



Dealer4 Card Recognize Problems Manual ver: 1.0

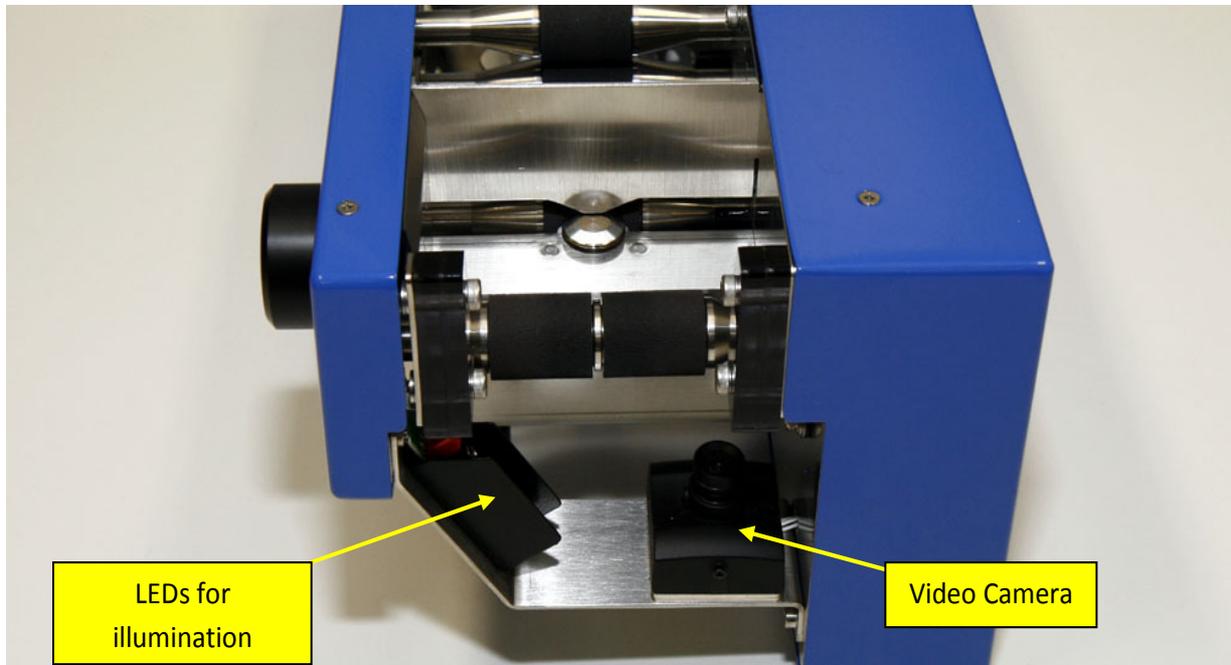
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Version information:

Ver 1.0: First issue : 07/04/2008

1 Dealer4 Card Optical Recognition System

The Dealer4 uses an Optical Recognition System to recognize card symbols and suits to direct cards into the right pocket. ORS consists of a small Video Camera which captures a picture of the card, LED illumination, and a build in DSP processor with recognition software.



2 Recognition operation and errors

The Recognition System is design to correctly recognize a card in the most cases. However in some particular situations Dealer4 cannot correctly recognize a card. In such cases Card Recognize Errors or Duplicate Card Errors are reported. In normal conditions these errors should not happen more frequently then 1 per 100 boards dealt. Next paragraphs described possible error reasons and the actions that should be taken:

2.1 Card Recognize Error

Card Recognize Error (Error codes 26 – 53) is reported when the Dealer4 cannot recognize the card. This error can be caused by following reasons:

1. Card in the hopper is inserted reversely (face up)

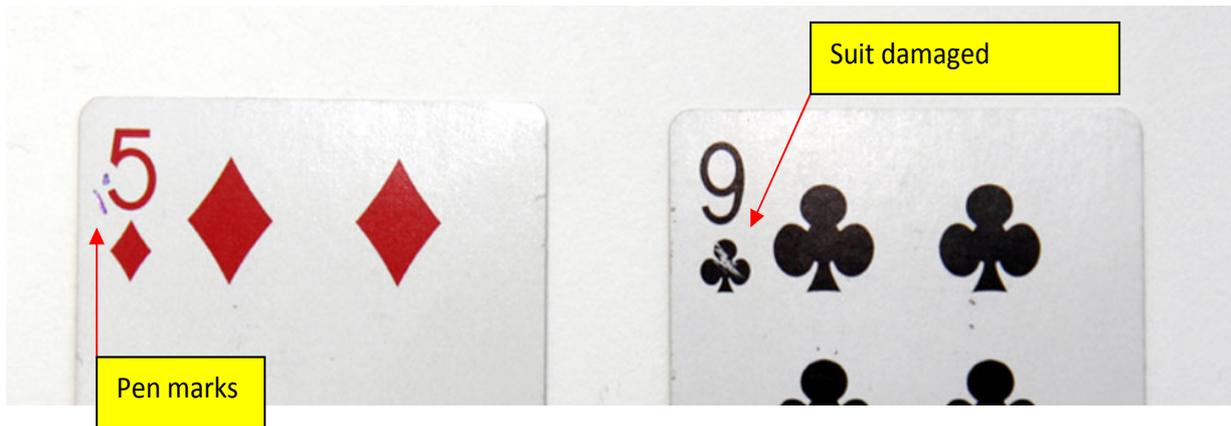
Reverse the card and try to recognize it again (click “Continue” or press START key on the front of the machine).

