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 the defective unit.
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**WARRANTY LENGTH**

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

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**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 90 days from the date of purchase. 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. To avoid billing issues, request an RMA when the failed part is present or readily available. 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.

**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. 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.

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

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FOR GENUINE DYNAMO PARTS AND SERVICE CONTACT YOUR LOCAL AUTHORIZED DYNAMO DISTRIBUTOR.

PARTS CAN ALSO BE ORDERED AT WWW.VALLEYDYNAMOPARTS.COM
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 involved in the setup of 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.

Open the coin door and remove the cash box lid, and the cash box with its contents. *The keys to open the coin door are found with the instruction manual, taped to the playfield protective pad.*

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 a #106 key, open the trapdoor 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.
Congratulations on purchasing a Dynamo Hockey table -

BE SAFE: it is strongly recommended that you have at least two people involved in the setup of our hockey tables.

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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.

Taped to the bottom of the cash box are two #106 keys, which are used to open the access door (located on the same side of the table as the coin housing assembly). 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 on the floor of the access area 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.
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

**Kit Contents:**
- Side Shields 2
- Center Shield 1
- Rubber Grommets 18
- ¼ - 20 x 1” Black Oxide Hex Bolts 4
- Lock nuts 4
- ¼” Black Oxide Washers 8

**Tool required**
- Phillips Screwdriver

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

2. Insert Rubber Grommets into the holes from the top of each Side Shield.

3. On the Fire Storm, 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.

6. Install (2) Rubber Grommets in each of the Side Shields, from the outside.

7. Install the Center Shield by aligning it with the two holes in each Side Shield and assemble using (4) each of the bolts and nuts, as well as (8) Washers.

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 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
SCORING

- The first player to score 7 points wins the game.
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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.
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) where 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.

Once a year or so, 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 the Program Configuration pages (17-19) for the timer adjustment parameters.

**COIN COUNTER:**
Your Dynamo Hockey is equipped with a coin counter. This counter is advanced once for every credit detected.
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)
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.

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- **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)
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- **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.
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.

<table>
<thead>
<tr>
<th>Ref #</th>
<th>Part Number</th>
<th>Item Description</th>
</tr>
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<tbody>
<tr>
<td>860400090</td>
<td>PUCK, FLUORESCENT</td>
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<tr>
<td>860400150</td>
<td>PUCK, FLUORESCENT QUIET WHITE</td>
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<tr>
<td>860400210</td>
<td>MALLET, FLUORESCENT WHITE</td>
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<td>980400200</td>
<td>SANDPAPER DISC</td>
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<tr>
<td>030400260</td>
<td>3-PIECE SHIELD SET</td>
<td></td>
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<tr>
<td>030400300</td>
<td>3-PIECE SHIELD SET FOR SHORT SHOT</td>
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</tr>
<tr>
<td>980000705</td>
<td>LOCK WITH #J8045 SCREW LOCK GOAL ENDS</td>
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<tr>
<td>030000140</td>
<td>KEY #J8045 GOAL ENDS</td>
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<td>800401921</td>
<td>GOAL END, LOCK ENTRY, BLACK, BEST SHOT / PROSTYLE</td>
<td></td>
</tr>
<tr>
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<td>KEY #106 - SERVICE DOORS</td>
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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.

