# Dynamo Hockey
## Service Manual and Instructions

See the full Valley Dynamo product line at
**www.valley-dynamo.com**

**Made in RICHLAND HILLS, TEXAS** ★ **USA**

VD/AdTemp.Rev. 02/2013

**Valley-Dynamo Companies**
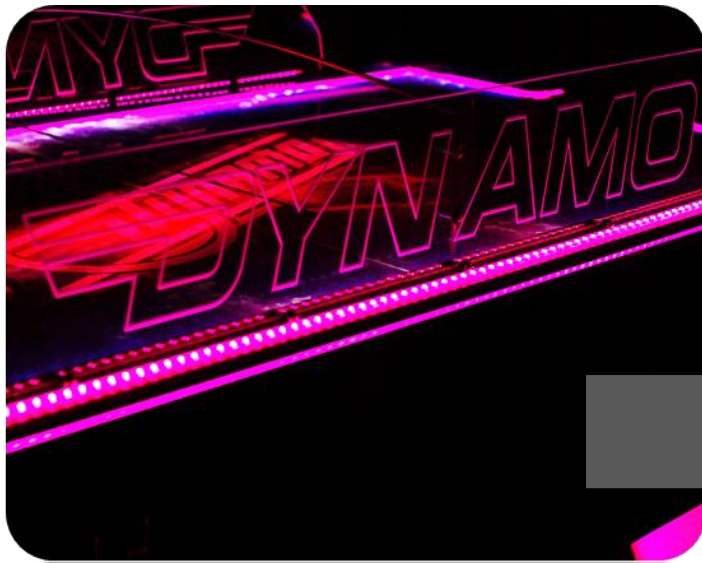
VALLEY Est. 1945 · Dynamo Est. 1973 · CHAMPION SHUFFLEBOARD Est. 1988 RICHLAND HILLS, TEXAS · THE WORLD'S FINEST AMERICAN SHUFFLEBOARD CO. SERIES Est. 1928 · TORNADO Est. 1970 · CONNELLY BILLIARDS Est. 1980 · Sun-Glo CHAMPION SHUFFLEBOARD PRODUCTS Est. 1935

# Contents

**This manual is part # 850400400**
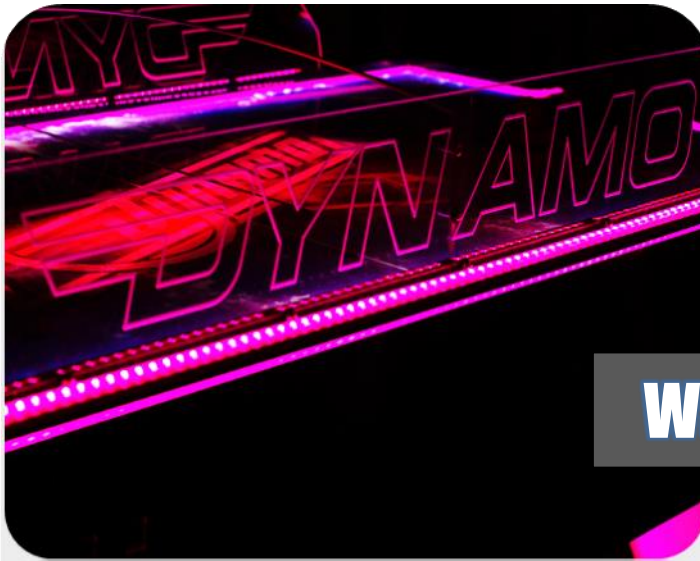
*Valley-Dynamo warrants its new products to be free from defects resulting from faulty manufacture or faulty components under the following terms and conditions:*

## WARRANTY LENGTH
**One year** on Dynamo® Hockey tables. **90 days** on Replacement Parts

## FOR WARRANTY SERVICE
Valley-Dynamo will, at its sole option, repair, upgrade or replace this product in the event of any defect in materials or workmanship during the warranty period.  This shall be Valley-Dynamo's sole obligation, and the customer's sole remedy, for any warranty claim.

Valley-Dynamo will request and you must provide the **complete Model Number & Serial Number of the unit** (not just the last 5 digits), or other proof of purchase such as an invoice or receipt.

**OPERATORS AND END USERS** – While our Tech Support staff is available to assist with diagnosis and troubleshooting of your problem, contact your Distributor for Warranty Service on your equipment.

**DEALERS AND DISTRIBUTORS** – To obtain replacement and an RMA number, contact Valley-Dynamo referencing the Model number and Serial number of the unit and the nature of the problem.  Valley-Dynamo will, at its discretion, send replacement parts and/or issue an RMA for the return of failed parts. To avoid billing issues, request an RMA when the failed part is present or readily available. Credit will be issued only upon receipt and inspection of the RMA.  Valley-Dynamo may send replacement parts or issue an account credit. NO REFUNDS. Valley-Dynamo reserves the right to cancel outstanding RMAs 30 days after issue. Items returned without an RMA will not

be inspected or credited and may be refused or returned at Customer Expense.

**REPLACEMENT PARTS COVERAGE** – Valley-Dynamo warrants replacement parts for <u>90 days from the date of purchase</u>. To obtain a replacement and an RMA number, contact Valley-Dynamo referencing the nature of the problem and provide proof of purchase. Valley-Dynamo will, at its discretion, send replacement parts and/or issue an RMA for the return of failed parts. <u>To avoid billing issues, request an RMA when the failed part is present or readily available.</u> Upon receipt and inspection of the RMA, Valley-Dynamo may send replacement parts or issue an account credit. <u>NO REFUNDS</u>. Valley-Dynamo reserves the right to cancel outstanding RMAs 30 days after issue. Items returned without an RMA will not be inspected or credited and may be refused or returned at Customer Expense.

**SCOPE OF COVERAGE**
Note that our warranty is not an unconditional guarantee for the duration. Dynamo products are made to our exacting standards and known for their durability, but are not indestructible and may require periodic maintenance in order to function properly. The following are not covered by the warranty.

1) Shipping or transport damage
2) Normal wear and tear
3) Damage or deterioration resulting from neglect, misuse, accident, liquid spills, improper installation, abuse, pets, burns or mishandling

> *__Hockey Playfields -__ The most frequent cause of warpage or laminate separation on a playfield is a liquid spill. Liquid spills are not a covered warranty failure. If warranty failure is suspected, for evaluation Valley-Dynamo will require return of the damaged playfield or at minimum at least 12 square feet (4' x 3') of the damaged section.* <u>*No credit will be issued for a Playfield damaged by a liquid spill, or for incoming or outgoing freight for the replacement or returned playfield.*</u>

4) Incidental or consequential damage (except at Valley-Dynamo's discretion).
5) Removal or installation charges.
6) Shipping charges except at Valley-Dynamo's discretion.
7) Unauthorized modification of the product.
8) Use of this product with unapproved parts, conversion kits or accessories.
9) Damage from fire, flood, lightning or other acts of nature

**EXCLUSION OF DAMAGES**

Valley-Dynamo's sole obligation and liability under this warranty is limited to the repair or replacement of a defective product at our option. Valley-Dynamo shall not, in any event, be liable for any incidental or consequential damages resulting from interruption of service, loss of business or revenue, or for liability in tort relating to this product or resulting from its use or possession.

## LIMITATIONS OF IMPLIED WARRANTIES
There are no other warranties, expressed or implied, including but not limited to those of merchantability, revenue generation, or fitness for a particular purpose. The duration of implied warranties is limited to the period specified in the Warranty Length section above.

## TO OBTAIN TECHNICAL SUPPORT
Please check the resources available at www.valleydynamoparts.com or contact TECHHELP@valley-dynamo.com.

---

### EU Declaration of Conformity
in accordance with ISO/IEC 17050

Valley Dynamo DoC#: 0001

*Manufactured and Distributed by:*
Valley-Dynamo LLP
7115 Belton Street
Richland Hills, TX 76118

Amusement Machine, Model DH-100 Air Hockey Table, is compliant with the CE directives and standards listed below.

Directives:
    Electromagnetic Compatibility (2014/30/EU)
    Low-Voltage (2014/35/EU)
Standards:
    EMC Immunity: EN/IEC 61000-6-1:2016
    EMC Emissions: EN/IEC 61000-6-3:2011
    Appliance Safety: EN/IEC 60335-1:2014
    Amusement Machine Safety: EN/IEC 60335-2-82:2017

*This product was tested by an ISO 17025 accredited laboratory and was manufactured using an internal quality system.*

By

_____ Signature _/ - / - / 9_ Date

Mike Prendergast
Technical Manager
Valley-Dynamo LLP, USA
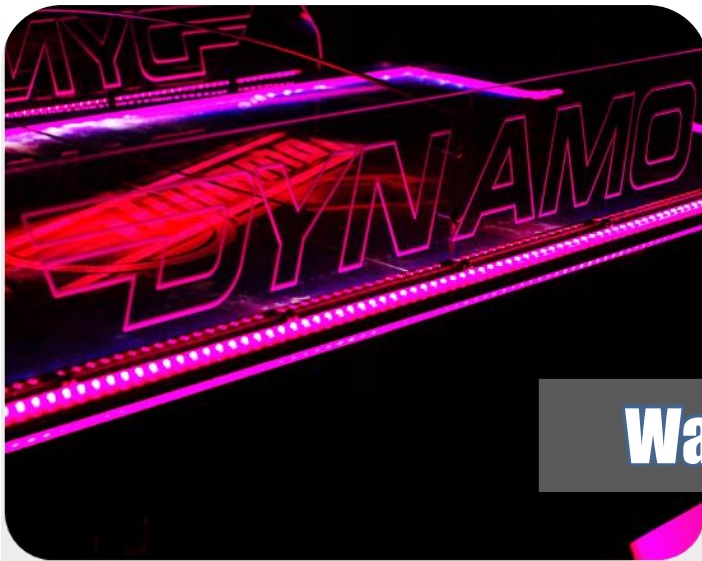
# Warnings and Notices

**USE OF NON-DYNAMO PARTS OR CIRCUIT MODIFICATIONS MAY CAUSE SERIOUS INJURY OR EQUIPMENT DAMAGE! USE ONLY GENUINE DYNAMO AUTHORIZED PARTS.**

- For safety and reliability, substitute parts and modifications are not recommended.
- Substitute parts or modifications may void FCC type acceptance.
- Use only authorized components and parts. Failure to do so will void warranty and may result in incorrect and/or unsafe operation.

**WARNING**

- Plug this game into a properly grounded outlet to prevent shock hazards and assure proper game operation.
- Do not use an adapter plug to defeat the power cord's grounding pin.
- Do not cut off ground pin.

Information in this manual is subject to change without notice. Dynamo reserves the right to make improvements in the equipment function, design or components as process in the engineering or manufacturing methods may warrant.
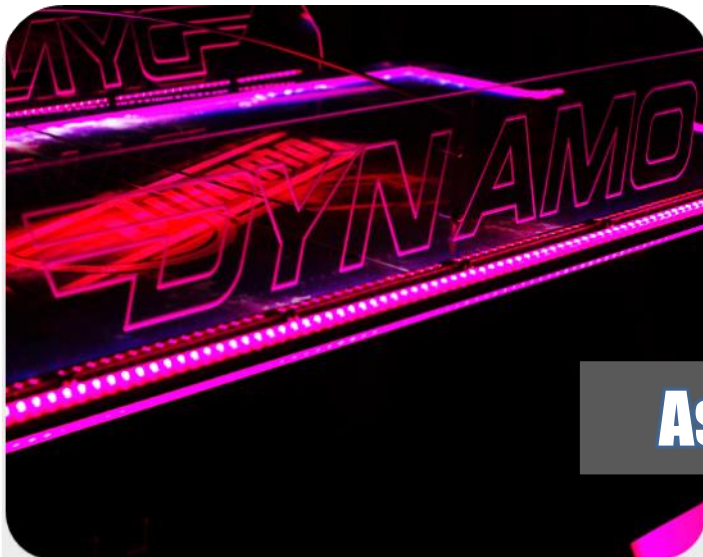
**FOR GENUINE DYNAMO PARTS AND SERVICE CONTACT YOUR LOCAL AUTHORIZED DYNAMO DISTRIBUTOR.**

**PARTS CAN ALSO BE ORDERED AT WWW.VALLEYDYNAMOPARTS.COM**

For Standard US Tables:
120v AC -   Frequency : 60Hz – Amps : 5A

These values can vary on export tables based on your country's requirements.  Refer to labeling on table or contact Valley-Dynamo Tech Support

Congratulations on purchasing a Dynamo Hockey table -
the finest professional grade hockey table on the market.

**BE SAFE: it is strongly recommended that you have at least two people to safely set up our hockey tables.**

Lay the box flat on the floor, mindful of the section labeled "This Side Up." Cut the banding straps and remove the top portion of the box completely. Lower the sides of the box bottom by cutting or tearing vertically at all of the corners.

<u>**ON COIN TABLES**</u>: The keys for the goal end, coin door and access/service door are located in the coin return.

<u>**ON NON-COIN TABLES**</u>: The keys for the goal end and access/service door are found on the playfield pad, under the cardboard. Check packing material before discarding!

Open the service door to remove your pucks, mallets, sandpaper and manual.