2. JOKER is mixed into deck

Take out JOKER card and continue dealing (click "Continue" or press START key on the front of the machine).

3. Symbol or suit on the card is damaged or there are e.g. pen marks on the card:

Sample of such cards are shown below:



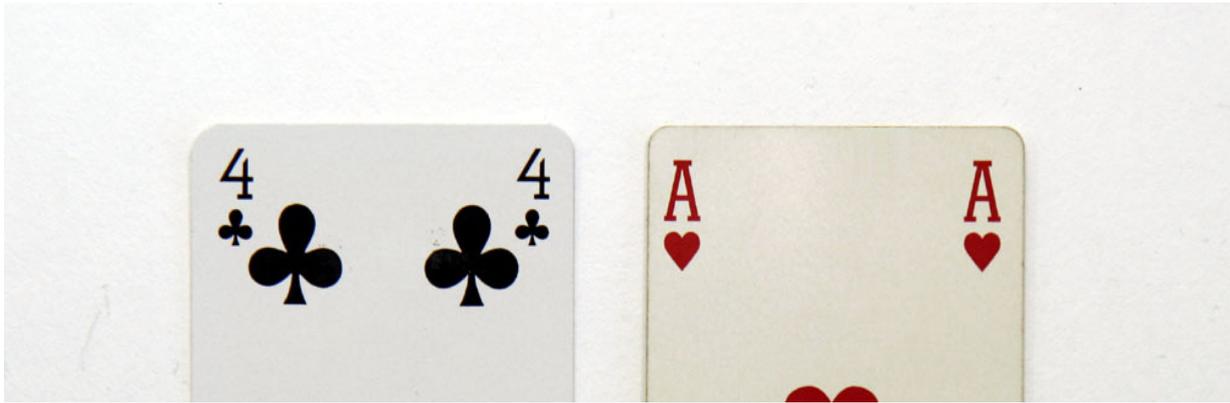
Such damages can make card recognition impossible – this problem can be solved by rotating the card in the Feeder by 180deg so the machine will try to read symbols on the opposite corner (hopefully without damage) and continue dealing or discard such damaged deck.

4. Non supported foreign cards are used.

Current version of the Dealer4 Firmware (version 2.25) recognizes standard cards with symbols AKQJ and German cards with symbols AKDB. Other national cards like French, Dutch etc are planned to be added in the near future.

5. Symbols or suit on the card are non standard.

Card symbols and suits are different from deck to deck. Dealer4 recognizes most of them but there is possibility that someone will use cards with the symbols or suits fonts which cannot be correctly recognized. As an example please look on the picture below:

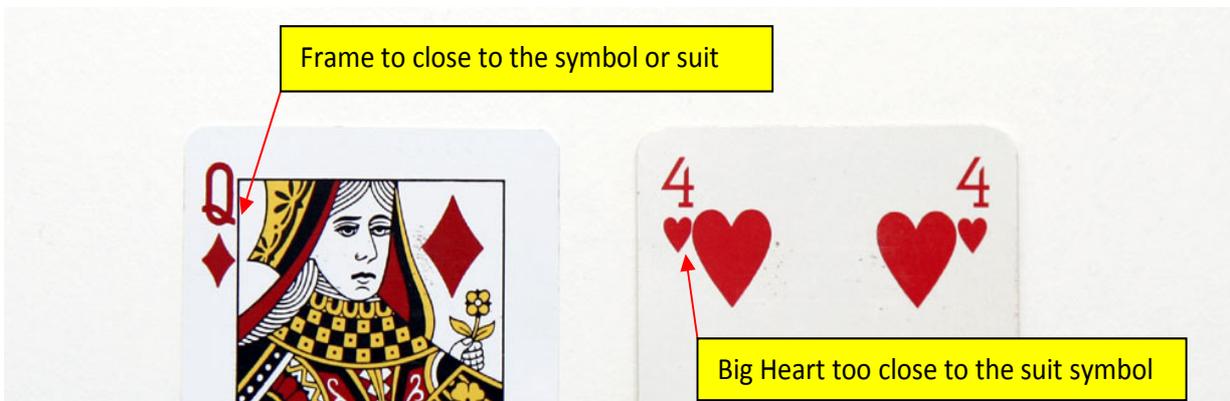


Symbol 4 on this card is non standard. It has open line on the top of the symbol. Ace has serif on the top of the symbol. These particular symbols were added to the software (Ace in version 2.16, four in version 2.24) but similar example may exist in another decks.

In such cases if dealing such card is required please send couple of decks to the Service Centre and support for the new symbols will be added. Because of the software developing and testing process it can takes up to a couple of months.

6. There are lines or other card pictures too close to the card symbol or suit.

Example of such cases is shown below:



The first example (Queen of Diamond) is already support in the software (only in specific cases it can these causes a Recognition Error). Second example (4 of Hearts) is not supported yet and can create Recognize Errors.

In such cases rotating card by 180 deg usually solve the problem. If the problem persists please send couple of decks to the Service Centre and support for such cases will be added if possible. Because of the software developing and testing process it can takes up to a couple of months.

7. Symbols or suits on the card are too small or too big or positions of the symbol are non standards.

Camera used in the Dealer4 has limited view window and resolution so too small or big symbols cannot be recognized. If symbols are bigger or smaller then normal – some ORS parameters can be adjusted (see

chapter 3) and such symbols can be recognized but if the sizes are below camera resolution or bigger than the view window - such cards cannot be used. Picture below show example of the card with too big symbol (capture in "Maintenance" function of the Dealer4 software):



8. Machine is operating in too bright external light

Dealer4 is designed to operate in the normal ambient light condition. It can be operate in the darkness but cannot in the direct sun light or another strong light source like table lamp sitting directly above the machine. Apart from possible gate errors strong external light can cause problems with card recognition. Typical symptom of the too strong light is very dark card picture captured on the "Maintenance" function of the PC software:



9. Camera lens or illumination LEDs are dirty.

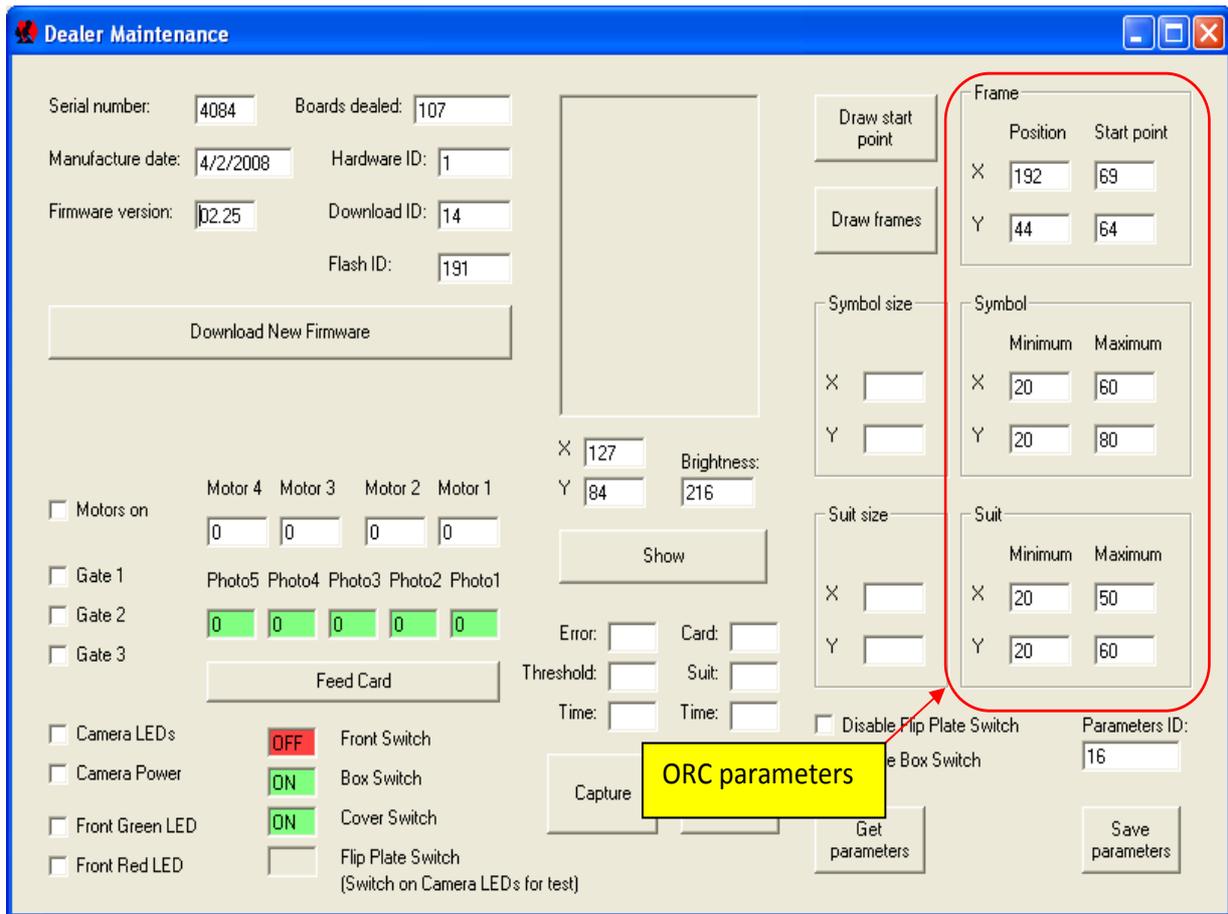
Dirty camera lens also can cause problems with card recognition. The picture below shows an example of the capture picture with dust covering part of the lens however in most cases effect of the dirty lens cannot be easy seen on the captured picture. It is better to look on the lens and clean it if required.

