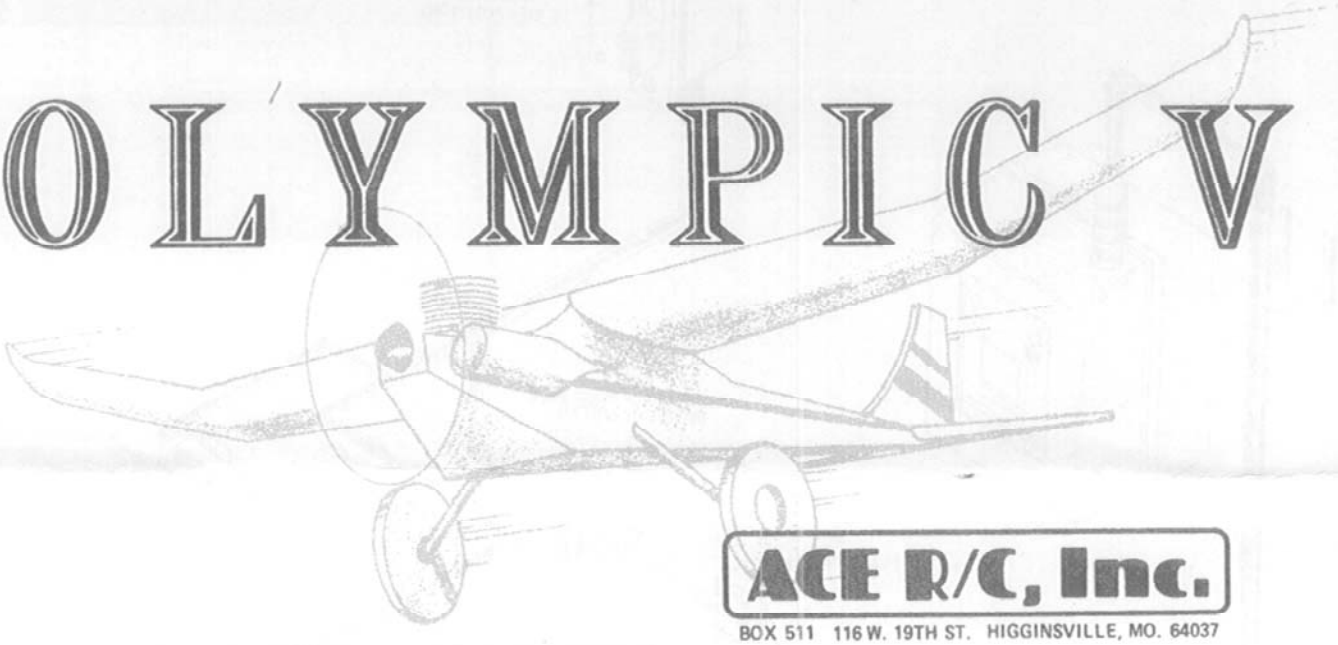
OLYMPIC V



ACE R/C, Inc.

BOX 511 116 W. 19TH ST. HIGGINSVILLE, MO. 64037

OPERATION MANUAL

I. INTRODUCTION

The design emphasis of the Olympic V is to provide a solid, dependable radio system that will give years of trouble-free operation for either a newcomer to R/C, a sport flyer, or a serious competitor. It uses a time proven RF link (the same as in the Silver Seven), sturdy engineering, and sensible, "no-frills" features.

By furnishing the system less servos, you can pick the number, size, and price tag of the servos desired depending on the intended application. Any modern, positive pulse, three wire servo will work.

An FCC licence is not required to operate this unit. It is recommended that the user be a member of the governing body for model aviation, the Academy of Model Aeronautics.

SPECIFICATIONS:

Transmitter

Size: 1 3/4" X 6" X 6 1/2"
Weight: 1.5 lb.
Output: 600 mw nominal
Voltage: 9.6V nominal
Drain: 140 ma ave.
Modulation: AM
Pulse Width: 1.5 ms +/- 0.5
Channels: Four Std., Fifth Option
Servo reversal switches on four channels.
Dual Rate option for Three Chs.

