

SWIPE & PARK HYBRID READER TECHNICAL REFERENCE MANUAL

Manual Part Number 99875230-9

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Patent is pending for Swipe & Park Hybrid Reader.

REVISIONS

| Rev Number | Date | Notes |
|------------|-----------|---|
| 1 | 20 Jun 02 | Initial Release |
| 2 | 24 Jun 02 | Front Matter: Added Patent Pending to Copyright Page. Section 3: To figure 3-2 added callout for "Circuit Board Mounting Standoffs (5 Places)". |
| 3 | 06 Nov 02 | Sec 1: Changed "Single or Dual Head" to "Head". |
| 4 | 13 Mar 03 | Replaced some fonts so manual would print on all printers. |
| 5 | 06 Jun 03 | Throughout: Changed Title from SmartSwipe to Swipe & Park. Front Matter: added ISO line to logo, changed Tech Support phone number. Sec 2: added Figure 2-5, Pitch and Mating Connector. |
| 6 | 16 Jul 03 | Front Matter: modified limited warranty. Sec 1: Applicable Documents, added ISO 7811-6 and I/O Interface manual and added Flammability to Specifications. Sec 3: added mating connectors. |
| 7 | 21 Aug 06 | Front Matter: modified limited warranty. Replaced obsolete Molex connector 71220-1000 with 52207-1085 in Mating Connectors; replaced drawing 21052178 with rev C |
| 8 | 25 Oct 07 | Added 21155005 |
| 9 | 18 Feb 09 | Removed 21155002 and the drawing of 21052179 since both are obsolete |

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This equipment has been tested and was found to comply with the limits for a Class B digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference with radio communications. However, there is no guarantee that interference will not occur in a particular installation.

FCC COMPLIANCE STATEMENT

This device complies with Part 15 of the FCC Rules. Operation of this device is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CANADIAN DOC STATEMENT

This digital apparatus does not exceed the Class B limits for radio noise from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

CE STANDARDS

Testing for compliance with CE requirements was performed by an independent laboratory. The unit under test was found compliant with standards established for Class B devices.

UL/CSA

This product is recognized per Underwriter Laboratories and Canadian Underwriter Laboratories 1950.

RoHS STATEMENT


When ordered as RoHS compliant, this product meets the Electrical and Electronic Equipment (EEE) Reduction of Hazardous Substances (RoHS) European Directive 2002/95/EC. The marking is clearly recognizable, either as written words like "Pb-free", "lead-free", or as another clear symbol ().

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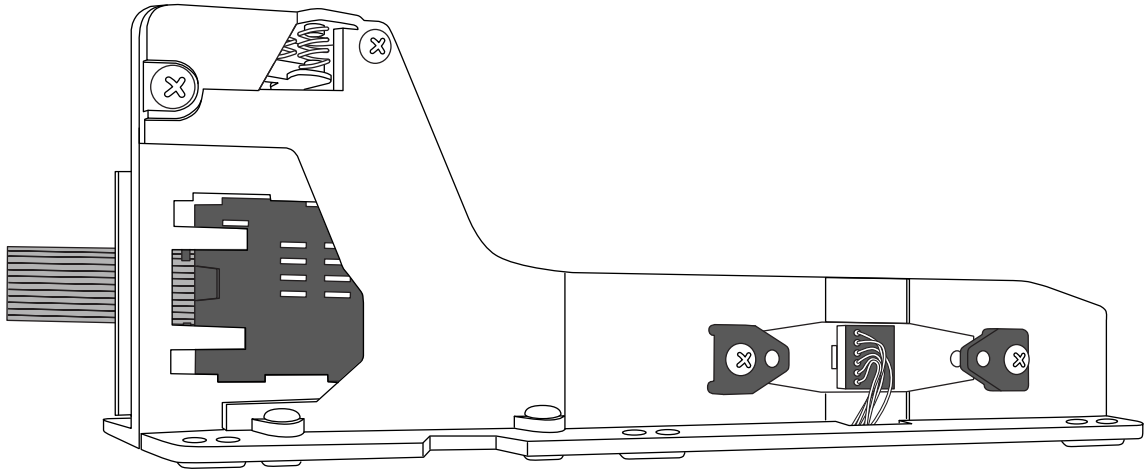


