JR
feel the difference!

INSTRUCTION MANUAL
FOR AIRPLANE AND
HELICOPTER

XF622

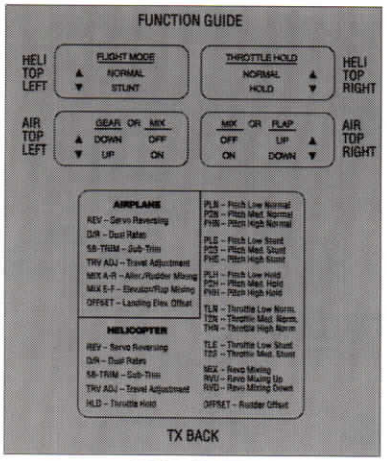
6-CHANNEL COMPUTER RADIO

XF622 SWITCH FUNCTION DECAL SHEET

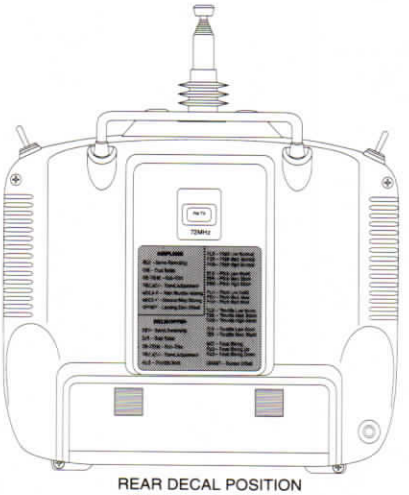
Included with the XF622 radio system is a switch/function decal sheet. These decals have been provided as a guide to specific switch positions, functions, and abbreviations used when operating the XF622.

The 4 small decals help identify switch positions and use for helicopter and aircraft modes.

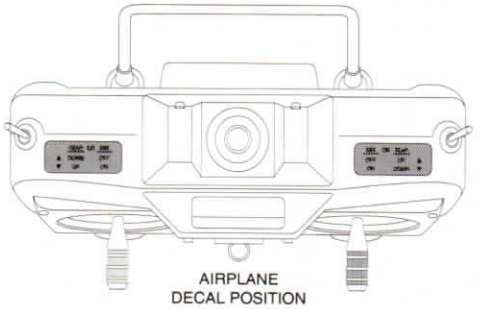
The large decal at the bottom of the sheet gives abbreviations and definitions for all of the aircraft and helicopter functions. The functions decal will prove a helpful guide for making program changes to your XF622 both in the shop, and at the flying field.



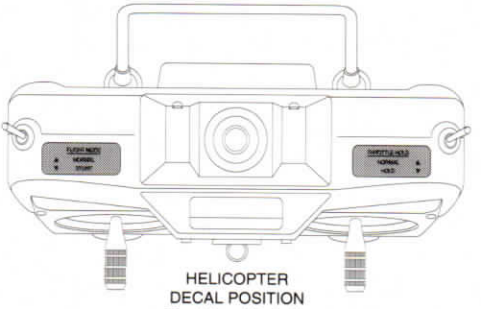
DECAL SHEET



REAR DECAL POSITION
Airplane and Helicopter



AIRPLANE
DECAL POSITION
Top View (Mode II)

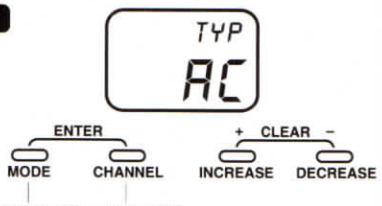


HELICOPTER
DECAL POSITION
Top View (Mode II)

In this manual you will find in-depth instructions that detail all the steps and procedures you should follow in order to program each of the XF622's features. For modelers who want to get into the air fast, we have provided Quick Start. Quick Start covers the basic programming information necessary to get you airborne. Later, when you want to learn more about specific features of the XF622, turn to the appropriate page(s) in the manual for more detailed programming information.

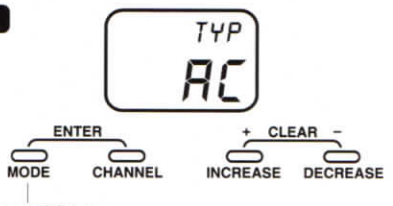
Model Type Selection

1



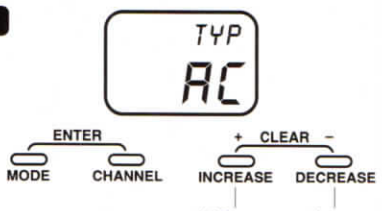
Press the MODE and CHANNEL buttons simultaneously and hold while turning on the transmitter.

2



Press the MODE button until TYP appears on the screen.

3



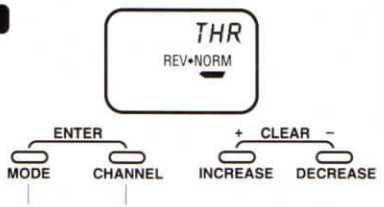
If AC appears on the screen procede directly to Step 4. If HE appears press the INCREASE or DECREASE button until AC appears.

4

Turn the transmitter off and then on again.

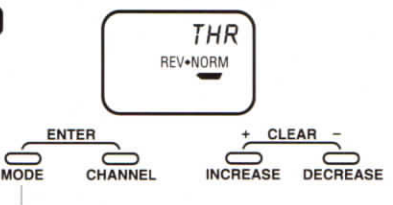
Servo Reversing

5



Press the MODE and CHANNEL buttons simultaneously until a beep is heard.

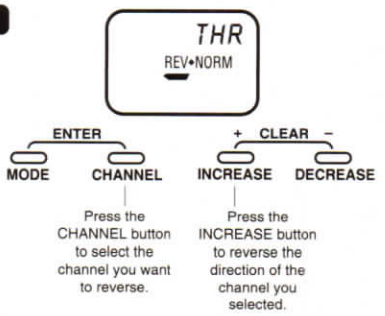
6



Press the MODE button until REV•NORM appears on the screen.

Servo Reversing continued

7

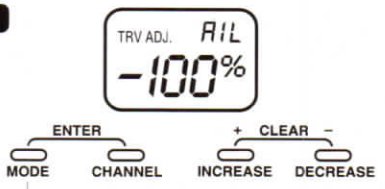


Press the CHANNEL button to select the channel you want to reverse.

Press the INCREASE button to reverse the direction of the channel you selected.

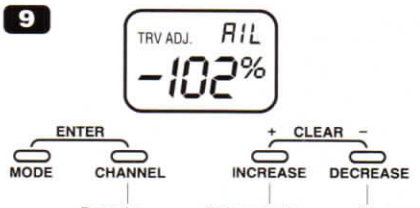
Travel Adjustment

8



Press the MODE button until TRV ADJ. appears on the screen.

9

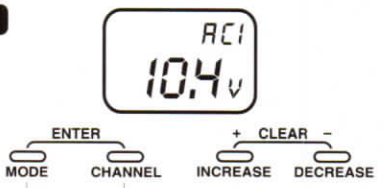


Press the CHANNEL button to select the channel you want the travel adjusted on.

To increase the travel, move the stick (i.e. aileron) to the right then press the INCREASE button to adjust the right travel. Release the INCREASE button and move the same stick to the left. Press the INCREASE button to adjust the left travel.

To decrease the travel, move the stick (i.e. aileron) to the right then press the DECREASE button to adjust the right travel. Release the DECREASE button and move the same stick to the left. Press the DECREASE button to adjust the left travel.

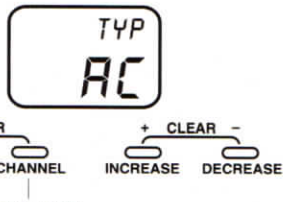
10



Press the MODE and CHANNEL buttons simultaneously to return to the model type display. Before flying check the direction of all control surfaces and that the travel is adjusted properly.

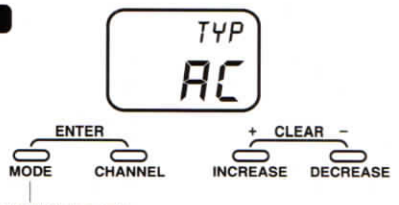
Model Type Selection

1



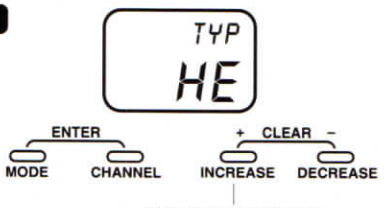
Press the MODE and CHANNEL buttons simultaneously and hold while turning on the transmitter.

2



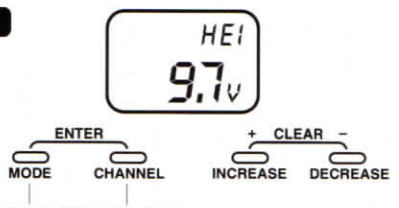
Press the MODE button until TYP appears on the screen.

3



If HE appears on the screen procede directly to Step 4. If AC appears press the INCREASE button until HE appears.

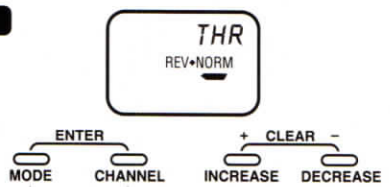
4



Press the MODE and CHANNEL buttons simultaneously until a beep is heard.

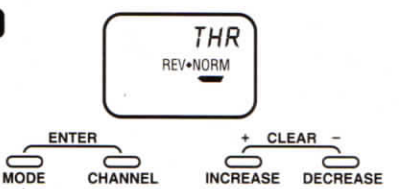
Servo Reversing

5



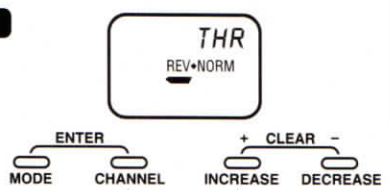
Press the MODE and CHANNEL buttons simultaneously until a beep is heard.

6



Press the MODE button until REV•NORM appears on the screen.

7



Press the CHANNEL button to select the channel you want to reverse.

Press the INCREASE button to reverse the direction of the channel you selected.

Travel Adjustment

8

ENTER MODE CHANNEL + CLEAR − INCREASE DECREASE

Press the MODE button until TRV ADJ. appears on the screen.

9

ENTER MODE CHANNEL + CLEAR − INCREASE DECREASE

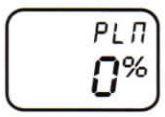
Press the CHANNEL button to select the channel you want the travel adjusted on.

To increase the travel, move the stick (i.e. aileron) to the right then press the INCREASE button to adjust the right travel. Release the INCREASE button and move the same stick to the left. Press the INCREASE button to adjust the left travel.

To decrease the travel, move the stick (i.e. aileron) to the right then press the DECREASE button to adjust the right travel. Release the DECREASE button and move the same stick to the left. Press the DECREASE button to adjust the left travel.

Pitch Curve

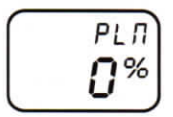
10



ENTER MODE CHANNEL + CLEAR − INCREASE DECREASE

Press the MODE button until PLN appears on the screen.

11



ENTER MODE CHANNEL + CLEAR − INCREASE DECREASE

Press the CHANNEL button to select stick position (point location).

STICK POSITION (POINT LOCATION)
L = Low
2 = Center
H = High

Press the INCREASE or DECREASE button to adjust the point value at the selected stick position.

PRE-SET VALUES
L = 0%
2 = 50%
H = 100%

Revolution Mixing

12

ENTER MODE CHANNEL

Press the MODE button until Mix RVU appears on the screen.

Revolution mixing value can be set for up or down. Press the CHANNEL button until U or D appears on the screen.

To change the direction of the mixing value press the INCREASE and DECREASE buttons simultaneously.

+ CLEAR − INCREASE DECREASE

Press the INCREASE button to set the desired value of the up and down positions. A good place to start is 35% up and 35% down.

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CHAPTER 1: USING THIS MANUAL • Introduction

1 USING THIS MANUAL

The XF622 is a full feature introductory computer radio that can be used for airplanes and/or helicopters. This manual is divided into two main sections — the first for airplanes and the second for helicopters. You need only refer to the section that pertains to the type of model you are programming — e.g., if you are programming your XF622 for helicopters, follow the instructions in the helicopter section.

Blank data sheets are included at the end of both sections. Once you have input all the necessary data into your transmitter for a particular model, we strongly recommend that you immediately write that information down on a copy of the data sheet provided. This is to insure that, in the rare case of a memory failure, you will not lose your data.

CHAPTER 2: FEATURES • Introduction

2.1 TRANSMITTER FEATURES

Airplane and Helicopter Mode

- Easy-to-read LCD screen
- Two model memory
- Dual rates on aileron and elevator
- Dual rates can be combined on one switch
- Trainer system compatible with most other JR radios
- Flush mounted programming buttons
- Computer designed ergonomically styled case
- Adjustable stick length and tension
- Throttle trim only affects idle position
- Two speed scrolling—Press and hold the appropriate button to scroll quickly or press and release to scroll in steps.

Airplane Mode

- Aileron to rudder mixing
- Elevator to flap mixing
- Flap to elevator mixing
- Flaperons mixing
- Aileron differential
- V-tail mixing
- Aileron, elevator soft-center VTR (Variable Trace Ratio)

Helicopter Mode

- Two 3-point throttle curves
- Two 3-point pitch curves (three when throttle hold is activated)
- Flight mode switch can combine throttle curve, pitch curve, dual rates, and gyro sensitivity
- Throttle hold with rudder offset
- Revolution mixing up and down

2.2 RECEIVER FEATURES

226 Receiver

- The 226's extremely compact size allows it to fit easily in limited-space airplanes and helicopters. It's ultra-low weight keeps overall model weight down.
- An independent laboratory ranked the 226 receiver as one of the best receivers ever tested in terms of 3IM, 2IM, adjacent channel rejection, signal-to-noise ratio, and on-channel capture point.
- A special "unwanted interference limiter ignores signals outside of the 226's band width when the receiver is on and the transmitter is off. The limiter also prevents servos from random glitching when other transmitters are operating in close proximity.
- The electrical circuitry in the 226 is state-of-the-art surface mount technology (SMT). These SMT components draw less current, thus increasing flying time. Flush mounting of these components also reduces the risk of vibration wear and damage.
- The 226 is compatible with all JR FM-transmitting radios.

2.3 SERVO FEATURES

507 Servo

- A zero deadband amplifier insures accurate neutral centering.
- The 507 has low current drain.
- An indirect drive feedback potentiometer gives additional protection from vibration.
- Redesigned features include SMT circuitry.
- The 507 features a 3-pole ferrite cored motor.

CHAPTER 3: SPECIFICATIONS • Introduction

3.1 SYSTEM SPECIFICATIONS

TYPE	AIRPLANE	HELICOPTER
SYSTEM NAME	XF622A	XF622H
TRANSMITTER BODY	NET-E126	NET-E126
RECEIVER	NER-226	NER-226
CHARGER	NEC-221	NEC-222
AIRBORNE BATTERY	4N-600	4N-1000
SERVOS	NES-507x4	NES-507x5
ACCESSORIES	Mini Switch 12" Aileron Extension Servo Accessories Instruction Manual	Mini Switch 12" Aileron Extension Servo Accessories Instruction Manual

3.2 TRANSMITTER SPECIFICATIONS

TYPE	AIRPLANE	HELICOPTER
MODEL NUMBER	NET-E126	NET-E126
ENCODER	6 Channel Computer System	6 Channel Computer System
RF	50/53/72 MHz	50/53/72 MHz
MODULATION	PPM (FM)	PPM (FM)
OUTPUT POWER	Approximately 1 Watt	Approximately 1 Watt
CURRENT DRAIN	200 mA	200 mA
POWER SOURCE	1.2Vx8 Nicad (9.6V) 600mah	1.2Vx8 Nicad (9.6V) 600mah
OUTPUT PULSE	1000-2000 (1500 Neutral)	1000-2000 (1500 Neutral)

3.3 SERVO SPECIFICATIONS

TYPE	507
TORQUE (oz./in.)	40.3
SPEED (sec./60°)	.25
WEIGHT (oz.)	1.47
SIZE (in.) (W x L x H)	0.73 x 1.52 x 1.32
BB	Not Included (Upgrade with JRPA250)
MOTOR	3-Pole Ferite

3.4 RECEIVER SPECIFICATIONS

TYPE	FM
MODEL NUMBER	NER-226
TYPE	6-Channel/FM-ABC&W/Credit Card
FREQUENCY	50/53/72 MHz
SENSITIVITY (Microseconds)	5μs Minimum
SELECTIVITY	8KHz/50dB
WEIGHT (oz.)	1 oz.
SIZE (in.) (W x L x H)	1.43 x 2.06 x .55
RECEIVER ANTENNA	39" For All Aircraft Frequencies

3.5 CHARGER SPECIFICATIONS

TYPE	AIRPLANE	HELICOPTER
MODEL NUMBER	NEC-221	NEC-222
INPUT VOLTAGE	AC 100-120V	AC 100-120V
OUTPUT CURRENT	50mAh Tx / 50mAh Rx	50mAh Tx / 120mAh Rx
CHARGING TIME	15 Hours	15 Hours

3.6 AIRBORNE BATTERY PACK

TYPE	AIRPLANE	HELICOPTER
MODEL NUMBER	4N-600	4N-1000
VOLTAGE	4.8V	4.8V
SIZE (in.) (W x L x H)	2.24 x 0.59 x 2.05	2.60 x 0.63 x 1.70
WEIGHT (oz.)	3.3	4.9

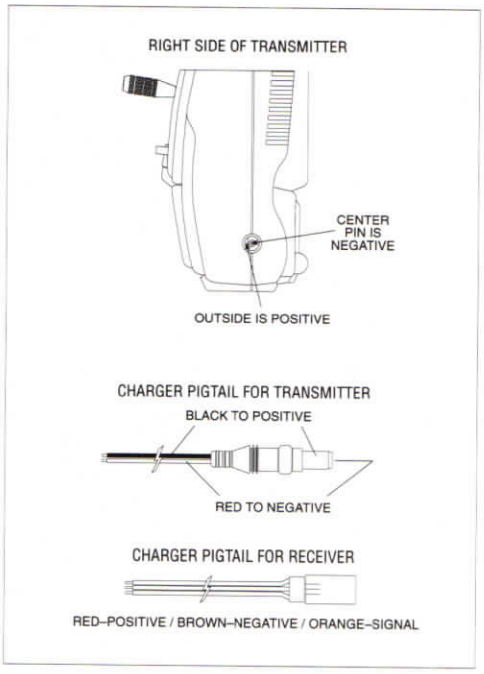
4.1 TRANSMITTER/RECEIVER

It is imperative that you fully charge both the transmitter and the receiver battery packs prior to each day of flying. For the initial charge, leave the charger and batteries hooked up for 20-24 hours in order to fully charge both battery packs to peak capacity. For subsequent charges, leave the charger and batteries hooked up overnight (approximately 16 hours).