The hockey table should now be carefully lifted onto its side (the coin housing assembly is on the opposite side, and will be pointing towards the ceiling when the table has been lifted). This procedure should be accomplished by two people tilting the table from the **ends**, **not lifting from one side. The table could land on you and cause injury if you lose your grip while lifting the table from its side.**

**Removal of the legs and set up.**
1.  Using the access door key, open the access door on the bottom of the table.
2.  Using a ½" socket or wrench, remove the bolt and woodblock that secures the legs during shipping.
3.  Pull the legs on the right side out of their holding bracket and then push them up at a 45-degree angle. Then pull one leg out at a time from the left side. Next remove both right legs. This step is necessary due to the blower motor.
4.  Replace the wooden block and bolt that secured the legs for future use.

5. Replace the trap door and lock it.
6. Bolt the legs onto the bottom of the table using a ½" socket wrench or straight slot screw driver.
7. Screw the leg leveler completely into the legs and turn the table upright.
8. Position and level the table, using an adjustable wrench.

**For removal and storage of the legs follow steps 1-6 in reverse order.**

**Fire Storm and Short Shot tables include side shields. They can be found inside the box with the table. Side Shields are available as an accessory for all Dynamo coin and Pro Style tables. Install the shields at this time if needed.**

**If your table is equipped with an Overhead Lighting and Scoring unit, install the unit at this time using the instructions included with the unit.**

**If your table is not equipped with an Overhead, it should come with a side-mount scoring unit.**
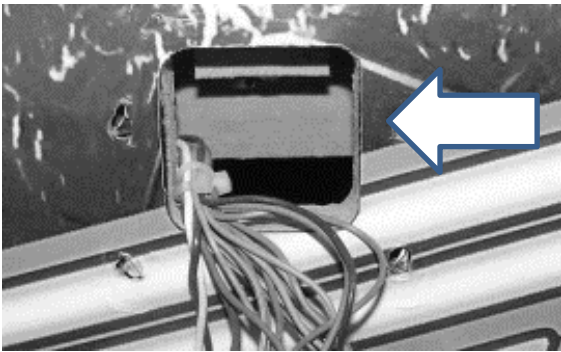


**On the OPPOSITE SIDE of the table from the coin door and service door, at the center line of the playfield, is this square opening, surrounded by four holes.**

The three connectors used for the side mount display are attached to the side of the table with removable tape. Plug these connectors into the Display Unit

Align the display unit housing with the center bolt in the aluminum top rail, conceal all exposed wiring inside the table cavity, and attach the housing to the wood using the screws and washers provided.

Open the access door and locate the power cord which is coiled and lying on the floor of the access area. Locate the hole in the floor and feed the cord through this hole. Near the coin door is a label indicating the operating voltage of your table. Note also that your outlet must have a working ground. Do not attempt to bypass the grounding feature of your outlet. Plug the table in after verifying that the voltage is correct.

Located in the access area of coin hockey tables is a toggle switch labeled "on" and "off." You will now need to toggle this switch into the "on" position. At this point the side-mount display unit will illuminate.
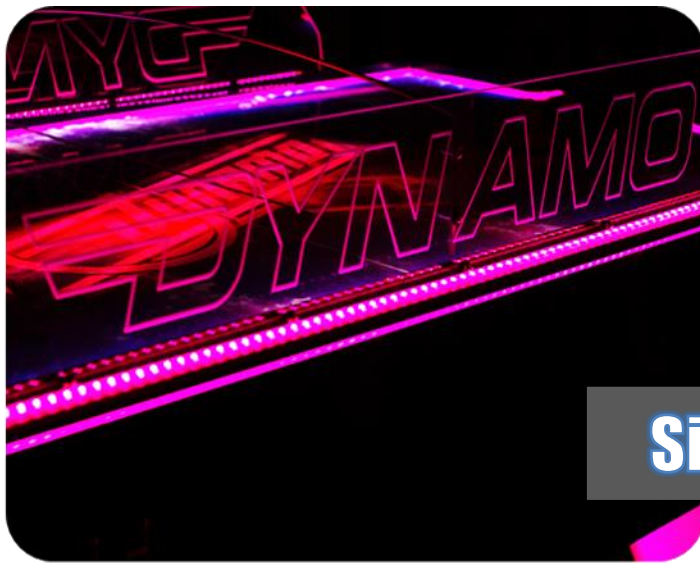
# Side-Shield Installation

Dynamo's 3-piece Shield set will help to keep the puck on the table and discourage the placement of drinks on the table's side rails. While it will create a safer environment, no shield has been invented that will keep every puck on every playfield every time. Exercise caution during play, keep hands and fingers clear of the playfield, and follow the instructions from Dynamo Caution Label, part # 850404030

CAUTION-TO PREVENT PUCK FROM FLYING OFF TABLE AND CAUSING POSSIBLE INJURY, BE SURE THE PUCK IS LAYING FLAT ON THE TABLE SURFACE BEFORE STRIKING WITH MALLET AND USE ONLY DYNAMO MANUFACTURED PARTS.

HOOK THE TOP OF THE SIDE SHELDS AS SHOWN

REPEAT ON OTHER SIDE TO BUILD "H" PRIOR TO ASSEMBLY ONTO TABLE

TAP HERE TO LOCK BOTTOM OF GROOVE INTO NOTCH
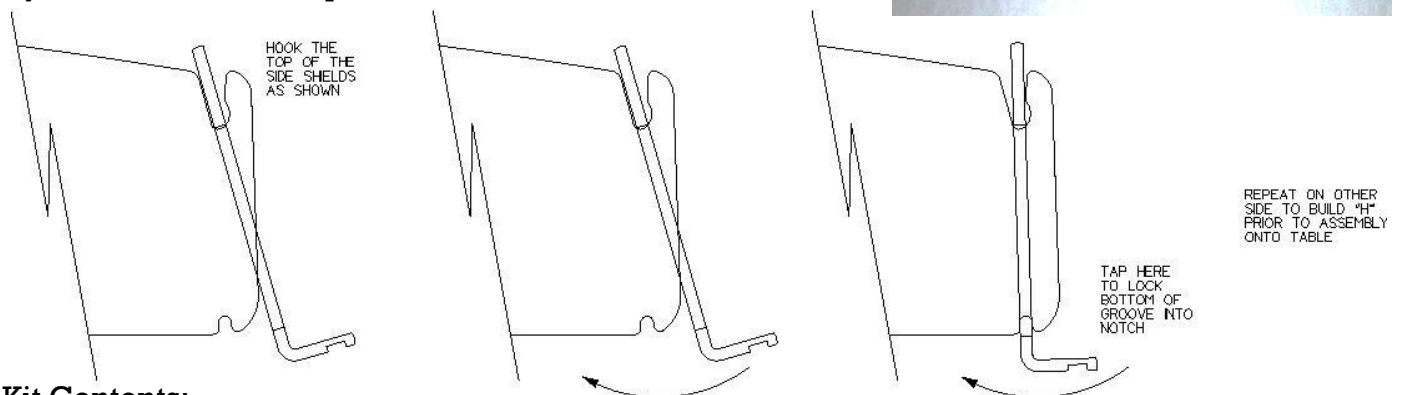
Kit Contents:

- Side Shields          2
- Center Shield          1

1. Snap the side shields into the center shield as shown above to form a single H-shaped unit

2. Remove the bolts from the Side Top Rail, except for the bolt at the very end of each Rail.

3. On any table with LED rail lighting, align the Side Shield over the LED light strip, so the lighting is inside the groove of Side Shield.

4. Mount with the flange of the Shields to the outside.

5. Re-install the Top Rail bolts previously removed
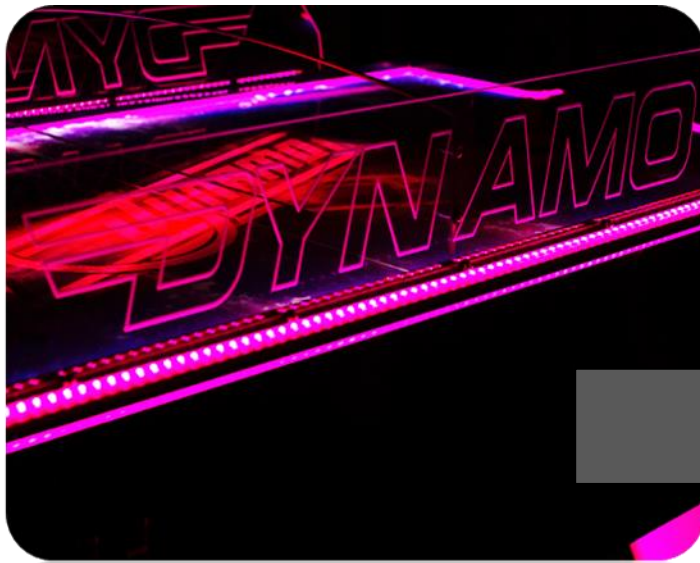
## SCORING

- The first player to score 7 points wins the game.
- A point is scored when the puck enters **and falls into** the goal.
- After a point is scored, the player scored upon receives possession of the puck for the next serve.

## CENTERLINE

- If any part of the puck is on the centerline, either player may hit it.  If the puck is completely within one player's half of the table, not touching the centerline, the opposing player may **not** hit it.  Violation of this rule constitutes a **foul** (forfeiture of possession of the puck).
- It is a foul if a player's mallet **completely** crosses over the centerline.

## PUCK OFF THE TABLE

- When a player offensively strikes the puck and causes it to leave the playing surface, that player is guilty of a **foul**.
- If, however, the puck leaves the table while a defensive player is **blocking** a shot, by moving his mallet sideways, backwards, or not at all, the **offensive** player is guilty of a foul and the defensive player gets a possession of the puck.
- If the defensive player charges **forward** to block a shot, and the puck leaves the table, the defensive player commits a foul and loses possession of the puck.

## LOSS OF MALLET

- It is a foul for a player to lose total control of his mallet.
- It is a foul for a player to "top" the puck by lifting his mallet and placing it on top of the puck.
- It is a foul when a player's hand, body or clothing touches the puck while the puck is on the table and in play.

## GOAL TENDING

- If a player's hand, body or clothing touches the puck while the puck is moving in a direct path toward that player's goal, "goaltending" must be called. Goaltending constitutes a **technical foul**, which allows the opponent a **free shot** at the penalized player's unprotected goal.

## 7 SECOND RULE

- A player has 7 seconds to execute a shot, which crosses the centerline.
- The 7 seconds begins as soon as the puck enters and remains on that player's side of the centerline. Violation of this rule is a foul.

## FOULS

- If a player commits a foul and is scored upon in the course of the same play, the goal counts and the penalty is nullified.
- If a foul occurs and the innocent player immediately gains possession of the puck anyway, the referee should simply allow play to continue and not interrupt the game.

## MALLETS AND PUCKS

- Mallets and pucks must meet standards and requirements of the U.S. Air-Table Hockey Association.

## TOURNAMENT PLAY

- Tournament play shall begin with a coin toss. The winner has the option of the first serve or choosing which end of the table he prefers. Players then alternate first serves **and** table sides for each subsequent game of that match.

## REFEREE

- A referee should judge each game in tournament play.

## FACE-OFF

- A face-off should be used in a case where the referee is unable to determine which player committed the foul. The puck is placed flat at the center of the table, with the player's mallets allowed no closer than 1/2 inch from the puck. When the referee releases the puck, both players may hit it.

## PENALTIES

- A player committing a **Foul** is penalized by loss of possession of the puck.
- A **Technical Foul** allows the penalized player's opponent one **free shot** at the player's unprotected goal. If the free shot misses, the puck is immediately in play.
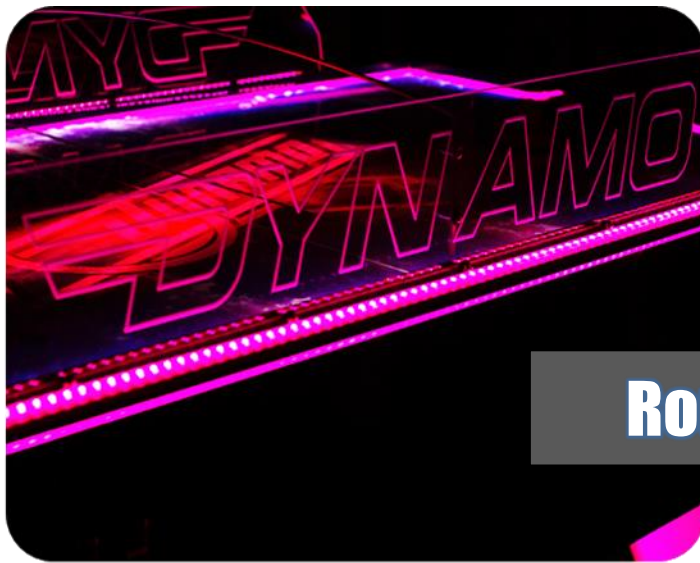
# Routine Maintenance

Follow these suggestions to insure your table's maximum earning power and player appeal over the years to come.

**PUCKS AND MALLETS:** Special pucks and mallets are made for Dynamo Hockey.  The pucks and mallets you receive with your table are superior to any others available.  It is extremely important to use the highest quality pucks and mallets if your table is to play properly and achieve maximum earnings.

It is important to avoid the cheaper, imported pucks, which are slower, lighter, chip more easily, and tend to fly off the table, resulting in loss of play time, player dissatisfaction, and loss of earning.  Because of their inherent instability (i.e.: flying off of the table), there is a risk of player injury when the cheaper pucks are used.

> **Fluorescent puck:** The Dynamo Fluorescent puck (860400090) is made of glass-filled Lexan and was developed specifically for the Dynamo Hockey table.  This deluxe puck had been designed and tested for superior speed, visibility, durability and stability on the table.  The fluorescent Lexan puck is the best puck on the market and we highly recommend its use to insure a high level of earnings and player appeal.