Receiver

Size: 3/4" X 1 11/32" X 2 1/4"
Weight: 1.4 oz.
Voltage: 4.8V nominal
Drain: 10 ma
Sensitivity: Less than 2 microV
Rejection: 6 db
Positive Pulse Output

Batteries

500 ma AA Rechargeable Nickel Cadmium Cells; RX = 4.8V TX = 9.6V

Charger

50 ma @ 4.8V and 50 ma @ 9.6V
110V @ 60 Hz input
LED monitor; Dual Output

R/CMA AMA RF CHECK DATE: 7-84

Made in America

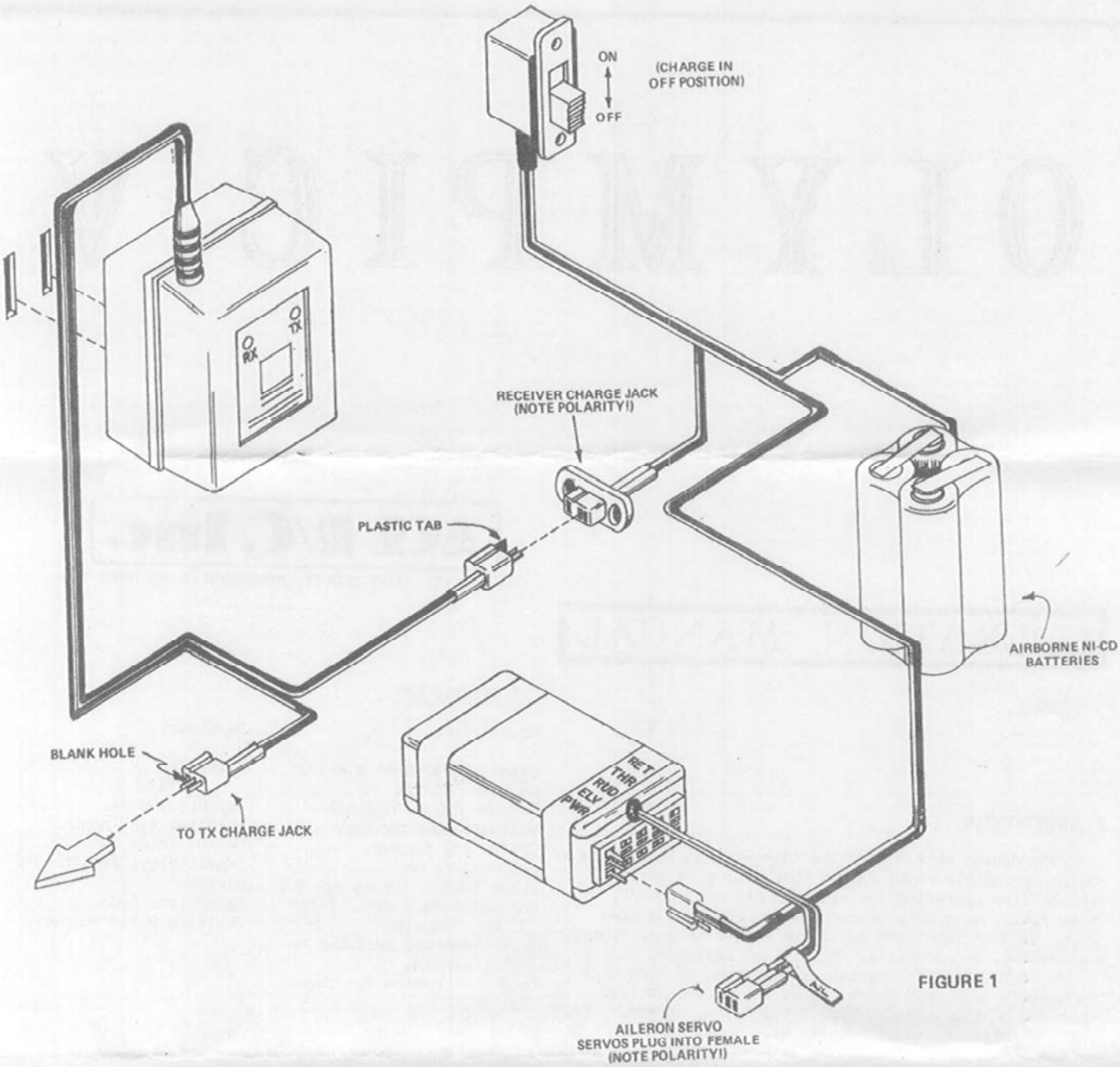


FIGURE 1

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 has a connector with a plastic tab on it and the other has a blank hole with no pin. The one with the plastic tab 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 occuring; if not, make sure the receiver switch is off.

The other charge plug is for the transmitter. Plug it into the transmitter charge jack with blank holes on both connectors lined up, 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 hrs.

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, its a good idea to turn the system on and run it for awhile, then charge back up.

