

**Park/Trailer**



**OWNER'S MANUAL**



**Bob's Space Racers® Incorporated**  
**427 15<sup>th</sup> STREET – DAYTONA BEACH, FLORIDA 32117**  
**PHONE 386-677-0761 FAX 386-677-3230**  
**BOBSSPACERACERS.COM**  
**©AUGUST 2008**

# WHOPPER WATER™ GROUP GAME



# WHOPPER WATER™ GROUP GAME





## **Federal Communications Commission (FCC) Statement**

**Note: This equipment has been tested and found to comply with limits for a Class 'A' digital device, pursuant to part 15 of the FCC Rules. These limits designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate frequency energy, and, if not installed and used in accordance with the instruction manual may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.**

# **W A R N I N G :**

**ALL OF BOB'S SPACE RACERS®, INC.GAMES ARE SHIPPED WITH THE SAME KEY AND LOCK SETS.**

**IT IS IN YOUR BEST INTEREST TO CHANGE THE KEYS AND LOCKS ON YOUR GAMES WHEN YOU RECEIVE THEM.**

## **BOB'S SPACE RACERS®, INC.'S ONE-YEAR NEW EQUIPMENT WARRANTY**

1. INCLUDED IN THIS WARRANTY Bob's Space Racers®, Inc. warrants to the original purchaser only that the equipment that is the subject of this sale conforms to its specifications, and is free from defects under normal service for a one-year period from the original date of delivery. This warranty does not include any damages resulting from occurrences listed in Paragraph 2 below. This Warranty is not transferable under any circumstance. Any claims under this warranty must be received in writing by Bob's Space Racers®, Inc. within 13 months from the date of delivery. Within a reasonable time of such written notification Bob's Space Racers®, Inc. will replace or repair any defective component of the equipment or part thereof which fails for reasons other than normal services, use, or wear. Light bulbs are specifically excluded from this warranty and shall be the sole responsibility of the purchaser. Bob's Space Racers®, Inc., within its sole discretion, makes the final determination as to whether to repair or replace any component and whether any such repair or replacement shall be performed where the equipment is located or at its home facility in Volusia County, Florida, or another facility of its sole choice. Any and all freight charges for the purposes of repair or replacement shall be paid by the original purchaser. All defective parts shall be returned to Bob's Space Racers®, Inc. if requested. Bob's Space Racers®, Inc. does not warrant that the equipment will meet any original purchaser's specific requirements or that the operation of the equipment will be uninterrupted. These remedies are the original purchaser's exclusive remedies for breach of warranty.

2. EXCLUDED BY THIS WARRANTY. Bob's Space Racers®, Inc. does not warrant (a) any product, components or parts not manufactured by Bob's Space Racers®, Inc.; (b) damage caused by use of the equipment for purposes other than those for which it was designed; (c) defects caused by failure to provide a suitable installation environment for the equipment; (d) damage caused by unauthorized attachments, modification, or service; (e) damage caused by normal wear and tear or improper power supply; (f) damage caused by accident or disaster such as fire, flood, lighting and wind; (g) any other abuse or misuse of the equipment.

3. EXCLUSIVE WARRANTY. THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OR REMEDIES, WHETHER WRITTEN, ORAL OR IMPLIED. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, COURSE OF DEALING OR USAGE OF TRADE ARE HEREBY EXPRESSLY DISCLAIMED AND EXCLUDED.

## **BOB'S SPACE RACERS®, INC.'S ONE-YEAR NEW EQUIPMENT WARRANTY**

4. **REMEDIES LIMITED.** UNDER NO CIRCUMSTANCES, EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, SHALL BOB'S SPACE RACERS®, INC. BE LIABLE FOR ANY LOSS OR DAMAGE, DIRECT OR INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL ARISING OUT OF THE USE OR INABILITY TO USE THIS EQUIPMENT INCLUDING BUT NOT LIMITED TO ANY CLAIM FOR LOSS OR PROFITS, LOSS OF SAVINGS OR REVENUE, LOSS OF USE OF THE EQUIPMENT, OR ANY ASSOCIATED EQUIPMENT, FACILITIES OR SERVICE, DOWNTIME, THE CLAIMS OR COST(S) OF THIRD PARTIES INCLUDING CUSTOMERS, AND INJURY TO PROPERTY.

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

5. **NO OTHER WARRANTIES.** Unless modified in writing and signed by both parties, this agreement is understood to be the complete and exclusive agreement between the parties, superseding all prior agreements, oral or written, and all other communications between the parties relating to the subject matter of this agreement. No employee or representative of Bob's Space Racers®, Inc. or any other party is authorized to make any other warranty or to assume any other liability in connection with the sale of its equipment.

6. **TIME LIMIT FOR CLAIMS.** Any claim for breach of warranty or claims under this warranty must be received in writing by Bob's Space Racers®, Inc. within 13 months following delivery of the equipment.

7. **FUTURE CHANGES.** Bob's Space Racers®, Inc. reserves the right to reserve, change or modify the construction and design of its equipment or any component part or parts thereof without incurring the obligations to make such changes or modifications in present equipment.

8. **ALLOCATION OF RISKS.** This agreement allocates the risks of equipment failure between Bob's Space Racers®, Inc. and the original purchaser. This allocation is recognized by both parties and is reflected in the price of the goods. **THE PURCHASER ACKNOWLEDGES THAT IT HAS READ THIS AGREEMENT, UNDERSTANDS IT, AND IS BOUND BY ITS TERMS.**

9. **TO OBTAIN WARRANTY SERVICE.** The original purchaser must, at his own expense, bring or ship the equipment to an authorized location for service. Additionally, the original purchaser must pay all freight, shipping or transportation charges for the return of the equipment from Bob's Space Racers®, Inc. to the original purchaser. Telephone or write:

Bob's Space Racers®, Inc.  
427 15<sup>th</sup> Street  
Daytona Beach, Florida 3211  
Telephone number 386-677-0761  
FAX 386-677-075

# **\*SERVICE POLICY\***

At BOB'S SPACE RACERS®, INC., our strength lies in the high quality, long lasting equipment we manufacture.

Should the need arise; we maintain both Technical Support and Customer Service staff.

Technical Support is available whenever you should need it. The direct technical 'hot line' is (386) 677-0761. This line is manned 8:30am - 5:00pm, EST, Monday through Friday, excluding holidays. During all other times an operator will be available to relay your problem to the technician on call. Technical Support will assist you in troubleshooting a service problem or setting equipment options.

Customer Service telephone lines are manned 8:30am - 5:00pm, EST, Monday through Friday, excluding holidays. Customer Service staff can be reached at (386) 677-0761 they will also take parts orders and research the status of previous orders.

As always, you can call (386) 677-0761 to reach all other departments, or you can FAX anyone at BOB'S SPACE RACERS®, Inc. by calling (386) 677-0794, 24 hours a day.

## ADVANCED REPLACEMENT POLICY

After speaking with our Technical Department it may be necessary for Bob's Space Racers®, Inc. to ship an assembly item or part to repair your game. We will ship the item(s) according to your preference via United Parcel Service, Federal Express, US Postal Service, etceteras. Note: we will not ship anything to P.O. Boxes via the US Postal Service. You will be billed, per your account status, for the total cost of the shipment (which includes shipping charges).

Upon shipment of the new item(s) a Return Merchandise Authorization Number (RMA #) will be issued for you to use when returning the defective item(s) to Bob's Space Racers®, Inc., or you may use the order number. After the defective item(s) is received by Bob's Space Racers®, Inc. your account will be issued either a:

1. Warranty credit: if your game is under warranty. (See the Warranty Policy page.) Note: this credit does not include return shipping charges.

**OR**

2. Credit for the item(s). Note: this credit does not include return shipping charges, nor does it include the repair charges for the item(s).

**If the item(s) cannot be repaired to the point where it could be shipped to another customer as an Advanced Replacement item (i.e. cosmetic damage), we will ship your original item(s) back to you. You will be required to return the Advanced Replacement item(s) or pay for it. You will be responsible for all shipping charges, should you decide to not keep, and pay for, the Advanced Replacement item(s).**

## ADVANCED REPLACEMENT ITEM(S) SHIPPING RULES

When you request an Advanced Replacement item from us, we have a few rules for you to follow:

1. **DO NOT** try to repair the defective item(s) on your own; **DO NOT** disassemble the defective item(s) prior to returning it to Bob's Space Racers®, Inc. – this could cause further damage and the possibility of you not receiving any credit at all on the item(s). There are not any user serviceable parts inside, and our vendors may void their warranty on disassembled parts. (Please review the last paragraph of the [Advanced Replacement Policy](#).)
2. Wait for the Advanced Replacement item(s) to arrive prior to returning the defective item(s).
3. When the new item(s) arrive, verify that it is the correct part. If it is not, please note what the differences are and contact Bob's Space Racers®, Inc.
4. Return the defective item(s) in the exact same packaging the Advanced Replacement item(s) came in. This insures no more damage will be done to the item(s) during the return shipping.

Thank you for your cooperation.



# OWNER'S MANUAL

## CONGRATULATIONS!

Congratulations on your purchase of a Bob's Space Racers® Game! Bob's Space Racers® continues to lead the amusement industry in the manufacturing and the operation of amusement games and has operated these games at several of North America's largest expositions for the last 30 plus years. Some of these expositions include: The Canadian National Exhibition, Toronto, Ontario, Canada; The Calgary Stampede, Calgary, Alberta, Canada; The Minnesota State Fair, St. Paul, Minnesota, USA; The Ohio State Fair, Columbus, Ohio, USA; The Big E, Springfield, Massachusetts, USA; The South Carolina State Fair, Columbia, South Carolina, USA; and, The Dade County Youth Fair, Miami, Florida, USA. This experience has allowed us the opportunity to field test each piece of equipment that we manufacture, and helps us to stay in tune with the amusement industry with its ever-changing trends.

**What you are about to read may appear a little overwhelming at first, but it will help you reach the high profits you seek. Keep in mind we are offering this only as a guide for you to get started. These tips have proved time and again to work successfully in our own operations over the last thirty years.**

# Introduction

This owner's manual is divided into several sections beginning with Operator's Guide, Introduction and Set-up, and so on. We have provided direction on every aspect of the game from running and maintaining it to pertinent technical information and troubleshooting problems. We, also, cover coin mechanisms, ticket dispersion, and prize redemption in the appendix section.

Each section has troubleshooting guides that contain enough information so that the game can be repaired with little difficulty. If this information is not sufficient, a call to Bob's Space Racers®, Inc. will provide additional assistance. Between the manual and the personal assistance, downtime of your game will be minimal. (When you call, we assume that you have read this manual and have tried the suggested repairs).

# **INSTALLATION AND SET-UP**

# INTRODUCTION

## OBJECT OF THE GAME

The Whopper Water™ Game has different options and capabilities; but, the object of the game is the same. A player uses the water gun to hit the target button in an attempt to get the toy to the top of the game first, as quickly as you can. When a person gets the toy to the top first, the winning score is achieved and that person is awarded prizes.

The most important thing to remember about the job you are about to begin, is to be yourself! Your personality is what keeps you from sounding like a computer. As you are taught the basic procedures, you'll also learn how to adapt them to your own style. Working in the game can be a lot of fun, once you have mastered the proper technique.

### **ALWAYS REMEMBER THAT THE CUSTOMER IS THE MOST IMPORTANT PART OF THIS BUSINESS!**

**SMILE!** A smile will do more for your business than anything else. It shows the customer that you are happy and they will have some fun.

**LOOK PEOPLE IN THE EYE!** Making eye contact with people lets them know that you are talking to them, and not just 'rambling on'. A simple, "Hi! How are you?" or, "Hi there! Are y'all having fun today?" will let them know you are talking to them. Follow up with, "Come over here and I'll show you how to play this game!"

**USE YOUR FREE HAND** to motion the people you're addressing to come over to your game.

**ONCE THE CUSTOMER IS AT THE COUNTER,** just be polite and explain the game in a simple manner.

**WHEN THE GAME IS OVER,** be certain to:

1. Acknowledge the winner.
2. Encourage the non-winners to play again, before they start to walk away.
3. Encourage the winner to play again, and show him/her the next prize they could trade-up for it they won again.

If you keep these basic procedures in mind, everything else should come together.

# OPERATION



## GETTING STARTED

No matter what part of the world you may be operating your equipment in, customers are the most important part of making your operation successful. By keeping the customer happy, you will enjoy increased profits. When a customer leaves your game one of two things will have occurred: either you have a satisfied customer who will play that great new game the next time he goes by and will tell his/her friends about it; or, he/she will leave vowing that is the last time that game will ever get his/her money! Of course we all agree that a happy customer is what success is all about.

It is the operator's job to ensure that the customer can easily understand the game and what the prizes are for each win level. This task can only be achieved by the person who will actually be in the game working with the people. There are important features to look for when hiring a game attendant. Always look for a friendly, outgoing personality, someone who is honest, dependable, and is used to working with money. The attendant is the one who will be dealing with the customers on a one-on-one and day-to-day basis.

Although working with the public can be extremely trying at times, by insuring proper breaks for your employees you will eliminate most problems. It is recommended to give the attendant a 30 to 60 minute break every two (2) hours, this way you will always have a fast, outgoing, upbeat attendant running your game. If the attendant is polite and friendly, the public will respond the same way.

## WHY BREAKS ARE SO IMPORTANT

Operating a game is physically and mentally demanding. We found it is best to have two (2) attendants for each game, or, three (3) attendants to rotate between two (2) games. This will keep them always at their peak performance and alertness levels. We also suggest you have a part-time employee who can work during the busy/peak times. This person is commonly referred to as the 'second' attendant. It's also important for higher profits. Having two (2) people collecting money can save time and allows the game operation to run much more quickly and efficiently.

## GETTING READY FOR EACH DAY

We suggest you begin each day by checking the power. This procedure is done to insure that proper power is being supplied to the game to avoid electrical damage, and/or malfunctions. To check the power going into your trailer, look for the power checker with a toggle switch on it. This is mounted near the breaker panel. Toggle the switch to the left to test one leg of the power, then right for the other leg of the power. The needle should read approximately 120V AC on each leg.

If either leg does not read 120V AC you will need to locate the supply generator or the city power connections and check the voltage source there. This needs to be done every day because your trailer may have been hooked to a different circuit by a show electrician, from one day to the next, without your knowledge.

If both legs do read 120V AC you can start the game up and check your sound level for both the microphone and the sound track. We find it helpful to label the knobs on the amp so the operator/attendant can easily distinguish between each knob.

It is important to be aware of your merchandise inventory throughout the day, especially during peak times. This will ensure that your game doesn't run out of prizes.

## WHAT TO DO WHEN IT IS BUSY

At some point, while grinding, the operator will become 'steady'. This simply means that there are at least five (5) or more players at each and every race. When players are steady, the operator should pick up the pace. The races should be running every three to five (3-5) minutes. (If the operator is really good he/she can try to run a race every one to two (1-2) minutes.) At the same time the operator should be trying to get at least ten or more players for each race – this would be considered busy.

It is important to make every step count. We recommend the operator go down the counter collecting money from each player while checking to see if there are enough players to begin the race. If there aren't enough players, then quickly make one more sweep up the counter for more before beginning the race. However, if you have enough players there is no need to go all the way back to station #1 to start the race. That is why we have two (2) push button stations in each game.

## WHAT TO DO WHEN IT IS BUSY

When the game has ended the operator will follow the same steps as outlined above: acknowledge the winner, encourage the non-winners to play the next race, give the winner his/her prize while showing the trade-up prize if he/she wins the next race, and then get other players to the game. If you find the operator is not able to do all of this in a minute or so, then we suggest having another person in the game to help 'kick-change'. This is a slang term that means basically what it says. Another person is there to kick, or step on the foot pedals to re-set the individual games, and assist in taking money from the players. We normally have our second operator assist a game during peak times.

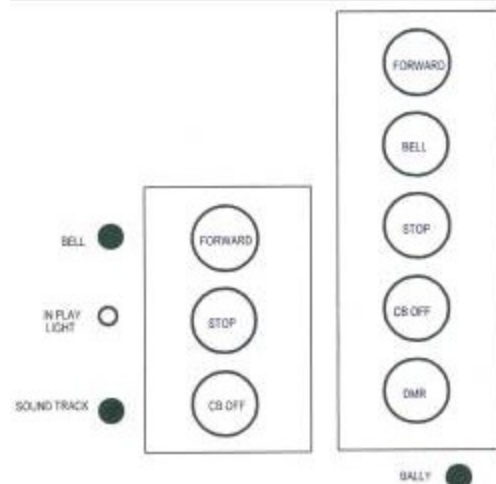
## WHAT TO GIVE AWAY

We found in our operations that 28 to 30 cents on the dollar for give-away has proven the most profitable for us, and the customer. This works out to be 28 to 30 percent of the cost of play. This is achieved by dividing your cost of merchandise by your revenue for that race.

## PUSH BUTTON STATION

1. **FORWARD**: Pressing the “Forward” button will start the game and turn on the Forward I.D. Light.
2. **CB OFF**: Pressing the “CB OFF” Button will reset the game and return the Toys to the Home position.
3. **STOP**: Pressing the “Stop” button will pause the game.
4. **BELL PUSH BUTTON**: Pressing the “Bell” Push Button will ring the bell.
5. **DMR PUSH BUTTON**: Pressing the “DMR” Push Button will activate the Sound Unit.
6. **PRACTICE BUTTON**: Some models have a practice button. When pressed, any units kicked up, will deliver the ball to the player so they can practice while waiting on the race to begin. Pressing Stop Button disables this feature so you can have everyone roll up their ball and have it held at beginning the race (so no one has a head start).
7. **BALLY BUTTON**: Some Models have a Bally Button. When pressed, the toys will move up and down in a wave like motion drawing attention to your game. Hitting any foot switch will take the game out of Bally Mode and be ready to play.