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<tr>
<th>Ref #</th>
<th>Part Number</th>
<th>Item Description</th>
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<td>860400090</td>
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<td>PUCK, FLUORESCENT QUIET WHITE</td>
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<td>*</td>
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<td>3-PIECE SHIELD SET</td>
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<td>H1</td>
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<td>3-PIECE SHIELD SET FOR SHORT SHOT</td>
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<td>H2</td>
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<td>LOCK WITH 1KEY J8045 SCREW Lock GOAL ENDS</td>
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<td>KEY J8045 GOAL ENDS</td>
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</tr>
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<td>H8</td>
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<td>LOCK WITH #106 KEY FOR SERVICE DOORS</td>
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<td>*</td>
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<td>WIRE HARNESS, SCORE, SIDE MOUNT EXTENSION</td>
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<td>H20 880400140</td>
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<td>PCB, 7.0 DOMESTIC HOCKEY LOGIC USE WITH 880400715 10V TRANSFORM</td>
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<td>ASSY, SERVICE PANEL, VER. 7.0 (BOARD AND ELECTRONICS)</td>
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<td>* 730400100 WIRE HARNESS, MAIN HOCKEY</td>
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<td>* 730400200 WIRE HARNESS, EXPORT CE HOCKEY</td>
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<td>* 730408305 WIRE HARNESS, SCORE DISPLAY MAIN</td>
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<td>H22 880400300</td>
<td>SOLENOID, 120 AC - USA DOMESTIC</td>
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<td>SOLENOID, 12 DC CE TABLES ONLY</td>
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<td>* 879900150 SOLENOID LOCKING PIN, 1/8 x 3/4 ROLL PIN</td>
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<td>* 980400100 SOLENOID RETURN SPRING</td>
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<td>RELAY, G4W-11123A USTV8HP12DC</td>
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<td>TRANSFORMER, 120V TO 10 VAC - USE WHEN UPGRADING pre-2004</td>
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<td>TRANSFORMER, STEP DOWN 220V TO 110V AC</td>
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<td>BLOWER MOTOR 110V - USA DOMESTIC</td>
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<td>BLOWER MOTOR, 220V</td>
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<td>SPEAKER SET (OF 2) FOR TABLES WITH SOUND ONLY</td>
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<td>PLAYFIELD, FIRE STORM UV (BLACK W/FLAME TRIM)</td>
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<td>PLAYFIELD 5-FOOT BLUE W/SMALL LOGO (SHORT SHOT)</td>
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<td>H39 880303140</td>
<td>COIN DOOR WITH LOCK, FRAME AND ROLL-DOWN MECHS</td>
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<td>H40 800200750</td>
<td>METAL CASH BOX BOTTOM</td>
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<td>H40 860000815</td>
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MOST OVERHEADS

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<td>Mounting Bracket Clamp - HF II Fluorescent</td>
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<td>H50 800404752</td>
<td>Mounting Bracket Clamp - Silver</td>
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<td>H50 800404762</td>
<td>Mounting Bracket Clamp - Black</td>
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<td>H51 800404728</td>
<td>Mounting Bracket (Side) - HF II Fluorescent</td>
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<td>Mounting Bracket (Side) - Silver</td>
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<td>H51 800404738</td>
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<td>870048150</td>
<td>Washer ¼&quot; Zinc</td>
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<tr>
<td>870012307</td>
<td>Screw, Black, Pan Head Phillips ¼-20 x 1&quot;</td>
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FIRE STORM OVERHEAD ONLY

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<td>H52 800450110</td>
<td>Overhead Tube Cover - Fire Storm</td>
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<td>H53 800450090</td>
<td>Mounting Bracket Clamp - Fire Storm</td>
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For Non-coin home-model tables only

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<td>On/Off Rocker Switch</td>
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<tr>
<td>860800475</td>
<td>Red Start Button</td>
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PCB Identification

V7.0 – U.S. 110v tables
Without sound
part # 880400125

V9.0 – U.S. 110v tables
With sound
part # 880400140
4A—Display Connector
4B—12v 30-pin Connector
4C—Transformer Output
4D—Transformer Input
4E—Transformer supply line w/Varistor
4F—5-amp Breaker
4G—Power Cord

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

V7.0 — U.S. 110v tables
Without sound
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 your 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 # 1, PROBLEM ISOLATION FLOWCHART

START

VERIFY THAT THE GAME IS PLUGGED INTO A WORKING 120V AC OUTLET.

IS THE DISPLAY LIT?

NO

SEE CHART #3, "POWER PROBLEMS"

YES

IS THE DISPLAY FLASHER 00/0?

NO

UNPLUG THE GAME FROM THE WALL SOCKET AND PLUG IT BACK IN.

