

MP3 Player and Adaptor - Option

The MP3 player and adaptor is an additional audio source to play music or other audio. The MP3/CD player adaptor goes between the headset mic and the voice transmitter. You can also use a CD player with the adaptor. It has one connection to go to the MP3 player. You can use the voice system without the adaptor also. The diagram below shows how to do the hook up.



Using the MP3 Player (See the operating manual in the control case).

1. Install a fresh battery in the MP3 player.
2. Install the software from the CD on your computer to download songs to the player. Connect the USB cable provided from the MP3 player to your computer.
3. Make sure the lock switch is off which locks the controls.
4. Press and hold the play button. Select the music menu and select a track.
5. For more volume, go in to the menu-output settings and change to line out. This will give you a higher volume adjustment.
6. Start the track with the play button. You can pause with this same button. To select a track, use the forward and reverse track buttons.

Auto Shutoff Feature

The auto shutoff feature shuts off the MP3 player if not in use for a designated amount of time. You can change this from 1 minute to 60 minutes. Just go in to the settings menu, auto shutdown. We recommend a setting of at least 25 minutes so that it does not shut off while you are doing a program.

Bilge Pump is not included in this unit

PART 3

CHAPTER 10 Assembly & Disassembly

Installing the robot battery:

1. Position the robot battery so that the posts face the rear of the robot. In this position, the battery wire will naturally run to the robot battery connector.
2. Connect the robot battery connector to the robot connector. Red will go to red and black to black. This connection is polarity protected and can be connected only the correct way.
3. Secure the battery in place with the battery strap. Adjust the clip on the strap if necessary so that when you put the two clips together, the strap is holding the battery in place tight.



CAUTION

The robot battery posts should never contact the metal of the main electronics box or the metal of the drive base. This will result in damage to electronic components especially inside the main electronics box.

Installing the upper robot on the lower :

1. Set the upper robot on the lower robot body.
2. Locate the four body latches and push the pins into the body to secure the upper robot to the lower. Two of the latches are located in the compartment where Patches sits. The pins are to the left and right of Patches. The other two are at the back of the robot. To latch these you will need to reach in through the back hatch/trunk.
3. Connect the 37 pin connector that is a round connector and wire bundle running from the upper robot to the lower robot. When connecting this rotate it until it sits down into its mate connection and turn the ring until it is secure.



CAUTION

If the upper robot is not properly latched before transport, it could come off while moving the robot with the transport cart or in a vehicle, causing damage to the upper robot.

Removing the main electronics box from the robot:

1. **Always remove the robot battery** from the robot before working with or removing the main electronics box. This is important because the electronics in the box will be damaged if it contacts a post of the robot battery.
2. There are 4 nuts to remove at the base of the main box bracket. Two are at the front and two at the back. There are some wires to disconnect also. These include the speaker wires, headlights, drive motor wires (blue and yellow), power wire to the 151 voice transmitter and the green long antenna wire.

3. The box can now be removed. When removing, do it slowly, making sure that all wires are disconnected.

Removing the drive base from the body: (This would be necessary only if you needed to get to the drive pulleys, belts or remove a drive motor.)

1. Remove the robot battery from The robot before removing the drive base.
2. On some models, the main electronics box and bracket have to be removed first.
3. Disconnect the drive motor wires at the in line connection. These wires are blue and yellow wires going to each drive motor.
4. Rotate the handles of the Link Lock Latches in the drive base counter-clockwise. This will release the latch from the slot of the mounting plate.
5. Lift the back of the robot up and roll the drive base out from under it.

Installing the drive base back into the body:

1. Lift the back of the robot up enough to roll the drive base under and into position.
2. Line up the four aligning threads with their holes and lower the robot onto them.
3. Turn the handle of the Link Lock Latch clockwise and make sure that it pulls down into the slot of the mounting plate.
4. Keep turning the handle until it is turned as far clockwise as possible and then lay down the handle. This locks the mechanism.

Reverse steps for disassembly or assembly.

PART 4

CHAPTER 11 Maintenance

Regular Maintenance Checklist

Periodically the robot should receive a thorough inspection.

1. Examine the exterior of the robot and make repairs as necessary. See the robot body repair instructions if needed.
2. Remove the upper robot. Check all bolts and nuts for tightness.
3. Examine electrical wiring and connectors for looseness and wear.
4. Clean and lubricate mechanical parts of the robot such as the front wheel casters as needed. Inspect the drive belt and pulley system making sure that the motor pulley set screws are tight. You can use belt dressing on the drive belts if they are dry or squeaky.
5. Clean the cassette tape system according to instructions in the Cassette Tape and Radio System pages.
6. Wash the robot body with mild soap and water and a soft cloth and reattach the body. (Rubbing alcohol may be used on stains that won't come off with soap. If this causes the finish of the plastic to become dull, apply ARMOR-ALL brand protectant. Do NOT use alcohol on windows or pupils.)
7. Check the Radio Control System and Voice Transceiver for broken wires, controls, cases, etc. The metal clips that are in the voice units and contact the 9 Volt battery, should be bent out routinely to maintain good contact.
8. Fully charge the battery and test all robot system functions. This must be done on a daily basis when the robot is in constant use. Remember, the robot battery should be brought to a full charge after each use of the robot so that it always has a full charge on it.

To prolong the life of your robot system, always store in a safe place away from **light, dust, moisture**, and excessive heat. **To keep dust and light away from the robot, a robot cover should be used.** The robot and Radio Control Transmitter batteries should be stored fully charged. Transport and store the robot standing up. (Never upside down!)

For a list of recommended tools for a tool kit, see the next page. Ask us about the *Robot Maintenance tool kit* that is available.

Recommended Tool Kit

Fuses- 1, 3, 5, 15, 20, 30 Amp (AGC Type)
4" cable ties
#53 Miniature bayonet bulbs (automotive panel type)
Precision regular Phillips screw drivers
Screwdrivers (flat head and Phillips)
Socket and ratchet set
Needle nose pliers
Crimper/Wire strippers
Wire cutters (diagonal cutters)
7/16" & 3/8" wrenches
Set of Allen wrenches (Especially 3/32" and 1/8" sizes)
Extra 9 Volt alkaline batteries
Small soldering iron and solder
Small can all purpose lubricant
Digital Multimeter (Volts/Ohms)

Other recommendations:

3 X larger plastic bins (one to carry tools and accessories, one to carry lifejackets / PFDs of various sizes, and one to carry other props for presentations).

