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**AIRTRONICS<sup>®</sup> INC**

# **INFINITY 600A**

RADIO SYSTEM OPERATION MANUAL



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## INTRODUCTION

Thank you for selecting an Airtronics Infinity 600A Radio System. In designing the Infinity we have made every effort to provide you with a radio that will allow you to extract the maximum performance from your airplane while at the same time simplifying the task of setting up and adjusting your model.

These instructions are written in great detail to help you understand what your Infinity's capabilities are. Because of the many features of the Infinity, this manual is quite long. Don't be intimidated! To actually use the ATRCS (Pronounced A-Tracks) system, you only need to read the section titled LEARNING TO USE THE ATRCS SYSTEM which begins on page 9. The balance of this book is made up of material to help you get the most from your Infinity. You won't have to read the entire manual just to fly your model!

We once again would like to say how much we appreciate your selection of an Airtronics System and wish you many hours of flying enjoyment.

## R/C SAFETY

"SAFETY FIRST!" is not just a slogan when it comes to radio controlled models. The key to R/C pleasure is the proper use of your radio system and all other modeling components. If you fail to follow instructions, fail to heed the warnings given, or fail to install and operate your system according to the instructions provided with the unit the result may be the partial or total destruction of your system and injury to yourself or to the person or property of others.

For your own safety and the safety of others you must recognize that radio controlled models are not harmless toys and can become dangerous missiles if carelessly or improperly flown.

**REMEMBER THAT YOU ARE RESPONSIBLE FOR THE SAFETY OF ALL SPECTATORS AND MAY BE HELD LIABLE FOR ANY DAMAGE OR INJURY CAUSED BY YOUR MODEL.**

Radio control equipment and models are generally attractive, inviting, and exciting in looks and

performance. Realize that young people and inexperienced adults may try to operate the equipment without understanding the dangers to themselves or others. It is your responsibility to guard against unknowing hands for their protection as well as for the safety of your equipment and model.

**ALWAYS INSTALL YOUR RADIO CONTROL SYSTEM CORRECTLY, MAINTAIN IT PROPERLY AND BE CERTAIN THAT YOU CAN FLY WELL ENOUGH TO CONTROL YOUR AIRCRAFT AT ALL TIMES.**

**DO NOT FLY** where your model could injure any person or property.

**DO NOT FLY OVER THE HEADS OF SPECTATORS OR PERSONS IN THE AREA OF YOUR FLYING FIELD.** This includes taking off, actual flight and landing. Keep everyone, except experienced and knowledgeable persons who are assisting you in flying, away from your model even when it is on the ground and you are preparing to fly.

**DO NOT FLY** unless an experienced instructor has completely checked over your model and radio installation and test flown the model for you.

**DO NOT FLY** if you are a newcomer to R/C unless you have an experienced instructor who will fly with you until you have learned to fly competently by yourself.

**DO NOT FLY** in adverse weather conditions. Strong winds, for example, may cause loss of control of your aircraft leading to injury or damage to yourself or others.

**DO NOT FLY** unless your frequency is clear. Only one person can use each frequency at a time.

**WARNING: IF YOU DELIBERATELY OR ACCIDENTALLY TURN ON YOUR TRANSMITTER WHILE ANOTHER MODEL IS FLYING, THAT MODEL WILL GO OUT OF CONTROL.**

## **ACADEMY OF MODEL AERONAUTICS**

**1810 Samuel Morse Drive, Reston, VA 22090**

The Academy of Model Aeronautics (AMA) is the national organization representing modelers in the United States. We urge you to examine the benefits of membership, including liability protection in the event of certain injuries. The Academy has adopted simple and sane rules which are especially pertinent for radio controlled flight as the OFFICIAL AMA SAFETY CODE, which we have partially reprinted below:

1. I will not fly my model in competition or in the presence of spectators until it has been proven to be airworthy by having been previously successfully flight tested.
2. I will not fly my model higher than approximately 400 feet within 3 miles of an airport without notifying the airport operator. I will give the right of way to and avoid flying in the proximity of full scale aircraft. When necessary, an observer shall be utilized to supervise flying to avoid having models fly in the proximity of full scale aircraft.
3. Where established, I will abide by the safety rules for the flying site I use, and I will not willfully and deliberately fly my models in a careless, reckless, and/or dangerous manner.
4. I will have completed a successful radio equipment ground range check before the first flight of a new or repaired model.
5. I will not fly my model aircraft in the presence of spectators until I become a qualified flyer, unless assisted by an experienced helper.
6. I will perform my initial turn after take off away from the pit or spectator areas, unless beyond my control.
7. I will operate my model using only radio control frequencies currently allowed by the Federal Communications Commission. Only properly licensed amateurs are authorized to operate equipment on amateur band frequencies.

## **FEDERAL AVIATION ADMINISTRATION**

The Federal Aviation Administration has announced guidelines for operation of model aircraft. We are reprinting these guidelines here and encourage you to study and follow them.

1. Purpose: This advisory circular outlines safety

standards for the operators of model aircraft and encourages voluntary compliance with these standards.

2. Background: Attention has been drawn to the increase in model operations, and the need for added caution in the case of free flight and radio controlled types to avoid creating a noise nuisance or a potential hazard to full-scale aircraft and persons and property on the surface.

3. Operating Standards: Modelers, generally, are concerned about safety and do exercise good judgment when flying model aircraft. However, in the interest of avoiding undue criticism from affected communities and airspace users, COMPLIANCE WITH THE FOLLOWING STANDARDS IS ENCOURAGED BY OPERATORS OF RADIO CONTROLLED AND FREE FLIGHT MODELS.

- A. Exercise vigilance for full scale aircraft (get other people to help if possible) so as not to create a collision hazard.

- B. Select an operating site at a sufficient distance from populated areas to avoid creating a noise problem or potential hazard.

- C. Do not fly higher than 400 feet above the surface.

- D. Do not operate closer than three miles from the boundary of an airport unless permitted to do so by the appropriate air traffic control facility in the case of an airport for which a control zone has been designated, or by the airport manager in the case of other airports.

- E. Do not hesitate to ask for assistance in complying with these guidelines at the airport traffic control tower, or air route center nearest the site of the proposed operations.

## **A FINAL NOTE ON SAFETY**

**The basic safety precautions outlined above are for your safety, the safety of others, and the safety of your equipment. Consider carefully all of what has been stated and obey all precautions in this manual, as well as any others appropriate to your particular activity. And remember that good common sense must also be used at all times during the operation of your equipment.**

## R/C FREQUENCIES

Every radio control system operates on a particular frequency. There are sixty eight frequencies currently available for radio control aircraft use, but only one model can be flown on a single frequency at any time. Before turning on your equipment at the flying site, be sure that no one else is currently flying or operating on your frequency.

**IF YOU DELIBERATELY OR ACCIDENTALLY TURN ON YOUR TRANSMITTER WHILE ANOTHER MODEL IS FLYING OR IN OPERATION, THAT MODEL WILL GO OUT OF CONTROL.** The same will happen to your model if someone turns on while you are flying, so it is very important that everyone who operates radio equipment get in the habit of clearing their frequency before turning on.

Frequencies which are used for radio controlled models are assigned two digit Channel Numbers to make identification easier. The 72 MHz Band and 6 Meter Band Channel Numbers and the frequencies associated with them are listed in the table below.

**WARNING:** The 72 MHz frequencies are allocated for Model Aircraft use, and are exclusive; however, they are in close proximity to other types of radio use in certain areas. Before operating your model, check with the Federal Communication Commission (FCC) Regional Office in your area to determine whether there is potential danger of interference from other radio users. If a club or other modelers fly at your flying site, check with them to see if there are any frequencies that are known to have interference problems at that site.

**NOTE:** The 6 Meter Band frequencies require that you have a Technician License from the FCC in order to legally use them. To receive information on how to obtain this License, contact the FCC Regional Office in your area.

**YOUR AIRTRONICS RADIO MEETS AND EXCEEDS ALL PUBLISHED REGULATIONS AND GUIDELINES CONCERNING THE PERFORMANCE OF R/C EQUIPMENT. IT IS YOUR RESPONSIBILITY TO BE SURE THE AREA WHERE YOU OPERATE YOUR EQUIPMENT IS FREE FROM OUTSIDE INTERFERENCE. AIRTRONICS CAN NOT BE HELD RESPONSIBLE FOR DAMAGE TO EQUIPMENT OR PERSONS CAUSED BY A LOSS OF CONTROL DUE TO RADIO INTERFERENCE.**

**REMEMBER THE FOLLOWING POINTS FOR PROPER FREQUENCY USE:**

**DO NOT OPERATE** your transmitter at the field until you are certain your frequency is clear.

**DISPLAY** your channel identification plaques on the antenna of your transmitter.

**REMEMBER** that channel identification plaques can be hard to read or improperly displayed. Ask to be certain of a fellow modeler's frequency. If you have an eyesight limitation, double check to be sure of channel plaque designations.

**FOLLOW** any and all frequency control procedures in place at your flying site.

**LAND** as soon as is safely possible if you sense, feel or observe any erratic operation or abnormality in your model's operation.

72 MHZ BAND									
Ch	Freq	Ch	Freq	Ch	Freq	Ch	Freq	Ch	Freq
11	72.010	21	72.210	31	72.410	41	72.610	51	72.810
12	72.030	22	72.230	32	72.430	42	72.630	52	72.830
13	72.050	23	72.250	33	72.450	43	72.650	53	72.850
14	72.070	24	72.270	34	72.470	44	72.670	54	72.870
15	72.090	25	72.290	35	72.490	45	72.690	55	72.890
16	72.110	26	72.310	36	72.510	46	72.710	56	72.910
17	72.130	27	72.330	37	72.530	47	72.730	57	72.930
18	72.150	28	72.350	38	72.550	48	72.750	58	72.950
19	72.170	29	72.370	39	72.570	49	72.770	59	72.970
20	72.190	30	72.390	40	72.590	50	72.790	60	72.990

6 METER BAND		
Ch	Freq	Freq
00	50.800	53.100
01	50.820	53.200
02	50.840	53.300
03	50.860	53.400
04	50.880	53.500
05	50.900	53.600
06	50.920	53.700
07	50.940	53.800
08	50.960	
09	50.980	

# GETTING FAMILIAR WITH YOUR INFINITY

## PACKAGING

The packaging of your Airtronics Infinity has been especially designed for the safe transportation and storage of the radio's components. After unpacking your radio, **DO NOT DISCARD THE CONTAINERS**. You should set the packaging aside for use if you ever need to send your radio in for service or to store your radio in if you do not plan to use it for an extended period of time.

## BATTERY CHARGING

The first thing you should do after unpacking your Infinity is to charge the transmitter and receiver batteries. The charging procedure is completely explained in Section IV, page 9 of the **INSTALLATION FUNDAMENTALS AND GUIDELINES MANUAL** included with your radio.

## AIRBORNE COMPONENTS

While the system's batteries are charging, you can familiarize yourself with the airborne portion of your radio. The airborne portion of the radio refers to any components which are mounted in your plane and carried aloft when you fly. The airborne components consist of the receiver, which receives the signals from the transmitter, decodes them, and relays the commands to the servos; the servos, which are simply motors used to move the controls of the plane; the battery pack, which provides power for the receiver and servos to operate; and the switch harness which allows you to turn the airborne package on and off.

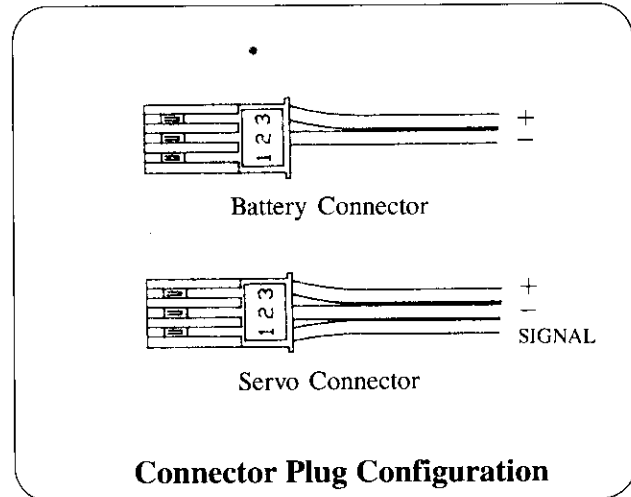
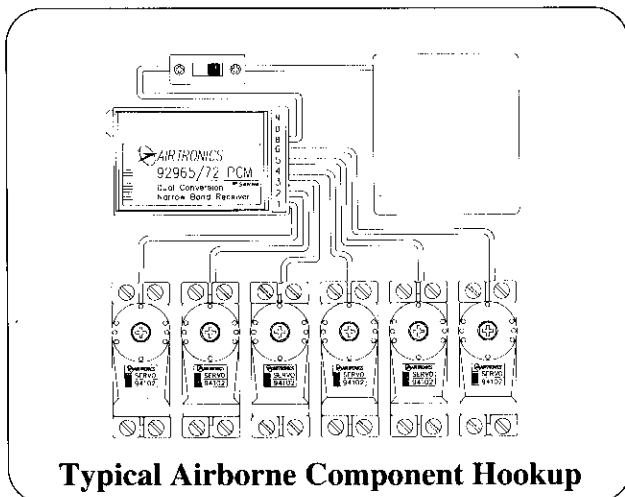
## PCM RECEIVER LOW VOLTAGE ALARM

The PCM receiver for the Infinity 600A has the ability to warn you when the airborne battery pack voltage drops below 4.1 volts. When the airborne battery hits this voltage, the throttle servo will move to the low throttle position for 0.5 seconds, and then return to normal. This cycling of the throttle will occur once each minute until you land and recharge the battery.

