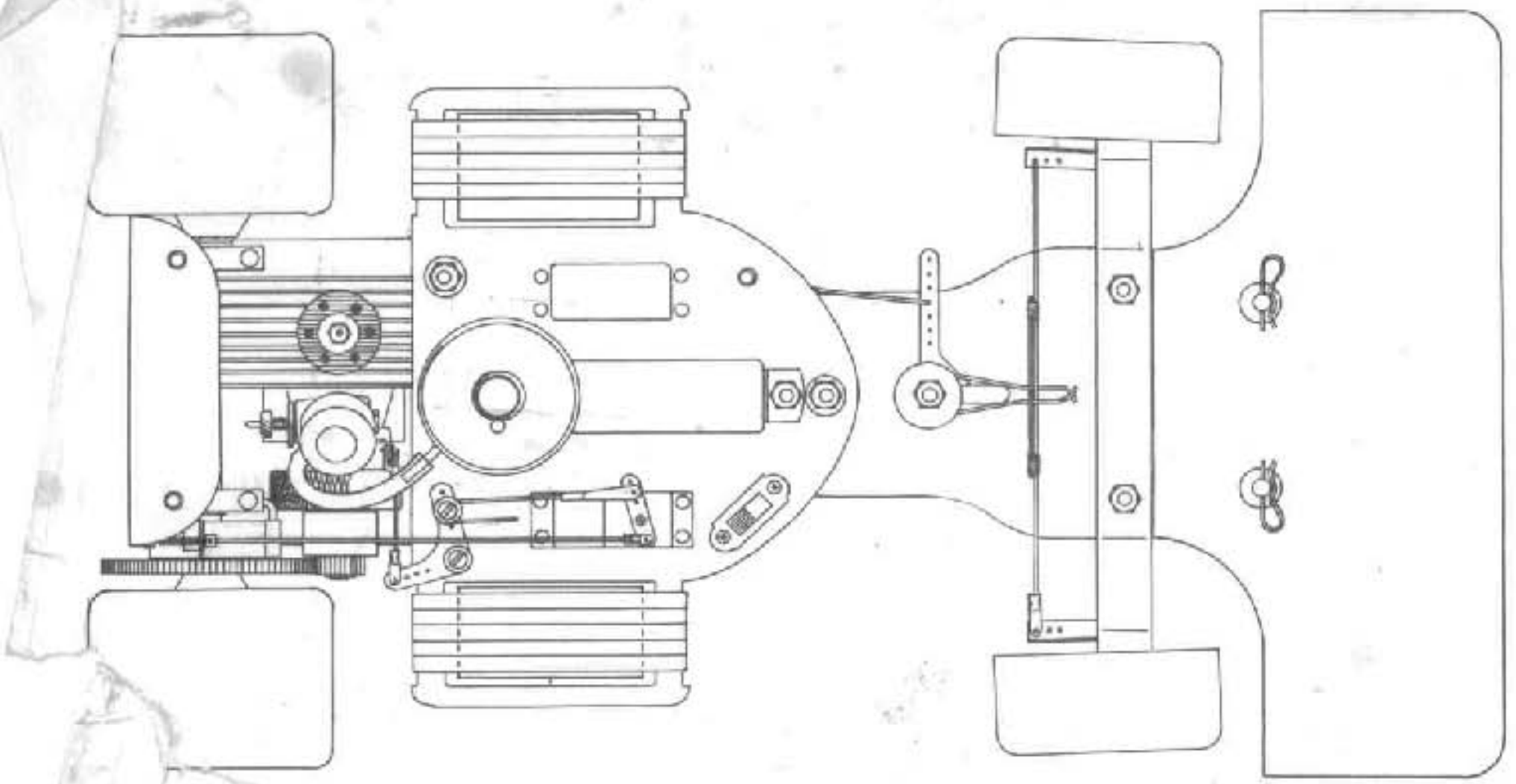
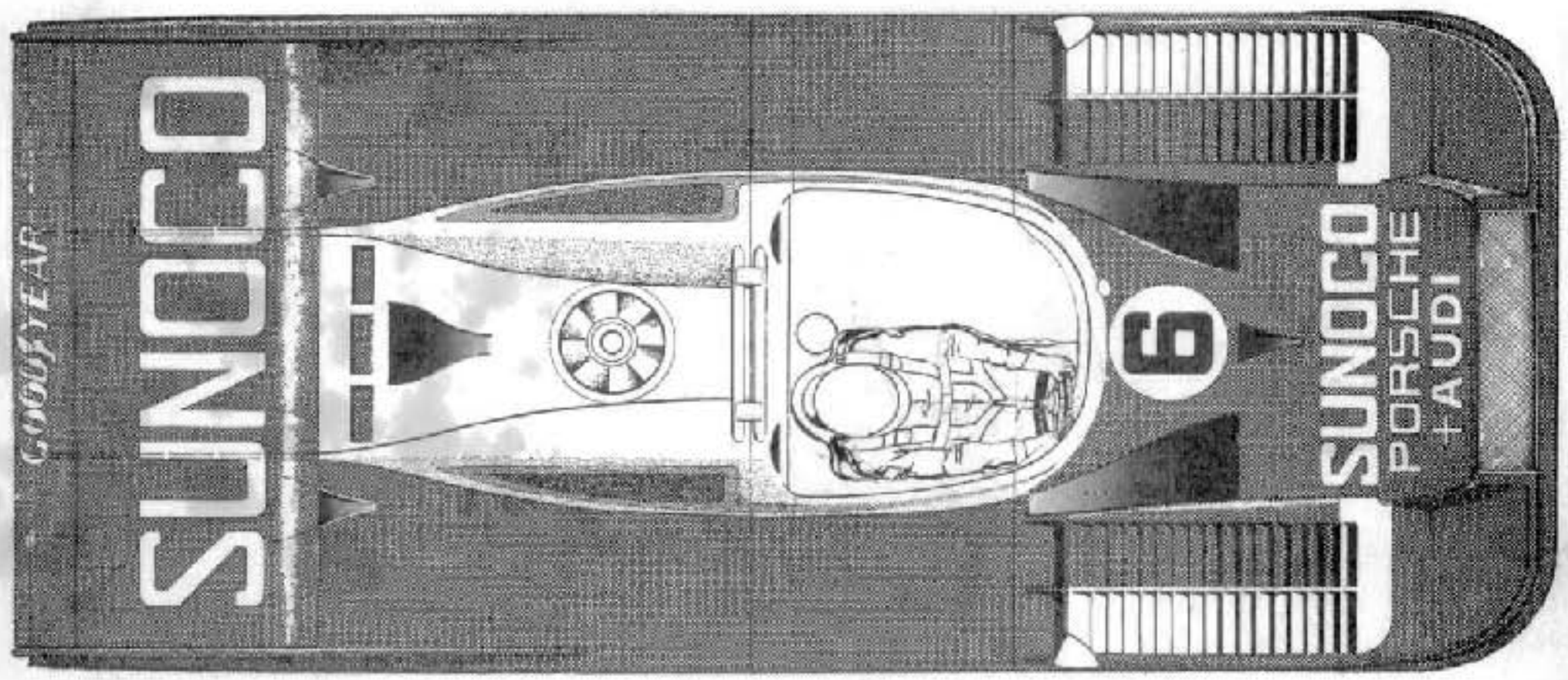
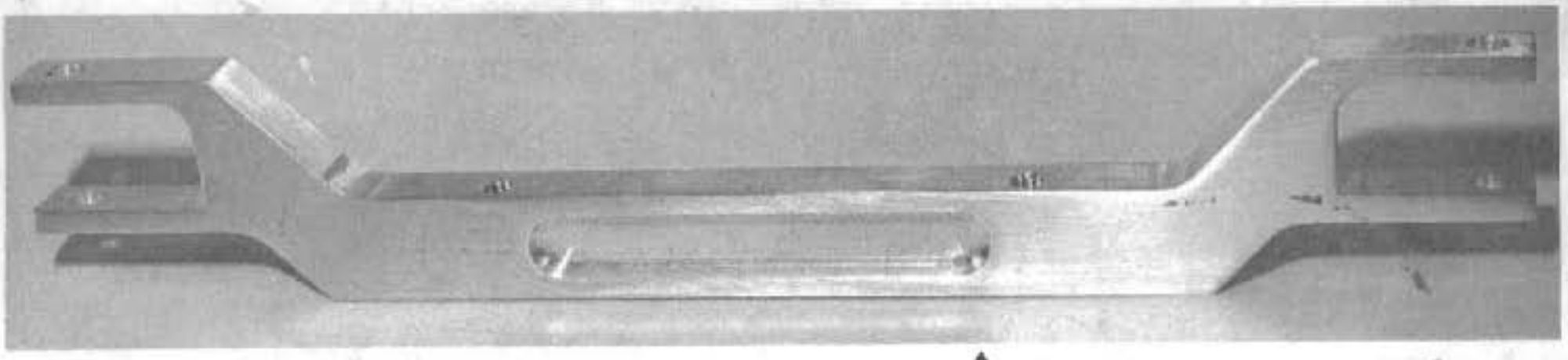


ASSOCIATED RC 200 KIT INSTRUCTIONS



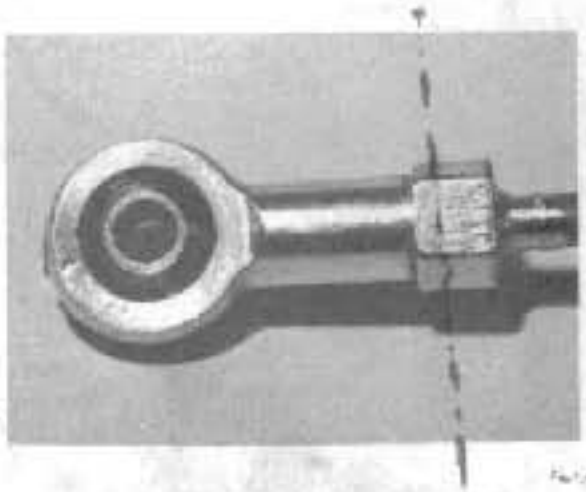
NEW & SPECIAL ITEMS



#SP 10 R&A MACHINED ALUMINUM FRONT END - only
(uses stock ASSOCIATED Front End parts) $ 14.00

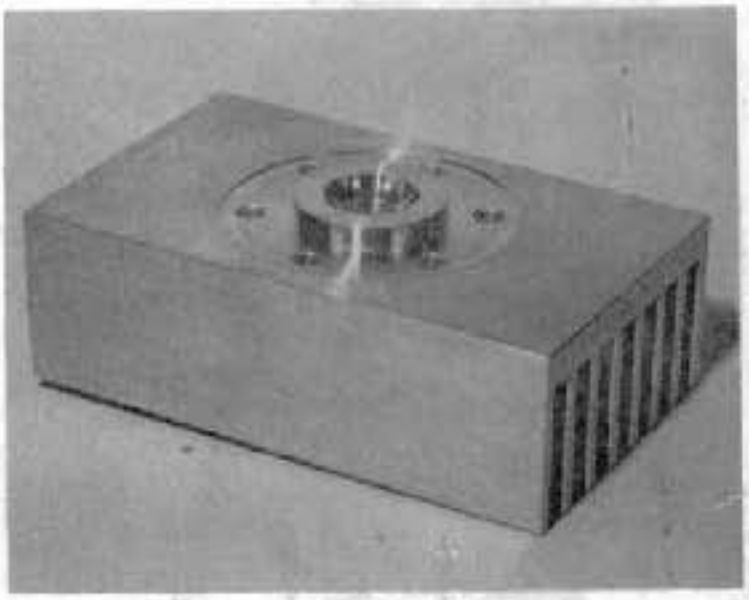
#SP 11 ASSOCIATED FRONT END PARTS for SP 10. Includes Steel Steering Blocks, hardened & ground Steering Journals, Wheel Journals, Steering Arms, Axles, & all hardware.
$ 12.00

#SP 12 R&A AIRCRAFT TIE RODS - Aircraft Steel Tie Rods with 1/8" (5/40) hole in ball & end threaded for 6/32 rod, or 1/8" piano wire may be soldered in. pair $ 8.00



#SP 20 DECALS - All the decals you'll need to turn your car into a Concours winner. $ 4.00

IRON ON SHIRT DECALS - Iron them on Cotton shirts.
#SP 18 BLACK & RED $1.00
#SP 19 BLACK & BLUE $1.00

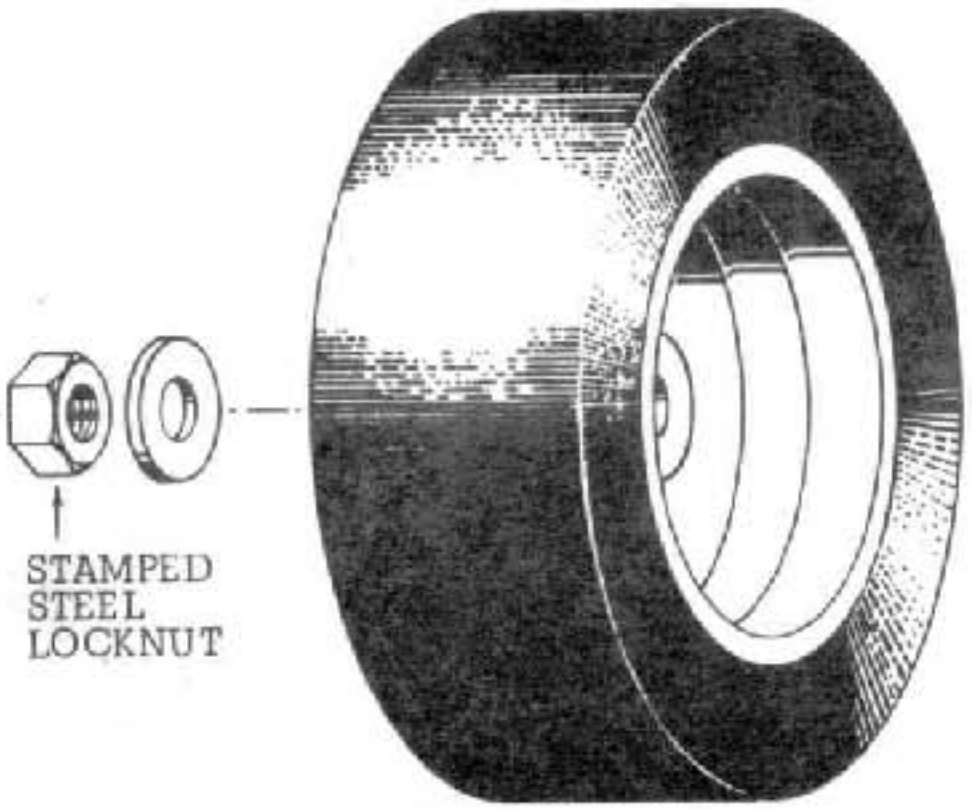


R&A HEAD-HEATSINK - One piece aluminum with high compression head chamber for High Horsepower & deep finned style for Cool Running.
#SP 14 for VECO 19 $ 14.00
#SP 15 for VECO-McCOY $ 14.00
#SP 16 for K&B 21 (3.5) $ 14.00

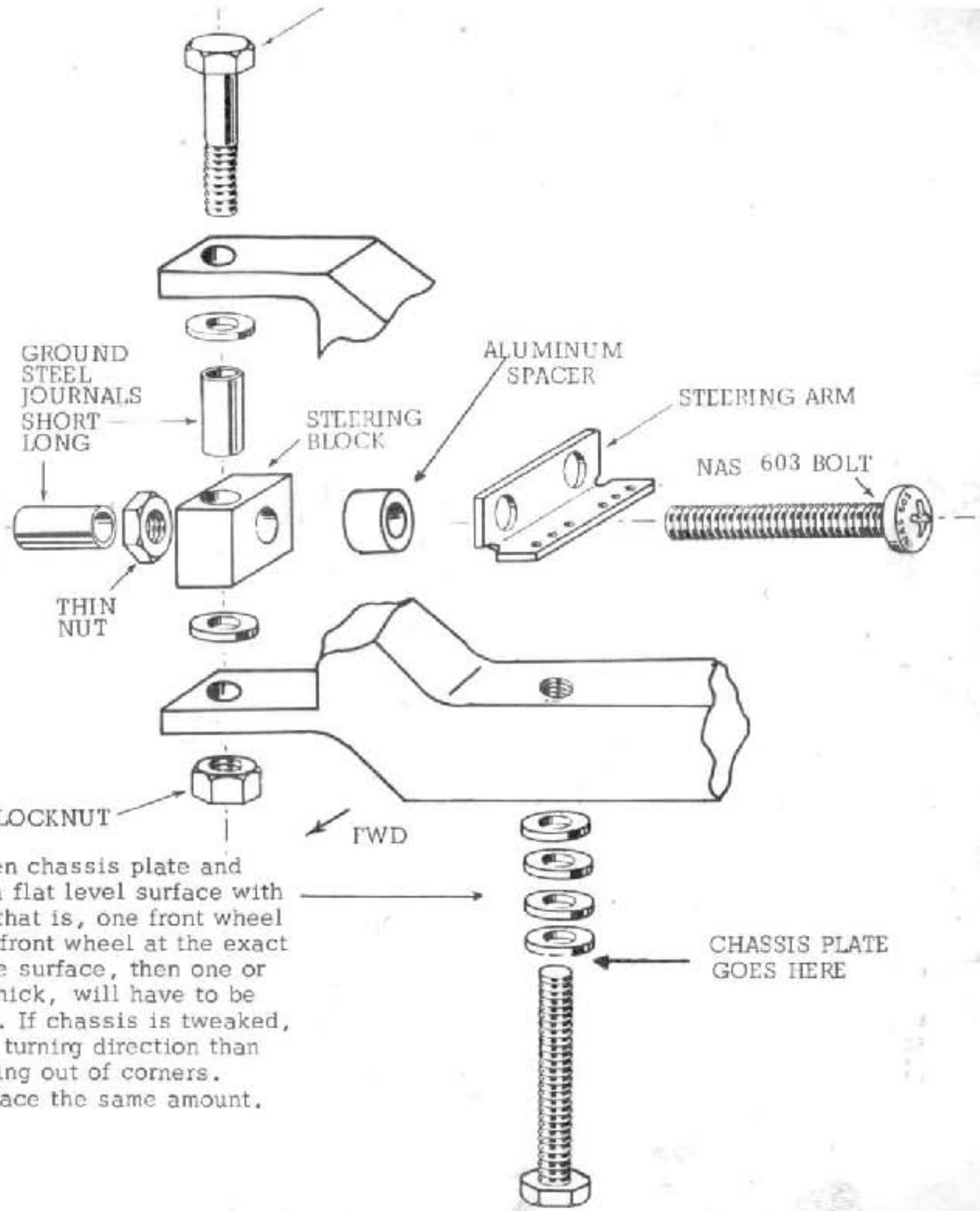
#8380 K&B 21 (3.5cc) R/C AIRPLANE ENGINE - K&B's NEW engine featuring Schneurle porting, aluminum piston, chromed brass cylinder liner with Perry Carb. This is the most powerful stock 21 size engine made. $ 67.50
#853 FLYWHEEL for #8380 K&B 21 Engine - With this flywheel the K&B 21 engine will bolt right into any ASSOCIATED car using the stock motor mounts & location. $ 4.00
#MC 44 McCOY MUFFLER for K&B 21 Engine $ 15.95

