COIN MECHANISMS INC.

Where The Money Meets The Machine

Intelligent Comparitor®
System Plus
Technical Manual
U.S.

Rev. 1
2/6/2004
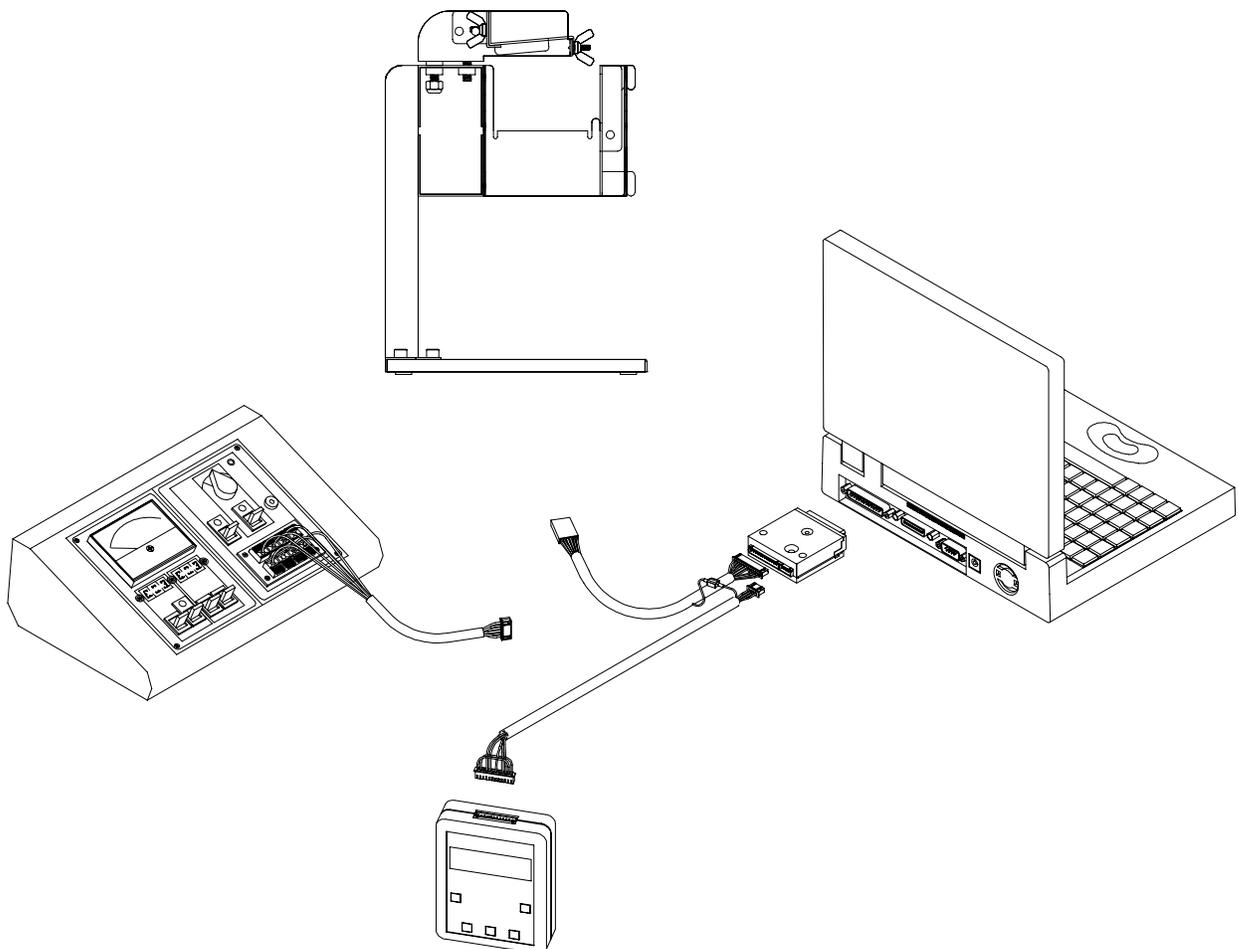
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TEST HEADER

POT **"C"**

POT **"S"**

MICROCONTROLLER PART NO.