PAINTING OF THE ROBOT BODY

The following information is only suggestions of painting methods. Contact a professional for assistance.

Preparing the surface:

The robot body is an **ABS plastic** and should be cleaned before painting to remove oils and dirt. This is especially true if the surface has had a protectorant such as Armor-All put on it. If the body has not had a protectorant or other silicone product used on it, you could clean the area with isopropyl alcohol to prepare it. It helps to smooth the rough edges of the scrapes or scratches before painting with a 600 grit sandpaper. You can lightly sand the area to paint with the 600 grit sandpaper or a Scotch-Brite 7448 pad. The red is PMS 4385 – (warm red)

Painting the surface:

Method 1

Enamel spray paints such as Krylon Interior/Exterior enamel could be used. This can be touched up easy if the paint ever got a scuff or scrape but is typically just for painting trim, bumpers, gauge plates etc. Carefully cover parts that are not to be painted with masking tape and paper, to protect against over spray.

If you purchased a painted boat, method is what was used. The typical paints used are Dupont and Sherwin Williams automotive paints for plastic surfaces.

Method 2

Note: If you use method 2, you should contact a professional painter that has had experience painting on various types of surfaces. These are automotive type paints and typically include a primer and base coat. For a glossy look you can use a glossy base coat or a clear coat.

Brand- Dupont

Primer: Acrylic Urethane Flexible Primer Surfacer. Primer is optional.

Paint: Acrylic Enamel. Dupont ChromaBase Basecoat.

Brand- PPG

Primer: Check with painter.

Paint: Deltron DBU

Brand- Sikkens

Primer: Plastoflex primer by Sikkens

Paint: Autocryl by Sikkens (two-part acrylic urethane enamel)

The information listed includes suggestions and general information. This material is designed for application only by trained professional painters using proper equipment.

If you have any questions, call our service department at 801-489-4466.

REPAIR OF THE ROBOT BODY

Materials

Super glue

ABS or PVC clear medium bodied glue

Fiberglass mesh

rubber gloves

1. Hold the crack together tightly so that the glue you put on the inside of the body does not run through the crack on to the outside of the body. This would etch into the plastic.
2. If there are pieces of plastic reinforcement across the seam or crack that are unglued, PVC or ABS glue can be used between the reinforcement piece and the body. A clamp could be used to hold the plastic tightly together while drying.
3. Cut a piece of fiberglass mesh to cover the crack.
4. Position the body, so that the seam or crack is horizontal to the table. This will keep the glue from running. Apply some of the PVC or ABS glue along the seam, only on the inside of the body. Check to make sure that the glue is not running through the crack on to the outside of the body. Note: Avoid getting the glue on your hands.
5. Immediately put the fiberglass mesh on the glue and pat it down to saturate into the glue.
6. Apply some more PVC or ABS glue over the fiberglass mesh to saturate it some more.
7. It will dry to the touch in about 30 minutes. Allow 24 hours for complete drying.
8. For cracks that need more strength, glue a piece of ABS plastic across the crack with PVC glue. Use a clamp or something heavy to hold it down while drying.

General Precautions:

Use in a well ventilated area.


Use gloves to avoid getting glue on your hands.

Avoid getting the fiberglass on your skin or clothing. The fiberglass will not hurt you, but could cause skin irritation.

For further precautions, read the super glue, PVC, and ABS container labels.

STORAGE

Storing your robot for any length of time.

1.  Remove robot battery and charge fully as per instructions in battery section. **(Storing the battery for any length of time without being fully charged will permanently damage the battery.)**
2. Charge the RC battery as per instructions.
3. Remove batteries from operators transmitter and receiver.
4. The RC Transmitter and voice pieces should always be stored in the carrying case; this will extend the life and help insure proper operation.
5. Inspect robot for loose bolts or any additional maintenance that may need to be done.
6. Clean the body and top as per instructions in maintenance section. (If robot is stored with a dirty body it may be harder to clean at a later date, as stains may become permanent.)
7. Storing your robot with a dust cover on it will keep the robot clean and protect the body from scratches. It will also keep ultra-violet light from effecting the ABS plastic body.
8. The robot and batteries should be stored in a dry place between 55-75 degrees F. Storing the robot in a safe place will prevent scratches and extend the life.
9. After storing the robot for any length of time always test the robot well in advance of any scheduled activity as it is impossible to anticipate problems. This will ensure time to correct the problem.

APPENDIX A

Quick Reference Troubleshooting

More detailed troubleshooting by system is included with each subsystem. For additional help or parts call our service dept. at 801-489-4466.

Problem	Cause	Solution
General		
No functions operate	1. RC battery not charged	1. Fully charge until the needle is up.
	2. Broken wire from the receiver to main board	2. Resolder or repair wire.
	3. Fuse blown.	3. Check 5 Volt Reg. and processor fuse.
	4. Main board in robot not getting power	4. Check pins of battery and robot connector. Check on/off switch wires. Check ground wires.
	5. Radio Control transmitter or Receiver Crystal broken.	Replace crystals. Send RC and Receiver in to determine if it is a crystal.
Voice System		
<u>Always do the following first:</u>		
1. Replace the 9 Volt batteries with new ones. USE ALKALINE!		
2. Bend the battery contact out for better contact with the post of the 9 Volt battery.		
3. Check power and audio switches, and lights on all voice units.		
4. Check plug to and from the voices for proper connection.		
5. Check if the transmit (TX) lights are coming on.		
Operator cannot talk	Low Battery	Replace the 9 Volt battery.
	No power to the 101 Receiver.	Check the in line fuse to the Receiver in robot and audio fuse on main electronics box.
	Battery posts not touching the metal clips in the operator's transmitter.	Bend out the metal clips.
	Headset plug to transmitter broken.	Take apart and look for broken wire or solder joint.
Operator cannot hear	Low Battery	Replace the 9 Volt battery.
	Battery posts not touching the metal clips in the operator's receiver	Bend out the metal clips.
	Headset plug to 151 RX has a broken wire.	Unscrew cover of plug and look for broken wire.
	Robot 151 transmitter not turned on.	Turn on audio and power.
	Power plug to robot 151 transmitter unplugged.	Find wire and plug it back in.
	If you have no TX light on 151 RX mute could be out of adjustment	Adjust the mute on the 151 RX to max. which is fully CCW.
Voice Operates but cuts out. Should get 50 feet without any cutouts.	Low Battery	Replace the 9 Volt battery
	Sensitivity Adjustment down too far.	Sensitivity adjustments should be at max. on the 151 Receiver and robot receiver.
	Broken, loose or retracted antenna	Extend robot receiver antenna or replace broken antenna.
Squelch coming from robot	No signal being sent to the robot	Turn on the operator's transmitter.
	Sensitivity is too sensitive.	Very slightly adjust sensitivity down from max. (This will decrease your range)
Squelch in headset when turning robot off.	151 Receiver slightly too sensitive.	Adjust 151 RX mute slightly CW
	151 RX picking up interference in your area.	Always turn off 151 RX the robot.
Cassette Player		
No tape operation	Tape player no on tape mode	Put mode select to tape
	Play button not pushed	Must push play button before hitting the switch on the radio control.
	Tape is too tight.	Loose with a pencil by spinning.
	Power wire or plug is broken or not connected.	Replace plug or re-connect the wire.
	Radio control or tape circuit not working	Contact Robotronics for help.
No siren, or voice either.	Audio fuse blown.	Replace the fuse. See fuse block diagram.
Poor quality sound or slow.	Belts worn out and slipping.	Replace cassette player or belts.
Siren		
No siren	Audio fuse blown.	Replace fuse. See fuse block diagram.
Siren volume not loud enough	Booster problem if tape and voice vol. also are not loud enough	Replace or have booster repaired.
	Adjust siren volume if tape and voice okay.	See siren volume adjust on main board.