ASSOCIATED Electrics
1928 East Edinger
Santa Ana, Ca. 92705 USA

RC 200
FRONT END

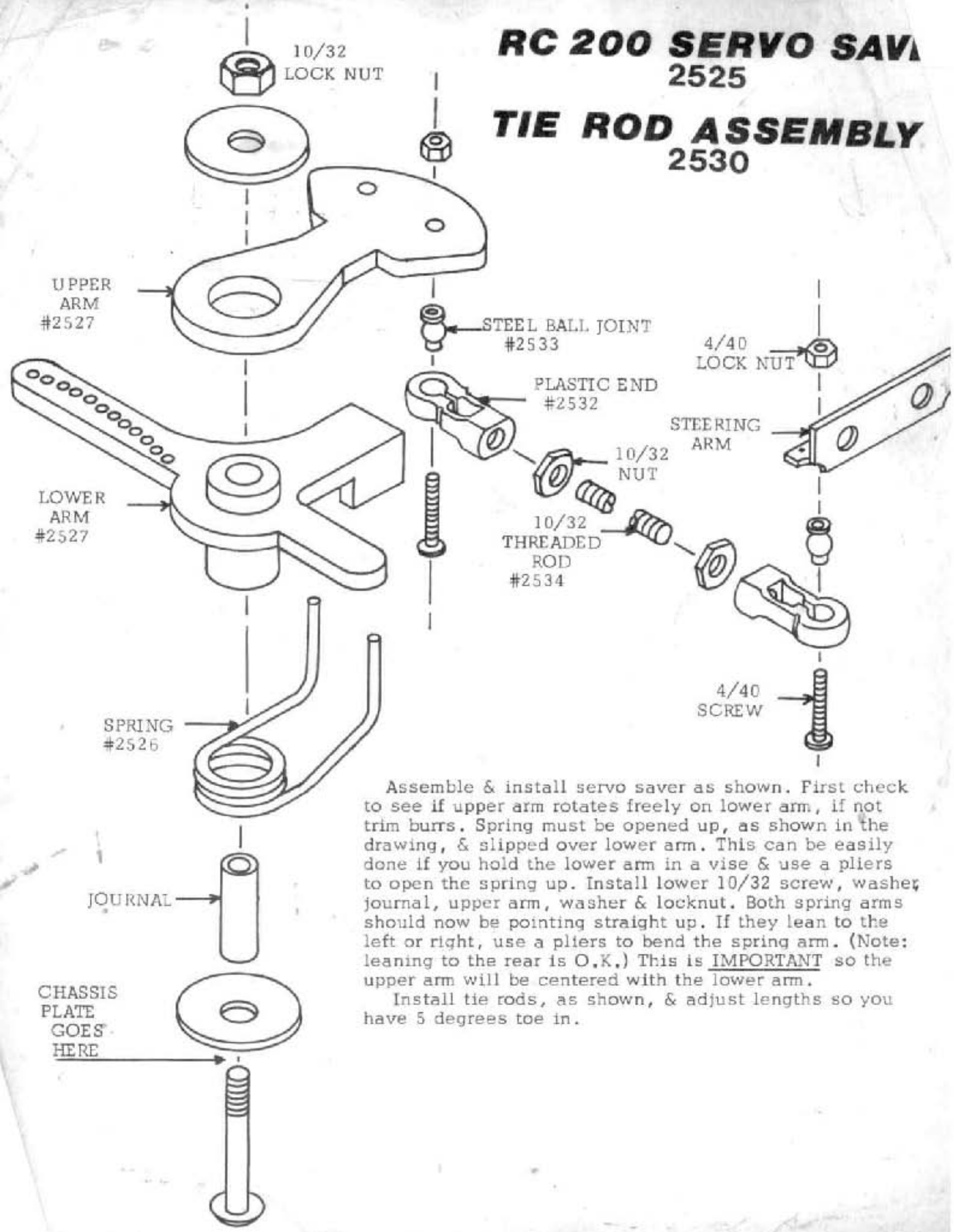


STAMPED
STEEL
LOCKNUT



Install 4 thick aluminum washers between chassis plate and front axle. Check chassis "TWEAK" on a flat level surface with 4 new tires. If chassis is "TWEAKED", that is, one front wheel will lift off of surface higher than other front wheel at the exact moment that both wheels are off of the surface, then one or possible two very thin washers, .010 thick, will have to be ded to one side to even out the tweak. If chassis is tweaked, car will spin out much easier in one turning direction than ther. It will be harder to drive coming out of corners. ront wheels should lift off the surface the same amount.

RC 200 SERVO SAVE
2525
TIE ROD ASSEMBLY
2530



Assemble & install servo saver as shown. First check to see if upper arm rotates freely on lower arm, if not trim burrs. Spring must be opened up, as shown in the drawing, & slipped over lower arm. This can be easily done if you hold the lower arm in a vise & use a pliers to open the spring up. Install lower 10/32 screw, washer, journal, upper arm, washer & locknut. Both spring arms should now be pointing straight up. If they lean to the left or right, use a pliers to bend the spring arm. (Note: leaning to the rear is O.K.) This is IMPORTANT so the upper arm will be centered with the lower arm.

Install tie rods, as shown, & adjust lengths so you have 5 degrees toe in.

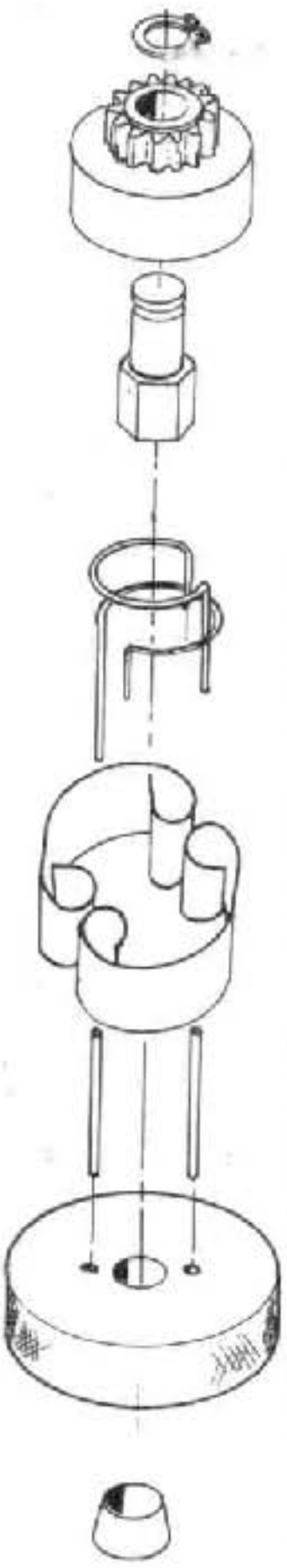


FIGURE 1

CLUTCH INSTRUCTIONS

Carefully tap or press the split-spring pins partially into the outside, or flat face of the flywheel. The best method is to slowly press them in with a bench vise. They should be pressed far enough so that they stick up 10/32 from the face of the flywheel or even with the clutch shoes. If they start to go extremely tight before you get them all the way in, stop there and Dremel cut or grind off the excess.

If you're using these steel clutch shoes on an older car with the 1/16" split-spring pins we would suggest removing the 1/16" pins and installing the 3/32" pins in your flywheel. Either pull or drill your pins out with a 1/16" drill. Then drill the hole out with a #41 drill and install the 3/32" pins.

Remove the nut, washer, flanged washer, and tapered collar or shaft key (if present) from the shaft of your engine. You should now be able to see the inner race of the ball bearing. Slide the tapered collar supplied with the flywheel onto the shaft and up against the bearing inner race (or shaft shoulder on sleeve bearing engines). Slide the flywheel onto the shaft and secure with the clutch nut. Tighten the nut by grasping the flywheel with one hand and turning the nut with a 3/8" box or socket wrench.

The steel clutch shoes might have sharp edges from the punching operation, so use a small file and lightly round the edges that contact the flywheel. You'll notice that on the contour of the clutch shoe there is a flat surface near one end. Place the shoes on the flywheel pins, as shown in figure 2, so the flat side is by the pins. The shoes must be placed on the pins exactly as shown in figure 2 to work correctly.

The clutch springs may have to be slightly reshaped, so that the 2 straight ends are 90 degrees to the round portion and perpendicular to each other. They should also be set so that the 2 straight ends just touch each other, this will give them the correct spring pressure. Install the clutch springs with the long ends in the flywheel spring pin and the short end in the opposite clutch shoe. You may have to bend and trim the spring ends a little to make sure the springs lay close to the shoes and not rub the end of the clutch bell. The long end of the spring should go all the way thru the flywheel and extend 1/8" outside. This 1/8" end should be bent up 45 degrees which will hold the shoes in so the springs don't rub on the clutch bell.

The clutch bell does not require any lining. The steel clutch shoes ride agair the steel clutch bell. Install the clutch bell and secure with a "C" clip. Lubrica the oilite bushing frequently to keep it rotating freely. Ball bearing clutches do not require any lubrication or maintenance. Bushing clutches can be converted to ball bearings by simply pressing out the oilite bushing and installing two #897 ball bearings. The ball bearings go right in, no machining is necessary.

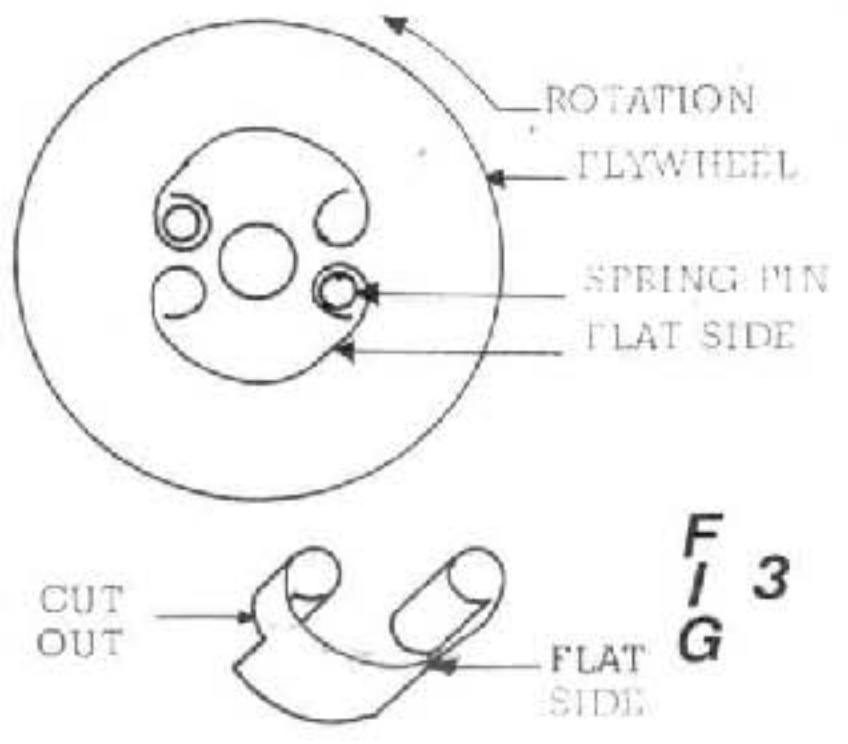


FIGURE 2

FIG 3

SPEED SECRETS

We'll give you some "SPEED SECRETS" that the Team Drivers use. Make a thin steel washer, such as from a tin can lid, the same diameter as the clutch bell. Put a 1/4" hole in the center and then two 3/32" holes for the clutch pins. This washer goes up against the flywheel and is held on by the clutch nut. It makes the shoes work a little smoother and prevents them from digging into the flywheel. The clutch shoes can be lightened varying amounts by cutting part of the swinging end off, as shown in Figure 3. Lightening the clutch shoes will allow them to slip more, which makes it easier to drive on tracks that do not have good traction. Try 3 different shoe weights till you find what works best on your track.

WING ASSEMBLY INSTRUCTIONS

Your new ASSOCIATED AERODYNAMIC FULL CONTOUR WING will give your R/C car the maximum amount of down force for added traction on your rear tires, of any wing now available on the market. The assembly is very easy but you must follow the assembly instructions in their proper order or you might have problems

STEP #1-Bend the piano wire to theconfiguration as shown in the drawing. First bend it to a "U" shape with the legs the same distance apart as the wing tubes on your R/C car. Next, put in the 30 degree bends, making the bend 1" forward from the rear part as shown.

STEP #2-Hold the brass plate against the bottom side of the piano wire, as shown, & position each steel clip over the piano wire & mark the brass plate for the screw holes. Drill out the screw holes.

STEP #3-Assemble the piano wire, brass plate, two clips &bolt them together with the screws & nuts. Solder the piano wire, brass plate & clips together but do not solder in the screws or nuts. After soldering, remove the screws & nuts.

STEP #4-Take the wing & hold it centered over your car & mark the position of the wing tubes with a pen on the bottom side of the wing. The reason for doing this is that the wing tubes are generally not centered on the chassis.

STEP #5-Drill a 1/8" clearance hole as shewn in the bottom section of the wing, 1/4" to the rear of the leading edge of the wing as shown & at each of the two locations you marked in step #4.

STEP #6-Slip the piano wire struts inside the wing & thru the clearance holes. Center the piano wire to the wing, enlarging the clearance holes if necessary & mark the bottom side of the wing for the two mounting screws. Drill out the bottom side of the wing for the mounting screws.

STEP #7-Cut out the ends of the wing along the guide lines on either end. DO NOT fold the wing together yet.

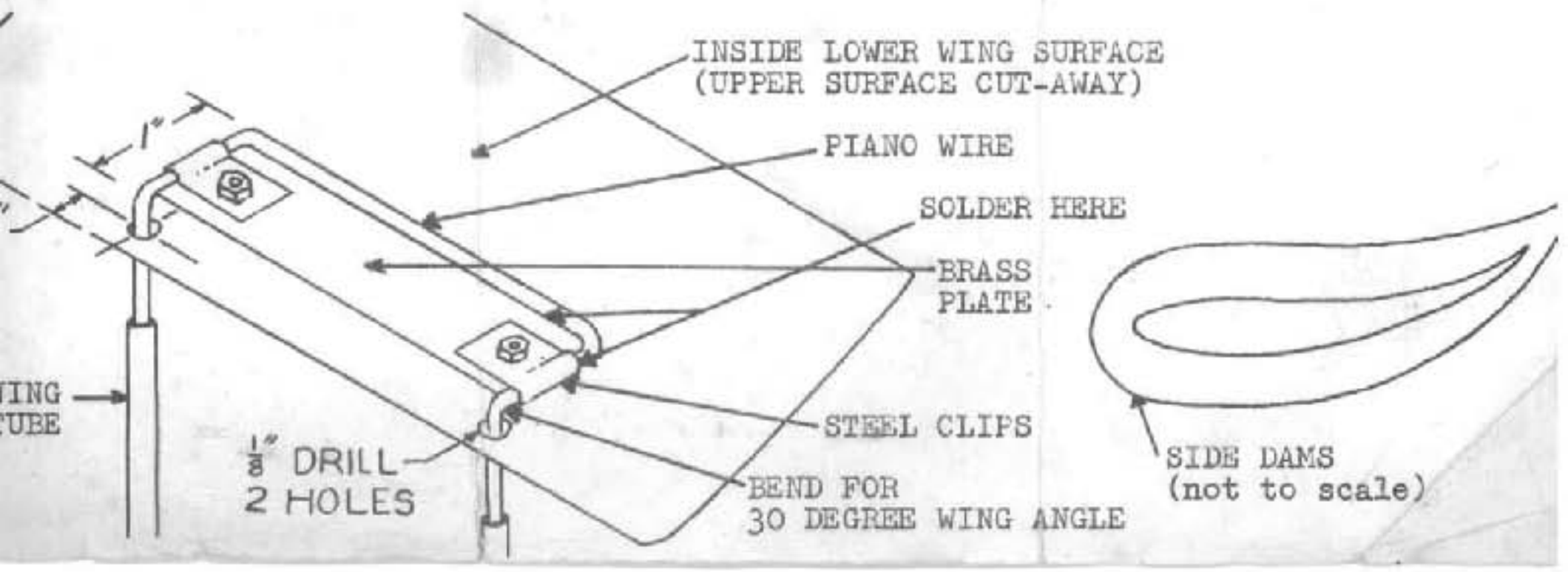
STEP #8-Paint the inside of the wing next. Sand the inside of the wing with #220 grit sandpaper. Then spray a coat of #2500 SPEEDY DRY CLEAR RUST-OLEUM or #1302 CRYSTAL CLEAR ACRYLIC-KRYLON Brand. Both come in spray cans. Allow to thoroly dry, preferably overnight. Next you can spray either lacquer or enamel of your choice over the clear. But remember-spray all lacquer or all enamel. Do not try to intermix lacquer & enamel.

STEP #9-After the paint dries "close up" the wing by squeezing the leading edge together. Measure 3" back from the leading edge & trim off the trailing edge.

