Deck Mate® 2

Single Deck Shuffler

Participant Edition

Shuffle MASTER

Scientific Games Corporation
6650 S. El Camino Road
Las Vegas, NV 89118, USA
1 855 777 7435 (Toll Free)
702 897 7150
http://www.scientificgames.com

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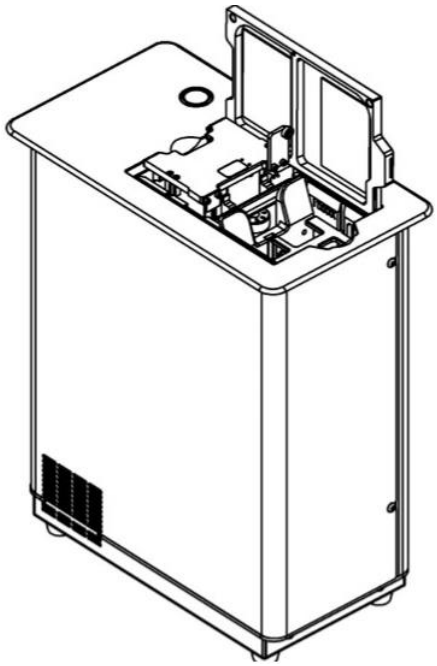
Introduction

What is a *Deck Mate® 2*?

A *Deck Mate® 2* shuffler is a second generation single deck shuffler that is primarily configured for poker shuffling on a poker table. With its newly combined card recognition and unique rack shelving systems, its shuffling capabilities delivers a fair, random shuffle every time with increased speed and accuracy of each game.

The *Deck Mate® 2* can also be mounted flush to the table, making it a smart addition and a great enhancement to other single deck, hand pitched blackjack and poker based table games.

Machine Specifications



Shuffler:

Main Dimensions:

Depth:	183 mm	7.20”
Width:	324 mm	12.75”
Height	394 mm	15.5”
Weight	12.25 kg	27 lb.

Power Consumption:

100-120VAC, 200-240VAC

1.5/.075 A; 50/60HZ

Shuffle Time (Approx.):

22-24 second

Features and Benefits

- Card Recognition capabilities.
- Faster shuffle time (22-24 seconds) than previous model (45-55 seconds).
- Faster boot time than previous Linux based shuffler(s) (35 seconds on average).
- Camera diagnostics and iTOOLS functions are now menu embedded (no need for separate iTOOLS flash drive).
- Internal and remote touch screen displays.
- Sorts cards in a variety of out of box configurations.
- Has built in timer to "call the clock" on slower players.
- Cards are randomly placed into unassigned rack positions.
- Works with all card types and brands, which permits a casino to use any brand of cards.

Deck Mate® vs. Deck Mate® 2 Differences

Principal Differences

- The Deck Mate® 2 shuffler is now used only for 'single-deck Blackjack', 'single-deck Poker' and 'single-deck Poker +1' card games. The original Deck Mate® shuffler allowed for single- or double-deck Poker and Blackjack.
- Just like the original Deck Mate®, the Deck Mate® 2 will recognize and shuffle both 58mm "narrow" width Bridge-size cards and 63mm "wide" Poker-size cards, however, to prevent potential damage, the Deck Mate® 2 will not shuffle 58mm cards when configured for "wide" cards, nor will it shuffle 63mm cards when configured for "narrow" cards.

Software Upgrades

- The Deck Mate® 2 now uses a Linux operating system vs. the EPROM based software of the original Deck Mate®. The operating software is installed through the use of a single USB installer.

- The Deck Mate® 2 includes a card recognition system which verifies the composition and completeness of the entire deck during each shuffle. The original Deck Mate® counted the number of cards, only. When found, the counts of 'Total', 'Missing', 'Extra' and 'Unknown' cards are displayed on the Touch Screen. In most instances, an image representing the card(s) is also displayed.
- On-board Camera Diagnostic software is now available for viewing stored image data, error images and a "live" camera image.
- Event Log data and stored image data can be saved to a USB flash memory device for viewing and printing. Downloading the Event Log requires a special USB flash drive containing software that causes the Log and image data to be copied into a time- and date-stamped folder on that same USB drive. The folder can then be accessed through any computer USB port.
- During initialization, software self-authentication is performed. When all software is verified and the authentications are successful, initialization will be completed. Operator action is not required. In the event of an authentication failure for any reason, the shuffler will stop all operation.
- The Program Digest feature provides a means for regulators and gaming authority personnel to verify that the software versions installed in the Deck Mate® 2 shuffler are the identical versions that were submitted for regulatory approval.
- A series of graphic LEDs that identify the On/Off state of all of the Switch and Sensor inputs is displayed in the Service Menu, rather than the digital binary sensor display used in the original Deck Mate®.
- The "Player Timer" is a countdown timer which is provided to assist the dealer when it becomes necessary to "call the clock" to force a slow player to make a decision about how they will play their hand. When either "Poker" or "Poker + 1 Joker" is selected as the active game, the "Player Timer" button is displayed on the Home Screen.
- The Deck Mate® 2 shuffler has the ability to Sort a deck back into the original order, as when the deck was new out of the box. Several pre-defined sort orders are selectable.

Mechanical Upgrades

- A moveable Rack system is now used to collate the shuffled card deck rather than a Gripper Assembly that 'gripped' and 'split' the card deck on a Platform. At the beginning of each cycle, the random number generator (RNG) assigns a position within the Rack for each card of the un-shuffled deck. The Rack is sequentially moved to each predetermined position and the next card is then delivered into the Rack.

- Full-function Touch Screens have replaced the original LED display. The Deck Mate® 2 shuffler includes one internal LCD Touch Screen and one USB-powered LCD Touch Screen w/ a 72" cable for remote access and dealer notification. The internal Touch Screen is deactivated when the remote Touch Screen is connected.
- The Deck Mate® 2 provides a simplified method for adjusting the Brake Roller Assembly for various card thicknesses, consisting of a graduated click-stop Adjustment Knob that controls the gap between the Upper and Lower Brake Rollers.
- An Automatic Card Weight was incorporated. The Card Weight Arm lowers to exert a slight pressure onto the back of the Feeder cards, causing the Pickoff Rollers to better "grip" the cards for delivery into the Speedup Rollers.
- The 'Red Button' was eliminated. Its functions are now selectable from the Touch Screen.
- The Deck Mate® 2 shuffler contains three (3) Hall Effect Cover Sensors to monitor that each of the covers remains in place during normal operations, as directed by Gaming Laboratories International specification GLI-29.
  - When the covers are in place and power to the shuffler is ON, removal of any cover will immediately cancel the shuffle.
  - When either cover has been removed before power to the shuffler is turned ON, (e.g., when servicing the shuffler), the sensors are ignored and operation is allowed to continue.
- The separate Platform Encoder found in the original Deck Mate® has been eliminated. The Rack Motor in the Deck Mate® 2 is now a unified Motor and Encoder in a single assembly.
- The Pickoff Rollers have been upgraded to a multi-faceted "decagon" style.
- The CPU Board and the Input/Output (I/O) Boards present in the original Deck Mate® were eliminated.
- In the *Deck Mate® 2*, there are three (3) modular electronic components:
  - Display Module - The Display Module centralizes the capabilities of the LCD Touch screen, the former CPU board and the current Input/Output functions such as Ethernet and USB communications. There are two Display Modules used in the *Deck Mate® 2*; one internal & one remote (external). The Display Module hardware is identical, but different software is installed into each, depending on how it will be used.
  - Machine Controller
  - Camera Module

Setup Options

- Automatic Setup is no longer required. Individual shuffler components are calibrated for physical card movement accuracy.

SHFL Flex (Optional)

- Automatic Setup is no longer required. Individual shuffler components are calibrated for physical card movement accuracy.

Hardware Installation

Required Tools and Parts

Shuffler Installation

Z1142 Install Kit, Deck Mate 2, Poker Table
F1341 Fixture, Locating, Deck Mate 2
T1169 1/2" Router Bit
T1157 Guide, Template, Router, 3/4" OD w/ Nut
P1314 Screw, Phillips, Pan Head, #8 X 1 1/4", Zinc
P1102 Washer, Flat #8
F1330 Template, Deck Mate 2
Plunge Router (DeWalt DW625, or equal)
Drill Motor/Screw Gun (Minimum 3/8" Chuck)
#2 Phillips Driver Bit
Utility Knife
Stapler/Staples

Remote Display Installation

Plunge Router (DeWalt DW625, or equal)
Drill Motor (Minimum 1/2" Chuck)
Drill Bit 1/2" Shank, 3/4" Diameter(McMaster 2905A27, or equal)
Drill Bit 1/4" Diameter
T1169 1/2" Router Bit
#2 Phillips Driver Bit
Utility Knife

DU2314 Kit, Flush Mount, Remote Display Fixtures

F1405 Fixture, Routing, Flush Remote DM2
F1414 Fixture, DM2 Flush Mount Remote Hole Template
(3/4" Hole) Locator
P1314 PPHS, #8 X 1.25; Qty. 2
P1102 Washer, Flat, #8; Qty. 2

From Final Assembly Package

DU2320	Remote Display Assembly, Flush Mount
DU2312	Bezel Socket, Flush Mount Display
DU2313	Spacer, Flush Mount Display (Qty. 2)
P2254	FHPS, #8 X 1.5, Black; Qty. 2

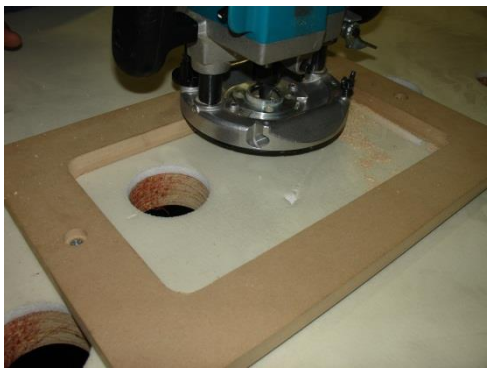
Table Cutout Dimensions

DECK MATE 2 TABLE CUTOUT DIMENSIONS
(USE FIXTURE F1330 AND ROUTER W/ ∅1/2 CUTTER AND 3/4 IINCH BUSHING (DEWALT DW625 OR EQUAL))

Procedure

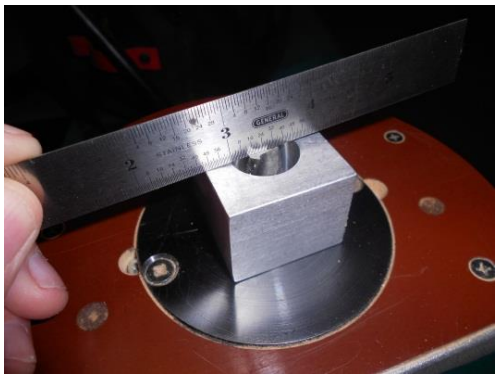
Before beginning, verify that a valid pre-site inspection has been done and that the "Pre-site Questionnaire" has been thoroughly reviewed.

1. Determine the mounting position for the Shuffler and the Remote Display.
2. If present, remove all table hardware and under-table components in the locations where the holes will be cut.
3. If present, remove or roll back the table layout to clear the area.
4. Place the shuffler Cutout Template (F1330) in the desired location. Secure it to the table top with 2 screws (P1314) and 2 washers (P1102).
5. With the Router Template Guide (T1157) and 1/2" Router Bit (T1169) mounted in the Router, completely cut away the table surface below the opening of the Template.



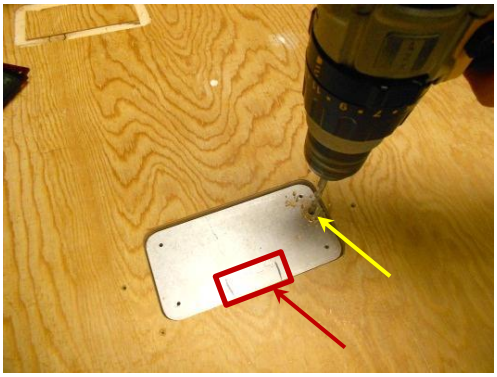
6. Remove the Cutout Template (F1330).
7. Determine where the Remote Display will be located. Be sure that there are no fixtures or components below the table at that location.
8. Place and secure the Routing Fixture (F1405) at that location.

9. Set the depth of the plunge router using the Depth Gauge (F1426). Use the same depth (1.25”) for all foam thicknesses.



10. Route out the table, moving back and forth and across until all of the material inside the template has been removed down to the set depth.
11. Remove the Router Template (F1405).

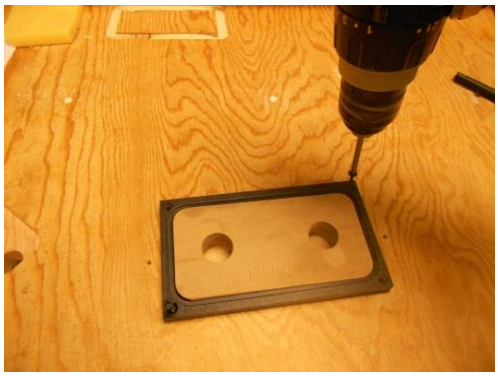
12. Place the 3/4”-Hole Locator (F1414) into the cutout. Orient the Locator so that the stamped fixture number (Red Box) can be read normally from the Dealers’ position, and so that the pilot hole is located near the top-right (Yellow Arrow).



13. Use the 1/4” drill bit to mark the location of the pilot hole.
14. Remove the Locator from the cutout.
15. Drill the 1/4” pilot hole completely through the table at the marked location.
16. Use the 3/4” drill to increase the diameter of the hole completely through the table.
17. Locate and align the Socket (DU2312) and Spacers (DU2313), if used, using the F1424 Flush Mount Locator.

Install the number of Spacers based on the thickness of the table foam:

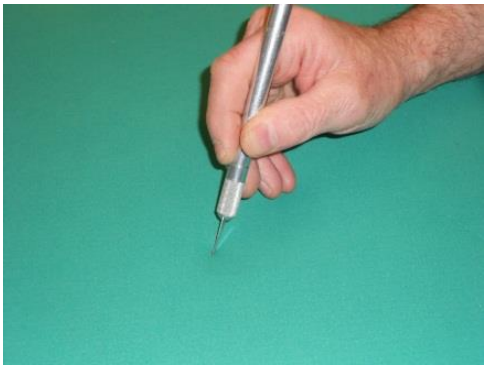
1/4” Thick Foam	No Spacers
3/8” Thick Foam	One Spacer
1/2” Thick Foam	Two Spacers



18. Secure the Socket/Spacers to the table using four (4) P2254 screws.

19. Remove the F1424 Locator and lay the foam back over the table.
20. Use the Utility Knife to cut the foam closely around the outside of the Socket.
21. Reposition (or replace) and staple the full table layout.

22. Carefully cut an "X" pattern from corner to corner within the shuffler cutout.



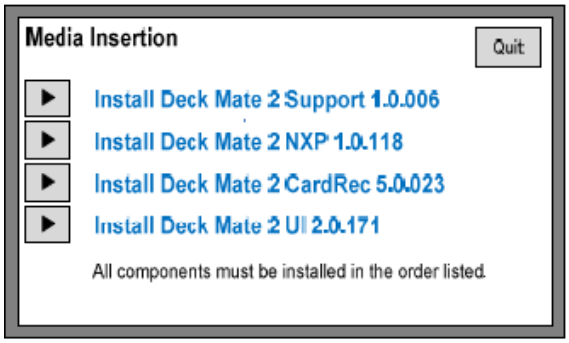
23. Staple the layout flaps securely to the inside edge of the shuffler cutout. Cut away all excess material that extends below the table.

24. In the same manner, carefully cut an "X" pattern into the felt from the corners of the inside of the socket. Trim away excess as needed.
25. Lower the Remote Display cable down through the 3/4" diameter hole.
26. Orient the Display Assembly so that the two (2) screw holes in the Bezel are closer to the Dealers' position. The Display cable should align directly with the 3/4" hole in the table.
27. Push the Display Assembly down into the Socket.

28. Secure the Assembly to the table using the two (2) P2254 FHPS screws.
29. Lower the *Deck Mate® 2* Shuffler into its cutout. Orient the unit so the Door opens away from the Dealer.
30. Insert the Power Cord into the receptacle on the shuffler. Insert the opposite end of the Cord into a main AC power outlet.
31. Insert the connector from the Remote Display into the USB port on the shuffler.
32. Properly secure all excess power and Remote Display cables to the underside of the table.

Software Installation

The *Deck Mate® 2* Shuffler software and deck calibration files are installed through the use of a single USB flash memory drive. The software should be installed in the order shown.

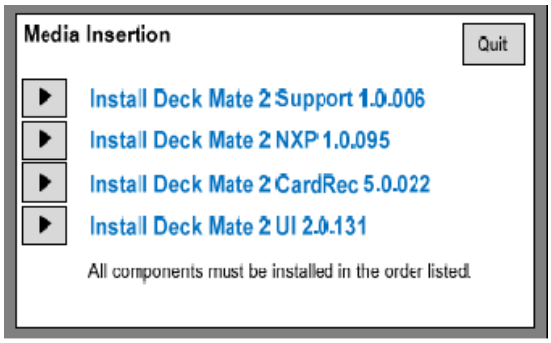


If 'Support' is installed after the 'UI', you will not be able to collect and save the History Logs.

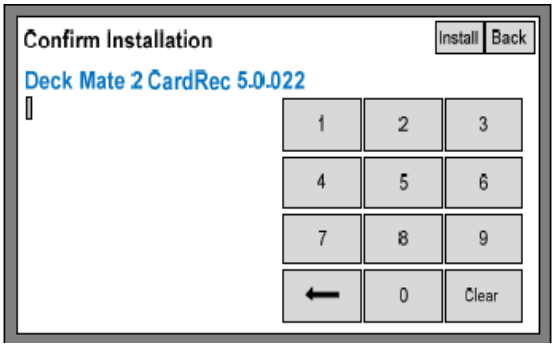
NOTE: Prior to the insertion of the USB Flash Memory Drive into the USB port, verify that the write-protect jumper at position JP3 on the *'Machine Controller PC Board'* does NOT connect both pins. The write-protect jumper can be located with the removal of the Bottom Cover on the shuffler.