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

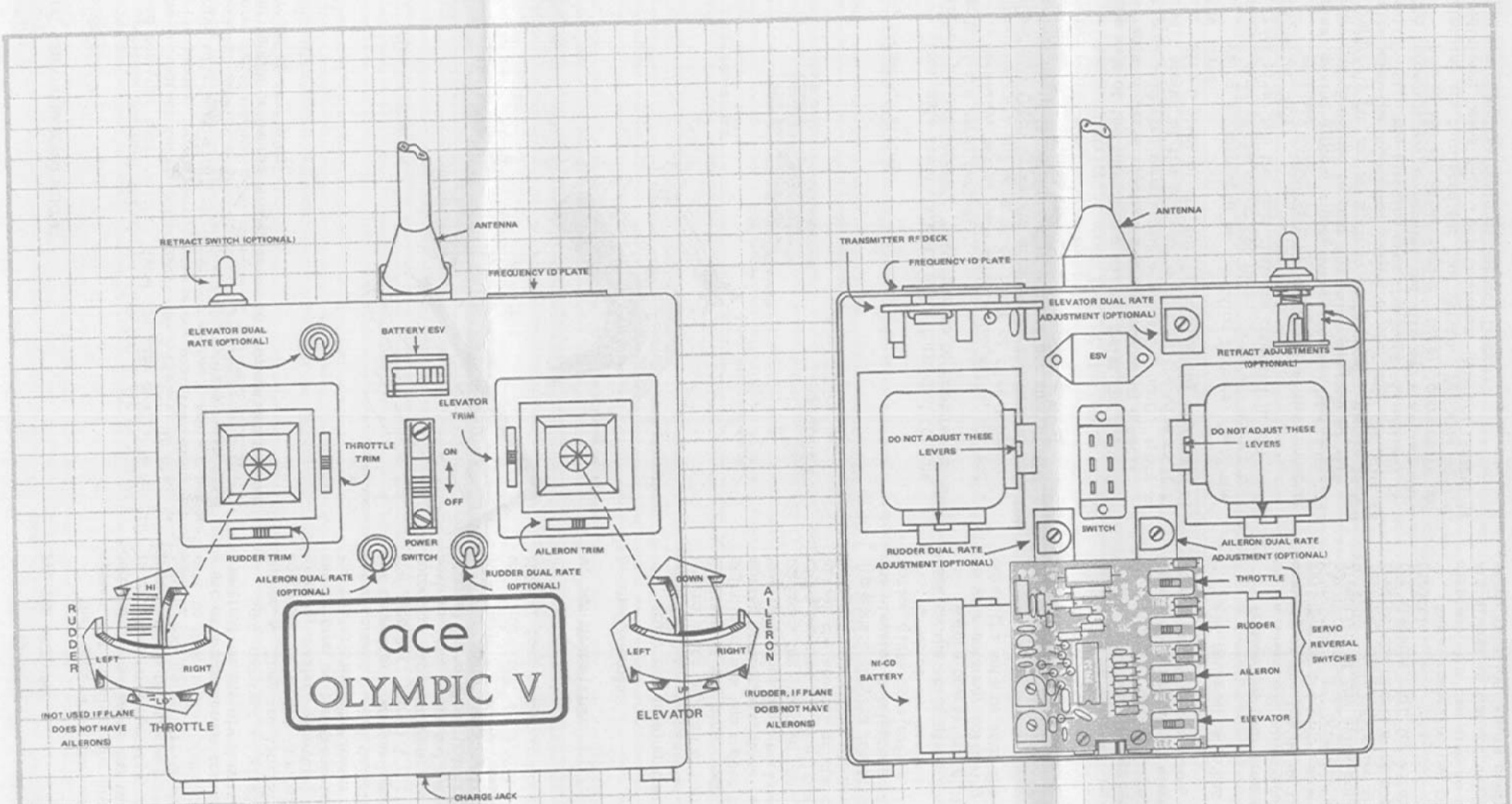


FIGURE 3

OLYMPIC V

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. Let us know if you need a catalog. Our Bantam or Bantam Midget servo is recommended for all around sport flying.

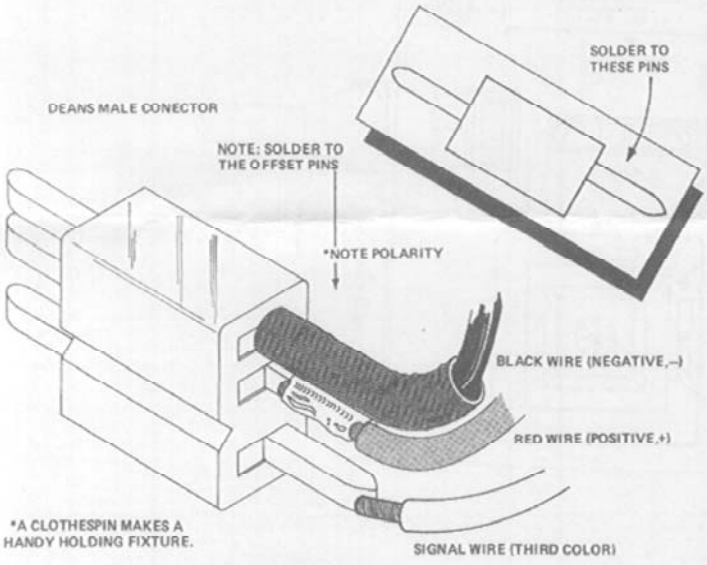


FIGURE 2

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". Wiggle on 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 (Ace P/N 19K20M) if you are using the optional Retract Channel.