The charger supplied with this system is designed to recharge your transmitter battery at a rate of 50mAh. The receiver battery pack will charge at 50mAh for the 600mAh airplane battery pack and at 120mAh for the 1000mAh helicopter battery pack.

Transmitter Only

The center pin on all JR remote control systems is **negative**. Therefore, the center pin on all JR chargers is negative, not positive. This is different from any other manufacturers' chargers and radio systems. Beware of improper connections based on "color code" wire leads as they DO NOT APPLY in this instance. You must make certain that the center pin of your JR transmitter is always connected to the negative voltage for correct polarity hookup.



4.2 CHARGER

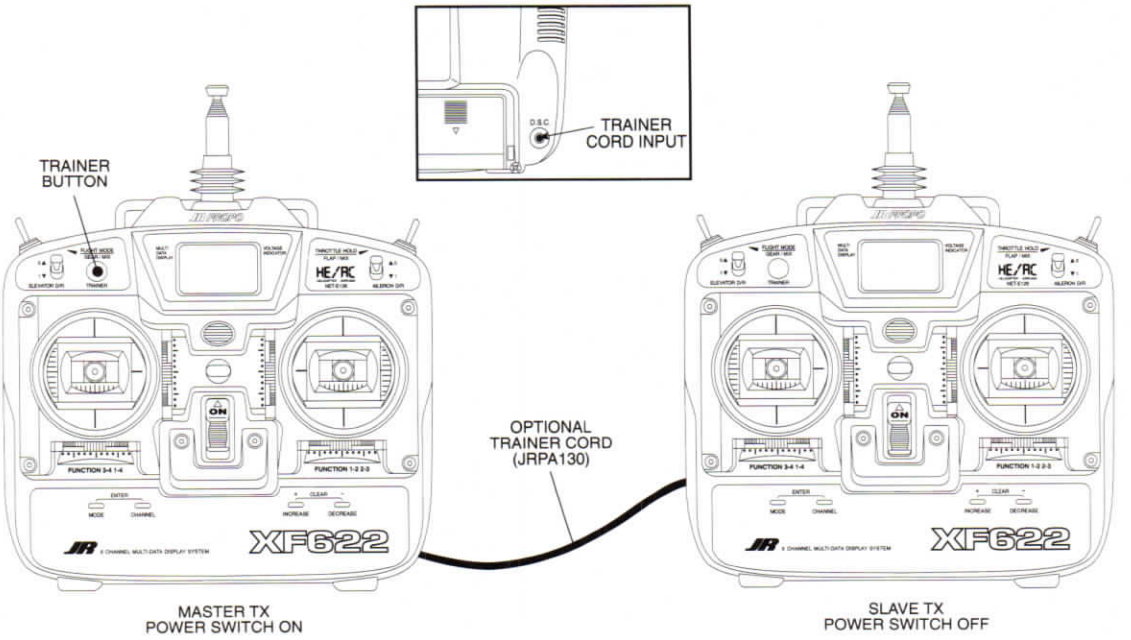
The pilot lamps should always be on during the charging operation. If they are not, check to make sure you have turned off both the transmitter and receiver.

Do not use the charger for equipment other than JR. The charging plug polarity may not be the same and equipment damage may result.

Do not use other manufacturers' after-market accessories that plug into the transmitter's charging jack. If you do, any damage that results will not be covered by warranty. If you are unsure of compatibilities with your radio, seek expert advice before doing anything, to avoid possible damage. During the charging operation, the charger's temperature is slightly elevated. This is normal.

5 TRAINER SYSTEM

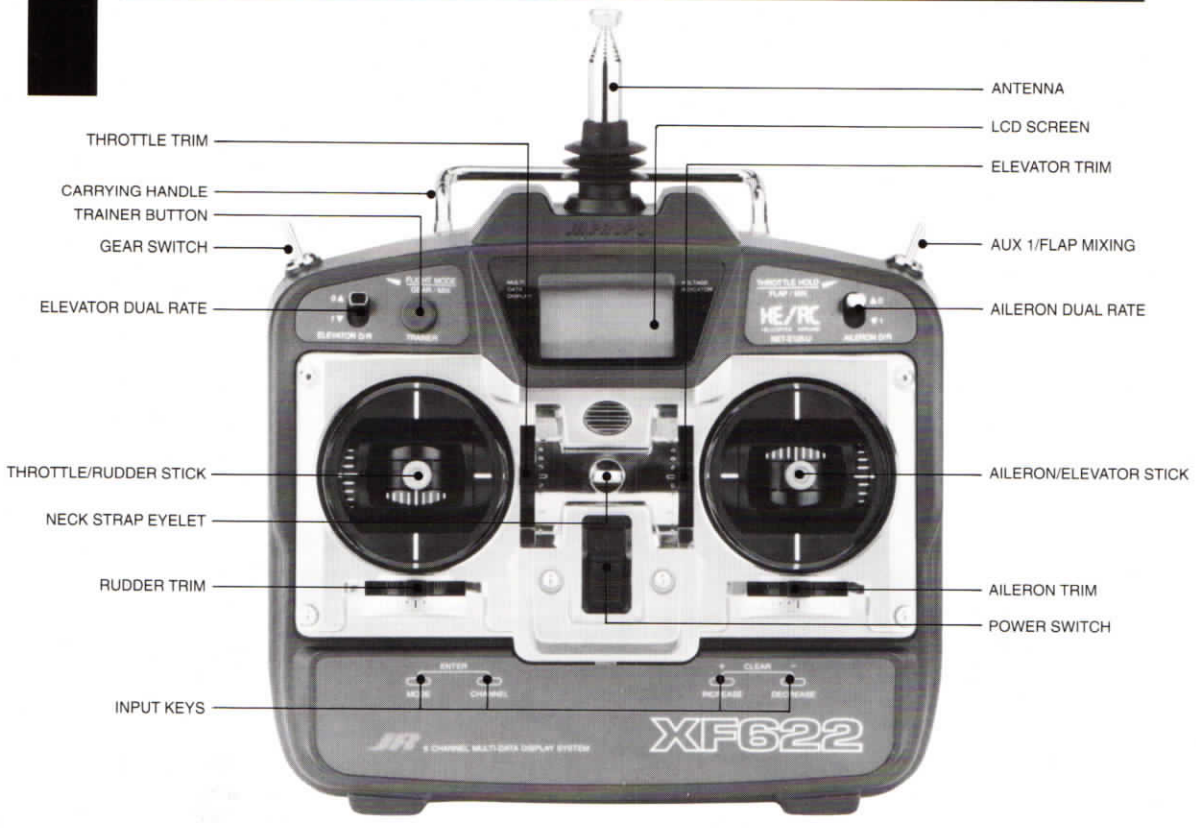
The XF622 features a built-in trainer system. The transmitter can be used as either a master (trainer) or as a slave (trainee). The XF622 is compatible with all other current JR radios that have built-in trainer systems. An optional trainer cord is needed (JRPA130).



Operating the Trainer System

1. Match the servo reversing and trims of both radios.
2. Plug the optional trainer cord into both transmitters.
3. Turn on the master transmitter. (**Note:** The slave radio must be left off.)
4. Test all the control functions on your aircraft with the master radio.
5. Push the trainer button on the master transmitter and check all the control functions with the slave radio.

1.1 CONTROL IDENTIFICATION AND LOCATION • Mode II



1.2 RECEIVER CHANNEL ASSIGNMENT/TRANSMITTER THROTTLE ALT

1.	THRO	Throttle Channel
2.	AILE	Aileron Channel
3.	ELEV	Elevator Channel
4.	RUDD	Rudder Channel
5.	GEAR	Gear Channel
6.	AUX I	Auxiliary I Channel (Flap)

Transmitter Throttle ALT

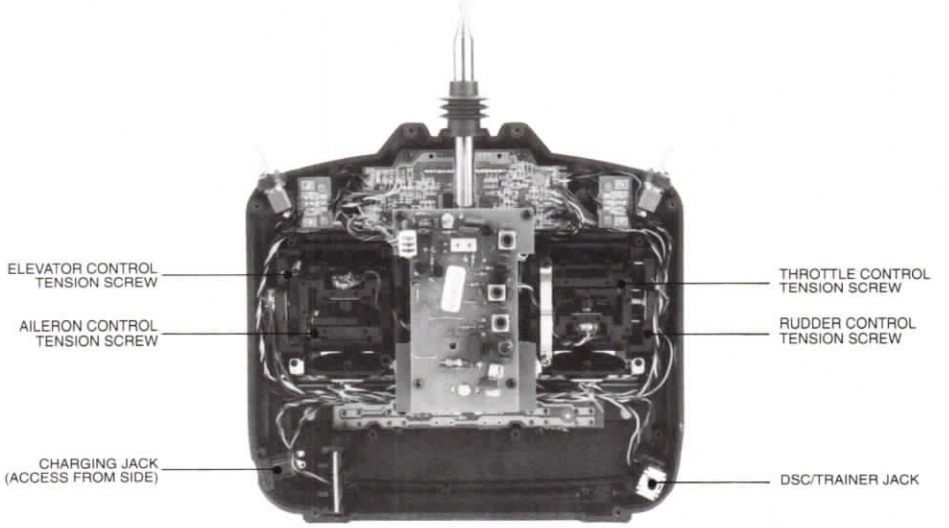
The throttle ALT function makes the throttle stick trim active only when the throttle stick is less than half throttle. This gives easy, accurate idle adjustments without affecting the high throttle position.

1.3 TRANSMITTER REAR

Note: Your transmitter has a 5-year lithium battery to protect your pre-programmed data against main transmitter battery failure. If you receive a backup error message or your data resets to the factory defaults, return your transmitter to Horizon Service Center (see page 62) for replacement.

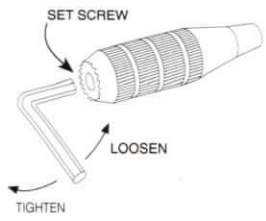
1.4 CONTROL STICK TENSION ADJUSTMENT

Take off the back cover by removing the crystal, the battery and the six screws as shown in the photo below. Adjust the designated tension screws by turning clockwise to increase the tension and counterclockwise to reduce. After adjusting the stick tension reverse this procedure to re-assemble your transmitter.



1.5 CONTROL STICK LENGTH ADJUSTMENT

To adjust the control stick length, use a 2mm Allen wrench to unlock the set screw located inside the end of the control stick. Turn the set screw counterclockwise to loosen it, then turn the knurled portion of the stick to adjust the length. Counterclockwise will lengthen the stick and clockwise will shorten it. After the control stick(s) has been adjusted to suit your flying style, tighten the set screw back.



1.6 DIRECT SERVO CONTROL (DSC)

For proper DSC hook-up and operation:

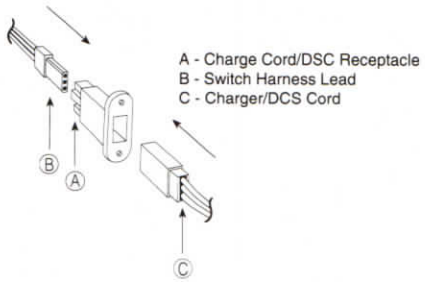
1. Leave the transmitter power switch off. The transmitter will not transmit any radio frequency (RF) in this position.
2. Plug the optional DSC cord (JRPA132) into the DSC port in the rear of the transmitter.
3. The encoder section of the transmitter will now be operational and the LCD display will be lit.
4. Plug the other end of the DSC cord into the receiver charge receptacle. Turn on the switch harness.

Note: When installing the optional charging jack (JRPA024) be sure to hook the charging jack receptacle securely into the switch harness charge cord.

Why you should use the DSC function:

1. The DSC enables you to check the control surfaces of your airplane without drawing the fully operational 200mAh from your transmitter battery pack. Instead, you will only draw 70mAh when using the DSC function.
2. The DSC function allows you to make final adjustments to your airplane or helicopter without transmitting any radio signals. Therefore, if another pilot is flying on your frequency, you can still adjust your aircraft and not interfere with the other aircraft.

Note: Under no circumstances should you attempt to fly your aircraft with the DSC cord plugged in! This feature is for bench checking your aircraft only.



1.7 NECK STRAP ATTACHMENT

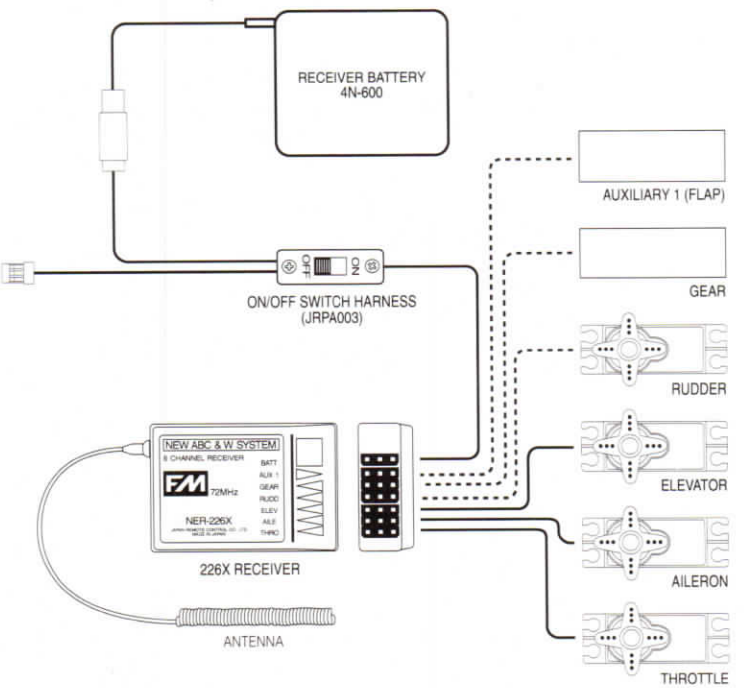
There is an eye hook on the front of the transmitter for attaching an optional neck strap (JRPA023). The eye hook is precisely positioned (see Section 1.1) so that the transmitter will be perfectly balanced when a neck strap is used.

2.1 INSTALLATION REQUIREMENTS

It is important to correctly install the radio system in your model. Please read and carefully follow the suggestions listed below.

1. For added protection, wrap the Rx and the Rx Nicad in foam rubber that is at least 1/4" thick.
2. Run the Rx antenna through the fuselage and make sure it is fully extended. Never cut or bundle your Rx antenna — this will decrease range and performance.
3. Rubber servo grommets are included with your radio system and should be installed in the servo flanges. The servos should then be mounted on either hardwood rails or a plywood tray with the mounting screws provided. **Do not overtighten the mounting screws**. The flange of the brass eyelets should face down (toward the wood).
4. All servos must be able to move freely over the full range of their travel. Make sure the linkages do not impede servo travel. A stalled servo will drain the battery pack within a few minutes.
5. Before installing servo output arms, make sure the servo is in its neutral position.
6. In the case of gas-powered model aircraft, mount the receiver power switch on the side of the fuselage opposite the muffler to protect the switch from exhaust residue. With other types of models, mount the switch in the most convenient place. Make sure that the switch operates freely and is capable of traveling its full distance.
7. With your model sitting on the ground and the transmitter antenna collapsed, check that your system works at a distance of 60 to 75 feet.

2.2 CONNECTIONS

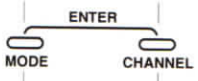


CHAPTER 3: KEY INPUT AND DISPLAY · Airplane

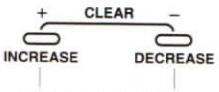
3 KEY INPUT AND DISPLAY

BUTTON	USE
MODE	Used to move up through the available functions
CHANNEL	Used to select the desired channel
INCREASE	Used to increase the value of the selected function
DECREASE	Used to decrease the value of the selected function

To enter the system mode press the MODE and CHANNEL buttons simultaneously and hold while turning on the transmitter.



To enter the function mode press the MODE and CHANNEL buttons simultaneously while the transmitter is on.



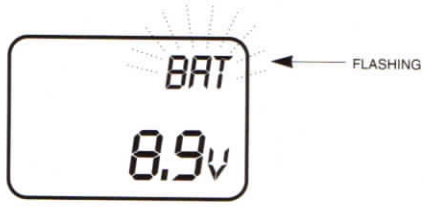
Press the INCREASE and DECREASE buttons simultaneously to clear the screen or return to factory preset.

CHAPTER 4: BATTERY ALARM AND DISPLAY · Airplane

4 BATTERY ALARM AND DISPLAY

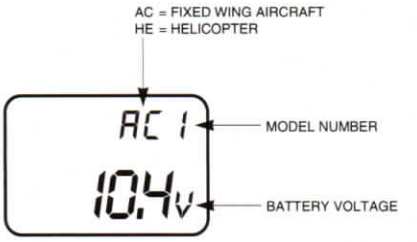
When the transmitter battery drops below 9.0 volts, the display will start to flash BAT and an audible alarm will sound for 8 beeps. These warnings mean you should land your aircraft immediately.

Note: During the period that the battery alarm is flashing, the input buttons will not function. If you are currently in the function mode, the transmitter will exit automatically and return to the normal display (see Section 5.1).



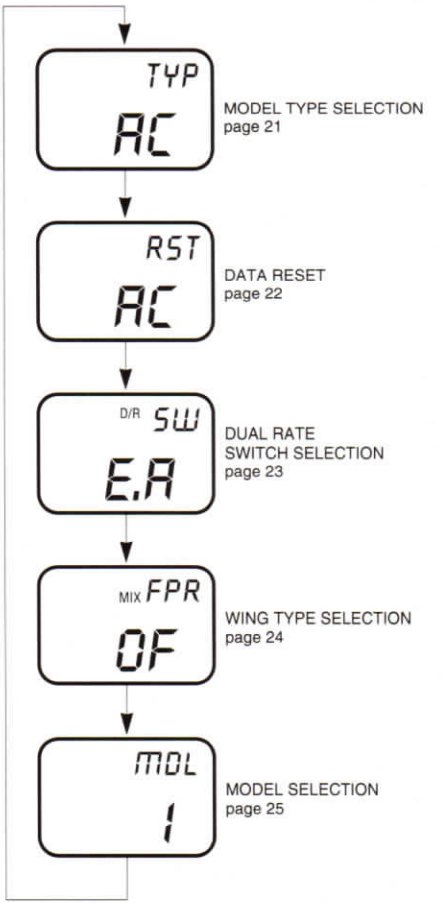
5.1 NORMAL DISPLAY

When the power switch is turned on the screen will read as shown here in the diagram. This screen is referred to as the normal display.