Figure 1-1. Swipe & Park Hybrid Reader

SECTION 1. FEATURES AND SPECIFICATIONS

The Swipe & Park Hybrid Reader supports both mag-stripe and smart card technologies. For mag-stripe cards, the unit reads tracks 1 and 2, or tracks 1, 2, and 3. For smart cards, the unit supports ICC 8-pin contacts for ISO smart cards with flex circuit attached.

CONFIGURATIONS

Configurations are listed in Table 1-1.

Table 1-1. Configuration

| Part Number | Head | Head Position | Tracks | Comments |
|-------------|--------|---------------|--------|---|
| 21155001 | Single | Left Side | 1,2,3 | No Electronics |
| 21155005 | Single | Left Side | 1,2,3 | Circuit Board with USB and RS-232 Interface |

FEATURES

Features of the Swipe & Park Hybrid Reader are as follows:

- Continuous unibody chassis that consists of a magnetic swipe path in line with a smart card reader section
- Provides for mounting a dual or triple track magnetic read head in butterfly configuration
- Contains an 8-contact smart card block in ISO location
- Smooth swipe operation with minimal interference or obstruction to the user
- Side pressure provided to keep the card from sliding away from smart card contacts
- Molded index pins provided that accurately allow for positioning of PCB
- Proper clearance provided for bowed, warped, and embossed cards
- Chassis mounting options
- Rugged design for installation in harsh and high traffic environments

And with the Electronics installed, the following additional features apply:

- On board SAM (Security Access Module)
- RS-232 and USB interfaces
- On board intelligence for transporting large blocks of data using a defined protocol and command set
- Test LED
- Program Flash upgradeable

ACCESSORIES

Other part numbers that may be included with the model with the PCB include the following:

| Part Number | Description |
|--------------------|---|
| 16051408 | RS-232 / Power cable – 6 foot, Swipe & Park to 9-pin D female RS-232 and 2.5mm power jack |
| 16051430 | USB-A to USB mini-B cable (white) |
| 16051433 | USB-A to USB mini-B cable (gray) |
| 30037472 | Demo Software, IntelliStripe Picture Demo (CD) |
| 30037473 | MagTek MCP Drivers (CD) |
| 64300080 | Power Supply – Auto-ranging 100V-250V, regulated, 12VDC, 2.5mm plug. Requires adapter to mate with power outlet; use Adapter/Power Cord (P/N 71100001) for North American applications. |
| 71100001 | Power Outlet Adapter/Cord for North American applications (used with part number 64300080) |
| 99510015 | Demo Software, IntelliStripe Picture Demo (Web – ref www.magtek.com) |
| 99510016 | MagTek MCP Drivers (Web – ref www.magtek.com) |

RELATED DOCUMENTS

This document is from a hardware perspective only. Other MagTek documents that cover the command set, communications protocol and API (Application Program Interface) are as follows:

| Part Number | Description |
|--------------------|--|
| 99821002 | MagTek Reader Design Kit |
| 99875161 | IntelliStripe 65, Command Reference Manual |
| 99875163 | MCP, Serial Transport Protocol Reference Manual |
| 99875164 | MagTek Communication Protocol, Driver Reference Manual |

Other documents applicable to the Swipe & Park Hybrid Reader are as follows:

- ISO 7816-1, -2, -3 Identification Cards – Integrated circuits with contacts
 - ISO 7811-2, -3, -4, -5, -6 Identification Cards – Magstripe cards tracks 1-3
 - ISO 7810 Identification Cards – Physical Specifications
- ISO Documents: 7810, 7811, 7816 are available from ANSI at:
Phone: 212-642-4900 or www.ansi.org

SPECIFICATIONS

Swipe & Park specifications are as shown in Table 1-2.

