X-347 ™

PCM

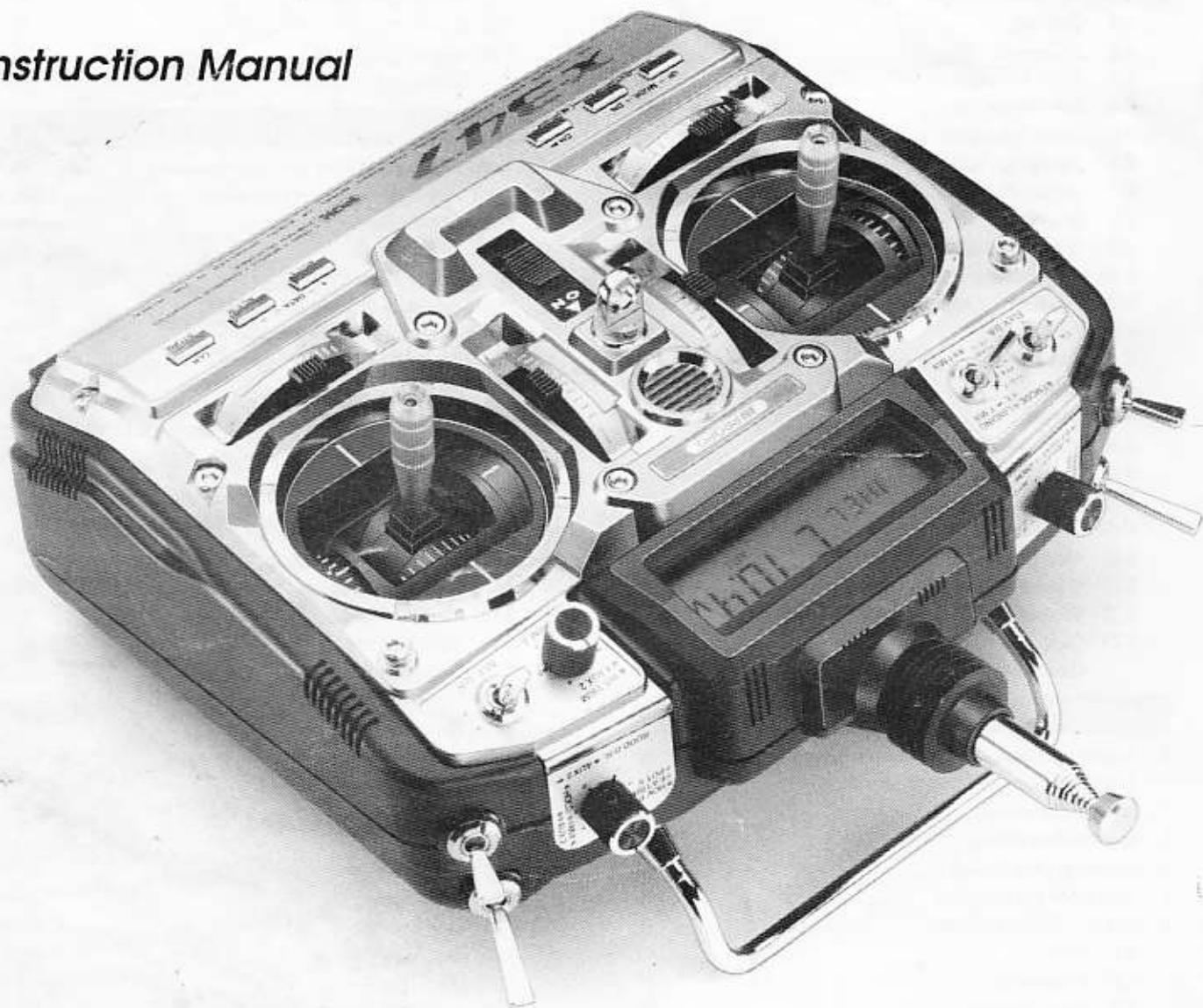### THE ULTIMATE RADIO CONTROL SYSTEM

JR REMOTE CONTROL ™
RADIO CONTROL SYSTEMS

Instruction Manual

#J7XPH Helicopter Computer Radio
#J7XPC Airplane Computer Radio
#J7XPG Glider Computer Radio

Table of Contents

Organization of the Instructions

The X-347 is a full-feature radio for all three types of aircraft. For this reason, this manual is composed of three main sections, each one explaining the features and setup for a particular type of model. In the beginning of this manual, you will find the specifications for the radio and its various accessories. In addition, guidelines for the initial installation of the accessories have been included.

Next, you will find instructions for setting all the functions and programs of the X-347 to suit your personal preferences. These features are discussed in the same order that they will appear on your radio, as you will see on the accompanying charts. An explanation of the use and purpose of each feature is provided, followed by a labeled illustration of its respective LCD display. in addition, a step-by-step example is included to clarify the setup procedure of the feature.

A blank data sheet has also been included at the end of this manual. Once all data has been input for a particular model, it is highly recommended that you also record it on the data sheet. If you should experience a memory battery failure or wish to make changes to the current settings, this extra step will save a lot of time. Following the

data sheet, you will find information on precautionary measures and general guidelines for safe use of your new equipment.

Use of the Instructions with the Radio

Many of the functions and controls of the X-347 are common to two or all three types of aircraft. In order to distinguish between them, the switches and knobs on the radio have been color-coded. You may also find that this will simplify the learning process. The individual functions should be identified with the aircraft as follows:

- Helicopter – dark blue dot
- Airplane – red dot
- Glider – aqua dot

If a particular function applies to more than one type of aircraft, there will be two or three colored dots on the radio. When using the color coding system, look for the dot that corresponds with the type of aircraft you are flying; the name next to it will be the function of that particular switch or knob. For example, the switch on the front, top-left corner of the X-347 controls three functions; the Invert switch for helicopters (dark blue dot), the Retract switch for airplanes (red dot) and the Crow switch for gliders (aqua dot). These functions are labeled next to their respective colored dots on the radio.

1. Features

Transmitter NET-C127HZ Computer

- The micro computer system used in the X-347 is the easiest to understand, easiest to operate multi-function computer radio developed.

- The all-new LCD screen is large and easy to read.

- Computer designed, ergonomically styled transmitter case insures a good, comfortable fit in your hands.

- The improved control sticks offer adjustable spring tensions and length. The Throttle Stick offers ratchet or smooth travel.

- Four model memory storage allows programming of all characteristics for four separate helicopters, airplanes or gliders; or, more than

one setup for a single aircraft , allowing you to instantly change the flight characteristics.

- Five year lithium back-up battery prevents loss of memory in the event the battery discharges completely or is removed.

- Automatic fail safe "set" and information update in PCM mode when fail safe is used.

- Programmable Trainer Function allows student to practice individual channels separately.

- Direct Servo Controller (DSC) permits operation of all the controls and servos without generating a radio signal.

Specifications

System Name		Helicopter C7C-5SHR	Airplane C7C-4SFR	Glider C7C-2FSR
Transmitter	Main Body	NET-C127HZ	NET-C127HZ	NET-C127HZ
	Module	NET-J72P	NET-J72P	NET-J72P
Receiver		NER-627X "G" series	NER-627X "G" series	NER-627X "G" series
Servo		NES-517 x 5	NES-517 x 4	NES-901 x 2
Charger		NEC-222	NEC-221	NEC-221
Airborne Battery		4N-1000	4N-550	4N-550
Accessories	Deluxe switch harness, grommets, servo arms, DSC cord, aileron extension, hex wrench, instruction book and warranty card.			

Transmitter

Model No.	NET-C127HZ
Encoder	8 channel computer system
RF module	50/53/72 MHz
Modulation	PCM or PPM
Output power	Approximately 1w
Current drain	200mA (DSC 50mA)
Power source	1.2v x 8 Ni-Cd (9.6v) 550 mAH
Output pulse	1000µs/2000µs (1500 neutral)

Receiver

Model No.	NER-627XZ
Type	7-ch FM-ABC&W, ACI PCM
Frequency	50/53/72 MHz
Sensitivity	5µV min.
Selectivity	8 KHz/50 dB
Weight	44 g (1.55 oz.)
Size	H21xW36xD51mm (.83 x 1.42 x 2.0")

Servo

Model No.	NES-517	NES-901
Torque	40.2 oz/in	41.6 oz/in
Speed	0.27 sec/60°	.27 sec/60°
Input pulse	1.5MS±600µs	1.5MS±600µs
Power source	4.8v DC Ni-Cd	4.8v DC Ni-Cd
Weight	1.73 oz.	1.2 oz.
Size	1.32"H x .75"W x 1.54"L	1.35"H x .70"W x 1.32"L

Charger (Helicopter)

Model No.	NEC-222
Input voltage	AC 100-120v
Output current	50mA Tx/120mA Rx
Charging time	15 hours

Charger (Airplane, Glider)

Model No.	NEC-221
Input voltage	AC 100-120v
Output current	50 mAH Tx/50 mAH Rx
Charging time	15 hours

Airborne Battery Pack

	Helicopter	Airplane	Glider
Model No.	4N-1000	4N-550	4N-550
Voltage	4.8v	4.8v	4.8v
Size	1.7 x 2.6 x .63"	2 x 2.15 x .57"	2 x 2.15 x .57"
Weight	140 g (4.94 oz.)	93.6 g (3.3 oz.)	93.6 g (3.3 oz.)

3.1 Control Identification and Location

AIRPLANE [ACRO]

Carrying Handle

Flap Knob

Snap Roll
Trainer/Timer SW

Retract Gear SW

Elevator Dual Rate SW

Flap Mixing Switch
E ▶ F – Elev-Flap Mix
■ – Off
LAND – Landing Mode

Neckstrap Eyelet

Throttle/Rudder Stick

Throttle Trim

Rudder Trim

Power SW

—Antenna

—LCD Display (do not press)

—Inhibited

—AUX 2/Mixing Switch

—Rudder Dual Rate SW

—Aileron Dual Rate SW

—AUX 2 Knob

—Elevator Trim

—Aileron/Elevator Stick

—Aileron Trim

—Input Keys

Channel Assignment
1 THRO....... Throttle Channel
2 AILE.... .....Aileron Channel
3 ELEV....... Elevator Channel
4 RUDD... ...Rudder Channel
5 GEAR....... Retract Landing Gear Channel
6 AUX 1.... ..Flap Channel
7 AUX 2.... ..Spoiler Channel

■ **Adjustment of Control Stick Spring Tension**

Remove Tx RF module, Ni-Cd battery, and six (6) transmitter back screws shown above. Remove transmitter back being careful not to bend or damage the RF module pins.

Adjust each screw shown below for desired tension. When adjusting the throttle ratchet tension, make sure that the adjusting screw does not touch the PC board after adjustment is complete. A smooth throttle tension is provided for the helicopter version.

Transmitter Module
When transmitter module is removed, you will find a pocket for a spare fuse on the left side. Spare fuses are optional.

DSC/Trainer Jack

Charging Jack for Ni-Cd Battery Only (8N-600S)

Battery Cover.
Caution: The battery connector is keyed so that it can only be plugged in one direction. Do not force.

Elevator Tension Screw

Aileron Tension Screw

Rudder Tension Screw

Throttle Tension Screw

Mode 2

■ Control Stick Length Adjustment

Twist the control stick's head set screw with a 2mm allen wrench to unlock. Then adjust the body to the desired length and retighten the set screw to re-lock.

■ Neck Strap Attachment

An eye hook is provided on the front of the transmitter for attaching a neck strap. (See page 3) This eye hook is in position to give the transmitter perfect balance when using a neck strap.

■ D.S.C. (Direct Servo Control)

For proper DSC hook-up and operation:

1. Leave the transmitter power switch in the off position. The transmitter will not transmit any RF in this position.

2. Plug the DSC cord into the transmitter DSC jack in the left side panel.

3. The transmitter encoder section will now be operational and the front panel pilot lamp should be on.

4. Plug the other end of the DSC cord into the receiver charge receptacle and turn on the receiver.

If you have made all of the proper connections, you will have full control of the servos with your transmitter just the same as if the receiver were being operated by the RF link, only you will not be transmitting any RF that will cause interference to others. Also, you will only be using 70mA of power with the DSC system instead of the normal 200mA with the RF turned on.

■ PCM and Frequency Notes

The X-347 transmitter employs a plug-in module system for transmitter frequency changes. If you wish to change frequency, you simply change the RF module.

Please note the X-347 transmitter can operate either in the PCM or PPM modulation modes. Be certain to observe the following:

- DO NOT operate your transmitter when another transmitter is "ON" using the same frequency regardless whether it is on PCM, PPM, FM or AM. You can NEVER operate two transmitters on the same frequency simultaneously without causing interference to BOTH receivers and resulting in both aircraft crashing!

- You can operate additional receivers with this X-347 transmitter in the PCM mode; you may use the PCM-10 (NER-910XZ), Galaxy 8 (NER-J329P), Max PCM (NER-627X "G" series), or Century 7 FM (NER-327, NER-527, NER-529) receivers in the PPM mode. You cannot use the PCM-9 (NER-J229) or Century 7 PCM (NER-627X) receivers with the X-347 transmitter because they don't have compatible CPU's.

- For operation in the PPM mode, any of the JR AM or FM receivers and matching transmitter RF modules are compatible.

- If you have a PPM receiver and a PCM RF transmitter module on the same frequency, this combination is compatible, but a PCM receiver can only be used with a PCM transmitter module.

- Use only the PCM "Y" harness (JRA002PCM) with the PCM receivers. This will also operate with PPM systems.

■ Aircraft Only Frequencies

JR RF modules are available in 50, 53 and 72 MHz frequencies in the United States for use with model aircraft. The use of 72 MHz frequencies requires no special license from the FCC (Federal Communication Commission), while the 50 and 53 MHz Amateur (HAM) band does require a special license to operate. See your local FCC office for details.

A chart for all available frequencies is located on the inside back cover of this manual for your reference.

■ Throttle ALT

The purpose of this function is to make the ThrottleTrim lever active only when the Throttle Stick is less than half Throttle. This means easy accurate idle adjustments may be made without affecting the high Throttle position.

■ Installation Requirements

It is important that your radio system be correctly installed in your model. Here are a few hints on installing your system.

- Wrap the receiver in foam rubber 3/8 inch thick or more for added protection. Secure foam rubber with rubber bands.

- The servos then should be mounted on the servo trays supplied, or on hardwood rails using rubber grommets and brass bushings to isolate from vibration. DO NOT OVERTIGHTEN mounting screws.

- Servos must be able to move freely over their entire range of travel. Make sure that the control linkages do not bind or impede the movement of any of the servos. A stalled servo can drain the battery within minutes.

- Mount all switches away from the engine exhaust and away from any high vibration areas. Make sure the switch operates freely and is able to operate over its full travel.

The Function Keys are used to move up and down through the functions.
The Channel Key is used to advance channel or function selected.
The Data Entry Keys are used to make changes in the selected functions.

Up Key —
Down Key
┌ Channel Key
Increase Key   Decrease Key
┌ Clear/Store Key

UP – MODE – DN   CH ►   + – DATA – –   CLR
ACT·L   ACT·R   STORE

Data Entry Keys

Channel Changer in the SYSTEM and FUNCTION modes
(Press Down and Channel Key at the same time to select previous channel or function)

Function Selection Keys
(Press both keys at the same time to enter or exit the FUNCTION mode)

Hereafter, explanation of all functions in this booklet will use the following
designations to indicate pressing individual keys.

| UP | DN | CH | + | – | CLR |

6.1 Battery Alarm and Display

When the transmitter voltage drops below 9.0 volts DC, the display
will flash BATT, and an alarm will sound 7 times. If you are flying
when this occurs, you should land immediately. If you want to use
dry batteries, you may operate the transmitter down to approximately
7.7 volts. If you wish to set alarm voltage at 7.7 volts, please contact
JR Service America to have the alarm voltage changed.

6.2 Back-Up Error Display

All pre-programmed data is protected by a five-year lithium battery
protecting against main transmitter battery failure. Should the
Lithium battery fail, the display will indicate BKUP ERR regardless of
the position of the ON/OFF switch. If this occurs, it will be necessary
to replace the battery and reprogram all data. All transmitter
programs will return to the factory default settings, and the data you
have input will be lost. When it becomes necessary to replace the
Lithium back-up battery, please contact JR Service America. Due to
the possibility of extensive damage caused by improper removal or
replacement, only JR Service America is authorized to make this
change.

BKUP ERR

• Please record all your input data on the provided data sheet.

7.1 Normal Display

When the power switch is in the ON position, the display will read as follows:

Transmitter Voltage

IACR C 10.0v

BATT

Modulation Type(C:PCM   F:PPM)

Model Name
(in Timer Mode,
Timer is displayed)

| UP | DN | CH |

Pressing the [CH] key selects between (Model name), (Timer display) and (Snap Roll) if active

| + | − | CLR |

Stop Watch Start & Stop
(Timer Display Only)

Timer Value Reset
(Timer Display Only)

Refer to p. 32 [ACRO] for Timer setting.

7.2 Function Mode

To enter the Function Mode, switch the transmitter power switch to the ON position. Press the [UP] and [DN] keys simultaneously, and the display will show the last active program. Pressing either the [UP] or [DN] key will scroll through the functions one by one, according to the Function Flow Chart shown on the following page. Once the appropriate function is displayed, changes may be made by pressing the [+] or [−] keys. To select another channel of a particular function, simply press the [CH] key. If you transfer to a different function that is channel selectable, the display will show the same channel. For example, if you are adjusting the Dual Rate of the Elevator and you change to the Exponential function, the channel remains Elevator. The Function Mode is the most often used system to input data.

■ Function Setting Mode Flow Chart

Information pertaining to each function is explained on the page number listed next to the function name. Functions will appear in the same order they are shown on this chart.

DUAL-RATE	p. 11 ACRO	Dual Rate
EIP	p. 13 ACRO	Exponential
REVERSE SW	p. 14 ACRO	Reverse Switch
S.TRIM	p. 15 ACRO	Sub Trim
T.ADJ	p. 16 ACRO	End Point Adjustment
E-F	p. 17 ACRO	Elevator—Flap Mixing
L D	p. 18 ACRO	Landing Attitude
SNPR	p. 21 ACRO	Snap Roll
DIFF	p. 23 ACRO	Differential Aileron/Elevator Setting (wing mixing only)
A		
B		
C	p. 24 ACRO	Programmable Mixing A-D
D		
FLP.P	p. 28 ACRO	Flap Value Adjusting Knob
FAL.S	p. 29 ACRO	Fail Safe (PCM Only)
TRN	p. 31 ACRO	Trainer
TIMR	p. 32 ACRO	Timer
INT.T	p. 33 ACRO	Accumulated Time of Use

UP – MODE – DN

ENT

7.3 System Setting Mode

Press both the [UP] and [DN] keys simultaneously while turning the transmitter power switch on. You can now select the following seven functions by pressing either the [UP] key or [DN] key. Although the servos will not operate at this time, please take care not to interfere with any other system as your transmitter is fully functional at this time. By pressing both the [UP] and [DN] keys simultaneously, the LCD display will indicate normal display and the servos will operate.

System Setting Mode Flow Chart

■ Information pertaining to each function is explained on the page number listed next to the function name. Functions will appear in the same order they are shown on this chart.

Display	Page		Function
MJL.	p. 34	ACRO	Model Change
NAME	p. 35	ACRO	Input Model Name
TYPE	p. 36	ACRO	Type Selection
MJL. RSET	p. 36	ACRO	Data Reset
..WING	p. 37	ACRO	Wing Mixing
MODU	p. 39	ACRO	Modulation Change PCM/PPM
SPOI	p. 39	ACRO	Spoiler Channel Input Selection
CPY.	p. 40	ACRO	Copy Function

UP — MODE — DN

(ENT)

3.1 Dual Rate

Dual Rates are available for Aileron, Elevator, and Rudder. The purpose of this function is to allow for in-flight selection of two pre-set total servo travels for each of these three channels. The amount of travel is adjustable from 0-125% in 1% increments. The factory setting for both switch positions 0 and 1 is 100%. Either position may be selected as the low or high rate by merely placing the switch in the desired position and adjusting the value for each.

Channel Display

```
          POS
  AIL.0         100%
DUAL-RATE
```

AIL ....Aileron
ELE ....Elevator
RUD ....Rudder
AUT.R ....Automatic Rudder
             D/R Setting

Dual Rate Switch Position

Dual Rate Value (0-125%)

| UP | DN | | CH | | + | – | | CLR |

To Exponential

To Integral Timer

Channel Selector
(Incl. Auto Rudder
Dual Rate Setting)

Increases or Decreases
Dual Rate Value
(Switch to Current
Dual Rate Setting)

Reset Dual Rate
Value to 100%

Example:

1. Place the transmitter switch in the ON position.

2. Press the UP and DN keys simultaneously.

3. Press either the UP or DN key until the Dual-Rate function appears in the lower left corner of the LCD.

4. Press the CH until the desired channel is displayed.

5. The number directly below POS on display indicates the current position of the Dual Rate switch for the channel selected; either a 0 or a 1 will be shown which corresponds to the position of the switch. Travel adjustments made will only affect servo operation when the Dual Rate switch is moved to the position now shown on the LCD.

6. The large number on the right side of the display indicates the percentage of servo travel currently selected. To increase servo travel, press the + key. To decrease servo travel press the – key. To reset the servo travel to 100% press the CLR key.

7. To exit the Dual Rate function, press UP and DN keys simultaneously.

8.1 Dual Rate (continued)

■ Automatic Rudder Dual Rate

Automatic Rudder Dual Rate can be used to overcome special flying problems. For instance, the rudder rate can be set so that when the throttle is moved anywhere from full low to approximately 70% full, low rudder throw is active; once the throttle is fully advanced, full rudder travel will automatically return. This could help prevent the pilot from over-controlling the rudder during the take-off roll. Con-

versely, you may find that you need more rudder travel at low speed than at high speed, as in aerobatic competition. In either case, the X-347 can adapt. The Automatic Rudder Dual Rate, when active, is coupled to the throttle position and is activated at approximately 70% of the throttle stick travel. When INHibited, the Automatic Rudder Dual Rate is not active and the rudder dual rate functions normally.

```
┌─────────────────────────────────────┐
│   AUT.R      INH                     │
│   DUAL-RATE                          │
└─────────────────────────────────────┘
```

Setting Condition
INH...Inhibit (Function Off)
ACT...Active (Function On)

| UP | DN | CH | | + | – | CLR |

To Exponential

To Integral Time   Channel Selection

Switches Auto Rudder ON and OFF

Function Off (INH)

Automatic Rudder Dual Rate Setting
Basic Operation is as Follows:
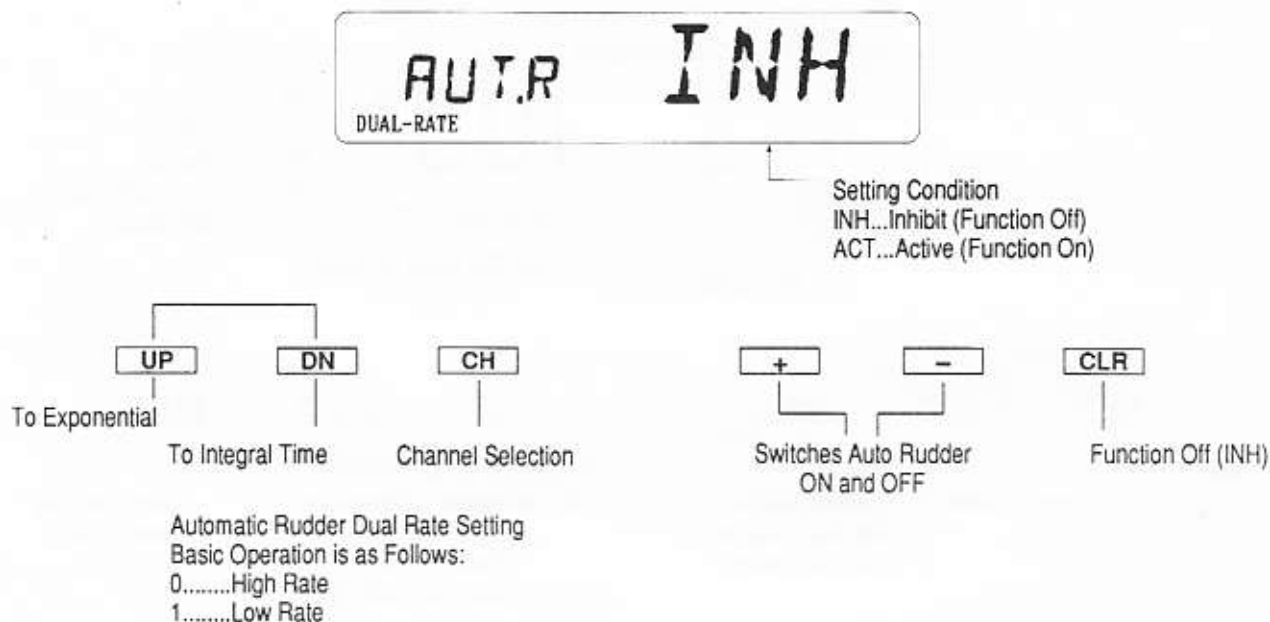0........High Rate
1........Low Rate

Example:

1. Place the transmitter switch in the ON position.

2. Press the [UP] and [DN] keys simultaneously.

3. Press either the [UP] or [DN] key until the Dual-Rate function appears in the lower left corner of the LCD.

4. Press the [CH] until the AUT.R INH is displayed.

5. Pressing either the [+] or [–] changes the Automatic Rudder Dual Rate from Inhibited to Active. Pressing this key again will return to Inhibited.

6. The Dual Rates established for the Rudder Dual Rate will also be the rates for the Automatic Dual Rate. When the Automatic Dual Rate function is Active an A will appear to the right of the switch position indicator in the Rudder Dual Rate Display.

7. The dual rate travel selected for switch position 0 will be the travel used for low throttle stick operation; the dual rate travel selected for switch position 1 will be the servo travel used when the throttle stick is in the high position.

8. To exit the Automatic Rudder Dual Rate function, press the [UP] and [DN] keys simultaneously.

Note: In order for the Automatic Rudder Dual Rate to operate, the rudder dual rate switch must be in the 0 position. Moving the dual rate switch to the 1 position negates the operation of the Automatic Rudder Dual Rate, and defaults rudder servo travel to the value selected for switch position 1.

Exponential rates are available for Aileron, Elevator, and Rudder. The Exponential value is adjustable from 0-100%, 0% being linear, 100% being full Exponential. The function of Exponential is to reduce the sensitivity of the Aileron, Elevator or Rudder in the middle area of the corresponding stick movement, while allowing full rate at the end of stick travel. Exponential is used in conjunction with Dual Rates for each function. The total travel selected in the Dual Rate function will remain the same, Exponential merely changes the rate at which it will achieve that full rate. Exponential may be selected for either the high or low rate, or both.
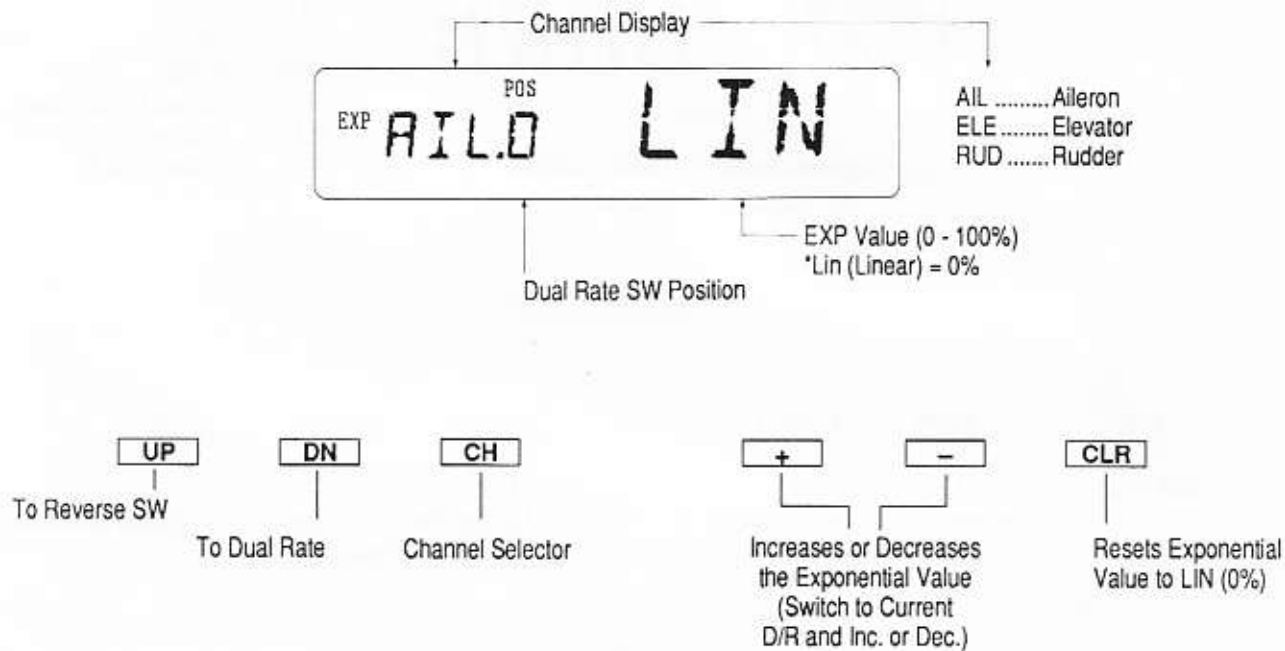

Example:

1. Place the transmitter switch in the ON position.
2. Press the UP and DN keys simultaneously.
3. Press either the UP or DN key until EXP appears in the far left portion of the LCD.
4. Press the CH key until the channel you want appears.
5. Place the corresponding Dual Rate switch in the position you wish to make Exponential. Note: the switch position indicator will change for 0 to 1 or vice-versa.
6. LIN indicates the servo to stick travel is currently 1 to 1 or linear. Press + to increase the amount of Exponential desired. The CLR key returns this value to 0% or LINear.
7. Exponential is an acquired feel; it may take several test flights to achieve the amount of Exponential that fits your flying style.
8. To exit the Exponential function, press the UP and DN keys simultaneously.

Servo Reversing is a very convenient function used in the set-up of a
new aircraft. It is used to change the direction of servo rotation in
relation to its corresponding stick movement. Servo Reversing is
available for all seven channels.

REVERSE SW

AILE NORM

THRO ...... Throttle
AILE .... Aileron
ELEV .... Elevator
RUDD ..... Rudder
GEAR ...... Retract Landing Gear
FLAP .... Flap (Aux 1)
SPOI .... Spoiler (Aux 2)

Channel Display
(All Channel)

Setting Condition
(NORM...Normal)
(REV......Reverse)

| UP | DN | CH | | + | – | CLR |

To Sub Trim

To Exponential

Channel Selector

Reverse Setting Condition
(Normal – Reverse)

Resets to Normal Direction

Example:

1. Place the transmitter switch in the ON position.

2. Press the **UP** and **DN** keys simultaneously.

3. Press either the **UP** or **DN** key until Reverse SW appears in the upper left corner of the LCD.

4. Press the **CH** key until the desired channel is displayed.

5. Pressing either the **+** or **–** key will change the direction of servo travel. Touching the **CLR** returns the direction to Normal.

6. To exit the Servo Reversing function, press the **UP** and **DN** key simultaneously.

Sub Trim is an electronic trim available for each of the seven channels. Sub Trim is particularly useful when changing from one aircraft to another. Using the Sub Trim allows you to place the mechanical trim levers in the center position and adjust trims electronically. Sub Trim can also allow additional trim travel when mechanical trims do not provide enough. The adjustable range of each Sub Trim is ± 125% either direction, or about 30° servo throw each direction.

THRO .... Throttle
AILE .... Aileron
ELEV ..... Elevator
RUDD .... Rudder
GEAR .... Retract Landing Gear
FLAP ...... Flap (Aux 1)
SPOI ...... Spoiler (Aux 2)

AILE   0

S.TRIM

Channel Display   Sub Trim Value
(All Channels)   (Max ±125)

UP	DN	CH

To End Point Adjustment
        To Reverse Switch   Channel Selector

+	—	CLR

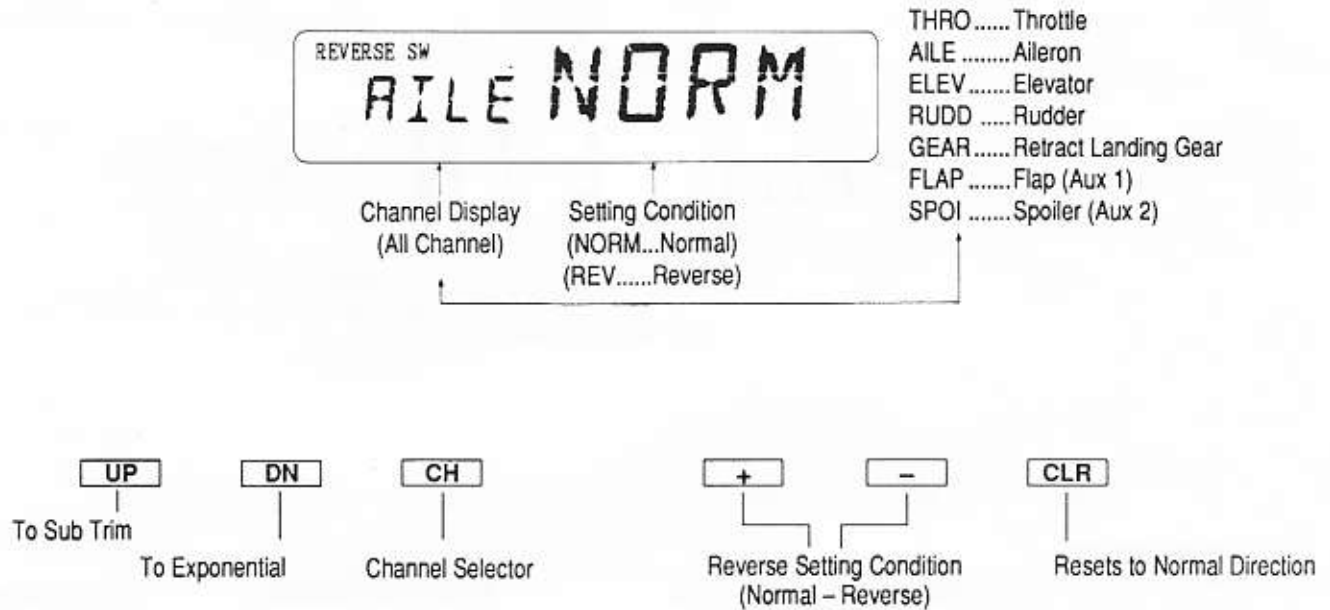Increases or Decreases   Resets Sub Trim
Sub Trim Value   Value to 0

Example:

1. Place the transmitter switch in the ON position.
2. Press the UP and DN keys simultaneously to enter the Function mode.
3. Press either the UP or DN key until S. TRIM appears in the lower middle section of the LCD.
4. Press the CH key until the desired channel is displayed.
5. Press the + or — key to establish the desired amount of Sub Trim. Note: A letter or a symbol appears in the middle of the screen to indicate the direction and value of Sub Trim input.

These are as follows:

Function	+ Increases	— Decreases
Throttle	H = High	L = Low
Aileron	L = Left	R = Right
Elevator	D = Down	U = Up
Rudder	L = Left	R = Right
Gear	+ = Increase	– = Decrease
Flap	U = Up	D = Down
AUX 2	+ = Increase	– = Decrease

6. To exit the Sub Trim function, press the UP and DN keys simultaneously.

The amount of Servo Travel is separately adjustable for all channels, as well as individually for each direction. The adjustable range is from 0% to 150% (0° to 60°). The Servo Travel for all channels is factory set to 100%. The reading on the LCD display is dependent upon the position of the stick.

Servo Acting Direction

AILE R 100%

T. ADJ

Channel Display
(All Channels)

Travel Value Adjust
(0-150%)

THRO ...... Throttle
AILE .... Aileron
ELEV .... Elevator
RUDD ..... Rudder
GEAR ...... Retract Landing Gear
FLAP .... Flap (Aux 1)
SPOI .... Spoiler (Aux 2)

| UP | DN | CH | | + | − | CLR |

To Elevator to Flap Mixing

To Sub Trim   Channel Selector

Increase or Decrease Travel Value   Resets Travel to 100%

Example:

1. Place the transmitter switch in the ON position.

2. Press the UP and DN keys simultaneously to enter the function mode.

3. Press either the UP or DN key until T. ADJ. appears in the bottom middle section of the LCD.

4. Press the CH key until the desired channel is displayed on the left side of the LCD.

5. To adjust right aileron travel, press the CH key until AILE is displayed on the left side of the LCD. Move the aileron stick to the right and note that the middle display will change to reflect the value being adjusted, i.e., AILE R 100% the aileron stick must be held to the right.

6. While the stick, knob, or switch is moved in the direction of travel to be adjusted, press the + or − until the proper amount of servo travel is reflected on the right side of the LCD.

7. The same may be done for all channels.

8. To exit Travel Adjustment, press the UP and DN keys simultaneously.

The top position of the 3 position Flight Mode Switch activates the Elevator-Flap mix. When this system is active, and a value of Flaps is input, the Flaps will be deflected each time the Elevator is used. The direction of Flap movement is adjustable for both up and down Elevator. The normal application is UP Elevator/DOWN Flaps and DOWN Elevator/UP Flaps. This will allow the aircraft to pitch much quicker than normal.

```
          POS
   MIX  E - F.U          0 %
```

*Display will show OFF when switch is not in the E-F position.

Elevator Operating Direction ——
(D : Down Elevator)
(U : Up Elevator)

Mixing Value
(−125% − +125%)

```
  UP        DN        CH                +        −        CLR
```

To Landing Attitude

To Travel Adjust

Increase or Decrease
Current Mixing Value

Clears Current
Mixing Value

Example:

1. Move the transmitter switch to the ON position.

2. Press the UP and DN keys simultaneously to enter the function mode.

3. Press either the UP or DN key until E-F appears in the left portion of the LCD.

4. Note: The Flight Mode Switch must be in the E-F mix position in order to make adjustments to the Flap value. Any position other than this will indicate OFF.

5. Move the Elevator stick in the direction you wish to mix with Flaps. Note: the letter under the POS indicator changes between U=UP and D=DOWN.

6. Press the + or − key to increase or decrease the amount of Flaps to be mixed. If you wish to reverse flap travel, press the CLR key and increase the value using the opposite key (+ or −) from the key originally selected.

7. To exit the Elevator-Flap Mix, press the UP and DN keys simultaneously.

The function of the Landing System is to set the aircraft in a landing attitude for more consistent landings. This is accomplished by setting values for the Elevator, Flap and Spoiler functions to be activated when the Landing switch is engaged. The Landing System may also be activated by a preset position of the Throttle. (See Automatic Landing System) Elevator and flap travel may be set in either D (down) or U (up) values relative to the 0 (neutral) position. Variable range is between 0 and 125 in either direction, changing the elevator servo angle about ±30° and the flap servo angle about ±60°.

```
        CH
   L D:E                  0
```

*Display will show "OFF" when switch is not in the Landing position.

Landing Value for
Selected Channel

Channel & Function Display
LD:E .... Elevator Landing Attitude Value Setting
LD:F .... Flap Landing Attitude Value Setting
LD:S .... Coupling Spoiler Setting
ATLD .... Automatic Landing Attitude Setting

| UP | DN | CH | + | – | CLR |

To Snap Roll
    To Elevator Flap Mixing
        Channel & Function Selector
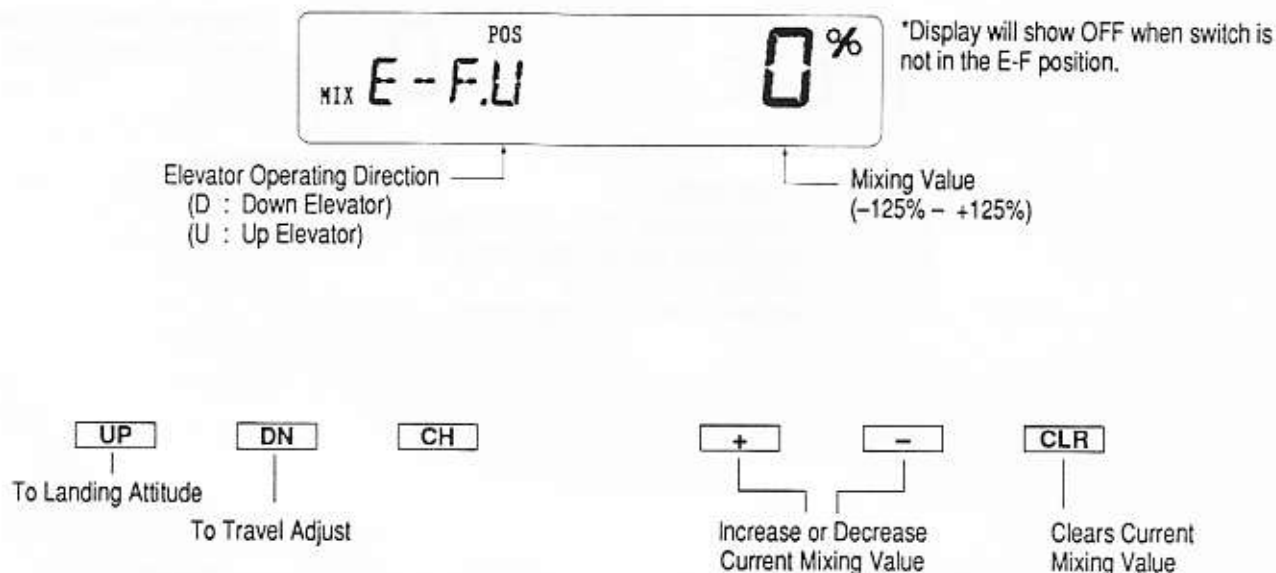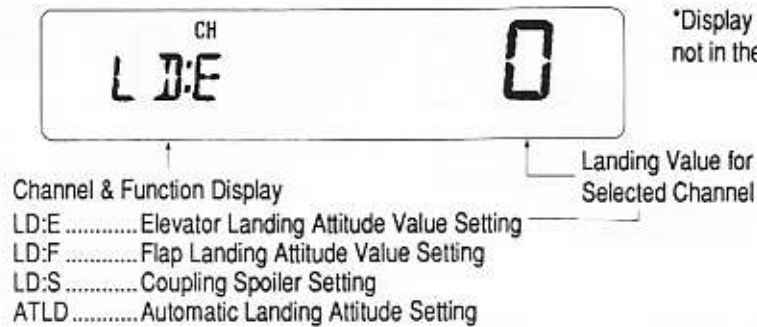Increases or Decreases Landing Attitude Value
Clears Current Value

Example:

1. Move the transmitter switch to the ON position.

2. Press the UP and DN keys simultaneously to enter the function mode.

3. Press either the UP or DN key until LD: appears in the left portion of the LCD.

4. Note: The Flight Mode Switch must be in the lower position (Land) in order to make changes to the Landing channel values.

5. Press the CH key to select the channel you wish to change the value on.

6. Press the + or – key to adjust the value of the selected channel. Note: A U for UP or D for DOWN will appear to indicate the direction the control surface is traveling. The spoiler is merely Active or Inhibited. You may also activate the Auto Land System in this function. When the Auto Land function is active, an A will appear to the right of the channel selected.

7. To exit the Landing System, press the UP and DN keys simultaneously.

■ Spoiler Interlock Setting

This function automatically couples the Spoilers to the Landing System. This inhibits the use of the Aux 2 switch or knob, preventing activation of the spoilers at any other time than during use of the landing system. Spoilers are connected to the Aux 2 channel on the receiver. The spoiler activation device can be selected as either the Aux 2 knob or the Aux 2 lever (see Spoiler Channel Input Selection on page 39, [ACRO]). When using the Aux 2 lever, note that servo travel can be adjusted using the Travel Adjustment Function.

```
                    CH
            L D:5       INH
```

Spoiler Operational Setting Display ———

Spoiler Operational Condition

When the Spoilers are operational, the display will indicate ACT (Active). When the Spoilers are not operational the display will indicate INH (Inhibit). If the Spoilers are coupled to the Landing function, and the Flight Mode switch is in the LAND position, the display will indicate ACT (Active). If the Flight Mode switch is in any other position the display will indicate "OFF."

UP	DN	CH

To Snap Roll

To Elevator Flap Mixing   Select Channel & Functions

+	–	CLR

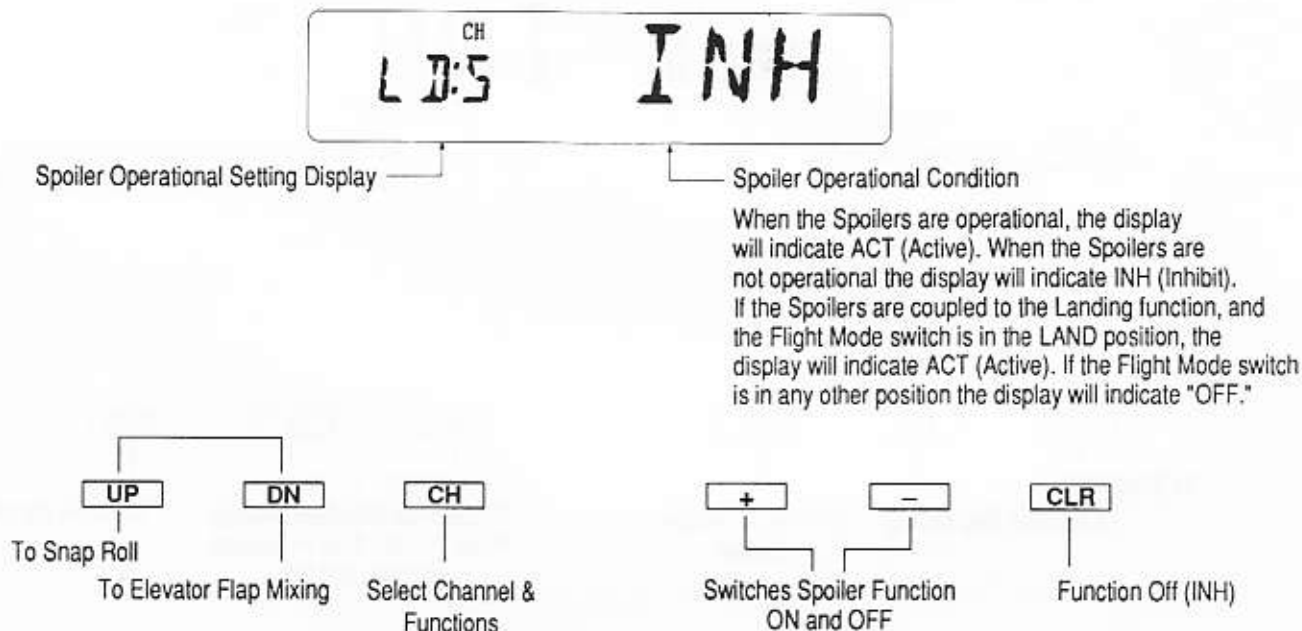Switches Spoiler Function ON and OFF

Function Off (INH)

Example:

1. Place the transmitter switch in the ON position.
2. Press the **UP** and **DN** keys simultaneously to enter the function mode.
3. Press either the **UP** or **DN** key until LD: appears in the left portion of the LCD.
4. Press the **CH** key until the letter S appears below the CH indication.
5. Press either the **+** or **—** key to activate the Spoiler Interlock function. If the Flight Mode Switch is in the Land position, this display will show ACT for Active. In the middle position or the E-F mix position the LCD will indicate OFF.
6. Once the Spoiler Interlock is Activated, the Aux 2 switch on the top right corner will no longer activate the Aux 2 function.
7. To exit the Spoiler Interlock System, press the **UP** and **DN** keys simultaneously.

