

**FIGURE 1** Proper crystal and plug installation for the (a) NER-2X, (b) NER-2S.

**STEP 1** RADIO CRYSTALS

Your Novak receiver has been factory tuned and does not need further tuning. The crystal is not included with the receiver.

1. The color of the antenna wire indicates the frequency band of the receiver.  
 \*Orange: 35 MHz  
 \*Green: 75 MHz  
 \*Gray: 53 MHz  
 \*Red: 29 MHz  
 \*Yellow: 40 MHz  
 \*Black: 27 MHz

2. Receiver and crystal must match radio system and frequency band.

3. Insert the crystal into the crystal cap (25 only). Carefully insert the crystal into the crystal socket by guiding the two crystal prongs into the mounting holes (Figure 1). The crystal is non-polar, and can be inserted either direction. For the NER-2X, the end of the crystal should be flush with the case.

\*Available in countries where legal.

**THE NOVAK 2-CHANNEL AM RECEIVER**

Both the NER-2X and NER-2S are two-channel receivers, specially designed for use with electronic speed controls (ESCs) in surface models. They operate efficiently at low battery voltage for the elimination of unacceptable glitches during acceleration.

Size/Weight: 2X—1.10" x 1.28" x 0.53" / 0.50 oz.  
 2S—1.30" x 1.46" x 0.72" / 0.75 oz.

## STEP 2 MOUNTING INSTRUCTIONS

*Incorrectly mounting your receiver can greatly reduce its sensitivity.*

1. Mount the receiver with double-sided sticky tape in electric cars and boats. In gas cars and gas boats, it should be mounted in foam rubber.
2. If you have a car with a metal chassis, and your radio is in the 75 Mhz band, do not mount the receiver or antenna on the chassis.

This set up may decrease the range of your radio by as much as 50%. Mount the receiver and antenna as high in the car as possible. For example: place the receiver and antenna on the front of the rear shock tower in the RC-10.

3. The antenna wire must not come close to the power leads of any servo, speed control, the drive motor, or the battery because of possible radio interference.
4. Do NOT vary the length of the antenna.
5. Antenna instructions for 1/10 & 1/12 scale cars:

### 1/10 Scale Cars:

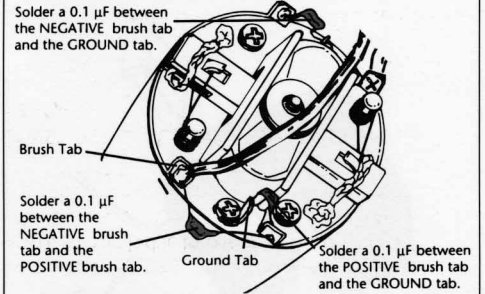
The antenna should be run up the plastic antenna tube supplied with most kits. Allow the excess antenna to trail out the top of the tube.

### 1/12 Scale Cars:

A fiberglass antenna shaft should be used. Heat shrink the receiver antenna to the fiberglass antenna shaft with several pieces of 1/4" wide heat shrink tubing and let the excess trail over the top.

Another method is to coil the antenna up the antenna shaft (keep coils spaced about 1/8" apart).

**FIGURE 2** Proper motor capacitor installation.



\* If using a low frequency ESC, solder a 47 µF capacitor between the positive and negative brush tabs (note polarity).

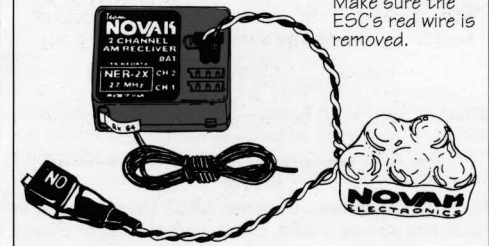
## STEP 4 USING AN EXTERNAL BATTERY

*Recommended if more than one servo will be used, or if erratic radio operation is experienced during acceleration.*

The 5-cell, 50 MAH Novak MICRO PACK supplies constant power to the receiver and is recommended for all applications.

If using an electronic speed control with an internal BEC (such as a Novak ESCs), remove the red wire from the input harness plug. Plug the MICRO PACK's input harness into the battery slot of the receiver (Figure 3). The MICRO PACK's switch should be turned on first and then turn on the ESC's switch.

**FIGURE 3** Radio battery pack plugs into terminal marked "BAT". Make sure the ESC's red wire is removed.



## REPAIR PROCEDURES

Receivers should be returned to Novak Electronics for repair, re-tuning, or frequency changes. Send Units To:

NOVAK ELECTRONICS, INC.  
 128-C East Dyer Road  
 Santa Ana, CA 92707

**What to Send With Repair**—In order to guide the technician, a brief letter explaining the problem must accompany the repair. Include a legible name and return street address inside the package (no PO Boxes, please).

**For Warranty Work**—Customer MUST claim warranty in letter and include a valid, dated, cash register or charge card receipt with repair (or the previous repair invoice).

**Repair Costs**—Receiver repair costs vary and cannot be determined until repaired. Repair estimates can only be provided for the following services: tuning and frequency changes—call (714) 549-3741. Customer is responsible for repair costs (parts, labor and shipping charges).

**In a Hurry?**—Send to Novak by a one or two day shipping service, such as UPS Blue Label or Federal Express Overnight. Customer assumes shipping charges and insurance.

**PRODUCT WARRANTY** Novak Electronics, Inc. guarantees all products to be free from defects in material and workmanship for a period of 90 days from the date of purchase. This warranty does not cover components worn by use, application of reverse voltage, or tampering. In no case shall our liability exceed the original cost of the product. We reserve the right to modify the provisions of this warranty without notice.

# Team NOVAK

## NER-2X & NER-2S 2-CHANNEL AM RECEIVERS



## NER-2X

## NER-2S

## STEP 3 HOOK UP INSTRUCTIONS

There are several ways to hook up the receiver. The following are the most common:

If you are using an electronic speed control, plug the steering servo into CH 1 and the ESC into CH 2. Nothing plugs into BAT (battery terminal).

If you are using a mechanical speed control, plug the steering servo into CH 1, the throttle servo into CH 2, and the radio battery into BAT.

To prevent receiver glitching, three 0.1µF (50 V) capacitors should be installed on your motor (Figure 2). Solder a capacitor between:

- POSITIVE (+) & NEGATIVE (-) motor brush tabs
- POSITIVE (+) brush & GROUND† motor tabs
- NEGATIVE (-) brush & GROUND† motor tabs

If you have a low frequency ESC, solder a 47 µF electrolytic capacitor (note polarity) between the positive and negative motor brush tabs. **DO NOT use this capacitor if using a high frequency ESC.**

† Use the can of the motor if your motor does not have a motor tab. (An area of plating must be removed before soldering to case—this can be done with a file.)

## TROUBLE-SHOOTING GUIDE

**RECEIVER GLITCHES**— One of the most common problems, and is due to one of the following:

1. Receiver is not mounted properly.
2. Proper number and type of capacitors are not installed on motor (Figure 3).

**CAR STUTTERS**— Caused by one of the following:

1. Bad power plug(s).
2. If running 4 or 6 cells with a low-frequency Novak, connect the two red wires to bypass the internal voltage regulator.
3. Use a Novak MICRO PACK or Stutter Stopper.

**NO RANGE**— Bad crystal or needs re-tuning. →