Following power-up and initialization (the display may be blank if this is the initial installation):

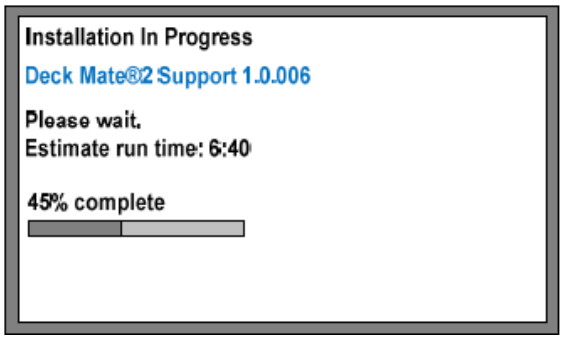
1. Insert the software flash drive into the USB port, located next to the power ON/OFF switch. The display will change to the Media Insertion screen.
2. Touch the top ▶ button in the list.



3. Enter Password



4. Touch Install. The Progress screen will be displayed.



5. When installation is successful, touch the Back button.

Software Auto Validation

Purpose

The self-authentication feature is designed to detect any corruption of the program files. File corruption could be caused by a physical failure of the on-board flash or by an error in programming the flash when the program is loaded. The self-authentication checks are performed at every power-up. The results are displayed by the User Interface program (the UI).

How Self-Authentication Works

Each executable file (program) contains an embedded SHA1 value, which is located in the final 20 bytes of each file. It is calculated and embedded in the file when the program is compiled. This SHA1 value is not reported to the user, nor is it listed in the submission documentation. During power-up, the program calculates the SHA1 value of the executable file -- however, the final 20 bytes of the file are not included in the calculation. The program then compares the calculated SHA1 value with the embedded SHA1 value for the file. Any mismatch is considered to be an authentication failure. The action taken by the program varies for each program, as described in the next section.

How Each Program Handles Self-Authentication

NXP

NXP is the machine control program that is located on the Main Board. When the self-authentication check is complete, it sends a serial message to the UI indicating the result; either pass or fail. If the authentication fails, it disables all the motors and remains in an endless loop monitoring the communication channel with the UI. When this happens, the shuffler is disabled.

NXP Failure

In the event of an NXP failure, the Home Screen displays an “NXP Failed Authentication” message in red at the top of the Display. The menus remain active to allow access to the Version and Program Digest menus for further program verification.

CardRec

CardRec is located on the Linux Display Module. CardRec runs authentication checks on both its own file (cardrecsvr) and another executable (cardrecweb). It then sends a serial message to the UI indicating the result. If either of these files fails to authenticate, CardRec sends a “failed” status and disables its own card-identification subsystem. CardRec Failure. If CardRec fails, the Home Screen displays a “CardRec Failed Authentication” message in red at the top of the Display. The green Start button is disabled; however, the menus remain active to allow access to the Version and Program Digest menus for further program verification.

User Interface (UI)

The UI is located on the Linux Display Module. At start up, it runs the authentication check and brings up the Initializing screen which displays the status of each program’s authentication. If all three pass authentication, the UI brings up the Home Screen. If any one

of them fails, the UI stays on the Initializing screen for 30 seconds while the failed program's status is displayed in red. The UI then goes to the Home Screen.

UI Failure

When a UI failure occurs, the Home Screen displays a "UI Failed Authentication" message in red at the top of the Display. The green Start button is disabled, however, the menus remain active to allow access to the Version and Program Digest menus for further program verification.

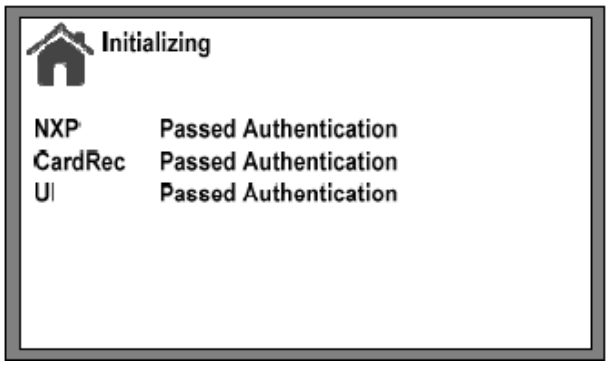
Recovery from a Failed Authentication

The program that has failed authentication should be reinstalled. If the program fails again on the subsequent power up, the device on which it is located should be replaced. For CardRec or the UI, replace the Linux Display Module. For NXP, replace the Main Board.

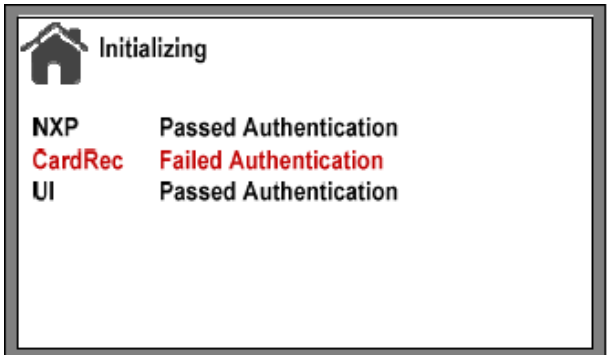
Summary

If any of the programs fail self-authentication, the shuffler is disabled while allowing access to tools for further verification.

During every power-up initialization, software self-authentication is performed. When all software is verified and the authentications are successful, the display will show briefly and initialization will be completed. Operator action is not required.



When an authentication failure occurs for any reason, the action taken by the program varies for each program. When a "Failed" message appears the program that has failed authentication should be reinstalled.



At power up, if the program fails again, the device on which it is located should be replaced:

- For CardRec or the UI, the device is the Linux Display Module
- For NXP, the device is the Main Controller Board

When there is a reported "NXP Communication Error" between the internal Display Module and the machine controller the 'Home Screen' appears with that message.

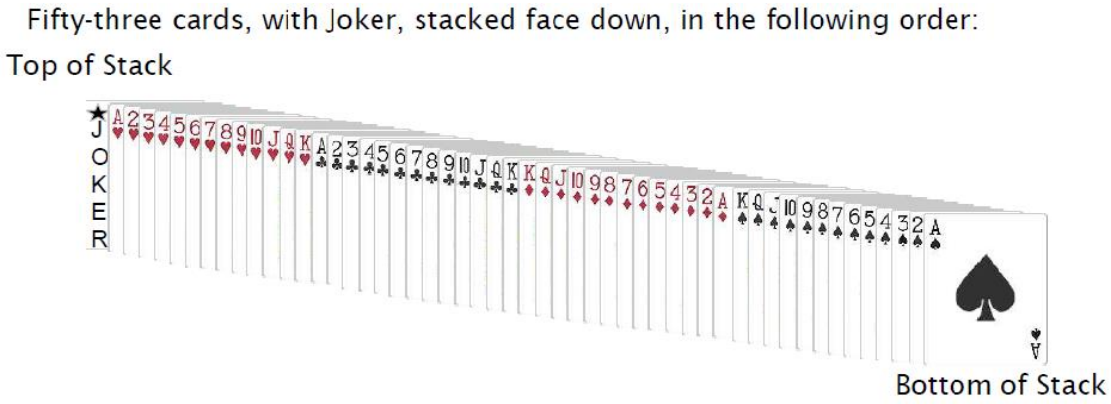
The three most likely causes are:

6. Loose plug at J3 on the Display Module or P35 on the machine controller PCB.
7. Faulty cable between J3 and P35.
8. Corrupt flash on the machine controller PCB

Deck Tuning

Based on the learned parameters, each of the 53 cards (52 cards + Joker) in the deck is scanned and camera settings are automatically adjusted and stored. The *Deck Mate® 2* presents the option of tuning with or without a Joker. All tuned images will be automatically displayed after every tune or retune, enabling technicians to review image accuracies or any potential deck type tuning issues. When retuning a deck, the new card image data replaces the image data previously stored for that deck type.

Prior to tuning, **MAKE SURE THE DECK IS IN THE CORRECT ORDER** to properly tune the deck type(s) to be used. Use the *'Playing Card Image Reference Book'* to locate specific deck type(s) and SID number(s) needed to successfully tune a deck to be used in live game play. When tuning, it is ideal and highly recommended to use brand new cards, for the Shuffler to have all covers on and secure, and have all camera assembly areas clean, to prevent possible image distortion due to lighting, or other outside elements. Following the completion of the tuning process, all tuned images will now be automatically displayed after every tune or retune, forcing the operator to review any potential issues



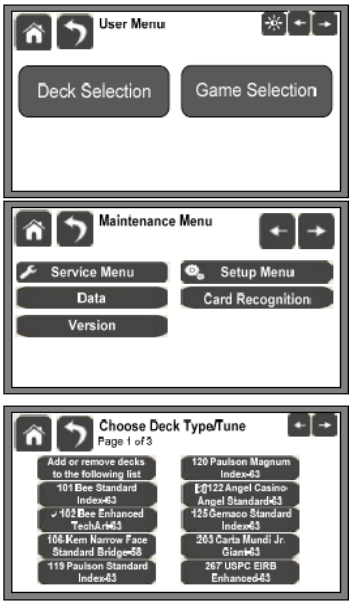
First-Time Deck Selection

Factory-set deck calibration values are different for every card type (i.e., brand or style). Installation of a deck calibration file into the card recognition system is the first step of the card tuning process. Card images are not used for card recognition but are available to allow the advanced technician to manually calibrate the image parameters, when required. For the *Deck Mate®* 2 Shuffler to recognize the ranks and suits, the card type currently in use must be selected as the active deck.

Shuffler Tuning Procedure

1. Touch  on the Shuffler 'Home Screen' to access the 'User Menu'.
2. Touch  to access the 'Maintenance Menu'.
3. Touch 

.
4. Enter the password.



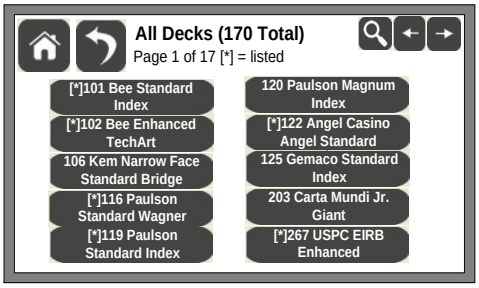
5. Touch ↵.
6. Touch Choose Deck Type/Tune on the 'Card Recognition' Menu.
7. The display will list the available decks.

The [_] symbol indicates the deck that is the currently active deck type.

The [X] symbol indicates a deck that has been selected, but has not yet been tuned.

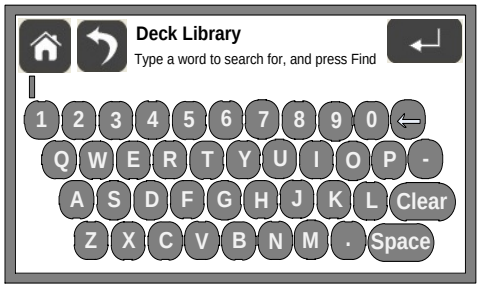
8. Touch → or ← to move through multiple pages.
9. Touch the button of the card type to be added to the list.

If the desired deck type does not appear on the list:



10. Touch Add or remove decks to the following list.
11. The 'All Decks' display allows for an "intelligent" search of the complete database containing all of the calibration files that are installed into the shuffler - both tuned and un-tuned.

12. Touch the Search button on the 'All Decks' screen to open the "Deck Library" keypad.
13. If you know the deck Identification (SID) number, touch the number into the display.



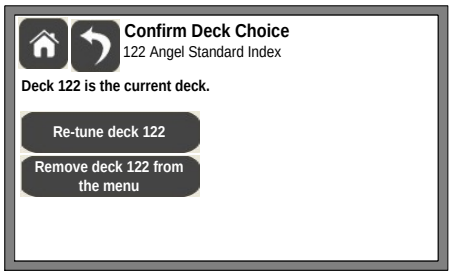
14. Touch .
15. If you do not know the exact SID number, type a partial number or partial description for the deck that you want to select. It is not necessary to type the complete name or number.
16. Touch . Deck Library will list all of the deck types that "match" the partial number or name that you typed.
17. Touch or to move through the available selections.
18. Touch the button of the desired deck. The selected deck is now available in the 'Choose Deck Type/Tune' window. An asterisk icon appears on the button to indicate that the "[*] deck is listed".
19. Touch to return to the list of selected deck types.
20. Select the deck from the menu screen
21. Select "Tune Deck" with or without a Joker
22. Arrange the deck, as shown; 52 cards (or 53, w/ Joker), stacked face down.
23. The Ace of Hearts should be the first card on the top of the stack. The Ace of Spades is the last card on the bottom of the stack.

When the Joker is used, the Joker is placed on top of the Ace of Hearts.

24. Load the deck into the Elevator.
25. Touch . Camera calibration will occur.
26. When the tuning process is complete the touch screen will display the tuned images and the cards will be ejected from the top of the Shuffler. Review the images for accuracy.

27. Touch to reveal the 'Confirm Deck Choice' screen.
28. Re-tune the deck, if required.
29. Remove the deck, if desired.

30. Touch  to return to the list of selected deck types.
31. Touch  to return to the 'Home Screen'.



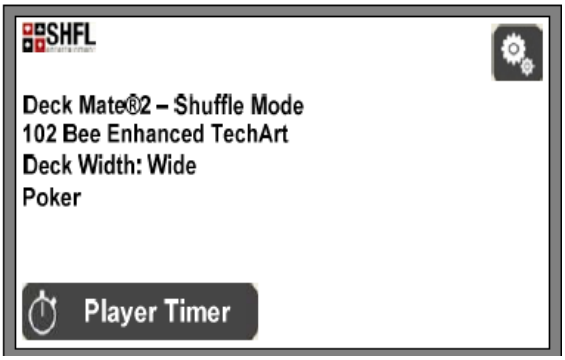
Overview of Operation

- Uses a Linux operating system for operation.
- Single deck shuffler only.
- Shuffles between 52 and 53 cards.
- Used on poker, blackjack, or poker based table games.
- Utilizes a rack shelving system to deliver a batch style of shuffling.
- Ability to sort cards back into out of box configuration.
- Counts and verifies deck composition of cards during and after a shuffle.
- If more than five (5) unrecognized cards are detected, the shuffle will be aborted.
- Paper (poker size) or plastic (bridge and/or poker size) textured cards can be used.
- The user friendly flush mounted remote touchscreen display, with optional green start button, has a quarter (1/4) second delay to the touch.

Operational Modes

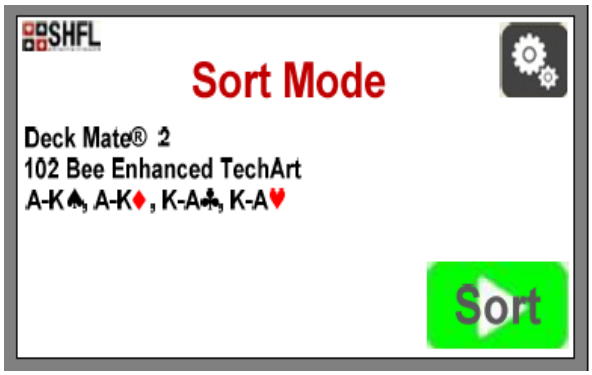
Basic – Normal Operation Mode

1. Power the Shuffler 'ON'(make sure deck has been tuned).
2. Check that the deck type and game are correct.
3. Press the GREEN button or press and hold the GREEN icon on remote display.
4. Insert cards in the *'Feeder Elevator'.*



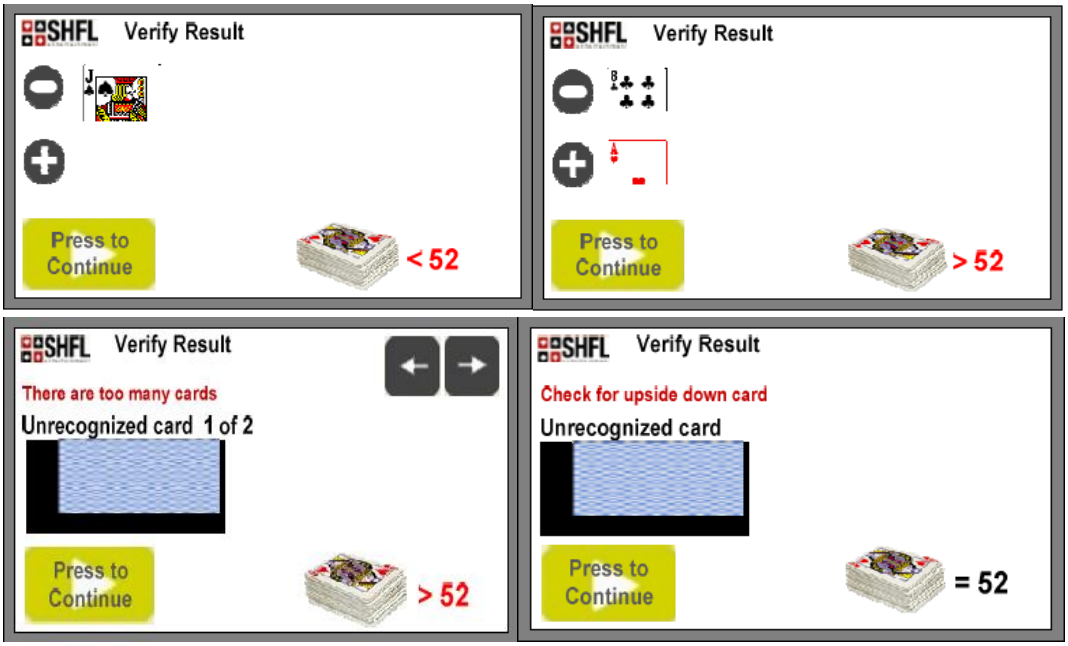
Sort

1. On the *'Home* Screen', press the icon on the top right of the display screen.
2. Select '*Sort*'.
3. Insert cards.
4. Press the *'Sort'* icon on the bottom right corner of the display screen.