Note: Press CH to change the Flap Landing Value Setting Display to the Spoiler Interlock Setting Display.

■ Automatic Landing System

When this function is active the Throttle stick will activate the Landing System set up on the preceding pages. Any point of the Throttle Stick Travel may be set as the Auto Land point. Once the throttle stick passes through this point, and the Flight Mode Switch is in the Land position, the Landing System will be activated. Thus, the Elevator, Flaps, and Spoilers would be activated, if all were selected. If the Flight Mode Switch is not in the Land function, the throttle operation will have no effect on the Landing System. Note: When the Auto Land function is active, the letter A will appear next to the channels selected in the Landing function.
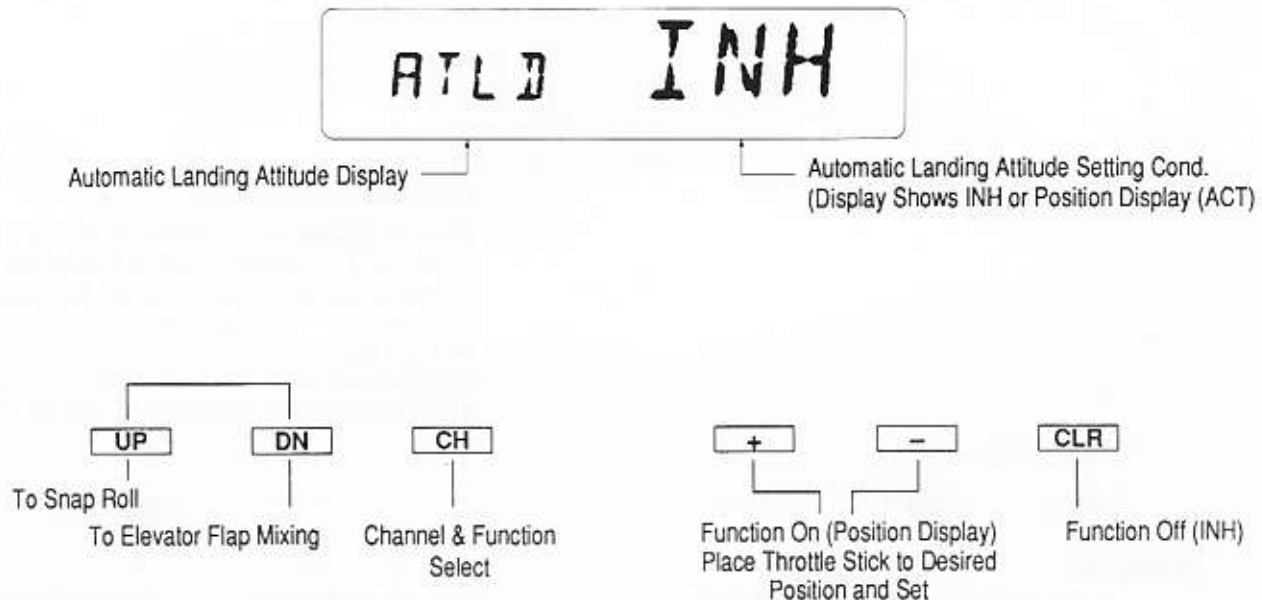
```
ATLD    INH
```

Automatic Landing Attitude Display ————

———— Automatic Landing Attitude Setting Cond.
(Display Shows INH or Position Display (ACT)

UP	DN	CH

To Snap Roll

To Elevator Flap Mixing   Channel & Function
Select

+	—	CLR

Function On (Position Display)   Function Off (INH)
Place Throttle Stick to Desired
Position and Set

Example:

1. Move the transmitter switch to the ON position.

2. Press the `UP` and `DN` keys simultaneously to enter the function mode.

3. Press either the `UP` or `DN` key until LD: appears in the left portion of the LCD display.

4. Press the `CH` until ATLD appears on the left portion of the display.

5. Set the Flight Mode Switch in the Land Position (Low)

6. Move the throttle stick to the desired position and press the `+` or `—` key. The INH display will change to indicate the current throttle position. This is now the Auto Land point. To change this value simply move the stick to a new position and press a `+` or `—` key. To clear the Auto Land point, press the `CLR`; the display will return to INH.

7. To exit the Auto Landing System, press the `UP` and `DN` keys simultaneously.

Note: When this function is active, the letter A will appear to the right of the channels selectable for the Landing System.

This function allows for easy and consistent snap rolls at the touch of a switch. The X-347 offers four separate directions of Snap Rolls, which can be selected by using the keys located on the front of the transmitter.

Selectable Snap Rolls are as follows:
  R : DN Snap Roll Right and Down
  R : UP Snap Roll Right and Up
  L : DN Snap Roll Left and Down
  L : UP Snap Roll Left and Up

The Snap Roll switch affects the aileron, elevator and rudder only; all other functions work as normal. While the Snap Roll switch is activated, the related sticks will not operate until the switch is released. When this function is inhibited, the display will show INH and the Snap Roll system will not operate. Individual adjustment is available for each control surface in either direction. The adjustable range for each function is 0–125%; the factory default is 100%. When the Snap Roll function is active, the direction will be indicated in the normal display (see page 22).

Direction Setting

```
  SNP.R    INH
```

         + OR −

```
  SNP.R    R:DN
```

                     Indicate Direction (4 Directions Listed Above)

Press Simultaneously – Normal Display
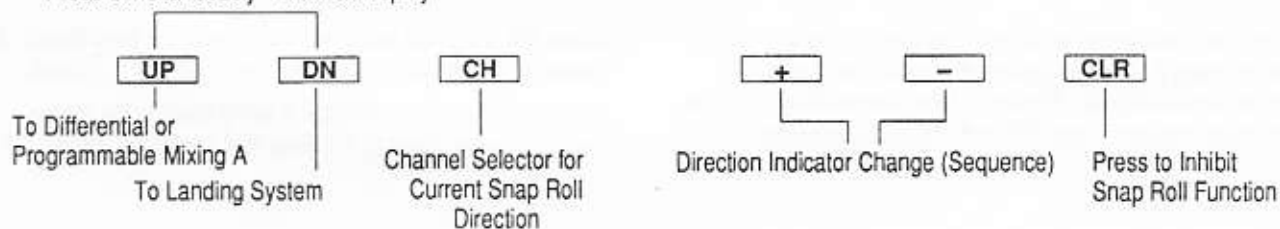
| UP | DN | CH | | + | − | CLR |

To Differential or
Programmable Mixing A
              To Landing System
Channel Selector for
Current Snap Roll
Direction

Direction Indicator Change (Sequence)
Press to Inhibit
Snap Roll Function

Example:
1. Move the transmitter switch to the ON position.
2. Press the UP and DN keys simultaneously to enter the function mode.
3. Press either the UP or DN key until SNP.R appears in the left portion of the LCD.
4. Press the + or − key until the desired Snap Roll is displayed in the right portion of the LCD.
5. Press the CH key to display each of the three channels with their respective control values. Press the + or − key to increase or decrease the values for each control. The adjustable value is 0–125%.

       A - Aileron
       E - Elevator
       R - Rudder

6. Press the CH until the Snap Roll direction is displayed again. Press the + or − key to change the Snap Roll to the next direction. All four Snap Rolls, with travel values, may be set up for each airplane and retained in memory.
7. To exit the Snap Roll function, press the UP and DN keys simultaneously.

Operating Value Setting

$$SR{:}R{.}D \quad A \; 100\%$$

Direction Indicator	Channel Indicator A : Aileron E : Elevator R : Rudder	Operating Value (0-125%)

UP	DN	CH		+	—	CLR
To Differential or Programmable Mixing		Channel Selector (After Direction Indicator)		Increase or Decrease Operating Value		Resets Operating Value to 100%
	To Landing System					
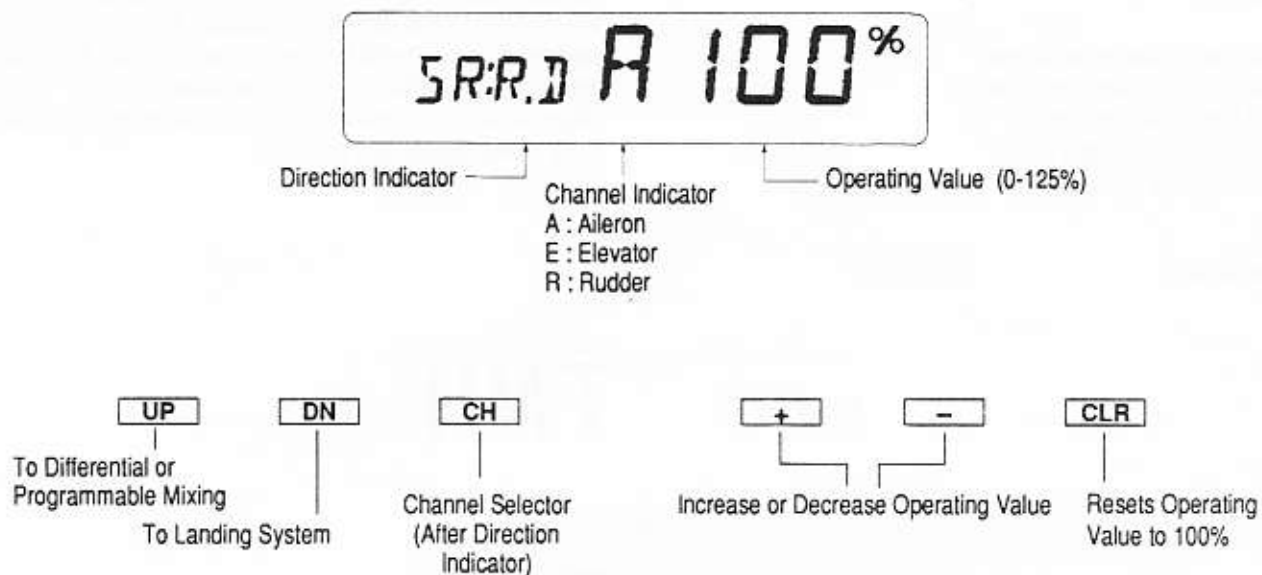
■ **Snap Roll Direction Change**

Once the Snap Rolls are established in the function mode, they may be selected using the keys located on the front of the transmitter, while in the Normal display. The keys shown below will explain how to make these changes. Note: When the Snap Roll function is active, the Snap Roll switch will not activate the Stop Watch. It may be started and stopped using the [+] or [—] keys.

Caution: When the transmitter is being used as the Master transmitter while training, the Snap Roll function is INHIBITED.

Normal Display (Snap Roll Direction)

$$IA{:}R{.}D \quad C \; 10.5v$$
BATT

First 2 Characters of Model Name	Snap Roll Direction R.D...Right Down Snap Roll R.U...Right Up Snap Roll L.D...Left Down Snap Roll L.U..Left Up Snap Roll

UP	DN	CH		+	—	CLR
Change to Up Snap				Change to Left Snap		
	Change to Down Snap	Switches Display Between Name, Stopwatch and Snap Roll.			Change to Right Snap	
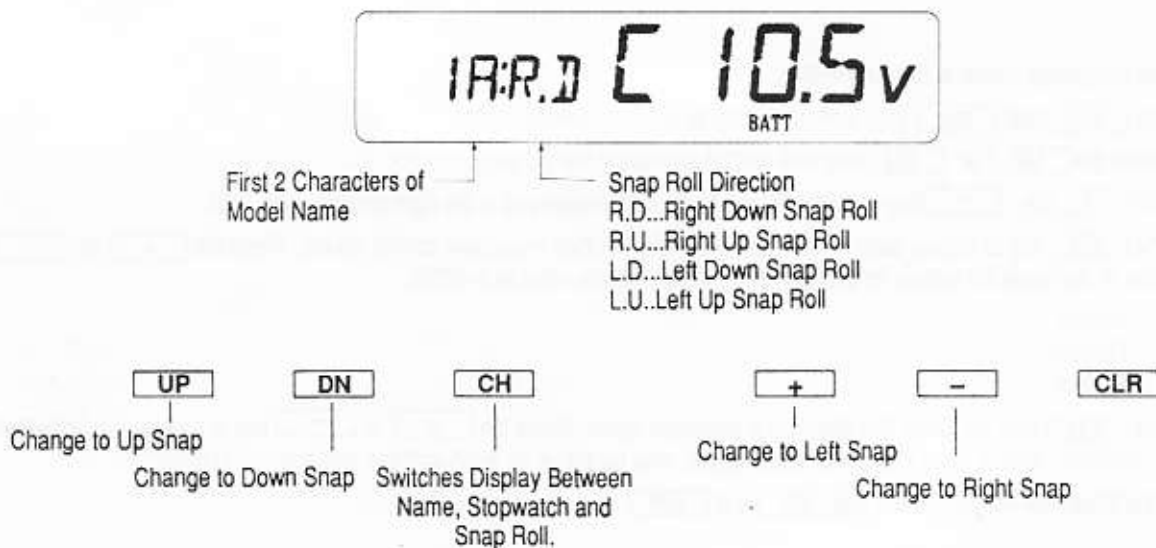
The X-347 offers Differential Aileron Mixing for the Flaperon and Delta wing configurations. Differential ailerons are used to tailor the flight control system to the aircraft. Because the down travel of the aileron creates more drag than the up travel, it is necessary to reduce the amount of down travel for each aileron electronically. This drag may sometimes cause a yawing tendency; this is normally undesire-able for most airplanes. Thus, Differential Mixing is used to reduce this yawing action.

Note: In order to use the Differential function, Flaperons or Delta wing must be selected in the system mode and two servos must be used to operate the ailerons, one each. (See Wing Type)

MIX DIFF **NORM**

Diffrential Value [NORM (0%) – SPLT (100%)]
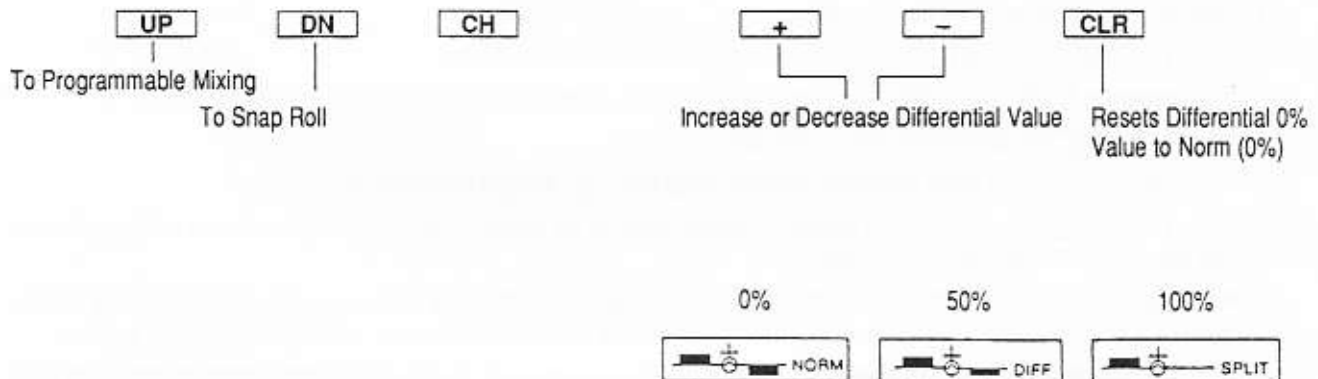
UP	DN	CH

To Programmable Mixing

To Snap Roll

+	–	CLR

Increase or Decrease Differential Value

Resets Differential 0% Value to Norm (0%)

0%   50%   100%

NORM   DIFF   SPLIT

Example:

1. Move the transmitter switch to the ON position.
2. Press the UP and DN keys simultaneously to enter the function mode.
3. Press either the UP and DN key until Mix DIFF appears in the left portion of the LCD.
4. Press the + or – key until the desired amount of Differential is established. The operating range for Differential is 0-100%. The three diagrams will make this easier to understand.
5. To exit the Differential mode, press the UP and DN keys simultaneously.

The X-347 offers four Programmable Mixes to be used for any number of different purposes. This function allows mixing any one channel to any other channel to make the aircraft easier to fly. This mix may remain on at all times or be switched on and off in flight, using a number of different switches. Each channel of this radio is identified by a number. The chart below indicates the channel and its corresponding number. These numbers are used to establish the mixes. The number appearing first is known as the "Master channel" or the channel to which you want to mix. The second number is known as the "Slave channel" or the channel that is being mixed into the Master channel. For example, 2-4 would indicate rudder to aileron mixing; thus, each time the aileron stick is moved, the aileron will deflect, and the rudder will automatically move in the direction and to the value input. Mixing is proportional, so small inputs of the Master channel will produce small outputs of the Slave channel. Each programmable mix has a mixing "offset." The purpose of the mixing offset is to redefine the neutral position of the Slave channel.

Example:

1. Place the transmitter switch in the ON position.

2. Press the ⬜ UP and ⬜ DN keys simultaneously to enter the function mode.

3. Press either the ⬜ UP or ⬜ DN key until mix A11 appears in the left portion of the LCD.

4. Press the ⬜ CH key until (mix A CH 1-1) appears.

5. Press the ⬜ + key to select the Master channel. Press the ⬜ − key to select the Slave channel.

6. Press the ⬜ CH key until mix A SW appears in the left portion of the display. This is the Inflight activation switch for this mix. See the chart for the defintion of each switch.

7. Press the ⬜ CH key once; the display will now show the current mixing channels to the right of the A character. The current Master stick position will appear to the right of these numbers and will be indicated under the POS, in the form of a + or −.

8. While holding the Master stick in the direction you wish to mix, press the ⬜ + or ⬜ − key to increase the mixing value. A + or − indication will appear to the left of this value to indicate the direction of the "Slave" channel mix. Hold the Master stick to the other side to adjust the mix for the other direction.

9. Press the ⬜ CH key once. The display will now show the current mixing channels to the right of the A character, with OFFSET below them. The value to the right is the mixing offset neutral point, currently 0. Hold the master stick in the position you wish to make the neutral point of the Slave channel and push the ⬜ CLR key. A new value with a + or − sign will appear; this is the new neutral point for the slave channel. Press the ⬜ CLR key to reset to 0. Note: the Master channel trim must be centered for this to reset to 0 using the ⬜ CLR key.

10. Press the ⬜ UP and ⬜ DN keys simultaneously to exit the Programmable Mix function.

Note: With a little practice, Programmable Mixing will be very easy compared to the first time you try it. And always remember, the best part of a computer radio is, if you don't like something you can change it. Mixing is only limited by your imagination.
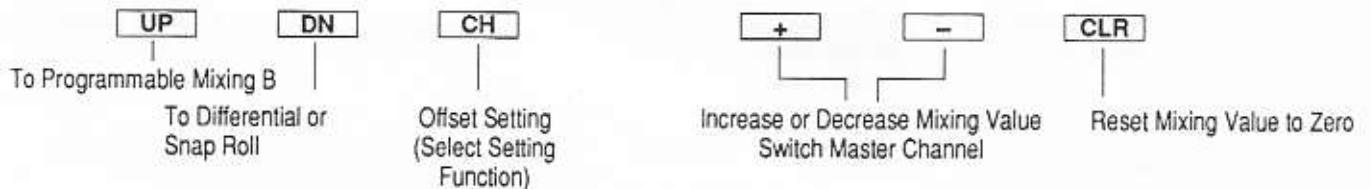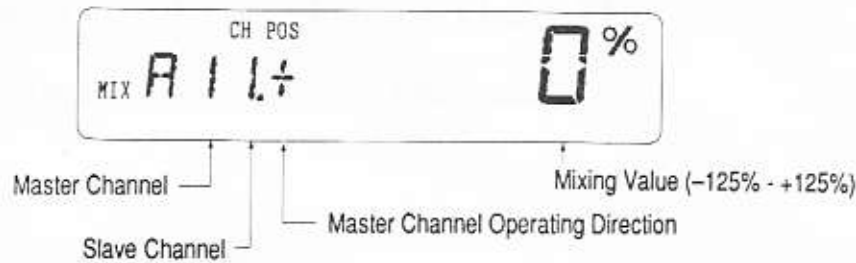
1. THRO .... Throttle
2. AILE .... Aileron
3. ELEV .... Elevator
4. RUDD .... Rudder
5. GEAR .... Retract Landing Gear
6. FLAP .... Flap (Aux 1)
7. SPOI .... Spoiler (Aux 2)

■ This transmitter is provided with 3 multi-purpose Programmable Mixings (Mixing A thru C) and a Programmable Mixing for Aileron—Rudder (Mixing D). For these mixing operations, first determine channel, offset and operating switch letter settings, if necessary, then set mixing value.

Setting Mixing Value

```
        CH POS
  MIX  A 1 L÷          0 %
```

Master Channel ── Master Channel Operating Direction

Slave Channel ──

Mixing Value (−125% - +125%)

UP	DN	CH		+	−	CLR

To Programmable Mixing B

To Differential or Snap Roll

Offset Setting (Select Setting Function)

Increase or Decrease Mixing Value Switch Master Channel

Reset Mixing Value to Zero

■ For setting Mixing Value, move and hold the Master Channel Control (up, down, left or right) and set slave servo mix value by pressing either the ⌐UP⌐ or ⌐DN⌐ key. To reverse direction of slave mix, press the opposite of the ⌐UP⌐ or ⌐DN⌐ key until the value of mix is set in the reverse direction. Notice that if the reference or offset point is moved (see next paragraph), the slave channels direction will change from that position. Also note that Mix D is a dedicated mix and is set differently from the other three mixes. (See Mix D on page 27).

Master and Slave Channel Determined by Channel Setting ──

```
          CH
  MIX   A 1 - 1       0
        OFFSET
```

Offset Value of Reference Point for Mixing

UP	DN	CH		+	−	CLR

To Programmable Mixing B

To Differential or Snap Roll

To Channel Setting (Setting Function Select)

Stores Reference Point (Offset Value) for Mixing in Memory
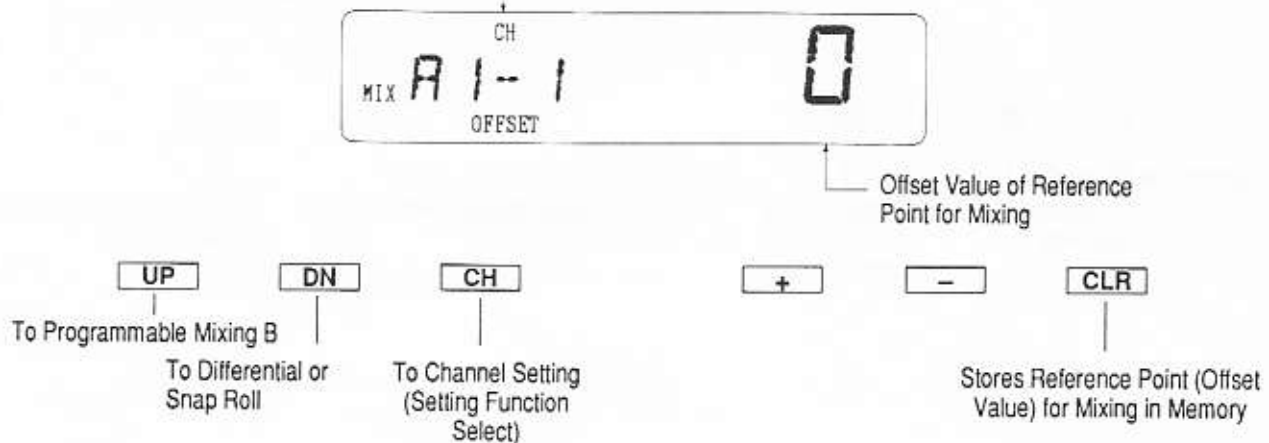
■ Any position of the Master channel can be used as a reference point for Mixing. This is useful for channels which have no neutral position. With this feature, you can use Program Mixing with respect to an arbitrary position of the lever switch. To set offset position, put the Master channel at desired position and press the ⌐CLR⌐ key. The position is stored in the memory and its offset value from the neutral position is indicated numerically on the display. Then, the Mixing Value at the offset position is set to zero.

■ Channel Setting
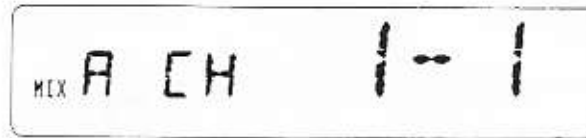
Channel Display
1...Throttle
2...Aileron (Right Flaperon)
3...Elevator
4...Rudder
5...Retract Landing Gear
6...Flap (Left Flaperon)
7...Spoiler (Aux 2)

```
  MIX A CH      1 - 1
```

Master Channel ──────┘   └────── Slave Channel

```
┌────┐    ┌────┐    ┌────┐         ┌────┐    ┌────┐      ┌────┐
│ UP │    │ DN │    │ CH │         │ +  │    │ −  │      │ CLR│
└────┘    └────┘    └────┘         └────┘    └────┘      └────┘
```
To Programmable Mixing B   Select Master Channel
         To Differential or   Select Slave Channel   Clear All Setting Values
         Snap Roll   To Operating SW   Presently Displayed
                            Setting (Select
                            Function Setting)

■ Operational Switch Setting

```
  MIX A SW       ON
```

                              Displays Mixing Lever SW

```
┌────┐    ┌────┐    ┌────┐         ┌────┐    ┌────┐      ┌────┐
│ UP │    │ DN │    │ CH │         │ +  │    │ −  │      │ CLR│
└────┘    └────┘    └────┘         └────┘    └────┘      └────┘
```
To Programmable Mixing B   Select Mixing Lever Switches
         To Differential or   Resets Operating Switch
         Snap Roll   To Mixing Value   Setting to ON.
                            Setting (Select
                            Function Setting)
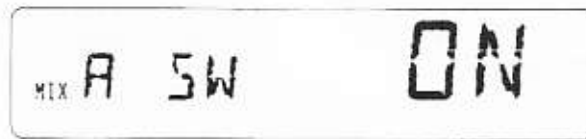
■ Functions Related to Program Mixing

The functions related to the operating range of the Master channel are as follows:

Aileron, Elevator, Rudder..........................Settings D/R. EXP

Spoiler (Aux 2)...Landing System

Note that when you select flaps for Master channel:

Mix A & B...Flap Knob (Normal Operating Value)

Mix C & D...Landing System

■ Mixing A and B

When the Slave channel is 2 (Aileron), its mixing operation is affected by aileron differential settings.

When the Slave channel is 6 (Flap), its mixing operation is affected by flap to aileron mix setting.

When Dual Flap setting is active and the Slave channel is 7 (Aux 2), its mixing operation is affected by aileron differential settings.

■ Mixing D

One of the Program Mixes is [Mixing D]. Mix-D's primary setting is 2-4 (Aileron to Rudder). Mixing and Operational switch is set for Mixing switch only. The difference from other Mixing is that 1) Mixing values for each side are the same and, 2) no offset reference point can be set.

Note: When a channel setting uses different operating switches, it may be set up by simply changing the Master/Slave channels and values.

■ Mixing Operation with Switches
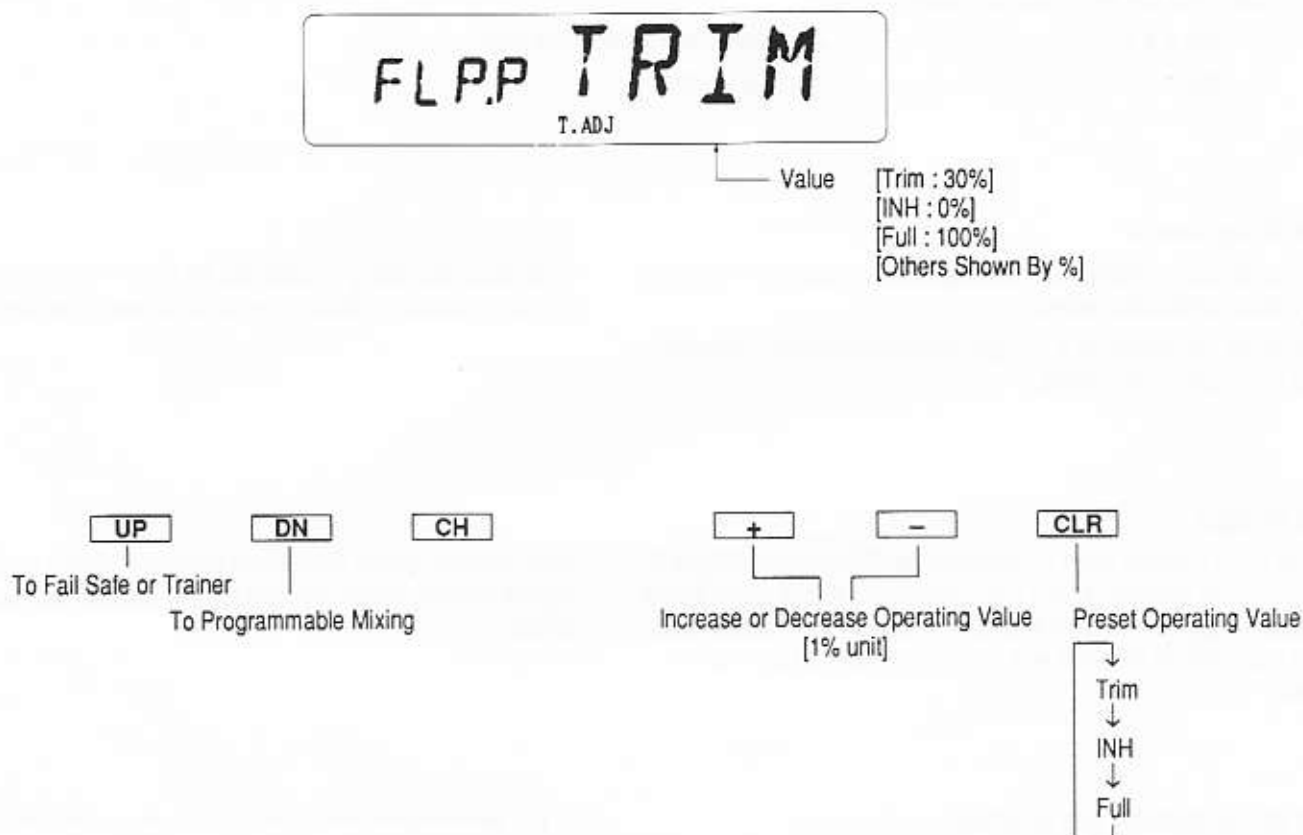
Each Mixing Program can be turned on and off by a lever switch. The lever switches that can be selected for Program Mixing are tabulated at right with their abbreviations appearing on the display and their corresponding positions.

ON	ALWAYS ON
MX SW	ON/OFF Using Mixing Switch
LAND	ON/OFF Using Landing Switch
EL-F	ON/OFF Using Elevator to Flap Mix

This function allows adjustment of the operational value of the Flap Channel (Aux 1) using the Flap Adjusting Knob. The preset values from the factory are as follows: Trim–30%, INH and full 100%. These are merely starting points; they may be changed to any value using the [+] or [–] keys. This function makes fine-tuning of the Flaps very easy.

FL P.P **TRIM**

T. ADJ

—— Value [Trim : 30%]
[INH : 0%]
[Full : 100%]
[Others Shown By %]

| [UP] | [DN] | [CH] | | [+] | [–] | [CLR] |

To Fail Safe or Trainer

To Programmable Mixing

Increase or Decrease Operating Value
[1% unit]

Preset Operating Value

Trim
↓
INH
↓
Full

Example:

1. Move the transmitter switch to the ON position.

2. Press the [UP] and [DN] keys simultaneously to enter the function mode.

3. Press either the [UP] or [DN] key until (FLP.P) appears in the left portion of the LCD.

4. Press the [CLR] key to select between the three factory settings for travel throw.

5. Adjustments may be made to any of these three by pressing the [+] or [–] keys. The new current value will be displayed on the right side of the LCD.

6. Now when the Flap Knob is turned all the way through its mechanical travel, the Flaps will have moved according to the value on the LCD.

7 To exit the Flap Knob Adjustment function, press the [UP] and [DN] keys simultaneously.

The Fail Safe feature can be used only when the transmitter is operated in the PCM mode. The transmitter is provided with a Hold function by which your aircraft is maintained in the position immediately before the interference was encountered. The Fail Safe feature is also designed to set the servos to a predetermined position should the transmitter to receiver link be interrupted. It is highly recommended that you use the Fail-Safe feature to prevent your aircraft from crashing at full-throttle. This system will not prevent a crash, but may be very helpful in limiting damage in the event interference makes a crash inevitable. Once the Fail Safe function is activated, there is no need to reset the data each time you fly. This is done automatically each time the transmitter is switched on. Should you experience interference, and the Fail Safe is activated, control will be resumed as soon as the interference is eliminated. Note: When the modulation type is PPM (Pulse Position Modulation), the Fail Safe function is inhibited.

```
┌─────────────────────────────────┐
│   FAL.s HOL Д                   │
└─────────────────────────────────┘
```

HOLD : Hold Condition
ON .3 : 1/3 Sec.
ON .5 : 1/2 Sec.
ON .0 : 1 Sec.

— Fail-Safe Setting Condition

UP	DN	CH		+	−	CLR

To Trainer

To Flap Knob   To Select Fail Safe, Hold, or Battery Fail Safe

Select Fail Safe Setting   Reset to Hold

■ Setting Fail Safe Memory (In PCM Mode Only)

The Fail Safe may be set to operate with three different periods of time delay: 1 second, 1/2 second, or 1/3 second. This is the amount of time the receiver will delay before activating the Fail Safe function. The following explains the set up of the Fail Safe memory.

```
┌─────────────────────────────────┐
│   FAL.s MEMO                    │
└─────────────────────────────────┘
```

UP	DN	CH		+	−	CLR

To Trainer

To Flap Knob   To Battery Fail Safe

Fail Safe Position Memory Key
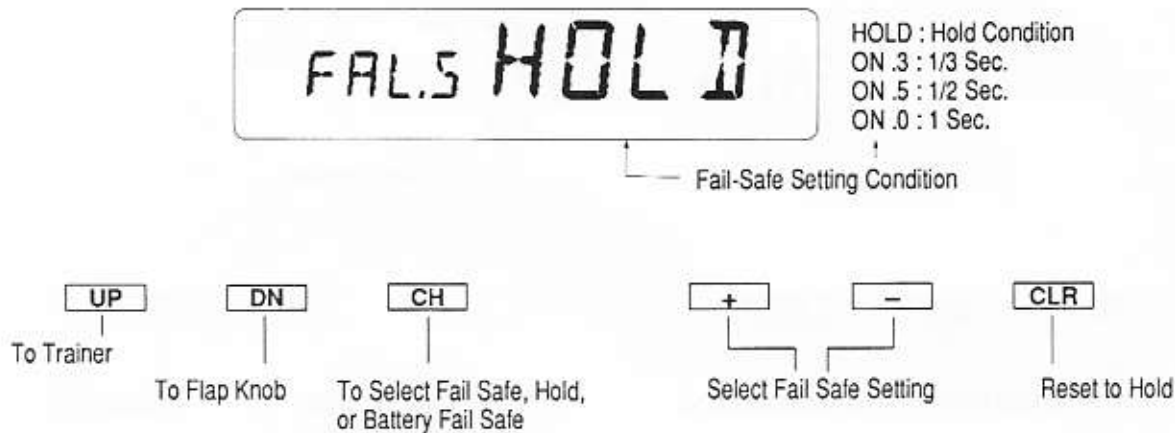
Example:

1. Move the transmitter switch to the ON position.

2. Press the UP and DN keys simultaneously to enter the function mode.

3. Press either the UP or DN key until FAL.S is displayed in the left side of the LCD.

4. Pressing either the + or − key will change the time delay of the Fail Safe activation.

5. Pressing the CLR key will reset the delay to HOLD.

6. To set the servo location into memory, press the CH key. The display will change to MEMO. Hold the transmitter sticks in the desired locations and press the STORE key. This will enter these locations as the Fail Safe memory settings.

7. To confirm that the input of data was successful, simply switch the transmitter off. The controls will move to the input locations. If not, repeat step 6 again.

8. To exit the Fail Safe mode, press the UP and DN keys simultaneously.

■ **Battery Fail Safe**

The function of this feature is to help prevent loss of the model in the event that the transmitter battery voltage drops below a factory pre-determined level. When transmitter voltage reaches this point, the throttle will automatically drop to a position below half. If the throttle stick is brought down to a low setting, then pushed back to full, the throttle operation will return to normal. At this point, you will have approximately 30 second to land the model before the transmitter batteries fail completely! Note that this feature is only available for the transmitter; airborne batteries have no protection. This feature does not function when the system is operated in PPM mode.

```
┌─────────────────────────────┐
│                             │
│   FAL.S    OFF              │
│                  BATT       │
└─────────────────────────────┘
                   └── Setting Condition
```

```
  ┌─────┐   ┌─────┐   ┌─────┐        ┌─────┐  ┌─────┐     ┌─────┐
  │ UP  │   │ DN  │   │ CH  │        │  +  │  │  −  │     │ CLR │
  └─────┘   └─────┘   └─────┘        └─────┘  └─────┘     └─────┘
To Trainer                                                 Function Off
        To Flap Knob   To Fail Safe Setting   Function Opposite
                                                  (OFF – ACT)
```
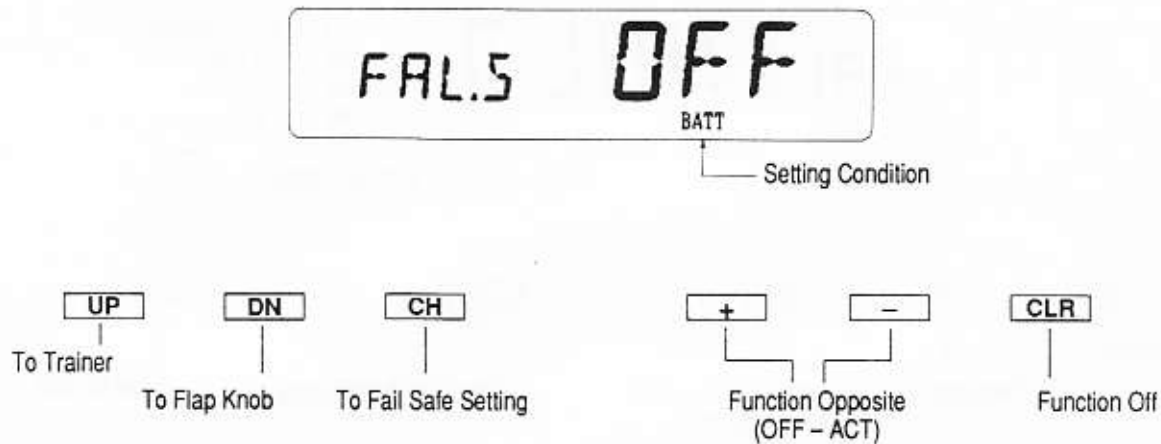
Example:

1. Move the transmitter switch to the ON position.
2. Press the UP and DN keys simultaneously to enter the function mode.
3. Press either the UP or DN key until FAL.S appears in the left portion of the LCD.
4. Press the CH key until OFF appears over the small BATT.
5. Press the + or − key to activate the Battery Fail Safe. It is not necessary to do anything else.
6. To clear the Battery Fail Safe, press the + or − key or the CLR key.
7 To exit the Battery Fail Safe function, press the UP and DN keys simultaneously.

The X-347 transmitter employs two separate types of trainer systems – the Normal Trainer system (All functions are controlled by either the Master transmitter or the Slave transmitter) and the all new Programmable Function Trainer (Stick functions may be assigned to the Slave one at a time). Since the control functions can be transferred one at a time, the student can concentrate on one function at a time until they are competent to fly solo.

TRN.T NORM

Channel Display
T : Throttle
A : Aileron
E : Elevator
R : Rudder

Trainer Setting Display
NORM : Normal Trainer
SLAV : Current Channel Operational as Slave
MAST : Current Channel Operational as Master

| UP | DN | CH |
| To Timer | To Fail Safe or Programmable Mixing | Channel Selector |

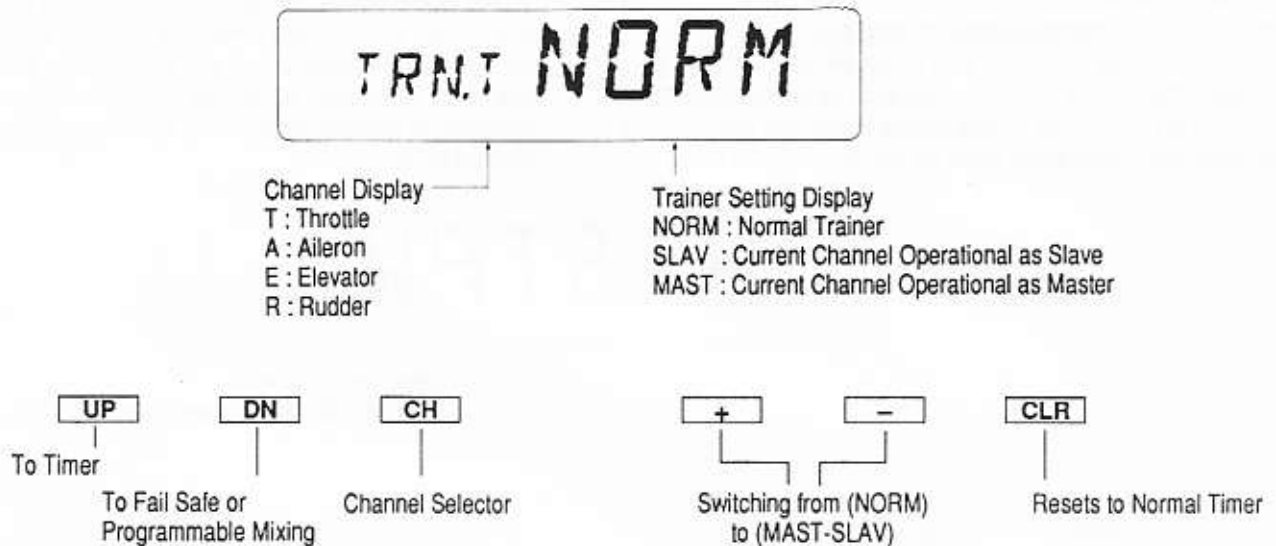| + | − | CLR |
| Switching from (NORM) to (MAST-SLAV) | | Resets to Normal Timer |

Example:

1. Move the transmitter switch to the ON position.
2. Press the UP and DN keys simultaneously to enter the function mode.
3. Press either the UP or DN key until TRN. appears on the left portion of the LCD.
4. Press the CH key to select the channel indicated just to the right of the TRN.
5. Once the channel that you wish to make a Slave appears, press the + or − key. This will change the display from NORM to SLAV. If you wish to make more Slave channels, press the CH key until the next desired channel is shown and press the + or − key.
6. To change the Programmable Trainer Function system back to Normal system, press the CLR key.
7. To exit the Trainer mode, press the UP and DN keys simultaneously.

■ Basic Connections and Conditions for Training

1. The Slave transmitter must be PPM (Pulse Position Modulation) with a DSC (Direct Servo Controller) jack. If the Slave transmitter is PPM/PCM selectable, select PPM. The Master transmitter may be PCM or PPM.
2. Plug the trainer cord (optional part #JRATC001) into each transmitter's DSC jack. Note: Each transmitter will appear to be "ON" but neither is actually transmitting at the time.
3. Switch the Master transmitter on – **Do Not Switch on the Slave transmitter;** it is only necessary to have the Master transmitter ON. Note: If the master transmitter is the X-347, its LCD will indicate TRN.M (Trainer Master) when the power switch is on.

TRN.M C 10.5v
BATT

4. Pull the trainer switch toward you to transfer control to the Slave. Release the switch and control automatically reverts to the Master transmitter.

5. Be sure the Slave transmitter's servo reversing, Dual Rates, End Point adjustment and trims are identical to the Master. This may be checked very easily by pulling the trainer switch toward you. If the control surfaces move, adjust the Slave transmitter until the trainer switch can be activated without a change to the control surface position.

■ Use of the Normal Trainer System

In this mode all functions are switched from the Master to the Slave using the trainer switch. This is the Normal mode – no function setup is necessary to activate this system.

■ Use of the Programmable Trainer Function (P.T.F.)