STEP #10-Bolt the piano wire struts & wing together.

STEP #11-"Close up" the wing. Place the long thin "U" shaped piece of Lexan over the trailing edge of the wing using either Lexan glue or contact cement & hold in place with wooden clothespins until dry. Cut out the side dams & glue the wing ends & dams together.

STEP #12-You have originally set your wing angle at 30 degrees. If this gives you too much traction or understeer cut the wing angle down until you arrive at the best angle for your car, track & horsepower conditions.



#116 WING ASSEMBLY
INSTRUCTION SHEET

Trim the plastic wing as shown in the drawing below.

Bend the 3/32" wire in a "U" shape so that the legs are the same distance apart as the wing tubes on your car and so that the arms are approximately equal length and as long as possible.

Next, bend the 3/32" wire so that the wing will have approximately a 30 degree angle. Make the two bends about 1" forward of the horizontal part of the wire. Slip the wire in the wing tubes and just hold the wing on to check the angle.

Lay the brass plate flat on a table and position the wire on it as shown. (The wire will be facing upside down but it's easier this way.) Then lay the 2 steel clips in position over the wire as shown. Mark the brass plate for the screw holes and drill for the 6/32 screws using a #28 drill.

Bolt the brass plate, wire and clips together. Solder the clips, wire and brass plate together. Do not solder the screws in. Sta Brite silver solder available in hobby shops works very well. Thoroughly wash the acid off with running water and then remove the screws.

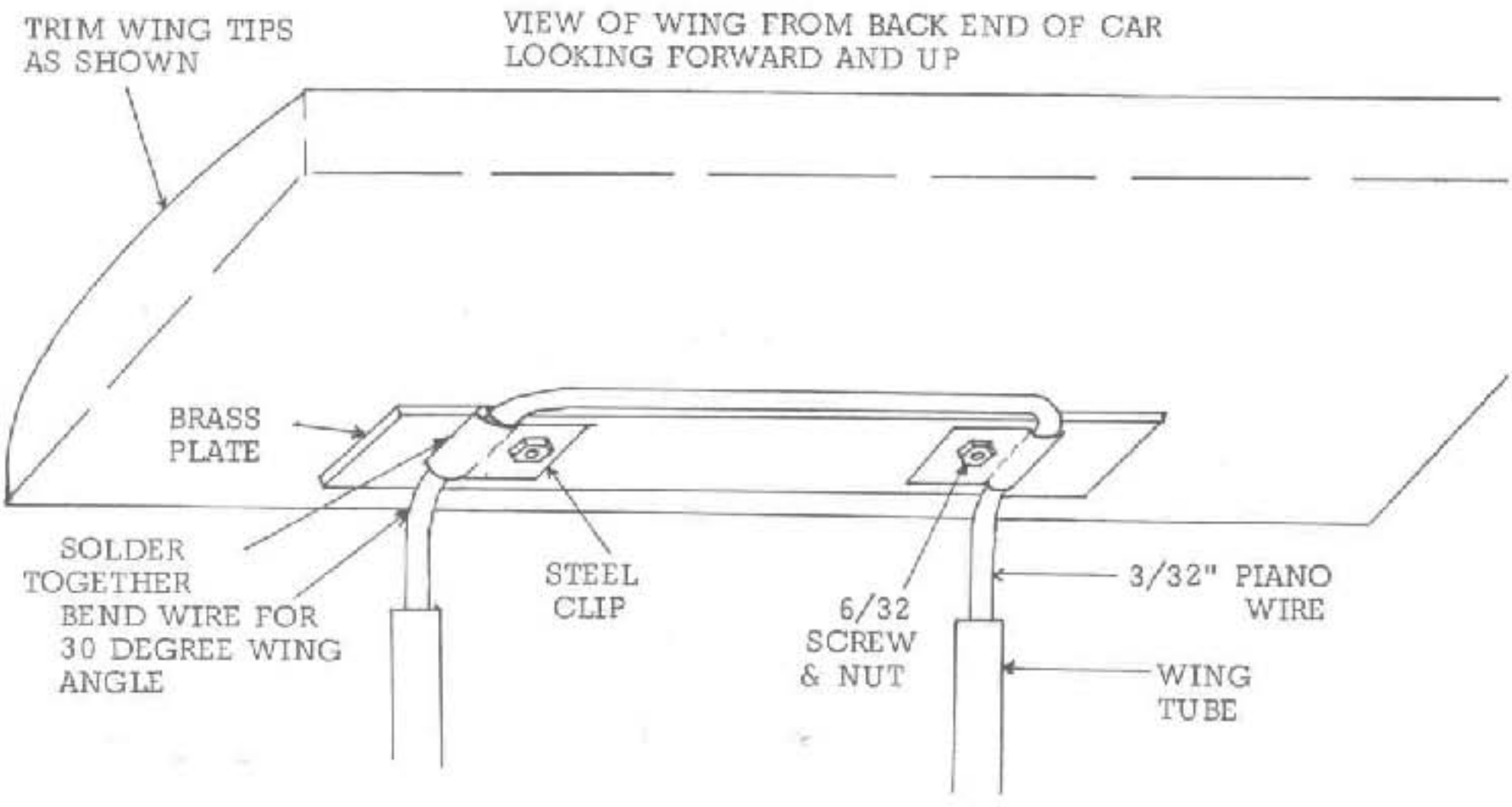
Install your body on your car, then put the wire assembly in the wing tubes. Position the plastic wing on the brass plate so that it's centered and squared with the body. Then mark and drill the 2 screw holes in the wing.

Paint the underside of the wing with the same paint that you painted your body and let dry. Mount the wing on the brass plate with the 2 6/32 screws and nuts with the washer against the wing.

Put the wing back in the wing tubes and check it for legal height - 8". Cut off any excess wire length. Bend a small kink in the wire where it goes into the wing tubes to hold the wing in the tubes.

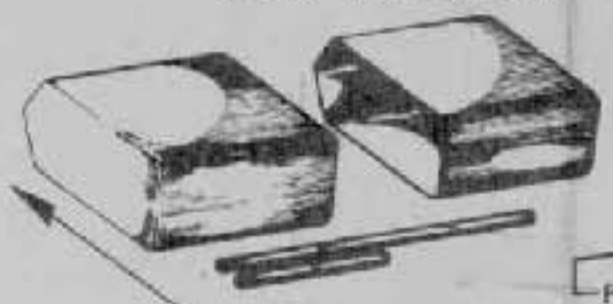
SPEED SECRETS

A wing is very important to a cars handling and will make the car much easier to drive. Many Expert Class racers will have 3 wings to try. One just like you made. Another one with the leading edge 1" farther back and another one with the leading edge 2" farther back. They then try all 3 wings on a track and use the one that makes the car handle the best on their track. Each wing will definitely change the cars handling. The forward wing works best on tracks with high traction and the rear wing works best on low bite, slippery tracks. Try this "SPEED SECRET" and beat your competition.

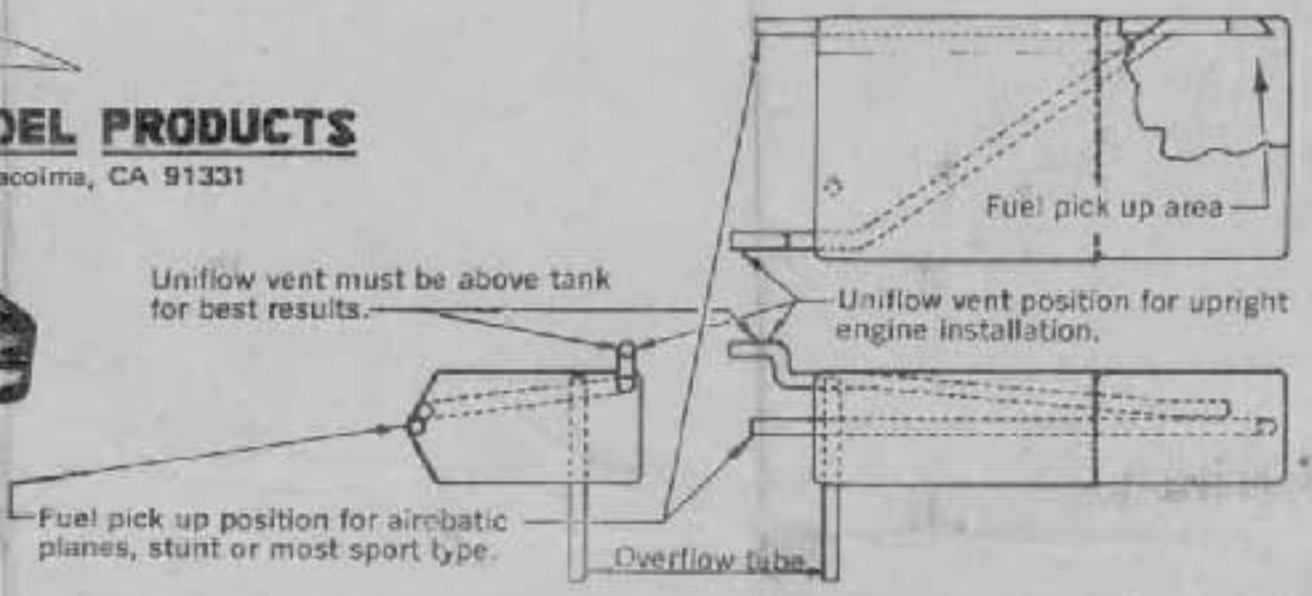


Hi JOHNSON MODEL PRODUCTS
11015 Glenoaks Blvd., Pacoima, CA 91331
Phone: (213) 899-4312

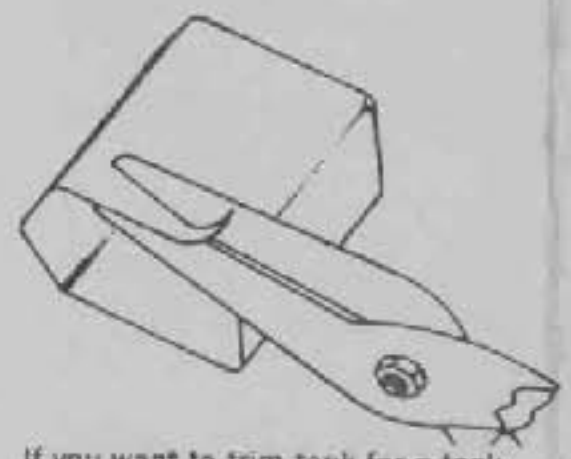
FUEL TANK INSTRUCTION SHEET FOR H.J. FLEXISCOPE TANK



Outboard — to outside of flying circle.

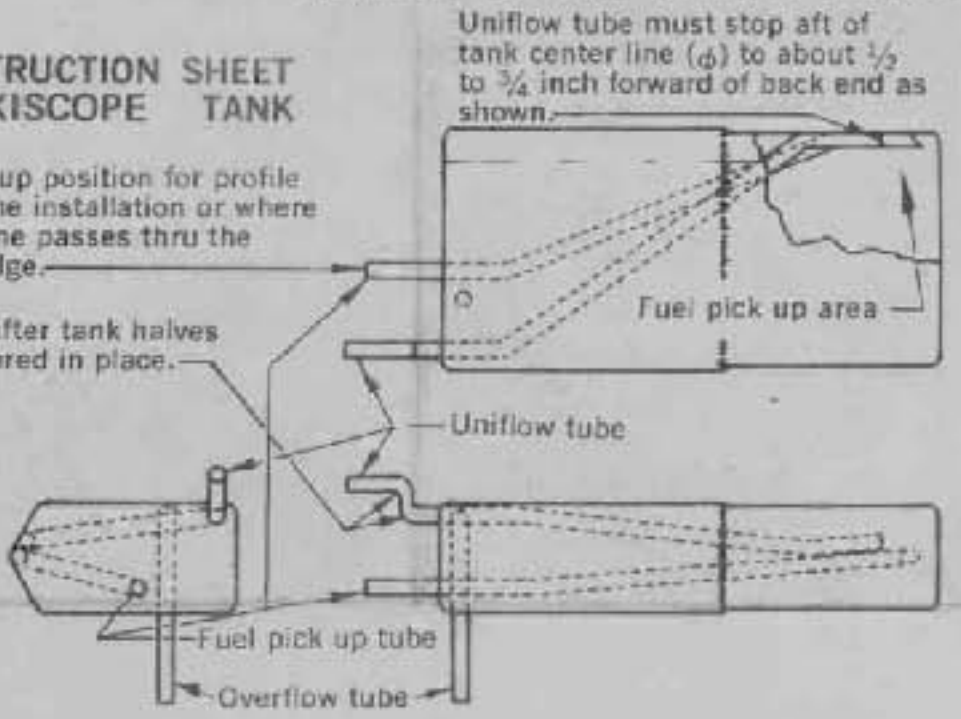


TANK SET UP FOR UPRIGHT ENGINE



If you want to trim tank for a tank shorter than a half tank use tin snips or old pair of scissors as shown

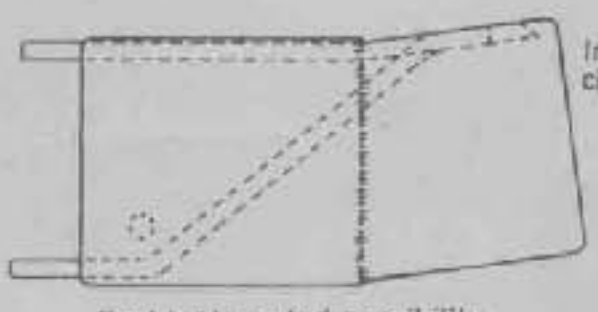
Use emery cloth or sand paper to remove sharp edges after trimming tank down to size desired.



TANK SET UP FOR PROFILE TYPE ENGINE MOUNT

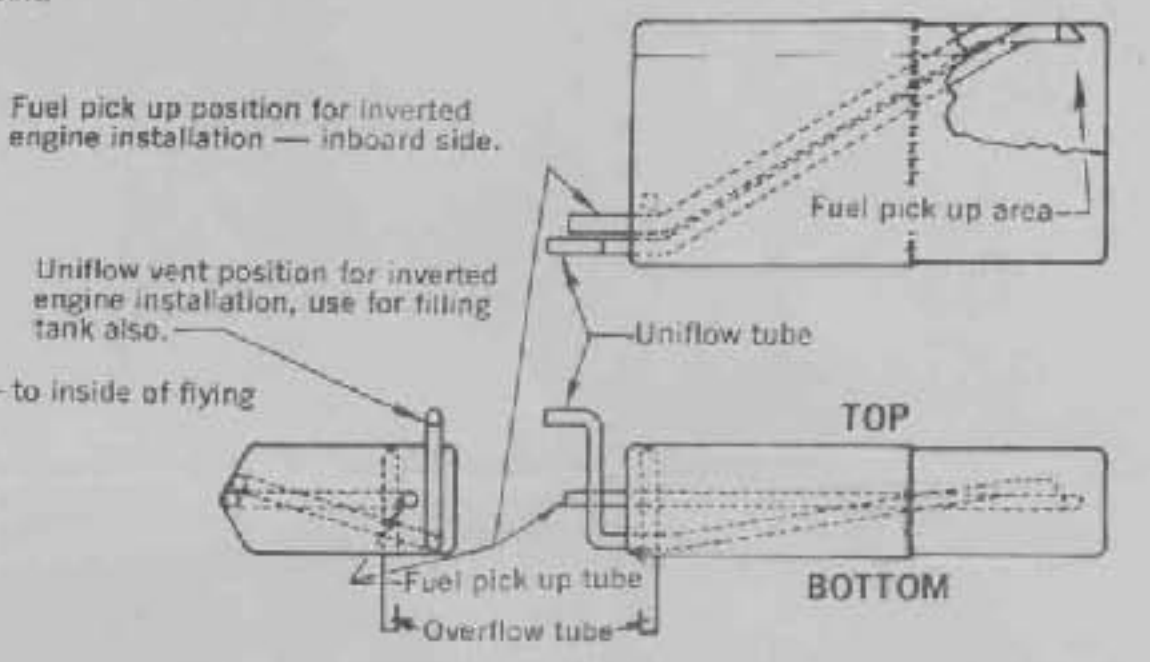
Tank skin automatically created by punching hole, which makes a much stronger solder joint.

Ice pick or ⅛ dia. wire, sharpened as shown. Do not make hole larger than tube dia. Use 3/32 dia. wire, sharpened for ½ A tube.



Fuel tank canted possibility when you use FLEXISCOPE fuel tanks.

Inboard — to inside of flying circle.