> **White quiet puck:** Also available is our white quiet puck (860400150) made from a softer, noise-reducing material. The quiet puck is recommended in situations where noise reduction is a necessity.

> **Fluorescent mallets:** Our deluxe mallets (860400210) were designed to give the puck the maximum rebound yet absorb the impact and keep it away from the players' hands. This took years of testing and balancing of the chemical formula to get it right. It seems unimportant, but the sooner a player's hands are hurting the sooner they stop playing. This mallet will also outlast the lightweight imports many times over. Be sure to look for the Dynamo logo on your mallets.

The Dynamo approved pucks and mallets are available from a number of parts distributors as well as www.valleydynamoparts.com.  Be sure to specify the Dynamo Deluxe pucks and mallets.  We have added our logo to help identify them for you.

**SANDPAPER:** A piece of adhesive-backed 240-grit sandpaper (980400200) has been included with your table. This should be attached to the side or end of the table, or nearby, so players can sand the puck when it stops floating properly due to small nicks and abrasions.  Do not attach the sandpaper to the back of the metal goal end where it could damage clothing.  Sandpaper discs (980400200) can be obtained from www.valleydynamoparts.com, Dynamo distributors, a hardware store, or from one of the parts companies supplying this industry.  Sandpaper, like pucks and mallets, should be replaced when showing excessive wear.

**CLEANING:** Excessive dust on the surface of your table will slow the puck significantly. To prevent this, the table should be cleaned once a week -- more often if necessary.  We highly recommend rubbing alcohol (isopropyl alcohol) to clean the plastic laminate surface.  Liquid window cleaners are also acceptable.  Always clean the plastic laminate surface with the air on to ensure that the cleaning process does not force the dirt down into the air holes.  Use a small amount of the cleaning solution on a clean paper towel to clean off the dust and dirt.  Regular cleaning and maintenance of the playing surface can prevent the holes from becoming plugged.

On a yearly basis, check the condition of the air holes.  If any debris has been forced down into the air holes, it can be removed with the following method: With the air ON, use a Dremel Moto-tool or equivalent, with a 1/32" drill bit.  Slowly insert the rotating drill bit into the hole.  This will cause the debris to "ride" up the grooves on the drill bit and out onto the playing surface.  Do not use a pushpin to simply push the debris down into your table.

When cleaning the table surface, do not clean off the side rails where the puck hits.  The thin layer of dirt helps the puck bank properly and keeps it on the table.

> **NEVER USE SILICONES, WAXES, OR ANY OTHER PRODUCT THAT COULD LEAVE A RESIDUE ON THE PLAYING SURFACE. THE USE OF THESE PRODUCTS WILL CAUSE A BUILDUP OF DEBRIS IN THE AIR HOLES.**

**LIQUIDS:** There should be no drinks placed on the table. Ever.  Any liquid spilled on the surface must be wiped up immediately.  Large amounts of any liquid can seep down the holes and into the wood, which will warp the playing surface.  We recommend prohibiting drinks from being placed on the table at any time.  Side shields are effective in discouraging customers from putting drinks on the table.
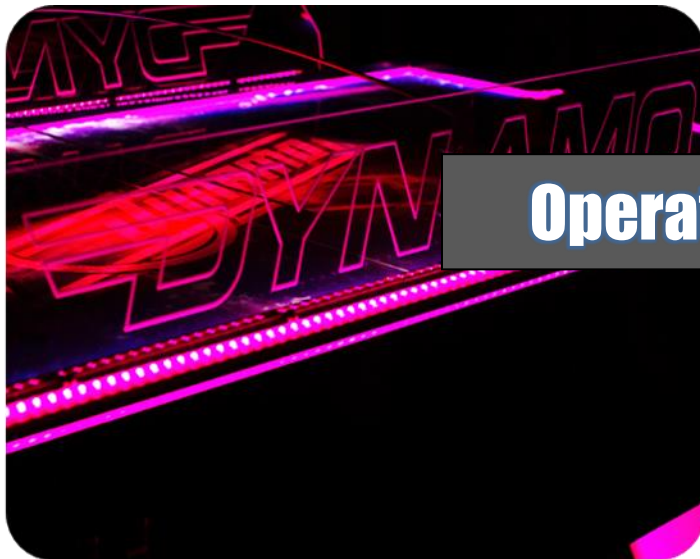
The following applies to all Dynamo Hockey games, regardless of logic board type.

## POWER UP:

Onboard diagnostics begin as soon as your Dynamo Hockey table has been powered up. These diagnostics verify the correct functioning of the processor internal RAM and determines that the onboard timer/counter is functioning correctly. At this point, your display will show an "8" on the left segment of the score display.

If the board diagnostics pass, both I/O ports (coin switch and score optics) are then checked. Upon successful completion of this process, an "8" on the right segment of the score unit will flash once.

> **If the "8" lights and stays lit, the diagnostics did not pass.**
> **In this event, refer to the Troubleshooting chapter of this manual.**

## ATTRACT MODE:

The A/C blower motor and goal solenoids are turned off.

The last game's score (if any) and the current number of pending credits (if any) are shown on the score display, as follows:

The last score (if any) is displayed for three seconds.

The letter "c" (for credits) is flashed briefly once.
The number of credits (if any) is displayed for three seconds.
If there are no pending credits, this cycle will repeat until a coin drop is detected.

If there is a pending credit in place, the game will automatically start after cycling through the attract mode once.

### GAME PLAY MODE:

The A/C blower motor and the puck drop solenoids are activated for the duration of the game. The timer countdown is started, and the score display is reset to "0."

Each puck drop detected is a score awarded to the appropriate player.  When either player reaches a score of 7, or the timer reaches its preset value, the game is over and the system returns to Attract Mode.

Any coin drops are accepted at any time, including during the Game Play Mode.

## ADJUSTABLE TIMER:

Your Dynamo Hockey table is equipped with a length-of-game timer, which may be adjusted between one to sixteen minutes.  The default setting for this timer is seven minutes.  Since the average game ends within three to four minutes, this setting is usually adequate, but the timer may be adjusted to meet your requirements.  Refer to section 4.0, "Logic System Type Determination" to indicate which instruction set should be followed to adjust the timer duration on your Dynamo Hockey table.

## COIN COUNTER:

Your Dynamo Hockey is equipped with a coin counter.  This counter is advanced once for every credit detected.

## Dynamo Hockey
## v7.2 Program Configuration
### *U.S. 110v tables*

**To change the default values**

- Hold down the ACCESS button, the scoring display will count down from five and display the letters PE (Parameter Entry)
- Release the ACCESS button after the countdown and the menu system has been accessed
- Change values for each setting using the "VALUE" button. Press the "ACCESS" button to move to the next configurable setting.
- When all configurable values have been set, the program exits the setup routine and the values have been stored.

· **SC**          **Maximum score (for a player) per game**
  · Default Value 7
  · Minimum Value 2
  · Maximum Value 9

· **LE**          **Maximum time in minutes a game will run**
  · Default Value 7 minutes
  · Minimum Value 0 ( score setting determines game length)
  · Maximum Value 16 minutes

· **CC**          **Coins per credit**
  · Default Value 1
  · Minimum Value 1
  · Maximum Value 8

· **PC**          **Plays per credit**
  · Default Value 1
  · Minimum Value 1
  · Maximum Value 3

**To Set Software Defaults**
User should hold down the VALUE button in the PC Board when powering up the game. The LED display flashes "FP" (Factory Parameters) when the system defaults have been set. After "FP" has flashed, the display continues into startup mode. At this point you are done setting the defaults.

## Setting Software Defaults

- To set the table to Factory Defaults, hold down the 'VALUE' button on the PC Board while powering up the table. After the usual startup check display of '88', the LED display flashes 'FP' (Factory Program).  Releasing the 'VALUE' button starts the program using Factory Default values.

- To change the Default Values of the game, the user should hold down the 'ACCESS' button while the table is ON.  A countdown from 5 to 1 begins on the LED display, followed by 'PE' (Program Edit). Release of the 'ACCESS' button before 'PE' is displayed will restart the game and not access the edit mode.  Release of the ACCESS button when 'PE' is shown will display the TITLE of the first configurable setting for one second, followed by its value.  The value may be changed by, not surprisingly, pressing the 'VALUE' button. The value increases with each push of the 'VALUE' button up to the maximum shown in the table below, and then returns to the minimum value.  Pressing 'ACCESS' again will display the next value to view or change.  At the end '- -' will be displayed.

· **SC**        **Maximum score (for a player) per game**
- · Default Value 7
- · Minimum Value 2
- · Maximum Value 9

· **LE**        **Maximum time in minutes a game will run**
- · Default Value 7 minutes
- · Minimum Value 0 ( score setting determines game length)
- · Maximum Value 16 minutes

· **CC**        **Coins per credit**
- · Default Value 1
- · Minimum Value 1
- · Maximum Value 8

· **PC**        **Plays per credit**
- · Default Value 1
- · Minimum Value 1
- · Maximum Value 3

· **SO**        **Sound on and off**
- · Default Value 1
- · Minimum Value 0 (= off)
- · Maximum Value 1 (= on)

.

**HI**     **Number of rail hits per sound** *(Example: a setting of 3 allows a rail shot sound on*

*every 3rd shot, a setting of 1 allows a sound on every rail shot. This keeps the table from making too much sound, if desired)*

  · Default Value 1
  · Minimum Value 0 (no strike sound)
  · Maximum Value 5

· **At          Attract Sound Spacing (in minutes)**
  · Default Value 1
  · Minimum Value 0 (no attract sound)
  · Maximum Value 5

· **St          Start Button (not found on coin operated games)**
  · Default Value 0
  · Maximum Value 1

· **tt          For games with ticket printers only**
  · Default Value 0
  · Minimum Value 0 (tickets print at game end)
  · Maximum Value 1 (tickets print when goal scored

- User can control the Background sounds (crowd sounds and demo music) using the Background volume control
- User can control the Effects sounds (rail shots, coin drop sounds, scoring, etc.) using the Effects volume control
- User can control the Rail Shot sensitivity using the VR1 potentiometer on the board.

- To set the table to Factory Defaults, User should hold down the 'VALUE' button on the PC Board while powering up the table. The LED display flashes 'FP' (Factory Program).  Releasing the 'VALUE' button starts the program using Factory Default values and returns the display to the attract mode cycling 0-0, and 0.

- To change the Default Values of the game, the user should hold down the 'ACCESS' button **for six seconds** while the table is ON until the countdown begins on the display panel, from 5 to 1 followed by 'SC' (the first menu item). Release of the 'ACCESS' button before 'SC' is displayed will restart the game and not access the edit mode.  Release the ACCESS button when 'SC' shows to access the menu system

- Change values by, not surprisingly, pressing the 'VALUE' button. The value increases with each push of the 'VALUE' button up to the maximum shown in the table below, and then returns to the minimum value.  Pressing 'ACCESS' again will display the next value to view or change.  At the end the display to the attract mode cycling 0-0, and 0.

  - **SC  - Score to win**
    - Default Value: 7
    - Min Value: 2
    - Max Value: 9

  - **LE – Match length in minutes**
    - Default Value: 7
    - Min Value: 0 (game not timed)
    - Max Value: 16

  - **CC – Coins Per Credit**
    - Default Value: 8
    - Min Value: 1
    - Max Value: 40

  - **PC – Plays per Credit**
    - Default Value: 1
    - Min Value: 1
    - Max Value: 3

  - **CS – RGB LED Color Cycle Speed**
    - Default Value: 1
    - Min Value: 0
    - Max Value: 10

  - **C6 – RGB LED Brightness**
    - Default Value: 2
    - Min Value: 0
    - Max Value: 5

  - **PG – Puck Gate Mode**   BEST LEFT UNCHANGED

- Default Value: 2
- Min Value: 0
- Max Value: 2

- o **SO – Sound Effect Enable**
  - Default Value: 1
  - Min Value: 0 = OFF
  - Max Value: 1 = ON

- o **HI – Rail Strikes per Sound**
  *(Example, a value of 3 would fire a rail shot sound every 3 rail shots. Keeps the table from being saturated with sounds if desired.)*
  - Default Value: 1
  - Min Value: 0 (no strike sound)
  - Max Value: 5

- **AT – Attract Sound Timing**
  - Default Value: 15
  - Min Value: 0 (no attract sound)
  - Max Value: 30

  ### ALL TICKET SETTINGS BEST LEFT UNCHANGED
  - o **TT – Ticket Type**
    - Default value: 0
      - Min Value: 0 (at game end)
      - Max Value: 1 (when goal scored)

  - o **T1 – Number of Winner Tickets**
    - Awarded at GAME END if tt value = 0
    - Default Value: 7
    - Min Value: Varies
    - Max Value: Varies

  - o **CT – Consolation Tickets**
    - Default Value: 1
    - Min Value: Varies
    - Max Value: Varies

