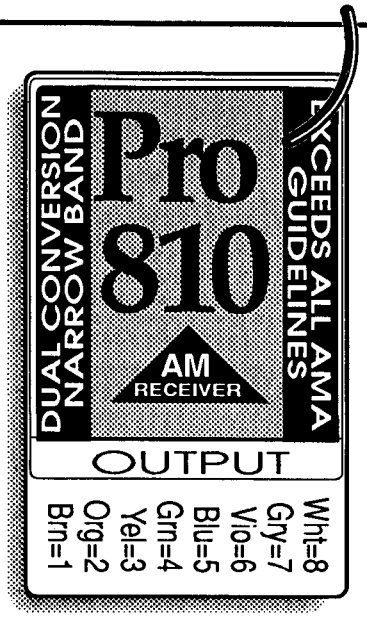


The Ace R/C Pro810

Receiver User's Manual

- ☐ **12G810C** Pro810, Less Connectors
- ☐ **12G810CD** Pro810, Dean's Pigtail
- ☐ **12G810CG** Pro810, Futaba "G" Endblock
- ☐ **12G810CJ** Pro810, Futaba "J" Endblock
- ☐ **12G810CA** Pro810, Airtronics Endblock

Features

Narrow Band, Dual Conversion AM Receiver

Made in the U.S.A.

Exceeds AMA Operational Guidelines

One to Eight Channels

Small Size, Light Weight

Connector Options To Cover Most Applications

Factory Service and Support

Technical Specifications:

Size: 0.8" X 1.4" X 2.375"
Weight: 1.3 oz.
Modulation: AM Dual Conversion
Bandwidth: Less than ± 8 KHz at 60 dB
Image Rejection: Greater than 60 dB down.
3OIP: +3 dB
Current Drain: 20 ma
Frequencies Available: Currently, all even and odd 72 MHz Aircraft and even and odd 75 MHz surface channels.

I. INTRODUCTION

Our PRO 810 receiver is a narrow band, dual conversion, eight channel AM receiver that exceeds the AMA Guideline Specifications and has been extensively field tested to prove that it will survive in the existing R/C world with even and odd channel frequencies.

You may have purchased your Pro 810 as a part of a complete Ace R/C radio system or as a replacement/additional receiver to be operated by an existing transmitter. Please go through this manual completely to insure proper use of this product.

For the Pro 810 to operate properly the following criteria must be met:

1. The transmitter must be AM modulation and be on the same frequency (channel number) as your receiver. There is a sticker on the receiver case that identifies its frequency/channel number. For safe operation, it is highly recommended that your transmitter meet the AMA "Gold" sticker recommendations for narrow band transmission.

2. The servos that you are using have to be three wire, positive pulse servos. (All currently manufactured servos meet this criteria, but some older ones may not.)

3. The receiver requires a standard 4 cell power source, ni-cd or dry batteries.

II. PREPARATION

A. Tuning

Your Pro 810 receiver is pretuned at the factory and no further tuning is necessary. DO NOT attempt to perform any tuning to the receiver; if you do, performance will be seriously degraded and you will void any warranty.

B. Receiver Connector Wiring

If you have purchased a Pro 810 less connectors, it will be necessary to obtain and install connectors to mate with the servos and battery pack that you will be using.

To operate, each servo needs to be electrically connected to three things from the receiver: positive (+), negative (-), and signal. Commonly, the connector wires are color coded as red for positive (+), black for negative (-), and a third color for signal. There are exceptions to this. For example, JR connectors use brown as negative, red as positive, and orange as signal. Airtronics uses numbers marked on the connector: "1" is signal, "2" is negative, and "3" is positive. When installing the connectors, make sure that this polarity is maintained or you can cause damage to the equipment. If you aren't sure of the hookup, get help from somebody who is. Also make sure that this polarity is maintained or you can cause damage to the equipment. If you aren't sure of the hookup, get help from somebody who is. Also make sure that you don't short anything out at any time; if you do have a short, your wiring will be quickly reduced to a smoking, melted mass.