In this mode the Master may assign functions one at a time to make learning to fly easier for the student. For example: the Master may assign the Slave rudder and elevator. Thus, when the trainer switch is activated (pulled forward) the Slave has control of rudder and elevator only while the Master retains control of throttle and aileron. Releasing the Trainer switch returns all control to the Master transmitter.
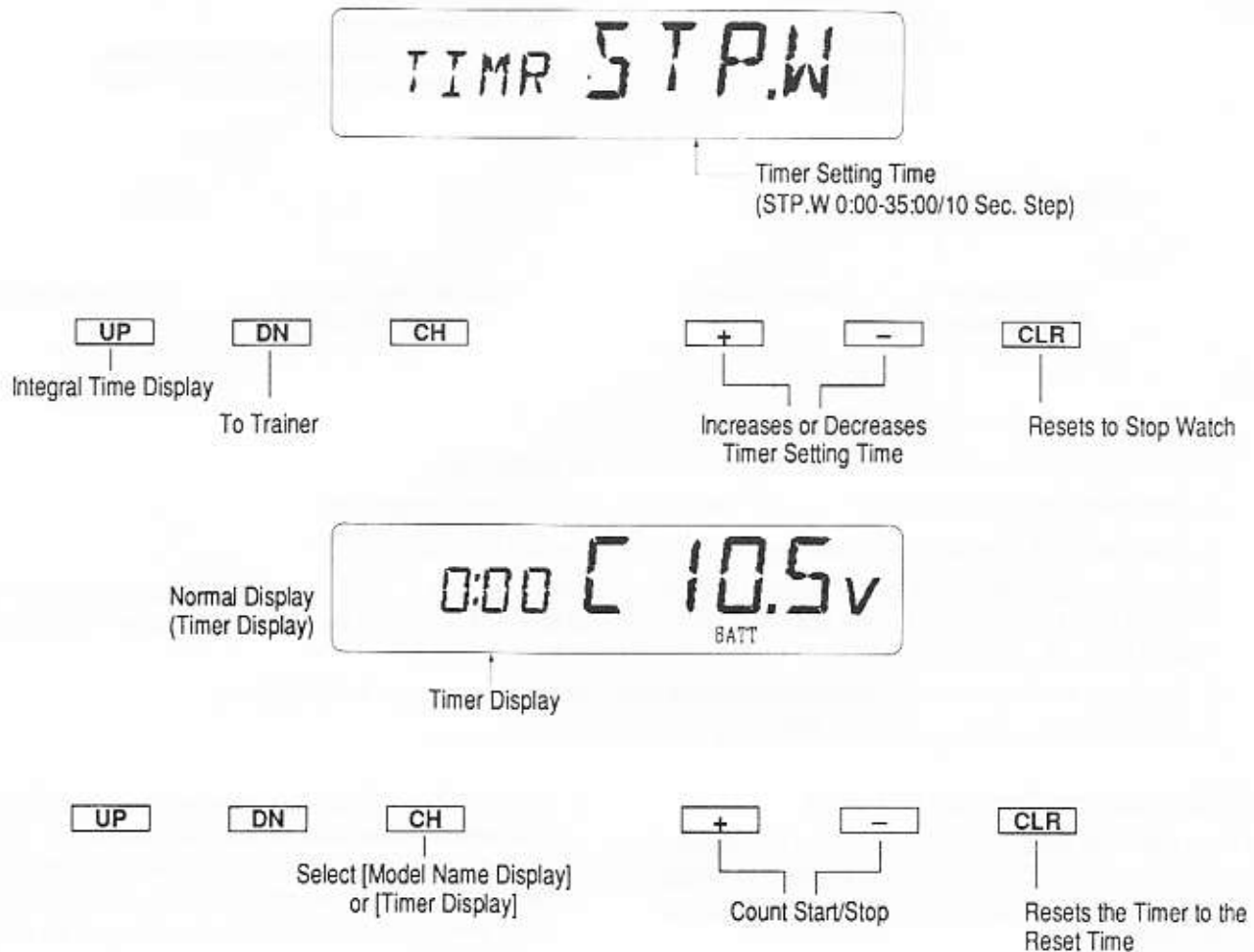
The X-347 offers two separate types of Timer functions: Count-Down and Stop Watch. The Count-Down Timer time is input in 10 second intervals up to 35 minutes. The Timer may be set for each individual model and retained in memory.

In order for the Timer function to be activated, it must be in the Normal display. From the Normal display, pressing the [CH] key will change the left side of the LCD from the model name to the Timer function. The Timer is now started and stopped by pressing either the [+] or [—] key. It may also be started and stopped using the Snap Roll/Trainer switch at the top left-rear portion of the

transmitter. When the X-347 is being used as the Master transmitter in the training function or the Snap-roll function is active, the Snap-roll/Trainer switch will not operate the Timer Start/Stop function.

Note: In the Count-Down mode the transmitter will beep 3 times at :30 sec., 2 times at :20 sec., and beep 1 time every second from :10 to 0. At zero there will be a continuous tone for 1 second, and then the Timer will begin counting up with a + indication to the left of the time value. When used as the Stop Watch, the Timer will count up to 44 min. 59 seconds, at which time it will reset to zero and continue to count.
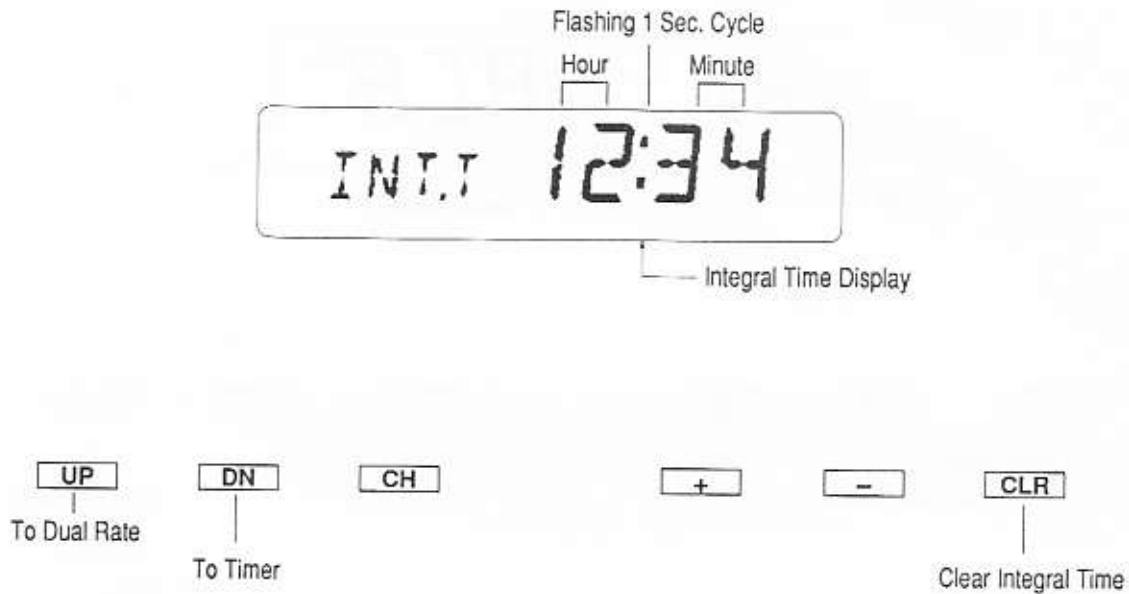
TIMR 5TP.W

Timer Setting Time
(STP.W 0:00-35:00/10 Sec. Step)

UP	DN	CH		+	—	CLR

Integral Time Display

To Trainer

Increases or Decreases
Timer Setting Time

Resets to Stop Watch

0:00 C 10.5v
BATT

Normal Display
(Timer Display)

Timer Display

UP	DN	CH		+	—	CLR

Select [Model Name Display]
or [Timer Display]

Count Start/Stop

Resets the Timer to the
Reset Time

Example:

1. Place the transmitter switch in the ON position.

2. Press the [UP] and [DN] keys simultaneously to enter the Function mode.

3. Press either the [UP] or [DN] key until TIMR is displayed in the left portion of the LCD.

4. The STP.W in the right portion of the display indicates the Timer is in the Stop Watch (count-up) mode.

5. Pressing the [+] key will change the display to :10; each time the [+] is pressed, the value will increase in 10 second intervals up to 35:00 minutes. This is the Count-Down Timer value. Pressing the [CLR] will reset the Count-Down Timer to the Stop Watch mode.

6. To exit the Timer function, press the [UP] and [DN] keys simultaneously.

The function of the Integral Timer is to keep track of the accumulated time in use. The Integral Timer counts up to 100 hours in one minute increments. It is best to reset this Timer each time the transmitter is recharged. Thus, the Timer will indicate the time of use on that particular charge.

Flashing 1 Sec. Cycle

Hour | Minute

INT.T 12:34

Integral Time Display

| UP | DN | CH | + | - | CLR |

To Dual Rate

To Timer

Clear Integral Time

To reset the Integral Timer, follow these procedures:

1. Place the transmitter switch in the ON position.

2. Press the UP and DN keys simultaneously to enter the function mode.

3. Press either the UP or DN key until INT.T is displayed in the left portion of the LCD.

4. The accumulated time of use will be displayed in the right portion of the LCD. To reset press the CLR key. Note the colon (:) flashes at a frequency of once per second.

5. To exit the Integral Timer, press the UP and DN keys simultaneously.

The X-347 system offers memory for 4 completely separate models. Thus, it is possible to have a mixture of Helicopter, Airplane and Glider set ups retained in memory. It is also recommended that the Model Name Input function be used in conjunction with each model set up. Another very useful function of the Model Select feature is the ability to set one aircraft up several different ways. This is very helpful when multi-task performance is desired.
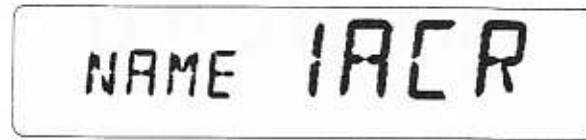
```
┌──────────────────────────────┐
│   MDL.1   1ACR                │
└──────────────────────────────┘
```

Model Number (1-4) ─────┘   Model Name

```
┌─────┐   ┌─────┐   ┌─────┐        ┌─────┐   ┌─────┐   ┌─────┐
│ UP  │   │ DN  │   │ CH  │        │  +  │   │  –  │   │ CLR │
└─────┘   └─────┘   └─────┘        └─────┘   └─────┘   └─────┘
```

To Model Name Input   Select Models
              To Copy Function

Example:

1. While holding the ⌈ UP ⌉ and ⌈ DN ⌉ keys depressed, switch the transmitter to the ON position to enter the system mode.

2. Press either the ⌈ UP ⌉ or ⌈ DN ⌉ key until MDL. is displayed in the left portion of the LCD.

3. Pressing either the ⌈ + ⌉ or ⌈ – ⌉ key will select between each of the four models available. Notice as each model is selected its name appears in the right portion of the LCD.

4. Once the desired model is displayed on the right, pressing the ⌈ UP ⌉ and ⌈ DN ⌉ keys simultaneously will exit the Model Select mode and establish the model displayed as the new current model.

Note: When changing from one model type to another, it is not necessary to use the aircraft Type Selector mode; this is done automatically by the computer.

The X-347 allows a 4 digit name to be input for each of the 4 models available. The current model will be displayed in the normal display when the Timer is not active. You may also find this useful to identify different aircraft set-ups.

```
┌─────────────────────────────┐
│                             │
│   NAME  1ACR                │
│                             │
└─────────────────────────────┘
```

↑
└─── Current Model Name Display (4 Digit)
     Flashing Indicates Character Being Changed

UP	DN	CH	+	−	CLR

To Type Select Function

To Model Select

Select Flashing
Letter Position
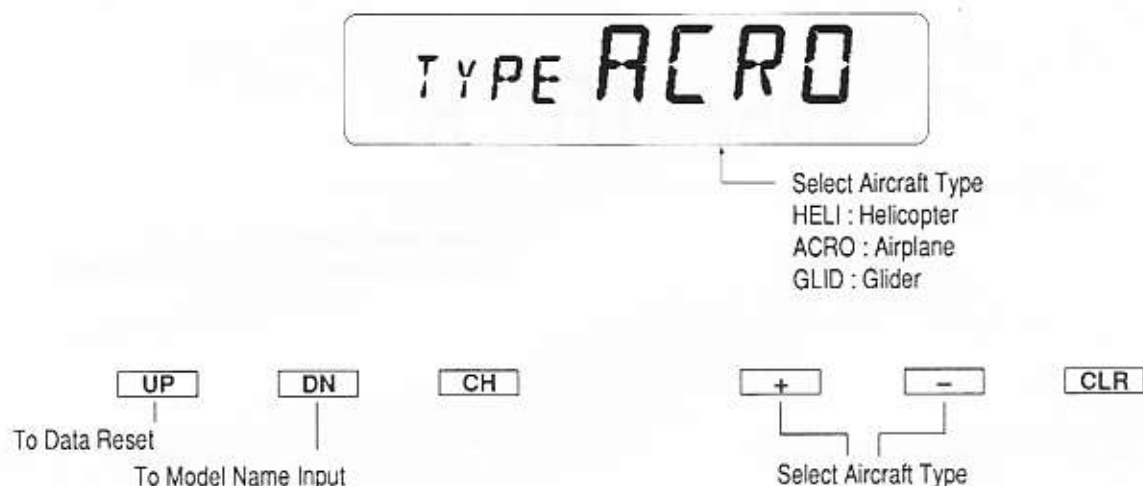
Select Alpha/Numeric
Characters

Resets to Factory Setting

Example:

1. While holding the UP and DN keys depressed, switch the transmitter to the ON position to enter the function mode.

2. Use the Model Select function to select the model you wish to name. (see page 34).

3. Press either the UP or DN key until NAME is displayed in the left portion of the LCD.

4. The current name will be displayed in the right portion of the LCD. Pressing + or − key will select the first alpha numeric character. Note: the character being selected will flash.

5. Press the CH key to advance the character selection to next character.

6. Repeat this procedure until all four characters are input.

7. Note: pressing the DN and CH keys simultaneously will step back to the previous character input.

8. To exit Model Name Input function, press the UP and DN keys simultaneously.

The X-347 is usable as Helicopter, Airplane or Glider radio with full function features for each.

TYPE **ACRO**

Select Aircraft Type
HELI : Helicopter
ACRO : Airplane
GLID : Glider

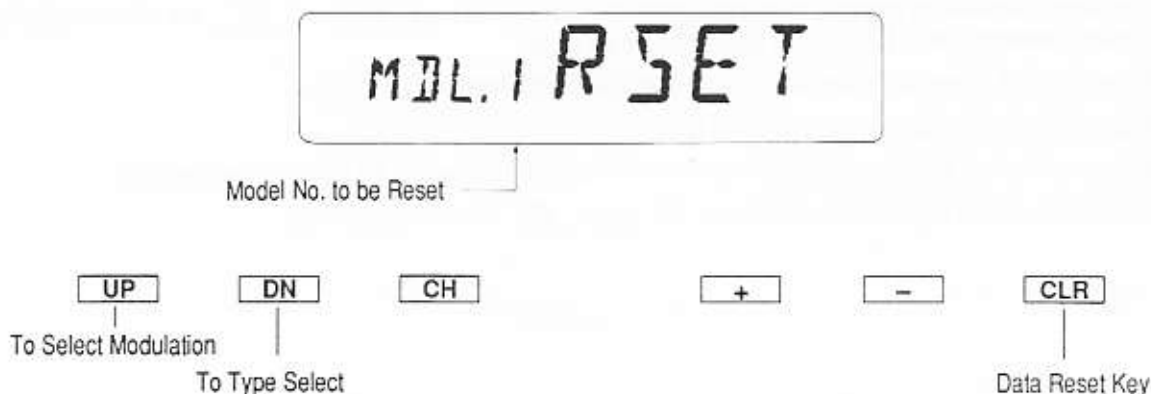| UP | DN | CH | + | − | CLR |

To Data Reset

To Model Name Input

Select Aircraft Type

To change aircraft types follow these procedures:

1. While holding the UP and DN keys depressed, switch the transmitter to the ON position to enter the system setting mode.
2. Press either the UP or DN key until TYPE is displayed in the left portion of the LCD.
3. Pressing either the + or − key will change the type of model.
4. To exit the Type Selector Mode, press the UP and DN keys simultaneously.

8.19 Data Reset (In System Set-Up Mode Only)

This function permits you to reset all the functions and settings for the current model to factory conditions. Resetting does not affect the data already programmed for other models. Be sure to confirm that you need to reset the data of the currently indicated model in order to prevent accidental loss of your valuable data.

MDL.1 **RSET**

Model No. to be Reset

| UP | DN | CH | + | − | CLR |

To Select Modulation

To Type Select

Data Reset Key

To reset data for any one model, follow these procedures:

1. While holding the UP and DN keys depressed, switch the transmitter to the ON position to enter the system setting mode.
2. Press either the UP or DN key until RSET appears on the right side of the display. Be sure that the model selected is the model you want to reset by checking the left side of the display.
3. To reset data, press the CLR key.
4. To exit the Data Reset mode, press both the UP and DN keys simultaneously.

The Wing Mixing function provides Flaperon mixing and Elevon mixing. Flaperons allow the pilot to use the existing ailerons as flaps as well. Now the ailerons may be lowered as flaps, yet still remain fully operational as ailerons.

The purpose of the Elevon system is to provide aileron to elevator mix for a Delta wing style aircraft.

MIX WING **NORM**
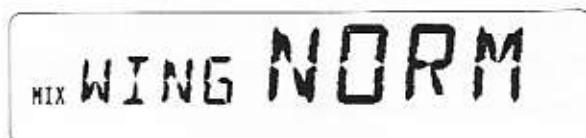
Wing Type Display
[NORM : Normal]
[FLPR : Flaperon]
[DELT : Delta (Elevon)]

UP	DN	CH

To Modulation Select

To Data Reset

+	−	CLR

Select Wing Type

Resets Wing Type to Normal

Connect Servo to the
AUX 1 Port of the Receiver

Connect Servo to the
Aileron Port of the Receiver

Connect Servo to the
Aileron Port of the Receiver

Connect Servo to the
Elevator Port of the Receiver
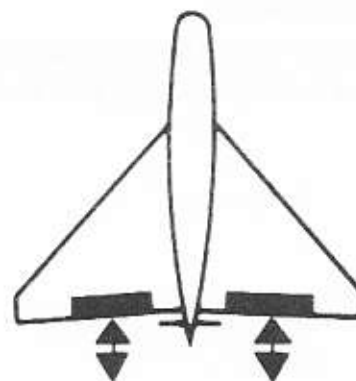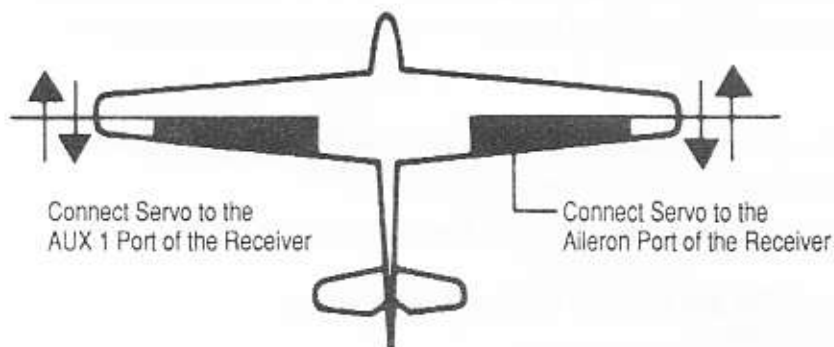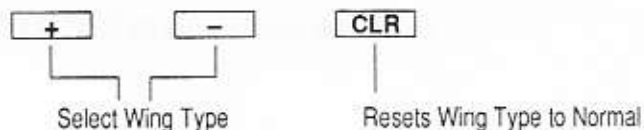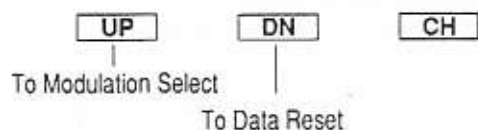
■ **Special Connections (Flaperon)**

1. One servo must be used for each aileron control surface.
2. Plug the left wing aileron servo into the AUX 1 port of the receiver.
3. Plug the right wing aileron servo into the aileron port of the receiver.
4. Check the direction of servo operation; if not correct, refer back to the Servo-Reversing function.
5. Travel Adjustments, Dual Rates, Sub Trim and Aileron Differential, as well as any Mixing programs are operational in the Flaperon function.
6. The Flap Knob on the top left corner will operate the Flaperons as flaps.
7. Sub Trim may be used to fine adjust the Flaperon center points.

Example of Flaperon set up:

1. While holding the ⌐ UP ⌐ and ⌐ DN ⌐ keys depressed, move the transmitter switch to the ON position to enter the system mode.
2. Press either the ⌐ UP ⌐ or ⌐ DN ⌐ key until MixWING appears in the left portion of the LCD.
3. Press either the ⌐ + ⌐ or ⌐ — ⌐ key until FLPR appears on the right of the LCD. The Wing is now set to perform the Flaperon function.
4. If you wish to clear this function, simply press the ⌐ CLR ⌐ key to return to NORM or Normal Wing.
5. To exit the Wing Mix function, press the ⌐ UP ⌐ and ⌐ DN ⌐ keys simultaneously.

■ **Special Connections (Elevons)**

1. One servo must be used for each Elevon.
2. Plug the servo connected to the left Elevon into the Aileron port on the receiver.
3. Plug the servo connected to the right Elevon into the Elevator port of the receiver.
4. Check the direction of servo operation of both Elevator and Aileron; they should function normally. If not, refer to the Servo reversing Section.
5. Travel Adjustment, Dual Rates, Sub Trim and Aileron Differential, as well as any Mixing programs are still operational and adjustable in the Delta wing configuration.

Example of Elevon set up:

1. While holding the ⌐ UP ⌐ and ⌐ DN ⌐ keys depressed, move the transmitter switch to the ON position to enter the system mode.
2. Press either the ⌐ UP ⌐ or ⌐ DN ⌐ key until Mix WING appears in the left portion of the LCD.
3. Press either the ⌐ + ⌐ or ⌐ — ⌐ key until DELT appears on the right of the LCD. The aircraft is now functional in the Delta wing configuration.
4. If you wish to cancel the Delta wing, simply press the ⌐ CLR ⌐ key to return to NORM or Normal Wing type.
5. To exit the Wing Mix function, press the ⌐ UP ⌐ and ⌐ DN ⌐ keys simultaneously.

8.21 Modulation Mode Selection (In System Set-Up Mode Only)

The X-347 transmitter offers PCM/PPM selectability. This offers greater flexibility in using the JR equipment you may already own, or which you may purchase in the future.

```
MODU PCM.C
```

Modulation Indicator
(PCM/PPM)

Display at Normal Display (C : PCM)
(F : PPM)

UP	DN	CH		+	−	CLR
To Spoiler Pot						
	To Wing Mix				PCM/PPM Selection	Reset Modulation to PCM

To change Modulation Type, follow these procedures:

1. While holding the [UP] and [DN] keys depressed, switch the transmitter to the ON position to enter the system setting mode.
2. Press either the [UP] or [DN] key until MODU is displayed in the left portion of the LCD.
3. Pressing either the [+] or [−] key will change the Modulation Type.
4. Pressing the [CLR] key will reset the Modulation Type to factory preset, PCM.
5. To exit the Modulation Selection Mode, press the [UP] and [DN] keys simultaneously.

Note: In the normal display, the selected Modulation Type will appear in the middle of the LCD. (F=PPM C=PCM)

8.22 Spoiler Channel (AUX 2) Input Device Selection (In System Set-Up Mode Only)

The purpose of this function is to assign the activation device for the Aux 2 channel. The knob provides proportional control, while the switch allows ON/OFF function of the Aux 2 channel.

Note: If the Spoiler is coupled to the Landing System, the Spoiler knob or switch will not operate the Spoiler's channel and LAND will appear in this program.

```
SPOI POT
```

Spoiler Channel Input Display
[POT : AUX 2 Knob
[MXSW : Mixing Switch

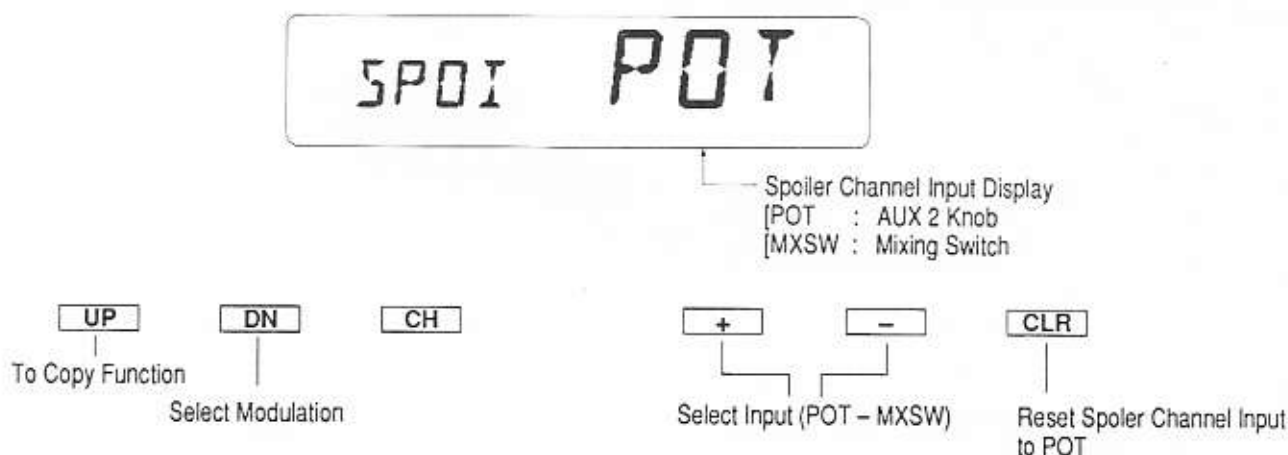| UP	DN	CH		+	−	CLR
To Copy Function						
	Select Modulation				Select Input (POT – MXSW)	Reset Spoler Channel Input to POT

Example:

1. While holding the [UP] and [DN] keys depressed, switch the transmitter to the ON position to enter the system setting mode.
2. Press either the [UP] or [DN] key until SPOI appears in the left portion of the LCD.
3. Press either the [+] or [−] key to select the input device for the AUX 2 channel.
4. To exit the Spoiler input program, press the [UP] and [DN] keys simultaneously.

The function of the Copy program permits you to copy all the settings of the current model to another model. This is very useful when setting up one aircraft several different ways, or trying a different set up of your current model.

```
CPY.1 2ACR
```

Current Model No. ⎯⎺   Model Name Indicator
                                (Copy Acceptance Model)

| UP | DN | CH | | + | − | CLR |

To Model Select
            To AUX 2 Ch Input Select   Select Model to Accept Copy   Copy Function Key (Press to Copy)
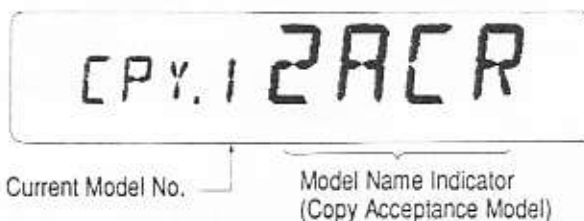
To activate the Copy function, follow these procedures:

1. While holding the [UP] and [DN] keys depressed, switch the transmitter to the ON position to enter the system setting mode.

2. Press either the [UP] or [DN] key until CPY. appears in the left side of the LCD.

3. The number that appears to the right of the CPY. is the current model. The four characters at the right side of the LCD indicate the accepting model (use the Model Selection function to select the current model – see page 34).

4. Press the [CH] to select the accepting model.

5. Once the desired accepting model is selected, press the [CLR] key to complete the copy.

6. To exit the Copy function mode, press the [UP] and [DN] keys simultaneously.

Note: Be sure to verify the current and the accepting model. Once the copying process is complete, the information of the accepting model is lost and the current model is input as the new data.

X-347 Data Sheet $\boxed{ACRO}$

Model No. _____

Model Name _____

Modulation PCM • PPM _____

	THRO	AILE	ELEV	RUDD	GEAR	FLAP	SPOI
Reverse SW	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV
Sub Trim (S. TRIM)							
Travel Adjust (T. ADJ)	H %	L %	D %	L %	+ %	U %	+ %
	L %	R %	U %	R %	− %	D %	− %

			AILE	ELEV	RUDD
Dual-Rate EXP	0	D/R	%	%	%
		EXP	%	%	%
	1	D/R	%	%	%
		EXP	%	%	%
Snap Roll (SNP.R)	INH	R:DN	%	%	%
		R:UP	%	%	%
	ACT	L:DN	%	%	%
		L:UP	%	%	%

AUTO RUDD/ D/R (AUT.R)		INH • ACT
Elevator → Flap Mix (Mix E-F)	Down (D)	%
	Up (U)	%
Landing (LD:)	Elev (E)	%
	Flap (F)	%
	Spoi (S)	INH • ACT
	Auto Landing (ATLD)	INH • ACT
		%

Differential (MIX DIFF)	%

		Channel	+ POS	− POS	SW	OFFSET
Program Mix	A	→•	%	%		
	B	→	%	%		
	C	→	%	%		
	D	→	%	%		

Flap-Pot. Travel (FLP.P T. ADJ)	Trim INH Full	%

Fail Safe (FAL.S)	HOLD • 1.0 • 0.5 • 0.3	
	Memory	
	Battery	OFF-ACT

Mix Wing	Normal • Flaperon • Delta

Spoiler Input (SPOI)	POT MXSW

3.1 Control Identification and Location

HELICOPTER | HELI |

- Antenna
- LCD Display (do not press)
- Hovering Pitch Knob
- Throttle Hold (Aux. 2)
- Rudder D/R (Aux. 2)
- Aileron Dual Rate SW
- Pitch Trim
- Elevator Trim
- Elevator/Aileron Stick
- Aileron Trim
- Input Keys

- Carrying Handle
- Hovering Throttle Knob
- Trainer Stopwatch SW
- Gear/Invert SW
- Elevator Dual Rate SW
- Flight Mode SW
  N – Normal
  1 – Stunt 1
  2 – Stunt 2
- Neckstrap Eyelet
- Throttle/Rudder Stick
- Throttle Trim
- Rudder Trim
- Power SW

IHEL C 10.7v

Channel Allocation

1 THRO .... Throttle Channel
2 AILE .... Aileron Channel
3 ELEV .... Elevator Channel
4 RUDD .... Rudder Channel
5 GEAR .... Retract Landing Gear Channel
6 AUX 1 .... Pitch Channel
7 AUX 2 .... Aux. 2 Channel (Gyro Sensitivity Channel)

■ Adjustment of Control Stick Spring Tension

Remove Tx RF module, Ni-Cd battery, and six (6) transmitter back screws shown above. Remove transmitter back being careful not to bend or damage the RF module pins.

Adjust each screw shown below for desired tension. When adjusting the throttle ratchet tension, make sure that the adjusting screw does not touch the PC board after adjustment is complete. A smooth throttle tension is provided for the helicopter version.

Transmitter Module
When transmitter module is removed, you will find a pocket for a spare fuse on the left side. Spare fuses are optional.

DSC/Trainer
Jack

Charging Jack for Ni-Cd
Battery Only (8N-600S)

Battery Cover.
Caution: The battery connector is keyed so that it can only be plugged in one direction. Do not force.

Elevator Tension Screw

Aileron Tension Screw

Rudder Tension Screw

Throttle Tension Screw

■ Control Stick Length Adjustment

Twist the control stick's head set screw with a 2mm allen wrench to unlock. Then adjust the body to the desired length and retighten the set screw to re-lock.

■ Neck Strap Attachment

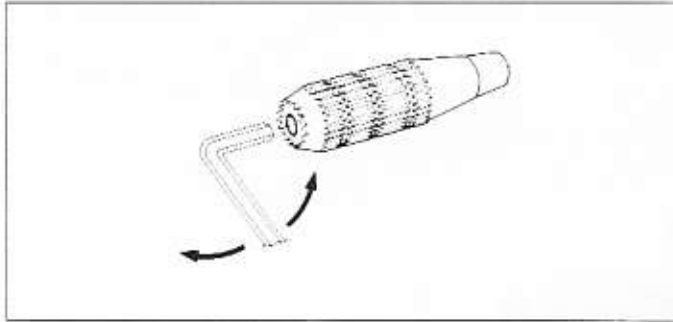An eye hook is provided on the front of the transmitter for attaching a neck strap. (See page 42) This eye hook is in position to give the transmitter perfect balance when using a neck strap.

■ D.S.C. (Direct Servo Control)

For proper DSC hook-up and operation:

1. Leave the transmitter power switch in the off position. The transmitter will not transmit any RF in this position.

2. Plug the DSC cord into the transmitter DSC jack in the left side panel.

3. The transmitter encoder section will now be operational and the front panel pilot lamp should be on.

4. Plug the other end of the DSC cord into the receiver charge receptacle and turn on the receiver.

If you have made all of the proper connections, you will have full control of the servos with your transmitter just the same as if the receiver were being operated by the RF link, only you will not be transmitting any RF that will cause interference to others. Also, you will only be using 70mA of power with the DSC system instead of the normal 200mA with the RF turned on.

■ PCM and Frequency Notes

The X-347 transmitter employs a plug-in module system for transmitter frequency changes. If you wish to change frequency, you may simply change the RF module.

Please note the X-347 Transmitter can operate either in the PCM or PPM modulation modes. Be certain to observe the following:

- DO NOT operate your transmitter when another transmitter is "ON" using the same frequency regardless whether it is on PCM, PPM, FM or AM. You can NEVER operate two transmitters on the same frequency simultaneously without causing interference to BOTH receivers and resulting in both aircraft crashing!

- For operating additional receivers with this X-347 transmitter in the PCM mode, you may use PCM-10 (NER-910XZ), Galaxy 8 (NER-J329P), Max PCM (NER-627X "G" series), or Century 7 FM (NER-327, NER-527, NER-529) in the PPM mode. You cannot use the PCM-9 (NER-J229) or Century 7 PCM (NER-627X) receivers with the X-347 transmitter because they don't have compatible CPU's.

- For operation in the PPM mode, any of the JR AM or FM receivers and matching transmitter RF modules are compatible.

- If you have a PPM receiver and a PCM RF transmitter module on the same frequency, this combination is okay, but a PCM receiver can only be used with a PCM transmitter module.

- Use only the PCM "Y" harness with the PCM receivers (JRA002PCM). This will also operate with PPM system.

■ Aircraft Only Frequencies

JR RF modules are available in 50, 53 and 72 MHz frequencies in the United States for use with model aircraft. The use of 72 MHz frequencies requires no special license from the FCC (Federal Communication Commission), while the 50 and 53 MHz Amateur (HAM) band does require a special license to operate. See your local FCC office for details.

A chart for all available frequencies is located on the back inside cover of this manual for your reference.

■ Throttle ALT

The purpose of this function is to make the ThrottleTrim lever active only when the Throttle Stick is less than half Throttle. This means easy accurate idle adjustments may be made without affecting the high Throttle position.

■ Installation Requirements

It is important that your radio system be correctly installed in your model. Here are a few hints on installing your system.

• Wrap the receiver in foam rubber 3/8 inch thick or more for added protection. Secure foam rubber with rubber bands.

• The servos then should be mounted on the servo trays supplied, or on hardwood rails using rubber grommets and brass bushings to isolate from vibration. DO NOT OVERTIGHTEN mounting screws.

• Servos must be able to move freely over their entire range of travel. Make sure that the control linkages do not bind or impede the movement of any of the servos. A stalled servo can drain the battery within minutes.

• Mount all switches away from the engine exhaust and away from any high vibration areas. Make sure the switch operates freely and is able to operate over its full travel.

Battery
4N-1000
4N-550
4N-550

Charging Plug

On/Off Switch Harness
JRA001

Aux 2
(Gyro Sen)

Aux 1
(Pitch)

Gear

Rudder

Elevator

Aileron

Throttle

FM RX
72.550

PCM
Pulse Code Modulation Series   G

ABCSW RECEIVER
7 CHANNEL RECEIVER

FM SHG
72 MHZ

NER-627X

BATT
AUX 2
AUX 1
RET L G
RUDD
ELEV
AILE
THRO

Antenna

The Function Keys are used to move up and down through the functions.
The Channel Key is used to advance channel or function selected.
The Data Entry Keys are used to make changes in the selected functions.

Up Key   Down Key   Channel Key   Increase Key   Decrease Key   Clear/Store Key

UP – MODE – DN   CH ►   + – DATA – –   CLR

ENT   ◄   ACT·L   ACT·R   STORE

Data Entry Keys

Channel Changer in the SYSTEM and FUNCTION modes
(Press Down and Channel Key at the same time to select previous channel or function)

Function Selection Keys
(Press both keys at the same time to enter or exit the FUNCTION mode)

Hereafter, explanation of all functions in this booklet will use the following
designations to indicate pressing individual keys.

| UP | DN | CH | | + | – | CLR |

6.1 Battery Alarm and Display

When the transmitter voltage drops below 9.0 volts DC, the display
will flash BATT, and an alarm will sound 7 times. If you are flying
when this occurs, you should land immediately. If you want to use
dry batteries, you may operate the transmitter down to approximately
7.7 volts. If you wish to set alarm voltage at 7.7 volts, please contact
JR Service America to have the alarm voltage changed.

6.2 Back-Up Error Display

All pre-programmed data is protected by a five-year Lithium battery
protecting against main transmitter battery failure. Should the
Lithium battery fail, the display will indicate BKUP ERR regardless of
the position of the ON/OFF switch.

BKUP ERR

If this occurs, it will be necessary to replace the battery and
reprogram all data. All transmitter programs will return to the factory
default settings, and the data you have input will be lost. When it
becomes necessary to replace the Lithium back-up battery, please
contact JR Service America. Due to the possibility of extensive
damage caused by improper removal or replacement, only JR
Service America is authorized to make this change.

* Please record all your input data on the provided data sheet.

7. Input Mode and Functions

7.1 Normal Display

When the power switch is in the ON position, the display will read as follows:

Transmitter Voltage

IHEL C 10.0v
BATT

Modulation Type C:PCM F:PPM

Model Name (in Timer Mode, Timer is displayed)

| UP | DN | CH |

Pressing the CH key selects between (Model name) and (Timer display)

| + | – | CLR |

Stop Watch Start & Stop (Timer Display Only)

Timer Value Reset (Timer Display Only)

Refer to page 68 for Timer setting.

7.2 Function Mode

To enter the Function Mode, switch the transmitter power switch to the ON position. Press the UP and DN keys simultaneously, and the display will show the last active program. Pressing either the UP or DN key will scroll through the functions one by one according to the Function Flow Chart shown on the following page. Once the appropriate function is displayed, changes may be made by pressing the + or – keys. To select another channel of a particular function, simply press the CH key. If you transfer to a different function that is channel selectable, the display will show the same channel. For example, if you are adjusting the Dual Rate of the Elevator and you change to the Exponential function, the channel remains Elevator. The Function Mode is the most often used system to input data.

■ Function Setting Mode Flow Chart

Information pertaining to each function is explained on the page
number listed next to the function name. Functions will appear in the
same order they are shown on this chart.

Display	Page		Function
DUAL-RATE	p. 50	HELI	Dual Rate
EXP	p. 51	HELI	Exponential
REVERSE SW	p. 52	HELI	Reverse Switch
S.TRIM	p. 53	HELI	Sub-Trim
T.ADJ	p. 54	HELI	Left/Right End Point Adjustment
TH: N / TH: 1 / TH: 2	p. 55	HELI	Throttle Curve — Normal / Stunt 1 / Stunt 2
PT: N / PT: 1 / PT: 2 / PT: H	p. 57	HELI	Pitch Curve — Normal / Stunt 1 / Stunt 2 / Hold (Throttle Hold)
HOLD	p. 59	HELI	Throttle Hold
INV.P	p. 60	HELI	Inverted Flight
RV:	p. 61	HELI	Revolution Mixing
ACC.	p. 62	HELI	Acceleration Mixing
A	p. 63	HELI	Programmable Mixing
FAL.S	p. 66	HELI	Fail Safe (PCM Only)
TRN	p. 67	HELI	Trainer
TIMR	p. 68	HELI	Timer
INT.T	p. 69	HELI	Accumulated Time of Use

UP — MODE — DN

(ENT)

Press both the [UP] and [DN] keys simultaneously while turning the transmitter power switch on. You can now select the following seven functions by pressing either the [UP] key or [DN] key. Although the servos will not operate at this time, please take care not to interfere with any other system as your transmitter is fully functional at this time. By pressing both the [UP] and [DN] keys simultaneously, the LCD display will indicate normal display and the servos will operate.

System Setting Mode Flow Chart
■ Information pertaining to each function is explained on the page number listed next to the function name. Functions will appear in the same order they are shown on this chart.

Display	Page		Function
MDL.	p. 70	HELI	Model Change
NAME	p. 71	HELI	Input Model Name
TYPE	p. 72	HELI	Type Selection
MDL. RSET	p. 72	HELI	Data Reset
MODU	p. 73	HELI	Modulation Change PCM/PPM
AUX2	p. 73	HELI	AUX-2 Channel Input Change
CPY.	p. 74	HELI	Copy Function

UP - MODE - DN
[ENT]

8.1 Dual Rate

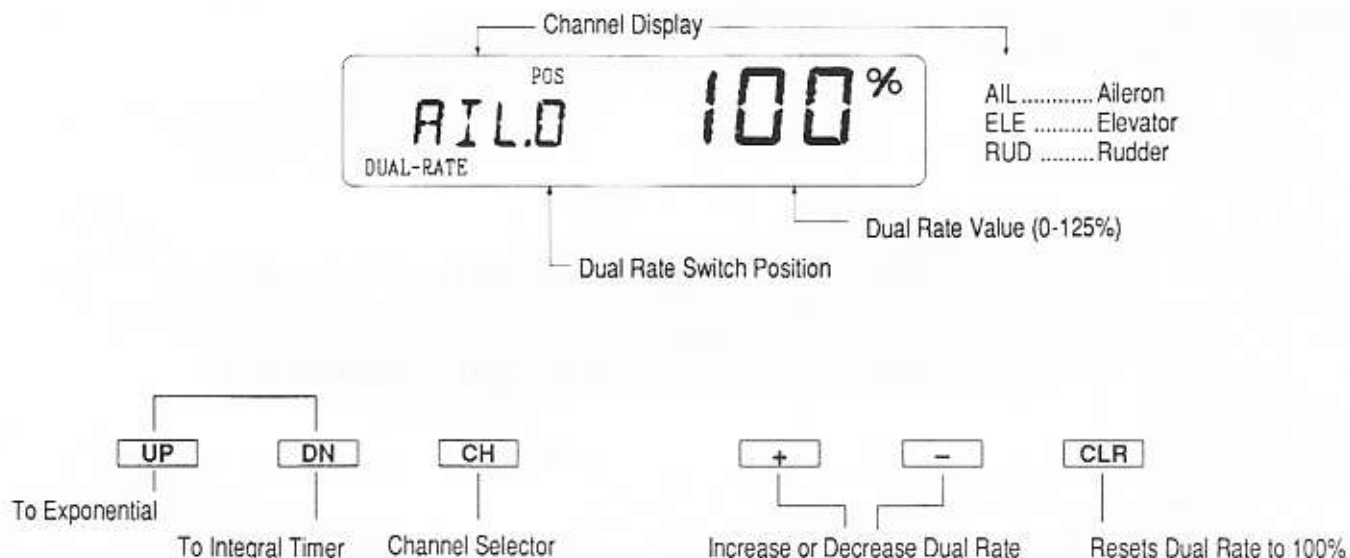Dual Rates are available for Aileron, Elevator, and Rudder. The purpose of this function is to allow for in-flight selection of two pre-set total servo travels for each of these three channels. The amount of travel is adjustable from 0-125% in 1% increments. The factory setting for both switch positions 0 and 1 is 100%. Either position may be selected as the low or high rate by merely placing the switch in the desired position and adjusting the value for each.
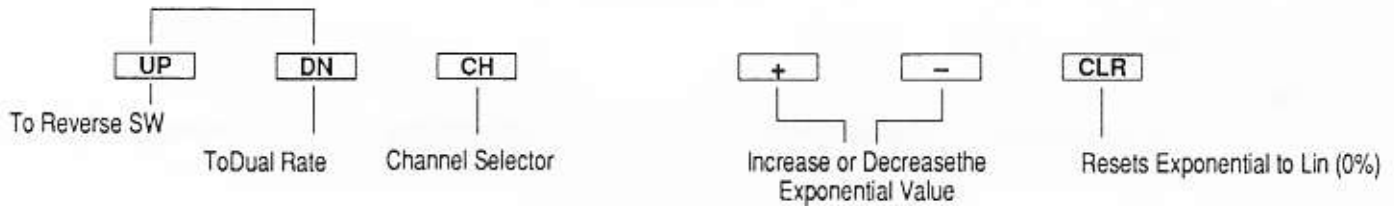
Channel Display

```
        POS
      AIL.0      100 %        AIL ............ Aileron
  DUAL-RATE                   ELE .......... Elevator
                              RUD ......... Rudder
```

Dual Rate Value (0-125%)

Dual Rate Switch Position

| UP | DN | CH |
To Exponential
To Integral Timer   Channel Selector

| + | – | CLR |
Increase or Decrease Dual Rate   Resets Dual Rate to 100%

Example:

1. Place the transmitter switch in the ON position.

2. Press the ⌷ UP ⌷ and ⌷ DN ⌷ keys simultaneously to enter the Function mode.

3. Press either the ⌷ UP ⌷ or ⌷ DN ⌷ key until the Dual-Rate function appears in the lower left corner of the LCD.

4. Press the ⌷ CH ⌷ until the desired channel is displayed.

5. The number directly below POS on display indicates the current position of the dual rate switch for the channel selected; either a 0 or a 1 will be shown which corresponds to the position of the switch. Travel adjustments made will only affect servo operation when the dual rate switch is moved to the position now shown on the LCD.

6. The large number on the right side of the display indicates the percentage of servo travel currently selected. To increase servo travel press the ⌷ + ⌷ key. To decrease servo travel press the ⌷ – ⌷ key. To reset the servo travel to 100% press the ⌷ CLR ⌷ key.