FIRMWARE FILENAME

WIRE CLIP

BACK COIL BALANCE ADJUSTMENT

VIEW OF BACK COIL ADJUSTMENT WITH CLIP REMOVED

SPRING RETAINER

BARCODE HOLDER

BARCODE READER

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ARMATURE
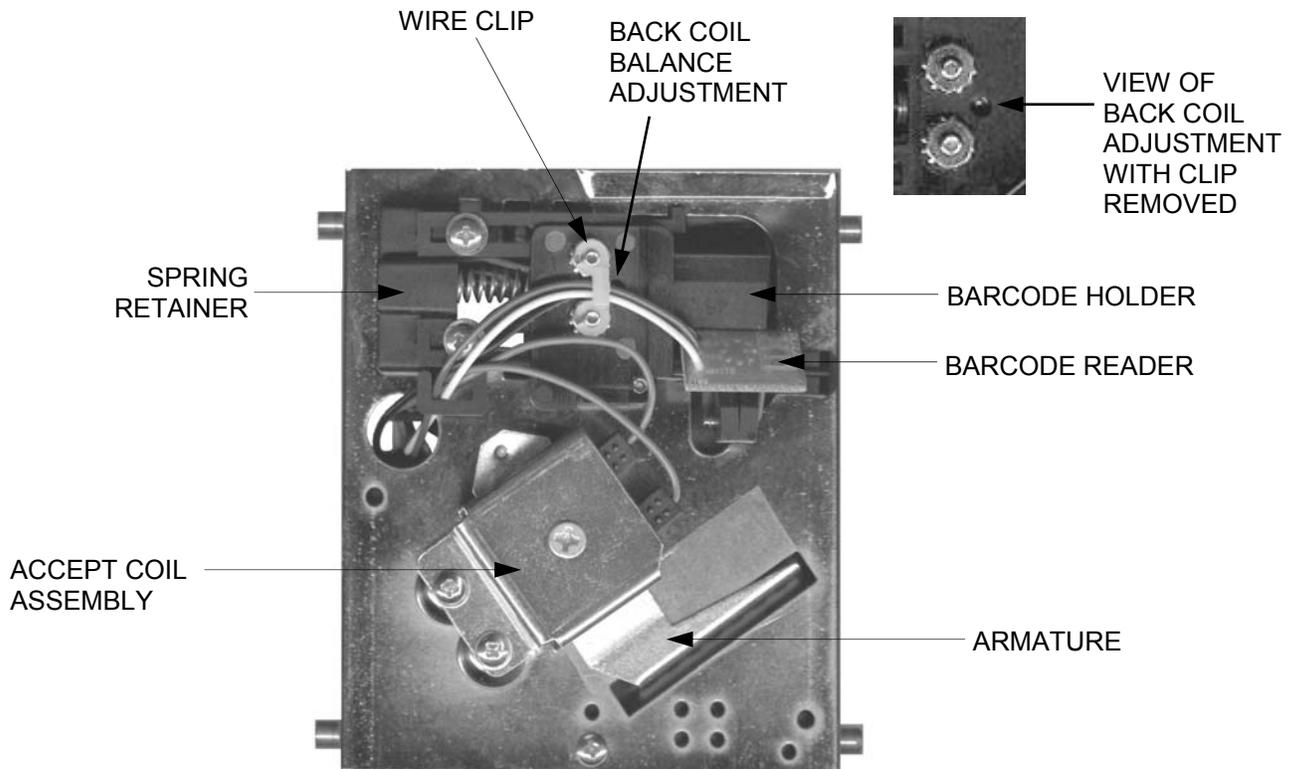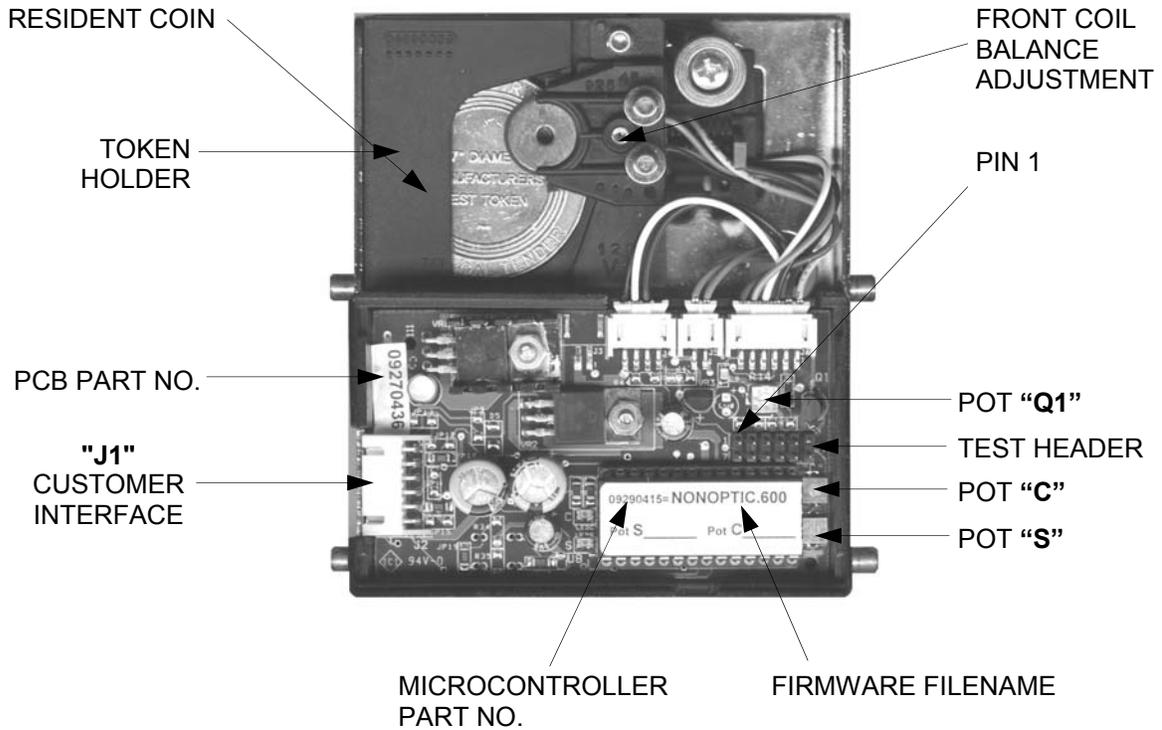
INTELLIGENT COMPARITOR
REFERENCE GUIDE
(PCB with "Virtual" Pots)