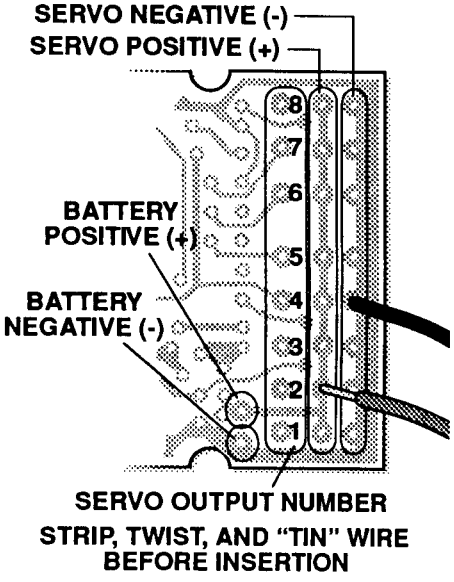


FIG.#1 RECEIVER CONNECTOR WIRING

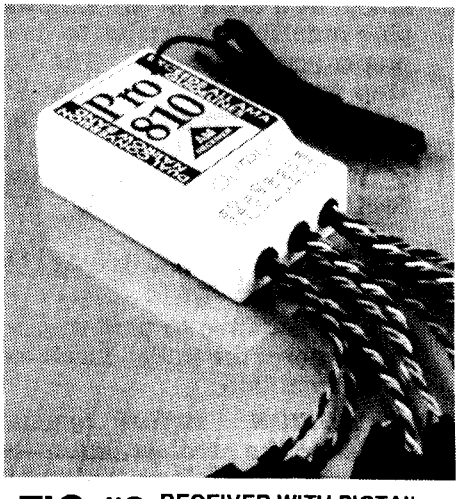


FIG.#2 RECEIVER WITH PIGTAIL CONNECTORS

To install the connectors, remove the receiver from the case by unscrewing the three screws that holds the back on. Carefully wire up the connectors referring to Fig. 1, using a pencil soldering iron and the solder furnished. Make sure there are no frayed wires, the solder joints are secure, and there are no solder bridges. Plan ahead so you can put the grommets furnished over the wire cables, dividing the wires into three bundles. (Fig. 2) When done, reinstall the receiver in the case, being careful not to overtighten the screws.

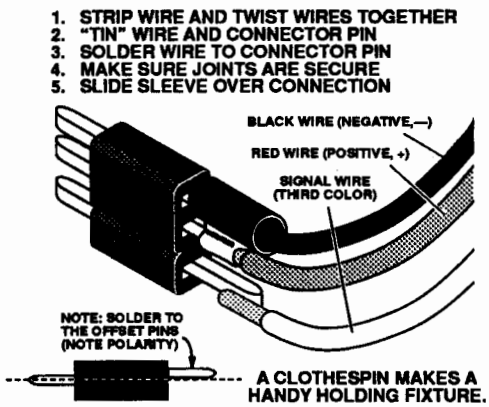


FIG.#3 SERVO CONNECTOR WIRING (DEAN'S)

C. Servo Connector Wiring

If it is necessary to wire up Deans connectors to your existing servos, refer to Fig. 3 for the proper procedure and polarity.

D. Long Servo Leads

If your application requires more than 12" between any given servo and the receiver, an Ace Noise Trap/Pulse Amplifier is highly recommended, especially if the servo is a heavy-duty type. This device will eliminate any electronic noise generated as a result of the long leads plus amplifies the pulse to insure proper servo operation. The Noise Trap is available in kit form (P/N 26K17) or assembled in either a straight configuration (26K17C1) or a "Y" configuration for ailerons (26K17C2).

E. Plugging in the Servos and Battery Pack

It is now time to plug things in and perform the initial check outs. First, a caution:

CAUTION: Before applying power to the receiver, make sure that everything is as it should be and you have connectors that are compatible with one another and proper polarity is always maintained.

Your Pro 810 may be in one of four basic configurations:

1. You have added your own connectors (P/N 12G810C). Plug your servos and battery pack in maintaining proper polarity.

IMPORTANT:
Polarity between the Deans pin connectors must be correct. This is done by alignment of these notches (located on the top and bottom of both pins).

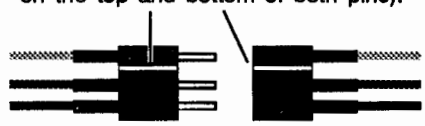
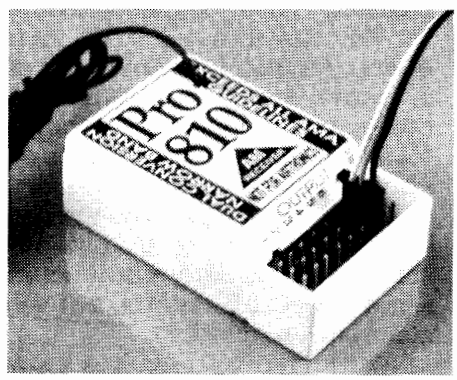


FIG.#4 PLUGGING IN THE DEAN'S CONNECTORS

2. It has Deans Pigtails (P/N 12G810CD). This is the stock configuration in a complete system. Plug in the servos and battery pack, observing that the polarity mark on the connectors are lined up. Note that the receiver's connector for the battery/switch harness is the only one that is male.



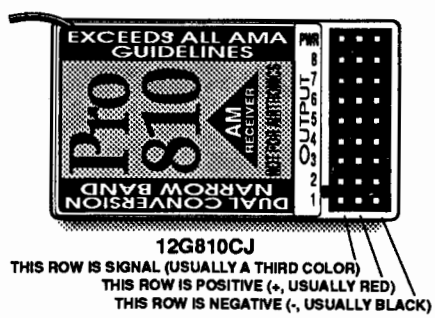


FIG.#5 PLUGGING IN FUTABA "J" CONNECTORS (ALSO JR, HITECH, ARISTO/POLK, WORLD, ETC.)