IV. THE RECEIVER

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. (If you are an "electronics" type and want to have tuning instructions, send an SSAE requesting a set of instructions for the Silver Seven Receiver; it is identical to the Oly V unit.)

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.

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.

V. THE TRANSMITTER

A. The Controls

Study the drawing that shows the inside and the outside of the transmitter. Note that the right stick controls the aileron and elevator servos (rudder and elevator if the plane does not have ailerons) and the left stick controls the rudder and throttle (the horizontal motion of the left stick is not used if the plane does not have ailerons; i.e., horizontal motion on the right stick controls the function that steers the airplane left and right whether it is ailerons or rudder.) The trim levers affect the neutral of the corresponding function by a small amount so the plane can be trimmed out in flight to accomodate varying conditions. Note that upward motion on the elevator stick produces down elevator and downward motion gives up elevator. If this seems backward to you, just think of the stick in a real plane whereby pulling back on the stick gives up elevator.

Before operation, affix the furnished frequency flag to your antenna, following the instructions with the flag. Screw the antenna onto the transmitter.

B. The Transmitter Battery ESV

Your Olympic V is equipped with an ESV (Expanded Scale Voltmeter) to monitor the battery voltage which is calibrated as follows: as long as the needle is in the green, it is safe to operate. As the needle approaches the large red segment, the voltage has reached a critical level (9.4V) and it is time to recharge the batteries before resuming operation.

C. Servo Reversal Switches

Remove the back from the transmitter by squeezing in on the sides and pulling off the back. Referring to the drawing of the inside of the transmitter, note to four switches on the right side of the printed circuit board facing you. If, upon installation, you find that the direction of the stick motion does not match the control surface motion, flipping the appropriate switch will reverse the dirction of servo travel; they are labeled ELE for elevator, AIL for aileron, RUD for rudder, and THR for throttle.

Servo reversing can be a great aid in setting up an airplane, but can also be a pitfall. BE SURE the switches are always in the correct position by checking for correct servo rotation before every flight.

D. RF Deck

The portion of your transmitter that does the broadcasting and determines the frequency is on a separate board, called the RF deck.

For those with the experience and ability to do so, male Deans connectors can be installed on the board and female Deans connectors on the wires going to the board to make it removeable and interchangeable with other Ace RF decks in order to change frequencies. A pair of 2 pin and 3 pin Deans connectors are required. (Ace P/N 19K53/19K54) A drawing is included to assist you...you will need to drill out the holes in the RF deck to accomodate the male connectors.

NOTE: The RF deck is factory assembled and tuned. An FCC Commercial Second Class license is required to perform any service or retuning.

