BALLOON POP

WATER GROUP GAME OPERATION MANUAL

WATER GUN FUN™

Bob's Space Racers Incorporated

427 15th STREET • DAYTONA BEACH • FLORIDA • 32117

PHONE **386•677•0761**   FAX **386•677•0794**

BOBSSPACERACERS.COM

©2009 BOB'S SPACE RACERS INC.

May 2009

BALLOON POP
Group Game

TABLE OF CONTENTS

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply within the 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® 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.

WARNING

Use #7 Double Dipped Balloons Only

1. INTRODUCTION
1-1. Overview:

Congratulations! Thank you for purchasing a custom game from Bob's Space Racers®. Built on a long tradition of value, your new BALLOON POP GROUP GAME retains all of the great game play you have come to expect from a game from BSR and is specifically designed for today's Park environment. The new game uses technology specifically developed for this application.

1-2. Important Safety Information:

IMPORTANT SAFETY INFORMATION

WARNING: ALWAYS BE SURE POWER TO THE GAME IS TURNED OFF WHEN DOING EVEN ROUTINE MAINTENANCE. OTHERWISE, MOVING PARTS COULD ACTIVATE UNEXPECTEDLY CAUSING INJURY.

Depending on the potentially hazardous degrees, the terms of NOTICE, WARNING CAUTION, etc. are used. Be sure to understand the content of the displays before reading the text.

WARNING: ONLY QUALIFIED TECHNICAL PERSONNEL SHOULD WORK ON THIS GAME. NON-TECHNICAL PERSONNEL WHO DO NOT HAVE TECHNICAL KNOWLEDGE AND EXPERTISE SHOULD NOT TAMPER WITH THE GAME. FAILING TO COMPLY CAN CAUSE SEVERE INJURY OR HARM TO THE MACHINE.

NOTE: ENSURE THAT PARTS REPLACEMENT, SERVICING AND INSPECTIONS, AND TROUBLESHOOTING ARE PERFORMED BY THE LOCATIONS MAINTENANCE MAN OR THE SERVICEMAN. IT IS INSTRUCTED HEREIN THAT PARTICULARLY HAZARDOUS WORK SHOULD BE PERFORMED BY THE SERVICEMAN WHO HAS TECHNICAL EXPERTISE AND KNOWLEDGE.

MAINTENANCE

Due to the design of the machine, very little periodic maintenance is required.

CLEANING - Clean the outer surfaces of the game with a commercial spray type cleaner. DO NOT however, use glass cleaner or commercial sprays on the marquee graphic panel. Use a good quality spray type furniture polish to keep the game looking good.

Vacuum the inside of the game occasionally to help keep the dust and debris off of all the electrical components.

(SEE THE MAINTENANCE SECTION FOR MORE IN DEPTH MAINTENANCE INSTRUCTIONS)
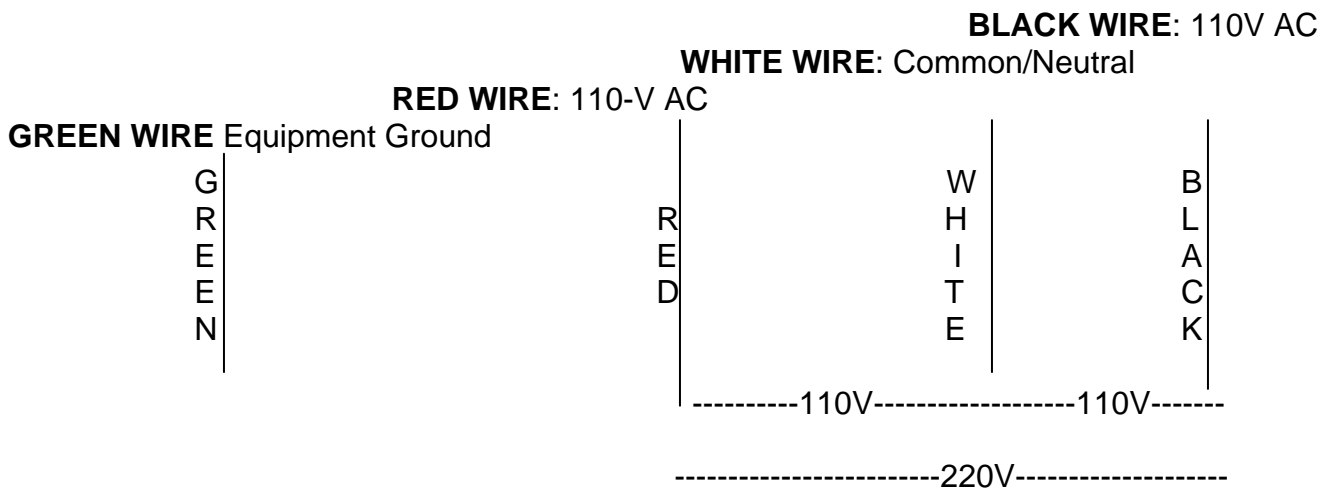
1-3. Setup:

TRAILER INSTALLATION, SET-UP AND HOOK-UP

Power Requirement: 220V, 60 Cycles, Single Phase

1. Locate trailer and drop Leveler Jacks. Level 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 (see INTRODUCTION AND SET UP Figure #1).

    CAUTION! Be sure of correct voltage: 220V, 60 Cycle, Single Phase. NO MORE!

```
                                                              BLACK WIRE: 110V AC
                                                WHITE WIRE: Common/Neutral
                        RED WIRE: 110-V AC
GREEN WIRE Equipment Ground
   G|                             |                    W|               B|
   R|                            R|                    H|               L|
   E|                            E|                    I|               A|
   E|                            D|                    T|               C|
   N|                             |                    E|               K|
    |                             |                     |                |
                                  |----------110V------------------110V-------
                                  
                                  ------------------------220V--------------------
```

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.

INSTALLATION OF PARK AND BUILDING MODELS

Bob's Space Racers® installs all Park and Building Model Games 95% of the time. If you desire to install your game by yourself, we can send separate instructions on how to do so.

1-4. Daily Preparation:

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 120 VAC on each leg.

If either leg does not read 120 VAC 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 120 VAC 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.

2. INSTRUCTIONS FOR PLAY

2-1. Object Of The Game:

The object of the BALLOON POP GROUP GAME is to hit the target with the water that sprays out of the gun, and fill the balloon with air. The first player to 'pop' the balloon wins the game.

2-2. Basic Game Operation:

1. Gather players and collect money.

2. Activate the Player position by kicking the foot-switch, pressing Push Button or activate the I-Button on games at each unit. Notice that the small ID light turns on and stays on, if it doesn't stay on; see Trouble Shooting Section.

3. Repeat Steps 1 and 2 for each participant.

4. To turn a unit off, hold the foot switch, Push Button or I Button in for two to three seconds until the lights go off.

5. Start the game when all players are ready by pushing the "Forward Button". Everything will start in sequence from that point, i.e. Sound Track, Bell, Pump, and Game Start. This is done with "Auto Start" option 1.

6. The first balloon to pop will be the Winner. Only the winners beacon will light up indicating that unit has won. The bell will ring for a predetermined amount of time and the game will automatically deflate the other balloons back to their original deflated position.

7. Repeat the entire process.

2-3. Push Button Stations:

1. <u>FORWARD</u>:   Pressing the "Forward" button will start the game and turn on the Forward I.D. Light.

2. <u>RESET</u>:   Pressing the "Reset" Button will reset the game and return the toys to the home position.

3. <u>STOP</u>:   Pressing the "Stop" button will pause the game.

4. <u>BELL PUSH BUTTON</u>: Pressing the "Bell" Push Button will ring the bell.

5. <u>BALLY BUTTON:</u>   All Models have a Bally Button. When the button is pressed, the balloons will partially fill & deflate drawing attention to your game. Hitting any foot switch will take the game out of Bally Mode 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.
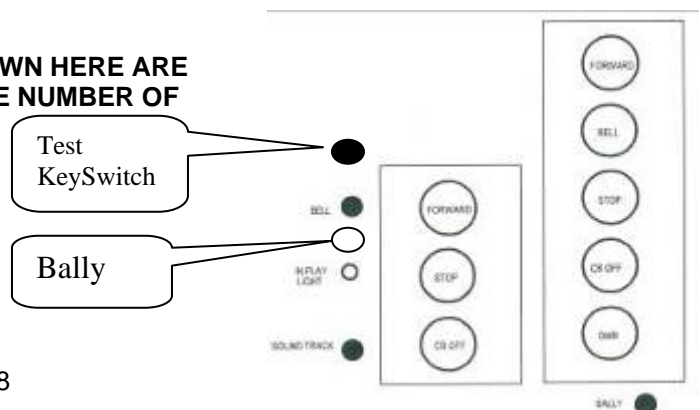
3. PROGRAMMING

## 2400 ELECTRONICS
OPTION REGISTER SETTING INSTRUCTIONS

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

"# PLAYERS **"

This means the system is ready to accept changes for the option registers. The second line of the display reads '**MODE', 'UP', 'DN', 'ENTER'**. The **MODE** button sequences through each register without changing any option register settings. 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.

NOTE: THE REGISTERS CANNOT BE CHANGED IN THE MIDDLE OF A RACE,

MULTI-LINE LIQUID CRYSTAL
DISPLAY BOX
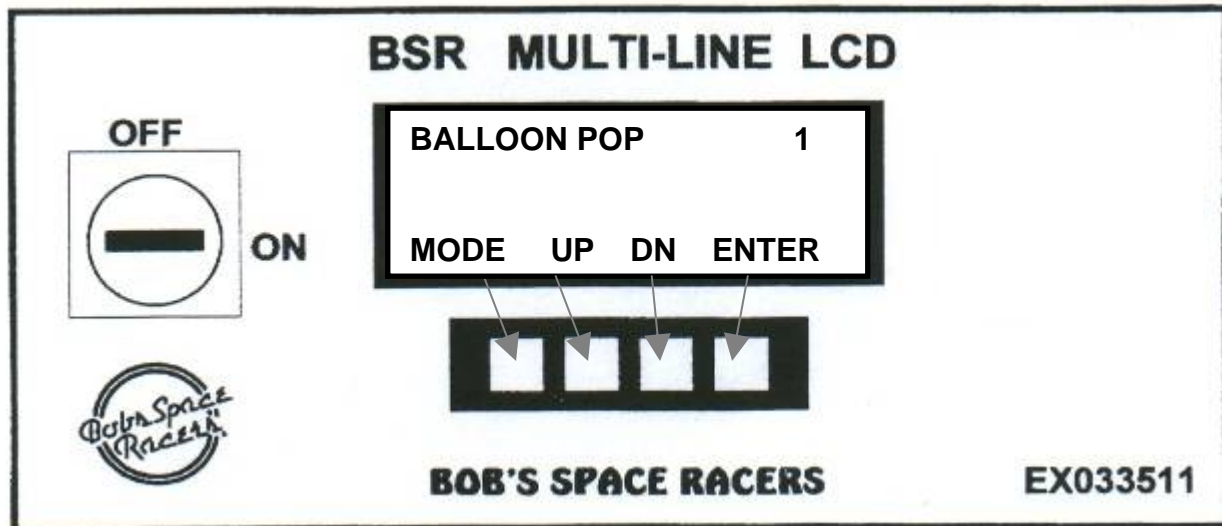
BALLOON POP OPTION REGISTERS BPOP2416 V0.7OR LATER				
Reg Name	**DEFAULT**	**MIN**	**MAX**	**Description**
# PLAYERS	**14**	02	22	NUMBER OF UNITS IN GAME
BELL TIME	**20**	20	40	BELL ON TIME
WIN LIGHT TIME	**60**	50	100	WINNER LIGHT TIME
DUMP TIME	**60**	00	90	DUMP TIME
BALLY HOLD	**60**	14	255	BALLY HOLD
LO MONEY VAL	**02**	01	09	LOW MONEY VAL.
HI MONEY VAL	**03**	00	09	HIGH MONEY VALUE
AUTOSTART TM	**01**	00	255	AUTOMATIC START TIME