Table 1-2. Specifications

| MECHANICAL | |
|--|---|
| Dimensions: | |
| Overall Length | 7.088" (177.8 mm) |
| Height | 2.632" (66.86 mm) |
| Width | 1.55" (39.4 mm) |
| Weight | 2.31 oz (65.53 gr) |
| Flammability | Meets UL 94V-0 |
| ENVIRONMENTAL | |
| Temperature: | |
| Operating | -40°F to 122°F (-40°C to 50°C) |
| Storage | -40°F to 158°F (-40°C to 70°C) |
| Humidity: | |
| Operating | 5% to 90% non-condensing |
| Storage | 5% to 90% non-condensing |
| Altitude: | |
| Operating | 0 to 10,000 ft. (0 to 3,048 m) |
| Storage | 0 to 50,000 ft. (0 to 15,240 m) |
| DATA FORMAT SPECIFICATION – For PCB Model | |
| Reader Configuration | Data Format Specification* |
| Mag-Stripe Functions Track 1,2,3 only | ISO/AAMVA/JIS formats ISO 7810, 7811, JIS x 6302 Type 2 |
| Smartcard Functions | ISO 7816 T=0 and T=1 protocols, many popular memory cards EMVCo Level 1 Approval |
| OPERATIONAL – For PCB Model | |
| Card Speed | 3 IPS (7,62 cm/sec) to 50 IPS (127, cm/sec) |
| Recording Method | Two-frequency coherent phase (F2F) |
| MTBF | Head: 1,000,000 passes (500,000 Insertion Cycles) SC contacts: 1,000,000 insertions |
| ELECTRICAL – For PCB Model | |
| Input Voltage | 12.0VDC \pm 5% |
| Current | 500mA max, (1A with contactless smartcard option) 50mA idle, (300mA with contactless smartcard option) |

* ISO (International Standards Organization), AAMVA, (American Association of Motor Vehicle Administrators), JIS (Japanese Industrial Standard)

SECTION 2. INSTALLATION

The installation consists of mounting the Reader in a customer-supplied housing and connecting one cable from the head and another from the ICC contact. Pin lists for the 2 track and 3 track heads are shown in the drawings in Appendix A.

MOUNTING

The Reader is attached to a customer-supplied surface with six screws. The unit is attached either from underneath into M2.5 inserts or from above with 2.5 screws. Positions of the inserts and screw holes are shown in Figure 2-1, bottom view. Brackets [] indicate millimeters; open numbers indicate inches.