For cleaning instruction refer to “Dealer4 Cleaning Manual”.



10. There are incorrect settings on the ORS parameters.

In the “Maintenance” window there are few parameters which can affect recognition of the card:



These parameters should not be altered in normal use of the machine. In some specific situations such as when using cards with non standard symbol sizes or position, it maybe be required to change some values. Please refer to chapter 3 for more information.

2.2 Duplicate Card Error

Duplicate Card Error (Error 54) is a more complex situation. There are two possible cases:

1. Genuine Duplicate Card Error

Genuine Duplicate Card Error happens when two the same cards exist in the same deck. Also if deck has missing card – Dealer4 will try to deal card from the next deck (which always sits on the top of the actual dealing deck) and report it as a Duplicate Card Error.

To check such situation it is required to look which card is in the Feeder and check if this card was dealt.

Dealing always completed decks will avoid this type of error.

2. Duplicate Card Error caused by incorrect card recognition.

If any condition described in chapter 2.1 exists and the Dealer4 cannot correctly recognize the card, it usually reports “Card Recognize Error”. But sometimes instead reporting this error Dealer4 can

recognize such card as another one. As example – nine of club from chapter 2.1 point 3 – will be recognized as nine of hearts instead of nine of clubs. There are two possibilities:

- current card is recognized correctly and one of the previous card was recognized as the current one.
- previous cards are ok but the current card is recognized as one of the previous cards.