Air Pressure Regulator Settings	**DEFAULT**	**MIN**	**MAX**
Collar Pressure	**50**	50	65
Fill Pressure	**25**	25	30

4. PARTS LIST

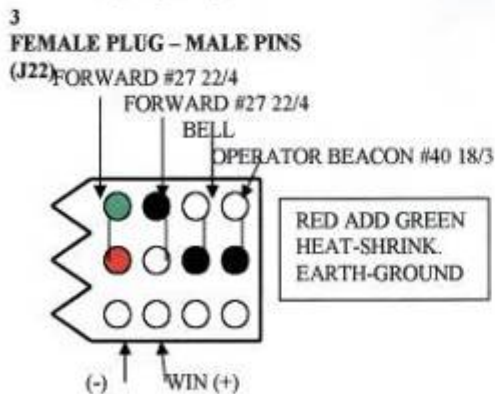| PART #	DESCRIPTION
E0012900	Switch Pushbutton
E0013600	Switch, Micro, Water Game YZ
E0023375	Transformer, Neon Ventex 120v
E0023625	Fuse 2 Amps SB
E0028600	Bulb, 25W RS for Target 120V
E0029800	I.D. Light 14V Amber
EM030952	Relay 12V PC Mount
EX013600	Target Switch YZ Wired
EX022035	LED Player Clock
EX022720	Power Supply 12V Meanwell
EX023060	Transformer Assembly 12-24
EX030900	Light Target Assembly with Bracket
EX033420	Board Assembly Module
EX033457	Board Assembly – Relay BSR9013A
EX033458	Board Assembly Master Relay Version II
EX033473	LED Price Display
M0002200	Decal "SHOOT HERE" Clear
M0005300	Lubricant Spray CRC 16oz Can
M0006101	Spring BSR-551, 57-112
M0006102	Spring B121-3B, 57-114
M0006103	Tip Nozzle Brass
M0006104	Water Gun Tip Cleaner w/#58 Drill
M0006200	Water Gun O Ring 57-158
M0006330	Barrel Arcade Gun / Binks Gun
M0006500	Grease Heat Proof
M0006905	Spring Water Gun 2.5" Long
M0010900	Driver Scrulox #2
MX007203	Target Pan Complete BSR
MX010390	Gun Barrel New Style (Arcade Style Guns)
N0002351	Switch Pressure Air
P0007735	Valve Electric 24V / 60 Fill
P0007751	Valve Electric 24V / 60 Dump
P0008800	Water Filter
PX007701	Valve Electric 24V / 60 Guns

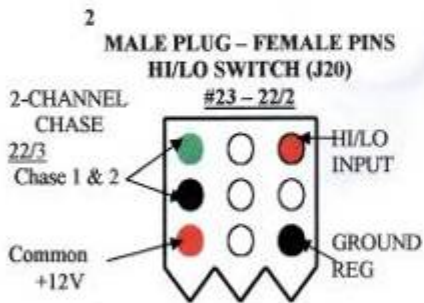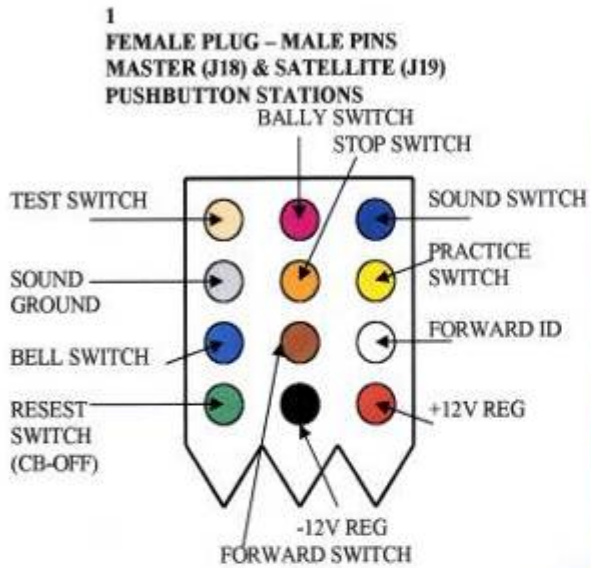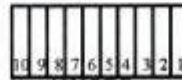# 5. DIAGRAMS AND SCEMATICS

MASTER MODULE RELAY BOARD
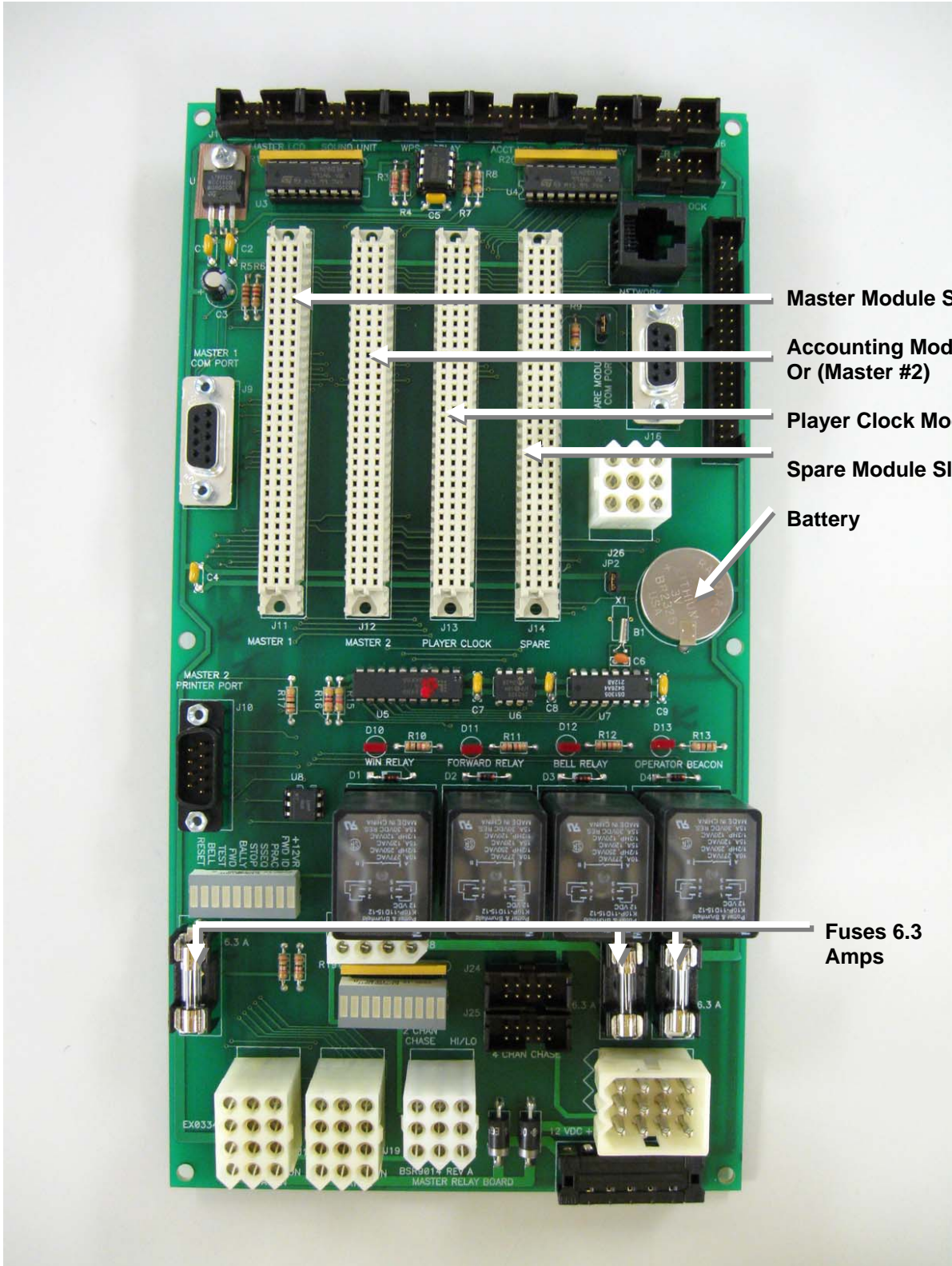
Master Module Slot

Accounting Module Slot
Or (Master #2)

Player Clock Module Slot

Spare Module Slot

Battery

Fuses 6.3
Amps

MASTER MODULE RELAY BOARD

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

- BALLY SWITCH
- STOP SWITCH
- TEST SWITCH
- SOUND SWITCH
- SOUND GROUND
- PRACTICE SWITCH
- BELL SWITCH
- FORWARD ID
- RESEST SWITCH (CB-OFF)
- +12V REG
- -12V REG
- FORWARD SWITCH

2
MALE PLUG – FEMALE PINS
HI/LO SWITCH (J20)

#23 – 22/2

2-CHANNEL CHASE
22/3
Chase 1 & 2

- HI/LO INPUT
- Common +12V
- GROUND REG

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

- FORWARD #27 22/4
- BELL
- OPERATOR BEACON #40 18/3

RED ADD GREEN HEAT-SHRINK. EARTH-GROUND

(-)   WIN (+)

4
LED SWITCH ARRAY BLOCK (D5)

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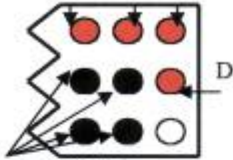
1) +12V REG
2) FORWARD ID
3) PRACTICE
4) SSEQ
5) STOP
6) BALLY
7) FORWARD
8) TEST
9) BELL
10) RESET

See next page for 5-8.

UNIT MODULE RELAY BOARD

1
J18 – VALVES
J19 – BEACONS
MALE PINS – FEMALE PLUG
UNITS: A   B   C

-12V UNREG
PIN 7 IS NOT USED
AT THIS TIME.