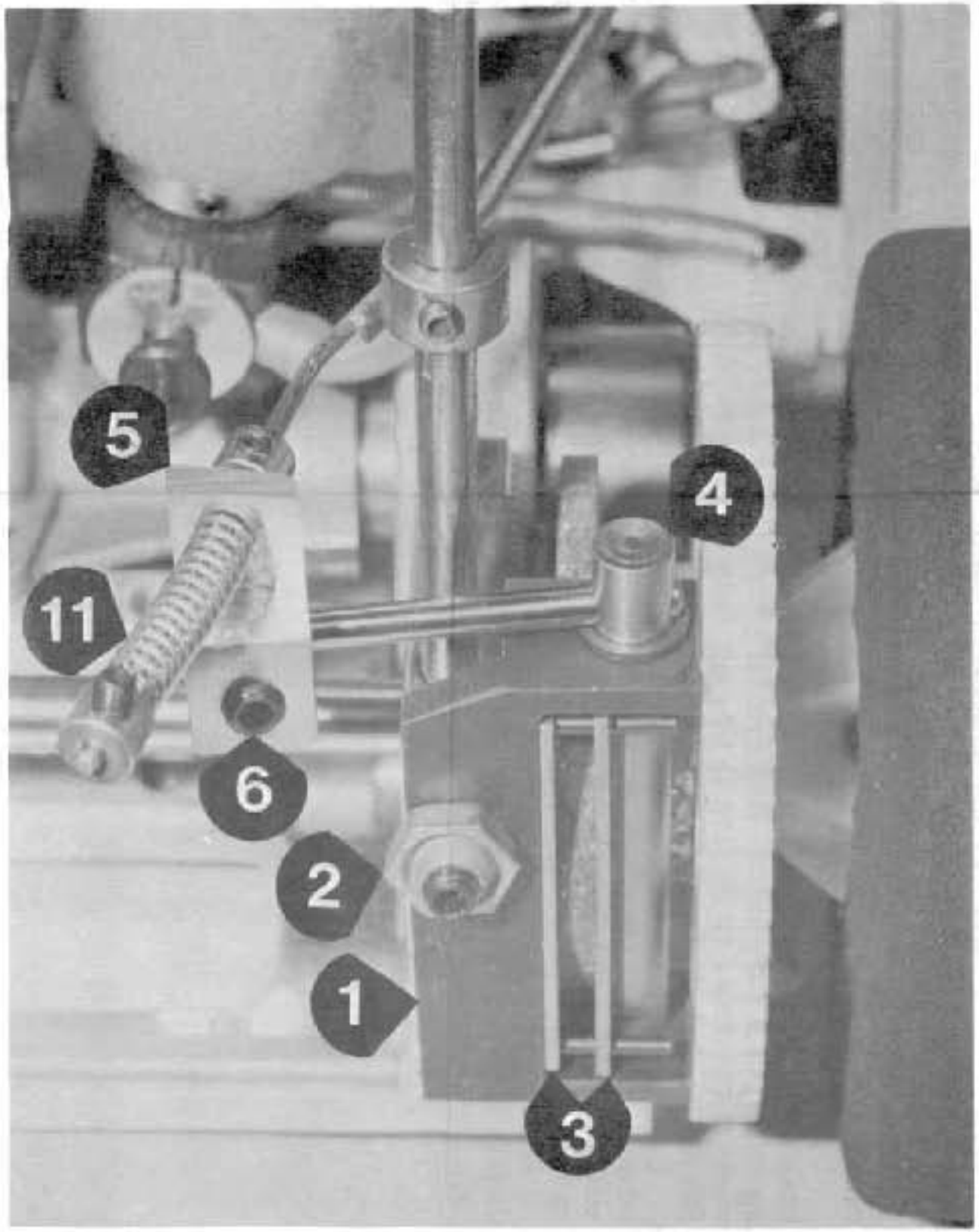


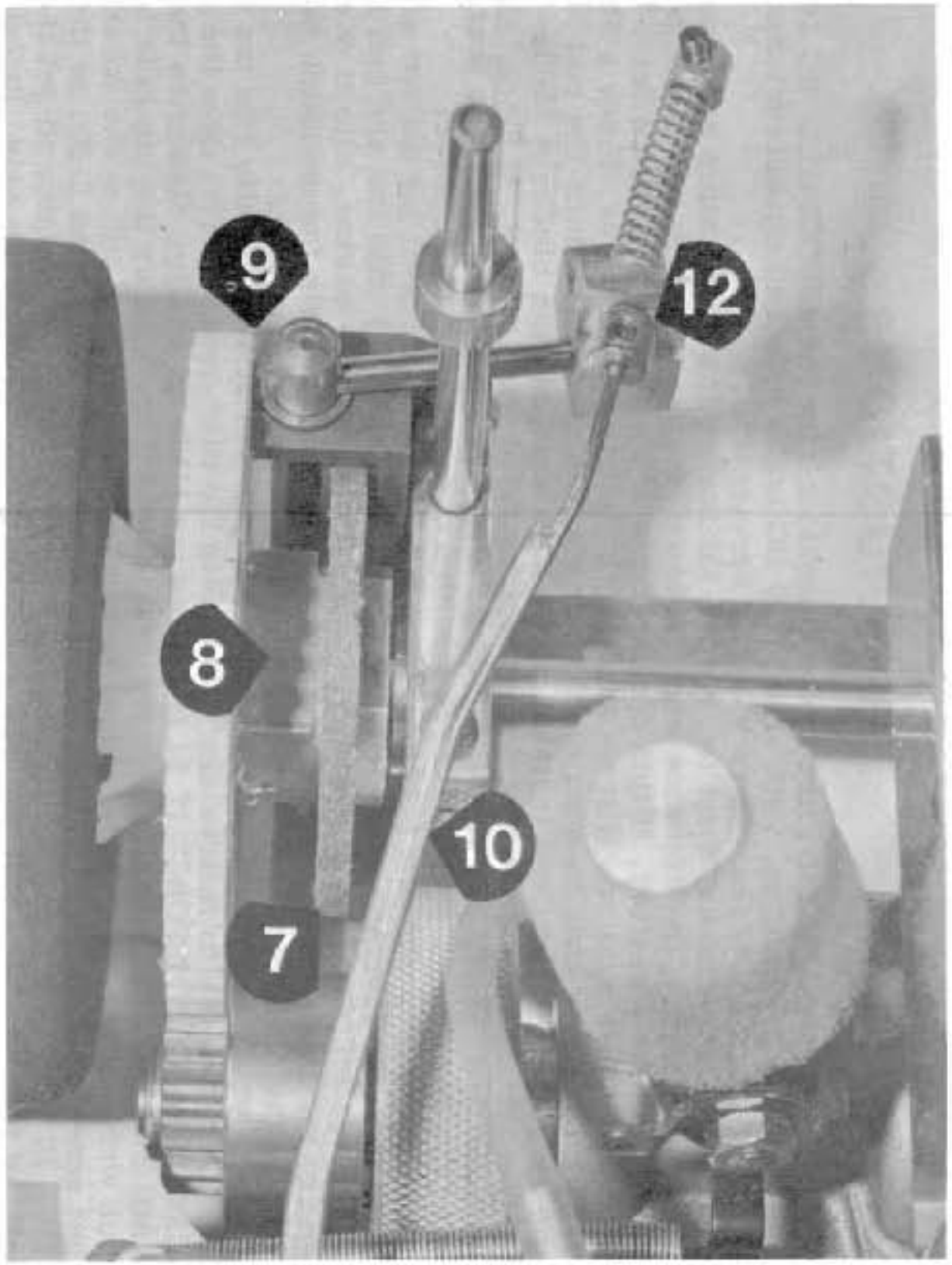
TANK SET UP FOR INVERTED ENGINE

Solder joints must be well done to insure a fully sealed — no leak tank.

J Using the right soldering iron is important. Do not use anything under 50 to 60 watts. Anything under that just isn't hot enough. You must be able to get the parts hot enough so that the solder will flow. Do not use too much solder on the joints. Solder is weight. Use acid, it's much better than paste. Try to use a very thin solder as it is best because it does not glob up and you have a better chance of not oversoldering. Buzco solder is about the best available in shops.

RPM-ASSOCIATED DISC BRAKE No. SP 50





INSTRUCTIONS

The RPM-ASSOCIATED Disc Brake is designed for the ASSOCIATED RC 100 car. It will give FANTASTIC braking, with absolutely NO brake fade and almost no wear. It is lighter than the stock kit brake and very easily serviceable.

To install the brake, first remove the kit brake, the drum, strap and linkage.

Next, measure the distance from the top of the rear chassis pod plate to the centerline of the rear axle bearing. If this dimension is 1", you have one of the later cars and this brake will bolt right on. If it measures 7/8" you have 3 choices. Place a shim .080 to 1/8" thick under both bearing blocks, or you'll have to clearance the pod plate to clear the disc rotor, or you can install 2 of the later axle bearing blocks # 2503.

Remove the set screw that holds the right hand wing tube in. Replace this set screw with the 5/8" LONG set screw supplied. Slide the disc brake mounting bracket (#1) over the set screw. The bracket is mounted with a single locknut (#2).

Take the leverage arm (#4) and grind a small flat spot on it for the set screw (#6). Then take the leverage arm, slip the linkage bracket (#5) onto the arm and fasten with the 5/16" MEDIUM set screw. Then take an old glo plug gasket, slip it over the 1/4" end of the leverage arm and slip the leverage arm down into the mounting bracket (#1).

Slip the disc rotor (#7) between the two pressure plates (#3).

Take your gear off the axle, remove the gear set screw. Lightly file the gear hub by the threaded hole to remove any burrs. Slip the disc gear hub (#8) over the gear hub, CAUTION-DO NOT FORCE IT !! If it does not slide on easily, clearance the gear hub until the disc hub will slip over the gear hub EASILY. Line up the big hole in the disc hub with the set screw hole in the gear hub. Mark the gear hub at the location of the set screw hole in the disc hub, and file a small flat spot in the O.D. of the gear hub. THIS IS VERY IMPORTANT !! If you don't do this you won't be able to get the disc hub off of the gear hub. Slip the gear, with disc hub, back on the axle, install and tighten the gear set screw, and install and tighten the disc set screw (short one).

Slip the axle back in the bearings, aligning the disc hub (#8) with the square hole in the disc rotor (#7). Check your gear spacing, installing washers on the axle as necessary between disc hub and bearing.

Check clearance (#9), top and bottom, between gear and mounting bracket (#1) and clearance as necessary.

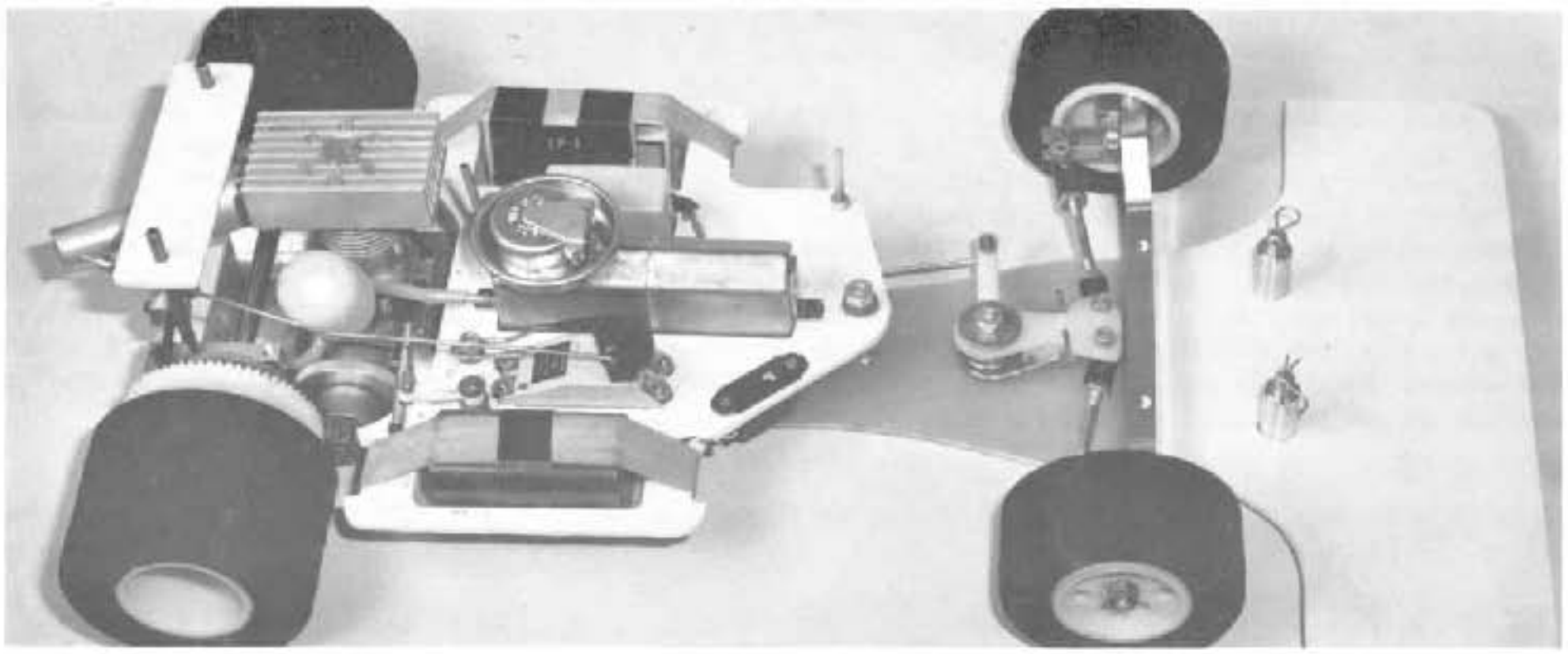
Use a piece of 1/16" piano wire and make your linkage (#10) to go from your throttle/brake servo to the linkage bracket (#5). For some engines, such as the K&B 3.5, you'll have to put a bow in the linkage. If yours has a bow, solder in another piece of 1/16" wire at the bow, to stiffen it up, as shown. This is VERY IMPORTANT for proper brake RELEASE. The brake should be fully released at 1/3 throttle opening.

Use your stock kit brake spring (#11) and set collars. Set the spring at home so the wheels will just rotate when you roll the car forwards OR backwards. This will be close and you can make your final adjustment at the track. Set the forward collar (#12) so there is 1/32" clearance between the collar and linkage bracket (#5) with brakes on.

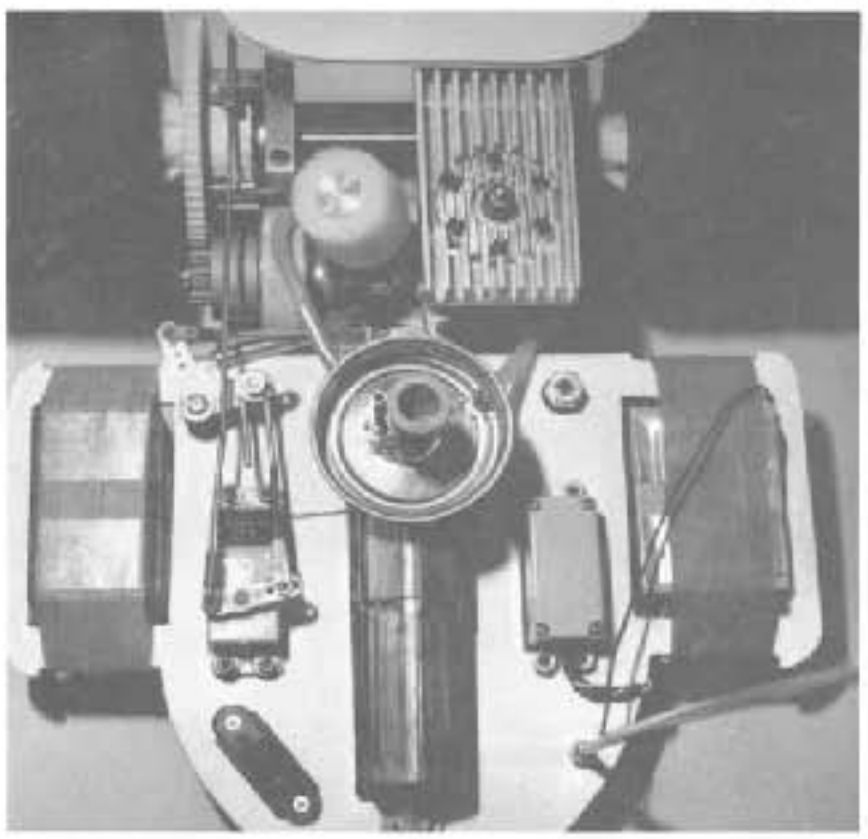
Whenever you remove the axle, LEAVE THE BRAKES ON, and the axle will slip out easily leaving the disc rotor (#7) held in place. You can then simply re-install the axle by aligning the square disc hub with the square hole in the disc rotor !!

RC 200 KIT

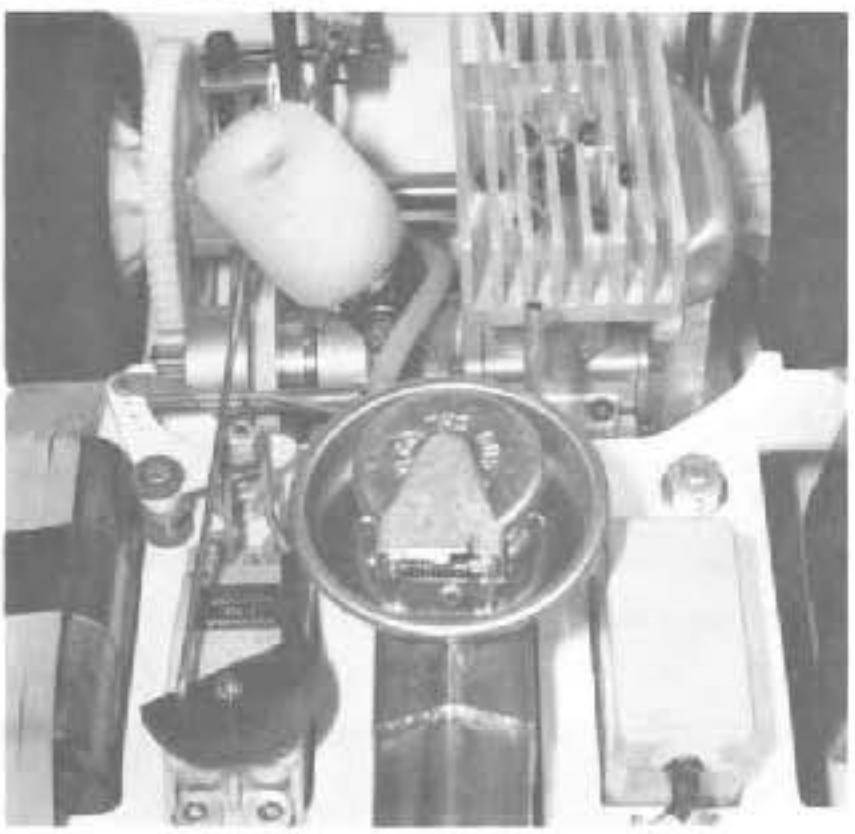
ASSOCIATED



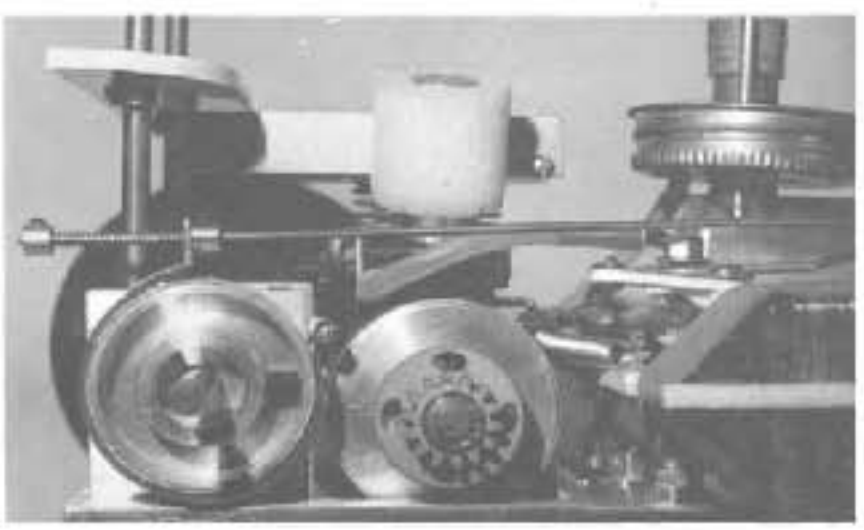
4 – RC 200 KIT COMES COMPLETE AS SHOWN, EXCEPT DOES NOT INCLUDE ENGINE OR RADIO. SPECIAL FEATURES INCLUDE ALUMINUM FRONT END, NEW SERVO SAVER, BALL JOINT TIE RODS, FIBERGLASS CHASSIS PLATE, TANK KIT, DISC BRAKE, 8mm REAR AXLE, BALL BEARING AXLE AND CLUTCH.