Error Screens

In the event of a missing, extra, unrecognized, or misread of a card, the display will feature the screens below:



Icons and Screen Colors

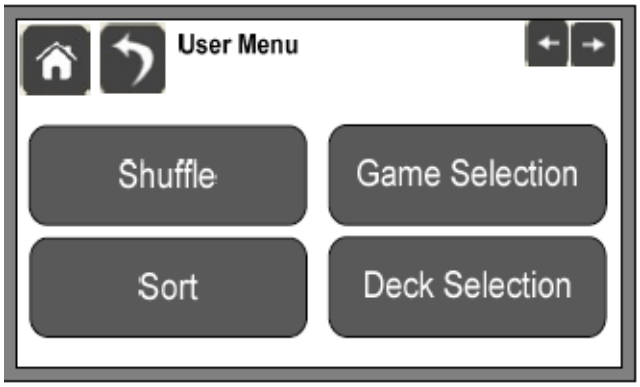
A color system is used for the Start icon and screen on the Display to generally alert the user of what type of error has occurred, if any. The following colors are displayed:

- A  icon generally means that the shuffler is ready to go. There are no current errors or faults in displayed and the shuffler is ready for use.
- A  icon generally means that a recoverable error of some sort has occurred and allows the user to recover from that error without technical intervention.
- A  screen generally means that a non-recoverable error has occurred and usually requires technical intervention from a trained technician or restarting of the shuffler.

User Menu

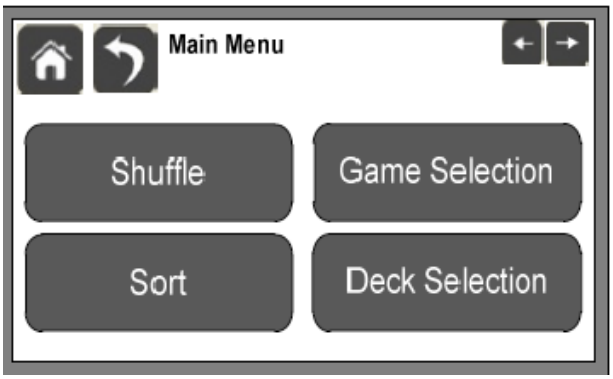
The '*User Menu'* provides access to the sub-menu options contained in the image below:

- Press the  icon on the top right of the home screen to access the *'User Menu'*.
- Press the  icon on the top right to page through to the *'Maintenance Menu'* items.



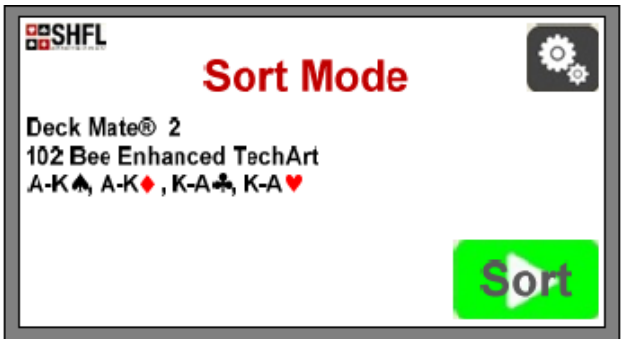
Shuffle

- By default, the *Deck Mate® 2* shuffler initializes to shuffle mode when power is turned on.
- If necessary, touch  to access normal shuffling mode when in *'User Menu'*.



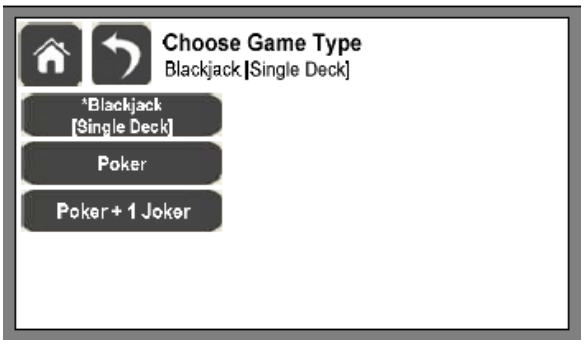
Sort

- Has the ability to sort a previously shuffled deck back into the original order configuration as when the deck was new out of the box.
- The available sort order is pre-defined and may not match the standard order of every manufacturer.
- Touch Sort on *'User Menu'* screen to initialize.
- Green button will flash off and on and display will display "Sort Mode" in red and "Sort" on the green start icon.
- The *'Sort'* mode cannot be selected when card recognition is *'Disabled'*, the Sort button in the *'User Menu'* will be "grayed" out.



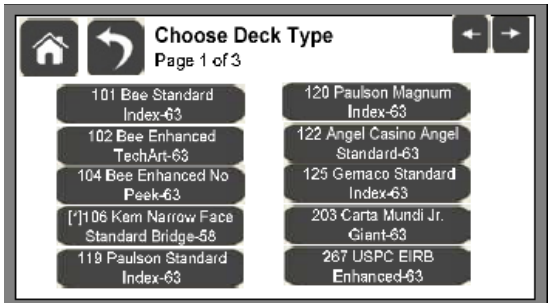
Game Selection

- Allows for the selection of a Blackjack game, or two variations of Poker.
- Select from one of three games from pre-programmed list:
  - Blackjack
  - Poker
  - Poker + 1 Joker
- Games listed are pre-defined and cannot be edited, deleted, or have any additional games added without a software revision.



Deck Selection

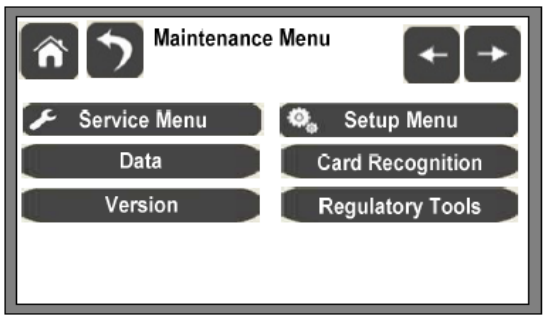
- Allows for the changing of a deck type(s)
- Only deck types that have been previously added and tuned will appear within this menu.
- To accurately recognize the ranks and suits, the card type currently in use must be selected.



Maintenance Menu

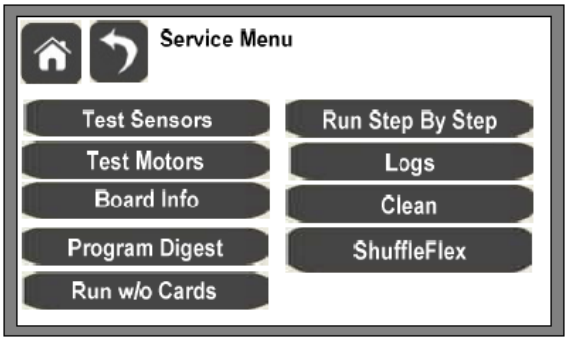
The *'Maintenance Menu'* contains features, setup, and service menus commonly accessed by trained service technicians.

- Touch the  icon on the *'Home Screen'* to access the *'User Menu'*, then touch the  to access the *'Maintenance Menu'*.



Service Menu

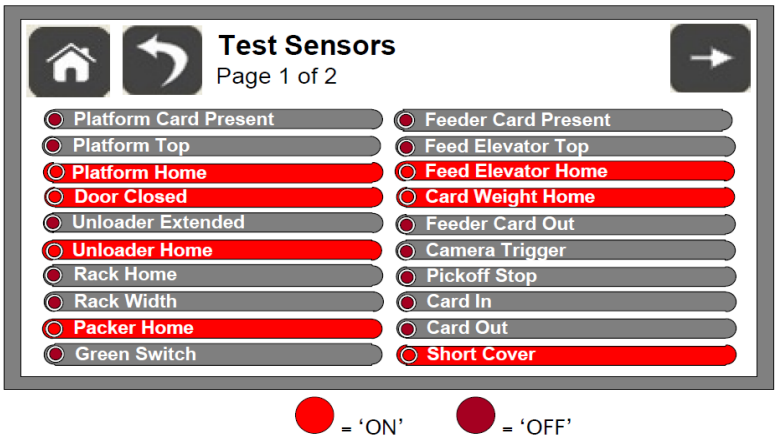
The Service Menu contains functions to perform maintenance test and component functionality, and service diagnostics.



Test Sensors

- Allows the user to manually test the operation and functionality of a potential faulty or dirty sensor or switch input.
- There are a total of 22 sensors and switches to test (Seven Thru Beam/Infrared Sensors, 14 Hall Effect Switches, and one button switches).
- A Thru-Beam Sensor is a sensor that uses an (invisible) infrared source transmitter to look across the card path to a receiver.
- Testing Thru-Beam/Infrared Sensors:
  - With power on, run or feed a card through the shuffler by hand. Each indicator should change its OFF= ● /ON= ● state as the sensor reacts to the presence of the card.
- A Hall Effect Switch is a sensor that detects the presence of a magnetic field.
- Testing Hall Effect Switches:
  - With power on, use a properly oriented magnet to operate the switch. The indicators should change its ON= ● /OFF= ● state as the switch reacts to the magnet.
- Refer to Pages 53-57 for locations and descriptions.

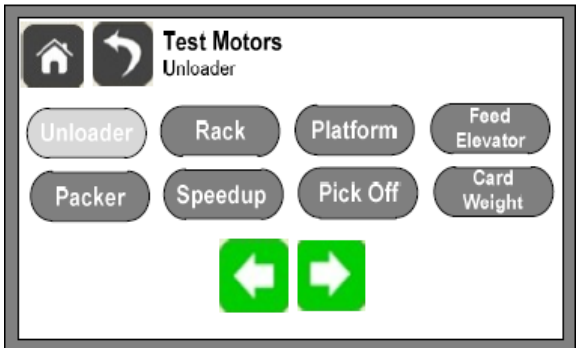
2. A series of LEDs are displayed that identify the ON/OFF state of the switch and sensor inputs.



Test Motors

- Allows a user to test the operation of each individual motor in a forward and reverse motion.
- Eight individual motors can be tested for proper functionality.

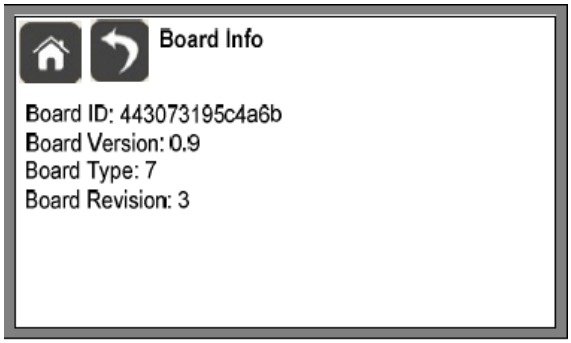
	Motors	
Name	Description	Plug No.
FM	Feeder Motor	5
CWM	Card Weight Motor	6
PEM	Platform Elevator Motor	7
RM	Rack Motor	22
UM	Unloader Motor	23
PM	Packer Motor	24
SUM	Speed Up Motor	26
POM	Pick Off Motor	27
FM	Fan Motor	36
BM	Blower Motor	37



Board Info

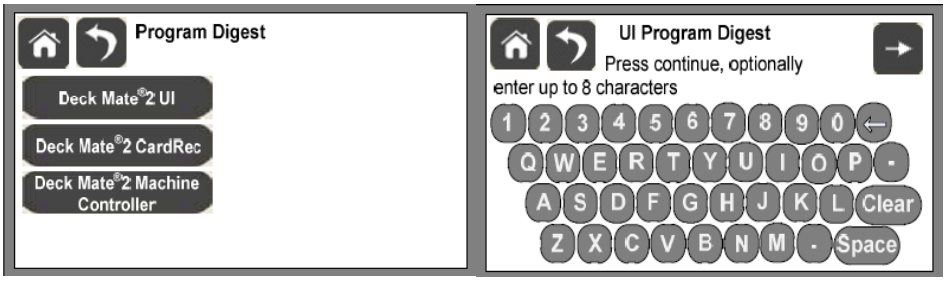
- Provides information about the main printed circuit Controller Board, including its Type and Revision Number.
  - Board ID: Serial number of the board

- Board Version: Version Number of the FPGA on the board
- Board Type: Identifies the type of main board, 7 = Deck Mate 2, 8 = I-Deal plus
- Board Revision: The revision level of the PCB artwork



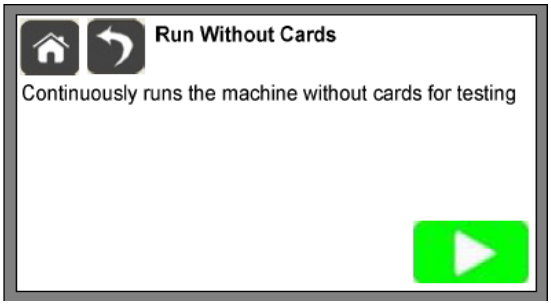
Program Digest

- Provides a means for regulators and gaming authority personnel to verify that the software versions installed are the same version that were submitted for regulatory approval.
- Displays a unique 40 digit string of encrypted numbers and letters commonly referred to as the "SHA-1 signature".



Run w/o Cards

- Allows the user to continuously run the machine without cards for testing and diagnostic purposes.
- Shuffler must be manually stopped to exit mode.



Run Step By Step

- Allows the user to move a card, one at a time, from the *'Feeder'* into a random position within the Rack.
- Touch GREEN start button or icon to repeatedly advance a single card through.
- Press and hold the green start button or icon to advance all cards through, like a normal shuffle.

Logs

- Allows the user to review and/or delete shuffler event data.
- Presents data with the most recent entry at the top of the list.
- Each entry in the *'Log'* can be expanded in order to read the entire line entry by touching the appropriate line item.
- The *'Logs'* can be downloaded using a separate USB flash drive that contains an application to perform this task.
- The *'DBUG'* button provides a means to either hide or display event LOG messages that may be generated during computer code testing activities.

Clean

- Allows the user to run the motors that operate the rollers in a forward and reverse motion for cleaning purposes.

- Cleaning mode allows the roller motors to function slower and adds more torque, to prevent the motors from stalling.

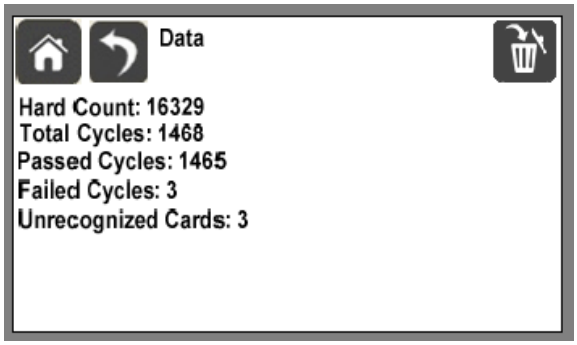
ShuffleFlex

- The *'ShuffleFlex'* button in the *'Service Menu'* is hidden and remains inactive until the feature is enabled and set to *'Yes'* in the *'Setup Menu'.*
- Allows the user to review, verify, and confirm that the cellular modem is connected properly and communicating to the system's website.
- Refer to the *Shuffle Flex™* manual for additional information.

Data

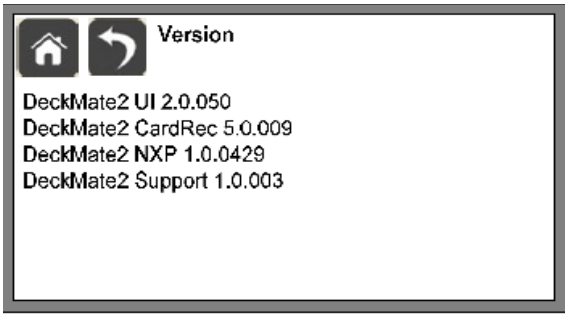
The *'Data Menu'* provides cumulative shuffler information tallied since the most recent previous '*Data'* reset.

- The *'Hard Count'* meter cannot be reset.
- Touch the to reset the data totals. The password is required to perform this task.
- Monitor variances between *'Total Cycles' and 'Passed Cycles'* (about a 5% or less theoretical variance between).
- *'Total Cycles'* should be used to determine the proper preventive maintenance level requirements and should also be reset after any preventive maintenance is performed.



Version

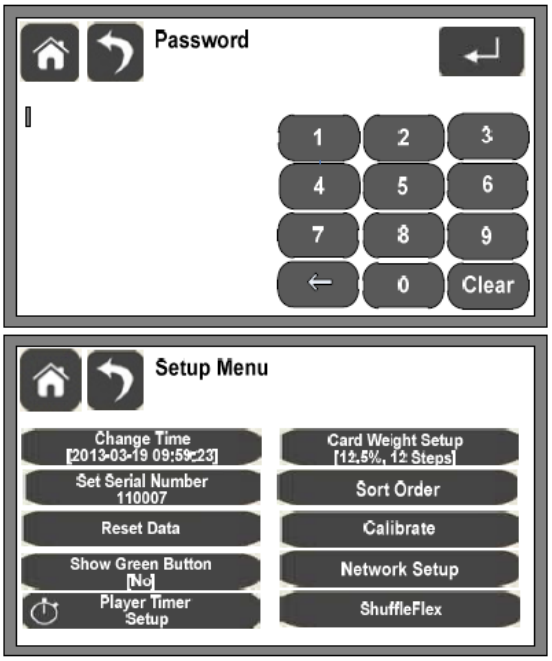
The *'Version Menu'* displays current loaded software version numbers of UI, Card Rec, Shuffler Control (NXP), and Support software. Software can and will vary based on individual gaming jurisdictions and individual state approvals.



Setup Menu

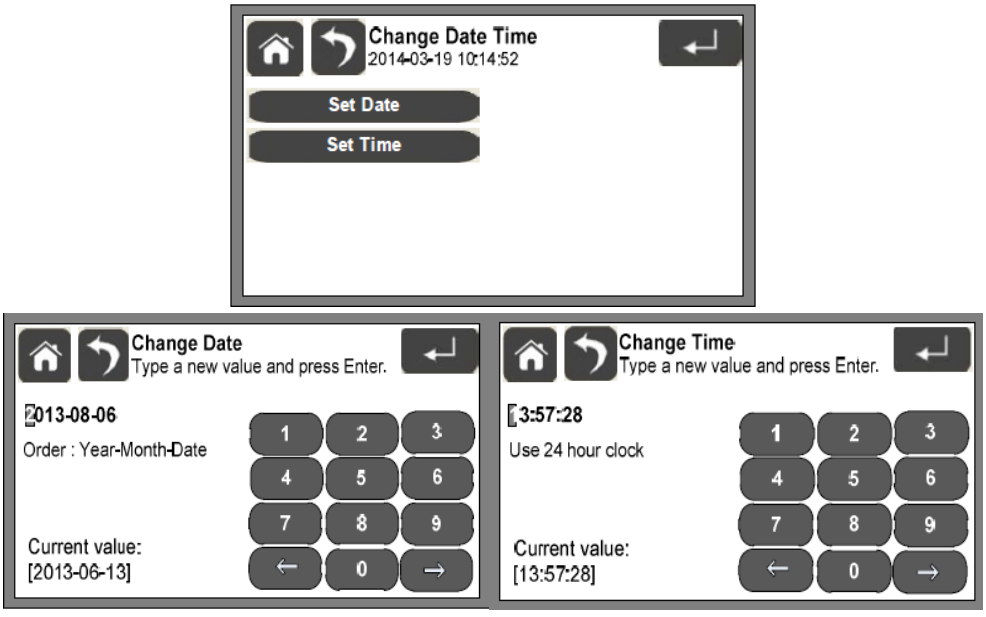
The *'Setup Menu'* contains settings and adjustments for default or custom operation.