2
12V DC   24V AC
+   -

GROUND

3
VALVES
BLANK
BEACONS
+12V REG

4
i-BUTTON LED'S
1 2 3 4

5
TARGET LED'S
1 2 3 4

6
FOOTSWITCH LED'S
1 2 3 4

7
ID LIGHT LED'S
1 2 3 4

8

9 IS ON PAGE 2

DIRECTIONS   STEP   WIN   HOME

UNIT MODULE RELAY BOARD (PAGE 2)

9

i-BUTTON   ID LIGHTS

FOOTSWITCHES

TARGET SWITCHES
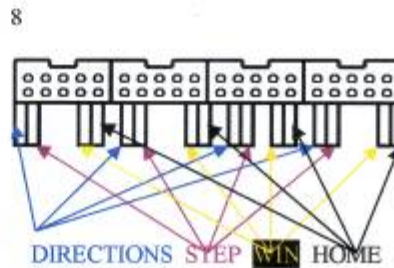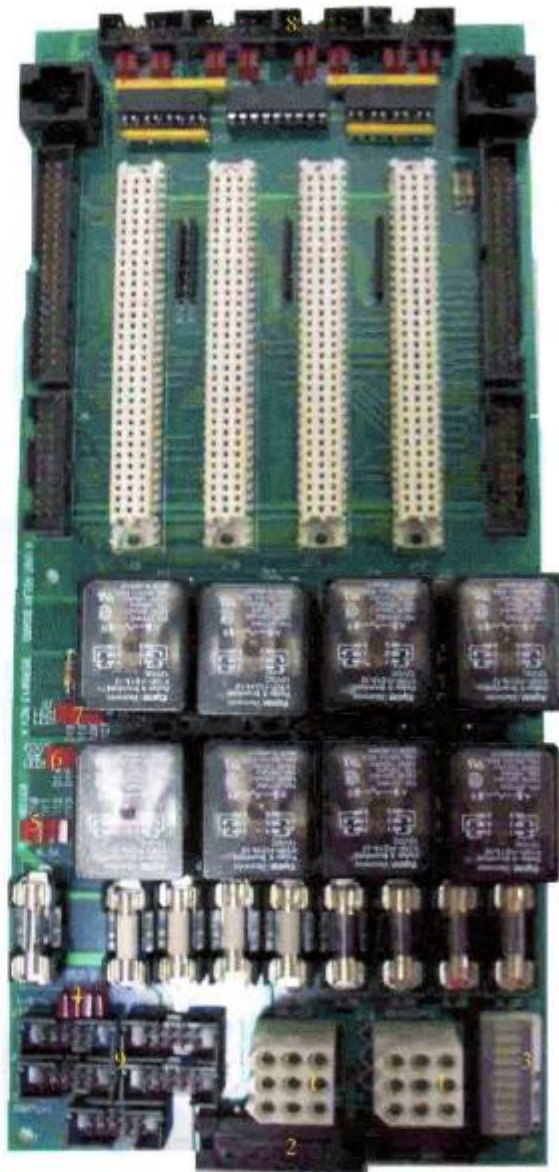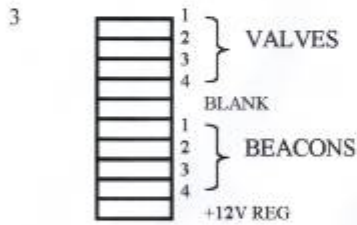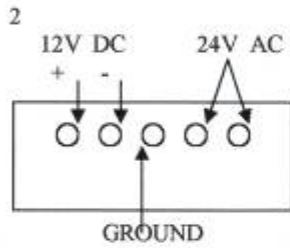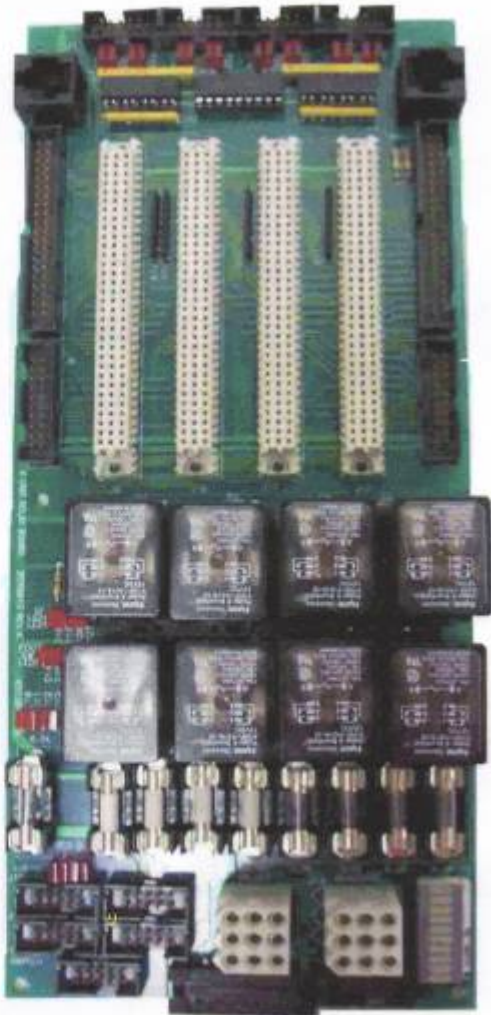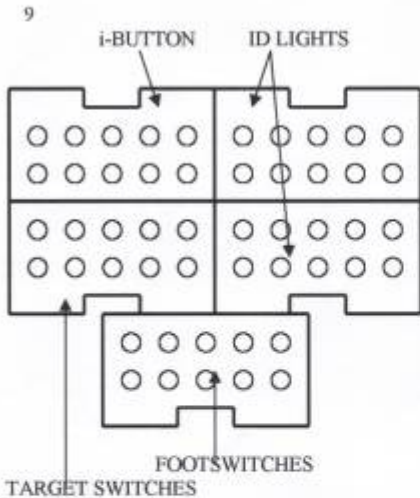
6. MAINTENANCE

6-1. General Game Maintenance:

TO CLEAN GAMES:

You may use <u>soapy water</u> 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	**Material**
Lacquer Thinner	Formica; regular glass
Mineral Spirits	Formica; Plexi-glass; Stainless Steel; other metals
Clean-On-The-Go Glass	Formica; regular glass; Stainless Steel; other metals and Hard Surface Cleaner™
De-Solve-It®	Formica; Plexi-glass
Brillianize™	Plexi-glass; regular glass
Windex®	Regular glass
3812S Enamel Reducer	Plexi-glass
Soft Scrub®; CLR®;	Stainless Steel; other metals
Lemon Oil; Old English® Oil; Baby Oil	Formica; Stainless Steel; other metals

General Maintenance Schedule:

DAILY
- **Clean off all balloon residue on the game and in water tank area every day**
    - ***USE #7 DOUBLE DIPPED BALLOONS ONLY**
- **Clean Clear Vue Water Filter / Screen every day**
- Check all Unit Activation
- Look for any trash or dirt in game area
- Clean all Formica
- Check all ID Lights.
- Check all Winning Lights.

WEEKLY
- Lemon oil all Formica

6-2. Water Maintenance:

WATER SYSTEM ~*(CENTER GAMES)*~

The water storage 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 game. The water is fed via gravity down to the intake of the water pump. 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 into the system. 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 .02 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 in generic terms. This allows for regulation of the water pressure to the front counter. On top of the Watts Valve there are two large bolts that look like 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). BSR removes these filters but if one is still in the Watts valve please remove it and throw it away.

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.

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) tighten 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 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 Gun where water is shot out the brass tips towards the target. Any water coming from the manifold, that is not used, passes through the manifold into a reducer coupling and comes back to the holding tank via a ½" return line which is apiece of ½" copper tubing. It is important what this line is not stopped up or restricted in any way, as it will damage the seals in the Pump.

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 1 Hp Well Pump that operates off of 220 volts 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'. On the newer Clear Vue filter system this red button isn't needed because the drain "T". Many times this is not needed because gravity is feeding the Water pump, but 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, 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.

Water Maintenance Schedule:

Daily
- Check Target Switch for activation.
- Check water level. Water should be below the overflow tube.
- Check and clean tank screens and water filter and 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 water filter

Weekly
- Drain all water.
- Clean tank and all screens.
- Switch pumps and clean pump filter / replace filter.
- Fill tank with clean water and add factory recommended water conditioner.

Every Six Months
- Clean pre-filter screen in Watts Valve (for both systems) **(or)** remove it if it's still installed.

Water Maintenance Procedures:

Flush System as Needed

If system is extremely dirty or won't run clean after the normal weekly drain and clean:
<div align="center">(Clear Vue Filter Only)</div>

- Attach to the bottom of the pump filter and partially open the valve on the bottom of the filter.
- Turn on all units, put clean water hose in tank and run game until water out of guns is clear. Refill water tank according to weekly procedure

NOTE: <u>*ONLY*</u> **ADD BOB'S SPACE RACERS® RECOMMENDED PRODUCTS.**
              <u>*NEVER*</u> **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 30% more than what the directions on the bottle say, each time you add the product to your game water.

Water Pump Systems:

This game has a water pump system and a backup water pump system.

<div align="center">**DEIONIZED DISTILLED WATER**</div>

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 or cleaned <u>weekly</u>. 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.

CLEAR VUE FILTERS

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/gray with a dark brown/black top. This filter contains a disposable sediment filter cartridge. That cartridge needs to be replaced every time you change the water (for any reason).