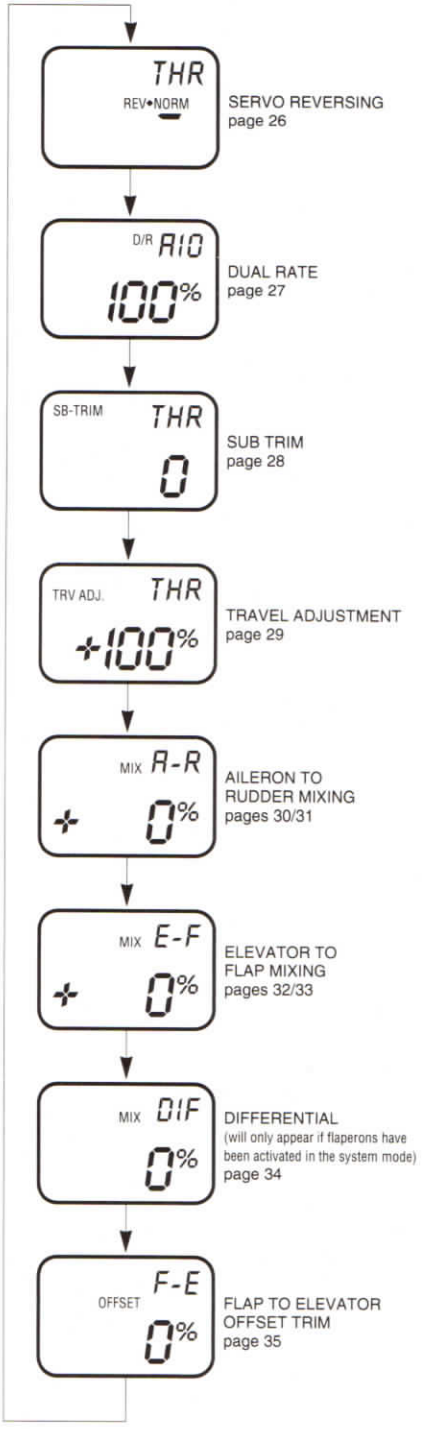
5.2 SYSTEM MODE

To enter the system mode press the MODE and CHANNEL buttons simultaneously while you turn on the transmitter. You can now select any of 5 system mode functions shown here in the flow chart. To exit the system mode, press the MODE and CHANNEL buttons simultaneously or turn off the transmitter. Press the mode button to move through the system mode functions. Information for each function is located on the page number listed next to the function name.



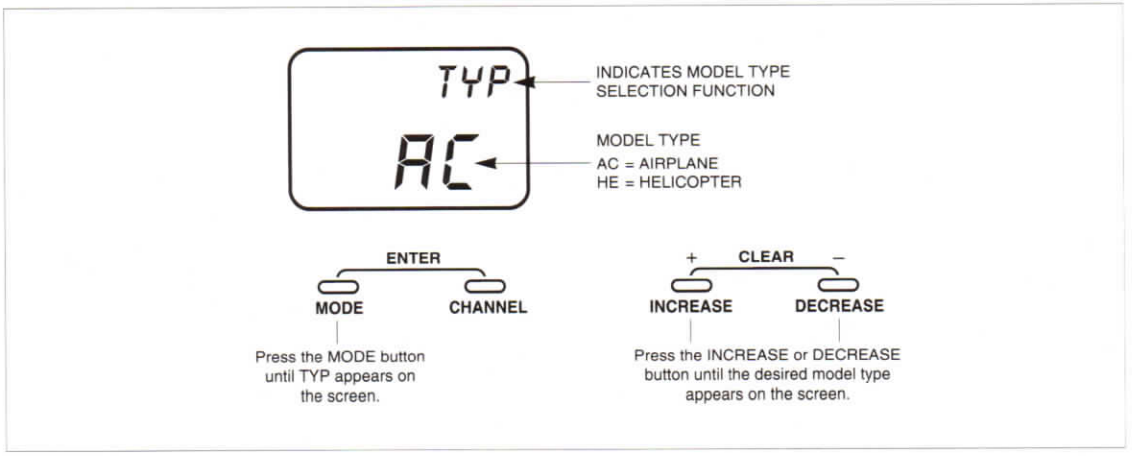
5.3 FUNCTION MODE

To enter the function mode, turn on the transmitter. Press the MODE and CHANNEL buttons simultaneously until a beep is heard. The display will change accordingly and show the last active function. Press the MODE button to scroll down through the functions one by one as shown in the flowchart below. Once the appropriate function is selected, use the CHANNEL button to select the appropriate channel. Use the INCREASE and DECREASE buttons to adjust the values displayed on the screen.



6.1 MODEL TYPE SELECTION • System Mode

Two types of aircraft programming are available with the XF622, airplane (AC) and helicopter (HE). When you enter the model type selection function, the current model type will appear on the screen. (The current model type being the factory preset or the last model used.) When you press the increase or decrease button to change the model type, the new model type indicated on the screen will flash. For example, if the current model type is AC and you change to HE, HE will flash on the screen. The flashing alerts you to the change of model type and will stop once you move to the next function or exit the system mode.

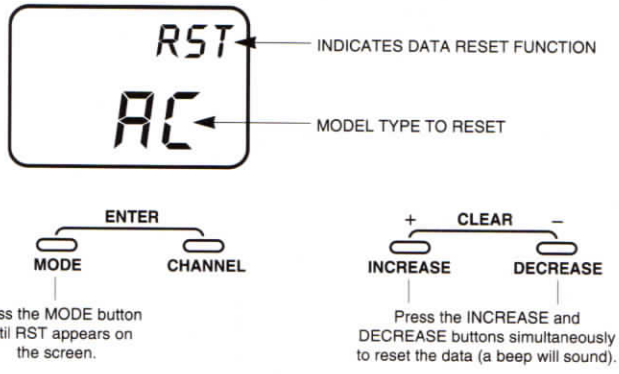


Accessing the Model Type Selection Function

1. Press the MODE and CHANNEL buttons simultaneously and hold.
2. Turn on the transmitter to enter the system mode.
3. Press the MODE button until TYP appears on the screen.
4. Press the INCREASE or DECREASE button until the desired model type appears on the screen (AC = airplane HE = helicopter).
5. Press the MODE button to access the data reset function.
6. To exit, press the MODE and CHANNEL buttons simultaneously.

6.2 DATA RESET • System Mode

The data reset function allows you to reset all the programming in the selected model (1 or 2) to the factory settings. Before using the data reset function it is important to enter the model selection function and check that the current model number (1 or 2) indicated is the model that you want to reprogram to the factory settings. The model selection function is described in Section 6.5.

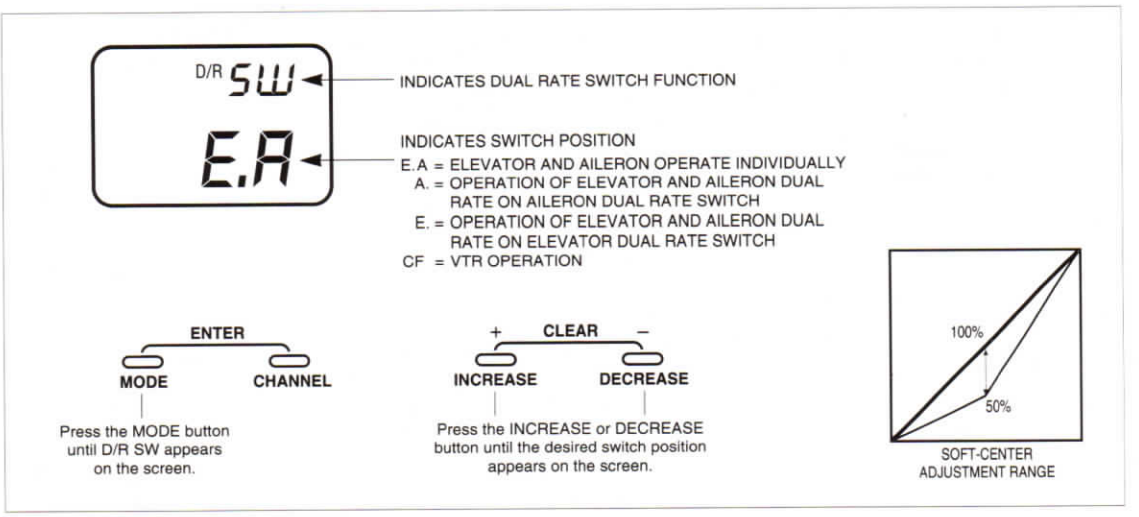


Accessing the Data Reset Function

1. Press the MODE and CHANNEL buttons simultaneously and hold.
2. Turn on the transmitter to enter the system mode.
3. Press the MODE button until RST appears on the screen.
4. Press the INCREASE and DECREASE buttons simultaneously to reset the data. (To confirm that the selected model's programming has been reset a beep will sound and the AC or HE will momentarily disappear from the screen.)
5. Press the MODE button to access the dual rate switch selection function.
6. To exit, press the MODE and CHANNEL buttons simultaneously.

6.3 DUAL RATE SWITCH SELECTION • System Mode

The dual rate switch position is selectable and the elevator and aileron dual rates can be combined on one switch. This allows a single switch to be used when moving from high rates for wild maneuvers to low rates for mild maneuvers. Soft-Center Variable Trace Ratio (VTR) is available on both elevator and aileron and provides mild control movements around neutral while allowing maximum servo travel. This reduces sensitivity in the middle portion of the stick control and still allows full travel at the end of the stick control.



Accessing the Dual Rate Switch Selection Function

1. Press the MODE and CHANNEL buttons simultaneously and hold.
2. Turn on the transmitter to enter the system mode.
3. Press the MODE button until D/R SW appears on the screen.
4. Press the INCREASE button until the desired switch position, or CF for VTR, appears on the screen. To adjust the dual rate values see Section 6.7.
5. In CF mode, VTR is adjusted the same way dual rate is adjusted, but maximum servo travel is always 100%. To reduce the sensitivity around neutral, reduce the dual rate value below 100%. The adjustment range is from 50% through 100%.
6. Press the MODE button to access the wing type selection function.
7. To exit, press the MODE and CHANNEL buttons simultaneously.

6.4 WING TYPE SELECTION • System Mode

Flaperon and V-tail mixing are available for specialty aircraft that require those functions. The flaperon feature mixes flaps with ailerons so that the ailerons can be drooped for takeoffs and landings while still functioning fully as ailerons. V-tail mixing combines rudder and elevator for V-tail operations.

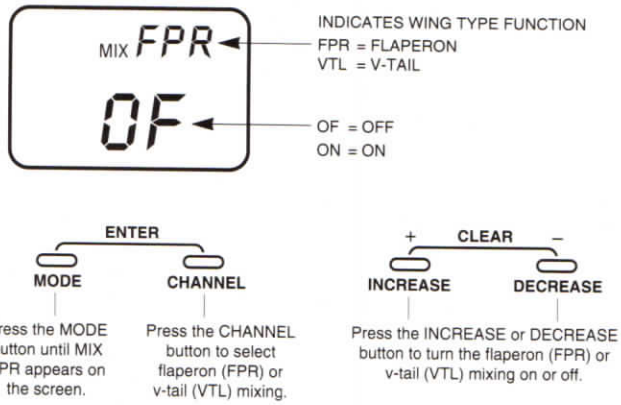
Flaperon Set Up

When using flaperon mixing, two servos (one for each aileron) must be used. Connect the left aileron servo to channel #6 (Aux 1) and the right aileron servo to channel #2 (Aile) in the receiver. Individual functions (e.g., servo reversing, sub-trims, etc.) are still available for each of the channels. Use sub-trims for individual neutral adjustment.

Adjust the aileron travel values by increasing or decreasing the aileron dual rate. Flap adjustments are made with flap left/right travel adjustment described in Section 6.9. Also see aileron differential in Section 6.12.

V-Tail

V-Tail mixing requires two servos. Connect the left tail servo to channel #3 (Elev) and the right tail servo to channel #4 (Rudd) in the receiver. Individual functions (e.g., servo reversing, sub-trims, etc.) are available for each servo. Use sub-trims for individual neutral adjustments described in Section 6.8. V-Tail elevator travel is adjusted by elevator dual rates described in Section 6.7.

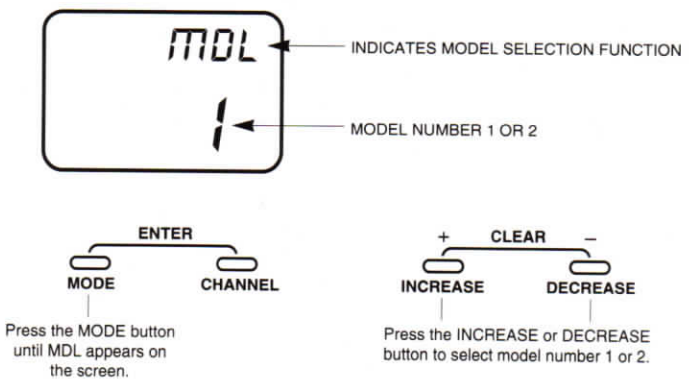


Accessing the Wing Type Selection Function

1. Press the MODE and CHANNEL buttons simultaneously and hold.
2. Turn on the transmitter to enter the system mode.
3. Press the MODE button until the MIX FPR appears on the screen.
4. Press the CHANNEL button to select either flaperon (FPR) or v-tail (VTL) mode.
5. Press the INCREASE or DECREASE button to turn the flaperon (FPR) or v-tail (VTL) mixing on or off.
6. Press the MODE button to access the model selection function.
7. To exit, press the MODE and CHANNEL buttons simultaneously.

6.5 MODEL SELECTION • System Mode

The XF622 has memory for two models. It can store the settings for two airplanes, two helicopters or one airplane and one helicopter.

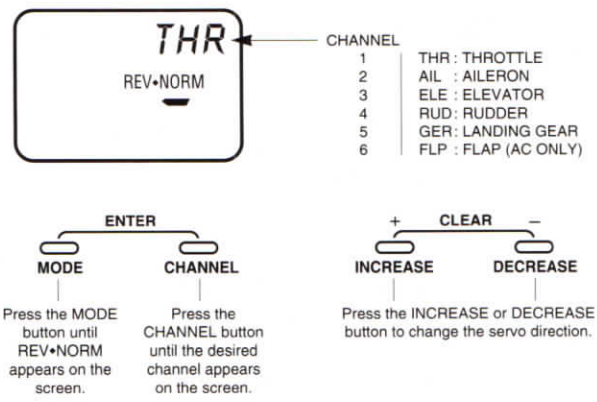


Accessing the Model Selection Function

1. Press the MODE and CHANNEL buttons simultaneously and hold.
2. Turn on the transmitter to enter the system mode.
3. Press the MODE button until MDL appears on the screen.
4. Press the INCREASE or DECREASE button to select either model number 1 or 2.
5. Press the MODE button to access the model type selection function.
6. To exit, press the MODE and CHANNEL buttons simultaneously.

6.6 SERVO REVERSING • Function Mode

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 the corresponding stick movement. Servo reversing is available for all 6 channels.



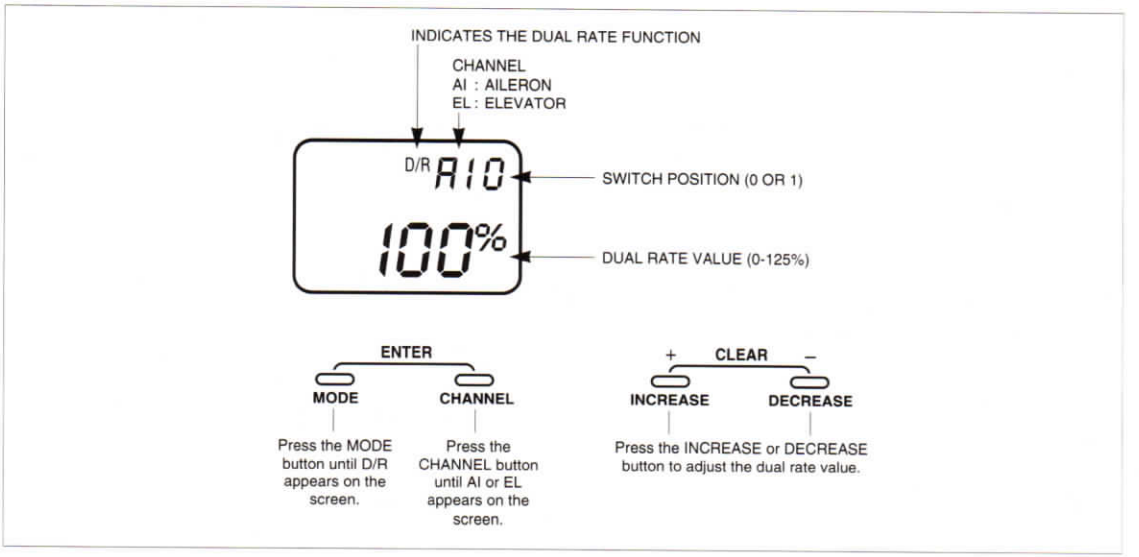
Accessing the Servo Reversing Function

1. Turn on the transmitter.
2. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
3. Press the MODE button until REV NORM appears on the screen.
4. Press the CHANNEL button until the desired channel appears on the screen.
5. Press the INCREASE or DECREASE button to change the servo direction.
6. Press the MODE button to access the dual rate function.
7. To exit, press the MODE and CHANNEL buttons simultaneously.

6.7 DUAL RATE • Function Mode

Dual rate is available for the aileron and elevator channels. The purpose of this function is to allow for in-flight selection of two preset servo travels for each of these channels. The amount of travel is adjustable from 0-125%. The factory settings for both switch positions (0 and 1) is 100%. Either position may be selected as the low or high rate by placing the switches in the desired position and adjusting the value for that position. Operation of these switches is described in Section 6.3.

