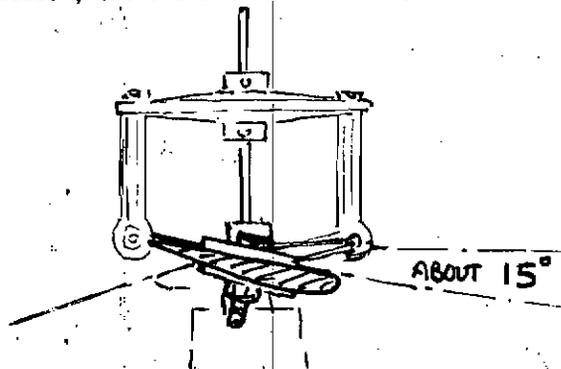
so that with full left to right rudder stick movement, the pin moves nearly the full amount of the movement that the slot will permit:



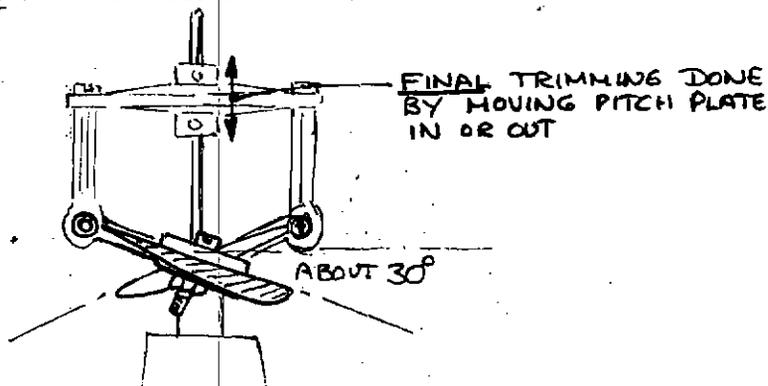
- 3) Now, don't touch (1) and (2) again. Set the 1/16" collars so that with full left stick on the transmitter, the flat surface of the tail blades are parallel to the line of flight:



4) When the rudder stick is neutralized, the blades will look like this:



and when the rudder stick is full right the blades will look like this:



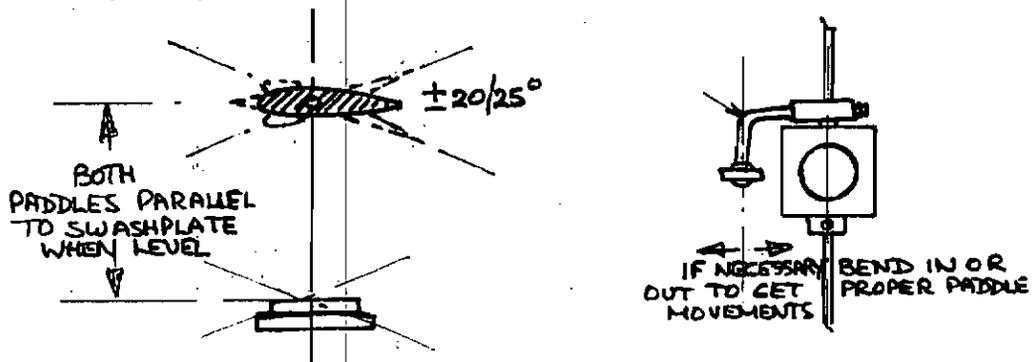
Hope the above will do it this time. It is confusing, we know, and we really want you to get it right.

FLYING

Sluggish Response

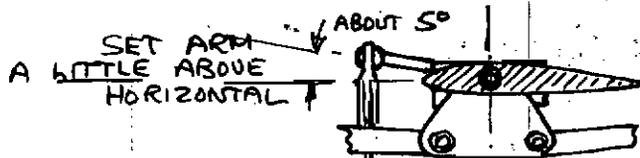
Check: Head is free in all respects;

Check: Paddles move approximately 20/25 degrees for swashplate pitch and/or roll movements. It's the paddle movement which gives response and maybe you will have to experiment a bit by bending the flybar control arm in or out from the head to produce a large enough paddle movement:



Check: Both paddles are in line with each other and parallel to the swashplate.

Check: That the ball link on the flybar control arm doesn't foul on the seesaw hole for large swashplate angles. You can set the flybar arm a little above level at neutral to achieve this:



Tail Rotor Commands Uncertain

If your "Cricket" seems to need more and more right turn tail command as you fly, check that the tail rotor hub is still fixed firmly to its shaft. It is screwed on with a left hand thread and sometimes this can unwind slowly, especially after a tail strike on the ground. To fix it, do the following:

- a) Undo the 4mm dog point screw at the front end of the tail drive wire.
- b) Disconnect the tail control wire from the control lever on top of the tail gearbox.
- c) Undo the clamp holding the tail gearbox to the tail tube and remove the gearbox and wire.
- d) Clamp the steel drive coupler in a vise (use vise clamps if the jaws are serrated). Hold the gearbox itself in your hand and you will be able to unwind the rotor hub by turning it clockwise (it's a left hand thread, don't forget).
- e) Clean the threads on the shaft and in the hub with alcohol or a grease solvent.
- f) Put some blue 'Loctite' on the thread and tighten up firmly.
- g) Re-fit the tail gearbox and drive wire.

You might want to check that the screws holding the tail drive wire at the rear are tight before refitting the assembly; also that the wire is straight and runs true.

Tail Boom Breakage

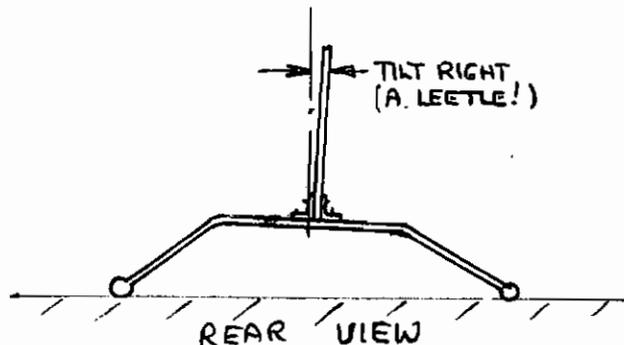
There have been some breakages of tail boom at the point where the tail drive wire exits the tube. Our investigation shows that in most cases this was due to the tail drive wire being compressed between the front and rear fittings. This results in a bowed wire which can 'slap' around in the slot of the tail boom. This 'slapping' causes fatigue in the tube. The breakages seem to be mostly in isolated cases. We have made the slot more narrow so as to further resist fatigue. To avoid the problem of a 'compressed' tail drive wire, we suggest you check quite often that the drive wire is not in compression or tension by loosening the 4mm dog point screw at the front end and then retighten it again. This will allow the wire to take up its natural length and remove any strain which could cause vibration wear or friction.

Lubrication

Please don't forget to lubricate your "Cricket" regularly. A thin machine oil should be used on the rotating tail parts, especially where the pitch control plate rotates on the tail control wire. Also, don't forget to lubricate the wire itself. The same oil should be used on all the rotor head moving parts. A light weight high speed grease should be injected into the tail gearbox at the top slot from time to time but be careful not to overfill.

Pulling Left on Takeoff

Some flyers complain about the helicopter sliding or pulling left just at takeoff. This is absolutely fundamental to all choppers (left or right, depending upon rotation of main rotor blades). The cause is that the tail blades pull sideways as well as producing an antitorque force. But here's a good trick to help your problem. Tilt your "Cricket" slightly to the right by bending the main landing gear cross struts. Then, you see, the tilt to the right will offset the slide to the left and you'll lift off straight. Try it!



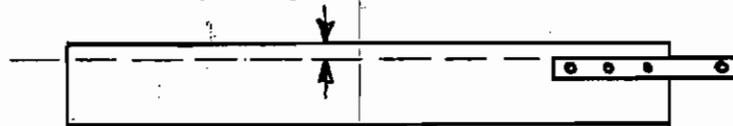
Hints & Tips Potpourri

The standard "Cricket" loops well, by the way. You must have plenty of paddle movement in pitch (elevator axis) and a well running engine. Get plenty of height and forward speed, pull back and loop like you would a glider (keep the forward speed up). Remember, since "Cricket" will slow down during a loop, some right tail rotor will be needed in order to keep the loop straight.

Note: Don't try loops until you are competent in general forward flight flying and maneuvers.