RESIDENT COIN

COIL BALANCE
ADJUSTMENT

TOKEN
HOLDER

PIN 1

TEST
HEADER

PCB PART NO.
LOCATED ON
BACK SIDE OF PCB

POT
Q1

POT "C"
LIGHT

0950-000043
MONOPTIC.7C1

"J1"
CUSTOMER
INTERFACE
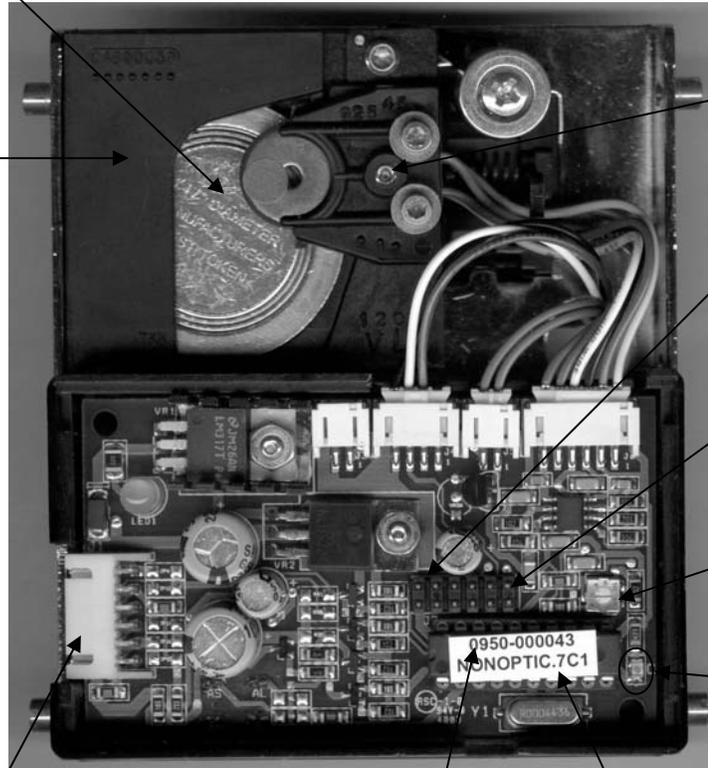
MICRO
PART NO.

FIRMWARE FILE
EXTENSION AND REVISION

WIRE CLIP
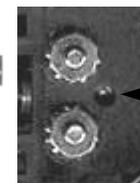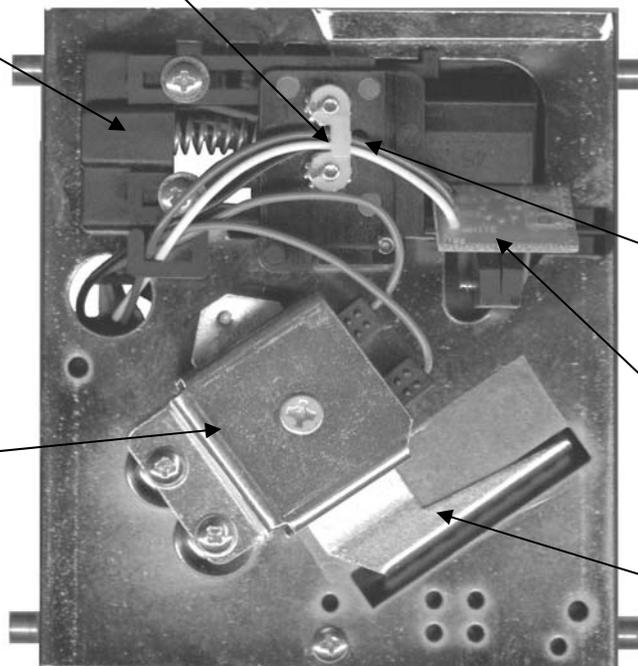
SPRING
RETAINER

VIEW OF
BACK COIL
ADJUSTMENT
WITH CLIP
REMOVED

BACK COIL
ADJUSTMENT

ACCEPT COIL
ASSEMBLY

BARCODE
READER

ARMATURE

MECHANICAL
ASSEMBLY INSTRUCTIONS
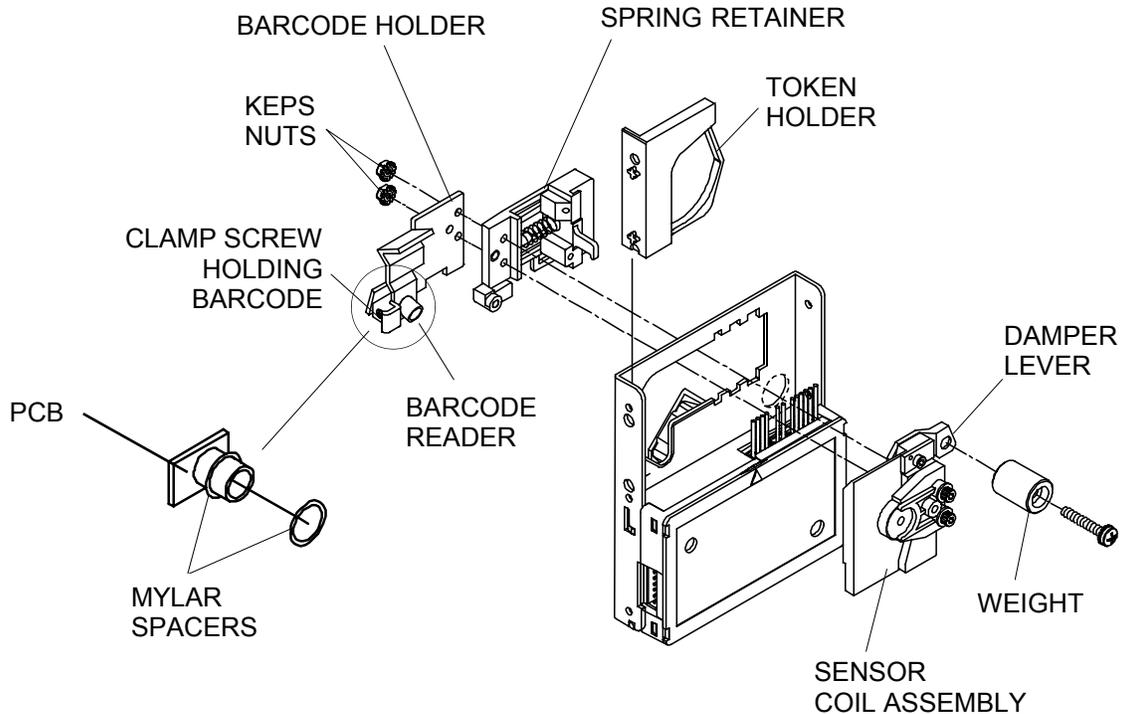
REMOVING THE BARCODE HOLDER, SPRING RETAINER, TOKEN HOLDER AND SENSOR COIL
See page 7 for details on proper torques and tool size before reassembly

