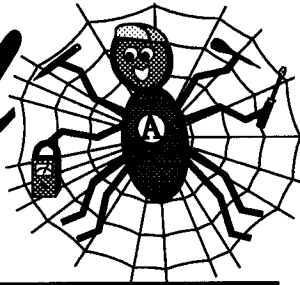


From the Originator of Electronic Darts

# Arachnid Tech. Tips



SUMMER 1993

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*A Quarterly Publication for Operators and  
Technicians who service Arachnid Products*

This publication is designed especially for the field technicians and operators who troubleshoot, repair, and maintain Arachnid games. It is a technical tool designed to keep all the latest updates, service bulletins, suggestions, and ideas together in one neat package.

Your input is welcome. If you have a special idea, or tip you would like to share, send it to:  
It will be reviewed and considered for publication.

Arachnid Inc. Engineering Div.

Attn. Tech Tips Editor

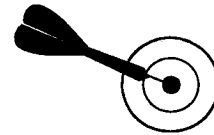
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**HAVE A TECHNICAL QUESTION OR PROBLEM?** Call us at 1-800-435-8319  
and ask for Technical Service. We'll be happy to assist you in any way we can.

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## **Announcing the Arachnid Technical BBS: A Bulletin Board for all Arachnid Customers**

Arachnid, Inc. is pleased to introduce a new tool for all their customers; the Technical Bulletin Board System (BBS). The BBS will be used as a communication device between customers and Arachnid. It will contain information files such as engineering suggestions, other users' suggestions, sales information, reprints of Tech Tips, recommended programs that may be useful to the users, etc. There is also an E-mail (Electronic mail) available for customers to make inquiries. These inquiries will then be referred to the proper department at Arachnid for an answer. The E-mail may also be used to list comments or suggestions for other users.

The BBS will be regulated by the Engineering Technical Service department. They will be responsible for assuring that all inquiries are responded to in a timely manner. The BBS will be checked and updated on a daily basis. Downloaded information will be reviewed before it becomes part of the public access areas.

The BBS can be accessed using any modem and calling program that will transmit calls from 300, 1200, 2400, 9600, and 14400 baud rates, at no parity, 8 bits, and 1 stop bit. Follow the instructions included with your modem program to call. When the BBS answers, it will ask you a series of questions, starting with your name and a personal password. Remember the password you select because whenever you call, it will ask you for it. When it asks for the download protocol you wish to use, refer to your modem program instructions. If you've never used a bulletin board before, and need assistance, please call Arachnid's Technical Service dept. at 1-800-435-8319. ⚡

**The BBS phone number is 815-654-7985**

### **Arachnid, Inc. Gaming Division announces the release of the Lucky Touch Video Gaming Device**

Condensed from an article published in the Galaxy Gazette,

Written by Debbie Lamont

Arachnid, Inc. was recently given the go ahead to sell its LUCKY TOUCH video gaming device in Louisiana. In April, games were shipped to C K Gaming, Arachnid's gaming distributor in Louisiana. Player appeal is reported as quite favorable in the short time games have been on site.

Louisiana law requires the manufacturers of VGD's to hold a 4-6 hour seminar explaining the equipment, parts, and functions. Brad Bennehoff, Certified Gaming Engineer at Arachnid, is conducting these seminars. Soon he will be on the road in a special bus that will serve as a traveling classroom. It is painted black with a gold Bullshooter logo along the side, and the gaming logo on the back. He will tour Louisiana, stopping at every coin operator to show the product and conduct seminars. The seminar includes general operation instructions, screen functions, game instructions, selectable features, general service, common errors, and troubleshooting tips. All seminar participants are certified once Arachnid notifies the State Police of their attendance. Lucky touch is expected to be demonstrated throughout the country, pending gaming legislation approval in other states. Watch for the Bullshooter Bus in your area! ♠

# ...On Linking Galaxy Games Together

## Solutions to Common Networking Problems

### Electrical Interference

If there is a frequent problem with collecting data at a specific location, and the location has more than one game, it is possible that electrical noise is interfering with game to game communications. Check to see that the wires from game to game are not routed over, or close to, electrically noisy devices (such as fluorescent or neon lights). In a situation where wiring cannot be relocated, or with runs of over 20 feet, changing to twisted-pair cable (instead of the common 4 conductor silver-sheathed cable) may give added protection against electrical noise.