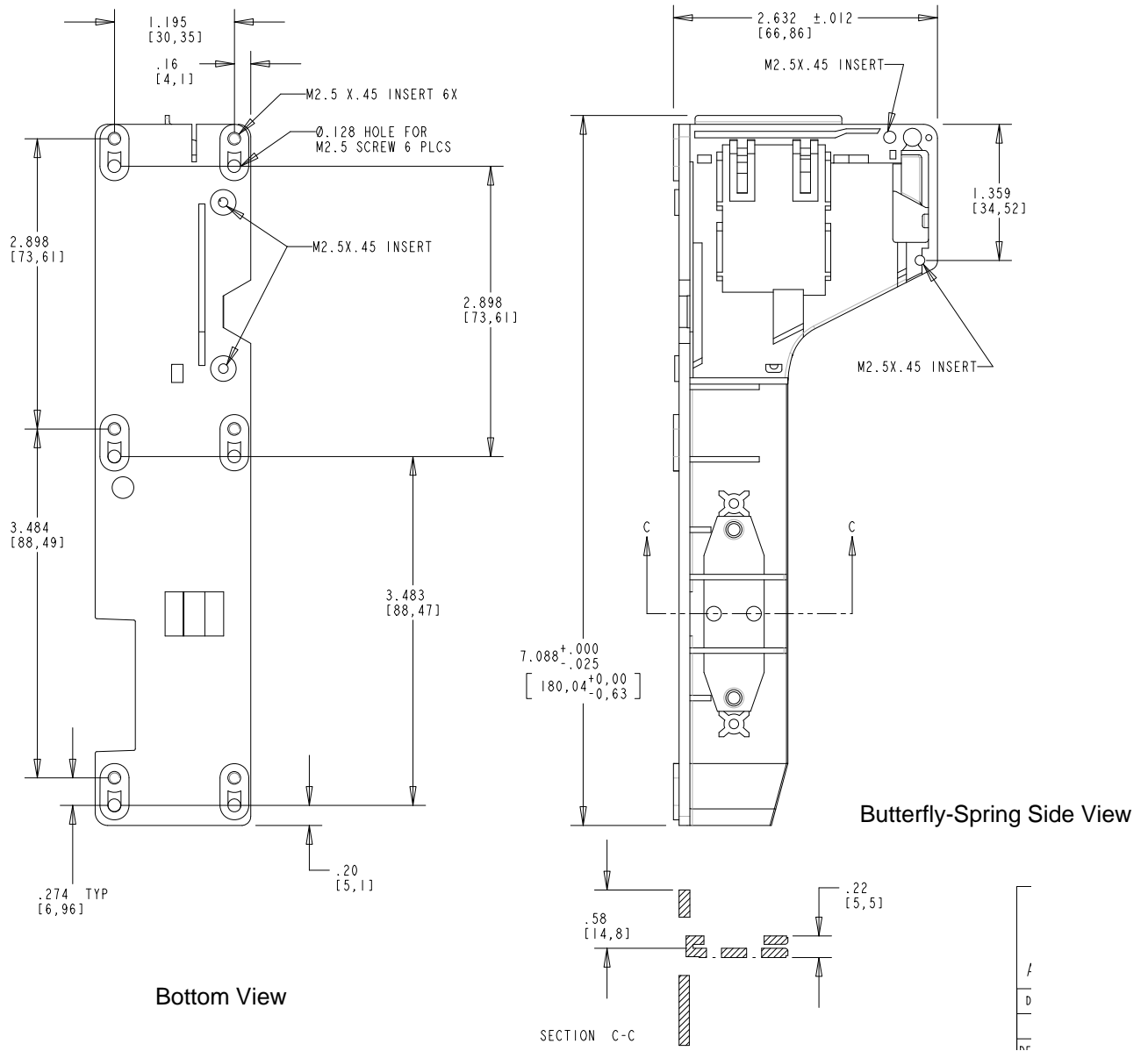


Figure 2-1. Swipe & Park – Bottom View and Butterfly-Spring Side View

Swipe & Park Hybrid Reader

At the top of the Reader there are two springs and a bracket. These are used as a guide to funnel the top of the card into the smart card section. A bracket and two springs hold the smart card in position while the card is read. The guide and bracket provide the necessary side pressure to keep the card under the smart card contacts and prevent the card from sliding away. The other spring repositions the flex cable bracket when the card is removed. Brackets [] indicate millimeters; open numbers indicate inches.