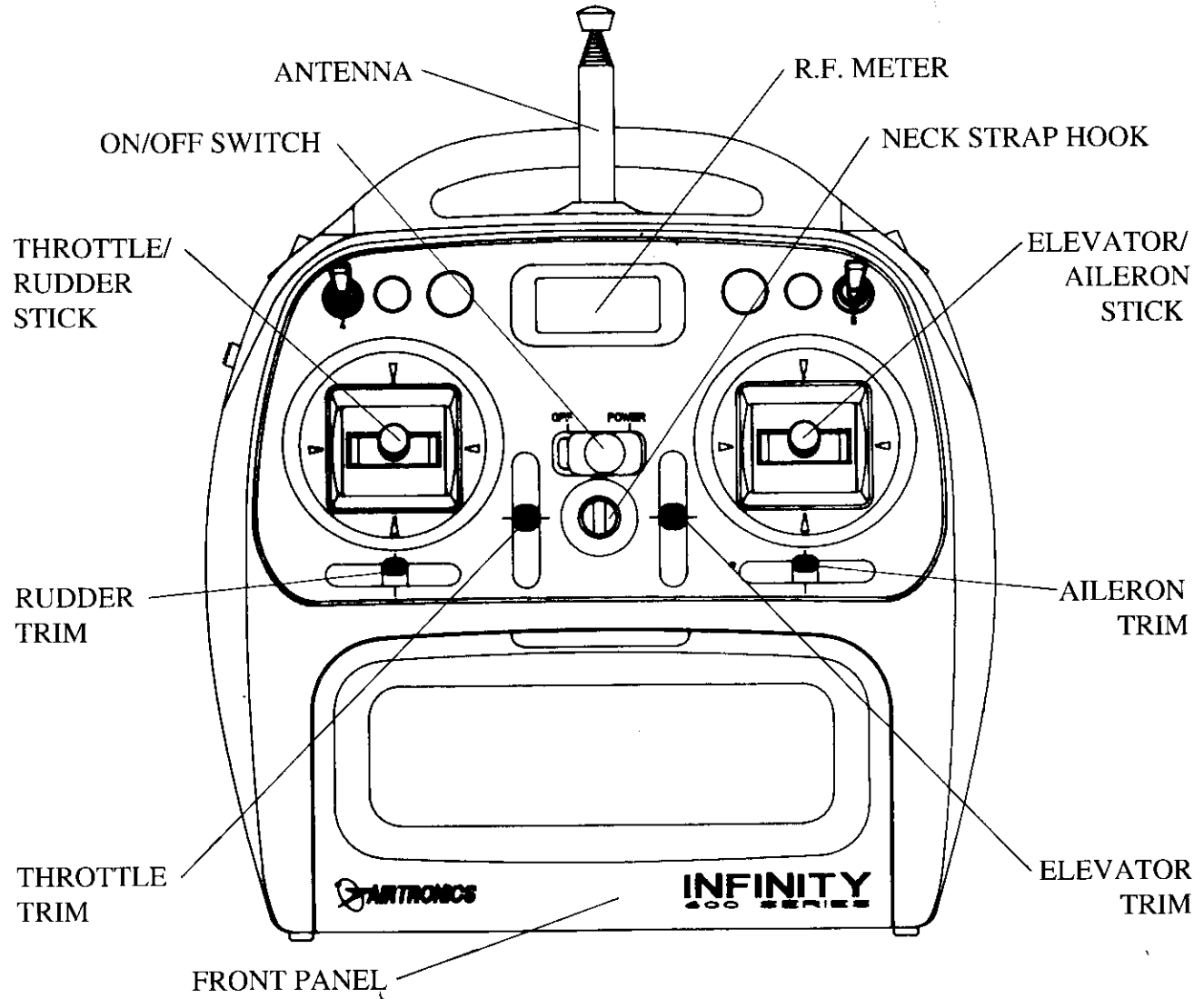
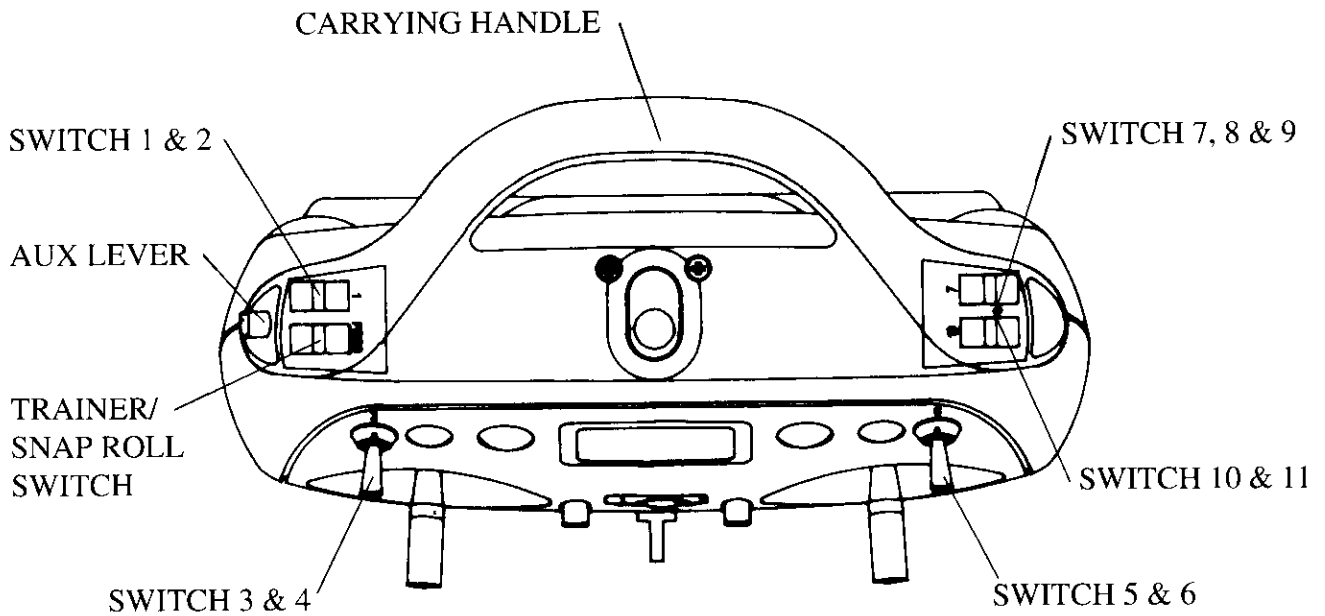
If you wish to disable the Low Voltage Alarm, remove the two white jumper plugs that are plugged into the end of the receiver in the slots marked N and D. Be careful not to lose the plugs, as they will have to be reinserted if you wish to use the Alarm feature in the future.

## CONNECTORS

The connectors on your Airtronics System are rugged but should be handled with care. There are three socket contacts in the servo connector, numbered 1 through 3. The #1 is the signal pin, #2 is negative and #3 (Red) is positive. The Plug configuration is shown below. If you are using an FM or PCM receiver where the connectors are plugged into the end of the receiver, be certain that the #3 pin is toward the bottom of the receiver. When you are using the FM 6 channel receiver where the connectors plug into the top of the receiver, the #3 pin should be toward the outside edge of the receiver. Do not attempt to force the plug into the receiver; properly align each servo plug and it will move into place.



# TRANSMITTER CONTROL LAYOUT



## **TRANSMITTER FEATURES AND ADJUSTMENTS**

### **TRANSMITTER R.F. METER**

The meter on the front of the Infinity reads R.F. Current and is an indication of the strength of the signal the unit is sending and the state of charge of the transmitter battery.

With the transmitter antenna fully extended the meter will read in the upper portion of the silver section on the meter face. If the meter reads in the orange portion it indicates that the signal has weakened and the battery is marginally discharged. A reading in the red indicates that the signal is very weak and the battery is discharged below an acceptable level.

When the transmitter has just been fully charged and the antenna is extended you should get a reading in the high silver. Make a note of where the needle moves to after a full charge. If in the future there is a substantial change in the position the needle assumes right after a full charge it may be an indication of a drop in battery performance and the unit should be returned to Airtronics for inspection. If you get a reading in the red or orange after a full charge it is an indication of defective cells and the battery should be replaced.

If there is no movement of the meter when the transmitter is first turned on the battery is most likely completely discharged. Charge the battery pack as described in Section IV of the **INSTALLATION FUNDAMENTALS AND GUIDELINES MANUAL**.

After approximately 15 minutes of operation the reading will drop to the lower portion of the silver. This is normal, since the battery in the transmitter will actually be higher than 9.6 volts when first taken off charge. The meter is calibrated so that a 9.6 volt reading is in the lower portion of the silver area.

**DO NOT ATTEMPT TO OPERATE A TRANSMITTER UNLESS THE METER READS IN THE SILVER WITH THE ANTENNA FULLY EXTENDED. IF YOU NOTICE THE METER READING HAS DROPPED INTO THE ORANGE WHILE FLYING, LAND IMMEDIATELY. A TRANSMITTER WHOSE PERFORMANCE**

**HAS DROPPED MAY NOT SEND THE SIGNALS REQUIRED TO ADEQUATELY AND SAFELY CONTROL THE MODEL RESULTING IN A POSSIBLE CRASH.**

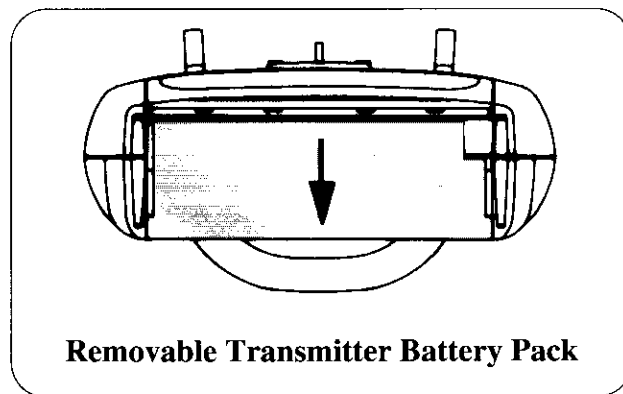
### **AUDIO LOW VOLTAGE ALARM**

Your Infinity is equipped with an Audio Alarm which will sound whenever the transmitter batteries drop below 9.59 volts during transmitter operation. If the alarm sounds while you are flying, land immediately and don't operate the transmitter until it has been charged for 12 hours. The transmitter should normally operate for ninety to one hundred twenty minutes before the alarm sounds. If the alarm sounds even after the batteries have been on charge for the required time it indicates that there is a problem with either the battery pack or the transmitter, and you should contact Airtronics about service.

### **PLUG-IN TRANSMITTER BATTERY**

The battery pack in your Infinity is a self contained unit and can easily be removed and replaced with a fully charged pack to extend the operating time. The Infinity has a non-volatile memory, which means the program does not require any battery power or backup batteries to remember the settings you have programmed into the radio, so unplugging the battery and switching to a fresh pack will not cause you to lose any information. Additional packs are sold separately as an accessory item under the Airtronics P/N 95017.

To remove the pack, push the pack straight out the back of the transmitter until it clears the rails molded into the transmitter case. Reverse the procedure to replace the pack.



**Removable Transmitter Battery Pack**

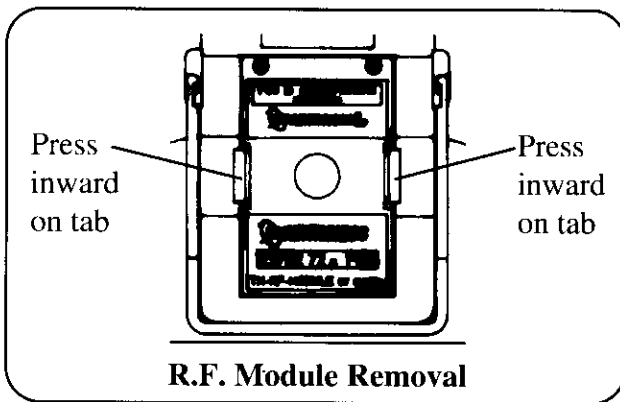


## TRANSMITTER R.F. MODULE

The operating frequency of the Infinity transmitter is controlled by the R.F. Module plugged into the back of the unit. If you wish to change the frequency of your unit you will have to change this entire Module. **Individual transmitter crystals can not be changed.**

If you change the R.F. Module you will obviously have to change the frequency of your receiver to match the new transmitter frequency. **We strongly recommend that you send the R.F. Module and receiver to Airtronics' Service Center to be precisely tuned to each other any time you make a frequency change.** If you do not wish to send the components to Airtronics for tuning make a very careful ground range check to be sure you have the same ground range on the new frequency as you did on the radio's original frequency. If there is any loss of range the components should be sent to Airtronics for alignment.

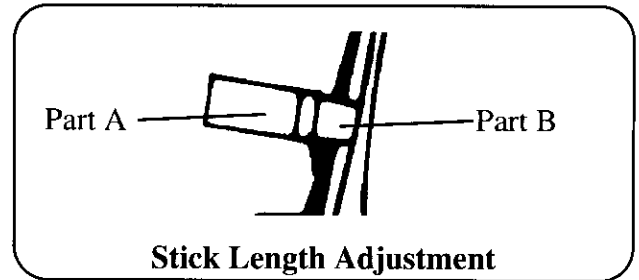
Removing the R.F. Module is rapidly and easily done. Press in the two locking tabs on either side of the Module and lift out. Be sure to lift the Module straight out from the unit, always parallel to the transmitter case to keep from bending the multi-pin connector on the upper edge of the Module. To replace the Module, drop it in place, again being sure to keep it parallel to the case, and press it into position until the two tabs snap into place.



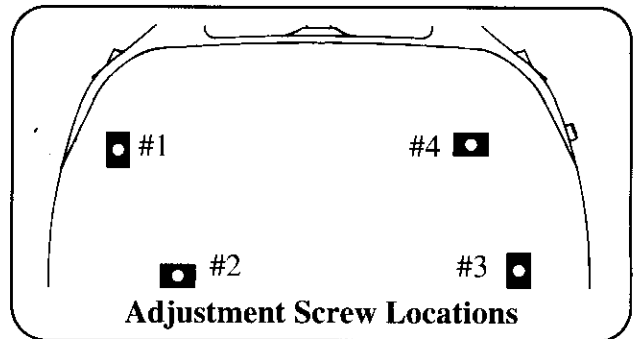
## CONTROL STICK ADJUSTMENT

The sticks in your Infinity are adjustable in length and spring tension to allow you to tailor their feel to your personal preference. To adjust the length, hold Part B with the fingers and unscrew Part A counterclockwise to loosen the two pieces. Now

screw Part A in or out to the desired position, and lock it in place by screwing Part B against it. It is best to leave at least four threads inside Part A when screwed out to its longest length for the best mechanical security. Do not overtighten when you screw the two parts together.



To adjust the spring tension of the sticks you need to take off the back of the transmitter. First unplug the R.F. Module and battery pack. Remove the four screws that hold the case back in place, two on the back near the top of the transmitter and two on the bottom near the rear edge of the case. Once the screws are removed swing the back of the case away from the transmitter, being careful of the trainer plug wiring.



There are four locations for the stick adjustment screws. Your Infinity will only have three screws installed because the stick controlling the throttle is ratcheted and has no tension adjustment. The #1 and #3 screws adjust the tension for the vertical motion of each stick. The #2 and #4 screws adjust the tension for the horizontal motion of each stick.

To make the tension adjustment, use a small Phillips type screwdriver to turn the adjustment screws. Turning the screw clockwise will increase the stick tension, turning it counterclockwise will decrease the tension.

Once you have completed the adjustment, replace the case back and install the R.F. Module and battery pack.

## LEARNING TO USE THE ATRCS SYSTEM

The heart of your new Infinity is the transmitter and the ATRCS (Pronounced A-tracks) system, and this section will explain how to operate and adjust your Infinity to take full advantage of the program's capabilities. Before you begin to read this section, there are several steps you should take. First, the transmitter's batteries should be charged completely as outlined on page 4. Second, remove the R.F Module from the back of the transmitter while you are getting familiar with ATRCS. This will reduce the drain on the batteries and give you longer to work with the system before recharging. Finally, and most importantly, set aside a block of time which will allow you to go over this section without being interrupted. The ATRCS system is not difficult to learn and use, but like anything new it will take some time for you to become comfortable with it.

### GENERAL

The ATRCS system is the link which allows you to talk with the microprocessor inside the Infinity transmitter. The Advanced Technology Radio Control System (ATRCS) has been developed by modelers in California's Silicon Valley to be as simple as possible to use when setting up a model. ATRCS consists of a Menu, which is really just a list of questions, and a six button control panel used to move around in the Menu and answer the questions. The display in the transmitter only shows one program function at any one time, and all you will ever be required to do when setting up is to answer either yes/no or increase/decrease depending on the type of question being asked.

### MENU STRUCTURE

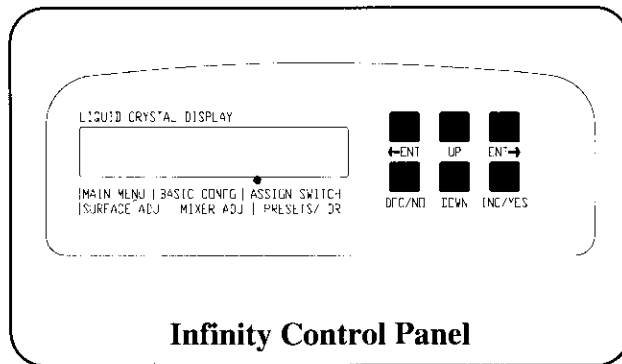
The easiest way to become familiar with the Menu structure of the Infinity is to look at the Menu on the back cover. You can see that the Menu items are grouped into six different columns. All of the items in a particular column are similar to each other in some way and related to the group heading at the top of the column. When you have worked with the ATRCS system and become familiar with the six group headings you will be

able to very rapidly move to any position in the Menu and make the desired adjustment or change, without the need to refer to a list of codes or a complicated map of the Menu items.

In practice, an adjustment is made to the ATRCS system by first moving to the appropriate group heading, then moving down the column until you have reached the desired Menu item. Once there, you will need to answer yes or no to the question asked or to increase or decrease the value on the display. Moving to another Menu item or to a different group heading automatically stores whatever change you have made. That's all there is to use the system.

### MOVING THROUGH THE MENU

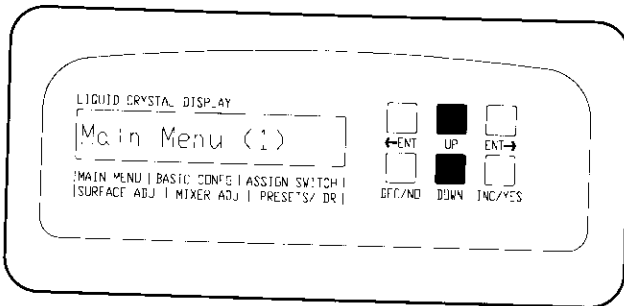
Flip down the front panel of the Infinity transmitter and you will see the liquid crystal display, known as the LCD, on the left and six push buttons on the right. Below each of the buttons is a label describing its function. The two buttons in the center are labeled **UP** and **DOWN**. These two buttons are used to move up and down within one of the columns in the menu. In the top row of buttons the two outside buttons are labeled **<ENT** and **ENT>**. These two buttons are used to move either one column to the left or one column to the right. Together these four buttons create the method of moving through the ATRCS menu.