Filter Canister, Watts Valve

Pump #2   Filter Canister   Watts Valve   Pump #1
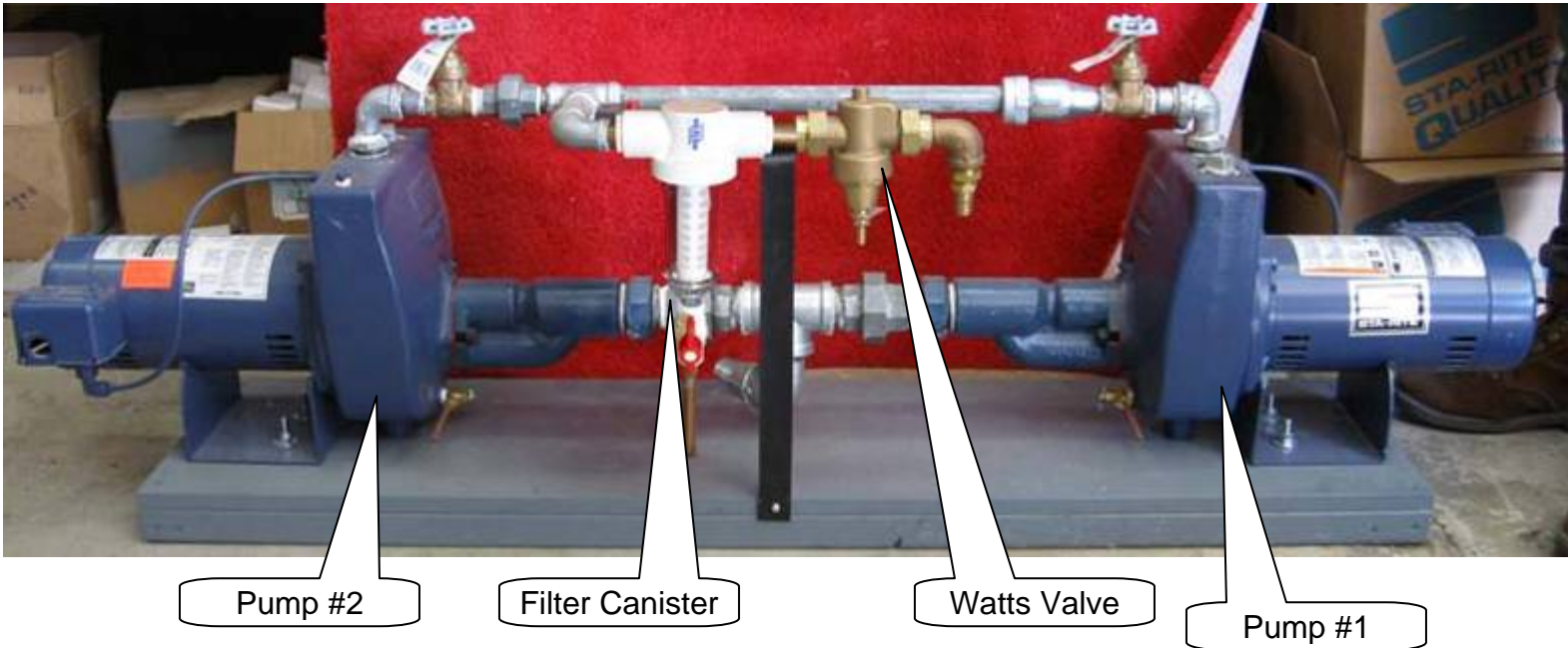
ANOTHER VIEW OF THE CLEAR VUE FILTER

Clear Vue Filter   Watts Valve

Drain Filter
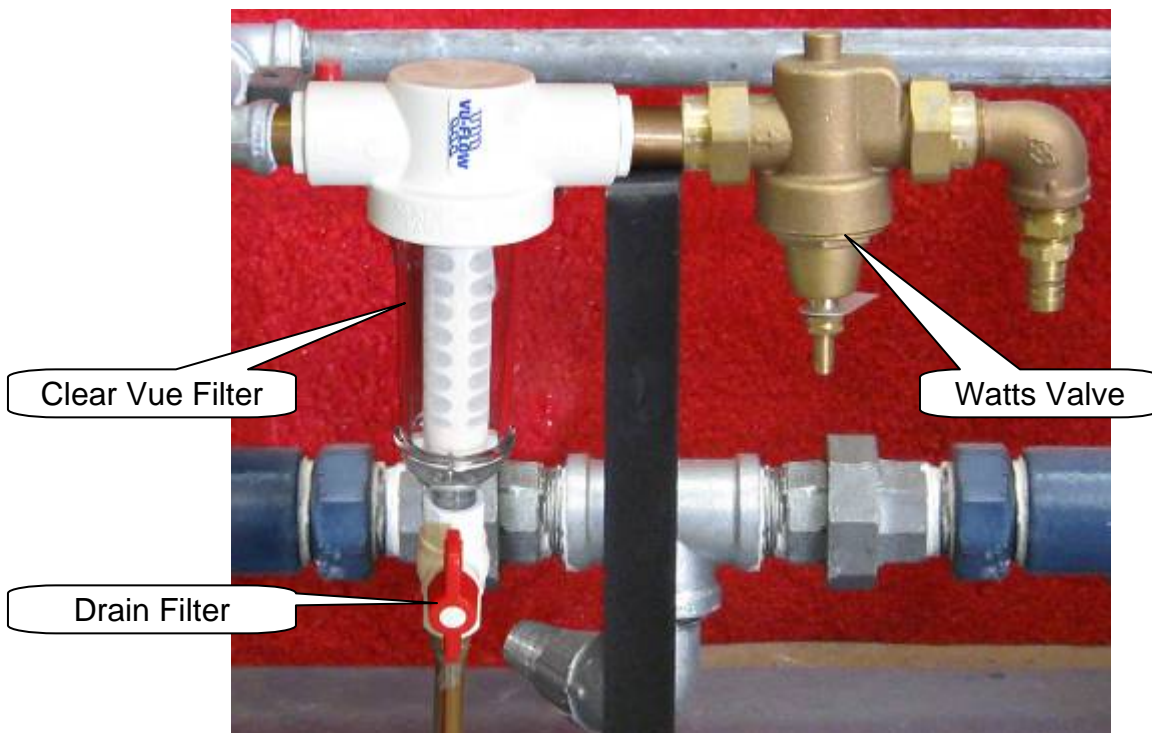
Winterizing A Water Game:

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'.

Steps:
1. Choosing what winterizing method is right for you.
2. Winterizing with Antifreeze.
3. Winterizing with pressurized air. (if applicable)

Tools or Parts needed: *(if applicable)*

Chemical gloves   Safety Glasses   Hydrometer

Paper towels   Air hose   All purpose cleaner   Antifreeze

Steps:
1.   Choosing what winterizing method is right for you.
        The Antifreeze method of winterizing; is particularly useful if you do not have access to compressed air. The difference in the two antifreezes are: Propylene glycol (RV) is a more expensive product then Ethylene glycol (automotive), and is purchased diluted. It takes more RV antifreeze to winterize a game than Auto antifreeze. Ethylene glycol must be diluted with water to work, which means it takes less antifreeze to give the same protection as Propylene glycol. All directions and precautionary statements on both antifreeze should be read before using. BSR highly recommends you understand proper handling procedures for any winterizing fluids you may use. You must be aware of both safety and environmental concerns before using antifreeze. Care should be taken with the handling of such products. Follow manufactures Safety Precautions.

The Compressed Air method's, greatest advantage is that there is no used antifreeze to handle. This method takes a little longer than the antifreeze method. Clean-up of game is much quicker than the antifreeze methods.

2.   Winterizing with Antifreeze. *(There are two types of antifreeze that can be used)*
        A. Ethylene Glycol (EG); Automobile antifreeze. Needs to be mixed with water to give freeze protection.
        B. Propylene Glycol (PG); Sometimes known as RV antifreeze. Should not be diluted with water.

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

1. Add antifreeze to tank. Making sure the bottom suction hole it completely covered, raising or lowering trailer may be done to accomplish this so less anti-freeze is used. (Trailers only)
2. Turn all the guns on.
3. Place game in forward.

4. Run antifreeze through water system.

5. Take game out of forward.
6. Switch pumps: Run water system again to circulate antifreeze through pump. Both pumps need to be run with antifreeze.
7. Run game again, spraying all guns until antifreeze is detected.
8. Check mixture in tank with Hydrometer. The antifreeze mixture should have a minimum reading of 30° below F.
   a. When using Ethylene glycol antifreeze, a HG hydrometer will be needed to test the mixture.
   b. When using Propylene glycol antifreeze, a PG hydrometer will be needed to test the mixture.
9. If the mixture reads warmer than -30°F add more antifreeze and repeat above steps.
10. After proper winterizing is completed, drain solution from the game and dispose according to manufactures suggestions.

NOTE: IT IS RECOMMENDED TO DRAIN BOTH PUMPS OF LIQUIDS IF PUMPS HAVE DRAIN PLUGS IN THE BOTTOM HOUSING.

11. Remove filter
    a. If cartridge filter: dispose used cartridge, do not reinstall cartridge housing.
    b. If clear view filter: Unscrew and remove screen-filter and clear housing. Clean both screen and housing. Do not reinstall.
12. Clean tank, drain pans, target pans, and all other area antifreeze is found.
13. Dispose of used antifreeze, according with antifreeze manufacture's directions and precautionary statements.

NOTE: WHEN GAME IS RESTARTED THE WATER SYSTEM SHOULD BE FLUSHED TO REMOVE ANTIFREEZE.

3. Winterizing with compressed air.
A. Locating the pump's drain, and pressurizing areas.
1. If the game is made in 2002 or newer the pump has a drain valve at the bottom, as well as, an air hook-up on the top. (As seen in DIAGRAM #1 on next page)

Connect air hose here.

Open this valve to drain pump.
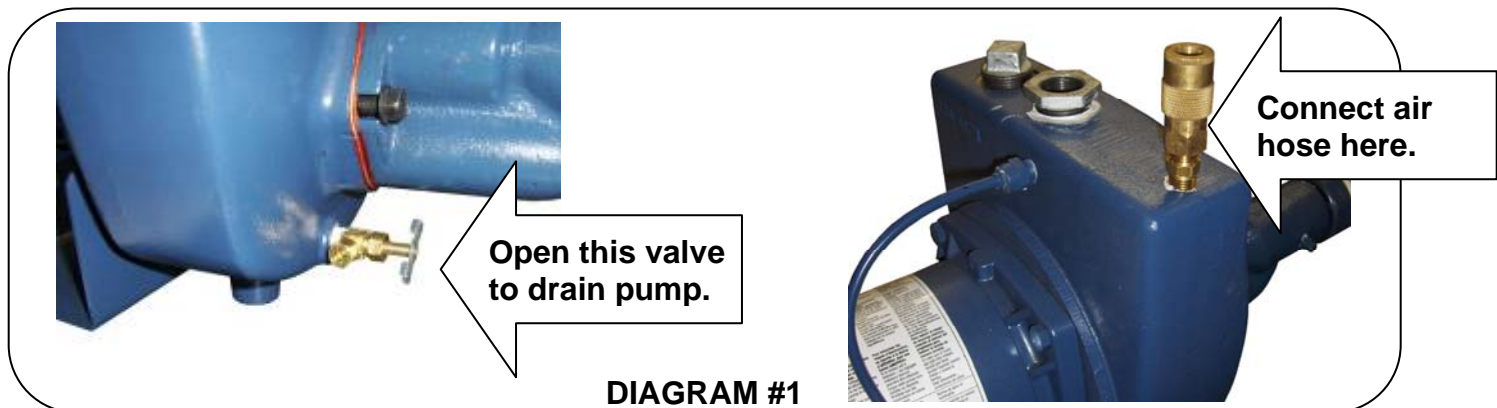
DIAGRAM #1

2. If the game is older than 2002; you will need to take out a plug on the pump to hook up air, and remove another plug to drain the water from the pump. (As seen in DIAGRAM #2 below)

Remove this plug to apply air pressure.

Remove this plug to drain pump.