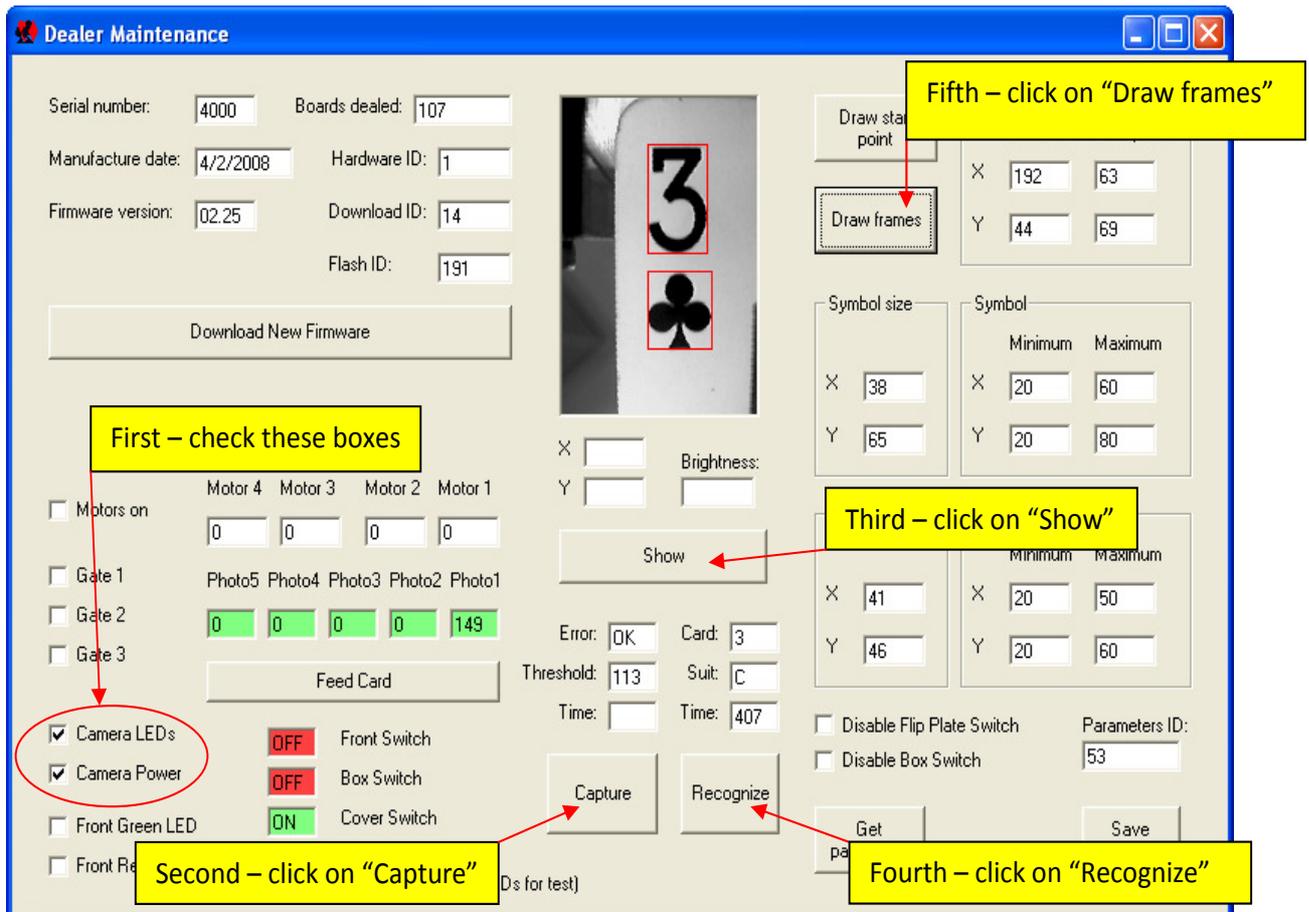
First case happened more frequently then second because in second case Dealer4 knows that is something wrong and tries different settings to recognize correctly.

First action should be the same as in point 1 – check if it is a Genuine Error – if it is not - try to redeal the deck rotated by 180 deg. Also it is good idea to put the card which caused the error as a first one to be dealt (on the bottom of the deck). If problem still persist see chapter 3 for more information.

3 What to do if Errors persist

When “Card Recognize Error” or “Duplicate Card Error” happens more frequently than once per 100 decks dealt some conditions described in the chapter 2.1 exist. In most cases it is possible to eliminate them by taking correct action described in chapter 2.1 but sometimes help from the Service Centre will be helpful or required. This is especially applicable when ORS parameters need to be altered or support for non standard cards need to be added. In such cases information about recognized process need to be send to the Service Centre. To do this

- please makes notes on which decks on which card “Card Recognition Error” or non genuine “Duplicate Card Error” happened
- capture data from the machine. It is good idea to do it immediately after a “Card Recognition Error” happens. When error message is displayed click “Cancel” and go to the “Maintenance” tab. The following window will appear:



First Check “Camera LEDs” to turn on illumination LEDs and “Camera Power” to turn on to the video camera, then click on “Capture” and “Show”. A picture of the card should appear in the capture window. Then click “Recognize”. If recognition is successful the text OK should appear in the “Error:” text box and “Card:” and “Suit:” information should be displayed. In case of the error – number of it will appear in the “Error:” text box. Finally click “Draw frames” – it will draw red rectangular frames around symbol and suit. It works only when recognize is correct.

When capturing problematic card it is good idea to try clicking “Recognize” until an error appears or card is read incorrectly. This gives the most valuable information for analyzing.

Next step is to send this window to the Service Centre. To do please take following action:

- press Alt key on the keyboard and while holding it down press PrtSc key. This will copy picture of the current window into clipart.
- open MS Word, click on “File – New” to create new document, click “”Edit – Paste” to paste capture picture into document. Then click “File – Save” to save document to a known location. (Another programs instead of MS Word can be used for this process e.g. Paint, Photoshop, etc.)
- attach this file to the email and sent to service centre (check email address of the service centre on www.dealer4.com in the Contact section or send to chris@esd.com.au)

It is recommended to capture few pictures and include as much additional information as possible.

In most cases based on the information sent, the Service Centre can diagnose the problem and recommend correct action.