- The barcode holder, spring retainer and sensor coil are held together by two keps nuts fastened to the screws of the sensor coil assembly. To replace the bar code holder, and sensor coil assembly,
    1. Remove the token holder (*see TOKEN HOLDER INSTALLATION SECTION*)
    2. Using a 1/4 in. hex socket wrench, remove the keps nuts
    3. Remove the barcode holder by sliding off threads of sensor coil
    4. Unhook the barcode holder wires from loop in spring retainer
    5. Remove the spring retainer by slightly compressing spring assembly and detach from back.
    6. Using a #0 Philips driver, loosen clamp screw and remove the barcode reader
    7. Unplug barcode reader from pcb.
    8. Slide the sensor coil until the tabs line up with the slots in mainplate and separate from mainplate
    9. Unplug sensor coil from control pcb

CHANGING THE BARCODE HOLDER AND ADDING MYLAR SPACERS

- Remove the barcode reader from the old barcode holder by loosening the screw clamping it in place. The reader may have mylar spacers on it which are used to focus the barcode reader. Do not remove, the spacers are for focusing the barcode reader. Transfer reader into new holder.
- If mylar spacers need to be added for focusing purposes, slide spacers over reader housing as shown in illustration above, push down until flush with pcb, then secure clamp screw holding barcode.

TOKEN HOLDER INSTALLATION PROCEDURE

Caution !!

Coin Mechanism's and most game manufacturers recommend that the Game be powered down before changing any parts including the coin acceptor.

You must unplug the power connector from the Intelligent Comparitor before removing the token holder or Intelligent Comparitor from the channel. Otherwise there is a chance to blow the 6 amp fuse in an IGT S-PLUS motherboard.

Do not push on the front of the coil assembly. Damper lever damage may occur.

Clip and screws on back
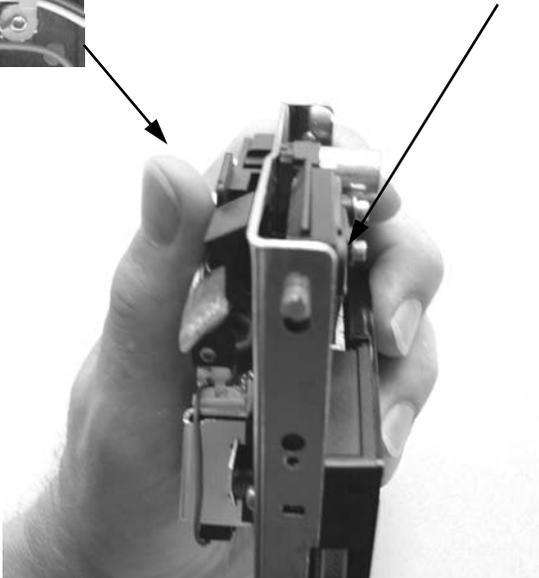
Using clip and screws on back for leverage, slide sensor coil assembly back to loosen token holder.

Pull token holder up and free of assembly.

Turn token holder over and insert token as shown
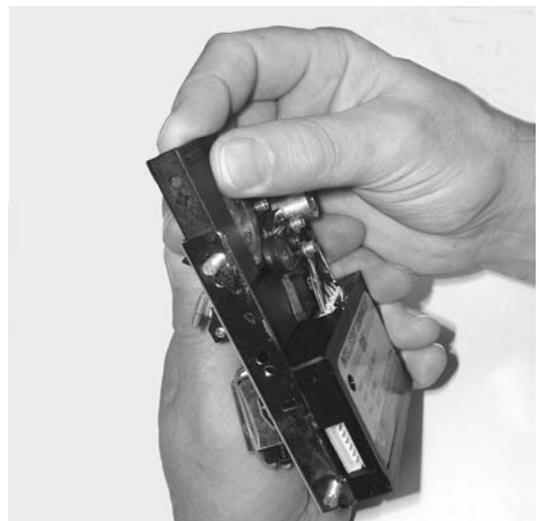
Slide sensor coil stack back and replace token holder

6

SENSOR COIL REPLACEMENT AND MECHANICAL ADJUSTMENT

1. Remove the sensor coil from the chassis following the procedure in the **MECHANICAL ASSEMBLY SECTION**.
2. Prior to installing the replacement sensor coil assembly to the chassis, use a 1/16 in. hex drive bit and loosen both coil adjustment screws.
3. Use a torque driver set to 4 in.-lbs. With a 3/32 in. hex drive bit, torque each of the (2) screws that hold the sensor coil stack together. (see fig. 1)
4. Install the sensor coil assembly to the chassis.
5. Install the spring retainer assembly and use a 1/16 in. hex drive bit to loosen the spring retainer adjustment screw. (see fig. 2)
6. Install the barcode holder to the sensor coil assembly stack screws using (2) Keps nuts.
7. Using a torque driver set to 3 in.-lbs. with a 1/4 in. hex socket, torque on the Keps nuts. (see fig. 2)
8. Slide the coil assembly to the right. (see fig. 3) Holding the coil assembly open, slide the token holder up until it is held captive due to the gap between the #2 and #3 coils.
9. Using the 1/16 in. hex drive bit, turn front coil adjustment screw clockwise, just until the token holder falls. (see fig. 1) There should be no more than 2 mm of clearance between the token holder and the #3 coil or between the coin and the #3 coil if the coin thickness is greater than the token holder web.
10. Using the 1/16 in. Hex drive bit, turn the spring retainer adjustment screw clockwise until it just touches the mainplate.