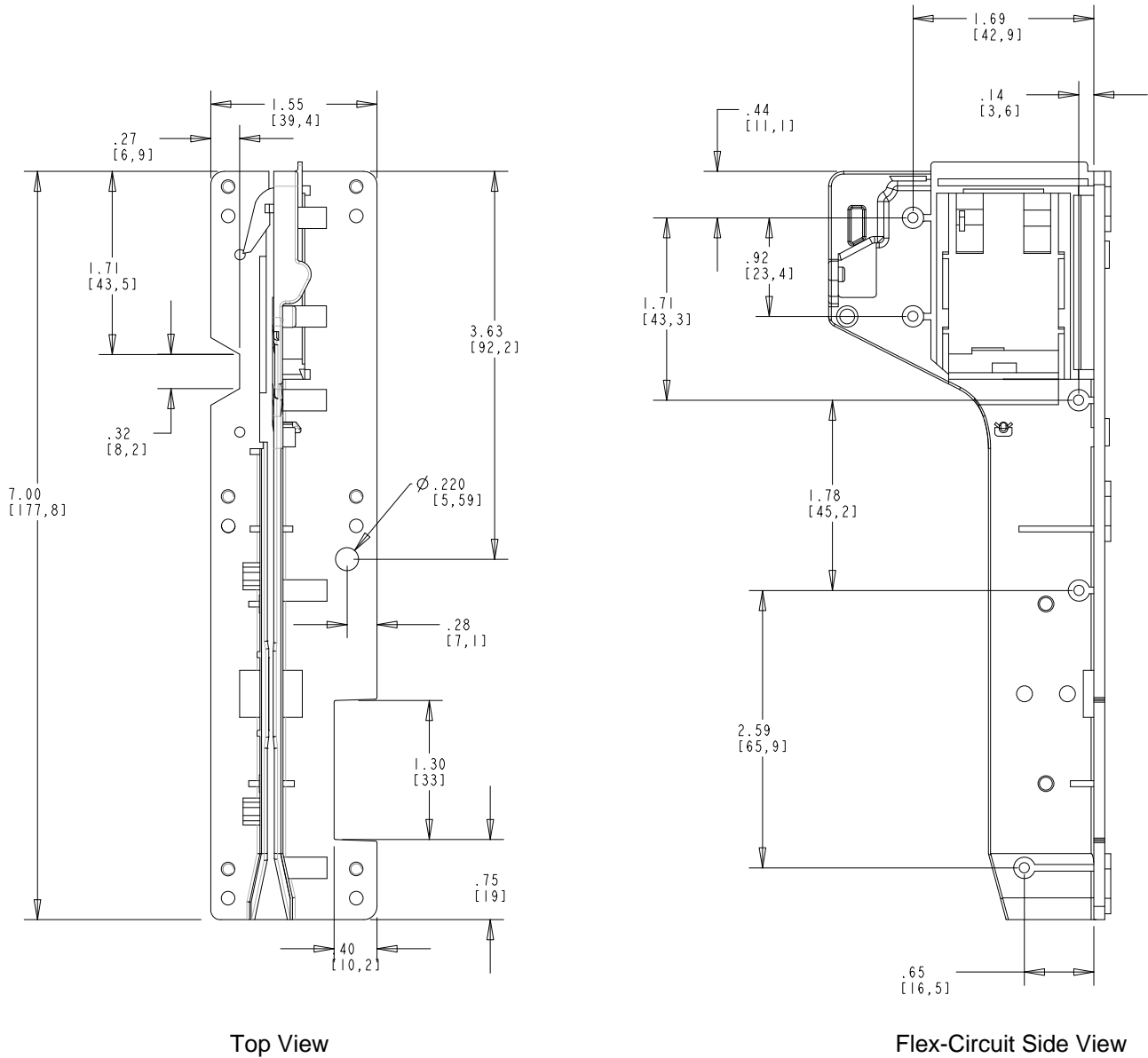


Figure 2-2. Swipe & Park – Top View and Flex-Circuit Side View

CABLES

Figure 2-3 shows the location of Pin 1 on the flex cable with respect to the Reader. The pin list for the flex cable is shown in Figure 2-4. Wiring for the head is shown in Appendix A.