7. To exit the Dual Rate Function, press ⌷ UP ⌷ and ⌷ DN ⌷ keys simultaneously.

8.2 Exponential

Exponential rates are available for Aileron, Elevator, and Rudder. The Exponential value is adjustable from 0-100%, 0% being linear, 100% being full Exponential. The function of Exponential is to reduce the sensitivity of the Aileron, Elevator or Rudder in the middle area of the corresponding stick movement, while allowing full rate at the end of stick travel. Exponential is used in conjunction with Dual Rates for each function. The total travel selected in the Dual Rate function will remain the same; Exponential merely changes the rate at which it will achieve that full rate. Exponential may be selected for either the high or low rate, or both.

```
          ┌──────── Channel Display ────────┐
          │            POS                   │
          │ EXP            ___  _  _   _     │     AIL ............. Aileron
          │     AIL.0     |    | || \ |      │     ELE ............ Elevator
          │               |___ | ||  \|      │     RUD .......... Rudder
          └─────────────────────────────────┘
                    │             │
                    │             └──── EXP Value (0-100%)   *Lin (Linear) = 0%
                    └──── Dual Rate SW Position
```

```
    ┌────────┐  ┌────────┐   ┌────────┐          ┌───────┐ ┌───────┐    ┌───────┐
    │   UP   │  │   DN   │   │   CH   │          │   +   │ │   ─   │    │  CLR  │
    └────────┘  └────────┘   └────────┘          └───────┘ └───────┘    └───────┘
         │           │            │                  └────┬────┘             │
    To Reverse SW    │            │              Increase or Decreasethe  Resets Exponential to Lin (0%)
                ToDual Rate   Channel Selector       Exponential Value
```
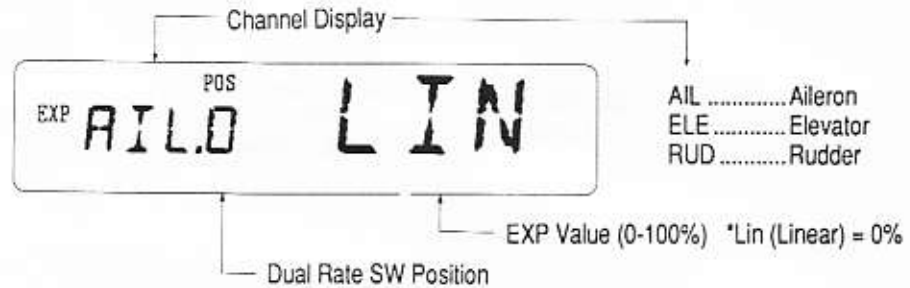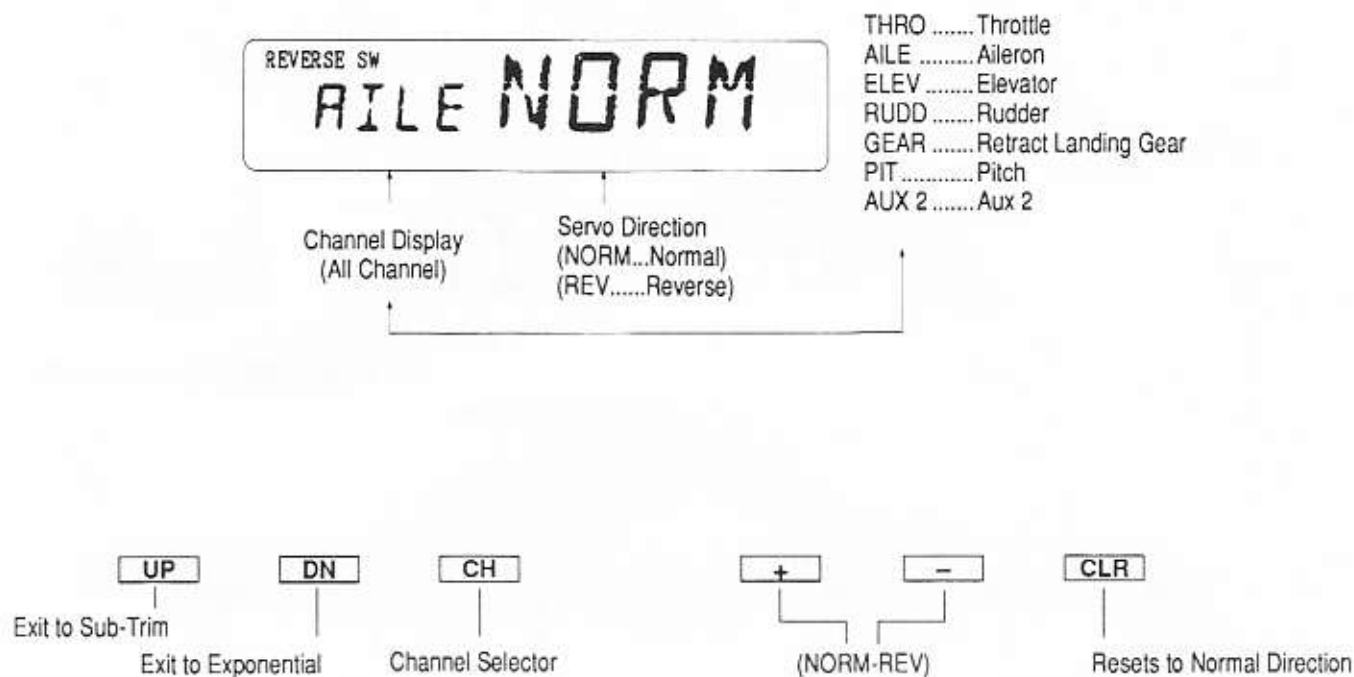
Example:

1. Place the transmitter switch in the ON position.

2. Press the ⬚ UP ⬚ and ⬚ DN ⬚ keys simultaneously to enter the Function mode.

3. Press either the ⬚ UP ⬚ or ⬚ DN ⬚ key until EXP appears in the far left portion of the LCD.

4. Press the ⬚ CH ⬚ until the channel you wish changed appears.

5. Place the corresponding Dual Rate switch in the position you wish to make Exponential. Note: the switch position indicator will change from 0 to 1 or vice-versa.

6. LIN indicates the servo-to-stick travel is currently 1 to 1 or linear. Press ⬚ + ⬚ to increase the amount of Exponential desired. The ⬚ CLR ⬚ key returns this value to 0% or LINear.

7. Exponential is an acquired feel; it may take several test flights to achieve the amount of Exponential that fits your flying style.

8. To exit the Exponential function, press the ⬚ UP ⬚ and ⬚ DN ⬚ keys simultaneously

8.3 Servo Reversing

Servo Reversing is a very convenient function used in the set up of a
new aircraft. It is used to change the direction of servo rotation in
relation to its corresponding stick movement. Servo reversing is
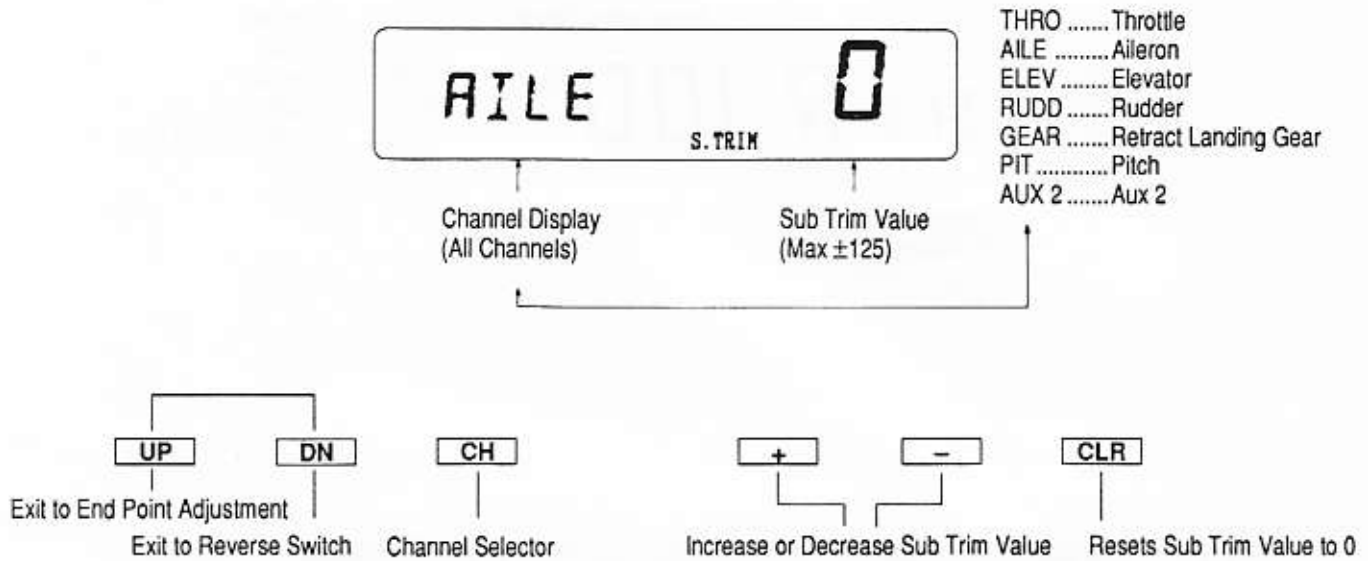available for all seven channels.

```
REVERSE SW
      AILE NORM
```

THRO .... Throttle
AILE .... Aileron
ELEV .... Elevator
RUDD .... Rudder
GEAR .... Retract Landing Gear
PIT .... Pitch
AUX 2 .... Aux 2

Channel Display
(All Channel)

Servo Direction
(NORM...Normal)
(REV......Reverse)

| UP | DN | CH | | + | – | CLR |

Exit to Sub-Trim

Exit to Exponential   Channel Selector

(NORM-REV)

Resets to Normal Direction

Example:

1. Place the transmitter switch in the ON position.

2. Press the ☐ UP ☐ and ☐ DN ☐ keys simultaneously to enter the Function mode.

3. Press either the ☐ UP ☐ or ☐ DN ☐ key until Reverse SW appears in the upper left corner of the LCD.

4. Press the ☐ CH ☐ key until the desired channel is displayed.

5. Pressing either the ☐ + ☐ or ☐ – ☐ key will change the direction of servo travel. Touching the ☐ CLR ☐ returns the direction to
   Normal.

6. To exit the Servo Reversing function, press the ☐ UP ☐ and ☐ DN ☐ key simultaneously.

Sub Trim is an electronic trim available for each of the seven channels. Sub Trim is particularly useful when changing from one aircraft to another. Using the Sub Trim allows you to place the mechanical trim levers in the center position and adjust trims

electronically. Sub Trim can also allow additional trim travel when mechanical trims do not provide enough. The adjustable range of each Sub Trim is ± 125% either direction, or about 30° servo throw each direction.

```
 ┌─────────────────────────────────────────┐
 │                                          │
 │     AILE                    0            │
 │                  S.TRIM                  │
 └─────────────────────────────────────────┘
```

THRO .... Throttle
AILE .... Aileron
ELEV .... Elevator
RUDD .... Rudder
GEAR .... Retract Landing Gear
PIT .... Pitch
AUX 2 .... Aux 2

Channel Display
(All Channels)

Sub Trim Value
(Max ±125)

| UP | DN | | CH | | | + | | − | | CLR |

Exit to End Point Adjustment

Exit to Reverse Switch

Channel Selector

Increase or Decrease Sub Trim Value

Resets Sub Trim Value to 0

Example:

1. Place the transmitter switch in the ON position.
2. Press the ⬚UP⬚ and⬚DN⬚ keys simultaneously to enter the Function mode.
3. Press either the ⬚UP⬚ or ⬚DN⬚ key until S. TRIM appears in the lower middle section of the LCD.
4. Press the ⬚CH⬚ key until the desired channel is displayed.
5. Press the ⬚+⬚ or⬚−⬚ key to establish the desired amount of Sub Trim. Note: A letter or a symbol appears in the middle of the screen to indicate the direction and value of Sub Trim input.
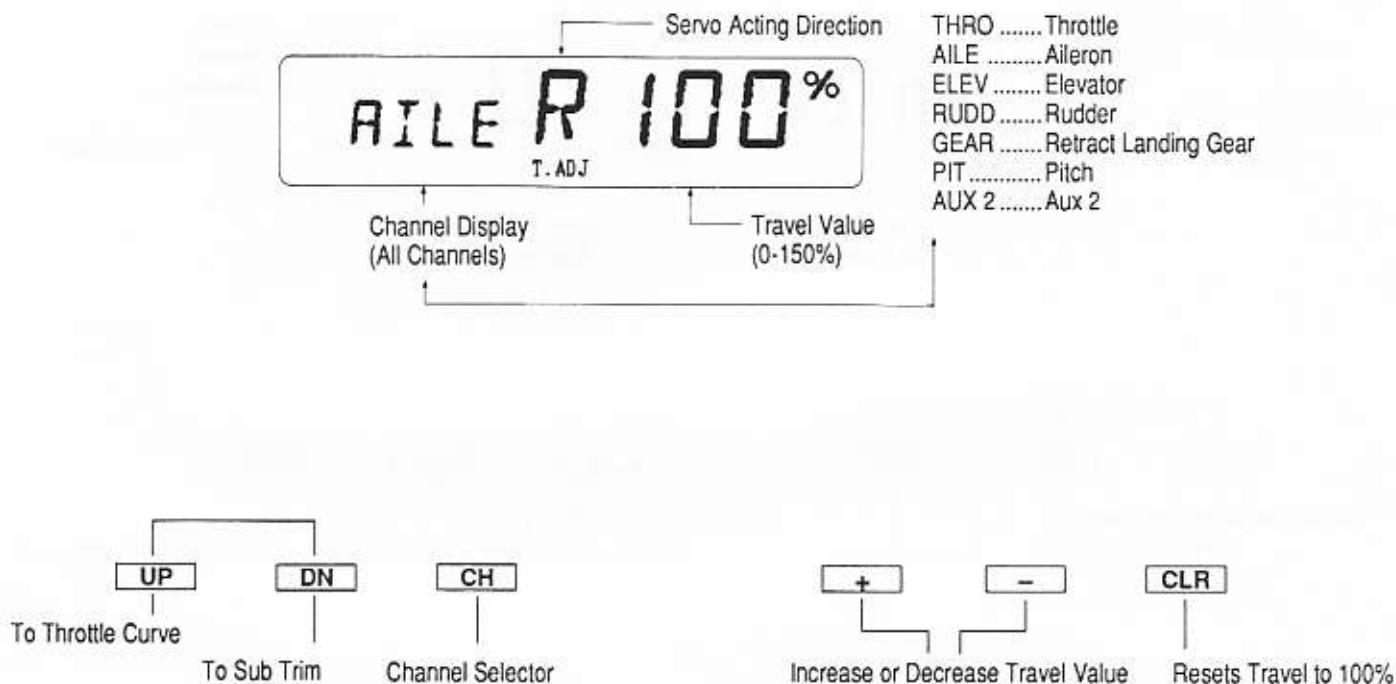
These are as follows:

Function	+ Increases	− Decreases
Throttle	H = High	L = Low
Aileron	L = Left	R = Right
Elevator	D = Down	U = Up
Rudder	L = Left	R = Right
Gear	+ = Increase	− = Decrease
Pitch	H = High	L = Low
AUX 2	+ = Increase	− = Decrease

6. To exit the Sub Trim function, press the ⬚UP⬚ and ⬚DN⬚ keys simultaneously.

The amount of Servo Travel is separately adjustable for all channels, as well as individually for each direction. The adjustable range is from 0% to 150% (0° to 60°). The Servo Travel for all channels is factory set to 100%. The reading on the LCD display is dependent upon the position of the stick.

Servo Acting Direction

$$AILE\ R\ 100\%$$

T. ADJ

Channel Display
(All Channels)

Travel Value
(0-150%)

THRO .... Throttle
AILE .... Aileron
ELEV .... Elevator
RUDD .... Rudder
GEAR .... Retract Landing Gear
PIT .... Pitch
AUX 2 .... Aux 2

UP	DN	CH

To Throttle Curve

To Sub Trim   Channel Selector

+	–	CLR

Increase or Decrease Travel Value   Resets Travel to 100%

Example:

1. Place the transmitter switch in the ON position.

2. Press the [UP] and [DN] keys simultaneously to enter the function mode.

3. Press either the [UP] or [DN] key until T. ADJ. appears in the bottom middle section of the LCD.

4. Press the [CH] key until the desired channel is displayed on the left side of the LCD.

5. To adjust right aileron travel, press the [CH] key until AILE is displayed on the left side of the LCD. Move the aileron stick to the right and note that the middle display will change to reflect the value being adjusted (i.e., AILE R 100% the aileron stick must be held to the right).

6. While the stick, knob, or switch is moved in the direction of travel to be adjusted, press the [+] or [–] until the proper amount of servo travel is reflected on the right side of the LCD.

7. The same may be done for all channels.

8. To exit Travel Adjustment, press the [UP] and [DN] keys simultaneously.
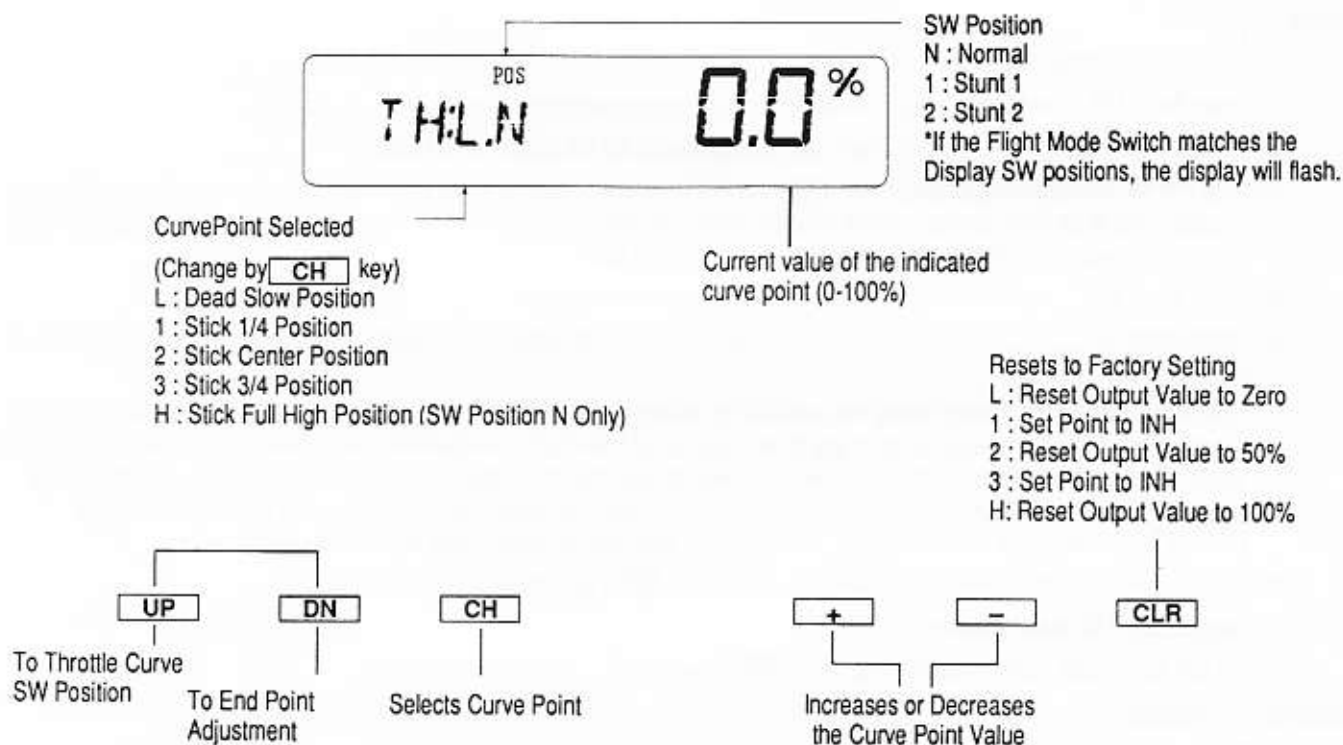
The X-347 offers three separate Throttle Curves with five adjustable points per curve. This feature allows you to customize the Throttle Curve and Pitch curve together to maximize engine performance at a particular pitch setting. Once the Throttle Curves are established, each may be activated in flight using the (3) position Flight Mode Switch. The Flight Mode Switch offers (3) selectable ranges: N= Normal, 1=Stunt 1, and 2=Stunt 2. The N or Normal position should be used as the Hover Throttle Curve. Positions 1 and 2, or Stunt 1 and Stunt 2 should be used for aerobatic maneuvers and forward flight. Note that the Throttle Trim and Hovering Throttle Knob are only operable when the Flight Mode Switch is in the N or Normal position. Thus, in the 1 or 2 positions, these two functions have no affect. Also, adjusting the Hovering Throttle Knob and Throttle Trim has no affect on the input values of the Throttle Curve.

Each of the (5) points of the Throttle Curve are independently adjustable from (0-100%). These (5) points correspond to the position of the Throttle stick. Note H or High point is only adjustable for Flight Mode Switch position N. The Stunt 1 and Stunt 2 High position is set at 100% and is not adjustable.
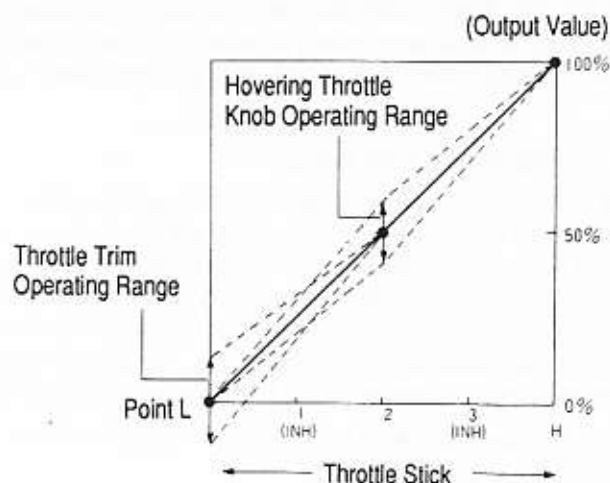
The illustrations below show the normal Throttle Curve setting for the dead slow position with Throttle Trim at default.
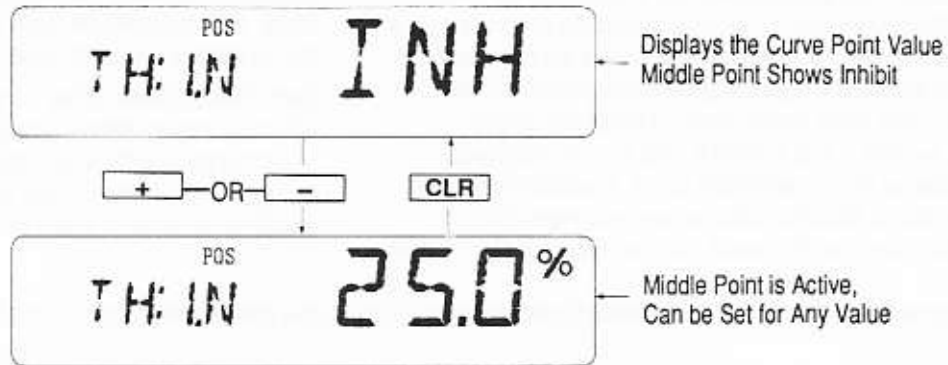
POS
T H:L.N   0.0 %

SW Position
N : Normal
1 : Stunt 1
2 : Stunt 2
*If the Flight Mode Switch matches the
Display SW positions, the display will flash.

CurvePoint Selected

(Change by [CH] key)
L : Dead Slow Position
1 : Stick 1/4 Position
2 : Stick Center Position
3 : Stick 3/4 Position
H : Stick Full High Position (SW Position N Only)

Current value of the indicated
curve point (0-100%)

Resets to Factory Setting
L : Reset Output Value to Zero
1 : Set Point to INH
2 : Reset Output Value to 50%
3 : Set Point to INH
H: Reset Output Value to 100%

[UP]   [DN]   [CH]   [+]   [—]   [CLR]

To Throttle Curve
SW Position   To End Point   Selects Curve Point
                 Adjustment

Increases or Decreases
the Curve Point Value

*Middle Points (1, 2 and 3)

The transmitter is factory-preset to the Throttle Curve as shown in Fig. 1, containing point 2 for the normal position. Individual middle points can be increased or decreased to suit your specific needs.

(Output Value)

Hovering Throttle
Knob Operating Range

Throttle Trim
Operating Range

Point L

Throttle Stick

Fig. 1   At the time of release from the factory.
Flight Mode N (Normal), Middle Points 1
and 3 are INH, forming a straight line throttle
curve.

```
        POS
  TH: LN      INH
```
— Displays the Curve Point Value
  Middle Point Shows Inhibit

`[ + ]—OR—[ - ]`   `[ CLR ]`

```
        POS
  TH: LN      25.0 %
```
— Middle Point is Active,
  Can be Set for Any Value

Example:

1. Place the transmitter switch in the ON position.

2. Press the [UP] and [DN] keys simultaneously to enter the function mode.

3. Press either the [UP] or [DN] key until TH: appears in the left portion of the LCD.

4. Note that the character directly under the POS in the middle of the LCD is the Flight Mode switch position curve currently being adjusted. Use N for hover curves, 1 and 2 for stunt curves. We will concentrate on the hovering curve during this example. If the Flight Mode switch is in the indicated position, the character will flash.

5. Press the [CH] key to select the point of the curve you wish to change.

6. Press either the [+] or [-] key to change the value of the current curve point. The range of each point is 0-100% in .5% intervals.

7. Note: In each curve, the factory setting indicates INH for points 1 and 3. These values are 25% and 75% respectively if no value changes are made to any other points. If any of the other points have been changed while these points were INHibited, the INHibited points will change also to plot a smooth curve. If you wish to keep this from happening, press the [CH] key until the display indicates (TH:1.N INH). Press either the [+] or [-] key, then press the [CH] key until the display indicates (TH:3.N INH). Then press either the [+] or [-] key. This will allow infinite adjustment of each curve.

8. To set curves for Flight Mode Switch position 1, press the [UP] key and repeat steps 4 through 7.

9. Repeat step 8 for switch position 2.

10. To exit the Throttle Curve function, press the [UP] and [DN] keys simultaneously.

■ **Throttle Trim Setting**

The Throttle Trim lever is only active when the Flight Mode Switch is in the N position. The Throttle Trim is used to increase or decrease the engine power when the Flight Mode Switch is in the N or Normal mode. The Throttle Trim lever has no affect on positions 1, 2, or in Throttle Hold. Note: making changes to the Throttle Trim lever does not change the input values for any of the points on the Throttle Curve; it merely makes adjustments to the engine idle speed.

■ **Hovering Throttle Knob Setting**

The Hovering Throttle Knob increases or decreases the engine output power for the middle (3) points set for the Throttle Curve. As shown in Fig. 2, use of the Hovering Throttle Knob shifts the curve upward or downward parallel with the original curve. Therefore, operation of the Hovering Throttle Knob does not cause any change to the original inclination of the Throttle Curve. The adjustable range of output using the Hovering Throttle Knob is approximately ± 9%.

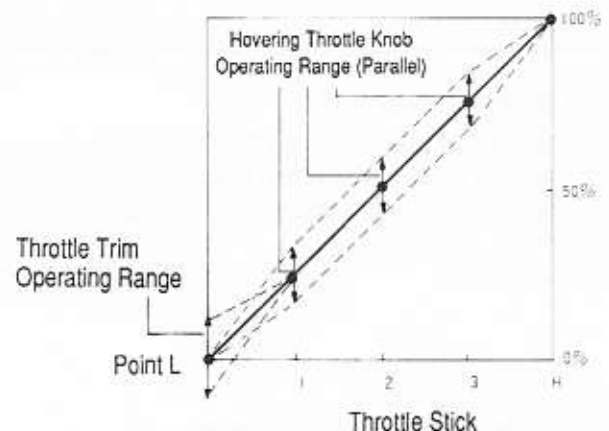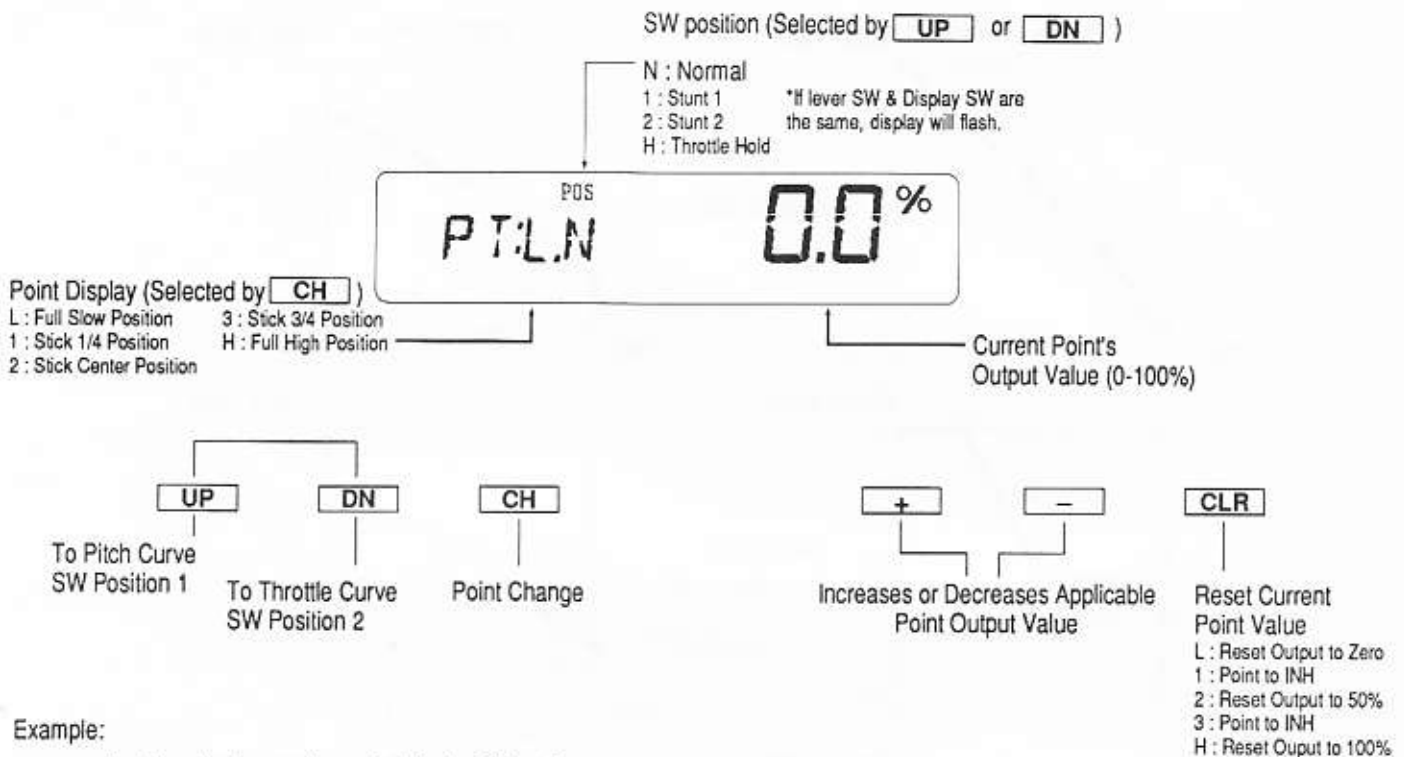Note: The Hovering Throttle has no affect on Flight Mode Switch positions 1 and 2.

Fig. 2 All middle points are active and flight mode SW position is N (individual power output values shown are an average).

Adjustment of the Pitch Curve is very similar to the Throttle Curve adjustment in the preceding section. A thorough understanding of theThrottle Curve section will make Pitch Curve adjustment easier to understand. The only difference betwen Pitch Curve adjustment and Throttle Curve adjustment is the use of external trimmers and the

available types of curves. There are (4) independent types of Pitch Curves available: Normal, Stunt 1, Stunt 2 and Hold. Each Pitch Curve contains five adjustable points: L, 1, 2, 3 and H.

Note: The Pitch Curve for Throttle Hold function can only be set if this system is activated.

SW position (Selected by [UP] or [DN])

N : Normal
1 : Stunt 1   *If lever SW & Display SW are
2 : Stunt 2   the same, display will flash.
H : Throttle Hold

POS

PT:L.N   0.0 %

Point Display (Selected by [CH])
L : Full Slow Position   3 : Stick 3/4 Position
1 : Stick 1/4 Position   H : Full High Position
2 : Stick Center Position

Current Point's
Output Value (0-100%)

| [UP] | [DN] | [CH] | | [+] | [—] | [CLR] |

To Pitch Curve
SW Position 1
                To Throttle Curve   Point Change
                SW Position 2

Increases or Decreases Applicable
Point Output Value

Reset Current
Point Value
L : Reset Output to Zero
1 : Point to INH
2 : Reset Output to 50%
3 : Point to INH
H : Reset Ouput to 100%

Example:

1. Place the transmitter switch in the ON position.

2. Press the [UP] and [DN] keys simultaneously to enter the function mode.

3. Press either the [UP] or [DN] key until TH: appears in the left portion of the LCD.

4. Note that the character directly under the POS in the middle of the LCD is the Flight Mode switch position curve currently being adjusted. Use N for hover curves, 1 and 2 for stunt curves. We will concentrate on the hovering curve during this example. If the Flight Mode switch is in the indicated position, the character will flash.

5. Press the [CH] key to select the point of the curve you wish to change.

6. Press either the [+] or [—] key to change the value of the current curve point. The range of each point is 0-100% in .5% intervals.

7. Note: In each curve, the factory setting indicates INH for points 1 and 3. These values are 25% and 75% respectively if no value changes are made to any other points. If any of the other points have been changed while these points were INHibited, the INHibited points will change also to plot a smooth curve. If you wish to keep this from happening, press the [CH] key until the display indicates (TH:1.N INH). Press either the [+] or [—] key, then press the [CH] key until the display indicates (TH:3.N INH). Then press either the [+] or [—] key. This will allow infinite adjustment of each curve.

8. To set curves for Flight Mode Switch position 1, press the [UP] key and repeat steps 4 through 7.

9. Repeat step 8 for switch position 2.

10. To exit the Throttle Curve function, press the [UP] and [DN] keys simultaneously.

■ **Hovering Pitch Knob**

This operates in the same manner as the Hovering Throttle Knob. It is only operable while the Flight Mode Switch is in the N or Normal position and its function is to shift the middle portion of the curve upward or downward.

■ **Pitch Trim Knob**

This is a trimmer for the Pitch channel. This knob should be set to 0 and all changes upward or downward should be made from this neutral point. This function should be used to trim main rotor speed to stay within manufacturers specifications. If the Pitch Curve is set properly, only small pitch trim adjustments will be required.

■ Example of Setting

An example of Throttle Curve and Pitch Curve settings for aerobatic specifications is shown below in the form of graphs. Details of the curves will differ depending on the helicopter specifications.
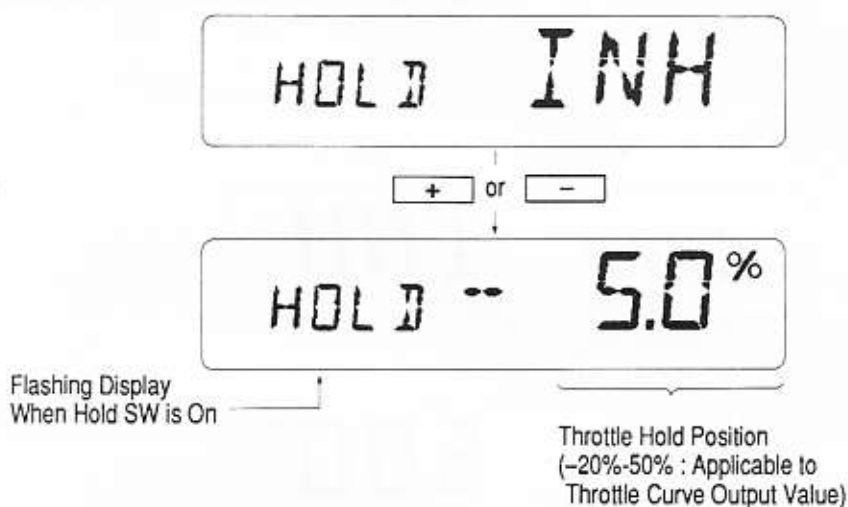
In these examples, the throttle open-close stroke and autorotation pitch stroke are set 0 to 100 to ease your understanding of other curves.

[Throttle Curve]

[Pitch Curve]

[Hovering Maneuver]

[Loop, Stall]
[Turn Maneuver]

[Role Maneuver]
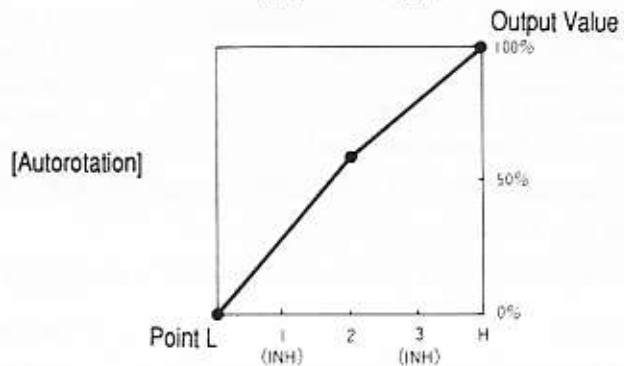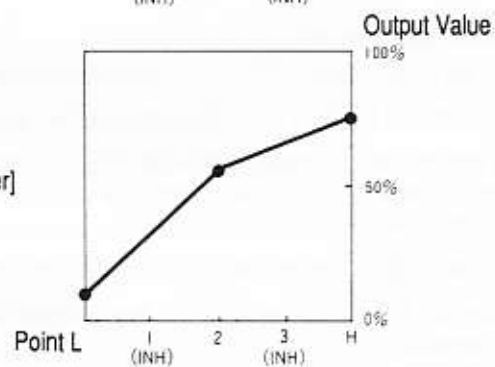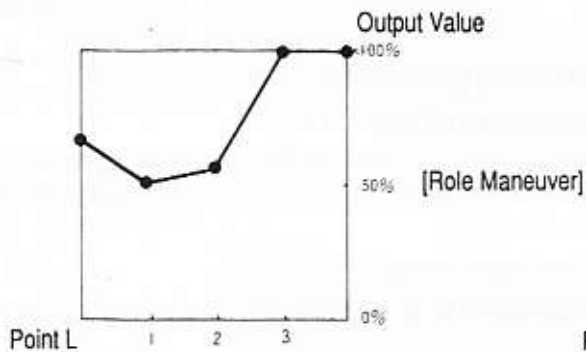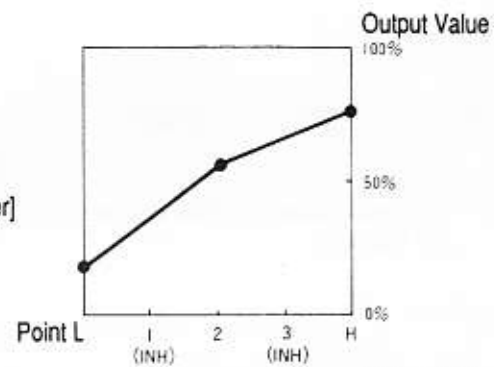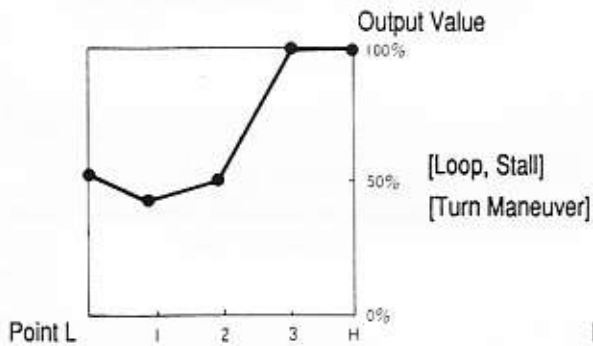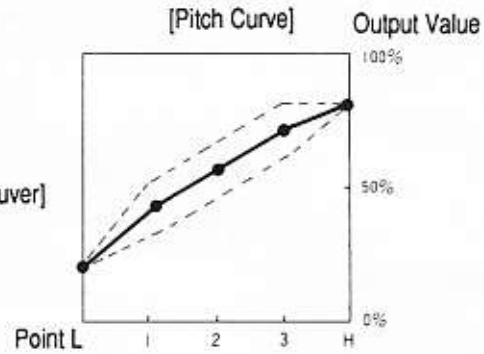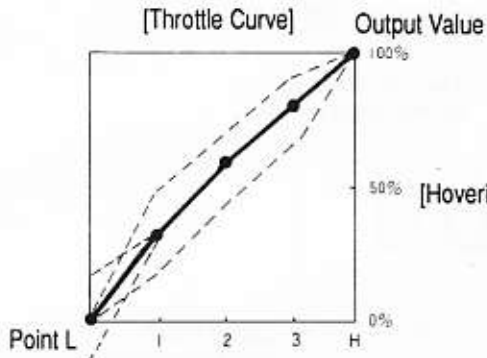
[Autorotation]

The function of the Thottle Hold feature is simply to hold the Throttle Servo in a specific position. This is very useful for practicing autorotation landing. The Throttle Hold switch is located on the top right-rear corner of the transmitter. The Throttle Hold is ON in the forward switch position; in the rear position, the Throttle Hold is switched OFF.

```
┌─────────────────────────────┐
│  HOLD      INH              │
└─────────────────────────────┘
```

          [+] or [−]

```
┌─────────────────────────────┐
│  HOLD  --   5.0 %          │
└─────────────────────────────┘
```

Flashing Display
When Hold SW is On

Throttle Hold Position
(−20%-50% : Applicable to
Throttle Curve Output Value)

[UP]   [DN]   [CH]   [+]   [−]   [CLR]

To Inverted SW

          To Pitch Curve   Increases or Decreases   Throttle Hold
                                        Throttle Hold Value   Function Off (INH)

Example:

1. Place the transmitter switch in the ON position.

2. Press the [UP] and [DN] keys simultaneously to enter the Function mode.

3. Press either the [UP] or [DN] key until HOLD appears at the left side of the LCD.

4. The factory setting for the Throttle Hold is Inhibit. Pressing either the [+] or [−] key will display the current Thottle Hold Value.

5. Using the [+] or [−] key, adjust the value to deliver the proper engine RPM for your helicopter. The adjustable range is (−20% to 50%). To shut the engine off for autorotation, a negative value should be input.

6. Note: When the Throttle Hold switch is switched ON, the HOLD indication on the LCD flashes.

7. A separate Throttle Hold curve may be established for this function. Please see Pitch Curve on page 57.

8. To exit the Throttle Hold function, press the [UP] and [DN] keys simultaneously.

The function of the Invert Switch is to electronically reverse several control operations to enable the user to fly a helicopter much easier. When the Invert Switch, located at the top left front portion of the transmitter, is pulled forward, the Invert system is switched on. The invert point is the throttle position at which no collective pitch change will take place when the Invert Switch is operated. The higher the value, the further the Throttle/Collective Stick must be towards full-throttle position; 50% is the factory pre-set and is actually somewhat less than hover throttle, since the Invert Switch is normally operated with the stick towards the low-throttle position.

When the Invert Switch is activated, Collective, Rudder and Elevator operations are reversed automatically. For inverted hovering maneuvers, the Flight Mode Switch should be left in the N or Normal position. For inverted aerobatics maneuvers, it is recommended that you set up a Pitch Curve dedicated to inverted flight; this is most often used in conjunction with Flight Mode Switch position 2.

```
  INV.P    INH
```

[+] or [−]

```
  INV.P    50.0%
  OFFSET
```

Flashing Display — When Inverted SW is On

Pre-Set Value (0-100% : Pitch Curve Output)

(Press Simultaneously) – Normal Display

[UP]   [DN]   [CH]   [+]   [−]   [CLR]

To Revolution Mixing

To Throttle Hold

Increase or Decrease Offset Value   Inverted Function Off (INH)

Example:

1. Place the transmitter switch in the ON position.
2. Press the [UP] and [DN] keys simultaneously to enter the function mode.
3. Press either the [UP] or [DN] key until the INV.P is displayed on the left side of the LCD.
4. Pressing either the [+] or [−] key will change the right portion of the display from INH to 50.0%. Pressing either of these keys again will change the value in the appropriate direction. When the Invert system is active, the word OFFSET will appear below INV.P. If the Invert Switch is activated, the INV.P will flash.
5. To exit the Invert program, press [UP] and [DN] keys simultaneously.

Caution: If you do not intend to use the Invert system, leave this operation INHIBITED.

The function of the Revolution Mixing program is to mix tail rotor with the Throttle/Collective function to counteract torque from the main rotor blades. When set up correctly, the helicopter should climb and descend without a tendency to yaw in either direction. Because torque reaction varies with different power settings, it is necessary to vary the tail rotor pitch at the same time. The X-347 offers (2) separate Revolution mixing programs, with independent up and down mixing for each--one for Flight Mode position N and the other for Stunt 1 and 2 positions. The (U) or Up mixing adjusts the tail rotor compensation for the mid to high throttle setting and the (D) or Down mixing adjusts the tail rotor compensation for the mid to low throttle setting. Thus, if you were to move the throttle from the low to high position, the tail rotor servo would move from the (D) or Down through Hover and to the (U) or Up setting.

```
              POS
    MIX RV:U.N           0 %
```

Type of Mixing
Selected by **CH**
U.N. – Normal (Up Side)
D.N. – Normal (Down Side)
U.S. – Stunt (Up Side)
D.S. – Stunt (Down Side)

Mixing Value (L125% - 0 - R125%)
Left   Right
Rotation   Rotation

Note: Display flashes when Flight Mode Switch and Throttle Stick position are the same.

```
       ┌──────┬──────┐
     UP       DN        CH              +        −          CLR
```

To Acceleration Mixing

To Inverted SW

Increase or Decrease Current Mixing Value

Resets Current Mixing Value to Zero

Example:

1. Place the transmitter switch in the ON position.

2. Press the UP and DN keys simultaneously to enter the function mode.

3. Press either the UP or DN key until mix RX appears at the left portion of the LCD.

4. Pressing the CH key will select up or down mix and the Flight Mode Switch position. When the Flight Mode Switch is in the displayed position and the throttle stick is in the displayed position, these two characters will flash. For example: when the screen displays mix RV:D.N 0% and the Flight Mode Switch is in the N position with the throttle below half, the D.N will flash.