DIAGRAM #2
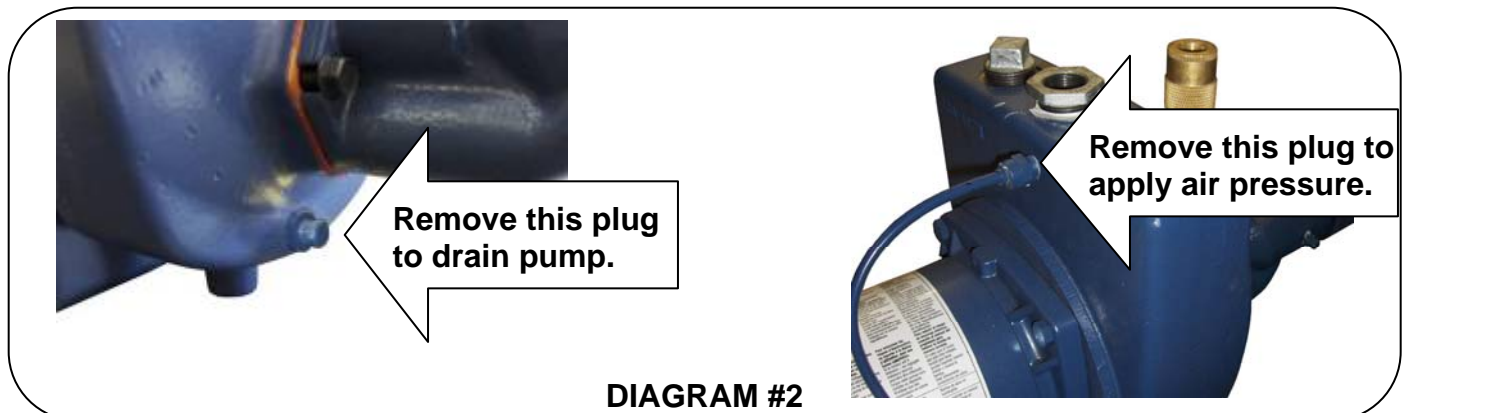
B. Turn all units on and place game into forward.
C. When applying air pressure, both pump's gate valves need to be open
D. Apply 40 to 50psi of air to the pressure part of the pump.

WARNING: DO NOT EXCEDE 50PSI, OR SEVERE PUMP AND PLUMBING DAMAGE COULD OCCUR.

E. Shoot all guns until no water or vapor shoots out of the guns.
F. Open drain valve (Diagram #1), or remove drain plug (Diagram #2) on both pumps.
G. After draining all water from both pumps.
   1. Disconnect air.
   2. Close all valves (drain, and gate valves).
   3. Replace all plugs (drain, and pressurize).
H. Remove filter
   1. If cartridge filter: dispose used cartridge, do not reinstall cartridge housing.
   2. If clear view filter: unscrew and remove screen-filter, and clear housing. Clean both screen and housing. Do not install.
I. Clean tank and drain pans.

NOTE: WHEN RESTARTING GAME BOTH PUMPS WILL HAVE TO BE PRIMED WITH WATER FOR PROPER OPERATION.

6-3. Electronic Features:

Electronic Module Component:

OVERVIEW

Bob's Space Racers® exclusive module electronics are as easy to change and repair as our old style relay systems. Modules pop out and pop in if problems arise, no boards or cables to change. Modules can be swapped between the unit board and the master board. One spare module can repair problems with your game.

NOTE: GAME POWER <u>MUST</u> BE OFF BEFORE ADDING OR REMOVING COMPONENTS.

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 12VDC 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 Unit Relay Board?
              ii.   Do the bad units have a fuse or wiring harness in common?
Module LED definitions:
- A solid yellow LED with a green flashing LED means all is working correctly and there is normal traffic on the network.
  NOTE: DURING GAME PLAY THE RED LED WILL COME ON TO INDICATE THAT THE PLAYER HAS "ARMED" OR THE BALLOON HAS BACK PRESSURE ON THE WIN SWITCH. IF A MODULE DOESN'T ARM IT WILL NOT INDICATE A WINNER IF THE BALLOON POPS.
- Red (or red with yellow, typically red without green): This means a critical area of failure.
- Red alone means a network fault.
- Red with irregularly flashing green means incorrect addressing.
- Yellow means invariable win line (shuts off when there is a WIN at the end of the race and comes back on).
- 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:
        One flash with a pause means you have a master or unit module installed in the accounting or player clock position.
        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 of the module LED's are correctly lit, then take note of the LED's for: footswitches, I.D. lights, targets, valves, etc. These LED's are for you, the customer, to visually look at and determine what area is at fault or activated improperly. Troubleshooting is easiest done by a process of elimination. It would help to determine which half of the game the problem exists in.

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 two types of voltages: 12VDC regulated and 24VDC unregulated.

SELF-DIAGNOSTICS

2400 Electronics are equipped with easy to use self-diagnostic LED's. These LED's are easily read to sort out most problems that can occur in operation. If problems occur our Technical Services can easily identify problems by noting which of these LED's are on or off.

NO ERROR FEATURES

Nothing is worse in a group game than having switches stick! This causes an unfair advantage for a player or disrupts the entire game. 2400 Electronics will not let the unit turn on or it will turn the unit off, when the game starts. *(If there is a stuck switch)* If the target switch is stuck when the foot switch is pressed the ID light will flash on than go out. If a win switch is stuck the ID will stay on until forward is pushed than it will go out.

AUTOMATIC FEATURES

New for 2400 Electronics is the 1 button Auto Start, the Timed Auto Start, and the Manual Start feature.

Manual Start – Setting 0 – The operator pushes each start button for sound, game and bell manually at the time sequence desired.

1 Button Start – Setting 1 - This is your 1 button start feature for all sound, game and bell. This is for new and untrained operators. By depressing #1, everything sequences in proper order to start the game, the same way every time.

Timed Auto Start – Set at Time Desired - This feature is for the serious operations, "Time is Money". Set your time desired and get ready -that you set is when we start.

CB OFF/RESET

All 2400 Electronics have "CB OFF" or "RESET" button. This button is used to reset the preset game. If units were inadvertently turned on, press and hold the "CB OFF" button. In about two seconds, the game will reset and be ready for play. This will sometimes cure your odd problems.

COMPUTER CONTROLLED GAME OPTIONS

In all 2400 Electronics ALL game features and controls can be set and changed using the keyed MULTI-LINE LCD display panel. The option registers settings are based on years of testing and operating experience and preset by Bob's Space Racers® technicians. These settings can be changed by the end user depending on your operational needs. If you have any questions about these settings please contact our Technical Services department.

SIMPLE SOLUTIONS

Look for the simple things first, 90% of problems that 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

ELECTRONIC RESET PRECEDURES

There are 2 ways to reset your game. One is "CB OFF" (Computer Board Off) button and 2nd is game power breaker. First try the "CB OFF" (Computer Board Off) button located at each end of the game where start and stop 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 electronics is a computer, if it gets "lost" it must be reset to start over properly.

FUSE PROTECTION

Your game has fuse protection 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.

Main board protection – For Main power going into the master relay/unit relay boards' valves and beacons, pump, and operation beacon.

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.

INTERMITTENT AND 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 often it occurs.   Contact Bob's Space Racers Tech Services with the problem details.

Module Relay Board:
OVERVIEW

The BALLOON POP GROUP GAME Module Relay board controls all the functions for that particular unit. The module relay board is thoroughly labeled and has indicator LED's for instantaneous indication of game activity.

There are system address boards, for networking multiple units and for the Master board. The master board controls overall function of the entire game (i.e. start, stop, winner determination, etc).

Master board and the module relay board contain both regulated 12V DC and 24V AC power.

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" (AKA Accounting Module Slot), "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 module 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.

Master Module Slot
Accounting Module Slot
Player Clock Module Slot

Fuse
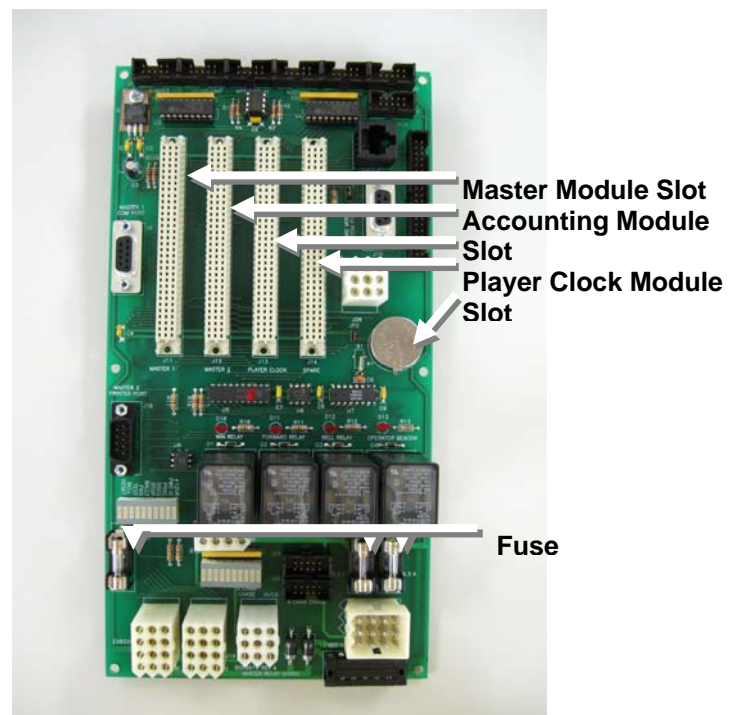
In order to insert any of the modules you must make certain your game power is OFF. (You will notice that the three lights on the edge of the module are out completely.) At that point insert the module into the Master Module Slot or far left slot on the board, removing the old module. The module should 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 and yellow LED's.
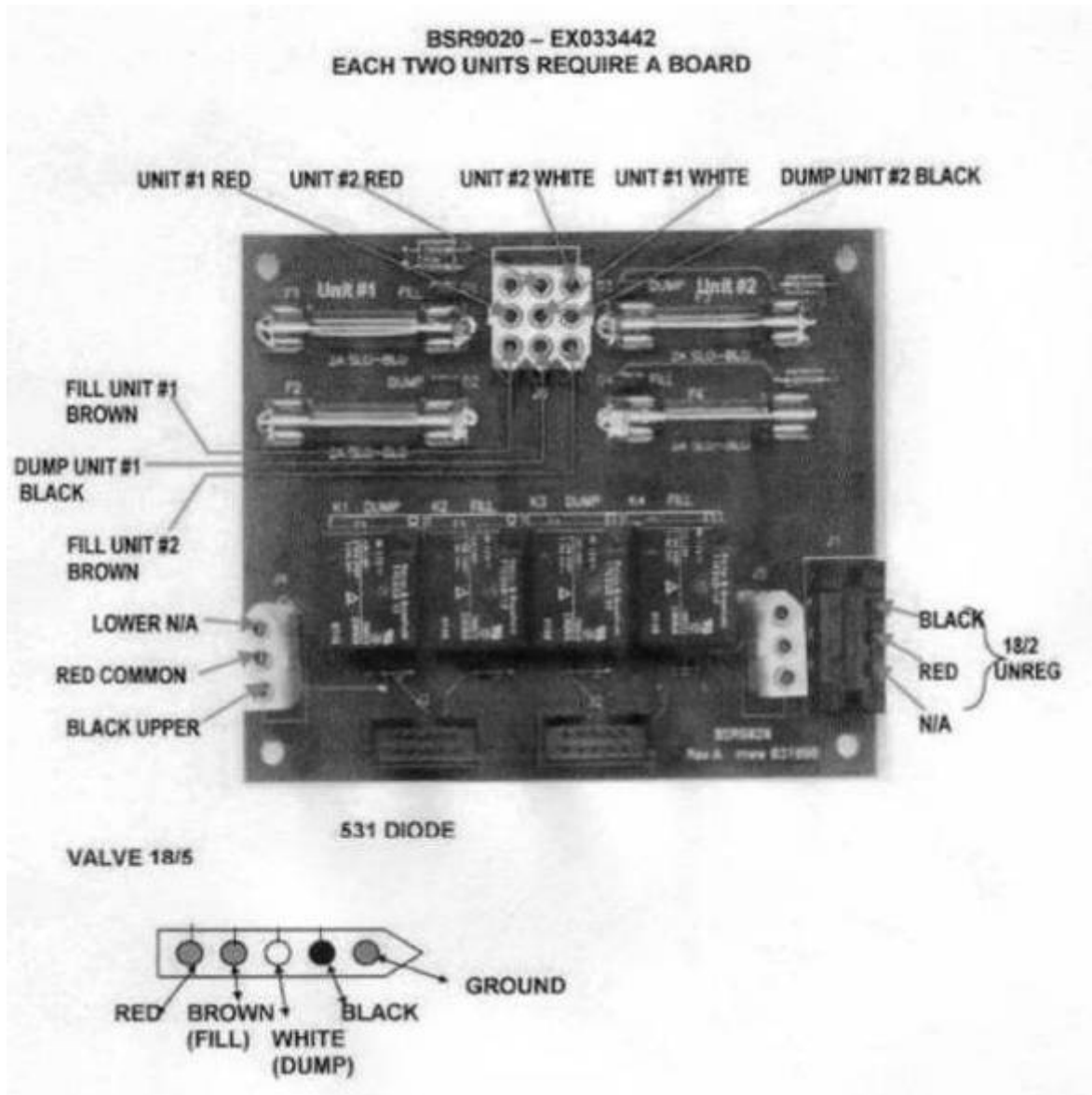
When a master 2 module (which keeps track of what time it is) is inserted into a game; the time must be set for your time zone – go to the Multi-Line LC Display Box with the accounting features. Hold down the two middle buttons (the "UP" and "DOWN") on the display. (See ACCOUNTING SYSTEM in the APPENDIX 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" position, 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.