Different types of maneuvers require varying amounts of control movements. Snap rolls require large control movements, while smooth maneuvers like long slow rolls are best performed with smaller control movements. Dual rates allow you to change the control movements in flight at the flip of a switch. This allows you to execute maneuvers requiring both radical control movements and small control movements during a single flight.

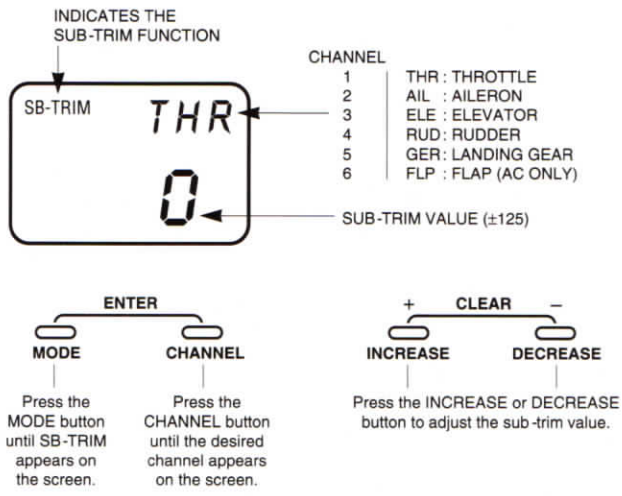


Accessing the Dual Rate Function

1. Turn on the transmitter.
2. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
3. Press the MODE button until D/R appears on the screen.
4. Press the CHANNEL button until the desired channel appears on the screen (AI = aileron or EL = elevator).
5. The number that appears directly to the right of the selected channel is the switch position. There are two switch positions, 0 and 1, for each of the channels. A 0 will appear when the selected dual rate switch is in the uppermost position and a 1 when the selected switch is in the lower position.
6. To change the switch selection you must enter the dual rate switch selection function in the system mode (see Section 6.3).
7. The number in the center of the screen indicates the current dual rate value for the selected switch position and channel. Press the INCREASE or DECREASE button to adjust the dual rate value (0 - 125%).
8. After adjusting the value for the 0 switch position, change to the 1 switch position and adjust the rates for it.
9. Press the CHANNEL button to select the other channel and adjust the dual rate value for both switch positions.
10. Press the MODE button to access the sub-trim feature.
11. To exit, press the MODE and CHANNEL buttons simultaneously.

6.8 SUB-TRIM • Function Mode

Sub-trim is an electronic trim that is available for each of the 6 channels. Sub-trim is particularly useful when changing from one model stored in memory to another model stored in memory. Using the mechanical trim levers allows them to be positioned in the center position and to adjust the trims electronically. This allows the same mechanical trim lever settings between the two models you control with this radio system. Sub-trim can also allow additional trim travel when mechanical trims do not provide enough movement.

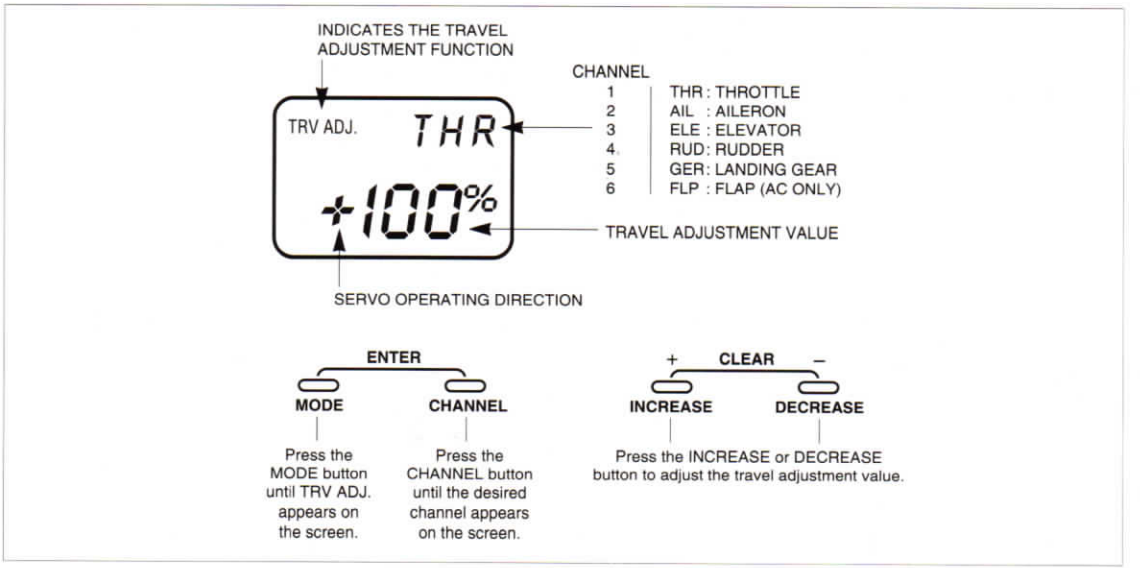


Accessing the Sub-Trim Function

1. · Turn on the transmitter.
2. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
3. Press the MODE button until SB-Trim appears on the screen.
4. Press the CHANNEL button until the desired channel appears on the screen.
5. Press the INCREASE or DECREASE button to establish the desired amount of sub-trim.
6. Press the MODE button to access the travel adjustment function.
7. To exit, press the MODE and CHANNEL buttons simultaneously.

6.9 TRAVEL ADJUSTMENT • Function Mode

The amount of servo travel is adjustable for each direction for each of the 6 channels individually. The adjustment range is from 0% to 150%. Travel adjustment is factory set at 100% for all channels. The travel adjustment value displayed on the screen depends on the position of the stick or switch (e.g. flap switch, gear switch).

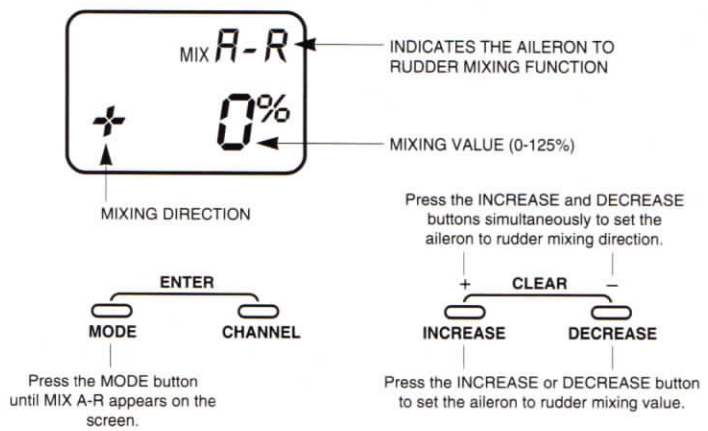


Accessing the Travel Adjustment Function

1. Turn on the transmitter.
2. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
3. Press the MODE button until TRV ADJ. appears on the screen.
4. Press the CHANNEL button until the desired channel appears on the screen.
5. Move the selected channel stick or switch in the direction that you want to adjust the travel. Press the INCREASE or DECREASE button to achieve the desired travel. Move the stick in the opposite direction to adjust the travel in the opposite direction.
6. The same may be done for all channels.
7. Press the MODE button to access the aileron to rudder mixing function.
8. To exit, press the MODE and CHANNEL buttons simultaneously.

6.10 AILERON TO RUDDER MIXING • Function Mode

On some types of aircraft, it is desirable to mix aileron and rudder to make coordinated turns. The XF622 allows the mixing of ailerons to rudder and allows you to adjust the amount and direction of mixing. The aileron to rudder mixing can be left on all the time, or it can be turned off with the selection of one of three switches.



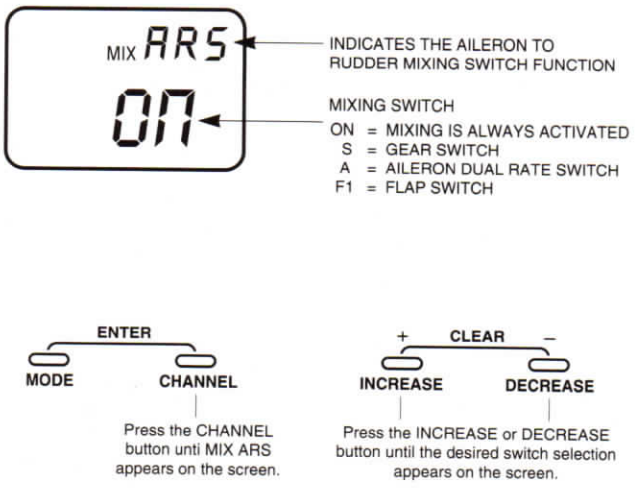
Accessing the Aileron to Rudder Mixing Function

1. Turn on the transmitter.
2. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
3. Press the MODE button until MIX A-R appears on the screen.
4. Press the INCREASE or DECREASE button to set the desired amount and direction of aileron to rudder mixing.

Note: If OF appears on the screen it is because the aileron to rudder mixing switch is in the off position.

6.10 AILERON TO RUDDER MIXING continued

AILERON TO RUDDER MIXING SWITCH SELECTION



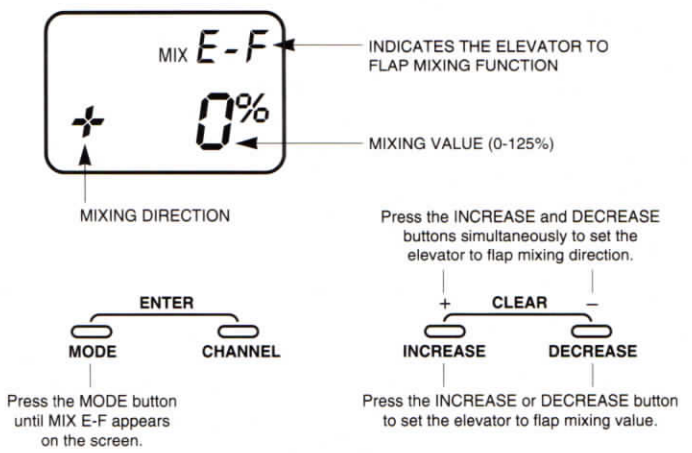
Accessing the Aileron to Rudder Mixing Switch Function

1. Follow steps 1 through 4 as above.
2. Press the CHANNEL button until MIX ARS appears on the screen.
3. Press the INCREASE or DECREASE button until the desired switch selection appears on the screen.
4. Press the MODE button to access the elevator to flap mixing function.
5. To exit, press the MODE and CHANNEL buttons simultaneously.

6.11 ELEVATOR TO FLAP MIXING

Elevator to flap mixing is commonly used to quicken the pitching rate of an aircraft. This is very popular in fun fly airplanes because it allows tighter loops.

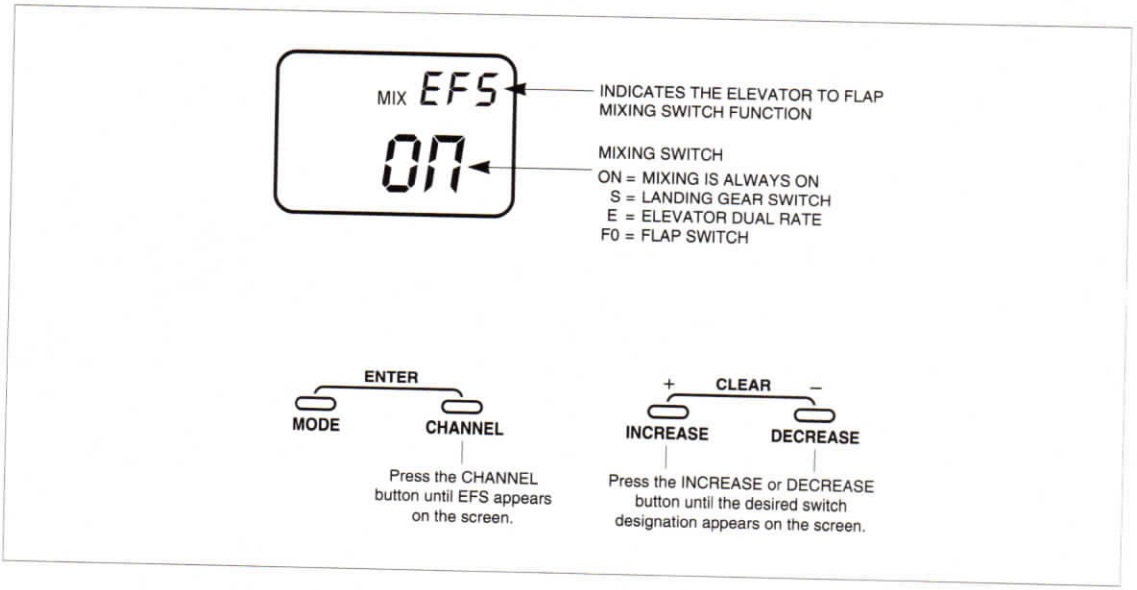
Normally, with up elevator the flaps go down, while down elevator makes the flaps go up.



Accessing the Elevator to Flap Mixing Function

1. Turn on the transmitter.
2. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
3. Press the MODE button until MIX E-F appears on the screen.
4. Press the INCREASE or DECREASE button to set the elevator to flap mixing value.
5. Press the INCREASE and DECREASE buttons simultaneously to set the elevator to flap mixing direction.

ELEVATOR TO FLAP MIXING SWITCH SELECTION



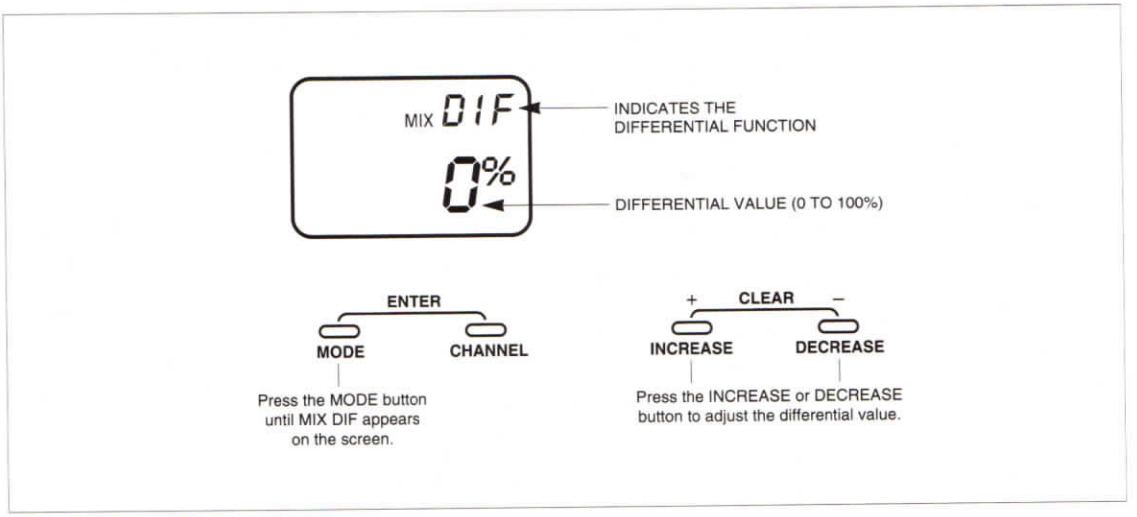
Accessing the Elevator to Flap Mixing Switch Function

1. Follows steps 1 through 4 as above.
2. Press the CHANNEL button until MIX EFS appears on the screen.
3. Press the INCREASE or DECREASE button until the desired switch designation appears on the screen.
4. Press the MODE button to access the differential function if flaperons are activated in the system mode. If flaperons are not activated, pressing the MODE button will access the flap to elevator offset function.
5. To exit, press the MODE and CHANNEL buttons simultaneously.

6.12 DIFFERENTIAL • Function Mode

Aileron differential is used to correct roll to yaw coupling and adverse yaw characteristics. In order to activate differential, the flaperon wing type must have been selected in the system mode (see Section 6.4).

Also, each aileron control surface must have its own servo with the right aileron servo plugged into the aileron channel (#2) on the receiver and the left aileron servo plugged into the Flap Aux 1 channel (#6) on the receiver.



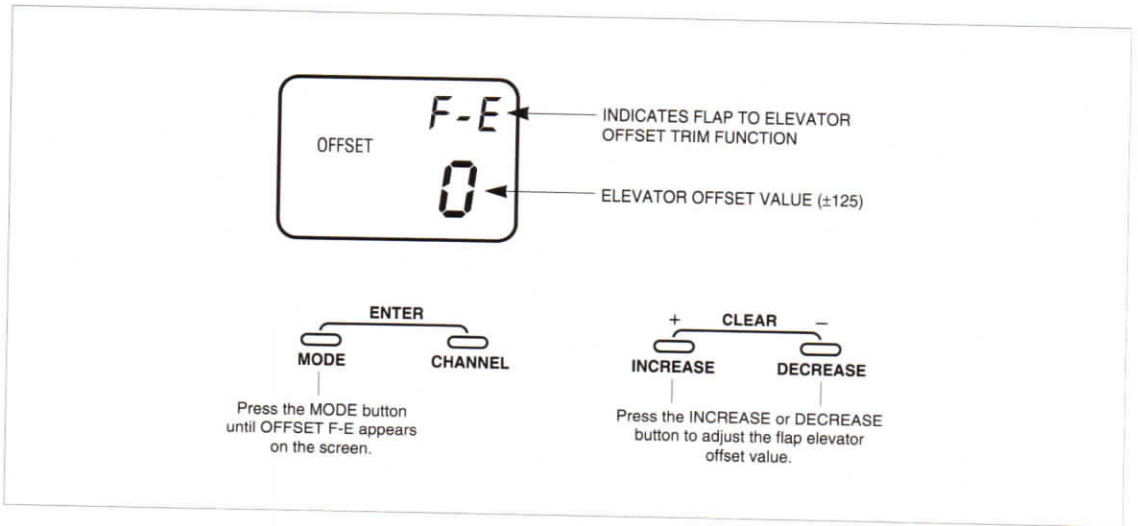
Accessing the Differential Function • Flaperon Mode Only

1. Turn on the transmitter.
2. Flaperon wing type must be selected (see Section 6.4).
3. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
4. Press the MODE button until MIX DIF appears on the screen.
5. Press the INCREASE or DECREASE button to adjust the differential mixing value.
6. Press the MODE button to access the flap to elevator offset trim.
7. To exit, press the MODE and CHANNEL buttons simultaneously.

