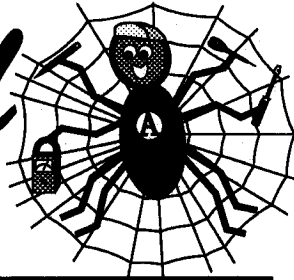


Arachnid Tech. Tips



SPRING 1995

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A Publication Especially for Operators and Technicians who service Arachnid Products

This publication is provided as an aid for 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.

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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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What's the Latest for Galaxy? Software Versions and Hardware Revisions

Since its introduction in 1991, the Galaxy dart game has undergone many improvements and additions, from the advent of the Super Spider darthead, to the introduction of new games such as Lowball and Wild Card Cricket .

To set the record straight, we have compiled here a list of the most current software versions and hardware revisions available for the Galaxy...compare this to your games:

EPROM's that are acceptable to use: Version 3.1 or higher (NOTE: DM2 version 1.084 is used with these EPROMS)

LATEST EPROM: Version 3.26 (w/Lowball & Wild Card Cricket)

MICRO CONTROLLER for the Smart Target Board that is acceptable to use: Version 4.2 or higher

LATEST SMART TARGET MICROPROCESSOR: Version 4.3

MICRO CONTROLLER for the Main Board (U14) that is acceptable to use: Version 1.11 or higher

LATEST MAIN BOARD MICRO. (U14): Version 4.3

MAIN BOARDS - Rev. F or G is acceptable with Reset Daughter Board installed at location U3.


LATEST MAIN BOARD: Rev. I (Daughter Board not needed)

LATEST SMART TARGET PCB: Rev. H

LATEST CARD READER BOARD: Rev. F

POWER SUPPLY - Both analog and switching supplies are acceptable for use.


LATEST POWER SUPPLY: 5V - 12V Switching Supply

Please contact your distributor for information and pricing of the above items, or contact Arachnid if you have any questions about your present game conditions. 

Setup Cards and Galaxy Software Versions

Setup Cards are a wonderful tool for Galaxy operators, because they greatly simplify game setup. They duplicate almost everything except Modem setup, Top Gun lists, machine names, and game clock time for use on other machines. The setup card also records the version number of the EPROM that is inside the Galaxy game it is copied from, so that it does not run the risk of loading information in an incorrect area of the game's memory. For this reason, Setup cards cannot be shared by games which contain different Galaxy EPROM versions. e.g. A Galaxy which contains version 3.2 software cannot be used to make a setup card for a game which has a 3.26 version of software.

When making Setup cards for your technicians, please mark the software version # of the game in which it was made from on the card label, so that there will be no confusion in the field.

As time goes by, and Arachnid makes changes and improvements to Galaxy software, technicians may need to carry two or more cards with them. Please make sure you have enough Setup cards on hand to make their jobs easier. If they have to use the same card all the time, they can reprogram it with the proper game setup as needed, but if several software versions are being used on a route, it would be easier to have more than one card available for them to use. 

Financial Reports . . . Keeping Records Straight



Dartman II gives the operator the ability to record and print financial information for leagues. This information should be updated regularly so that at the end of the league season, the available monies can be divided accurately and evenly among all league members. You must first start by correctly listing the money expected from your locations and teams.

Entering the Team Fee

When a league is set up initially, the expected team fee is recorded when the new league is added. It can be viewed or changed under "Leagues" "Modify". The team fee is generally \$12.00 to \$15.00 per team, per night.

Entering the Location Entry Fee

The locations' expected league entry fee is entered when the location is added to the league. Some leagues charge a single fee to each location, of, say \$40.00, or some leagues charge a fee per team from the location. The number of teams within a location would then determine the fee. This fee can be viewed or changed under "Locations" "Modify".

Recording the Paid Fees

The location entry fee is recorded as paid under "Locations" "Modify". Enter the amount paid here.

Team weekly fees can be recorded in two ways, depending on how stats are entered into Dartman II. If stats are entered manually from score sheets, then the fee paid is recorded under "Team" "Update Stats" at the same time that the stats are entered.

If team weekly fees are to be entered at a later time, or stats are collected with a modem or with Operator cards, then DO NOT go into "Update Stats" to enter the financial information. Instead, use the Browse mode. Go to "Teams" "Browse Team Stats", and when the screen comes up, press <F4> to view the financial information for all teams, and all weeks of play so far. Use the <Tab> key to tab over to the "\$ Col." column, and type in the fees paid here, for each team, each week, as applicable. If this is done regularly, then at the end of the season, your financial income reports will already be complete.