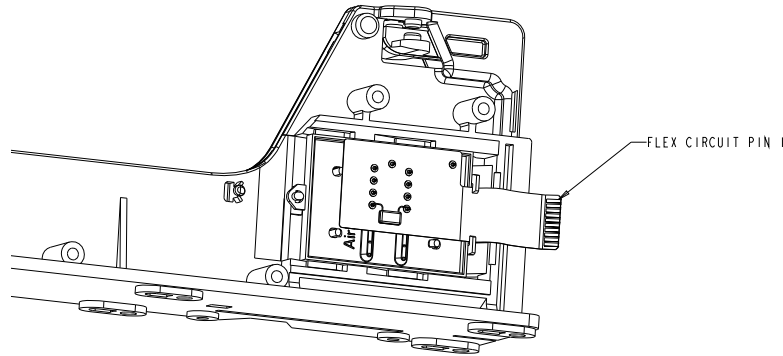
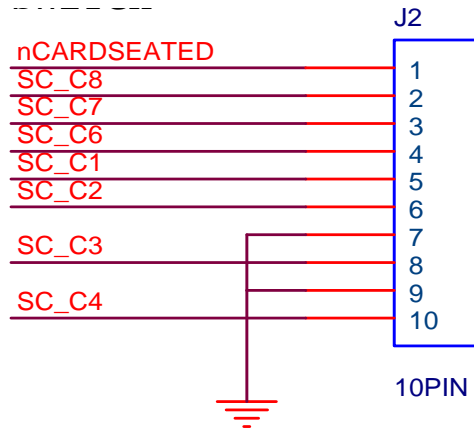


Figure 2-3. Flex Cable Pin 1 Location



Note: The Host Interface must provide pull-up for card-seated switch.

Figure 2-4. Flex Cable Pin List

Figure 2-5 shows the pitch and mating connector of the flex cable:

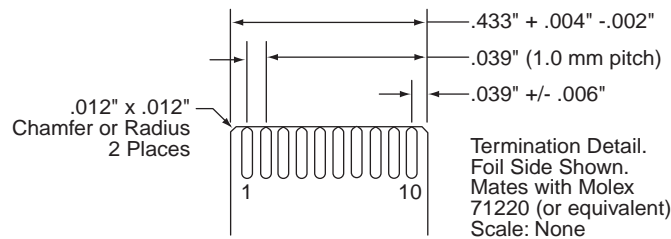


Figure 2-5. Pitch and Mating Connector

SECTION 3. OPERATION AND MAINTENANCE

OPERATION

Component parts and orientation of the Swipe & Park Reader are shown in Figures 3-1 and 3-2.