- A great tip for "Cricket" flyers who live at high altitudes: try the 'K & B 3.5' with the 'Tatone' muffler (tail pipe drilled out to 5/16" dia.) and use 'K & B' racing fuel. Seems this really boosts the power.
- Another spectacular flight maneuver for "Cricket" is the 'dishpan'. You put "Cricket" into a tight descending right hand turn and keep adding right tail rotor until your helicopter is turning 'round and round,' nose-in to the center of the turn, and tilted nose-down. By adjusting throttle you can keep "Cricket" doing this and also holding its altitude.
- A Blade balancing tip: first you balance the main blades by pivoting the whole head assembly on the flybar as the instructions suggest. Then, if there is a little vibration after this when in the hover, try adding a 1" wide strip of blade covering material all the way around one blade at its center (strip will be about 4" long). Then hover again. If the vibration is better - great! If not, remove the strip and put it on the other blade. Better? No? Then take it off - you were balanced fine in the first case. The vibration is due to either the flybar not being balanced or the main blades not being lined up. Remember the sides of the blade straps must be parallel to the edges of the blades. If they are not, then loosen the three bolts holding the blade, line up the blade straps and retighten.
- Remember, any loose blade covering or a crushed-up blade tip can cause all sorts of vibration problems, tracking problems and loss of lift. So keep the blades tidy and smooth.
- Some people still seem surprised about the need for 2 - 3 ounces of ballast in "Cricket's" nose to get the CG right. We repeat: we designed "Cricket" to balance properly with a seat and a 4 ounce pilot in front. Without either you will need about 3 ounces of ballast as far forward as you can get it.

MUST BE PARALLEL



MAY 1981

IN KEEPING WITH OUR POLICY OF 'FIRST CLASS AFTER SALES SERVICE' HERE IS OUR 3RD (SEE BELOW) SERVICE BULLETIN FOR "CRICKET" OWNERS

First we should explain that, although this is bulletin #4, there have only been two previous ones. We 'kinda' lost #2 on the way in our numbering system. Hope this clears up the case of the missing (which really wasn't) bulletin. Second, for new owners, we want you to know that the primary purpose of these bulletins is to provide corrective information to "Cricket" owners when field reports show that a building or flying problem exists or is arising. Finally, we will try and give you some news of what is happening with "Cricket" flyers around the world. So let's tackle this one first and then get on with the hints and tips section.

AROUND THE WORLD

"Cricket" is now flying in the following countries and the reports coming in show that our American design is being well accepted and appreciated overseas:

| | | | | |
|-----------|-----------|-------------|--------------|-------------|
| Holland | Sweden | Belgium | South Africa | England |
| Germany | Australia | Austria | Chile | Canada |
| Argentina | France | Switzerland | Japan | New Zealand |

Some examples of initial overseas reactions to "Cricket" are:

- a Belgium import company - "congratulations your achievement 'Cricket' - it flew beautifully".
- a Swiss import company - "our congratulations for such a nice kit!"
- a South Africa hobby company - "have now flown my 'Cricket' and must congratulate you on an excellent design".
- a Dutch import company - "very fine quality kit"
- a German import company - "we are very interested in importing your 'Cricket'".
- an Australian import company - "a great little helicopter".

We also now have export enquiries from many more countries, including Russia!

Although primarily designed to be a beginners helicopter, "Cricket" is now being well accepted as a sports and fun machine for many of our accomplished flyers. For instance, the following 'old timers' now own and fly "Cricket":

| | | | |
|-------------|------------|--------------|--------------|
| Don Chapman | Bill Ellis | Bill Youmans | Grady Howard |
|-------------|------------|--------------|--------------|

We agree fellows - apart from being a fine beginners helicopter, "Cricket" also fills the need for an inexpensive (to buy, run and repair) fun machine. We are happy to see this, too, of course.

NEW ITEMS

"Cricket" Seats

We now have the seats ready. They are made of vacuum formed thick clear plastic --- you spray your color choice on the back side. List price is \$3.95 each.

"Cricket" Heat Sinks

We always maintain a stock of our own heat sinks for 'O S 25 FSR' and 'Super Tiger X25'. We'll probably carry one for the 'K & B 3.5' soon. List price is \$12.50 each.

"Cricket" Mufflers

"Cricket" was designed specifically to use standard 'off-the-shelf' mufflers. But the 'K & B 3.5' is a special case because of its rear exhaust port. 'Iatone' now makes a special "Cricket" muffler so that you can now use the 'K & B 3.5' engine in your "Cricket". Your "Cricket" dealer will either have these in stock or can get you one fast. List price is \$18.95 each.

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BUILDING

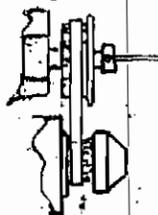
General

We still come across some "Cricket" which reportedly don't fly very well and we find, in nearly every case, the builder hasn't quite realized that his building must be precise and exactly to instructions (unless he has a prior expertise in R/C helicopters). No model R/C helicopter can fly if the linkages are too stiff or too sloppy or if the tail drive wire is jammed between the front and rear bearing so that it is compressed and bowed all the time it is running. Or if the main shaft has been bent but not corrected. Or if the control movements are much too small. Be fair, fellows (or girls), "Cricket" must be built accurately and the instructions must (at least initially) be followed. We guarantee it will make all the difference in the world. If you cannot quite get it together, it's worth even a longish journey to get with an experienced flier and seek his help. "Cricket" will for sure fly and fly well if it is built and adjusted properly.

Engines

We have now tested the following engines in "Cricket": 'O S 25 FSR', 'Super Tiger X25', 'O P S 21 Car', 'H B 21 PDP', 'K & B 3.5', 'H P Gold Cup 20', 'Webra Speed 20' and 'Enya 21 X TV'.

When you install any engine just be sure that the two plastic pulleys, which carry the belt drive, line up vertically so that the belt cannot foul on the main plate or the starting cone. You can obtain extra spacing washers, part number 137, if you need them or you may have to drill new mounting holes in the main frame to suit your engine. We try to cater for most popular engines, but a little custom work may be needed for some installations.



Center of Gravity

"Cricket" was carefully designed so that the "CG" would fall on the main shaft (where it should be) when a pilot doll, a seat and a standard radio with a 450 mAh battery are used. Naturally, extra weight must be added in the nose as far forward as possible if the doll is omitted or is lighter, etc. So please do balance "Cricket" carefully so that the CG is in the correct position. Check it by pivoting the helicopter on the under surface of the black plastic gear (fingers are okay as a pivot point). This is the most accurate way. Suspending "Cricket" by its flybar can give misleading results because a large CG error will only result in a very small angular tilt in the helicopter (honest!).

Plywood Parts

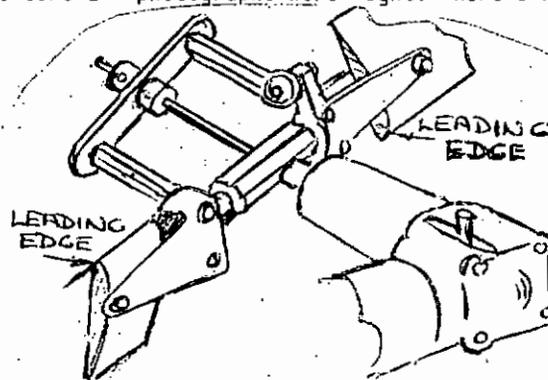
Originally it was intended that the four servo mounting parts should be glued together, but that this unit should not be glued to the rear bulkhead. However, if you glue the whole lot together it does make a more rigid front end and it seems to present no problems when removing the whole front radio installation. You just have to remove the screws holding in the front bulkhead, too.

Flying Weight

Weight is the enemy of flight -- no one would disagree on this, we suppose. So keep "Cricket" as light as possible. As designed, "Cricket" will weigh between 4.2 and 4.5 pounds. At this weight, with a good 25 engine, it will lift off at sea level about 1/3 throttle. Add more weight and performance suffers. At 5 pounds "Cricket" would just about fly okay at sea level and, if even heavier, it probably won't fly well at any altitude. It was designed to be a 4 to 4½ pound helicopter, without a 20% loss of power for the cooling system. So this is equivalent to a 3 3/4 to 4 pound helicopter with a cooling fan system. Some builders have also installed quite heavy 'training gears' using sticks and balls. Well, okay, except the 'training gear' must be light. Please note that "Cricket's" landing gear was designed to be a training gear. It's very wide and the skids are long. Try learning with just the standard gear.