BSR9020 – EX033442
EACH TWO UNITS REQUIRE A BOARD

UNIT #1 RED   UNIT #2 RED   UNIT #2 WHITE   UNIT #1 WHITE   DUMP UNIT #2 BLACK

FILL UNIT #1 BROWN

DUMP UNIT #1 BLACK

FILL UNIT #2 BROWN

LOWER N/A

RED COMMON

BLACK UPPER

BLACK
18/2
RED   UNREG
N/A

531 DIODE

VALVE 18/5

RED   BROWN   BLACK   GROUND
      (FILL)   WHITE
            (DUMP)

The above plug connects J4 & J5 from the relay board, and interfaces to the electronic pressure switches valves for unit 1 and unit 2.

The 9- pin Molex connector supplies power to the FILL/DUMP valves.

6-4. Backup Systems:

This game includes an extra water pump(s) for each system.

CHANGING FROM ONE WATER PUMP TO ANOTHER

NOTE: If a pump is **NOT** used on a regular basis, it will go bad from simply sitting there. Water pumps need to be switched out on a regular basis (see Maintenance).

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.

IMPORTANT: IN THE EVENT THAT THE PUMP GOES BAD, YOU MUST RETURN IT TO BOB'S SPACE RACERS® FOR REPAIR AND/OR REPLACEMENT.

BACK-UP WATER PUMP DIAGRAM
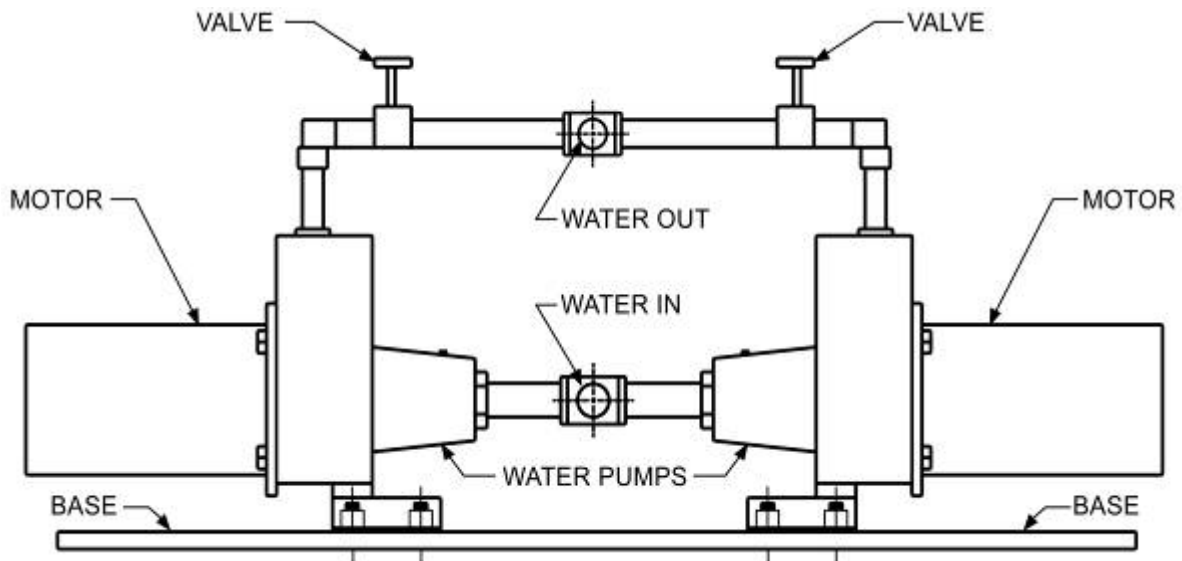
7. LIGHTING SYSTEM

LIGHTING OVERVIEW

Flashers

ELECTRONIC FLASHERS:
Electronic Flasher Unit(s) are a self-contained electronic system, a 2x4 box with four triacs, and their own electronic board. Each unit, also, has four 10 amp fuses. The flasher runs on 40 amps maximum.

FLUORESCENT LIGHTING
Fluorescent lighting is used on all trailer models, and on some park models, to light up parts of the game. We use standard light fixtures that can be sourced from a local hardware or building supply store. Most of the fixtures use replaceable ballasts that can be obtained from local home repair stores or sourced from Bob's Space Racers, Inc®.

8. AIR COMPRESSOR

AIR COMPRESSOR OVERVIEW
### For Large Group Games and Trailers

The air compressor currently in use is a "continuous run" compressor that is directly wired to a circuit breaker or plugged into an outlet. The compressor will run continuously, once started, until it is manually turned off.

When there is a demand for compressed air the pilot valve closes, causing the unloader tower to actuate the unloader. Now the compressor begins to make compressed air. As soon as the demand for compressed air is met, the pilot valve opens, allowing air pressure to de-actuate in the unloader tower. (The compressor still runs, but doesn't compress air).

The pilot valve is preset at the factory, so you should not need to make any adjustments. There are two (2) adjustment options for the pilot valve:

1. The top brass hex nut can be adjusted in, or out, to set the top (unload) pressure.

2. A large brass hex nut that can be screwed in, or out, of the pilot valve assembly to alter the differential pressure between the start pressure and the unload pressure (cut-in and cut-out) settings.
Once these pressures have been set, use the lock nuts to lock the settings.

The compressed air moves from the compressor (or house supply) to the Filter, Regulator, Lubricator (F.R.L.) and manifold assembly. The filter collects any water that is in the compressed air and deposits it in the first glass bowl. This should be drained routinely by means of a petcock at the bottom of the bowl. The regulator then allows only a preset amount of air into the manifold. The lubricator automatically puts oil into the air to keep all valves and cylinders in good working condition. The lubricator bowl should always be kept full with 10w Non-detergent oil.
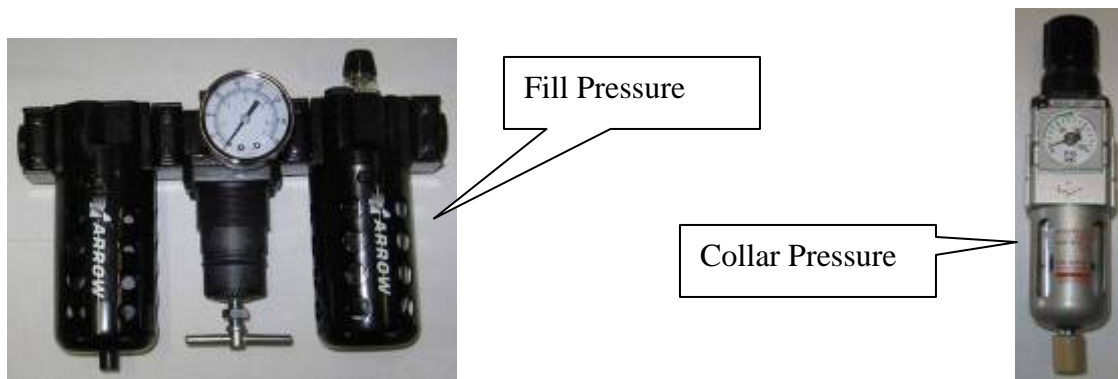
Fill Pressure

Collar Pressure

Air Pressure Regulator Settings	DEFAULT	MIN	MAX
Collar Pressure	**50**	50	65
Fill Pressure	**25**	25	30

QUINCY AIR COMPRESSOR MAINTENANCE

Weekly

Manually test pressure relief valves
Clean surfaces of intercooler
Check distribution system for leaks
Check for contaminated lubricant
Check for compressor / vacuum leaks

Monthly

Check belt tension (if applicable)
Torque sheave fasteners (if applicable)
Change lubricant (& filter if applicable)

9. SOUND SYSTEM

BSR JUKEBOX SOUND UNIT   **Operating Instructions**

There are (4) four white push buttons on the front face of the BSR JUKEBOX sound unit. (See picture below)

MENU   UP   DOWN   ENTER

You can set the different menu options and play the 10 different game music songs by pushing the appropriate button sequence.

MENU:
Push the "Menu" button to display "Attract Mode" and "Settings".

"Attract Mode" will play various music and gimmick sounds when the game is idol. There is approximately 15 seconds between sounds.

Select "Attract Mode" by placing the arrow (using the up/down buttons) pointing to "Attract Mode" and push the "Enter" button.