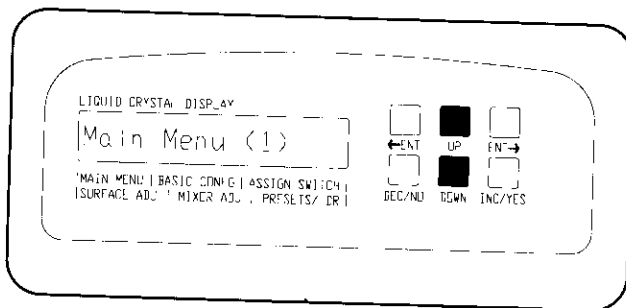
**Infinity Control Panel**

Turn on your transmitter and watch the display. The program will quickly go through its start up routine and flash three messages on the display; one saying the RAM is being loaded, a second saying that ATRCS is copyrighted and a third identifying the CSys Labs as the writers of the

software program. Once the start up is completed, the display will read **Main Menu (1)**. This is telling you that you are at the top of the Main Menu column and the setup you will be working with is for Plane #1.



Press the **ENT>** button once and the display will read **Basic Confg (1)**. You have now moved one column to the right and are at the top of the Basic Configuration column and the setup is for Plane #1. Press the **ENT>** a second time and the display will read **Assign Switch (1)**, showing that you are at the top of the Assign Switch column. Pressing **ENT>** again will change the display to **Surface Adj (1)**, meaning you are at the top of the Surface Adjustment column. Pressing **ENT>** again will change the display to **Mixer Adj (1)**, letting you know you are at the top of the Mixer Adjustment column. Pressing **ENT>** one final time will change the heading to **Presets/DR (1)**, indicating the top of the Presets and Dual Rates column. This is the last column on the right of the Menu. Pressing **ENT>** will have no affect when you are at the top of this column. To move back through the Menu you will have to press **<ENT**.

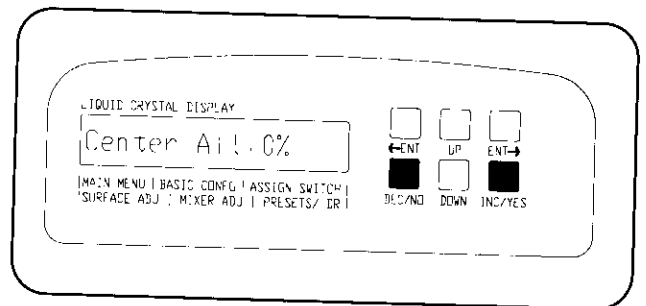


Once you are at the top of a column you can use the **UP** and **DOWN** buttons to move to different items in the column. Use the **<ENT** or **ENT>** buttons to move to the **Surface Adj (1)** column. Press the **DOWN** button once and the display will read **Center Ail:0%**. Press and hold the **DOWN**

button until the display reads **Gear Dn TV:-66%**. Note that when you press and hold the button down you will scroll quickly through the Menu. This is true for all four of the buttons which allow you to move through the Menu. Once you have reached **Gear Dn TV:-66%** pressing the **DOWN** button will have no further effect because this is the last Menu item in the column. To move back up the column you need to press the **UP** button.

Press the **UP** button until the display reads **Elev DTV:66%**. Now press the **ENT>** button. This will change the display to read **Mixer Adj (1)**. By pressing **ENT>** you moved one column to the right and directly to the top of the column. In the ATRCS system it is not necessary to move back to the top of the column you are in before moving to the right or the left. Keep in mind however that every time you do change from one column to another you will automatically move to the top of the new column. There are certain Menu items where you can not move from one column to another. When addressing these items you must first move up or down to a different item before changing columns. Which specific items this applies to will be covered later in the manual.

### ENTERING INFORMATION



The two remaining buttons are used to enter information into the ATRCS system. These two buttons are labeled **DEC/NO** and **INC/YES**. As the names indicate, the two buttons are used to either answer **Yes** or **No** to a question or increase or decrease a value.

Move to the top of the **Surface Adj** column, then press the **DOWN** button to move down one line to the Menu item that reads **Center Ail:0%**. (For the moment we will only use this item as an example for entering information; its function will be fully

explained later in this manual) Press the **INC/YES** button and the percentage will change. Pressing and releasing the button will change the value by 1%, pressing and holding the button will cause the value to change rapidly. The **DEC/NO** button will also cause the value to change, but in the opposite direction.

At this point the value on the display is not zero but some number you arrived at as you were experimenting. Press both the **INC/YES** and **DEC/NO** buttons at the same time. The value should change back to zero, which is the default value for this particular Menu item; that is, the value which the system starts at before any programming has been entered. Remember that you can reset any value back to the default value by pressing both **INC/YES** and **DEC/NO** simultaneously. This will quickly allow you to undo any mistakes in programming or any settings which you do not want to keep.

To enter a new value or setting into memory, **you must move from that Menu item to another Menu item**. Moving to another Menu item or to the top of a column automatically enters the setting into memory. If you turn the transmitter off without moving to another Menu item to lock in the change you made, the new value **will not** be stored in memory. Move to the Menu item **Center Ail:0%**, which is the first item under the **Surface Adj** column. Change the value to read 5%, then turn off the transmitter without moving to another Menu item. Turn the transmitter back on and return to the same Menu item. The value has returned to 0%, because the change was not locked in by moving to a different Menu item. Now change the value to read 5% once again, then press the **UP** button to return to the top of the column and turn the radio off. Turn the system on and return to **Center Ail** and you will find the value was saved as 5%. **IT IS CRITICAL THAT YOU REMEMBER TO LOCK IN ANY CHANGES YOU MAKE BY MOVING TO ANOTHER MENU ITEM AFTER YOU CHANGE A VALUE.**

Now return to the top of the **Main Menu** column. Move down one step so that the display reads **L Setup(ENT) (1)**, which indicates that the setup for Plane #1 is currently loaded. Certain Menu items have a major impact on the entire operation

of the ATRCS system, such as this one which selects which aircraft setup you want to load. When a Menu item has major significance, you will see the **(ENT)** abbreviation to the right of the item name. What this means is that you must press both **<ENT** and **ENT>** at the same time to enter new information at the particular Menu item. Press the **INC/YES** button twice so that the number reads (3). Now press both **ENT** buttons simultaneously. You will see the display flash the message **\*\*\*Ram Loaded\*\*\*** to indicate that the information has been entered. Pressing just one of the **ENT** buttons will not cause this message to flash. Use the **DEC/NO** button to return the Setup number to (1) and press both **ENT** buttons to load Setup 1.

### **LEARNING THE FEATURES**

The next section of this manual, **OPERATION AND ADJUSTMENT OF THE INFINITY**, will go through the capabilities and adjustment of the Infinity 600 in depth. If you are already familiar with the characteristics and mixing requirements of high performance or complex aircraft, or you do not plan to use the more sophisticated features of the Infinity, you may find that this section has more detail than you need. If this is the case, you might want to use the Quick Reference Guide and the Sailplane Setup Guide on pages 35 through 37 when setting up your plane and refer to this section only on those items where you need additional information.

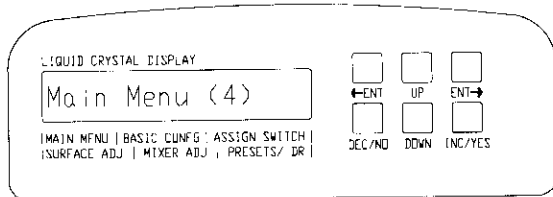
When you go through the next section for the first time it will be of tremendous benefit if you have the transmitter and airborne components of the Infinity on the bench in front of you so you can learn "hands on". Connect the airborne components as shown on page 5, and replace the RF Module in the back of the transmitter.

Turn on your Infinity transmitter, then turn on the airborne package. There may be some initial movement of the servos even though you have not moved the sticks. This is normal. Once the servos have moved to a set position they will stay there until you move a control on the transmitter.

You are now ready to go to the next section and become familiar with the operation of the Infinity's features and adjustments.

# OPERATION AND ADJUSTMENT OF THE INFINITY

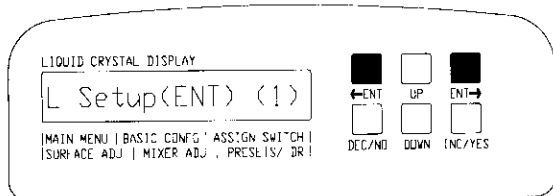
## THE MAIN MENU GROUP



The Main Menu Group is made up of commands which affect the transmitter itself or the entire aircraft set up you are going to be working with. Most of the settings you enter in the Main Menu group will not be changed on a regular basis; in actual use of your Infinity you will set them and forget them. The exception to the "set and forget" rule is the Menu item which deals with loading the setups for different models.

Press the **DOWN** button to move to Load Setup.

## LOAD SETUP



This is where you decide which aircraft setup the transmitter will use. Each aircraft setup stores the information needed to fly one airplane with the ATRCS program. Once you have programmed a setup for a particular model, you may recall that setup at any time by following the procedure below and pressing both **ENT** buttons simultaneously. In your Infinity 600 you can store up to four different aircraft setups at any one time. These four setups are numbered (1) through (4). When you move to the Load Setup item, the display will read

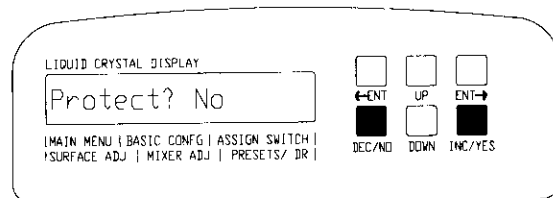
**L Setup(ENT) (1)**. To load a particular setup, use the **INC/YES** or **DEC/NO** buttons to change the number to the setup you wish to load. Once the proper number is displayed in the parentheses, press both **ENT** buttons at the same time. The message **\*\*\*RAM Loaded\*\*\*** will flash to let

you know that the setup has been changed. Once you have loaded a setup, it remains loaded in the transmitter until you use the Load Setup function to change it. This means that if Setup 2 is loaded in the transmitter when you turn it off, the program will still be in Setup 2 when you turn the transmitter back on.

The Load Setup item is one of the Menu items where you will not be able to move directly to another column. To move to the next column to the right you will have to either move up or down one Menu item and then over.

Press the **DOWN** button once to move to Menu Protection.

## MENU PROTECTION



The Menu Protection item allows you to protect the setup information you have programmed for a particular plane from being changed. In practice, it allows you to lock your setup to prevent any accidental changes from being made.

When the display reads **Protect? No**, any setting in the menu may be changed. When you are first setting up a plane you will want to have the Menu Protection item set this way.

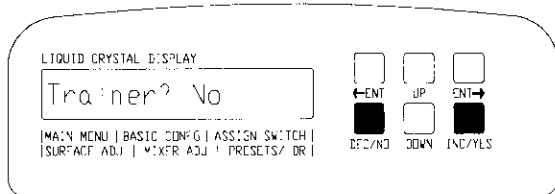
Pressing the **INC/YES** button will cause the display to read **Protect? Yes**, which means it will be impossible to change any settings in the menu except the control centering adjustments and the throttle and landing gear travel adjustments. These items are left unprotected so that you will easily be able to recenter control surfaces as required to trim the plane or to correct any neutral changes caused by the shrinking or expansion of control linkages due to temperature.

If you attempt to make a change that is not allowed when the menu is protected, the display will flash the message **MENU PROTECTED!!**. What this tells you is that the Menu Protection must be

turned off in order to make a change to that Menu item. To actually make a change you would need to go to the Menu Protection item and change it from **YES** to **NO**.

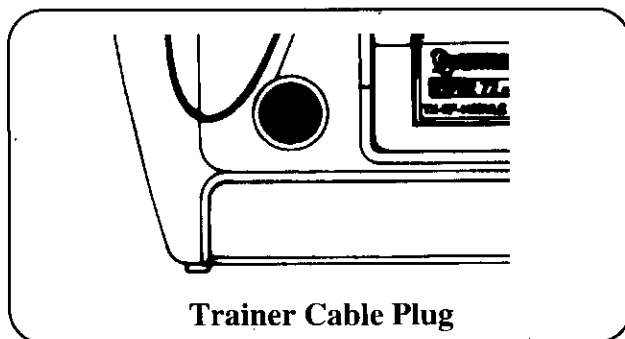
Press the **DOWN** button once to move to Trainer System.

## TRAINER SYSTEM



The Trainer System menu item controls the function the spring loaded rocker switch on the upper left corner of the transmitter will perform. When the display reads **Trainer? No**, the Trainer system in the transmitter is off and the spring loaded switch will activate the Roll Program Function. Pressing the **INC/YES** button will change the display to read **Trainer?Yes**, which activates the Trainer System and disables the Roll Program feature.

The Trainer system in the Infinity 600 allows you to connect any two Airtronics Infinity transmitters together for the purpose of training a new R/C pilot. The connection between the transmitters is made by plugging an Airtronics Computer Trainer System Cable (P/N 97101) into the round connector located on the back of the Infinity transmitter. Note that the end of the cable marked with the blue stripe is plugged into the Master transmitter and the unmarked end is plugged into the Slave transmitter. The trainer system in the Infinity will not work with any non-computer Airtronics radios equipped with trainer systems.



In actual use, one of the two transmitters will serve as the Master and the second transmitter will serve as the Trainer. The Master transmitter is held by the instructing pilot, and is the transmitter that must match the receiver installed in the plane. The Trainer transmitter is held by the learning pilot, and does not need to be on the same frequency as the plane. The frequency of the Trainer transmitter is unimportant because **the R.F. Module of the Trainer transmitter must be removed during instructional flying.**

Normally during training, the instructor takes the plane off and flies it to altitude. While the spring loaded rocker switch is left in its off position the Master transmitter will have full control of the model. When the instructor is ready to begin training, he presses and holds the spring loaded rocker on his Master transmitter. As long as the instructor holds the switch in the on position, the model will respond to the commands of the Trainer transmitter sticks, allowing the pupil to fly the plane. It is not necessary for the student to hold the switch on the Trainer transmitter.

When the instructor wishes to stop training, or if he feels that the student is in a situation that endangers the plane, the instructor can release the spring loaded switch and control of the model will immediately return to the Master transmitter. Note that only the control sticks of the Trainer transmitter will have any affect on the plane; all of the trims and switched functions will still be controlled from the Master transmitter.

To use the Trainer system, first remove the antenna and R.F. Module from the Trainer transmitter. Next plug the trainer cable into the back of both the Master and Trainer transmitters. **Be certain that the end of the cable marked with the blue stripe is plugged into the Master transmitter.** After the cable is plugged in to both transmitters, turn on the transmitters and the model. Once you have verified that both the Master and Trainer transmitters will control the model when the spring loaded switch is in the appropriate position you are ready to begin training.

Press the **DOWN** button to move to Transmitter Mode Selection.

## TRANSMITTER MODE SELECTION

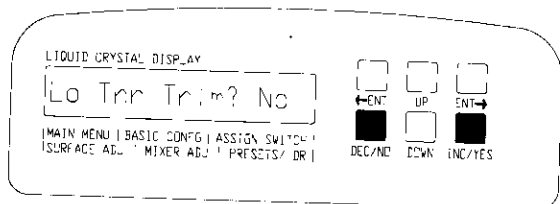
The Infinity transmitter can be operated as either Mode I or Mode II without having to do any rewiring of the transmitter. If you have any doubt which Mode your transmitter is set for go to the section below for the Stick Function Test and it will explain how you can quickly check what Mode you are in. In Mode II operation, the aileron and elevator functions will be on the right stick and the rudder and throttle functions will be on the left stick. If you fly this Mode there is no need for you to make any changes since your Infinity has been delivered set up to operate in this Mode. Mode I has the ailerons and throttle on the right stick and the rudder and elevator on the left stick. If you wish to fly Mode I you will need to send your unit into Airtronics to have the necessary mechanical changes made so that the throttle can be operated off the right stick and the elevator off the left stick.

It is important to remember that the definitions of Mode I and Mode II assume you are flying a airplane with ailerons for roll control. If you are installing the Infinity in a plane which only has rudder for turning control you substitute the rudder function for the aileron function in the definitions. **MODE I OPERATION**

Under the Main Menu column go to the Menu item **Mode I? No**, and press the **INC/YES** button so the display reads **Mode? Yes**. This changes the software from Mode II to Mode I so that the elevator and all of its associated mixing functions will operate off the left stick and the throttle and all of its associated mixing functions will operate off the right stick.

Press the **Down** button to move to Low Throttle Trim.