**NOTE: This is an example – some features shown here are optional and do not necessarily reflect the number of buttons in your game.**



## TRAILER SET-UP AND HOOK-UP

### Power Requirement: 220V, 60 Cycles, Single Phase

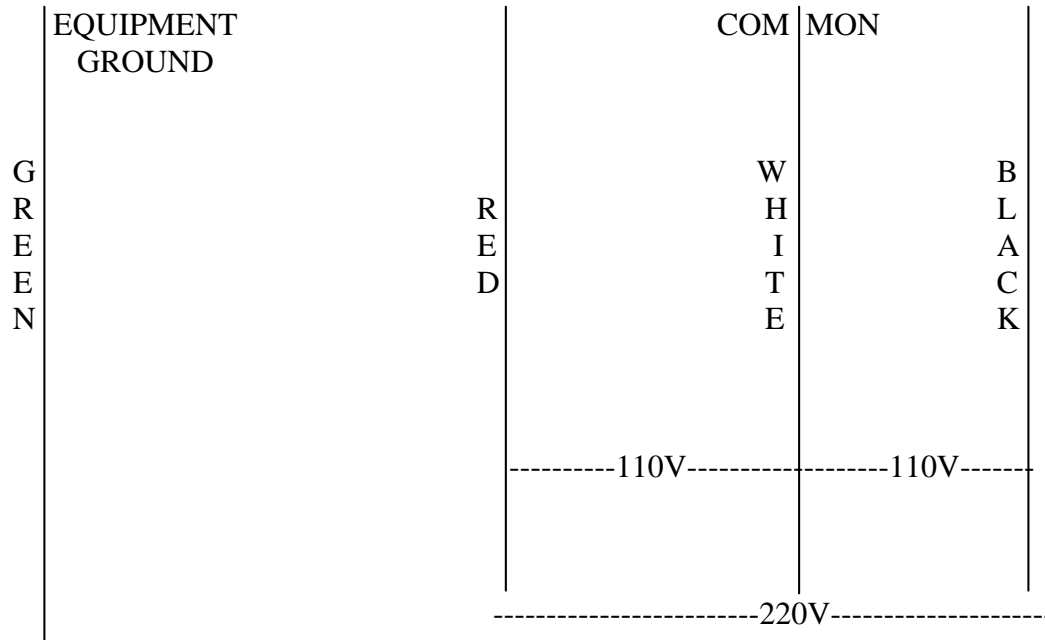
1. Locate trailer and drop Leveler Jacks. Level the trailer front to back and right to left, unwind lead line from hitch. Remove hitch and store out of the way.
2. Unlock awning doors. Raise the doors by use of key switch at the corner of the trailer.
3. Put pins in awning prop rods; release pressure from Hydraulic Pump by turning the key the other direction. Remove key.
4. Hook-up White wire to the Neutral (Common). The Red and Black hook to opposite 110 volt phases. Green is Earth Ground. NOTE: Use power checker to check for 110 volts on both hot lines. CAUTION! Be sure of correct voltage: 220V, 60 Cycle, Single Phase. NO MORE!

**GREEN WIRE:** Equipment Ground

**RED WIRE:** 110V AC

**WHITE WIRE:**  
Common/Neutral

**BLACK WIRE**



## TRAILER SET-UP AND HOOK-UP

### **Power Requirement: 220V, 60 Cycles, Single Phase**

5. Raise marquee top and secure with prop rods. Unload ends of marquee from inside game and attach to marquee sides. The ends plug into the sides with a Black Amp plug. Check for bad or broken bulbs. NOTE: Make sure Safety Cables are used when raising the Marquee. Install bally curtains.
  
6. Check operation of game; check for any bad or broken lights and flash game.



# OPTIONS

## SETTING THE OPTION REGISTERS

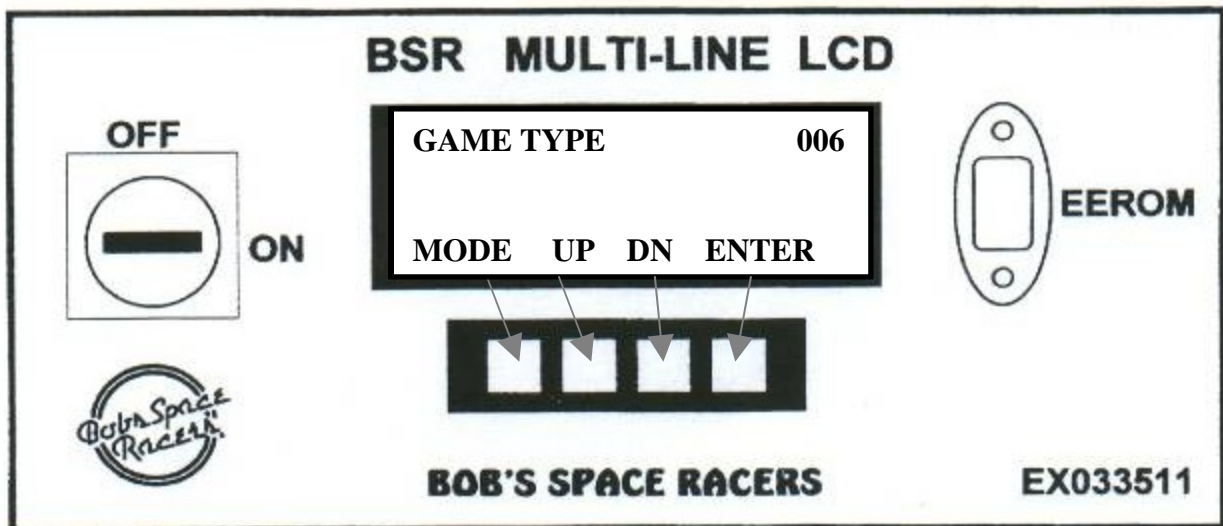
Enter Options by turning the keyed switch to “on” and waiting until the following message comes up:

**“GAME TYPE      006”**

This means the system is ready to accept changes for the option registers. The MODE button sequences through each register setting displaying the value in that option register. The UP and DOWN buttons increase or decrease the value of the current register. **The change is NOT made permanent until the ENTER button is pressed.** The ENTER button also advances the screen to the next option register. Pressing the MODE button before pressing ENTER leaves the register unchanged.

**NOTE: The Registers CANNOT be changed in the middle of a race and if GAME TYPE is changed, the game MUST be powered down.**

### MULTI-LINE LIQUID CRYSTAL DISPLAY BOX



## WHOPPER WATER OPTIONS SETTING

### GRP2416 V0.0

| <b>Option/Game</b>    | <b>Whopper Water</b> | <b>Description</b>   | <b>Min</b> | <b>Max</b> | <b>Factory Default</b> |
|-----------------------|----------------------|--|------------|------------|------------------------|
| <i># PLAYERS</i>      | #Units               | Enter The Number of Units in the Game  | 2          | 22         |                        |
| <i>BELL TIME</i>      | 20                   | Time the Bell Rings for in 1/10 seconds  | 20         | 40         | 20                     |
| <i>WIN LIGHT TIME</i> | 100                  | Time the Beacon Lights up for in 1/10 seconds  |            |            | 100                    |
| <i>OPER BEACON</i>    | 60                   | The Time in seconds the game is at Idle between games  | 0          | 90         | 60                     |
| <i>BALLY DELAY</i>    | 34                   | The time from the start of one unit to the start of the next unit in 1/10 seconds for Bally Mode | 15         | 100        | 34                     |
| <i>CHASE SPEED</i>    | 10                   | How Many 100ths of a second each Channel of the Chase Lights are on                              | 7          | 25         | 10                     |
| <i>REVERSE TIME</i>   | 50                   | Time From a Win until Toys Back Up   | 40         | 100        | 50                     |
| <i>TRACK LENGTH</i>   | 190                  | 0 = Switch, nnn = Steps  | 0          | 255        | 190                    |
| <i>HOLD PWM TIM</i>   | 40                   | Hold PWM   | 0          | 100        | 40                     |
| <i>PULSE SETPT</i>    | 7                    | Pulses per Time  | 0          | 20         | 7                      |
| <i>PULSE OFFSET</i>   | 50                   | Pulse Offset Value   | 0          | 100        | 50                     |
| <i>SAMPLE RATE</i>    | 10                   | Sample Rate Set Point  | 0          | 20         | 10                     |
| <i>EQ SET POINT</i>   | 50                   | EQ Set Point   | 0          | 100        | 50                     |
| <i>LO MONEY VAL</i>   | 2                    | Amount to add per player for Lo Money  | 1          | 9          | 2                      |
| <i>HI MONEY VAL</i>   | 3                    | Amount to add per player for Hi Money  | 0          | 9          | 3                      |
| <i>AUTOSTART TM</i>   | 2                    | 0 = Man, 1 = Auto, 2 = Intro, & 3 or Greater is Timed  | 0          | 255        | 2                      |
| <i>UNIT ENABLE</i>    | 0                    | I Button ON = 1  | 0          | 1          | 0                      |

# MAINTENANCE

## SCHEDULED MAINTENANCE INFORMATION

### TO CLEAN GAMES:

You may use soapy water on Formica, Plexi-glass, regular glass, Stainless Steel, and other metals without causing any damage. The following list of cleaners can only be used on the materials they are listed with. If a cleaner is used on a material that it is not listed with it will cause damage to that material and Bob's Space Racers® will not be held responsible for repair and/or replacement of that damaged material.

#### **Cleaner**

Lacquer Thinner

Mineral Spirits

Clean-On-The-Go Glass

De-Solve-It®

Brilliance™

Windex®

3812S Enamel Reducer

Soft Scrub®; CLR®;

Old English® Oil; Baby Oil

#### **Material**

Formica; regular glass

Formica; Plexi-glass; Stainless Steel; other metals

Formica; regular glass; Stainless Steel; other metals and Hard Surface Cleaner™

Formica; Plexi-glass

Plexi-glass; regular glass

Regular glass

Plexi-glass

Stainless Steel; other metals

Formica; Stainless Steel; other metals

### WATER PUMP MAINTENANCE

**Daily:** change out water; clean out trash and other debris.

**Weekly:** change filter; switch pumps.

## WATER GAME MAINTENANCE SCHEDULE

### Daily

- Clean all Formica.
- Run game in Bally Mode.
- Check all Footswitches.
- Check all ID Lights.
- Check all Winning Lights.
- Check Accounting System
- Check Target Switch for activation.
- Check water level. Water should be to the bottom of the screens (approximately 4").
- Remove all debris from the screens and filter. (Check over pump intake – inside the tank – and over top of the tank.)
- Remove the screen on the end and check the suction and the tank pick-up screen.

### Every 3 or 4 Days

- Clean the gun tank filter

### Weekly

- Drain all water.
- Clean tank and all screens.
- Switch pumps (for both pressurized and un-pressurized systems) and clean pump filter.
- Wipe the interior of the tank and Dynarod.
- Fill tank with clean water and add two ounces of factory recommended water conditioner.

### Every Six Months

- Lemon oil all Formica.



# WATER MAINTENANCE PROCEDURES

## Flush System as Needed

If system is extremely dirty or won't run clean after the normal weekly drain and clean:

- Hook hose to the bottom of the pump filter and partially open the valve on the bottom of the filter.

**NOTE: Only add Bob's Space Racers® recommended products. Never add Lime-Away, bleach, or any other corrosive products.**

**To prevent metal stains (made from iron, copper, manganese, or rust), scale or calcium deposits, and/or rusty clouds or discolored/green water from occurring in your water game. You will need to add one of the following recommended products to the water in your game.**

## **USE ANY OF THE FOLLOWING PRODUCTS:**

- SpaTime® Stain and Scale Control
- Proteam® Spa Metal Magic
- Jack's Magic® The Pink Stuff™
- Aqua Chem® Stain & Scale Inhibitor

## Where to get the above products?

All of the above named products can be found at any Lowe's®, Home Depot®, or any pool supply store in your area.

## When to apply to your water game:

1. Always add the product to your new water when you are changing out the old water in your game.
2. Always add a fresh supply of the product once each week to your game's water.

## How much to add each time?

Add two (2) to three (3) ounces, or 30% more than what the directions on the bottle say, each time you add the product to your game water.

# WATER PUMP SYSTEMS

## DEIONIZED DISTILLED WATER

*The use of Deionized distilled water in Bob's Space Racers Water games has been determined by the Sta-rite Corporation to be highly detrimental to their pump's life and performance.*

**Since Deionized distilled water is ion deficient it attacks metal surfaces by pulling free ions from the surfaces that come in direct contact with it. The electro-chemical reaction that takes place results in rapid oxidation of the metal. This type of aggressive oxidation will result in premature pump failure.**

The game needs to have all of its holding tank water drained and the filter cartridge replaced weekly. Any time you drain the water system and put new water in, (**we recommend using plain tap water**) you need to put in a new water filter. Any sediment, or anything, that is in that filter at the time the water is changed would be re-circulated into the new water – if you do not change the filter.

**GUN TANK:** This filter is re-useable. Remove this filter every 3 or 4 days by unscrewing the bowl. Take out the filter and clean it, then replace in original location. Keep the tank free of trash.

**NOTE:** The gun tank may have a different filter in it. The different filter is tan with a dark brown top. This filter contains a disposable sediment filter cartridge. That cartridge needs to be replaced every time you change the water (for any reason).

**NOTE:** If the Water Pump System is clogged, water will not drain from the crossover tube, thus creating a flood.

## UNPRESSURIZED WATER SYSTEM (FOR GUNS)

On either side of the game, there is a tank that collects the water that runs out of the tap. The tanks are tied together with a crossover tube so that both tanks have the same amount of water in them. These tanks contain the main supply of water for the taps. The water is fed via gravity down to the intake of the water pump. (See Water Pump Diagram, next page.) The water pump then sends the water through the water filter cartridge, which removes any sediment from the water.

The filter is specifically to keep large mineral deposits, etc., from making their way out to the tips of the water guns where there is a very small hole. A mineral deposit could greatly restrict the amount of water passing through the guns. This is a sediment filter; we are only trying to get out the large particles and not to filter for drinking water. If a higher quality filter is used, i.e. a .20 Micron Filter, or any filter that would remove 99.9% of contaminants, that would take away from the water pressure needed to push the water through the guns, regardless of where the pressure regulator is set up.

From the water filter cartridge the water passes through to the Watts Valve, also called a pressure regulator. (Your game may not have a Watts Valve.) This allows for regulation of the water pressure to the front counter. On top of the Watts Valve there are two large bolt-looking caps, which are actually hollow bolts. The one closest to the water filter is the smallest. Upon removal of the cap, there is a cylindrical tube made out of a screen/mesh material. This is a free filter that keeps any large particles from going through the pressure regulator, as they would damage the diaphragm (a rubber disk that causes the pressure regulator to operate).

- a. Do not remove the larger cap, which is directly above the adjustment screw. The reason for this is because it holds the spring that operates the diaphragm and if that cap is loosened, there is a chance the diaphragm could be damaged. Below that cap is the pressure adjustment screw. This allows for pressure adjustment if the Watts Valve is not putting out enough pressure.
- b. There is a jam nut up near the casing of the pressure regulator. After that nut is loosened, adjust to the desired pressure and tighten the nut (closest to the body) tight up against the body, so that the adjustment screw cannot vibrate loose.

The water passes from the Watts Valve into a red rubber hose and out to the front counter. The hose is then attached to a check valve that allows water to go out to the front counter. The check valve will not allow the water to drain from the front counter back to the water pump when it is turned off. From the check valve the water goes up into a manifold where all of the valves are mounted for each of the individual unit stations.

These valves, when operated, allow water to pass from the manifold into the water tap where water runs out into the pitcher. Any water from the manifold that is not used passes through the manifold into a reducer coupling and comes back to the holding tank via a 1/2" return line, which is a piece of 1/2" copper tubing. It is important that this line is not clogged up or restricted in any way, as it will damage the seals in the pump.

There is a stainless steel mesh screen in the holding tank in the bottom of the pan near the center. The screen is made out of stainless steel because it needs to be rigid enough so it cannot be compressed down into the water intake line. The reason for the screen is to prevent foreign objects thrown into the water tank from getting sucked up into the water pump where they could damage the impeller or any of the seals. This screen must be cleaned daily.

The water pump has an intake, which is the larger size fitting on the pump. The smaller fitting is the output of the water pump. The water pump we use is a 1Hp well pump that operates off of 220V through a contactor that is turned on when the game goes into RACE MODE. The output of the water pump goes

up into a water filter canister. On top of the water filter there is a red button that is used to allow air to bleed out of the water pump system whenever the pump is trying to 'prime'. Many times this is not needed, because gravity is feeding the water pump. If difficulties should occur in getting the pump to prime, just press the red button and it will allow air to escape out of the lines, thus reducing the pressure the pump is fighting against to push the water through. This action will bleed off any air pockets in the system between the pump and the fill side.

Priming water system: If you experience difficulties priming the gun water system, look for the following:

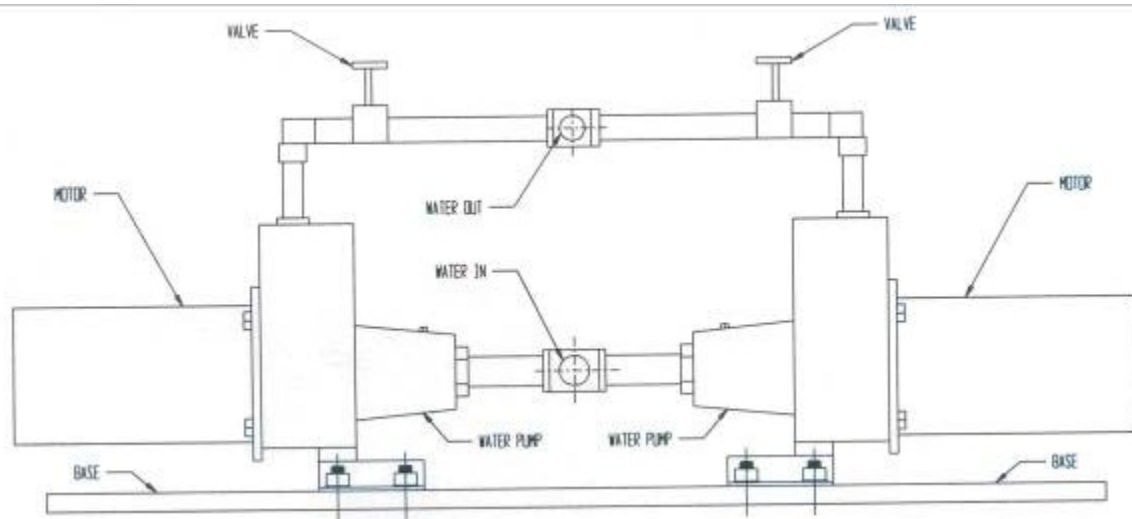
1. Check tank screen for debris.
2. Check gun filter to see if it is clean.
3. Make certain the valve is open on the pump you are running.
4. When all of the above has been checked, try sticking a water hose into the pick-up hole to force water into the pump.
5. If the above does not work, you will need to remove a plug from the top of the pump, and fill the pump with water.
6. If the above hasn't worked, then re-check everything a second time. Pump may need to be sent in for repair.

## BACK-UP WATER SYSTEMS

Most water games produced by **BOB'S SPACE RACERS®**, Inc, include the Back-up Systems Option. This system consists of an extra power supply and an extra water pump.

