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 vehicle. 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 typically left in the center. The only time that you would need to move these trims is if the robot started moving slightly on its own. In this case move them slightly until the robot stops.

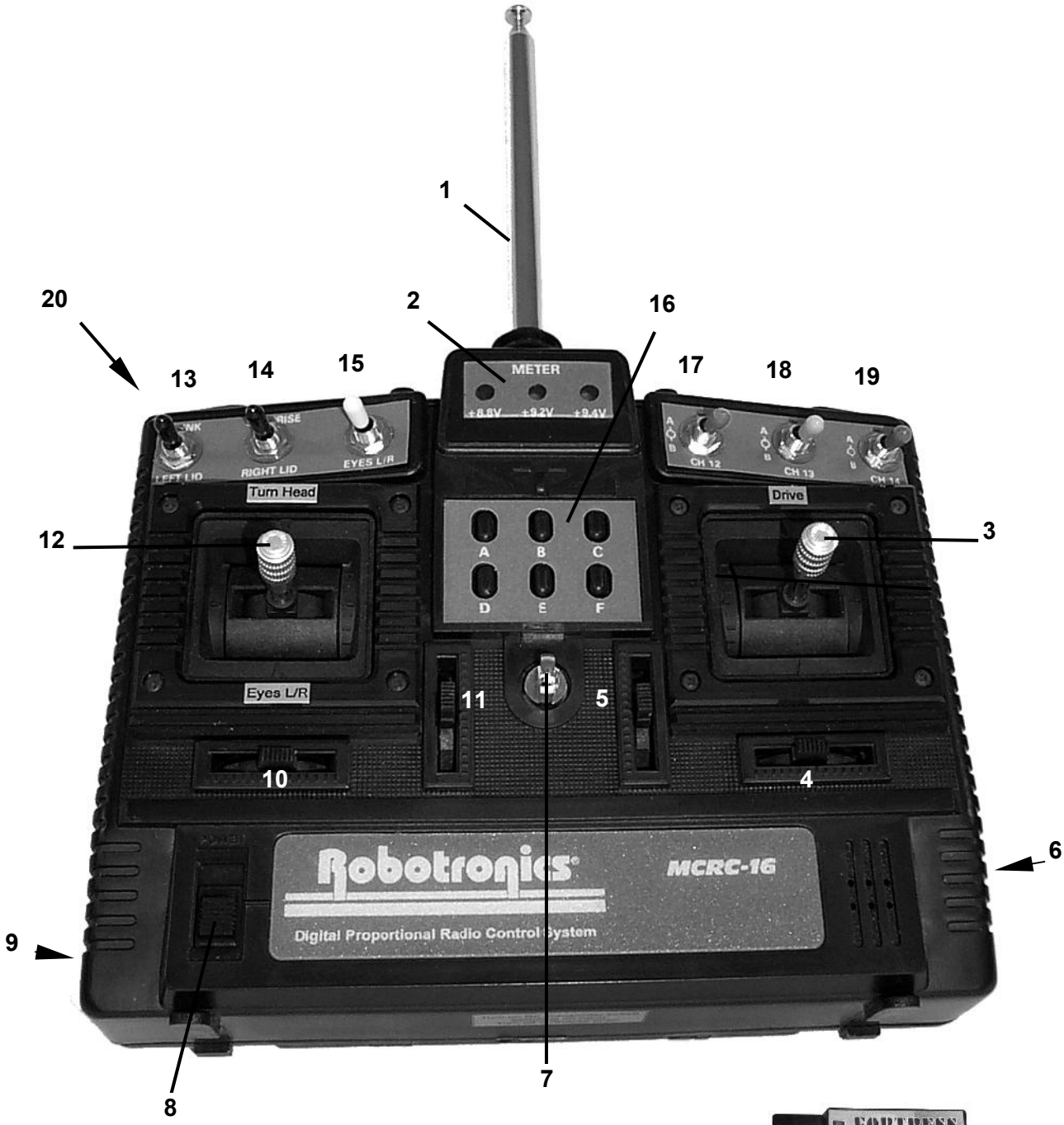
Control of the left and right eyelids is on Switch 13 and 14 (See the radio control diagram) found on the upper left hand of the Radio Control Transmitter. The eyelids can be operated together with switch 13. Pushing this switch closes the eyelids for blinking of the eyelids. The eyes left and right move when you turn the head if you have a character driving the robot. The eyes will look in the direction that you are turning, adding animation to the robot. Switch 15 also moves the eyes left and right.

The left joystick left and right moves the Character' head on robots with a Character driving it. On other robots this stick controls the eyes left and right. 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 does not control a function.

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 (#9 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
(Robotronics MCRC-16)



Signal wire connects to channel B

RC Receiver on robot

RC Transmitter Controls

Note: The following information on the transmitter controls includes information for a variety of similar robots.

1. Telescopic Transmitter Aerial.

2. Transmitter Battery Voltage Meter (LED)

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. Left/Right Slider-Channel 3 not used.