## LOW THROTTLE TRIM



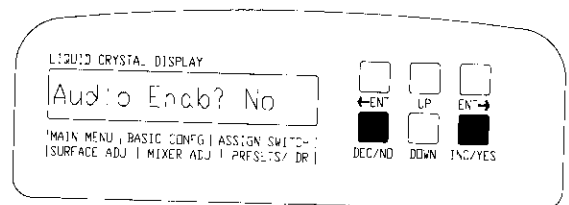
This Menu item allows you to have the throttle trim active only in the lower two thirds of throttle

movement.

When the display reads **Lo Thr Trim? No**, the trim lever for the throttle stick will have full authority throughout the range of the throttle stick. Pressing the **INC/YES** button will cause the display to read **Lo Thr Trim? Yes**, which disables the throttle trim when the throttle stick is moved past two thirds of its travel. This feature allows you to use the throttle trim to adjust the idle of your engine without affecting the position of the carburetor barrel at full throttle.

Press the **Down** button to move to Audio Enable.

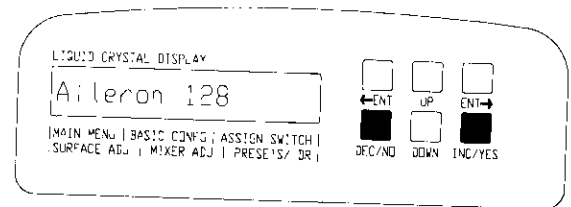
## AUDIO ENABLE



This Menu item allows you to turn on or off the Audio confirmation (beep) which sounds each time you press one of the input buttons. If you wish to have the radio beep to confirm when a button has been pressed, leave the display reading **Audio Enab? Yes**. If you do not want the beep active, press the **DEC/NO** button, which will change the display to read **Audio Enab? No**. Note that even when the confirmation beep is turned off the radio will still beep each time it is turned on and the Low Voltage Alarm will still sound.

Press the **DOWN** button to move to Stick Function Test.

## STICK FUNCTION TEST



This Menu item allows you to check what stick or trim lever is controlling what function in the ATRCS program. It is used when the transmitter is

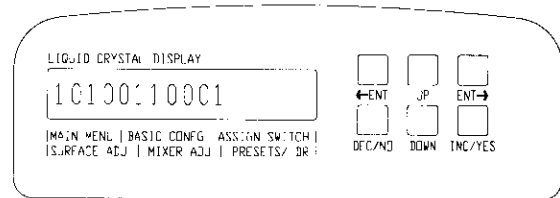
wired at the factory to verify that all connections to the control pots have been made properly. It is valuable as a means to check which Mode the transmitter is set up to operate in.

Go to the Menu item under the Main Menu column which reads **Aileron 124**. The value may actually read anywhere from 115 to 135 for the main flight controls and their trims and from 0 to 240 for the throttle and auxiliary channel depending on your particular transmitter. What the display is telling you is that the aileron function is being displayed and what the current value for that function is. Don't be concerned if the value is switching between two numbers; all that indicates is that the pot is right on the line between two values, and the switching won't affect the servo centering or resolution. If you move the right stick side to side the value will change. Press the **INC/YES** button once and the display will read **Aileron Trim 125**. Moving the trim lever on the right side of the transmitter from side to side will cause the value to change.

Note that moving the aileron stick to the right caused the value to increase. When you looked at the aileron trim you may have noticed that moving the aileron trim to the right caused the value to decrease. This is normal and should not concern you. Since the transmitter sticks and trims each have their own individual potentiometers, the program looks at each value independently. In some cases, it is more convenient for the programming process to have the stick value and trim value for the same function operate in different directions. Pressing the **INC/YES** and **DEC/NO** buttons will allow you to step through and look at each of the functions of the transmitter which is controlled by a potentiometer. If you need to check the Mode of your transmitter use the **INC/YES** button to change the display to read **Elevator 125**, and move the right stick up and down. If the value changes then you are set up for Mode II. If the value doesn't change, try moving the left stick. If this causes the value to change then the transmitter is set up for Mode I.

Press the **DOWN** button to move to Switch Test.

## SWITCH TEST



This Menu item is used at the time the transmitter is built to check that all the switches on the radio are functioning properly.

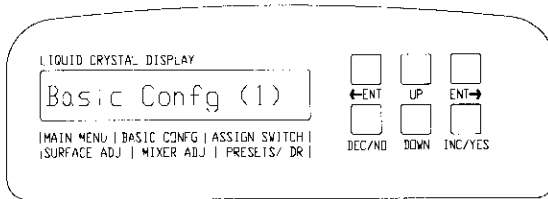
Each number in the display represents one of the eleven assignable switch positions on the transmitter. The first number in the display is for the #1 switch position located on the upper left corner of the transmitter. Move the two position switch toward the center of the transmitter so that it is in the position labeled 1. The first digit in the display will read **1**, indicating that whatever function that has been assigned to the #1 switch position is activated. Moving the switch toward the outside of the transmitter will cause the first digit in the display to change to **0**, indicating that the function assigned to that switch position is deactivated, and the second digit in the display to change to **1**, indicating that the function assigned to the #2 switch position has been activated. The same process applies to all of the assignable switches, with a **0** in the display indicating the assigned function for the switch position is active, a **1** indicating the function is not active.

The spring loaded rocker switch on the upper left side of the transmitter is not assignable. This switch is indicated at the far right side of the display. Pressing the spring loaded rocker will cause an **S** to appear for as long as the button is held down.

This is the last Menu item in the Main Menu column. Press the **ENT>** button to move to the Basic Configuration column.

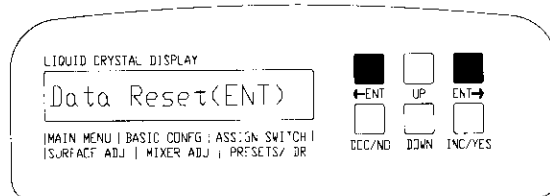


## BASIC CONFIGURATION GROUP



The Basic Configuration Group is made up of functions which affect only a particular aircraft setup. The entries you make in this group will change from plane to plane depending on what type of model it is that you are going to be flying. Press the **DOWN** button to move to Data Reset.

## **DATA RESET**



The Data Reset Menu item allows you to quickly return all of the items in the current aircraft setup to their default settings. It is important to understand that this function will reset all of the data in the setup with the exception of the items under the Main Menu column. Once you reset the data there is no way to retrieve it. So be doubly certain that you are in the setup you wish to reset before using this item.

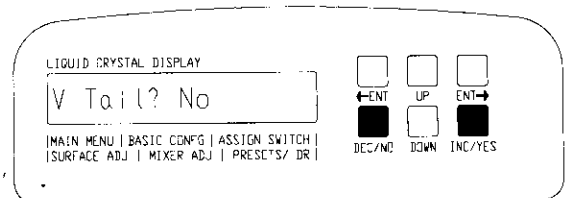
To use Data Reset, first **be sure that the throttle stick is all the way toward the bottom of the transmitter case, and that the aux lever is centered.** This is very important because if you do not have the stick fully down and lever centered, the program will recalibrate with an incorrect values for the lower extreme of throttle travel and auxillary center, causing the movement of these two channels to be limited. Not having the throttle stick fully down will also cause the Low Throttle Trim feature to work incorrectly. You do not need to worry about the other sticks since they are spring loaded to return to the proper positions for Data Reset.

Once you have the throttle stick and aux lever properly positioned, you must press both of the **ENT** buttons simultaneously. When this is done, the message **\*\*\*Data Reset\*\*\*** will flash on the display to confirm that all of the settings have been erased. If the Menu protection has been turned on, the program will not allow you to reset. The message **MENU PROTECTED!!** will flash to let you know that the Menu Protection is on. If you still wish to reset the aircraft setup data you must go to the Menu Protection item under the Main Menu column and turn it off before using the Data Reset feature.

The Data Reset Menu item is one of the items where you can not go directly to another column. You must first move up or down one Menu item before you can move to the next column.

Press the **DOWN** button to move to the V Tail Option.

## **V TAIL OPTION**



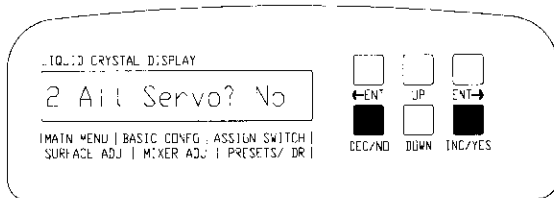
This Menu item allows you to mix the elevator and rudder functions together for V tailed airplanes. Answering **No** with the **DEC/NO** button leaves the rudder and elevator independent for planes with standard tail configurations. Answering **Yes** with the **INC/YES** button causes the two functions to be mixed together. What this means is that when you move the elevator stick, both the servos will move at the same time. The same is true when you move the rudder stick. This electronic mixing allows you to connect one servo to each of the V Surfaces and still get the proper control action, eliminating the need for any kind of mechanical mixing.

When using the V Tail Option, the centering and direction of rotation for each servo are controlled independently with the appropriate rudder and elevator Menu items. Using the Travel Volume Menu items for the elevator and rudder functions

will affect both servos at the same time, since both of the V surfaces need to be adjusted when making surface throw adjustments. When you are setting up your plane, if you find that moving the elevator stick gives you the correct control movement but the rudder action is reversed, switch the receiver outputs that the two servos are plugged into. You need to do this because reversing the direction of the two servos through the servo reversing Menu item for the correct rudder action will cause the elevator action to also be reversed, giving you the same problem from the other direction!

Press the **DOWN** button to move to the Two Aileron Servo Option.

## TWO AILERON SERVO OPTION



This Menu item allows you use one servo to control each of the ailerons. The advantage of doing this is that each aileron will have its own independent centering and throw adjustments and you can mount one servo outboard in each wing for the most direct aileron linkage. You must have two independent aileron servos to be able to electronically adjust aileron differential, or if you want to use the Crow landing feature in a sailplane. This Menu item will also mix the auxillary and aileron functions together for flaperons if your particular plane needs this capability. Answering **No** with the **DEC/NO** button leaves the aileron servo and auxillary servos independent from each other for planes with single aileron servo hookups. Answering **Yes** with the **INC/YES** button causes the aileron servo to control the left aileron and the auxillary servo to control the right aileron.

In actual use, what this means is that when you move the aileron stick, both the servos will move at the same time to move the two ailerons. This electronic mixing allows you to connect one servo directly to each the aileron, eliminating the need

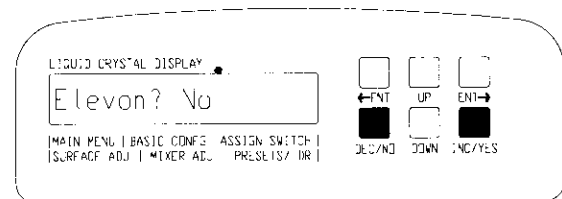
for any kind of direct mechanical linkage between the two ailerons. If you are also using the ailerons as flaperons, moving the side lever on the transmitter will cause both surfaces to move up and down together, acting as flaps.

When using the 2 Aileron Servo Option, the centering, direction of rotation, and Travel Volumes for each servo are controlled independently with the appropriate aileron and auxillary Menu items. When you are setting up your plane, make sure the direction and amount of throw are correct for the aileron function first. If you find that the flap action is reversed on one or both of the flaperons, you may reverse the direction of movement by entering a negative value in the Flaperon/Elevon Mixing Menu item under the MIXER ADJUSTMENT GROUP. (See page 27)

To get differential aileron movement, all that is required is to use the Travel Volume Menu items to adjust the aileron and auxillary servos so that each aileron has more up movement than down movement. For example, if you want to have twice as much up travel as down travel, the values entered for **Aux TV 1** and **Aileron RTV** would be 50% and the values for **Aux TV 2** and **Aileron LTV** would be 100%. Adjusting the ratios between these values will change the ratio of differential you have set for your plane. (See page 23 for a complete explanation of differential)

Press the **DOWN** button to move to the Elevon Option.

## ELEVON OPTION



This Menu item allows you to mix the elevator and aileron functions together for flying wings. Answering **No** with the **DEC/NO** button leaves the ailerons and elevator independent for planes with conventional configurations. Answering **Yes** with the **INC/YES** button causes the elevator function to be mixed into the aileron function, and

CH 3 FM

CH 4 FM

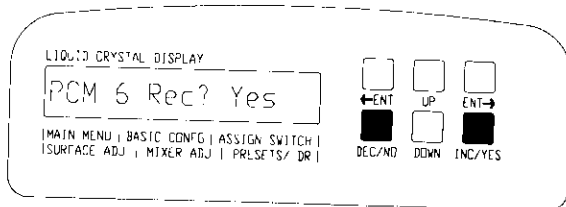
allows you to use the aileron servo to control the left elevon and the auxillary servo to control the right elevon. It will also disable the the sliding lever on the left side of the transmitter, since the Auxillary servo is used to control one of the elevons.

In actual use, what this means is that when you move the elevator stick, both the servos will move at the same time, causing both elevons to move up and down together and function as elevators. The same is true when you move the aileron stick, except that the elevons will move in opposite directions, acting as ailerons. This electronic mixing allows you to connect one servo to each of the elevons and get the proper control action, eliminating the need for any kind of mechanical mixing. The elevator servo will also move when the elevator stick is operated, so if you have a plane with separate elevon and elevator surfaces you will be able to maintain an independent elevator control.

When using the Elevon Option, the centering and direction of rotation for each servo are controlled independently with the appropriate aileron and auxillary Menu items. Using the Travel Volume Menu items for the elevator and aileron functions will affect both servos at the same time, since both of the elevon surfaces need to be adjusted when making surface throw adjustments. When you are setting up your plane, make sure the direction and amount of throw are correct for the aileron function first. If you find that the elevator action is reversed on one or both of the elevons, you may reverse the direction of movement by entering a negative value in the Flaperon/Elevon Mixing Menu item under the MIXER ADJUSTMENT GROUP. (See page 27)

Press the **DOWN** button to move to Receiver Selection.

### RECEIVER SELECTION



Answering **Yes** to this Menu item allows you to use an Airtronics 6 Channel PCM receiver, P/N 92965. Answering **No** by pressing the **DEC/NO** button will let the transmitter work with any Airtronics 6, 7 or 8 channel FM/PPM receiver. **NOTE THAT THE PCM CODING IS DIFFERENT FOR AIRTRONICS 8 CHANNEL PCM RECEIVERS AND YOUR INFINITY 600 IS NOT COMPATIBLE WITH THESE RECEIVERS.**

If you are planning to use the Micro 4 channel receiver, P/N 92745, you need to be aware that the four outputs from this receiver are the gear, elevator, aileron and auxillary channels. To operate throttle and rudder with this receiver, you need to use the Compensation and Bi-Directional mixers as outlined below.

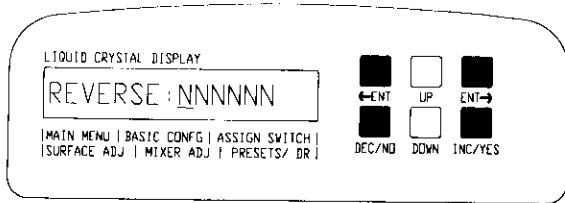
For rudder, first go to the Assign Switch column and turn the Gear function off. Next go to the Gear Travel Volume adjustments and set **Gear Up TV:100%** and **Gear Dn TV:-100%**. Now go to the Bi-Directional Mixer Channel Selection Menu items and select Gear for Channel 1 and Rudder for Channel 2. Finally, go to the Bi-Directional Balance Adjustments and set **BMix 1Aj:0%** and **BMix 2Aj:100%**. To adjust the rudder throws, use the Rudder Travel Volume Adjustments under the Surface Adjust column. If you need to reverse the rudder servo, use the sixth position in the Servo Reversing Menu item.

For throttle, use the Compensation Mixer to slave the throttle function to the auxillary. First go to the Assign Switch column and turn the Compensation Mixer on. Next go to the Auxillary Centering adjustment and set **Center Aux:-100%**. Now go to the Compensation Mixer Channel Selection Menu items and select Throttle as the Master and Auxillary as the slave. Finally, go to the Compensation Channel Adjustments and set **CMix Mst Aj:50%** and **CMix Slv Aj:50%**. To adjust the throttle high end position, use the Aux Travel Volume adjustment. If you need to reverse the rudder servo, use the fifth position in the Servo Reversing Menu item. The throttle trim is operated with the slide lever on the left side of the case, **not** the trim tab on the front of the case. You should also be aware that there is no low throttle adjust-

ment or Low Throttle Trim option when using this receiver.

Press the **DOWN** button to move to Servo Reversing.