"Turn off/on" (use arrow keys to select one then push enter) to turn "Attract Mode" on or off

"Delay" is the amount of time set before "Attract Mode" sounds will begin again after completing its cycle.

Set delay time by using the arrow keys to select the delay time then push the "Enter" button. Delay time can be set from 30 seconds to 9 minutes. Press "Enter" when done.

Press "Menu" again to go back to the "Settings" mode. Move arrow to "Settings" & press "Enter" to enter settings.

SETTINGS:
Displays "Remote Control", "Adjust Volume" and "Contrast". Move arrow to desired option and press "Enter".

"Remote Control" – Not Available.
"Adjust Volume" – can be set from 1db to 25db.
"Contrast" – can be set from 1 to 7. Contrast is for the display on the sound unit.

When finished setting all options press "Menu" until the screen displays "Game Music".

Pushing a button on the keypad will play one of the 10 game music songs.
Pushing the "*" or "#" button will select the different groups of sound categories.

GAME MUSIC	**GIMMICKS**
OPERATOR A	**EXTRAS**
OPERATOR B	

By pushing any one of the numbers on the key pad, the sound associated with that number will play.

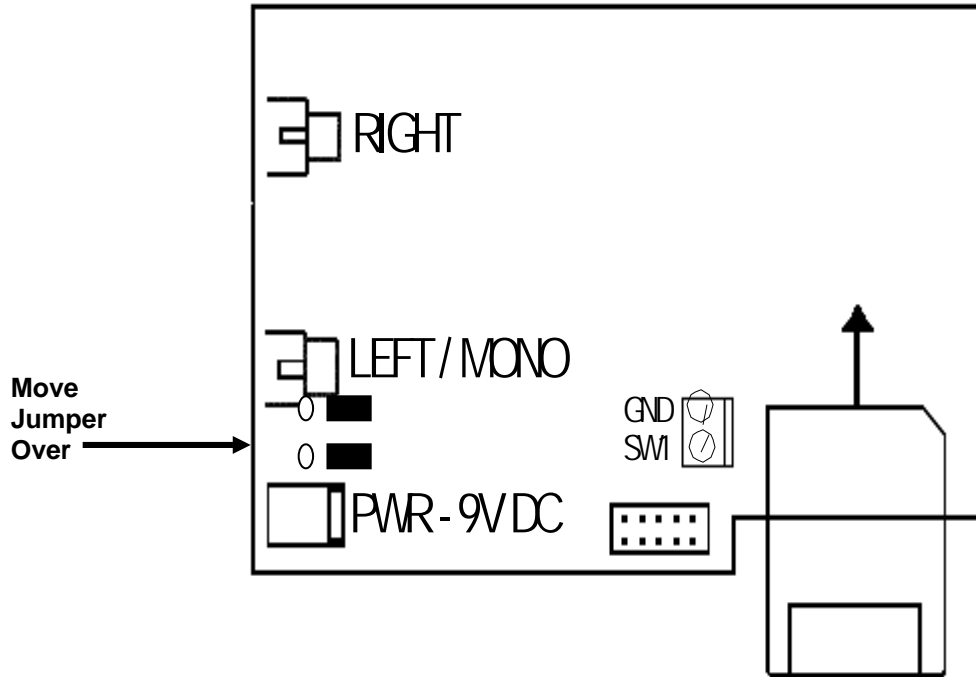**FACEPLATE DIAGRAM**

Screws

Screws

REPLACING THE MUSIC CARD

1. Unplug the system.

2. Remove the four screws on the face of the sound unit.

3. Carefully remove the faceplate (diagram above) and lay it face down. The green circuit board should be facing you.

4. Refer to the circuit board diagram below, and gently pull out the sound card.

5. Insert the other card in the same manner, (refer to the same diagram below). The shiny gold section of the music card should be facing you. Insert gently until it will go in no further.

6. If you insert the music card upside down, the card socket will not allow you to insert it fully. **DO NOT FORCE THE CARD IN**, **IT SHOULD SLIDE IN EASILY**.

7. Replace the faceplate and screws, and plug in the system.

CIRCUIT BOARD DIAGRAM

RIGHT

LEFT / MONO

Jumper

PWR - 9V DC

Power Cord

Ribbon
Connector
Disconnected

Sound Card ▼
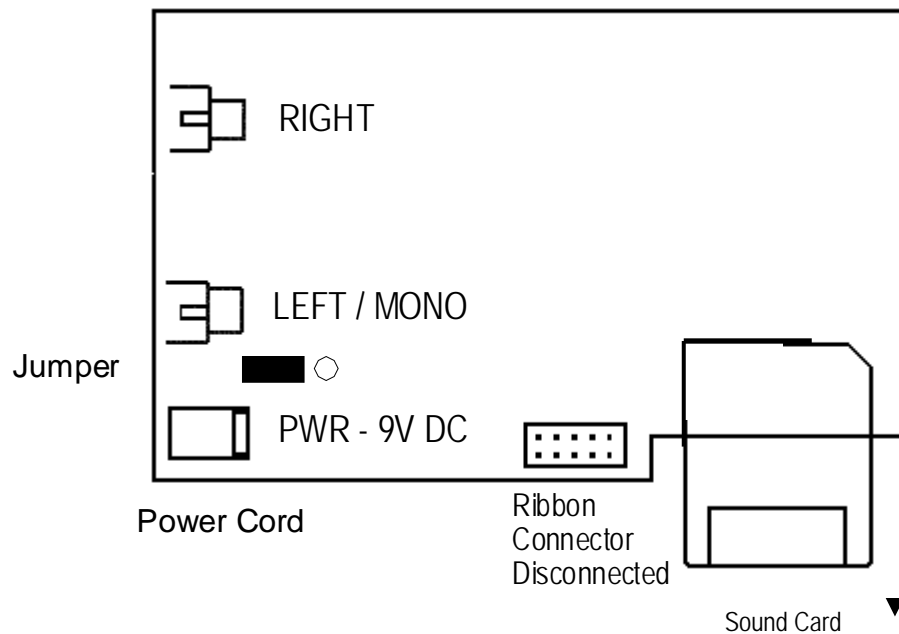
SOUND UNIT WITHOUT THE RIBBON CABLE

In the event your ribbon cable becomes damaged, broken or shorted, disconnect or unplug the ribbon cable. Ensure that the 22 gauge red and black wires are properly connected to "GND" and "SW1". Plug in the 9V DC – 12V DC power supply and ensure that the phono/RCA cable is plugged into either "RIGHT" or "LEFT" female phono jack.

This configuration has power supplied by the 9V DC – 12V DC power supply.

MM-4 Four Channel Powered Mixer:
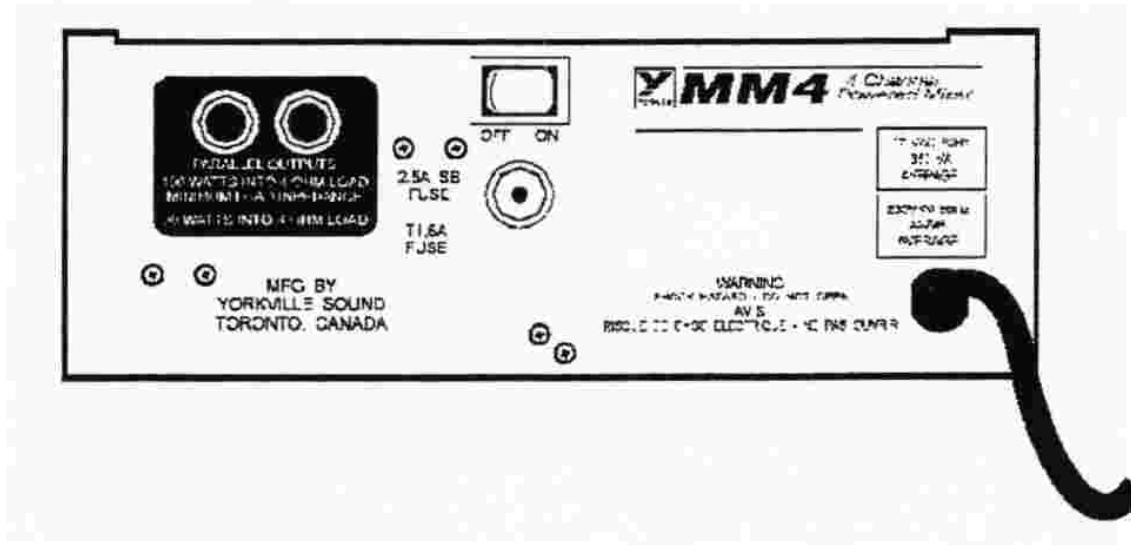
SPECIFICATIONS

Power Output:	140 Watts RMS @ 4-Ohms
	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
(In Europe)	220 VAC 50 Hz 360 VA

CAUTION: DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

Read Instructions:
The Owner's Manual should be read and understood before operation of your unit. Please, save theses instructions for future reference.

Packaging:
Keep the box and packaging materials, incase 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 all three blades can be fully inserted to prevent blade exposure. Precautions should be taken so that the grounding scheme on the unit is not defeated.

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 <u>DO NOT OPERATE THE UNIT</u>.

Service:
The unit should be serviced only by qualified service personnel.

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.
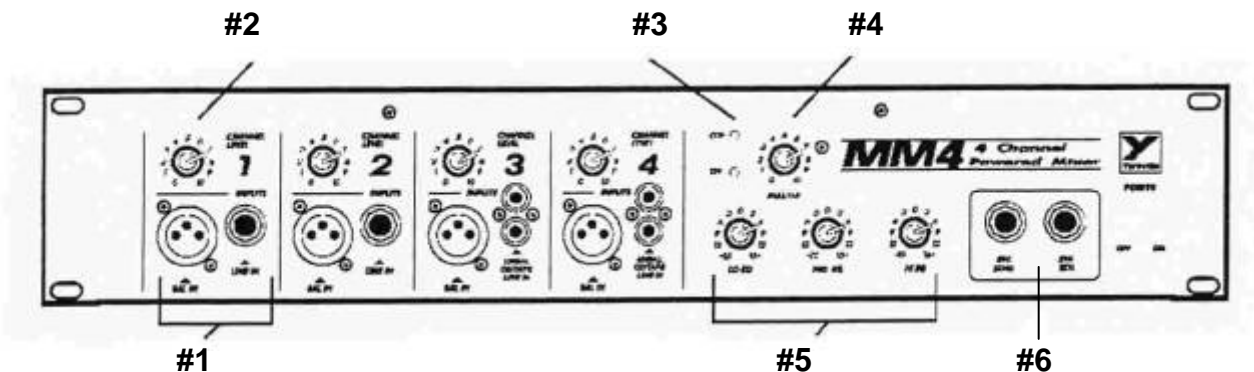
MICROPHONE AND LINE INPUTS - #1

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 ¼" phone jacks which accept single-ended signals from guitars, synthesizers, electric pianos, tape recorders, unbalance 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" 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 summoned to a monophonic signal.

