Radio Control System

The Radio Control System consists of the control transmitter unit held by the operator and the receiver with its associated components in the robot.

The Radio Control Transmitter converts movements of the control sticks and switches into a coded radio signal, which is transmitted by radio to the Radio Control Receiver within the robot. The signal is received and then decoded by the micro-controller, which is on the main circuit board in the robot. The micro-controller controls functions based on what was sent from the radio control transmitter.

RADIO CONTROL OPERATING INSTRUCTIONS

Refer to the diagram showing the radio control transmitter for the location of controls. Check all of the trim adjustments on the transmitter and make sure they are in their center position. Extend the Radio Control Transmitter Antenna 1/4 to 1/2 way. Turn the Radio Control Transmitter on first and then turn on the main robot power switch. It is necessary for the robot to always have an operating signal when it is on, if there is no signal you will not have full control of the robot.

The right hand joystick controls movement of the robot's drive wheels. Pushing the stick forward will cause the robot to move forward. Pulling the stick back will cause the robot to move backward. Moving the stick to the right or left will cause the robot to turn to the right or left respectively. Movement is fully proportional so any variation or combination of movement is possible. The horizontal and vertical trim tabs to the left and below the joystick are for centering and should be adjusted periodically.

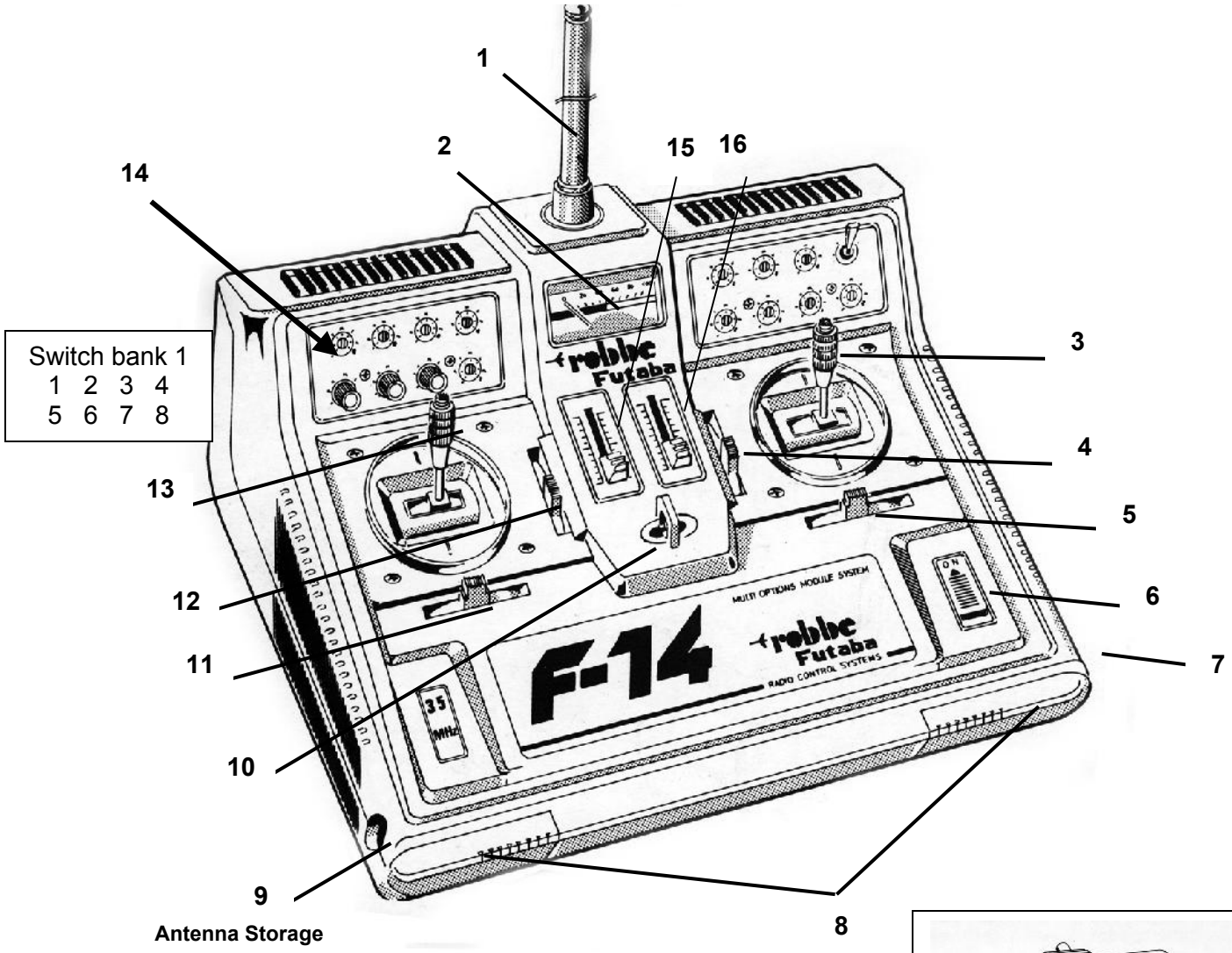
Control of the left and right eyelids is on Switch bank 1, switches #6 and #7 (See the radio control diagram) found on the upper left hand of the Radio Control Transmitter. Pushing it closes the eyelids. The eyelids can be operated together with switch #8. Pushing this switch closes the eyelids for blinking of the eyelids. The eyes left and right move when you turn the head. The eyes will look in the direction that you are turning, adding animation to the robot.

