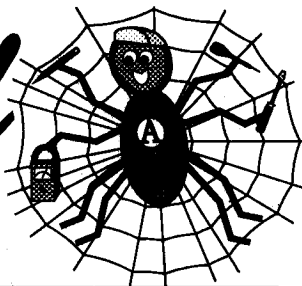


Arachnid Tech. Tips



SPRING 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.

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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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NEW! LOW BALL CRICKET now Available for GALAXY - and new Test/Setup Mode Features

Arachnid, Inc. has introduced a new game; **Low Ball Cricket**. This is an exciting new twist of the original Cricket game, designed for faster play and more coin drop. The numbers 1 thru 6 and the bull are used. The bull scores 8 points (4 and 8 if the double bull is used), and a player can win the game by scoring a "WICKET" (closing the previously unmarked triple 1, 2, and 3 all in the same round. This is called a "Wicket Out". When the point spread limit is used, Low Ball Cricket has a 20 point limit; a player cannot score more than 20 points over his opponent.

The Low Ball software, labeled Version 2.4, may be purchased from your Arachnid Distributor.

When installing the new Low Ball chip, go to "Game Credits Setup Menu" in the Test/Setup Mode, and set the price for Low Ball Cricket. Also check the "Coin Meter Assignments" for proper setup. (This is described in the next article.)

Test/Setup Enhancements for the Low Ball Cricket Chip Version 2.4

New Test/Setup mode Features - The Test/Setup mode has been re-organized in the Version 2.4 Low Ball chip. There are two new "Main Menu" selections; "Sounds Setup" and "Top Gun Setup". The features accessed by these selections are not new, they have just been put into a new field so they are easier to find. Under "Coin Slot Assignment Menu" there is a new item called "Coin Meter Assignments". This feature allows you to select the number of mechanical coin meter clicks given per coin, per coin slot. These are normally set to 1.00 which allows the meter to click once for each coin dropped. Foreign operators may use this feature more often than American operators. Check this field if a new version 2.4 chip is installed, to be sure the meter will increment properly.

There is also a new "Arachnet Diagnostic Data" selection under the "Arachnet Setup Menu" under "Communications". This field was designed to analyze the condition of the data transmitted from the games. It can be used to determine whether a game is transmitting good or bad information. This data should only be analyzed with the assistance of an Arachnid Service Technician. There are 6 fields that can be checked:

BAD PACKETS - counts sets of information that are flawed, to help indicate overall accuracy and integrity of the game network.

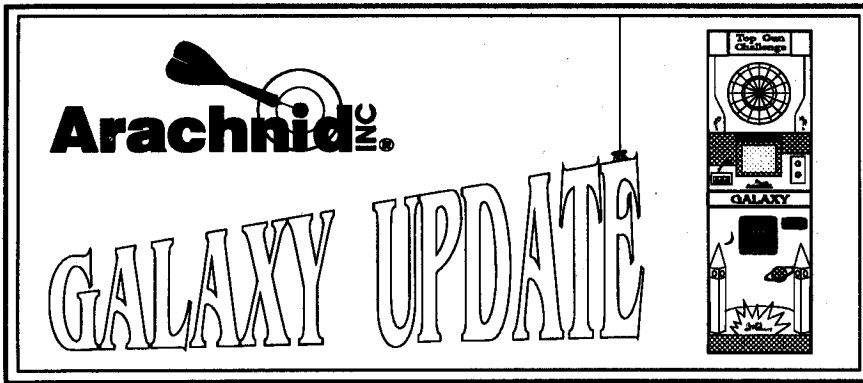
CHBRCVERROR - counts bits of information transmitted from game to game which contained errors.

CHARCVERROR - counts bits of information transmitted from the modem which contained errors.

PKTCOUNTER - counts total "packets" transferred on the network

TOTALRETRIES - counts how often the network retries sending information if not sent properly the first time.

STATE - displays variables useful to Arachnid in monitoring the internal state of the system.



Many operators and technicians have commented that they have not received copies of the paperwork to go with the latest updates. Since the instructions are very important, we are providing all operators with this condensed reprint. *Please pass it along to your Technical Department.*

We have incorporated many of your ideas and suggestions into new software upgrades for both the GALAXY game (upgraded to Version 2.0) and the DARTMAN II League Management Program (upgraded to Version 1.083).

These upgrades provide the most comprehensive league handling information available today.