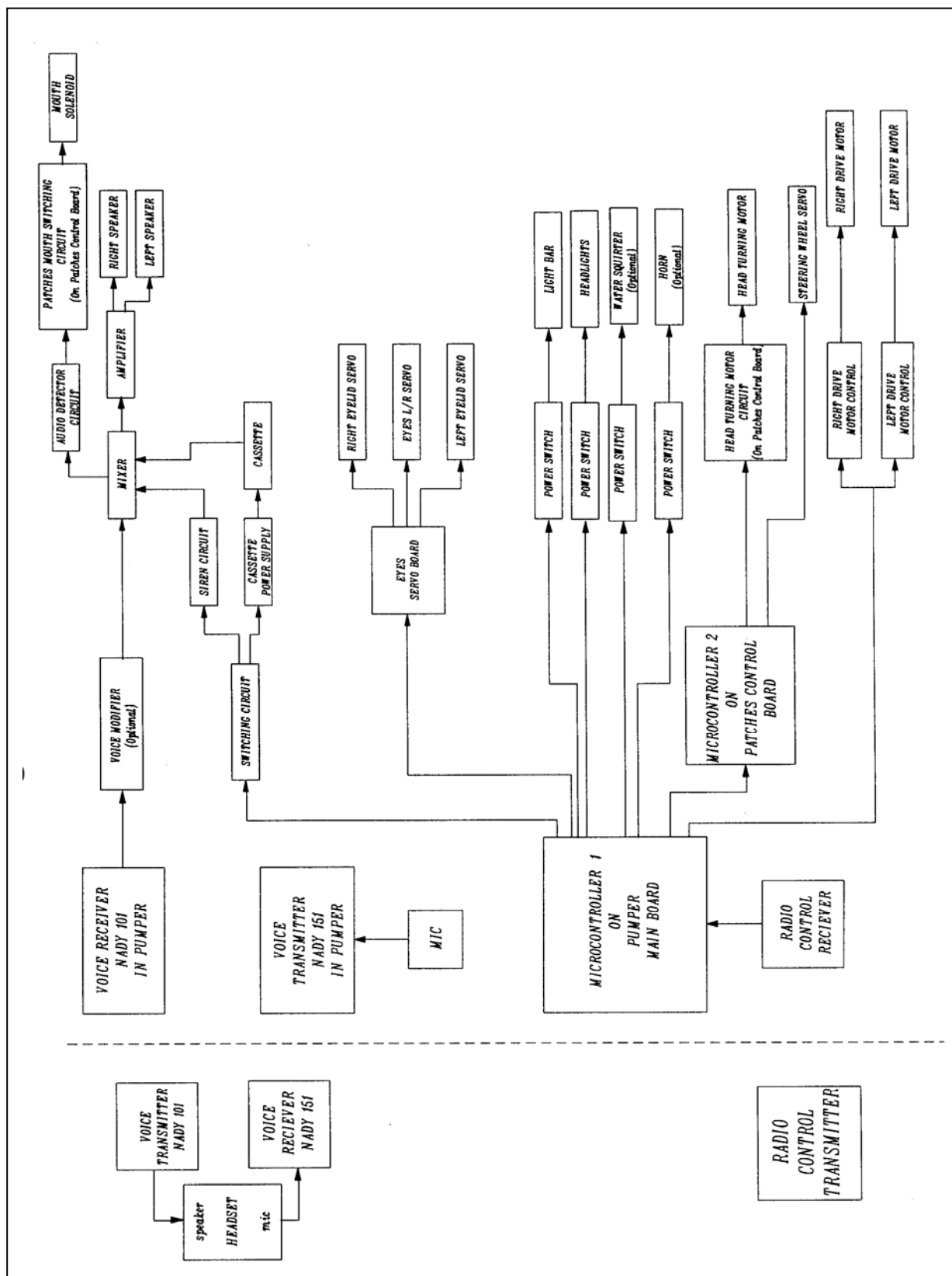
More detailed troubleshooting by system is included with each subsystem. For additional help or parts call our service dept. at 801-489-4466.

