□ Fig. 142 & 142a Where you mount the swtich is really up to you. Just try and locate a place where you will be able to turn it on and off easily and not have it mounted so high it will hit the body. Stick it to the side of the chassis with servo tape as shown in fig. 142.

Plug the receiver plug side of your on/off switch into the battery plug slot on your receiver. The steering servo plug will go into the slot marked channel #1 (sometimes labeled rudder or "rudd"). The throttle servo will plug into the slot marked channel #2 (sometimes labeled throttle or "thro"). Use your radio instructions to check correct plug locations for your radio equipment.

Take the #6338 antenna tube and mount out of the kit bag. The small end of the mount with only one hole is where it will mount to the chassis. Insert the antenna tube into the other end using the larger hole. The tube will fit tight, but it will go in. Now push the receiver antenna wire up from the bottom of the mount through the antenna tube. Leave about 1" of wire sticking out of the top of the tube and tie a knot in it. Now attach the antenna mount using the #6922 4/40 x 1/2" FHSScrew that was with the mount.

NOTE: Most of the current brand name radios are using a longer length antenna wire (36" to 39") in order to improve reception as we move into the new FCC narrow band receiver rules for surface R/C radio systems. With these radios you will have excess antenna wire down by the receiver. The best way to handle this excess is to make a small rectangular piece out of cardboard or plastic and wrap the excess antenna wire around the plastic or cardboard. Do not let the wire wraps cross over each other as this can affect the tuned length of antenna wire and can shorten antenna range. See fig. 142a. You can then servo tape this portion of the antenna wire to the top of the receiver.

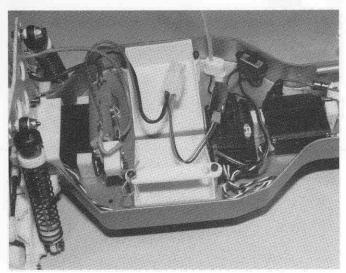
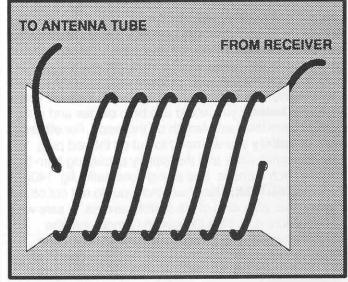


Fig. 142

There are a few extra holes in the bottom of the chassis which will not be used. You can cover these holes (from the top) with cellophane tape or the servo tape supplied with the car. A better choice is to use our new #6312 clear chassis protective sheet. This can be applied over the bottom of the complete chassis and helps protect the chassis's finish from damage which can occur under normal usage.



(DRAWING NOT ACTUAL SIZE.)

Fig. 142a

☐ Fig. 143 We supply a battery charge cord set with this kit which will charge your 7.2 volt battery pack from any 12 volt DC car battery. NOTE: There is a separate charge cord available #6736 for 8.4 volt battery packs. You cannot connect this charge cord with any other power source! There are many good chargers on the market which will allow you to charge off of AC (household current) as well as 12 volt DC if you need that feature. In the main plastic bag you will find a bag with two large aligator clips some red and black plastic sleeves and two different types of wire. We are going to have to solder the aligator clips onto the ends of the wires. NOTE: Do not shorten wires! The arrows in the photo are pointing to the positive wire and clip connector. The positive wire is the silver appearing wire with the clear plastic coating on it. This coating can be hard to see. The black wire is negative wire. We will start by connecting the positive connector first. Take an Xacto knife and remove about 1/2" of clear plastic coating from the silver appearing wire. Now slide the red plastic sleeve over the silver wire. Insert the wire into one side of the aligator clip and solder it to the clip. On the end of the clip are two little tabs you will need to bend these over the coated wire to help relieve the strain from the solder connection. Take the red plastic sleeve and slide it down over the arm of the clip. Install the second red sleeve over the other arm of the aligator clip. Now repeat the process using the black wire and black plastic sleeves.

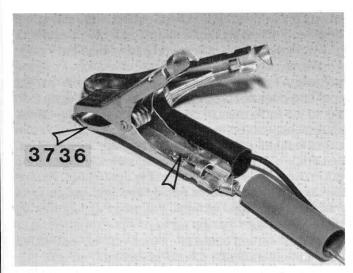


Fig. 143

□ Fig. 144, 144a & 144b A change was made by the battery companies of placing plastic caps over the end of the batteries (fig. 144) for cosmetic appearance. These batteries will not fit into this RC10 with the caps still on the batteries.