- o **LD – LED Mode**
  - Default Value: 1
  - Min Value: 0
  - Max Value: 1

- o **RC – Resting LED Color**
  - Default Value: 1
  - Min Value: 0
  - Max Value: 7
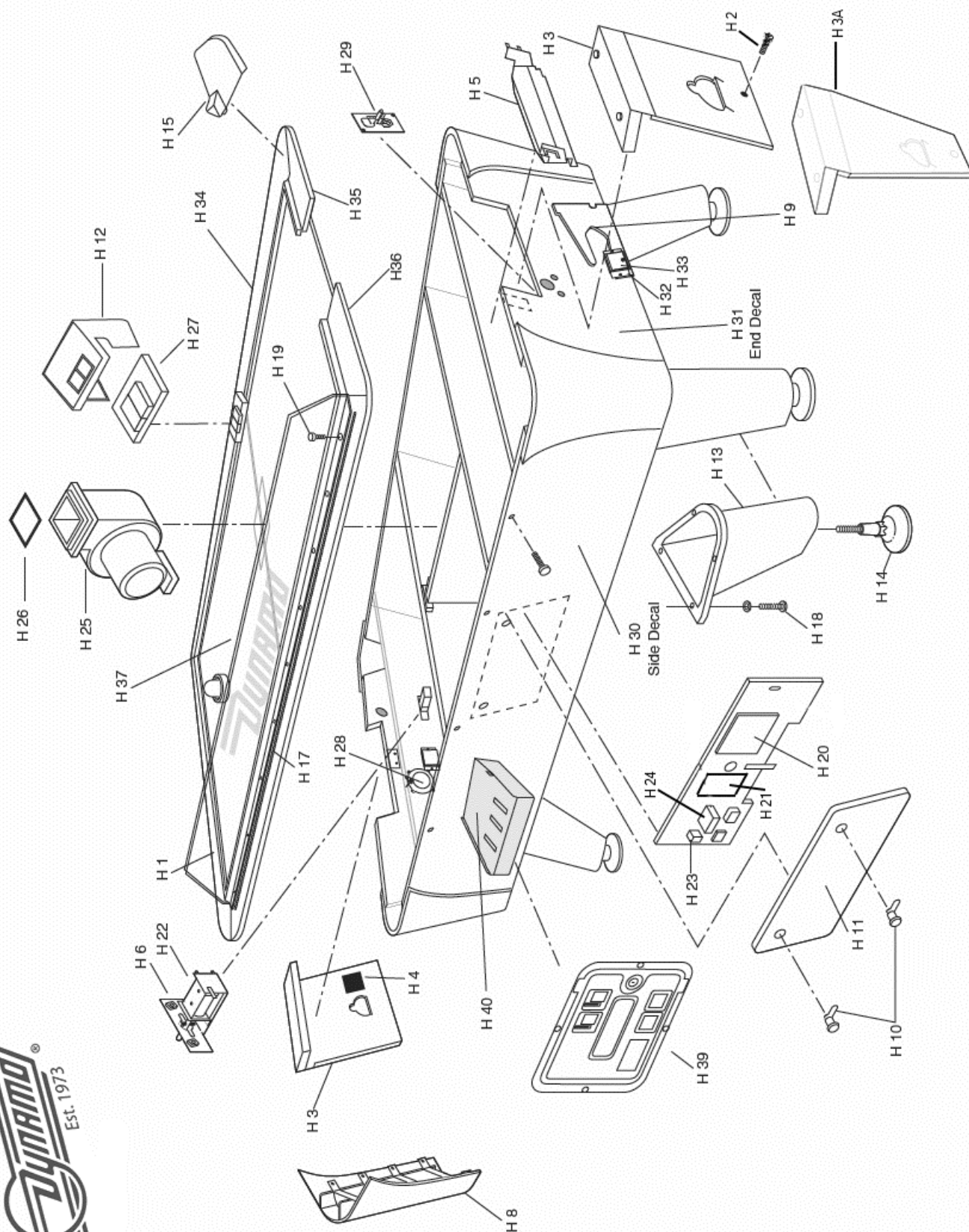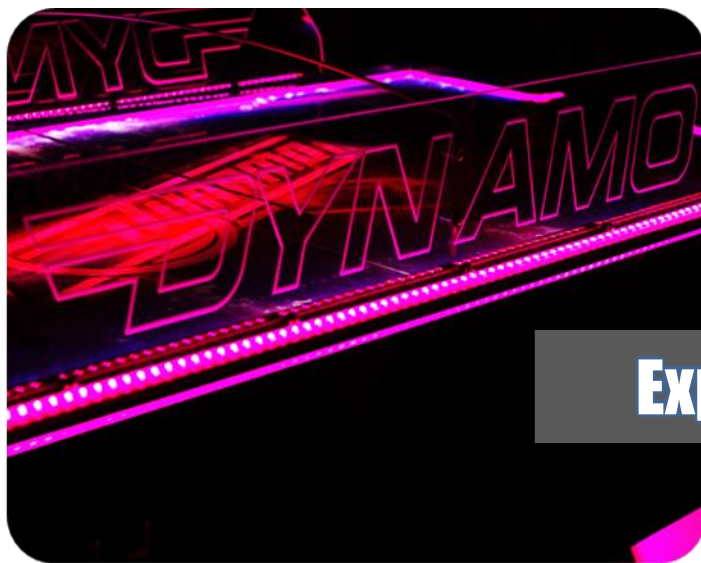
# Exploded Parts Diagram

Identifiers on the drawing correspond to the part numbers listed below.  Order the correct part number for your table.

Remember : there's no such thing as an "H3". *The Part number is key.*

| Ref # | Part Number | Item Description |
|-------|-------------|------------------|
| H1 | 030400265 | 3-PIECE SHIELD SET - 8-FOOT TABLES |
| H1 | 030400270 | 3-PIECE SHIELD SET - 7-FOOT TABLES |
| H1 | 030400300 | 3-PIECE SHIELD SET FOR SHORT SHOT |
| H2 | 980000705 | LOCK WITH KEY #J8045 SCREW LOCK GOAL ENDS |
| H2 | 030000140 | KEY J8045 GOAL ENDS |
| H3 | 800401921 | GOAL END, LOCK ENTRY, BLACK, BEST SHOT / PROSTYLE |
| H3 | 800401991 | GOAL END, LOCK ENTRY, FLUORESCENT, HOT FLASH II |
| H3 | 800400961 | GOAL END, LOCK ENTRY W/SPEAKER GRILLE, BLUE, SHORT SHOT |
| H3 | 800450011 | GOAL END, LOCK ENTRY W/SPEAKER GRILLE, ORANGE, FIRE STORM |
| H3 | 800400951 | GOAL END, LOCK ENTRY, SILVER, BLUE STREAK |
| H3A | 800400990 | GOAL END, LOCK ENTRY TAPERED - LUNAR GREEN BLACK HOLE |
| H3A | 800400995 | GOAL END, LOCK ENTRY TAPERED - PURPLE COSMIC THUNDER |
| H4 | 850400470 | OPTO-SHIELD DECAL FOR GOAL END |
| H5 | 800401800 | GOAL ENTRY |
| H6 | 800402300 | BRACKET,SOLENOID |
| H6 | 800402310 | BRACKET,DC SOLENOID |
| H8 | 860000300 | CORNER, DOWN, BLACK |
| H8 | 860404700 | CORNER, DOWN, WHITE (COSMIC THUNDER) |
| H9 | 960402805 | DROP, PUCK |
| H9A | 960402800 | DROP, PUCK FOR BLACK HOLE / COSMIC THUNDER ONLY (2 PER END) |
| H10 | 980000530 | LOCK WITH #106 KEY FOR SERVICE DOORS |
| H10 | 030000130 | KEY #106 - SERVICE DOORS |
| H11 | 990400603 | SERVICE ACCESS DOOR - BLANK |
| H12 | 030402015 | KIT, SIDE MOUNT SCORING DISPLAY |
| H12 | 800401910 | BRACKET, SCORE SIDE MOUNT, BLACK |
| * | 860400300 | LENS, RED SIDE MOUNT SCORE DISPLAY |
| * | 730408400 | WIRE HARNESS, SCORE, SIDE MOUNT EXTENSION |
| H13 | 860001325 | LEG, BLACK |
| H13 | 860404700 | LEG, WHITE (COSMIC THUNDER) |
| H14 | 20607560 | LEG LEVELER |
| H15 | 860400030 | CORNER, PLASTIC COVER  HOCKEY **(ONLY ON TABLES WITHOUT ROUNDED RAILS)** |

| Ref # | Part Number | Item Description |
|---|---|---|
| H17 | 730450061 | LED LIGHT STRIP FOR FIRE STORM |
| H17 | 730450056 | LED LIGHT STRIP FOR SHORT SHOT |
| H18 | NI020200030 | LEG BOLT : 5/16-18 x 1½ SLT HEX W/WASHER |
| H19 | NI870012309 | BLACK RAIL/GOAL BOLT : MS, ¼"-20 X 1½" PAN PHILLIPS |
| H19 | NI870054205 | THREADED INSERT : ¼"-20 x .984 GOAL ANCHOR |
| H20 | 880406035 | SWITCHING MODE POWER SUPPLY |
| H21 | 880400147 | PCB, v9.02 DOMESTIC HOCKEY FOR TABLES WITH SOUND |
| H21 | 880400127 | PCB, v7.2 DOMESTIC HOCKEY LOGIC |
| * | 030402075 | PCB, v7.2 INTERFACE KIT FOR OLDER TABLES |
| H21 | 880400150 | PCB, v10 COSMIC THUNDER |
| * | 730400100 | COMPLETE WIRE HARNESS, MAIN HOCKEY v7.0 |
| * | 730400105 | COMPLETE WIRE HARNESS, MAIN HOCKEY v7.2 |
|  | 730400540 | COMPLETE WIRE HARNESS, MAIN HOCKEY v9.0x |
| * | 730400200 | WIRE HARNESS, EXPORT CE HOCKEY |
| * | 730408305 | WIRE HARNESS, SCORE DISPLAY MAIN |
| H22 | 880400300 | SOLENOID,120 AC  - USA DOMESTIC |
| H22 | 880400320 | SOLENOID,12 DC CE TABLES ONLY |
| * | NI879900150 | SOLENOID LOCKING PIN, 1/8 x 3/4 ROLL PIN |
| * | 980400110 | SOLENOID RETURN SPRING |
| H23 | 880400600 | RELAY,G4W-11123A USTV8HP12DC |
| H24 | 880400710 | TRANSFORMER, 120V TO 12 VAC - FOR v6.11 AND OLDER TABLES |
| H24 | 880400715 | TRANSFORMER, 120V TO 10 VAC - FOR v7.0 TABLES |
| H24 | 880400720 | TRANSFORMER ,STEP DOWN 220V TO 110V AC |
| H25 | 880400900 | BLOWER MOTOR 110V - USA DOMESTIC |
| H25 | 880400910 | BLOWER MOTOR, 220V - EXPORT |
| H26 | 980400400 | BLOWER MOTOR GASKET |
| H27 | 880400202 | BOARD, LED SCORE SIDE MOUNT |
| H28 | 880300360 | SPEAKER SET (OF 2) FOR TABLES WITH SOUND ONLY |
| H29 | 880404200 | SCORE OPTIC BOARD |
| H30 | 860401458 | DECAL,SIDE HOT FLASH II (PRE 2017 - WHILE SUPPLIES LAST) |
| H30 | 860450010 | DECAL SIDE FIRE STORM |
| H30 | 860404160 | DECAL,SIDE BLUE STREAK |
| H30 | 860402458 | DECAL,SIDE BEST SHOT |
| H30 | 860404712 | DECAL SIDE COSMIC THUNDER |
| H30 | 860404458 | DECAL SIDE SHORT SHOT |
| H31 | 860450000 | DECAL END FIRE STORM |
| H31 | 860404150 | DECAL,END BLUE STREAK |
| H31 | 860404717 | DECAL,END COSMIC THUNDER |
| H32 | 800401000 | GOAL END NUT BLOCK BRACKET |
| H33 | 960402810 | GOAL END NUT BLOCK |
| H34 | 720400700 | SIDE RAIL WITH ROUND CORNER, SILVER 7-FOOT (PRO-STYLE, BLUE STREAK) |
| H35 | 720400720 | END RAIL WITH ROUND CORNER, RIGHT, SILVER 7-FOOT (PRO-STYLE, BLUE STREAK) |
| H36 | 720400710 | END RAIL WITH ROUND CORNER, LEFT, SILVER 7-FOOT (PRO-STYLE, BLUE STREAK) |
| H34 | 7204PU800 | SIDE RAIL WITH ROUND CORNER, PURPLE COSMIC THUNDER |
| H35 | 7204PU820 | END RAIL WITH ROUND CORNER, RIGHT PURPLE COSMIC THUNDER |
| H36 | 7204PU810 | END RAIL WITH ROUND CORNER, LEFT PURPLE COSMIC THUNDER |
| H34 | 720400800 | SIDE RAIL WITH ROUND CORNER, SILVER 8-FOOT (BEST SHOT / PRO STYLE) |
| H35 | 720400820 | END RAIL WITH ROUND CORNER, RIGHT, SILVER 8-FOOT (BEST SHOT / PRO STYLE) |
| H36 | 720400810 | END RAIL WITH ROUND CORNER, LEFT, SILVER 8-FOOT (BEST SHOT / PRO STYLE) |
| H34 | 7204TY800 | SIDE RAIL WITH ROUND CORNER, FLUORESCENT HOT FLASH II |