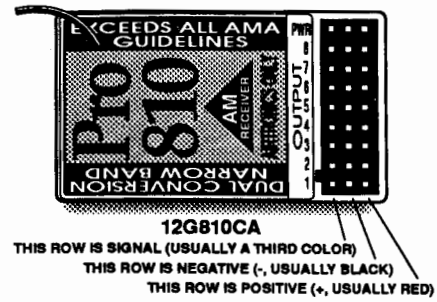


FIG.#6 PLUGGING IN AIRTRONICS CONN.

3. These have a "Generic" Endblock (P/N 12G810CJ or P/N 12G810CA). If you have either of these receivers, read the following carefully.

The 12G810CJ is compatible with Futaba "J", JR, Hitech, Polks/Aristo, World, or any other servo with the 0.10" spaced pins. **DO NOT use with Airtronics servos or battery/switch harness. You will cause damage.**

The 12G810CA is compatible with Airtronics **ONLY.** ***DO NOT use any other servo or battery/switch harness. You will cause damage.***

When plugging into either one of the above versions, you must plug them in so the signal wire on the servo connector connects to the inner rmost pin; i.e., the one that is closest to the middle of the receiver. **The battery/switch harness connector must plug in so the polarity is as indicated on Fig. 5 or Fig. 6.**

Also, note that the connector pins are exposed. **Damage can result if a metallic object falls onto them and shorts them out.**

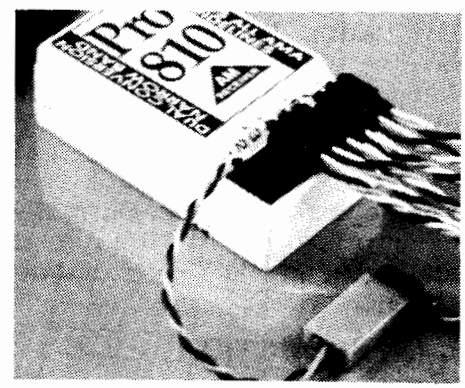
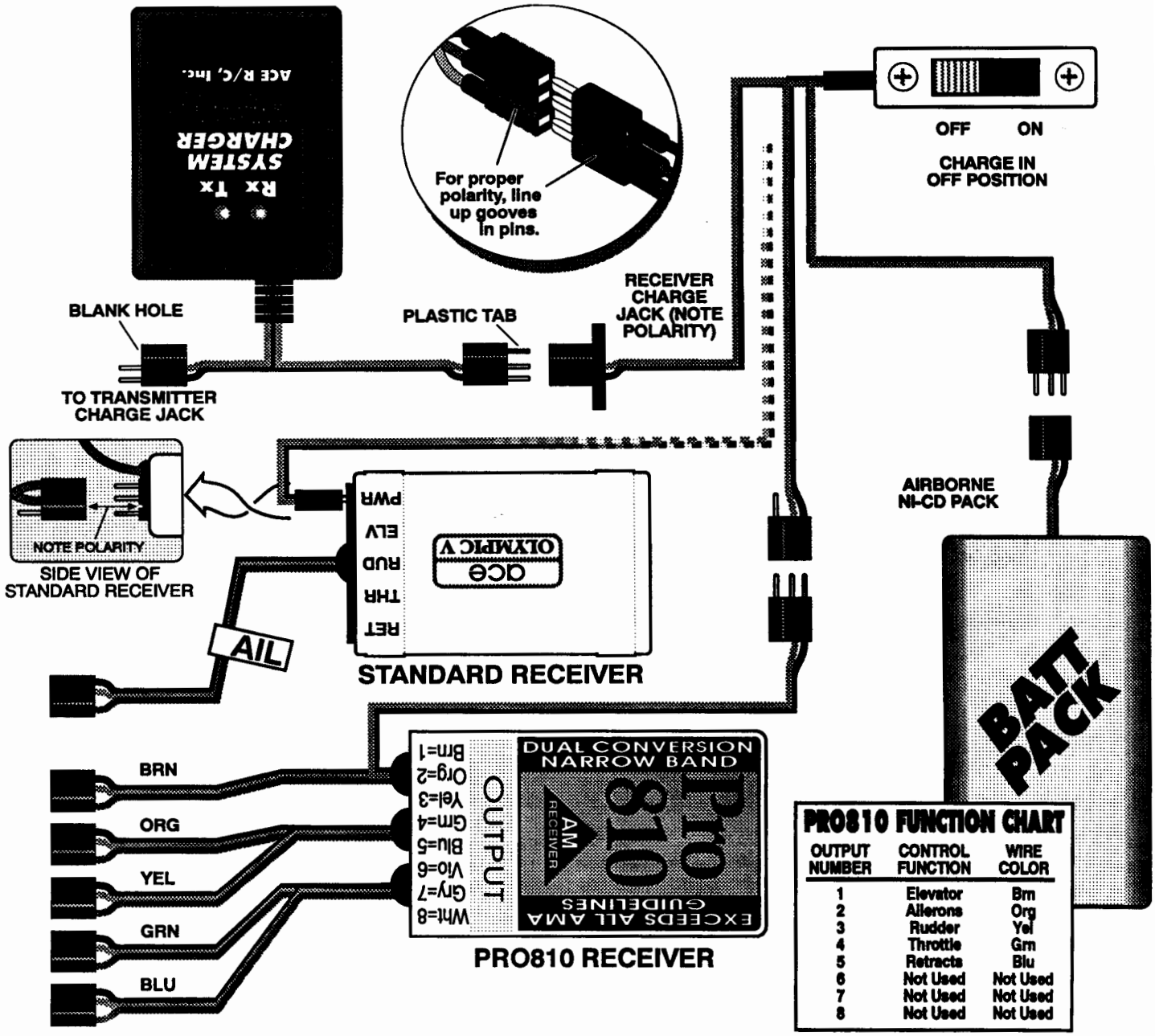