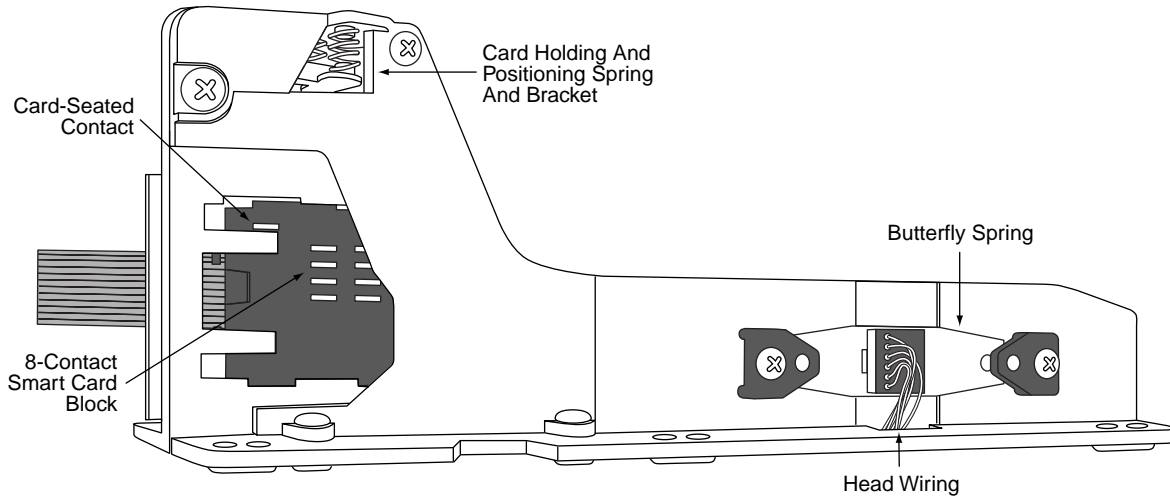


Figure 3-1. Smart Card Contacts and Butterfly Spring Side of Swipe & Park Reader

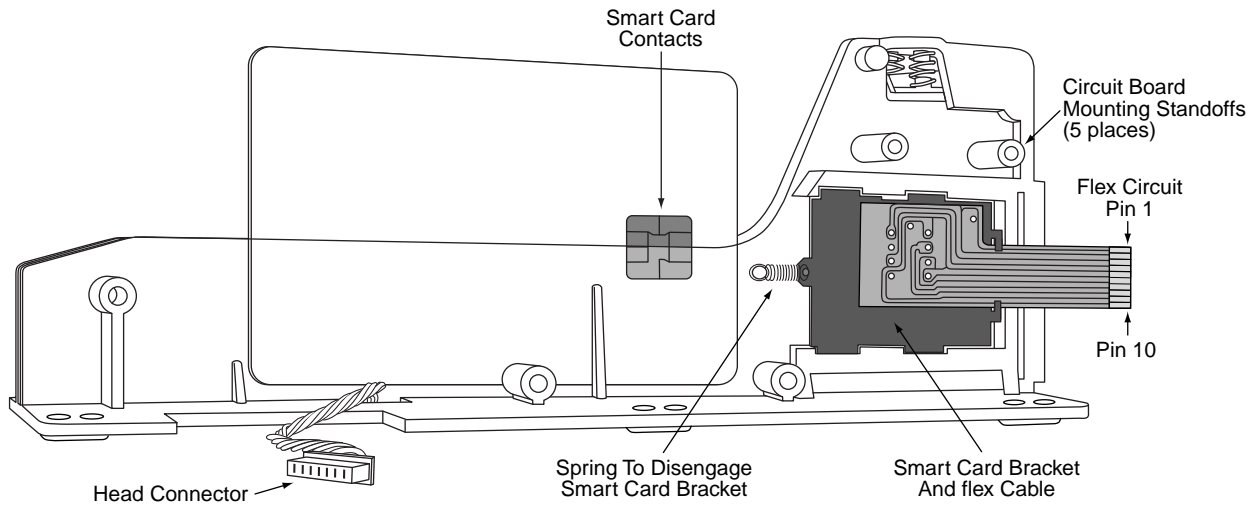


Figure 3-2. Smart Card Bracket and Flex Cable Side of Swipe & Park Reader

In Figure 3-1, the orientation of the magnetic stripe is that it faces toward the viewer, and the smart card contacts face away from the viewer. In Figure 3-2 the orientation is the opposite: the magnetic stripe faces away from the viewer, and the smart card contacts face toward the viewer.

Figure 3-1 shows the smart card contacts, the card-seated contact, the butterfly spring, the head wiring and the card holding and positioning spring and bracket. The card-seated contact notifies the host that the smart card is in position for reading. The butterfly spring is for more accurate reading of bowed or warped cards. The pin lists for the head connectors are shown in Appendix A. The card holding and positioning spring and bracket provide the necessary pressure to keep the card under the smart card contacts and prevent it from sliding away.

Figure 3-2 shows the smart card contacts with respect to the smart card bracket and flex cable, the pin orientation on the flex cable, the head connector, and the bracket disengagement spring. The disengagement spring repositions the flex cable bracket when the card is removed. Also shown are the five circuit board mounting standoffs.

MAINTENANCE

The only maintenance required is for cleaning the customer-supplied enclosure.

MATING CONNECTORS

For models without electronics:

- Smartcard Flex Cable Connector, Molex 52807-1010 (through-hole) or 52207-1085 (SMT)
- Read Head Mating Connector, Molex 53048-0710 (through-hole) or 53261-0790 (SMT)

For models with electronics:

- See **Accessories** table

APPENDIX A. ENGINEERING DRAWINGS

The drawings in this section are as follows:

Part Number Description

| | |
|----------|---|
| 21052178 | Assembly, Read Head/Spring, 3Tk, Low Profile,100mm Wire and Connector |
|----------|---|