PLEASE RETURN ALL OLD PROGRAM CHIPS TO ARACHNID, INC., USING RETURN AUTHORIZATION #9999. MAKE SURE THIS NUMBER IS MARKED CLEARLY ON THE OUTSIDE OF THE SHIPPING PACKAGE.

GALAXY (New) Version 2.0 Features:

COMBO LEAGUES - Galaxy now runs combo leagues more efficiently. Up to 5 different game types may be played in one match.

WINS AND ASSISTS are now included in League Cricket when 2 players on a team are shooting on the same number, in accordance with new N.D.A. rules for calculating S.P.R.E. averages.

TOP GUN CHALLENGE now displays the number of times a person has played.

Top gun player list expiration time is now operator-selectable. Choose from 1 thru 99 days.

The operator can now choose to have the Top Gun players enter a personal "pin" number. This insures that the actual player listed is the person playing the game.

If the player-selectable bullseye is used, you only need to designate the bullseye option once before each game set in League Play or Top Gun.

Faster response time for card collection and game setup.

Game password entry has been improved. The password can now be any length up to 8 characters.

The game will now check for a password on your setup card to prevent unauthorized tampering with game setup and spider writer screens.

Coins are now counted by the mechanical counters after a short delay to insure crediting reliability.

Debug Mode has been added to the game to display the raw target interface data in real time. This mode is a useful diagnostic tool for service technicians. The Debug Mode codes and instructions are listed on a separate sheet.

GALAXY Program Chip (V2.0) Installation

VERY IMPORTANT! All GALAXY and DARTMAN II upgrades absolutely MUST be performed at the same time. Stats produced by the new GALAXY program chip will not work with the old DARTMAN II software. Likewise, the new DARTMAN II software provided in this update will not work with stats collected using the older GALAXY chip versions. If you haven't received the new updates, call Arachnid, Inc. at 1-800-435-8319 or 1-815-654-0212.

WARNING: UNPLUG ELECTRICAL POWER BEFORE INSTALLING THE PROGRAM CHIPS.

1. If you wish to salvage the Top Gun lists, copy the names to a sheet of paper at this time.
2. Remove the old GALAXY program chip at location U10 on the main P.C. board.

3. Install the new GALAXY program chip (V2.0) in its place. Be sure the notch on the top end of the chip is pointing toward the "connector end" of the P.C. board.
4. Perform Smart Target chip installation before powering up the game.

SMART TARGET Program Chip (V4.1) Installation

1. Remove the old SMART TARGET program chip at location U1 on the SMART TARGET P.C. board.
2. Install the new SMART TARGET program chip (V4.1) in its place. Be sure the notch on the top end of the chip is pointing toward the phone jack.
3. Check to be sure that capacitor C10 has been removed. It is located next to crystal (Y1). If C10 does not exist on your SMART TARGET board, then remove any capacitor that might be soldered onto the back side of the board.
4. Look at resistor number R1. The color bands should be yellow, violet, black, gold. If not, install a 47 ohm resistor at location R1.
5. Power up the game, and run through the Test/Setup Mode to check all game parameters.

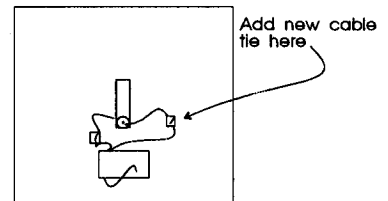
ALSO RESET LEAGUE VARIABLES AND TOP GUN LISTS. Check location name and clock for proper settings.

CHECKLIST OF GALAXY UPDATES

MISSED DART DETECTOR Modifications

For optimum performance of the Missed Dart Detector, proceed as follows:

1. The gold contacts on the Missed Dart Detector must be properly aligned, center to center, at all angles.
2. In some cases, it may be necessary to clean the contacts. Wiping with a soft, clean cloth on each contact point may be sufficient.
3. The missed dart detector can be set to be more sensitive now. The plastic suspension bands may have become bent as a result of sliding the Missed Dart Detector sensitivity adjuster down toward the contacts. In most cases the suspension bands can be straightened by rubbing the band with a blunt object such as a pencil. Rub the back of the bands up and down from underneath until straightened. When finished, carefully check the alignment of the contacts as described in Step 1.
4. The two wires connecting the Missed Dart Detector to the Smart Target Board must be separated and tied away from the contacts. If this is not the case on your darthead, carefully pull the wires apart and fasten them loosely at least 6" away, on either side of the contact area.