- Enter the general password first to gain access to the *'Setup Menu'*.



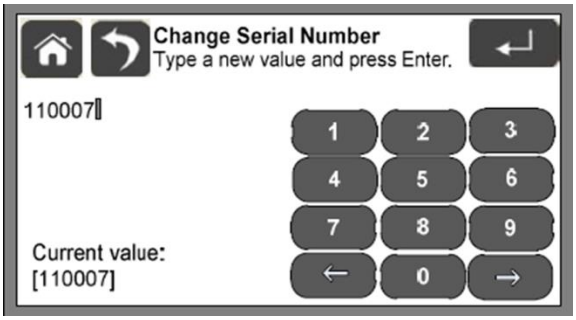
Change Time

- Allows the user to enter in the current *'Date'* and/or the current *'Time'* of day.
- The *'Date'* and *'Time'* settings are generally used for error reporting, log file stamping, and ShuffleFlex data reporting.
- The *'Time'* is displayed in a 24-hour format.
- Neither setting has any bearing on the actual shuffle or operation of the shuffler.
- The *'Date'* and *'Time'* are stored and held by the '*Battery'* on the *'Display Module Board'*.



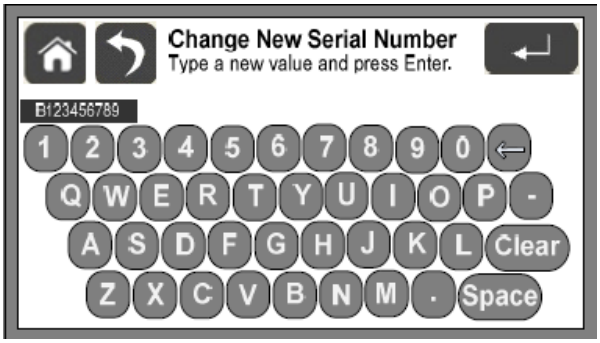
Old Serial Number

- Allows the user to input a numeric *'Serial Number'* of the serialized base plate of the shuffler.
- The *'Serial Number'* must be changed and entered, if the *'Display Module Board'* has been replaced.



New Serial Number

- Allows the user to input numeric and alphabetic characters for the *'Serial Number'* of the serialized base plate of the shuffler.
- The *'Serial Number'* must be changed and entered, if the *'Display Module Board'* has been replaced.



Show Green Button

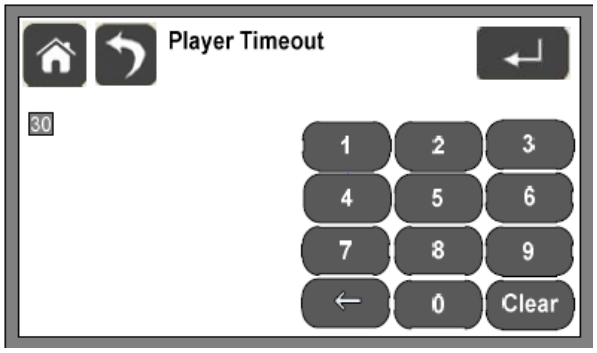
- Allows the user the option of displaying, or not displaying the ▶ icon on the *'Home Screen'*.
- The default setting is [No].
- If displaying the ▶, the icon will have a ¼ second delay to the touch, so user must press and hold to activate a function.
- If not displaying the ▶, shuffler operation is manually controlled solely through the use of the physical green button on the top plate of shuffler.

Card Weight Setup

- Allows the user to adjust the level of electric current (torque) delivered to the *'Card Weight Motor'* and adjust the distance that the *'Card Weight'* travels.
- Current defaults to 12.5% and increments up in 12.5% up to 50%.
- Steps defaults to a 12 setting and ranges from 6 to 20 step increments.
- In combination with the *'Change Steps'* adjustment, a higher level of current will increase the downward pressure delivered by the *'Card Weight'* onto the top of the card deck in the feeder.

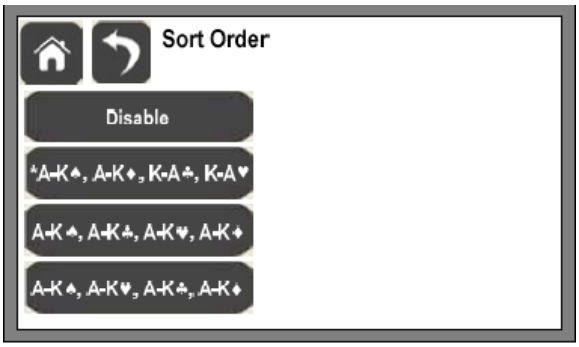
Player Timer Setup

- Allows the operator to configure the length of time (in seconds) allowed once it becomes necessary to "call the clock" on a slow player.
- Player timer defaults to a 30 second limit, but can be decreased or increased accordingly.
- Timer setting must meet the requirements of the casino's policies.



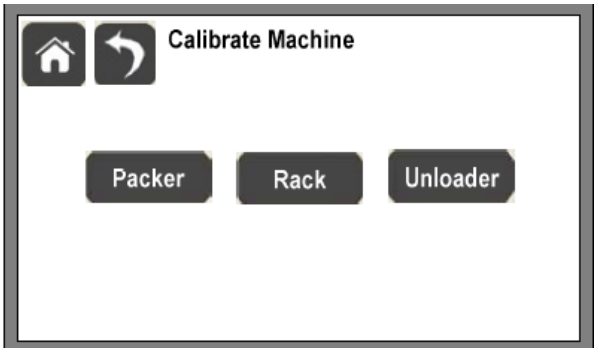
Sort Order

- Allows the user to set the rank and suit order used during the *'Sort'* mode.
- Sort order is pre-defined and cannot be edited, deleted, or added without a software revision.



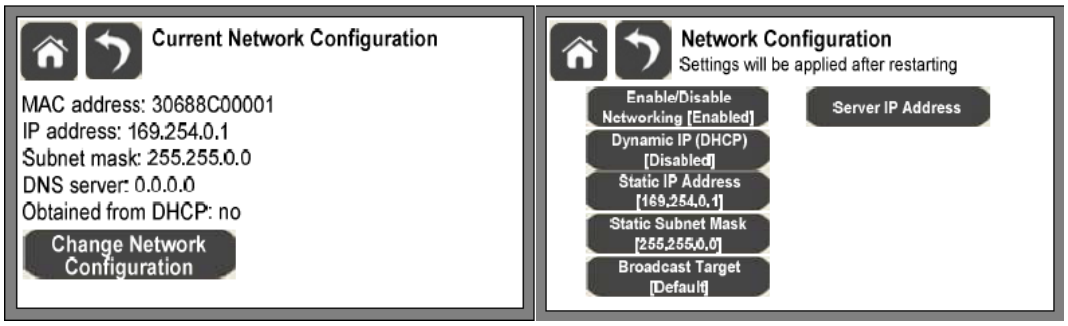
Calibrate

- Allows the user to make mechanical adjustments to the *'Packer'*, *'Rack'*, and *'Unloader'*.
- User must make sure to use the specified instructions used to make individual specific adjustments of the listed components.



Network Setup

- Allows the user to turn networking capabilities on or off and to enable or disable dynamic addressing.
- Setup is generally not used for technician purposes, unless instructed to by engineering personnel.

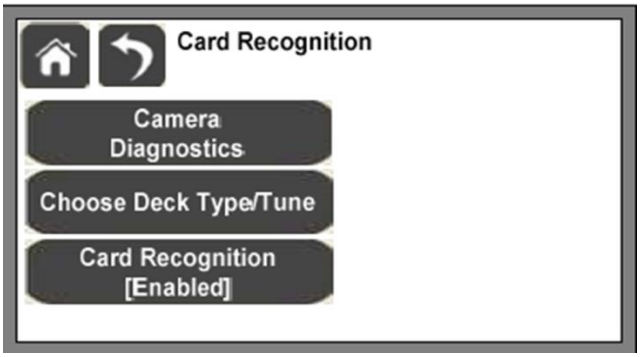


ShuffleFlex

- Allows the user to select *'Yes'* or *'No'* for the *'ShuffleFlex'* feature and configure the *'ShuffleFlex'* options.
- The *'ShuffleFlex'* feature should only be set to *'Yes'* when the *Deck Mate® 2* is equipped with the *Shuffle Flex™* modem.
- The default setting is *'Disabled'* for this feature.
- Refer to the *Shuffle Flex™* manual for additional information.

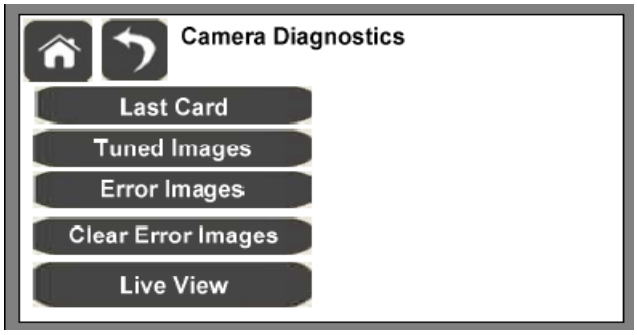
Card Recognition

The *'Card Recognition Menu'* contains tools that allow the *'Card Recognition'* functionality to be enabled or disabled and provides a set of imbedded diagnostic tools for image, error, and card recognition failures. This menu is password protected with a general password.



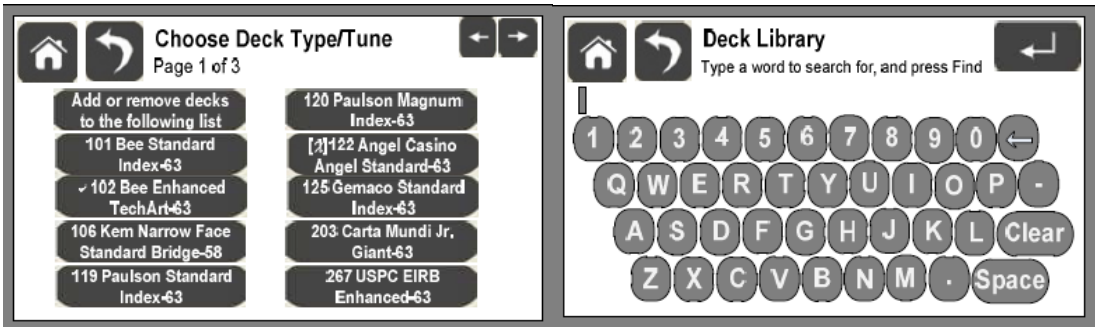
Camera Diagnostics

- Provides imbedded diagnostics tools for image, error, and card recognition failures.
- Similar menu options provided by the *'iTOOLS'* USB flash drive.
- The *'iTOOLS'* USB flash drive cannot be used with this shuffler.



Choose Deck Type/Tune

- For suits and ranks to be recognized when card recognition is in use.
- Deck type must be added to list first before proceeding to tune a new deck type.
- Deck type list is currently preconfigured with up to 170 total card libraries that can be added to and deleted from.
- Additional decks not listed in menu can be obtained through Order Entry.



Card Recognition

- Allows the user to *'Enable'* or *'Disable'* card recognition.
- *'Card Recognition'* can only be disabled if a card type has been previously tuned.

Regulatory Tools

The *'Regulatory Tools'* menu contains tests and simulations often requested by gaming and regulatory authorities during their review of operating software. This feature is password protected and unknown. Consult the Technical Compliance department for any further related information.

Preventive Maintenance

Environmental factors such as food at the table, presence of hand lotion, humidity, paper or plastic cards, card quality, frequency of card changes or table layout fabric may require maintenance to be performed more or less often. All levels should be used as a guide for minimum requirements when conducting preventative maintenance.

Level 1 - 6,500 Cycles

- Remove Side Covers and blow out or vacuum top of machine
- Clean Rollers with 99% isopropyl alcohol
- Brush or blow off all Sensors
- Check for debris on Shaft between CIS and COS. Clean if needed
- Wipe dirt and grime off of Camera LEDs
- Carefully clean exterior of the Camera Lens
- Carefully clean surface of the Remote Touch Screen
- Test run with casino's cards and check for proper operation

Level 2 - 13,000 Cycles

- Perform Level 1 Maintenance
- Remove Bottom Cover. Blow out or vacuum bottom of machine and filter
- Clean Camera Trigger Sensor transmitter and receiver
- Clean under-side of Camera Background Plate
- Clean Rack slots
- Use F1363 to check rack belt tension

Level 3 - 80,000 Cycles

- Perform Level 1 and Level 2 Maintenance
- Check Green Button for tightness
- Replace all Rollers and Bearings
  - 249167 Kit, Roller and Bearing, Deckmate2

Level 4 - 160,000 Cycles

- Perform Level 1, Level 2 and Level 3 Maintenance
- Replace all Rollers and Bearings
  - 249167 Kit, Roller and Bearing, Deckmate2

Components

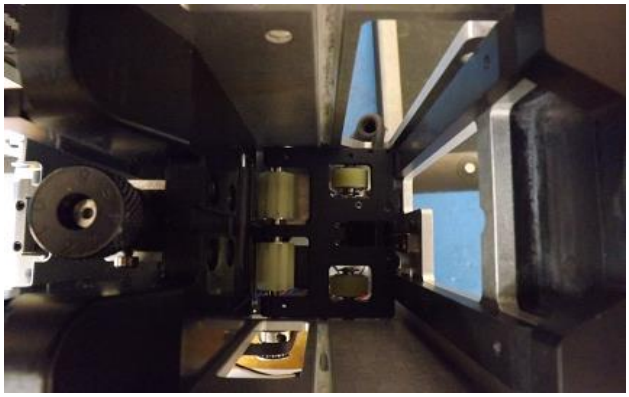
- Top Plate
- Feeder
- Platform
- Packer
- Rack
- Unloader
- Fuses
- NXP Board/Machine Controller Board
- Display Module
- On Board/Remote Display
- Dip switches & Jumpers
- Camera Assembly
- LED Light Bar
- Camera Background Plate
- Sensors and Switches
- Encoder
- Motors
- Communication

Top Plate

- Only one version available for both blackjack or poker
  - Has a different rack and card type configuration for Poker size cards vs. Bridge size cards.
- Contains single green start button/switch.

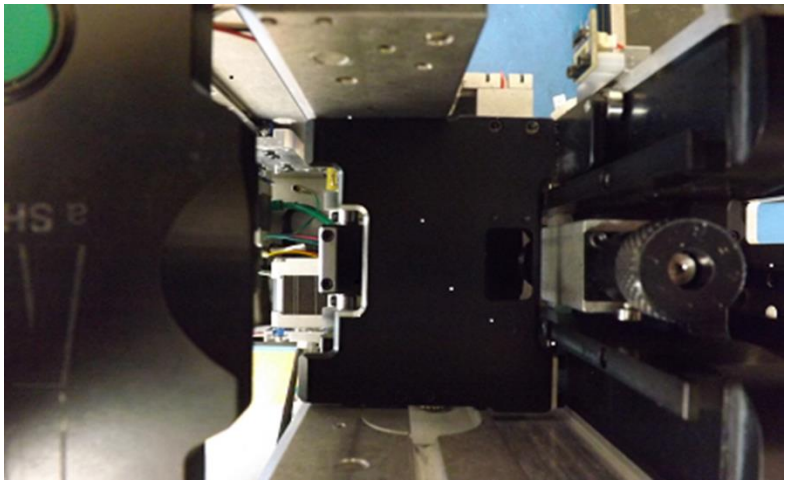
Feeder Platform

- Accepts and transports cards to camera, speed up rollers, and rack.
- Contains an adjustable brake roller to allow for the passage of a single card at one time.
- Contains an adjustable automatic card weight that will cycle up and down on top of the deck to help feed cards into speed up rollers.
- Card weight tension and travel is adjustable through *'Card Weight Setup'* option in the *'Setup Menu'.*
- Uses decagon rollers on the pick-off shaft for better card gripping.
- Shuffle is activated by feeder card present sensor (FCPS).
- Contains two adjustable Hall Effect switches that home the elevator (FEHS) and limits the loading position (FETS).



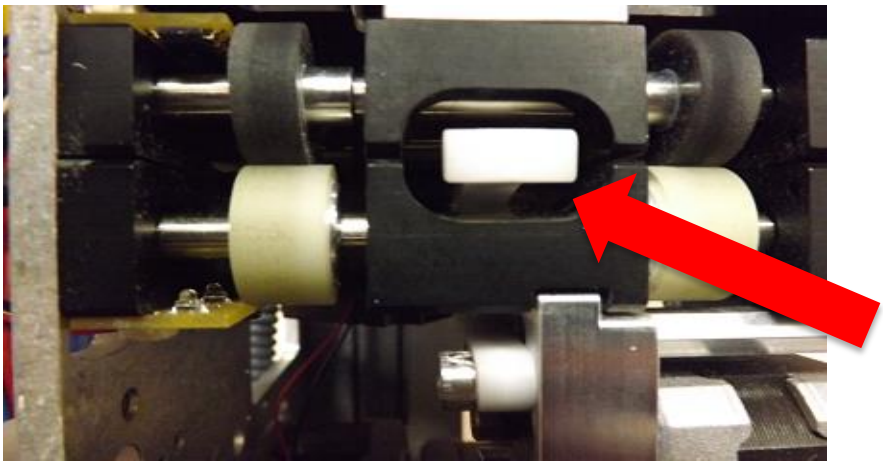
Platform

- Accepts cards from the rack, delivers completed shuffled deck from rack to dealer, and opens and closes the door.
- Contains a sensor that detects when cards are on (PCPS) and coiled harness #2.
- Contains two adjustable switches that homes the platform (PLHS) and limits the unloading position (PLTS).
- Adjust the '*Platform Home Switch'* so that the *'Platform'* will home out above the wire harnesses for the *'Card In', 'Card Out', and 'Pick Off Stop'* sensors.