Carefully cut the plastic shrink cover holding the end caps onto the battery and remove the caps (fig. 144a). The cap around the wires will have to be split in order to remove it from the wires without unsoldering the wires from the battery. Once you have removed the end caps you will need to place a piece of electrical tape over the ends of the battery and then wrap a piece of tape around the battery near the ends to hold this tape in place (fig. 144b).

We need to charge the battery pack now and check the radio transmitter batteries to make sure that they are charged. NOTE: THERE ARE DETAILED CHARGING INSTRUCTIONS NEAR THE BACK OF THIS MANUAL ON HOW TO CHARGE BATTERIES IF YOU DON'T KNOW HOW.



Fig. 144



Fig. 144a



Fig. 144b

□ Fig. 145 & 145a When we have made sure that all of the batteries are charged it is time to install the battery into the car. Slip the 7.2 volt battery pack into the battery trays. Now slip the "keyhole" end of the #6335 battery hold-down straps (fig. 145) over the front screws in the battery trays (fig. 145a). Slip the other end of the battery straps over the rear screws. Install two #6332 hood pins through the screw heads.

Take your charged transmitter, pull up the antenna, and turn on the transmitter power switch. Make sure that the motor is not plugged into the speed control before we plug in the battery. Now plug your battery into the wiring plug as shown. If your servos moved, then your switch was in the "ON" position. Turn it off if it was on. Make sure that your switch is correctly marked "ON" and "OFF." Now with the transmitter still on turn your switch on for one or two seconds and switch it back off. Refer to fig. 128 and see if your resistor arm is close to this position. If it is not, remove the servo horn screw, then the servo arm/horn and wiper arm. Turn the switch back on. Advance the throttle arm on the transmitter. See if the servo output shaft rotates in the proper direction. If it does not, then locate the throttle servo reversing switch and slide it to its other position. Now recheck the rotation of the servo output shaft. Now turn the car off first then the transmitter.

Reinstall the servo arm/horn and wiper arm close to the location shown on photo in fig. 128. Turn the transmitter back on and then the car switch. The wiper arm should be close to the position in fig. 128. Pull the throttle half way. The wiper arm should be close to the position

shown if photo for fig. 136. Pull the throttle all the way open. The wiper arm now should be exactly as shown in photo for fig. 137. If everything is fine, you can release the throttle arm. We now need to check the brake operation. Move the throttle arm to the full brake position. Make sure that the wiper arm does not drop off of the resistor. If it does then refer to the radio manual on how to correct the problem. Adjustments can be made using the end point and trim control features as in your radio manufacturer's manual. Look at fig. 121. Turn your transmitter steering wheel to the right. Your wheels should turn to the right. If not, you will have to move your throttle servo reversing switch to its other position. Now recheck the steering function as before. Make sure that the servo arm/horn is in the up or vertical position and centered. Now if your wheels are not straight you can adjust the #6256 steering linkage (fig. 121) to correct the problem. You can use the steering trim feature to fine tune the adjustments if necessary.