### Sharing a Phone Line with Other Devices

Other devices (a computerized phone, a lottery ticket validator, etc.) connected to the location's phone line may cause problems when downloading league data, because they also answer the phone. In most cases conflicts with other devices can be corrected by coordinating calling times with the owners of the other equipment (e.g., set the other device to answer from 2 a.m. to 4 a.m., and the Galaxy game to answer from 4 a.m. to 8 a.m.).

### Sharing a Phone Line with an Alarm System

For locations which have a security alarm in use at all hours, check for its use of a modem warning system. The security alarm may interfere with collections, and the alarm company may have to reconfigure their answering frequency or answering times.

### Allowing for Time Discrepancies Between Dartman II and the Galaxy Games

Dartman II should be set to call about 1/2 hour after the time set in each game. For example, if the games are set to change from 10 rings to 1 ring at 3 a.m., Dartman II should be set to start calling at 3:30 a.m. This will give the game ample time to change over (it checks time every 10 minutes), and will allow for any discrepancies between the game clocks and the clock in the computer where Dartman II resides.

### Allowing for Daylight-Saving Time

Daylight-saving time can affect automatic collections. If the window of time for collections is wide enough, there may not be a problem; but if the time is reset on the Dartman II computer, it will no longer match the time set in the games. In this situation, Dartman II may call too early (before the games have changed to fewer rings), resulting in no collection from some locations. If the computer clock is changed, the game clocks should also be changed. For assistance with setting the time and date, call Arachnid Technical Service at 1-800-435-8319, from 8:00 a.m. to 5:00 p.m., Central Time.

### Allowing for Different Time Zones

If there are games in different time zones, be sure to take that into consideration when setting the time to call with Dartman II (each location in Dartman II can have its own unique time to call). It may be easiest to keep all games set to the same time, if possible. This will have to be evaluated for each situation.



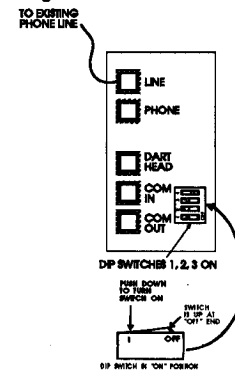
**4 CONDUCTOR PHONE CABLE IS REQUIRED FOR GAME-TO-GAME HOOKUP.**

## Procedures for Connecting Games together...

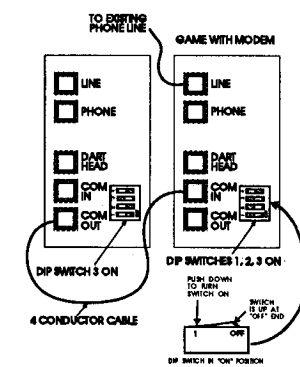
### Wiring and D.I.P. Switch settings

The following illustrations are to be used as an aid for hooking up Galaxy modem networks. All possible configurations can be derived from these drawings:

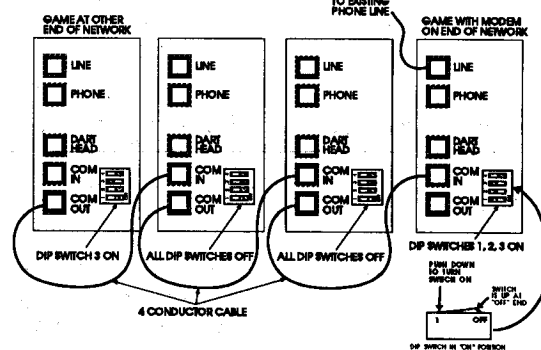
Single Game with Modem



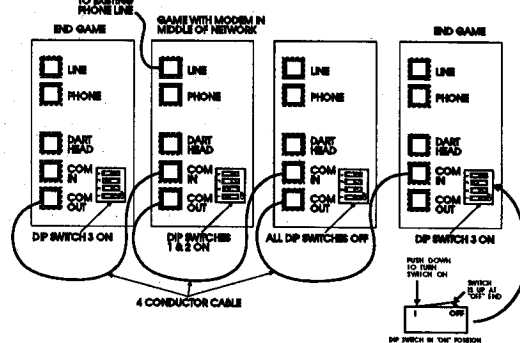
Procedure for Connecting Two Games (one containing the modem)



Procedure for Connecting a Series of Games with Modem Equipped Game on the End



Procedure for Connecting a Series of Games with Modem Equipped Game in the Middle