At the End of the Season

All the team weekly fees collected throughout the season, less any expenses incurred by the operator, are distributed to all the league members at the end of the season. Commonly, this is done at an End-of-Season Banquet.

Dartman II can calculate this for you in a report called "End of Season Split", found under "Reports" Financial". It will calculate the total expected income for the league season, subtract any expenses you record, and split the remaining money evenly between all players, also taking into account any unpaid team fees.

The total expected income for the season is determined by the following formula:

$$(\text{Team weekly fee}) \times (\text{number of teams}) \times (\text{Number of weeks in league}) = \text{Expected Income}$$

Adding In your Expenses

When "End of Season Split" is selected from the "Reports" menu, The following screen appears:

Dartman II, Version V1.084
(c) Arachnid, Inc.

End of Season			
Expenses			
Patches	\$50.00	Total Income	\$1,200.00
Trophies	\$190.00	Adjusted Income	\$660.00
Banquet	\$300.00	% of Adjusted	
Other1	\$0.00	Income to pay	
Other2	\$0.00	out for losses ?	0
Misc	\$0.00		" Ok "

<F1> Help

League Selected: COMBO3

This screen allows you to enter all your league expenses for the season, and Dartman II will deduct them to give you an adjusted income to use for payouts.

Note: The league entry fee which is paid by the location is not included in the end of season split. Also, to promote goodwill some operators will pay for the banquet, or donate to the total accumulated income.

Payouts are generally based on the number of wins, though you can also payout for losses if you like. Dartman II will calculate the exact payout per player, depending on what you choose as far as wins or losses and the payout percentage for losses.

Paying out for losses should be considered when there is a very uneven distribution of wins (especially in leagues of 8 teams or less which are too small to group into skill divisions). This makes the payout more fair for all teams.

```

*****
* End of Season Split Report *
*****

** Expenses **
Patches      50.00 +
Trophies     190.00 +
Banquet      300.00 +
Other1        0.00 +
Other2        0.00 +
Misc          0.00 +
-----
Total        540.00

** Expected Income **
Teams        10 x
Weekly Fee   12.00 x
Weeks in Season
-----
Total       1200.00

Adj. Income
-----
Total        660.00

( Actual income was $1140.00 )

** Wins **
Total payout 660.00
Total Wins   548
$ / Win      1.20

** Losses **
Total payout 0.00
Total Losses 529
$ / Loss     0.00

Team      Wins  Totl Amt  Losses  Totl Amt  Team Poss.  Team Oues  Team Payout  Player Payout
-----
CLARAS KIDS      55  66.24   55  0.00  66.24    24.00    42.24    10.56
COCKTAILS I      59  71.06   45  0.00  71.06     0.00    71.06    17.76
COCKTAILS II     70  84.31   40  0.00  84.31     0.00    84.31    21.08
FRANKS FOLLIES   56  67.45   48  0.00  67.45    12.00    55.45    13.86
GOLDEN COINS I   59  71.06   51  0.00  71.06     0.00    71.06    17.76
GOLDEN COINS II  51  61.42   59  0.00  61.42    12.00    49.42    12.36
SHARPSHOOTERS   42  50.58   68  0.00  50.58     0.00    50.58    12.65
THE HORNETS      47  56.61   52  0.00  56.61    12.00    44.61    11.15
ZAGARRIOS I      44  52.99   66  0.00  52.99     0.00    52.99    13.25
ZAGARRIOS II     65  78.28   45  0.00  78.28     0.00    78.28    19.57
    
```

If the payout is based on wins alone, then the Adjusted income is divided by the total number of wins, and distributed accordingly.

If the payout is based on a percentage of wins and losses, say 80% for wins and 20% for losses, then the adjusted income would be multiplied by each percentage separately, then divided by the total wins and losses, respectively.

Keeping Track of Substitute Players

In a large league, the list of substitutes can become long, and subs can end up shooting several times, sometimes for more than one team. Some league operators have certain rules governing their substitutes, and keeping track of their activity can become very important.

Examples of some of the rules set by league operators are as follows:

Subs may only shoot for one team

If a sub shoots for a team more than 3 times, he/she becomes a permanent member of that team, and may not sub for any other team after that.

Subs may not attend the league banquet.

If a sub shoots a given number of times during the season, he/she may attend the league banquet, and may be eligible for rewards for their feats.