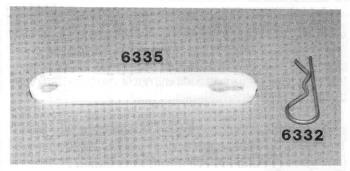


Fig. 145

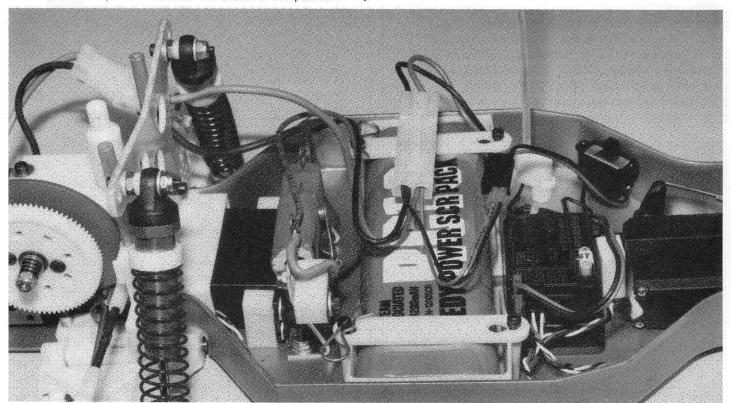


Fig. 145a

□ Fig. 146 Turn the car switch off for a moment. Now plug in the motor to the speed control plug of the electrical system. Take a small wire tyrap and secure the plug to the wing tube with it. This will keep the wires away from the tires. Now make sure that the rear of car cannot touch the ground. Turn the car back on and slowly activate the throttle. Check for proper rotation of the axles then check for proper throttle operation. Now check the brake operation by moving the throttle arm in the reverse direction. If the brakes activate properly then you have everything setup correctly. Now turn the car switch off then the radio transmitter and you will need to unplug the battery pack from the electrical system as your final step. Your electrical system is done.

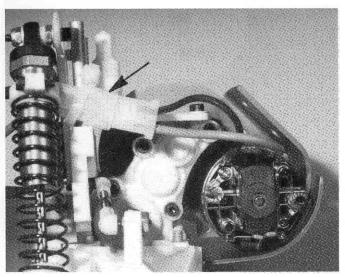


Fig. 146

WHEEL/TIRE ASSEMBLY

Fig. 147 Take the #6854 front wheels and #6872 front tires out of the box. (NOTE: Tires in kit may differ from those shown in photos.) We want to put the large plastic ring inside the tire as shown. Work the ring into the tire until it is seated evenly. Tires vary a lot. Some will go on quite easily, and some will be quite difficult to install. On the tough ones, soapy water, like dish washing soap, will help the rubber to slip easier and will make mounting the tires much simpler. Be sure to rinse off the soap and then dry the tires thoroughly.

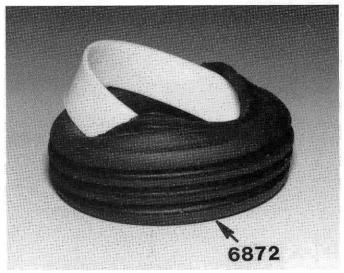


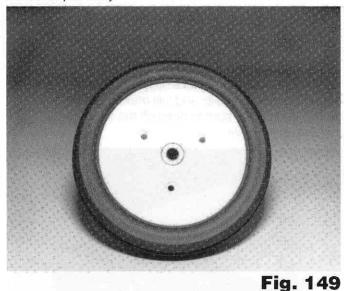
Fig. 147

☐ **Fig. 148** This photo shows the #6872 front tire with the ring already installed. Make sure the ring is perfectly centered.



Fig. 148

□ Fig. 149 Take the outer half of the #6854 front wheel (small center hole), as shown, and push it into the front tire making sure it is seated all the way around, and centered perfectly.



☐ **Fig. 150** Turn the tire over and install the inside half of the #6854 front wheel (large center hole). Make sure the screw holes are in line.

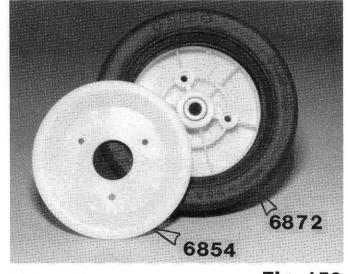
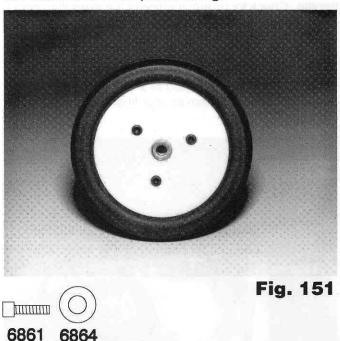


Fig. 150

Fig. 151 Install the three #6861 4/40 x 3/8" SHCScrews. These are in the front wheel and tire bag. DO NOT overtighten these screws. Try to use the same tension on all three screws. Install the four #6864 wheel bushings. If you are installing bearings you will be using four #6906 3/16" x 3/8" plain bearings.



☐ Fig. 152 If you have bushings oil them before you install the wheels onto the front axles. Spin the wheels and make sure that the tires spin true. If not, re-mount the tires as necessary. Now install the gold colored steel washer #3216 and one #6295 4/40 locknut on each wheel.