Packer

- Pushes cards from the speed-up rollers into slots in rack.
- Controlled by home switch (PHS) and motor.
- Can be calibrated in the *'Setup Menu'*.
- Calibrated to be flush with upper and lower roller guides.



Calibrate Packer

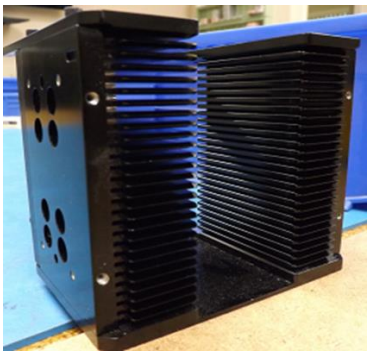
To Calibrate the *'Packer'*;

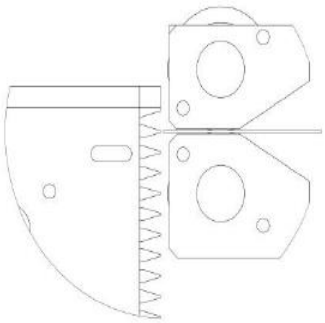
1. Hold a straight edge vertically against the "Packer opening" (pictured above).
2. Touch the  to extend the '*Packer'* "out" until it <u>just touches</u> the straight edge.
3. Touch  to retract the Packer "in" until the straight edge is flush against the "opening".

Each touch of a button will move the *'Packer'* five (5) micro-steps.

Rack

- 27 slots total for a maximum of up to 54 cards.
- 2 cards inserted in each slot.
- Cards rack location is assigned by RNG.
- Can be modified to accommodate different card widths.
- Can be 'Calibrated' in *'Setup Menu'*.
- The *'R*ack' must be square and leveled for the *'Rack'* to be properly calibrated in menu.
- Card guide adjustment can affect *'Rack'* calibration.
- Improper *'Rack'* belt tension can affect rack calibration and rack positioning.
- Calibrated so that card makes full contact with edge of *'Rack'* (pictured).





Calibrate Rack

The leading edge of the card MUST align squarely against BOTH the left and right *'Rack'* fins at the bottom of the top slot of the *'Rack'.* If the edge of the card can't be aligned squarely with BOTH *'Rack'* fins, then the *'Rack'* may need to be manually realigned using the Machinist's Square.

To calibrate the *'Rack'*:

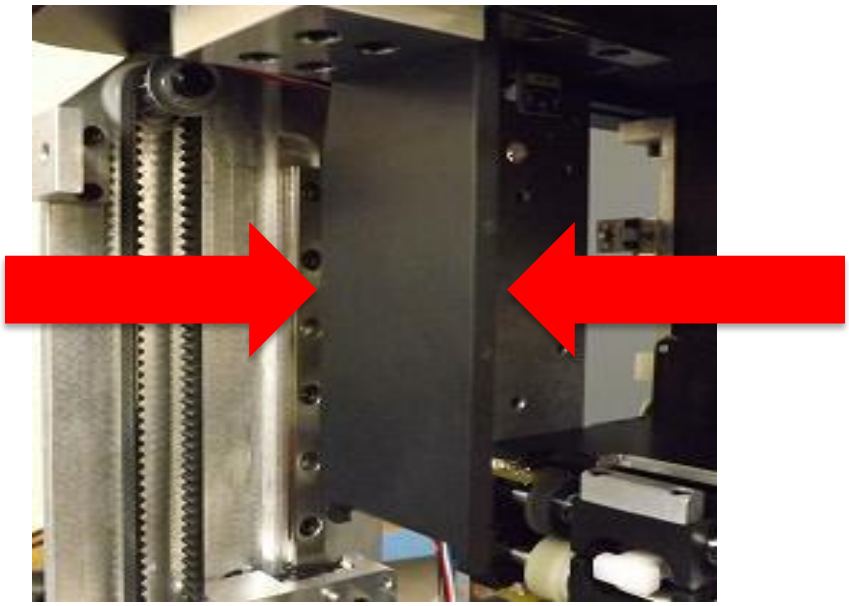
1. Load one (1) card into the *'Feeder'*, as instructed on the display.
2. Touch  . The *'Door'* will close and the card will move forward into the transport.

3. Manually turn the *'Speedup Motor'* pulley at to advance the card.
4. Touch  to raise the Rack. Touch  to lower the Rack.

Each touch of the button will move the *'Rack'* three (3) micro-steps.

Unloader

- Unloads cards from the *'Rack'* on to *'Platform*.
- Can be calibrated in *'Setup Menu'*.
- Proper adjustment on switch is 1/16th or six card gap between *'Unloader'* and *'Rack'*
- Calibrated to be flush with lower metal bracket.
- Controlled by two switches (UHS & UES) and one motor.



Calibrate Unloader

To Calibrate the *'Unloader'*:

1. Hold a "straight edge" vertically against the "Packer opening".
2. Touch  to move the *'Unloader'* "forward" (out) until it <u>just touches</u> the straight edge.
3. Touch  to move the *'Unloader'* "back" (in) until the straight edge is flush against the "opening".

Each touch of the button will move the *'Unloader'* five (5) micro-steps.

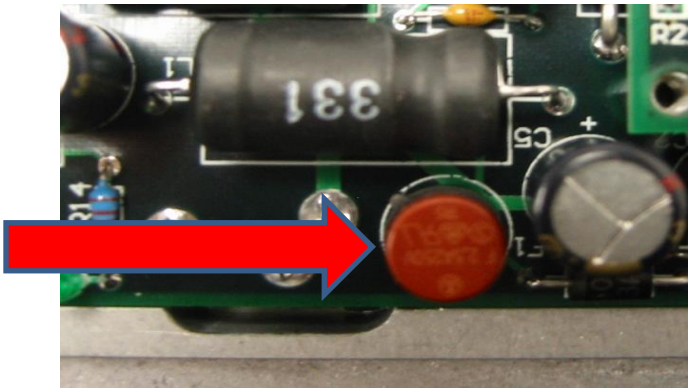
Fuses

Main AC

- Main inline fuse next to power socket.
- 2 amp time lag fuse.
- Provides protection for unstable power sources, spikes, and/or surges.

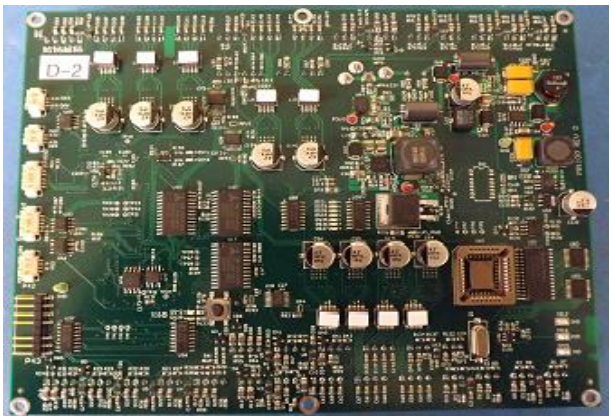
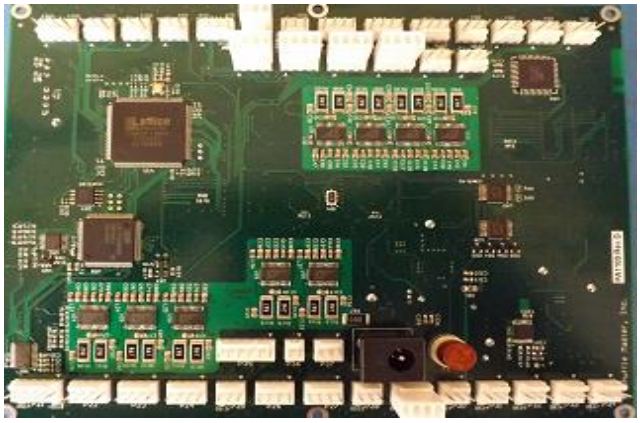
24V DC

- Can fuse has an amperage rating of 2.5 amps located on *'Controller Board'.*
- Provides board protection from a shorted component.



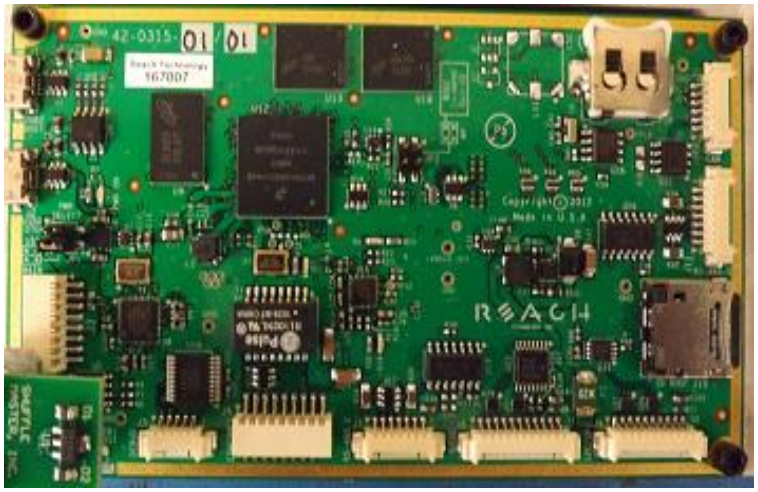
NXP/Machine Controller Board

- Controls and operates all motor and sensor, and switch functions.
- Replaces I/O board functions on previous model.
- Stores the '*NXP'* & *'Support'* and '*Deck Library'* software packages.
- Stores RNG, deck calibration info, and calibration offsets.
- Contains eight pack dipswitches and can fuse.
- Has a write protect jumper on JP3 that must be removed before loading software.
- Software must be reinstalled whenever board is replaced.
- No software chip/EPROM needed to install.

Display Module Board

- Uses a Linux based operating system for operation.
- Display and board is one part.
- Contains:
  - Battery for time, date, and serial number
  - Micro SD flash card for programming of display
- Replaces most CPU board functions in previous model.
- Stores *'Card Rec'* and *'UI'* software packages.
- Provides power to
  - Display (internal and external)
  - Camera trigger
  - Card size H/E
  - RJ45
- Both external and internal boards are same boards, but programmed differently.
- Software must be reinstalled whenever board is replaced.



Main & Remote Display

- Internal touch screen allows for access to shuffler functions when covers are removed.
- Remote display is connected and powered through USB port through display module.
- Remote display is flush mounted into table and is the primary display used.
- Only one display is operational at a time.
- Internal display is not visible with covers on.
- Internal and remote displays use same boards, with a different jumper configuration and programming on SD micro card.
- New displays are pre-programmed for remote usage and must be reconfigured for internal use.
- Software must be wiped and fully reinstalled whenever display is reconfigured or replaced.

Display Conversion & Replacement

The '4.3" Remote Display Replacement, Service' (DU2291) module is designed to be utilized with multiple products. When it is shipped, it is pre-programmed for use as the display within the 'Remote Display Assembly' (DU2264).

Installing the DU2291 as a Remote Display

1. On the Display PCB, place jumper JP1 onto pins 1 and 2.
2. On the Display PCB, place jumper JP2 onto pins 3 and 4.
3. The DU2291 Display Module can be placed into a malfunctioning 'Remote Display Assembly' (DU2264) with no other programming necessary.

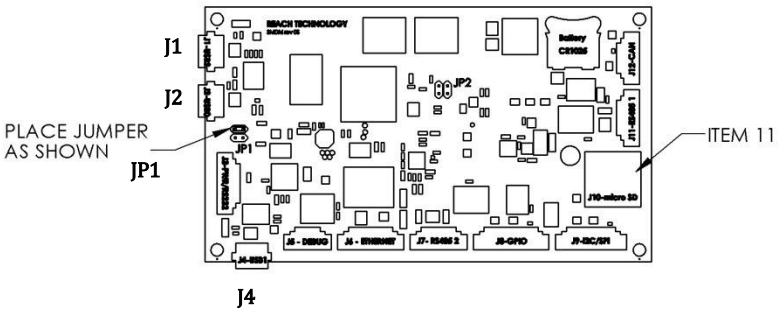
Installing the DU2291 as a Main Display

1. On the Display PCB, place jumper JP1 onto pins 3 and 4.
2. On the Display PCB, place jumper JP2 onto pins 3 and 4.
3. Move the jumper at JP1 on the Display PCB to pins 3 and 4.
4. Mount the Display Module onto the device.

5. Turn power ON.
6. Use the appropriate USB Flash Drive to install all approved software, as instructed in the Service Manual.
7. In Setup Mode, select the card type.
8. Re-tune the cards.
9. Reset the Serial Number.
10. Set the correct Date and Time.

Converting a Main Display to a DU2291

1. Obtain one (DU2277) 'Kit, 4.3" Remote Display, Field Programming'.
2. Move the jumper on the Display PCB at JP1from pins 3 and 4 to pins 1 and 2.
3. After inserting the correct universal plug adapter, plug the 'Adapter USB 5V DC' (E1598) into an AC power outlet.
4. Plug the USB end of the 'Cable USB Micro B, Up Angle, 6 FT' (E2075) into the Adapter.
5. Connect the angled Micro-USB end of the same cable into Port J2 on the Display PCB.



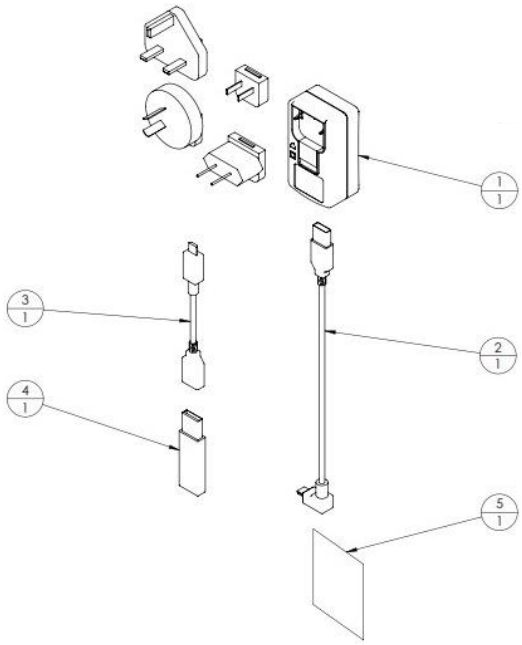
6. Plug the 'Flash Drive, USB Remote Display Ver. 2.0.003' (SC0069-01) into the end of 'Cable USB A RCPR-MCR B Plug .1M' (E1597).
7. Plug the micro-plug end of the same cable into either J1 or J4 on the Display PCB.
8. Follow the instructions on the Display.

Converting a Main Display to a Main Display for a Different Product

To convert a Display Module for use from one product into another:

1. Complete the steps in '**Converting a Main Display to a DU2291**'.
2. Complete the steps in '**Installing a DU2291 as a Main Display**'.

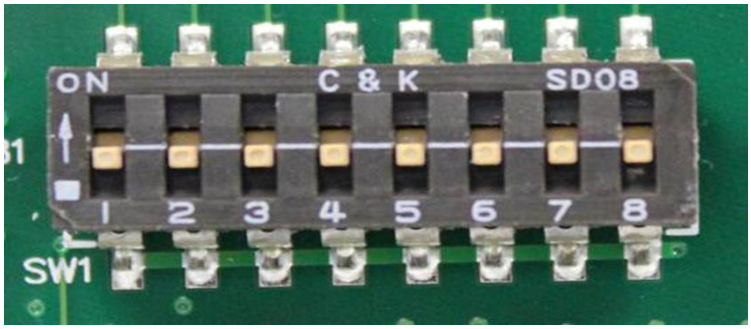
DU2277 Kit, 4.3” Display, Field Programming



Item No.	Part No.	Qty.	Description
1	E1598	1	Adapter, USB 5V DC
2	E2075	1	Cable, USB Micro B, Up Angle. 6 FT
3	E1597	1	Cable USB A RCPR-MCR B Plug, .1M
4	SC0069-01	1	Flash Drive, USB, Remote Display Ver. 2.0.003
5	DU2277-INST	1	Instructions, Replacement Display Kit

Dip Switches and Jumpers

- Eight pack dipswitch on ‘Controller Board’ – currently not active.
- Write protect jumper on JP3 on ‘Controller Board’ – must be removed or pinned to one lead when loading software.
- Display (remote/on-board)jumper on ‘Display Module Boards’ – defines the if the display is being used remotely or internally.
- Boot & power jumper on ‘Display Module Boards’ – defines where the display is booted up from (internal or SD micro card).

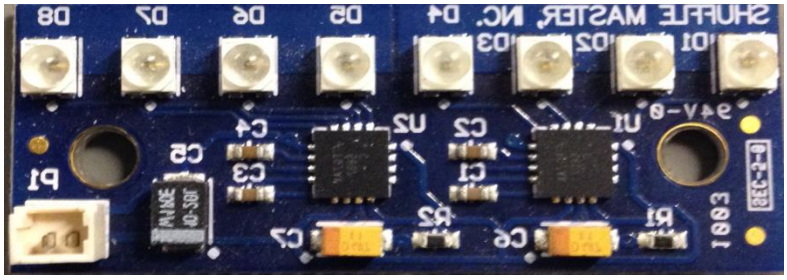


Camera

- Powered, operated, and controlled by '*Camera Trigger Sensor'*.
- Lens must be clean and dust free to prevent misreads.
- Do not use isopropyl alcohol to clean camera lens.
- Does not see color, only sees and captures black and white images.
- Camera needs to be properly focused for accurate reading of cards.
- Camera can only be focused and checked using the 'Live View' feature within '*Camera Diagnostics'* in *'Card Recognition'* menu.
- Gasket sealed to prevent dust underneath camera lens.
- Camera board is different than previous card recognition shufflers.

LED Light Bar

- *'LED Light Bar'* needs to be clean, bright, and all functioning.
- Uses a ribbon connection from the controller board to function.
- Do not use alcohol to clean *'LED Light Bar'.*
- Dim, faulty, or dirty camera LEDs can cause infrequent or frequent misreads due to captured images no longer matching stored images produced during the tuning process.
- Dirty or burnt out LEDs can cause shadows to appear on the cards during the tuning process.
- LED lighting will dim over time as they become coated with dirt, causing the camera to acquire darker images, replace as needed.