Now you are ready to electronically balance the coil in the sensor coil electronic balance section.

- If you are using the CPM see the TO CHECK AND ADJUST SENSOR COIL section
- If you are using the SPMT see the SENSOR COIL ELECTRONIC BALANCING SECTION
- If you are using an oscilloscope see document #00300001
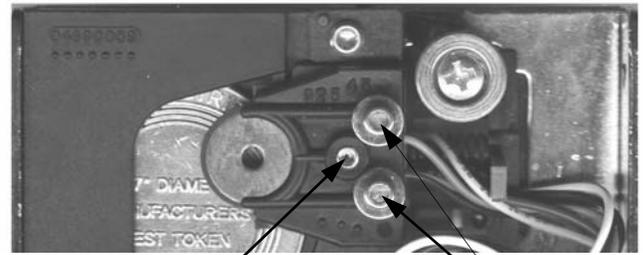
Front coil adjustment screw

Torque screws holding stack together

Fig. 1
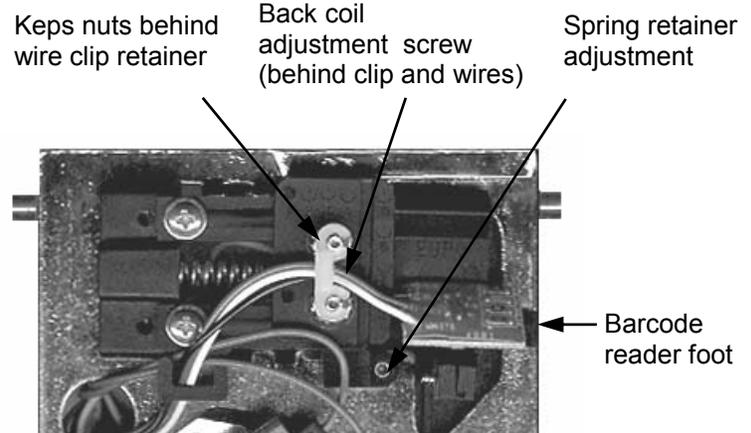
Keps nuts behind wire clip retainer

Back coil adjustment screw (behind clip and wires)

Spring retainer adjustment

Barcode reader foot

Fig. 2
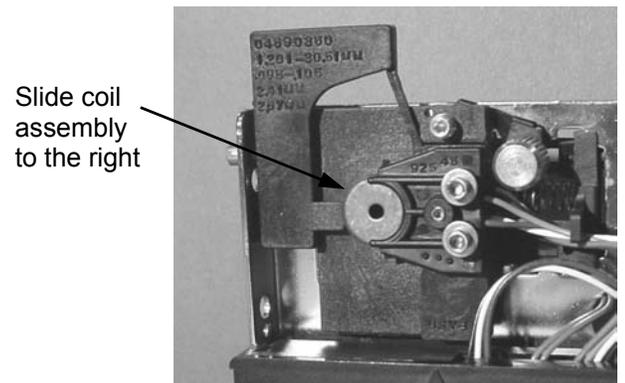
Slide coil assembly to the right

Fig. 3
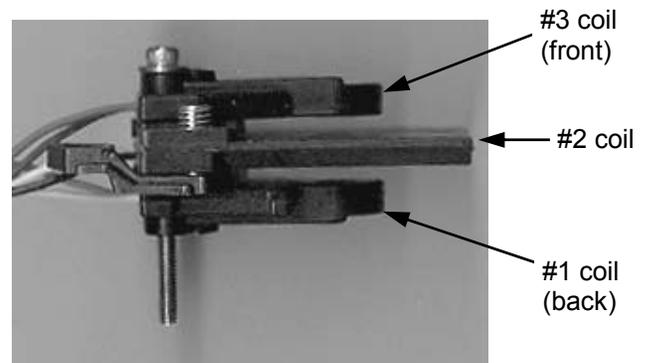
#3 coil (front)

#2 coil

#1 coil (back)

Fig. 4

THE CUSTOMER PROGRAMMING MODULE

The Customer Programming Module (CPM) allows the user the ability to:

- Program the **Intelligent Comparitor** ® for your casino's SmartMark® tokens
- Update the coin data file for any denomination of your casino's tokens
- Check and adjust the reference voltages of pot "C" and pot "S"
- Check and adjust sensor coil balance

The illustration below will familiarize you with the **CPM's** functions:

FUNCTION OF BUTTONS

INTELLIGENT COMPARITOR
SYSTEM PLUS
CUSTOMER PROGRAMMING MODULE

LCD display

CMI# 68000007

SERIAL #

POT C   POT S

Potentiometer used to set the reference voltage for the SmartMark® reader

RESET/
RETURN

Reset / Return button

COIL
BALANCE
/ YES

DUAL
VOLT METER
/ NO

UPLINK
TO MECH

Potentiometer used to set the reference voltage for the sensor coils

Coil balance / Yes Button

Dual voltmeter / No Button

Uplink to Mech button

PROGRAMMING OR UPDATING THE INTELLIGENT COMPARITOR USING THE CPM

Programming the Intelligent Comparitor ® for your casino's SmartMark ® tokens

If you are purchasing a new gaming machine, you can specify that it comes from the manufacturer with the Intelligent Comparitor ® already installed. Coin Mechanisms programs all Intelligent Comparitors ® that are supplied to gaming machine manufacturers to accept a '**M**anufacturer's **T**est **T**oken' . The **MTT** token is supplied to the various machine manufacturers so they can test the Intelligent Comparitor ® after they install it in the machine. When the machine arrives at your casino, it will be necessary to program the **I**ntelligent Comparitor ® for your casino's SmartMark® tokens

Updating the coin data file for any denomination of your casino's tokens

It may be necessary at some point in time to update the coin data file for one or more denominations of your casinos tokens for the following reasons:

- Improve accept rate of tokens which may have diminished due to wear or to a refill
- Reject an unwanted cross-play token or fraud

To update a coin data file, you must first update your CPM. (see updating your CPM section in the Intelligent Comparitor ® users manual)

The CPM holds all of the coin data files for your casino. The Intelligent Comparitor® is programmed to interrogate the CPM to look for the appropriate coin data file. This feature prevents accidental uplinking of the wrong denomination or from uplinking coin data files from another casinos' CPM.