FIG.#7 PLUGGING IN THE FUTABA "G"

4. It has a Futaba "G" Endblock (P/N 12G810CG). The servo and battery pack connectors are polarized and can only be plugged in the right way. Notice that the battery/switch harness plugs into the separate "pigtail" connector.



II. BATTERY CHARGING AND CARE

Your Olympic V is equipped with rechargeable 500 milliampere hour (mah) AA ni-cd cells. A dual charger is furnished to charge both the transmitter and receiver packs at 50 milliamperes of current, which is the proper rate to fully charge the batteries overnight (12-16 hrs). Charge the batteries for 24 hours before you use the system.

To charge the batteries, plug the charger into a 110V wall outlet. There are two cables coming out of the charger; one is labeled "RX+" and the other is labeled "TX+". The one labeled "RX+" is for the receiver . . . plug it into the receiver charge jack, noting that it will go in one way only. The "RX" LED on the charger should light indicating that charging is occurring; if not, make sure the receiver switch is off.

The other labeled "TX+" is for the transmitter. Plug it into the transmitter charge jack, making sure the "TX" LED lights.

Normally, you will be charging both the transmitter and receiver batteries at the same time. If desired, your charger will also charge either pack separately.

NOTE: When charging the batteries for the very first time, leave them on the charger for 24 hours. All subsequent charging should be done for 12-16 hours.

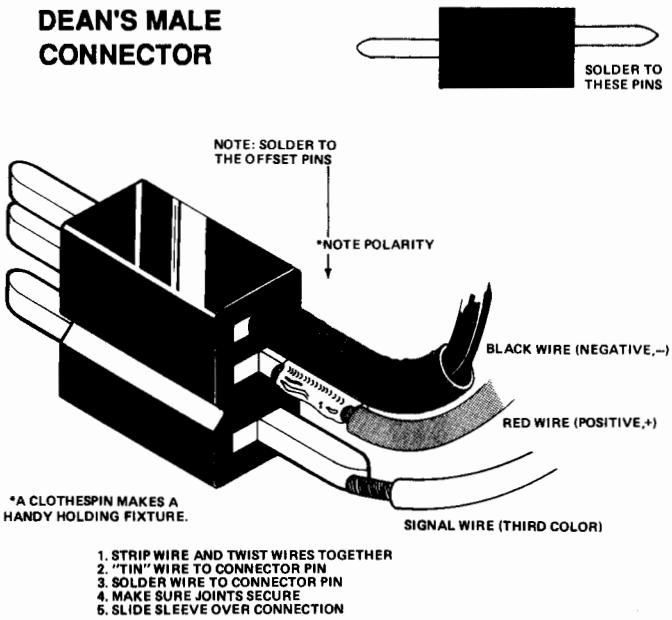
It's a good habit to always charge overnight after each flying session. If the batteries have not been charged for a couple weeks, charge them up before flying again because they lose some of their capacity just sitting around. If they are going to be idle for an extended period of time (like over the winter) always store them in a charged state and avoid temperature extremes. Every month or so, it's a good idea to turn the system on, run it for awhile and then charge it back up.

If you want further information on ni-cd batteries in general, send an SASE to Ace requesting our Data Sheet on Ni-Cds. You may also want our instructions for our battery cycler, the Digipace, which contains some addition info.

III. SERVO CONNECTOR WIRING

A. SELECTION

First, you must select the size and style servos you need for your application. There are many available on the R/C market today, both import and domestic, in all price ranges. Any modern, three wire, positive pulse servo will work with your Olympic V system. Ace R/C has a variety of servo sizes and styles available in both kit form and assembled. Our Bantam or Bantam Midget servo is recommended for all around sport flying.