6.13 FLAP TO ELEVATOR OFFSET TRIM • Function Mode

When the flaps are deployed, most airplanes exhibit pitching tendencies (most pitch nose up). Elevator offset trim is designed to prevent this pitching. Flap to elevator offset trim automatically retrims the elevator to a preset value when the flap switch is activated.

Note: Flap to elevator offset trim is also useful as a dual elevator trim even for airplanes without flaps. This is especially helpful for sailplanes that require one trim setting for launch and another trim setting for flight.



Accessing the Flap to Elevator Offset Trim Function

1. Turn on the transmitter.
2. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
3. Press the MODE button until OFFSET F-E appears on the screen.
4. Press the INCREASE or DECREASE button to set the desired amount and direction of the elevator offset.

Note: It is helpful to have the flap switch on when making this adjustment.

5. Press the MODE button to access the servo reversing function.
6. To exit, press the MODE and CHANNEL buttons simultaneously.

7

DATA SHEETS

MDL	1	2
TYP	AC	HE
D/R SW	E.A	A E. CF

	THR	AIL	ELE	RUD	GER	FLP
REVERSE SW	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV
SUB-TRIM						
TRAVEL ADJUST	+ %	+ %	+ %	+ %	+ %	+ %
(TRV. ADJ)	– %	– %	– %	– %	– %	– %

	MIX	SW	POS
AILE→RUDD (A-R) MIX	ON	S A F1	+ – %
ELEV→FLAP (E-F) MIX	ON	S E F0	+ – %

		AILE	ELEV
DUAL RATE	POS 0	%	%
(AI, EL)	POS 1	%	%

WING TYPE (MIX FPR)	NORM (OF) FLAPERON V-TAIL
DIFFERENTIAL (only if flaperon is active)	%

FLAP ELEV OFFSET	±

MDL	1	2
TYP	AC	HE
D/R SW	E.A	A E. CF

	THR	AIL	ELE	RUD	GER	FLP
REVERSE SW	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV
SUB-TRIM						
TRAVEL ADJUST	+ %	+ %	+ %	+ %	+ %	+ %
(TRV. ADJ)	– %	– %	– %	– %	– %	– %

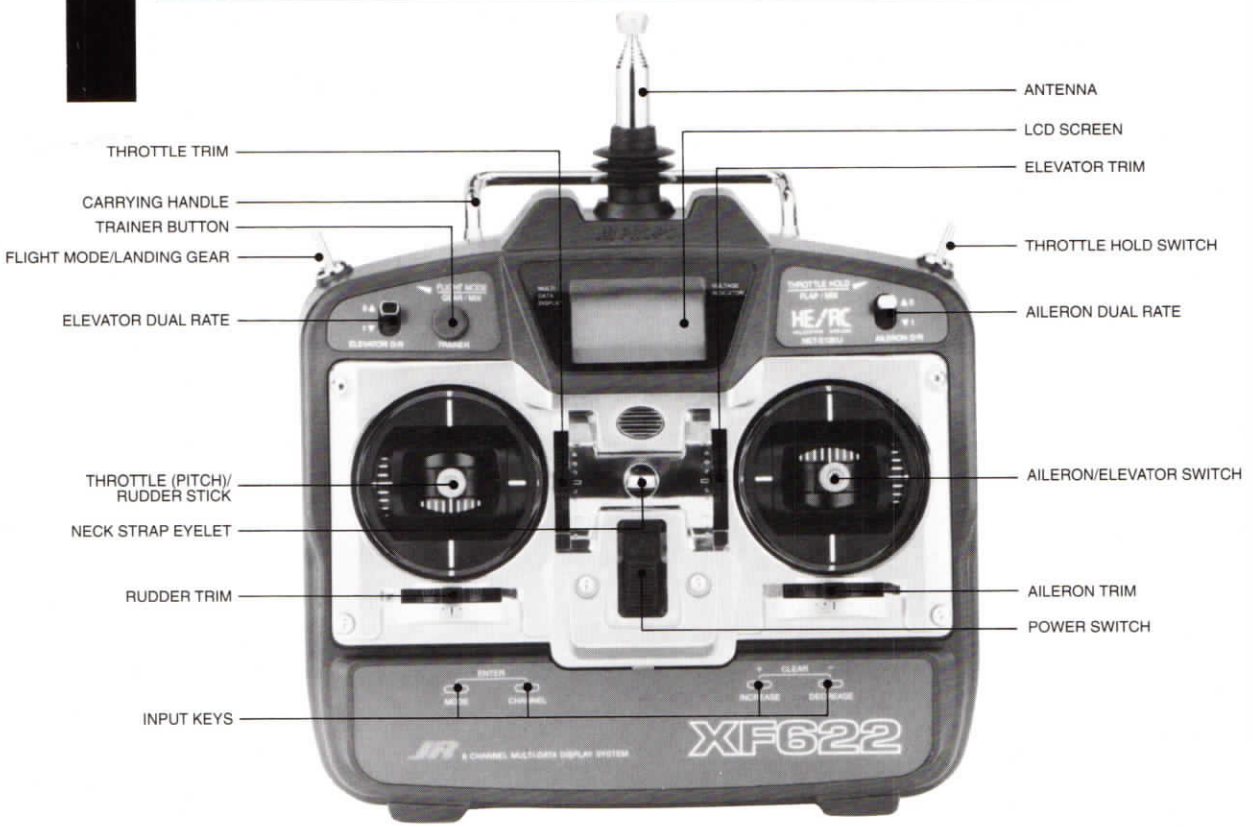
	MIX	SW	POS
AILE→RUDD (A-R) MIX	ON	S A F1	+ – %
ELEV→FLAP (E-F) MIX	ON	S E F0	+ – %

		AILE	ELEV
DUAL RATE	POS 0	%	%
(AI, EL)	POS 1	%	%

WING TYPE (MIX FPR)	NORM (OF) FLAPERON V-TAIL
DIFFERENTIAL (only if flaperon is active)	%

FLAP ELEV OFFSET	±

1.1 CONTROL IDENTIFICATION AND LOCATION • Mode II



1.2 RECEIVER CHANNEL ASSIGNMENT/TRANSMITTER THROTTLE ALT

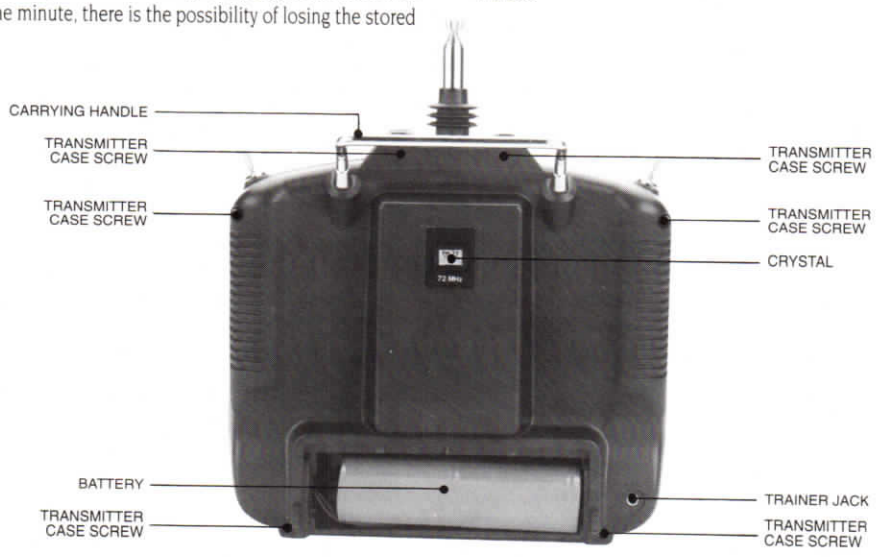
1. THRO Throttle Channel
2. AILE Aileron Channel
3. ELEV Elevator Channel
4. RUDD Rudder Channel
5. GEAR Gear Channel
6. AUX I Auxiliary I Channel (Pitch)

Transmitter Throttle ALT

The throttle ALT function makes the throttle stick trim active only when the throttle stick is less than half throttle. This gives easy, accurate idle adjustments without affecting the high throttle position.

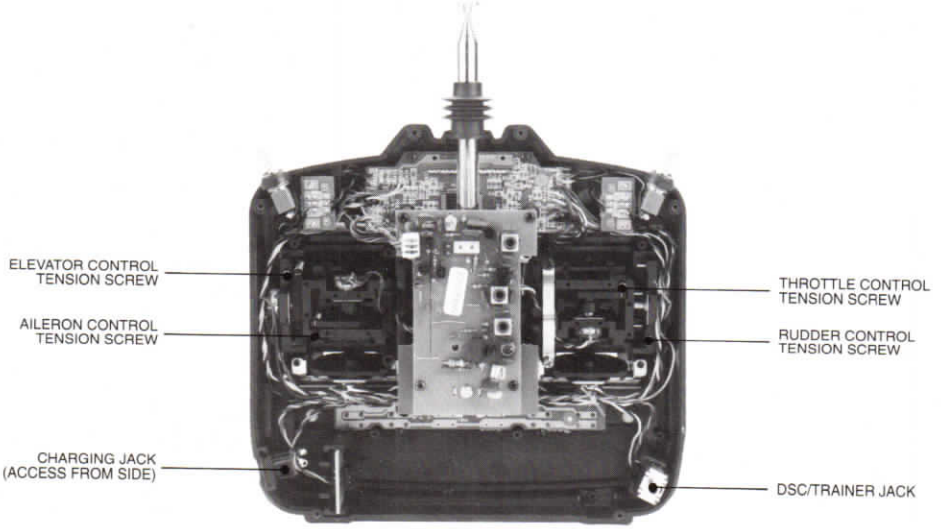
1.3 TRANSMITTER REAR

Note: The transmitter battery powers the memory of the computer. If the battery is unplugged for more than one minute, there is the possibility of losing the stored information. When changing batteries, do so within one minute.



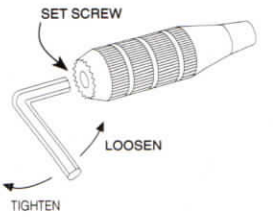
1.4 CONTROL STICK TENSION ADJUSTMENT

Take off the back cover by removing the crystal, the battery and the six screws as shown in the photo below. Adjust the designated tension screws by turning clockwise to increase the tension and counterclockwise to reduce. After adjusting the stick tension reverse this procedure to re-assemble your transmitter.



1.5 CONTROL STICK LENGTH ADJUSTMENT

To adjust the control stick length, use a 2mm Allen wrench to unlock the set screw located inside the end of the control stick. Turn the set screw counterclockwise to loosen it, then turn the knurled portion of the stick to adjust the length. Counterclockwise will lengthen the stick and clockwise will shorten it. After the control stick(s) has been adjusted to suit your flying style, tighten the set screw back.



1.6 DIRECT SERVO CONTROL (DSC)

For proper DSC hook-up and operation:

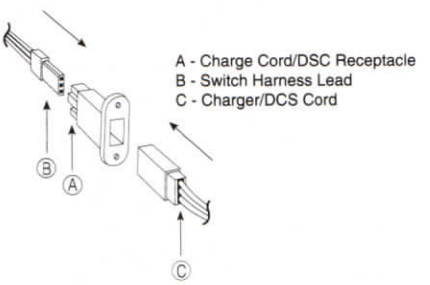
1. Leave the transmitter power switch off. The transmitter will not transmit any radio frequency (RF) in this position.
2. Plug the optional DSC cord (JRPA132) into the DSC port in the rear of the transmitter.
3. The encoder section of the transmitter will now be operational and the LCD display will be lit.
4. Plug the other end of the DSC cord into the receiver charge receptacle. Turn on the switch harness.

Note: When installing the optional charging jack (JRPA024) be sure to hook the charging jack receptacle securely into the switch harness charge cord.

Why you should use the DSC function:

1. The DSC enables you to check the control surfaces of your airplane without drawing the fully operational 200mAh from your transmitter battery pack. Instead, you will only draw 70mAh when using the DSC function.
2. The DSC function allows you to make final adjustments to your airplane or helicopter without transmitting any radio signals. Therefore, if another pilot is flying on your frequency, you can still adjust your aircraft and not interfere with the other aircraft.

Note: Under no circumstances should you attempt to fly your aircraft with the DSC cord plugged in! This feature is for bench checking your aircraft only.



1.7 NECK STRAP ATTACHMENT

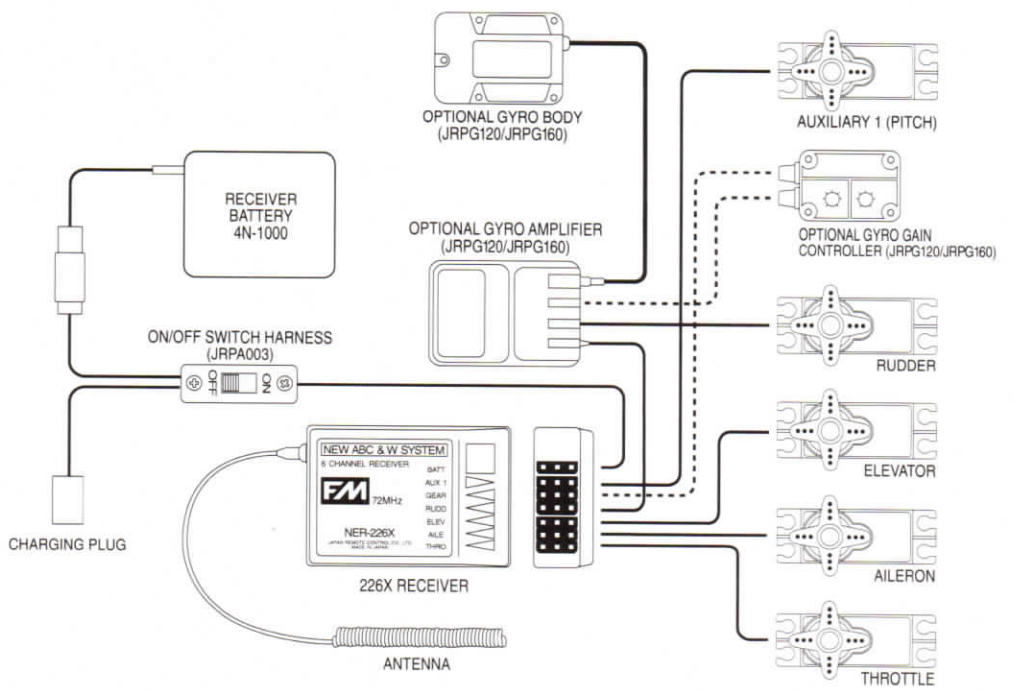
There is an eye hook on the front of the transmitter for attaching an optional neck strap (JRPA023). The eye hook is precisely positioned (see Section 1.1) so that the transmitter will be perfectly balanced when a neck strap is used.

2.1 INSTALLATION REQUIREMENTS

It is important to correctly install the radio system in your model. Please read and carefully follow the suggestions listed below.

1. For added protection, wrap the Rx and the Rx Nicad in foam rubber that is at least 1/4" thick.
2. Run the Rx antenna through the fuselage and make sure it is fully extended. Never cut or bundle your Rx antenna — this will decrease range and performance.
3. Rubber servo grommets are included with your radio system and should be installed in the servo flanges. The servos should then be mounted on either hardwood rails or a plywood tray with the mounting screws provided. **Do not overtighten the mounting screws**. The flange of the brass eyelets should face down (toward the wood).
4. All servos must be able to move freely over the full range of their travel. Make sure the linkages do not impede servo travel. A stalled servo will drain the battery pack within a few minutes.
5. Before installing servo output arms, make sure the servo is in its neutral position.
6. In the case of gas-powered model aircraft, mount the receiver power switch on the side of the fuselage opposite the muffler to protect the switch from exhaust residue. With other types of models, mount the switch in the most convenient place. Make sure that the switch operates freely and is capable of traveling its full distance.
7. With your model sitting on the ground and the transmitter antenna collapsed, check that your system works at a distance of 5 meters or 16 feet.

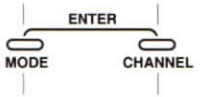
2.2 CONNECTIONS



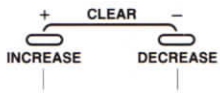
3 KEY INPUT AND DISPLAY

BUTTON	USE
MODE	Used to move up through the available functions
CHANNEL	Used to select the desired channel
INCREASE	Used to increase the value of the selected function
DECREASE	Used to decrease the value of the selected function

To enter the system mode press the MODE and CHANNEL buttons simultaneously and hold while turning on the transmitter.



To enter the function mode press the MODE and CHANNEL buttons simultaneously while the transmitter is on.

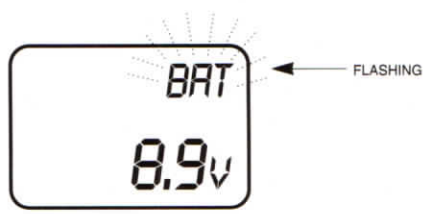


Press the INCREASE and DECREASE buttons simultaneously to clear the screen or return to factory preset.

4 BATTERY ALARM AND DISPLAY

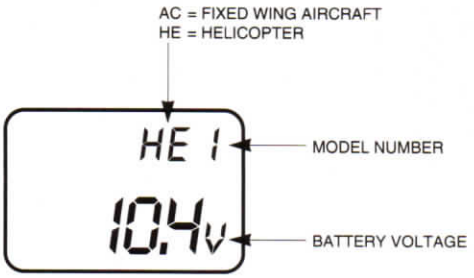
When the transmitter battery drops below 9.0 volts, the display will start to flash BAT and an audible alarm will sound for 8 beeps. These warnings mean you should land your aircraft immediately.

Note: During the period that the battery alarm is flashing, the input buttons will not function. If you are currently in the function mode, the transmitter will exit automatically and return to the normal display (see Section 5.1).