Problem	Cause	Solution
Robot Battery System No functions will operate.	Check wires and connector from battery to the robot.	Push battery connector pins in until it clicks in place. Pin could have slipped out of position.
	Battery is very low or bad.	Charge battery or replace if it will not charge. Also test charger.
Battery will not take a full charge. Needle on charger will not move.	Battery has not been kept fully charged	Charge and discharge repeatedly. Replace battery if it does not start charging.
Drive Motors Neither drive operates only. To correctly evaluate drive problems, look at wheels off the ground.	Both drive fuses blown.	Replace drive fuses on fuse block.
	Radio control drive section problem. Contact Robtronics for help.	
One drive only does not operate. Determine first if it is the drive motor or drive circuit. To do this swap the wires that go to the motors at white connector. Same motor still not working then motor is bad. Problem switches to other motor, then problem is in main box possibly the drive circuit itself.	Drive motor pulley loose.	Tighten motor pulley set screws.
	Broken connection at motor connector.	Check blue/yellow wires and in line motor connector at motor
Drive motors moving on their own even when the stick is in the center.	Drive circuit not getting power.	Check drive motor fuses on fuse block (blue wires). Check wires coming from fuse block to motor circuit on the main board. Broken solder joint?
	Drive motor damaged.	Repair or replace motor.
Robot not driving straight.	Drive Circuit on main board problem.	Send main electronics box back to Service Dept.
	Drive trim sliders not in center.	Move drive stick sliders to center or position to neutral the robot.
	Joystick potentiometer broken.	Send to Robotronics for repair.
	One motor pulley set screw loose.	Tighten set screws.
Character Head Turning System Head is out of position but operates.	Straight drive adjustment needs to be adjusted.	Find adjustment on the main circuit board. See diagram of main board in Appendix.
	Loose head set screw or head was hit.	Re-position head and tighten set screw. Better to do this with the robot on.
Head motor is keeping head in not centered position	Head turning pot or pot shaft slipped	Re-center head by adjusting head turning feedback pot- blue pot below motor. Then tighten the set screws on the metal tube. See procedure in head section.
Head motor is not operating	Character board is not getting power	Check fuse on main fuse block.
	Broken wire.	Check power (red/black) and motor wire (blue/yellow).
Eyelids and Eyes Left and Right An eyelid or eyes L/R does not operate	Rod linkage came off.	Get to eyelid rods and ball links and re-attach.
	Servo wire broken or wire came out of eye servo board	Trace wires from servo motor of the eyelid or eyes and follow this wire to the eye servo board to find problem.
One of the eyelids is at a different level	Eyelid rod bent or eyelid out of adjustment	Straighten bent rod or change eyelid position by removing the servo arm. Then shorten or lengthen the rod by twisting the servo arm. You can also change the position of the servo arm on the servo shaft.
No operation of any eye functions.	Connection at eye servo board has come off.	Vehicle- located on underside of upper robot. Robots with Character- located in character.
	Wire(s) bringing 5 Volts and signal to servo board are not making a connection. Broken out of 37 pin connector.	Vehicles- locate the wires (red/black/gray/yellow/black) going from the 37 pin up to the eye servo board. Repair broken wiring. Robots with Character- Check gray/yellow/black and red black to eye servo board.
	No 5 Volts going to eye servo board.	Find broken wire on red/black or check fuse for eye servos on fuse block.

More detailed troubleshooting by system is included with each subsystem. For additional help or parts call our service dept. at 801-489-4466.

Problem	Cause	Solution
Water Squirter Cannot fill reservoir	In-line fuse blown.	Replace the 5 Amp fuse which is in-line on the wire. Follow wire from water squirter switch.
	Broken wire at water squirter switch or coming from main box	Repair break.
Cannot squirt: no pump sound.	Water squirter switch is not in on position.	On position is not the center position.
	Broken wire at pump or W.S. switch.	Repair/re-solder broken wire.
Cannot squirt: pump sound yes	Reservoir empty	Fill Reservoir with filler bottle.
	Water line is not connected to water connector	Connect it.
	Overflow tube and squirt tube are switched at the reservoir.	Swap them back. Overflow tube is the one that is in the top of the bottle and the tube runs to an outlet on the bottom of the frame.
Voice Modifier Voice not being modified	Modifier not turned on.	Push pedal on modifier. Light should come on.
	Audio wires not plugged in correctly	Jumper wire goes from Nady Receiver to Input of Modifier. Wire in Output A of modifier goes to the main board.