Other GALAXY Modifications

1. Daughter board (brown-out circuitry) should be in place at the U3 position on the Main Board.
2. If the Main Board is Revision F or earlier, check to make sure that there are jumpers soldered on the back of the PC board. This will be noticeable under the dip switches. Communications will not function if modifications have not been made.
3. Check for newest software (Version 2.0) on the Main Board.
4. Check for newest software on the SMART TARGET (Version 4.1), and that C10 has been removed (On SMART TARGET boards prior to Version G, C10 was soldered to the back of the board and not labeled).
5. Make sure that R1 on the SMART TARGET board is 47 ohms. If not, replace with a 47 ohm resistor.
6. Earlier methods of darthead mounting could cause the darthead to be over-tightened. GALAXY games with serial numbers prior to 5640 were shipped with metal retaining clips to hold the bottom of the darthead. These games will need to have the clips removed and the bottom of the darthead secured with 1/4"-20 bolts and nuts, so the darthead is secured well on all four corners.
7. Spacers should be present between the darthead bolts and the front door. These spacers will prevent the darthead from being over-tightened. They can be ordered from your distributor using Arachnid part number 27068.

If there are any questions, call Arachnid, Inc. at 1-800-435-8319, and ask for Technical Service.

NEW DARTMAN II with STAT CARD PROGRAM Version 1.083

DARTMAN II V1.083 Features:

- ☒ **THE STAT CARD PROGRAM IS NOW INTERGRATED INTO DARTMAN II.** The Stat Card program has been enhanced to retrieve league, team, and player information from DARTMAN II. No more typing team information twice! No more typing errors!
- ☒ Updated software guides the user through league setup procedures. Once a new league is set up, DARTMAN II will prompt the user for location, team, and player information. Once the user has entered location and other team information, DARTMAN II will bring up the schedule menu if desired.
- ☒ Location and player names and addresses are stored in Master files which are now accessible when locations and players are added to leagues.
- ☒ Several industry standard printer drivers can be selected from the configuration screen. There is no need to manually set your printer to condensed print.
- ☒ Modem collection of league stats is fully operational using a 2400 baud, Hayes compatible modem. A phone list can be generated and easily edited for all league locations. Password protection is included. A one time default password can be set up in the DARTMAN II configuration screen, or each location's password can be customized as required.

DARTMAN II (V1.083) Installation

IMPORTANT! DARTMAN II, Version 1.07 must already be installed! If you haven't updated to Version 1.07, be sure to do so before updating to Version 1.083.

ALSO IMPORTANT! BACKUP YOUR "DM2\DATA" DIRECTORY OR COPY ALL FILES CONTAINED IN IT TO A NEW DIRECTORY BEFORE INSTALLING DARTMAN II V1.083.

DARTMAN II, Version 1.083 is easily installed as follows.

Place the Update disk (3.5" or 5.25") into your drive and:

Type: **A: or B:** <Enter> (depending on which disk drive you are using)

Type: **UPDATE C:** <Enter> (if C: is the drive where your current DARTMAN II is loaded)

DARTMAN II Version 1.07 will then be updated to Version 1.083.

After the update is complete, and DARTMAN II is started, the configuration screen will be displayed so you can select a printer driver and set a default password. If your printer isn't on the list, select the type that is most similar. For example, most printers can act like Epson printers, so select EPSON.PRN. Otherwise, select NONE. If NONE is selected, you will have to set the printer to Condensed Mode (17 characters per inch) manually when printing reports that have feats and schedules.

The default password will not be placed in existing location fields. Go to [LOCATIONS] [MODIFY] to enter passwords for each existing location. All new locations entered hereafter will automatically show the default password, which can be changed during [LOCATION] [ADD] if desired.

IF THE LOCATION PASSWORD IN DARTMAN II DOES NOT MATCH THE GALAXY GAME PASSWORD AT THE LOCATION, DATA CANNOT BE COLLECTED WITH A MODEM.

The help screens have been updated, so check them for further details on all aspects of using DARTMAN II.

Darthead Debug Mode Codes

(FOR TECHNICIANS)

These codes can be used for darthead troubleshooting when this option is selected from the Test/Setup Mode on the Galaxy game. Each darthead segment displays a number when hit that should match the one listed on the chart. If a number appears that does not correspond to the chart, the technician will determine which segment the number actually does correspond to, and use that information to troubleshoot the problem.