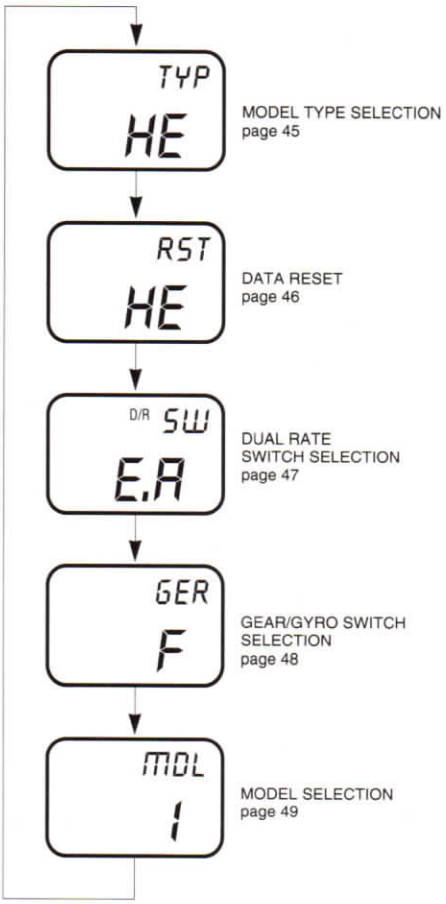
5.1 NORMAL DISPLAY

When the power switch is turned on the screen will read as shown here in the diagram. This screen is referred to as the normal display.



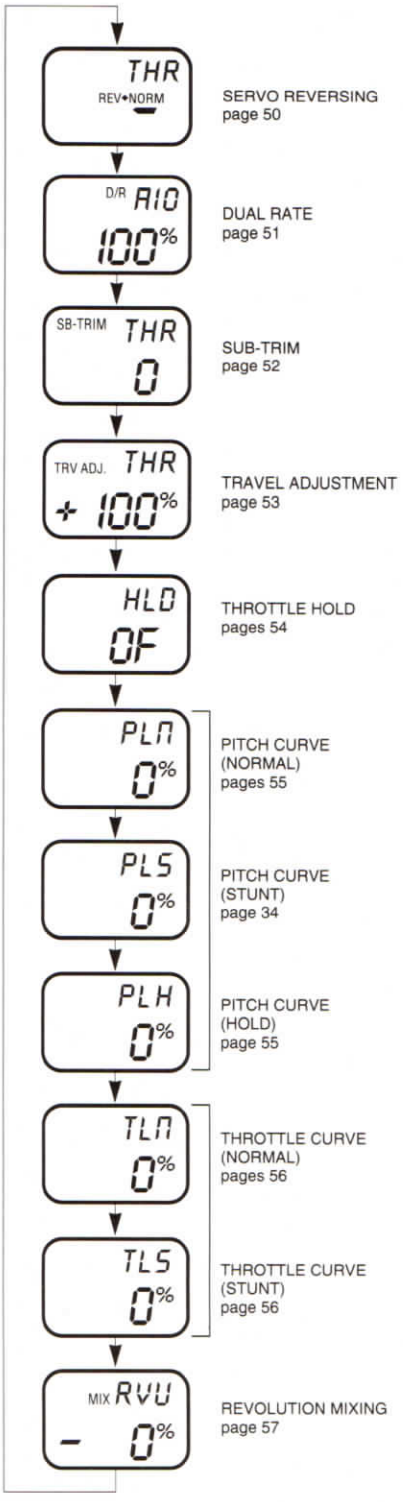
5.2 SYSTEM MODE

To enter the system mode press the MODE and CHANNEL buttons simultaneously while you turn on the transmitter. You can now select any of 5 system mode functions shown here in the flow chart. To exit the system mode, press the MODE and CHANNEL buttons simultaneously or turn off the transmitter. Press the mode button to move through the system mode functions. Information for each function is located on the page number listed next to the function name.



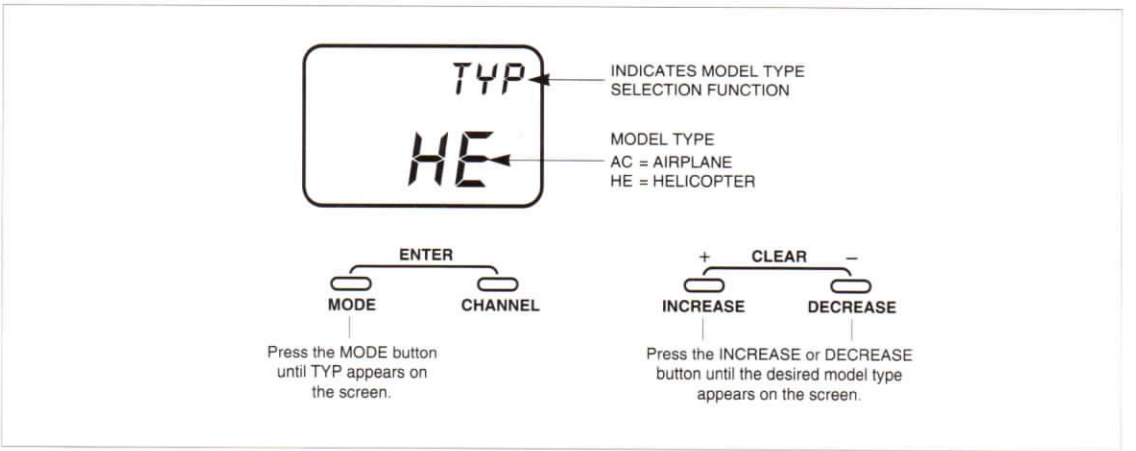
5.3 FUNCTION MODE

To enter the function mode, turn on the transmitter. Press the MODE and CHANNEL buttons simultaneously until a beep is heard. The display will change accordingly and show the last active function. Press the MODE button to scroll down through the functions one by one as shown in the flowchart below. Once the appropriate function is selected, use the CHANNEL button to select the appropriate channel. Use the INCREASE and DECREASE buttons to adjust the values displayed on the screen.



6.1 MODEL TYPE SELECTION • System Mode

Two types of aircraft programming are available with the XF622, airplane (AC) and helicopter (HE). When you enter the model type selection function, the current model type will appear on the screen. (The current model type being the factory preset or the last model used.) When you press the increase or decrease button to change the model type, the new model type indicated on the screen will flash. For example, if the current model type is AC and you change to HE, HE will flash on the screen. The flashing alerts you to the change of model type and will stop once you move to the next function or exit the system mode.

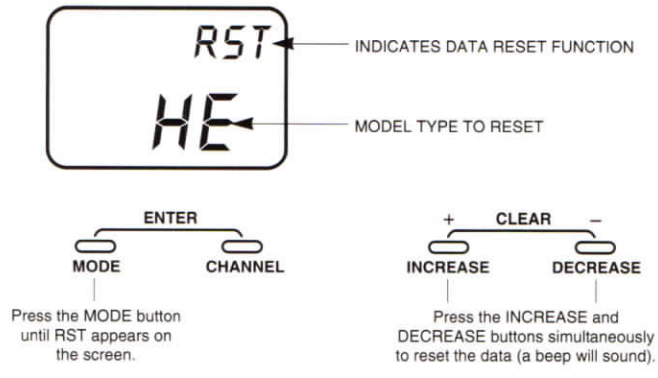


Accessing the Model Type Selection Function

1. Press the MODE and CHANNEL buttons simultaneously and hold.
2. Turn on the transmitter to enter the system mode.
3. Press the MODE button until TYP appears on the screen.
4. Press the INCREASE or DECREASE button until the desired model type appears on the screen (AC = airplane HE = helicopter).
5. Press the MODE button to access the data reset function.
6. To exit, press the MODE and CHANNEL buttons simultaneously.

6.2 DATA RESET • System Mode

The data reset function allows you to reset all the programming in the selected model (1 or 2) to the factory settings. Before using the data reset function it is important to enter the model selection function and check that the current model number (1 or 2) indicated is the model that you want to reprogram to the factory settings. The model selection function is described in Section 6.5.

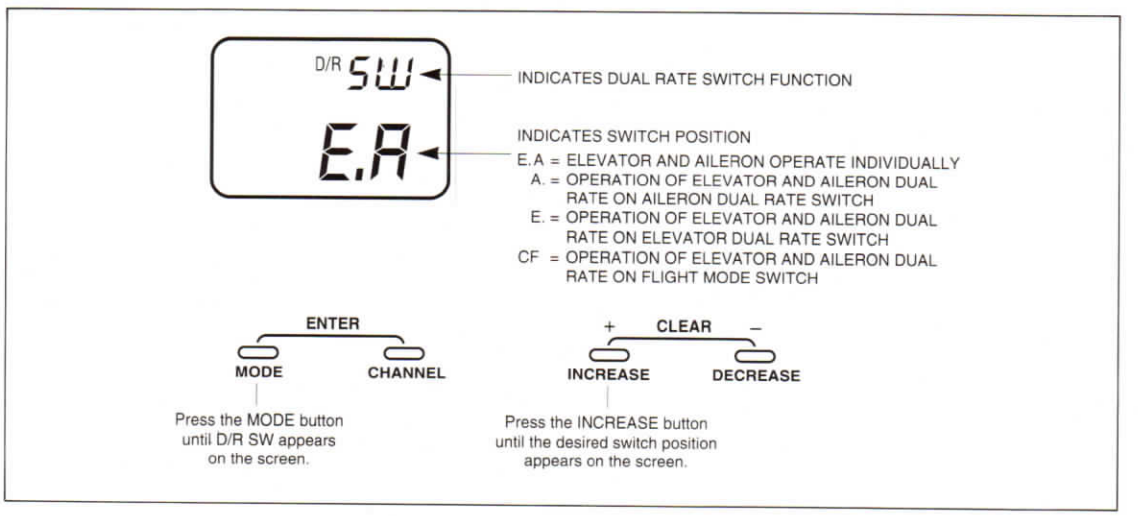


Accessing the Data Reset Function

1. Press the MODE and CHANNEL buttons simultaneously and hold.
2. Turn on the transmitter to enter the system mode.
3. Press the MODE button until RST appears on the screen.
4. Press the INCREASE and DECREASE buttons simultaneously to reset the data. (To confirm that the selected model's programming has been reset a beep will sound and the AC or HE will momentarily disappear from the screen.)
5. Press the MODE button to access the dual rate switch selection function.
6. To exit, press the MODE and CHANNEL buttons simultaneously.

6.3 DUAL RATE SWITCH SELECTION • System Mode

The dual rate switch position is selectable and the elevator and aileron dual rates can be combined on one switch. This allows a single switch to be used when moving from high rates for aerobatic maneuvers to low rates for hovering. It's also possible to locate the dual rates (aileron and elevator) on the flight mode switch. This is extremely convenient and typically in the normal (N) position, used for hovering, a low aileron and elevator rate is selected while in the stunt (S) position, used for aerobatics, a high aileron and elevator rate is selected.

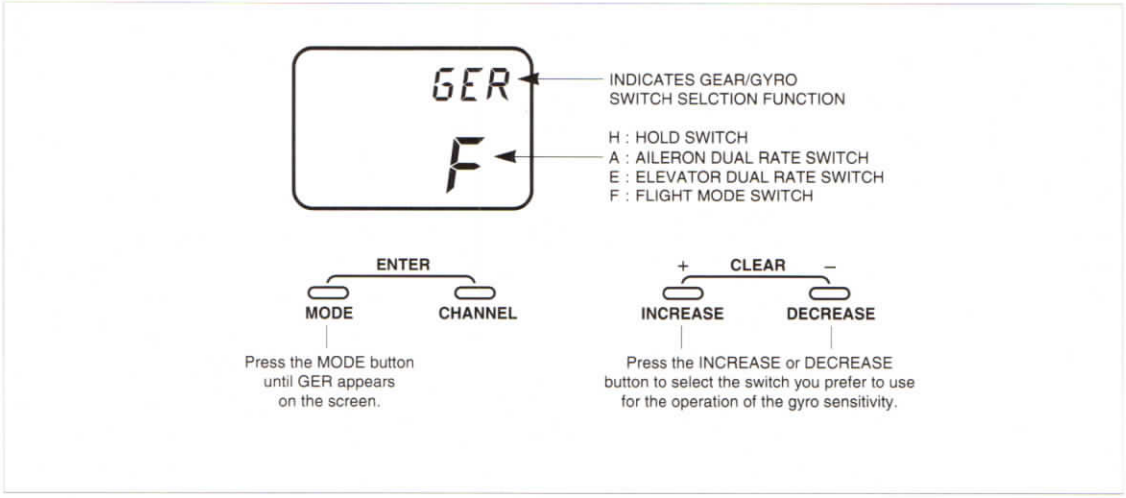


Accessing the Dual Rate Switch Selection Function

1. Press the MODE and CHANNEL buttons simultaneously and hold.
2. Turn on the transmitter to enter the system mode.
3. Press the MODE button until D/R SW appears on the screen.
4. Press the INCREASE button until the desired switch position appears on the screen. To adjust the dual rate values see Section 6.7.
5. Press the MODE button to access the GER/Gyro switch selection function.
6. To exit, press the MODE and CHANNEL buttons simultaneously.

6.4 GEAR/GYRO SWITCH SELECTION • System Mode

The XF622 gear/gyro switch selection function enables the dual rate values of the gyro to be combined with one of four switches (flight mode, throttle hold, aileron dual rate, elevator dual rate). This feature is for use with gyros that offer a dual rate sensitivity adjustment such as the JR-120S BB (JRPG120) or the JR160 BB (JRPG160). The most common use for this feature would be to combine the gyro dual rate adjustment with the flight mode switch. This would then automatically alter the gyro sensitivity from normal (hover) to flight (forward flight) when the flight mode switch is in use.

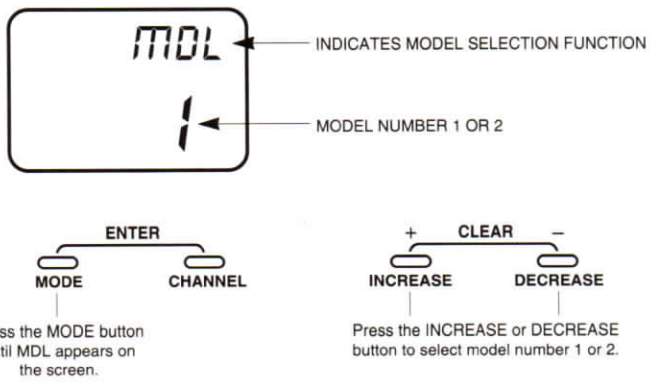


Accessing the Gear/Gyro Switch Selection Function

1. Press the MODE and CHANNEL buttons simultaneously and hold.
2. Turn on the transmitter to enter the system mode.
3. Press the MODE button until GER appears on the screen.
4. Press the INCREASE button to select the switch you prefer to use for the operation of the gyro sensitivity.
5. Press the MODE button to access the model selection function.
6. To exit, press the MODE and CHANNEL buttons simultaneously.

6.5 MODEL SELECTION • System Mode

The XF622 has memory for two models. It can store the settings for two airplanes, two helicopters or one airplane and one helicopter.

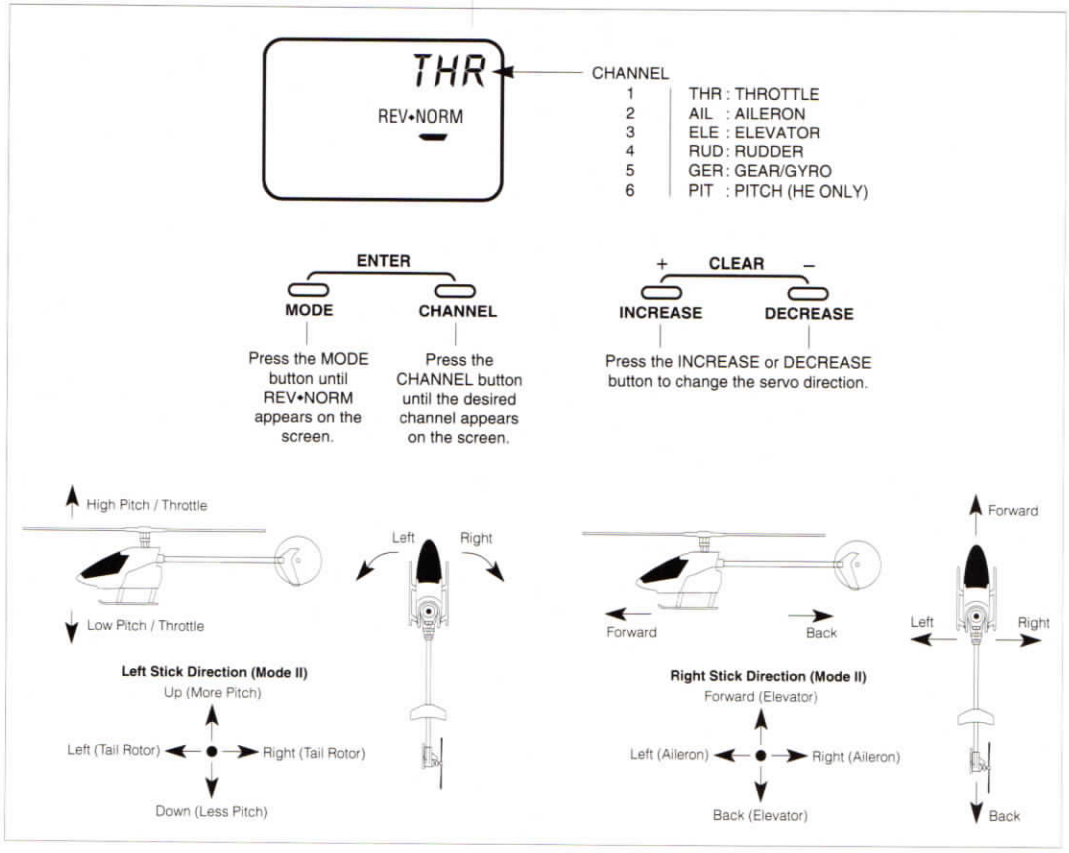


Accessing the Model Selection Function

1. Press the MODE and CHANNEL buttons simultaneously and hold.
2. Turn on the transmitter to enter the system mode.
3. Press the MODE button until MDL appears on the screen.
4. Press the INCREASE or DECREASE button to select either model number 1 or 2.
5. Press the MODE button to access the model type selection function.
6. To exit, press the MODE and CHANNEL buttons simultaneously.

6.6 SERVO REVERSING • Function Mode

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 the corresponding stick movement. Servo reversing is available for all 6 channels.