### TO CHANGE FROM ONE WATER PUMP TO THE OTHER:

1. Unplug first pump; plug in second pump.
2. Close valve on output of first pump and open valve on output of second. **NOTE** It is **critical** that the valves be switched so as not to damage the Water Pumps. If uncertain about what needs to be done, please call **BOB'S SPACE RACERS®** and ask to speak to a Technician.



## WINTERIZING A WATER GAME

When water freezes it expands, thus causing anything that is holding it to crack. This means your frozen tubing, the water pumps, the filter casings, and the manifolds – anything that the frozen water is in where there is no room for expansion. All of this adds up to very expensive repairs and replacements during the spring thaw. To prevent such a costly project we at Bob's Space Racers® recommend that every game with water in it be 'winterized'.

Winterizing is an easy and relatively inexpensive process to go through to protect your money-making games. You will need at least six to ten (6 – 10) gallons of propylene glycol based antifreeze, one (1) hydrometer, and containers large enough to hold all of the fluid. The hydrometer is used to test the freeze point of antifreeze after it has been put into your game. You can obtain the proper type of antifreeze and hydrometer from a recreation vehicle (RV) supplier.

**CAUTION: WHEN USING PROPYLENE GLYCOL ANTIFREEZE YOU MUST FOLLOW ALL INSTRUCTIONS ON THE LABEL OF THE CONTAINER THAT IT CAME IN!**

When you are closing the game for the winter season, and you have the above supplies, follow the below procedures: READ ALL DIRECTIONS BEFORE STARTING!

1. Empty water tanks of all water to within (1") one inch above the top of the drain. Remember to clean out all of the debris just like you would normally do during regular maintenance on the water system. Repeat this process for the back-up pump.
2. Close water drain.
3. Add approximately six (6) gallons of the propylene glycol based antifreeze to the water tanks. If this is not enough antifreeze to thoroughly circulate through the entire system and both pumps, then you will need to add more.
4. Turn game on and play each player-unit until you see the antifreeze come out of the gun, this will look foamy. If your game has target pans, **do not shoot the antifreeze at the target pan;** aim the guns to the side.
5. If this process has taken less than five (5) minutes, then allow the pump to run for a total of five minutes.
6. Use the hydrometer to check the freeze point of the antifreeze; it should read between -42°F and -26°F. If the temperature is not between -42°F and -26°F, then you need to add more antifreeze and repeat step four. If the temperature is between -42°F and -26°F, then continue on to step seven (7).
7. Switch pumps.
8. Let pump run for five (5) minutes.
9. Turn power off.



## WINTERIZING A WATER GAME

10. Place the containers under the drain plugs at the front of the trailer and remove the plugs. Or, if you have a park model, place the container at the open end of the drain tube and open the drain valve. Remember this drain system is gravity-fed and you will want to catch as much of the propylene glycol antifreeze as possible in order to re-use it on the tubes.
11. Remove the filter cartridge housing, wash it and store near the filter unit. Discard the old filter.
12. Remove the guns from the hoses and store the guns inside. Let the hoses hang into the containers and allow for all of the antifreeze to drip out.
13. Remove all drain plugs, and use compressed air to blow out all of the lines and housings.
14. After all of the antifreeze is drained, you will need to wipe the entire game dry. This insures all water and antifreeze that can be removed from the game has been removed.
15. Block all open holes to prevent rodents from moving in during the winter.
16. If your game has relay electronics, you will need to wrap up the master control box to prevent it from being damaged during the cold weather.
17. Remove all batteries and store them inside. (Batteries may be used for the awning of a trailer).

**CAUTION: WHEN USING PROPYLENE GLYCOL ANTIFREEZE YOU MUST FOLLOW ALL INSTRUCTIONS ON THE LABEL OF THE CONTAINER THAT IT CAME IN!**

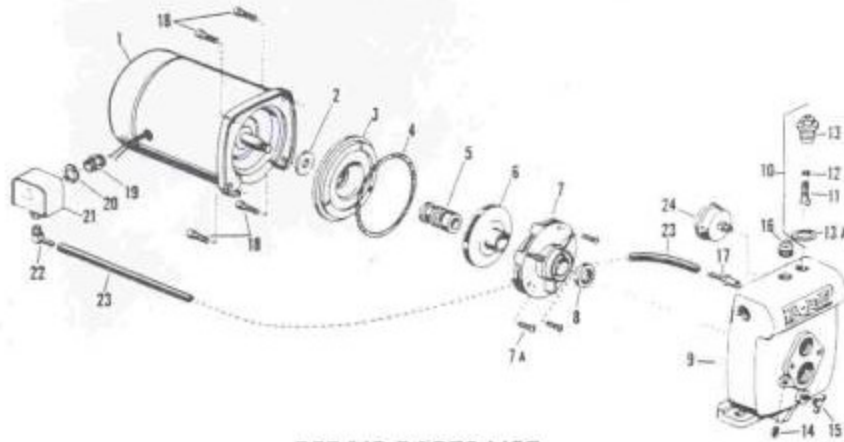
## OPERATING A WATER GAME IN BELOW FREEZING TEMPERATURES

To operate your game in below freezing temperatures you must first winterize the game using the above procedures (Winterizing a Water Game).

Note: you must circulate the water/antifreeze solution throughout the system and make certain the pump turns on and off at least twice. Switch pumps and circulate the solution throughout, with this pump turning on and off at least twice.

Using the hydrometer, measure the solution for the correct freeze temperatures (see step #9 above). You may not operate the game below these freeze temperatures because it will damage the game.

# PUMP INFORMATION



## REPAIR PARTS LIST

| Key No. | Part Description                  | No. Used | ALB-30<br>1/3 H.P. | ALC-30<br>1/2 H.P. | ALD-30<br>3/4 H.P. | ALE-30<br>1 H.P. | ALF-30<br>1 1/2 H.P. |
|---------|-----------------------------------|----------|--------------------|--------------------|--------------------|------------------|----------------------|
| 1*      | Motor - 115V - 60 Cycle           | 1        | AS100BH            | —                  | —                  | —                | —                    |
| 1*      | Motor - 115/230V - 60 Cycle       | 1        | —                  | A100CL             | A100DL             | A100EL           | A100FL               |
| # † 2   | Water Slinger                     | 1        | C69-2              | C69-2              | C69-2              | C69-2            | C69-2                |
| 3       | Seal Plate                        | 1        | N3-9               | N3-9               | N3-9               | N3-10            | N3-10                |
| # † 4   | Gasket - Seal Plate               | 1        | N20-35             | N20-35             | N20-35             | C20-21           | C20-21               |
| # † 5   | Shaft Seal                        | 1        | U109-6A            | U109-6A            | U109-6A            | U109-6A          | U109-6A              |
| # 6     | Impeller                          | 1        | J105-40P           | J105-40P           | J105-86P           | J105-85P         | J105-22PA            |
| 7       | Volute Diffuser                   | 1        | L1-25P             | L1-25P             | L1-48P             | L1-47P           | L1-23P               |
| # 7A    | Screw                             | 3        | —                  | —                  | —                  | U30-4895S        | U30-4895S            |
| # † 8   | Gasket - Diffuser                 | 1        | L21-1              | L21-1              | L21-1              | L21-1            | L21-1                |
| 9       | Pump Body                         | 1        | L76-19             | L76-19             | L76-19             | L176-20          | L176-20              |
| 10      | Control Valve Assembly - Complete | 1        | L262-4PS           | L262-4PS           | L262-4PS           | L262-5PS         | L262-5PS             |
| 11      | Valve Plate and Stem Assembly     | (1)      | L62-8P             | L62-8P             | L62-8P             | L62-9P           | L62-9P               |
| 12      | "O" Ring                          | (1)      | U9-26              | U9-26              | U9-26              | U9-26            | U9-26                |
| 13      | Valve Bushing                     | (1)      | L23-3P             | L23-3P             | L23-3P             | L23-4P           | L23-4P               |
| 13A     | Gasket                            | (1)      | L20-39             | L20-39             | L20-39             | L20-40           | L20-40               |
| 14      | Pipe Plug - 1/8" NPT              | 1        | U78-56CT           | U78-56CT           | U78-56CT           | U78-56CT         | U78-56CT             |
| 15      | Draincock - 1/8" NPT              | 1        | U212-68T           | U212-68T           | U212-68T           | U212-68T         | U212-68T             |
| 16      | Pipe Plug - Priming               | 1        | U78-60CT           | U78-60CT           | U78-60CT           | U78-61GPT        | U78-61GPT            |
| 17      | Compression Fitting - 1/4" NPT    | 1        | U111-85T           | U111-85T           | U111-85T           | U111-85T         | U111-85T             |
| 18      | Capscrew - 1/8" - 16 x 1 1/4" Lg. | 4        | U30-75C            | U30-75C            | U30-75C            | —                | —                    |
| • 18    | Nut - 1/8" x 16                   | 4        | —                  | —                  | —                  | U36-38C          | U36-38C              |
| 19      | Connector                         | 1        | L43-5C             | L43-5C             | L43-5C             | L43-5C           | L43-5C               |
| 20      | Locknut - 1/2"                    | 1        | U36-112C           | U36-112C           | U36-112C           | U36-112C         | U36-112C             |
| x 21    | Pressure Switch                   | 1        | U217-2E            | U217-2E            | U217-2E            | U217-2E          | U217-204E            |
| 22      | Compression Elbow - 1/8" NPT      | 1        | U111-86T           | U111-86T           | U111-86T           | U111-86T         | U111-86T             |
| 23      | Switch Tube                       | 1        | U37-192P           | U37-192P           | U37-192P           | U37-192P         | U37-192P             |
| ★ 24    | Pressure Gauge                    | 1        | U239-3             | U239-3             | U239-3             | U239-3           | U239-3               |

• Not illustrated.

## SERVICE KITS

|                     |   |        |        |        |        |        |
|---------------------|---|--------|--------|--------|--------|--------|
| Seal and Gasket Kit | 1 | PP1550 | PP1550 | PP1550 | PP1551 | PP1551 |
| Overhaul Kit        | 1 | PP1560 | PP1560 | PP1565 | PP1566 | PP1564 |
| Pressure Gauge Kit  | 1 | PP2102 | PP2102 | PP2102 | PP2102 | PP2102 |
| Pressure Switch Kit | 1 | PP2151 | PP2151 | PP2151 | PP2151 | PP2151 |

NOTE: † Included in Seal and Gasket Kit.

★ Included in Pressure Gauge Kit.

# Included in Overhaul Kit

x Included in Pressure Switch Kit.

\* For repair or service to motors, always give the Motor Model Number and any other data found on the Motor Model Plate.

## TROUBLESHOOTING – WATER PUMP SYSTEM

### **PROBLEMS/CAUSES**

#### **Low Pressure/No Pressure**

Lost Prime

Clogged Filter,

Clear-vue Filter Clogged

Broken Impeller

Trash in Pump

Lint on Tank Screen

Water Supply hoses to Front Counter kinked under counter. (Center Joint Games)

#### **Motor Does Not Run**

No Power

Thermal Circuit Breaker

Bad Pressure Switch on Pump

#### **No Water Shooting Out of Guns**

(Check all of the PROBLEMS listed above)

Solenoid Valve not Operating

### **SUGGESTED FIX**

Run Pump, Press Red Button on Top of Water Filter to relieve trapped air.

Replace paper filter.

Remove inner screen wash with soap and water. Rinse and Replace.

Replace Impeller.

Open Pump and clean inside.

Located in the bottom of the tank or on the side of the tank near the bottom – remove and clean it off.

Lift counter and place hose in its proper position

Check Circuit Breaker.

If Motor is hot, allow to cool.

Check Contacts for free movement (do this with Pump unplugged from Power).

Check Relay Board.

Is Relay operating?

Is LED on Board Operating when you shoot the Gun?

If LED comes on, it is probably a bad Relay.

## MODULES

The Modules serve as the units' individual controller board, while containing our latest innovative electronics. This electronic set-up is designed with the customers' best interest in mind. The modules provide an easy maintenance tool and prevent the entire game from crashing when only one unit is down or inoperative.

When a unit is down and all practical trouble shooting solutions have been exhausted, the problem may exist on an electronic level. Ensure all modules and boards have their LED's ON to indicate regulated 12V DC power exists.

There are several possibilities to be considered:

- a. Is the entire game inoperative or down?
- b. Are there one or two units that are inoperative?
- c. Do both inoperative units have anything in common?
  - i. Do the bad units share the same Module Relay Board?
  - ii. Do the bad units have a fuse or wiring harness in common?

Module LED definitions:

- Yellow is on constantly and means win line (shuts off when there is a WIN at the end of the race and comes back on).
- Flashing green and red indicates servo is working correctly.
- Red with solid green indicates an error but not necessarily an error that will cause shutdown.

In the event a module is plugged into the wrong spot, there are three distinctive LED's flashes on the module; this is only for power-up:

**One** flash indicates correct networking sequence

**Two** flashes and one long pause indicates the module for slot two (accounting module) is in the wrong port (or spot).

**Three** flashes and one long pause indicates the module for slot three (player clock module) is in the wrong port (or spot).

Visually look for proper illumination of all module LED's and for irregular symptoms. If all modules LED's are correctly lit, then take note of the LED's for: footswitches, I.D. lights, valves, etc. These LED's are for you, the customer, to visually look at and determine what area is at fault or activated improperly.

## MODULES

Troubleshooting is easiest done by process of elimination. It would help to determine which half of the game the problem exists in. For example: Activating the footswitch does nothing – no

I.D. light. Nor does the unit go in forward (in the event that the I.D. light is bad). I can easily determine, by looking at the Module Relay Board, if the footswitch I.D. light illuminates. If it does, then you know that footswitch and its wiring to the board are good. If the light doesn't illuminate, you can be pretty certain that either the footswitch or its wiring (prior to the board) is bad.

Lastly, determine whether all visual inspections have been exhausted. If so, then you will need to ensure that all the boards and electronics are receiving the correct voltages to operate correctly. The electronics are supplied with three types of voltages: 12V DC regulated 12V DC unregulated, and 24V DC unregulated.

## ELECTRONIC SELF DIAGNOSTICS – MODULES

### MASTER RELAY BOARD

“Green is Go – Red is Stop” Green LED's mean everything is connected in proper slots and in proper communication with other components. Red shows an error in your module or module location. Master 1 and units are interchangeable. Master 2 must be in Master 2 slot only. Player clock must be in player clock location only. Your spare Unit or Master 1 module is located in spare slot. See Board Layout.

### UNIT RELAY BOARD

Green LED's mean everything is connected in their proper slots. A blinking red LED means the module is plugged into a wrong location. If the module flashes at constant rate it means it belongs in either a Master or Unit location (they don't care which) and it's in the wrong location. If a module flashes twice and goes out for a period of time and flashes twice again. That means it belongs in the Master 2 position of the Master Relay Board. If the module flashes three times on the red LED and goes out for a period of time, and then flashes three times again. That indicates it belongs in the number 3 position or the Player Clock location of the Master Relay Board.

### MODULE CHANGES & UPDATES

When you receive an update or replacement module it can go into one of several sockets on your Master Relay Board. If the module does not have a label on it, you can put it in any of the positions other than “Master 2” or “Player Clock”. These specific sockets are labeled on the Master Relay Board. The Master Relay Board is mounted to the far left side of your Control Electronics Box. The Master Relay board has four sockets; they are labeled from left to right, “Master 1”, “Master 2”, “Player Clock”, and “Spare”.

## MODULES

All the modules have the same features other than Player Clock and Master 2. If you receive a Player Clock or Master 2 module they will be labeled as such. Generally if a module is received it is labeled Master 1, which means it has a problem update for the game. The Master 1 location has the ability to update the program to the rest of the game. In order to insert any of the modules you must make sure your game electronics is "OFF". You will notice that the three LED's on the edge of the module are out completely. At that point insert the module into the correct position, removing the old module if one is in that position. The module should be inserted so the LED's (small yellow, red and green light) are toward the bottom. It should plug securely into place. That module should be at the same height as the other modules in place and not at any angle. Now you can apply game power - turn on the circuit breaker or plug it into the wall. All the modules should light up at least the green lights.

When a Master 2 module (which keeps track of what time it is) is inserted into a game; the time must be set for your time zone. To do this, go to the display with the accounting features (picture page 14). Hold down the two middle buttons on the display. Then turn the key, it should display "YEAR = " and a "DOWN" buttons PRESS the "ENTER" key. The four buttons have the following features; the left hand button is "MODE" as is says in the bottom of the display. When you press his button it advances to the next option without modifying any settings. The next two buttons are "UP" and "DOWN"; to change the value of the given setting. When you change the value in the display the setting does not take until you press the "ENTER" button which is the far right button. If you oppress the MODE button instead ENTER button you advance to the next location without changing the option; even though you saw the value change. You **must** press ENTER for it to accept the change. The year value is a two digit number from 00 to 99 (this program takes into account the year 200) and is accurate to the year 2090.

Now set the month; which is from 01 for January to 12 for December. Press ENTER after that value is set correctly. Next set the time; there is no AM or PM value we use a 24 hour format. If you want 8PM the setting would be 8 + 12 or 20 for the value the press "ENTER". The next setting is for minute; set the correct number of minutes and press ENTER. Turn the key back off and it will return to the accounting function.

If you receive a updated Player Clock module there are not settings for it, when plugged in, it will just do its function.