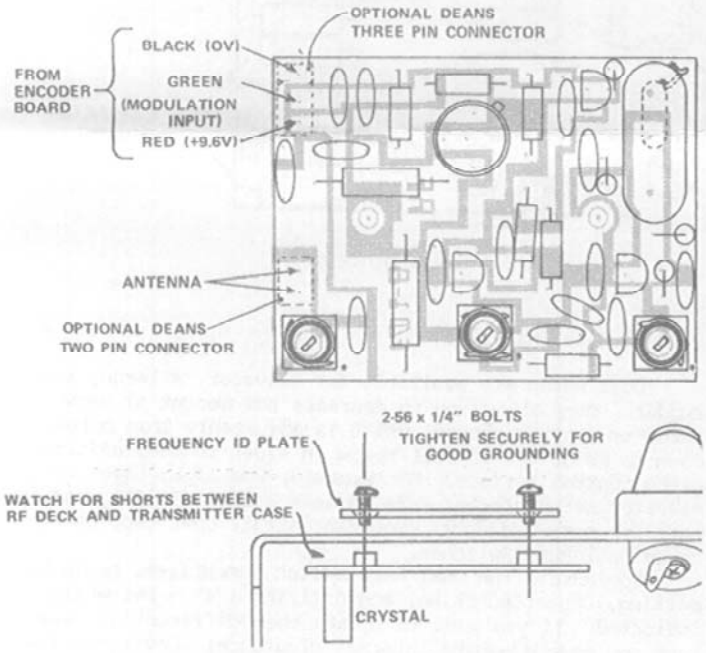


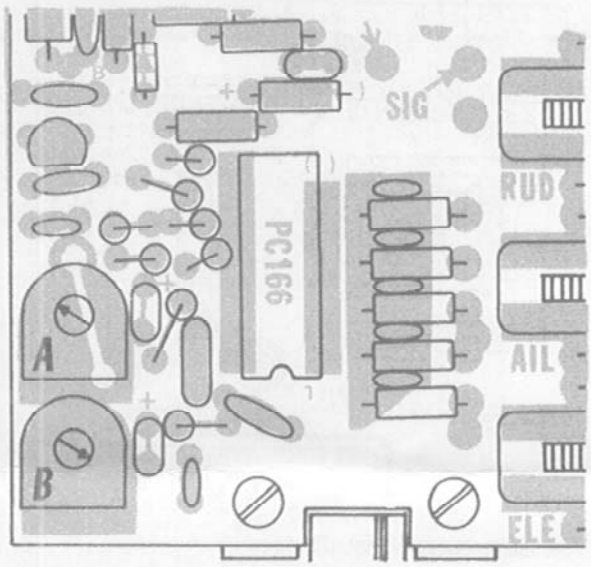
FIGURE 4

E. Throw and Centering Adjustments

Your Olympic V is set up for servo centering and throw to a standard that is most commonly used in R/C today; that is, 1.5 millisecond neutral with Ø.5 ms variation on either side of neutral producing 45 degrees of servo travel, or 9Ø degrees altogether. This is the measurement of the duration of the pulse being transmitted to the individual servos that causes them to do what they're supposed to.

Depending on the servos you have obtained, this standard may or may not be proper. If the servos are not at neutral when the sticks and trims are, it would be best to recenter the servos according to the instructions furnished with them. You may also adjust the centering in the transmitter according to the following instructions. If you don't have approximately 9Ø degrees of travel when the sticks are moved to the extremes (including trims), you'll have to adjust the transmitter; only do so if absolutely necessary. The adjustment pots are marked as to where the arrow on the slot points so you can always return to approximately where you started from.

Note: The following transmitter adjustments will affect ALL the channels, so if only one or two of the servos do not have the proper throw or centering, the adjustment should be done to the servos, not the transmitter. It is best to perform the adjustments with only one servo plugged in to a single output of the receiver, preferable aileron or elevator. Use a non-metallic tuning wand or a 1/8" dowel formed into the shape of a screwdriver blade to make the adjustments. Make these adjustments only if necessary.



TO CHANGE NEUTRAL:

- Gently rotate Pot A either way until the servo is neutralized.
- Move the stick to the extremes and check for proper throw. If needed, perform the following procedure.

TO CHANGE THROW:

- For more travel, rotate Pot B a few degrees clockwise; counterclockwise for less travel.
- Recenter the servo using Pot A.
- Check for proper throw and repeat as necessary.

Remember, these adjustments interact. Work a little at a time, always following the above procedure. The factory setting of the pots is marked, so you can always return to about where you started from.

If you have trouble, try to obtain an Ace Datamaster Digital Pulse Meter. It is a good instrument to measure in numerical terms what you are doing here. Refer to its instructions for further details.

VI. INSTALLING THE RETRACT AND DUAL RATE OPTIONS

A. Introduction

Installation of the Retract Channel and Dual Rates is optional and the units are available from your Ace dealer or direct from the factory under the following part numbers:

20G1Ø Oly V Retract Option
20G15 Oly V Dual Rate Option, ea.

Installation of these options requires some drilling on the transmitter case and some soldering according to the following instructions. You will need a 1/4" drill and a small tipped soldering pencil (dual rates only.) DO NOT use a soldering gun! We show a suggested location for the options; if you wish, these locations can be varied according to your personal preference, depending on internal clearance available.