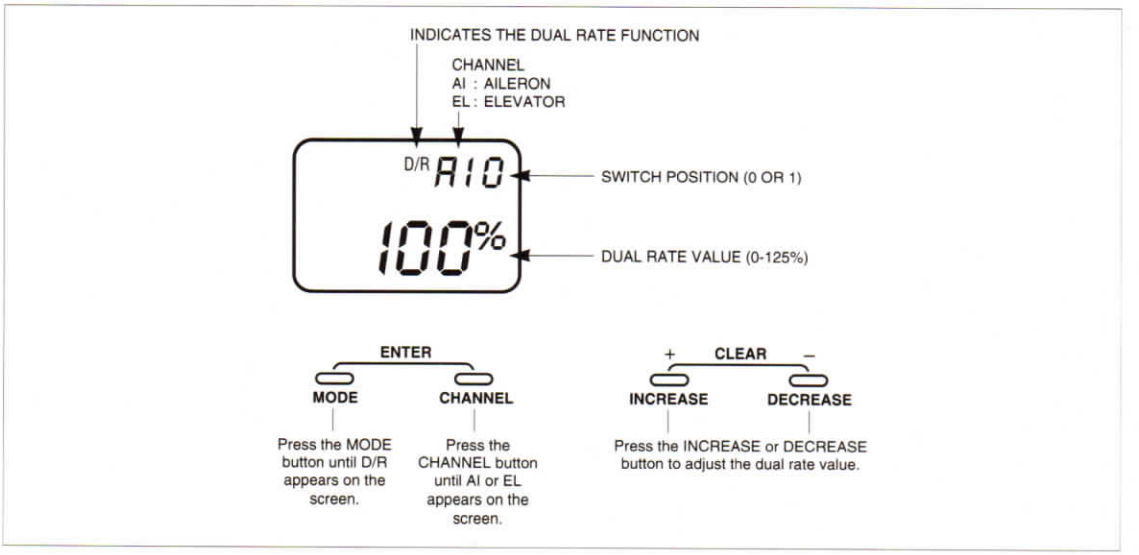
Accessing the Servo Reversing Function

1. Turn on the transmitter.
2. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
3. Press the MODE button until REV-NORM appears on the screen.
4. Press the CHANNEL button until the desired channel appears on the screen.
5. Press the INCREASE or DECREASE button to change the servo direction.
6. Press the MODE button to access the dual rate function.
7. To exit, press the MODE and CHANNEL buttons simultaneously.

6.7 DUAL RATE • Function Mode

Dual rate is available for the aileron and elevator channels. The purpose of this function is to allow for in-flight selection of two preset servo travels for each of these channels. The amount of travel is adjustable from 0-125%. The factory settings for both switch positions (0 and 1) is 100%. Either position may be selected as the low or high rate by placing the switches in the desired position and adjusting the value for that position. Operation of these switches is described in Section 6.3.

Different types of maneuvers require varying amounts of control movements. Snap rolls require large control movements, while smooth maneuvers like long slow rolls are best performed with smaller control movements. Dual rates allow you to change the control movements in flight at the flip of a switch. This allows you to execute maneuvers requiring both radical control movements and small control movements during a single flight.

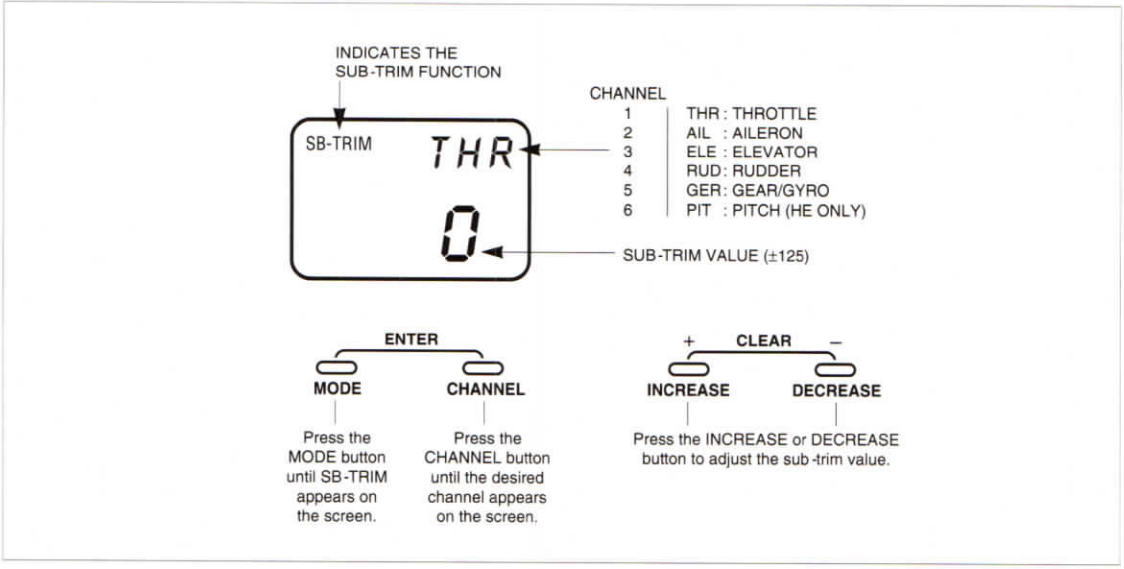


Accessing the Dual Rate Function

1. Turn on the transmitter.
2. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
3. Press the MODE button until D/R appears on the screen.
4. Press the CHANNEL button until the desired channel appears on the screen (AI = aileron or EL = elevator).
5. The number that appears directly to the right of the selected channel is the switch position. There are two switch positions, 0 and 1, for each of the channels. A 0 will appear when the selected dual rate switch is in the uppermost position and a 1 when the selected switch is in the lower position.
6. To change the switch selection you must enter the dual rate switch selection function in the system mode (see Section 6.3).
7. The number in the center of the screen indicates the current dual rate value for the selected switch position and channel. Press the INCREASE or DECREASE button to adjust the dual rate value (0 - 125%).
8. After adjusting the value for the 0 switch position, change to the 1 switch position and adjust the rates for it.
9. Press the CHANNEL button to select the other channel and adjust the dual rate value for both switch positions.
10. Press the MODE button to access the sub-trim feature.
11. To exit, press the MODE and CHANNEL buttons simultaneously.

6.8 SUB-TRIM • Function Mode

Sub-trim is an electronic trim that is available for each of the 6 channels. Sub-trim is particularly useful when changing from one model stored in memory to another model stored in memory. Using the mechanical trim levers allows them to be positioned in the center position and to adjust the trims electronically. This allows the same mechanical trim lever settings between the two models you control with this radio system. Sub-trim can also allow additional trim travel when mechanical trims do not provide enough movement.

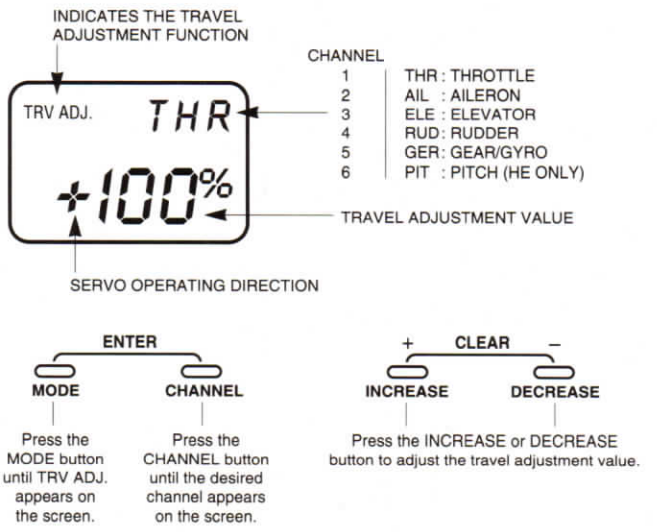


Accessing the Sub-Trim Function

1. Turn on the transmitter.
2. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
3. Press the MODE button until SB-Trim appears on the screen.
4. Press the CHANNEL button until the desired channel appears on the screen.
5. Press the INCREASE or DECREASE button to establish the desired amount of sub-trim.
6. Press the MODE button to access the travel adjustment function.
7. To exit, press the MODE and CHANNEL buttons simultaneously.

6.9 TRAVEL ADJUSTMENT • Function Mode

The amount of servo travel is adjustable for each direction for each of the 6 channels individually. The adjustment range is from 0% to 150%. Travel adjustment is factory set at 100% for all channels. The travel adjustment value displayed on the screen depends on the position of the stick or switch (e.g. flap switch, gear switch).

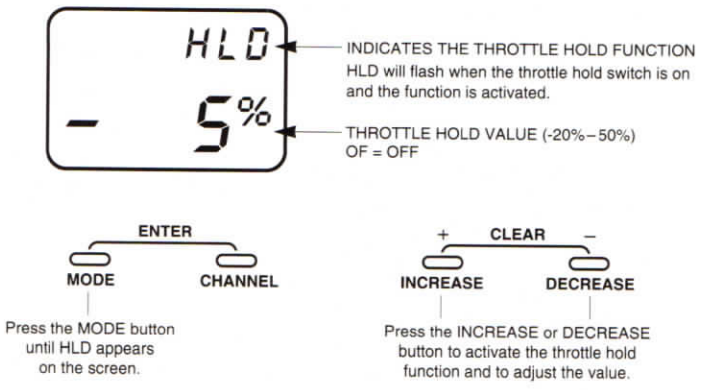


Accessing the Travel Adjustment Function

1. Turn on the transmitter.
2. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
3. Press the MODE button until TRV ADJ. appears on the screen.
4. Press the CHANNEL button until the desired channel appears on the screen.
5. Move the selected channel stick or switch in the direction that you want to adjust the travel. Press the INCREASE or DECREASE button to achieve the desired travel. Move the stick in the opposite direction to adjust the travel in the opposite direction.
6. The same may be done for all channels.
7. Press the MODE button to access the aileron to rudder mixing function.
8. To exit, press the MODE and CHANNEL buttons simultaneously.

6.10 THROTTLE HOLD • Function Mode

The throttle hold function enables the throttle servo to be held in a specific location, while allowing the collective pitch servo to move independently with the throttle stick. The purpose of this function is for practicing autorotation landings with the helicopter's engine at idle. When the throttle hold switch is changed from off to activated, there will be a third adjustable pitch curve added to the pitch curve function. The throttle hold switch is located on the top right rear corner of the transmitter. The throttle hold is on in the forward position. In the back position, the throttle hold function is off.



Accessing the Throttle Hold Function

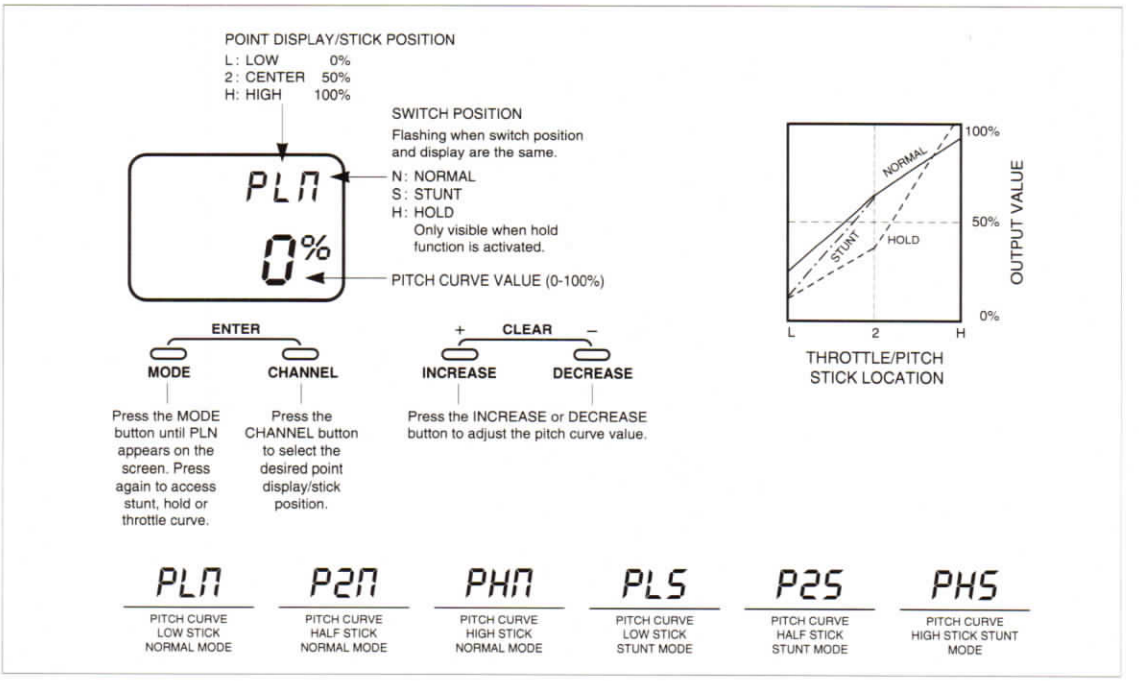
1. Turn on the transmitter.
2. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
3. Press the MODE button until HLD appears on the screen.
4. The factory setting for the throttle hold function is off. (**Note:** When the throttle hold function is off, the throttle hold pitch curve will not appear in the pitch curve function). Press the INCREASE or DECREASE button to activate the throttle hold function. (The throttle hold pitch curve will now appear in the pitch curve function). To inhibit the throttle hold function, press the INCREASE and DECREASE buttons simultaneously.
5. Using the INCREASE or DECREASE button, adjust the throttle hold value to deliver a reliable engine idle speed. To do this, set the throttle trim to your normal starting idle setting (1/2, 3/4, etc.). Next, with the engine off, adjust your throttle hold value so that, when you change the throttle hold from on to off, there is no movement of the servo arm. The normal range of throttle hold is from -2 (1/2 trim) to +15 (full high trim).
6. Press the MODE button to access the pitch curve function.
7. To exit, press the MODE and CHANNEL buttons simultaneously.

6.11 PITCH CURVE • Function Mode

The XF622 offers 3 separate pitch curves with 3 adjustable reference points per curve. This function allocates a separate pitch curve setting during normal, stunt, and throttle hold modes to maximize flight performance. Once the pitch curves are established, each can be activated in flight using the 2-position flight mode switch and the throttle hold switch.

Each of the 3 reference points of the pitch curve are independently adjustable from 0-100%. These 3 points correspond to the low, middle, and high positions of the throttle stick (collective).

The graph below shows samples of pitch curves in the normal (N), stunt (S) and throttle hold (H) conditions. The factory preset values for all 3 pitch curves are: Low 0%, Middle 50%, and High 100%.



Accessing the Pitch Curve Function

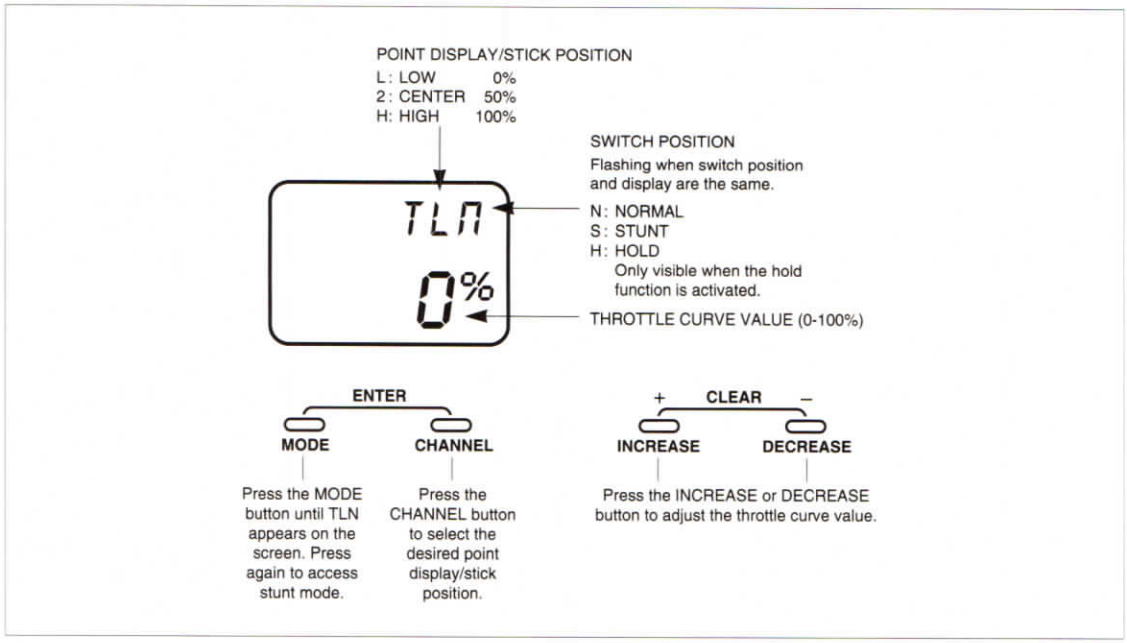
1. Turn on the transmitter.
2. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
3. Press the MODE button until PLN appears on the screen. The letter to the far right indicates the specific pitch curve section that you are in (N, S or H). The letter in the center indicates the reference point that you are in (L, 2 or H).
4. Press the CHANNEL button to select the reference point of the pitch curve you want to change.
5. Press the INCREASE or DECREASE button to change the value of the current reference point. The range of each point is 0-100% in 1% intervals.
6. To set the pitch curve for the stunt (flight) mode, press the MODE button once. Then, repeat steps 5 and 6 to adjust.
7. To set the pitch curve for the throttle hold mode, press the MODE button once. Then, repeat steps 5 and 6 to adjust.
8. Press the MODE button to access the throttle hold pitch curve function.
   Note: If throttle hold is not activated the throttle curve function will be accessed.
9. To exit, press the MODE and CHANNEL buttons simultaneously.

6.12 THROTTLE CURVE • Function Mode

Adjustment of the throttle curve is very similar to the pitch curve adjustment described in the preceding section. A thorough understanding of the pitch curve section will make the throttle curve section easier to understand.

There are 2 independent types of throttle curves available — normal and stunt. The normal, or hover, throttle curve has 3 reference points, and the stunt, or flight, throttle curve has 2 reference points.

The 2 throttle curves are activated by the flight mode switch located on the top left rear corner of the transmitter. The throttle curve is in the normal condition when the flight mode switch is in the back position. The throttle curve is in the stunt condition when the flight mode switch is in the forward position.



Accessing the Throttle Curve Function

1. Turn on the transmitter.
2. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
3. Press the MODE button until TLN appears on the screen. The letter to the far right indicates the specific throttle curve section that you are in (N, S or H). The letter in the center indicates the reference point that you are in.
4. Press the CHANNEL button to select the reference point of the throttle curve you want to change (L, 2 or H).
5. Press the INCREASE or DECREASE button to change the value of the current reference point. The range of each point is 0-100% in 1% intervals.
6. To set the throttle curve for the stunt (flight) mode, press the MODE button once. Then, repeat Steps 5 and 6 to adjust.
7. Press the MODE button once to access the revolution mixing function.
8. To exit, press the MODE and CHANNEL buttons simultaneously.