Tail Blade Installation

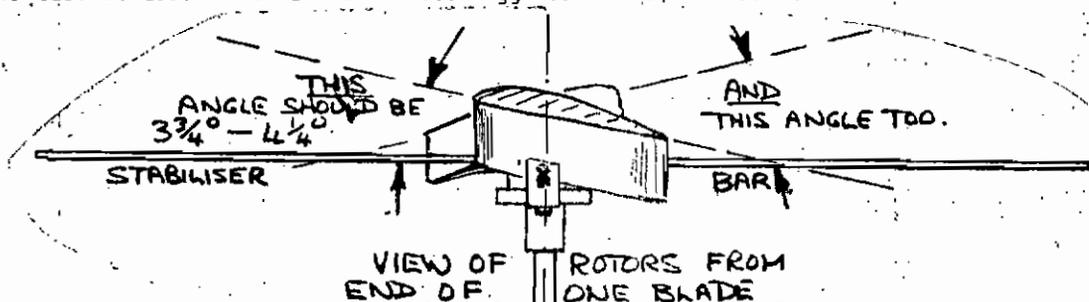
Still more confusion on this one. The center drawing in all "Cricket" manuals (up to a serial number of about 2000) was wrong, even though the text and photographs were right. Here's how the tail blades and holders should be installed:



If your's are reversed to this, it is worth changing since you will be experiencing a limited throw in one direction which will then be corrected.

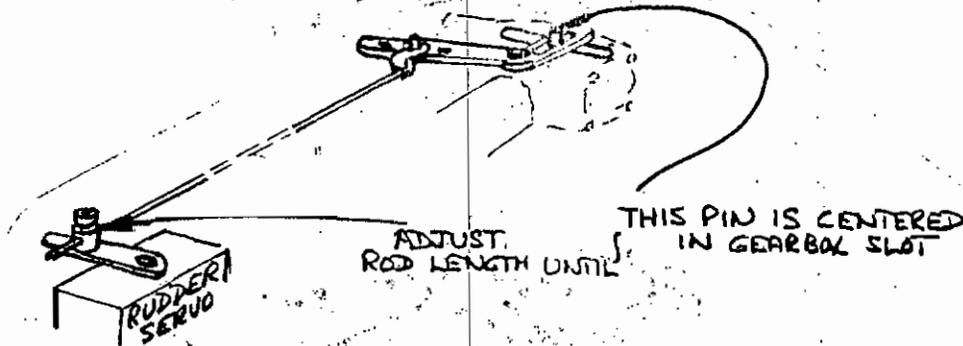
Adjustments

There are still a few "Cricket" builders who are experiencing some set-up problems. Most of them have never built any control models before and our instructions assume a basic knowledge of setting up planes and cars. The two major areas of confusion seem to be setting the pitch of the main blades and setting the pitch and datums of the tail blades. Some builders have suggested a simple sketch of the main blade set-up. Okay, here it is:



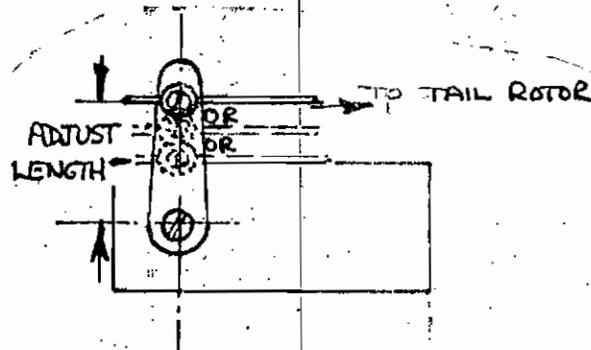
For the tail blades, here it is again:

1) Set the rudder servo arm at neutral position and, at this setting, the 1/16" dia. control rod from the rudder servo to the tail control lever should be adjusted in length until the pin in the gearbox slot is centered:

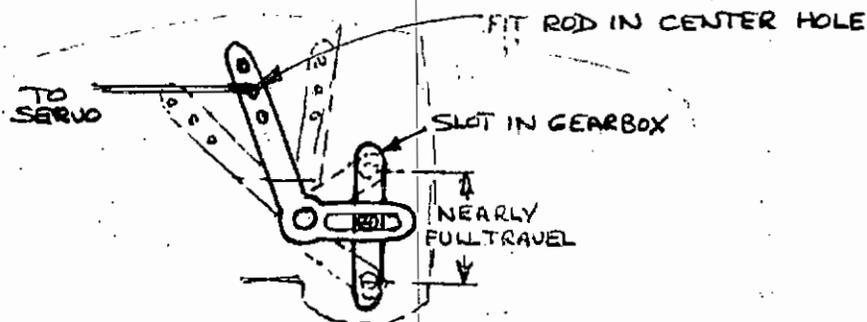


2) Now, don't touch the adjustments made in (1) again but do the following:

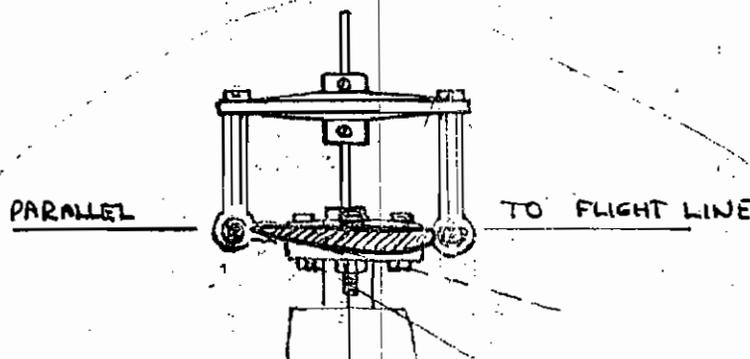
Adjust the length of the rudder servo arm (the distance from the pivot point that the tail wire is fixed)



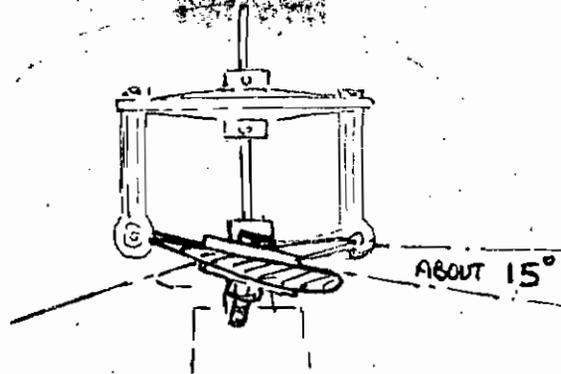
so that with full left to right rudder stick movement, the pin moves nearly the full amount of the movement that the slot will permit:



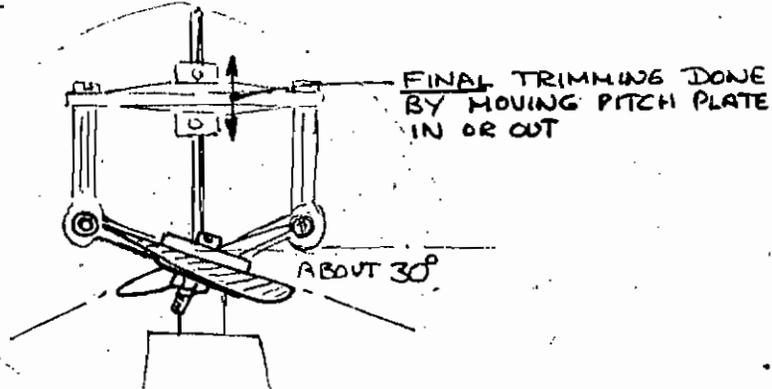
3) Now, don't touch (1) and (2) again. Set the 1/16" collars (or nuts if your "Cricket" is fitted with them) so that with full left stick on the transmitter, the flat surface of the tail blades are parallel to the line of flight:



4) When the rudder stick is neutralized, the blades will look like this:



and when the rudder stick is full right the blades will look like this:



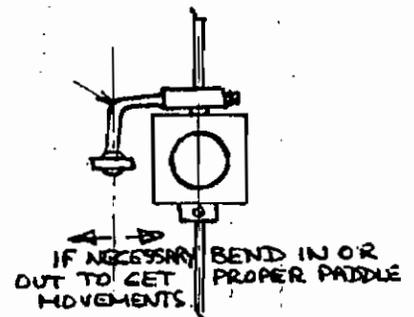
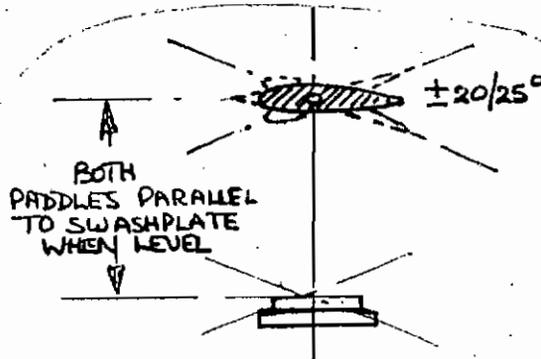
Hope the above will do it this time. It is confusing, we know, and we really want you to get it right.