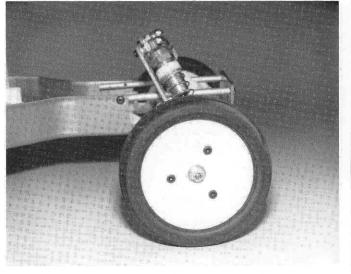
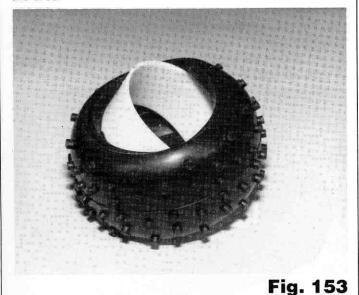
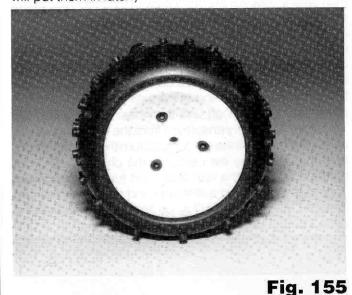


Fig. 152

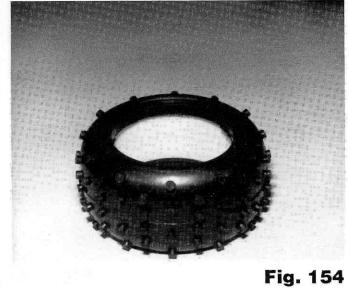
☐ **Fig. 153** From the rear tire bag take the #6822 rear tires and #6804 rear rims. Slide the wide plastic ring inside the tires.



□ Fig. 155 Now take the outside half of the #6804 rear wheel (with the small center hole) and slip it inside one side of the tire as shown. Make sure it is centered and fully seated in tire. (Ignore the screws shown in the photo; we will put them in later.)



☐ Fig. 154 They then should look like this.



6804

□ Fig. 156 Now take the inside half of the #6804 rear wheel (large center hole) and push it inside the open side of the tire, as shown. Make sure wheel half is fully seated and centered perfectly. Also make sure the screw holes are lined up. Install the 3 #6861 4/40 x 3/8" SHCScrew in each wheel. Do not overtighten.

Fig. 156

☐ Fig. 157 Slip the tire and wheel assembly on the rear axle. If they go on tight, screw them on the axle making sure the slot in the wheel aligns with the pin in the axle. Some rear wheels will go on the axles a little tighter than others. Repeat the process with the other rear wheel and tire. take the 2 #6296 8/32 locknuts and thread them. onto the rear axles to secure the rear wheel and tire. You can install them with a pair of pliers but an 11/32" nut driver or socket would be easier. When you are ready to remove the wheels, take the locknuts off, hold the wheel from the backside and tap the end of the axle (preferably with the plastic handle of a tool) until the wheel moves a little bit. Then you can simply unscrew it from the axle. I know you cannot wait to see if the car runs, so turn the transmitter on, hold the car up by the center of the chassis, with your hands away from the rear tires, and turn the switch on. Touch the throttle just a little way and see if the tires turn forward. If everything is O.K. go ahead and play with the car a little bit, but be careful.

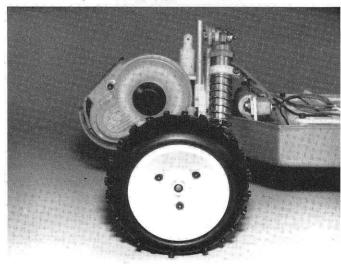




Fig. 157

□ Fig. 158 The #6180 clear lexan driver can be painted to look quite life-like. If you paint the helmet and visor on the inside, they will have a glossy appearance. Then if you paint the rest on the outside, it will be very life-like. You can use the small brush on paint bottles available in hobby stores. The lexan driver should be trimmed as shown, then it will slide up into the body, and two pieces of tape will hold it in place.