These types of rules for substitutes may be adopted by the league operator, and if there are set rules to follow, the operator needs an easy way to track the subs' activity.

Dartman II can print a substitutes list, providing the player files haven't been altered in the "Team Subbed for" column, and they have been entered correctly. From the main menu, go to "Lists" and then to "Substitutes".

The name of every person who has ever subbed in the league will be printed, whether they are listed under the Subs team or a regular team. Dartman II uses the "Team Subbed For" column in the player stats to perform this sort. The player name will be listed, followed by every date in which they subbed for a team, and the name of that team. Sub activity can easily be monitored with this list.

** Substitute List **

Player, Team	Team subbed for:	Date:	Game:
League: COMBO1, SAMPLE COMBO LEAGUE			
ABIGALE KARNES, SUBS	FRANKS FOLLIES	02/27/95	301o
	FRANKS FOLLIES, COMB	02/27/95	Crick
	FRANKS FOLLIES	03/23/95	301o
	CLARAS KIDS	03/23/95	Crick
Total games: 4			
BOB PRICE, GOLDEN COINS I	GOLDEN COINS I	02/09/95	301o
	GOLDEN COINS I	02/09/95	Crick
Total games: 2			
DEBBIE JONES, THE HORNETS	THE HORNETS	03/16/95	301o
	THE HORNETS	03/16/95	Crick
Total games: 2			
GEARLD KRAMER, SHARPSHOOTERS	SHARPSHOOTERS	03/02/95	301o
	SHARPSHOOTERS	03/02/95	Crick
Total games: 2			
JILL PETRI, SUBS	SHARPSHOOTERS	03/23/95	301o
	SHARPSHOOTERS	03/23/95	Crick
Total games: 2			
MARK MYERS, SHARPSHOOTERS	SHARPSHOOTERS	02/16/95	301o
	SHARPSHOOTERS	02/16/95	Crick
Total games: 2			
MARY BILLIAN, SUBS	COCKTAILS	03/23/95	301o
	COCKTAILS	03/23/95	Crick
Total games: 2			

Some league operators prefer to change their subs' team name from the team "Subs" to the actual team they subbed for, so that the sub will appear with the other team members on the weekly report. This can be done manually in "Edit Received Data" or in the browse mode, without actually adding the sub to the team. If this is done, however, do not alter the "Team Subbed for" column in the stats, or they will not appear on the Substitutes list. ✍

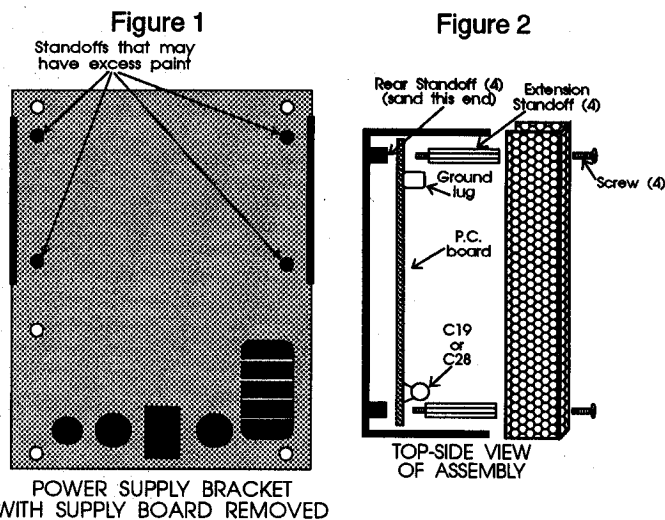
Service Bulletin: Power Supply P.C. Board Grounding Problems



A possible problem with the grounding of the switching power supply P.C. board currently used in Galaxy and 6500 series dart games has been uncovered. Symptoms of the problem may be:

- » GALAXY - Game resetting or reinitializing frequently, when no significant voltage fluctuations are present.
- » 6500 SERIES - Reports of game lockups.

This problem is caused by excess paint on the standoffs on the back portion of the power supply chassis that the power supply P.C. board mounts to. These standoffs ground the P.C. board, and the paint must be removed to insure proper grounding of the board. If the standoffs are covered with paint, they act as an insulator to the earth ground on the power supply. (See Figure 1)



WARNING: UNPLUG GAME FROM WALL OUTLET BEFORE ATTEMPTING SERVICE!!!