FLYING

Sluggish Response

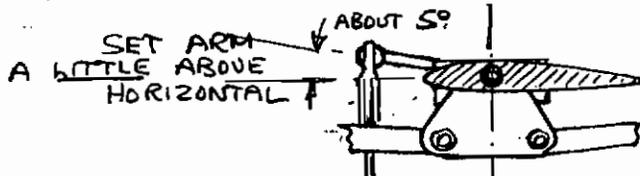
Check: Head is free in all respects;

Check: Paddles move approximately 20/25 degrees for swashplate pitch and/or roll movements. It's the paddle movement which gives response and maybe you will have to experiment a bit by bending the flybar control arm in or out from the head to produce a large enough paddle movement:



Check: Both paddles are in line with each other and parallel to the swashplate.

Check: That the ball link on the flybar control arm doesn't foul on the seesaw hole for large swashplate angles. You can set the flybar arm a little above level at neutral to achieve this:



Tail Rotor Commands Uncertain

If your "Cricket" seems to need more and more right turn tail command as you fly, check that the tail rotor hub is still fixed firmly to its shaft. It is screwed on with a left hand thread and sometimes this can unwind slowly, especially after a tail strike on the ground. To fix it, do the following:

- a) Undo the 4mm dog point screw at the front end of the tail drive wire.
- b) Disconnect the tail control wire from the control lever on top of the tail gearbox.
- c) Undo the clamp holding the tail gearbox to the tail tube and remove the gearbox and wire.
- d) Clamp the steel drive coupler in a vise (use vise clamps if the jaws are serrated). Hold the gearbox itself in your hand and you will be able to unwind the rotor hub by turning it clockwise (it's a left hand thread, don't forget).
- e) Clean the threads on the shaft and in the hub with alcohol or a grease solvent.
- f) Put some blue 'Locktite' on the thread and tighten up firmly.
- g) Re-fit the tail gearbox and drive wire.

You might want to check that the screws holding the tail drive wire at the rear are tight before refitting the assembly; also that the wire is straight and runs true.

Tail Boom Breakage

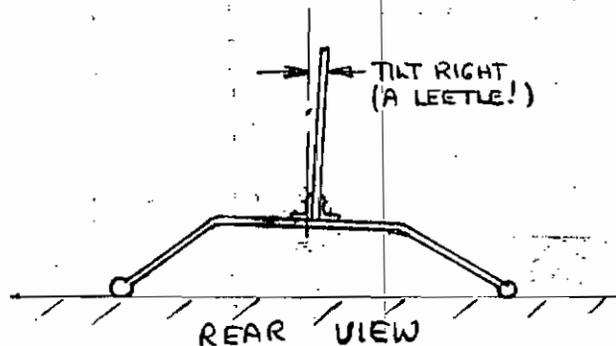
There have been some breakages of tail boom at the point where the tail drive wire exits the tube. Our investigation shows that in most cases this was due to the tail drive wire being compressed between the front and rear fittings. This results in a bowed wire which can 'slap' around in the slot of the tail boom. This 'slapping' causes fatigue in the tube. The breakages seem to be mostly in isolated cases. We have made the slot more narrow so as to further resist fatigue. To avoid the problem of a 'compressed' tail drive wire, we suggest you check quite often that the drive wire is not in compression or tension by loosening the 4mm dog point screw at the front end and then retighten it again. This will allow the wire to take up its natural length and remove any strain which could cause vibration wear or friction.

Lubrication

Please don't forget to lubricate your "Cricket" regularly. A thin machine oil should be used on the rotating tail parts, especially where the pitch control plate rotates on the tail control wire. Also, don't forget to lubricate the wire itself. The same oil should be used on all the rotor head moving parts. A light weight high speed grease should be injected into the tail gearbox at the top slot from time to time but be careful not to overfill.

Pulling Left on Takeoff

Some flyers complain about the helicopter sliding or pulling left just at takeoff. This is absolutely fundamental to all choppers (left or right, depending upon rotation of main rotor blades). The cause is that the tail blades pull sideways as well as producing an antitorque force. But here's a good trick to help your problem. Tilt your "Cricket" slightly to the right by bending the main landing gear cross struts. Then, you see, the tilt to the right will offset the slide to the left and you'll lift off straight. Try it!



Good luck to you and stay in touch.

Gorham Model Products
23961 Craftsman Road
Calabasas, CA 91302
Phone: (213) 992-0195

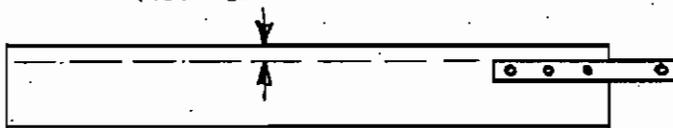
Hints & Tips Potpourri

The standard "Cricket" loops well, by the way. You must have plenty of paddle movement in pitch (elevator axis) and a well running engine. Get plenty of height and forward speed, pull back and loop like you would a glider (keep the forward speed up). Remember, since "Cricket" will slow down during a loop, some right tail rotor will be needed in order to keep the loop straight.

Note: Don't try loops until you are competent in general forward flight flying and maneuvers.

- A great tip for "Cricket" flyers who live at high altitudes: try the 'K & B 3.5' with the 'latone' muffler (tail pipe drilled out to 5/16" dia.) and use 'K & B' racing fuel. Seems this really boosts the power.
- Another spectacular flight maneuver for "Cricket" is the 'dishpan'. You put "Cricket" into a tight descending right hand turn and keep adding right tail rotor until your helicopter is turning 'round and round', nose-in to the center of the turn, and tilted nose-down. By adjusting throttle you can keep "Cricket" doing this and also holding its altitude.
- A Blade balancing tip: first you balance the main blades by pivoting the whole head assembly on the flybar as the instructions suggest. Then, if there is a little vibration after this when in the hover, try adding a 1" wide strip of blade covering material all the way around one blade at its center (strip will be about 4" long). Then hover again. If the vibration is better - great! If not, remove the strip and put it on the other blade. Better? No? Then take it of - you were balanced fine in the first case. The vibration is due to either the flybar not being balanced or the main blades not being lined up. Remember the sides of the blade straps must be parallel to the edges of the blades. If they are not, then loosen the three bolts holding the blade, line up the blade straps and retighten.
- Remember, any loose blade covering or a crushed-up blade tip can cause all sorts of vibration problems, tracking problems and loss of lift. So keep the blades tidy and smooth.
- Some people still seem surprised about the need for 2 - 3 ounces of ballast in "Cricket's" nose to get the CG right. We repeat: we designed "Cricket" to balance properly with a seat and a 4 ounce pilot in front. Without either you will need about 3 ounces of ballast as far forward as you can get it.

MUST BE PARALLEL



GMP

GORHAM MODEL PRODUCTS

23891 CRAFTSMAN RD • CALABASAS, CA 91302

AUGUST 1981

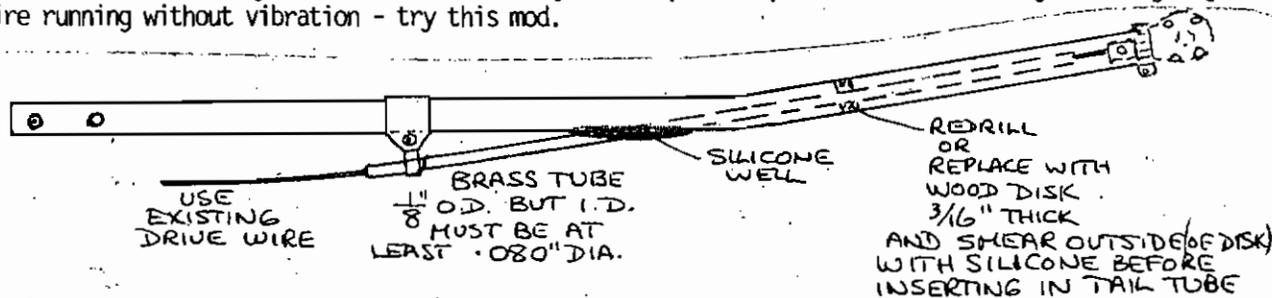
This is a "special edition" bulletin for the reasons which you will see on the enclosed literature. We are extremely proud of CRICKET'S win at the Nationals. We always had faith that a well designed and well-flown, simple and inexpensive helicopter could do it - now we know it can. More isn't always better, especially when it means more to go wrong and more dollars spent to operate and repair. Naturally there are limitations to the maneuvers which CRICKET can do. It cannot fly inverted (you can't reverse the pitch of the main blades). It won't autorotate (again because you need negative pitch in the main blades to do this also). It doesn't do an axial roll (but it will roll - just watch Bill Curtis and Larry Jolly do it). So CRICKET can't fly inverted, autorotate or do an axial roll. Everything else it can do and, from the result of the Nationals this year, do it better than any of the other machines entered. Remember the "other" machines included the 'Heli-Boy', the 'Horizon' and the 'Kalt'.