5. Press the + to increase right tail compensation or press the − key to increase the left compensation. Press the CLR to reset to 0%.

6. This set up procedure may be used for either Revolution Mixing for Flight Mode Switch position N or 1 and 2. Switch position 1 or 2 should be used for forward and/or invert compensation.

7. To exit the Revolution program, press the UP and DN keys simultaneously.

■ Setting Up

First, set up the helicopter so that it will hover with the tail rotor trim centered. Establish the helicopter into a stable hover, steadily increase the throttle to initiate a steady climb. The body of the helicopter will move in the opposite direction to the main rotor rotation. Increase the (U) or Up setting until the helicopter will climb with no tendency to turn. At a safe altitude, close the throttle; the helicopter will descend and the body will turn in the same direction as the main rotor rotation. Increase the (D) or Down mix until the helicopter descends with no tendency to turn. Throttle stick movements should be slow and the initial acceleration and deceleration swings should be ignored.

Important Note: The gyro should be switched OFF to perform the Revolution Mixing set up.

Acceleration Mixing is provided to compensate for the main rotor acceleration (and deceleration) torque. The magnitude and duration of the signal to the tail rotor depends upon the rate of the throttle changes. Thus, quick, jerky throttle inputs will yield more noticeable tail compensation.

Note: Revolution Mix must be established before an accurate Acceleration Mix can be achieved, and the gyro should still be switched Off.

MIX ACC.   0 %

———— Acceleration Value (L125% - 0 - R125%)
                            Left   Right
                            Rotation   Rotation

UP   DN   CH   +   −   CLR

To Program Mixing
          To Revolution Mixing   Increases or Decreases   Resets Acceleration
                                        Current Acceleration Value Value to Zero

Example:

1. Place the transmitter switch in the ON position.

2. Press the UP and DN keys simultaneously to enter the function mode.

3. Press either the UP or DN key until ACC appears in the left portion of the LCD.

4. Using the + or − key, increase or decrease the Acceleration mix until no tail swing is noticed when the throttle is increased or decreased abruptly.

5. To exit the Acceleration Mix program, press the UP and DN keys simultaneously.

The X-347 offers one Programmable Mix to be used for any number of different purposes. This function allows mixing any one channel to any other channel to make the aircraft easier to fly. This mix may be set in the computer and remain on at all times or switched on and off in flight, using a number of different switches. Each channel of this radio is identified by a number. The chart below indicates the channel and its corresponding number. These numbers are used to establish the mixes. The number appearing first is known as the "Master channel" or the channel to which you want to mix. The second number is known as the "Slave channel" or the channel that is being mixed into the Master. For example 2-4 would indicate rudder to aileron mixing; thus, each time the aileron stick is moved, the aileron will deflect, and the rudder will automatically move in the direction and to the value input. Mixing is proportional, so small inputs of the Master channel will produce small outputs of the Slave channel. Each programmable mix has a mixing "Offset." The purpose of the mixing offset is to redefine the neutral position of the Slave channel.
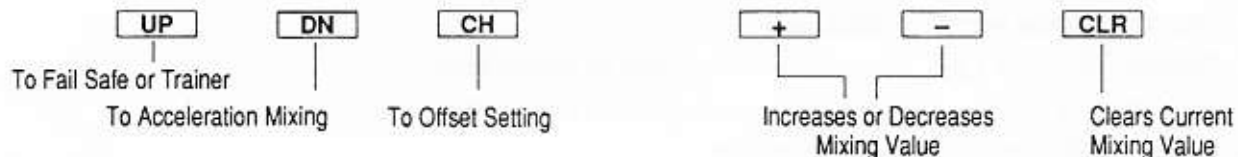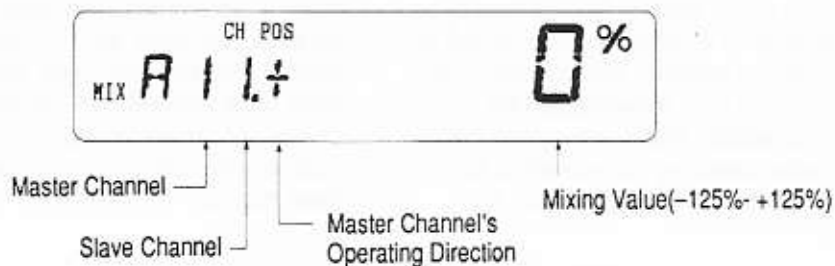
Example:

1. Place the transmitter switch in the ON position.

2. Press the `UP` and `DN` keys simultaneously to enter the function mode.

3. Press either the `UP` or `DN` key until mix A11 appears in the left portion of the LCD.

4. Press the `CH` key until (mix A CH 1-1) appears.

5. Press the `+` key to select the Master channel. Press the `-` key to select the Slave channel.

6. Press the `CH` until mix A SW appears in the left portion of the display. This is the Inflight Activation switch for this mix. See the chart below for defintion of each switch.

7. Press the `CH` key once; the display will now show the current mixing channels to the right of the A character. The current Master stick position will appear to the right of these numbers and will be indicated under the POS, in the form of a + or -.

8. While holding the Master stick in the direction you wish to mix, press the `+` or `-` key to increase the mixing value. A + or - indication will appear to the left of this value to indicate the direction of the "Slave" channel mix. Hold the Master stick to the other side to adjust the mix for the other direction.

9. Press the `CH` once. The display will now show the current mixing channels to the right of the A character, with OFFSET below them. The value to the right is the mixing offset neutral point, currently 0. Hold the Master stick in the position you wish to make the neutral point of the slave channel and push the `CLR` key. A new value with a + or - sign will appear; this is the new neutral point for the slave channel. Press the `CLR` key to reset to 0. Note: the master channel trim must be centered for this to reset to 0 using the `CLR` key.

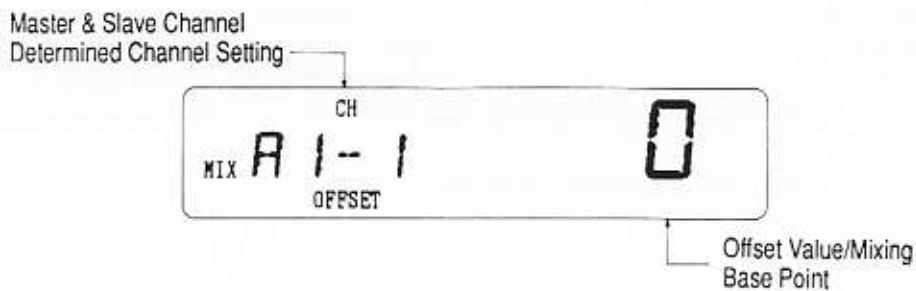10. Press the `UP` and `DN` keys simultaneously to exit the Programmable Mix function.

Channel Display
1...Throttle
2...Aileron
3...Elevator
4...Rudder
5...Gear (Retract)
6...Pitch
7...AUX 2

Note: With a little practice, Programmable Mixing will be very easy compared to the first time you try it. Always remember, the best part of a computer radio is, if you don't like something you can change it. Mixing is only limited by your imagination.
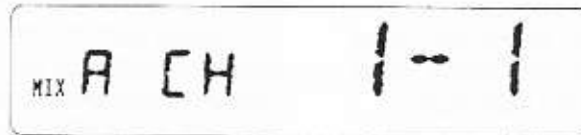
■ Mixing Channels

CH POS

MIX **A11.÷**   **0** %

Master Channel ─┘

Slave Channel ─┘

Master Channel's
Operating Direction

Mixing Value(−125%- +125%)

| UP | DN | CH | | + | − | CLR |

To Fail Safe or Trainer

To Acceleration Mixing

To Offset Setting

Increases or Decreases
Mixing Value

Clears Current
Mixing Value

■ Offset Operation

Master & Slave Channel
Determined Channel Setting ─┐

CH

MIX **A1-- 1**   **0**
OFFSET

Offset Value/Mixing
Base Point

| UP | DN | CH | | + | − | CLR |

To Fail Safe or Trainer

To Acceleration Mixing

To Channel Setting

Store Offset Value
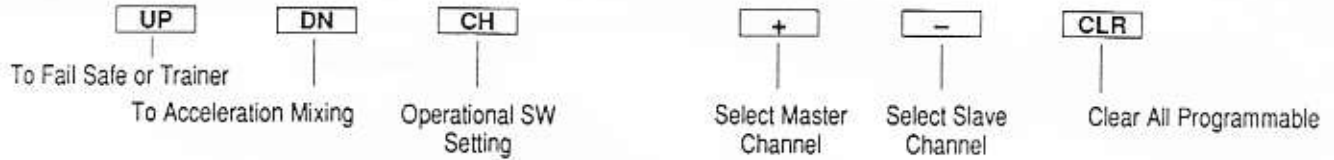
■ Channel Setting

Channel Display
1...Throttle
2...Aileron
3...Elevator
4...Rudder
5...Gear (Retract)
6...Pitch
7...AUX 2

MIX A CH 1 - 1
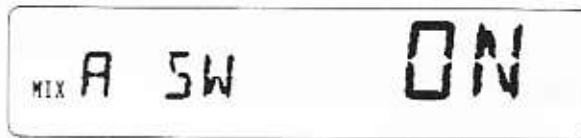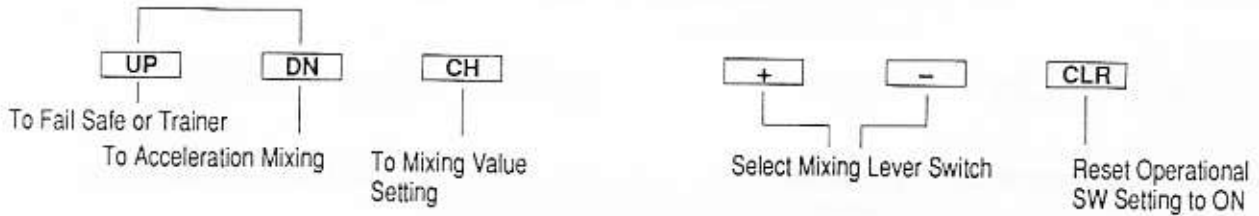
Master Channel ⎯⎯⎯ Slave Channel

| UP | DN | CH | | + | − | CLR |

To Fail Safe or Trainer

To Acceleration Mixing   Operational SW Setting

Select Master Channel   Select Slave Channel

Clear All Programmable

■ Operational SW Setting

MIX A SW ON

Mixing On/Off Switch Display (Refer to chart below)

| UP | DN | CH | | + | − | CLR |

To Fail Safe or Trainer

To Acceleration Mixing   To Mixing Value Setting

Select Mixing Lever Switch

Reset Operational SW Setting to ON

The Programmable Mixes can be turned on and off in flight using a variety of different switches. The chart below lists the indication seen on the LCD display and its definition. Pressing a [+] or [−] key will change the mixing ON/OFF switches. Note: when the particular switch selected is in the "off" position, the mixing value will indicate "OFF."

ON	ON AT ALL TIMES
F-NR	On at Flight Mode SW at N Position
F-12	On at Flight Mode Stunt Position
F-2	On at Flight Mode Stunt 2 Position

The Fail Safe feature can be used only when the transmitter is operated in the PCM mode. The transmitter is provided with a Hold function by which your aircraft is maintained in the position immediately before the interference was encountered. The Fail Safe feature is also designed to set the servos to a predetermined position should the transmitter to receiver link be interrupted. It is highly recommended that you use the Fail-Safe feature to prevent your aircraft from crashing at full-throttle. This system will not prevent a crash, but may be very helpful in limiting damage in the event interference makes a crash inevitable. Once the Fail Safe function is activated, there is no need to reset the data each time you fly. This is done automatically each time the transmitter is switched on. Should you experience interference and the Fail Safe is activated, control will be resumed as soon as the interference is eliminated. Note: When the modulation type is PPM (Pulse Position Modulation), the Fail Safe function is inhibited.

```
FAL.5 HOL D
```

HOLD : Hold Function Activated
ON .3 : 1/3 Sec. ┐ Fail Safe Function
ON .5 : 1/2 Sec. │ on 3 Different
ON .0 : 1 Sec. ┘ Setting Times

└── Fail Safe Setting

UP	DN	CH		+	−	CLR
To Trainer						
	ToProgrammable Mixing	To Set Fail Safe Position Memory		Select Fail Safe Setting		Reset to Hold

■ Setting Fail Safe Memory (In PCM Mode Only)

The Fail Safe may be set to operate with three different periods of time delay: 1 second, 1/2 second, or 1/3 second. This is the amount of time the receiver will delay before activating the Fail Safe function. The following explains the set up of the Fail Safe memory.

```
FAL.5 MEMO
```

UP	DN	CH		+	−	CLR
To Trainer						
	To Programmable Mixing	To Fail Safe Setting				Fail Safe Position Memory Key

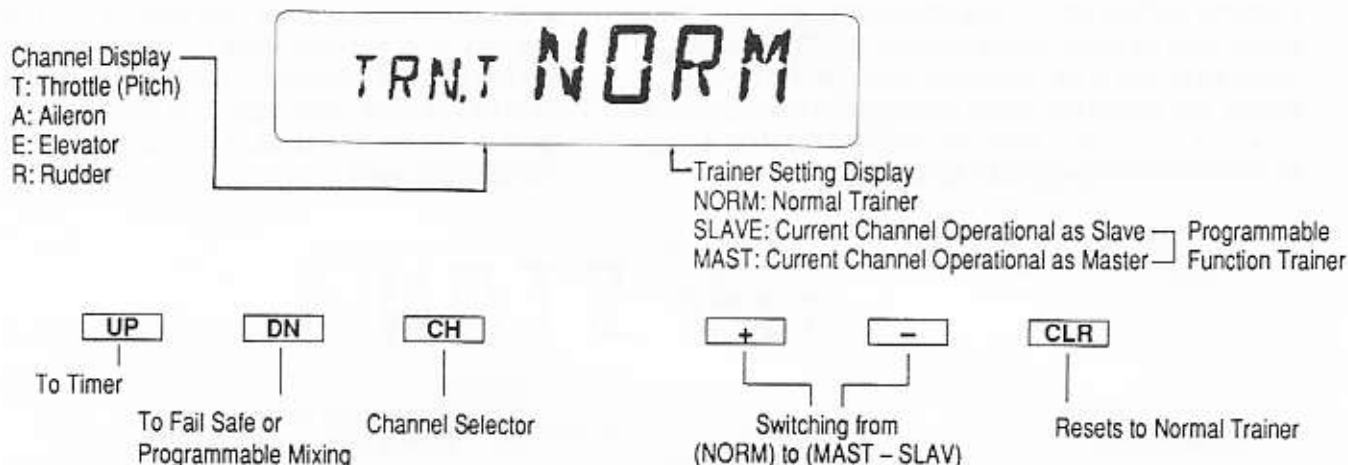Example:

1. Move the transmitter switch to the ON position.
2. Press the UP and DN keys simultaneously to enter the function mode.
3. Press either the UP or DN key until FAL.S is displayed in the left side of the LCD.
4. Pressing the + or − key will change the time delay of the Fail Safe activation.
5. Pressing the CLR key will reset the delay to HOLD.
6. To set the servo location into memory, press the CH key. The display will change to MEMO. Hold the transmitter sticks in the desired locations and press the STORE key. This will enter these locations as the Fail Safe memory settings.
7. To confirm that the input of data was successful, simply switch the transmitter off. The controls will move to the input locations. If not, repeat step 6 again.
8. To exit the Fail Safe mode, press the UP and DN keys simultaneously.

The X-347 transmitter employs two separate types of trainer systems – the Normal Trainer system (all functions are controlled by either the Master transmitter or the Slave transmitter) and the all-new Programmable Function Trainer (Stick functions may be assigned to the slave one at a time). Since the control functions can be transferred one at a time, the student can concentrate on one function at a time until they are competent to fly solo.
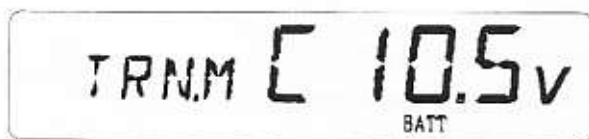
Channel Display
T: Throttle (Pitch)
A: Aileron
E: Elevator
R: Rudder

TRN.T **NORM**

Trainer Setting Display
NORM: Normal Trainer
SLAVE: Current Channel Operational as Slave ─┐ Programmable
MAST: Current Channel Operational as Master ─┘ Function Trainer

UP	DN	CH
To Timer	To Fail Safe or Programmable Mixing	Channel Selector

+	−	CLR
Switching from (NORM) to (MAST – SLAV)		Resets to Normal Trainer

Example:

1. Move the transmitter switch to the ON position.
2. Press the UP and DN keys simultaneously to enter the function mode.
3. Press the UP or DN key until TRN. appears on the left portion of the LCD.
4. Press the CH key to select the channel indicated just to the right of the TRN.
5. Once the channel that you wish to make a Slave appears, press the + or − key. This will change the display from NORM to SLAV. If you wish to make more Slave channels, press the CH key until the next desired channel is shown and press the + or − key.
6. To change the Programmable Trainer Function System back to Normal system, press the CLR key.
7. To exit the Trainer mode, press the UP and DN down keys simultaneously.

Note: In the Helicopter Mode, the ATS mixing should be set to zero.

■ **Basic Connections and Conditions for Training**

1. The Slave transmitter must be PPM (Pulse Position Modulation) with a DSC (Direct Servo Controller) jack. If the Slave transmitter is PPM/PCM selectable, select PPM. The master may be PCM or PPM.

2. Plug the trainer cord (optional part #JRATC001) into each transmitter's DSC jack. Note: Each transmitter will appear to be "ON" but neither is actually transmitting at the time.

3. Switch the Master transmitter on – **Do Not Switch on the Slave Transmitter**. It is only necessary to have the Master transmitter ON. Note: If the master transmitter is the X-347, its LCD will indicate TRN.M (Trainer Master) when the power switch is on.

TRN.M **C 10.5v**
BATT

4. Pull the trainer switch toward you to transfer control to the Slave. Release the switch and control automatically reverts to the Master transmitter.

5. Be sure the Slave transmitter's servo reversing, Dual Rates, End Point adjustment and trims are identical to the Master. This may be checked very easily by pulling the trainer switch toward you. If the control surfaces move, adjust the Slave transmitter until the trainer switch can be activated without a change of the control surface position.

■ **Use of the Normal Trainer System**

In this mode all functions are switched from the Master to the Slave using the trainer switch. This is the Normal mode; no function setup is necessary to activate this system.

■ **Use of the Programmable Trainer Function (P.T.F.)**

In this mode the Master may assign functions one at a time to make learning to fly easier for the student. For example: the Master may assign the Slave rudder and elevator. Thus, when the trainer switch is activated (pulled forward) the Slave has control of rudder and elevator only, while the Master retains control of throttle and aileron. Releasing the Trainer switch returns all control to the Master Channel.
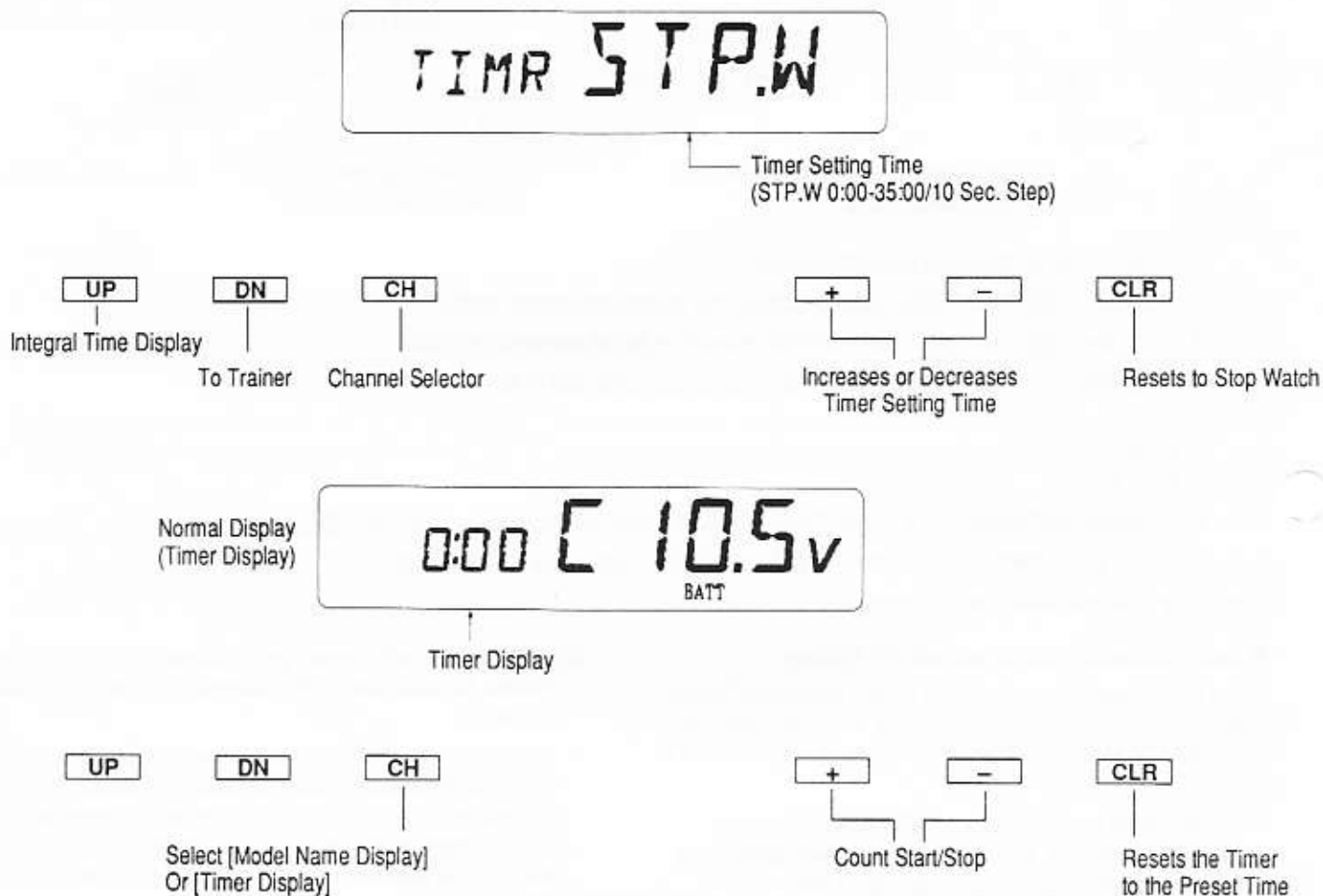
The X-347 offers two separate types of Timer functions: Count-Down and Stop Watch. The Count-Down Timer time is input in 10 second intervals up to 35 minutes. The Timer may be set for each individual model and retained in memory.

In order for the Timer function to be activated, it must be in the Normal display. From the Normal display, pressing the [CH] key will change the left side of the LCD from the model name to the Timer function. The Timer is now started and stopped by pressing either the [+] or [–] key. It may also be started and stopped using the Snap Roll/Trainer switch at the top left-rear portion of the

transmitter. When the X-347 is being used as the Master transmitter in the training function, the Snap-roll/Trainer switch will not operate the Timer Start/Stop function.

Note: In the Count-Down mode the transmitter will beep three times at :30 sec., two times at :20 sec., and beep one time every second from :10 to 0. At zero there will be a continuous tone for 1 second, and then the Timer will begin counting up with a + indication to the left of the time value. When used as the Stop Watch, the Timer will count up to 44 min. 59 seconds, at which time it will reset to zero and continue to count.
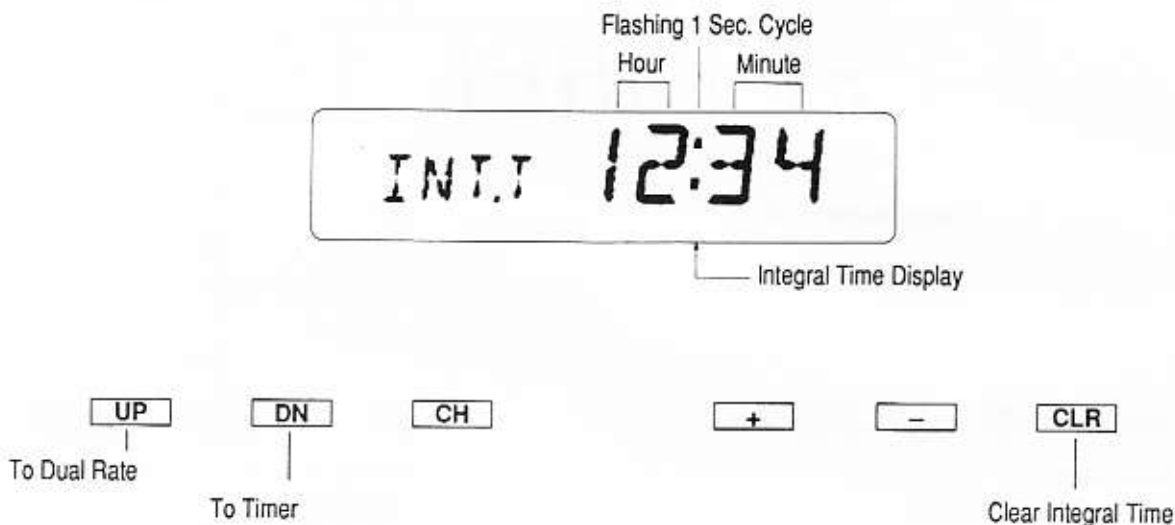
$$TIMR \ STP.W$$

Timer Setting Time
(STP.W 0:00-35:00/10 Sec. Step)

[UP]   [DN]   [CH]   [+]   [–]   [CLR]

Integral Time Display

To Trainer   Channel Selector   Increases or Decreases   Resets to Stop Watch
                                              Timer Setting Time

$$0:00 \ C \ 10.5v$$
BATT

Normal Display
(Timer Display)

Timer Display

[UP]   [DN]   [CH]   [+]   [–]   [CLR]

Select [Model Name Display]   Count Start/Stop   Resets the Timer
Or [Timer Display]   to the Preset Time

Example:

1. Place the transmitter switch in the ON position.

2. Press the [UP] and [DN] keys simultaneously to enter the Function mode.

3. Press either the [UP] or [DN] key until TIMR is displayed in the left portion of the LCD.

4. The STP.W in the right portion of the display indicates the Timer is in the Stop Watch (count-up) mode.

5. Pressing the [+] key will change the display to :10; each time the [+] is pressed, the value will increase in 10 second intervals up to 35:00 minutes. This is the Count-Down Timer value. Pressing the [CLR] will reset the Count-Down Timer to the Stop Watch mode.

6. To exit the Timer function, press the [UP] and [DN] keys simultaneously.

The function of the Integral Timer is to keep track of the accumulated time in use. The Integral Timer counts up to 100 hours in one minute increments. It is best to reset this Timer each time the transmitter is recharged. Thus, the Timer will indicate the time of use on that particular charge.
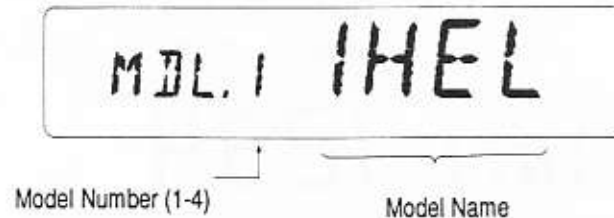
Flashing 1 Sec. Cycle
Hour | Minute

INT.T 12:34

Integral Time Display

UP
To Dual Rate

DN
To Timer

CH

+

−

CLR
Clear Integral Time

To reset the Integral Timer, follow these procedures:

1. Place the transmitter switch in the ON position.
2. Press the UP and DN keys simultaneously to enter the function mode.
3. Press either the UP or DN key until INT.T is displayed in the left portion of the LCD.
4. The accumulated time of use will be displayed in the right portion of the LCD. To reset press the CLR key. Note the colon (:) flashes at a frequency of once per second.
5. To exit the Integral Timer, press the UP and DN keys simultaneously.

The X-347 system offers memory for 4 completely separate models. Thus, it is possible to have a mixture of Helicopter, Airplane and Glider set ups retained in memory. It is also recommended that the Model Name Input function be used in conjunction with each model set up. Another very useful function of the Model Select feature is the ability to set one aircraft up several different ways. This is very helpful when multi-task performance is desired.

MDL. 1   1HEL

Model Number (1-4)   Model Name

| UP | DN | CH | | + | − | CLR |

To Model Name Input
          To Copy Function   Select Models

Example:

1. While holding the UP and DN keys depressed, switch the transmitter to the ON position to enter the system mode.

2. Press either the UP or DN key until MDL.1 is displayed in the left portion of the LCD.

3. Pressing either the + or − key will select between each of the (4) models available. Notice as each model is selected its name appears in the right portion of the LCD.

4. Once the desired model is displayed on the right, pressing the UP and DN keys simultaneously will exit the Model Select mode and establish the model displayed as the new current model.
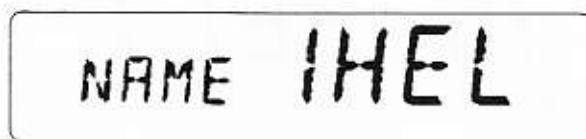
Note: When changing from one model type to another, it is not necessary to use the aircraft Type Selector mode; this is done automatically by the computer.

The X-347 allows a 4 digit name to be input for each of the 4 models available. The current model will be displayed in the normal display when the Timer is not active. You may also find this useful to identify different aircraft set-ups.

```
┌─────────────────────────────────┐
│                                 │
│    NAME   IHEL                  │
│                                 │
└─────────────────────────────────┘
```

Current Model Name Display (4 Digit)
Flashing Indicates Character Being Changed

| UP | DN | CH | | + | – | CLR |

To Type Select Function

To Model Select

Select Flashing
Letter Position

Select Alpha/Numeric Characters

Resets to Factory Setting
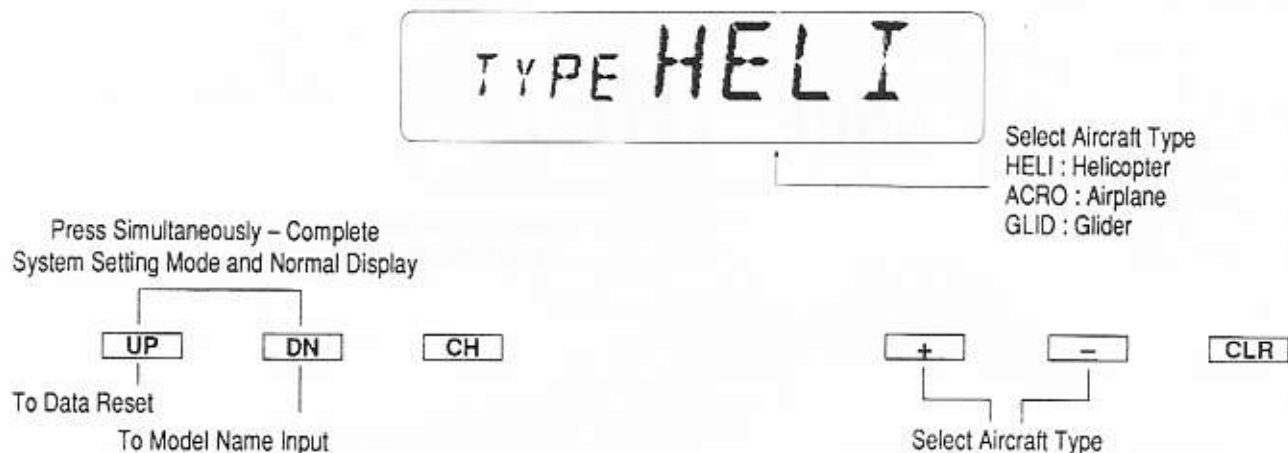
Example:

1. While holding the UP and DN keys depressed, switch the transmitter to the ON position to enter the function mode.

2. Use the Model Select function to select the model you wish to name (see page 70).

3. Press either the UP or DN key until NAME is displayed in the left portion of the LCD.

4. The current name will be displayed in the right portion of the LCD. Pressing + or – key will select the first alpha numeric character. Note: the character being selected will flash.

5. Press the CH key to advance the character selection to next character.

6. Repeat this procedure until all four characters are input.

7. Note: Pressing the DN and CH keys simultaneously will step back to the previous character input.

8. To exit Model Name Input function, press the UP and DN keys simultaneously.

8.19 Type Selection (In System Set-Up Mode Only)

The X-347 is usable as Helicopter, Airplane or Glider radio with full function features for each.
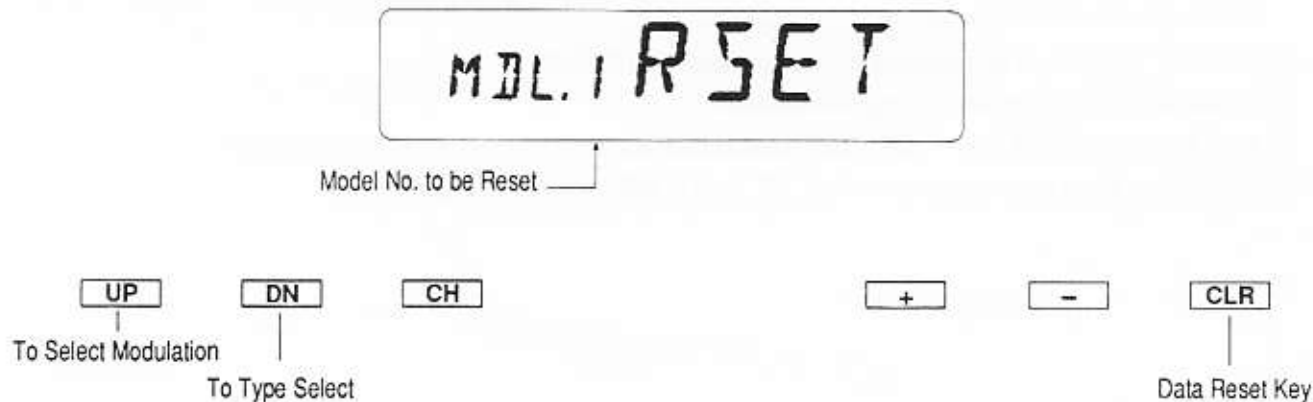
```
TYPE HELI
```

Select Aircraft Type
HELI : Helicopter
ACRO : Airplane
GLID : Glider

Press Simultaneously – Complete
System Setting Mode and Normal Display

| UP | DN | CH | | + | − | CLR |

To Data Reset

To Model Name Input

Select Aircraft Type

To change aircraft types follow these procedures:

1. While holding the UP and DN keys depressed, switch the transmitter to the ON position to enter the system setting mode.
2. Press either the UP or DN key until TYPE is displayed in the left portion of the LCD.
3. Pressing either the + or − key will change the type of model.
4. To exit the Type Selector Mode, press the UP and DN keys simultaneously.

8.20 Data Reset (In System Set-Up Mode Only)

This function permits you to reset all the functions and settings for the current model to factory conditions. Resetting does not affect the data already programmed for other models. Be sure to confirm that you need to reset the data of the currently indicated model in order to prevent accidental loss of your valuable data.

```
MDL.1 RSET
```

Model No. to be Reset

| UP | DN | CH | | + | − | CLR |

To Select Modulation

To Type Select

Data Reset Key

To reset data for any one model, follow these procedures:

1. While holding the UP and DN keys depressed, switch the transmitter to the ON position to enter the system setting mode.
2. Press the UP or the DN key until RSET appears on the right side of the display. Be sure that the model selected is the model you want to reset by checking the left side of the display.
3. To reset data, press the CLR key.
4. To exit the Data Reset mode, press both the UP and DN keys simultaneously.
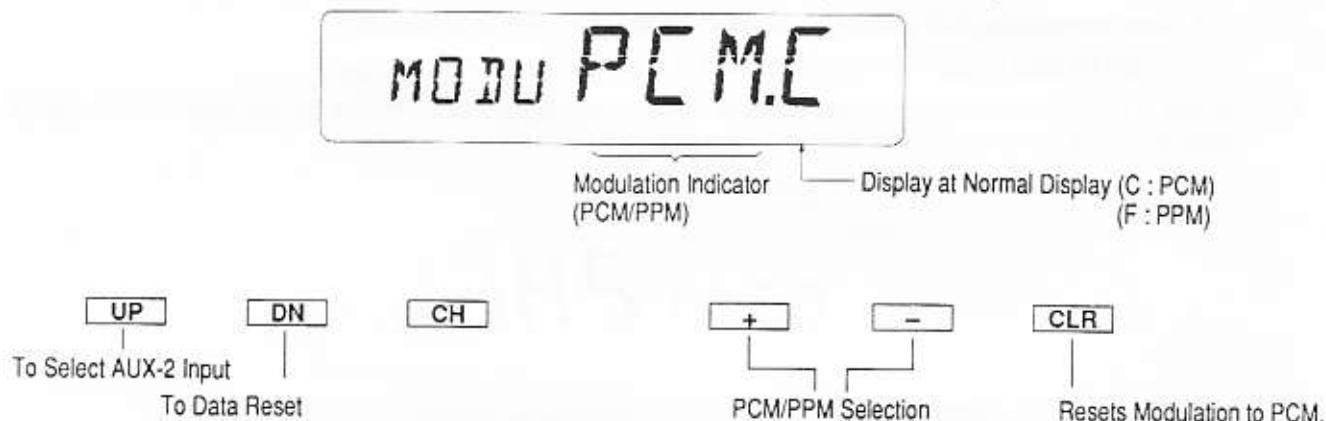
8.21 Modulation Mode Selection (In System Set-Up Mode Only)

The X-347 transmitter offers PCM/PPM selectability. This offers greater flexibility in using the JR equipment you may already own, or which you may purchase in the future.

To Change Modulation Type, follow these procedures:

1. While holding the `UP` and `DN` keys depressed, switch the transmitter to the ON position to enter the system setting mode.
2. Press either the `UP` or `DN` key until MODU is displayed in the left portion of the LCD.
3. Pressing either the `+` or `−` key will change the Modulation Type.
4. Pressing the `CLR` key will reset the Modulation Type to factory preset, PCM.
5. To exit the Modulation Selection Mode, press the `UP` and `DN` keys simultaneously.

Note: In the normal display, the selected Modulation Type will appear in the middle of the LCD (F=PPM C=PCM).

MODU PCM.C

Modulation Indicator
(PCM/PPM)

Display at Normal Display (C : PCM)
(F : PPM)

| UP | DN | CH | | + | − | CLR |

To Select AUX-2 Input

To Data Reset

PCM/PPM Selection
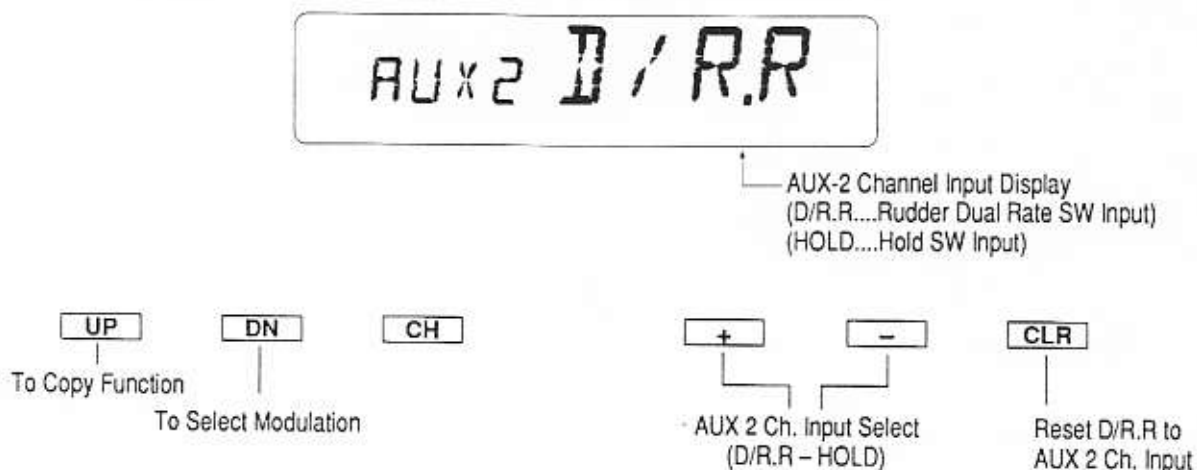
Resets Modulation to PCM.

8.22 AUX 2 Channel Input Selection (In System Set-Up Mode Only)

The function of this program allows you to select which switch, AUX 2 or Throttle Hold, will activate the AUX 2 function. If you use the AUX 2 function for the Gyro Sensitivity Adjustment, you may change the rudder Dual Rate and the Gyro Sensitivity at the same time. Conversely, if the Throttle Hold switch is used the Gyro Sensitivity is changed when the Throttle Hold is activated.

To select the AUX 2 activation switch, follow these procedures:

1. While holding the `UP` and `DN` keys depressed, switch the transmitter to the ON position to enter the system setting mode.
2. Press either the `UP` or `DN` key until AUX 2 is displayed in the left portion of the LCD.
3. Pressing either the `+` or `−` key will change the activation switch from the D/R Rudder switch to the Hold switch.
4. Pressing the `CLR` key will reset the AUX 2 activation switch to the Dual Rate Rudder switch.
5. To exit the AUX 2 Function Mode, press the `UP` and `DN` keys simultaneously.

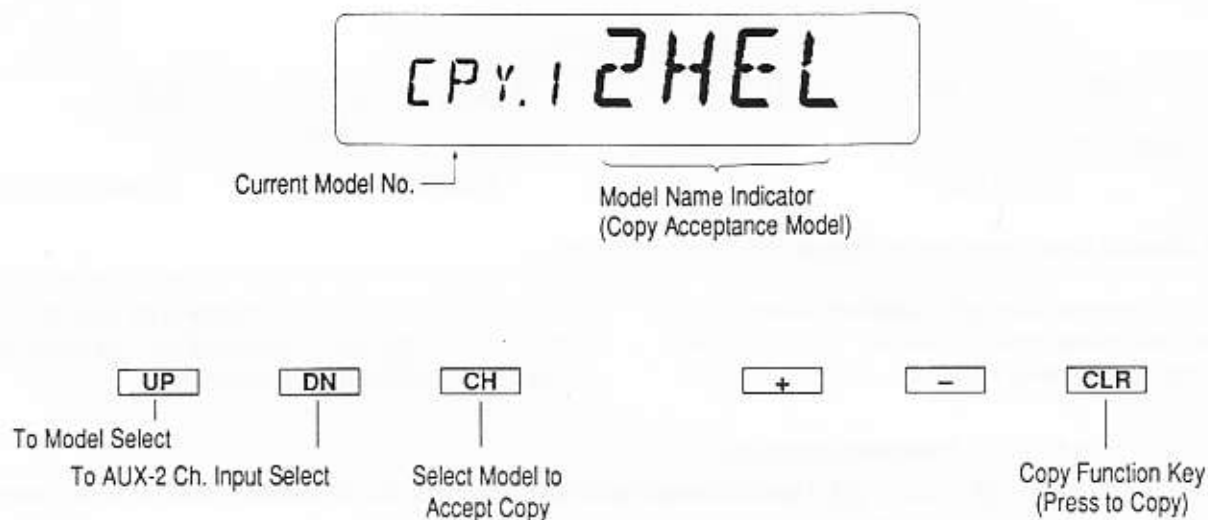AUX2 D/R.R

AUX-2 Channel Input Display
(D/R.R....Rudder Dual Rate SW Input)
(HOLD....Hold SW Input)

| UP | DN | CH | | + | − | CLR |

To Copy Function

To Select Modulation

AUX 2 Ch. Input Select
(D/R.R – HOLD)

Reset D/R.R to
AUX 2 Ch. Input

The function of the Copy program permits you to copy all the settings of the current model to another model; this is very useful when setting up one aircraft several different ways or trying a different set-up of your current model.

To activate the Copy function, follow these procedures:

1. While depressing both the [UP] and [DN] keys, switch the transmitter to the ON position to enter the system setting mode.

2. Press either the [UP] or [DN] key until CPY. appears in the left side of the LCD.

3. The number that appears to the right of the CPY. is the current model. The four characters at right side of the LCD indicate the accepting model (use the Model Select function to select the current model – see page 70).

4. Press the [CH] to select the accepting model.

5. Once the desired accepting model is selected, press the [CLR] key to complete copy.

6. To exit the Copy function mode, press the [UP] and [DN] keys simultaneously.

Note: Be sure to verify the current and the accepting model. Once the copying process is complete, the information of the accepting model is lost and the current model is input as the new data.

Current Model No. ⎯

Model Name Indicator
(Copy Acceptance Model)

[UP]   [DN]   [CH]   [+]   [–]   [CLR]

To Model Select

To AUX-2 Ch. Input Select   Select Model to   Copy Function Key
                             Accept Copy   (Press to Copy)

You may use any manufacturer's gyro sensors if they are specified for use with JR Radios, but you should note that the program **Gyro Sensitivity Adjustment** will only operate as described with a JR gyro.

If you use AUX 2 channel (this is dual use with the Rudder Dual Rate switch) you will be able to change sensitivity when the Rudder Rate is changed.