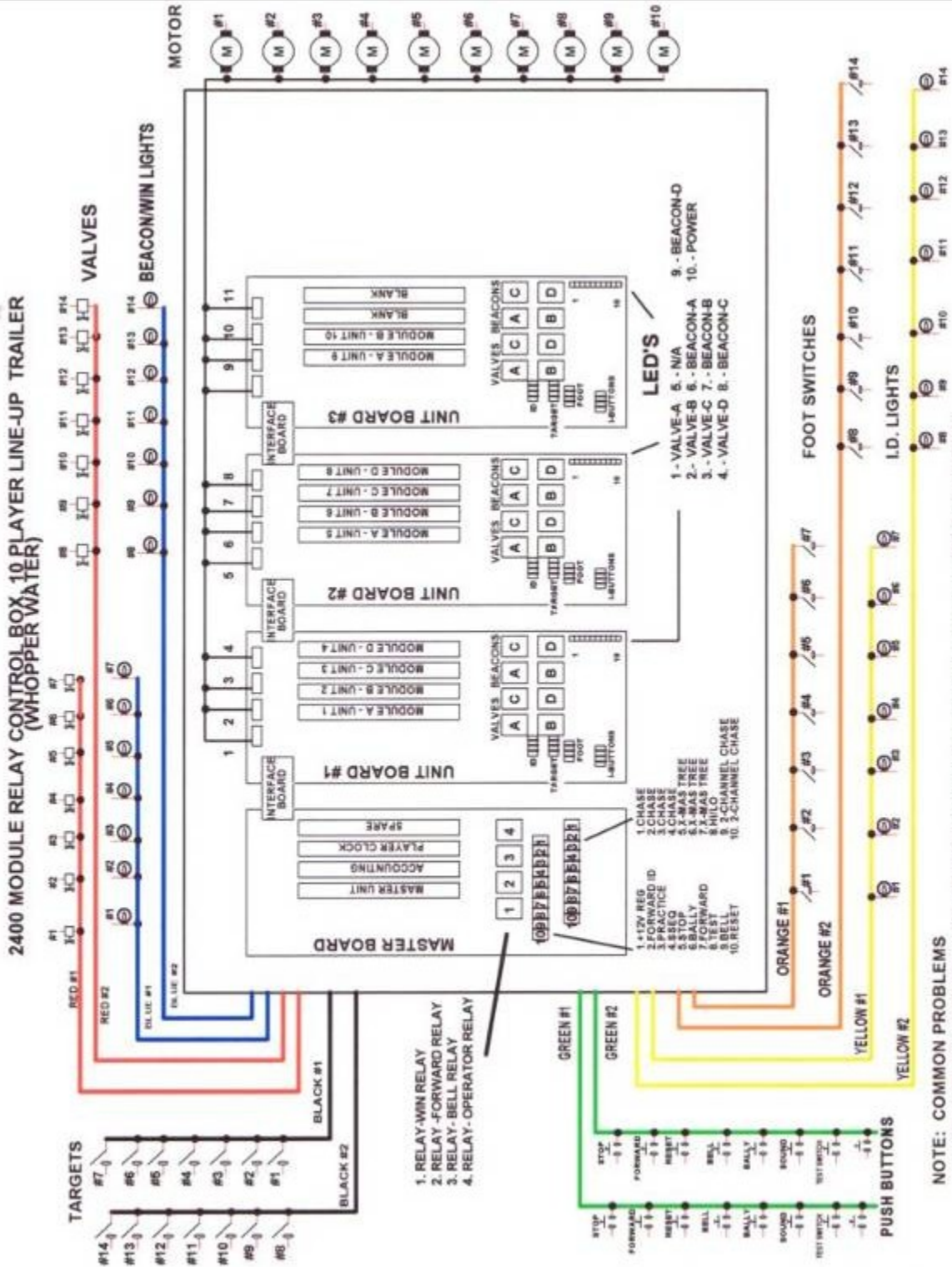
## MODULES

If you receive a module and it has no label and it is a replacement for example unit #3 module the following procedure must be implemented. After the module is inserted into the correct location, you will need to do a systems download to get your game's current program into the replacement module. If you have received an update Master 1 or program, the module belongs in the Master 1 location and a download needs to take place in order for the rest of the game to have all the updates. To download programs to the rest of the game a Master 1 has been changed or if one of the unit modules has been changed. With the game power on locate the game MULTI-LINE LCD units. Turn the key to the on position. The display should read "GAME TYPE" and a value (refer to your game options sheet). Depress the left "MODE" button, this will advance through the options, with the left button still depressed; press the far right button for at least one second. "After 2 seconds the display will say 'DOWNLOADING UNIT'" At that point you can let off the buttons and turn the key off, it will download the program to the rest of the modules and will ensure no conflicts between any of the modules. During the time they are downloading the yellow and red happening is the modules are taking in new program values. When this is complete the red light will go out and the yellow and green light will come on bright.

If you insert a module and after power up you see a red light is flashing, it indicates a module is plugged into a wrong location. If the module flashes in a constant rate it means it belongs in either a Master or Unit location (they don't care which) and it's in the wrong location. If a module flashes twice and goes out for a period of time and flashes twice again. That means it belongs in the Master 2 position of the Master Relay Board. If the module flashes three times on the red LED and goes out for a period of time, they flash three times again. That indicates it belongs in the number 3 position or the Player Clock socket of the Master Relay board.

If you have any problems during the downloading process or if the game is not working correctly after download, please call BOB'S SPACE RACERS for further technical support help. Try to identify which lights are "ON" which module. Generally speaking, you should see that most of the modules have the same lights on, in the same pattern. There may be one or two that are different, note which of the locations are different, so that you can provide this information to the technical staff.

# 2400 RELAY BOARD LAYOUT (MODULE LAYOUT)



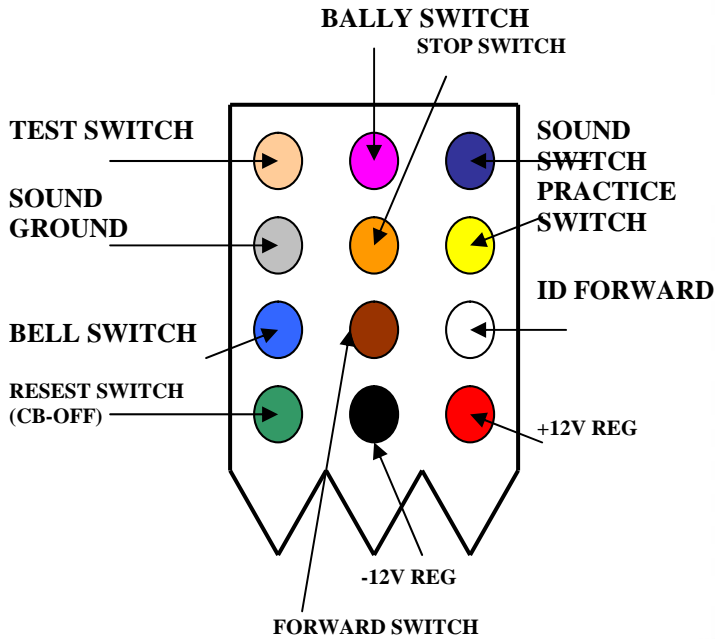


# CONTROL BOX

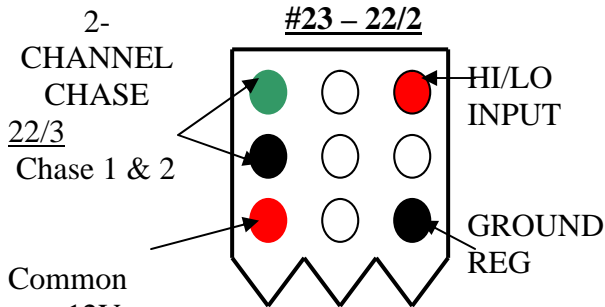


# MASTER MODULE RELAY BOARD

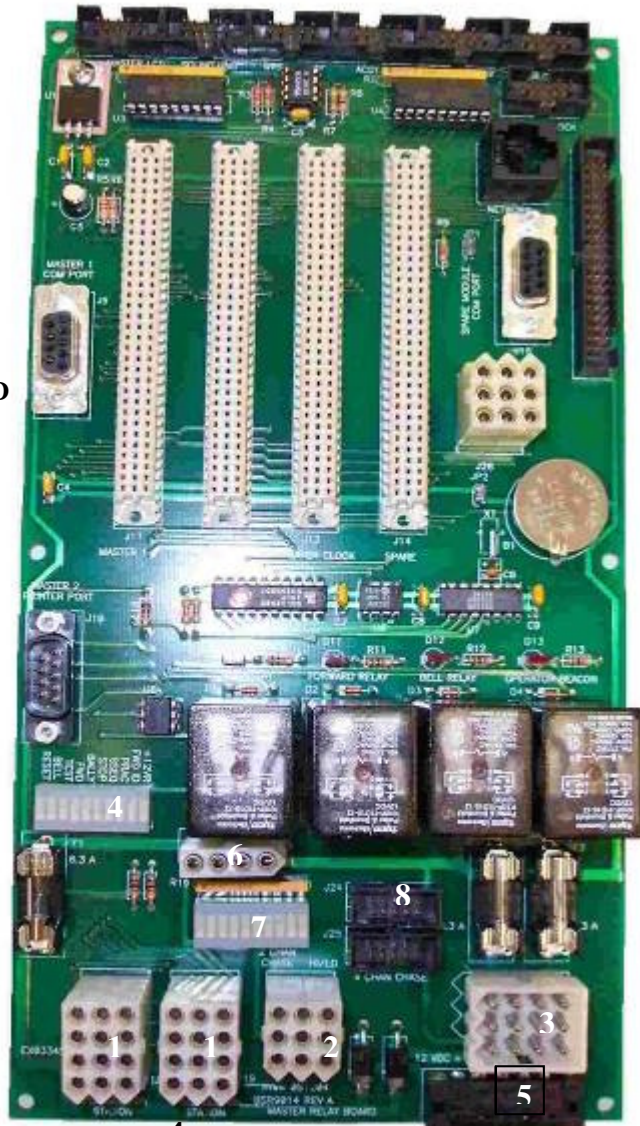
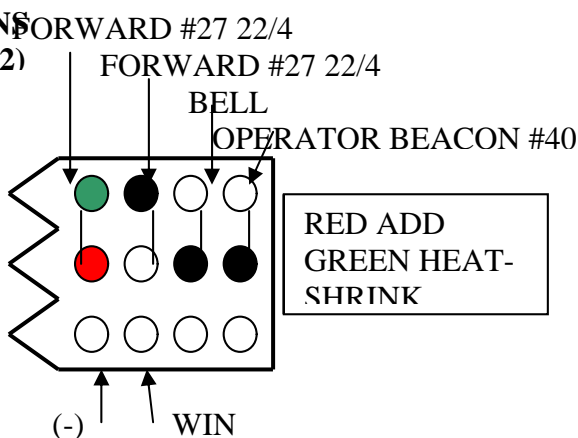
**1 FEMALE PLUG, MALE PINS  
MASTER (J18) & SATELLITE (J19)  
PUSHBUTTON STATIONS**



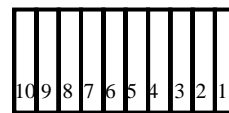
**2 MALE PLUG – FEMALE PINS  
HI/LO SWITCH (J20)  
#23 – 22/2**



**3 FEMALE PLUG – MALE  
PINS FORWARD #27 22/4  
(J22)**



**4 LED SWITCH ARRAY  
BLOCK (D5)**



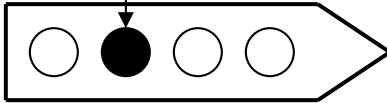
- 1) +12V REG
- 2) FORWARD ID
- 3) PRACTICE
- 4) SSEQ
- 5) STOP
- 6) BALLY
- 7) FORWARD
- 8) TEST
- 9) BELL
- 10) RESET



# MASTER MODULE RELAY BOARD (page 2)

**5**  
The connector at J23 is diagrammed on page 3.

**6**  
FEMALE PLUG – MALE PINS (.18)



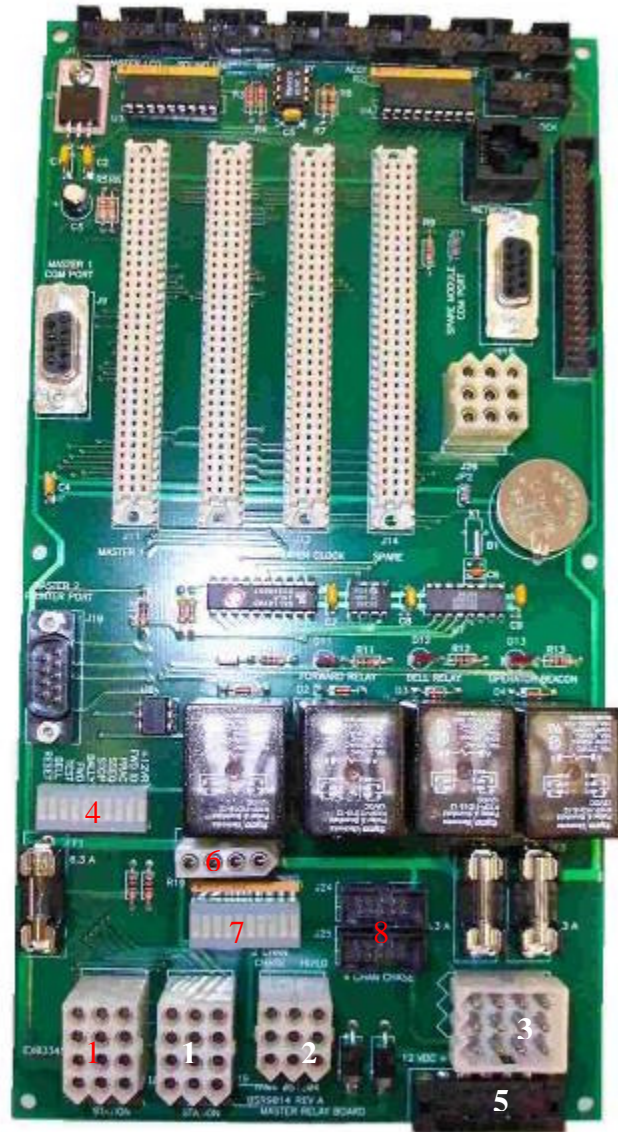
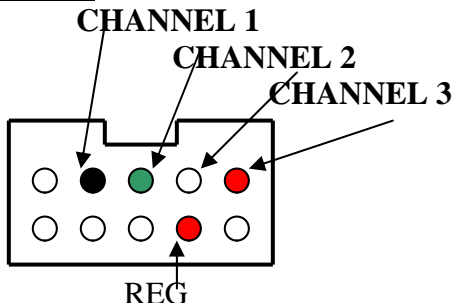
**7**  
LED PIN-OUT (D6)



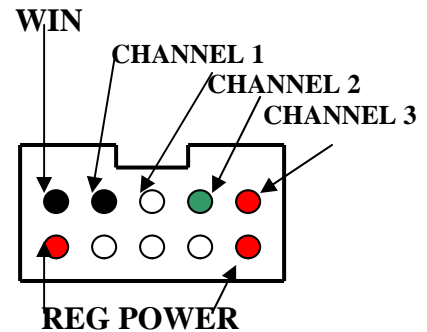
- 1-4) CHASE
- 5-7) X-MAS TREE
- 8) HI/LO
- 9-10) 2-CHANNEL

**8**  
4-CHANNEL CHASE (J24 & J25)

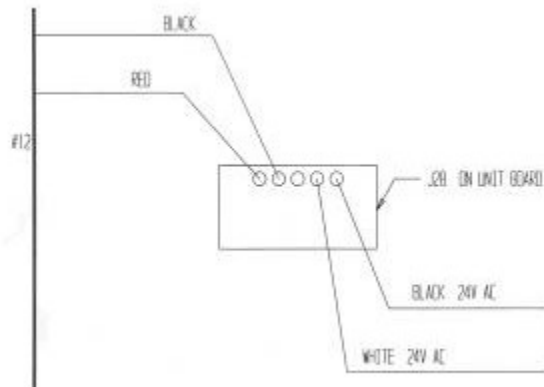
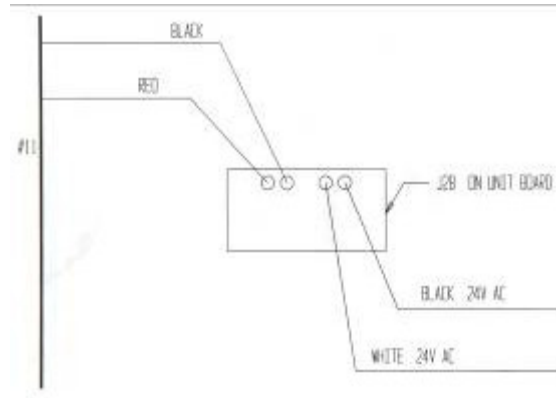
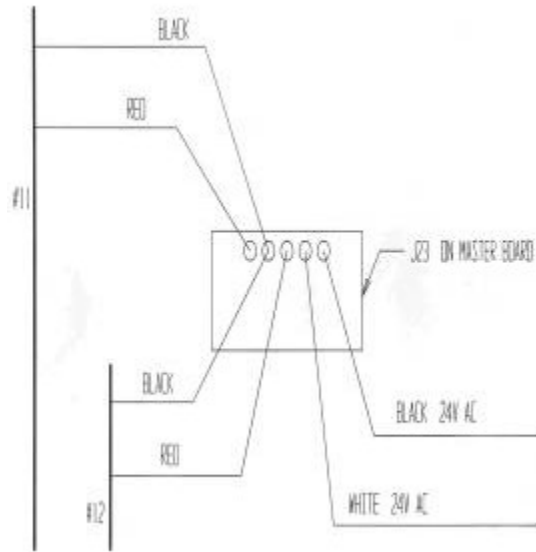
#36 – 22/5