| Ref # | Part Number | Item Description |
|---|---|---|
| H35 | 7204TY820 | END RAIL WITH ROUND CORNER, RIGHT FLUORESCENT HOT FLASH II |
| H36 | 7204TY810 | END RAIL WITH ROUND CORNER, LEFT FLUORESCENT HOT FLASH II |
| H34 | 7204TR800 | SIDE RAIL WITH ROUND CORNER, ORANGE FIRE STORM |
| H35 | 7204TR820 | END RAIL WITH ROUND CORNER, RIGHT ORANGE FIRE STORM |
| H36 | 7204TR810 | END RAIL WITH ROUND CORNER, LEFT ORANGE FIRE STORM |
| H37 | 020407031 | PLAYFIELD, 8-FOOT BLUE W/SMALL LOGO (PRO-STYLE, BEST SHOT) |
| H37 | 020407181 | PLAYFIELD, HOT FLASH II UV (BLUE W/LARGE LOGO - THROUGH 2017) |
| H37 | 020407150 | PLAYFIELD, HOT FLASH II UV (PURPLE W/LARGE LOGO - 2017-PRESENT) |
| H37 | 020407135 | PLAYFIELD, FIRE STORM UV (BLACK W/FLAME TRIM) |
| H37 | 020407425 | PLAYFIELD 7-FOOT BLUE W/SMALL LOGO (PRO-STYLE, BLUE STREAK) |
| H37 | 020407040 | PLAYFIELD 5-FOOT BLUE W/SMALL LOGO (SHORT SHOT) |
| H39 | 880303140 | COIN DOOR WITH LOCK, FRAME AND ROLL-DOWN MECHS |
| H40 | 800200750 | METAL CASH BOX BOTTOM |
| H40 | 800200760 | METAL CASH BOX LID |
| H40 | 860000815 | PLASTIC CASH BOX FOR TABLES WITH 8-DEGREE DOOR |



| MOST OVERHEADS | | |
|---|---|---|
| Ref # | Part Number | Item Description |
| H49 | 880403101 | OVERHEAD LED SCOREBOARD |
| H50 | 800404750 | MOUNTING BRACKET CLAMP - HF II FLUORESCENT |
| H50 | 800404752 | MOUNTING BRACKET CLAMP - SILVER |
| H50 | 800404762 | MOUNTING BRACKET CLAMP - BLACK |
| H51 | 800404726 | MOUNTING BRACKET (SIDE) - HF II FLUORESCENT |
| H51 | 800404728 | MOUNTING BRACKET (SIDE) - SILVER |
| H51 | 800404738 | MOUNTING BRACKET (SIDE) - BLACK |
| | 870048150 | WASHER ¼" ZINC |
| | 870012307 | SCREW, BLACK, PAN HEAD PHILLIPS ¼-20 x 1" |
| FIRE STORM OVERHEAD ONLY | | |
| H52 | 800450090 | OVERHEAD TUBE COVER - FIRE STORM |
| H53 | 800450100 | MOUNTING BRACKET CLAMP - FIRE STORM |
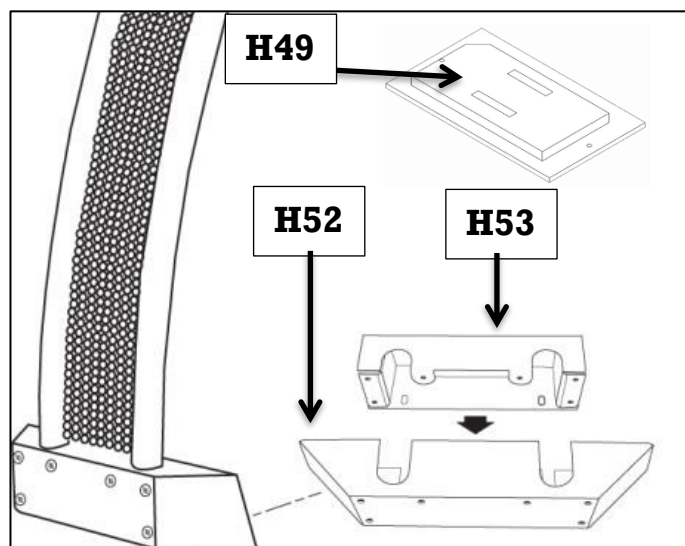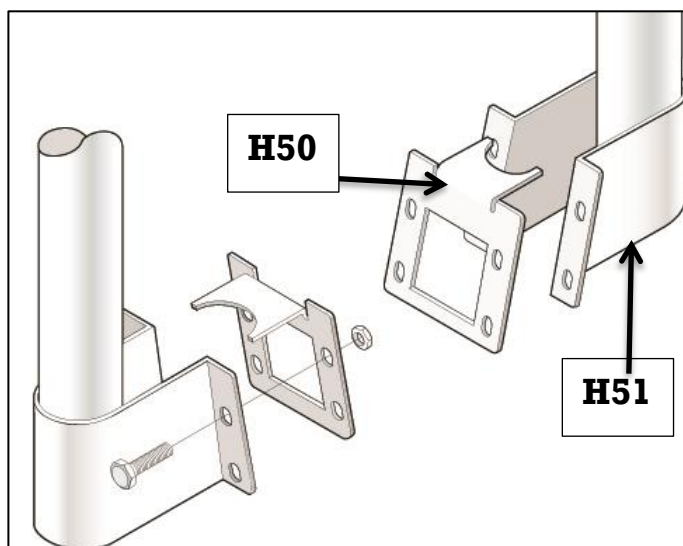
# Cosmic Thunder Polycarbonate Playfield
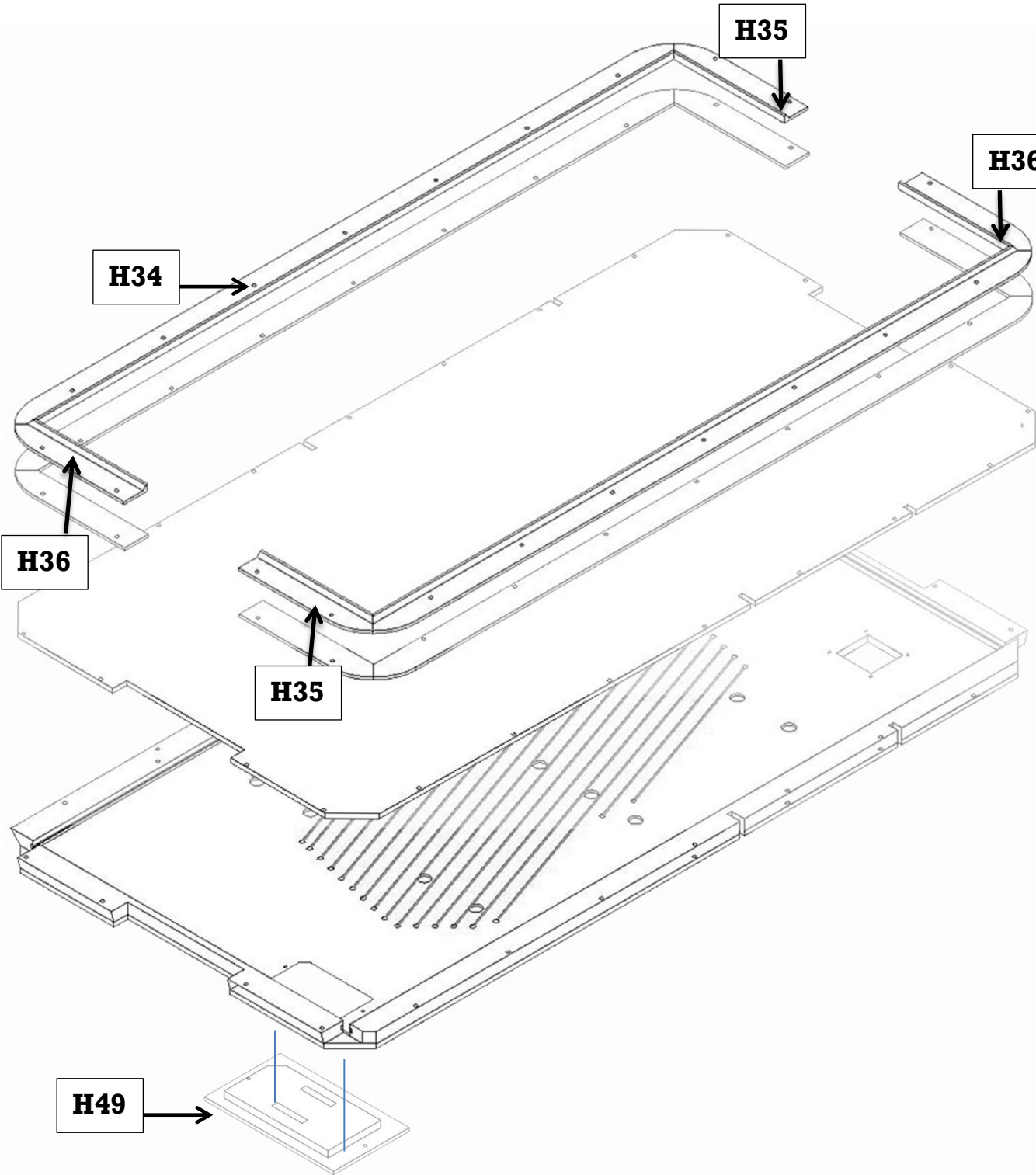


| H34 | 7204PU800 | SIDE RAIL WITH ROUND CORNER, PURPLE COSMIC THUNDER |
|-----|-----------|---------------------------------------------------|
| H35 | 7204PU820 | END RAIL WITH ROUND CORNER, RIGHT PURPLE COSMIC THUNDER |
| H36 | 7204PU810 | END RAIL WITH ROUND CORNER, LEFT PURPLE COSMIC THUNDER |
| H49 | 880403101 | OVERHEAD LED SCOREBOARD |

**880301420**
**On/Off Rocker Switch**



**860800475**
**Red Start Button**

| 860400090 | PUCK, FLUORESCENT |
|-----------|-------------------|
| 860400150 | PUCK, FLUORESCENT QUIET WHITE |
| 860400210 | MALLET, FLUORESCENT WHITE |
| 980400200 | SANDPAPER DISC |



All U.S. 120v Dynamo Hockey tables use this C-13 style of power cord, available at most electronics and hardware stores
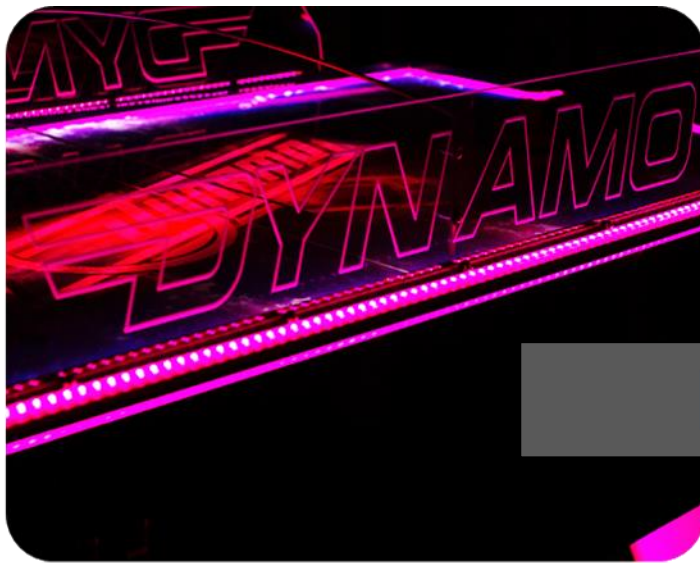
## PCB Identification
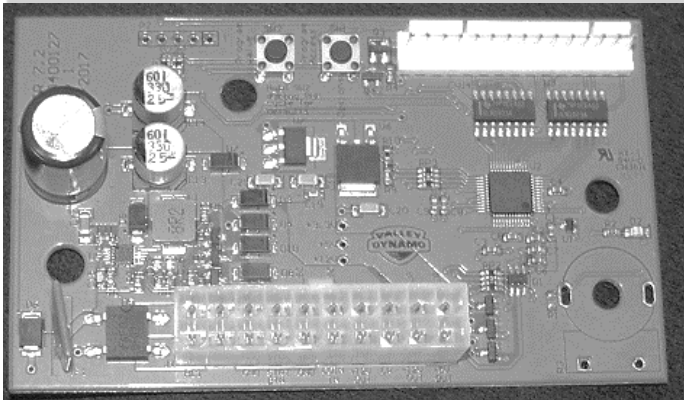