HOOKING UP THE CPM TO THE IC

Remove the snap-on cover of the Intelligent Comparitor ®, locate the (12) pin dual-row header located just above the microcontroller and plug in the **CPM** connector as shown at right. Be sure that the pin 1 arrow on the **CPM's** connector lines up with pin 1 of the 12-pin dual-row header.

Programming module connector

Pin 1

The Intelligent Comparitor must be powered by either your machine or an external power source. The **CPM** derives its power from the Intelligent Comparitor. Upon power-up, the system goes through a self test. The 2 line, 16 character LCD screen will momentarily display "Intelligent Comparitor Test" followed by the *Home Screen* - your casino name, and a version identification of the **CPM**.

Note: Pressing the *Reset/ Return* button at any time reinitializes self test and returns the *Home Screen*

➡

Intelligent
Comparitor Test

—Your Casino Name—
POD VERSION and ARRAY REVISION

PROGRAMMING OR UPDATING
USING A CPM

Your casino has been assigned a 3 digit alpha acronym.

The 3 digit alpha acronym is part of the coin data file name. (e.g. ACH—1.0), where **ACH** is the casinos 3 digit acronym, **1** is the denomination of the coin and **.0** is the revision level.

Press the ***Uplink to Mech*** button. If the Intelligent Comparitor® locates the appropriate coin data file, the LCD screen will display the file that is currently programmed into the validator on line one, and the file for the corresponding denomination that is in the CPM on line two.

Note: Before proceeding, be sure that the revision of the coin data file of the **CPM** is the same or later than the revision of the coin data file of the mech.

The gate timing reference (e.g. c2) is displayed at the end of line one.
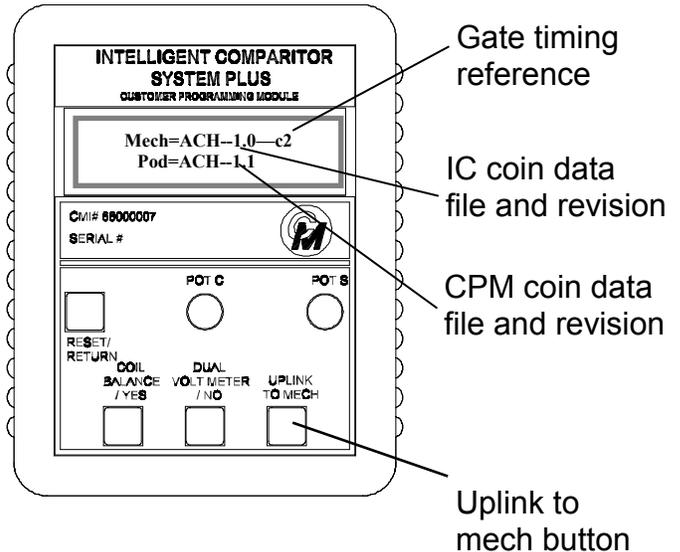
➡

Gate timing reference

IC coin data file and revision

CPM coin data file and revision

Uplink to mech button

Press the ***Uplink to Mech*** button a second time and the LCD screen will display a prompt to confirm that you want to uplink the coin data file contained in the **CPM** to the validator.

➡

MechRev0-PodRev1
Press to Uplink

Procedure for PCB with Pots

If your pcb looks like the picture at the right follow the next two steps. If your pcb does not look like the picture at the right turn to page 12 **Procedure for PCB without Pots**

➡

POT "C"

POT "S"
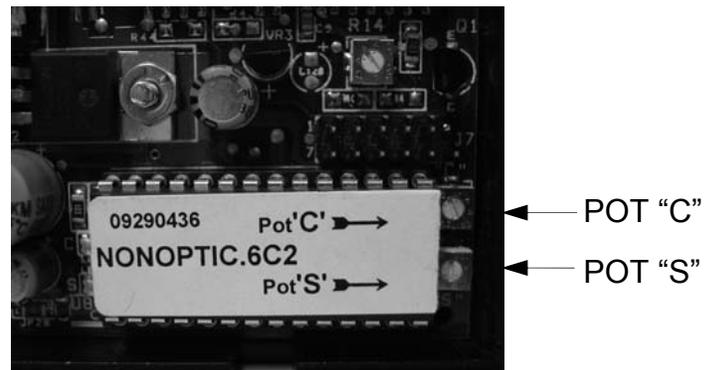
Press the ***Uplink to Mech*** button a third time. If your pcb has potentiometers the display will confirm that the uplink is completed

➡

MechRev1-PodRev1
Uplink Completed

PROGRAMMING OR UPDATING
USING A CPM - CONTINUED

Press the *Uplink to Mech* button again to show that Mech and Pod contain the same coin data file. The process is now complete.

➡️

> Mech=ACH- -1.1
> -Pod=ACH- -1.1

Procedure for PCB without Pots

If your pcb looks like the picture at the right follow the next three steps. If your pcb does not look like the picture at the right turn to page 11.

➡️

0950-000XXX
62-OPTIC.7C1
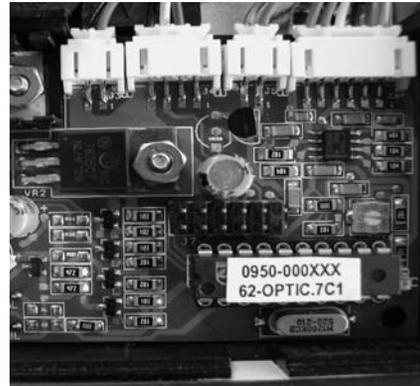
← No pots

If you press the *Uplink to Mech* button a third time and your pcb does **not** have potentiometers, the CPM asks if you want to uplink the factory pot settings.