Gyro Amplifier

Receiver

Gyro Plug
Fixed Sensitivity Plug

RX·RUDD

Gain-Control Plug

Servo

Sensitivity Channel
Selector (AUX-2 or GEAR)

Rudd-SV Plug

Gyro Movement

Sensitivity Screws

Sensitivity Adjuster
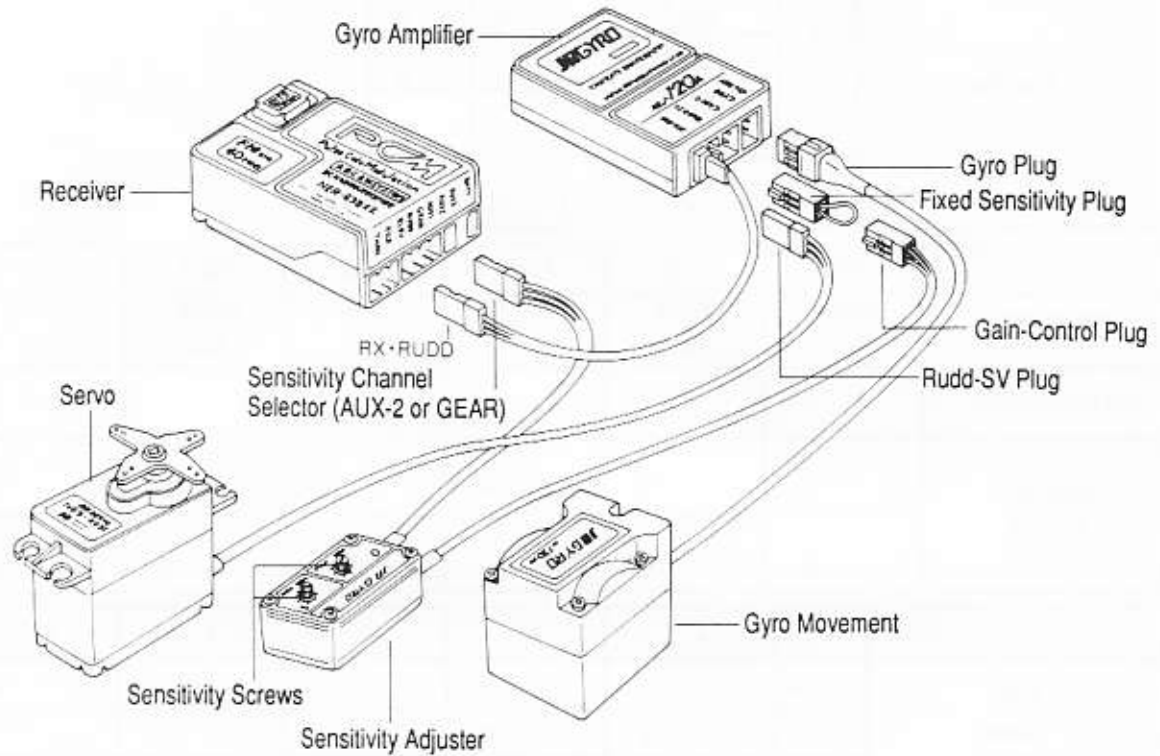
X-347 Data Sheet `HELI`

Model No. _____

Model Name _____

Modulatior PCM • PPM _____

Dual-Rate EXP	Switch Position		AILE	ELEV	RUDD
	0	D/R	%	%	%
		EXP	%	%	%
	1	D/R	%	%	%
		EXP	%	%	%

	THRO	AILE	ELEV	RUDD	GEAR	PITCH	AUX 2
Reverse SW	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV
Sub Trim (S. TRIM)							
Travel Adjust (T. ADJ)	H %	L %	D %	L %	+ %	H %	+ %
	L %	R %	U %	R %	− %	L %	− %

		L	1	2	3	H
Third Curve (TH:)	N	%	%	%	%	%
	1	%	%	%	%	
	2	%	%	%	%	
Pitch Curve (PT:)	N	%	%	%	%	%
	1	%	%	%	%	%
	2	%	%	%	%	%
	H	%	%	%	%	%

Thro-Hold (HOLD)	INH • ACT	POS	
		%	

Inverted (INV.P)	INH • ACT	Offset	
		%	

Revolution Mix (RV)	Normal	Up	(U.N.)	%
		Down	(D.N.)	%
	Stunt	Up	(U.S.)	%
		Down	(D.S.)	%
ACC-MIX				%

	Channel	+POS	− POS	SW	Offset
Program Mix (MIX A)	→	%	%		

Fail Safe (FAL.S)	HOLD • 1.0 • 0.5 • 0.3	
	Memory	

AUX 2 Input	D/R • R HOLD

3.1 Control Identification and Location

GLIDER | GLID |

Antenna

LCD Display (do not push)

Carrying Handle

Flap Knob

Flaperon/Flap Trim Knob

Trainer/Timer Switch

Mixing Switch

Butterfly Crow
Mixing Switch

Rudder Dual Rate Switch

Elevator Dual Rate Switch

Aileron Dual Rate Switch

Flap Mixing Switch
▲ – Elevator/Flap Mix
■ – OFF
▼ – Flap/Elevator Mix

AUX 2/Dual Flap
Aileron Trim Knob

Spoiler/Rudder

Aileron/Elevator Stick

Neckstrap Eyelet

Power SW

Channel Assignment
1 THRO........Spoiler Channel
2 AILE.... ......Left Wing Aileron Channel
3 ELEV.... .....Elevator Channel
4 RUDD... ....Rudder Channel
5 GEAR.......Right Wing Aileron Channel
6 AUX 1.... ..Left Dual Flap Channel
7 AUX 2.... ..Right Dual Flap Channel
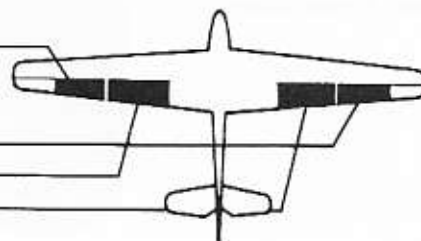
Dual Flap Channel ⌐

Adjustment of Control Stick Spring Tension

Remove Tx RF module, Ni-Cd battery, and six (6) transmitter back screws shown above. Remove transmitter back being careful not to bend or damage the RF module pins.

Adjust each screw shown above for desired tension. When adjusting the throttle rachet tension, make sure that the adjusting screw does not touch the PC board after adjustment is complete. A smooth throttle tension is provided for the helicopter version.

Transmitter Module

When transmitter module is removed, you will find a pocket for a spare fuse on the left side. Spare fuses are optional.

DSC/Trainer Jack

Charging Jack for Ni-Cd Battery Only (8N-600S)

Battery Cover.
Caution: The battery connector is keyed so that it can only be plugged in one direction. Do not force.

Elevator Tension Screw

Aileron Tension Screw

Rudder Tension Screw
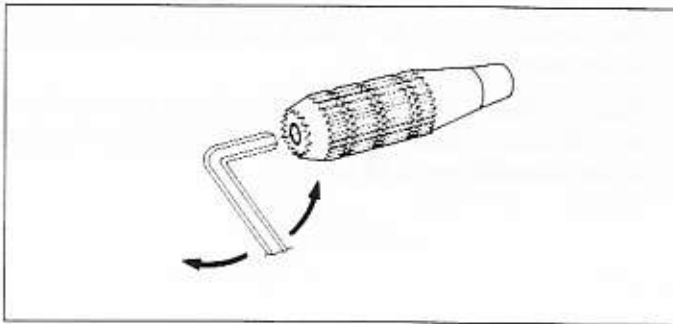
Throttle Tension Screw
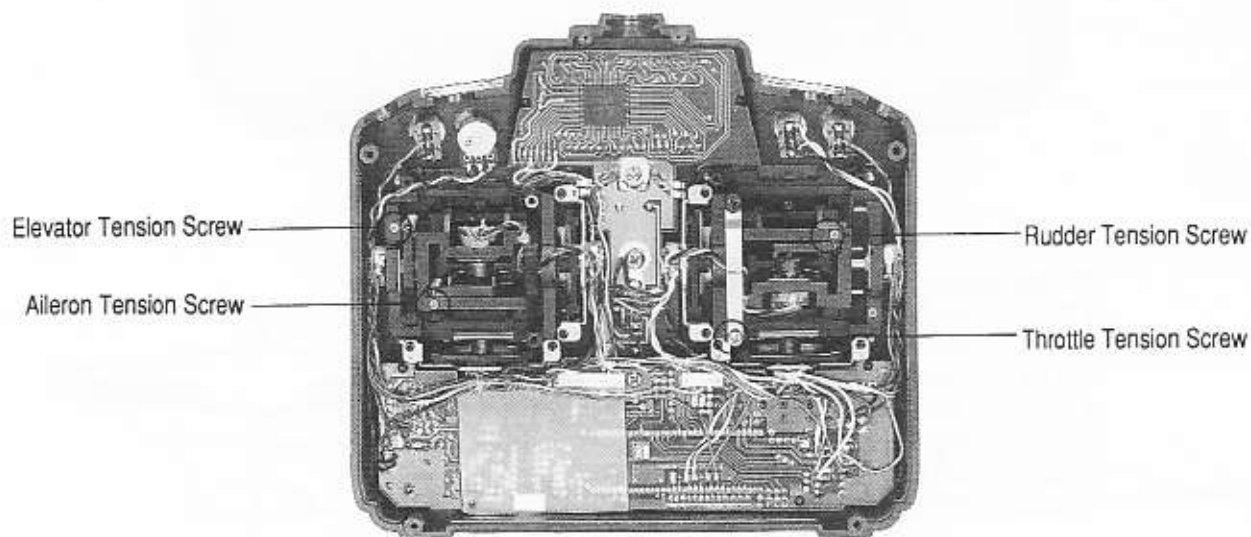
Mode 2

■ Control Stick Length Adjustment

Twist the control stick's head set screw with a 2mm allen wrench to unlock. Then adjust the body to the desired length and retighten the set screw to re-lock.

■ Neck Strap Attachment

An eye hook is provided on the front of the transmitter for attaching a neck strap. (See page 77) This eye hook is in position to give the transmitter perfect balance when using a neck strap.

■ D.S.C. (Direct Servo Control)

For proper DSC hook-up and operation:

1. Leave the transmitter power switch in the off position. The transmitter will not transmit any RF in this position.

2. Plug the DSC cord into the transmitter DSC jack in the left side panel.

3. The transmitter encoder section will now be operational and the front panel pilot lamp should be on.

4. Plug the other end of the DSC cord into the receiver charge receptacle and turn on the receiver.

If you have made all of the proper connections, you will have full control of the servos with your transmitter just the same as if the receiver were being operated by the RF link, only you will not be transmitting any RF that will cause interference to others. Also, you will only be using 70mA of power with the DSC system instead of the normal 200mA with the RF turned on.

■ PCM and Frequency Notes

The X-347 transmitter employs a plug-in module system for transmitter frequency changes. If you wish to change frequency, you simply change the RF module.

Please note the X-347 Transmitter can operate either in the PCM or PPM modulation modes. Be certain to observe the following:

• DO NOT operate your transmitter when another transmitter is "ON" using the same frequency regardless whether it is on PCM, PPM, FM or AM. You can NEVER operate two transmitters on the same frequency simultaneously without causing interference to BOTH receivers and resulting in both aircraft crashing!

• You can operate additional receivers with this X-347 transmitter in the PCM mode; you may use the PCM-10 (NER-910XZ), Galaxy 8 (NER-329P), Max PCM (NER-627X "G" series), or Century 7 FM (NER-327, NER-527, NER-529) receivers in the PPM mode. You cannot use the PCM-9 (NER-J229) or Century 7 PCM (NER-627X) receivers with the X-347 transmitter because they don't have compatible CPU's.

• For operation in the PPM mode, any of the JR AM or FM receivers and matching transmitter RF modules are compatible.

• If you have a PPM receiver and a PCM RF transmitter module on the same frequency, this combination is compatible, but a PCM receiver can only be used with a PCM transmitter module.

• Use only the PCM "Y" harness (JRA002PCM) with the PCM receivers. This will also operate with PPM system.
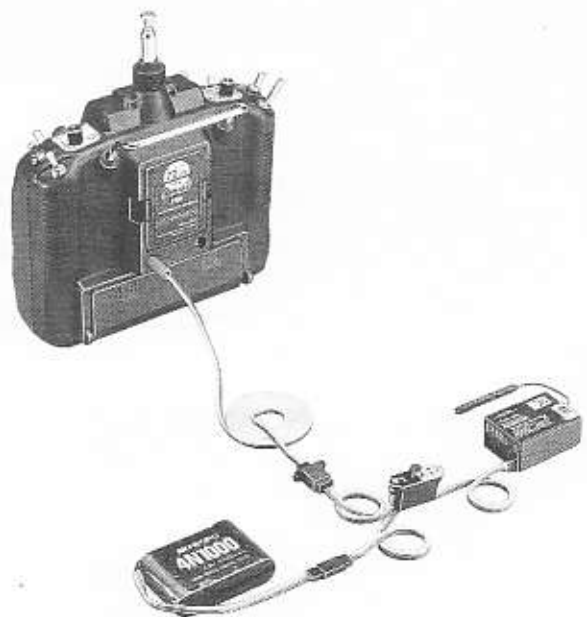
■ Aircraft Only Frequencies

JR RF modules are available in 50, 53 and 72 MHz frequencies in the United States for use with model aircraft. The use of 72 MHz frequencies requires no special license from the FCC (Federal Communication Commission), while the 50 and 53 MHz Amateur (HAM) band does require a special license to operate. See your local FCC office for details.

A chart for all available frequencies is located on theinside back cover of this manual for your reference.

■ Throttle ALT

The purpose of this function is to make the ThrottleTrim lever active only when the Throttle Stick is less than half Throttle. This means easy accurate idle adjustments may be made without affecting the high Throttle position.
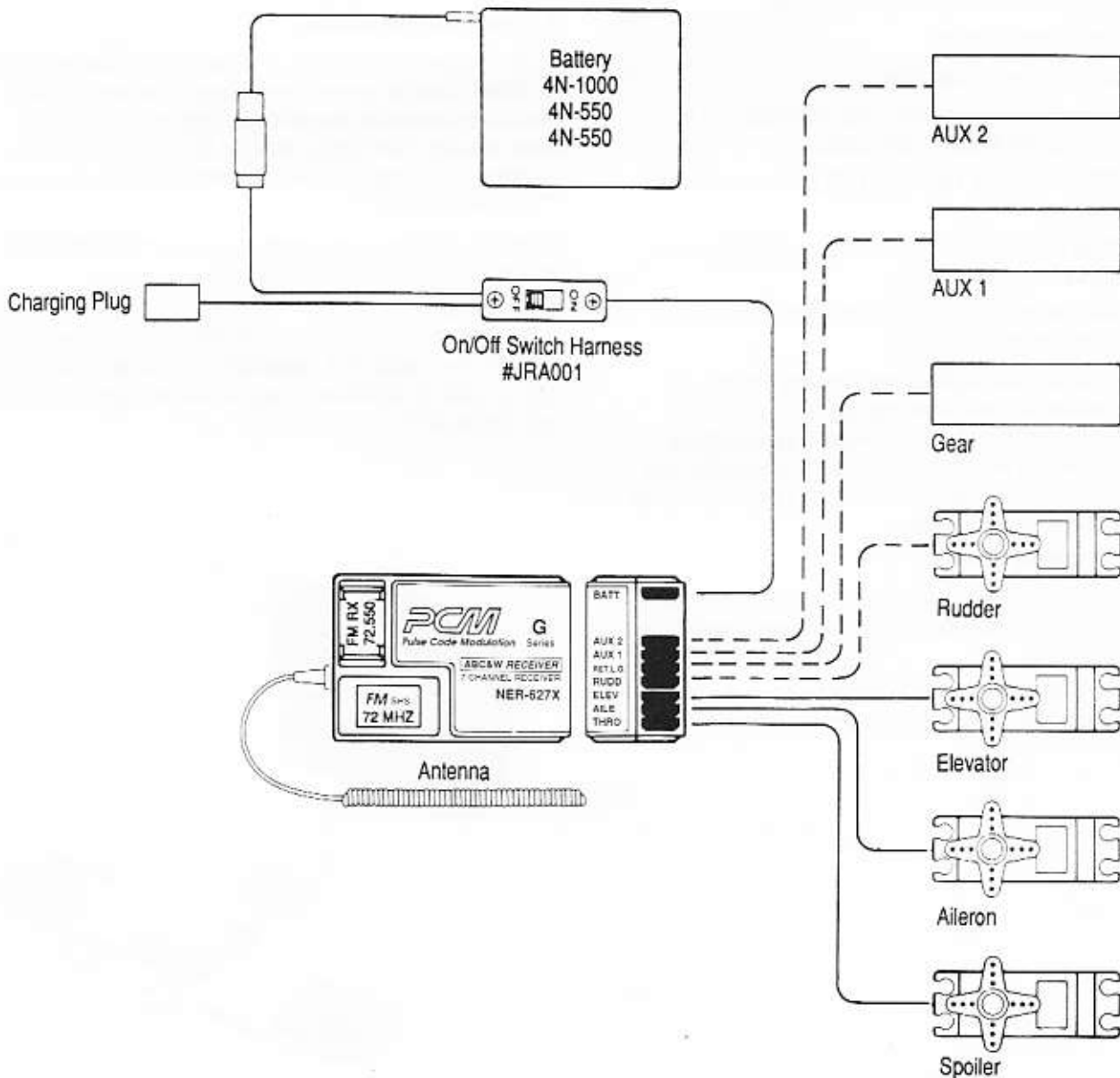
■ Installation Requirements

It is important that your radio system be correctly installed in your model. Here are a few hints on installing your system.
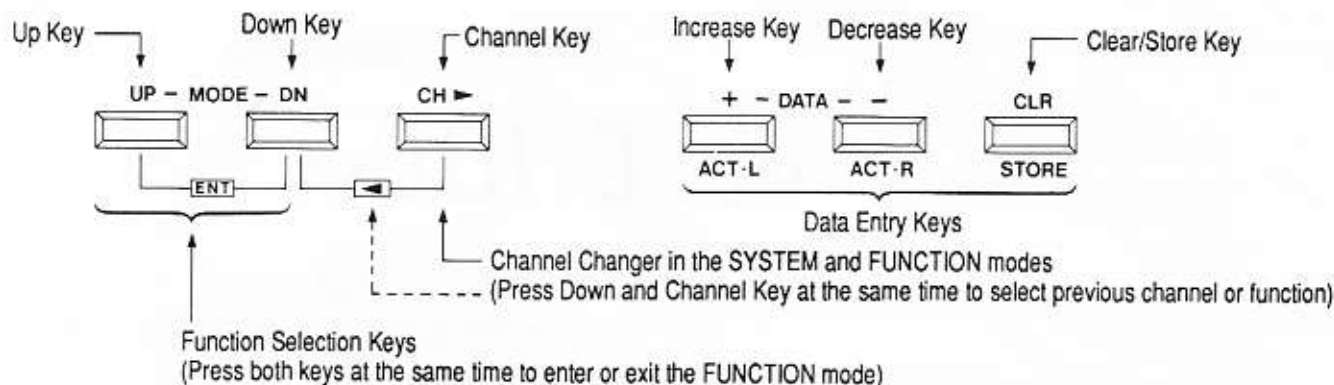
- Wrap the receiver in foam rubber 3/8 inch thick or more for added protection. Secure foam rubber with rubber bands.

- The servos then should be mounted on the servo trays supplied, or on hardwood rails using rubber grommets and brass bushings to isolate from vibration. DO NOT OVERTIGHTEN mounting screws.

- Servos must be able to move freely over their entire range of travel. Make sure that the control linkages do not bind or impede the movement of any of the servos. A stalled servo can drain the battery within minutes.

- Mount all switches away from the engine exhaust and away from any high vibration areas. Make sure the switch operates freely and is able to operate over its full travel.

Battery
4N-1000
4N-550
4N-550

AUX 2

AUX 1

Gear

Charging Plug

On/Off Switch Harness
#JRA001

Rudder

FM RX
72.550

PCM
Pulse Code Modulation   Series
G

ABC&W RECEIVER
7 CHANNEL RECEIVER

FM SFS
72 MHZ

NER-627X

BATT

AUX 2
AUX 1
RET.LG
RUDD
ELEV
AILE
THRO

Antenna

Elevator

Aileron

Spoiler

The Function Keys are used to move up and down through the functions.
The Channel Key is used to advance channel or function selected.
The Data Entry Keys are used to make changes in the selected functions.

Hereafter, explanation of all functions in this booklet will use the following designations to indicate pressing individual keys.

| UP | DN | CH | | + | − | CLR |

6.1 Battery Alarm and Display

When the transmitter voltage drops below 9.0 volts DC, the display will flash BATT, and an alarm will sound 7 times. If you are flying when this occurs, you should land immediately. If you want to use dry batteries, you may operate the transmitter down to approximately 7.7 volts. If you wish to set alarm voltage at 7.7 volts, please contact JR Service America to have the alarm voltage changed.

6.2 Back-Up Error Display

All pre-programmed data is protected by a five-year Lithium battery protecting against main transmitter battery failure. Should the Lithium battery fail, the display will indicate BKUP ERR regardless of the position of the ON/OFF switch.

If this occurs, it will be necessary to replace the battery and reprogram all data. All transmitter programs will return to the factory default settings, and the data you have input will be lost. When it becomes necessary to replace the Lithium back-up battery, please contact JR Service America. Due to the possibility of extensive damage caused by improper removal or replacement, only JR Service America is authorized to make this change.

7.1 Normal Display

When the power switch is in the ON position, the display will read as follows:

Transmitter Voltage

IGLI C 10.0v
BATT

Modulation Type C:PCM
F:PPM

Model Name (When Switch to Timer Mode, Timer Display)

| UP | DN | CH |

Pressing the [CH] key selects betweeb
(Model name) and (Timer display)

| + | − | CLR |

Stop Watch Start & Stop   Timer Value Reset
(Timer Display Only)   (Timer Display Only)

Refer to page 105 [GLID] for
timer setting.

7.2 Function Mode

To enter the Function Mode, switch the transmitter power switch to the ON position. Press the [UP] and [DN] keys simultaneously, and the display will show the last active program. Pressing either the [UP] or [DN] key will scroll through the functions one by one according to the Function Flow Chart shown on the following page. Once the appropriate function is displayed, changes may be made by pressing the [+] or [−] keys. To select another channel of a particular function, simply press the [CH] key. If you transfer to a different function that is channel selectable, the display will show the same channel. For example, if you are adjusting the Dual Rate of the Elevator and you change to the Exponential function, the channel remains Elevator. The Function Mode is the most often used system to input data.

■ Function Setting Mode Flow Chart

Information pertaining to each function is explained on the page
number listed next to the function name. Functions will appear in the
same order they are shown on this chart.

Function	Page		Description
DUAL-RATE	p. 85	GLID	Dual Rate
EXP	p. 86	GLID	Exponential
REVERSE SV	p. 87	GLID	Servo Reversing
S.TRIM	p. 88	GLID	Sub Trim
T.ADJ	p. 89	GLID	End Point Adjustment
E-F	p. 90	GLID	Elevator – Flap Mixing
F-E	p. 91	GLID	Flap – Elevator Mixing
DIFF	p. 92	GLID	Differential Aileron Mixing
FL-A	p. 93	GLID	Flap – Aileron Mixing
AL-F	p. 94	GLID	Aileron – Flap Mixing (When Dual Flap Setting is Active Only)
SP:	p. 94	GLID	Butterfly/Crow Mixing
POTS	p. 96	GLID	Dual Flap Trim
A			
B	p. 97	GLID	Programmable Mixing (4 systems)
C			
D			
FLP.P	p. 101	GLID	Flap Knob Value Adjustment
FAL.S	p. 102	GLID	Fail Safe (PCM Mode Only)
TRN.	p. 103	GLID	Trainer
TIMR	p. 105	GLID	Timer
INT.T	p. 106	GLID	Integral Time Display

UP – MODE – DN

(ENT)

7.3 System Setting Mode

Press both the [UP] and [DN] keys simultaneously while turning the transmitter power switch on. You can now select the following seven functions by pressing either the [UP] or [DN] key. Although the servos will not operate at this time, please take care not to interfere with any other system as your transmitter is fully functional at this time. By pressing both the [UP] and [DN] keys simultaneously, the LCD display will indicate normal display and the servos will operate.

System Setting Mode Flow Chart

■ Information pertaining to each function is explained on the page number listed next to the function name. Functions will appear in the same order they are shown on this chart.
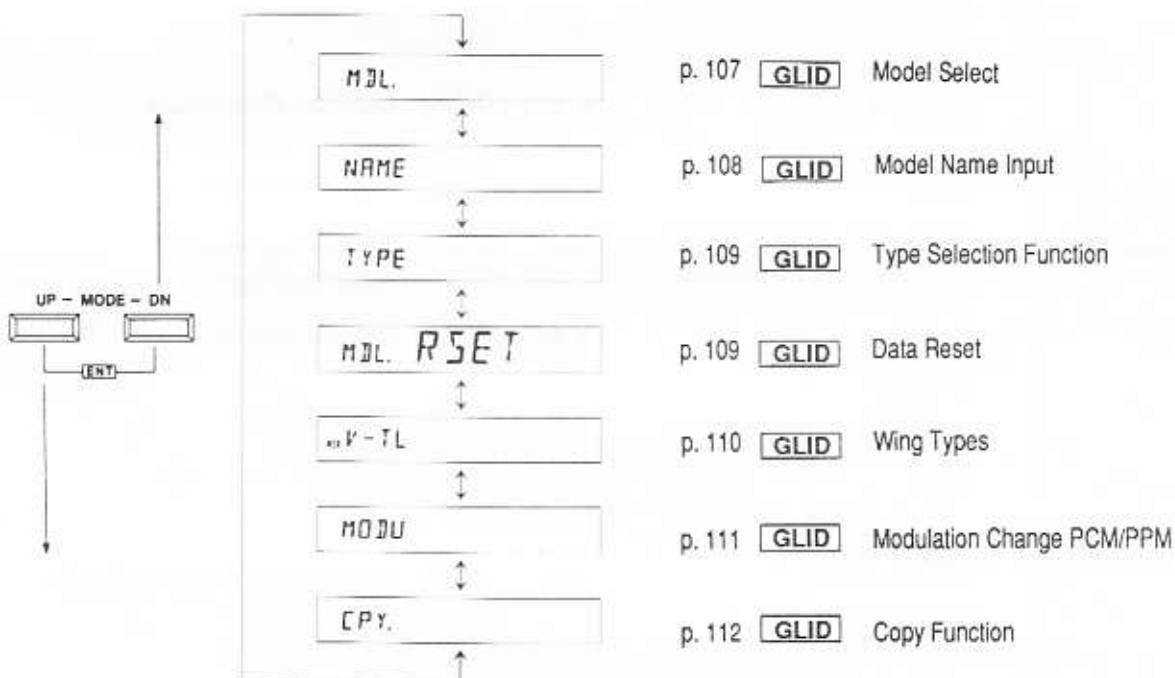
Display	Page		Function
MDL.	p. 107	GLID	Model Select
NAME	p. 108	GLID	Model Name Input
TYPE	p. 109	GLID	Type Selection Function
MDL. RSET	p. 109	GLID	Data Reset
V-TL	p. 110	GLID	Wing Types
MODU	p. 111	GLID	Modulation Change PCM/PPM
CPY.	p. 112	GLID	Copy Function

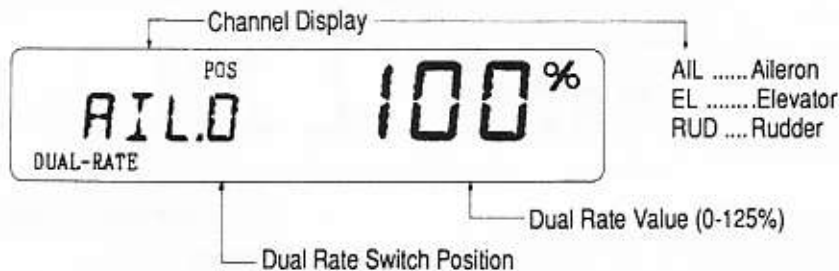UP — MODE — DN
(ENT)

8.1 Dual Rate

Dual Rates are available for Aileron, Elevator, and Rudder. The purpose of this function is to allow for in-flight selection of two preset total servo travels for each of these three channels. The amount of travel is adjustable from 0-125% in 1% increments. The factory setting for both switch positions 0 and 1 is 100%. Either position may be selected as the low or high rate by merely placing the switch in the desired position and adjusting the value for each.
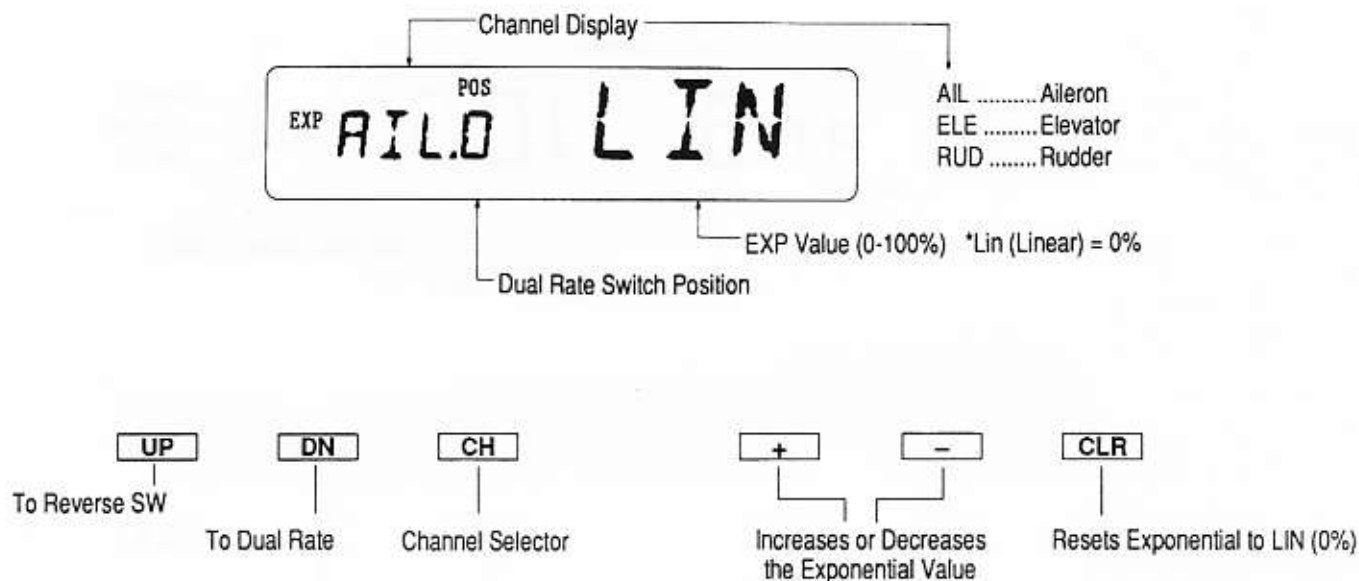
Channel Display

POS
AIL.0   100%
DUAL-RATE

AIL ...... Aileron
EL .... Elevator
RUD .... Rudder

Dual Rate Value (0-125%)

Dual Rate Switch Position

UP   DN   CH   +   −   CLR

To Exponential

To Integral Timer   Channel Selector   Increases or Decreases Dual Rate Value   Resets Dual Rate to 100%

Example:

1. Place the transmitter switch in the ON position.

2. Press the UP and DN keys simultaneously to enter the Function mode.

3. Press either the UP or DN key until the Dual-Rate function appears in the lower left corner of the LCD.

4. Press the CH key until the desired channel is displayed.

5. The number directly below POS on display indicates the current position of the Dual Rate switch for the channel selected; either a 0 or a 1 will be shown which corresponds to the position of the switch. Travel adjustments made will only affect servo operation when the Dual Rate switch is moved to the position now shown on the LCD.

6. The large number on the right side of the display indicates the percentage of servo travel currently selected. To increase servo travel press the + key. To decrease servo travel press the − key. To reset the servo travel to 100% press the CLR key.

7. To exit the Dual Rate function, press UP and DN keys simultaneously.

8.2 Exponential

Exponential rates are available for Aileron, Elevator, and Rudder. The Exponential value is adjustable from 0-100%, 0% being linear, 100% being full Exponential. The function of Exponential is to reduce the sensitivity of the Aileron, Elevator or Rudder in the middle area of the corresponding stick movement, while allowing full rate at the end of stick travel. Exponential is used in conjunction with Dual Rates for each function. The total travel selected in the Dual Rate function will remain the same; Exponential merely changes the rate at which it will achieve that full rate. Exponential may be selected for either the high or low rate, or both.

Channel Display

EXP **RIL.0** POS **LIN**

AIL .... Aileron
ELE .... Elevator
RUD .... Rudder

EXP Value (0-100%) *Lin (Linear) = 0%

Dual Rate Switch Position

| UP | DN | CH | | + | − | CLR |

To Reverse SW

To Dual Rate   Channel Selector   Increases or Decreases   Resets Exponential to LIN (0%)
                                       the Exponential Value

Example:

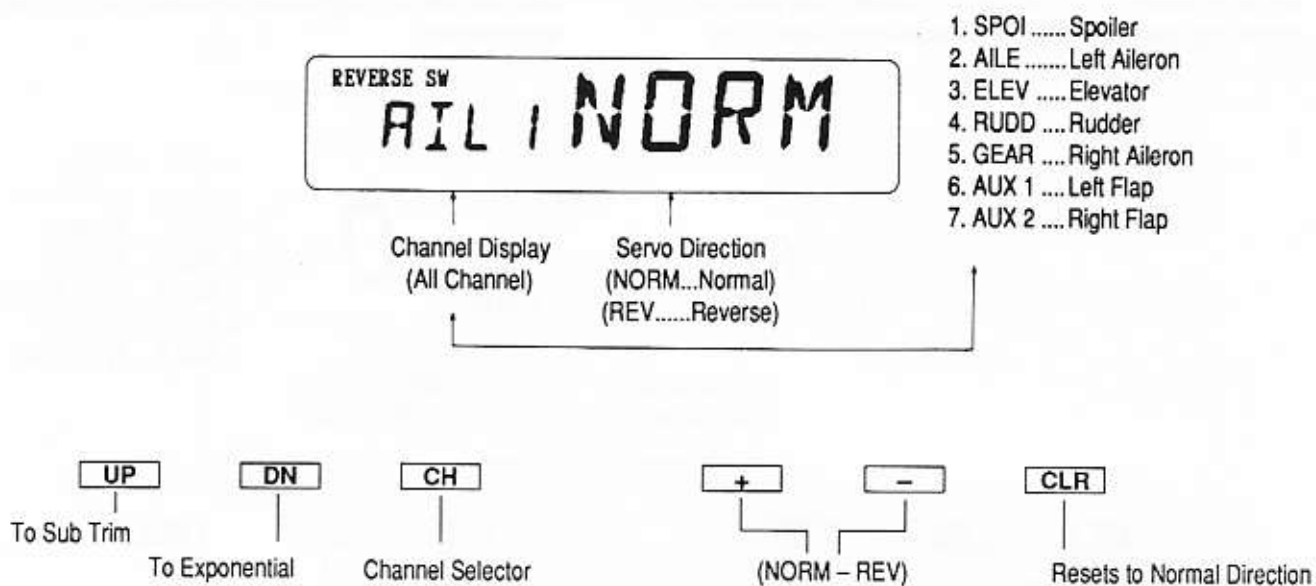1. Place the transmitter switch in the ON position.

2. Press the UP and DN keys simultaneously to enter the Function mode.

3. Press either the UP or DN key until EXP appears in the far left portion of the LCD.

4. Press the CH until the channel you wish to adjust appears.

5. Place the corresponding Dual Rate switch in the position you wish to make Exponential. Note: the switch position indicator will change for 0 to 1 or vice-versa.

6. LIN indicates the servo to stick travel is currently 1 to 1 or linear. Press + to increase the amount of Exponential desired. The CLR key returns this value to 0% or Linear.

7. Exponential is an acquired feel; it may take several test flights to achieve the amount of Exponential that fits your flying style.

8. To exit the Exponential function, press the UP and DN keys simultaneously.

Servo Reversing is a very convenient function used in the setup of a new aircraft. It is used to change the direction of servo rotation in relation to its corresponding stick movement. Servo reversing is available for all seven channels.
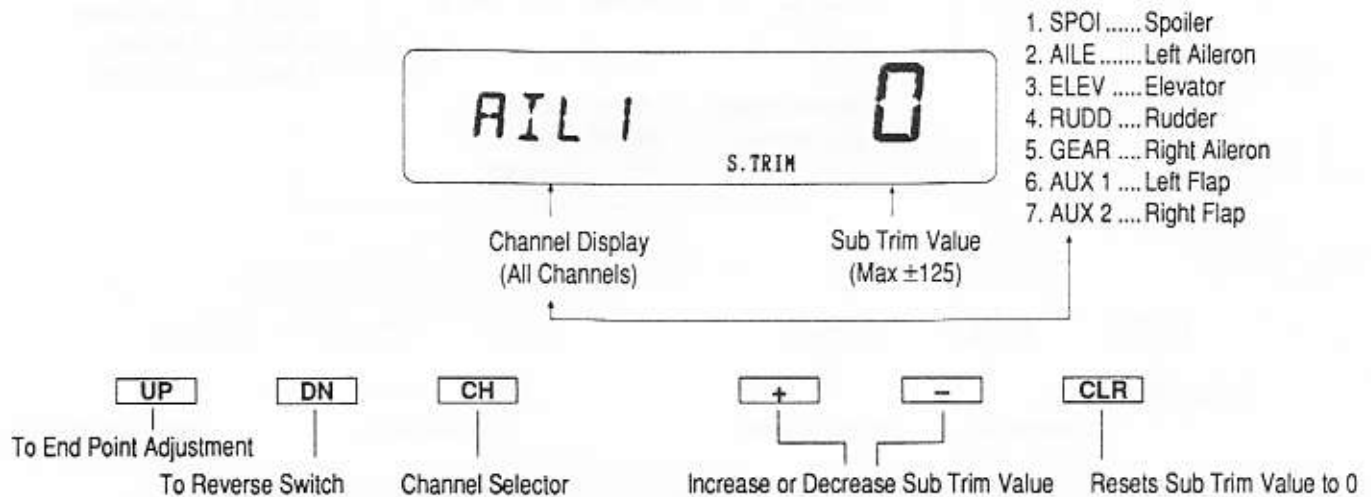
1. SPOI ...... Spoiler
2. AILE .... Left Aileron
3. ELEV ..... Elevator
4. RUDD .... Rudder
5. GEAR .... Right Aileron
6. AUX 1 .... Left Flap
7. AUX 2 .... Right Flap

REVERSE SW

$$AIL \ i \ NORM$$

Channel Display (All Channel)

Servo Direction (NORM...Normal) (REV......Reverse)

| UP | DN | CH | | + | – | CLR |

To Sub Trim

To Exponential   Channel Selector

(NORM – REV)   Resets to Normal Direction

Example:

1. Place the transmitter switch in the ON position.
2. Press the UP and DN keys simultaneously to enter the Function mode.
3. Press either the UP or DN key until Reverse SW appears in the upper left corner of the LCD.
4. Press the CH key until the desired channel is displayed.
5. Pressing either the + or – key will change the direction of servo travel. Touching the CLR returns the direction to Normal.
6. To exit the Servo Reversing function, press the UP and DN keys simultaneously.

Sub Trim is an electronic trim available for each of the seven channels. Sub Trim is particularly useful when changing from one aircraft to another. Using the Sub Trim allows you to place the mechanical trim levers in the center position and adjust trims electronically. Sub Trim can also allow additional trim travel when mechanical trim does not provide enough. The adjustable range of each Sub Trim is ± 125% either direction or about 30° servo throw each direction.

1. SPOI ...... Spoiler
2. AILE .... Left Aileron
3. ELEV ..... Elevator
4. RUDD .... Rudder
5. GEAR .... Right Aileron
6. AUX 1 .... Left Flap
7. AUX 2 .... Right Flap

```
 ┌─────────────────────────────────┐
 │                                 │
 │  AIL 1              0            │
 │              S.TRIM             │
 └─────────────────────────────────┘
```

Channel Display   Sub Trim Value
(All Channels)   (Max ±125)

| UP | | DN | | CH | | + | | – | | CLR |

To End Point Adjustment
        To Reverse Switch   Channel Selector   Increase or Decrease Sub Trim Value   Resets Sub Trim Value to 0

Example:

1. Place the transmitter switch in the ON position.
2. Press the [UP] and [DN] keys simultaneously to enter the Function mode.
3. Press either the [UP] or [DN] key until S. TRIM appears in the lower middle section of the LCD.
4. Press the [CH] key until the desired channel is displayed.
5. Press either the [+] or [–] key to establish the desired amount of Sub Trim. Note: a letter or a symbol appears in the middle of the screen to indicate the direction and value of Sub Trim input.
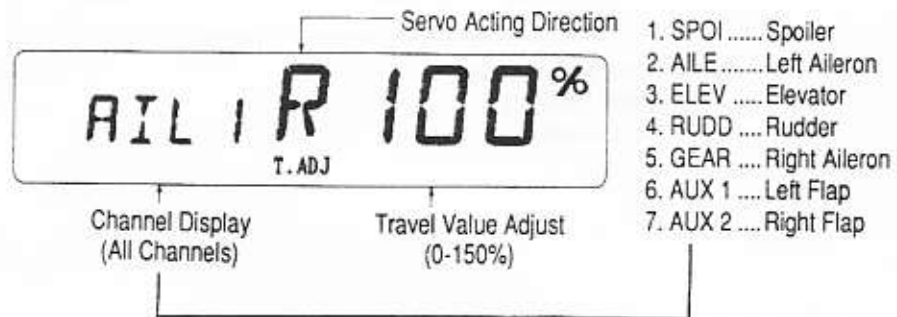
These are as follows:

Function	+ Increases	– Decreases
Spoiler	+ = Increase	– = Decrease
Aileron 1	L = Left	R = Right
Elevator	D = Down	U = Up
Rudder	L = Left	R = Right
Aileron 2	L = Left	R = Right
Flap	U = Up	D = Down
AUX 2	+ = Increase	– = Decrease

6. To exit the Sub Trim function, press the [UP] and [DN] keys simultaneously.

The amount of Servo Travel is separately adjustable for all channels, as well as individually for each direction. The adjustable range is from 0% to 150% (0° to 60°). The Servo Travel for all channels is factory set to 100%. The reading on the LCD display is dependent upon the position of the stick, knob or switch.
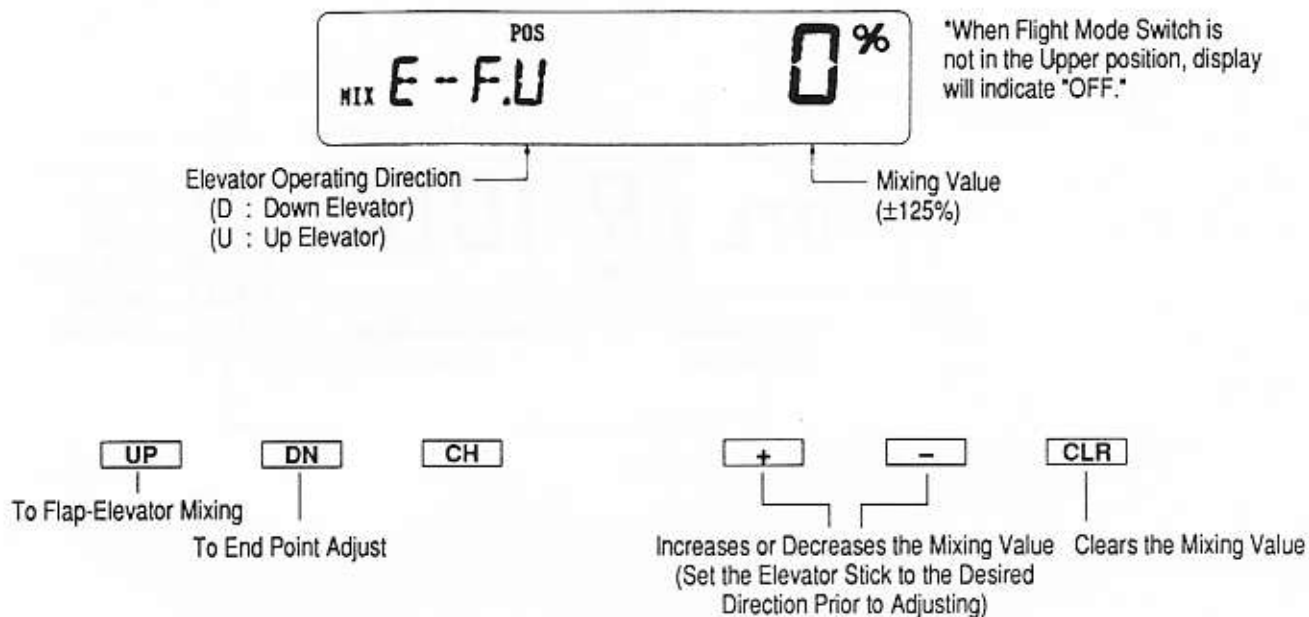
Servo Acting Direction

AIL 1 R 100%

T.ADJ

Channel Display
(All Channels)

Travel Value Adjust
(0-150%)

1. SPOI ...... Spoiler
2. AILE .... Left Aileron
3. ELEV ..... Elevator
4. RUDD .... Rudder
5. GEAR .... Right Aileron
6. AUX 1 .... Left Flap
7. AUX 2 .... Right Flap

| UP | DN | CH | + | – | CLR |

To Elevator-Flap Mixing

To Sub Trim   Channel Selector

Increase or Decrease Travel Value   Resets Travel to 100%

Example:

1. Place the transmitter switch in the ON position.

2. Press the **UP** and **DN** keys simultaneously to enter the function mode.

3. Press either the **UP** or **DN** key until T. ADJ. appears in the bottom middle section of the LCD.

4. Press the **CH** key until the desired channel is displayed on the left side of the LCD.

5. To adjust right aileron travel, press the **CH** key until AILE is displayed on the left side of the LCD. Move the aileron stick to the right and note that the middle display will change to reflect the value being adjusted, i.e., AIL 1 R 100% the aileron stick must be held to the right.

6. While the stick, knob, or switch is moved in the direction of travel to be adjusted, press the **+** or **–** until the proper amount of servo travel is reflected on the right side of the LCD.