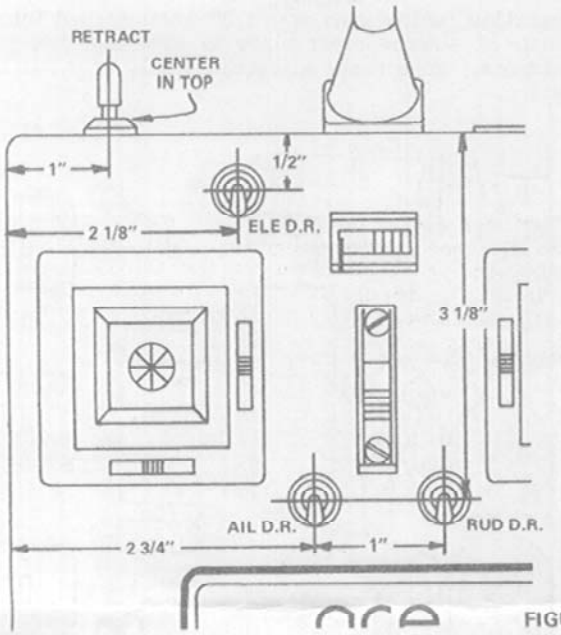


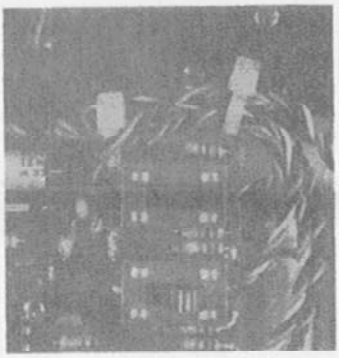
FIGURE 5

B. Retract Option Installation

Mark, center punch, and drill a 1/4" hole in the position indicated. It is best to cover the area with masking tape so your marks are not left on the vinyl material. Carefully de-burr and remove ALL shavings from the inside of the transmitter case.

Mount the Retract Switch Assembly in the case using the hardware furnished in the following sequence: Switch, Nut, Lockwasher, Case, Dress Nut. Use a wrench on the small flats ot the dress nut and carefully tighten securely while the assembly is oriented as shown.

Route the wire cable over to the main PC board, keeping it on the right side of the rudder/throttle stick as you face the inside. Note the location on the board that has three mini-sockets labeled: "+", "-", and "SIG". Remove the jumper between "-" and "SIG". With the wires routed to the top of the board, plug the black wire from the Retract Assembly into the socket labeled "-", the red wire into "+", and the blue wire into "SIG".



Use a nylon tie to secure this cable to the existing bundle of cables coming from the PC board. Tighten the tie down so there is no strain on the plug-in connections and the wires are dressed neatly.

C. Retract Adjustment

If you find it necessary to adjust the servo travel on the Retract Channel, there are two pots on the Retract Assembly. One provides servo adjustment when the switch is in one position and visa versa. The drawing shows which pot affects which switch position. Such adjustment would be necessary only if you are using a proportional type retract servo.

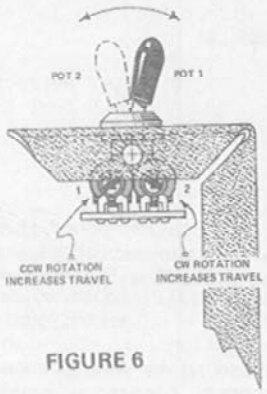


FIGURE 6

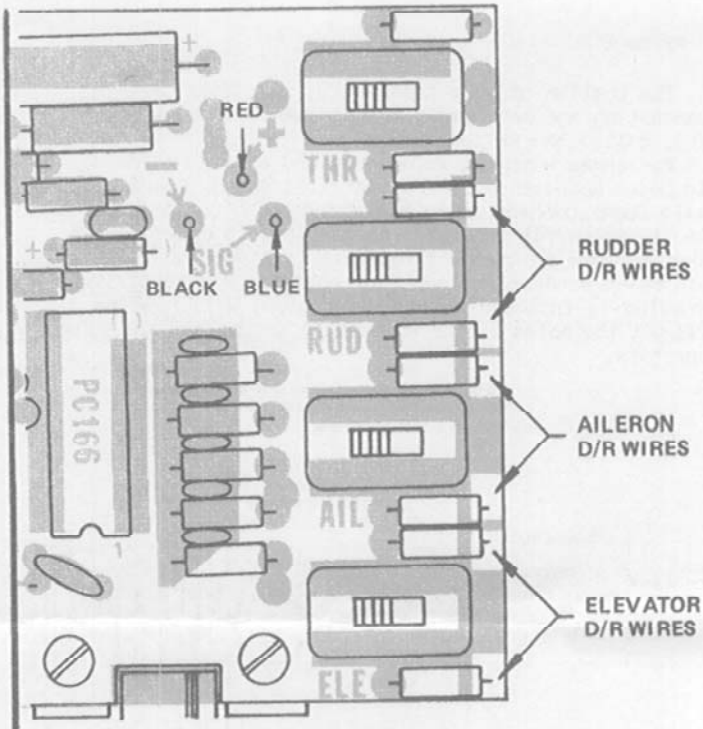


FIGURE 7

D. Dual Rate Installation

Dual Rates are available for elevator, aileron, and rudder. They allow you to decrease the amount of servo throw on a given channel which is adjustable from normal down to about 40% of full throw in order to de-sensitize a given control surface. For example, you might have elevator set up for HI rate on take off and landing and LO rate for normal flight. You can install one; two, or three Dual Rate Switches.