B. CONNECTOR WIRING

Four male Deans connectors are furnished for the servos you have chosen. They need to be soldered to the ends of the servo cables.

Normally, servos have a black (negative, -), red (positive, +), and some other color of wire (signal). Make sure these wires are attached to the connector in the relationship illustrated. If you are not sure of the color coding, contact the manufacturer or a local "electronics-type" R/C'er for help.

Begin by stripping about 3/16" of the insulation off the ends of the three servo wires. Twist the exposed strands of wires together tightly and, using a small tipped soldering pencil (not a soldering gun!), apply a small amount of the enclosed solder to the wire to "tin" it. Slip a piece of the furnished sleeving over each of the wires.

Using a clothespin as a holding fixture, "tin" the proper side of the connector pins. **Note:** you solder to the offset pins, **NOT** the ends that are centered in the connector body.

Carefully solder each of the wires to the connector pins, making a neat, clean, secure joint. Make sure you have enough solder to coat the joint and exposed wire completely but not so much to be "globby". Jiggle the wire when the solder has cooled to make sure the joint is solid. Slip the sleeving over the joint all the way to the connector body. Retwist the wire cable as necessary. Repeat for any other servos.

NOTE: Connectors and sleeving are furnished for four servos. You will need an additional Deans Male 3 Pin Connector (Part# 19K20M) if you are using the optional Retract Channel.

IV. THE RECEIVER (STANDARD OR PRO810)

The receiver is the heart of the airborne radio system. It receives the signal from the transmitter, decodes the commands and passes them along to the servos. It operates on a specific, non-interchangeable frequency that matches the transmitter. No adjustments are to be done by the user.

Remember that your receiver is an electronic instrument and can be damaged by a sharp blow or impact. When installed, it should always be protected by 1/4" or thicker foam rubber to absorb vibration and shock.

A. STANDARD RECEIVER

Your receiver is wired with Deans connectors for 5 channels. They are labeled **ELE, AIL, RUD, THR,** and **RET** to correspond with the transmitter controls: elevator, aileron, rudder, throttle, and retracts (optional). See the section on the transmitter for details. Power from the battery/switch harness plugs into **PWR**. Note that the servo connectors are polarized with a mark on the side of the connector. As you look at the connector block end of the receiver, you will notice a line molded into the connector block between the first and second pin from the bottom; the power and servo connectors should **ALWAYS** be plugged in so these polarizing marks correspond.

B. PRO810 RECEIVER

Your Pro810 receiver is wired with Deans connectors in a "pigtail" configuration for five channels.

Note that the connectors are polarized with a mark on the side of the connector body. Always make sure these marks coincide on both the male and female connectors when plugging them together.

Power from the battery/switch harness plugs into the only male connector coming from the receiver.

The servo connector cables are color coded and correspond as follows to the controls on your transmitter:

Ch.1 (Brown) = Elevator
Ch.2 (Orange) = Ailerons
Ch.3 (Yellow) = Rudder
Ch.4 (Green) = Throttle
Ch.5 (Blue) = Retracts

V. THE TRANSMITTER

A. THE CONTROLS

Study the drawings that show the inside and the outside of the transmitter. Note than on the dual stick version, the right stick controls the aileron and elevator servos (rudder and elevator if the plane doesn't have ailerons) and the left stick controls the throttle and rudder (the horizontal motion on the left stick is not used if the rudder does not have ailerons . . . in other words, the right stick controls the function that steers the airplane . . . ailerons if the plane has them, rudder if the plane does not.) The trim levers affect the neutral of the corresponding function by a small amount so the airplane can be trimmed out for neutral flight depending on varying weather conditions.

On the single stick version, the main control stick controls three functions: elevator in the vertical axis, aileron in the horizontal axis, and rudder when the knob on

F. The "Receiver Output Number"

You will notice the "Receiver Output Number" that is printed on the receiver case label. On the Deans Pigtail connector version, the Output Number corresponds to the "third color" of any particular servo cable. On the endblock versions of the receiver, the Output Number corresponds with a connector location.

This Output Number is associated with a particular control function of the transmitter you are using. If this receiver is being used with an Ace R/C transmitter, the following applies:

Output Number	Control Function	Wire Color
1	Elevator	Brn
2	Ailerons	Org
3	Rudder	Yel
4	Throttle	Grn
5	Retracts	Blu
6	Aux. 1	Vio
7	Aux. 2	Gry
8	Aux.	Wht

With other brand transmitters, this Output Number vs. Control Function will probably be different than this. It will take some experimentation to determine the relationship by swapping the "hole" that a given servo plugs into. It would be wise to make up a chart that shows this relationship for the transmitter you are using for future reference.

III. INSTALLATION

In order to isolate it from vibration, the receiver should be wrapped in quality latex foam rubber at least 1/4" thick. (Make sure the power and servo connectors remain securely plugged in and are not under strain.) Place it in the plane, car, or boat loosely; i.e., don't wedge it into a tight spot.