### v7.2 – U.S. 110v tables
### Without sound
part # 880400127
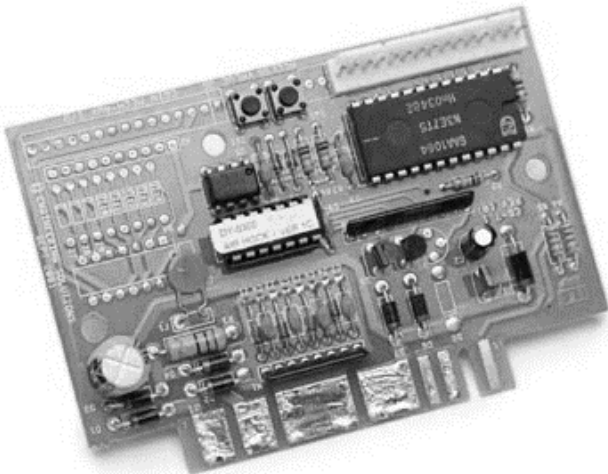


### v7.0 – U.S. 110v tables
Without sound
part # 880400125 – replaced by v7.2
PCB in 2017, no longer available
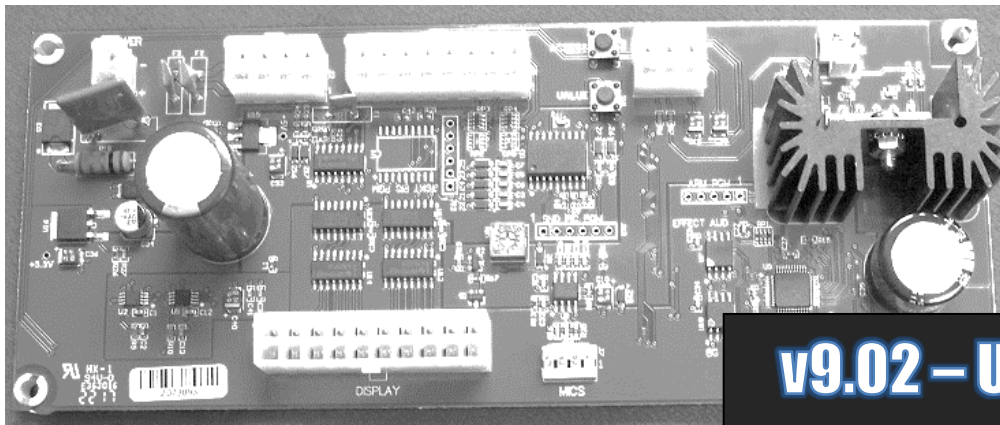
**v9.02 – U.S. 110v tables**
**With sound**
part # 880400147
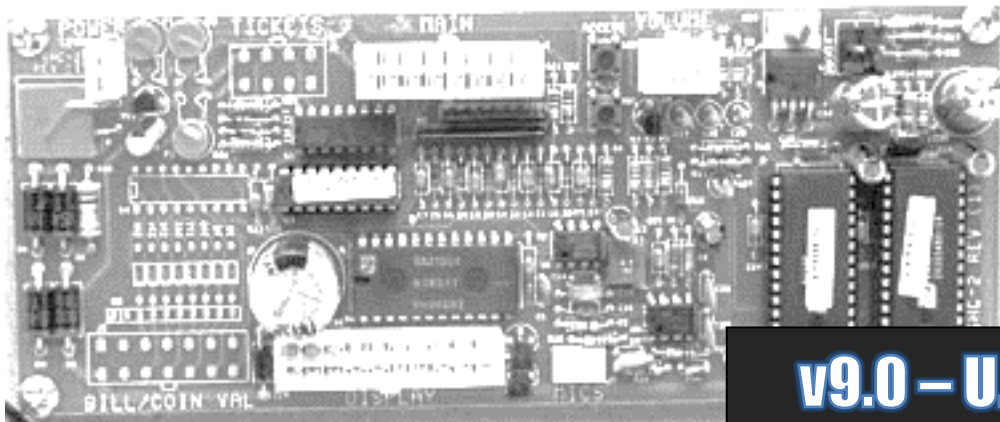


**v9.0 – U.S. 110v tables**
**With sound**
part # 880400145 – NO LONGER AVAILABLE
replaced with v9.02 PCB in 2018
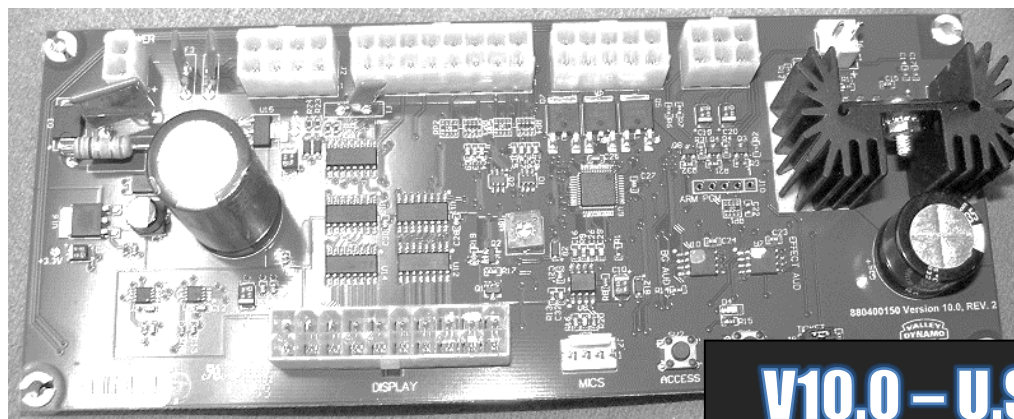


**V10.0 – U.S. 110v tables**
**Cosmic Thunder**
part # 880400150

v7.2 – U.S. 110v tables
Without sound

6A—Blower Motor Connector
6B—Solenoid Connector
6C—Constant 120v Test Point
6D—Relay
6E—Ground Bracket
6F—On/Off Switch Location (Coin Tables)
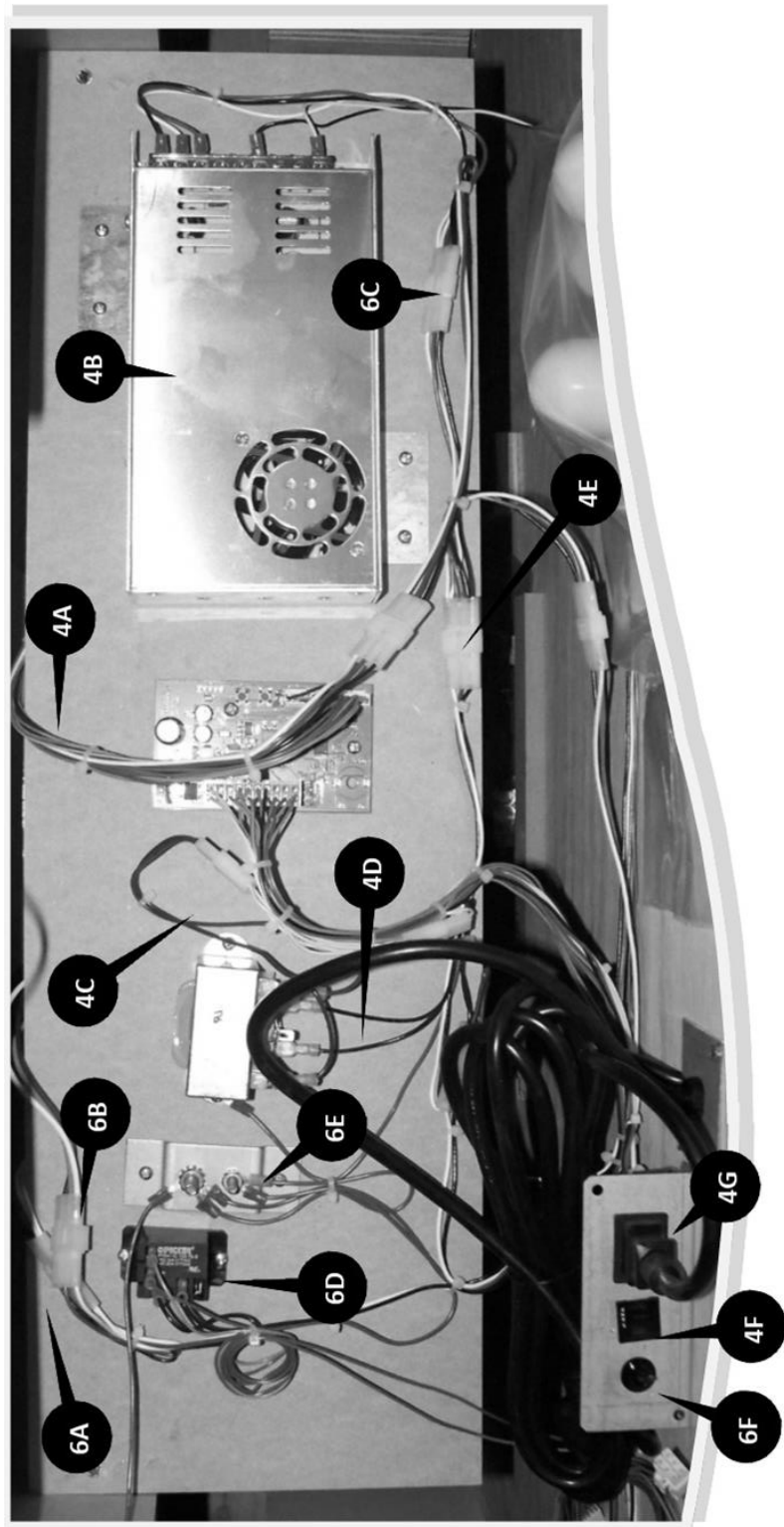
4A—Display Connector
4B— Switching Mode Power Supply (some models)
4C—Transformer Output
4D—Transformer Input
4E– DBA AC Power
4F—5-amp Breaker
4G—Power Cord

v9.02 – U.S. 110v tables
With sound
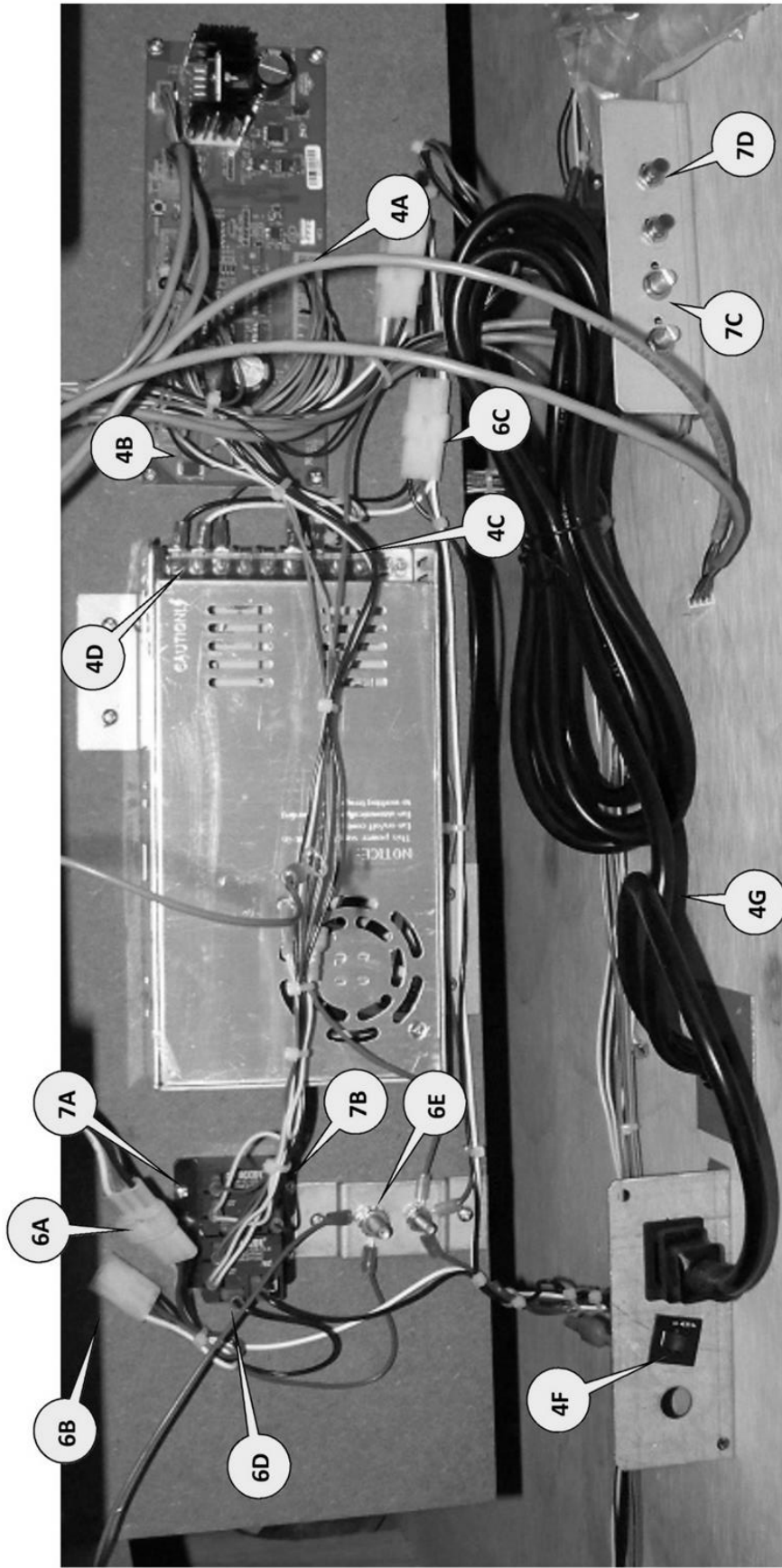
4A—Display Connector
4B—12v 2-pin Connector
4C—12v DC Output
4D—120v AC Input
4F—5-amp Breaker
4G—Power Cord

6A—Blower Motor Connector
6B—Solenoid Connector
6C—Blower Motor—Constant 120v Test Point
6D—Motor/Solenoid Relay
6E—Ground Bracket