5. Forward/Reverse Slider-Channel 4 not used.

6. Jack not used.

7. Neck strap connecting hook.

8. On/Off Power Switch.

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

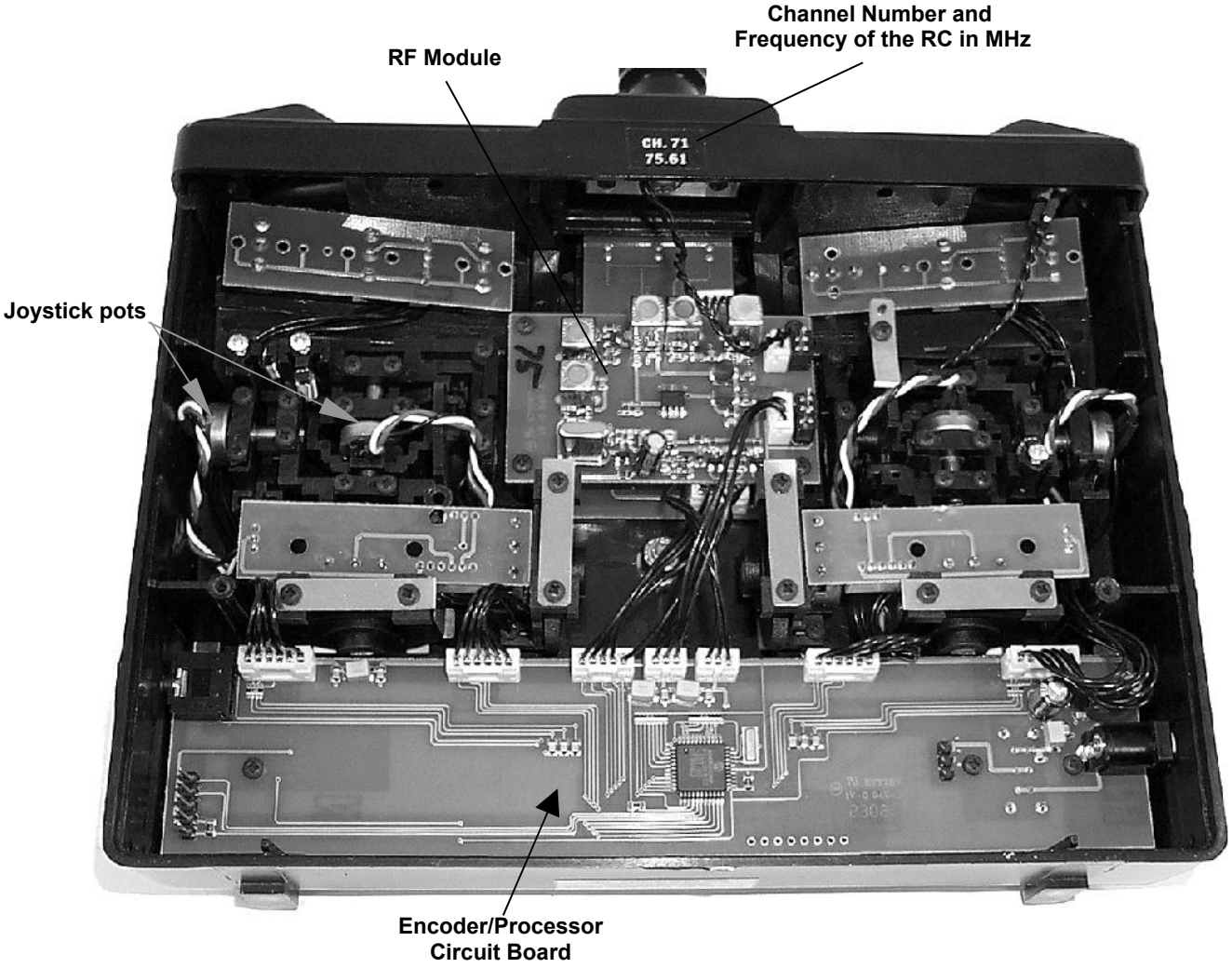
10. Left and right Slider-Channel 6 not used.

11. Forward and reverse slider-Channel 5 not used.

12. Left Control Stick
    Left and right movement – Head turning left and right and eyes left and right (Head turning on Character in Vehicle).
    Up and Down – Unused

13. Back- close Left eyelid / Forward- Blink both eyelids.
14. Back- close right eyelid / Forward- Surprise.
15. Eyes left and right.
16. Pushbuttons- B=water squirt
17. Andy- Forward-Flashing Red and White
    Buster- Back- Yellows / Forward- Reds and stop arm option
    Otto- Back- Turn signal left / Forward- Turn signal right
18. Back-Headlights/Body lights / Forward-Beacon
19. Back-Siren / Forward-Tape Player
20. Program button- **Important! Do not push!** Used only for re-centering neutral on drive stick. Procedure is listed under drive section of this manual.

RC Transmitter Inside View



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 **12 to 14 hours**. A charge jack is provided on the transmitter for recharging its internal batteries. This round jack is located on the left 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 change the NI-MH battery pack you need to take the battery door off the RC.

When making the connection, line the connector up carefully with the pins.

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 need 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. If the barrel adapter is currently on the charger, disconnect it and connect the other adapter. The charging time is still 14 hours.