## SERVO REVERSING



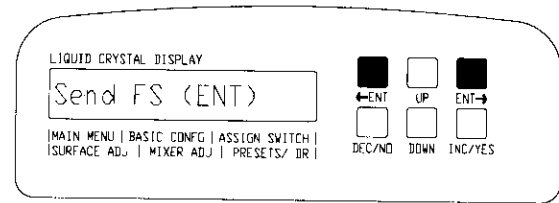
In place of the usual reversing switches, the ATRCS system lets you reverse the direction of servo rotation electronically through the program. Being able to reverse the rotation of the servos lets you install your mechanical control linkages in the most direct and convenient manner and then get the proper direction of control surface movement after the installation is complete.

Go to the Menu item under the Basic Configuration column which reads **REVERSE:NNNNNN**. Note the small underline, called a cursor, under the first **N**. This indicates that channel 1 is the channel you can reverse at the moment. Press the **ENT>** button and you will see that the cursor move to the right, allowing you to pick which channel you want to reverse. Pressing the **<ENT** button will move the cursor to the left. Move the cursor back under the first **N**. Now press the **INC/YES** button. Two things will happen. The first **N** will change to a **Y**, indicating that the servo rotation has been reversed. The cursor will also move one space to the right. If you wish to reverse the next channel press **INC/YES** again, if not, use **ENT>** to move to the next channel you do want to reverse. If you reverse a channel by mistake use **<ENT** to move the cursor back under the particular channel and then press the **DEC/NO** button to return the servo to normal rotation.

The Servo Reverse Menu item is one of the items where you can not go directly to another column. First you must move one item up, then you can go to the next column.

Press the **DOWN** button to move to Send Failsafe.

## SEND FAILSAFE



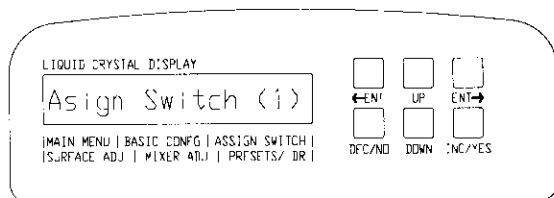
When operating your Infinity 600A in the PCM mode, the radio has the added security of Fail Safe capability. What this means is when the signal from the transmitter is lost or interfered with, the receiver will not respond to signals from the source of interference.

You have two types of Fail Safe operation available with your Infinity. The first type is called Hold; this is where the receiver will hold the positions the controls were in when the signal was lost until the signal from the transmitter is restored.

The second type of Fail Safe is Programmed Position; this is where the servos will move to a programmed position when the signal from the transmitter is lost. To use this type of Fail Safe, turn both the transmitter and receiver on and go to the Menu item which reads **Send FS (ENT)**. Move the transmitter sticks to the position you wish the controls to be in if the signal should be interrupted; throttle to idle, slight up elevator, etc. With the controls positioned, press both **ENT** buttons at the same time. The message **FS Sent** will flash on the display to confirm that the Programmed Position has been set to the receiver's memory. To reset the Programmed Position or to return to the Hold type of Fail Safe, simply unplug the receiver battery from the receiver.

The Programmed Position Fail Safe is stored in the receiver and requires a small "Keep Alive" voltage at all times, otherwise the data will be lost. This is the reason for the special PCM switch harnesses supplied with our PCM systems. These PCM switches provide a small amount of voltage to the receiver at all times, even when the switch is in the off position. If you do not use one of the PCM switch harnesses or if you disconnect the battery from the receiver the Programmed Fail Safe data will be lost.

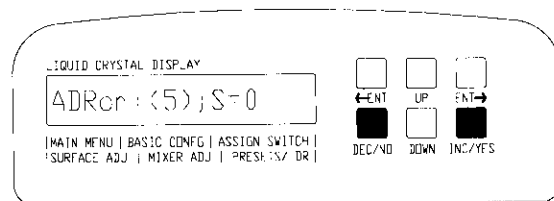
## ASSIGN SWITCH GROUP



The Menu items in the Assign Switch Group control what function each of the switches on the top of the Infinity 600 will actuate. Using the items in this Group, you can custom tailor the switch layout of your transmitter.

Press the **DOWN** to move to Switch Assignment.

## SWITCH ASSIGNMENT



One of the most unique features of your Infinity is the ability to assign any switched function to any one of eleven switch positions on the top of the transmitter. Unlike transmitters of the past, the Infinity 600A will not force you to accept someone else's idea of the perfect transmitter control layout. You can assign the functions which you feel are most important to the switches which are easiest for you to reach.

The following is a list of the functions which can be assigned:

DISPLAY	FUNCTION
PROG1on	Flight Program 1
PROG2on	Flight Program 2
CMIXon	Compensation Mixer
E/Fon	Elevator to Flap Mixing
ADRon	Aileron Dual Rate
EDRon	Elevator Dual Rate
RDRon	Rudder Dual Rate
A/Ron	Aileron/Rudder Coupling
GEARon	Landing Gear

All of the functions which can be assigned will appear under the Assign Switch column. The procedure for assigning a function to a particular switch is the same for all nine functions, so we will go through only one example in detail. After going over the basic assignment routine, we will present some suggestions regarding different ways you can use the Switch Assignment feature in regard to each of the functions.

First we will get familiar with the display used in the Assign Switch column. Move to the top of the Assign Switch column and press the **DOWN** button until the display reads **ADRon:(5);S=0**. This is the Menu item used to assign the position of the Aileron Dual Rate function. There are three items of information in the display. The first part identifies the function being assigned, the number in parentheses identifies the switch position which will turn on the function, and the final number indicates whether the function is currently on or off. Move the switch labeled 5 and 6 to the 5 position. This will cause the number to the right of the equals sign in the display to change from **0** to **1**. The 1 means that the function has been activated. Moving the same switch to the 6 position will change the final number back to **0**, telling you the function is turned off. You should use the last number in the display to confirm that moving the switch you want will turn the desired function on and off.

To change the switch that the Aileron Dual Rate is assigned to, press the **INC** or **DEC** buttons. This action will cause the number in parentheses to change. As previously stated, this number represents the switch position controlling the function, so if the number is 11, moving the proper switch to the number 11 position will turn the function on. If the number is 3, the switch position labeled 3 controls the function. So all you have to do to assign the Aileron Dual Rate function to the switch position you want is enter the number of that position in the parentheses. When you have the correct number in the parentheses, remember to move to another Menu item to lock in the change.

The Assign Switch function also gives you the option to have a particular function on all the time or off all the time. If you press and hold the **INC**,

the number in the parentheses will rapidly increase until the display changes to read **ADRon:ON**. This means that the function will always be on, with no way to turn it off with any switch. If you press and hold the **DEC** button, the number in the parentheses will rapidly decrease until the display reads **ADRon:OFF**. This completely disables the function and means the function can not be used at all. It is always a good idea to turn off any functions you don't plan to use to prevent accidentally activating them by bumping the wrong switch.

Now that you understand the basic procedure for assigning the switches, its time to think about how you want to assign them. First of all, you should know that you don't have to assign the switches yourself to use them. Every time you use the Data Reset function (see page 16), the switch assignments return to their default positions. This means that each time you reset data for a particular Setup you will have to go through the process of assigning switches. The default assignments are switch positions stored in the ATRCS program memory which place the various functions on the switches where they are most commonly found on transmitters without switch assignability. A list of the functions and their default positions follows this paragraph. If you are comfortable with the defaults, you have no reason to assign any of the switch positions. But if you want to change any switch locations or use a function which is turned off in the default list you, will have to follow the procedure outlined above.

Function	Default	Function	Default
PROG1on	OFF	EDRon	3
PROG2on	OFF	RDRon	OFF
CMIXon	OFF	A/Ron	OFF
E/Fon	OFF	GEARon	10
ADRon	5		

If you do decide to change the switch assignments from the default positions, keep in mind that more than one function can be assigned to a particular switch. In fact, you could assign all nine functions to one switch if you so desired! This allows you to turn on a group of several functions with one switch. A good example would be if all three dual rates were assigned to the same switch. This would

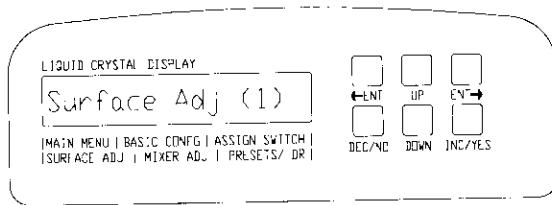
let you desensitize the ailerons, elevator and rudder all at once by moving one switch rather than having to flip three individual switches. Another example would be assigning the landing gear and one of the mixers to the same switch. In this case lowering the gear would automatically turn on a mixing function you might want when landing, such as Aileron/Rudder Coupling. Study your own flying habits, and if you realize that you are throwing two or three different switches to achieve a single operation in flight, consider putting all of those functions on one switch.

The opposite of assigning two functions you use together to the same switch position is assigning two functions which you do not want in effect at the same time to opposite sides of the same switch. An example would be assigning the landing gear to switch position 10 and one of the mixers to switch position 11. Both of these positions are on the same switch, but they are on opposite sides of that switch. Moving the switch to turn one of the functions on forces you to turn the other one off. In this case lowering the gear would automatically turn off a mixing function you might not want when landing, such as Elevator/Flap Mixing.

One thing you can not do when assigning switches is assign the same function to more than one switch. It becomes too confusing if more than one switch can actuate a function, especially if the function is a mixer which would not have an obvious visual indication when it was turned on and off.

After you have made all of the desired switch assignments, press the **ENT>** button to move to the top of the Surface Adjust Column.

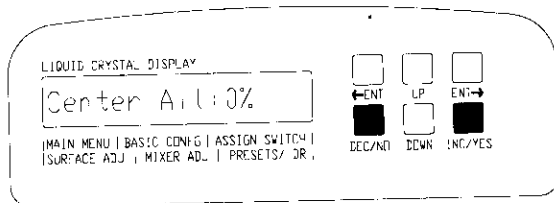
## SURFACE ADJUSTMENT GROUP



The Menu items in the Surface Adjustment Group control the centering and movement of the control surfaces themselves.

Press the **DOWN** button to move to Surface Centering.

### **ELECTRONIC SURFACE CENTERING**



Electronic Surface Centering lets you adjust the neutral position of the servo without affecting its throw in either direction. In practice, this function is used the same way you would use a clevis to get the control surface positioned exactly where you want it when the transmitter sticks and trims are centered. The main advantage of Electronic Centering is that instead of disconnecting the clevis, twisting it in or out, and then re-connecting it to the surface, you simply go to the appropriate Menu item under the Surface Adjust column and press a button. This feature is the ideal solution to the problem of making adjustments to linkages which are difficult to get to, such as servos installed out in the wing.

The basic procedure for using Electronic Centering is the same for all surfaces, so we will go over only one example. First install the servo in the plane and hook it up to the control surface, getting the surface position close to the neutral point you want. Then make sure that the surface moves in the proper direction, and if necessary reverse the servo rotation. If you do not set the servo direction before making the centering adjustment you run the risk of adjusting the neutral position in the

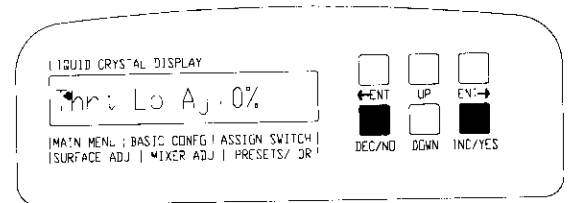
opposite direction from what you need. Finally, make sure that both the control stick and trim lever are centered.

Now go to the Menu item which controls the centering for the particular control surface. A typical display reading would be **Center Ail:0%**. This indicates that you are working with the aileron and the current center position is at zero. Pressing the **INC** or **DEC** buttons will cause the value on the display and the neutral position of the servo to change. You can easily adjust the centering position until the control surface is exactly aligned. Once you have the surface position adjusted remember to move from the Centering Adjust Menu item to another item to lock in the change. If you fail to do this the new centering information will be lost when you turn off the transmitter.

You can use the Centering Adjustment function for the aileron, elevator, rudder and the auxiliary channels. If you are using the Two Aileron Servo Option (see page 17), the Centering Adjustment for the aux channel will control the right aileron servo. The throttle and gear channels have no Centering Adjustments, only Travel Volume Adjustments.

Pressing the **DOWN** button will allow you to step through all the Menu items for adjusting the centering of the various surfaces until you reach the Throttle travel Adjustments.

### **THROTTLE TRAVEL ADJUSTMENTS**



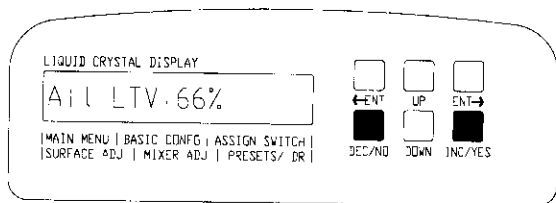
The Travel Travel Adjustments allow you to set the upper and lower limits of your throttle servo's travel. Always set the Low Throttle Adjustment first, since changes in this value will affect the position of the servo at the high end.

To adjust the throttle low end position, go to the Menu item which reads **Thrt Lo Aj:0%**. Use the **INC/YES** or **DEC/NO** buttons to change the value

and position the servo properly for the lower limit of throttle operation. Be aware that extreme settings in this Menu item, i.e. 100% or -100% will limit the amount of servo motion available for throttle movement, so it is best to get the mechanical setup of the throttle linkage as close as possible for the low end position. Once the low end is set, go to the Menu item which reads **Thrt Hi Aj:66%**. Use the **INC/YES** or **DEC/NO** buttons to change the value and position the servo properly for the upper limit of throttle operation. Note that depending on the setting for the lower throttle adjustment you may not be able to get the high end adjustment all the way to 100%. This is normal because there is a limit to how far the servo pulse can be offset without interfering with another channel. Once you have set the upper end of throttle movement, be sure to move to another Menu item to lock the setting in memory.

Press the **DOWN** button to move to Travel Volume Adjustment.

## TRAVEL VOLUME ADJUSTMENT



The Travel Volume function allows you to adjust how far a servo will move in a particular direction. For the aileron, elevator, rudder and auxiliary channels there is an adjustment for each direction the control surface moves; i.e. up and down or left and right.

When you first go to the Travel Volume adjustment for a particular surface you will notice that the value reads 66%. The program is written like this so that you will be able to increase or decrease the throw of a particular surface. If the Travel Volume were set to 100% and you wished to increase the amount of throw you could not do it electronically. You would have to make a mechanical adjustment to get more movement. When you are first setting up a plane, try not to have any of your Travel Volumes set at 100%, as this gives

you no room for increasing the adjustment in that direction. Get in the habit of leaving yourself some range of adjustment in both directions so you can either increase or decrease the amount of throw when you go flying. If it is necessary to make a mechanical adjustment to increase control surface throw it is easier to make the adjustment in your workshop at home than out at the field.

Since all of the Travel Volume adjustments work in the same way, we will only go through one example. First go to the Menu item **Ail LTV:66%** under the Surface Adjust column. This item indicates that you are adjusting the amount the aileron will move when you are turning left. Pressing the **INC** button will cause the value to grow larger, which will increase the amount the left aileron will move up. Pressing the **DEC** button will cause the value to decrease, reducing the amount the aileron will move up. Use the **INC** or **DEC** buttons to adjust the value until you have the amount of control movement you desire. Once you have made the adjustment remember that you will have to move to another Menu item to lock in the change you made.

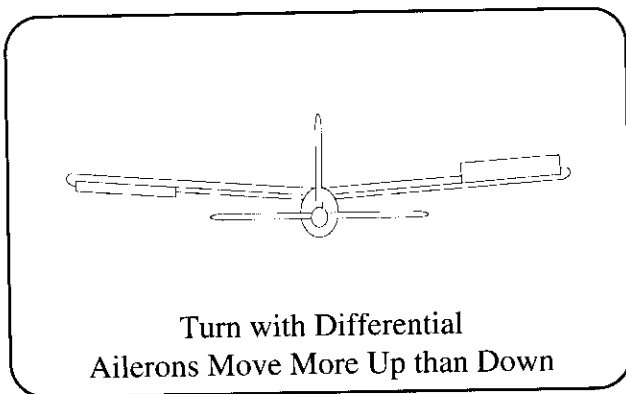
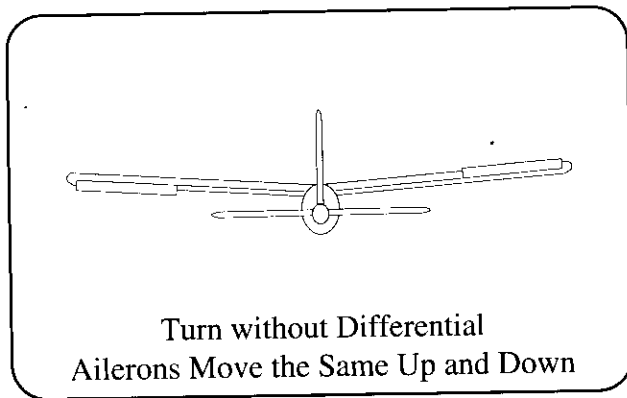
## AILERON DIFFERENTIAL

With the Travel Volume adjustments available in the Infinity 600A, it is possible to electronically adjust the amount of Differential between the two ailerons, as long as you are using the Two Aileron Servo Option. You accomplish this by setting the values for the up movement of the ailerons to be higher than the down movement values. For example, the **Ail LTV** and **Aux TV 1** items would be set with a value of 80%, while the **Ail RTV** and **Aux TV 2** items would be set at 40%. These settings would give you twice as much movement in the up direction as the down direction.