COMPETITOR really wasn't ready in time for the 'Nats'. Larry Jolly did his first practise flights less than a week before. But COMPETITOR impressed everyone there and many people told us that COMPETITOR'S flying ability and reliability topped them all. It placed fourth in the Expert Class and we're convinced it would have won given a few weeks more time to prepare. Now COMPETITOR is thoroughly tested and is undoubtedly the finest value for the money you can buy if you want the "ultimate". We will sell direct, at least for a while. COMPETITOR'S price, if related to the list price of a 'Heli-Boy' or 'Horizon' would be at least \$450. We will sell the first few hundred at \$350 - and of course we will support COMPETITOR as we do CRICKET. If you are interested, show us by placing an order. Our initial production run will depend upon your feedback to us.

By the way, we include additional literature on HIROBO for you since many fliers, when they see them fly, tell us that they really didn't realize what great machines the HIROBO scale line are. Example - the Aero-spatiale LAMA is a superb kit and flies very easily and realistically. If you've learned to fly CRICKET and you want realism instead of inverted flight - you'll find the HIROBO scale machines a "snap". They really are super stable yet have a nice positive response to your control inputs.

CRICKET Hints and Tips

So far feed back from you on our bulletin #4 has been positive. Apparently it has helped to get more CRICKETS up there 'in the hover', where they should be. There doesn't seem to be any new general problems that we can detect from your phone calls. There is one hint which has been tried to smooth out tail wire drive vibrations and this is to fit a brass tube about 12 inches long (as shown below) for the tail drive wire to run in. This may help in several ways. First, there would be less chance of the tail drive wire 'slapping' around so the wire will have less chance of breaking. Second, it seems that boom fatigue and breaking is mainly caused by the tail drive wire resonating and so it may help those of you who have had this problem. Finally, a smoother running tail drive will always use up less power. So it really can't get your tail drive wire running without vibration - try this mod.



Well, we'll get this issue out right away - most of our best and most recent hints and tips are in Bulletin #4 but as soon as more general problems arise, or we have any more "hot" news, we will get going on Bulletin #6.

Good luck.

It seems a long while since Bulletin #5 and, in retrospect I guess it is, since 2,000 more "Crickets" are now in the hands of their new owners. We hope that most of you are having a lot of fun with "Cricket". We've reached the 6,000 mark and we are pretty sure that "Cricket" sales won't even slow down at 10,000. We're very happy that our small 'chopper is giving so much pleasure to so many people. Now to keep our promise on the bulletins and fill them with information that we hope will be of interest to you as an R/C chopper pilot and also helpful in your efforts to fly GMP helicopters.

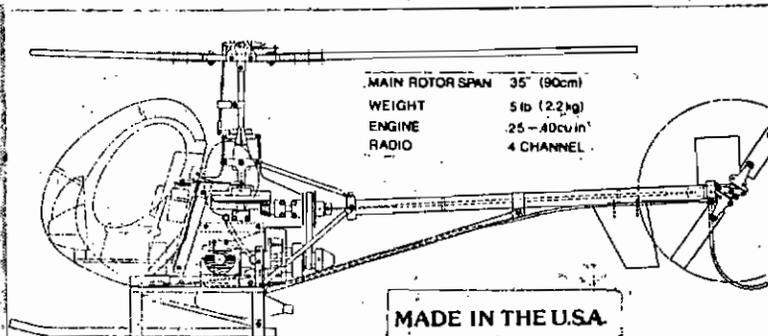
Before we get on to the service information for "Cricket" we have a number of new items which you may care to know about. These are listed below for your interest.

GMP HUGHES 300C Part #H300

We spent much time last fall and winter figuring how we could produce a small, very simple scale helicopter with the durability of "Cricket" since we believe that this would be of interest to a lot of people. Then it occurred to us that the transmission of "Cricket" was ideally suited to be the heart of a scale "Hughes 300C". The 300C, we believe gives the best of both worlds, as far as scale is concerned, because it is a metal frame helicopter and, hence, if we do make piloting mistakes (oops!) at least we don't have a lot of fiberglass work to do to repair after we pick it all up.

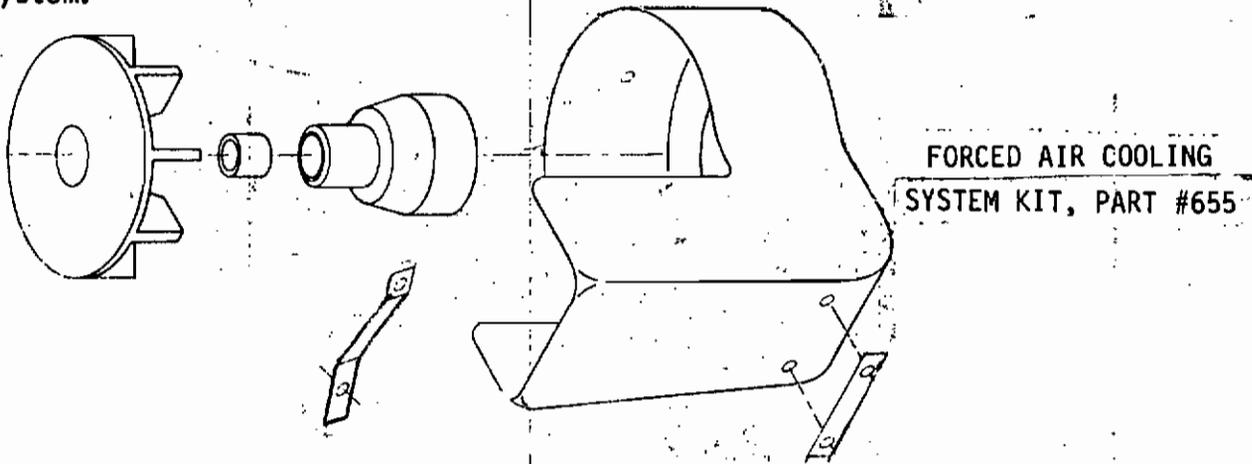
Anyway, we went "back to the drawing board" with the "Cricket" design to see if we could just add a few bits here and there to "Cricket". We finally realized that to make "Cricket" really look like a "Hughes" we had to make some major changes. A new main plate for instance, a larger main shaft, a new tail boom, lots of new struts, a new canopy, a plastic interior consisting of moulded seat and instrument console...all became part of the new "Hughes 300C" creation. However, all the way through this design process, we kept in mind that "Cricket" owners all over the world would probably like to have a "Hughes 300C" and, so that they could do this at a minimum cost, we did preserve the use of as many "Cricket" components as we possibly could. This means that the "Cricket" tail gearbox, swashplate, controls, main drive, intermediate shaft, complete rotor head system...will all be identical.

Then it occurred to us that we could produce a "conversion" kit for "Cricket" owners so that you could change your "Cricket" into a "Hughes 300C" at a minimum cost. This update kit is now available at the very low cost of just \$99.95! This kit will now enable "Cricket" owners to change their "Crickets" into "Hughes 300Cs" (and, of course, back again if they wish) for a very low cost. In the conversion kit you get all the scale interior parts, new canopy, plywood, landing gear, tail boom and struts, etc. And the GMP "Hughes 300C" sure looks sharp in the air.



The complete GMP "Hughes 300C" kit is now available at your dealer with a list price of \$249.95. Bear in mind this machine is really a very impressive, scale looking small helicopter which can be flown with a variety of engines from a 0.25 to 0.40. We have also added a cooling fan system to our "Hughes" because of the extra cabin width, the extra weight of the helicopter and the extra work which the engine is doing.

We decided to make this forced air cooling system available for "Cricket" owners, too, at \$25.95. For this you get a new flywheel/fan assembly, a cooling shroud and the metal brackets to mount it to your "Cricket". You will have to file a little metal off your main frame but it's no big deal at all to fit your "Cricket" with a forced air cooling system.



By the way, since the "Hughes" is heavier, don't expect it to fly well at 5,000 feet with a 0.25 engine. Fit it with a 0.40 and it should do fine.

VIDEO TAPES

We have just had a new professional video tape made. This tape was produced for us by Mike Mas of "Video Effects Inc." and he surpassed himself. Those of us who watch the tape can still see it time and time again and not get tired. It is full of helicopter flying of all types: "Cricket", Lamas, "Competitors", etc., all flown by beginners and by experts, with lots of action and a good musical background. You will also have a chance to see the GMP factory and the way in which "Cricket" and our other helicopters are produced and supported. If you'd like a copy of this tape, we are making a special offer to "Cricket" owners, by means of this bulletin, for \$29.95 (we will pay the postage). If you really want to see R/C helicopters in action, this is one way to do it. So send for yours right away. Please be sure to specify VHS or BETA format (overseas please specify VHS PALS or SECAM). And don't forget you get your money back if you return the tape within 30 days. This tape does not teach you to build or fly but a new one is coming soon which will specifically discuss and show building and learning to fly your "Cricket". Watch the 'ads' for news of this new tape.