7A—Light Relay Input
7B—Light Relay Output
7C—Volume Controls
7D—Programming Controls
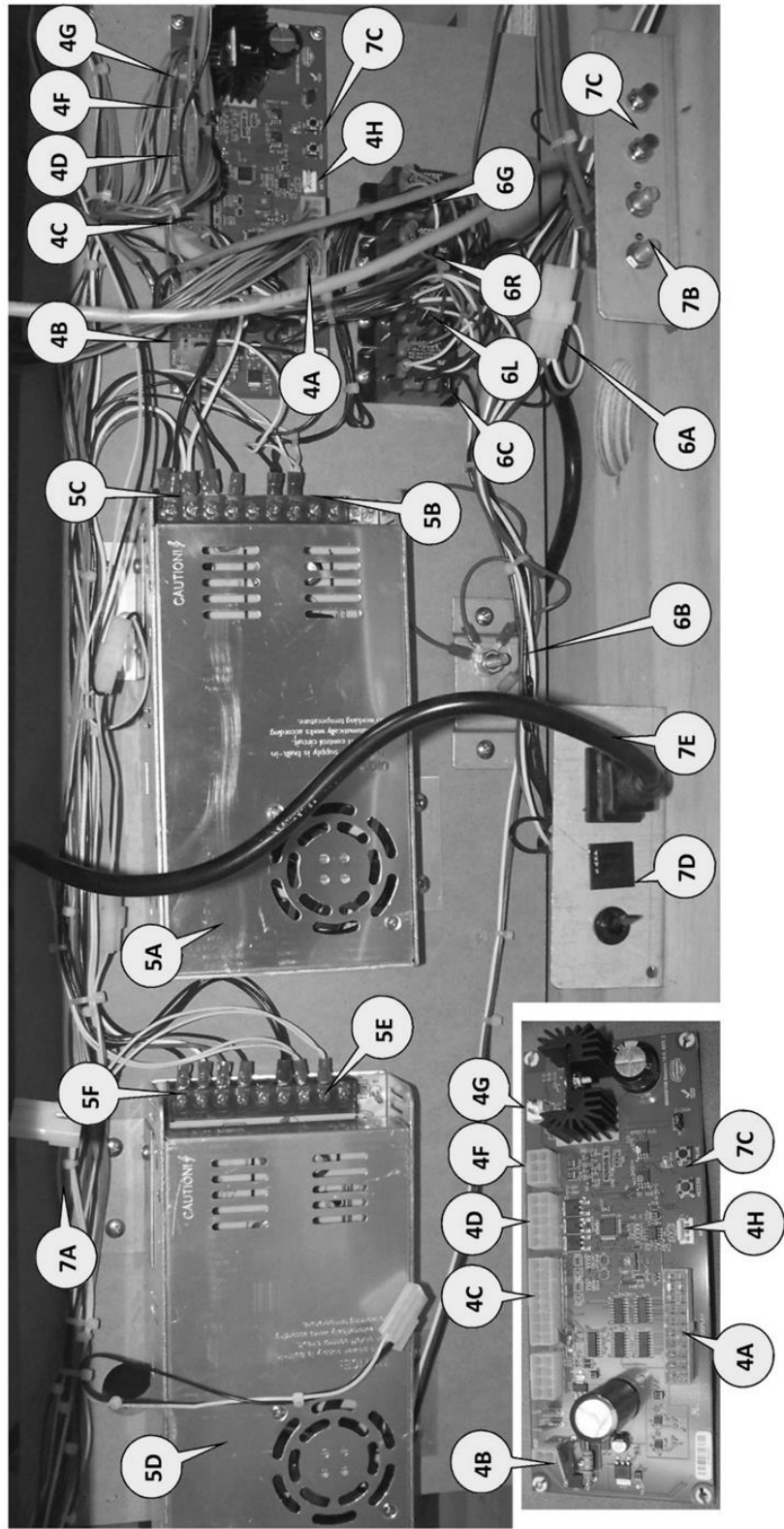
4A—Display Connector
4B—12v 2-pin Connector
4C—Main PCB Connector
4D—RGB Solenoid Connector
4F—Volume Connector
4G—Speaker Connector
4H—Microphone Connector

5A—Power Supply—Logic and Relay
5B—12v DC Output—Logic and Relay
5C—120v AC Input—Login and Relay
5D—Power Supply—LED Lighting
5E—12v DC Output—LED Power
5F—120v AC Input—LED Power

6A—Blower Motor Connector
6B—Ground Bracket
6C—Blower Motor Relay
6G—White LED Relay
6L—Left Goal Solenoid Relay
6R—Right Goal Solenoid Relay

7A—Playfield LED connection
7B—Volume Controls
7C—Programming Controls
7D—5-amp Breaker
7E—Power Cord

# Air Hockey Troubleshooting Flowchart

- These sheets are designed to help identify known common service issues with Dynamo Hockey tables, but are not a complete guide to everything that can possibly go wrong. It is our hope your table provides decades of reliable service and you never end up having to use them.

- If you are uncomfortable with these steps, or use of a voltmeter or ohmmeter, contact your distributor or a trained service professional to help diagnose and repair your table

- The current PCB versions are covered. For help with troubleshooting older Air Hockey tables with PCBs prior to the v7.01 model, visit www.valleydynamoparts.com.

- While repeatedly noted on the charts, it bears repeating once more : be absolutely sure your table is plugged into a known good 120v AC outlet.

- For several troubleshooting steps, we ask that you make sure you table is NOT plugged into this 120v outlet. Use caution. 120v AC is fine for Hockey tables, but can be very dangerous to people.

- Dynamo Tech Support : 972-595-5300  techhelp@valley-dynamo.com

# CHART # 2, ERROR CODES

**START**

IS THE DISPLAY FLASHING 00/0? — NO → IS THE DISPLAY FLASHING 08? — NO → IS THE DISPLAY FLASHING ANYTHING AT ALL — NO →

**IS THE DISPLAY FLASHING 00/0?** — YES → IF GAME DOES NOT START, RETURN TO CHART #1, "PROBLEM ISOLATION FLOWCHART."

**IS THE DISPLAY FLASHING 08?** — YES → Problem with a coin switch.

**TURN POWER OFF BEFORE PERFORMING THE FOLLOWING TESTS!!!!**

Disconnect the wires running to the coin switch and terminating at the connectors marked "N O" and "COMM." Turn the power off and back on. Did this clear the error code?

- YES → SWITCH FAILURE order replacement
- NO → Remove the 30-pin edge connector from the PC Board (4B). Test for a short between the two wires that you previously disconnected from the switch. Do you detect a short?
  - YES → Locate and repair short or order replacement wire harness
  - NO → POSSIBLE PC BOARD FAILURE Verify board version and order replacement

**IS THE DISPLAY FLASHING ANYTHING AT ALL** — YES → TURN POWER OFF WAIT 30 SECONDS HOLD DOWN "VALUE" BUTTON ON LOGIC BOARD & TURN POWER ON. RELEASE BUTTON ONCE DISPLAY SHOWS "FP"

IS THE DISPLAY FLASHING 00/0?
- NO → POSSIBLE PC BOARD FAILURE Verify board version and order replacement
- YES → IF GAME DOES NOT START RETURN TO CHART #1, "PROBLEM ISOLATION FLOWCHART."

# CHART # 3A, POWER PROBLEMS – VERSION 7.0 PCB

**START**

**IMPORTANT!**
CONFIRM THAT THE GAME IS PLUGGED INTO A WORKING 120 VOLT GROUNDED AC WALL OUTLET, AND THAT THE ON/OFF SWITCH (LOCATED IN THE ACCESS DOOR AREA) IS IN THE "ON" POSITION.

IS THE DISPLAY LIT?

YES → RETURN TO CHART #1, "PROBLEM ISOLATION FLOWCHART."

NO ↓

CHECK FOR THE PRESENCE OF 12 VOLTS DC ON PIN #13, LOCATED ON THE SCORE DISPLAY OUTPUT CONNECTOR (4A).

YES → **POSSIBLE PC BOARD FAILURE** Verify board version and order replacement

NO ↓

CHECK FOR THE PRESENCE OF 12 VOLTS AC (± 2 VOLTS) ON PINS 1 AND 3, LOCATED ON THE 30-PIN EDGE CONNECTOR (4B).

YES → THIS IS AN ABNORMAL CONDITION (WIRING PROBLEM). CHECK FOR CONTINUITY BETWEEN THE OUTPUT LEADS ON THE TRANSFORMER, AND PINS 1 AND 3 LOCATED ON THE 30-PIN EDGE CONNECTOR. DO YOU HAVE CONTINUITY?

NO → YOU HAVE AN OPEN CONDITION IN THE WIRING HARNESS BETWEEN THE TRANSFORMER AND THE EDGE CONNECTOR. REPAIR OR REPLACE THE DEFECTIVE WIRE.

NO ↓

CHECK FOR THE PRESENCE OF 12 VOLTS AC (± 2 VOLTS) OUTPUT ON THE TRANSFORMER, LOCATED ON THE CONTROL BOARD (4C).

YES ↑ (to continuity check box)

NO ↓

CHECK FOR THE PRESENCE OF 120 VOLTS AC ON THE INPUT TO THE TRANSFORMER (4D).

YES → **TRANSFORMER FAILURE** order replacement

NO → CHECK FOR THE PRESENCE OF 120 VOLTS AC ON THE WHITE CONNECTOR WITH THE RED VARISTOR (4E).

YES → AN OPEN CONDITION EXISTS BETWEEN THE CONNECTOR VARISTOR AND TRANSFORMER.

NO → HAS THE 5-AMP BREAKER TRIPPED (4F).

YES → RESET THE BREAKER AND RESTORE POWER IF BREAKER TRIPS AGAIN PROCEED TO CHART #3B

NO → CHECK FOR THE PRESENCE OF 120 VOLTS AC ON THE POWER CORD. (4G)

NO → **POWER CORD FAILURE** Repair or replace

FOR PROBLEMS NOT COVERED IN THE ABOVE EXAMPLES, PLEASE CONTACT VALLEY-DYNAMO TECH SUPPORT 972-595-5300 TECHHELP@VALLEY-DYNAMO.COM

# CHART # 3B, POWER PROBLEMS – VERSION 7.0 PCB

**START**

RESET THE BREAKER AND RESTORE POWER
DID THE BREAKER TRIP AGAIN?

→ **YES** → DIRECT SHORT IN YOUR HARNESS. IN MOST CASES IT IS THE VARISTOR SO CHECK THERE FIRST. IF THIS DOES NOT CORRECT THE PROBLEM, REPAIR OR REPLACE THE HARNESS

→ **NO** → START A GAME
DID THE BREAKER TRIP?

→ **NO** → FULL FUNCTION RESTORED

→ **YES** → SUSPECTED SHORT IN BLOWER MOTOR OR SOLENOID. RESET BREAKER. DISCONNECT 3-PIN BLOWER MOTOR CONNECTION AND START NEW GAME
DID BREAKER TRIP?

→ **NO** → BLOWER MOTOR FAILURE order replacement

→ **YES** → PROCEED TO CHART #7, "PUCK RELEASE PROBLEMS."

# CHART # 5, COINING PROBLEMS

**START**

**WILL THE GAME COIN UP?**

NO → Is the display flashing two digits, followed by a single digit?

YES → **DOES THE COIN METER INCREMENT WHEN THE GAME IS COINED UP?**

YES → **RETURN TO CHART #1, "PROBLEM ISOLATION FLOWCHART."**

NO → Does the display read a solid (non-flashing) "00" at this point?

NO → **SEE CHART #2, "ERROR CODES"**

YES (from "Does the display read a solid..."): → When a coin is inserted in the game, the coin switch closes, sending a 5 volt signal to the PC Board, which then sends a 12 volt pulse signal to the coin meter. The coin meter increments by one. You must test for the presence of this 12 volt pulse. Attach a voltmeter to the two red wires attached to the coin meter, and coin up the game. Is a 12 volt signal sent?

YES → **COIN METER FAILURE** order replacement

NO → **NOTE: Turn the power OFF before proceeding.** Disconnect the 30-pin edge connector from the PC Board. Using an ohmmeter, check for continuity between pin "9" and "K" on the wire harness 30-pin edge connector and the black wire leading into the coin meter. Place your test lead as close to the meter as possible. Repeat this exact test, using pin "K" on the 30-pin edge connector and the red wire leading into the coin meter. Do you have continuity in both tests?

NO → Repair or replace the defective wires.

YES → Reconnect the 30-pin edge connector to the board (leave the power off). Locate the toggle switch on the main PC Board. Hold this switch in the position "CAL2" while turning the game back on. Hold this switch position until the display flashes "00" followed by "0." Coin the game up. Does the meter should increment correctly.

NO → **POSSIBLE PC BOARD FAILURE** Verify board version and order replacement

YES → **FULL FUNCTION RESTORED**

---

From "Is the display flashing two digits...":

YES → **TURN POWER OFF, WAIT 30 SECONDS HOLD DOWN "VALUE" BUTTON ON LOGIC BOARD & TURN POWER ON. RELEASE BUTTON ONCE DISPLAY SHOWS "FP"** Will game coin?

YES → **RESET VALUE "CC"** (COINS PER CREDIT) REFER TO PROGRAMMING INSTRUCTIONS

NO → **SUSPECTED COIN SWITCH ISSUE SEE CHART #2, "ERROR CODES"**

The PC Board has responded as if it were in "game play mode," and the "00" being displayed refers to the opening score. To clear this condition, you must first determine if 12 volts DC is being sent to the blower motor/ solenoid relay. To accomplish this test, use a voltmeter and check for 12 volts DC on pins 5 and 6 on the relay itself (6D). If this test shows 12 volts, refer to chart #6, "Airflow Problems," for additional tests. If no voltage exists, you have a possible PC Board malfunction.