Aileron differential is used to compensate for the effects of adverse yaw, the tendency of the nose of aileron equipped airplanes, especially those with high wings and relatively low flying speeds, to move in the opposite direction of the desired turn when aileron control is actuated. To do this, the ailerons move up a greater amount than they move down. This creates more drag on the inside wing (the one where the aileron moves up) and helps to



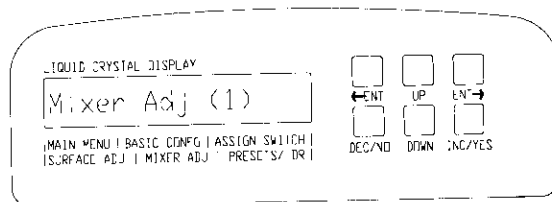
pull the nose of the plane in the desired direction. A typical setup would have the ailerons moving up two or three times more than down. However, the amount of differential needed for smooth turning varies greatly between different airplanes, so it is desirable to be able to adjust the ratio of up movement versus down movement to optimize the performance of the plane. If the differential throw of the ailerons is accomplished by mechanical means such as offset control horns or servo arms it can be extremely difficult to make any changes to the amount of differential.



Press the **DOWN** button to move through the Travel Volume Adjustments for the various controls. The Landing Gear Travel Adjustments are the last Menu items in the Surface Adjust column.

Press the **ENT>** button to move to the Mixer Adjustment Group.

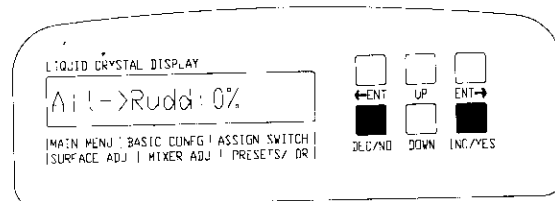
## MIXER ADJUSTMENT GROUP



The Mixer Adjustment group contains all of the adjustments for surface mixing for your plane. The mixing capabilities of the Infinity are what really set it apart from other radios on the market today. In this section we will go over the uses and effects of each type of mixing as well as how to adjust the mixers themselves. Even if you feel that you will have no use for the mixing, read over this section. You may learn about a type of mixing which will help your particular plane in ways you haven't thought of before.

Press the **DOWN** button to move to Aileron/Rudder Coupling.

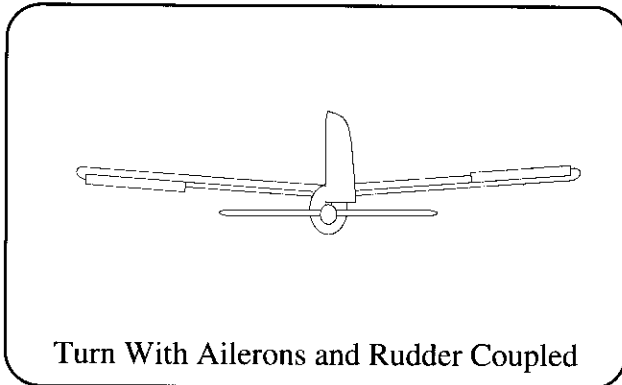
## AILERON/RUDDER COUPLING



Aileron/Rudder Coupling is used to compensate for the effects of adverse yaw, the tendency of the nose of an aileron equipped model to move in the opposite direction of the desired turn when aileron control is actuated. To do this, rudder movement is automatically fed in whenever the aileron stick is moved, causing the nose of the plane to move in the desired direction.

The amount of rudder required to get a smooth turn varies from plane to plane, so the ability to easily adjust the amount of rudder movement to aileron movement is quite useful. Too little rudder in a turn will cause the plane's nose to point upward in the turn, a condition called skidding which produces a great deal of drag. Too much rudder will cause the plane's nose to point down in

the turn, creating a tendency for the plane to tighten up the turn and start to spiral down. When the proper amount of rudder is added in the turn, the nose of the model will be relatively level and the plane will track cleanly through the turn.



Turn With Ailerons and Rudder Coupled

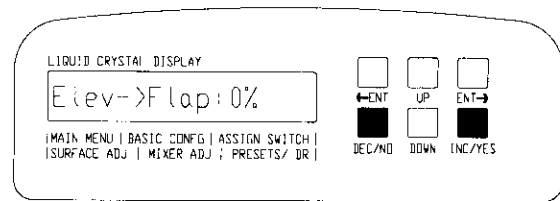
Go to the Menu item which reads **Ail>Rudd:0%**. This is where you adjust the amount of rudder which will be added in when you move the ailerons. Pressing the **INC** button will cause the value to increase and cause the rudder to move when the aileron stick is moved. The higher the value the more rudder movement you will get. To reduce the amount of rudder movement press the **DEC** button. Once you have programmed the desired amount of coupling, remember to move to another Menu item to lock in the change.

The Aileron/Rudder Coupling function can be programmed to be on all of the time or assigned to a switch which would allow it to be turned on and off during flight. Remember that the switch controlling the Aileron/Rudder coupling function can be assigned to any location on the top of the transmitter.

One thing to remember about the Aileron/Rudder Coupling function is that you always have manual override with the rudder stick regardless of whether or not the Coupling is turned on. What this means is that if you are in a right turn and feel you want less rudder movement, moving the rudder stick to the left will reduce the amount of rudder. If you are in the same right turn and feel you would like more rudder, moving the rudder stick to the right will increase the amount of rudder.

Press the **DOWN** button to move to Elevator/Flap mixing.

## ELEVATOR/FLAP MIXING



This Menu item allows you to mix the Elevator and Flap functions. The mixer is set up assuming that the Auxiliary Lever is controlling the flaps. With the Elevator/Flap Mixing turned on, whenever you pull up elevator, an amount of down flap will be automatically fed in at the same time. This mixing will also feed in up flap whenever you push down elevator. The amount of flap which will be fed in is adjusted at the Menu item **Elev>Flap:0%**.

Using Elevator/Flap Mixing enhances the plane's responsiveness to pitch control inputs. In other words, if you pull up elevator, the plane's nose will pitch up more sharply if it gets down flap at the same time it gets up elevator. The same principal in reverse is true if the plane gets up flap at the same time as down elevator. The reason for this is that as the flaps are moved, they change the lift characteristics of the wing. Lowering the flaps on most aircraft will cause the nose of the plane to pitch up, while raising the flaps above the trailing edge of the wing will cause the nose to pitch down. To maintain level flight some amount of elevator would normally have to be trimmed in to compensate for the movement of the flaps. But if the desired result of a control input is to have the plane change heading in the pitch axis, the pitch changes caused by moving the flaps can be used along with the elevator to bring about the change of heading.

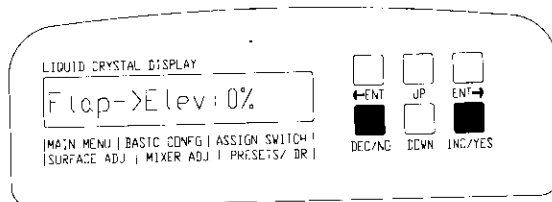
In practical use, Elevator/Flap Mixing will do two things; it will help make the corners of any "square" pattern type maneuver sharper, and it can help an airplane turn more quickly in a sharply banked turn. The key to get a sharp corner in any maneuver is to have the aircraft change heading in the pitch axis as quickly as possible. As discussed before, Elevator/Flap Mixing helps the plane to make changes in pitch heading more quickly, so it makes corners in maneuvers appear sharper. In a

steeply banked turn, you would be pulling up elevator, which means that the flaps would be lowered if you were using Elevator/Flap Mixing. This increases the amount of lift the wing produces while you are in the steeply banked condition, preventing the plane from stalling and allowing you to turn tighter. It also causes the nose of the plane to pitch up, which in a steep bank is in the direction of the turn and brings the plane around more quickly.

To adjust the amount of flap you will get with the elevator, go to the menu item which reads **Elev>Flap:0%**. Pressing the **INC** or **DEC** button, will cause the value in the display to change. The higher the number in the display, the greater the amount of flap movement you will get when you move the elevator. Press the **INC** button until you have a value of **20%** on the display. Now operate the elevator stick. As the elevator moves up the flaps should move down. If both the flaps and elevator move up, use the **DEC** button to change the display to read **-20%**. If you get no movement from the flaps as the elevator moves, go to the Menu item in the Assign Switch column which controls the Elevator/Flap Mixing (E/Fon) and make sure that the mixing has either been turned on all of the time or that the switch that the mixing is assigned to is turned on, then return to the Mixer Gains column. Once you have established that the mixing is turned on and working in the correct direction, use the **INC** and **DEC** buttons to adjust the flap movement with elevator to the amount desired.

Press the **DOWN** button to move to Flap/Elevator Mixing.

## FLAP/ELEVATOR MIXING



This Menu item allows you to have an amount of elevator control automatically fed in whenever the flaps are actuated. The mixer is set up with the

assumption that the flaps will be controlled by the Auxiliary Lever on the transmitter.

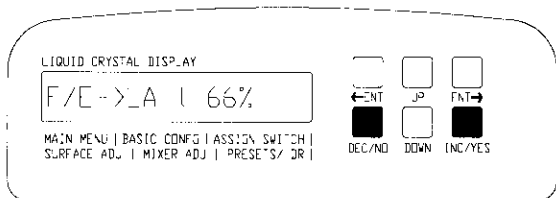
Whenever a plane's flaps are moved, they change the lift characteristics of the wing. Lowering the flaps on most aircraft will cause the nose of the plane to pitch up, while raising the flaps above the trailing edge of the wing will cause the nose to pitch down. To maintain level flight some amount of elevator would normally have to be trimmed in to compensate for the movement of the flaps. By using Flap/Elevator Mixing, you can have the elevator move to the proper trim position automatically as the flaps move, eliminating the need to compensate for the flaps with the elevator stick itself. Since flaps are normally deployed on landing approach, it can be vary advantageous to have one less thing to worry about as you are concentrating on bringing your plane in for a smooth touchdown.

To adjust the amount of elevator you will get with flaps, go to the menu item which reads **Flap>Elev:0%**. Pressing the **INC** or **DEC** button will cause the value in the display to change. The higher the number in the display, the greater the amount of elevator movement you will get when you move the flaps. Press the **INC** button until you have a value of **20%** on the display. Now operate the Auxiliary Lever. As the flaps move down the elevator should move down. If the elevator moves up, use the **DEC** button to change the display to read **-20%**. Once you have the mixing working in the correct direction, use the **INC** and **DEC** buttons to adjust amount of elevator movement you get when the flaps are deployed. The best way to check that you have the correct amount of elevator is to lower the flaps with the plane in the air and see if there is any pitch change. If the nose pitches up, you need more down elevator; if the nose pitches down, you need less down elevator.

The Flap/Elevator Mixing function is always active as long as the value in the display is a value other than zero. There is no way to assign this mixing function to a switch to be turned on and off in flight.

Press the **DOWN** button to move to Flaperon/Elevon Mixing.

## FLAPERON OR ELEVON MIXING



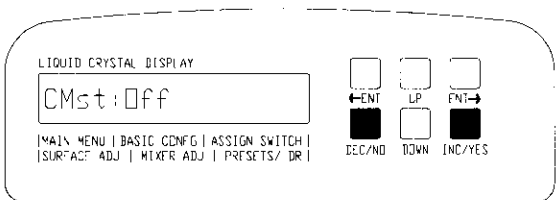
This Menu item allows you to adjust the amount of flap movement you will get if you are using flaperons or the amount of elevator movement if you are using elevons. There is a separate Menu item for both the left and the right control surface so that each side can be adjusted independently from the other.

Use the **INC/YES** or **DEC/NO** buttons to change the amount of mixing. The value will go in both the positive and negative direction, so if you find that the control action for the flap or elevator function is reversed enter a negative value for the correct movement. Setting a zero value will disable the mixing entirely.

When you are using flaperons, keep in mind the flap function will be controlled by the Aux Lever on the side of the transmitter. Be sure that this Lever is in the desired neutral position before you make any centering or throw adjustments to the flaperons. If you turn on your radio and notice an apparent shift in the neutral point of the flaperons, always check that the Aux Lever has not been inadvertently bumped before you go into the program and change any centering values.

Press the **DOWN** button to move to Compensation Mixing.

## COMPENSATION MIXING



The Compensation mixer allows you couple any

two channels you choose together in a Master/Slave relationship. The program allows you to select the Master and Slave channels, the amount and direction the Slave will move when the Master is moved, and whether you will have the ability to turn the mixer on and off in flight.

The Compensation Mixer is one of the most flexible features in your Infinity, and is really limited only by your imagination in how you use it. Before we go through how to set up and adjust the Compensation Mixer, let's go over some of the ways that it can be used. As the name implies, this type of mixer is used to compensate for a factor that affects how the airplane flies. The three most common types of compensation mixers are already built into your Infinity. They are Aileron/Rudder Coupling, Elevator/Flap Mixing and Flap/Elevator Mixing. The additional Compensation Mixer which is provided allows you to select the functions that will be mixed so that you can use the mixer in the way that best suits your airplane.

The key point to remember is that the two channels will be coupled together in a Master/Slave relationship. What this means is that when the Master channel is moved, the Slave channel will also move, but when the Slave channel is moved it will have no effect on the Master channel. The classic example of this type of relationship is the Aileron/Rudder Coupling described on page 24. When the ailerons, in this case the Master channel, are moved, they will cause the rudder, the Slave channel, to move as well. But moving the rudder will not affect the ailerons in any way. With this setup, the rudder automatically compensates for the adverse yaw created when the ailerons are deflected, but can still be used as an independent control when the situation calls for it.

A second important thing to remember is that the Compensation Mixer can be assigned to a switch on the top of the transmitter and turned on and off during flight if you desire. This is very useful for mixing which you would not want to have on during the entire flight. (For a complete explanation of Switch Assignment, see page 20) If you wish to have a mixer remain active all of the time you can also assign it to be on, regardless of the position of any of the switches.

As an example of how to use a Compensation Mixer in a scale type aircraft, let's consider the landing gear of the Navy's F6F Hellcat WW II fighter. The gear of this plane retracts rearward, instead of folding in toward the center of the fuselage like many other aircraft. What this means is that when the gear is down, the wheels are near the leading edge, in front of the center of gravity. As the gear is retracted, the wheels move near the trailing edge, behind the center of gravity. This results in the plane's CG shifting rearward, altering the pitch trim. You could manually correct for this factor by moving the elevator trim. Or you could use the Compensation Mixer to correct the trim automatically. By selecting the landing gear as the Master channel and the elevator as the Slave channel, you can have the elevator move automatically whenever you move the landing gear. But since the two are mixed together in a Master/Slave relationship, moving the elevator will not cause the gear to go up and down! The amount and direction the elevator will move when the gear goes up is completely adjustable, so you can get the exactly correct amount of elevator needed so there will be no apparent change in the attitude of the plane when the gear is extended or retracted.

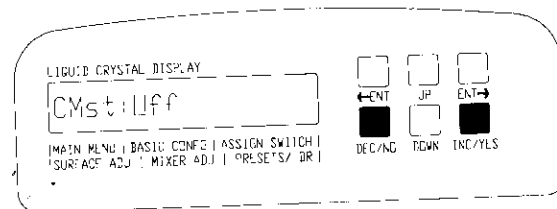
An example of how a Compensation Mixer would be useful in a pattern type aircraft would be during knife edge flight. To maintain a knife edge attitude, with the wings of the plane vertical but the direction of flight still parallel to the ground, most planes require a large amount of rudder control. In many cases, this large deflection of the rudder can also cause a tendency for the plane to roll slightly in the direction the rudder has been moved. To keep the plane moving straight and in the proper attitude, a small amount of opposite aileron must be fed in to overcome the rolling tendency caused by the rudder. You could manually correct for the roll by holding the aileron stick slightly deflected, or you could use a Compensation Mixer to have the aileron fed in automatically when you hold the rudder. By selecting the rudder as the Master channel and the ailerons as the Slave channel, the ailerons would move automatically when you deflected the rudder, but moving the ailerons would

have no effect on the rudder. In this example, you would want to take advantage of being able to turn the Compensation Mixer on and off during flight, since the coupling of the rudder and ailerons is useful only during the knife edge maneuver.