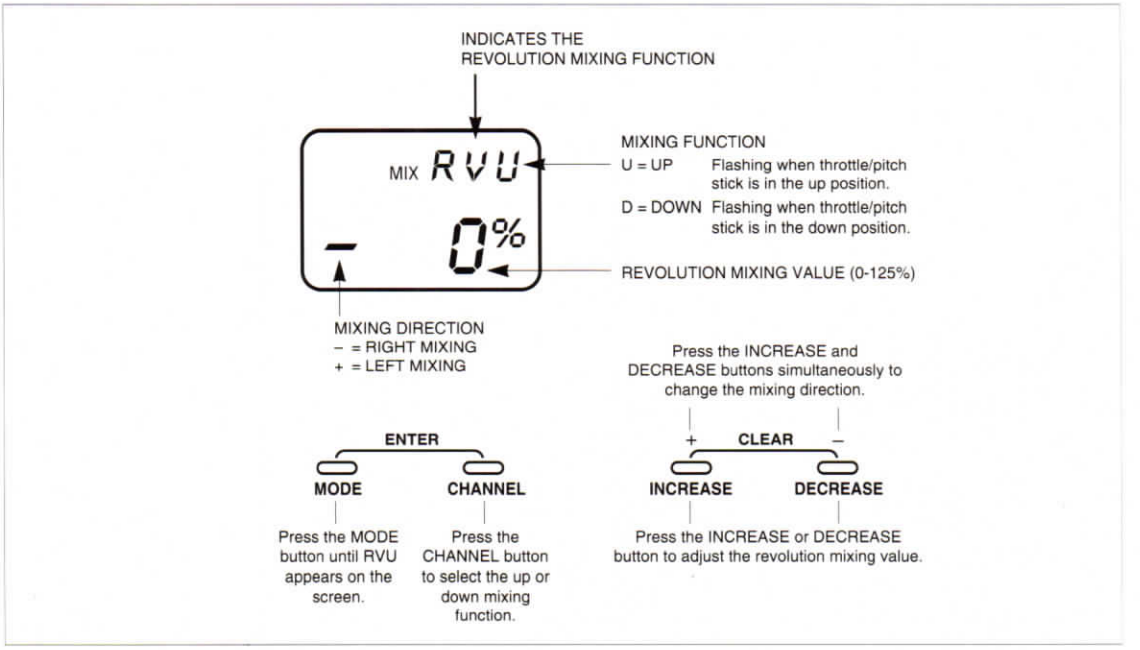
6.13 REVOLUTION MIXING • Function Mode

The revolution mixing function combines tail rotor input with the throttle/collective function to counteract the torque created by the main rotor blades. When properly adjusted, the helicopter will climb and descend without a tendency to yaw in either direction.

Since the torque created by the main rotor blades varies with different throttle/pitch settings, it is necessary for the tail rotor blades to change pitch at the same time.
The "U" or up mixing adjusts the tail rotor compensation from the mid to high throttle stick setting. The "D" or down mixing adjusts the tail rotor compensation from the mid to the low throttle stick setting.

Thus, if you were to move the throttle from the low to high positions, the tail rotor servo will move from the "D" to the "U" settings.

Revolution Mixing Set-up Procedure
First, set up the helicopter so that it will maintain a stable hover with the tail rotor trim in the center position. Next, bring the helicopter into a steady vertical climb. The body of the helicopter will move in the opposite direction to the main rotor rotation. Increase the "U" or up mixing until the helicopter climbs without the tendency to rotate. At a safe altitude, reduce the throttle. The helicopter will descend, and the body will turn in the same direction as the main rotor blades. Increase the "D" or down mixing until the helicopter descends without the tendency to rotate.

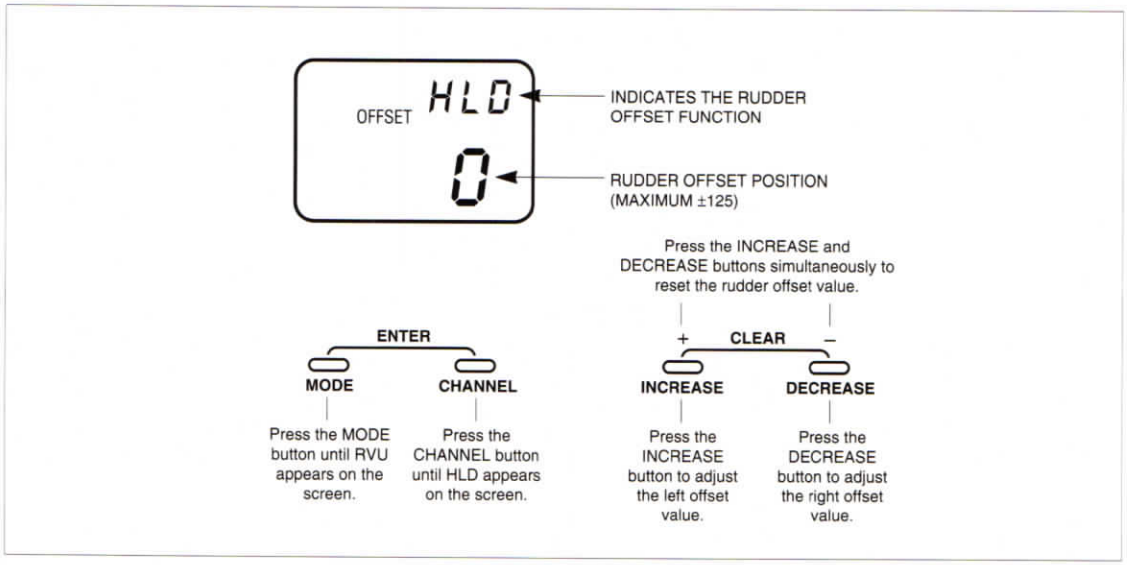


Accessing the Revolution Mixing Function

1. Turn on the transmitter.
2. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
3. Press the MODE button until RVU appears on the screen.
4. Press the CHANNEL button to select the up or down mixing function.
5. Press the INCREASE or DECREASE button to adjust the mixing value of the applicable function. Press the INCREASE and DECREASE buttons simultaneously to reset the mixing value to 0%. To change the mixing direction, press the INCREASE and DECREASE buttons simultaneously again.
6. Press the MODE button to access the rudder offset function.
7. To exit, press the MODE and CHANNEL buttons simultaneously.

6.14 RUDDER OFFSET • Function Mode

When the throttle hold switch is on (during autorotations), the revolution mixing feature becomes inactive. The rudder offset function is designed to automatically change the tail blade pitch when the throttle hold switch is on, providing a straight descent during autorotations. The adjustable range of the rudder offset is L125 - 0 - R125.



Accessing the Rudder Offset Function

1. Turn on the transmitter.
2. Press the MODE and CHANNEL buttons simultaneously to enter the function mode.
3. Press the MODE button until RVU appears on the screen.
4. Press the CHANNEL button until HLD appears on the screen.
5. From the 0 offset, press the DECREASE button to enter a right offset value or the INCREASE button to enter a left offset value. To reset the rudder offset value, press the INCREASE and DECREASE buttons simultaneously.
6. Press the MODE button to access the servo reversing function.
7. To exit, press the MODE and CHANNEL buttons simultaneously.

7.1 ENFORCER ZR TRAINING DATA (BEGINNER)

MDL	1 2
TYP	AC HE
D/R SW	**Factory preset**

GEAR SW	**Factory preset**

	THR	AIL	ELE	RUD	GER	PIT
REVERSE SW	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV
SUB-TRIM	**Factory preset: Adjust so no trim is required**					
TRAVEL ADJUST (TRV ADJ.)	**Match To Throttle Travel Limits**	+ **80** %	+ **80** %	**No Adjustment Required**		
		− **80** %	− **80** %			

		L	2	H
THRO CURVE TLN, T2N, THN TLS, T2S	N	**Factory preset**		
	S			
PITCH CURVE PLN, P2N, PHN PLS, P2S, PHS PLH, P2H, PHH	N	**-2 Degrees pitch**	**+6 Degrees pitch**	**+10 Degrees pitch**
	S			
	H	%	%	%

		AILE	ELEV
DUAL RATE (A1, EL)	POS 0	**Factory preset**	
	POS 1		

THRO HOLD HOLD	ON	OFF	POSITION **Factory preset**

REVO-MIX (RV)	+ −	UP (U)	**-40** %
		DOWN (D)	**-35** %
HOLD RUDD OFFSET	(HLD)	±	**Factory preset**

7.2 ENFORCER ZR FORWARD FLIGHT DATA (ADVANCED)

MDL	1 2
TYP	AC HE
D/R SW	E.A A E. CF

GEAR SW	F H A E

	THR	AIL	ELE	RUD	GER	PIT
REVERSE SW	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV
SUB-TRIM	**Factory Preset: Adjust linkage so no sub-trim is needed**					
TRAVEL ADJUST (TRV ADJ.)	**Match To Throttle Travel Limits**	+ **100** %	+ **100** %	**No Adjustment Required**		
		− **100** %	− **100** %			

		L	2	H
THRO CURVE TLN, T2N, THN TLS, T2S	N	**Factory Preset**		
	S	**60** %	**50** %	
PITCH CURVE PLN, P2N, PHN PLS, P2S, PHS PLH, P2H, PHH	N	**-2 Degrees**	**+6 Degrees**	**+10 Degrees**
	S	**-5 Degrees**	**+4.5 Degrees**	**+8.5 Degrees**
	H	**-5 Degrees**	**+6 Degrees**	**+10 Degrees**

		AILE	ELEV
DUAL RATE (A1, EL)	POS 0	**80** %	**80** %
	POS 1	**100** %	**100** %

THRO HOLD HOLD	ON	OFF	POSITION ± **Set For Idle Range Approx 10-20**

REVO-MIX (RV)	+ −	UP (U)	**-40** %
		DOWN (D)	**-35** %
HOLD RUDD OFFSET	(HLD)	±	**Adjust For Straight Descent**

7.3 BLANK DATA SHEETS

MDL	1	2		
TYP	AC	HE		
D/R SW	E.A	A	E.	CF

GEAR SW	F	H	A	E

	THR	AIL	ELE	RUD	GER	FLP
REVERSE SW	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV
SUB-TRIM						
TRAVEL ADJUST	+ %	+ %	+ %	+ %	+ %	+ %
(TRV ADJ.)	− %	− %	− %	− %	− %	− %

		L	2	H
THRO CURVE TLN, T2N, THN TLS, T2S	N	%	%	%
	S	%	%	
PITCH CURVE PLN, P2N, PHN PLS, P2S, PHS PLH, P2H, PHH	N	%	%	%
	S	%	%	%
	H	%	%	%

		AILE	ELEV
DUAL RATE (A1, EL)	POS 0	%	%
	POS 1	%	%

THRO HOLD HOLD	ON OFF	POSITION
		± %

REVO MIX (RV)	+ −	UP (U)	%
		DOWN (D)	%
HOLD RUDD OFFSET		(HLD) ±	

MDL	1	2		
TYP	AC	HE		
D/R SW	E.A	A	E.	CF

GEAR SW	F	H	A	E

	THR	AIL	ELE	RUD	GER	FLP
REVERSE SW	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV	NORM REV
SUB-TRIM						
TRAVEL ADJUST	+ %	+ %	+ %	+ %	+ %	+ %
(TRV ADJ.)	− %	− %	− %	− %	− %	− %

		L	2	H
THRO CURVE TLN, T2N, THN TLS, T2S	N	%	%	%
	S	%	%	
PITCH CURVE PLN, P2N, PHN PLS, P2S, PHS PLH, P2H, PHH	N	%	%	%
	S	%	%	%
	H	%	%	%

		AILE	ELEV
DUAL RATE (A1, EL)	POS 0	%	%
	POS 1	%	%

THRO HOLD HOLD	ON OFF	POSITION
		± %

REVO MIX (RV)	+ −	UP (U)	%
		DOWN (D)	%
HOLD RUDD OFFSET		(HLD) ±	

1 GENERAL NOTES

Radio controlled models are a great source of pleasure. Unfortunately, they can also pose a potential hazard if not maintained and operated properly. It is imperative that you install your radio control system correctly. Additionally, your level of piloting competency must be high enough to ensure that you are able to control your aircraft under all conditions. If you are a newcomer to radio controlled flying, please seek help from an experienced pilot or your local hobby shop.

Listed below are some safety Dos and Don'ts that must be followed by all pilots:

- Ensure 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.
- Perform a ground range check prior to the initial flight of the day. See the "Daily Flight Checks Section" for information on how to do so.
- Check all control surfaces prior to each take off.
- Use frequency flags.
- Do not fly your model near spectators, parking areas, or at any other area that could result in injury to people or damage of property.
- Do not fly during adverse weather conditions. Poor visibility can cause disorientation and loss of control of your aircraft. Strong winds can cause similar problems.
- Do not fly unless your frequency is clear. **Warning:** Only one transmitter at a time can operate on a given frequency. If you turn on your transmitter while someone else is operating a model on your frequency, both pilots will lose control of their models. 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.
- Do not take chances. If at any time during flight you observe any erratic or abnormal operation, land immediately and do not resume flight until the cause of the problem has been ascertained and corrected.

2 DAILY FLIGHT CHECKS

1. Check the battery voltage on both the transmitter and the receiver battery packs. Do not fly below 9.0 volts on the transmitter or below 4.7 volts on the receiver. To do so can cause a crash of your aircraft.

Note: When you check these batteries, ensure that you have the polarities correct on your expanded scale voltmeter.

2. Check all hardware (linkages, screws, nuts, bolts) prior to each day's flight. Be sure that binding does not occur and that everything is properly secured.
3. Ensure that all surfaces are moving in the proper manner.
4. Perform a ground range check before each day's flying session. The range check should be as follows:

- Do not extend the transmitter antenna at this time. Turn the transmitter "on."
- Turn the model "on."
- Slowly walk away from the model while moving the control surfaces. The aircraft should function properly at a distance of 60–75 feet.

5. Just prior to starting your aircraft, turn "off" your transmitter and then turn it back "on." Do this each time you start your aircraft. If any critical switches are on without your knowledge, the transmitter alarm will warn you at this time.
6. Ensure that all trim levers are in the proper location.
7. Check to be sure that all servo pigtails and switch harness plugs are secured in the receiver. Also, make sure that the switch harness moves completely in both directions.

3 WARRANTY INFORMATION

Warranty and Service Information

Included with every JR Radio System is a Sales & Warranty Registration Card. Complete the registration card portion and return it to Horizon Service Center within fifteen (15) days of purchase. Please be sure to retain the Owner's Warranty portion as this is your record of the warranty as submitted to Horizon Service Center. Also, be sure 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 service under warranty.

JR Remote Control

Your new JR Remote Control Radio System is warranted to the original purchaser against manufacturer defects in material and workmanship for 365 days from the date of purchase. During this period, Horizon Service Center 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 im-properly installed, mis-handled, abused, or damaged in a crash, or to any unit which has been repaired or altered by any 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. As with all fine electronic equipment, do not subject your radio system to extreme temperatures, humidity, or moisture. Do not leave it in direct sunlight for long periods of time.

Warranty Procedure

In the event that your JR radio needs warranty service, or if routine maintenance is required, send in your equipment for servicing together with your bill of sale (legible photocopy acceptable). **Important:** A bill of sale must accompany equip-ment for warranty service. Components and accessories purchased separately must also be accompanied by acceptable 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. 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. Horizon Service Center 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 your name, mailing address, and a phone number where you can 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 that you require service for your JR system or components not covered under the warranty, follow the instructions below to ensure prompt and professional handling of your request.

1. Check all on/off switches to be sure they off. This will speed the repair process of checking battery condition.
2. Return your system components only (transmitter, receiver, servos, etc.), excluding your servo trays, padding, etc.
3. 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 writing it 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. Horizon Service Center will confirm the receipt of your equipment by mail and will send you the estimated time of service completion, unless turn-around time is 8 business days or less. Should your repair cost exceed 50% of the retail purchase cost, you will be provided with an estimate advising you of your options.

5 WARRANTY INFORMATION continued

6. Within your letter, advise us of the payment method you prefer to use. Horizon Service Center accepts VISA or MasterCard, or we can return C.O.D. cash-only. If you prefer to use a credit card, include your card number and expiration date.

Mail your system to:

Horizon Service Center
4105 Fieldstone Road
Champaign, IL 61821
Phone: 217-355-9511

4 FREQUENCY CHART

72 MHz requires no special license to operate.

50/53 MHz requires the operator to have an FCC amateur radio license (Ham).

LOW BAND 72 MHz	
CH.NO.	FREQUENCY
11	72.010
12	72.030
13	72.050
14	72.070
15	72.090
16	72.110
17	72.130
18	72.150
19	72.170
20	72.190
21	72.210
22	72.230
23	72.250
24	72.270
25	72.290
26	72.310
27	72.330
28	72.350
29	72.370
30	72.390
31	72.410
32	72.430
33	72.450
34	72.470
35	72.490

HIGH BAND 72 MHz	
CH.NO.	FREQUENCY
36	72.510
37	72.530
38	72.550
39	72.570
40	72.590
41	72.610
42	72.630
43	72.650
44	72.670
45	72.690
46	72.710
47	72.730
48	72.750
49	72.770
50	72.790
51	72.810
52	72.830
53	72.850
54	72.870
55	72.890
56	72.910
57	72.930
58	72.950
59	72.970
60	72.990

50MHz	
CH.NO.	FREQUENCY
00	50.800
01	50.820
02	50.840
03	50.860
04	50.880
05	50.900
06	50.920
07	50.940
08	50.960
09	50.980

LOW FREQUENCY 53 MHZ		
CH. NO.	FREQUENCY	FLAG COLOR
A1	53.100	Black/Brown
A2	53.200	Black/Red
A3	53.300	Black/Orange
A4	53.400	Black/Yellow
A5	53.500	Black/Green

HIGH FREQUENCY 53 MHZ		
CH. NO.	FREQUENCY	FLAG COLOR
A6	53.600	Black/Blue
A7	53.700	Black/Purple
A8	53.800	Black/Gray

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