## Modem Check List

### For Game with Modem Installed

- Remove the Main P.C. Board from the game
- Insert the modem so that its largest chip is in the upper left-hand corner of the main board
- Reinstall the Main P.C. Board using 3 "thumb nuts"
- External modems** (for newer boards equipped with an external modem connector) must be plugged into an **external** outlet. The Service Outlet inside the game will not operate when the side switch is turned off. A kit may be purchased from Arachnid to make the top receptacle of the outlet hot at all times, if desired.
- Set the DIP switches on the main board. DIP switches 1 and 2 must be ON (pushed down on the left). If game is the first or last on the network, DIP switch 3 must also be ON
- Set answer times. Example: Answer after 10 rings, except between 02:00 and 06:00, then answer after 2 rings

### For All Games on the Network

- Input location name and password
- Reset league variables (make sure **all** active league stats have already been collected and verified from this machine first)
- Check time/date - correct if necessary
- Set DIP switch 3 to ON (pushed down on the left) if it is the first or last game in the network
- Set node number, using a number 1 thru 16. Each machine in a location must have a different number (if a node number isn't assigned, stats will not be collected from the game)

### Perform All Tests

These tests must be performed when setting up a new installation, adding a machine to an existing network, or modifying a network in any way. (Tests marked with an \* are not designed for use with **external** modems. They may not give the proper results.)

**RUN FIND A FREE NODE FROM THE MODEM GAME:** This test checks both send and receive capabilities. **If this is not performed, the network will not find all of the games**

**Arachnid Network test:** send on one machine, receive on another (one-way communication only)

**\*Modem Status test:** with internal modems, the bottom five items must be 1's. The top 3 items should be 0's

**\*Modem Configuration test:** with internal modems, ATSO, OS7...

**\*Plug a phone** into the jack marked PHONE on the main board (second jack from the top) to check for the dial tone on the modem game equipped with an internal modem. (Use the jack provided on an external modem to test it for a dial tone).

**Making your own modular phone cables:** Since both ends have male plugs, the wire colors must appear reversed when looking at the finished ends (see illustration below). If the outside (black and yellow) wires are not connected, U24 (75176BP) on the main CPU board may be damaged



## Troubleshooting Tips for the Lucky Touch Video Gaming Device

The Lucky Touch VGD is new to the gaming market, and they have been performing very well to date. However, in the event there are repairs to be made, these troubleshooting tips from Brad Bennehoff, Certified Gaming Engineer at Arachnid, may be helpful:

1. **Checking the Fiber Optics** - There is no activity on the fiber optic line if the LED in the upper left corner of the I.O. board (near the fiber optic receiver) is not lit. The fiber optic receiver is the blue connector, and the fiber optics transmitter is the gray connector. Check the receiver by shining a flashlight on it. The LED should remain lit as long as the light is present. If this test does not light the LED, check the voltage that powers the fiber optic receiver. There are two 4 LED displays on the right side in the middle of the CPU box in the machine. The 12Vac LED is located in the top row of LED's, second from the right. If the 12Vac LED is out, check the 12Vac fuse, which is located below the on/off switch on the power supply. If the fuse is o.k., replace the I.O. board.

2. **Troubleshooting the Coin Comparitor** - If the enable LED is off, the comparitor will not accept coins. It is located on the mechanism itself. Check for proper voltage by metering between pin 5 or 6 of JP28 and pin 9 of JP21 on the I.O. board. It should read 12Vdc. The red wire on the comparitor transmits the credit issue pulse, and can also be checked. Look for a 5V low pulse on this wire.

3. **Bill Acceptor voltages** - A voltmeter connected between pin 4 and pin 6 on the 9 pin Amp connector should read 120Vac. To check the DC side of the bill acceptor, meter between pin 5 on the side connector to an isolated ground (pin 6 of JP28 on the I.O. board). It should measure 5Vdc.

4. All cleaning should be done with denatured alcohol, compressed air, and a lint free cloth. If there is an excessive amount of dust, a vacuum cleaner may be used.