➡️

> Uplink Factory
> Pots ? (Y)   (N)

If token acceptance on your floor is good and you haven't previously made adjustments to the reference voltages, press the *Coil Balance/ Yes* button. The display will confirm that the coin data file with the factory setting has been uplinked.

➡️

> MechRev1-PodRev1
> Uplink Completed

Press the *Uplink to Mech* button again to show that Mech and Pod contain the same coin data file. The process is now complete.

➡️

> Mech=ACH- -1.1
> -Pod=ACH- -1.1

If your token acceptance on your floor is poor at the factory settings, press the *Dual Voltmeter/No* button. The display will ask you if the potentiometers on the CPM are set properly and show the voltage settings that the potentiometers on the CPM are set to.

➜

> **Are pots set?   (Y)**
> **Pot C= 1.8V Pot S= 1.2V**

Example Only

Turn over your CPM and refer to the denomination information on the label.

➜

Denomination	Pot 'S'	Pot 'S'	Pot 'C'
	New Token	Worn Token	+/- 0.4volt
50 Cent	1.7 volts	0.8 volts	2.3 volts
1 Dollar	1.9 volts	0.5 volts	1.2 volts
2 Dollar	2.5 volts	0.8 volts	2.0 volts
5 Dollar	2.5 volts	0.8 volts	3.2 volts
10 Dollar	1.6 volts	1.1 volts	1.8 volts

As you adjust the potentiometers on the **CPM** you will notice the voltage readings change on the LCD display. When reference voltages are set the way that you want, press the *Coil Balance/Yes* button. The display will confirm that the coin data file with the new settings has been uplinked.

➜

> **MechRev1-PodRev1**
> **Uplink Completed**

Press the *Uplink to Mech* button to show that Mech and Pod contain the same coin data file. The process is now complete.

➜

> **Mech=ACH- -1.1**
> **-Pod=ACH- -1.1**

TO CHECK OR ADJUST POT "C" AND POT "S" IF
YOUR PCB HAS POTENTIOMETERS

From the *Home Screen*, press the **Dual Voltmeter** button ➜

INTELLIGENT COMPARITOR
SYSTEM PLUS
CUSTOMER PROGRAMMING MODULE

-Your Casino Name-
Pod Version and Array Revision

CMI# 68000007
SERIAL #

POT C   POT S

RESET/
RETURN
COIL   DUAL
BALANCE   VOLT METER   UPLINK
/ YES   / NO   TO MECH
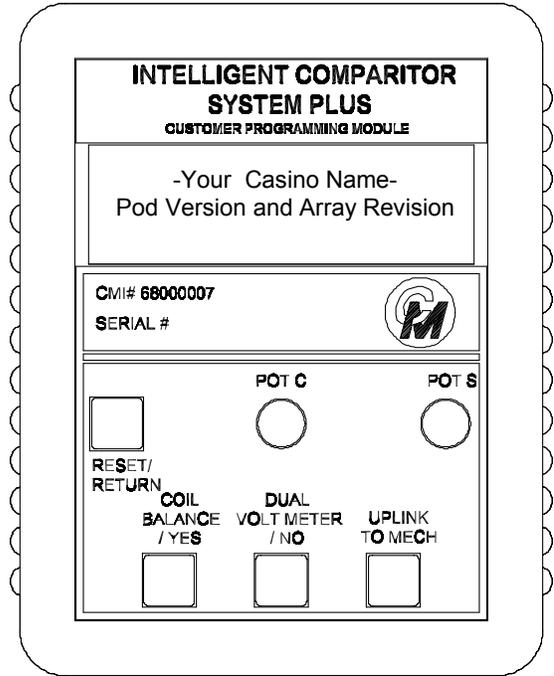
When the **Dual Voltmeter** Button is pressed the LCD will display the reference voltage levels that pot "C" and pot "S" on the control pcb are set to. ➜

**Use pots on Mech
pot C= 1.8V pot S= 1.2V**

Example Only

Denomination	Pot 'S'	Pot 'S'	Pot 'C'
	New Token	Worn Token	+/- 0.4volt
50 Cent	1.7 volts	0.8 volts	2.3 volts
1 Dollar	1.9 volts	0.5 volts	1.2 volts
2 Dollar	2.5 volts	0.8 volts	2.0 volts
5 Dollar	2.5 volts	0.8 volts	3.2 volts
10 Dollar	1.6 volts	1.1 volts	1.8 volts

Turn over your **CPM** and refer to the denomination information on the label. ➜

As you adjust the potentiometers on the pcb you will notice the voltage readings change on the LCD display. ➜