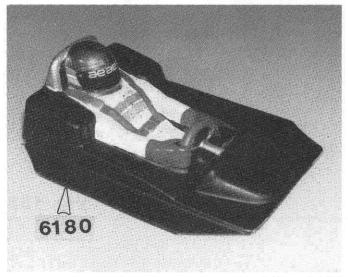


Fig. 158

□ Fig. 159 The #6173 Protech II clear Lexan body can be painted before you mount it. However, it will be easier for you to mount it while it is still clear because it will be easier to locate the holes for the body mounts and wing tubes. This photo shows the trim lines for the front of the body and the front body mount hole.



Fig. 159

☐ **Fig. 160** The rear of the body must be trimmed like this to clear the shocks. NOTE: Save the trimmings to use for testing paint.



Fig. 160

☐ Fig. 161 Trim a little of the body and slip it on. Keep trimming a litte at a time until it clears the shocks. Cut out the body mount hole and the two wing tube holes. RACERS TIP: Take a marking pen and mark the areas that you want to trim, then using an Xacto knife with a new blade score the lines you just marked on the body. You can then flex the body at the score lines and peel off the part you want to remove. When you have the body fitted, it's time to paint the body and wing. The body is painted on the inside and the wing is painted on the underside. There are 2 different ways to paint the body. By either brushing it on or spraying it on. The spray method will give you a more even finish but will cost more. The body is made of Lexan polycarbonate. In hobby shops, you can find special Lexan or polycarbonate paints made for these type bodies. This is the only kind of paint that you can use for brush application. One of the best brands of paint for this application is Pactra R/C Car Finish available in most hobby stores.

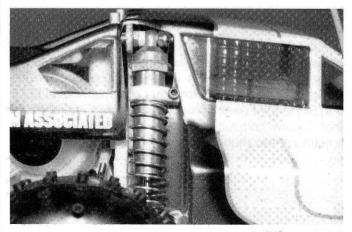


Fig. 161

□ Fig. 162 Now you will have to figure out your paint scheme and mask the body off. Use automotive masking tape for best results. PAINTING TIPS: When painting, do the darkest color first, and the lightest color last, so the dark color won't 'ghost' through the light color. This means the first thing you mask off is the section which will be painted white. The next section you mask off is the lightest color next to white and so on.

There are several steps you can take to help insure that the finished product will be as good and long lasting as is possible. First make certain that the body is thoroughly clean. The more time spent on masking the body the better the final results. Take the time to press all of the tape edges down with your fingernail or the edge of a popsicle stick. Apply the paint in very thin coats, letting the paint dry between coats. WARNING: If the paint is sprayed on in heavy coats, the thinner in the paint stays liquid and attacks the Lexan which then becomes brittle and will crack easily.

After you have painted the darkest color, you peel off the next layer of masking tape and paint the next lighter color, and so on. When you paint the body put some masking tape on the outside of the body at the body mount holes, wing tube holes and shock cutout holes so the excess spray does not get on the outside of the body. If you make a mistake, the only product that can remove the paint or overspray without damaging the Lexan (if used properly) is Synthetic Reducer.

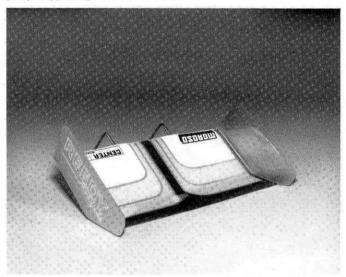


Fig. 162

■ **Fig. 163** Mount the #6182 wing as shown in the instructions in the wing bag.

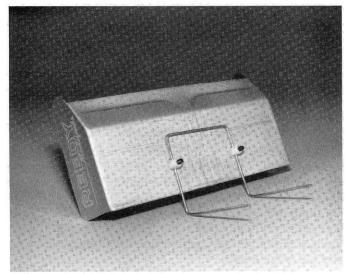


Fig. 163

□ Fig. 164 Mount the body, with the #6332 body clips and wing, on the car, and then pat yourself on the back. YOU DID FANTASTIC!!

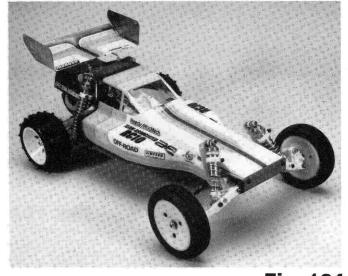


Fig. 164

RC10ce CAR MAINTENANCE

You'll find your RC10ce off road car will give you many more hours of trouble-free operation than any other car available now. You should periodically check all the moving parts: front and rear A-arms, steering blocks, steering linkage, shocks, and so on. If any of these should get any dirt in them and start sticking, it will greatly impede your car's handling. Keeping these parts clean will greatly improve their useful life and keep your maintenance costs down.