### GENERAL ERRORS THAT MAY BE ENCOUNTERED

A. **LOCKOUT FAILURE** - credit was received during a time period that the machine is programmed not to accept credits

B. **COM1 FATAL ERROR** - com1 is not working on the Mother board or the I.O. board

C. **PRINTER FAULT** - the printer has gone off-line due to a head jam, ribbon out, etc.

D. **VGD RAM CORRUPT** - the SRAM on the Memory/Sound board is corrupt...replace the chip

E. **VGD CODE CORRUPT** - a game eeprom has lost its memory

F. **CMOS CHECKSUM BAD** - the setup information in the Mother board is incorrect or corrupted

G. **CMOS SETUP ERROR** - incorrect setup information is being sent to the Mother board

### **The Galaxy Gazette: A Seasonal Newspaper by Arachnid, Inc.**

During the summer months Arachnid, Inc. publishes a newspaper called the Galaxy Gazette. It is an upbeat, informative paper published as a service to English Mark Darts operators and distributors throughout the country. The editor is Debbie Lamont from the Advertising department. The June 1993 edition features Low Ball Cricket, the Lucky Touch VGD, League Seminars offered by Arachnid, Bullshooter 8 international finals held on Memorial Day weekend in Chicago, IL., plus a lot more. Look for the Galaxy Gazette at your local operator's or distributor's headquarters.

# The Archives: Service Information, Past and Present... for 6500's and Older Dart Game Models



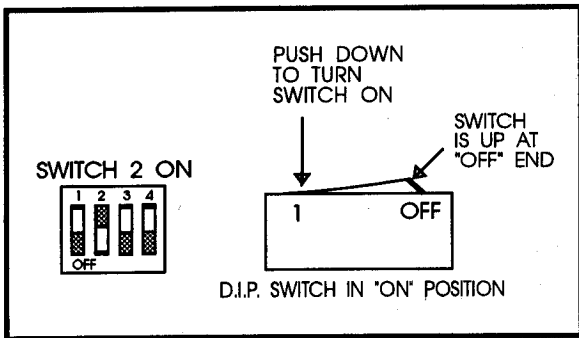
## Service Tips for 6500, 6300, and 6200 games

(These games have a Coin Credit P.C. board installed)

**Number of Credits given per Coin is Incorrect:** Several factors affect the credits issued per coin on a 6200 or newer game:

- » D.I.P. switch on the Main P.C. board - if it is installed, it will be located above U20. Switches 1 and 2 must be OFF in order for coins to credit properly.
- » For 1 credit per coin - set the D.I.P. switches on the Coin Credit P.C. board so that switch 2 is ON, switches 1, 3, and 4 are OFF on all three banks of switches.
- » For 1 credit per every 2 coins - set the D.I.P. switches on the Coin Credit P.C. board so that switch 1 is ON, switches 2, 3, and 4 are off on all three banks of switches.
- » The game will accumulate up to 99 credits.


**Game Racks up several Credits when a Coin is Inserted:** One of the banks of D.I.P. switches on the Coin Credit P.C. board has all of its switches open. At least one switch on each bank must be closed in order to remedy this problem.



## Service Tips for 4500 and all 6000 series games

**Removing Switch Matrix leads from the Target Interface board:** Always grasp the blue plastic connector when unplugging switch matrix leads. Never pull them by the flexible ribbon. This will help prevent the ribbon tails from pulling away from the connector, which causes higher resistance on some of the traces. When this happens, segments may intermittently or consistently not score. If pulling away of the tails does occur, pinching the blue connector with a pliers may help for a time, but eventually the switch matrix will have to be replaced.

**Sound is Stuck on at Coin up or during Game play:** Often, players or bar owners will say that the game keeps buzzing, locks up, and it has to be turned off and on to fix it for a while. It starts when a sound occurs, such as the coin up beep, the bullseye sound, the win or bust sound, etc. **Remedy:** Change C19 on the main P.C. board to a 4.7 mfd, 25 volt (or higher) **tantalum** capacitor. If the problem reoccurs within a month or two, replace the 15 volt regulator for the sound (U22 on the Main P.C. board).

**Game is Missing Coins occasionally and/or Locking up after a Coin is Inserted (no stuck sound):** Check the trip-switch wire located below the coin mechanism, attached to the coin switch. If it is rubbing anywhere in the opening it travels through, it may cause coins to drop through without giving credits. If it rubs and sticks so that the coin switch is held closed, it will lock up the game. **Remedy:** Gently bend the wire (grasp it close to the coin switch) until it travels freely through the slot. When it looks aligned, trip it with your finger several times to assure that the switch is working properly, and is not rubbing anywhere. 

**Free binders are available to keep Tech Tips issues together. Write or call us to request one.**

**PLEASE NOTE: Arachnid has changed its part number system! As you order parts, you will notice the new numbers. Please bear with us during this time of transition. If you don't have the new number, tell us the old one. Thank you for your patience.**

**IN THE NEXT ISSUE OF ARACHNID TECH TIPS: Galaxy and DARTMAN II Update Information // VGD Information // TOP GUN Challenge Promotion Ideas // and Much More**

  
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