When you are trying to decide how to use the Compensation Mixer, go over in your mind how you fly your plane and carefully analyze the control inputs you make. If you find that you are always using one control to counteract undesirable tendencies caused when you use another control, consider using the Compensation Mixer. If you find that you are using one control to correct for tendencies caused by another only during certain maneuvers, consider using the Compensation Mixer and assigning it to a switch so you can turn it on and off as needed.

Now we will go through how to set up and adjust the Compensation Mixer item by item.

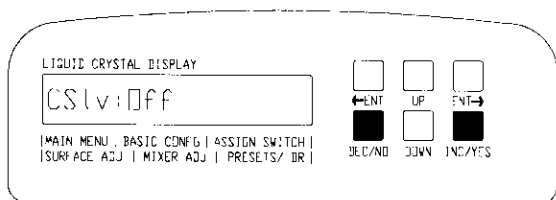
### MASTER CHANNEL SELECTION



This Menu item indicates which function will act as the Master channel when the Compensation Mixer is activated. Pressing the **INC** or **DEC** buttons will cause the names of the various functions to appear in the display. Use the **INC** or **DEC** buttons until the name of the function you want to be the Master channel appears in the display. When you first go to this item, or if you press the **DEC** button enough, the display will read **CMst:OFF**, which means the Mixer is disabled entirely. Once you have selected the desired function, be sure to move to another Menu item to lock in your choice.

Press the **DOWN** button to move to Slave Channel Selection.

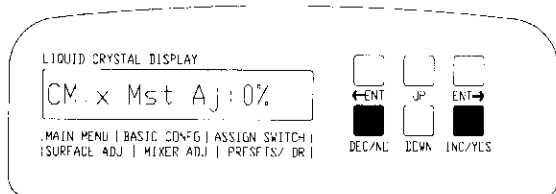
## SLAVE CHANNEL SELECTION



This Menu item indicates which function will act as the Slave channel when the Compensation Mixer is activated. Pressing the **INC** or **DEC** buttons will cause the names of the various functions to appear in the display. Use the **INC** or **DEC** buttons until the name of the function you want to be the Slave channel appears in the display. When you first go to this item, or if you press the **DEC** button enough, the display will read **CSlv:OFF**, which means the Mixer is disabled entirely. Once you have selected the desired function, be sure to move to another Menu item to lock in your choice.

Press the **DOWN** button to move to Master Channel Adjustment.

## MASTER CHANNEL ADJUSTMENT



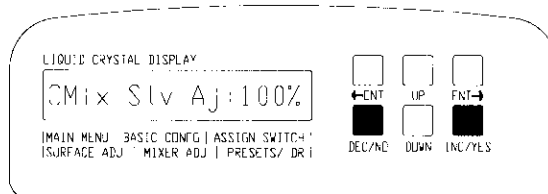
This Menu item adjusts how much affect the Master channel will have on the Slave channel. The value in the display represents the percentage the Slave will move when the Master is moved to its full travel. The higher the value, the more the Slave will move when the Master is moved. When the value is 0%, the Slave will not move at all. When the value is 100%, the Slave will move to the full extent of its travel when the Master is moved to full travel.

To adjust the amount of Slave movement, first be sure that the Mixer is turned on and that you have selected both the Master and Slave channels. Then move the Master channel to its full travel and watch the Slave channel. Pressing the **INC** button will cause value in the display to increase and

cause the Slave channel to move. If the Slave channel moves in the proper direction, continue to press the **INC** button until the Slave moves the desired amount when the Master is at full deflection. If the slave moves in the opposite direction from what is desired when you press the **INC** button, start to press the **DEC** button. Pressing the **DEC** button long enough will cause the value in the display to go negative and reverse the direction the Slave moves. Continue to press the **DEC** button until the Slave moves the desired amount when the Master is at full throw. Now operate the Master channel and double check that the Slave moves in the direction you want. Once you have the value set for the proper amount of movement, remember to move to another Menu item to lock in the change.

Press the **DOWN** button to move to Slave Channel Adjustment.

## SLAVE CHANNEL ADJUSTMENT

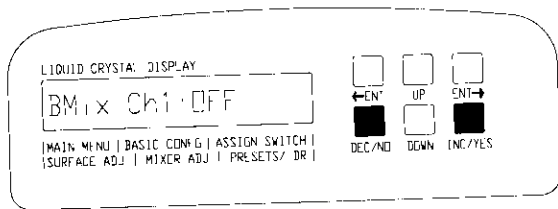


This Menu item allows you to limit the total amount throw available on the Slave channel when the Compensation Mixer is turned on. It does not affect how far the Slave will move when the Master moves; it limits how far the Slave will move on its own. In effect it acts like a dual rate for the Slave channel when the mixer is activated.

When you first go to this Menu item, the display will read **CMix Slv Aj:100%**. This means that 100% of the Slave channel's movement will be available when the mixer is active. Pressing the **DEC** button will cause the value in the display to get smaller and reduce the amount of throw available for the Slave channel. In the vast majority of situations you will leave the value at 100%, but having this adjustment available does give you the flexibility to have a reduced amount of Slave movement if a specific situation requires it.

Press the **DOWN** button to move to Bi-Directional Mixing.

## BI-DIRECTIONAL MIXING



The Bi-Directional Mixer takes two channels and mixes them both together so that each channel will affect the other channel. This type of Mixer is used when you need to have specialized control surface configurations such as a V-Tail. There are also Bi-Directional Mixer Options which allow the Mixer to act as a compensation type mixer. (see page 16) In practice, you select the two channels which will be mixed together. In the case of a V-Tailed plane, the functions would be rudder and elevator. What the Bi-Directional Mixer does is mix each of these two functions into the other one. With the Mixer activated, moving just the elevator stick will cause both of the servos to move in the same direction, and moving just the rudder stick will cause both the servos to move in opposite directions. This is so you can connect each of the servos to one of the V surfaces and get the proper control action; moving the elevator stick will cause both of the surfaces to move up or down for pitch control, moving the rudder stick will cause one surface to move up and the other to move down for turning control.

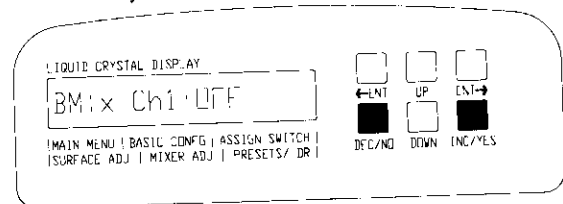
Since the type of mixing the Bi-Directional Mixer are used for is always required by the specialized control setups, there is no way to turn off the Bi-Directional Mixer in flight. Once you have selected a control for Channel 1 and a control for Channel 2 the Mixer will always be on. If there is no control selected for both Channel 1 and Channel 2 then the Mixer will be off.

There are some special rules for adjusting the centering, rotation direction and travel volumes when the Bi-Directional Mixer is being used. When using the Mixer each of the two servos involved is connected to a separate control surface. Adjustments to either centering or the direction of movement apply to the servos themselves and

have nothing to do with the control sticks. For example, in a V-Tailed plane the rudder servo would be attached to the right side V surface and the elevator servo would be attached to the left side V surface. If you need to adjust the centering of the right side V surface or reverse the direction of its movement you would use the adjustments for the rudder. In the same manner to adjust the centering or movement of the left surface you would use the adjustments for the elevator. Making these types of adjustments will in no way affect the other V surface. When the time comes to make travel volume adjustments, these relate to the control stick. If you want to have less up elevator, you would make the adjustment at the up elevator travel volume adjustment just as if you were not using a Bi-Directional Mixer. Reducing the value will cause both servos to move less so that you will get less movement on both of the control surfaces when the elevator stick is moved.

Now we will go through how to set up and adjust the Bi-Directional Mixer item by item.

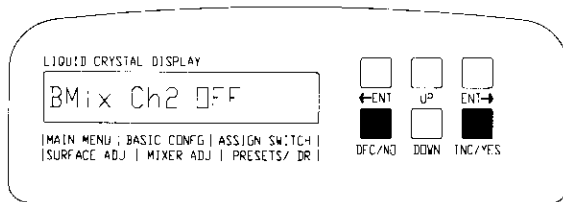
### CHANNEL 1 SELECTION



This Menu item indicates which function will act as Channel 1 for the Bi-Directional Mixer. Pressing the **INC** or **DEC** buttons will cause the names of the various functions to appear in the display. Use the **INC** or **DEC** buttons until the name of the function you want to be Channel 1 appears in the display. When you first go to this item, or if you press the **DEC** button enough, the display will read **BMix Ch1:OFF**, which means the Mixer is disabled entirely. Once you have selected the desired function, be sure to move to another Menu item to lock in your choice.

Press the **DOWN** button to move to Channel 2 Selection.

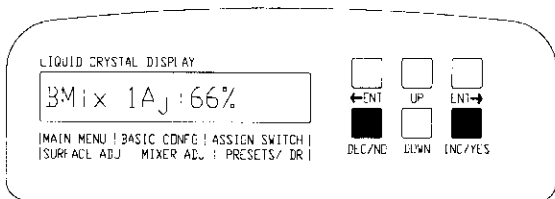
## CHANNEL 2 SELECTION



This Menu item indicates which function will act as Channel 2 for the Bi-Directional Mixer. Pressing the **INC** or **DEC** buttons will cause the names of the various functions to appear in the display. Use the **INC** or **DEC** buttons until the name of the function you want to be Channel 2 appears in the display. When you first go to this item, or if you press the **DEC** button enough, the display will read **BMix Ch2:OFF**, which means the Mixer is disabled entirely. Once you have selected the desired function, be sure to move to another Menu item to lock in your choice.

Press the **DOWN** button to move to Bi-Directional Mixer Balance Adjustment.

## CHANNEL 1 AND 2 ADJUSTMENTS



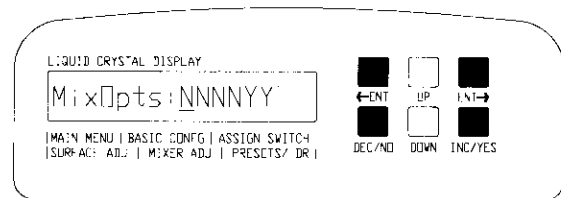
These adjustments let you reduce the amount of surface movement you will get when one channel is moved without affecting the amount of movement when the other control is operated.

To make the adjustment, go to the Menu item under the Mixer Adjust column which reads either **BMix 1Aj Bal:66%** or **BMix 2Aj:66%**. Pressing the **INC** button will cause the value in the display to grow larger and increase the amount of movement, while pressing the **DEC** button will decrease the amount of movement.

If you continue to press the **DEC** button, the value will go negative, which reverses the direction the surfaces will move when that channel is operated.

Press the **DOWN** button to move to Mixer Options.

## MIXER OPTIONS



This Menu item allows you to affect how the Compensation and Bi-Directional Mixers operate. Go to the Menu item which reads **MixOpts:NNNNYY**. Note the small underline, called a cursor, under the first **N**. This indicates that the first position is the one you can change at the moment. Press the **ENT>** button and you will see that the cursor move to the right, allowing you to pick which position you wish to change. Pressing the **<ENT** button will move the cursor to the left. Move the cursor back under the first **N**. Now press the **INC/YES** button. Two things will happen. The first **N** will change to a **Y**, indicating that the position has been changed from No to Yes. The cursor will also move one space to the right. If you wish to change the next position, press **INC/YES** again, if not, use **ENT>** to move to the next channel you do want to reverse. If you change a position by mistake use **<ENT** to move the cursor back under the particular channel and then press the **DEC/NO** or **INC/YES** button to return the position to its default setting.

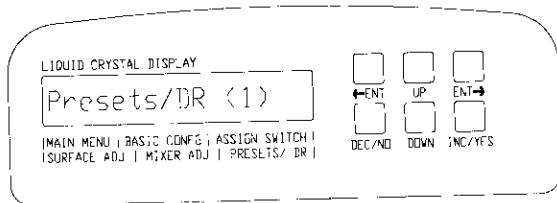
The first four positions in this item affect the Compensation Mixer. Answering Yes to the first position will allow the Compensation Mixer to be active only when the Roll Button is depressed. Answering Yes to the second and third positions will allow the Slave to be affected only when the Master is moved in one direction or the other. Answering Yes to the fourth position causes the Slave to move in the same direction all the time, regardless of the direction the Master is moved.

The last two positions affect the Bi-Directional Mixer. Answering No to the fifth position causes Channel 2 to have no affect on Channel 1. Answering No to the sixth position causes Channel 1 to have no affect on Channel 2.

This is the last Menu item in the Mixer Adjust column. Press the **ENT>** button to move to the Presets/DR column.



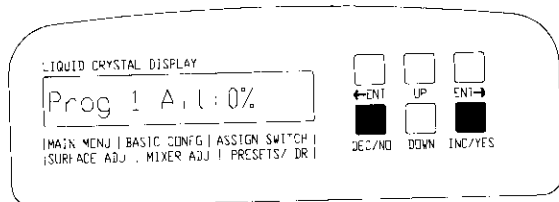
## PRESETS AND DUAL RATES GROUP



The Presets and Dual Rates column contains Menu items which let you alter the flying characteristics of the plane in flight by moving switches or pressing the Roll Button on the transmitter.

Press the **DOWN** button to move to Roll Button Programs.

### ROLL BUTTON PROGRAMS



The Roll Button Programs allow you to press the spring loaded button on the upper left corner of the transmitter and have the ailerons, elevator and rudder move instantaneously to positions you have preset without having to move the control sticks. As long as you hold the button down, the surfaces will be offset to the preset positions. As soon as you release the button, the three controls will return to their normal neutral positions. Even when you are holding down the button, you always have the ability to move the controls with the sticks, so you can override the preset positions to make any control corrections that may be required.

The Infinity 600 has two different Roll Button Programs available. You can use one or both as required. By assigning each one to a different switch on the top of the transmitter, you can select in flight which of the Programs will be activated when you press the Roll Button. The usual way to assign the Programs is to put each of them on the opposite side of the same switch; that way, when one is turned on you are sure that the other is off. If you decide to assign the programs to individual

switches and mistakenly turn both on, the Infinity will use the program with the lowest number; Program 1 would be used before Program 2.

The amount each of the three controls will move when the Roll Button is pressed and the direction of movement is fully adjustable and completely independent of the other two controls. For example, for Program 1 you could set all three of the controls to 100% movement; full right aileron, full up elevator and full right rudder. Pressing the Roll Button when Program 1 was active would produce an inside snap roll to the right without touching any of the sticks. For Program 2, you could set the ailerons the same as Program 1, but set the elevator and rudder to -100%, for full down and full left. Pressing the Roll Button with Program 2 selected would produce an outside snap roll to the right. In both cases the snap rolls will always be consistent because each of the three controls will reach full travel at exactly the same time every time you press the button.

The Infinity 600 gives you an interesting option when using the Roll Programs. Say that for Program 1 you set the ailerons to 50% throw and leave the elevator and rudder at 0%. Now when you press the Button, the ailerons will move and the plane will start to roll. Since the sticks retain full authority even when the Roll Button is depressed, you can follow through with the elevator as the plane goes through the slow roll. The roll rate will remain constant throughout the roll because the ailerons will stay deflected the exact same amount throughout the maneuver. Or you could set Program 2 so that you will get 75% rudder and leave the ailerons and elevator at 0%. Now you can roll the plane to a knife edge attitude, press the Roll Button and have the proper amount of rudder to maintain knife edge while still being able to make corrections with the ailerons and elevator.

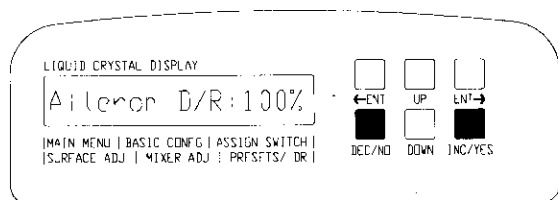
The procedure for setting up the Roll Programs begins with deciding how you will select between the Programs. If you are only going to use one of the Programs, you can go to the Switch Assignment Column and turn one Program on and the other off. This will mean that whenever you press the Button you will get the presets programmed into the one active Program. If you are planning to

use both Programs, we strongly recommend that you assign each of the Programs to the opposite side of the same two position switch. That way, whenever you select one Program, the other will automatically be turned off.