BUSHING MAINTENANCE. Keeping the front wheel and rear hub bushings cleaned and oiled is important to maintain your performance level. Also check the bushings for excessive wear and replace them when wear becomes apparent. Excessive bushing wear will create wear on other parts, increasing your maintenance costs.

WARNING: The Stealth transmission bushings are a special design and pre-lubricated. When cleaning or replacing the transmission bushings, do not use motor spray or any other chemicals. Wipe the excess oil and/or dirt from the bushings with a clean rag or towel before reinstalling. Putting additional oil on the bushings can allow the excess oil to contaminate the differential lube, causing the diff to slip.

MOTOR MAINTENANCE. Because we're running out in the dirt or on other surfaces with dust and debris, it is possible for this debris to give the motor problems. One of the first things to check are the brushes. Make sure they are able to move freely in the brush hoods. You can check this by pulling on the brush wire slightly so the brush will come away from the commutator, and seeing if the brush will snap back just on spring pressure.

You can clean the motor with #751 Reedy-in-a-Can motor cleaner. The best way to clean the motor is with the motor out of the car but still connected to the electrical system. With a battery in the car, carefully move the throttle resistor wiper so the motor turns at a fairly slow speed. Spray both ends of the armature where the shaft goes through the bushings and then spray the cleaner into the commutator area with the pinion shaft on the down side so the dirt and debris will flow out of the motor can. Move the spray around so the whole motor will be cleaned. Once you have cleaned the motor, you can spray a short burst of #750 Reedy Power Spray to the brushes and commutator. This will help lubricate the brushes and commutator to maintain maximum power.

For those of you who are planning to get into racing or just want more power, Associated offers Reedy Modified motors. For R.O.A.R. stock racing (where you are allowed to run only 24° timed motors), you can choose one of the Tru-stock motors #550 or #552. If you are racing in a stock class where they do not limit the timing (N.O.R.C.C.A. races are an example), you can choose one of the Mr. Outlaw stock motors #551 or #553. Reedy offers a large selection of Esprit and Ultra Torque modified motors to choose from. A good starting choice would be a #511 Ultra Torque Mr. "N" or a #6508 Esprit Ultimate 2 motor.

RADIO MAINTENANCE. A radio problem is not always caused by the radio. Often it is the result of a combination of factors which can include motor noise, poor electrical connections or wiring layout, reversed or defective crystals, weak transmitter batteries, and so on. If your radio problems persist, one of the following tips may help:

Make sure your motor noise capacitors are properly installed and making good electrical contact.

Make sure the brushes are free in their brush hoods, and when the motor is running, not arcing. Consider replacing brushes if arcing seems to be the problem.

Try a different frequency. If you are on the 75 mhz band, you cannot use Airtronics crystals in Futaba radios or the other way around.

Try a different motor.

Lengthen the standing portion of your receiver antenna and/or raise the antenna mount up to the rear shock strut.

Dress the radio wires well away from the power leads of the motor or battery. Keep the antenna wire away from any signal or power wires if possible.

Note also that 75 mhz band radios are more susceptable to interference. Large metal objects such as chain-link fences, light poles, cars, vans, or trailers parked near the track or practice area can cause local interference, particularly on the 75 mhz band.

CHARGING BATTERIES

It is important to undertand the characteristics of the battery pack in your car because how you use it will greatly affect both its performance and its life. With proper care your pack will perform well for many hundreds of cycles.

The R.O.A.R. legal battery for your car is composed of six or seven "sub-C" size cells with a rated capacity of between 1.2-1.8 amperes for one hour, or 2.4 amperes for 1/2 hour, etc. This charge capacity is the same regardless of the number of cells in the pack because the cells are connected in series and the same current passes through each one.