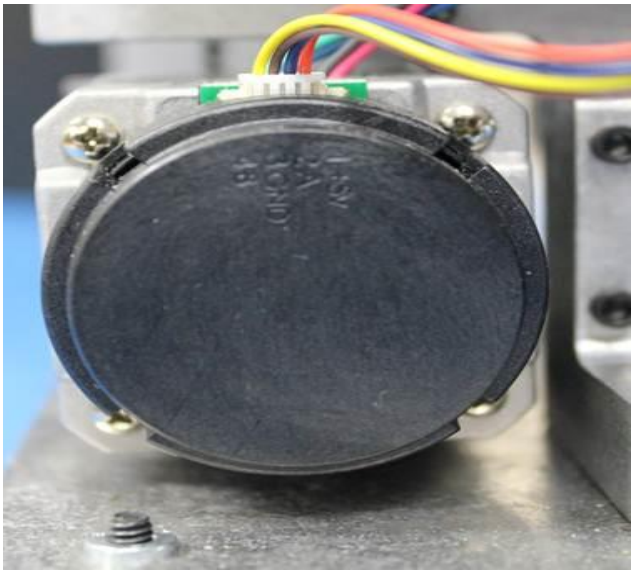


Camera Background Plate

- Provides a dark contrast for the black and white images.
- White plastic “dot” serves as a registration point only during the tuning process to adjust camera settings.
- Underside of background plate must be clean to prevent faulty camera settings or faulty images.
- Common faults include “white spots” or “white streaks” appearing in the dark areas surrounding the card or in black portions of the captured image, and faulty misreads of camera images.

Encoder

- Attached to rack motor as one assembly.
- Allows precise stepping control & verification of rack.
- Re-homes if rack doesn’t reach assigned position or jam cards while attempting to load cards in rack shelves.



Sensors and Switches

The Main Control circuit board has an LED adjacent to each Molex connector that will also change its state as the sensor is activated or deactivated.

- Infrared/Thru-Beam
  - 7 Infrared sensors
  - Receivers on top
  - Emitters on bottom
- Hall Effects
  - 14 Switches
  - Magnetically operated
  - Magnets are polarized
  - Some adjusting can be made

Name	Description	Pin No.
FCPS	Feeder Card Present Sensor	1
FEHS	Feeder Elevator Home Switch	30
FETS	Feeder Elevator Up Switch	31
FCOS	Feeder Card Out Sensor	33
PCPS	Platform Card Present Sensor	2
PLHS	Platform Home Switch	3
PLTS	Platform Top Switch	4
CTSR	Camera Trigger Switch Receiver	8
CTST	Camera Trigger Switch Transmitter	8
CIS/COS	Card In / Card Out Sensors	10
RHS	Rack Home Switch	11
UOS	Unloader Out Switch	12
UHS	Unloader Home Switch	13
GS	Green Switch	14
SCS	Short Cover Switch	15
LCS	Long Cover Switch	16
PSS	Pickoff Stop Switch	18
BCS	Bottom Cover Switch	On PCB
ENC	Rotary Encoder	21
PHS	Packer Home Switch	25
RWS	Rack Width Switch	28
DCS	Door Closed Switch	32
CWHS	Card Weight Home Switch	34

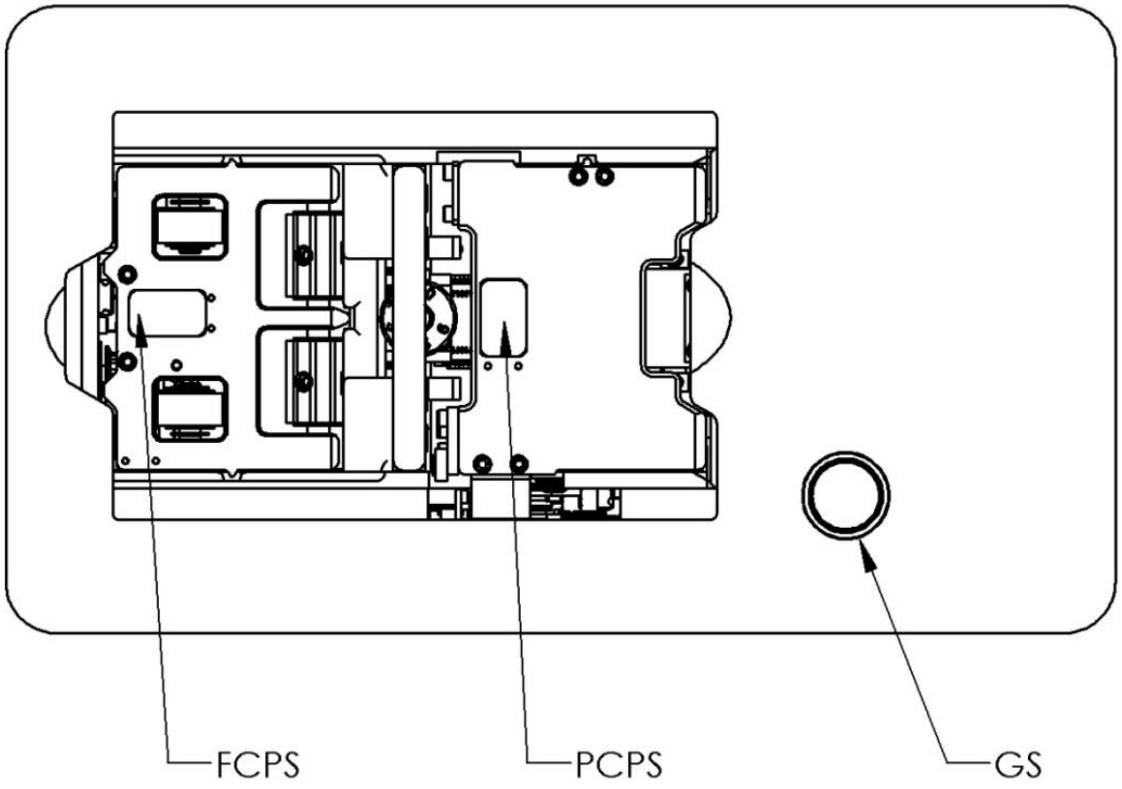
Sensors and Switches Descriptions

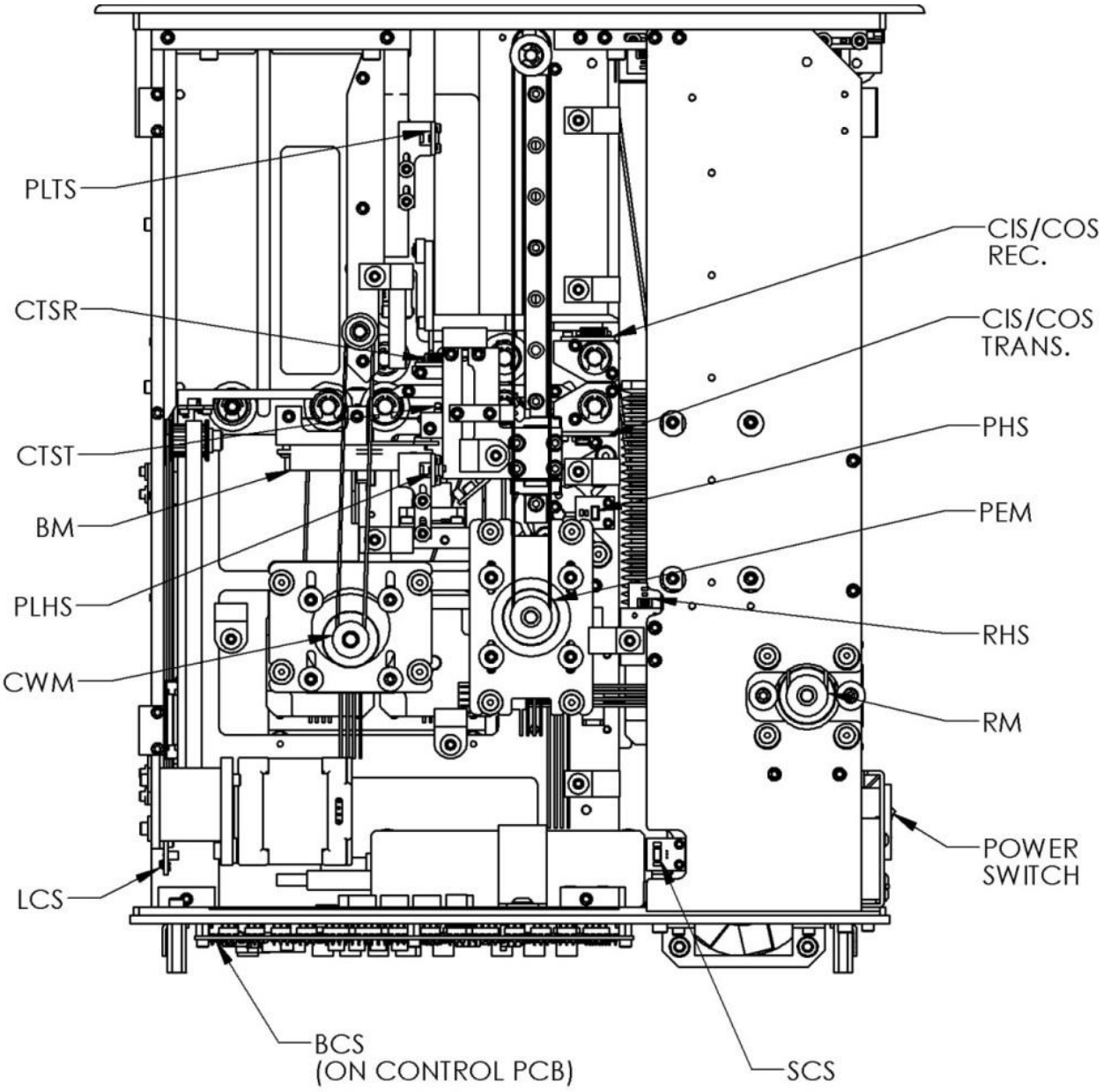
Hall Effect Switch = A sensor that detects the presence of a magnetic field.
Reflective Infrared Sensor = A sensor that emits an (invisible) infrared signal and detects that signal when it is reflected back.
Thru-Beam Sensor = A sensor that uses an (invisible) infrared source transmitter to look across the card path to a receiver.

Feeder Card Present Sensor = The FCPS is a reflective infrared sensor that detects a card(s) on the Feeder Platform.
Feeder Elevator Home Switch = The FEHS is a Hall Effect switch that defines the lower limit of Feeder Platform travel.
Feeder Up Switch = The FETS is a Hall Effect switch that defines the upper limit of Feeder Platform travel.
Feeder Card Out Sensor = The FCOS is a reflective infrared sensor that detects cards entering the Brake Roller.
Platform Card Present Sensor = The PCPS is a reflective infrared sensor that detects a card(s) on the Output Platform.
Platform Home Switch = The PLHS is a Hall Effect switch that defines the lower limit of Output Platform travel.
Platform Top Switch = The PLTS is a Hall Effect switch that defines the upper limit of Output Platform travel.
Camera Trigger Switch (Sensor) = The CTS is a thru-beam sensor that activates the camera to snap an image of a card when triggered. It consists of one Transmitter (CTST) and one Receiver (CTSR).
Card In Sensor = The CIS is a thru-beam sensor that detects when a card enters the final Speed Up Roller. It consists of one Transmitter and one Receiver.
Card Out Sensor = The COS is a thru-beam sensor that detects when a card exits the final Speed Up Roller. It consists of one Transmitter and one Receiver.
Rack Home Switch = The RHS is a Hall Effect switch that defines the lower limit of Rack travel.
Unloader Out Switch = The UOS is a Hall Effect switch that defines the Unloader position farthest from the Output Platform.
Unloader Home Switch = The UHS is a Hall Effect switch that defines the Unloader position nearest the Output Platform.
Short Cover Switch = The SCS is a Hall Effect switch that detects the presence of the Short Cover.
Long Cover Switch = The LCS is a Hall Effect switch that detects the presence of the Long Cover.

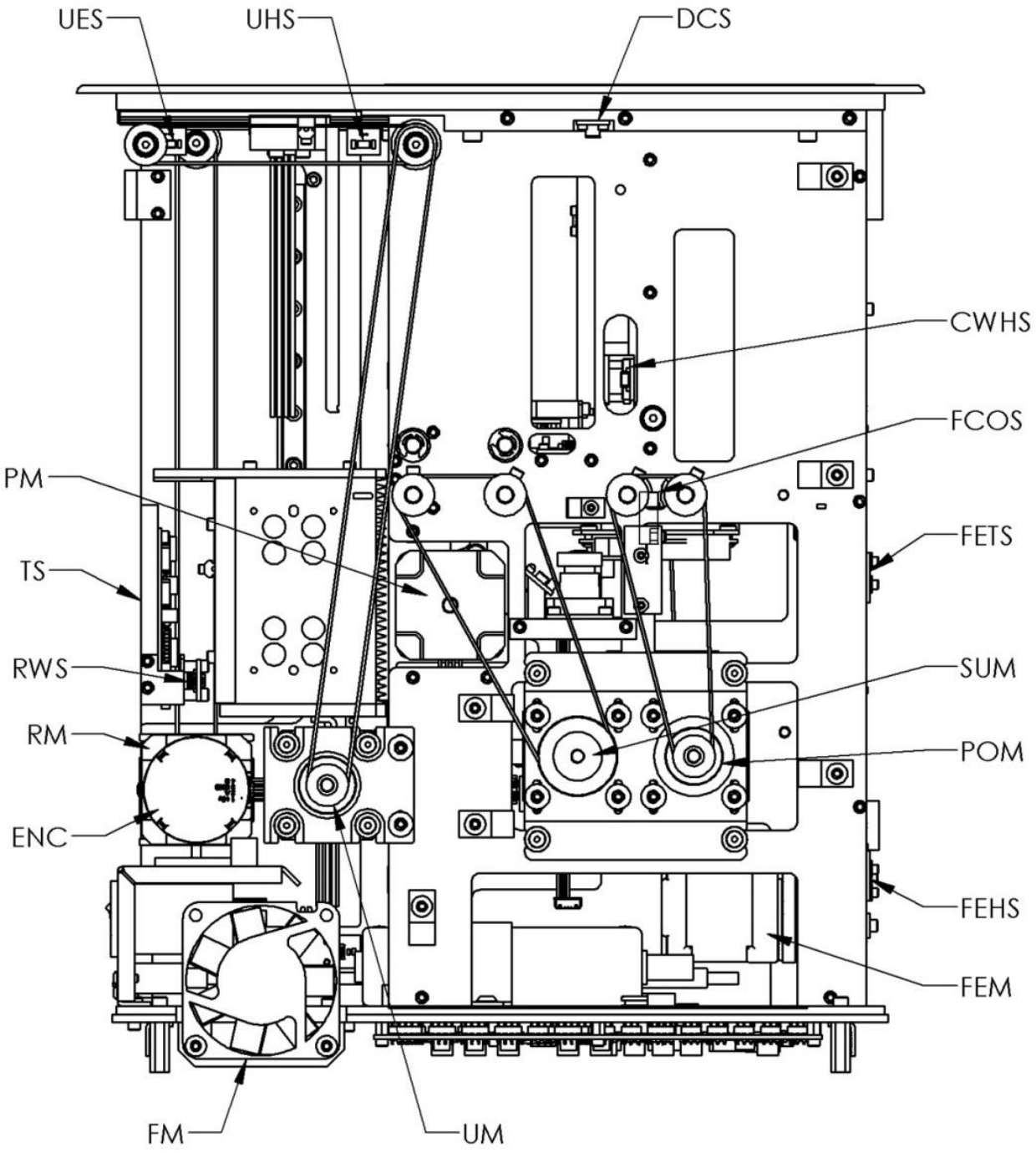
Pickoff Stop Switch = The PSS is a thru-beam sensor that detects when a card enters the Pickoff Stop Switch. It consists of one Transmitter and one Receiver.
Bottom Cover Switch = The BCS is a Hall Effect switch that detects the presence of the Bottom Cover.
Packer Home Switch = The PHS is a Hall Effect switch that defines the starting position for the Packer.
Rack Width Switch = The RWS is a Hall Effect switch that detects whether the shuffler is set for "narrow" bridge-size or "wide" poker-size cards.
Door Closed Switch = The DCS is a Hall Effect switch that detects whether the Door is open or closed.
Card Weight Home Switch = The CWHS is a Hall Effect switch that defines the starting position for the Card Weight.

Sensors and Switches Locations



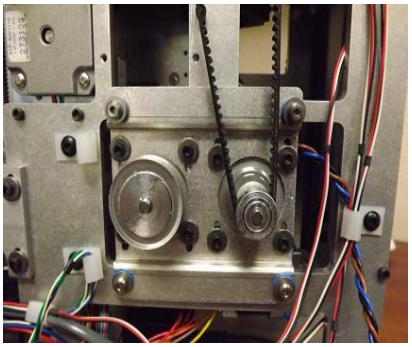


(NEAR SIDEPLATE NOT SHOWN)

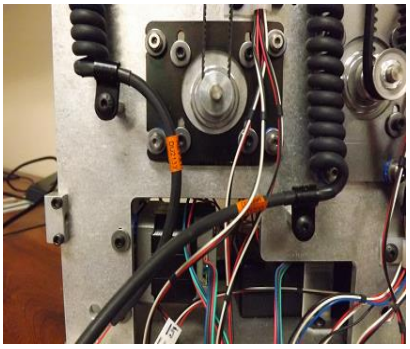


Motors

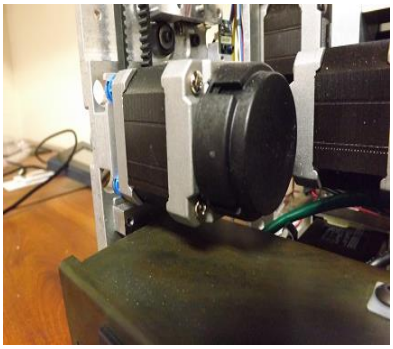
Pick off/Speed up



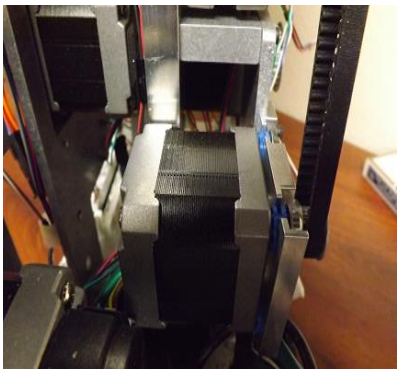
Rack



Card Weight

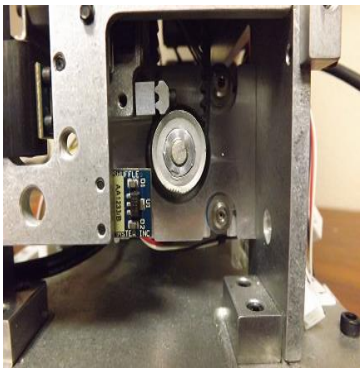


Unloader



Packer & Platform

Feeder



Communication

- USB Port – used for most applications such as loading and updating software and adding card libraries.
- The 'iTOOLS' diagnostics tool is not compatible with the *Deck Mate® 2* Shuffler, its features are now embedded within the *'Maintenance Menu'*.
- Separate flash drive to download history logs.
- RJ 45 Modular plug for link to networks and BOH PC.