The process for actually setting the position a control surface will assume when the Button is pressed is the same for all of the six settings available in the two Roll Button Programs, so we will go through only one example. Go to the Menu item under the Presets and Dual Rates column which reads **Prog 1 Ail:0%**. Make sure that Program 1 has been activated by placing the appropriate switch in its proper position. Press and hold the Roll Button. Now press the **INC** button. This will cause the value in the display to increase and the ailerons to move. If the ailerons are moving in the direction you want them to, continue pressing the **INC** button until they reach the position you want them to be in for Program 1. If the ailerons are moving in the opposite direction from the one you want, press the **DEC** button. This will cause the number in the display to go negative and move the ailerons in the opposite direction. Once you have set the position you want, release the Roll Button. Press the Button again to confirm that the ailerons move in the direction and the amount that you want them to, then press the **DOWN** button to move to the next control to be programmed. Repeat this procedure until you have programmed all the controls for all the Roll Button Programs you plan to use.

Press the **DOWN** button until you reach Dual Rates.

## DUAL RATES



The Dual Rate Function allows you to have two different amounts of control throw depending on the position of the D/R Switch. This allows you to have a large amount of throw for slow speed flight

and then reduce the throw for high speed flight. Or you can set the Rates up so that you have the proper amount of throw for take offs, landings and normal flight and larger amounts of throw for aerobatics. It is also useful to have when you are test flying an airplane and are not sure what the throw should be. The Dual Rates will allow you to set up two amounts of throw so that if you find the plane is too sensitive you can reduce the throw with a flip of a switch.

You should adjust the Dual Rates after the control throws have been set up using the Travel Volume adjustments. Go to the Menu item which reads **Aileron D/R:100%**. This is where you will adjust what percentage of throw you will have available when the Dual Rate is turned on. When the value is 100%, you will have full throw available and the D/R Switch is effectively disabled. Pressing the **DEC** button will lower the value on the display and reduce the amount of throw you will have available when you turn the switch on. Once you have used the **INC** and **DEC** buttons to select the value you want, move to another Menu item to lock in the value. The adjustment process for the Elevator and Rudder Dual Rates is the same.

When using the Dual Rate function keep in mind that the higher amount of control throw is available when the Rate is off, and the reduced throw is available when the Rate is on. You should also understand that the D/R reduces throw in each direction by the same percentage, so that if you have your elevator set for more up than down, with the Dual Rate activated you will still have more up than down, but less of each.

The Dual Rates are the last items in the Presets and Dual Rate column.

## QUICK REFERENCE GUIDE

The **Quick Reference Guide** allows you to look up a particular Menu item and get basic information about what it affects in the program and how it is adjusted. If you need more information about an item, look the item up in the section **Operation And Adjustment Of The Infinity**, which begins on page 12.

### MAIN MENU GROUP

- L Setup** Loads desired aircraft setup into transmitter. Use INC or DEC button to select desired setup number and press both ENT buttons to load.
- Protect?** Protects programmed data for current setup. Answer Yes to protect data, No to allow data to be changed.
- Trainer?** Answer Yes to turn Trainer on and Roll Program off. Answer No to turn Trainer off and Roll Program on.
- Mode I?** Selects between Mode I and Mode II. Answer No for Mode II and Yes for Mode I.
- Lo Thr Trim?** No allows the throttle trim to work all of the time. Yes disables the trim when the throttle stick is in the upper third of its travel.
- Audio Enab?** No turns off beep, Yes turns on beep.
- Aileron 124** This tests which stick or lever controls the indicated function. The stick controlling the function will cause the value to change. Use INC or DEC buttons to step through the different functions.
- Switch Test** This will display which switches are activated and what functions they control.

### BASIC CONFIGURATION GROUP

- Data Reset?** Pressing both ENT buttons resets all programmed data for the setup.
- V Tail?** Answer Yes to control V Tail planes, No for standard configuration.
- 2 Ail Servo?** Yes allows two servos to be used for the ailerons, one servo for the left and one for the right.
- Elevon?** Answer Yes to control elevon equipped planes, No for standard configuration.
- PCM 6 Rec?** Answer Yes for PCM receivers, No for PPM receivers
- Reverse:NNNNNN** Reverses the servos. Press DEC/NO button to have normal rotation, INC/YES to reverse rotation.

### ASSIGN SWITCH GROUP

- PROG1on** Use INC or DEC buttons until number of switch desired to control identified function appears in parentheses.

## **QUICK REFERENCE GUIDE**

NOTE: All items on this page are adjusted by using the INC or DEC buttons.

### **SURFACE ADJUSTMENT GROUP**

<b>Center Ail</b>	Adjusts the neutral position of the identified control.
<b>Thrt Lo Aj</b>	Adjusts throttle position at low throttle.
<b>Thrt Hi Aj</b>	Adjusts throttle position at high throttle.
<b>Aileron LTV</b>	Adjusts the travel of the identified control in the indicated direction.

### **MIXER GAINS GROUP**

<b>Ail-&gt;Rudd</b>	Adjusts amount of rudder movement with ailerons when mixing is turned on.
<b>Elev-&gt;Flap</b>	Adjusts amount of flap movement with elevator when mixing is turned on.
<b>Flap-&gt;Elev</b>	Adjusts amount of elevator movement with flaps.
<b>F/E-&gt;LAil</b>	Adjusts amount of aileron movement with flaps for flaperons or elevator for elevons.
<b>CMst</b>	Selects Compensation Mixer Master channel.
<b>CSlv</b>	Selects Compensation Mixer Slave channel.
<b>CMix Mst Aj</b>	Adjusts amount of Slave movement relative to Master movement while Compensation Mixer is on.
<b>CMix Slv Aj</b>	Adjusts amount of Slave travel available when Compensation Mixer is on.
<b>BMix Ch1 or Ch2</b>	Selects Bi-Directional Mixer Channel 1 or Channel 2.
<b>BMix 1Aj or 2Aj</b>	Adjusts amount of movement for each Channel of Bi-Directional Mixer.
<b>MixOpts:NNNNYY</b>	Selects options for mixers.

### **PRESETS AND DUAL RATE GROUP**

<b>Prog 1 Ail</b>	Adjusts the position the identified surface will move to when Roll Program 1 is on and the spring loaded switch is pressed.
<b>Prog 2 Ail</b>	Adjusts the position the identified surface will move to when Roll Program 2 is on and the spring loaded switch is pressed.
<b>Aileron D/R</b>	Adjusts amount of throw available when Aileron D/R Switch is activated.
<b>Elev D/R</b>	Adjusts amount of throw available when Elev D/R Switch is activated.
<b>Rudd D/R</b>	Adjusts amount of throw available when Rudder D/R Switch is activated.

## SAILPLANE SETUP GUIDE

To simplify setting up the Infinity 600 for high performance flap and aileron equipped sailplanes, this section will go through a step by step procedure for setting up a sailplane. Before starting the setup procedure, read over the functions that will be available so you will understand what the Infinity's capabilities are and how they will affect your plane's performance.

**\*Two Aileron Servos:** This allows you to use one servo to control the left aileron and a second servo to control the right aileron. The advantage to this type of installation is that you have the ability to adjust the neutral position and control throws of each aileron without affecting the opposite aileron. You also have the ability to electronically adjust the ailerons for differential movement.

**\*One Flap Servo Output:** You will have to use one flap servo to control both flaps or connect two flap servos together by using a "Y" harness. The neutral position and control throws of both flaps will be adjusted simultaneously from the Menu items in the transmitter.

**\*Flaps operated by the ratched control stick:** By positioning the jumper cable in the transmitter as described below all of the flap mixing functions will operate from the ratched stick.

**\*One switch activated Flap Preset:** This allows you to have the flaps move to a preset position for launch when a switch is activated. This feature only moves the flaps; you do not have the ability to move the ailerons at the same time as you do in the Vision radio.

**\*Crow Option:** This feature allows you to have both ailerons move either up or down when lowering the flaps for landing. Raising the ailerons slightly provides a measure of washout in the tip panels and will help prevent tip stalling at lower landing speeds. Raising the ailerons larger amounts increases the drag of the wing and decreases the lift generated by the tips, which will cause the plane to lose airspeed and descend more quickly. Lowering the ailerons slightly with the flaps increases the lift of the wing and allows a slower landing speed without stalling the plane. Which direction the ailerons should move depends on

your personal preference and the plane you are flying. When experimenting with Crow be sure to keep the amount of aileron deflection small at first and increase it in gradual steps: large amounts of aileron deflection will cause the loss of aileron effectiveness on landing approach. If you are using the Crow Option, it will be active all the time; there is no way to turn it on and off in flight.

**\*Elevator/Camber Mixing:** This allows you to have the entire trailing edge of the wing, flaps and ailerons, move downward slightly when you give up elevator. Normally when you are pulling a constant amount of elevator while flying a sailplane it is because you are turning in lift. With Elevator/Camber mixing activated, the trailing edge of the wing will be lowered when you are holding up, which increases the lift of the wing and allows the plane to climb faster. If you push down elevator to get the plane on step and move across the sky, the entire trailing edge will deflect upward slightly, reflexing the airfoil and causing the plane to accelerate more quickly. The Infinity allows you to turn this mixing on and off in flight if you assign the mixing to a switch.

**\*Elevator Compensation with Flaps:** This mixing is a must with sailplanes that deploy the flaps to 90 degrees. When the flaps are lowered, there is a strong tendency for the nose of the model to pitch up. Elevator Compensation allows you to have down elevator feed in automatically as the flaps are lowered to overcome this pitching up tendency. Since the down elevator is required any time the flaps are deployed, this mixing is always active as long as you have a value set in the Menu item controlling the amount of elevator movement.

### SETTING UP THE TRANSMITTER

1. Load the Setup you wish to use with the Load Setup Menu item.
2. Be sure that the Menu Protection is deactivated.
3. Set Low Throttle Trim item to read No.
4. Go to the Data Reset item under Basic Configuration. For sailplane use the ratched stick should be placed at whichever end of its travel you want to be the "flaps up" position. The Aux Lever

should still be at its center position when the Data is reset. Note that the Low Throttle Trim Option is not available for sailplane operation.

5. Once the Data Reset operation has been completed, you must move the jumper which will allow the flap function to be controlled by the ratched stick. Remove the back from the transmitter. Tucked between the right side stick assembly and the case below the Aux Lever you will find a black female connector with a smaller red plug inserted into it. Carefully slip the jumper assembly out of the case so you can remove the red plug from the black connector. You will notice that the connector has three pins which are labeled 1, 2 and 3, while the red plug has only two. As the radio is delivered, the red plug was inserted so that pins 2 and 3 were in contact with the plug and pin 1 was open. For sailplane use, reinsert the red plug so that pins 1 and 2 are in contact and pin 3 is open. This shifts the flap mixing functions from the Aux Lever to the control stick and deactivates the Aux Lever completely. After moving the plug tuck the jumper back into position and replace the back of the transmitter.

**IMPORTANT NOTE: WHENEVER USING THE DATA RESET FUNCTION THE JUMPER MUST BE MOVED BACK TO THE PIN 2 AND 3 POSITION BEFORE RESET-TING.** If the plug is not in the proper position and the Aux Lever is not centered when performing the Data Rest operation your flaps and associated mixers will not function properly.

6. Answer **Yes** to the Two Aileron Servo item.

7. Assign the Compensation Mixer and the Elevator Flap Mixer to the same switch. This is the switch which will turn on and off the Elevator/Camber Mixing.

8. Assign the Aileron Rudder Mixing to whichever switch you desire on the transmitter.

9. Assign the gear switch to whichever switch on the transmitter you wish to control the flap preset.

10. Set the **Thrt Lo Aj** item to 50%.

11. Set the **Gear Up TV** and **Gear Dn TV** to 0%.

12. Set the **F/E>Lail** and **F/E>RAil** to 10%.

13. Select **Elev** as the Master for CMix.

14. Select **Thrt** as the Slave for CMix.

15. Select **Thrt** as Channel 1 for BMix.

16. Select **Gear** as Channel 2 for BMix.

17. Set **BMix 1Aj** and **BMix 2Aj** to 100%.

### **ADJUSTING THE SETUP**

Install all of the airborne components in your plane, then use servo reversing to be sure that all of the controls operate in the correct direction. Adjust the centering for the elevator, rudder and two ailerons with the appropriate Menu items under the Surface Adjust Column. Adjust the neutral position of the flaps by using the **Thrt Lo Aj** Menu item. If possible, do not have the value in this item go below 25% or above 75%, as values outside this range will cause a reduction in the amount of throw available for the flaps.

Set the control throws using the Travel Adjustments under the Surface Adjust Column. The flaps are adjusted by using the **Thrt Hi Aj** Menu item. To have aileron differential, you need to set the down travel for each aileron to be less than the up travel for each aileron.

The Mixing functions are adjusted as follows:

**Ail>Rudd** adjusts the amount of rudder movement when the ailerons are deflected and A/R coupling is active.

**Elev>Flap** Adjusts the amount the ailerons will move when up elevator is pulled and Elevator/Camber mixing is active. The value can be set either positive or negative as required.

**Flap>Elev** Adjusts the amount of elevator compensation when the flaps are lowered. The value can be set either positive or negative as required.

**F/E>Lail** and **F/E>RAil** adjust the amount the left and right ailerons move when the Crow option is used. The value can be set either positive or negative to move the ailerons up or down as required. You must have at least a 10% entered if you want the ailerons to move when using Elevator/Camber mixing.

**CMix Mst Aj** Adjusts the amount the flaps will move when up elevator is pulled and Elevator/Camber mixing is active. The value can be set either positive or negative as required.

**Gear Dn TV** Adjusts how much the flaps will move when the switch controlling the gear is activated. When assigning the switch, remember that moving the switch to the position which turns off the gear will cause the flaps to move.

# MENU STRUCTURE FOR INFINITY 600A

MAIN MENU	BASIC CONFIG	ASIGN SWITCH	SURFACE ADJ	MIXER ADJ	PRESETS/DR
Load Setup	Data Reset	Roll Program 1	Center Aileron	Aileron>Rudder	Program 1 Aileron
Menu Protection	V Tail <sup>FM</sup> CH 1, CH 2	Roll Program 2	Center Elevator	Elevator>Flap	Program 1 Elevator
Trainer	2 Aileron Servos - <sup>FM</sup> CH 3, CH 4	Compensation Mixer	Center Rudder	Flap>Elevator	Program 1 Rudder
Mode I or II	Elevons - <sup>NO = 2 AIL</sup> CH 3, CH 4 <sup>FM</sup>	Elevator>Flap Mix	Center Aux	F/E>Left Aileron	Program 2 Aileron
Low Throttle Trim	Receiver Type	Aileron Dual Rate	Throttle Low Adjust	F/E>Right Aileron	Program 2 Elevator
Audio Enable	Servo Reversing	Elevator Dual Rate	Throttle High Adjust	Comp Mixer Master	Program 2 Rudder
Stick Function Test	Send Failsafe	Rudder Dual Rate	Aileron Left TV	Comp Mixer Slave	Aileron Dual Rate
Switch Test		Aileron>Rudder Mix	Aileron Right TV	C Mix Master Adjust	Elevator Dual Rate
		Landing Gear	Elevator Up TV	C Mix Slave Adjust	Rudder Dual Rate
			Elevator Down TV	Bi Mix Channel 1	
			Rudder Left TV	Bi Mix Channel 2	
			Rudder Right TV	Bi Mix Ch 1 Adjust	
			Aux TV 1	Bi Mix Ch 2 Adjust	
			Aux TV 2	Mixer Options	
			Gear Up TV		
			Gear Down TV		

REVERSING SWITCH ORDER	FM RECEIVER OUTPUT ORDER	PCM RECEIVER OUTPUT ORDER
Position 1 Aileron	Channel 1 Gear	Channel 1 Throttle
Position 2 Elevator	Channel 2 Elevator	Channel 2 Aileron
Position 3 Rudder	Channel 3 Aileron	Channel 3 Elevator
Position 4 Throttle	Channel 4 Aux	Channel 4 Rudder
Position 5 Aux	Channel 5 Throttle	Channel 5 Gear
Position 6 Gear	Channel 6 Rudder	Channel 6 Aux