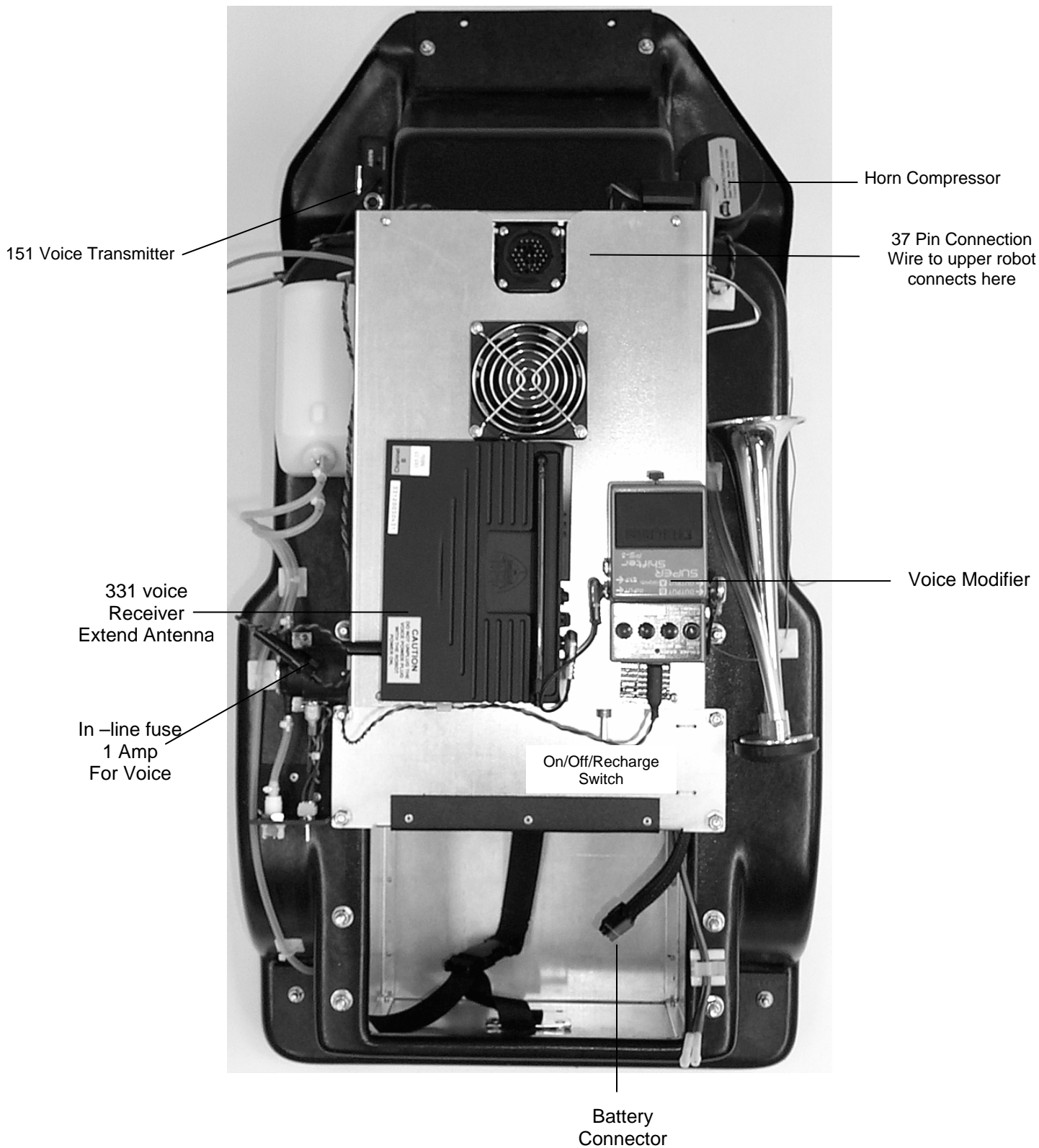
Robot Functional Block Diagram



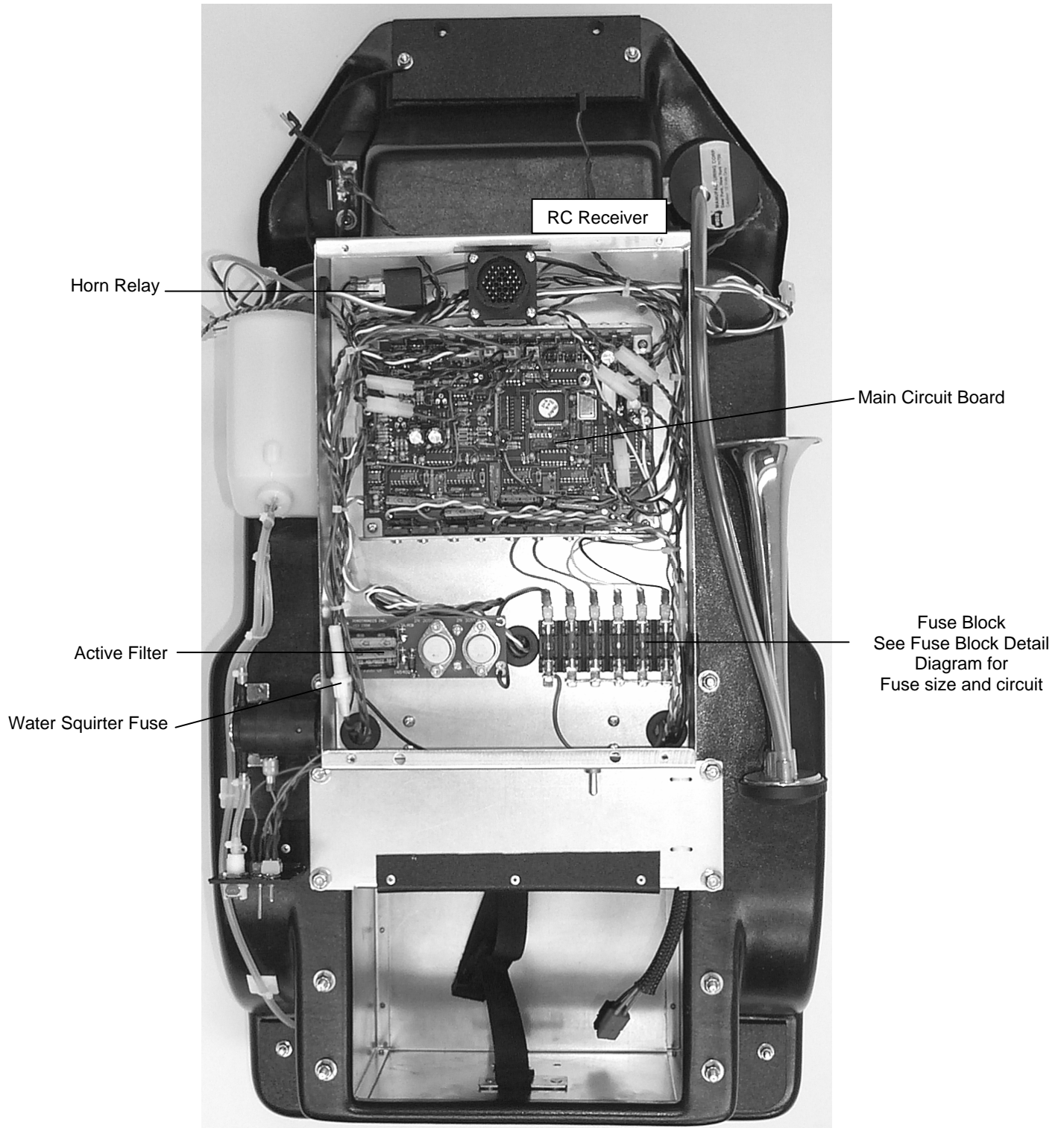
APPENDIX B

ROBOT PARTS IDENTIFICATION

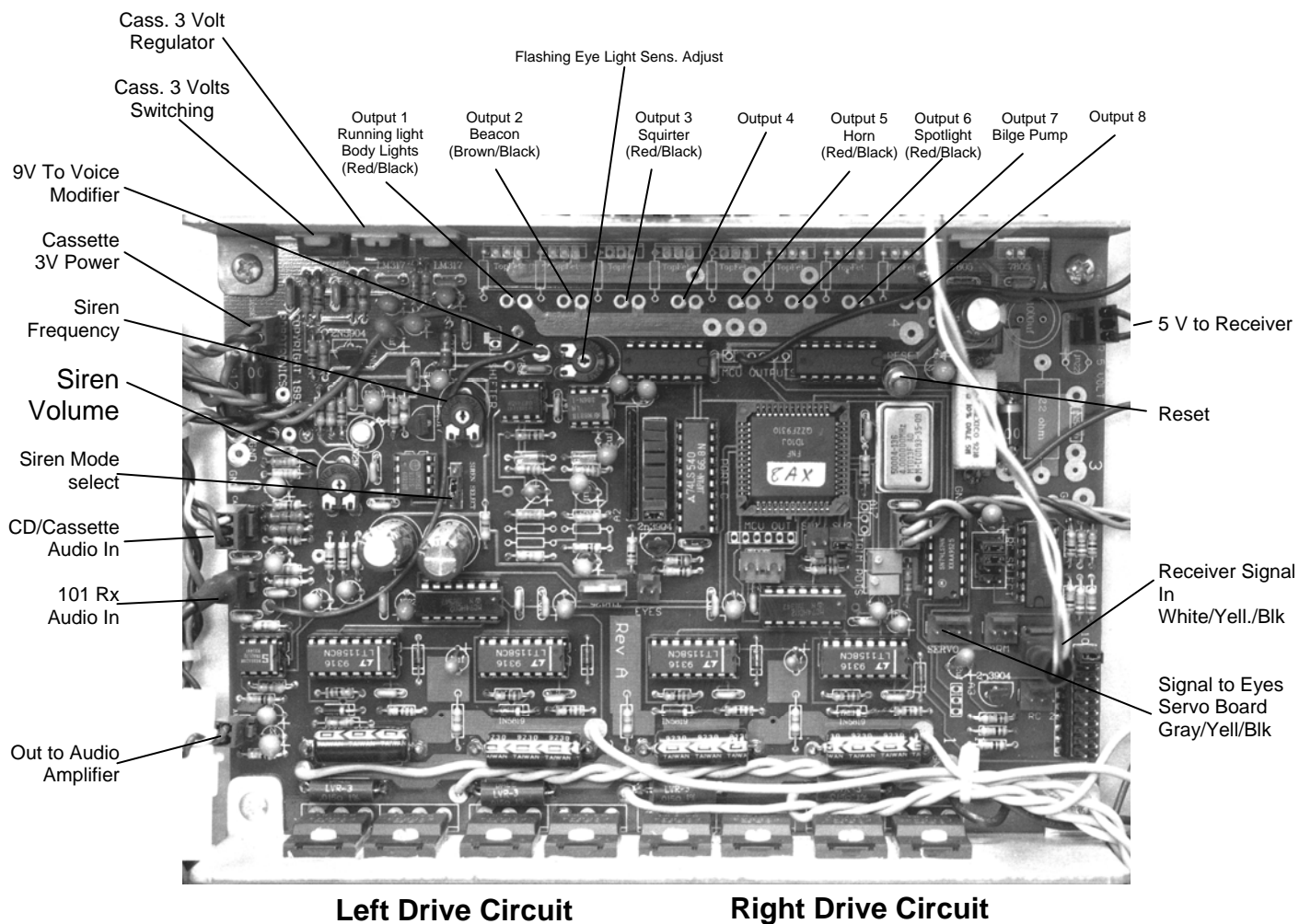