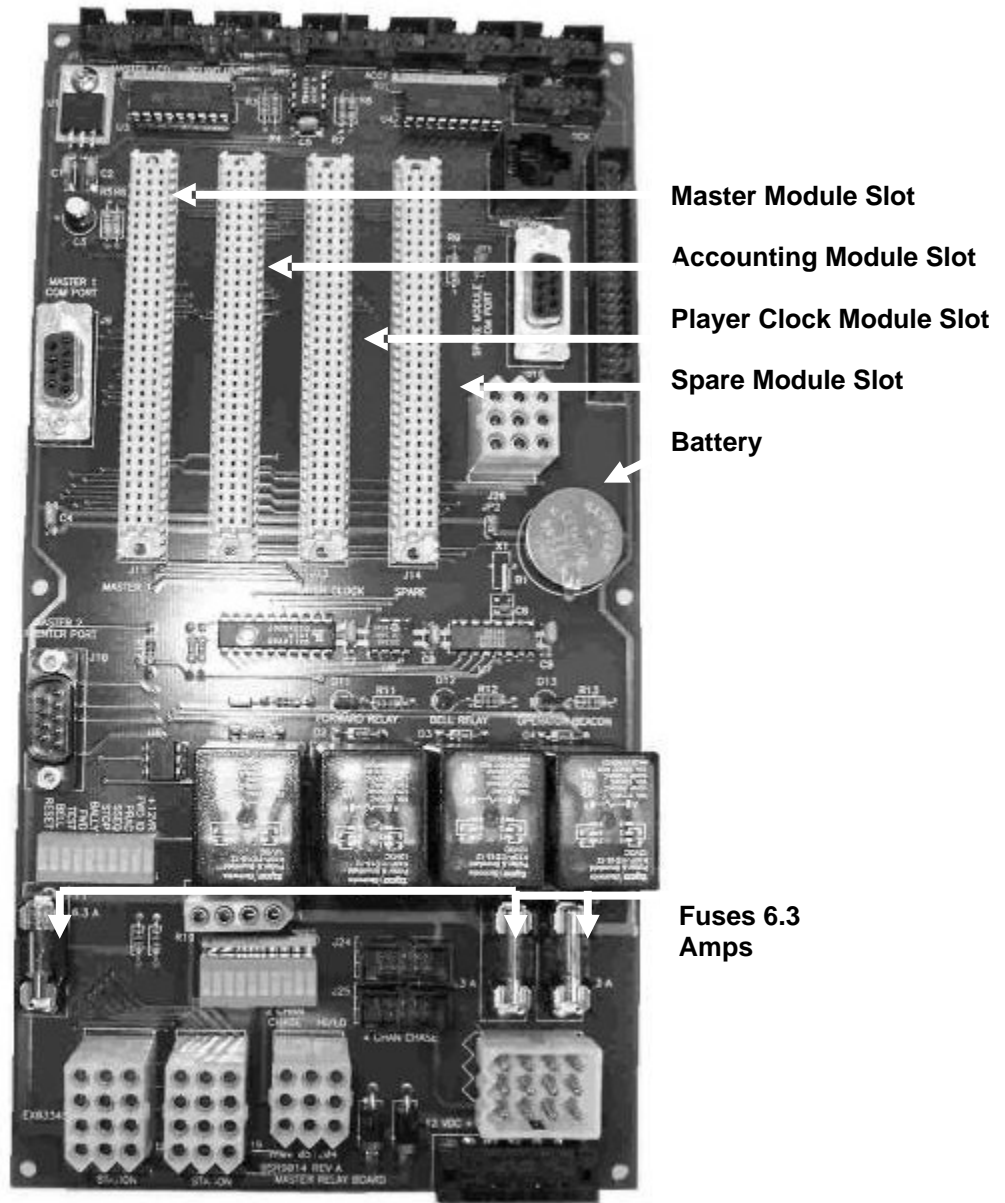
#36 – 22/5 & #15 22/2  
GLOBE FLASHER & WIN LINE



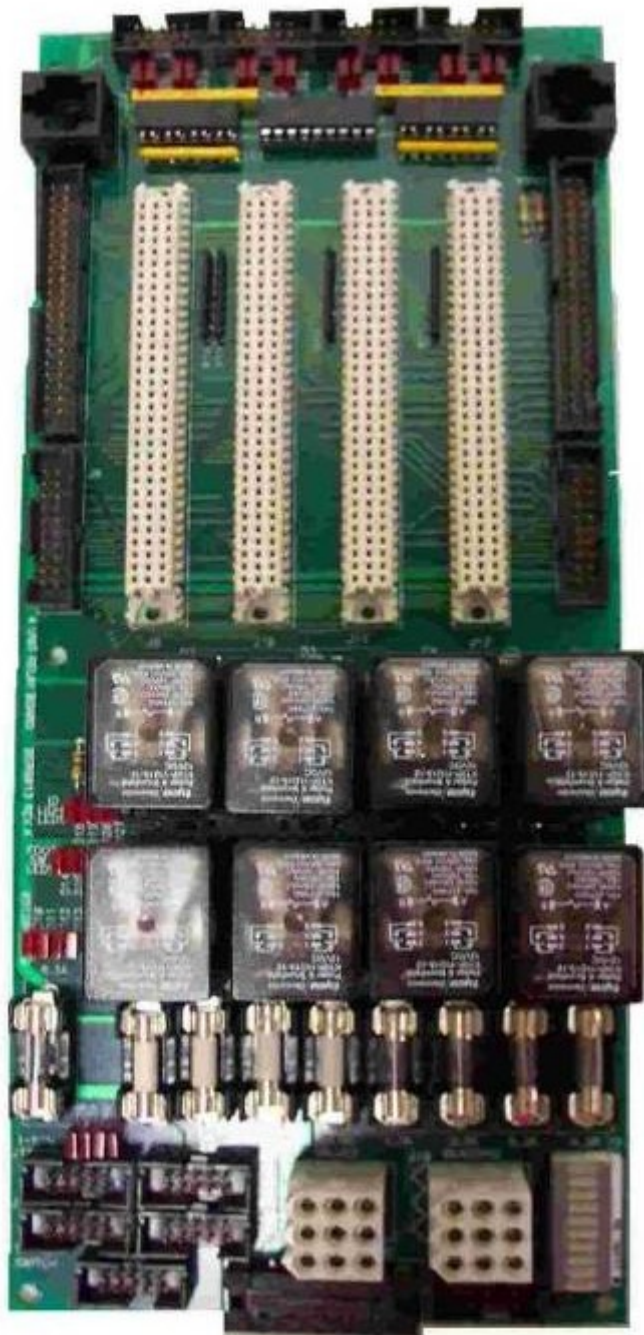
# PIN OUT



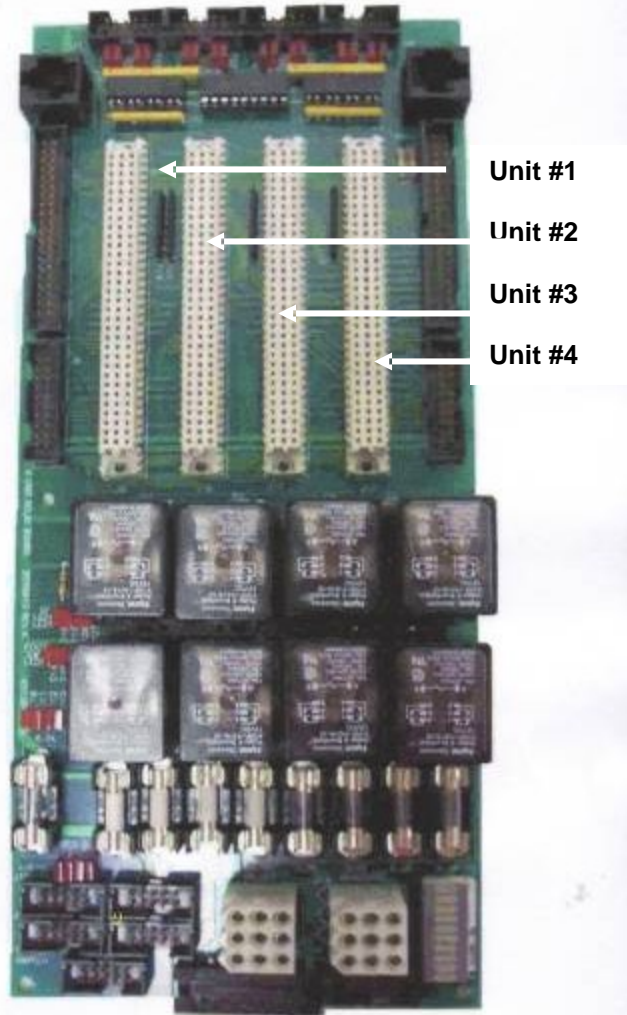
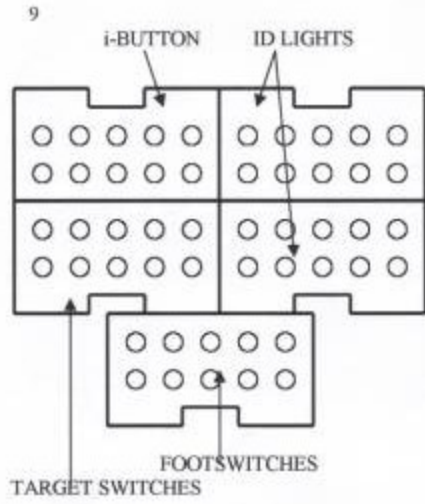
## 2400 MASTER MODULAR BOARD



## UNIT MODULE RELAY BOARD



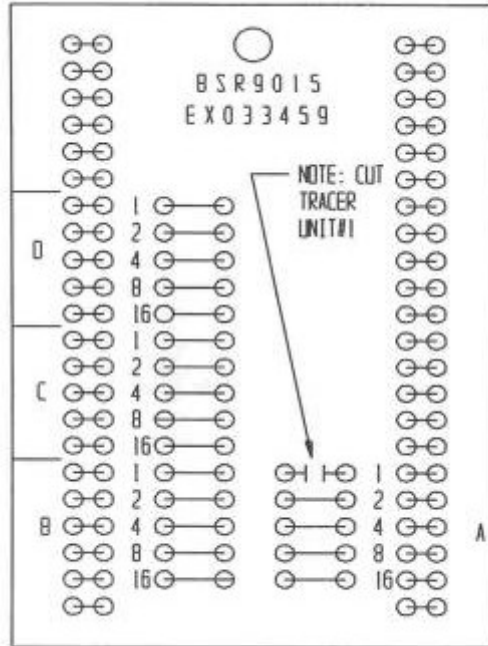
### UNIT MODULE RELAY BOARD (PAGE 2)





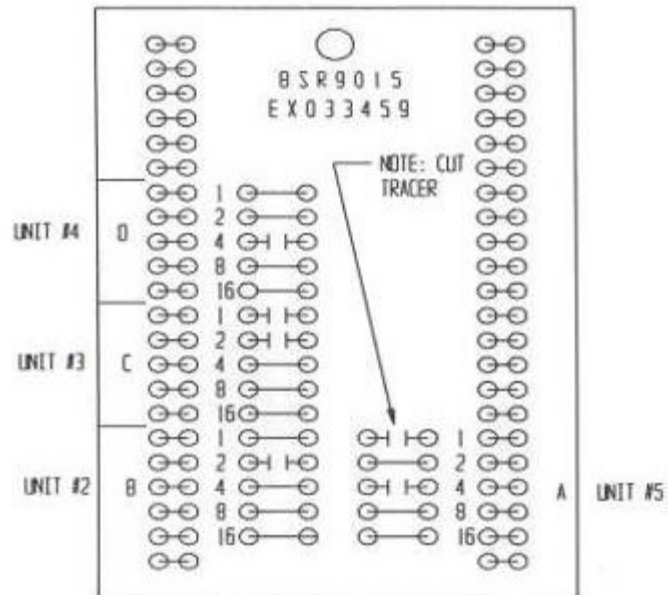
# UNIT IDENTIFIER

**MASTER**



**UNIT BOARD #1**

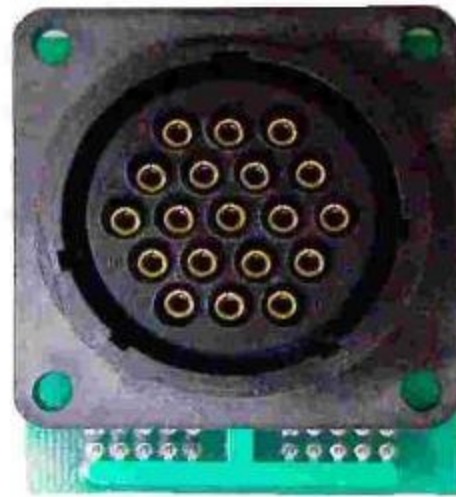
**SYSTEM  
LINK/ADDRESS**



**SYSTEM  
LINK/ADDRESS**



# TRANSITION BOARD



## UNIT RELAY BOARD



## MODULE CHANGES AND UPDATES

When you receive an update or replacement module it can go into one of several sockets on your Master Relay Board. If the module does not have a label on it, you can put it in any of the positions other than "Master 2" or "Player Clock". These specific sockets are labeled on the master relay board. The master relay board is mounted to the far left side of your control electronics box. The master relay board has four (4) sockets, labeled from left to right, "Master 1", "Master 2", "Player Clock", and "Spare".

All of the modules have the same features (other than player clock and master 2). If you receive a player clock or master 2 modules they will be labeled as such. If a module is received it is labeled "Master 1" that means it has a program update for the game. The master 1 socket has the ability to update the program to the rest of the game.

In order to insert any of the modules you must make certain your game electronics is OFF. (You will notice that the three lights on the edge of the module are out completely.) At that point insert the module into the correct position, removing the old module – if one is there. The module should be inserted so the LED's (small yellow, red and green lights) are toward the bottom. It should plug securely into place. That module should be at the same height as the other modules in place and not at any angle. Now you can apply game power – turn on the circuit breaker or plug it into the wall. All of the modules should light up at least the green lights.

When a master 2 module (which keeps track of what time it is) is inserted into a game; the time must be set for your time zone – go to the Multi-Line LC Display Box with the accounting features. Hold down the two middle buttons (the "UP" and "DOWN") on the display. (See ACCOUNTING SYSTEM in the APPENDIX for more instructions and a diagram on this LCD box.) Then turn the key to the "ON" position, it should display "YEAR =" and a value. After setting the value you want by using the "UP" and "DOWN" buttons PRESS the "ENTER" key.

The four buttons have the following features; the left-hand button is "MODE" as it says in the bottom of the display. When you press this button it advances to the next option without modifying any settings. The next two buttons are "UP" and "DOWN"; to change the value of a given setting. When you change the value in the display the setting does not take until you press the "ENTER" button which is the far right button. If you press the "MODE" button, instead of "ENTER" you advance to the next location without changing the option; even though you saw the value change. You must press "ENTER" for it to accept the change. The year value is a two digit number from 00 to 99 (this program takes into account the year 2000) and is accurate to the year 2090.

Now, set the month; which is from 01 for January to 12 for December. Press the "ENTER" button after that value is set correctly. Next set the time; there is no AM or PM value, we use the 24 hour format. If you want 8:00PM the setting would be 8 + 12 or 20 for the value then press "ENTER". The next setting is for minute; set the correct number of minutes and press "ENTER". Turn the key back to the "OFF", and the Multi-Line LCD Box will return to its normal accounting function.

If you receive an updated Player Clock module there are no settings for it, when plugged in it will do its job.

If you receive a module and it has no label and it is a replacement you will need to do a systems download in order to get your game's current program into the replacement module. If you have received an update Master 1, or program, the module belongs in the Master 1 location and a download needs to take place in order for the rest of the game to have all the updates.

To download the programs to the rest of the game, with the game power on (locate the game MULTI-LINE LCD unit) turn the key to the "on" position. The Multi-Line LC Display should read "GAME TYPE " and a value. (Refer to OPTION REGISTER SETTING INSTRUCTIONS for complete instructions and diagram) Press the left "MODE" button, this will cause the LCD screen to advance through the options. With the left button still depressed, press the far right button ("ENTER") for at least one (1) second. After

two (2) seconds the display will say "DOWNLOADING UNIT". Now you can let off of the buttons and turn the key to the "off" position, and the new/replacement module will download the program to the rest of the modules ensuring no conflicts between any of them.

During the time it takes to download you will see yellow and red lights on the modules begin to flash or turn dim, this is informing you that the programs are actually being downloaded into the modules. When that is complete the red light will go out and the yellow and green light will come on bright.

If you insert a module, and after power up, you see a red light is flashing, this indicates a module is plugged into the wrong location. If the module flashes at a constant rate it means it belongs in either a master or unit location (they don't care which) and it's in the wrong location. If a module flashes twice and goes out for a period of time and flashes twice again, that means it belongs in the master 2 position of the master relay board. If the module flashes three times on the red LED and goes out for a period of time, then flashes three times again, that indicates it belongs in the number 3 position or the player clock socket of the master relay board.

If you have any problems during the downloading process, or if the game is not working correctly after you have completed the download, please call Bob's Space Racers® for further technical support help. Try to identify which lights are "ON" and on which module they are located. Generally speaking, you should see that most of the modules have the same lights on, in the same pattern. There may be one or two that are different. Note which locations that are different, to aid in troubleshooting with a technician.

## PWM DC MOTOR DRIVER



**EX033523**

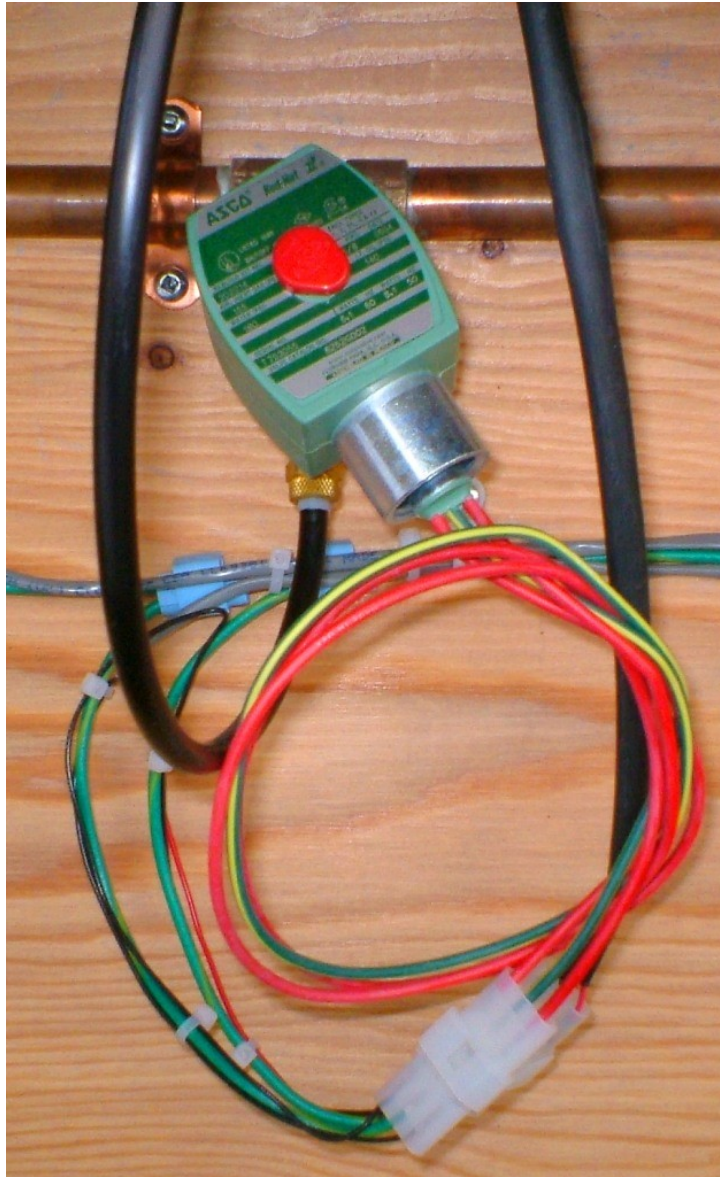
## Whopper Water Mechanism



**MX700500**



## GUN VALVE



**P0007701**

## HOME SWITCH



**Home  
Switch**



# MISCELLANEOUS

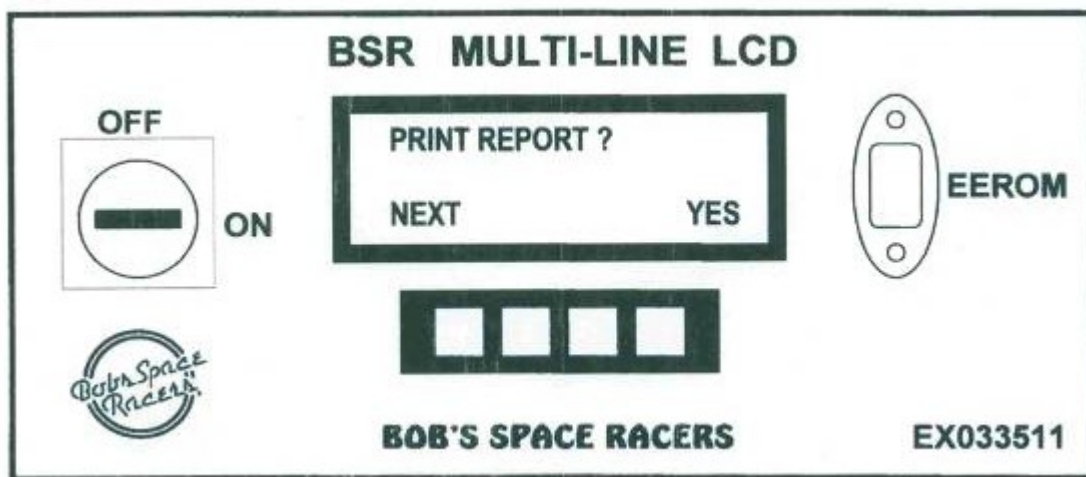
# APPENDICES

# ACCOUNTING

## ACCOUNTING SYSTEM

On the 2400 Electronics the Accounting Systems is integrated in with the game electronics. There is no wiring harness to connect it to the rest of the game or individual units. The external wiring for the Accounting System includes 2 cables plugged into the Master Relay Board. There is a connector marked 'MASTER 2 PRINTER PORT' ON THE Master Relay Board, which has a cable that runs down to the printer in the game, and a Ribbon Cable above the Spare Module that is labeled 'ACCOUNTING LCD'. Even with the printer or the LCD cable not plugged in, the accounting system continues to accumulate information. Whenever a good LCD or printer is plugged in, all the tallied information will be available.