HATS AND 'T' SHIRTS

We now have our own 'GMP' hats and 'T' shirts. Both are top quality items. Shirts are 50% cotton / 50% polyester. The hats are competition orange with a white helicopter logo and cost \$6.50 (part #613). The shirts come in two color combinations: white with orange trim and orange helicopter logo (cost \$7.75, part #614) or orange with white helicopter logo (cost \$7.95, part #615). Don't forget we have "Cricket" patches, too, 4" in diameter (cost \$4.95, part #611).

GYRO

We have just tested a brand new, miniature gyro for helicopters. It is now being imported by "Kraft Systems". The new gyro has some most impressive qualities, such as:

- 1) It weighs only 3 ounces.
- 2) It is extremely efficient around threshold levels.
- 3) It is filled with a ball bearing gimbal ring.
- 4) It is "stick preferential", meaning that it won't 'fight' you if you want to apply tail rotor
- 5) It costs only \$69.95!

These gyros will be available by end July 1982. Since they are a "Kraft Systems" item, you can either obtain them from your local hobby store or, if you are not near a hobby store, from us or Heli-Center East directly. Might be as well to place an order since all indications are that this item will be a 'hot' seller.

By the way, Heli-Center East is now our GMP distributor for the "other" half of the USA. Their phone number is (412) 342-5500. Talk to Bill Smith or Bill Curtis. Bill Curtis is a real "old timer" of R/C heli flying. He even remembers Dave Gray's "Whirlybird" of 1970!

YAW TORQUE COMPENSATOR

We have had some problems in producing this item, mainly due to the major electronic companies being extra busy. However, we now have the first pre-production models in our hands and they work extremely well. The "Yaw Torque Compensator" is enclosed in a very small plastic case, about the size of a miniature receiver, and has three adjustments. It is connected in with the airborne pack, between the rudder and throttle servos and receiver. It can be set to provide a progressive tail rotor movement in one direction (or the other) when throttle is advanced or retarded. It can also provide a 'kick' of tail rotor either with or without the progressive movement. All in all it can replace mechanical mix in the air or eliminate the need for a sophisticated transmitter on the ground so it will be a very useful and low cost improvement to your system.

GYRO vs YAW TORQUE COMPENSATOR - WHICH?

The "Yaw Torque Compensator" will apply the correct amount of tail rotor control whenever you move or adjust throttle and/or collective pitch to compensate for the disturbance. The gyro, on the other hand, will correct for any external disturbances caused by wind gusts, etc. Hence the "Yaw Torque Compensator" will prevent disturbances of the tail due to your own throttle or collective movements. The gyro corrects for external or wind gusts. You can use either or both: The gyro will be helpful for the beginner, of course, since it will make the helicopter much less sensitive to "tail swinging" due to wind gusts. However, the gyro cannot completely eliminate the need for the "Yaw Torque Compensator" when you get to the more sophisticated helicopters, such as the "Competitor", since with this helicopter (because it has collective pitch) tail rotor adjustments should be made automatically whenever you change collective pitch and the electronic means of doing it is, by far, the best. Naturally, if you have one of the new "helicopter" radios, you won't need the "Yaw Torque Compensator". By the way, there is no substitute for a gyro, however sophisticated your radio is! The transmitter, receiver or servos simply cannot detect motion like a gyro can!

The "Yaw Torque Compensator" is made available to you by GMP so that you can make your simple radio perform an "auto-tail twitch" function for very little added cost. The "Yaw Torque Compensator" will list at \$42.50 but this item may not be available until September, 1982. Then it can be obtained from either of the two "Heli-Centers" or your local hobby store.

NEW CRICKET KITS

For "Cricket" owners who are contemplating buying their second "Cricket" we have found that there is a growing interest in having an extra special appearance. So we are now producing a new "Super Custom Cricket" kit with a black and gold anodized finish. This kit includes the new completely assembled "Gold Custom" rotor head and "Crickets" built from these kits really do look gorgeous in their black and gold finish. These kits are available from your local hobby dealer at \$239.95. This kit is available in limited quantities so if you want one - get your order in.

GOLD CUSTOM ROTOR HEAD

This item has been created because of popular demand. Not only does the new rotor head look nice but it is "blueprinted" in assembly. That is, we assemble it for you and carefully select parts to give the best possible performance. This new head has extra hard drawn stainless steel bearings and all the aluminum parts are gold anodized.

RIGID BLADE STRAPS

In this bulletin we would also like to mention, again, our rigid blade straps because it seems there has been some misunderstanding about these. The rigid blade strap has two screws attaching the straps to the seesaw so that the main blades can no longer "swing" freely. This means, of course, when you hit the rotor blades on the ground there is a much greater chance of breaking them. However, if you are now accomplished in hovering and forward flight, rigid blade straps will give your helicopter that little extra "zing" in aerobatic maneuvers and will also enable you to reduce vibration due to uneven blade swinging. These blade straps are available from your local dealer at \$2.95 a set of 2 since they are only needed in place of the two top blade straps. All standard "Cricket" are now shipped with the extra hole already provided in the seesaw. If you have an older "Cricket" you can easily drill the extra hole yourself.

ENGINES - K & B and Irvine

We have tested several more engines with "Cricket" and, in particular, the new "K & B 03.5 ABC" engine is proving to be a real power house. This engine, together with the "Tatone" special muffler, works very well. Naturally, of course, the old faithful "OS 0.25 MAX FSR" still does an excellent job, as do many of the other 0.19 - 0.25 "car" engines available today. The new 0.25 British "Irvine" engine also seems to be a great performer and they also have a 0.30 in a 0.40 case. Wish it was a 0.30 in a 0.25 case!

UNIVERSAL PADDLES - Part #616

The stabilizer paddles on "Cricket" are deliberately made of wood so as to be light and to have a thick section. This reduces the sensitivity around threshold and makes it better for the beginner to learn on. Some flyers, once they have learned to fly on "Cricket" however, do like a more sensitive control. And, in this regard, we have produced the new "Universal" plastic paddles which can be used on "Competitor", "Cricket" or, in fact, almost any R/C helicopter. If you do decide to use these on "Cricket", however, you should realize that the flybar needs to be shortened. These new shorter flybars will be available from your local dealer for \$4.95 (part #299-S) or, if you wish, you can cut your present flybar down and re-thread the ends with a 5/40 thread.

AEROBATIC HEAD SYSTEM - Part #335

You may remember that we have done much experimentation with "Cricket's" rotor system to make "Cricket" really aerobatic without reducing its simplicity and stability. At last we've found the solution - it's simple and it works super well. Just use a "Gold Custom Rotor Head" with a 14 1/2" flybar and the new "Universal Paddles". For your convenience we've packaged all the items you need to replace your present rotor head and make your "Cricket" AEROBATIC. You get:

- 1 - new 14 1/2" flybar
- 1 pr - "Universal Paddles"
- 3 - new 1/8" collars
- 1 - new flybar control arm
- 1 - "Gold Custom Rotor Head"

Put this lot together and you've got a 'tiger' in forward flight. Pylon turns, loops and rolls. Try it if you dare - but tell your friends to stand back.

TECHNICAL TIPS

There have been so many technical hints and tips provided by "Cricket" owners that we have decided, in this bulletin, to present some of them in a tabulated form. Those of you that are flying "Cricket" will, we hope, understand them well enough to be able to try them if they are applicable to your problem.

1) Always lubricate the flybar, head, tail gearbox, pitch plate, swashplate, "T" lever and all moving parts frequently. Also the bearing in the tail blade holders. This is just good general practice for any R/C helicopter and not specific to "Cricket" (read section 15 later on).

2) Be sure that the swashplate locating bracket is formed (bent) in such a way that it just clears the swashplate arm but also provides enough slot length so that the swashplate can tilt through the largest angle possible in either direction (right and left roll).

3) If your carrier becomes worn in any way by the flybar control arm, this will usually be caused by a dirty or "dragging" swashplate. The cure is to clean or replace the swashplate bearing. By the way, since the swashplate bearing is an 'open' bearing it should be cleaned now and then depending upon your flying habits. No ball bearing can run well if it's dirty or the lubricant has thickened up.

4) There have been cases of non-GMP rotor blades being offered as suitable for the "Cricket" helicopter. We are not familiar with these blades, but it should be borne in mind that "Cricket's" performance is based very heavily upon the blades being of correct airfoil section and also of a very light weight. Heavier blades on the "Cricket" will destroy its handling qualities.