Lower Robot - Top View



Robot Frame Top View

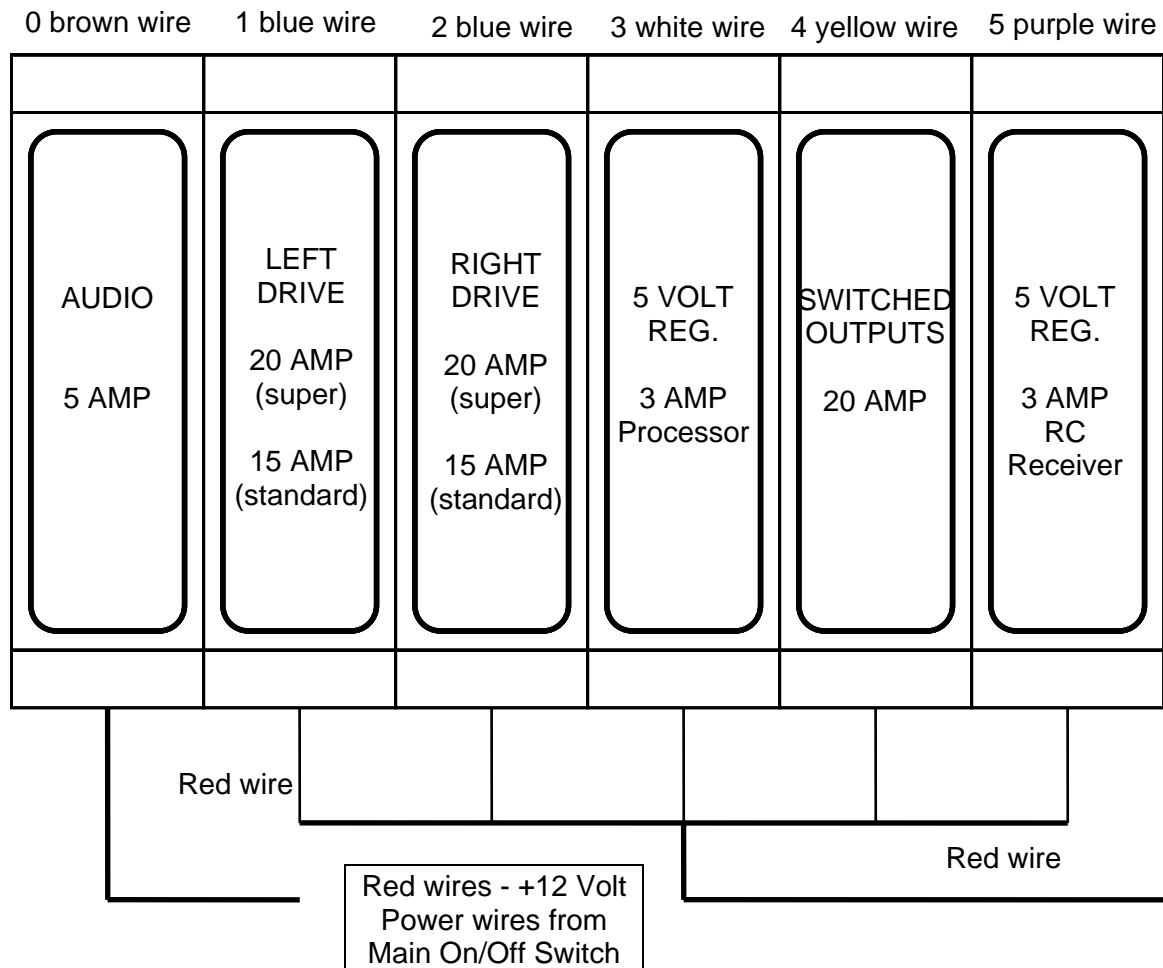


Robot Main Circuit Board



Fuse Block Detail

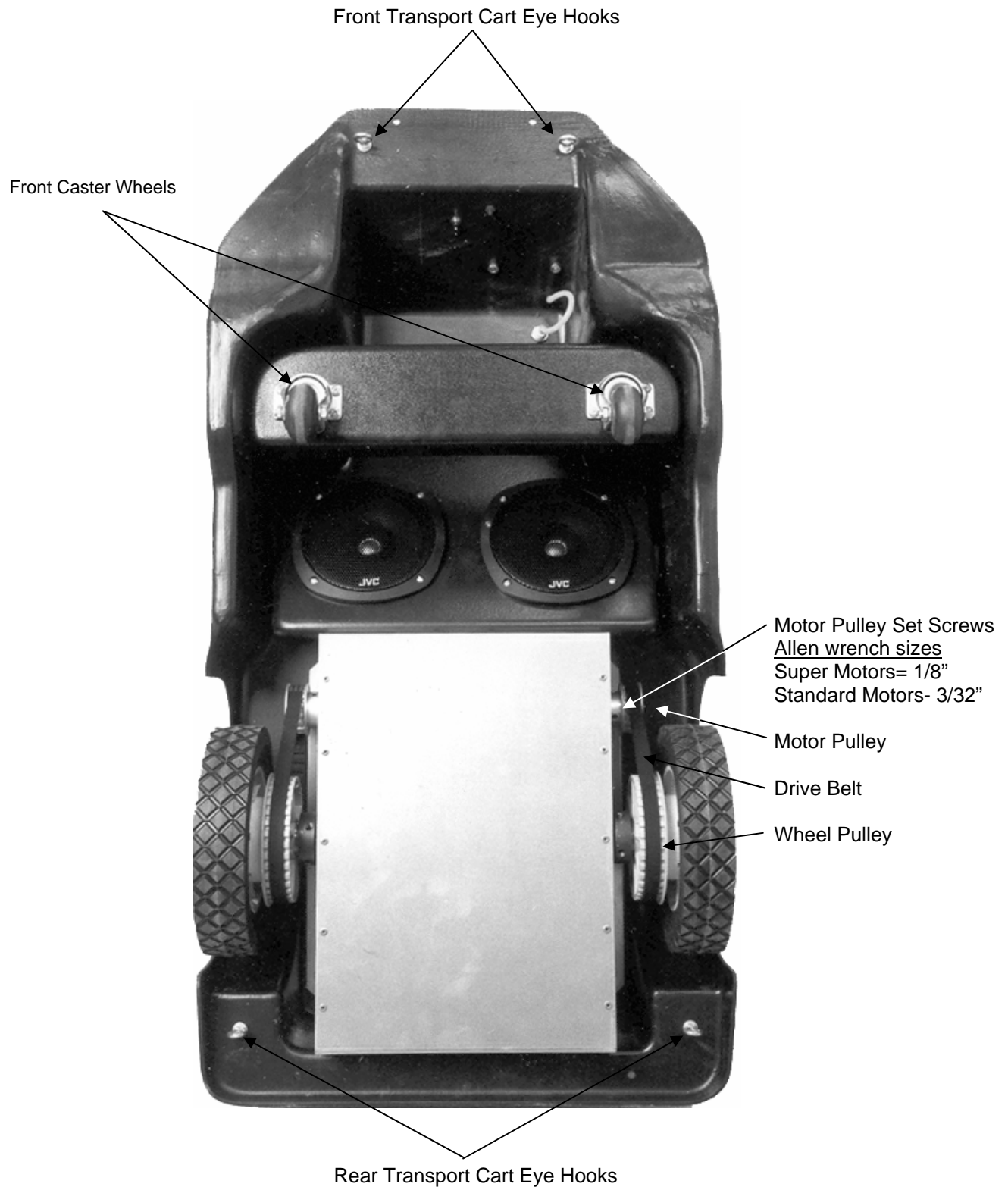
All Fuses are AGC type fuses.