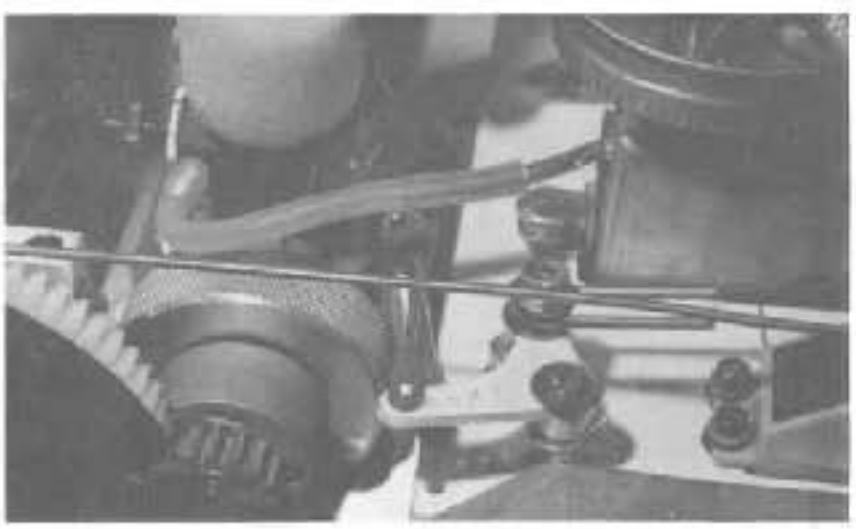
5 – RADIO INSTALLATION



6 – CARB AND BRAKE LINKAGE



7 – BRAKE INSTALLATION – RC 100



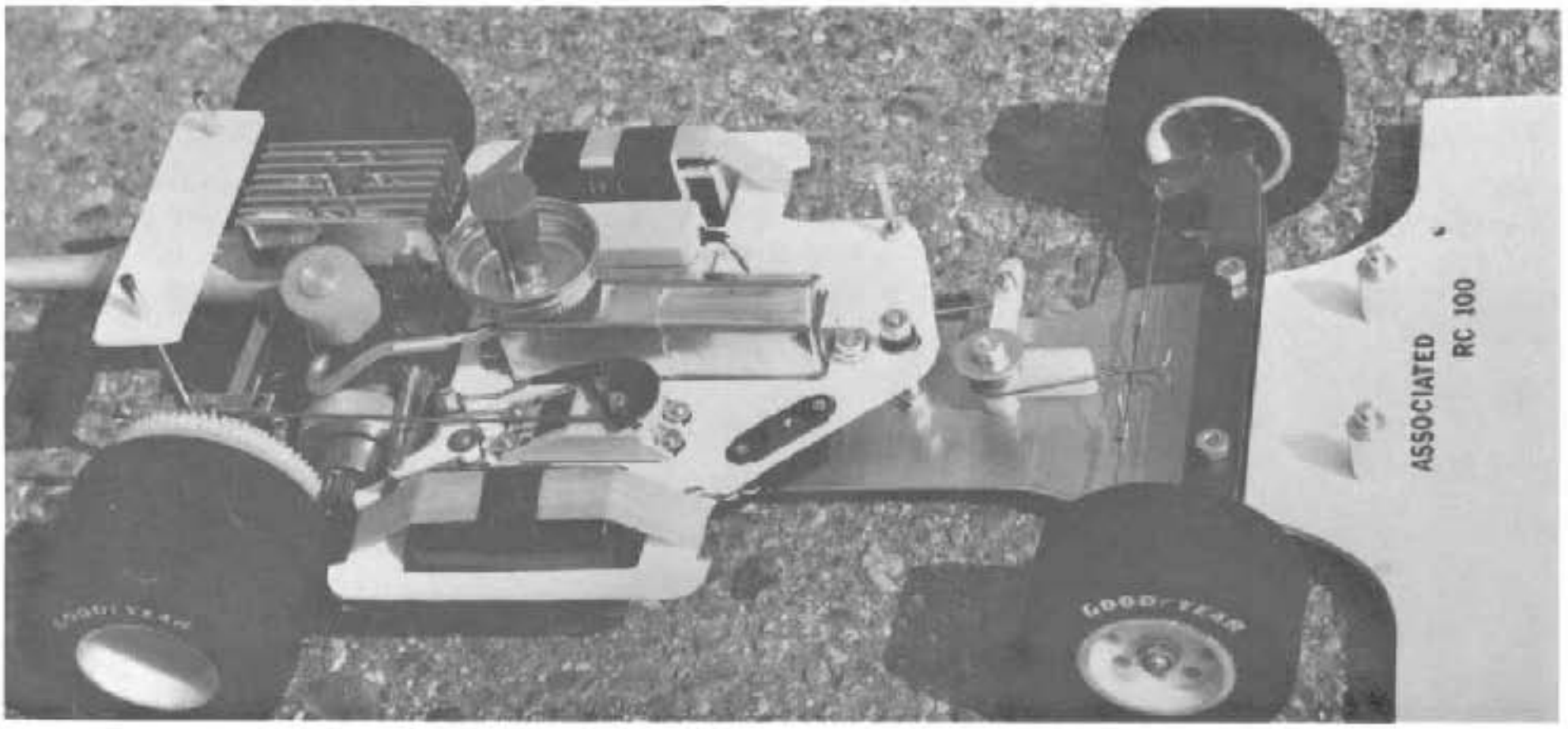
8 – THROTTLE BELLCRANK

ASSOCIATED ELECTRICS, INC. – 1928 EAST EDINGER, SANTA ANA, CALIFORNIA 92705 – U.S.A.

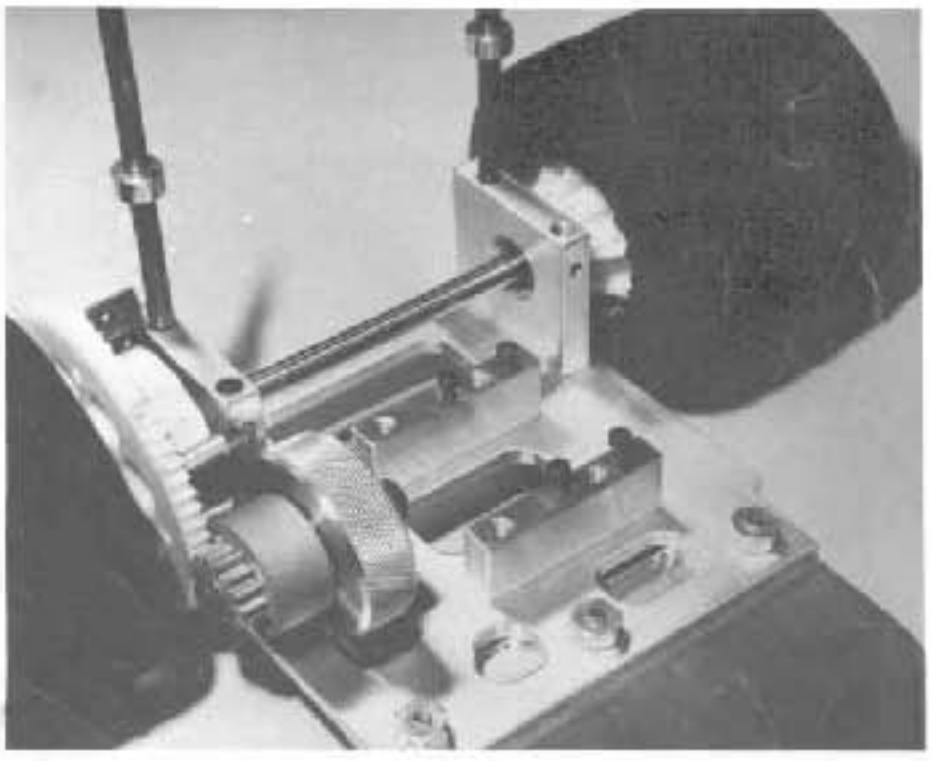
RC 100 KIT

ASSOCIATED

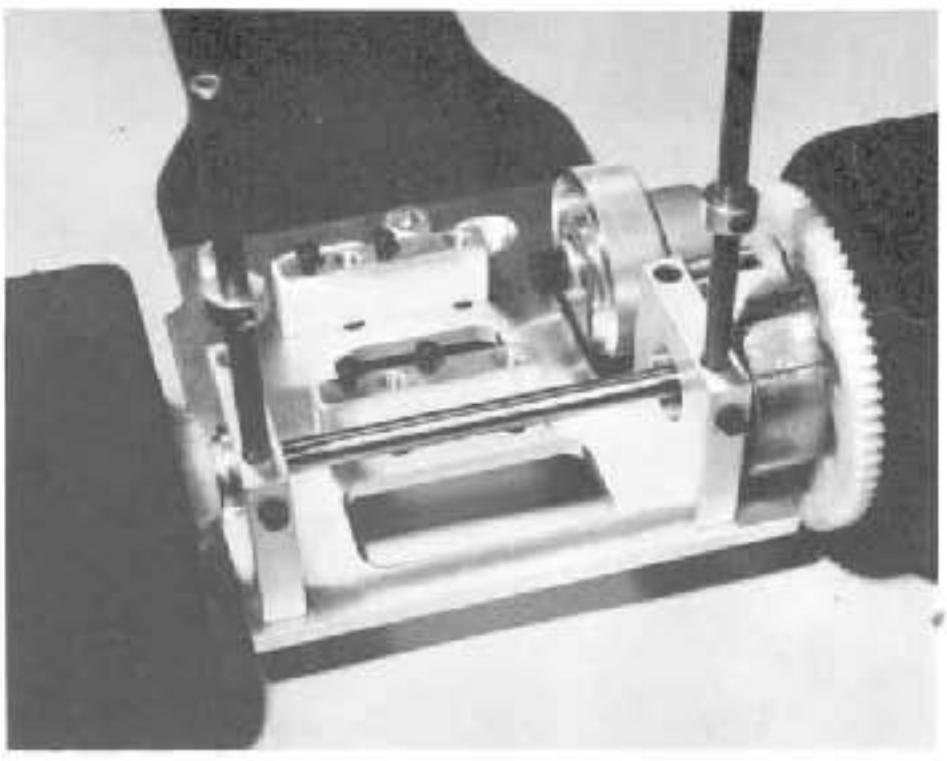
ASSOCIATED'S new RC 100 Kit is the latest concept in 1/8 scale radio controlled car technology. Featuring a super strong rear power pod with 3/16" thick aluminum plate with rear axle aluminum pillow blocks containing precision ball bearings. Fully adjustable aluminum block motor mounts to accept any size pinion gear. Aluminum flywheel with heavy duty ball bearing clutch assembly. Extra large brake hub which attaches to the gear hub giving all the smooth braking force you'll ever need and also oil free. Racing designed front aluminum chassis plate engineered with the correct amount of chassis flex. The latest in front end assembly design featuring king pins inside the front wheels. Lexan front wheels with sponge tires. Nylon rear wheels with racing rubber. Plastic front bumper with body mounts. Kit also contains plastic for radio mounting tray and all throttle, brake and steering linkage, including steering servo saver. Complete illustrated instructions show you exactly how to assemble the car and tune it just like the team drivers.



1 — RC 100 CHASSIS SHOWING OPTIONAL EQUIPMENT CONSISTING OF *VECO 19* ENGINE WITH *PERRY* CARB, *ASSOCIATED* AIR FILTER, *McCOY* MUFFLER, *R & A* HEAT SINK, *FUTABA* RADIO AND *JOHNSON* FUEL TANK.



2 — ADJUSTABLE MOTOR MOUNTS

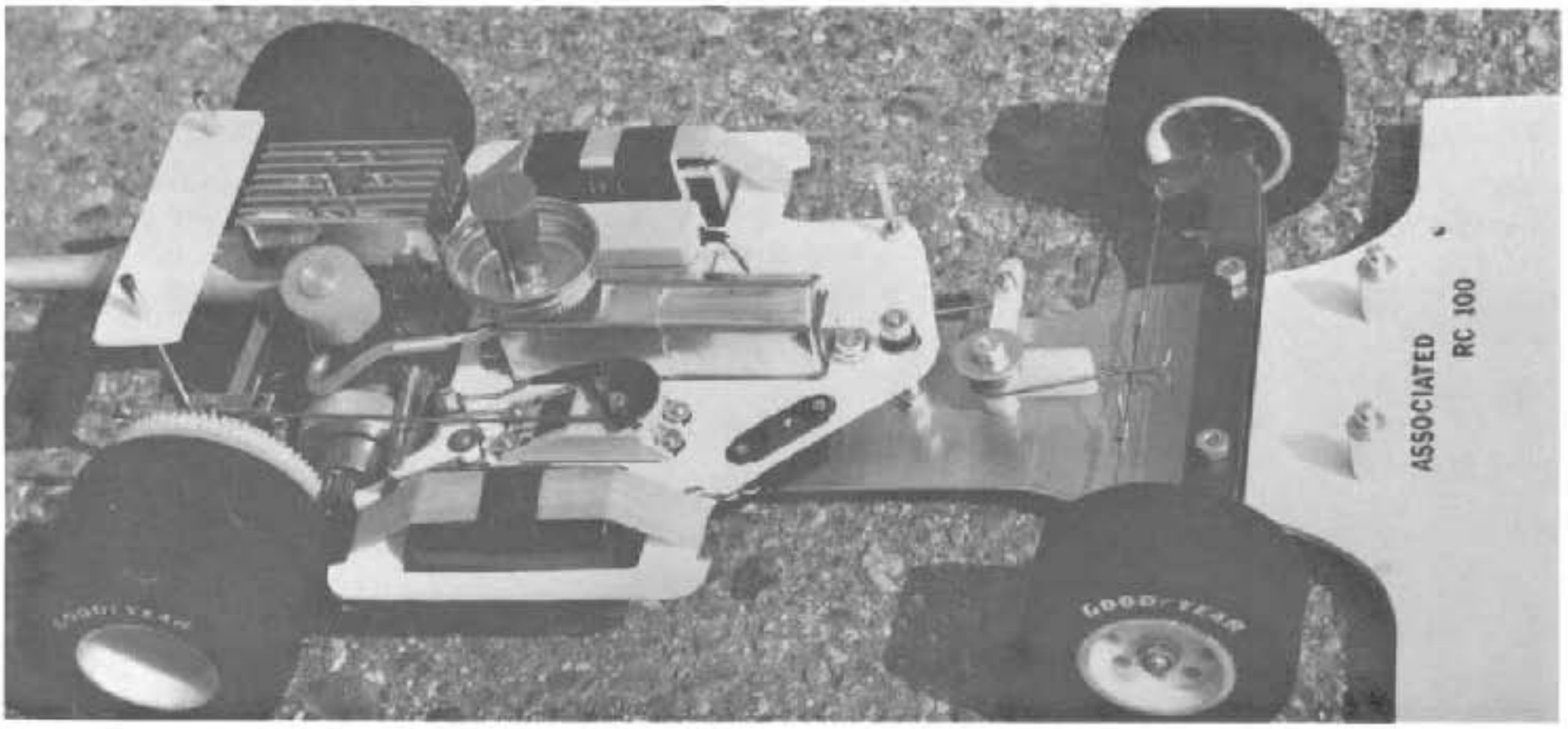


3 — BALL BEARING PILLOW BLOCKS

RC 100 KIT

ASSOCIATED

ASSOCIATED'S new RC 100 Kit is the latest concept in 1/8 scale radio controlled car technology. Featuring a super strong rear power pod with 3/16" thick aluminum plate with rear axle aluminum pillow blocks containing precision ball bearings. Fully adjustable aluminum block motor mounts to accept any size pinion gear. Aluminum flywheel with heavy duty ball bearing clutch assembly. Extra large brake hub which attaches to the gear hub giving all the smooth braking force you'll ever need and also oil free. Racing designed front aluminum chassis plate engineered with the correct amount of chassis flex. The latest in front end assembly design featuring king pins inside the front wheels. Lexan front wheels with sponge tires. Nylon rear wheels with racing rubber. Plastic front bumper with body mounts. Kit also contains plastic for radio mounting tray and all throttle, brake and steering linkage, including steering servo saver. Complete illustrated instructions show you exactly how to assemble the car and tune it just like the team drivers.