SEE CHART #2, "ERROR CODES"

YES

IS THE DISPLAY NOW FLASHER 00/0?

NO

SEE CHART #5, "COINING PROBLEMS"

YES

SEE CHART #6, "AIRFLOW PROBLEMS"

WILL THE GAME START? (DISPLAYING A STEADY "00": THE BEGINNING SCORE).

DOES THE COIN METER INCREMENT WHEN THE GAME IS COINED UP? (COIN TABLES ONLY)

NO

SEE CHART #2, "ERROR CODES"

YES

DOES THE GAME END AFTER THE SELECTED NUMBER OF GOALS?

NO

POSIBLE PC BOARD FAILURE Verify board version and order replacement

YES

POSIBLE PC BOARD FAILURE Verify board version and order replacement

WILL THE SOLENOIDS RELEASE THE PUCK?

NO

FOR PROBLEMS NOT COVERED IN THE ABOVE EXAMPLES, PLEASE CONTACT VALLEY-DYNAMO TECH SUPPORT
972-596-5390 TECHHELP@VALLEY-DYNAMO.COM
CHART # 2, ERROR CODES

START

IS THE DISPLAY FLASHING 00/0?

YES

NO

IF GAME DOES NOT START,
RETURN TO CHART #1,
"PROBLEM ISOLATION
FLOWCHART."

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

NO

SWITCH FAILURE
order replacement

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

NO

Locate and repair short
or order replacement
wire harness

POSSIBLE PC BOARD
FAILURE
Verify board version and
order replacement

CONTACT VALLEY-DYNAMO
TECH SUPPORT
972-595-6300
TECHHELP@VALLEY-DYNAMO.COM

IS THE DISPLAY FLASHING 08? (1)

NO

YES

NO

IS THE DISPLAY FLASHING
ANYTHING AT ALL

YES

NO

IS THE DISPLAY
FLASHING 00/0?

POSSIBLE PC BOARD
FAILURE
Verify board version and
order replacement

YES

NO

TURN POWER OFF
WAIT 30 SECONDS
HOLD DOWN "VALUE"
BUTTON ON LOGIC BOARD
& TURN POWER ON.
RELEASE BUTTON ONCE
DISPLAY SHOWS "FP"

Possible PC Board
Failure
Verify board version and
order replacement

IF GAME DOES NOT START,
RETURN TO CHART #1,
"PROBLEM ISOLATION
FLOWCHART."
CHART #3A, POWER PROBLEMS – VERSION 7.0 PCB

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.

START

IS THE DISPLAY LIT?

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

NO

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

YES

POWER CORD FAILURE
Repair or replace

NO

CHECK FOR THE PRESENCE OF 120 VOLTS AC ON THE POWER CORD (4G).

NO

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

TRANSFORMER FAILURE
order replacement

NO

CHECK FOR THE PRESENCE OF 120 VOLTS AC ON THE WHITE CONNECTOR WITH THE RED VARISTOR (4E).

NO

AN OPEN CONDITION EXISTS BETWEEN THE CONNECTOR VARISTOR AND TRANSFORMER.

YES

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

NO

POSSIBLE PCB BOARD FAILURE
Verify board version and order replacement

YES

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

NO

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

NO

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?

YES

YOU HAVE AN OPEN CONDITION IN THE WIRING HARNESS BETWEEN THE TRANSFORMER AND THE EDGE CONNECTOR. REPAIR OR REPLACE THE DEFECTIVE WIRE.

NO

FOR PROBLEMS NOT COVERED IN THE ABOVE EXAMPLES, PLEASE CONTACT VALLEY-DYNO TECH SUPPORT 972-595-5300 TECHHELP@VALLEY-DYNO.COM
CHART # 3B, POWER PROBLEMS – VERSION 7.0 PCB

START

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

NO

START A GAME. DID THE BREAKER TRIP?

NO

FULL FUNCTION RESTORED

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

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.”