To locate the BSR MULTI-LINE LCD for the accounting system simply read the display. The message on the display will read out "ACCT2400", on the bottom left side of the display. When you turn the key on, it will display 'PRINT REPORT?' across the top. On the bottom line it will say 'NEXT' above the far left button and above the far right button it will read 'yes'. If you press the button below the word "NEXT", it will sequence through a number of settings from 'PRINT REPORT' to 'HI PLAYERS' to 'HI GAMES' to 'LO PLAYERS' to 'LO GAMES', then to 'erase data'. If you then press button below the word 'YES' when the display reads 'ERASE DATA' it will clear the data and default back to 'PRINT REPORT' display.



# 2400 G MODULE ELECTRONICS' ACCOUNTING SYSTEM OVERVIEW

```

Bobs Space Racers
AccuTrak Accounting Report

Report Date: 05/12/2003
Report Time: 10:17:06
Game ID:373

Last cleared at: 05/06/2003 12:33:38

Level 1 Report:
Players in $ 2 Games = 00000
Total $ 2 Games      = 00000
Players in $ 1 Games = 00000
Total $ 1 Games      = 00000
Total $              = 00000

Reset Players        = 00000
Reset Games          = 00000
Reset $              = 00000

Level 2 Report:
Games with 1 player = 00000
Games with 2 players = 00000
Games with 3 players = 00000
Games with 4 players = 00000
Games with 5 players = 00000
Games with 6 players = 00000
Games with 7 players = 00000
Games with 8 players = 00000
Games with 9 players = 00000
Games with 10 players = 00000
Games with 11 players = 00000
Games with 12 players = 00000
Games with 13 players = 00000
Games with 14 players = 00000
Games with 15 players = 00000
Games with 16+ players = 00000

Level 3 Report:
Non-resettable Counters:
Players in $ 2 Games = 0000000
Total $ 2 Games      = 0000000
Players in $ 1 Games = 0000054
Total $ 1 Games      = 0000029
Reset Players        = 0001298
Reset Games          = 0000000

Level 4 Report:
Hourly Reports:
  Date-Time  Games  Players  Receipts
05/08 12:00  00    00000    00000
05/08 13:00  00    00000    00000
05/08 14:00  00    00000    00000
05/08 15:00  00    00000    00000
05/08 16:00  00    00000    00000
05/08 17:00  00    00000    00000
05/09 10:00  00    00000    00000
05/09 11:00  00    00000    00000
05/09 12:00  00    00000    00000
05/09 13:00  00    00000    00000
05/09 14:00  00    00000    00000
05/09 15:00  00    00000    00000
05/09 16:00  00    00000    00000
05/12 20:00  00    00000    00000 *
    
```

When the display reads "PRINT REPORT" and you press the right hand button below the "YES", as shown on the previous page, a report will be printed, similar to the one shown on the left of this page. (See example at left). If no report is printed then you will need to make certain the printer is turned on. A green light on the face of the printer unit will come on when the printer has power to it. Also, check the paper supply to the printer; the paper is found inside the unit. If these items are fine and you still have no printing capabilities, then you will need to check the connection on the Master Relay Board. Examine the "MASTER 2 PRINTER PORT" on the Master Relay Board and make certain it is securely plugged in.

A printed report will have a heading that includes: 1) the Current Time and Date; 2) the Game Identification Number; and, 3) the Last Time and Date the Information was cleared from the Accounting System. Note: You should recognize it as the last time you cleared your meters! The report will then print a LEVEL 1 report providing you with the totals since the last time the system was cleared.

This Accounting System will also keep track of the total dollars for you. If you have the price sign option, and if the price sign reads correctly, then this system will accumulate how many dollars the game was supposed to bring in since the last time it was cleared.

After Level 1, the report prints Level 2 which provides you with the number of races that were 1-player games, 2-player games, 3-player games, et cetera, up through 16-player games. If you have more than 16 units, then all of the games played with 16 or more players or more will be tallied on the "16+ players" line on the printed report.

Below Level 2 is Level 3, this consists of a set of total races that have ever been played. These values do not get cleared when you "ERASE DATA" and are considered non-resettable. (This part replaces the Mechanical Meters you may have in some of your older games).

The last part to be printed is Level 4, which is an hourly report. This informs you of how many games were played each hour the machine was powered up (turned on). If the machine was not powered up there will be no report for that time frame.

When you are done using the BSR MULTI-LINE LCD, you need to turn the key to the "off" position. This key needs to be in the "off" position during game operation as well as when the game itself is powered down – it will not affect the operation of the game. If the key is left in the "on" position during the game operation it will not affect the game, nor will it affect the function of the BSR MULTI-LINE LCD. However, if the key is left in the "on" position it will affect your security! It will allow anyone to have access to your game's financial information and they will be able to erase it before you have a chance to record it in your books! It is very important that you do not leave the key in the "on" position for safety and security reasons!

Below that, it prints a LEVEL 3 report which is a set of total races since that have ever been played. These values don't get cleared when you 'ERASE DATA' and are considered non-resettable (they replace the old mechanical meters).

Lastly it prints the LEVEL 4 report which is a hourly report. This will report how many games were played each hour the machine was powered up. If the machine was not powered up there will be no report for that hour.

When you are done using the MULTI-LINE LCD to get information, the key should be turned off. This includes during a race. If the key is left on during a race, from the time that the forward button is pressed, until the end of the race, the MULTI-LINE LCD display will behave as it had no key in it. It is important however, for security reasons that you do not leave the key in the machine and you do not leave the key turned on. Any person could clear all the data if you do.

# OPERATOR ACCOUNTING SYSTEM OVERVIEW

The OAS keeps track of individual operators regardless of how many different games they work. This will ensure the money in the operator's apron will always match the amount on the I-Button. By tracking the operator and not just the game, you make it almost impossible for someone to try to beat the system.

Data no longer needs to be collected from the actual game. All the information needed will be brought to the appropriate area (cash control) in the I-Button. There are various ways to collect the money. The operator can count the money, print the report, and drop it all off at cash control with the I-Button. The operator can also bring the I-Button and money to cash control, where it will be counted and sorted. Any other methods which suit the location or cash procedures can also be used.

Re-printed reports will be marked "REPRINT" to avoid confusion.

All I-Button's will have an incrementing collection number counting the number of prints, therefore, a missing printout will be noticed immediately.

There is no need to collect an operator's money or get a printout every time they leave a game. An operator can work every game in the park without affecting the count.

Game numbers can be programmed to match existing customer locations.

By keeping track of the operator, you are keeping track of the money. Working hand in hand with the existing BSR Accounting System, your organization can now audit all aspects of the money collecting process. Game owners and loss prevention are given a check against operators and cash control.

Since the Operators printout can be separated from the individual game printouts, cash control does not need to have the totals of each game, only the total earning of each operator. The game earnings and operator earnings can then be compared at a higher level to see if everything balances, bringing cash control under the microscope.

# OPERATOR ACCOUNTING SYSTEM OVERVIEW

## Getting Started

Thank you for purchasing a BSR Operator Accounting System (OAS).

The OAS is an advanced accounting system, however, BSR developers took measures to ensure it is easy to operate.

The heart of the system is the I-Button. An I-Button is a durable memory device, which transfers information, quickly and easily. Each I-Button has a unique serial number, making it possible to track individual operators.

The OAS uses I-Button modules, which read operator I-Buttons (BLUE) and activate the units much like a traditional kick switch. Each I-Button module has six indicator lights, which show the status of the unit.

The information on an Operator I-Button can be printed at any time, showing what games the operator worked, what times they worked, and how much money they made.

A special Master "I-Button (RED) is used to program the Game Number and Price Point for the game.

When the OAS is first installed, three lights may flash on the I-Button modules, this is because they need to be setup. Please follow the next few steps in order to get your OAS working.

## Before you use the OAS, you must...

- Assign a unique Game Number to each game
- Assign a Price Point to each game
- Set the Time and Date on the printer
- Please refer to Section 1 – Section 1 – Setting up the Printer and Section 2 – Setting Up The Game, for instructions on how to set these options



# OPERATOR ACCOUNTING SYSTEM

## Section 1 – Setting Up The Printer

A Master-Button is needed to get into the printers Setup Menu. Hold a Mater I-Button to the printer probe and the Setup Menu will appear as follows:

```

          SET MENU
    NEXT      EXIT
  
```

Press *NEXT* to scroll through the menu options. To exit the Setup Menu press *EXIT*. To get back to this screen, cycle trough the setup menu options be pressing *NEXT* until this screen appears again.

### Setting Time and Date

While in the Setup Menu press *NEXT* until you arrive at the following:

```

          DATE /      TIME
    NEXT      SET
  
```

Press *SET* AND THE TIME AND DATE WILL APPEAR. Use the left button to choose what you want to change. Use the right button to increment the underlined selection.

**NOTE:** The time and date is stored in each individual Operator I-Button. Changes will not take effect in the I-Button until it is held to the printer.

### Setting Number of Copies

This sets the number of copies that will be printed for each new printout; this allows you to customize the system to your cash control procedures.

While in the Setup Menu press *NEXT* **until you arrive at the following:**

```

          COPIES = 1
    NEXT      INC
  
```

Press *INC* until the desired number of copies you want printed is selected.

### Setting Auto Logout

This option allows you to automatically create a new block on the printout if the I-Button has been idle for the set amount of time. We recommend setting the Auto Logout. Time to the length of an operator's break, this way the system will automatically start a new block on the printout once their break is over. Setting this option will ensure you know when an operator's I-Button is not used for longer than the set amount of time.

While in the Setup Menu press *NEXT* until you arrive at the following:

```

          AUTO LOGOUT = OFF
    NEXT      INC
  
```

Press '*INC*', until the desired amount of minutes for the auto ragout is selected.

**NOTE:** The Auto logout setting is stored in each individual Operator I-Button. Changes will not take effect in the I-Button until it is held to the printer.

## GAME PARTS LIST

| <u>PART #</u>   | <u>DESCRIPTION</u>                |
|-----------------|-----------------------------------|
| E0003800        | Footswitch Assembly               |
| E0012900        | Switch Pushbutton N/O             |
| E0013600        | Switch, Micro, Water Game YZ      |
| E0022680        | Power Supply 12V, 9 Amp Phi Hong  |
| E0023375        | Transformer, Neon Alanson         |
| E0023600        | Fuse 2 Amp                        |
| E0023625        | Fuse 2 Amp SLO-BLO. MDL-2         |
| E0024000        | Fuse 7 ½ Amp, AGC                 |
| E0028500        | Bulb, 40W for Top Globe 120V      |
| E0028600        | Bulb, 25W RS for Target 120V      |
| E0029800        | I.D. Light 14V Amber              |
| EX033100        | Footswitch Assembly               |
| EX033446        | Board Assemble – Relay BSR9010    |
| EX033442        | Board Assembly – Relay BSR9020    |
| EX033420        | 2400 Module                       |
| EX033490        | Display Assembly                  |
| EX033631        | Small Relay Board                 |
| M0002200        | Decal SHOOT HERE w/Clear          |
| M0005300        | CRC Spray, @0-Ounce Can           |
| M0006101        | springs, BSR551, 57-112           |
| M0006102        | Spring B121-3B, 57-114            |
| M0006103        | Brass Tip Nozzle                  |
| M0006104        | Water Gun Tip Cleaner w/#57 Drill |
| M0006200        | Water Gun O Rings 57-158          |
| M0006300        | Retainer 58-3                     |
| M0006302        | Stem 57-113                       |
| M0006500        | Heat Proof Grease                 |
| M0010900        | Screwlox, Driver #2               |
| MX010200        | Water Hose Complete Assembly      |
| MX010300        | Water Gun Complete Assembly       |
| MX010360        | Water Gun Rebuild Kit             |
| E0022680        | Phi Hong Power Supply 12V, 9 Amps |
| M0006104        | Water Gun Tip Cleaner w/Drill #57 |
| M0010900        | Screwlox, Driver #2               |
| <i>E0020600</i> | <i>Contactor (only) for Pump</i>  |
| PX011600-LS     | Pump Assy Water ½ hp 60 Hz        |

# GAME PARTS LIST

| <u>PART #</u> | <u>DESCRIPTION</u>                        |
|---------------|---|
| PX011130      | Screen Water Tank                         |
| P0008800      | Cartridge Water Filter                    |
| E0025100      | Meter 12V DC Eaton-Durant                 |
| E0028500      | Bulb 40W/130V Top Globe 374660            |
| EX030900      | Light Target Assy complete w/Brkt         |
| E0027145      | Cord 10' SJTO w/Plug and F225 Socket U/L  |
| EX013600      | Target Switch YZ Wired                    |
| EX033420      | Board Assy Module                         |
| E0003400      | Relay 24V DC 20Q3CD024                    |
| EX033523      | PWM DC MOTOR DRIVER                       |
| EM030952      | Relay PC Mount 12v                        |
| EX013600      | Target Switch YZ Wired                    |
| EM018400      | Fuse 2amp 5x20 MM Slo-Blo                 |
| E0800045      | Fluorescent Compact Bulb 23W Mini Twist   |
| E0029800      | I.D. Light 12v Amber                      |
| P0007701      | Valve Elec. 8262G2 24/60 (spare parts)    |
| P0009956      | Filter Bowl PVC 1" Clear VU-Flo RW        |
| M0002200      | Decal "SHOOT HERE" Clear Coated           |
| M0006103      | Tip Nozzle Brass                          |
| M0005300      | Lubricant Spray CRC 3-36 16oz can         |
| E0900005      | Printer paper 3" NON-Thermal 392-332      |
| M0010910      | Wrench Allen "T" Handle 5/32              |
| M0010911      | Wrench Allen "T" Handle 1/8               |
| E0023635      | Fuse 2.5 amp Slo-Blo Sound Amplifiers     |
| E0023750      | Fuse 5 amps 250v                          |
| E0012900      | Switch Push Button Normal Open 8411K11 KB |
| E0020500      | Contactoer 24v 2 Pole DPNO 30 amp         |
| MX007210      | Molding Gun 3PC Set New Style Water Gun   |
| MX006330      | Barrel Arcade/ Binks Anodized             |
| EM018410      | Fuse 5 amps 5 x 20 MM Slo-Blo             |
| E0029108      | Bulb 24v 21w BA15s Base                   |
| E0013976      | Switch Optical Sensor Slotted OPB817 TB   |
| E0800041      | Fluorescent Compact 40/30BX Bulb          |
| E0004300      | Relay Solid State AC 10 amp               |
| MX700500      | Mechanism Whopper Water Assembly          |

# GAME PARTS LIST

| <u>PART #</u> | <u>DESCRIPTION</u>                         |
|---------------|--|
| MX010390      | Gun Barrel New Style<br>(Arcade Style Guns |
| MX010200      | Water Hose Complete<br>Assembly            |
| MX010300      | Water Gun Complete    Assembly             |
| MX010360      | Water Gun Rebuild Kit                      |
| MX010750      | Thru-Hull Assembly                         |
| P0007700      | Electric Valve, 120/60, 110/50             |
| P0007705      | Valve Electric 12VDC 1/8" RW               |
| P0007708      | Valve Electric 12VDC RW FILL               |
| P0007720      | Valve Electric 12VDC RW DRAIN              |
| P0007825      | Pressurized System Watts Valve 1¼"         |
| P0008050      | Valve, Needle 3/8"                         |
| P0008700      | Water Filter                               |
| P0008750      | Filter O Ring                              |
| P0008800      | Water Filter Cartridge                     |
| WX040000      | Arcade Water Gun Assembly                  |

# TROUBLESHOOTING

# **TROUBLE SHOOTING**

## **K.I.S.S. - KEEP IT SIMPLE & SIMPLER**

Look for the simple things first. Most problems, about 90%, occur with BSR equipment are simple things that are overlooked.

- Loose wires
- Bad Connections
- Loose modules or relays
- Something has been changed around by someone else's action

Example: Someone plugs a wire connector into a wrong plug or someone disconnects something.

## **ELECTRONIC RESET PROCEDURES**

There are 2 ways to reset your game. One is "CB OFF" (Computer Board Off) button and 2<sup>nd</sup> is game power breaker. First try the "CB OFF" (Computer Board Off) button Located at each end of the game where start and stow push buttons are. Second turn the game power breaker off at the power panel, wait 16 seconds and turn breaker back on. Something to remember – 2400 electronic is a computer, if it gets "lost" it must be reset to start over properly.