The Darthead Debug Mode is initialized through the Test/Setup Mode. Select item 3 on the Main Menu (Hardware Test), then select Darthead Test and follow the screen instructions.

Segments listed in numerical order

SEGMENT NUMBER	INNER	TRIPLE	OUTER	DOUBLE
1	40	39	38	37
2	12	11	10	9
3	4	3	2	1
4	32	31	30	29
5	48	47	46	45
6	24	23	22	21
7	76	75	74	73
8	68	67	66	65
9	56	55	54	53
10	20	19	18	17
11	64	63	62	61
12	52	51	50	49
13	28	27	26	25
14	60	59	58	57
15	16	15	14	13
16	72	71	70	69
17	8	7	6	5
18	36	35	34	33
19	80	79	78	77
20	44	43	42	41

BULL INNER 82
 BULL OUTER 81
 FINGER TOUCH 97
 MISSED DART 96
 STUCK DART 0

Segments listed in order they appear on the darthead (counterclockwise from bottom)

DOUBLE	OUTER	TRIPLE	INNER	SEGMENT NUMBER
1	2	3	4	3
5	6	7	8	17
9	10	11	12	2
13	14	15	16	15
17	18	19	20	10
21	22	23	24	6
25	26	27	28	13
29	30	31	32	4
33	34	35	36	18
37	38	39	40	1
41	42	43	44	20
45	46	47	48	5
49	50	51	52	12
53	54	55	56	9
57	58	59	60	14
61	62	63	64	11
65	66	67	68	8
69	70	71	72	16
73	74	75	76	7
77	78	79	80	19

BULL INNER 82
 BULL OUTER 81
 FINGER TOUCH 97
 MISSED DART 96
 STUCK DART 0


NOTE: The screen displays numbers from right to left. A stuck dart will first display the code number "0", then will display the code number for the segment that is stuck.

Galaxy Series: Service Information and Bulletins




Concerning 6300T to Galaxy Conversion Kits

SERVICE BULLETIN #21193 Main P.C. Board Clearance

Due to minor variances in 6300T construction over the years, it may be necessary to relocate the Main Board standoffs slightly to better accomodate the Galaxy Main P.C. Board. The Modem area and/or the P.C. board itself may rub against the back of the cabinet. If this occurs, redrill all four standoff holes in the component tray forward 1/2" (toward the front of the game). Use a 5/16" drill bit, and drill the holes app. 1/2" deep. Remove the standoffs from their present locations and press them into the new holes. A nutdriver that fits over the standoff can be used to push the standoff into the new hole, if necessary. 

Smart Target Board; Crystal breaking loose

There have been some reports that the legs of the crystal on the Smart Target P.C. Board have broken away from the crystal. To prevent this problem, Arachnid has begun gluing the crystal body down to the P.C. board. This can also be done to existing boards in the field if desired. Use either a hot-melt glue or a silicone adhesive to secure the crystal.

If you have any Smart Target Boards with broken crystal legs, contact your distributor to have the boards repaired and credited properly. 

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




The following tips and suggestions are for installing the new Super Spider Darthead into existing 6300 games. **Remember, older 6000's must first be converted to 6300's before installing a Super Spider Darthead.**

Super Spider Darthead fitting too tightly in a 6300: When installing a Super Spider Darthead on a 6300 game, the darthead may fit too tightly into the existing plastic front. **If this occurs, the opening must be enlarged to ease the pressure on the head.** Otherwise, improper scoring may result. This can be done with a carpet knife, a file, or sander.

Problems replacing U6 on the Main Board for the Super Spider: When a Super Spider Darthead is installed, U15 and U6 must be replaced. U15 is socketed, but U6 is not always socketed. If it is not, then it must be de-soldered from the Main board. Use a low

wattage pen-type iron, and carefully remove the old chip. It may be helpful to clip the legs off the chip and remove the metal pieces one by one. Clear all the holes with a de-soldering tool or solder wick after the pins are out. **Do not overheat the board, as the pads or traces may lift off.** We recommend that you install a socket at this time and solder it in instead of soldering the new chip in directly, to avoid damaging the chip or the board. If after installing both chips, there is any incorrect scoring, check for solder shorts between the pins.

Game scores slowly or "Stuck Segment" appears momentarily: U6 was not replaced. Replace it as described above. 

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: Additional service tips for Galaxy Games // DARTMAN II Information Modem and network tips // and Much More !!!


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