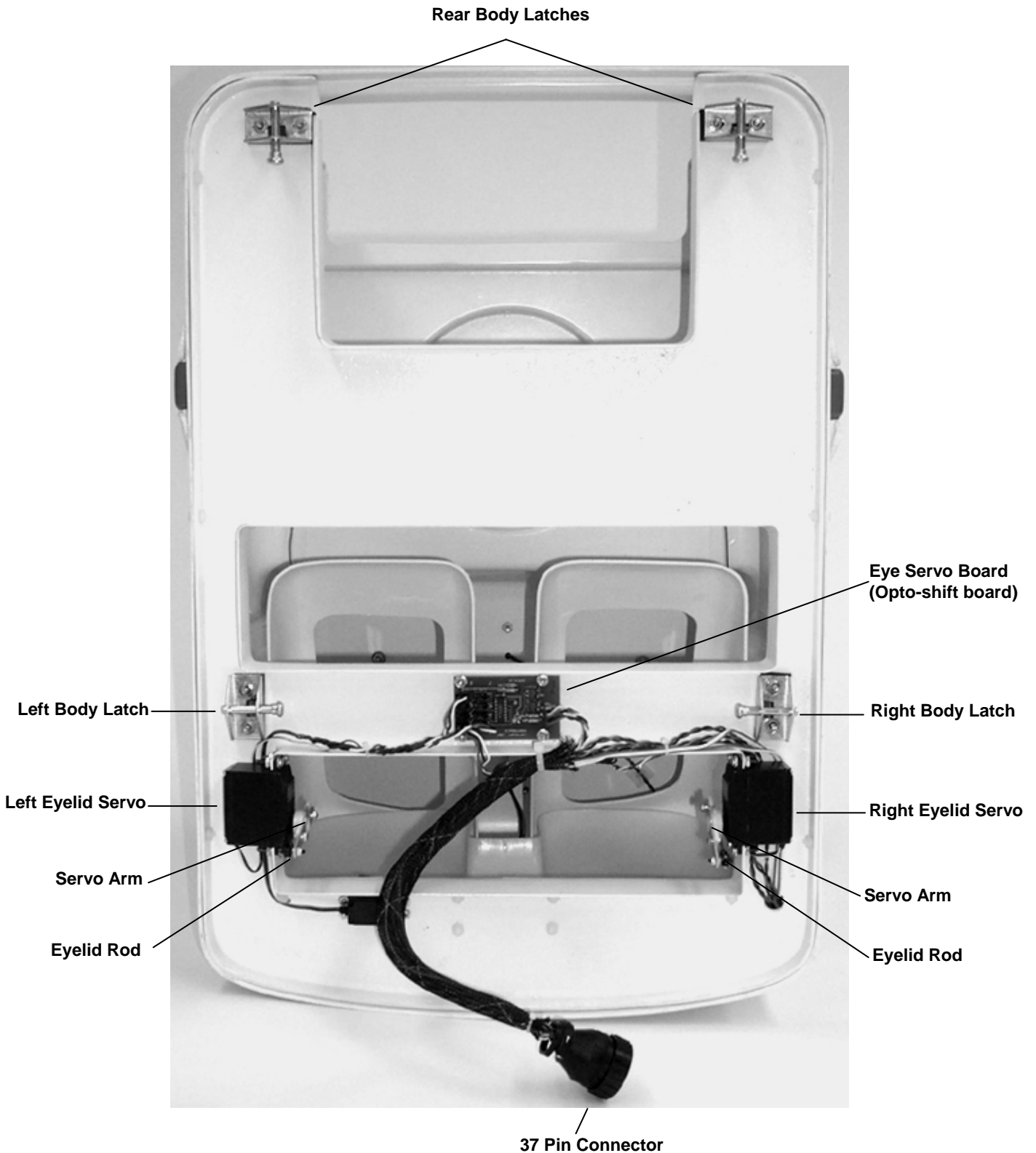
Audio - (Fuse 0) Robot voice transmitter (151), Robot voice receiver (101), audio booster, active filter, cassette player, CD player, and siren.