Settings and Adjustments

- Settings
  - Time
  - Date
  - Poker or Blackjack
  - Set player timer
  - Card Rec ON/OFF
  - Card Weight Steps
  - Card Weight Current
  - Choose Deck Type/Tune
  - Sort Order
  - Calibrate Unloader, Packer, Rack
- Adjustments
  - Brake Roller – Knob set to position 2 for paper cards, position 3 for plastic cards
  - Rack Squaring and Leveling
  - Card Guide
  - Belt Tension
  - Card Size
  - Hall Effect Switches

Brake Roller Adjustment

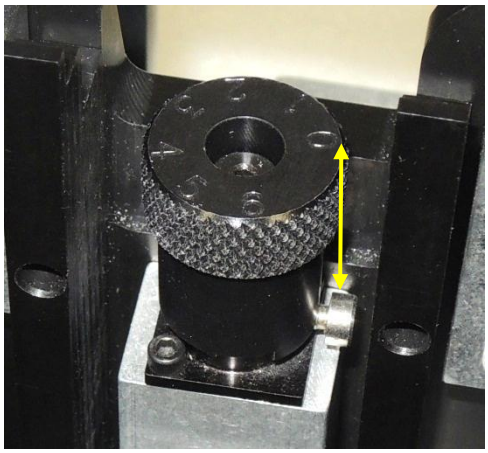
The *Deck Mate®* 2 Shuffler provides a simple method for adjusting the Brake Roller Assembly for various card thicknesses, consisting of a graduated click-stop Adjustment Knob that controls the gap between the Upper and Lower Brake Rollers.

NOTE: **The Adjustable Brake Assembly is pre-set to '0' (zero) during production. DO NOT LOOSEN THE ASSEMBLY MOUNTING SCREWS to adjust for card thickness.**

Card thickness adjustments are made using the Brake Adjustment Knob, ONLY!

To Adjust for Card Thickness

1. Raise and hold open the Top Door.
2. Locate the Adjusting Knob under the retractable Carrying Handle.
3. Turn the Knob to line up the number on the top with the shoulder screw, below.

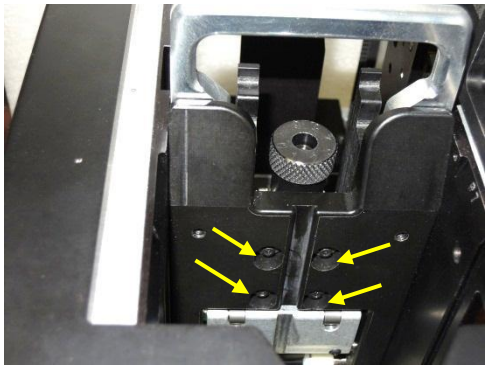


Turn the Knob to position '2' for paper cards or position '3' for plastic cards.
(Position 1 creates gap of .010", position 2 sets .013" and position 3 is .016", etc.).
These settings work for most machines and card types. Further adjustment may be required.

When Necessary to Set Zero Brake Roller Clearance

1. Raise and prop open the Top Door.
2. Remove the Long Cover
3. Line up the '0' on top of the Adjusting Knob with the shoulder screw, below.

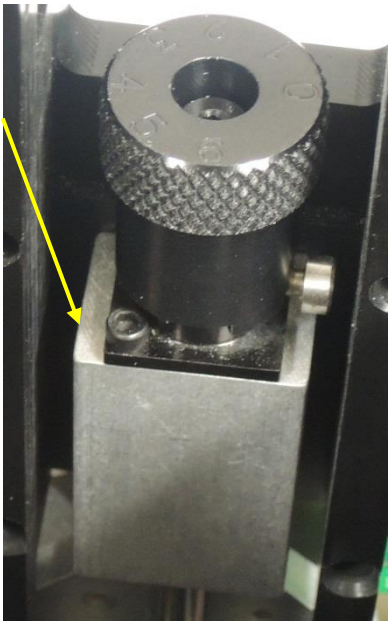
4. Slightly loosen the four (4) SHCS 4-40 X 1/2" screws located on the Feeder side of the Separator Plate, only enough to allow movement of the Adjustable Brake Assembly.



If the Mounting Screws are loosened more than necessary, a "less than 0" setting will result.

5. Lightly push the rectangular body of the Adjustable Brake Assembly downward.

   Do not push down on the Adjusting Knob.



6. Visually verify that the Top Roller is parallel with the Bottom Roller.

When shuffler power is ON, you should not see any green camera LED light between the Rollers.

7. Tighten the four (4) screws.
8. Adjust the clearance to the desired number, as discussed above.
9. Shuffle a deck to test.

Rack Level Checking

In rare instances, it may be difficult to complete a successful Rack Calibration procedure when it is found that the leading edge of the test card will not align squarely with the fins on both sides of the Rack.

It may be that the Rack itself is "out of level" or "out of square".

Required Tools

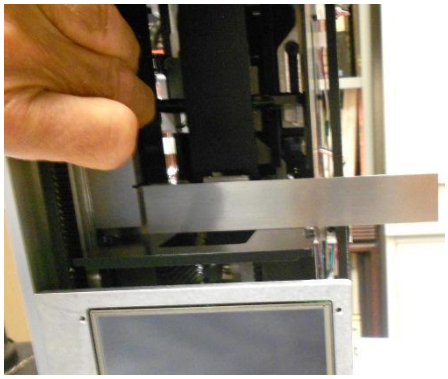
3/32" Hex Wrench
T1202 Machinist's Square

Procedure

To determine whether the Rack is square and level:

1. Turn power to the shuffler 'OFF'.
2. Use a 3/32" hex wrench to loosen and remove the Long Cover.

3. Lower the Rack to its full down position.
4. Allow the longer blade of the T1202 Square to rest across the top of the Rack.
5. Align and hold the thicker block portion of the Square tightly against the Rack Linear Guide.

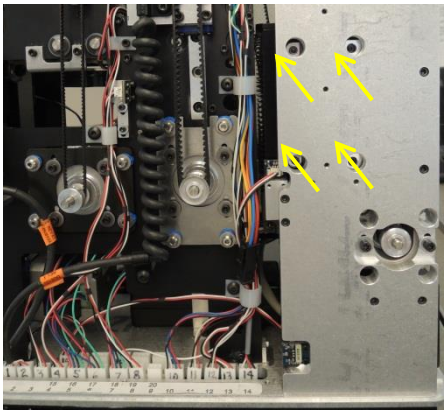


If there is a gap greater than .005" (Use the shim) between the bottom of the blade and either side of the top of the Rack, it may be necessary to manually adjust the Rack for squareness.

NOTE: **This test should be performed using ONLY this very accurate Machinist's Square (T1202)! A common Carpenter's Square, for example, is not manufactured with the same degree of accuracy.**

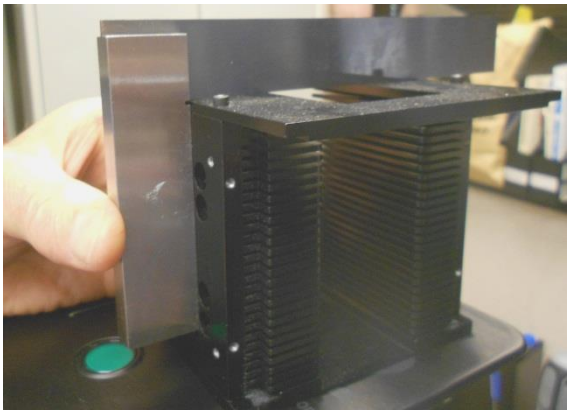
Rack Squaring Procedure

1. Remove both Covers.
2. Locate the ports in the Rail Mount that allow access to the four (4) screws that secure the Rack to the Linear Guide.
3. Remove the Screws. Lift the Rack out of the shuffler.
4. Remove the silver-metal Card Stop Bracket from the bottom of the Rack.



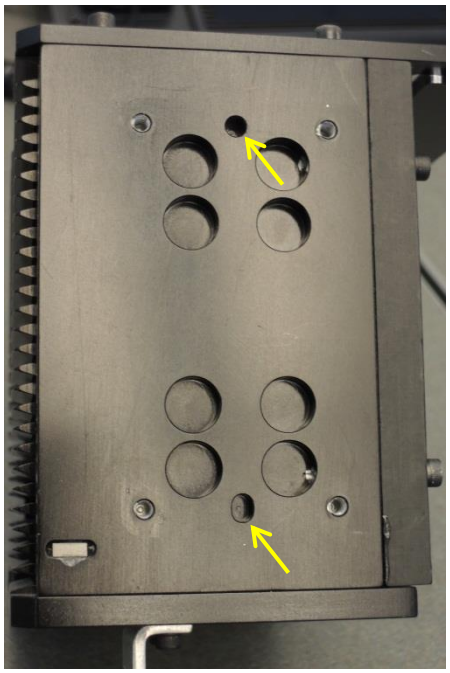
Before removing, notice the orientation of the clearance holes in the short angle of the Bracket so that it will not be reversed on reassembly.

5. Set the Rack upright on top of the shuffler.
6. Slightly loosen the four (4) screws on top of the Rack.
7. Slightly loosen the four (4) screws on the bottom of the Rack.
8. Align and hold the thicker block portion of the Machinist's Square tightly against the side of the Rack. At the same time press down on the Square until there is no gap between the blade of the Square and the Rack Top Plate.



9. Tighten the top screws before releasing pressure from the Square.

10. Turn the Rack bottom-side up on top of the shuffler. Repeat steps 8 & 9.
11. Re-check that the Rack remains square.
12. Replace the Card Stop Bracket.
13. Re-insert the Rack into the shuffler.

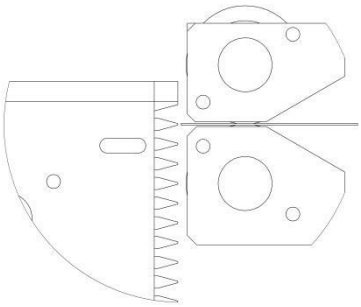


14. Align the Rack so that the two (2) holes in the side of the Rack align with the guide pins on the Linear Guide carrier block.

It may be helpful to raise the Linear Guide to more easily observe the pins and holes.

15. Insert and secure the four (4) Rack mounting screws.
16. Use the Machinist's Square to verify that the Rack is squarely mounted.
17. Turn power 'ON' to the shuffler.
18. Enter the Setup Menu and complete the 'Rack Calibration' procedure.

IMPORTANT! **The leading edge of the card MUST align squarely against BOTH the left and right Rack fins at the bottom of the top slot.**



19. Run a 'Sort' or a 'Shuffle' to test for accurate alignment.

NOTE: If proper alignment cannot be achieved, as shown in step 18, it may be necessary to perform the 'Card Guide Adjustment Procedure'

Card Guide Adjustment Procedure

When, for any reason, it becomes necessary to loosen either the Top Card Input Guide (DU2038) or the Bottom Card Input Guide (DU2039), it is critical during reassembly that the Card Guides are set parallel with the Rack and that the gap between the Guides is returned to the required tolerance.

Required Tools:

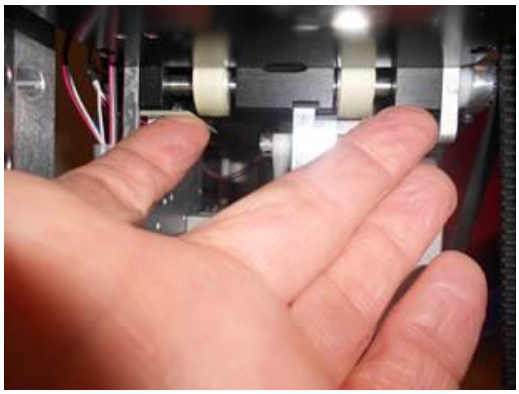
F1427 Fixture DM2 Rack to Straighteners
Hex Wrench, 3/32”

Procedure

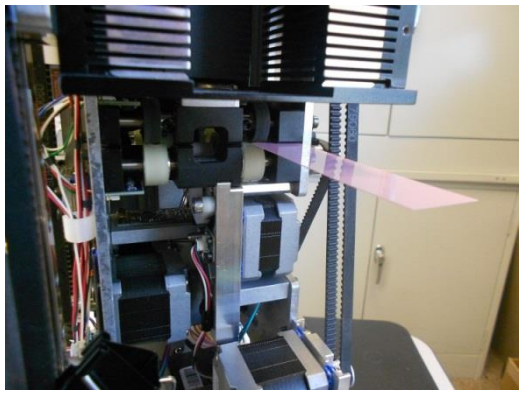
IMPORTANT! **Verify that the Rack is completely square before beginning this procedure.**

1. With power ‘OFF’ and the power cord disconnected, remove both Covers.
2. Remove the Card Stops from the Rack.
3. If not already, slightly loosen the four 4-40 SHCS’s that hold each Card Guide in place.
4. Remove the Display Module.
5. Insert the F1427 Fixture into one of the slots toward the top of the Rack.
6. Move the Rack so the Fixture can slide into the gap between the Card Guides.
7. With light finger pressure pushing down on the Top Guide, tighten the four 4-40 SHCS screws.

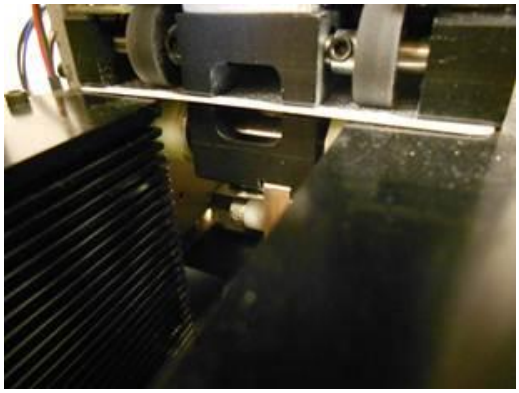
8. Remove the F1427 Fixture from the top slot of the Rack.
9. Insert it into the bottom slot of the Rack.
10. With light finger pressure pushing up on the Bottom Guide tighten the four 4-40 SHCS screws.



11. Check the gap at each end (Sideplate) with “go” .015 Pink gauge or “no go” .025 White gauge. A card should go thru without pinching.

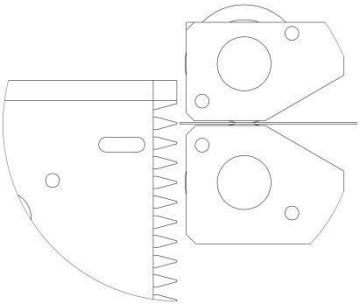


12. Check with a card, as shown.



13. Reinstall the Card Stops and the Display.
14. In the Setup Menu, ‘Calibrate’ the Rack.

IMPORTANT! **The leading edge of the card MUST align squarely against BOTH the left and right Rack fins at the bottom of the top slot of the Rack.**

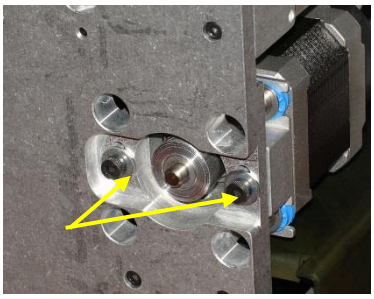


15. Shuffle or Sort a deck of cards to verify that the Guides are properly aligned with the Rack and that the gap between the Guides is set correctly.

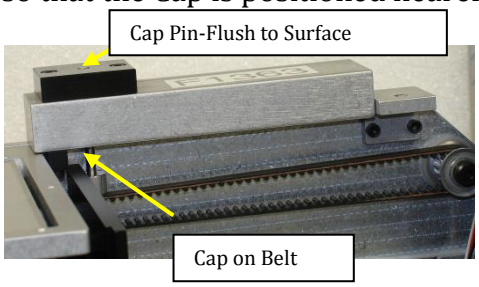
Rack Belt Tension Adjustment

For proper operation and accurate positioning of the Rack, the tension of the Rack Belt must be maintained at an optimum level.

1. Assure that power to the shuffler is OFF. Disconnect the power plug.
2. Remove both of the Long and Short Cover Assemblies.
3. Remove the Bottom Cover.
4. Lay the shuffler down on end so that the internal Display is facing upward.



5. Use a 7/64" hex wrench to only slightly loosen the two (2) Rack Motor mounting screws.
6. Orient the Rack Belt Tension Gauge (F1363) so that the Cap is positioned nearer to the Display.



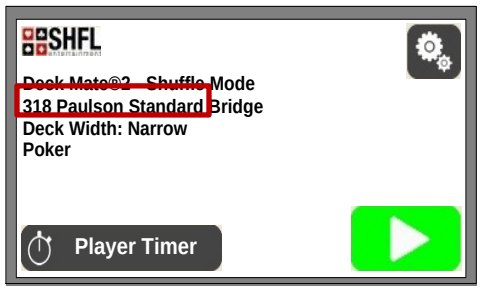
7. Hold the Gauge so that the Fixture Side Plate is flush against the outside of the Rail Mount plate and the top is pushed up against the Cover Screw Bracket. The Cap will be resting against the Rack Belt.
8. While holding the Fixture in place, insert a 7/64" hex wrench through the access port in the Bottom Plate and into the socket head screw below the Adjusting Block.