Remedy:

- » Remove the front cover of the power supply, by removing the 4 screws that go into the extension standoffs on the P.C. board.
- » Remove the extension standoffs and remove the P.C. board to expose the rear standoffs.
- » Use an emery cloth or sandpaper to sand off the paint on the ends of the rear standoffs, and reattach the P.C. board and extension standoffs. (See Figure 2) **CAUTION:** Be careful not to over-tighten the extension standoffs, as breakage may result.
- » Test the ground connection - use an ohmmeter and check continuity between the ground lug on the power cord and the ground lug near the top-right mounting hole, and the capacitor (C19 or C28) near the top-left mounting hole of the power supply board. Check the capacitor leg that is closest to the mounting hole. Reattach the power supply cover with the 4 screws.

Analog Power Supplies

Similar symptoms can also occur with the older style, analog power supplies. There are two screws with star washers which go through the center of the P.C. board, and screw into the 8900 mfd pedestal capacitor below. Please make sure that these screws are tight, and that the P.C. board is fastened securely to the capacitor.

If you have any questions, please call Arachnid, Inc. at 1-800-435-8319, between the hours of 8 a.m. and 5 p.m. CST, and ask for Technical Service. ✱

The Archives: Service Information, Past and Present... for Galaxy Dart Games used in League Play



Modem Collection Problems Caused by Hardware - Identifying the Cause

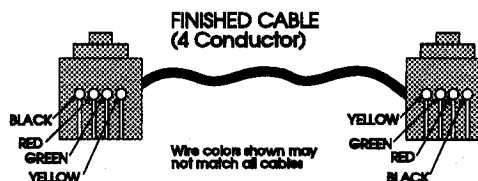
Auto answer is set up at the computer, you go home, and come in the next morning, only to find that a few of your locations failed their collections. Passwords are correct, the clock settings on the games and computer are the same, and several other locations collected successfully. Why did these locations fail?

Aside from the various setup parameters in both Dartman II and the Galaxy games that can cause problems with collections when they are incorrect or changed, there are several other external factors that can cause intermittent problems with collections.

Modem Failures - Some modems on the market are not hardy enough to take the voltage fluctuations that can occur in bar situations. There are compressors, rheostats, sound systems for bands and DJ's, poor electrical wiring, etc. that can cause these fluctuations to occur. When this happens, the modem may "lock up" and not answer. Unplugging the modem and plugging it back in, as well as resetting the Galaxy, may be all it takes to fix it, though in extreme situations, the modem may be permanently damaged and may have to be replaced. If you are unsure of the hardness of the modem type you are using, contact Arachnid for assistance. We have tested many modems and have compiled a list of acceptable brands. (Also see Tech Tips, Winter '94 for a listing.)

Poor Phone Cable Connections - these can occur at the incoming line, or between games. When the entire collection from a location fails, the location's incoming line is suspect. When data is retrieved from one or more machines, but not all of them, then the cable between games is suspect. It is important to give each game a different machine name, such as Foxys I, Foxys II, etc. so that it can be determined which game is exhibiting a problem. It may be necessary to replace the modular connector ends on the cables, as this is usually where the problem is. Be sure to install the connectors in the proper direction.

When a cable has a male connector attached to each end, as is done with game-to-game networking, the wires must go straight through. When you look at the ends, a straight through connection will appear to be mirrored. This is the correct way to install the connectors.



Phone Line Interference & Call Waiting - Interference or "noise" on the existing phone line can also cause collections to fail. There may not be any way to control if or when this may happen. Phone line filters may help in some cases, but they only provide limited protection. Other phones and devices connected to the same line may also cause weakening or interference. Wiring the game directly to the line source rather than at an extension may help. Also, if you can actually hear interference, disconnect each item connected to the phone line, one at a time, while listening at the Galaxy game. Some other device may be defective and may be introducing noise into the phone line.

Call waiting can also interfere in the same way that noise can, if another call comes in to the line during a modem transmission.

Service Tip...Using an External Monitor with a Galaxy - Wavy Picture Problems

If an external monitor or T.V. is hooked up to a Galaxy in addition to the internal monitor, some games may exhibit a wavy picture on one or both screens. The remedy for this is to change R13 on the Main P. C. board from a 4.7K, 1/4 watt resistor to a 2.2K, 1/4 watt.

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

IN THE NEXT ISSUE OF ARACHNID TECH TIPS: Promoting Dart Play in the Summer // Maintianing an Accurate Phone List in DM2 // and Much More !!!

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