FOR PROBLEMS NOT COVERED IN THE ABOVE EXAMPLES, PLEASE CONTACT VALLEY-DYNAMO TECH SUPPORT

972-595-5300 TECHHELP@VALLEY-DYNAMO.COM
CHART # 4, POWER PROBLEMS – VERSION 9.0 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?

YES

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

YES

PROCEED TO CHART #7, “PUCK RELEASE PROBLEMS.”

NO

BLOWER MOTOR FAILURE. ORDER REPLACEMENT

NO

FULL FUNCTION RESTORED

FOR PROBLEMS NOT COVERED IN THE ABOVE EXAMPLES, PLEASE CONTACT VALLEY-DYNAMO TECH SUPPORT 972-596-6300 TECHHELP@VALLEY-DYNAMO.COM
CHART #5, COINING PROBLEMS

START

WILL THE GAME COIN UP?

YES

DOES THE COIN METER INCREMENT WHEN THE GAME IS COINED UP?

YES

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

NO

NO

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

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 "S" 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

COIN METER FAILURE
ORDER REPLACEMENT.

NO

RETURN TO CHART #2, "ERROR CODES."

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

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 # 6, AIRFLOW PROBLEMS (voltmeter and ohmmeter required)

START

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

NO → START A GAME. DID A PUCK DROP?

NO → BLOWER MOTOR FAILURE order replacement

YES → A 3-pin connector (Fig 6A) is located inside the game, mounted on the wooden control panel. Using a voltmeter, check for the presence of 120 volts AC where the blower motor plugs in. Is a 120 volt signal present?

YES → NOTE: TURN THE POWER OFF BEFORE PROCEEDING WITH THIS STEP!!

Using an ohmmeter, check for continuity between the blower motor relay and the 3-pin at Fig 6A. No continuity will exist on at least one of the wires. Repair or replace the defective wire(s).

NO → NOTE: TURN THE POWER OFF BEFORE PROCEEDING WITH THIS STEP!!

Using a voltmeter, check for the presence of 120 volts AC at the blower motor relay. To accomplish this, place one test lead on either pin 3 or 4 of the relay (both are load voltage inputs – one will have a black wire leading to it) and the neutral (white) wire (Fig 4F). Is a 120 volt signal present?

YES → Using a voltmeter, check for the presence of 12 volts DC on the red and purple wires of the relay. Is a 12 volt signal present?

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

YES → RELAY FAILURE return wiring to prior configuration and order replacement relay

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

WIRING FAILURE : DEFECTIVE WIRE MUST BE REPAIRED OR REPLACED

TURN THE POWER OFF AND UNPLUG THE GAME BEFORE PROCEEDING WITH THIS STEP!

On the blower motor relay (6D), remove the black wire from pin 3 or 4 and connect it to pin 1 or 2 (whichever is available). Plug the game back in and the blower motor should come on immediately.

Did the blower motor come on?

NO → NOTE: TURN THE POWER OFF BEFORE PROCEEDING WITH THIS STEP!!

Using an ohmmeter, check for continuity on the black wire which runs between pin 3 or 4 on the blower motor relay and Fig 4F. No continuity should exist on this wire, which must be repaired or replaced.

YES → NOTE: TURN THE POWER OFF BEFORE PROCEEDING WITH THIS STEP!!

Using a voltmeter, check for the presence of 12 volts DC on the rod and purple wires of the relay. Is a 12 volt signal present?
CHART # 7, PUCK RELEASE PROBLEMS

coin tables only – ohmmeter and voltmeter required

START

WILL THE SOLENOIDS RELEASE THE PUCK?

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

YES

NO

REFER TO CHART #6, “AIRFLOW PROBLEMS”

INSPECT THE SOLENOIDS.

YES

RE-CONNECT AND RESTART YOUR GAME.

NO

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

YES

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

NO

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

YES

NO

FOR PROBLEMS NOT COVERED IN THE ABOVE EXAMPLES, PLEASE CONTACT VALLEY-DYNA MO TECH SUPPORT 972-695-5300 TECHHELP@VALLEY-DYNA MO.COM
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