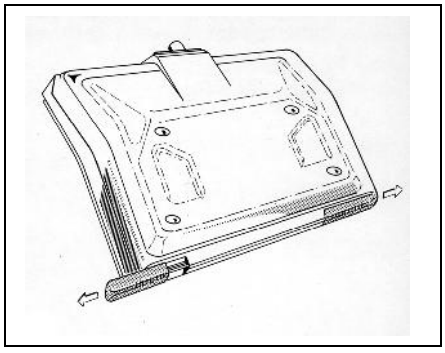
The left joystick left and right moves Character' head. The slider control below the stick should be left in the center so that the head stays in the center. Forward and back movement of the joystick tips the head up and down. By moving the stick all around you get fully proportional movement.

For a detail of other functions, see the radio control diagram on the next page. All of these functions are labeled on the radio control itself.

A charge plug is provided on the transmitter for recharging its internal battery (#7 on the diagram). The transmitter power switch must be in the off position before charging the batteries. A charge light on the charger will come on while charging.

RADIO CONTROL TRANSMITTER
(Robbe-Futaba F-14)





To remove back cover, slide the tabs as shown.

RC TRANSMITTER CONTROLS

1. Telescopic Transmitter Aerial.

2. Transmitter Battery Voltage Meter (Expand Scale Voltmeter)

3. Right control Stick-
   Up and Down – Robot drive motors, forward and reverse.
   Right and Left – Robot drive motors steering. Left and right turns.

4. Forward/Reverse Trim lever for right control stick. Normal = Center. Neutrals the drive motors. If the robot is moving slightly slide this a few clicks until robot stops moving.

5. Left and right Trim lever for right control stick. Normal = Center. Neutrals the drive motors. If the robot is moving slightly slide this a few clicks until robot stops moving.

6. On/Off switch

7. Recharge jack. Plug the RC battery charger in here to recharge the internal battery. The charge light will come on, on the charger.

8. Sliding tabs to remove the back cover. Slide both tabs off and take the back cover off.

9. Antenna storage.

10. Neck strap connecting hook.

11. Left and right Trim lever for left control stick. Normal = Center. Centers the head and eyes on robots with head movement.

12. Forward and reverse trim lever for the left control stick. Normal = Center. Unused.

13. Left Control Stick
    Left and right movement - Turning of the head left and right.
    Up and Down – Tipping of the head up and down.

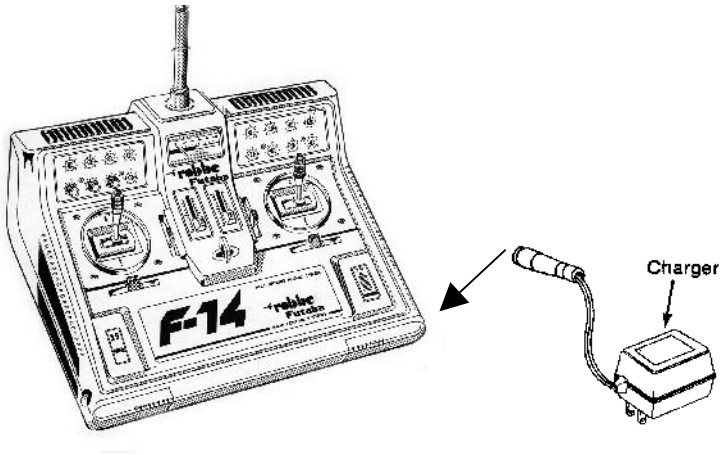
14. Switch bank 1

5. Back- Siren/ Forward- Tape
6. Back- close left eyelid momentary / Forward- Left Hand
7. Back- close right eyelid momentary / Forward- Right Hand
8. Back- Blink
   Forward – Voice Modifier on/off

15. Left Arm slider
16. Right Arm slider

THE Nickel Metal Hydride (NI-MH) RC TRANSMITTER BATTERY

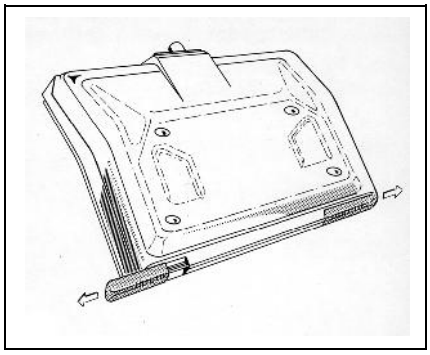
The NI-MH RC transmitter battery will last about 5-6 hours on a full charge. Charge the battery for **16 hours**. A charge jack is provided on the transmitter for recharging its internal batteries. This round jack is located on the right side of the radio control. (See the radio control diagram) The RC power switch must be in the off position when the charger is plugged into it and must remain in the off position while charging. A light on the charger will be on, when charging.



Caution: Do not overcharge the batteries as this could cause permanent damage to the transmitter batteries. (Doubling the normal charging time is the type of over charging that is meant here, and the battery getting hot.) When the battery level needle goes in the red, the robot should be turned off because the robot could act erratic without the transmitter signal.

To avoid a RC battery going dead during a presentation, start the program with a fully charged battery or be aware of how much charge there is left in the battery. If you have an extra battery or the optional 110 Volt RC Power Supply, you can connect one of these and keep going.

To install the NI-MH battery pack you need to take the back cover off the RC.



To remove back cover, slide the tabs as shown.

NI-MH RC Battery and Charger Specifications

NI-MH RC transmitter battery	9.6 Volts	1300mAH
NI-MH RC transmitter battery charger	11.6 Volts	130mA

Adapter for Charging an Extra NI-MH RC Transmitter Battery

If you have an extra NI-MH RC battery, you can charge this outside the RC. You may want to do this while you are using the robot or if you need to charge both batteries at the same time. The adapter needed to do this is in the control case or it is on your charger. It has a white connector on one side and a connection on the other end that will go directly to your battery. The charging time is still 16 hours.