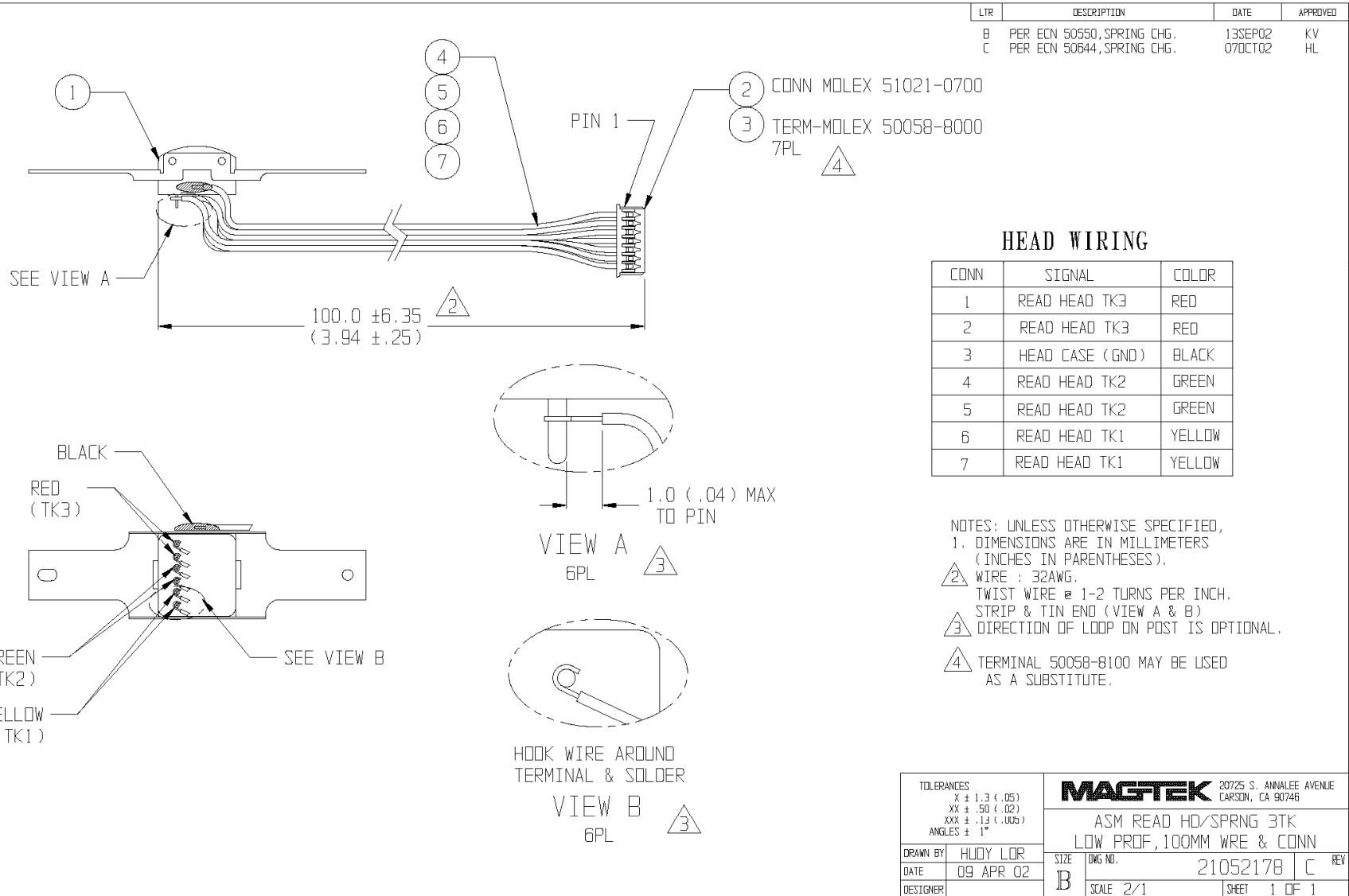


Figure 4-1. Read Head / Spring 3 Track