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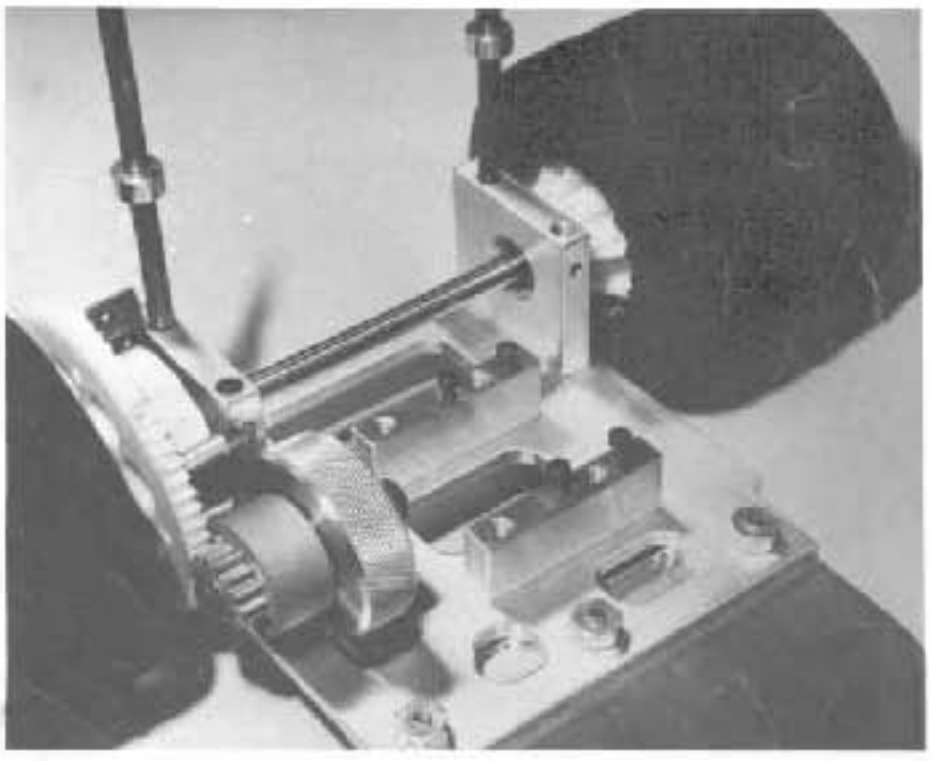

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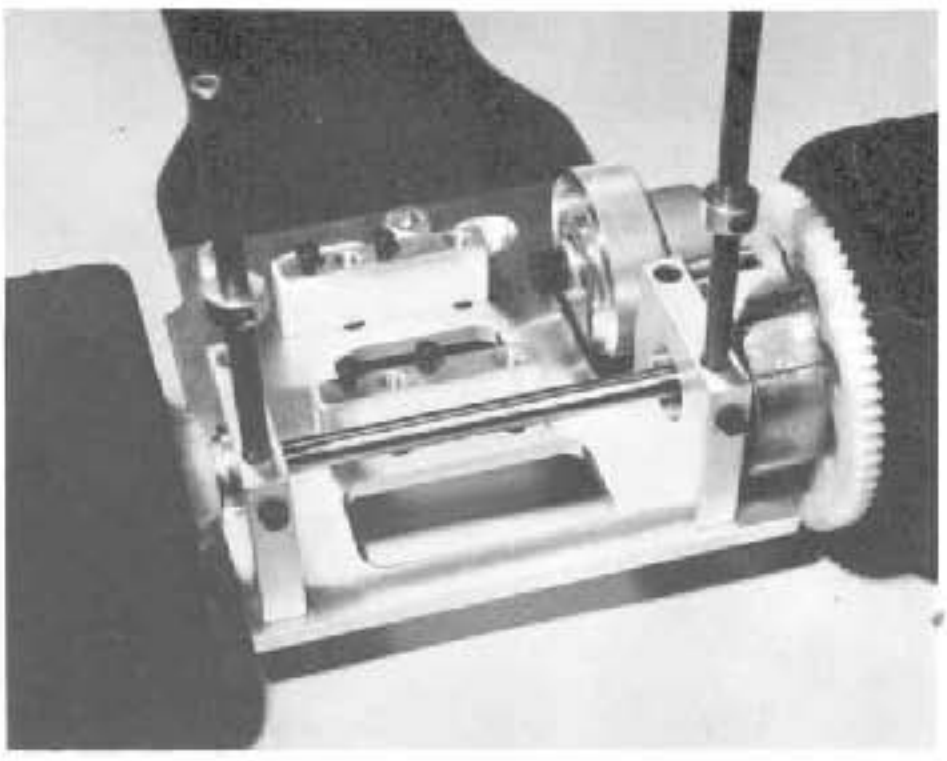


3 — BALL BEARING PILLOW BLOCKS

ASSEMBLY INSTRUCTIONS

Welcome to the sport of radio controlled model car racing. We thank you for buying our car, and hope that you get great satisfaction and fun from it. This instruction booklet will tell you all you need to know to put your RC 100 kit together properly, set up the radio for trouble free operation, prepare the engine for maximum performance and long life, and get the whole mechanism working together for best results.

These instructions represent the sum total of the experience we have gained in thousands of hours of test running, racing in club events every weekend, and competing in major events from coast to coast. If you follow the directions carefully, and take our advice on engine and radio set-up, you will have nothing but fun with your car. R/C racing can be just about frustration free if you take your time assembling the car and do the best job you can. Altho you could probably assemble the car from the photos and drawings alone, you'll do a better job if you follow the written instructions. You can get a beautiful satin chrome finish as in the photos on page one. You can even go one step further if you wish and use "SIMICHROME POLISH" on the rear power pod plate, motor mounts and bearing blocks. "SIMICHROME POLISH" is available in most hardware and auto supply stores. It is a polishing compound that will give your aluminum parts a "polished chrome" look. This whole process shouldn't take you more than 20 to 30 minutes and we know you'll be highly pleased with the results. After you're finished sanding or polishing thoroughly clean the parts.

ASSEMBLING THE POWER POD

Refer to page #1

Install the wing tubes into the rear axle bearing blocks. It may be necessary to lightly tap them in with a hammer. Then install the 2 set screws to lock them in place. Refer to photo #3 on page 1. Install the bearings into the blocks. The bearings are in the outsides of the blocks. Be careful with the bearings, pushing or pressing them in. If you start them in straight you'll have no problem. Next, mount the blocks to the power pod plate with the four 10/32 bolts - no washers. Take the rear axle and slide it into the bearings. Turn the pod sideways, the axle should then be free enough to slide out of the bearings. If it does not, put the axle in one bearing and slide it in until it almost touches the other bearing. Then wobble the axle towards the front and then towards the rear. See if the end of the axle moves as far forward as rearward in relation to the bearing its almost touching. If not, loosen the 2 bolts of the bearing block that the axle is in and slightly shift the block so the axle end is centered to the other bearing and tighten down the 2 bolts. Then do the same procedure for the other block. Your bearings will then be perfectly aligned and the axle should slide freely in and out of the bearings.

MOTOR MOUNTS

Refer to page #1

Assemble the motor mounts to your engine with the 4/40 allen screws. The 4/40 threads are not tapped all the way thru, so there is a top and bottom to the mounts. The mounts are drilled for the Veco 19 engine. Other engines can be easily mounted by either drilling new holes in the motor mounts, or by slotting the holes in the engine itself. The Taipan engine can be easily installed by slotting the 2 holes toward the flywheel about 1/8" longer.

Also the Taipan crankshaft should be shortened about 3/16" before installing the flywheel. Any engine modifications can be easily done later with the motor mounts attached to the engine.

BRAKE INSTALLATION

Refer to the brake instructions packed with the brake parts and install the brakes, gear and axle to the power pod.

CLUTCH INSTALLATION

Refer to the clutch instructions

ENGINE INSTALLATION Refer to page #2

The engine can be temporarily installed now. Removal and reinstallation is very simple. Install the engine to the power pod plate with the four 10/32 bolts and use the washers under the bolt heads. The motor will easily slide forward and backwards in the slotted holes so you will be able to use just about any gear ratio you desire - easily. Slide the motor back so the clutch or pinion gear just touches the big or spur gear. Then move the motor forward a very slight amount so there is the smallest clearance between the 2 gears. Lightly tighten the 4 mounting bolts. Then turn the big gear about 1/4 turn and check the play again. If it's O.K. then turn it another 1/4 turn. If the gears bottom out then loosen the motor mount bolts and slide the motor forward the slightest amount to give the smallest clearance between the 2 gears. Your gear mesh is then set and will not change. If you set the gears too tight so they bottom out it will make the gears bind, run hot and rob you of horsepower. If they're too loose you could break some teeth off the gears or wear them out too fast. Take the axle and gear back off.

Install the locking collars on your wing tubes as shown in photo #3, on page 1. Then install the plastic body mount on the wing tubes. You'll find the template on the radio tray template sheet. This plastic body mount not only acts as a body mount but it helps to tie together the wing tubes and thereby stiffen up the bearing blocks. Use it. The body mount should have about 1/8" clearance above the engine heat sink.

RADIO, FUEL TANK MOUNTING Refer to page #5

The large piece of rectangular white plastic in your kit is for mounting your radio and fuel tank. On the radio mounting tray template sheet is a scale drawing showing the layout that works exceptionally well on this car. Some racers prefer to mount their fuel tank behind the rear axle to keep the fuel spillage away from the radio. This is O.K. to do. It will give a little more rear traction and a little less steering, but not enough so you'll notice. If you mount the tank behind the rear axle, then mount the battery in the location where the fuel tank is shown on the template, and mount the receiver where the battery is shown.

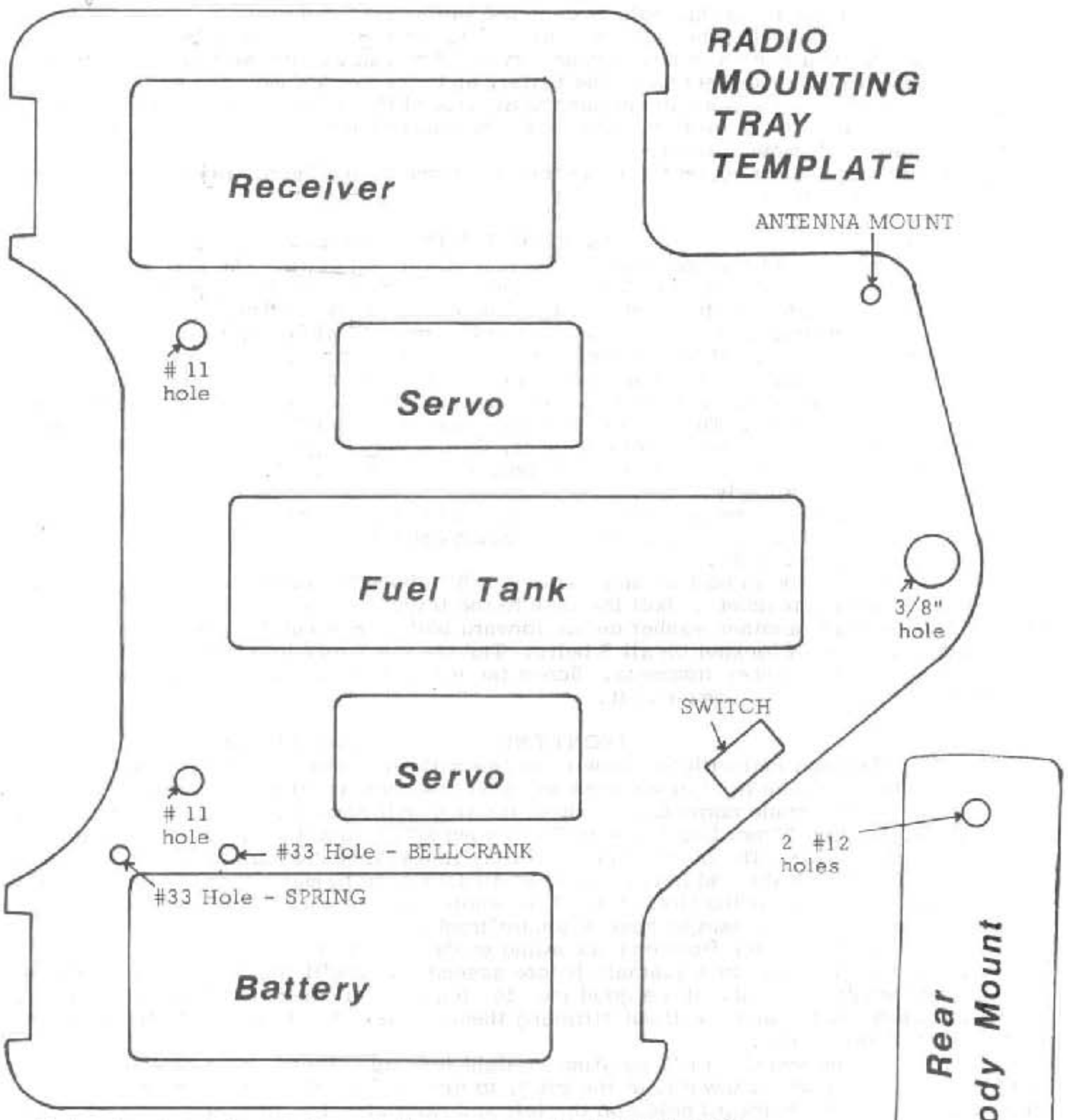
The radio mounting tray attaches to the chassis with the two #11 holes and the one 3/8" hole. You can use the forward chassis plate as a template to drill out the 2 #11 holes. The location of the 3/8" hole can vary, forward to back, depending on the length of the fuel tank you use or if you mount the battery in the center.

The cutout holes for the receiver, servos, battery and fuel tank will depend on the size of your parts. The servos should be located in the locations shown on the template so the linkages will all align correctly.

The plastic will cut easily with a coping saw or Dremel saw. It files easily and can be cut easily with an Exacto knife. Drill two #33 holes for the 4/40 bellcrank screw and spring hole in the exact locations shown on the template.

After you have all the holes and cutouts finished in your radio mounting tray and before you install your radio and tank on the tray, take 2 10/32 bolts, slip them up thru the 2 outside holes in the rear of the chassis plate, and then slip the plastic mounting tray over the two bolts. You can then use the tray as a template to locate the centerline of the 3/8"

RADIO MOUNTING TRAY TEMPLATE



Cut outs shown for receiver, battery, servos & fuel tank will be determined by the size of your parts. Make cut outs to fit your parts.

IMPORTANT - Mount receiver on L.H. side of car & battery on R.H. side for tracks that run in a clockwise direction. Mount receiver on R.H. side of car & battery on L.H. side for tracks that run in a counter-clockwise direction.

Mount receiver sideways for clearance.

hole on the chassis plate. Do not drill a 3/8" hole in the chassis plate. Drill a #11 hole in the chassis plate so this hole is centered in the 3/8" hole.

You can then mount all your radio gear to the plastic tray. Use the rubber grommets as supplied with your servos to mount your servos. You can use the self tapping screws or 4/40 screws to mount the servos. The battery and receiver are mounted with the rubber bands. Make sure you have clearance all around the receiver and battery so they can't vibrate against the radio tray. Then tape the rubber bands to the receiver and battery so they can't move around.

Install the carb bellcrank on the radio tray as shown on the Radio Tray Mounting and Bellcrank Assembly drawing.

CHASSIS ASSEMBLY Refer to page #8

Assemble the forward chassis plate to the rear power pod plate. The rear power pod plate, as shown on the "Radio Tray Mounting and Bellcrank Assembly" drawing, goes on top of the chassis plate. In the center of the 3 holes use a short 10/32 bolt and lock nut. In the 2 outer holes, install the long screws and then 2 plain 10/32 nuts on each screw. By using 2 nuts as shown in the drawing they will not vibrate loose. Then install the third long 10/32 screw in the hole you drilled in the forward chassis plate, also securing with 2 plain nuts. Next install a locking nut on all 3 screws and run them about half way down the screws. Then install a rubber grommet on each of the 3 screws. On the forward screw only, install a metal washer, this is very important. The front radio tray bolt must be free to "float" in the 3/8" hole in the plastic. This is necessary so the chassis can flex properly.

Slide the radio tray down over the 3 screws. Adjust the height of the tray by raising or lowering the 3 locknuts evenly so you have approximately a 1/8" space between the servos and the chassis plate.

Slip your tank in the radio tray and space it 1/8" above the chassis plate and solder on the tank mounting brackets. Bolt the tank to the tray. Put the tray back on. IMPORTANT -- Place another washer on the forward bolt. Then put the top grommet on all 3 bolts, and then a locknut on all 3 bolts. Tighten the 2 rear locknuts so they just start to compress the rubber grommets. Screw the forward nut down so it just touches the grommet, but does not compress it.

FRONT END Refer to page #12 for RC 100

Assemble the front end with the drawing in the parts bag and these instructions. The first step is to check the front cross arms to make sure they are flat and parallel to each other. Altho they're made correctly, the heat treating will sometimes distort them a small amount. Refer to the "Front End Tune-Up Tips Drawing". Place the cross arms upside down on a flat surface. The outer arms should lay flat against the surface. Bend accordingly. Step 2. Check the end heights against all four ends to make sure they're all the same height. Then repeat the first step. This whole process will only take a couple of minutes but it's very important to have a square front end

Assemble the rest of the front end according to the assembly sheet - except for the tie rod. Oil the steering block journals before assembly. You'll find the steering blocks and journals won't wear out. It's a good idea to clean and oil them about every 10 races. Tighten down the nuts snugly without stripping them. Install the front end to the chassis plate. Install front tires.

Set the left front wheel so it's pointing straight forward. Then, use a protractor to point the right front wheel inward, at the front, to give 5° toe-in. Next, measure the distance between the rearward holes on the left and right steering arms and make your tie rod. It's going to appear that 5° is going to be an excessive amount of toe-in, but don't let the looks fool you. It really makes the car more stable in a straight line, as well as giving it more steering in the corners. Also it does not wear the tires as much as if they were pointing straight ahead. Tire wear is from cornering and with the 5° toe-in, tire wear and cornering are both improved.

SERVO SAVER

Install the servo saver as per the instructions

FRONT BUMPER

Install the front bumper with the two front body mounts. The mounts may be raised by placing washers between the bumper and mount. The bumper should be installed on top of the chassis plate.

REAR AXLE - WHEELS

Some engines throw more oil than others and it might be a good idea to add an oil shield for your brakes. You can make a flat shield with Lexan and attach it to the outer flat surface of the r.h. bearing block with small screws or contact cement. Make it as high as the body mount and bring forward to the center of the clutch.