# CHART # 7, PUCK RELEASE PROBLEMS

**coin tables only – ohmmeter and voltmeter required**

**START**

**WILL THE SOLENOIDS RELEASE THE PUCK?**

→ NO →

**DOES THE BLOWER MOTOR COME ON WHEN THE GAME IS PLUGGED INTO A KNOWN GOOD 120V AC OUTLET?**

NO → **REFER TO CHART #6, "AIRFLOW PROBLEMS"**

YES ↓

**THERE IS A 3-PIN MOLEX CONNECTOR LOCATED ON THE FAR LEFT SIDE OF THE WOODEN CONTROL PANEL. IS THERE A GOOD CONNECTION?**

NO → **RE-CONNECT AND RESTART YOUR GAME.**

YES ↓

**INSPECT THE SOLENOIDS. FIRST, REMOVE THE GOAL END, MOUNTED WITH TWO SCREWS AND A J8045 LOCK. NEXT, REMOVE THE SOLENOID BRACKET, MOUNTED AT A 45 DEGREE ANGLE BETWEEN THE PLAYFIELD AND THE ENDWALL, SECURED WITH FOUR PHILLIPS-HEAD SHEET METAL SCREWS. VERIFY THAT THE WIRES ARE CONNECTED AND THE SOLENOIDS ARE MOUNTED CORRECTLY (ALLOWING THE SOLENOID PLUNGER TO MOVE FREELY THROUGH THE HOLE IN THE ENDWALL). ARE THE SOLENOIDS MOUNTED CORRECTLY AND CAN THE PLUNGERS MOVE FREELY?**

NO → **THE SOLENOIDS ARE MOUNTED WITH TWO PHILLIPS-HEAD SCREWS. LOOSEN THE SCREWS AND REPOSITION THE SOLENOID(S) SO THE PLUNGER IS ABLE TO MOVE FREELY RECONNECT AND RESTART**

YES ↓

**WITH THE GAME PLUGGED IN AND STARTED USE A VOLTMETER TO CHECK FOR THE PRESENCE OF 120 VOLTS AC AT THE SOLENOID INPUT CONNECTORS. IS THE VOLTAGE PRESENT?**

NO → **NOTE: TURN THE POWER OFF FOR THIS TEST! WITH AN OHMMETER, CHECK FOR CONTINUITY BETWEEN THE INPUTS OF THE SOLENOIDS AND THE 3-PIN MOLEX CONNECTOR, LOCATED ON THE FAR LEFT SIDE OF THE WOODEN CONTROL PANEL. IF A DEFECT IS PRESENT, THE REPAIR OR REPLACE DEFECTIVE WIRE(S)**

YES → **SOLENOID FAILURE order replacement**

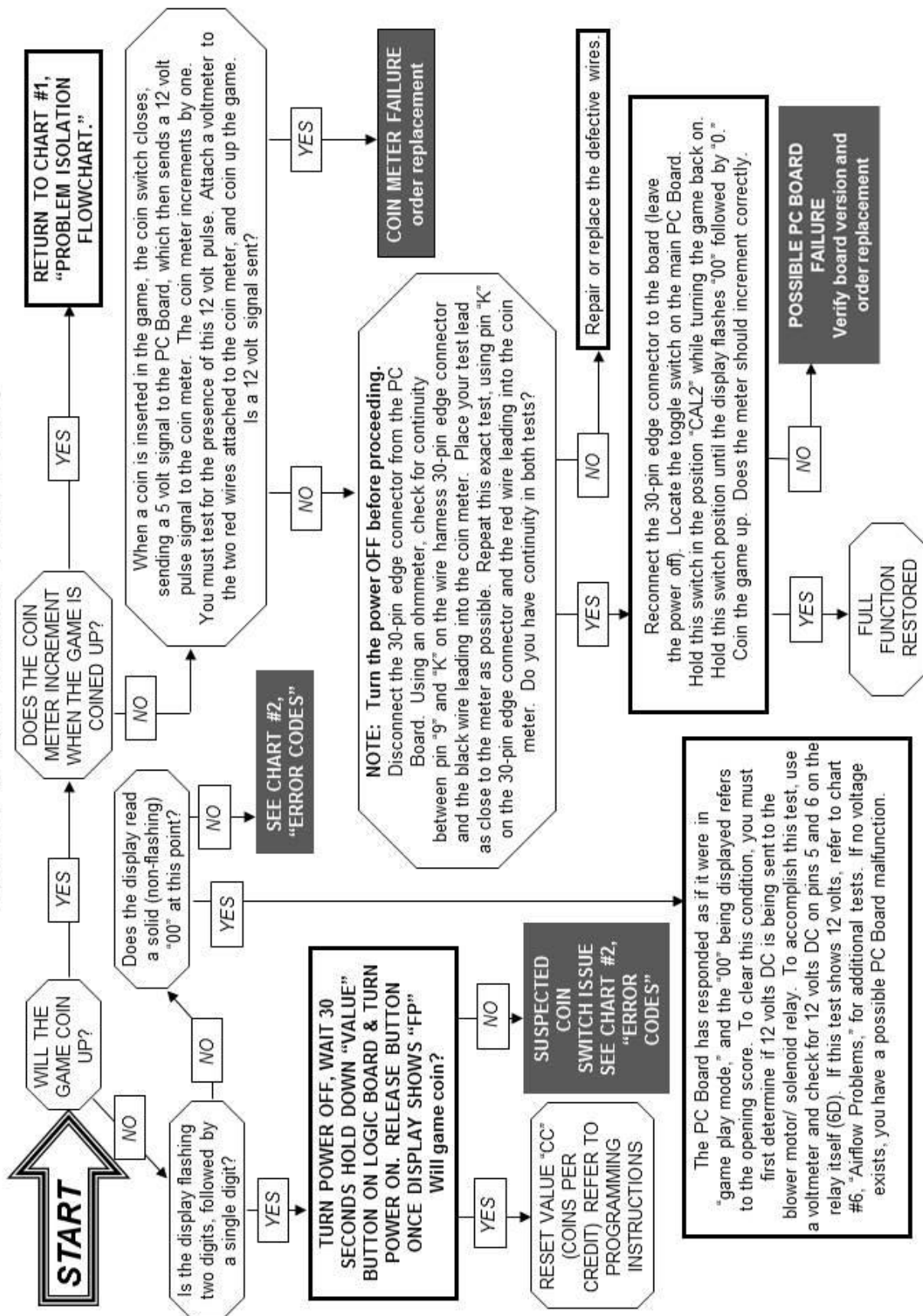YES → **RETURN TO CHART #1, "PROBLEM ISOLATION FLOWCHART"**

*FOR PROBLEMS NOT COVERED IN THE ABOVE EXAMPLES, PLEASE CONTACT VALLEY-DYNAMO TECH SUPPORT 972-595-5300 TECHHELP@VALLEY-DYNAMO.COM*

## Closing Notes

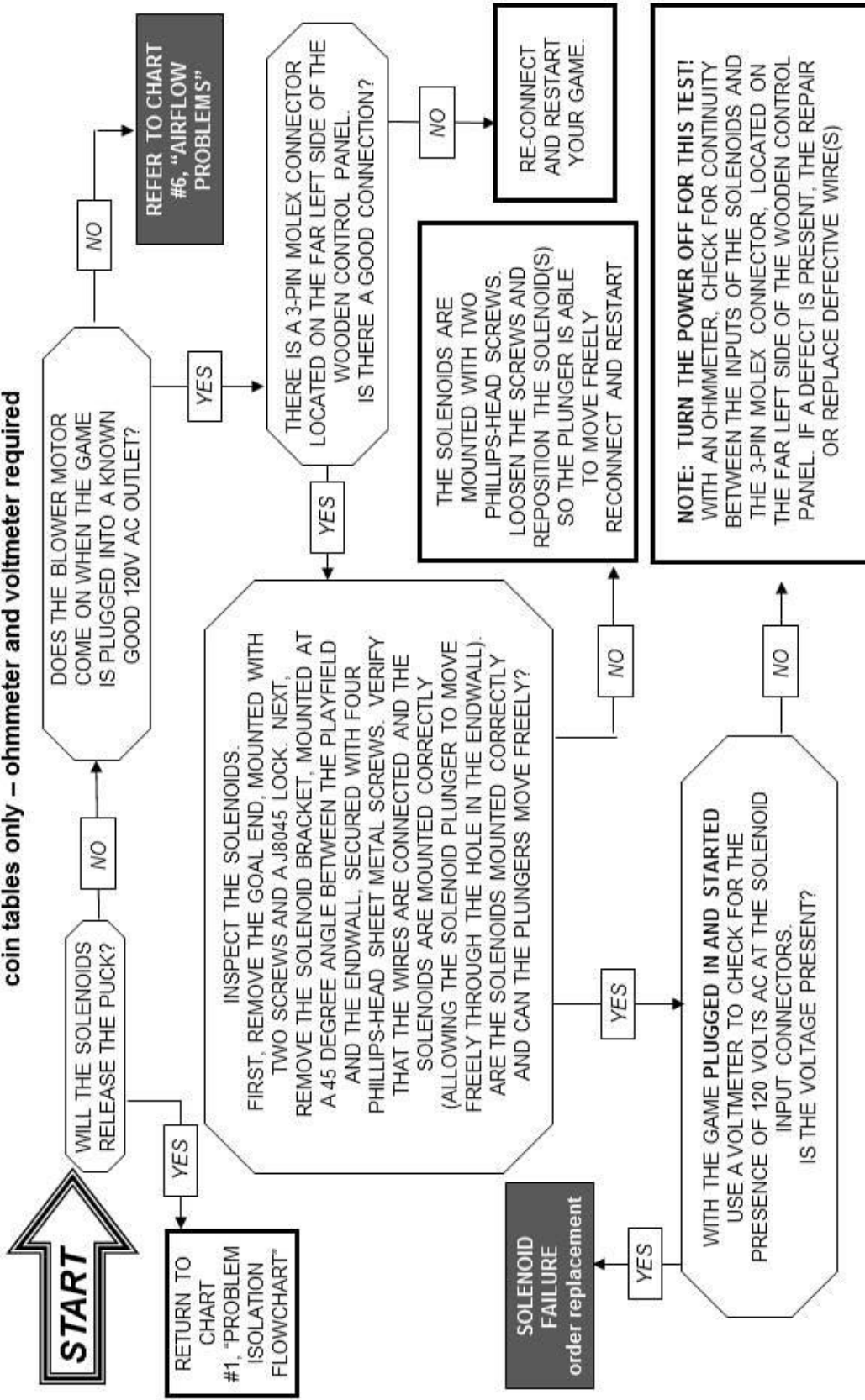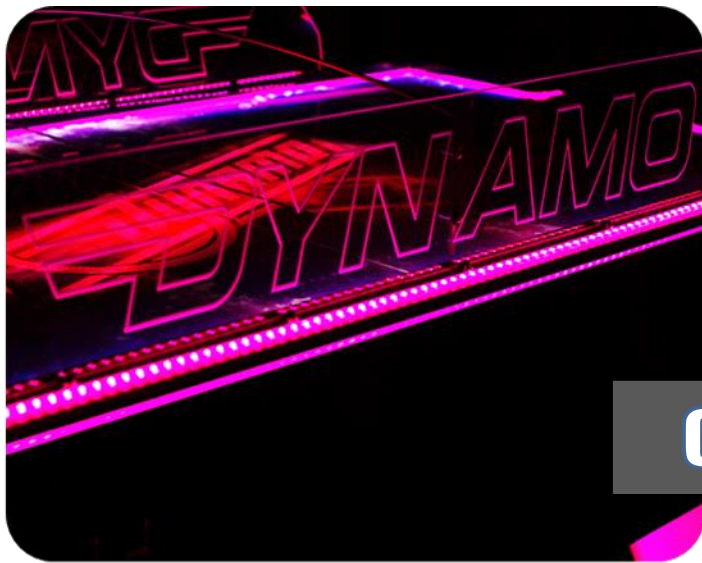Just as with the disks and instructions sent with that brand new Computer, Phone, Television, Printer, practically ANY electronic device these days, information can and will change between the time this was printed and the time you reached for the manual. Sometimes between printing and actual purchase.

The most current and complete troubleshooting, technical and parts breakdown information can be found at any time at

# www.valleydynamoparts.com

For additional assistance:

# Email anytime: techhelp@valley-dynamo.com

## During business hours (Central US Time): call 972.595.5300 and follow the prompts for Tech support

We hope your proudly American-built Dynamo Hockey table provides decades of trouble-free enjoyment.  Thanks again for considering Dynamo.
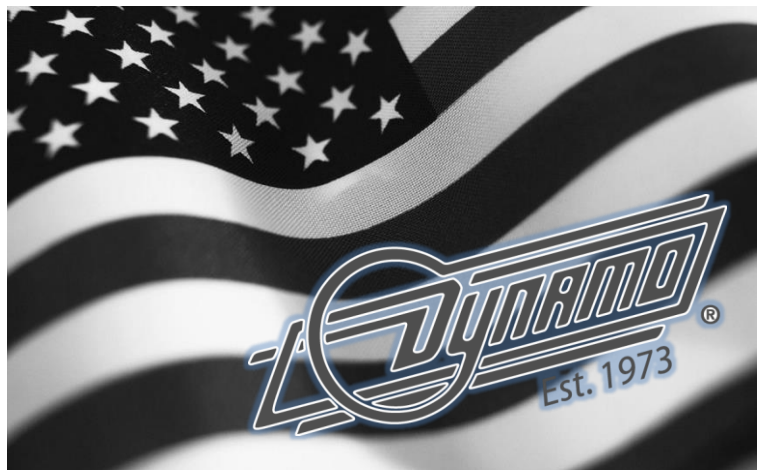
# THE PERFECT COMPANION PIECE TO DYNAMO HOCKEY

Perhaps you've heard we make a pretty good pool table too. Dynamo's Sedona is available in basic push-chute models as well as electronic DBA models with numerous programmable features to maximize your income.  Both in 88'', 93'' or 101'' sizes.  And all Dynamo products are proudly built in Richland Hills TX USA.

 Contact your distributor today, or check out the full Dynamo line at

# valley-dynamo.com.