## **ACTIVATED TARGET SWITCH**

Hung or struck Water Game target switches ("SHOOT HERE"), target can cause an unfair and revenue losing problem. To cure this 2400 Electronics sense problem before it is too late. If one of the three above symptoms arise the foot-switch for the problem unit simply will not turn on. If you have a foot-switch that lights when turned on and goes out when foot-switch is released you must fix the stuck target switch before this unit will turn on.

## **ACTIVATED WIN SWITCH**

Hung or stuck win switches can cause confusion, when you push "Forward" button the game or unit automatically wins immediately without reaching the end of the track. To eliminate this problem in 2400 Electronics we simply turn the problem unit off when the game is started. If you have a unit that turns off when a race is started, check the win switch for problems. All other units will continue to operate normally so not to confuse the whole game.

## **FUSE PROTECTION**

Your game has fuses located and for the following:

Power supply/bridge rectifier protection, – located beside power supplies, in power supply box (See Power Supply Layout). The ID light beside the fuse post represents a fuse in proper working order when lit.

Relay board fuses – Mounted on Master Relay and Unit Relay Boards.

Surge protectors – mounted on breaker panels.

Depending on game there are numerous fuses located throughout the game. Be familiar with these locations and check these first when problems arise.

## **BRIDGE RECTIFIERS**

Your game also has bridge rectifiers. If fuses in the power supply box blow immediately when replaced the bridge rectifier for that fuse must be replaced. If your game has a certain number of units not working, i.e.: four in a row on one side of game. The cause would be a blown bridge rectifier and fuse. In this condition both fuse and bridge rectifier will be blown.

## **INTERMITTENT & ERRATIC PROBLEMS**

If the game is demonstrating erratic behavior that doesn't affect multiple units it's best to power down the game then power the game back up. If the problem doesn't go away, recall the symptoms, or behaviors and call Bob's Space Racers Tech Service for help in repairing the problem.

Intermittent problems are the hardest to find and cure. If you have an intermittent problem please keep details on the problem, symptoms and details on when the problem occurs. Note how it is fixed or when it stops having problems. Contact Bob's Space Racers Tech Services with the problem details.

# SOUND



## **BSR JUKEBOX SOUND UNIT**

There are (40 four white push buttons on the front face of the BSR JUKEBOX sound unit.

**MENU      UP      DOWN      ENTER**

Without the remote you can only set different menu options and play the 10 different game music songs by pushing enter.

### **MENU SETTINGS:**

**Push Menu**      Attract mode  
                                 Settings

Select attract mode by placing the arrow (using the up/down buttons) on the attract mode, push enter

Turn off/on (use arrow keys to select one then push enter) delay (set time be using the arrow keys to select the delay time then push enter) delay time can be set from 9 minutes to 30 seconds.

**SETTING:**      Remote Control  
                                 Adjust Volume  
                                 Contrast  
                                 Remote Control Off/On  
                                 Adjust Volume from 1 db to 25 db  
                                 Contrast from 1 to 7

Once again you select to option then use the up/down arrow keys to select the value then push enter.

### **Remote Control Programming**

Hold down code search until light stays lit.  
Press VCR button  
Type 524, remote is not programmed.

By pushing the play button on the remote you will play one of the 10 game music songs  
By pushing the scan/rew or scan/ff buttons you can select the different groups of sounds categorizes.

GAME MUSIC  
OPERATOR A  
OPERATOR B  
GIMMICKS  
EXTRAS

By pushing any one of the numbers on the key pad will play the sounds in that location.

## SOUND SYSTEM OVERVIEW

Over the years, Bob's Space Racers® has updated the sound systems to accommodate the needs of our customers. The original sound system was a MacKenzie Cartridge, which was a small silver tape cartridge. Next was a Leer Cartridge, which was an 8-track tape. Then a DMR MacKenzie Sound, which was in a gold case with a slide-in cartridge. We also use either the DMR-PX Mackenzie Player or the Clever Device Sound Sequencer. The DMR-PX Mackenzie Player can play only a single sound. The Clever Device Sound Sequencer has the capacity to play from two to eight (2-8) sounds. We presently have a new innovative sound unit, the BSR Sound Unit, which plays up to 50 songs.

### **AMPLIFIERS**

The amplifiers we have used over the years have, also, changed. Originally we used a Bogen Amplifier which had a 70V speaker system. The Yorkville Sound 4200 and KMD 4200 Amplifiers were the next ones used beginning in the early 1980's. They are similar in operations with only a cosmetic difference on their face units. The Yorkville Sound 6400 Amplifier was used after that. This was used in some Whac-A-Mole® trailers because they have more speakers than other games. Presently we use a Yorkville Sound MM4, or MP4, Amplifier System. This unit has more power and is more user-friendly. The hook-up of all of the above amplifiers is pretty much the same: power, speaker, etc.

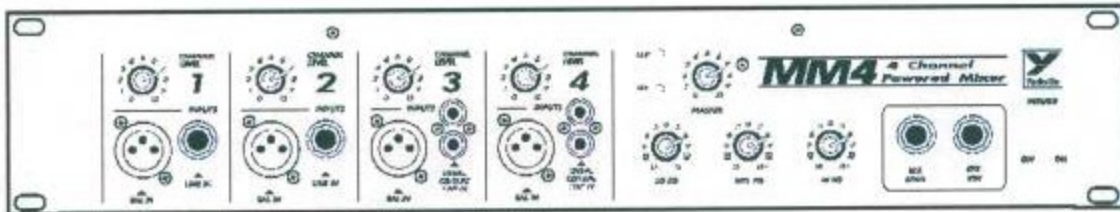
The current sound system comes equipped with overhead microphone cables and includes a hand-held microphone and wireless microphone system. These kits are designed to operate at different frequencies for the various games Bob's Space Racers® manufactures. The transmitter and receiver are set for the same frequency of operation. We have selected different channels for each of the games to minimize interference of signals from other sound systems.

We also have CD Players available. We originally used a Pioneer 6-disk player, but have switched to a Sony single-disk player. This switch was done to reduce the maintenance and to simplify the operation.

If you are interested in updating your sound system to one of the newer systems available, please call us at 386-677-0761 and ask to speak with a technician. The technician will help you determine exactly what is needed for your system to be updated

# **OWNERS MANUAL**

## **MANUEL de L'UTILISATEUR**



Mm4-v2s.doc 09/29/98 11:22 AM

## IMPORTANT SAFETY INSTRUCTIONS



**INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS.**

### CAUTION:

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

**INSTRUCTIONS RELATIVES AU RISQUE DE FEU, CHOC ÉLECTRIQUE, OU BLESSURES AUX PERSONNES.**

### AVIS:

AFIN DE REDUIRE LES RISQUE DE CHOC ELECTRIQUE, N'ENLEVEZ PAS LE COUVERT (OU LE PANNEAU ARRIERE). NE CONTIENT AUCUNE PIECE REPARABLE PAR L'UTILISATEUR.

CONSULTEZ UN TECHNICIEN QUALIFIE POUR L'ENTRETIEN.

### Read Instructions:

The *Owner's Manual* should be read and understood before operation of your unit. Please, save these instructions for future reference.

### Packaging:

Keep the box and packaging materials, in case the unit needs to be returned for service.

### Warning:

When using electric products, basic precautions should always be followed, including the following:

#### Power Sources:

Your unit should be connected to a power source only of the voltage specified in the owners manual or as marked on the unit. This unit has a polarized plug. Do not use with an extension cord or receptacle unless the plug can be fully inserted. Precautions should be taken so that the grounding scheme on the unit is not defeated.

#### Hazards:

Do not place this product on an unstable cart, stand, tripod, bracket or table. The product may fall, causing serious personal injury and serious damage to the product. Use only with cart, stand, tripod, bracket, or table recommended by the manufacturer or sold with the product. Follow the manufacturer's instructions when installing the product and use mounting accessories recommended by the manufacturer.

The apparatus should not be exposed to dripping or splashing water; no objects filled with liquids should be placed on the apparatus.

Terminals marked with the "lightning bolt" are hazardous live; the external wiring connected to these terminals require installation by an instructed person or the use of ready made leads or cords.

No naked flame sources, such as lighted candles, should be placed on the apparatus.

#### Power Cord:

The AC supply cord should be routed so that it is unlikely that it will be damaged. If the AC supply cord is damaged **DO NOT OPERATE THE UNIT.**

#### Service:

The unit should be serviced only by qualified service personnel.

### Veuillez lire le manuel:

Il contient des informations qui devraient être comprises avant l'opération de votre appareil. Conservez S.V.P. ces instructions pour consultations ultérieures.

### Emballage:

Conservez la boîte au cas où l'appareil devait être retourner pour réparation.

### Warning:

Attention: Lors de l'utilisation de produits électrique, assurez-vous d'adhérer à des précautions de bases incluant celle qui suivent:

#### Alimentation:

L'appareil ne doit être branché qu'à une source d'alimentation correspondant au voltage spécifié dans le manuel ou tel qu'indiqué sur l'appareil. Cet appareil est équipé d'une prise d'alimentation polarisée. Ne pas utiliser cet appareil avec un cordon de raccordement à moins qu'il soit possible d'insérer complètement les trois lames. Des précautions doivent être prises afin d'éviter que le système de mise à la terre de l'appareil ne soit désengagé.

#### Hazard:

Ne pas placer cet appareil sur un chariot, un support, un trépied ou une table instables. L'appareil pourrait tomber et blesser quelqu'un ou subir des dommages importants. Utiliser seulement un chariot, un support, un trépied ou une table recommandés par le fabricant ou vendus avec le produit. Suivre les instructions du fabricant pour installer l'appareil et utiliser les accessoires recommandés par le fabricant.

Il convient de ne pas placer sur l'appareil de sources de flammes nues, telles que des bougies allumées.

L'appareil ne doit pas être exposé à des égouttements d'eau ou des éclaboussures et qu'aucun objet rempli de liquide tel que des vases ne doit être placé sur l'appareil.

Les dispositifs marqués d'une symbole "d'éclair" sont des parties dangereuses au toucher et que les câblages extérieurs connectés à ces dispositifs de connection extérieure doivent être effectués par un opérateur formé ou en utilisant des cordons déjà préparés.

#### Cordon d'alimentation:

Évitez d'endommager le cordon d'alimentation. **N'UTILISEZ PAS L'APPAREIL** si le cordon d'alimentation est endommagé.

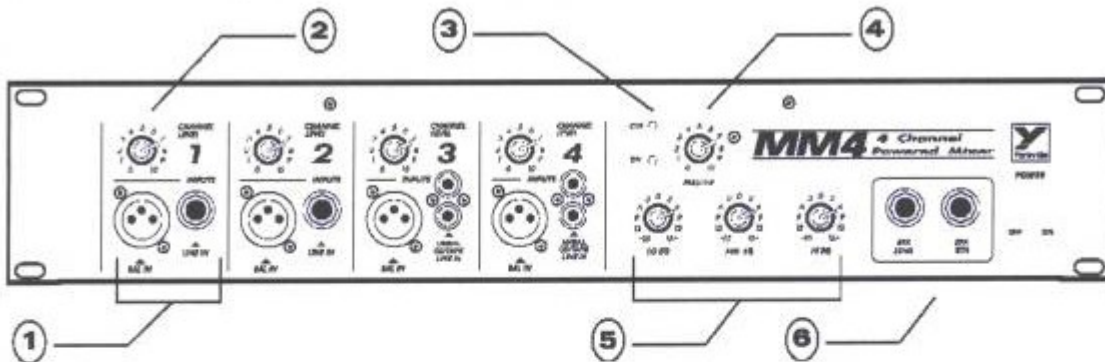
#### Service:

Consultez un technicien qualifié pour l'entretien de votre appareil.



## INTRODUCTION

Your new Micromix model mm-4 is the latest addition to our growing Micromix line of powered mixers. We at Yorkville Sound are confident that you will find your new MM-4 to be an efficient and versatile solution to your sound reinforcement needs. This manual contains information to help you get the maximum performance from your Micromix. We hope you will take the time to read it over.



### 1. MICROPHONE & LINE INPUTS

The MM-4 features both balanced microphone and unbalanced line inputs on channels 1 through 3. The standard XLR type microphone inputs are electronically balanced for maximum noise suppression. The input characteristics match those of professional low impedance dynamic microphones such as the Shure SM-58 and the Image IM-400.

The LINE inputs are standard 1/4-inch phone jacks which accept single-ended signals from guitars, synthesizers, electric pianos, tape recorders, unbalanced high-impedance microphones, and the like.

- **Do not** connect signals to both types of inputs on any one channel. Use either the unbalanced or the balanced input on any one channel, but not both. Connecting to both inputs on one channel will cause improper operation of the input circuit.

Channel 4 is a special channel, in which the LINE input (1/4-inch phone jack) has been replaced by two RCA jacks. The XLR balanced input functions identically to the other XLR inputs, but the RCA inputs are specifically intended to receive stereo signals from compact disk players or tape players. Within the MM-4, these stereo signals are electronically summed to a monophonic signal.

### 2. CHANNEL LEVEL CONTROLS

Each channel has a separate level control. Advancing this control increases the contribution of the associated channel's signal to the overall mix.

### 3. CLIP LED

The Clip LED is located next to the master control. It will light when any signal anywhere within the mixer section gets to within 3dB of clipping. Under normal use, it is expected that this LED will flash for brief instants during the loudest musical peaks. If the Clip LED is off, you can be sure that the mixer section of the MM-4 is not clipping.

The LED circuitry is intended to indicate clipping *only* in the mixer section of the MM-4. It is not implemented as an indicator of clipping in the power-amp section. Remember also that the Clip LED can't indicate clipping in any external amplifier connected to the MM-4.

#### 4. MASTER CONTROL

The signals from the four channels are internally routed to the Master section, where they are combined into a monophonic signal. This signal is then routed to the EQ and then to the power amplifier within the MM-4. The Master control varies the level of this combined signal. The signal level sent to the EFFECTS LOOP SEND jack is also governed by the Master Control.

#### 5. EQ SECTION

The tone controls provided by the MM-4 consist of a three band active shelving equalizer. The signal arriving from the Master Control passes through this on its way to the power amplifier. Within the EQ section, the signal is temporarily split into three components. The lowest frequency (bass) components may be adjusted with the LO control, the middle (midrange) frequencies are varied by the Mid Control, and the HI control adjusts the high (treble) frequencies.

The numbers around the LO, MID, and HI dials indicate the amount of boost or cut applied to the signal, in the decibels. The center or "0" positions correspond to a "flat" response where the signal level remains unchanged as it passes through the EQ. Rotating the LO control clockwise from this position will increase the BASS frequency components, while a counterclockwise rotation will decrease the BASS sounds.

When adjusting the EQ controls, it is best to begin by setting all three controls to their center "0" positions. From there you can experiment until you get the sound you like.

#### 6. EFFECTS LOOP

An external effect such as a digital delay, echo, phaser, flanger, or parametric equalizer can be easily interfaced to the MM-4. Any effect device designed to operate at 0dB line levels will properly interface to your MM-4. As a rule, any device which is not foot operated will work just fine; "foot pedal" devices which are designed to accept a guitar directly can often be overloaded by standard line level signals.

Connect the input of the effect device to the SEND jack of the MM-4 EFFECTS LOOP. Connect the output of the effect device to the RTN jack of the MM-4 EFFECTS LOOP. Now the MM-4's signal is routed through the effect device on its way to the MM-4's power amplifier.

The EFFECTS LOOP SEND jack may also be used as a line output jack. You can augment the MM-4's internal amplifier by connecting an external power amplifier's input to this jack.

Plugging into the EFFECTS LOOP RTN (Return) jack will disconnect the MM-4's direct internal signal path from the MM-4's power amplifier and substitute the signal present at the RTN jack. This means that you can use the EFFECTS LOOP to send the signal from the MM-4's mixer to an external power amplifier while using the MM-4's built-in power amplifier for some other purpose.

#### 6. POWER AMPLIFIER

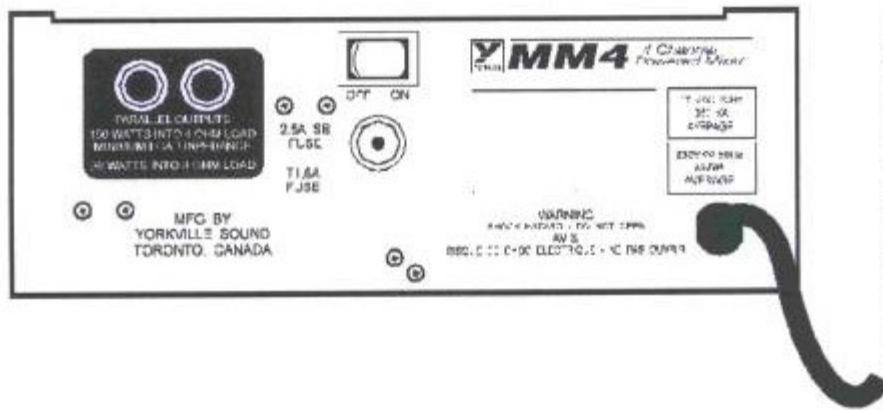
The MM-4 power amplifier delivers approximately 150 watts into a 4-Ohm load. There are two speaker output jacks on the rear panel of the MM-4. You may connect an 8-Ohm speaker to each jack, or you may connect one 4-Ohm speaker.

The MM-4's power amplifier is fully protected from all abnormal load conditions. Shorting the outputs of the MM-4 will not harm the unit. The power amplifier will "shut down" if it senses an improper load condition. Such a condition can result from connecting too many speakers, (too low a load-impedance), to the MM-4. In this case, the sound will be intermittent as the power amplifier repeatedly tests the load to determine if it can resume operation. The solution is, of course, to reduce the number of speakers you have connected.