5) Setting your carburettor: this has been covered in a previous bulletin but please be sure that your idle is set so that when you blow through the fuel tube leading to the carburettor there is just a small amount of air coming through the carburettor. Closing the throttle trim should cause the air to be cut off.

At the high speed end the mixture must be set to be just lean enough so that the helicopter lifts off okay but not so lean so that the engine tends to sag after a few minutes of running. Getting this setting correct for a helicopter can be quite a delicate operation but it is very necessary with all helicopters in order to get that slightly rich mixture which will ensure that you avoid overheating your engine, while still preserving adequate power for good flight characteristics.

By the way, "Cricket" will not overheat if the throttle is set right and the fuel is a cool running fuel. There are some brands on the market which run "hot" in any helicopter. We strongly believe in a fuel mixture of 22% KLOTZ, 12% NITRO, 66% METHANOL. Of course, there are many other mixes which will work well too. But if you have problems, try our suggestion.

6) Be sure that your paddles are both parallel to the swashplate and in line with each other. Check frequently in case they loosen up on you. "Cricket", or any other 'copter for that matter, don't fly too well if the paddles are misaligned.

7) If your tail control rod is mounted above your tail fin, re-route it and have it so that it runs under the tail fin. This will prevent it being "scooped up" by the main rotor blades if you are unfortunate enough to get a blade strike.

8) The alignment of the flywheel and starting shaft is quite important to reduce vibration. Don't forget that the average engine is not designed to have an exactly parallel surface on the prop backplate. So it may be necessary to "fiddle" around with

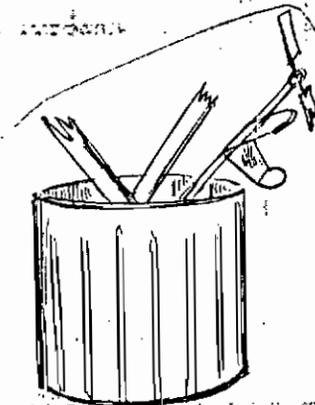
the flywheel positioning on the main shaft in order to have the flywheel and hence the clutch shaft running true. It is not possible, as a kit manufacturer, for us to take account of all the eccentricities which can exist on different model engines so you may have to carry out a few 'adjustments' of your own. Wish we had a universal solution to this one. Maybe one day we'll come up with one.

9) Please check that the pitch angle of the main rotor blades is just a little less than 4 degrees, measured on the under surface, to the flybar angle. While it is possible to operate with slightly higher settings at high altitude, this angle is correct for nearly every other situations and you should not need to vary it much. If your helicopter doesn't lift off at this setting, it's probably because you have an engine which is either set too rich, too lean, or has inadequate power. The other possibility is there is excessive friction somewhere in your drive system. To really check this - remove the starter cone, flip off the drive belt and then you can spin the blades to check for smooth running.

10) Make sure that the drive belt between the engine shaft and the Intermediate shaft is adjusted to be quite slack. The manual gives a distance of 3/4" when you squeeze the two sides together and this setting should be maintained. The belt is toothed so it doesn't have to be set tight like an automobile belt. (That's why we use a toothed belt, see?)

11) When you have become proficient with "Cricket" you can reduce the width of the landing gear by increasing the bend angle of the landing gear struts. This will give a higher ground clearance and also make your helicopter look a little more purposeful. Many experts are making this change.

12) If your "Cricket" does not fly "beautifully" then there is something wrong. Check with the local expert and let him handle it for you. "Cricket" does have delightful flight characteristics and this is built into every kit. There is no reason why you shouldn't achieve the same results. If all else fails, please don't hesitate to call us at the factory. We want "Crickets" to fly, not sit in the back of your garage (or other places even worse!).



13) The modification of fitting a brass tube around your tail drive wire (Bulletin #5) seems to be working well for some people. It's relatively easy to fit so, if you are having tail drive wire "slapping" problems, we suggest you try this modification. However, bear in mind that the tail drive wire is secured at both ends by the 4mm set screws and so, if a heavy landing occurs which drops the tail boom at all, this will tend to compress the tail drive wire and "bow" it. After that it can hardly do anything but run erratically. So, after a heavy landing or if you have any doubt, release the front drive wire's 4mm screw and let the wire settle to be straight again, and then tighten up once more.

14) Do make sure your control system is "tight". That is to say, when you move the levers on your transmitter the controls (the paddles and/or tail blades) on your "Cricket" should move instantly. If this doesn't happen then you will have a "hard to handle" helicopter on your hands. This is true of all helicopters, large or small.

15) If you are having "slow" head problems read the following:

ROTOR HEADS AND SLOW/INCONSISTENT CONTROL RESPONSE

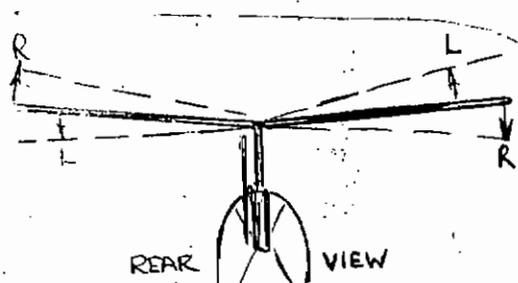
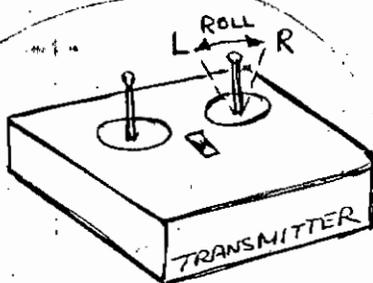
What is it?

The symptom of slow or inconsistent response of "Cricket" to control inputs has been reported from time to time. Most of us who are already hell flyers haven't had the problem and so have been unable to give advice to those who have. Those that do have the problem are often beginners who have not yet realized how important it is to have smooth mechanics and controls if control response is to be fast and flight is to be accurate and so we usually tell them to take the rotor head apart, polish the parts, lubricate well and try again. So far as we can tell, in nearly every case, this approach has worked. Recently there have been a few more reports, but of course there are now over 6,000 "Crickets" out there.

Have I Got It?

One more problem is for a beginner to recognize a slow or diminished response because he has no background experience to compare against. Usually it shows up as a need for a large right sideways tilt on the swashplate. Of course, this can be due to an excessive amount of pitch in the main rotor blades; setting these accurately can cause beginners problems too. So it is hard for us sometimes to diagnose the problem and give proper advice. Anyway, if your swashplate is tilted a lot to the right and your main rotor blade pitch is correct - you may have it!

One way to check if you have a slow response head is to squat down so that you are just above eye level with the rotor head (and, of course, at least 10 - 15 feet away). The 'rev' up until the chopper is light on its skids (but still firmly on the ground). Now move the cyclic roll stick on your transmitter right and then left. The horizontal plane of the rotor blades should tilt correspondingly (see sketch).



If the response is very small, then chances are that you have "slow head plague". All of the above supposes that your swashplate moves the right amount, the paddles are set right, the main blades incidence angles are set right, etc. In other words, all of the setting-up instructions of the kit have been followed and double checked.

What is it caused by?

The cause is nearly always due to dry (non-lubricated) or sticky/dirty rotor head parts. The flybar must be free to rotate rapidly according to the swashplate tilt even when increased friction is caused by the weight of the helicopter acting upon the bearings of the flybar rod. A clean, free, and well lubricated rotor head will give excellent response. A dirty, stiff or dry head can drive you nuts!

What Shall I Do?

Well, if you keep all the head bearings and parts free, clean and oiled (light machine oil or "W D 40" works well), this should do it. But, you may have to disassemble the head, clean it thoroughly and very carefully reassemble it making sure that all moving parts can move with almost zilch friction. Then, lubricate all moving parts. By the way, slow response doesn't seem to happen frequently at all but when it does it can demoralize a learner very fast. If you'd like to have everything done for you and then some - we now have the "Gold Custom Rotor Head". This new rotor head for "Cricket" has

extra bearings to reduce friction and it is factory assembled for you. The cost is \$39.95 s if you'd like one of these, see your local dealer and ask him for the "Gold Custom Rotor Head".

Last but not least on the subject of rotor heads. If you have learned to fly "Cricket" and you want a really fast head then consider the "Aerobatic Head System Kit". This kit includes the "Gold Custom Rotor Head", plus a pair of new aerobatic paddles and a new shorter flybar. With this combination you can really go to town - loops, of course, and rolls, too! See earlier section on this one.

16) Many "Cricket" flyers, indeed heli-flyers in general, seem to set-up the fore and aft pitch cyclic control to be too sensitive. Then they get into a 'seesawing' fore and aft motion of control. As a general guide the pitch angle of movement of an R/C helicopter should always be less than the roll movement. Large pitch movements can readily be de-stabilizing but large roll movements don't affect stability anywhere near as much.