Route the antenna wire as straight as possible and as far away as possible from the power/servo leads or any metallic pushrods or flying wires. Don't coil the antenna or double the antenna back on itself. If it's too long for your plane, let it trail out the tail. Don't have a lot of tension on the antenna wire and install some sort of strain relief on the wire where it exits the fuselage to prevent breakage. If it does break, replace it with #26 gauge stranded wire so the total length is 41".

IV. USING YOUR PRO 810 RECEIVER

A. Operational Test

With everything hooked up and your batteries charged, perform a range check on open ground with transmitter antenna collapsed and only sticking out of the case about 1". To achieve this, you may find it necessary (as with most transmitters including Ace R/C's) to unscrew and remove it. Walk away from the model until you lose control. The receiver should have around 75 feet of range. More than that is OK, but, if the range is **less than 50 feet, DO NOT fly**. Contact the factory technical support department for assistance.

B. Preflight Test

Everytime before a flying session, the following preflight checks should be performed for safety.

- Make sure the batteries have been properly charged.
- Check for others on your frequency and follow some sort of frequency control to insure no two people are on the same frequency at the same time. Check that your frequency flag is affixed to your antenna.
- Range Test: Collapse the transmitter antenna, turn the system on, and walk away from the plane. You should maintain solid control of the system for at least 150ft or there is a problem.
- Check that all surfaces travel in the proper direction relative to the control sticks.
- Get help from an experienced pilot if you are a beginner.

C. Other Safety Measures

- Never fly over the pit area or spectators.
- Do not take chances; if something is acting up, quit flying!
- Don't point the antenna directly at the plane. The signal is the weakest off the end of the antenna.
- Join the AMA.

D. Frequency Change

Due to the precision narrow band, dual conversion circuitry of the Pro 810, the user is **not able to change the frequency** of the receiver. The crystal is permanently installed and it must be returned to the factory or one of our approved service centers so the crystal can be changed and the receiver re-aligned (P/N 12E3).

V. WARRANTY AND SERVICE

If your Pro 810 fails to operate normally, refer to the enclosed sheet on Service Policies. Under normal circumstances, your Pro 810 should give you years of dependable service. We hope you enjoy this product and we invite your ideas and comments.

VI. WARNING AND DISCLAIMER:

Improper use of this unit may cause serious personal injury to yourself, to others, or result in property damage. The user is urged to read and understand the information contained before operating the equipment. Prudent and reasonable conduct when operating this radio system is requested by the manufacturer.

Ace R/C, Inc. assumes no responsibility for accident, injury, property damage, or death incurred as a result of any use of this equipment whatsoever. The user accepts the responsibility to comply with all safety requirements, including, but not limited to, those established by all federal, state, and local governmental agencies, the regulations of the FCC (Federal Communications Commission) Part 95, and to abide by the rules and recommendations of all non-governmental bodies related to the use of this equipment, including, but not limited to, those set forth by the Academy of Model Aeronautics.

ACE R/C

116 W. 19th St., P.O.Box 511, Higginsville, MO 64037 816.584.7121
Technical Support (Electronics & Aircraft): 816.584.6303