7. The same may be done for all channels.

8. To exit End Point Adjustment, press the **UP** and **DN** keys simultaneously.

The purpose of this function is to automatically input Flap control when the elevator is activated. The mixing value and direction of Flap input is selectable. The Flight Mode Switch activates this system in the upper position. This system provides an increase in lift with the Flaps when Elevator inputs are made.
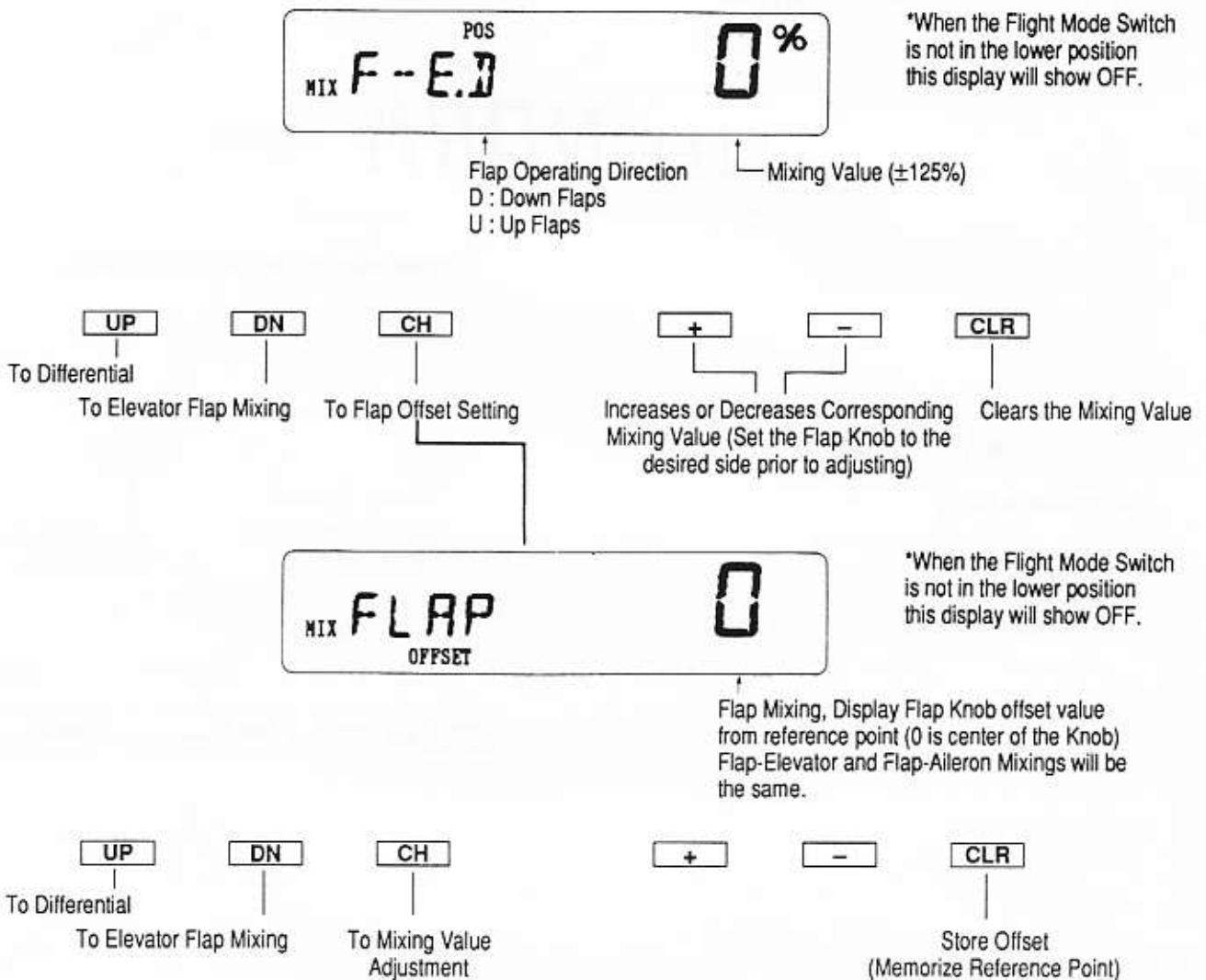
POS

MIX E - F.U   0 %

*When Flight Mode Switch is not in the Upper position, display will indicate "OFF."

Elevator Operating Direction ──┘
   (D : Down Elevator)
   (U : Up Elevator)

└── Mixing Value
   (±125%)

UP	DN	CH

To Flap-Elevator Mixing

   To End Point Adjust

+	−	CLR

Increases or Decreases the Mixing Value   Clears the Mixing Value
(Set the Elevator Stick to the Desired
Direction Prior to Adjusting)

Example:

1. Move the transmitter switch to the ON position.

2. Press the **UP** and **DN** keys simultaneously to enter the function mode.

3. Press either the **UP** or **DN** key until E-F.U appears in the left portion of the LCD.

4. Place the Flight Mode Switch in upper position. (E–F).

5. Hold the Elevator stick in the direction you wish to mix the Flaps (Up or Down).

6. Press either the **+** or **−** key to increase or decrease the amount of flaps to be mixed. Normal application is Elevator up, Flaps down. Thus, the Flap value will have a negative indication. If you wish to reverse flap travel, press the **CLR** key and increase the value using the opposite key (**+** or **−**) from the key originally selected

7. To exit the Elevator-Flap Mix, press the **UP** and **DN** keys simultaneously.

The purpose of this function is to automatically input Elevator when Flap inputs are made. The direction and value of Elevator input is adjustable. Thus, the Elevator is used to dampen the pitch up or pitch down tendency when Flaps are raised or lowered. This system also incudes a mixing offset to redefine the neutral position of the Elevator channel. The effect of this is to change the point mixing actually begins to take place.
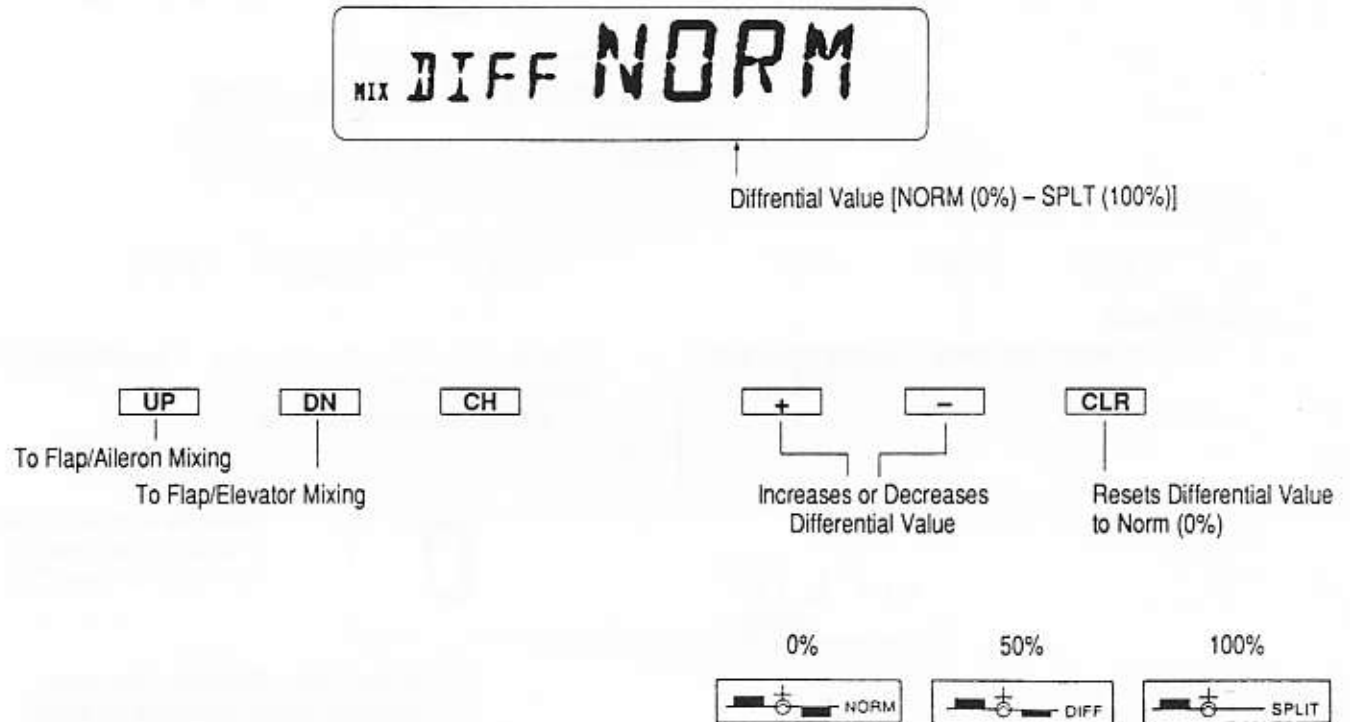
```
┌──────────────────────────────────────────────┐
│              POS                               │
│        MIX F - E.D              0 %            │
│                                                │
└──────────────────────────────────────────────┘
```

*When the Flight Mode Switch is not in the lower position this display will show OFF.

Flap Operating Direction
D : Down Flaps
U : Up Flaps

Mixing Value (±125%)

| UP | DN | CH | | + | — | CLR |

To Differential

To Elevator Flap Mixing   To Flap Offset Setting

Increases or Decreases Corresponding Mixing Value (Set the Flap Knob to the desired side prior to adjusting)

Clears the Mixing Value

```
┌──────────────────────────────────────────────┐
│                                                │
│        MIX FLAP                 0              │
│              OFFSET                            │
└──────────────────────────────────────────────┘
```

*When the Flight Mode Switch is not in the lower position this display will show OFF.

Flap Mixing, Display Flap Knob offset value from reference point (0 is center of the Knob) Flap-Elevator and Flap-Aileron Mixings will be the same.

| UP | DN | CH | | + | — | CLR |

To Differential

To Elevator Flap Mixing   To Mixing Value Adjustment

Store Offset
(Memorize Reference Point)

Example:

1. Move the transmitter switch to the ON position.

2. Press the UP and DN keys simultaneously to enter the function mode.

3. Press either the UP or DN key until Mix F-E. appears in the left portion of the LCD.

4. Place the Flight Mode Switch in the lower position.

5. Turn the Flap knob in the direction you wish to mix Elevator to Flaps. Note: As the knob is turned, the U and D indication found under the "POS" will change to the appropriate direction.

6. Press either the + or — key to increase or decrease the amount of Elevator input. If the Elevator is moving in the wrong direction, simply increase the value in the opposition direction. A + or – sign will be displayed to indicate the direction of mixing being applied.

7. To set the mixing "Offset", press the CH key and turn the Flap knob to the point you need the Elevator to begin mixing and press the CLR key. The Elevator will return to neutral and the offset is saved in the memory.

8. To exit the Flap to Elevator mix, press the UP and DN keys simultaneously.

The Differential Aileron Mixing program is used to tailor the Aileron travel to the particular aircraft. Because the down travel of the Aileron creates more drag than the up travel of the aileron, it is necessary to reduce the amount of down travel for each Aileron electronically. In severe cases, this drag will cause a yawing tendency. Differential Aileron Mixing is used to reduce this action.

Note: In order to use the Differential Ailerons, it is necesary to use two separate servos and channels for the Aileron function. Also, when the Dual Flap function is active, the Differential value will apply to the Flaperons also.

$$\text{MIX } \boldsymbol{DIFF\ NORM}$$

↑
Diffrential Value [NORM (0%) – SPLT (100%)]

UP	DN	CH
To Flap/Aileron Mixing		
	To Flap/Elevator Mixing	

+	–	CLR
Increases or Decreases Differential Value		Resets Differential Value to Norm (0%)

0%	50%	100%
NORM	DIFF	SPLIT

Example:

1. Move the transmitter switch to the ON position.
2. Press either the UP and DN keys simultaneously to enter the function mode.
3. Press either the UP or DN key until Mix DIFF appears in the left portion of the LCD.
4. Press the + or – key until the desired amount of Differential is established. The operating range for Differential is 0-100%. The three diagrams will make this easier to understand.
5. To exit the Differential Mode, press the UP and DN keys simultaneously.

The purpose of the Flap to Aileron Mix is to allow the pilot to couple the Ailerons to the Flaps. This will allow you to droop the Ailerons with the Flaps to increase lift. A mixing "offset" is also provided, if it is necessary to redefine the neutral position of the Ailerons.

Note: This neutral point will be the same as the point established in the Flap to Elevator mix, if used. The knob on the top right corner of

the Transmitter may be used to trim the Ailerons Up or Down.

Note: In order to use this system, it will be necessary to use one servo per Aileron and at least one on the Flaps.

Note: This mixing system will include Flap operating value when Programmable Mix A or B is applied to the Flaps.

```
MIX  FL -- A              0 %
```

└─ Mixing Value (±125%)

| UP | DN | CH | | + | – | CLR |

To Aileron/Flap Mixing or Butterfly Mixing

To Differential

To Flap Offset Setting

Increase or Decrease Mixing Value

Clear Mixing Value

```
MIX  FLAP                 0
     OFFSET
```

In Flap Mixing, Display offset value of reference point of Flap Knob (Zero is the center position of the knob). Note that Flap to Elevator, Flap to Aileron Mixing will be the same value.

| UP | DN | CH | | + | – | CLR |

To Aileron/Flap Mixing or Butterfly Mixing

To Differential

To Mixing Value Adjusting

Store Offset (Memorize Reference Point of Mixing)

Example:

1. Move the transmitter switch to the ON position.

2. Press the UP and DN keys simultaneously to enter the function mode.

3. Press either the UP or DN key until Mix FL-A appears in the left portion of the LCD.

4. Press either the + or – key to increase the amount of Aileron to be mixed with Flaps. Moving the Flap knob (top, left) will now move both the Ailerons and the Flaps.

5. If Aileron must be re-centered, press the CH key and turn the Flap knob to the desired position and press the UP key. This will store that center value and the Aileron will return to normal. Note: changing the "offset" here will also change it for the Flap to Elevator Mix.

6. To exit the Flap to Aileron mode, press the UP and DN keys simultaneously.

8.10 Aileron to Flap Mixing (Dual Flap Mixing Only)

Aileron to Flap Mixing is only applicable when the Dual Flap function is activated in the system mode. The purpose of this function is to mix Ailerons with Flaps so the Flaps will operate in conjunction the Ailerons. This will effectively double the amount of Aileron control surface area available. The amount of mix is adjustable; thus, you may tailor the Aileron response to fit your flying style. The Trim knob located on the right/front corner of the Transmitter will trim the Flaps as Ailerons. The Aileron ratchet trim has no effect on the flaps.

Note: If differential mixing is being used, the Flaps will also operate differentially according to the value input on page 92. This mixing will include Aileron Operating Value when Programmable Mixing A or B is applied to Aileron.

```
      ɴ ɪ x AL -F          0 %
```

└─ Mixing Value (±125%)

| UP | DN | CH | | + | − | | CLR |

To Butterfly Mixing

To Flap-Aileron Mixing

Increases or Decreases Mixing Value

Clears Mixing Value

Example:

1. While depressing the ⌐UP⌐ and ⌐DN⌐ keys, switch the Transmitter to the ON position to enter the System mode.
2. Press either the⌐UP⌐or⌐DN⌐key until mix V-TL is displayed in the left portion of the LCD.
3. Press the ⌐CH⌐ key until mix DUA.F is displayed in the left portion of the LCD.
4. Press the⌐+⌐and⌐−⌐keys until the right portion of the LCD incidates "ACT". The Dual Flap system is now active.
5. Press the ⌐UP⌐and⌐DN⌐ key simultaneously to exit the system mode and then press them again to enter the function mode.
6. Press either the⌐UP⌐ or ⌐DN⌐ key until "mix AL-F" appears in the left portion of the LCD.
7. Press either the ⌐+⌐or⌐−⌐ key to increase the value of the mix. A + or − sign will appear to the left of the current value. This indicates the direction of travel; if the travel is the wrong direction increase the value in the opposite direction. Normally the Flaps travel the same direction as the ailerons.
8. To exit the Aileron to Flap mix, press the ⌐UP⌐ and⌐DN⌐keys simultaneously.

8.11 Butterfly Mixing (Crow)

The purpose of this function is to allow the Ailerons to be used as Spoilers in conjunction with the normal Spoilers and Flaps. You may also choose to include a preset amount of Up or Down Elevator to avoid pitching up or down when the Crow system is active. This system is activated using the ON/OFF switch on the top right corner of the Transmitter and increasing the Spoiler (Throttle) stick. This will deploy the Crow system as speed brakes.

Two different setups are available for the Crow mix, one for each position of the Crow On and Off switch. A mixing offset is also available to redefine the neutral position of the Spoiler System.
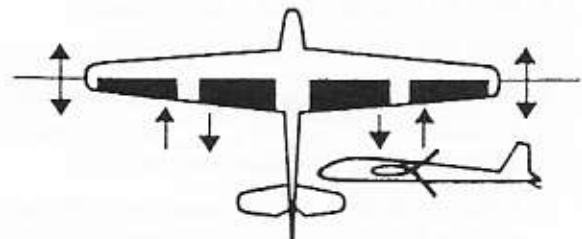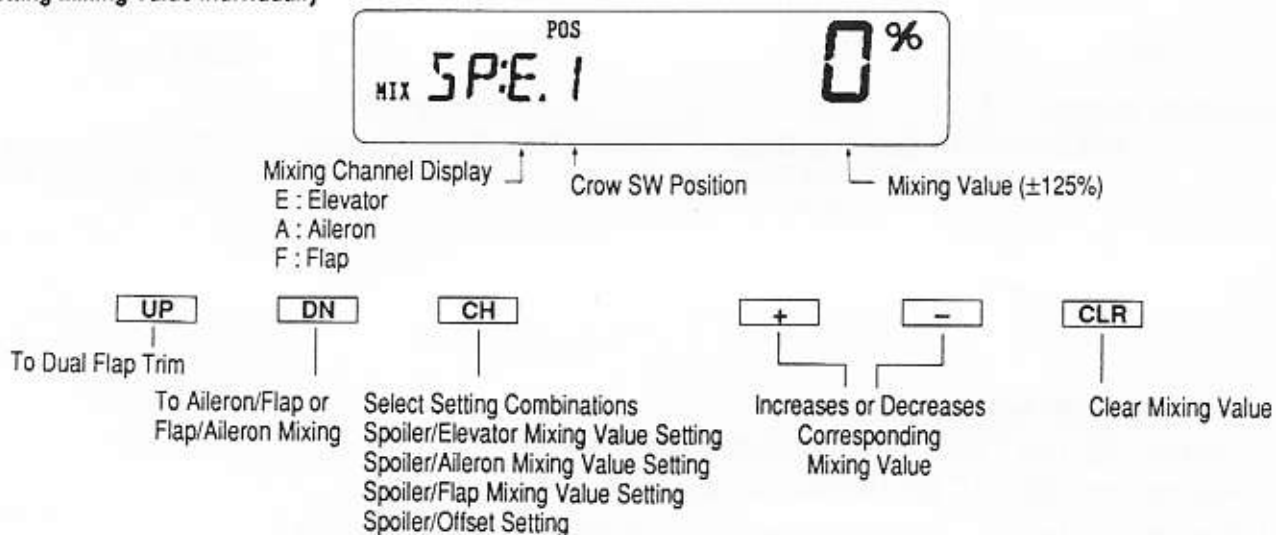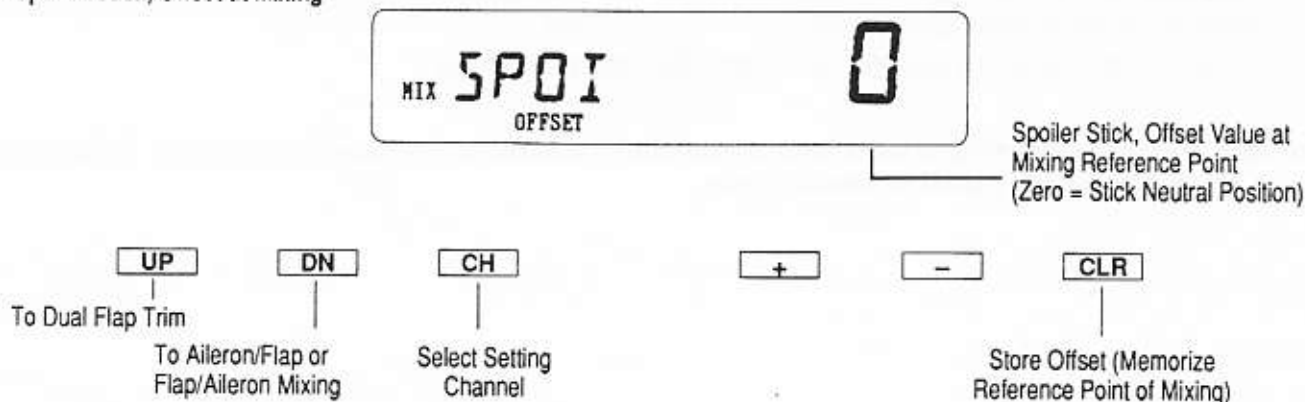
Example:

1. Move the transmitter switch to the ON position.

2. Press the ⬛UP⬛ and ⬛DN⬛ keys simultaneously to enter the function mode.

3. Press either the ⬛UP⬛ or ⬛DN⬛ key until Mix SP: appears in the left portion of the LCD.

4. Place the Crow switch in the position you wish to be the "ON" position.

5. Press the ⬛CH⬛ key until the channel you wish to set the value on appears to the right of "Mix SP:" display. Note: The switch position appears just to the right of this display. Press either the ⬛ + ⬛ or ⬛ — ⬛ key to increase or decrease the individual values of these channels. Press the ⬛CH⬛ again until all channel values are input. Normal operation is Ailerons up, Flaps down.

6. If you wish to use the Spoiler "Offset," press the ⬛CH⬛ key until mix SPOI appears in the left portion fo the LCD.

7. Move the Spoiler (Throttle) stick to the desired "offset" position and press the ⬛CLR⬛ key. The offset is now saved. Normal position is Spoiler (Throttle) stick low.

8. If you wish, the other position of the Crow switch may be set up with four different settings for the Ailerons, Flaps, Spoilers and Elevator. This could be a take-off mode or landing mode or anything else you desire. If you do not input anything in this position, the Spoilers will still operate as normal, using the Spoiler (Throttle) stick.

9. To exit the Butterfly Mixing System, press the ⬛UP⬛ and ⬛DN⬛ keys simultaneously.
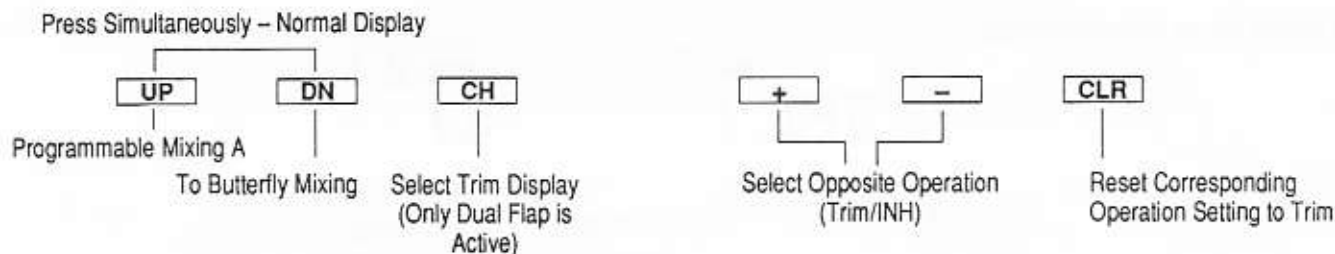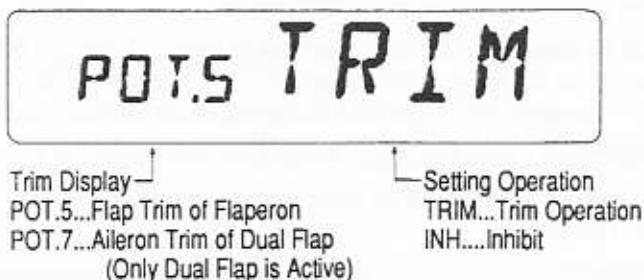
■ Setting Mixing Value Individually

```
              POS
   MIX  SP:E. 1          0 %
```

Mixing Channel Display —
E : Elevator
A : Aileron
F : Flap

Crow SW Position

Mixing Value (±125%)

UP	DN	CH		+	—	CLR

To Dual Flap Trim

To Aileron/Flap or
Flap/Aileron Mixing

Select Setting Combinations
Spoiler/Elevator Mixing Value Setting
Spoiler/Aileron Mixing Value Setting
Spoiler/Flap Mixing Value Setting
Spoiler/Offset Setting

Increases or Decreases
Corresponding
Mixing Value

Clear Mixing Value

■ Spoiler Stick, Offset at Mixing

```
   MIX  SPOI            0
           OFFSET
```

Spoiler Stick, Offset Value at
Mixing Reference Point
(Zero = Stick Neutral Position)

UP	DN	CH		+	—	CLR

To Dual Flap Trim

To Aileron/Flap or
Flap/Aileron Mixing

Select Setting
Channel

Store Offset (Memorize
Reference Point of Mixing)

The function of this program is to allow trimming of the Flaperon control surfaces. Two separate trim pots are accessible in the Dual Flap Trim mode. POT.5 located on the top right corner of the transmitter, adjusts the Ailerons Up and Down together. POT.7 (Dual Flap only), located on the front right corner of the transmitter, trims the Flaps in opposite directions. (As Ailerons) The Aileron ratchet trim has no affect on the Flaps.

$$POT.5 \; TRIM$$

Trim Display—
POT.5...Flap Trim of Flaperon
POT.7...Aileron Trim of Dual Flap
(Only Dual Flap is Active)

—Setting Operation
TRIM...Trim Operation
INH....Inhibit

Press Simultaneously – Normal Display

| UP | DN | | CH | | + | – | | CLR |

Programmable Mixing A
To Butterfly Mixing
Select Trim Display
(Only Dual Flap is Active)

Select Opposite Operation
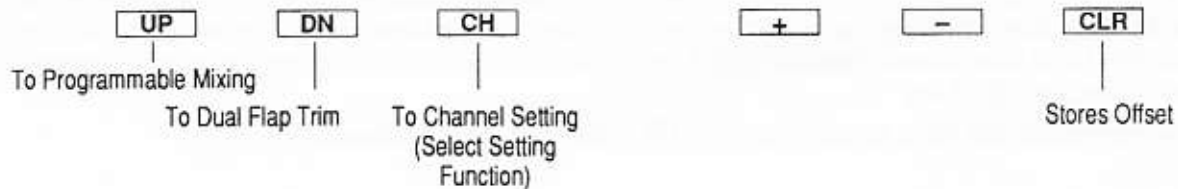(Trim/INH)
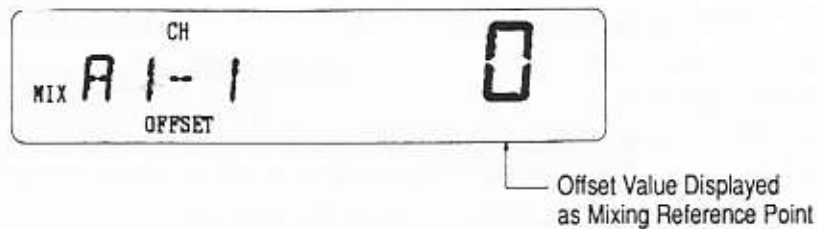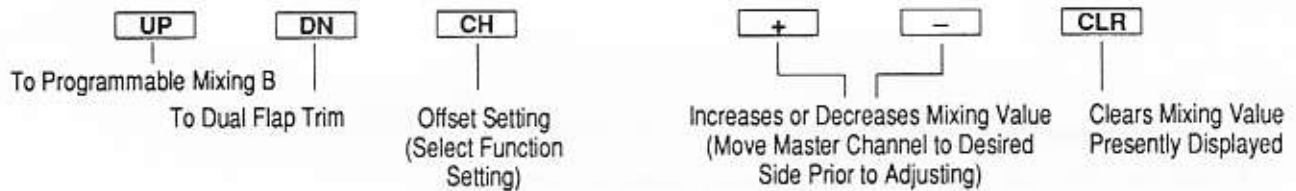
Reset Corresponding
Operation Setting to Trim

Example:

1. Move the transmitter switch to the ON position.
2. Press the **UP** and **DN** keys simultaneously to enter the function mode.
3. Press either the **UP** or **DN** key until POT.5 appears in the left portion of the LCD.
4. Press the **+** or **–** key to activate the Trim. The display will change to indicate "TRIM."
5. If Dual Flap system is active, Press the **CH** key until POT.7 is displayed.
6. Press either the **+** or **–** key to activate the POT.7 Trim. The display will change to indicate "TRIM". Now each of these knobs may be used to make inflight adjustments to these control surfaces.
7. To exit Dual Flap Trim function, press the **UP** and **DN** keys simultaneously.

Important Note: Each control surface may be independently trimmed using the individual Sub Trim feature for each channel. The purpose of the Dual Flap Trim is to trim two channels together.

The X-347 offers four Programmable Mixes to be used for any number of different purposes: three multi-function Programmable Mixes (mix A thru C) and Aileron to Rudder Mixing (Mix-D). This function allows mixing any one channel to any other channel to make the aircraft easier to fly. This mix may be set in the computer and remain on at all times or switched on and off in flight, using a number of different switches. Each channel of this radio is identified by a number. The chart below indicates the channel and its corresponding number. These numbers are used to establish the mixes. The number appearing first is known as the "Master channel" or the channel to which you want to mix. The second number is known as the "Slave channel" or the channel that is being mixed into the Master. For example, 2-4 would indicate rudder to aileron mixing; thus, each time the aileron stick is moved, the aileron will deflect, and the rudder will automatically move in the direction and to the value input. Mixing is proportional, so small inputs of the Master channel will produce small outputs of the Slave channel. Each Programmable Mix has a mixing "offset." The purpose of the mixing offset is to redefine the neutral position of the Slave channel.

1. SPOI ...... Spoiler
2. AILE .... Left Aileron
3. ELEV ..... Elevator
4. RUDD .... Rudder
5. GEAR .... Right Aileron
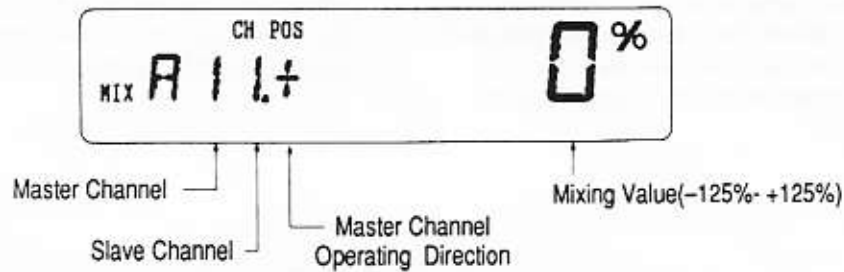6. AUX 1 .... Left Flap
7. AUX 2 .... Right Flap

Example:

1. Place the transmitter switch in the ON position.

2. Press the ⌈ UP ⌉ and ⌈ DN ⌉ keys simultaneously to enter the function mode.

3. Press either the ⌈ UP ⌉ or ⌈ DN ⌉ keys until mix ALL appears in the left portion of the LCD.

4. Press the ⌈ CH ⌉ key until mix A CH 1-1 appears.

5. Press the ⌈ + ⌉ key to select the Master channel. Press the ⌈ − ⌉ key to select the Slave channel.

6. Press the ⌈ CH ⌉ until mix A SW appears in the left portion of the display. This is the activation switch for this mix. See the chart for a definition of each switch.

7. Press the ⌈ CH ⌉ key once; the display will now show the current mixing channels to the right of the A character. The current master stick position will appear to the right of these numbers and will be indicated under the POS as a + or − .

8. While holding the master stick in the direction you wish to mix, press either the ⌈ + ⌉ or ⌈ − ⌉ key to increase the mixing value. A + or − indication will appear to the left of this value to indicate the direction of the "Slave" channel mix. Hold the master stick to the other side to adjust the mix for the other direction.

9. Press the ⌈ CH ⌉ key once. The display will now show the current mixing channels to the right of the A character, with OFFSET below them. The value to the right is the mixing offset neutral point, currently 0. Hold the master stick in the position you wish to make the neutral point of the Slave channel and push the ⌈ CLR ⌉ key. A new value with a + or − sign will appear; this is the new neutral point for the Slave channel. Press the ⌈ CLR ⌉ key to reset to 0. Note: the Master channel trim must be centered for this to reset to 0 using the ⌈ CLR ⌉ key.

10. To exit the Programmable Mixing function, press the ⌈ UP ⌉ and ⌈ DN ⌉ keys simultaneously.

Note: With a little practice, programmable mixing will be very easy compared to the first time you try it. And always remember, the best part about a computer radio is, if you don't like something you can change it. Mixing is only limited by your imagination.
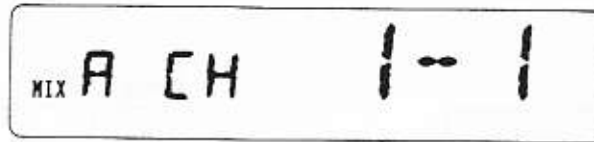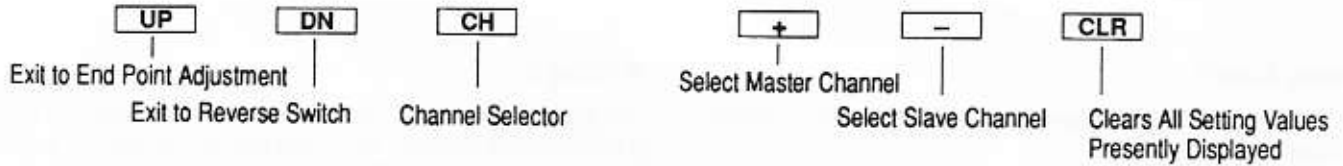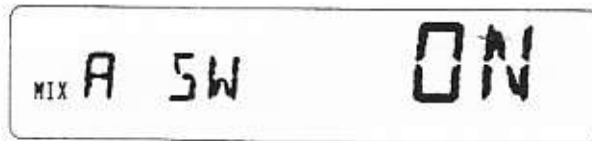
■ Any position of the Master Channel may be determined as the basic point of mixing. The basic point is the position of the Master channel stick, control switch, or knob where you set the mix value and the direction of mixing.

To set the basic point of mixing, hold the master channel in the desired position and press the [CLR] key. The display will indicate offset value from neutral; however, mixing value at the determined position would indicate zero.

CH POS

MIX $A \; I \; I.\div$ 0 %

Master Channel ———

Slave Channel ———

Master Channel
Operating Direction

Mixing Value(−125%- +125%)

| UP | DN | CH | | + | − | CLR |

To Programmable Mixing B

To Dual Flap Trim

Offset Setting
(Select Function
Setting)

Increases or Decreases Mixing Value
(Move Master Channel to Desired
Side Prior to Adjusting)

Clears Mixing Value
Presently Displayed

CH

MIX $A \; I - I$ 0

OFFSET

Offset Value Displayed
as Mixing Reference Point

| UP | DN | CH | | + | − | CLR |

To Programmable Mixing

To Dual Flap Trim

To Channel Setting
(Select Setting
Function)

Stores Offset

■ Channel Setting

```
MIX A CH   1 - 1
```

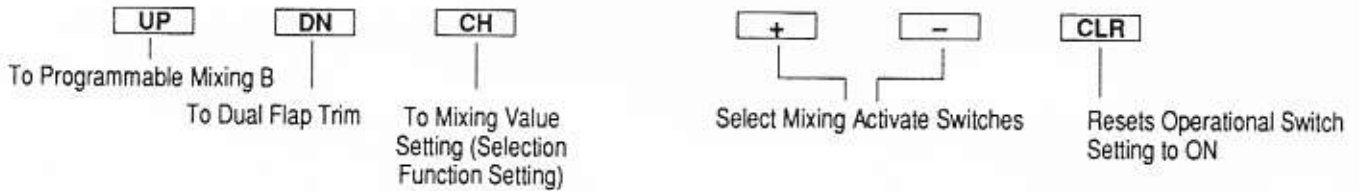Master Channel ⎯⎯⎯⎯⎯⎯⎯⎯ ⎯⎯⎯⎯⎯ Slave Channel

Channel Display
1. SPOI ...... Spoiler
2. AILE .... Left Aileron
3. ELEV ..... Elevator
4. RUDD .... Rudder
5. GEAR .... Right Aileron
6. AUX 1 .... Left Flap
7. AUX 2 .... Right Flap

| UP | DN | CH | | + | − | CLR |

Exit to End Point Adjustment
        Exit to Reverse Switch   Channel Selector

Select Master Channel
        Select Slave Channel   Clears All Setting Values
                                   Presently Displayed

■ Operational Switch Setting

```
MIX A SW   ON
```

⎯⎯ Displays Mixing Lever SW

| UP | DN | CH | | + | − | CLR |

To Programmable Mixing B
        To Dual Flap Trim   To Mixing Value
                               Setting (Selection
                               Function Setting)

Select Mixing Activate Switches

Resets Operational Switch
Setting to ON

Each mixing program can be turned ON and OFF inflight by a lever switch. The switches that can be selected for program mixing are tabulated below with their abbreviations appearing on the display and their corresponding positions.

Mixing A and D

ON	ALWAYS ON
MX SW	ON/OFF Using Mixing Switch
FL-E	ON/OFF at Flap – Elevator Position
EL-F	On at Elevator – Flap Positon

Mixing B and C

ON	ALWAYS ON
MX SW	ON/OFF Using Mixing Switch
BTF 0	ON at Butterfly Mixing SW Position 0
BTF 1	ON at Butterfly Mixing SW Position 1

■ Mixing A and B

When the Slave channel is 2 (Aileron), its mixing operation is affected by aileron differential settings.

When the Slave channel is 6 (Flap), its mixing operation is affected by flap to aileron mix setting.

When Dual Flap setting is active and the Slave channel is 7 (Aux 2), its mixing operation is affected by aileron differential settings.

■ Mixing D

One of the Programmable Mixes is Mixing D. Mix-D's primary setting is 2-4 (Aileron to Rudder). Mixing and Operational switch is set for Mixing switch only. The difference from other Mixing is that 1) Mixing values for each side are the same and, 2) No offset reference point can be set.

Note: When channel setting uses different operating switches it may be setup by simply changing the Master/Slave channels and values.

8.14 Flap Knob Operating Value Adjustment

This function allows adjusting the operational value of the Flap Channel (Aux 1) using the Flap Adjusting Knob. The preset values from the factory are as follows: Trim – 30%, INH – 0% and Full – 100%. These are merely starting points; they may be changed to any value using the [+] or [–] keys. This function makes fine-tuning of the Flaps very easy.

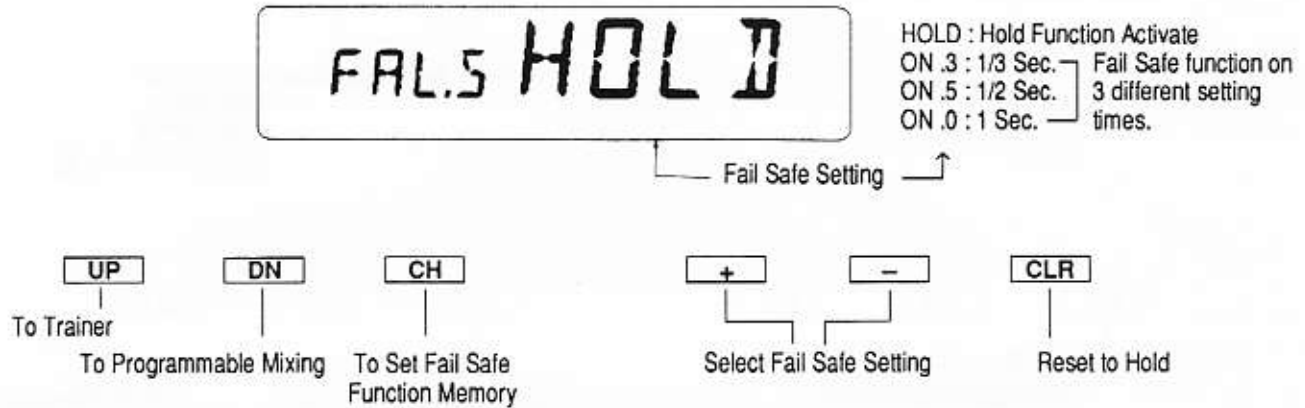Note: If the Dual Flap function is active, the value selected will apply to both flap servos.
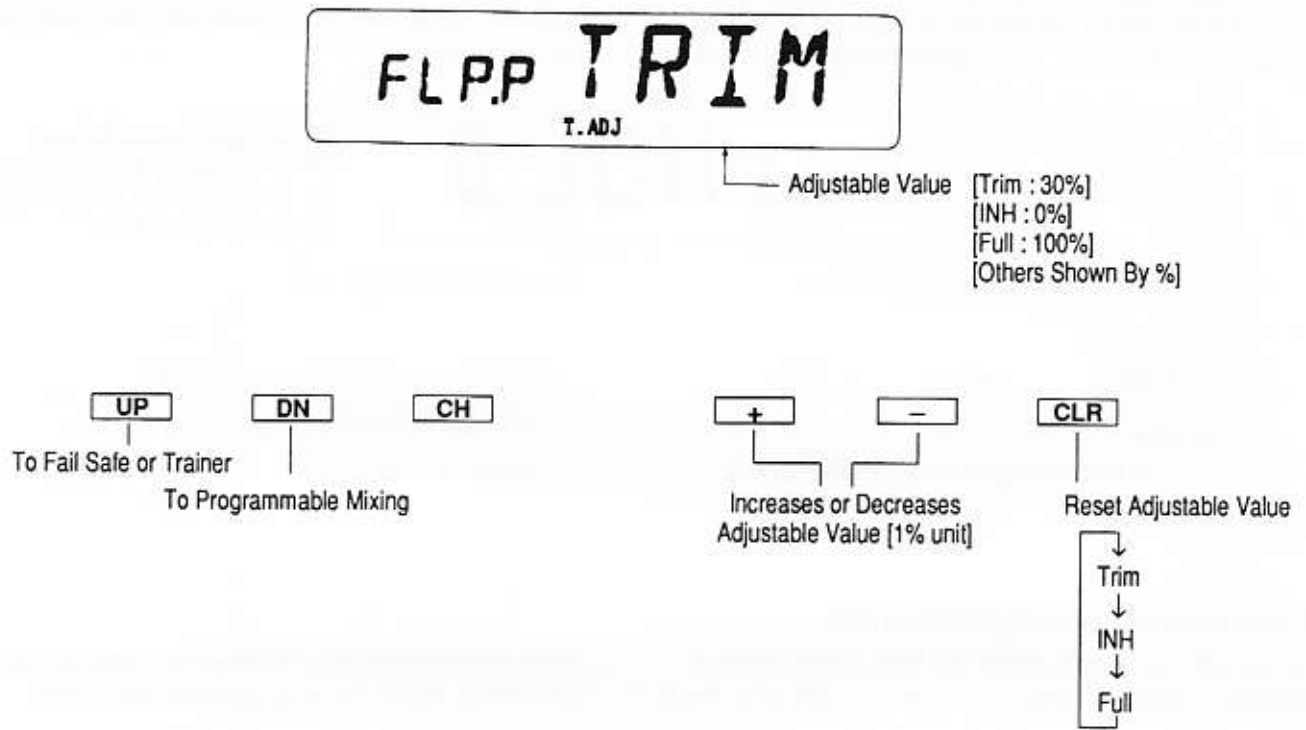
```
 _____
|                                |
|  FL P.P  TRIM                  |
|         T.ADJ                  |
|_____|
```

Adjustable Value [Trim : 30%]
[INH : 0%]
[Full : 100%]
[Others Shown By %]

[UP]   [DN]   [CH]   [+]   [–]   [CLR]

To Fail Safe or Trainer   Increases or Decreases   Reset Adjustable Value
            To Programmable Mixing   Adjustable Value [1% unit]

Trim
↓
INH
↓
Full

Example:

1. Move the transmitter switch to the ON position.

2. Press the [UP] and [DN] keys simultaneously to enter the function mode.

3. Press either the [UP] or [DN] key until FLP.P appears in the left portion of the LCD.

4. Press the [CLR] key to select between the three factory settings for travel throw.

5. Adjustments may be made to any of these three by pressing either the [+] or [–] keys. The new current value will be displayed on the right side of the LCD.

6. Now when the Flap Knob is turned all the way through its mechanical travel, the Flaps will have moved according to the value on the LCD.

7 To exit the Flap Knob adjustment function, press the [UP] and [DN] keys simultaneously.

The Fail Safe feature can be used only when the transmitter is operated in the PCM mode. The transmitter is provided with a Hold function by which your aircraft is maintained in the position immediately before the interference was encountered. The Fail Safe feature is also designed to set the servos to a predetermined position should the transmitter to receiver link be interrupted. It is highly recommended that you use the Fail Safe feature to prevent your aircraft from crashing at full-throttle. This system will not prevent a crash, but may be very helpful in limiting damage, in the event interference makes a crash inevitable. Once the Fail Safe function is activated, there is no need to reset the data each time you fly; this is done automatically each time the transmitter is switched on. Should you experience interference, and the Fail Safe is activated, control will be resumed as soon as the interference is eliminated. Note: When the modulation type is PPM (Pulse Position Modulation), the Fail Safe function is inhibited.

$$FAL.5\ HOLD$$

HOLD : Hold Function Activate
ON .3 : 1/3 Sec. ⎤ Fail Safe function on
ON .5 : 1/2 Sec. ⎬ 3 different setting
ON .0 : 1 Sec. ⎦ times.