CHANNEL LEVEL CONTROLS - #2

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

CLIP LED - #3

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 lip 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.

MASTER CONTROL - #4

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.

EQ SECTION - #5

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 at 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 counter-clockwise 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.

EFFECTS LOOP - #6

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 the 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.

POWER AMPLIFIER - #7 (inside)

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 to reduce the number of speakers you have connected.

10. ACCOUNTING SYSTEM

2400 G Module Electronics' Accounting System:

OVERVIEW

The 2400 G Module Electronics' Accounting System is integrated into the game's own electronics. This means there is no wiring harness to connect it to the rest of the game or to individual units.

The external wiring for this accounting system includes two (2) cables that are 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 of 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 "ACCT2418" on the bottom left side of the display. When you turn the key to the "ON" position, 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 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, and then, to "ERASE DATA". If you press the button below the word "YES" when the display reads "ERASE DATA" it will clear all of the data and default back to the "PRINT REPORT" display.
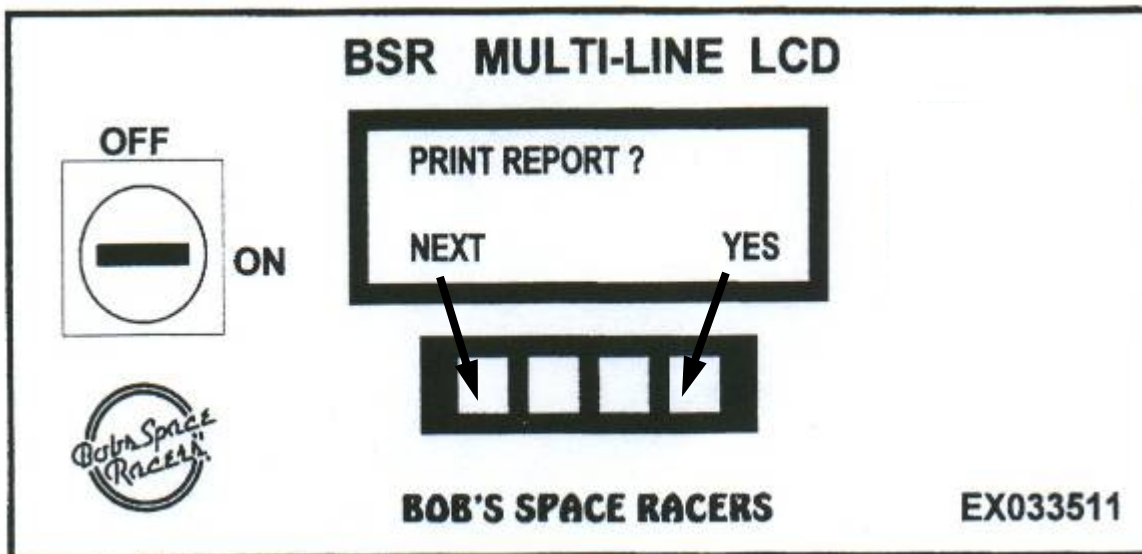
```
Bobs Space Racers
AccuTrak Accounting Report

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-resetable 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. (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!

11. TROUBLESHOOTING GUIDE

BSR Balloon Pop Water Games have been built to specifically use **#7 Double Dipped Balloons Only**.

Use of any other type of balloon will affect the proper operation of the game. In some cases the game will not function without **#7 Double Dipped Balloons**.

If your game malfunctions - wins automatically, shuts off or other type of problems while the game is in play, check the balloons first.

Malfunctions can be caused by one or all balloons. If the problem repeats, change all balloons on the game units. Any hole in a balloon will cause a malfunction.

Troubleshooting 2400 Series Electronics:

Problem	Cause	Solution
90% of problems that occur are simple things that get overlooked	Loose Wires Bad Connections Loose Modules or Relays Component changed by someone else's actions	A wire connector plugged into a wrong plug in the accounting Board
Game Will Not Turn On	Bad Footswitch	Check continuity on foot. If bad, replace
Bell Does Not Work At All	No Power	Check for 12VDC at the Relay Board. Check wiring
	Bad Relay	Swap Relay with another one; replace, if necessary
	Bad Bell	Check Bell by plugging into the end of an extension cord. (The Bell has a standard wall plug jack on it).
Beacon Disk Does Not Revolve but the Light Works	Reflector is Slipping	Check the Motor to see if it is slipping. There is an O-ring around the disk; also, there is a tension wheel that pushes the O-ring tight to the Motor shaft. It probably isn't pushing down hard enough on the O-ring--adjust if necessary.
Beacon Light Does Not Work but the Disk is Revolving	Bad Bulb	Check the bulb and/or replace it with a #1195 bulb.
Beacon Does Not Work At All	No Power	The Bell probably isn't working either, which means it is a Board problem. Check voltage to Relay Board; should be 12VDC.
	Bad Wire Connection(s)	If the bell is working check all wiring to and from the Beacon.
	Bad Relay	Check Relay on Relay Board for proper operation.
Game Reset		"CB OFF" (Computer Board Off) button located at each end of the game where start and stop push buttons are.
		Turn the game power breaker off at the power panel, wait 10 seconds and turn the breaker back on. ** Sometimes the electronics need to be reset to start over properly.
Green LED's		Everything is connected in proper slots and in proper communication with other components.
Red LED's	Error in the module or the 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 The spare unit or master 1 module is located in the spare slot (See Board Layout).
Module Changes and Updates		Turn Game Power OFF at Breaker Panel Swap or Change Module Turn Game Power ON at Breaker Panel Go to keyed "LED" Control Box and turn key "ON" and push Mode Button until "UPDATE" appears in LED Press enter to update programs and modules.
Footswitch that lights when turned on and goes out when it is released Unit will not turn on	Hung or Stuck Target Switches	Check or replace Target Switch * 2400 Electronics sense the problem and prevent the unit from turning on
A Unit turns off when a race is started but all other units operate normally Push "Forward" button and the game or unit automatically wins without reaching the end of the track	Hung or Stuck Win Switches	Check or replace Win Switch * 2400 Electronics sense the problem and prevent the unit from turning on
Fuse in the power supply box "Blow" immediately when replaced	Bad Bridge Rectifier	Replace Bridge Rectifier
Several Units in a row or one side of the game are not working	Blown Fuse and Bridge Rectifier	Replace Fuse and Bridge Rectifier
Erratic behavior that doesn't effect multiple units		Power down the game then power the game back up
		Contact Bob's Space Racers Tech Service *Keep details and symptoms on when the problem occurs and when it stops having the problem.

Troubleshooting The Water Pump System:

WATER PUMP SYSTEM – GROUP GAME		
Problem	**Cause**	**Solution**
Low pressure / no pressure	Lost Prime Clogged Filter, Clogged Watts Valve Screen Clear-Vue Filter Clogged Trash in Pump Lint or balloon residue on tank screen Water Supply hoses to Front Counter kinked under counter. (Center Games) Broken Impeller	Run Pump, Press Red Button on Top of Water Filter to relieve trapped air. Open the Clear Vue T handle. Remove Watts Valve filter. Remove inner screen wash with soap and water. Rinse and Replace. 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 Replace Impeller.
Motor does not run	No power Thermal Circuit Breaker Faulty pressure switch on pump	Check Circuit Breaker. If Motor is hot, allow to cool. Check Contacts for free movement (do this with Pump unplugged from Power).

No water shooting out of guns	(Check all of the <u>PROBLEMS</u> listed above)
	Clogged gun tip
	Solenoid Valve not Operating
		
		Clean gun tips
		Check Relay Board.
		    Is Relay operating?
		    Check status LED on unit relay board(s).
		    Check white fuse on unit relay board(s).
		    Check for 24 VAC at unit relay board(s).
		    Verify the LED's on the bottom right corner
		    are coming on for each player kick-up.
		    If LED comes on, it is probably a bad Relay.

Guns shoot over or around the counter	Gun Not at Correct Height Y Yoke Loose	Loosen Set Screws and adjust to correct height (when gun tips back, the lower part of Gun Handle should be one (1) inch above the Countertop). Loosen Set Screw or bolts. Position on Gun aimed at center of Target. Tighten Set Screws (Bolt).
Pump runs continuously	Faulty Contactors Faulty Board	Check Contactors to see if they have welded shut or just stuck. If they are welded shut, they need to be replaced Check the LED Outputs for proper operation.
Motor runs hot	Something in the Pump Insufficient voltage at Pump Motors (motors hum and/or Run very hot). 110VAC at Pump instead of 220VAC	Take pump apart to see what the problem is Make sure lead lines are connected to opposite phases

Troubleshooting Lighting:

TROUBLESHOOTING – LIGHTING		
Problem	**Cause**	**Solution**
Overhead Lights Don't Work At All	Breaker off	Check the breaker before replacing any equipment or bulb.
	No 110V AC supply	If no voltage, follow wiring back to 6X6 or larger box and check the fuse and/or wiring inside. If you have 110V AC at the light and it still doesn't work, it's probably a bad light.
	Faulty fuses	Check and replace the necessary fuses. *(There are four fuses to each flasher.)*
	Faulty triac	Replace triac. If all triacs are faulty it will be necessary to replace the flasher unit. *(There are four triacs to each flasher)*
Some lights don't work **NOTE: (THIS SECTIONS PERTAINS TO RANDOM OR INDIVIDUAL LIGHT OUT OCCURRENCES)**	Faulty connection	Check bulbs to make certain there is a secure fit into the socket.
	Faulty bulb	Swap bulb with a known good one and replace if necessary.
	Faulty socket	Re-twist light socket connection and replace socket if necessary.
A series or pattern of lights don't work **NOTE: (THIS SECTIONS PERTAINS TO A STRING, SERIES OR PATTERN OF LIGHT OUT OCCURRENCES)**	Faulty fuse	Check and replace the necessary fuses. *(There are four fuses to each flasher.)*
	Faulty triac	Replace triac. If all triacs are faulty it will be necessary to replace the flasher unit. *(There are four triacs to each flasher)*
	Shorted or damaged bulb	If only one or a few random bulbs are out check the bulb. If a string of lights are our in the same order down the line check the four fuses.
Fluorescent Lights Will Not Light Up (Possibly until someone is standing next to them)	Faulty light	Change light bulb.
	Faulty grounding	Make certain the fixture is properly grounded and has an earth ground properly connected. <u>VERY IMPORTANT</u>
	Faulty ballast	Replace ballast.

12. REPLACEMENT POLICY AND SHIPPING RULES

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.

13. WARRANTY

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.

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 15th Street
Daytona Beach, FL 32117
Telephone number: 386/677-0761
FAX: 386/677-0794

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

(or)

VISIT THE "CUSTOMER SUPPORT" SECTION ON OUR WEBSITE:
WWW.BOBSSPACERACERS.COM