Switching - (Fuse 4) Cassette player, siren, headlights, beacon, spotlight, horn, and water squirter. This applies to the switching on and off of these functions.

Lower Robot - Bottom View

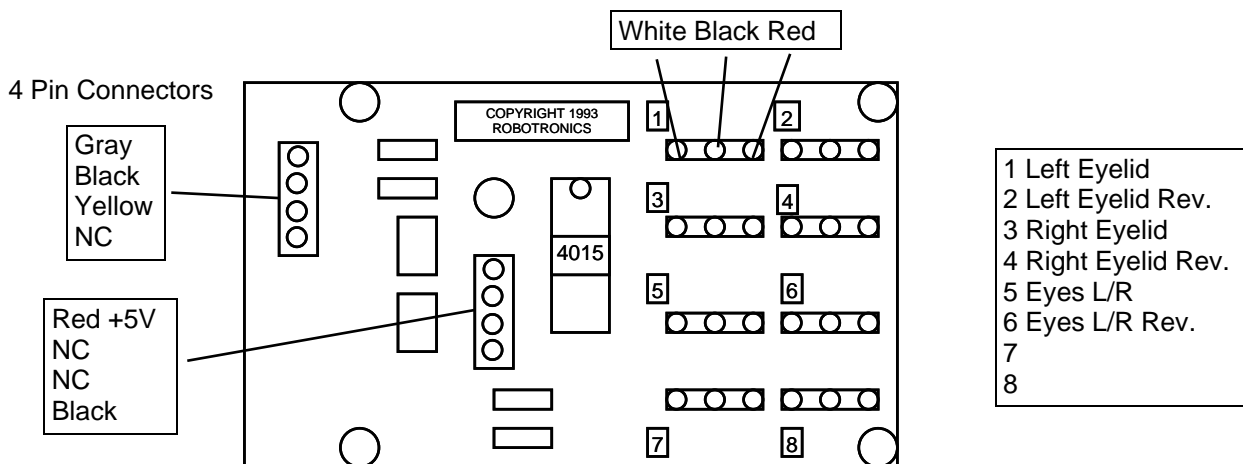


Top – Underside View

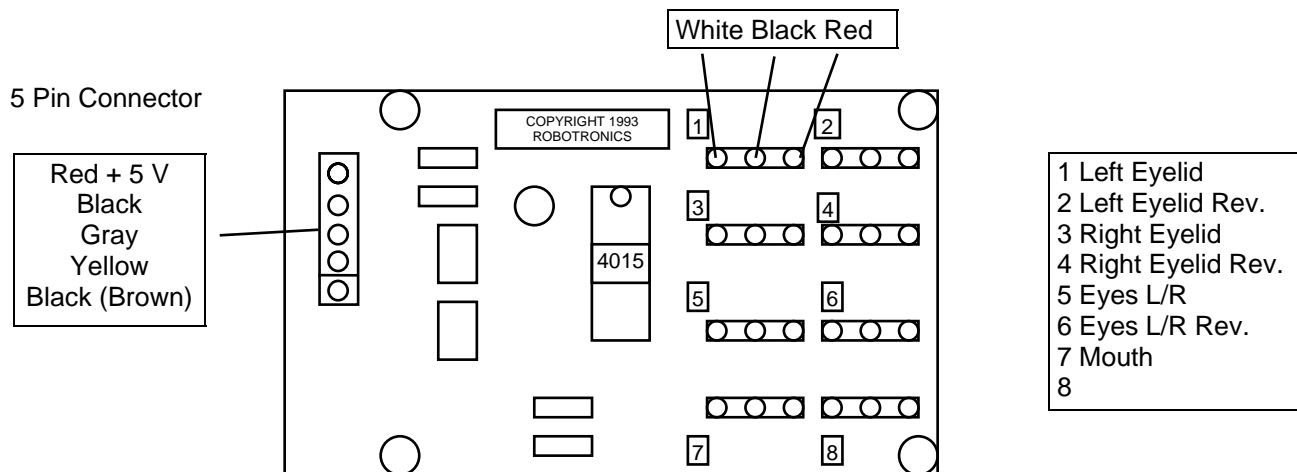


Eyes Servo Board (Opto-Shift Register Board)

Version With Two 4 Pin Connections



Version With One 5 Pin Connection



Robot	Typical Connection	Location of Board in Robot
Bobby the Boat	1,4, and 6	Underside of Upper robot

Notes

Note:
Before
making this
adjustment,
be sure

Technical Tips

Bobbie the Safety Boat is a trademark of the Canadian Coast Guard Auxiliary.