9. Adjust the motor height by tightening or loosening the Adjusting Screw until the Cap Pin is flush with the top of the fixture, ± 0.02".
10. Tighten the Motor Mounting screws.
11. Perform the Rack Calibration Procedure.

Rack Card Size Adjustment

The *Deck Mate® 2* Shuffler is designed to shuffle both 58mm "narrow" width Bridge-size cards and 63mm "wide" poker-size cards.

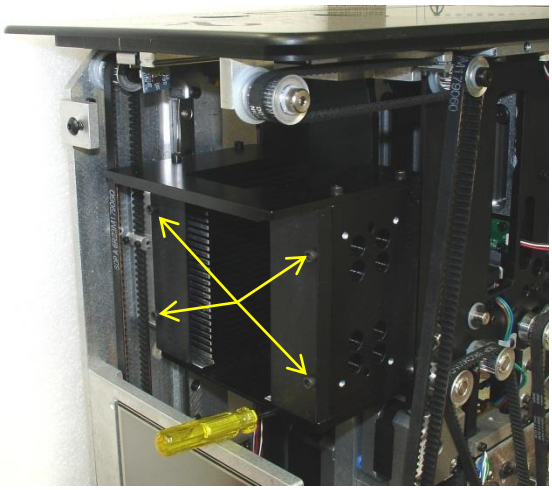
The currently selected deck width appears on the Home Screen.



Before changing from one card size to the other, the Rack Assembly must be modified to accommodate the correct card width.
If the correct card type has been selected, the shuffler will not shuffle 58mm cards when set to “wide”, nor will it shuffle 63mm cards when set to “narrow”.

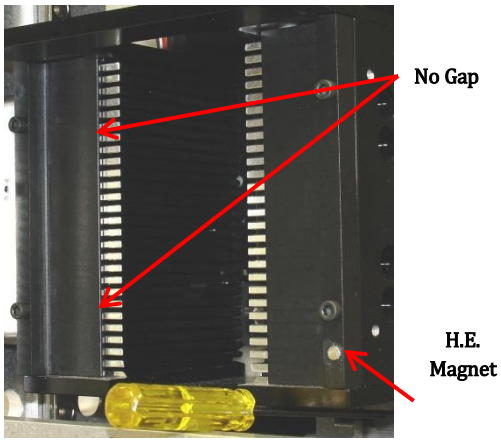
NOTE: This modification should be performed only by a qualified technician.

1. Assure that power to the shuffler is OFF. Disconnect the power plug.
2. Remove the Long Cover Assembly.
3. By hand, raise and prop the Rack above the LCD Display.
4. Using a 3/32” hex wrench, remove the two screws each from the two Rack Stop components.

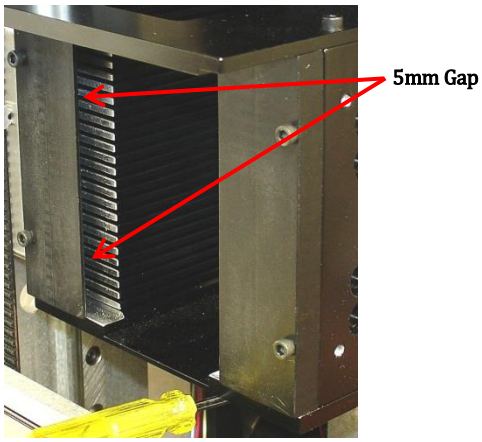


5. Position the Card Stops, based on the size of the cards to be used:

58mm “Narrow”



63mm “Wide”



When in the narrow 58mm configuration, the Hall Effect Magnet must be positioned as shown.

6. Secure the Card Stops.
7. Replace the Cover Assembly.

Recommended Spare Parts List

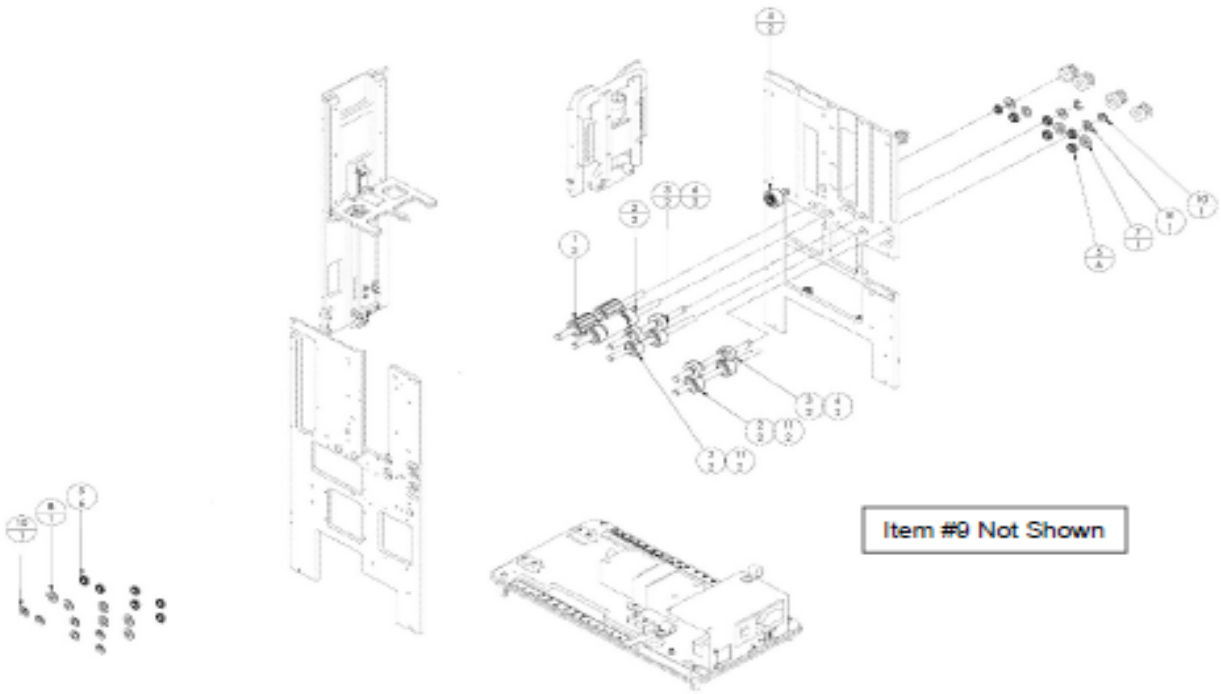
Part Numbers	Description	1 to 5 Machines
AA1169	PCB Assy, IR Transmitter	1
AA1233	PCBA, Switch, Hall Effect	11
DU1142	ROLLER ASSY, BRAKE	2
DU2011	MOTOR ASSEMBLY, SPEEDUP	1
DU2018	MOTOR ASSY, UNLOADER	1
DU2019	MOTOR ASSY, OUTPUT ELEVATOR	1
DU2024	MOTOR ASSY, FEEDER ELEVATOR	1
DU2032-01	HARNESS ASSY, HE, UNLOADER HOME	1
DU2032-02	HARNESS ASSY, HE, UNLOADER OUT	1
DU2032-03	HARNESS ASSY, HE, PLATFORM HOME	1
DU2032-04	HARNESS ASSY, HE, PLATFORM UP	1
DU2032-05	HARNESS ASSY, HE, FEEDER HOME	1
DU2032-06	HARNESS ASSY, HE, FEEDER UP	1
DU2032-07	HARNESS ASSY, HE, DOOR	1
DU2032-08	HARNESS ASSY, HE, PACKER HOME	1
DU2032-09	HARNESS ASSY, HE, CW HOME	1
DU2032-10	HARNESS ASSY, HE, SHORT COVER	1
DU2032-11	HARNESS ASSY, HE, LONG COVER	1
DU2032-12	HARNESS ASSY, HE, RACK HOME	1
DU2032-13	HARNESS ASSY, HE, CARD SIZE	1
DU2075	MOTOR ASSY, PICKOFF	1
DU2083	MOTOR ASSY, CARD WEIGHT	1
DU2095	MOTOR ASSY, RACK W/ENCODER	1
DU2132	CORD ASSEMBLY, PLATFORM	1
DU2133	CORD, ASSEMBLY, FEEDER	1
DU2142	SWITCH ASSY, GREEN	1

DU2185	HARNESS ASSY, ETHERNET	1
DU2195	ROLLER, COMPLIANT	4
DU2209	MOTOR ASSY, PACKER	1
DU2213	HARNESS ASSY, CIS/COS	1
DU2214	HARNESS ASSY, CTS	1
DU2215	HARNESS ASSY, FCOS	1
DU2216	HARNESS ASSY, ENCODER	1
DU2217	HARNESS ASSY, USER INTERFACE	1
DU2221	HARNESS ASSY, CTS/CAMERA	1
DU2230	HARNESS, EXTENDER	1
DU2237	HARNAEES ASSY, CAMERA LIGHT	1
DU2240	HARNESS ASSY, CAMERA COMM	1
DU2242	HARNESS ASSY, BLOWER	1
E1098	MAGNET, .04 X .08 X .20	5
E1369	Sensor, Optical	1
E1401	Fuse, 2A Time Lag 5 x 20mm	2
E1524	Magnet, .125OD X .125LG	3
E1569	PCB, EP7 ENCODER	1
E1570	HUB/DISK ASSY, EP7 ENCODER	1
GM1094	PCB Assembly, Camera Light	1
MD2245	Roller, 3/4 OD, 1/4 ID, 7/16LG	6
MD2394	ROLLER, COATED 3/4 OD, 1/4 ID, W/10 FLATS, 1" LG	2
P1051	RING, E, 3/16	1
P1079	Ring, E, 1/8 ,in kit Z1218	1
P1692	Bearing, .125ID, .375 OD Shld	1
P1879	RETAINING RING, FITS IN M5 GROOVE, MADE FOR M6 SHAFT	15
P1928	Magnet, .375 x .100	3
P2246	BEARING, FLNG .25ID, .375OD SHLD W/GREASE	12
PA1074	PCB Assembly, CIS/COS Transmitter	1
PA1075	PCB Assembly, CIS/COS Receiver	1
PA1098	PCB ASSEMBLY, CAMERA FPGA	1
PA1100	PCB ASSY, CONTROLLER, DECKMATE 2	1
PA1103	PCB ASSEMBLY, CPS	2
PA1104	PCB ASSEMBLY, CARD WEIGHT H/E	2
PA1108	PCB ASSY, CTS RECEIVER	1

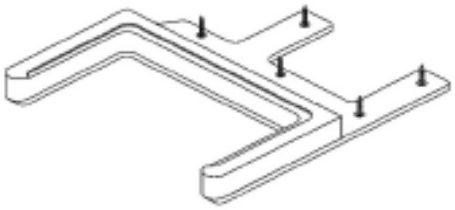
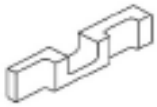
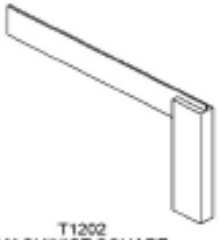
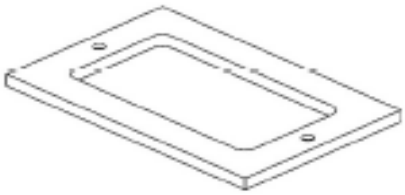
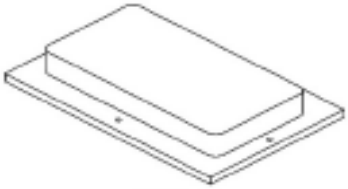
Optional Spare Parts List

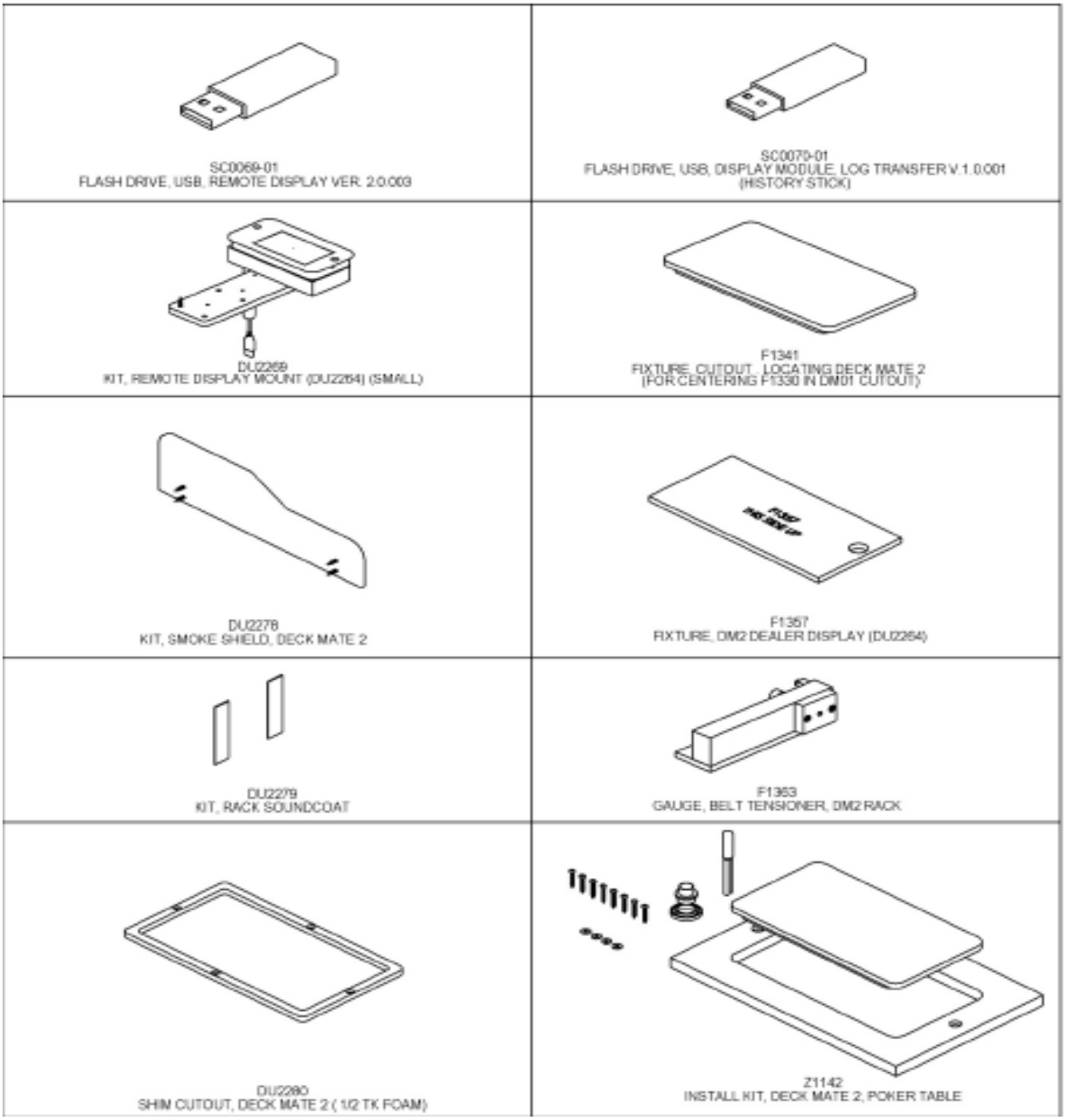
Roller and Bearing Kit, *Deck Mate® 2*

Part Number 249167



ITEM NO.	PART NO.	QTY.	DESCRIPTION
1	MD2394	2	Roller, Coated 3/4 OD, 1/4 ID, w/ 10 Flats
2	MD2245	6	Roller, 3/4 OD, 1/4 ID, 7/16/LG
3	DU2195	4	Roller, Compliant
4	MD2412	2	Roller/Bearing Assembly
5	P2246	12	Bearing, FLNG, .25 ID, .375 OD SHLD W/ Grease
6	P1012	4	BHCS, 4-4- X 1/4
7	P1823	2	Spacer, Nylon, .500 OD, .252 ID, .125 THK
8	P1322	2	Washer, Nylon, .253 ID X .506 OD X .032 THK
9	P1178	8	BHCS, 8-32 X 3/8
10	P1879	2	Ring, E 6mm
11	P1045	4	SHCS, 4-40 X 1/4

 DU2248 KIT, EXTENSION, DECK MATE 2	 DU2282 BEZEL GASKET ASSY (DU2264) (SMALL)
 DU2252 KIT, LOCKING, DECK MATE 2	 F1427 FIXTURE, DM2 RACK TO STRAIGHTENERS
 F1332 BLOCK, DOOR PROP, DM2	 T1202 MACHINIST SQUARE
 DU2260 SHIM CUTOUT, DECK MATE (3/8 TK FOAM)	 F1330 TEMPLATE, DECK MATE 2 (FOR DM2 CUTOUT)
 DU2267 BEZEL ASSY, DM1 (FOR MOUNTING DM1 IN DM2 CUTOUT)	 DU2281 PLUG, DECK MATE 2 TABLE



Troubleshooting

Symptom	Cause	Remedy
Jamming Cards	Rack is not calibrated	Calibrate Rack in *'Setup Menu'*

	Rack is not Square	Square Rack
	Card Guides Out of Adjustment	Adjust Card Guides with Rack Straightener Fixture
	Improper Rack Belt Tension	Adjust Rack using Rack Belt Tension Gauge
Not Feeding Cards	Incorrect Brake Roller Adjustment	Adjust Brake Roller
	Dirty Rollers	Clean Rollers
Misreading Cards	Dirty/Faulty Camera Type	Clean/Replace Camera
	Dirty/Faulty Camera Trigger Switch	Clean/Replace Camera Trigger Sensor
	Wrong Card Type Selected/Tuned	Select Appropriate Card Type/Tune
		Review Learned and Error Images in Camera Diagnostics
	Dirty/Faulty LED's	Clean/Replace LED's

Resources

- *Deck Mate® 2* Service Manual
- *Deck Mate® 2* User Manual

Additional Information

Contact Scientific Games at:

- Web
  - http://www.scientificgames.com/

- E-mail

  TechnicalTraining@scientificgames.com

- Telephone
  - United States: 1-877- 462-2559
  - International: +1 702 532-6865