CHARGER. A good quality charger will last longer for you than an economy unit, so please do not cut yourself short here by trying to save a couple of dollars. Any good name brand charger will do the job correctly. The more sophisticated chargers have extra features that make charging less time-consuming and can easily handle the abuse of heavy back-to-back type charging. The choice of a DC only or an AC/DC charger should be based on personal needs (where you will be using your car, etc.) and usage.

OVERCHARGE. There is no way to make a Ni-Cd cell accept more charge than it is designed to hold. This means that as the cell approaches a fully charged condition, the portion of charging current not being stored becomes heat and pressure. If charging continues after the cell is fully charged, all of the current is converted to heat and pressure—about40 watts worth, or the equivalent of the heat produced by an average soldering iron. High temperature and pressure is damaging to the cells, so overcharging must be avoided.

Ni-Cd cells have a built-in process for recombining the accumulated gas (actually oxygen) produced by overcharge, but the process produces heat and takes a lot of time. If you overcharge your battery and it seems to take a long time to cool down, it's because this pressure reducing reaction is taking place. Once the gas is recombined the temperature drops.

HOW TO TELL WHEN YOUR CELLS ARE CHARGED

One of the problems with Ni-Cds is their inherent voltage stability; the voltage of a fully charged cell is not much different from one that's just about dead. For that reason several indicators, along with some common sense, are needed in order to get the most out of your battery. The following is a list of indicators you can use to detect full charge.

TEMPERATURE METHOD. This works only if you start with a cool battery pack. As the pack charges, frequently check its temperature by feeling the cells directly. As soon as you notice an increase in temperature, stop charging. If the cells become too hot to hold onto, your cells are excessively overcharged. Let them cool.

TIMED CHARGE METHOD. This works only if you have confidence in the timing accuracy of your charger. Many chargers on the market only approximate a constant charging current; they may vary from six amps when you first start charging, all the way down to two amps if the Ni-Cd pack is nearly charged and the voltage of the charging source (automobile battery) is low. If the charging current varies, it becomes difficult to estimate the average current. However, if your charger is reasonably dependable, you can use the following method.

Charge your pack using the "temperature method" above and keep track of the time required to reach full charge. Once you have established the time, you can use it as a setting for the timer on your charger. To be safe, use a setting about a minute less than what you established. This method allows you to charge without constantly monitoring the battery temperature.

If you charge a battery that is still hot from running, reduce the time about 20%. Then, after the pack has cooled, finish charging with the temperature method.

VOLTAGE METHOD. Voltage is a poor indication of a cell's state of charge. In fact, other factors like temperature, current drain, and "cell memory" have as much of an effect on voltage as the state of charge does. However, if current flow and temperature are held constant, it is possible to see the cell voltage gradually climb during the charging process. The absolute value of this voltage isn't of much use—how the voltage changes is an excellent indicator. To use this method, you will need a digital voltmeter or an expanded-scale voltmeter capable of resolving 0.01 volts on the 10 volt range.

Connect the voltmeter across the Ni-Cd pack, preferably right at the cell terminals, or, if that's not possible, across the terminals of the throttle control

resistor. Don't try to read the voltage at the output of the charger because you'll end up reading the voltage drop through all the connectors and cables between the charger and the Ni-Cd pack, which can sometimes distort the effect you're looking for. You should start with a Ni-Cd pack that is less than half charged. Connect your charger and begin charging at four amps. If your charger is adjustable, set the current now—but don't try to change it later. A constant current charger is preferable here, but if yours gradually drops off during charge, that's still permissible, as long as it doesn't drop below three amps.

Watch the voltage as the pack charges. Notice that the voltage at first climbs rapidly and in the middle of the charging cycle more slowly. This voltage will most likely be in the range of 8 1/2 to 9 volts for a six cell pack. As the pack approaches full charge, the voltage will begin to climb more rapidly; and as it goes into overcharge, the climb will slow down and then stop. This is where you stop charging—at the point where the voltage stops climbing. If you left the charger on, the voltage would begin to fall as the pack went deeply into overcharge and started to heat up. The maximum voltage reached will probably be in the nine to ten volt region; the actual value is unimportant.

When measuring voltage on NiCad cells, you must use a digital VOM (volt/ohm meter). A conventional analog scale VOM is not sensitive enough. By the time you see the needle move across the scale, you would have already damaged the battery cells.