USER'S MANUAL APPENDIX FOR COMPLETE R/C SYSTEMS THAT USE THE PRO 810 RECEIVER

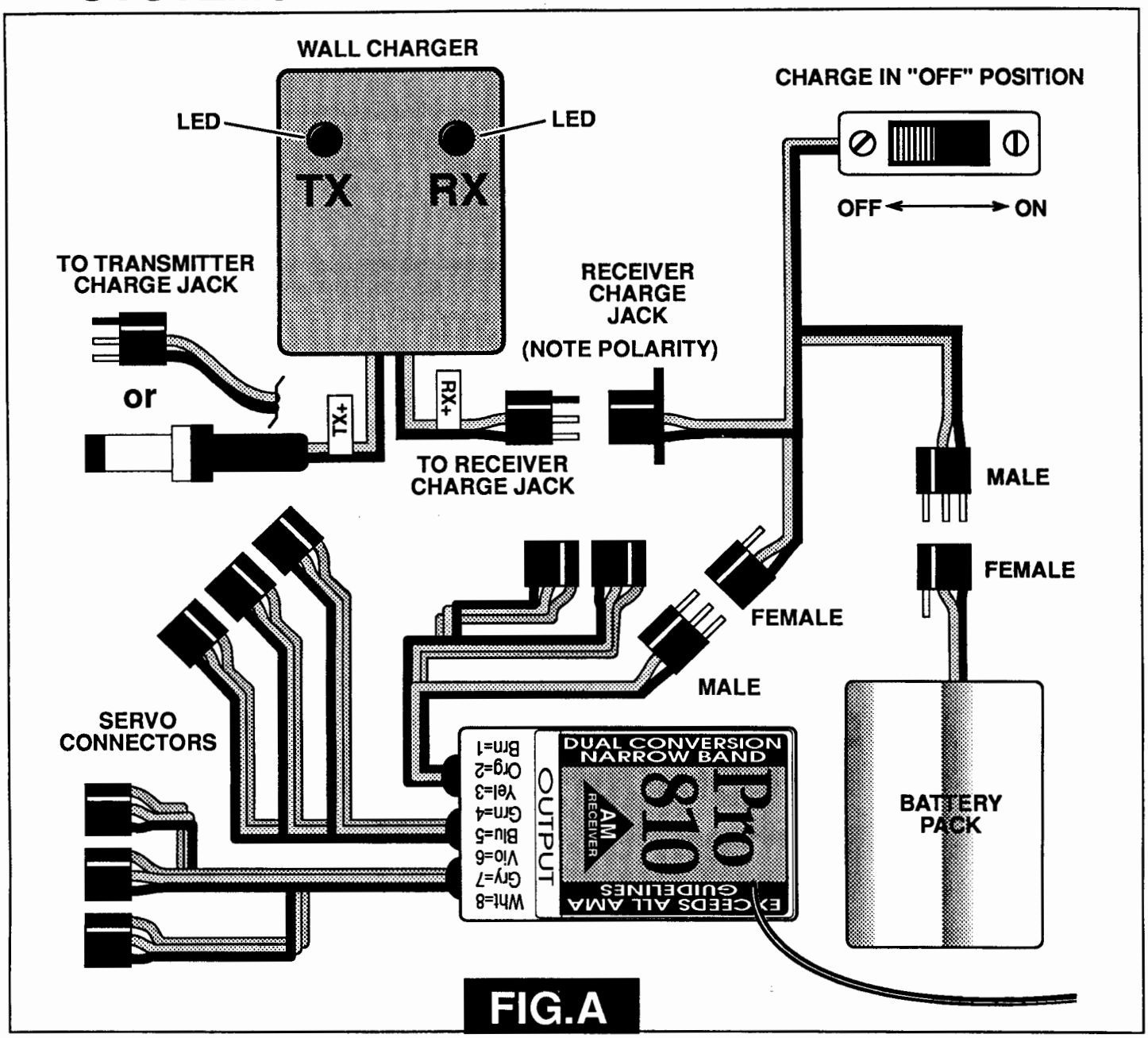


FIG.A

I. Battery Charging, Care, and Installation

Your system is equipped with rechargable ni-cd cells. A dual charger is furnished to charge both the transmitter and receiver packs at the proper amount of current to fully charge the batteries overnight (12-16 hrs.) with the exception of the Micro**pro**8000 transmitters with 800 mah batteries; refer to it's instructions for details.

To charge the batteries, plug the wall charger into a 110V outlet. There are two cables coming out of it, one for the transmitter and one for the receiver. (see Fig. A) With the batteries properly plugged into the receiver switch harness and the receiver switch "off", plug the RX charge plug into the receiver charge jack on the switch harness maintaining proper polarity. The RX LED should light up indicating that charging is taking place; if not, double check your hookup and make sure the switch is off.

Plug the TX charge plug into the transmitter. The TX LED should light.

Normally, you will be charging both the transmitter and receiver batteries at the same time. If desired, you can charge either pack separately.

Note: When charging the batteries for the very first time, leave them on the charger for 24 hours. All subsequent charging should be done for 12-16 hrs. (Except for 800 mah

batteries; they should be charged for 36 hrs. on the first charge and 18-24 hrs. on subsequent charges.)

It's a good habit to always charge overnight after each operating session. If the batteries have not charged for a couple weeks, charge them up before use because they will lose some of there charge from just sitting around. If they are going to be idle for an extended period of time (like over the winter), always store them in a charged state and avoid temperature extremes. Every month or so, it's a good idea to turn the system on, run it awhile, and then charge it back up.

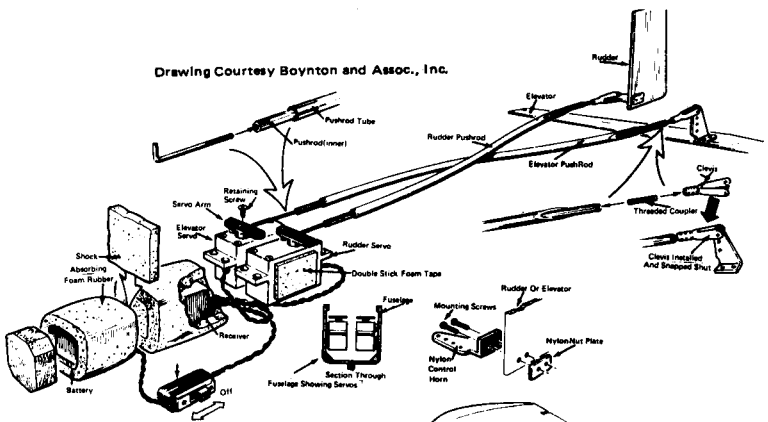
When installing the receiver batteries in the airplane, car, or vessel, always completely wrap them in quality latex foam rubber at least 1/4" thick to absorb shock and vibration. If possible, position the batteries in the craft forward of the receiver and servos. If you don't, their weight can be very destructive in the event of a crash.