Fail Safe Setting

UP	DN	CH
To Trainer		
	To Programmable Mixing	To Set Fail Safe Function Memory

+	−	CLR
Select Fail Safe Setting		Reset to Hold

■ **Setting Fail Safe Memory (In PCM Mode Only)**

The Fail Safe may be set to operate with three different periods of time delay: 1 second, 1/2 second, or 1/3 second. This is the amount of time the receiver will delay before activating the Fail Safe function. The following explains the set up of the Fail Safe memory.
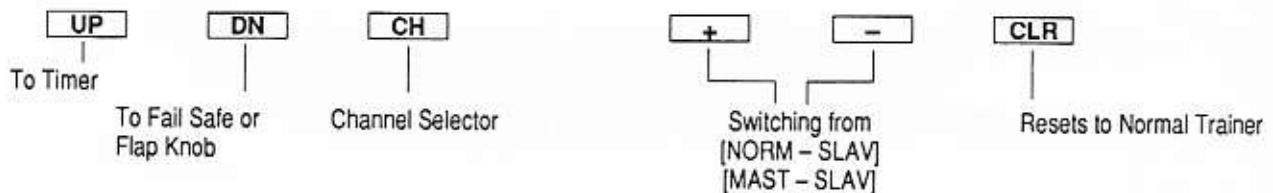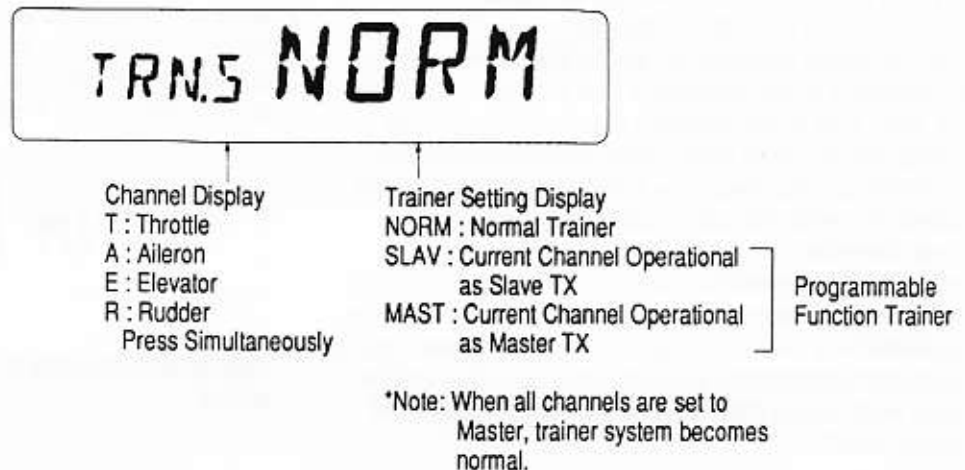
$$FAL.5\ MEMO$$

UP	DN	CH
To Trainer		
	To Programmable Mixing	To Fail Safe Setting

+	−	CLR
		Fail Safe Position Memory Key

Example:

1. Move the transmitter switch to the ON position.
2. Press the ⎡UP⎤ and ⎡DN⎤ keys simultaneously to enter the function mode.
3. Press the ⎡UP⎤ or ⎡DN⎤ key until FAL.S is displayed in the left side of the LCD.
4. Pressing the ⎡+⎤ or ⎡−⎤ key will change the time delay of the Fail Safe activation.
5. Pressing the ⎡CLR⎤ key will reset the delay to HOLD.
6. To set the servo location into memory, press the ⎡CH⎤ key. The display will change to MEMO. Hold the transmitter sticks in the desired locations and press the ⎡STORE⎤ key. This will enter these locations as the Fail Safe memory settings.
7. To confirm the input of data was successful, simply switch the transmitter off. The controls will move to the input locations. If not, repeat step 6 again.
8. To exit the Fail Safe mode, press the ⎡UP⎤ and ⎡DN⎤ keys simultaneously.

The X-347 transmitter employs two separate types of trainer systems — the Normal Trainer system (All functions are controlled by either the Master transmitter or the Slave transmitter) and the all new Programmable Function Trainer (Stick functions may be assigned to the slave one at a time). Since the control functions can be transferred one at a time, the student can concentrate on one function at a time until they are competent to fly solo.

TRN.5 NORM

Channel Display
T : Throttle
A : Aileron
E : Elevator
R : Rudder
Press Simultaneously

Trainer Setting Display
NORM : Normal Trainer
SLAV : Current Channel Operational as Slave TX
MAST : Current Channel Operational as Master TX

Programmable Function Trainer

*Note: When all channels are set to Master, trainer system becomes normal.

| UP | DN | CH | + | − | CLR |

To Timer

To Fail Safe or Flap Knob

Channel Selector

Switching from
[NORM – SLAV]
[MAST – SLAV]

Resets to Normal Trainer

Example:

1. Move the transmitter switch to the ON position.

2. Press the UP and DN keys simultaneously to enter the function mode.

3. Press the UP or DN key until TRN. appears on the left portion of the LCD.

4. Press the CH key to select the channel indicated just to the right of the TRN.

5. Once the channel appears that you wish to make a Slave, press the + or − key. This will change the display from NORM to SLAV. If you wish to make more Slave channels, press the UP key until the next desired channel is shown and press the + or − key.

6. To change the Programmable Trainer Function System back to Normal system, press the CLR key.

7. To exit the Trainer mode, press the UP and DN down keys simultaneously.
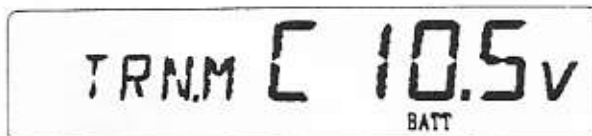
■ Basic Connections and Conditions for Training

1. The Slave transmitter must be PPM (Pulse Position Modulation) with a DSC (Direct Servo Controller) jack. If the Slave transmitter is PPM/PCM selectable, select PPM. The Master transmitter may be PCM or PPM.

2. Plug the trainer cord optional part #JRATC001 into each transmitter's DSC jack. Note: Each transmitter will appear to be "ON" but neither is actually transmitting at the time.

3. Switch the Master transmitter on. **Do Not Switch on the Slave Transmitter**; it is only necessary to have the Master transmitter ON. Note: If the Master transmitter is the X-347, its LCD will indicate TRN.M (Trainer Master) when the power switch is on.

4. Pull the trainer switch toward you to transfer control to the Slave. Release the switch and control automatically reverts to the Master transmitter.

5. Be sure the Slave transmitter's servo reversing, Dual Rates, End Point adjustment and trims are identical to the Master. This may be checked very easily by pulling the trainer switch toward you. If the control surfaces move, adjust the Slave transmitter until the trainer switch can be activated without a change of the control surface position.

■ Use of the Normal Trainer System

In this mode all functions are switched from the Master to the Slave using the trainer switch. This is the Normal mode – no function setup is necessary to activate this system.

■ Use of the Programmable Trainer Function (P.T.F.)

In this mode the Master may assign functions one at a time to make learning to fly easier for the student. For example: the Master may assign the Slave rudder and elevator. Thus, when the trainer switch is activated (pulled forward) the Slave has control of rudder and elevator only while the Master retains control of throttle and aileron.

$$TRN.M \quad E \quad 10.5v$$
BATT

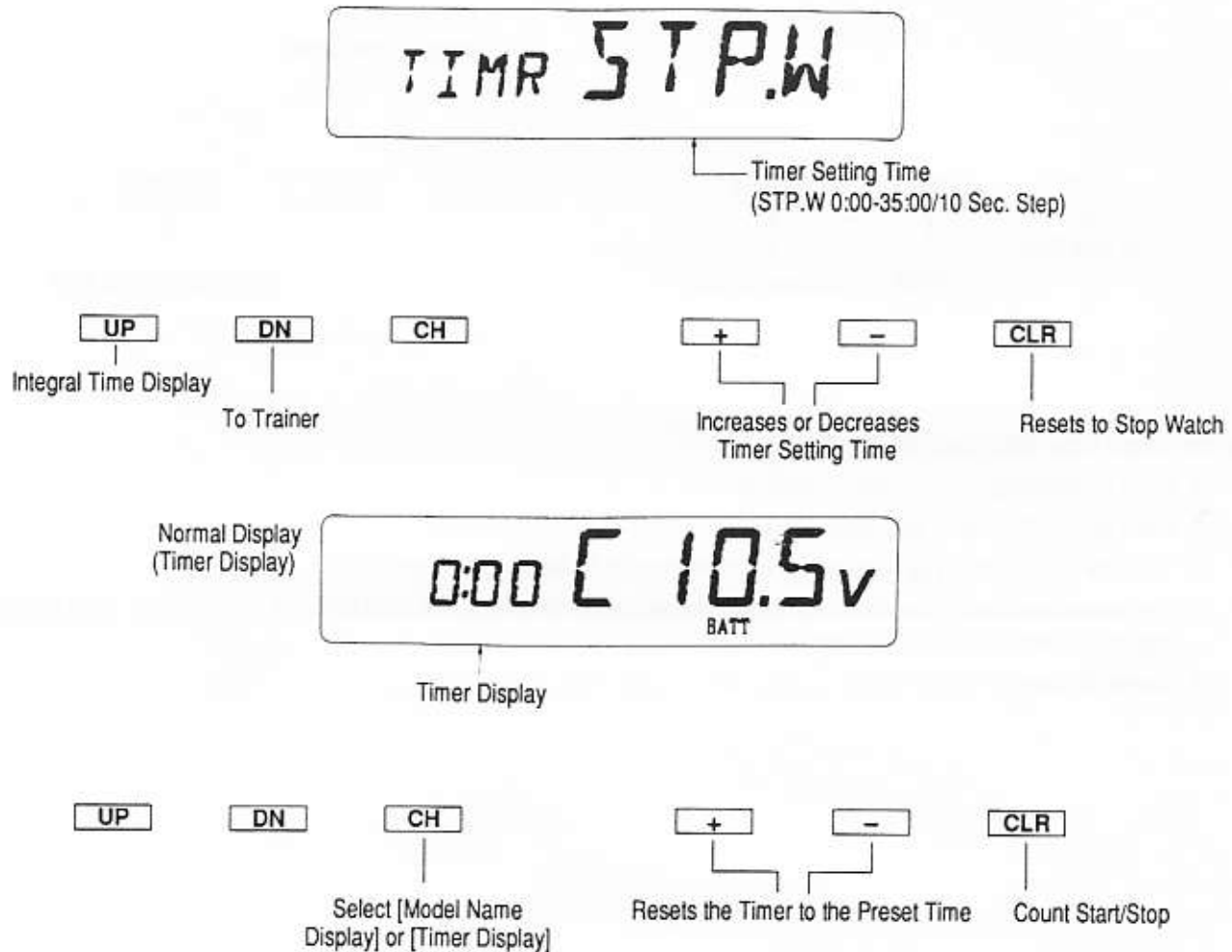Note: When all channels are set to Master, Trainer system becomes normal.

The X-347 offers two separate types of Timer functions; count-down and stop watch. The count-down Timer time is input in 10 second intervals up to 35 minutes. The Timer may be set for each individual model and retained in memory.

In order for the Timer function to be activated, it must be in the Normal display. From the Normal display, pressing the [CH] key will change the left side of the LCD from the model name to the Timer function. The Timer is now started and stopped by pressing either the [+] or [−] key. It may also be started and stopped using the Snap Roll/Trainer switch at the top left-rear portion of the

transmitter. When the X-347 is being used as the Master transmitter in the training function, the Snap-roll/Trainer switch will not operate the Timer Start/Stop function.

Note: In the count-down mode the transmitter will beep three times at :30 sec., two times at :20 sec., and beep one time every second from :10 to 0. At zero there will be a continuous tone for 1 second, and then the Timer will begin counting up with a + indication to the left of the time value. When used as the Stop Watch, the Timer will count up to 44 min. 59 seconds, at which time it will reset to zero and continue to count.
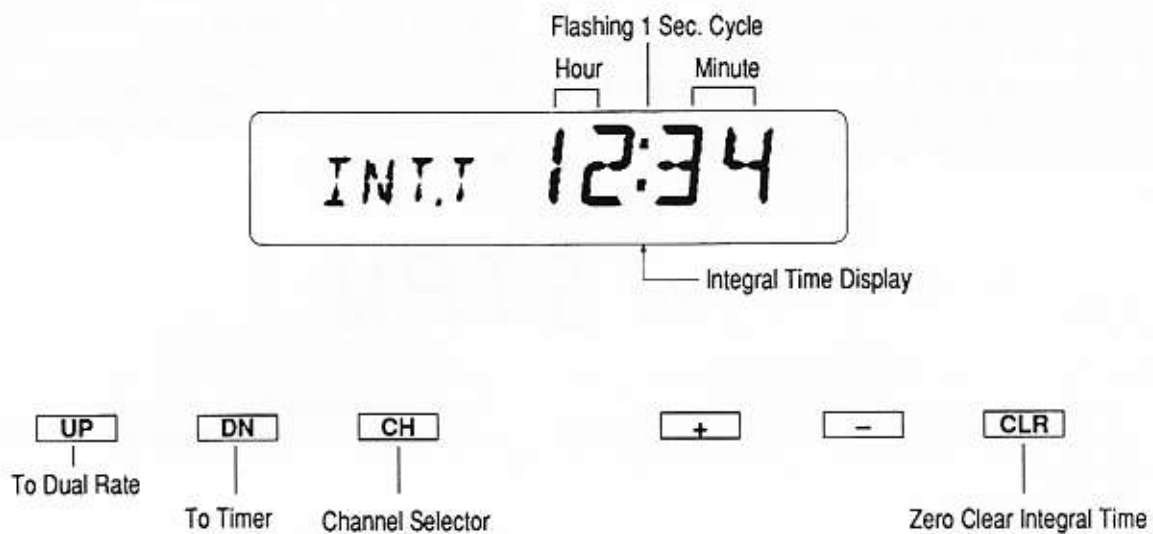
```
   TIMR 5TP.W
```

—— Timer Setting Time
(STP.W 0:00-35:00/10 Sec. Step)

| UP | DN | CH | | + | − | | CLR |

Integral Time Display

To Trainer

Increases or Decreases Timer Setting Time

Resets to Stop Watch

Normal Display (Timer Display)

```
   0:00 C 10.5v
            BATT
```

Timer Display

| UP | DN | CH | | + | − | | CLR |

Select [Model Name Display] or [Timer Display]

Resets the Timer to the Preset Time

Count Start/Stop

Example:

1. Place the transmitter switch in the ON position.

2. Press the [UP] and [DN] keys simultaneously to enter the Function mode.

3. Press either the [UP] or [DN] key until TIMR is displayed in the left portion of the LCD.

4. The STP.W in the right portion of the display indicates the Timer is in the Stop Watch (count-up) mode.

5. Pressing the [+] key will change the display to :10; each time the [+] is pressed, the value will increase in 10 second intervals up to 35:00 minutes. This is the count-down Timer value. Pressing the [CLR] will reset the Count-Down Timer to the Stop Watch mode.

6. To exit the Timer function, press the [UP] and [DN] keys simultaneously.

The function of the Integral Timer is to keep track of the accumulated time in use. The Integral Timer counts up to 100 hours in one minute increments. It is best to reset this Timer each time the transmitter is recharged. Thus, the Timer will indicate the time of use on that particular charge.
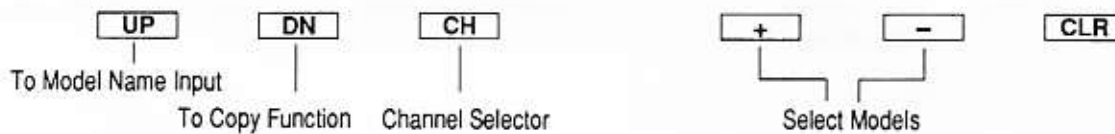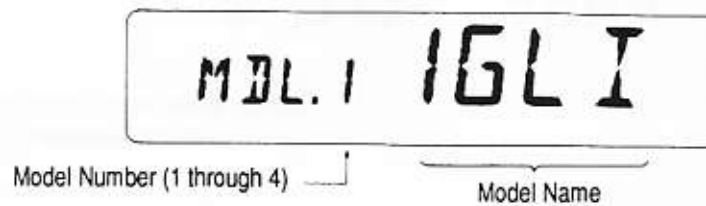
Flashing 1 Sec. Cycle

Hour | Minute

INT.T 12:34

Integral Time Display

| UP | | DN | | CH | | | + | | – | | CLR |

To Dual Rate

To Timer | Channel Selector

Zero Clear Integral Time

To reset the Integral Timer, follow these procedures:

1. Place the transmitter switch in the ON position.
2. Press the UP and DN keys simultaneously to enter the function mode.
3. Press the UP or DN key until INT.T is displayed in the left portion of the LCD.
4. The accumulated time of use will be displayed in the right portion of the LCD. To reset press the CLR key. Note the colon (:) flashes at a frequency of once per second.
5. To exit the Integral Timer, press the UP and DN keys simultaneously.

The X-347 system offers memory for 4 completely separate models. Thus, it is possible to have a mixture of Helicopter, Airplane and Glider set-ups retained in memory. It is also recommended that the model name input function be used in conjunction with each model setup. Another very useful function of the Model Select feature is the ability to set one aircraft up several different ways. This is very helpful when multi-task performance is desired.
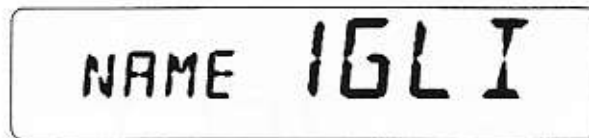
MDL.1 1GL I

Model Number (1 through 4) ⎤

Model Name

| UP | DN | CH |
To Model Name Input

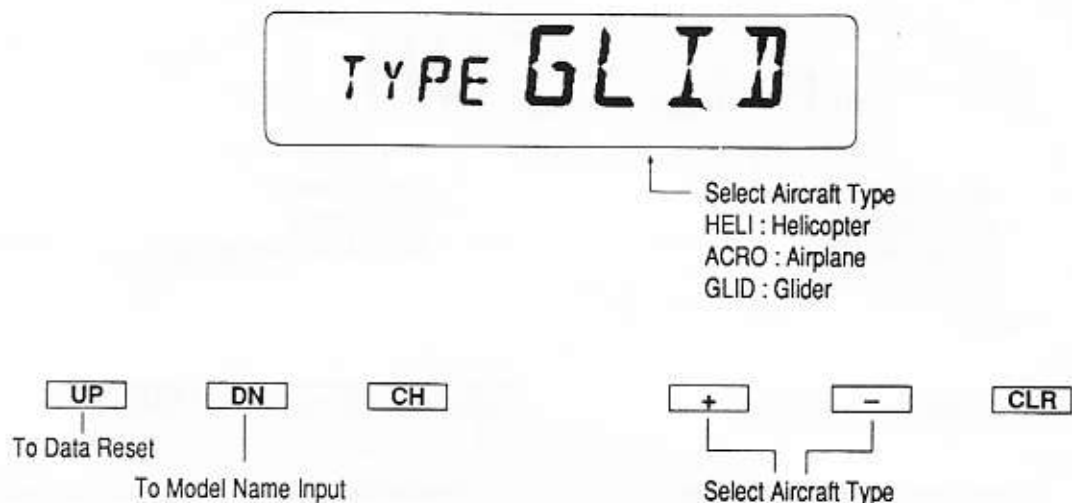To Copy Function   Channel Selector

| + | | – | | CLR |

Select Models

Example:

1. While depressing the [UP] and [DN] keys, switch the transmitter to the ON position to enter the system mode.

2. Press the [UP] or [DN] key until MDL.1 is displayed in the left portion of the LCD.

3. Pressing the [+] or [–] key will select between each of the (4) models available. Notice as each model is selected its name appears in the right port of the LCD.

4. Once the desired model is displayed on the right, pressing the [UP] and [DN] keys simultaneously will exit the Model Select mode and establish the model displayed as the new current model.

Note: When changing from one model type to another, it is not necessary to use the type selector mode. This is done automatically by the computer.

The X-347 allows a 4 digit name to be input for each of the 4 models available. The current model will be displayed in the normal display when the Timer is not active. You may also find this useful to identify different aircraft set-ups.

```
 _____
|   _____   |
|  |                              |  |
|  |   NAME   IGLI                |  |
|  |_____|  |
|_____|
```

└── Current Model Name Display (4 Digit)
Flashing Indicates Character Being Selected

| UP | | DN | | CH | | + | | – | | CLR |

To Type Select Function
             To Model Select   Select Flashing   Select Alpha/Numeric   Resets to Factory Setting
                                      Letter Position   Characters

Example:

1. While depressing the UP and DN keys, switch the transmitter to the ON position to enter the system mode.

2. Use the Model Select function to select the model you wish to name.

3. Press the UP or DN key until NAME is displayed in the left portion of the LCD.

4. The current name will be displayed in the right portion of the LCD. Pressing + or – key will select the first alpha numeric character. Note: the character being selected will flash.

5. Press the CH key to advance the character selection to next character.

6. Repeat this procedure until all four characters are input.

7. Note: pressing the DN and CH keys simultaneously will step back to the previous character input.

8. To exit Model Name Input function, press the UP and DN keys simultaneously.

8.21 Type Selection (In System Set-Up Mode Only)

The X-347 is usable as Helicopter, Airplane or Glider radio with full function features for each.

TYPE **GLID**

Select Aircraft Type
HELI : Helicopter
ACRO : Airplane
GLID : Glider

UP	DN	CH

To Data Reset

To Model Name Input

+	−	CLR

Select Aircraft Type

To change aircraft types:

1. While holding the UP and DN keys depressed, switch the transmitter to the ON position to enter the system mode.
2. Press the UP or DN key until TYPE is displayed in the left portion of the LCD.
3. Pressing the + or − key will change the type of model.
4. To exit the Type Selector Mode, press the UP and DN keys simultaneously.

8.22 Data Reset (In System Set-Up Mode Only)

This function permits you to reset all the functions and settings for the current model to factory conditions. Resetting does not affect the data already programmed for other models. Be sure to confirm that you need to reset the data of the currently indicated model in order to prevent accidental loss of your valuable data.
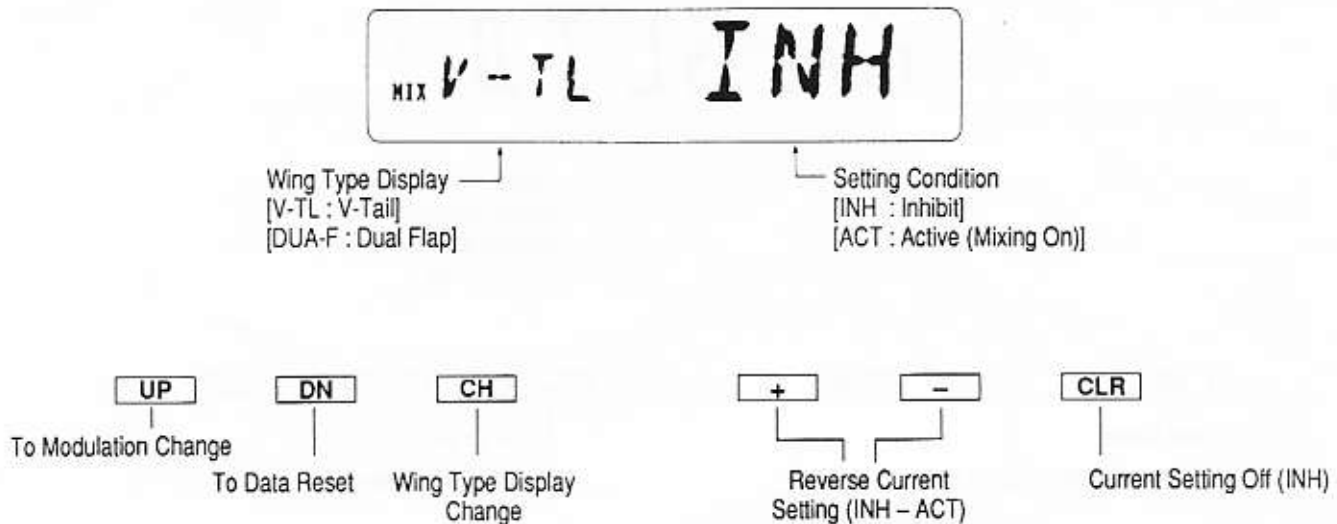
MDL.1 **RSET**

Model No. to be Reset

UP	DN	CH

To Select Modulation

To Type Select

+	−	CLR

Data Reset Key
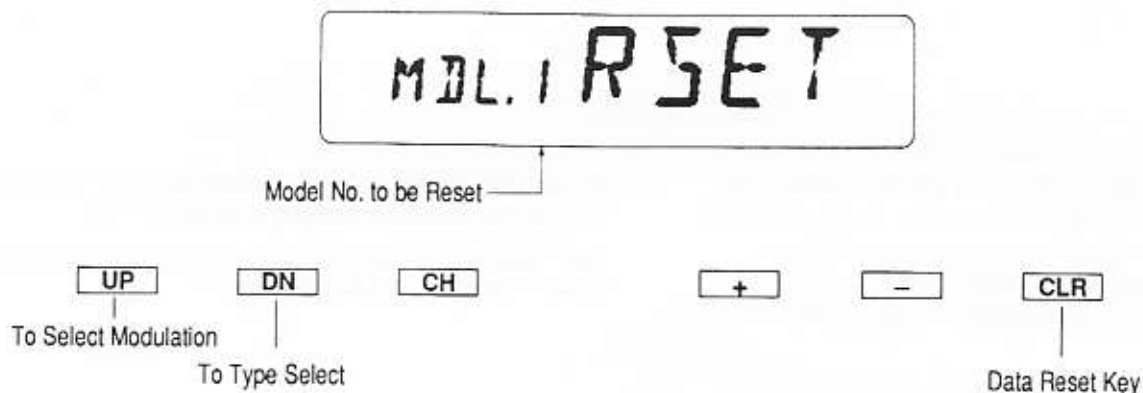
To reset data for any model, follow these procedures:

1. While holding the UP and DN keys depressed, switch the transmitter to the ON position to enter the system setting mode.
2. Press the UP or DN key until RSET appears on the right side of the display. Be sure that the model selected is the model you want to reset by checking the left side of the display.
3. To reset data, press the CLR key.
4. To exit the Data Reset mode, press both the UP and DN keys simultaneously.

8.23 Wing Type (System Setting Mode Only)

This program allows you to set the aircraft up as a V-Tail and/or Dual Flap System.

$$_{MIX} V - TL \qquad INH$$

Wing Type Display ———
[V-TL : V-Tail]
[DUA-F : Dual Flap]

Setting Condition
[INH : Inhibit]
[ACT : Active (Mixing On)]

| UP | DN | CH | | + | – | CLR |

To Modulation Change

To Data Reset   Wing Type Display
Change

Reverse Current
Setting (INH – ACT)

Current Setting Off (INH)

■ V-Tail Mix

Connect the Elevator servo to the left Ruddervator, and the Rudder servo to the right Ruddervator. When the V-Tail is active, the two surfaces will work in unison to operate as Elevators and Rudders. In the V-Tail system, each servo's throw is automatically reduced to 75% of its normal travel. Dual Rates and Exponential features still operate normally. If the direction of travel is incorrect, the individual servos may be reversed in the Reversing Mode. Sub Trim may be used to trim each surface individually.

Example:

1. While holding the UP and DN keys depressed, move the transmitter switch to the ON position to enter the system mode.
2. Press either the UP or DN key until mix V-TL appears in the left portion of the LCD.
3. To activate the V-Tail mix, press either the + or – key and the display will indicate "ACT".
4. The V-Tail is now active. To exit this program, press the UP and DN keys simultaneously.

■ Dual Flap Mix

Connect the left Flap servo to the AUX 1 port of the receiver and connect the right Flap to the AUX 2 port of the receiver. Check the direction of operation of the Flaps; they should match the Ailerons once Aileron to Flap mix is established. Use the Dual Flap Trim (POT.7) to adjust the trim. N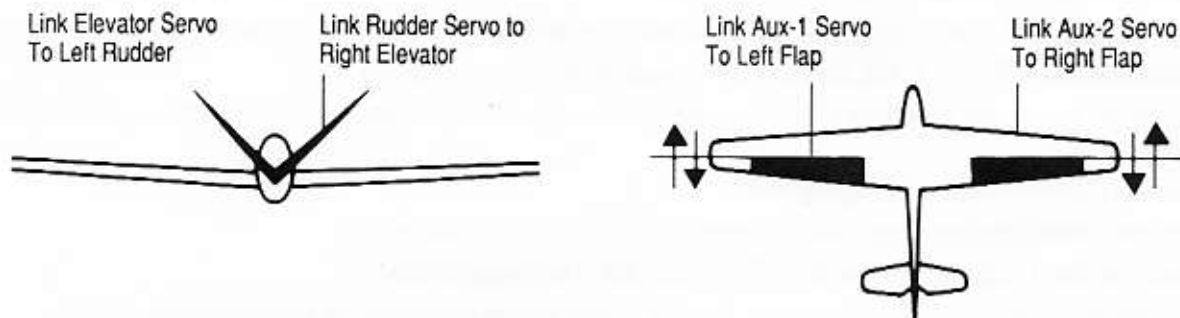ormal End Point Adjustment and servo reversing may be used to adjust travel and direction. If necessary, Sub Trim may be used individually to adjust each Flap.

Note: This system requires you to use four servos in the wing; one for each Aileron and one for each Flap.

Example:

1. While holding the UP and DN keys depressed, move the transmitter switch to the ON position to enter the system mode.
2. Press either the UP or DN key until mix V-TL appears in the left portion of the LCD.
3. Press the CH key and the display will indicate "DUA-F INH."
4. Press either the + or – key to activate the Dual-Flap Function. The display will indicate "DUA-F ACT." The Dual Flap system is now active.
5. To exit the Dual Flap system, press the UP and DN keys simultaneously.

Link Elevator Servo
To Left Rudder

Link Rudder Servo to
Right Elevator

Link Aux-1 Servo
To Left Flap

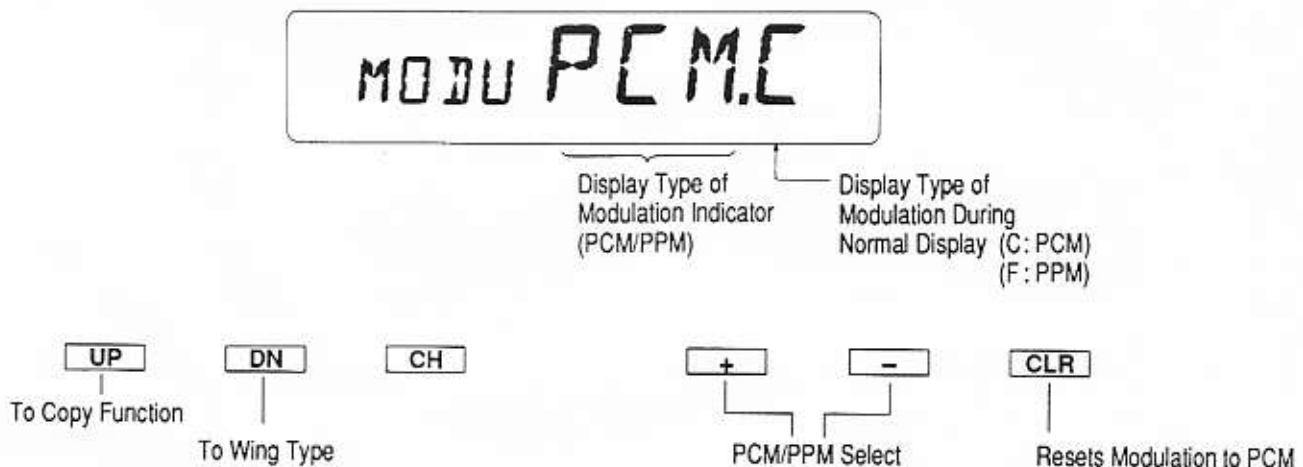Link Aux-2 Servo
To Right Flap

8.24 Modulation Mode Selection (In System Set-Up Mode Only)

The X-347 transmitter offers PCM/PPM selectability. This offers greater flexibility in using the JR equipment you may already own.

To change Modulation Type, follow these procedures:

1. While holding the [UP] and [DN] keys depressed, switch the transmitter to the ON position to enter the system mode.
2. Press the [UP] and [DN] key until MODU is displayed in the left portion of the LCD.
3. Pressing the [+] or [−] key will change the Modulation Type.
4. Pressing the [CLR] key will reset the Modulation Type to factory preset, PCM.
5. To exit the Modulation Selection Mode, press the [UP] and [DN] keys simultaneously.

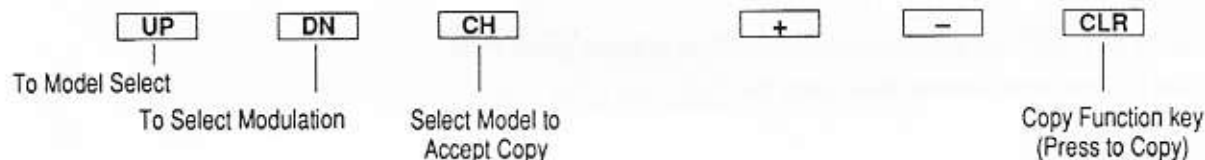Note: In the normal display, the selected Modulation Type will appear in the middle of the LCD. (F=PPM C=PCM)

MODU PCM.C

Display Type of
Modulation Indicator
(PCM/PPM)

Display Type of
Modulation During
Normal Display (C : PCM)
(F : PPM)

[UP]   [DN]   [CH]   [+]   [−]   [CLR]

To Copy Function

To Wing Type

PCM/PPM Select

Resets Modulation to PCM

The function of the Copy program permits you to copy all the settings
of the current model to another model. This is very useful when
setting up one aircraft several different ways.

To activate the Copy function, follow these procedures:

1. While hold the `UP` and `DN` keys depressed, switch the transmitter to the ON position to enter the system mode.

2. Press either the `UP` or `DN` key until CPY. appears in the left side of the LCD.

3. The number that appears to the right of the CPY. is the current model. The four characters at right side of the LCD indicate the accepting model.

4. Press the `CH` to select the accepting model.

5. Once the desired accepting model is selected, press the `CLR` key to complete copy.

6. To exit the Copy function mode, press the `UP` and `DN` keys simultaneously.

Note: Be sure to verify the current and the accepting model. Once the copying process is complete, the information of the accepting model is lost and the current model is input as the new data.

CPY.1 26LI

Current Model No. ⟶   Model Name Indicator
                         (Copy Accepting Model)

| `UP` | `DN` | `CH` | `+` | `–` | `CLR` |

To Model Select

To Select Modulation   Select Model to   Copy Function key
                         Accept Copy   (Press to Copy)

Model No. _____

Model Name _____

Modulation PCM • PPM _____

			Aile	Elev	Rudd
Dual-Rate EXP	0	D/R	%	%	%
		EXP	%	%	%
	1	D/R	%	%	%
		EXP	%	%	%

	SPOI	AIL 1	ELEV	RUDD	AIL 2	FLAP	AUX 2
Reverse SW	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV
Sub Trim (S. TRIM)							
Travel Adjust (T. ADJ)	H %	L %	D %	L %	+ %	U %	+ %
	L %	R %	U %	R %	− %	D %	− %

Elev → Flap Mix (Mix E-F)	Up (U)	%
	Down (D)	%

Flap → Elev Mix (Mix F-E)	Up (U)	%
	Down (D)	%

Flap → Aile Mix (Mix FL-A)	%
Flap Offset	

Differential (MIX DIFF)	%

Aile → Flap Mix (Mix AL-F)	%

Butterfly (Mix SP:)	0	Elev	(E)	%
		AILE	(A)	%
		Flap	(F)	%
	1	Elev	(E)	%
		AILE	(A)	%
		Flap	(F)	%
Spoiler Offset				

Flap-Pot. Travel (FLP.P T. ADJ)	Trim INH Full	%

Program Mix		Channel	+POS	−POS	SW	Offset
	A	→	%	%		
	B	→	%	%		
	C	→	%	%		
	D	→	%	%		

Fail Safe (FAL.S)	HOLD • 1.0 • 0.5 • 0.3		V-Tail (V-TL)	INH • ACT
	Memory		Dual Flap (DUA.F)	INH • ACT

■ Batteries

The charger supplied with the system is designed to recharge the batteries at a low rate. High rate charging is NOT RECOMMENDED.

Maximum charging rate is 50 ma for 500 mah battery packs and 100 ma for 1000 mah packs. Anything over this is considered high rate.

TX charge jack

Positive

Center pin is negative
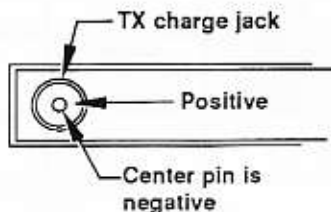
TRANSMITTER ONLY

The center pin on all JR brand chargers and charge jacks carries NEGATIVE voltage—NOT POSITIVE. Please note, this does vary from what may be considered an industry standard, so beware of improper connections based on "color-code" wire leads as they DO NOT APPLY in this instance. Primarily, you must make certain the CENTER PIN of your JR Brand Transmitter is always connected to NEGATIVE voltage for correct polarity hookup.

Black to positive

Red to negative
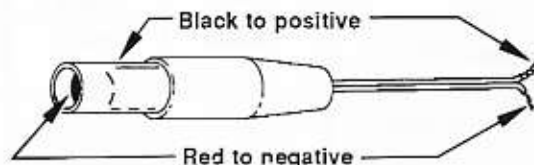
■ Charger

Please note that the pilot lamp(s) are on during the charging operation. If not, be sure that the transmitter and receiver are both switched off.

DO NOT use the charger for equipment other than JR. The charging plug polarity may not be the same.

DO NOT use any other manufacturer's battery charger, quick charger, battery cycler, expanded scale voltmeter, or other after-market accessory that will be plugged into the Transmitter's charge jack. We realize that there are some very useful and well-designed after-market accessories available to modelers, but any damage that is the result of their use will not be covered by warranty. Use caution

any time one of the after-market items is to be used with your JR radio, and if you are unsure of its compatability with your radio, seek expert advice before any damage is done. Certain types of damage caused by reversed wiring and voltage can be very expensive to repair, when a call to JR Service Americas or a JR Service Center could be an inexpensive investment.

During the charging operation, the charger's temperature will be slightly elevated. This is normal. Also, note that the voltage shown on the charger is higher than the battery in use. This voltage cannot be measured with a voltmeter. Only current can be measured with any accuracy using this type of charger.

■ Servos

DO NOT lubricate the servo gears or motors.

DO NOT overload retract servos during retracted or extended conditions. Make sure they are allowed to travel their full rotation.

DO make sure that all servos move freely through their rotations, and no linkages hang-up or bind. A binding control linkage can cause a servo to draw excessive current. A stalled servo can drain a battery pack in a matter of minutes.

DO correct any control surface "buzz" or "flutter" as soon as it's noticed in flight, as this condition can destroy the feedback pot in the servo, and is extremely dangerous to ignore.

Note: Coreless servos do make a slight buzzing noise even at the center position. This is normal and is caused by the motor constantly locking on its center position.

Included with every JR Radio System is a Sales & Warranty Registration Card. Complete the registration card portion and return to JR Service Americas within fifteen (15) days of purchase. Upon receipt, we will update your Customer file to reflect this important information, which entitles you to Warranty Service. Please be certain to retain the Owner's Warranty portion, as this is your record of Warranty as submitted to JR Service Americas. Also, be certain to keep your original bill of sale in a safe place along with your owner's warranty portion, as you will be requested to provide proof of purchase for the equipment serviced under warranty.

JR Propo Limited Warranty

Your new JR REMOTE CONTROL RADIO SYSTEM is warranted to the original purchaser for 365 days from the date of purchase against defects in material and workmanship. During this period, JR SERVICE AMERICAS will repair or replace, at our discretion, any component that is found to be factory defective, at no cost to the purchaser.

This warranty does not apply to any unit which has been improperly installed, handled, abused, damaged in a crash, nor to any unit which has been repaired or altered by unauthorized agencies. Under no circumstances will the buyer be entitled to consequential or incidental damages. This limited warranty gives you specific legal rights; you also have other rights which may vary from state to state. Batteries and plastic housings are not covered by this limited warranty.

As with all fine electronic equipment, do not subject your radio system to extreme temperatures, humidity, or moisture. Do not leave in direct sunlight for long periods of time.

Warranty Procedure

The Warranty Card should be filled out and mailed to JR Service Americas within 15 days of the original purchase date. Keep the owner's portion, together with the Bill of Sale, for warranty service.

In the event that your JR radio needs Warranty service or if routine maintenance is required, send your equipment for factory servicing together with your Bill of Sale (legible photocopy acceptable). IMPORTANT . . . Bill of Sale must accompany equipment if purchased as a complete system for Warranty Service. Components and accessories purchased separately must also be accompanied by acceptable proof of purchase. (Routine service and repairs do not require a proof of purchase.) Please follow the instructions listed below for your protection.

1. Ship your equipment in its original carton or equivalent, fully insured and prepaid. JR Service Americas is not responsible for any damages incurred during shipping.

2. Please include a complete description of the equipment returned (model number, frequency, serial number, etc.) Describe the problem and the action you wish taken.

3. Include a check or money order for $2.50 to prepay return postage. (All parcels shipped outside the continental United States must be prepaid.)

4. Include your name, mailing address, and a phone number where you may be reached during the business day.

This warranty is limited to the original purchaser of the unit and is not transferable.

Normal Repair Service

In the event you require service for your JR system or components not covered under Warranty, follow the instructions below to ensure prompt and professional handling of your request.

1. Be certain to charge the batteries for both transmitter and receiver. Check all "ON/OFF" switches to be sure they are in the "OFF" position. This will speed the repair process of checking battery condition.

2. Return your system components only (Transmitter, Receiver, Servos, etc.), excluding your aircraft servo trays, padding, etc.

3. Forward your complete radio system to JR Service Americas, unless you have determined the problem is limited to a single component (i.e., individual servo, receiver, etc.). Preferably, use the original system carton/packaging (molded foam container), or equivalent, to ship your system. DO NOT use the system carton itself as a shipping carton – you should package the system carton within a sturdy shipping container using additional packing material to safeguard against damage during transit! Include complete name and address information INSIDE the carton as well as clearly noting on the outer label/return address area.

4. Include detailed information explaining your operation of the system and problem(s) encountered. Provide an itemized list of equipment enclosed, and identify any particular area/function which may better assist our technicians in addressing your concerns. Date your correspondence, and be sure your complete name and address appear on this enclosure.

5. JR Service Americas will confirm the receipt of your equipment by mail, and send you the estimated time of service completion, unless turn-around time will be one week or less. Should your repair cost exceed 50% of the retail purchase cost, you will be provided with a written estimate advising you of your options.

6. Upon completion of service, we will return your equipment when we receive payment or return C.O.D. (cash).

Address your package to:

JR SERVICE AMERICAS
4105 Fieldstone Road
Champaign, IL 61821

11. General Notes

Radio controlled models are a great source of pleasure, but unfortunately, they are also a potential hazard when not maintained and operated properly. It is therefore imperative that you install your radio control system correctly, and that your level of competency as a pilot insures that you can control your aircraft under all conditions. If you are a newcomer to radio control flying, please get help from an experienced pilot or your local hobby shop.

Listed below are some safety suggestions that must be followed by all:

• DO insure that your batteries have been properly charged prior to initial flight. Keep track of the time that the system is turned ON so that you will have an idea of how long you can safely operate your system.

• DO perform a range test prior to the initial flight of the day.

• DO check all control surfaces prior to each takeoff.DO obtain help from an experienced pilot if you are a beginner.

• DO use frequency flags.

• DO NOT fly your model near high tension wires or tall buildings.

• DO NOT fly your model over spectators, parking areas, or any other place that could injure a person or damage property.

• DO NOT fly during adverse weather conditions. Poor visibility may cause disorientation and loss of control of your aircraft. Strong winds may cause similar problems.

• DO NOT fly unless your frequency is clear. WARNING: Only one transmitter at a time can operate on the same frequency. If you should turn on your transmitter while someone else is flying or operating a model on your frequency, both pilots will lose control of their models. REMEMBER: Only one person can use a given frequency at a time – it does not matter if it is AM, FM, or PCM – only one frequency at a time.

• DO NOT point the transmitter antenna directly toward the model. The radiation pattern from the tip of the antenna is inherently low and for this reason should never be pointed directly at the model.

• DO NOT take chances – if at any time during flight you should observe any erratic or abnormal operation, land immediately and do not resume flight until the cause of the problem has been ascertained and corrected.

REMEMBER: SAFETY CAN NEVER BE TAKEN LIGHTLY!

12. Federal Aviation Administration

1. Purpose: This advisory outlines safety standards for operators of model aircraft, and encourages voluntary compliance with these standards.

2. Background: Attention has been drawn to the increase in model aircraft operation, 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/or property on the surface.

3. Operating Standards: Modelers generally are concerned about safety and do exercise good judgement when flying model aircraft. However, in the interest of avoiding users, COMPLIANCE WITH FOLLOWING STANDARDS IS ENCOURAGED BY OPERATORS OF RADIO CONTROLLED AND FREE-FLIGHT MODELS ALIKE:

   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 a 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 traffic control center nearest the site of the proposed operation.

Director, Air Traffic Service

Federal Aviation Administration

Washington, D.C.

Frequency Chart

72 MHZ requires no special license to operate.

Low Band 72 MHZ			
Channel No.	Frequency	Channel No.	Frequency
*11	72.010	38	72.550
12	72.030	*39	72.570
*13	72.050	40	72.590
14	72.070	*41	72.610
*15	72.090	42	72.630
16	72.110	*43	72.650
*17	72.130	44	72.670
18	72.150	*45	72.690
*19	72.170	46	72.710
20	72.190	*47	72.730
*21	72.210	48	72.750
22	72.230	*49	72.770
*23	72.250	50	72.790
24	72.270	*51	72.810
*25	72.290	52	72.830
26	72.310	*53	72.850
*27	72.330	54	72.870
28	72.350	*55	72.890
*29	72.370	56	72.910
30	72.390	*57	72.930
*31	72.410	*58	72.950
32	72.430	*59	72.970
*33	72.450	*60	72.990
34	72.470		
*35	72.490		
*36	72.510		
*37	72.530		

50/53 MHZ Requires the Operator to Have a FCC Amateur Radio License. (HAM)

Channel No.	Frequency	Frequency	Flag Color
00	50.800	53.100	Black/Brown
*01	50.820	53.200	Black/Red
02	50.840	53.300	Black/Orange
*03	50.860	53.400	Black/Yellow
04	50.880	53.500	Black/Green
*05	50.900	53.600	Black/Blue
06	50.920	53.700	Black/Purple
*07	50.940	53.800	Black/Gray
08	50.960		
*09	50.980		

*Channels to become available January 1991
(AMA Frequency Phase-In Plan)

The contents of this manual are subject to change without notice.