To install the Dual Rate switch assemblies, begin by marking, center punching, and drilling 1/4" holes where indicated. If you want to locate them differently, make sure you have adequate internal clearance! Cover the area where you're drilling with masking tape to protect it. De-burr and remove ALL shavings from the inside of the case.

Mount the Dual Rate Switch Assemblies with the hardware furnished in the following order: Switch, Nut, Lockwasher, Case, Dress Nut. Use a wrench on the small flats of the dress nuts and secure the assembly in place so its square in the case and "PC 168" reads correctly.

Route the wire cable(s) over to the right end of the main PC board. Nylon ties are furnished to allow you to neatly bundle the cables...keep them away from the RF deck, if possible.

Now the ends of the two wires from each Dual Rate Switch Cable need to be soldered to the pads on the top of the main PC board. Refering the the drawing, identify the proper pads for the cable you are working with and solder the two wires to the two pads; either wire can go to either pad. The pads and wires are "tinned" so no additional solder should be required. Repeat for any other Dual Rate Assemblies you're working with.

E. Dual Rate Adjustment

The pot on the Dual Rate Assembly PC board adjusts the amount of travel experienced when the switch is in the LO position (downward). Rotate the pot clockwise to decrease the amount of throw; it is adjustable from about 95 to 40% of normal throw. You have to remove the back to adjust the Dual Rates.

VII. EQUIPMENT INSTALLATION

A. Battery

The airborne batteries should always be completely wrapped in a good quality latex foam rubber, at least 1/4" thick to absorb shock and vibration. If possible, position the batteries in the airplane forward of the receiver and servos. If you don't, their weight can be very destructive in the event of a crash.

The switch and charge jack can be mounted in the side of the fuselage using the hardware and cover plates furnished. Always be sure to mount them on the side opposite the engine exhaust to keep oil out of them. Make sure the switch operates freely and can be turned completely on and off. A Dubro Kwik Switch Mount is a handy device to mount the switch and requires only the drilling of a hole in the fuse side.

B. Receiver

As with the batteries, wrap the receiver in at least 1/4" foam rubber. Make sure the power and servo connectors stay plugged in securely and are not under strain.

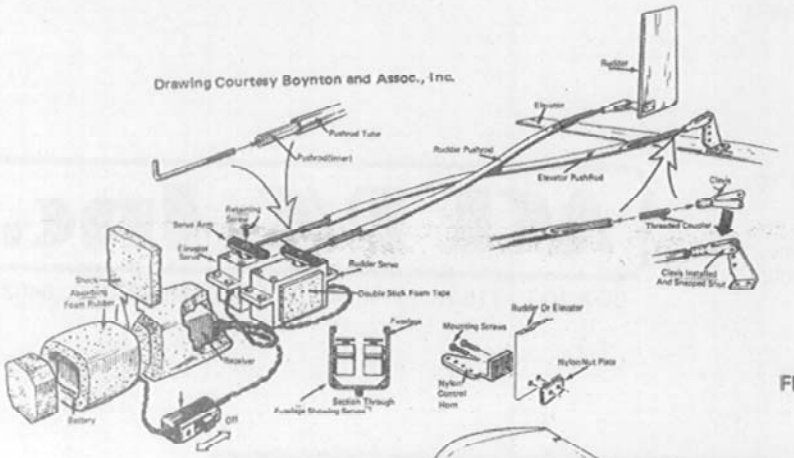
Route the antenna wire as straight as possible and as far away as possible from the power/servo leads or any metallic pushrods or flying wires. Don't coil the antenna or double the antenna back on itself. If it's too long for you plane, let it trail out the tail. Don't have a lot of tension on the antenna 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 No. 26 gauge stranded wire so the total length is 36".

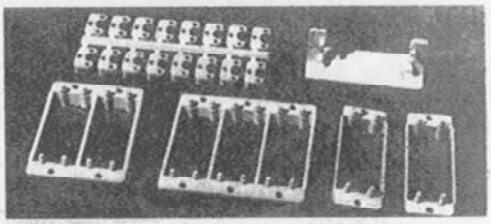
C. Servos

Depending on the type and size of the servos you're using and the airplane they're being installed in, there are various ways to install the servos. 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 without any vibration protection. Also, plan your installation so the linkage is as direct and as straight as possible to the control surface.