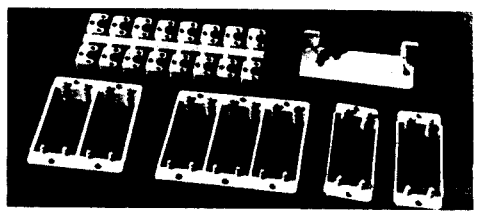
II. Servo Installation

Depending on the size and type of servos you are using and the airplane, car, or boat they are being installed in, there are various ways to install them. One thing to always keep in mind is to use the rubber grommets or pads furnished with the servos; never mount them directly to the airframe or chassis without any vibration protection. Also, plan your installation so the control linkage is as direct and straight as possible.

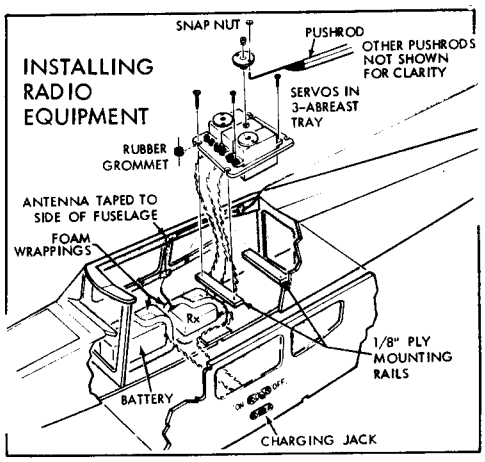
Servos are usually mounted one of three ways: one, in various configurations of servo trays, which are in turn mounted to hardwood rails installed in the fuselage; two, directly to hardwood rails at least 3/8" square; three, with double sided foam servo tape. If you use servo tape, only do so in smaller craft and always coat the surface you're applying the tape to with epoxy to give a good, smooth surface to stick to. The drawings furnished show various techniques for installation.

Remember, always keep the linkage to the surface as straight and free as possible with no bind. Make sure the servo does not stall at any time or the batteries will run down very quickly.

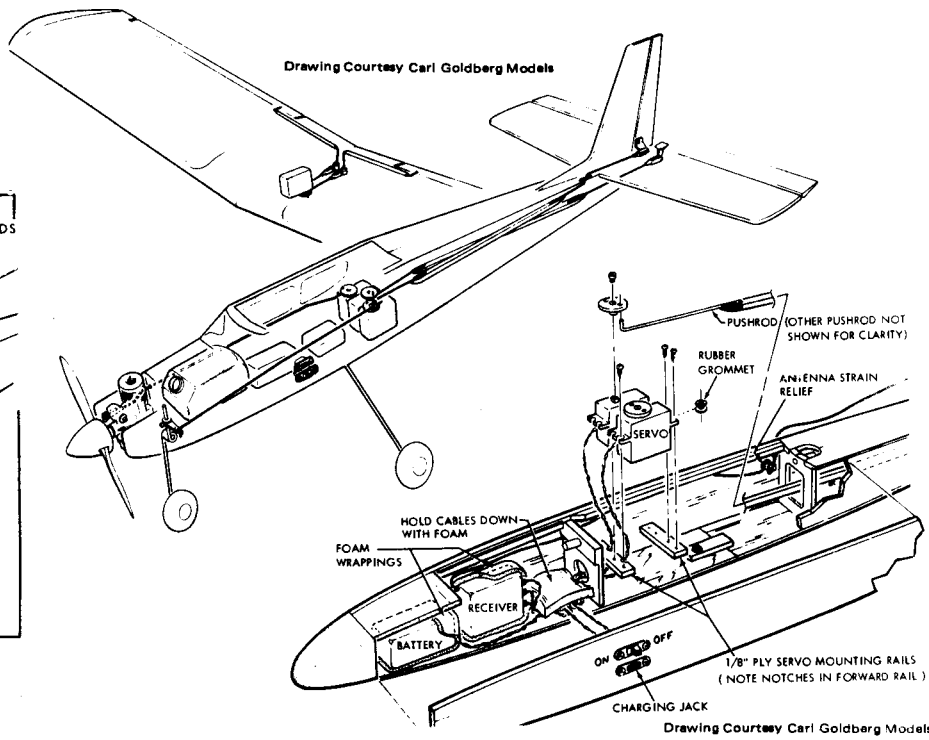




Various Servo Trays Available. Mount on Hardwood Rails in Fuse.



Drawing Courtesy Carl Goldberg Models



Drawing Courtesy Carl Goldberg Models