Install the rear axle with the gear and brake back on the car. It will be necessary to place a few washers on the axle between the brake drum and ball bearing to space the big gear out so it doesn't ride against the clutch drum. The two gears should be centered to each other.

Install one washer on the l.h. axle side and install both wheels. When installing the l.h. wheel locate it so there is the smallest amount of play so the bearings aren't overloaded.

LINKAGE Refer to page #2 & #8

Refer to Page 2, photo page, and Radio Tray Mounting and Bellcrank Assembly drawing. The photos show the throttle linkage at idle position and the drawings show the linkage at full throttle position.

Set the servo arm and bellcrank arm so they're parallel. Measure the distance between the 2 arms and bend a "U" in one of the "Kwik links" to fit this measurement. Install the Kwik link.

The throttle arm on the Perry carb shown should be on the bottom and set so it moves an equal amount to the left and right of the carb shaft. Attach return spring.

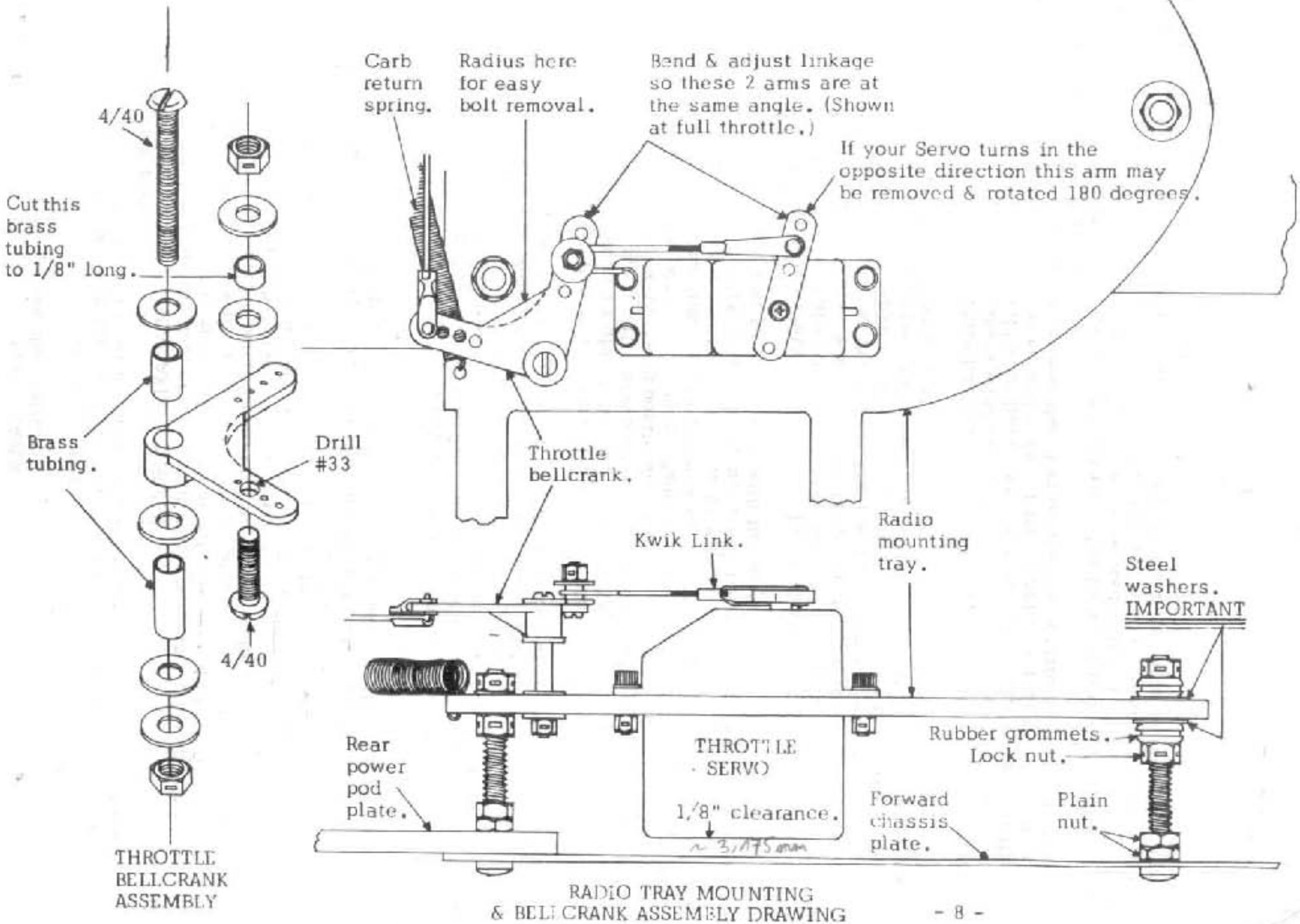
Turn your radio on so the throttle servo moves to idle position. Turn the radio off. NOTE: Some servos will move in the opposite direction as others. If your idle position is the opposite of the idle position shown on Page 2, simply remove the output arm and rotate it 180° degrees. Your throttle linkage will simply then hook up on the r.h. side, instead of the l.h., and your brake will hook up on the l.h.

Take the short piece of 1/16" piano wire, put a 90° bend in it for the carb arm and measure and bend the other end so it lines up with the outer hole of the bellcrank. Install wire with red keepers.

Measure, bend and install brake 1/16" wire. There will be a slight drag when the wheels are turned forward and almost no drag when the wheels are turned backward. Make sure you have that 1/16" clearance between the brake band and releasing collar. Final brake adjustment must be done at the track. The ideal adjustment, which is set by increasing or decreasing the spring tension with the rear collar, is to have the brakes slow the car rapidly, without locking up the brakes and spinning the car out. This adjustment may change in the beginning until the 2 brake linings "seat" to each other. Then the brakes will remain uniform.

Turn on the radio again. While holding the throttle control wide open, turn off the receiver switch so the throttle stays wide open, then turn off the transmittor. Spin the rear wheels forward. They should spin freely with absolutely no brake drag. If the brake drags it will cut down on your speed and burn out the clutch. Adjust the 1/8" wire where it goes in the bearing block, or change the bend on the brass strip so there is absolutely no brake drag at full throttle.

Next hook up the steering "Kwik link" linkage. But first, drill out the holes in the Steering Servo Saver with a #48 drill. The holes were made for 1/16" wire and the Kwik link is slightly larger. You may have to reverse the arm on the servo if the front wheels turn in the wrong direction. Start with the linkage in the outer hole in the servo arm and the outer hole in the servo saver arm.



RADIO TRAY MOUNTING
& BELLCRANK ASSEMBLY DRAWING

Turn on the radio. Check to see if the front wheels are "centered" to the chassis. If not, adjust the linkage.

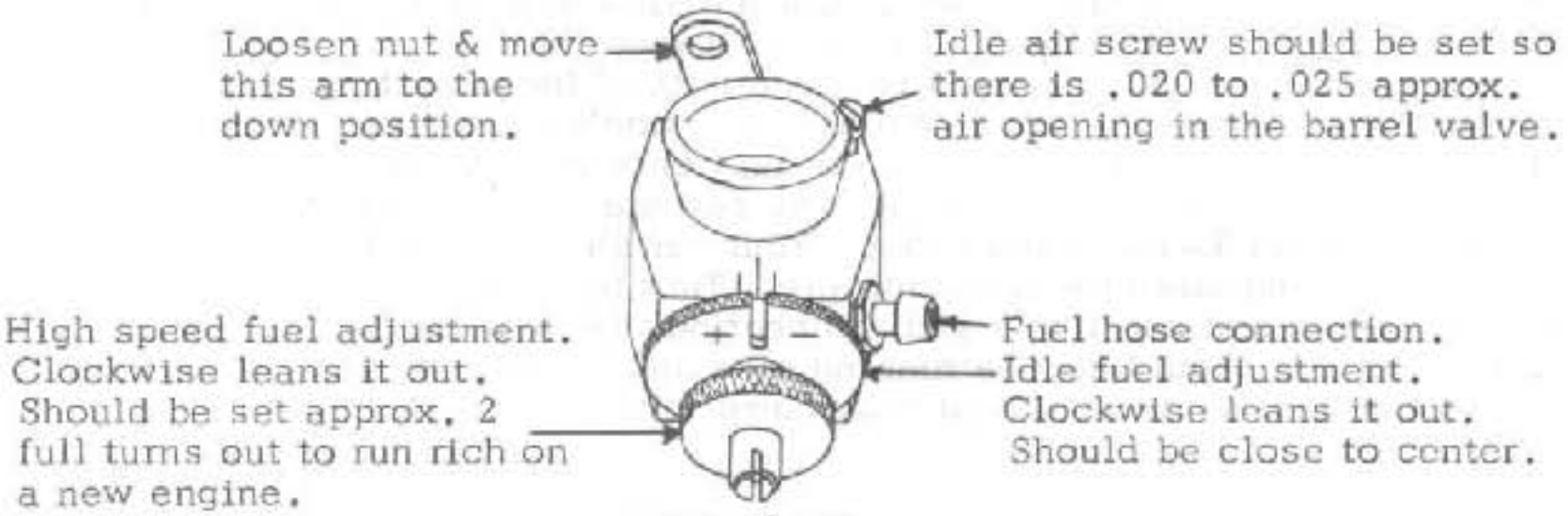
With the radio still on, check to see if the carb closes (actually it should "close" with about a .020 air gap for idling). Actuate the throttle fully open with your transmittor, and see if the throttle fully opens. Adjust your linkage so the carb fully closes and fully opens with your transmittor.

ENGINE TUNING TIPS

In every beginner's mind there is the question of which is the best engine, fuel, plugs etc. We'll try to answer as many questions as possible that confronts every beginner. In the United States, the Veco 19 is the most popular engine. In its stock form it gives sufficient power for amateur class racers. Expert class racers generally use a McCoy aluminum piston with chromed sleeve. Many racers are going to the Schneurle ported K&B 21 engine. Thruout the world other engines are also used, such as Supertigre, OPS 21, Webra and Enya. Our rules limit us to a .21 cu. in. or 3.5 cc size engine. We recommend the Veco 19 because as a beginner it will give you all the horsepower you can handle for awhile. There are other advantages to using the Veco 19 if you live in the U.S.A. The engines and parts are readily available everywhere. Also there are many items made just to fit this engine. Besides the McCoy hop up parts, Associated makes special carb air filters, which are a must for long engine life as well as a head heat sink which is also a must. Veco and McCoy make high compression heads.

Whatever you do, never run your car without a heat sink or air filter. Without a clean heat sink, the engine will run too hot and lose compression. You'll probably run on quite a few different tracks, and no matter how clean they look, they're all too dusty. An engine run on a track with no air filter will have a life of approximately 1/2 hour, and we're sure you want yours to last much longer than that. Another tip is to take the air filter element and soak it with WD 40 or some light oil. This helps to catch the very fine dust which acts like an abrasive and will cause your engine to lose compression.

Your engine will run with a stock carb, but it will run twice as good with a Perry carb. It'll idle better, accelerate faster, give you a higher top end, and if that isn't good enough, it'll also give you more mileage. It should be on your "must" list. Perry makes two models that are widely used in R/C cars. The most popular for beginners is the Perry for the Veco 19. To install, simply loosen the two screws holding in the stock carb, twist and remove the old carb. The Perry will fit right in the same size hole. The second popular Perry carb used is the model for the K & B 40. This has a larger throat, allowing more air to enter the engine, giving more horsepower, making it popular with the expert class racers. Having a larger throat, it's necessary to bore out the crankcase to install this carb, so I wouldn't worry about it if you're a beginner.



PERRY CARB.

We recommend you either use G.E. or Dow Corning Silicone Rubber as a seal when installing the new carb. It will help to give a smoother idle. A lot of racers like to epoxy in the Perry carb because it's made of plastic and you can't tighten down hard on the mounting set screws because you'll choke off the throat of the carb. Most any type of epoxy will do, but if you can find Epoxy-Patch No. 1C White, in an industrial supply store. It's better suited to this job. With regular epoxy you'll have to be careful because it could run down into the crankshaft. But the Epoxy-Patch is thick and will stay where you place it. Altho the Associated air filter is primarily made for the Veco carb, with a small amount of filing of a notch to clear the air adjustment screw, it will fit, so be sure to use it.

Take a trip to your hobby store and pick up a couple of spare Glo plugs. Either the K & B or Fox R/C Long Reach is best. You'll need a 1 1/2 volt battery, wire and clips to ignite the Glo plugs, and a large fuel filter. You should also get a starter motor as used on airplanes, but with an adaptor to start R/C cars. Your hobby shop should have several to choose from. You'll also want some fuel to break in your engine. You should use K & B 100 fuel or an equivalent type fuel that has no more than 10% nitro and at least 20% castor oil. Do not use any fuel that contains synthetic oils. Synthetic oils work great in planes and boats but they make the engines run too hot in cars. You'll burn your new engine out. Don't worry about higher nitro fuels or hopped up engines until you're an experienced driver. These will only get you in trouble if you're a beginner.

We have run stock Veco 19 engines (stock except for a Perry carb) in practice and weekly racing for over a year and then retired it, but it was still running strong. And hopped up, chrome liners in a Veco 19 will last at least 6 months, without pulling the engine apart. This is to give you an idea of what you can and should expect from your engine if you pay attention to the do's and don'ts we're telling you.

One of the most critical times in an engine's life is during the break-in period. Too many guys can't resist the temptation to take their new engine out to the track, lean it out to hear it sing, and then wonder why, after an hour's running, they've lost all compression. The pistons are ground and the cylinders hone to as fine a finish as practical. But lapping or polishing would put the cost out of sight. There are many ways to break an engine in, such as bench running with a propellor, which is the standard method used for airplanes. This works great, but you can do as good a job in your car. The important thing to remember is to run it as blubbering rich as you can for at least 15 minutes the first time you run it. You'll be learning how to drive the car, so you'll be running slow so leave it running on the rich side as you learn to drive the car. As your driving gets better you can gradually start to lean it out.

You'll find that the more you run your engine, the faster it will begin to idle as it starts to break in, so you'll have to re-adjust the idle settings a few times. If it's idling too slow it can be either too rich or not getting enough air. On the Perry carb if it's too rich, turn the idle disc just a very few thousandths to the right (clockwise) until the idle cleans out. If it's not fast enough, turn the air screw on top of the carb in about 1/4 of a turn. You'll have to work back and forth between the fuel idle disc and the air screw until you get your desired idle speed, because both of these settings affect each other and they must work together. But be careful, you don't want your idle too fast or you'll burn out the clutch lining. It just has to be fast enough to keep idling smoothly.

When you feel your driving's up to it, you can start to lean out the main fuel adjusting screw. Turning it clockwise leans it out. Your car should have been sluggish and blubbering in a 4-cycle going down the straightaway. Turn the screw in about 10 degrees, make a lap around the track and see if it's still blubbering. Repeat this procedure until the blubbering stops. It should now be running nice and clean and just a little on the rich side Leave it like that and go out and beat your competition.

CHASSIS TUNING TIPS Refer to page #12

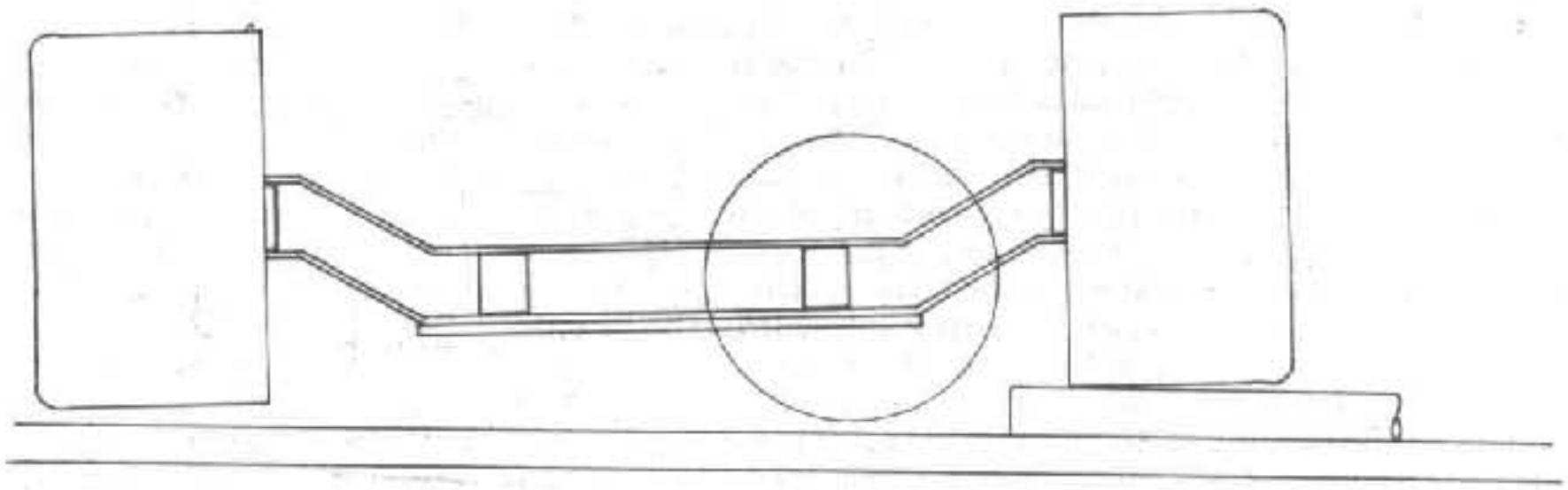
You've driven the car enough now to break the engine in and you probably feel like you want to start getting around the track faster. The biggest mistake made by most R/C car racers is that they believe they need the maximum amount of steering from the car to be able to get around the track. Actually, the opposite is true. The idea is to set up your car to have the least amount of steering you need to get around the track smoothly. This is very important. Your car should be set so the Steering Servo Saver linkage is in the furthest outside hole. When you feel your driving has improved enough, move the linkage, one hole at a time, towards the inside. Drive the car and see if it's helping you to get around the track faster, or it's making you spin out more. Increase or decrease the amount of steering until you find the correct combination for you.