SLOW CHARGE METHOD. Slow or "overnight" charging is a method you are not likely to use often, but it is a good way to bring the pack to absolutely full charge. However, the output voltage of a slow charged pack is slightly lower.

The charging current must be between 0.05 and 0.12 amperes. If less current, the pack will never reach full charge; any more and the pack will overheat. The time required to reach full charge ranges from 15 to 40 hours, depending on the current used. The charger can be left on for a much longer time without harming the cells; however, the output voltage of the pack will be temporarily lowered by an extremely long overcharge. The voltage returns to normal after a discharge-charge cycle.

These next two tips are really for the benefit of serious racers. If you're just out having fun, don't worry about them.

FULL DISCHARGE. Ni-Cd packs perform best if they are COMPLETELY discharged before they are charged. If you are involved in racing, you will have to do this if you expect to win any races! Discharge for at least an hour (preferably overnight with a clip-on resistor) before charging.

Associated Chargers have a discharge function. Various clip-on discharge resistors (about 30 ohms, 10 watts) are available at hobby stores.

TOPPING-UP can give you a little extra voltage at the beginning of a race, as long as you don't overdo it. Put the last minute or two of charge into your pack just before the race starts.

GOOD LUCK IN YOUR RACING!

CAUTION

Ni-cad batteries are susceptible to damage when overcharged at a high rate, and can release caustic chemicals if the overcharge is severe.

Do not stall the motor under power. If the car stops suddenly on the track, or fails to move forward when you attempt to accelerate, push the throttle control on your transmitter to the brake position immediately and attend to the car. A small rock can stall the gears, and if the throttle is left in the on position the result can be a burned out motor (or electronic speed control unit).

If you run your car to the point where more than one cell in the pack is completely discharged, it is possible to lose radio control of the car before the drive motor stops completely. For this reason you should not operate your car in an area where it could be harmed or cause harm, such as near a busy roadway or a pool of water. Usually radio control will be regained as soon as you pick up the car and the motor is allowed to free-run. If you still don't have control, then you should unplug the motor.

When you stop running your car, turn off the radio at the car first before turning off the transmitter.

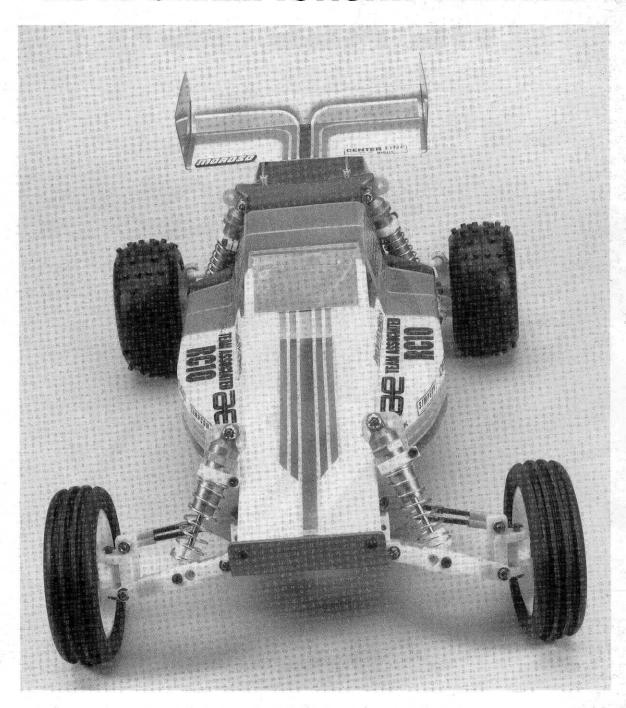
A burned-out or shorted motor can make the car appear to have radio problems. If the car slows down suddenly and the radio acts erratically even with a full battery charge, then the cause is probably the motor. Check the range of the radio with the motor unplugged. A shorted motor will draw extremely high current even under no-load conditions.

SAVE THIS BOOKLET!

MORE THAN AN INSTRUCTION MAN-UAL, IT'S ALSO A HANDY, PICTORIAL SUPPLEMENT TO TEAM ASSOCIATED'S RC10 OFF ROAD CATALOG.

REFER TO THIS MANUAL FOR PART NUMBER AND NAME WHEN ORDERING.

RC10 CHAMPIONSHIP EDITION



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