# MM4 4 Channel Powered Mixer

| SPECIFICATIONS      |  |
|---------------------|--|
| Power Output        | 140 Watts RMS @ 4-Ohms<br>90 Watts RMS @ 8-Ohms          |
| Harmonic Distortion | < 1.0% at Full Power                                     |
| Input sensitivity   | 1.0 Volt RMS   |
| Output Load         | 4-Ohm minimum  |
| Power Requirements  | 117 VAC 60 Hz 360 VA<br>(In Europe) 220 VAC 50 Hz 360 VA |



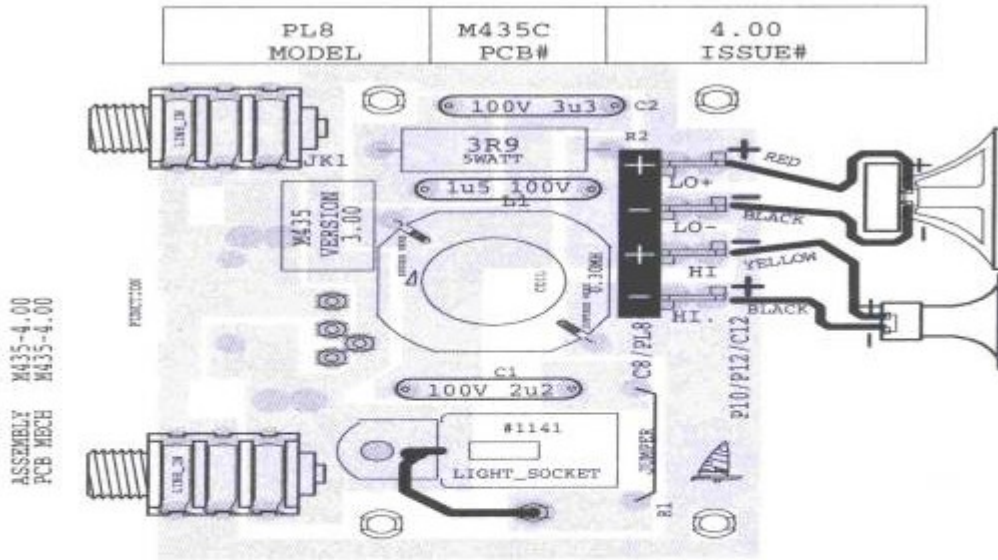
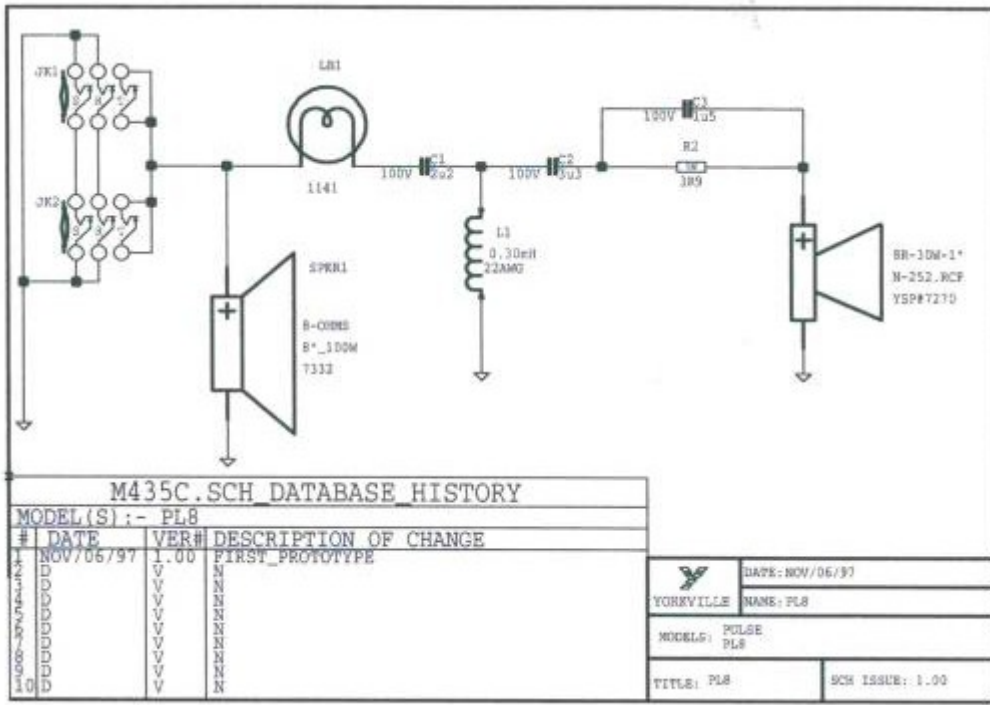
**PRO STAR**  
**by TELEX®**

# **Operating Manual**

**UHF**

**Wireless Microphone System**



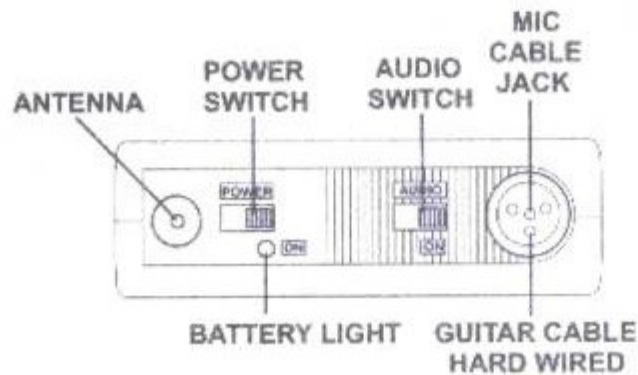
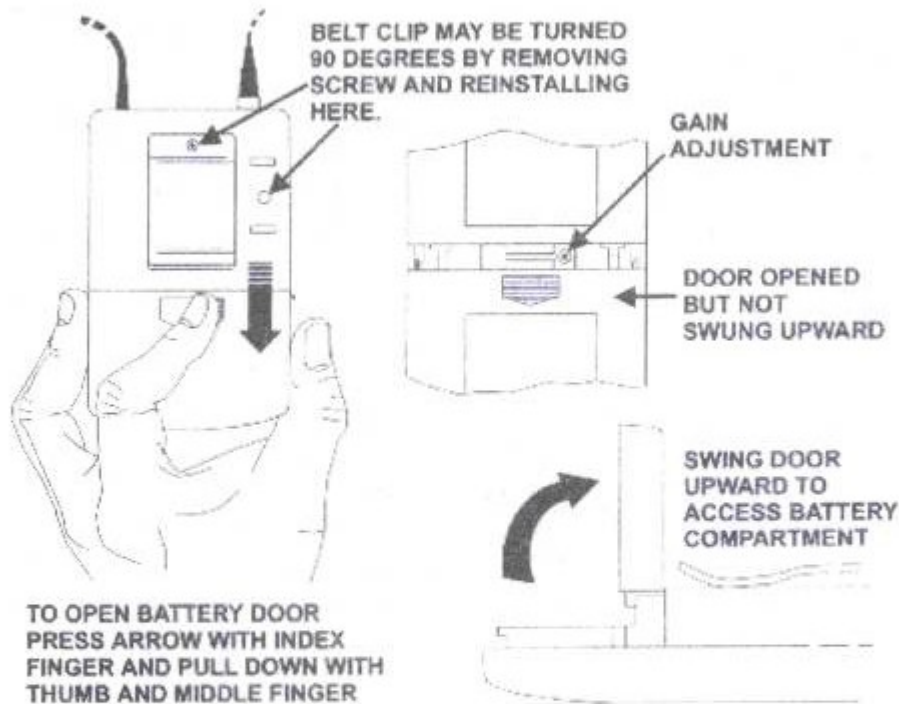


**M435.PCB DATABASE HISTORY**

| MODEL(S) :- PL10/1070V/PM10/PL12/PM12/C12/C8 |           |        |                                 |
|--|-----------|--------|---------------------------------|
| #  | DATE      | VER#   | DESCRIPTION OF CHANGE           |
| 1  | JAN/97    | 1.000P | FIRST_PROTOTYPE                 |
| 2  | JAN/28/97 | 1.000  | ADD_R2                          |
| 3  | JUN/11/97 | 1.000  | REDONE_FOR_C8/C12               |
| 4  | OCT/18/97 | 1.000  | REDONE_FOR_3_UP_SPREAD_FOR_TABS |
| 5  | DEC/08/97 | 1.000  | TABS_ADDED_FOR_PL1070V          |
| 6  |           | V      | N                               |
| 7  |           | V      | N                               |
| 8  |           | V      | N                               |
| 9  |           | V      | N                               |
| 10   |           | V      | N                               |

**Belt Pack Set Up**

Open the battery door and install a fresh 9 volt alkaline battery. Plug in your microphone. Clip or place the transmitter and microphone where desired and turn on the power switch. The battery light should flash once and go out. The "CARRIER" light at the receiver should be on at this time. Turn on the "AUDIO" switch. You are now ready to use the microphone.



**SPECIFICATIONS**

**U1311 2, UH1 2, UGB11 2 Transmitter:**

RF Power Output . . . . . 10 to 15 mW typical  
 Battery . . . . . 9.0VDC Alkaline  
 Battery Life . . . . . 8 to 12 hours typical  
 FCC . . . . . Type Accepted to FCC Part 74H

**UR12, UGR12 Receiver:**

RF Sensitivity . . . . . Less than 0.8 uV for 12 dB SINAD  
 Diversity . . . . . Full True Diversity  
 Audio Output Level, 1/4" in. jack . . . 0.775V RMS/1 00k load  
 Audio Output Level, XLR jack . . . . . 20 dBV, 600 Ohm load  
 Audio Frequency Response . . . . . 20 Hz to 15KHz ± 2dB  
 Audio Frequency Distortion . . . . . Less than 0.5%  
 Power . . . . . 12 VDC from supplied wall transformer  
                   12 VDC from external battery or filtered power supply.  
 Part . . . . . 15 Notification

**FCC REGULATIONS**

The Telex Models UB12, UGB12, and UH12 are Type Accepted under United States Federal Communications Commission Part 74H. The UR1 2 and UGR1 2 Receivers are accepted under the Part 15 Notification Procedure of the Federal Communications, Commission. Licensing of Telex equipment is the user's responsibility and license ability depends upon the users classification, and frequency selected. Telex urges the user to contact the appropriate telecommunications authority before ordering and choosing frequencies.

**CAUTION:** Changes or modifications made by the user could void the user's authority to operate the equipment.

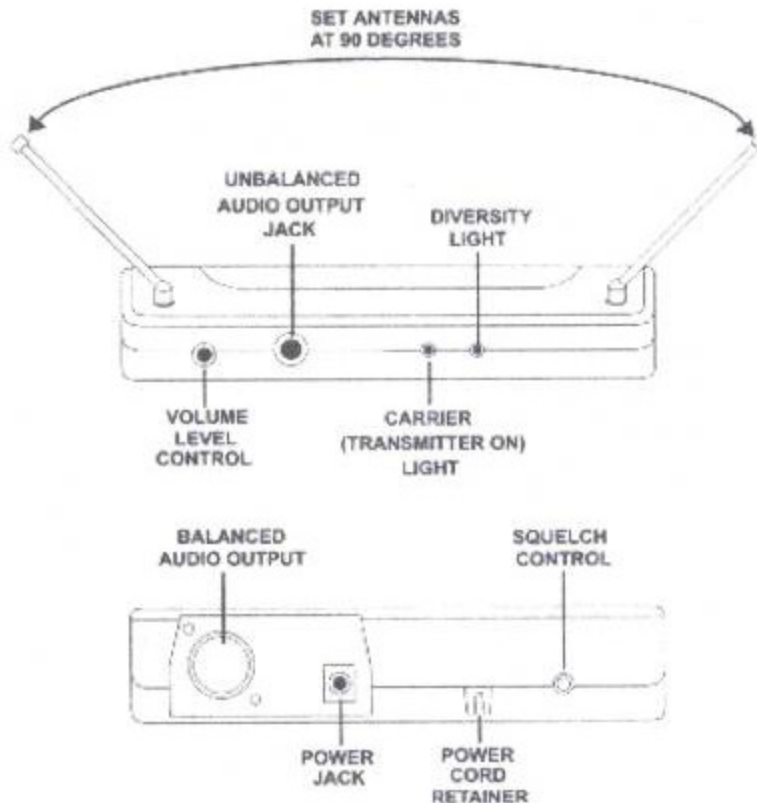
### Receiver Set Up

Place the receiver in a location that is in direct line of sight to the transmitter. Unfold the antennas. Set them in a "rabbit ears" position as shown in the illustration. Plug the power supply into any convenient outlet. Plug the cable end of the supply into the power jack and route the cord through the retainer to prevent pull out. The "Diversity" light should come on at this time.

Connect an audio cable to either the 1/4 inch jack on the front or to the balanced output on the rear of the receiver. Connect the other end to your audio equipment. Set the output level control on the front of the receiver to the "12 o'clock" position if you are using the 1/4 inch jack.

### Diversity Light

The diversity light is a bi-color LED (orange/green) that is illuminated any time the receiver has power. When it changes color this indicates that the diversity circuit is activated to optimize reception.





---

**Model PH-21 Microphone****General Description**

The Telex Model PH-21 Headworn Microphone consists of a microphone assembly mounted on the pivot arm of an adjustable headband. This high-quality, lightweight headset is specifically designed to provide excellent performance as a vocal microphone for drummers and keyboard players. This is also designed for use in special event remote broadcasting, auctions and other handsfree broadcast applications.

The microphone assembly is attached by a spring clip to a pivot arm which rotates 360 degrees allowing the boom microphone to be properly positioned. The spring clip also allows the assembly to be worn with a variety of eyeglasses. An adjustable, field-replaceable clothing clip removes the cord weight from the head of the user for long-term comfort.

**Microphone**

The miniature close-talking electret microphone element is boom-mounted in a high-impact-resistant plastic housing. The boom can be swiveled over 180 degrees side-to-side to allow for precise positioning of the microphone. A foam windscreen is supplied with each microphone.

**Headband**

The split piece headband consists of two stainless steel springs sheathed in black nylon webbing. The two stainless steel springs are adjustable to 180 degrees. Head pads are connected to the headband by stainless steel sliders that permit over two inches (50 mm) of adjustment. The headband should be placed over the crown of the user's head for stable operation. The head pad cushions are adhesive-back polyester urethane foam and are field-replaceable.



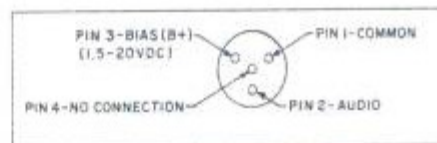
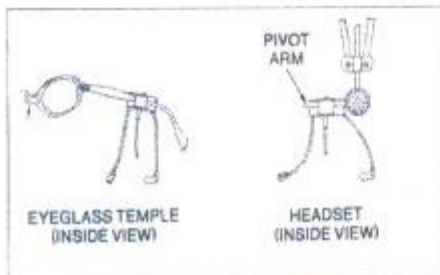
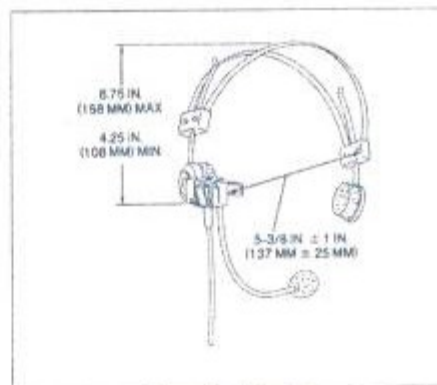
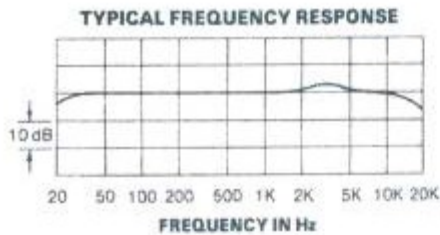
**Model PH-21**

The Model PH-21 is terminated with a TA4F 4-pin plug that allows the microphone to be interfaced with the Telex PS10 Power Module and the Telex WT-50 Wireless Transmitter (see wiring diagram).

**Specifications**

Element: Electret. Close-talking  
 Frequency Response: 20 to 20,000 Hz  
 Impedance: 3,000 Ohms  
 Output Level at 1 kHz: -60 dB (0 dB = 1 V/ %bar)  
 Maximum Sound Pressure: 130 dB  
 Supply Voltage: + 1.5 to 20 Vdc at pin 3 of headset connector  
 Cord: 3 ft (0.9 m)  
 Microphone Plug: TA4F Weight: 8 oz (227 grams)  
 Color: Black

|  |           |
|--|-----------|
| Model PH-21 Head-Worn Microphone . . . . . | 64327-001 |
| Replacement Windscreen . . . . .           | 59747-001 |
| Replacement Spring Clip . . . . .          | 52878-000 |
| Replacement Clothing Clip . . . . .        | 63097-002 |
| Replacement Head Cushions . . . . .        | 63575-000 |
| Replacement Carrying Pouch . . . . .       | 57893-000 |



### System Set Up

Talk or sing into the microphone at your normal volume and monitor the sound system. If the sound is distorted, try turning down the audio amplifier input control. You may also need to turn down the output level on the front of the receiver (if you are using the 1/4" jack) and/or the "GAIN" control on the transmitter.

If the sound is low or weak, you may have to increase one or more of the controls.

The squelch control on the back of the receiver may be adjusted to increase range or reduce interference. Turn the control counter-clockwise to increase range. **CAUTION! DOING SO WILL MAKE YOUR SYSTEM MORE SUSCEPTIBLE TO OUTSIDE INTERFERENCE!** Turn the control clockwise to reduce interference from noise and outside radio signals. It is usually best to set the squelch with the transmitter turned off. Turn the control counter-clockwise until you hear noise or interference over your sound system. Then turn it clockwise until the noise is squelched off. This setting will give you your best interference free range.

### **Battery and Battery Light**

Use fresh 9 volt alkaline batteries from a quality manufacturer (8.4 volt ni-cad batteries may be used but will yield much shorter "on" time). When the power switch is turned on, the battery light will flash one time if the battery is good. If the light does not flash or stays lit continuously, the battery is weak or dead. If the light comes on during use, the battery is weakening and should be replaced as soon as possible.

## **WHEN CALLING FOR SERVICE**

1. When calling for service, please check the service manual first. Many times the answer to your problem has been addressed in this documentation.
2. Please make sure you have the serial number of the game ready when you call.
3. If this is a repeat call, please tell the service technician that you have made a previous call regarding this problem. This way we will be able to retrieve the history on your game allowing us to serve you better and save you time.
4. Please retain proof of purchase for your product. This might be requested for warranty repairs.
5. Please call from the game if possible since we might need you to check certain things on the game while we are on the telephone with you.

**IF YOU HAVE ANY QUESTIONS OR COMMENTS, PLEASE CALL  
OUR SERVICE DEPARTMENT AT**

**(386) 677-0761**

**(MONDAY – FRIDAY, 8:30AM – 5:00PM EST, EXCLUDING HOLIDAYS)**

**(or)**

**EMAIL QUESTIONS TO: [Tech@BobsSpaceRacers.com](mailto:Tech@BobsSpaceRacers.com)**

**(or)**

**VISIT THE “CUSTOMER SUPPORT” SECTION ON OUR WEBSITE:  
[WWW.BOBSPACERACERS.COM](http://WWW.BOBSPACERACERS.COM)**