Check the "tweak" in the chassis. This must be done with two rear tires of the same diameter and two front tires of the same diameter. Use a very flat surface, such as a plate of glass. Take a piece of 3/8" tubing and roll it under the right hand front wheel. Refer to the drawing on the next page. Note how far the left hand wheel comes off the glass. Then do the same procedure to the other wheel. Generally, one wheel will raise higher off the glass than the other. If this is the case, the chassis is "tweaked" to one side or the other. By holding the front and rear wheels, you should be able to "tweak" the chassis back to square.

We've found that 3 1/4" dia rear tires give the maximum traction per rubber weight. As the diameter goes down, the car becomes harder to drive. For the important races, you should use 3 1/4" rear tires and then, as they wear down too much, use them for practice. You also want the front tires the same size, left and right, between 2 3/4" and 3". Most racers will switch their tires from left hand to the right hand side, to keep wear even.

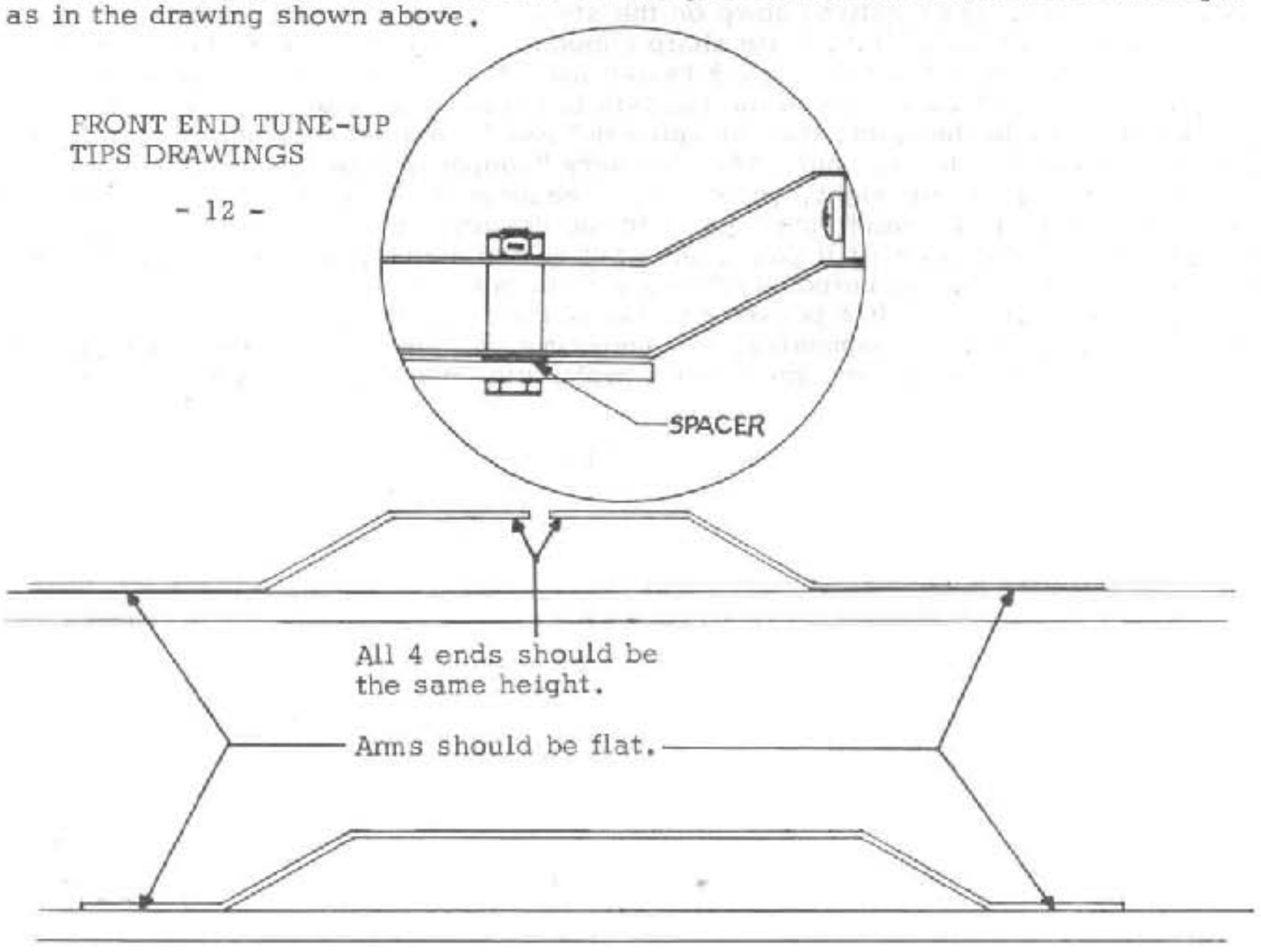
Drive the car around the track. Each track has its own conditions, so we can't give you the perfect setup for your track, but we can help you to find it. Generally, the most common complaint is the car spins out too easily (oversteer). Check to see if it spins out easily going left as well as right. If it does, cut down on the steering travel as explained earlier. Keep cutting down on the steering until the car is impossible to spin out, but now it just won't turn quite sharp enough to make the corners fast enough (understeer). Add just enough steering back to get around the track fast, but no more.

Another cause of spin-outs is the chassis is tweaked too much to one side or the other. Let's say turning to the right, the car spins out easily and yet turning to the left, the car is almost impossible to spin out. It's also very "squirrely" coming out of the corners. If it spins out turning to the right, add a couple washers between the chassis plate and the cross arm, on the right-hand side. Refer to the drawings on the next page. Run the car again and see if it's okay, or if you might want to add another washer or maybe take one out. Your car can also be purposely "tweaked" to one side or the other to aid in handling, such as in an oval race. It's possible to tweak the chassis so that you can make the sweepers fully punched. Remember, the more time you spend setting up your car, the better driver you'll be and the more races you'll win. Good luck in your racing.



Check the "TWEAK" in the chassis. This must be done with two rear tires of the same diameter and two front tires of the same diameter. Use a very flat surface, such as a plate of glass. Take a piece of 3/8" tubing and roll it under the right hand front wheel. Refer to the drawing shown above. Note how far the left hand wheel comes off the glass. Then do the same procedure to the other wheel. Generally, one wheel will raise higher off the glass than the other. If this is the case, the chassis is "TWEAKED", to one side or the other. By holding the front and rear wheels, you should be able to twist or "TWEAK" the chassis back to square.

After running the car for a few minutes the car may settle back to its "TWEAKED" condition. If this happens it will cause the car to have too much oversteer in one direction and too much understeer in the other direction. If this happens then instead of bending the chassis back to Tweak it, simply put one or more washers between the chassis plate and lower cross arm, as shown below. Place only as many washers as it takes to get the wheels to come off the ground the same amount left and right as in the drawing shown above.



FUEL TANK

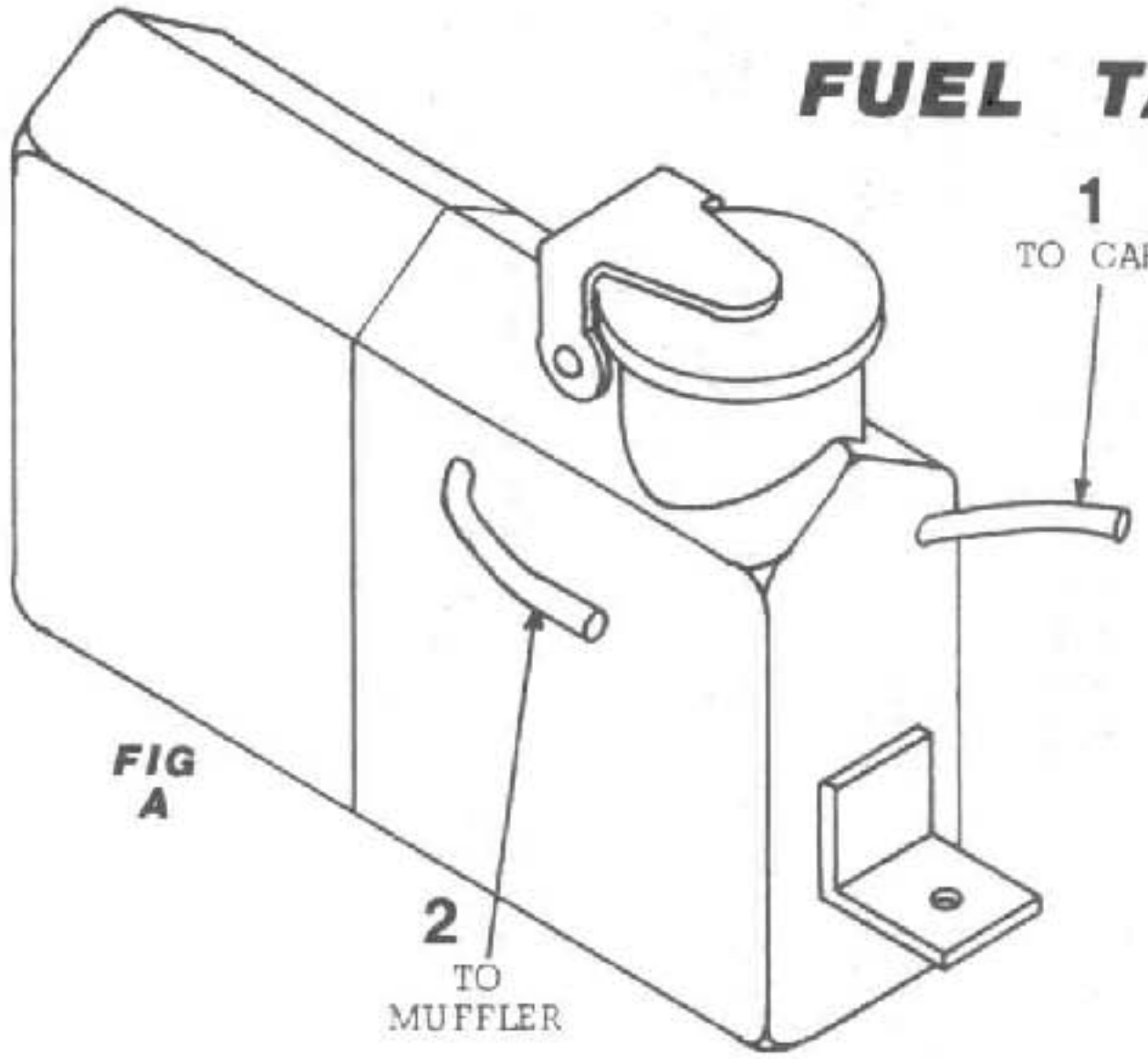


FIG A

FIG B

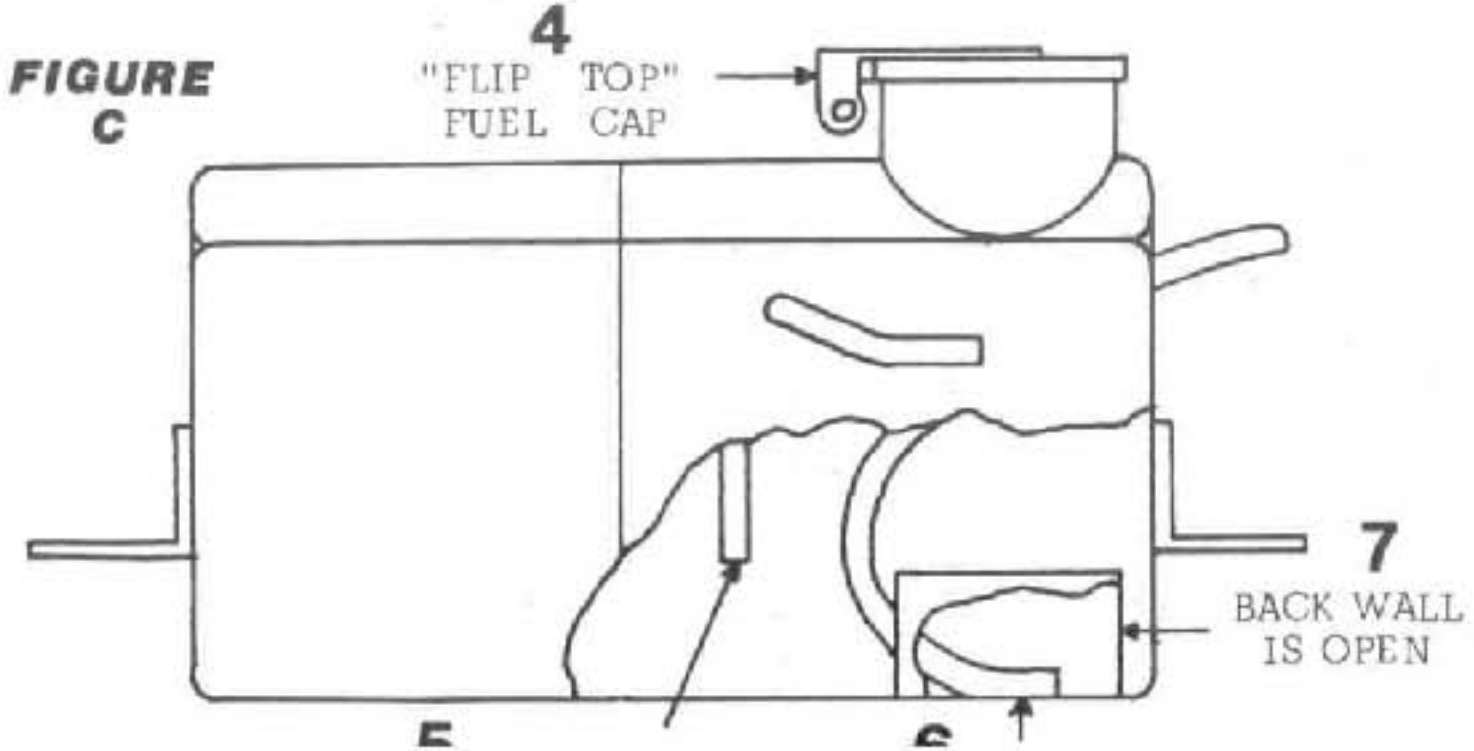


FIGURE C

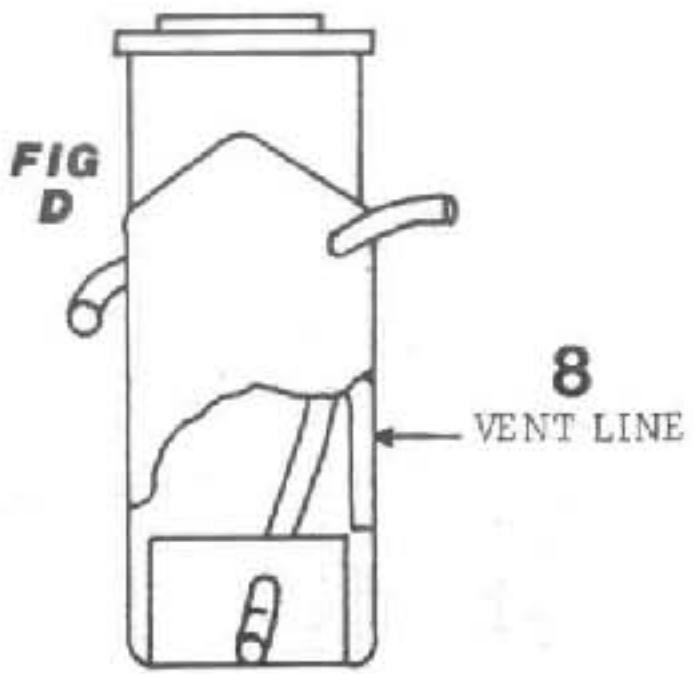


FIG D

FUEL TANK INSTRUCTIONS

Assembling the fuel tank is relatively easy with the correct tools and instructions. The best soldering iron is an Ungar #777 with a #4033 tip, and the best solder is Stay Brite Silver Solder. These are available from hobby stores or hardware stores.

A word of caution - Stay Brite Silver Solder uses an acid flux. Treat it as an acid. It is very corrosive and will rust out parts. Water will neutralize the acid. Do not use on electrical connections. Also - do not use rosin flux type solders to assemble this tank.

The tank is made from the Johnson fuel tank kit #SP1. The "Flip Top" fuel filler cap is part #SP61. A 1/2" brass tube can also be used for the fuel filler using the Don's rubber fuel tank filler cap #SP3.

First, drill two 1/8" holes in the wider of the tank halves for the fuel pickup line and the muffler pressure line, as shown. Then drill and enlarge the hole to fit the flip top cap. Slip the cap in the hole, and then mark the cap to the same upside down "V" shape of the tank roof and cut the cap bottom to this "V" shape.

Refer to Fig "B". Make a box out of .015 brass. The box is 1" long X 1/2" high X 3/4" wide. The top and both sides are one piece, with one other piece used for the front. The back side is OPEN. Solder the front end to the top and sides. Then drill a 1/8" hole in the front end of the box as shown in Figure "D".

Thoroughly clean out the tank halves with acetone, MEK, lacquer thinner, or whatever you have. Form the fuel pickup line as shown. If you're using a large bore carb, form the vent-muffler line as shown. If you're using a smaller carb, such as the Perry 19 muffler pressure is NOT required. Refer to figure "A", #2 and bend this line straight up. Refer to Figure "C", #5 - the vent line should be 1/2" up from the tank bottom, and should be on the R.H. tank wall as shown in Figure "D", #8.

Solder all parts together in the rear tank half. Flush the rear tank under running water for 5 minutes. Solder the 2 tank halves together. Make the mounting brackets out of brass and solder them to the tank as shown in Figure "A" and "C". Flush the tank inside and out again under running water.

Hold the tank under water in a pan of water. Seal the muffler tube end with your finger and blow through a piece of fuel tubing attached to the fuel line. This will show any tank leaks. Wherever bubbles show up, you'll have to resolder. Shake all the water out of the inside of the tank. Half fill the tank with fuel and slosh it around, then empty it out. This will lubricate the inside of the tank and keep it from rusting.

VERY IMPORTANT - A good high quality inline fuel filter must be used between the fuel tank and carb and this filter must be cleaned regularly. Some racers use a Du Bro clunk type porous bronze filter #161 that is placed inside the box in the fuel tank, at point #5, Figure "C". Either method is O.K.