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

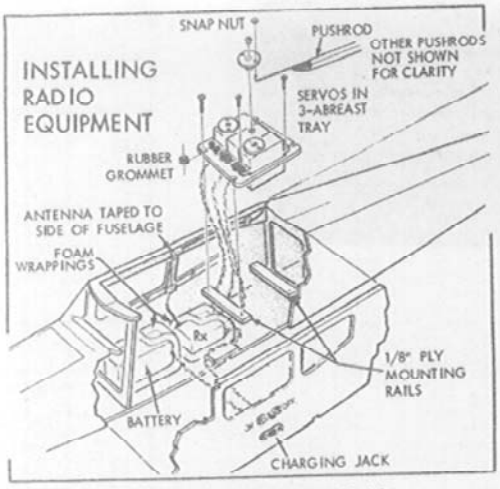
Always keep the linkage to the surface as straight and free as possible with no bind. Make sure the servo does not stall at any time or the batteries will run down very quickly.



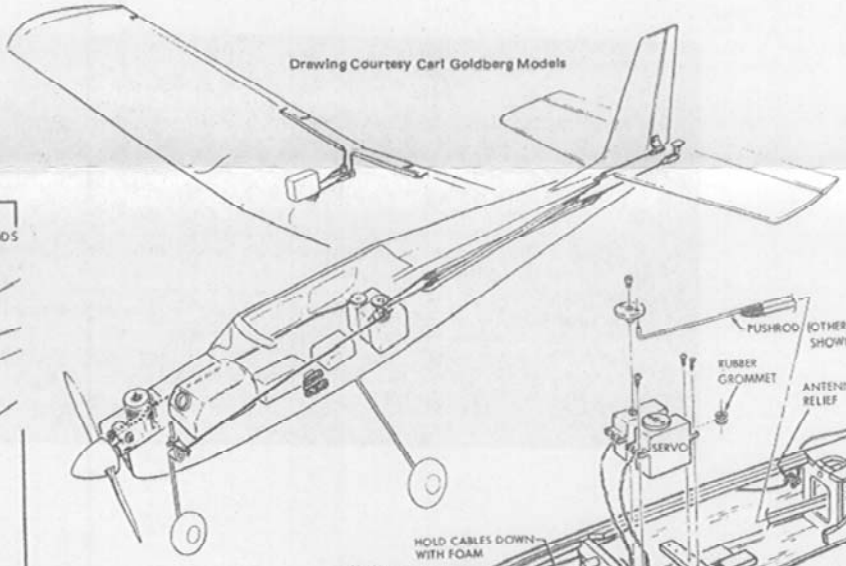


Various Servo Trays Available. Mount on Hardwood Rails in Fuse.

FIGURE 8



Drawing Courtesy Carl Goldberg Models



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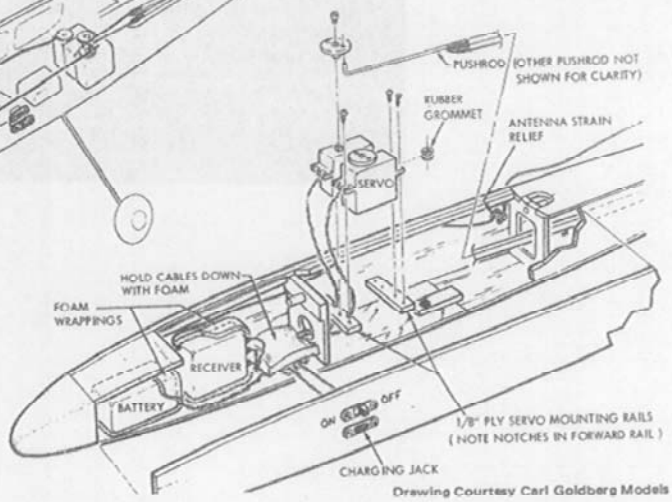

Drawing Courtesy Carl Goldberg Models

D. 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 150 ft. 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.

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.

VIII. CLEANING THE TRANSMITTER

The white transmitter case is like a black car. It looks great when its clean but gets dirty quick.

We have found Armorall or 409 cleaner to work best. On stubborn spots, use denatured alcohol. Some of the cleaners/treatments for car vinyl tops will do the job, too. The best thing is to not let the dirt and grime stay on too long; clean the case regularly.

If you are really concerned about keeping your unit clean, fabricate a cloth bag to transport it around in.

IX. WARRANTY AND SERVICE

If your Oly V fails to operate properly, refer to the enclosed sheet on Service Policies. Under normal circumstances, your Olympic V should give you years of dependable service. We hope you enjoy this system and let us know your ideas and comments.

ACE R/C, Inc.

BOX 511 116 W. 19TH ST. HIGGINSVILLE, MO. 64037

WARNING AND DISCLAIMER
PLEASE READ

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 herein 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 will not give refunds on any kits once assembly has begun.