Also having the tail control too sensitive can lead to a 'twitchy' and overactive tail motions. Most of the top flyers set their sensitivities to be just enough for the maneuvers they want to perform. A ship set-up to be too hot will also look jerky during forward flight.

GMP COMPETITOR

1982 CANADIAN 'NATS' WINNERS

Last but not least we'd like to give you a report on our new "Competitor" copters. We have taken nearly 18 months to develop this machine. Our goal was to at least equal the "Hell-Boy's" aerobatic performance but give better quality and at a lower price. When, and only when, we felt we'd achieved this did we start putting kit out in the field. We selected about half a dozen top fliers to test "Competitor" for themselves. The results have astounded us. Not only do all of the fliers feel we have produced the best quality of any machine on the market today but the flight performance of "Competitor" is now generally acknowledged to be superior to all the other R/C helicopters which you can buy. One well known flier said "...three times as easy to fly as the 'Hell-Boy'". All the fliers who tested the "Competitor" have said "superior by far in rolls and also in autorotation". Autorotation equipment is standard and because of the high quality gear train, the heavy rotor blades and the triple bearing autorotation clutch, autorotations with "Competitor" are now no longer a maneuver which only the expert can do.

Easy to say all of the above. The proof - ask any flier who saw Bill Curtis fly "Competitor" at Casey, Illinois. Or any California flier who saw Robert Gorham fly one at the Burbank Schluter Cup. Talk to John Smith up in Seattle who astounded nearly 1000,000 people at a recent air show with his "Competitors". More proof - while at its very first aerobatic contest, the Canadian Helicopter Nationals, Rene Dikkes flew his "Competitor" to 1ST PLACE EXPERT, "Competitor" also took 3RD PLACE EXPERT. Rob Brown flew his "Competitor" to take 1ST PLACE NOVICE, showing that it is good for the beginner, too. And this kit has only been available for a few months. We include some photos and drawings of "Competitor" and a table of some of its outstanding features.

If you're now hovering and flying "Cricket" and want to move up to the very best there is - ask your dealer about a "Competitor" for yourself.

- "Shorty 40" at \$329.95 (autorotation can be added)
- "Pro" model (50/60 power) at \$399.95 (autorotation standard)

Both models have full collective pitch and 'Bell/Hiller' mixing as standard.

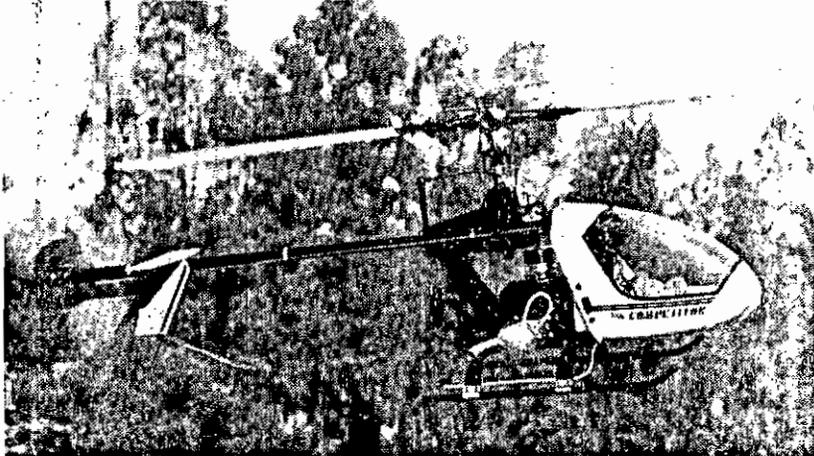
We'll try not to be so long with Bulletin #7. 'Till then.

GMP PRESENTS
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COMPETITOR

THE WORDS' OUT

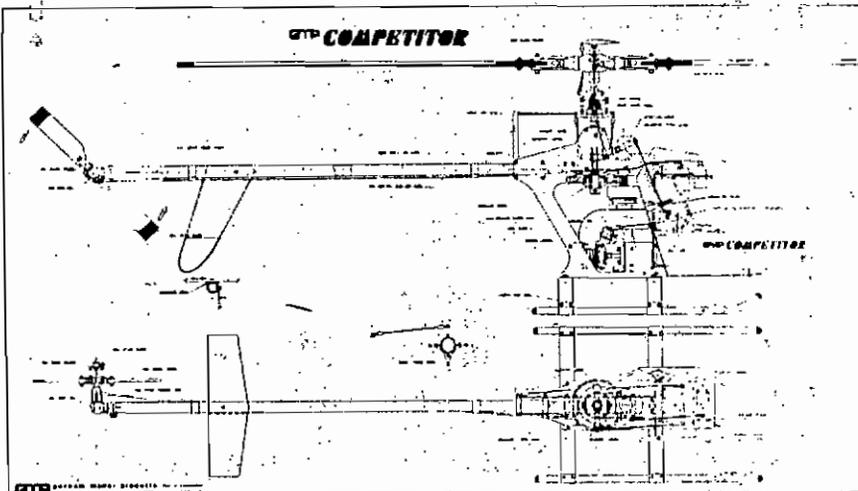
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GMP COMPETITOR FEATURES

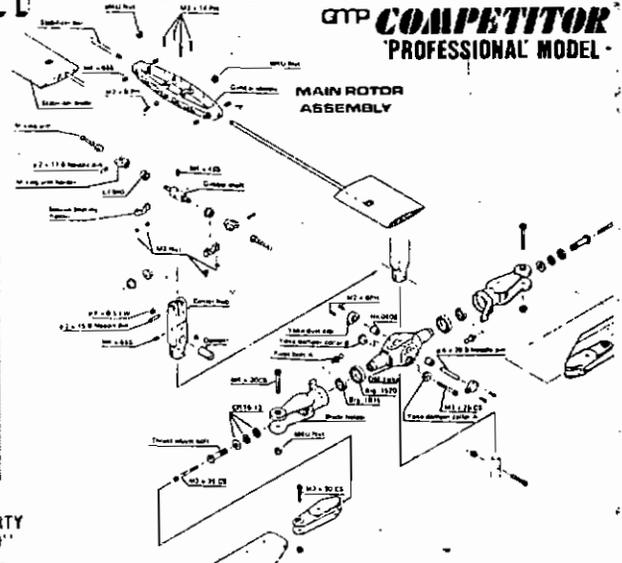
| | "PRO" MODEL | SHORTY "40" | | "PRO" MODEL | SHORTY "40" |
|---|-------------|-------------|---|-------------|-------------|
| COLLECTIVE PITCH | STD | STD | SPIRAL BEVEL GEAR | STD | STD |
| BELL/HILLER AEROBATIC HEAD MIXING | STD | STD | TAIL DRIVE | STD | STD |
| TRIPLE BALL BEARING MAIN BLADE HOLDERS | STD | STD | DUAL SPIRAL BEVEL GEAR TAIL GEARBOX | STD | STD |
| DUAL BALL BEARING TAIL BLADE HOLDERS | STD | STD | INVERTED FLIGHT CONTROL RANGE | STD | STD |
| DUAL BALL BEARING PITCH PLATE | STD | STD | TEMPERED ALUMINUM LANDING GEAR | STD | STD |
| AUTOROTATION | STD | OPTION | MACHINED SOLID ALUMINUM ROTOR HEAD | STD | OPTION |
| TRIPLE ROLLER BEARING AUTOROTATION GEAR | STD | OPTION | BLACK ANODIZED FRAME LANDING GEAR, ETC. | STD | STD |
| ENGINE SIZE | 45/60 | 40/50 | TOP CONE START (NO BELT) | STD | STD |
| STEEL CLUTCH | STD | STD | REAR GLOW PLUG ACCESS | STD | STD |
| PRE-LINED/MACHINED CLUTCH BELL | STD | STD | FULL AEROBATIC PERFORMANCE | AMA/FAI | AMA/FAI |
| ALL PLY DIE CUT | STD | STD | | | |

SUGGESTED LIST PRICE: "PROFESSIONAL" MODEL \$399.95 — "SHORTY 40" MODEL \$329.95



- COMPETITOR — 1st Place Expert
Rene Dikkes
- COMPETITOR — 3rd Place Expert
Roger Goulet
- COMPETITOR — 1st Place Novice
Rob Brown

GMP **COMPETITOR**
"PROFESSIONAL" MODEL



LOOK AT COMPETITOR'S ROTOR HEAD NOTE THE ONE PIECE SOLID MACHINED ROTOR YOKE — THE ADJUSTABLE TRIPLE BEARING BLADE HOLDERS — THE ADJUSTABLE HEAD DAMPING . . .

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 - CRICKET - BUILT (#B100) without radio and engine \$259.95
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