09290436   Pot'C' ➜
NONOPTIC.6C2
Pot'S' ➜
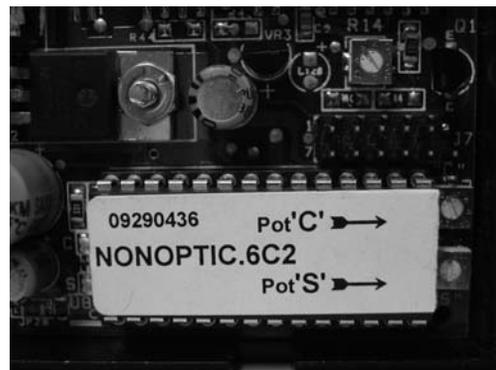
POT "C"
POT "S"

TO ADJUST POT "C" AND POT "S" IF YOUR PCB DOES NOT HAVE POTENTIOMETERS

From the *Home Screen*, press the **Dual Voltmeter** button

➡

INTELLIGENT COMPARITOR SYSTEM PLUS
CUSTOMER PROGRAMMING MODULE

-Your Casino Name-
Pod Version and Array Revision

CMI# 68000007
SERIAL #

POT C   POT S

RESET/
RETURN
COIL   DUAL
BALANCE   VOLT METER   UPLINK
/ YES   / NO   TO MECH
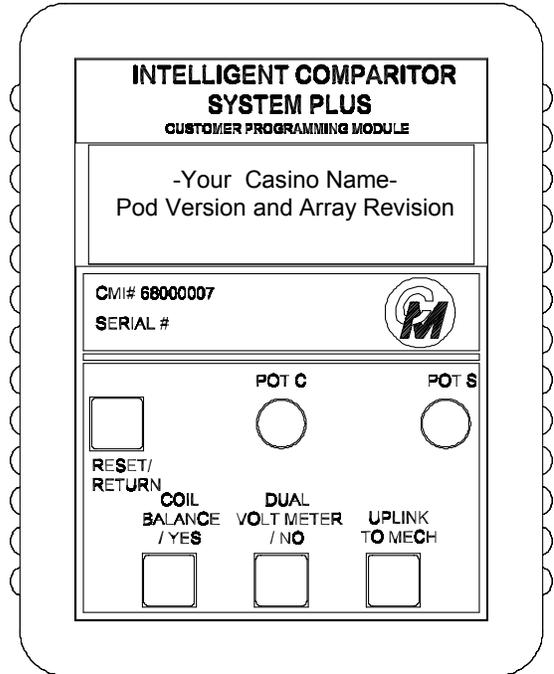
When the **Dual Voltmeter** Button is pressed the LCD will indicate that the potentiometers on the CPM are to be used and that you are to press the **Uplink To Mech** button.

➡

**Use pots on Mech
Press to Uplink**

Pressing the **Uplink to Mech** button takes you through the same steps as if you were programming or updating . If the Intelligent Comparitor® locates the appropriate coin data file, the LCD screen will display the file that is currently programmed into the validator on line one, and the file for the corresponding denomination

➡

**Mech=ACH--1.0—c2
Pod=ACH--1.1**

TO ADJUST POT "C" AND POT "S" IF YOUR PCB
DOES NOT HAVE POTENTIOMETERS - CONTINUED

Press the *Uplink to Mech* button a second time and the LCD screen will display a prompt to confirm that you want to uplink the coin data file contained in the **CPM** to the validator.

➡

> **MechRev0-PodRev1**
> **Press to Uplink**

Press the *Uplink to Mech* button a third time and the screen at the right is displayed. Press the *Dual Voltmeter/No* button.

➡

> **Uplink Factory**
> **Pots ? (Y)   (N)**

The display will ask you if the potentiometers on the **CPM** are set properly and show the voltage settings that the potentiometers on

➡

> **Are pots set?   (Y)**
> **Pot C= 1.8V Pot S= 1.2V**

Example Only

Denomination	Pot 'S'	Pot 'S'	Pot 'C'
	New Token	Worn Token	+/- 0.4volt
50 Cent	1.7 volts	0.8 volts	2.3 volts
1 Dollar	1.9 volts	0.5 volts	1.2 volts
2 Dollar	2.5 volts	0.8 volts	2.0 volts
5 Dollar	2.5 volts	0.8 volts	3.2 volts
10 Dollar	1.6 volts	1.1 volts	1.8 volts

Turn over your **CPM** and refer to the denomination information on the label.

➡

As you adjust the potentiometers on the **CPM** you will notice the voltage readings change on the LCD display. When reference voltages are set the way that you want, press the *Coil Balance/Yes* button. The display will confirm that the coin data file with the new settings has been uplinked.

➡

> **MechRev1-PodRev1**
> **Uplink Completed**

Press the *Uplink to Mech* button to show that Mech and Pod contain the same coin data file. The process is now complete.

➡

> **Mech=ACH- -1.1**
> **-Pod=ACH- -1.1**

CHECKING AND ADJUSTING THE SENSOR COIL

Note: Coil balancing is done without a resident coin in token holder. The token holder must be in place.

Note: The Coil balancing button operates the same for boards using the 87C752 or the 87C767 micro.

Press the *Reset / Return* button in the upper left corner of the **CPM.**

Press the *Coil Balance/Yes* button in the lower left hand corner of the **CPM.**

INTELLIGENT COMPARITOR SYSTEM PLUS
CUSTOMER PROGRAMMING MODULE

CMI# 66000007
SERIAL #

POT C   POT S

RESET/
RETURN
COIL   DUAL
BALANCE VOLT METER   UPLINK
/ YES   / NO   TO MECH

Coil balance button

If the sensor coil assembly is balanced, the LCD screen will display between three to six bars (LO), the lowest number of bars is most desirable.

COIL BALANCE -LO
■■■

If the sensor coil requires balancing the LCD screen will display more than six bars (HI), refer to **SENSOR COIL ELECTRONIC BALANCING SECTION** to adjust coil balance into the "lo" region.

COIL BALANCE - HI
■■■■■■■■■■■

ERROR MESSAGES

Note: The following are the explanations for each respective error message(s). If your CPM displays any of these messages, contact Coin Mechanisms customer service for assistance. These messages are the same regardless of which micro is used

If the validator is programmed for a different casino, the LCD screen will display the error: ➡

**POD & Mech Have
Different Names**

If the coin data file for the denomination of the validator is not contained in the **CPM**, the LCD will display: ➡

**Mech Denomination
Not in this POD**

If the validator memory is empty, incorrect or corrupted, the LCD screen will display these alternating messages: ➡

**Data in CoinMech
E2RAM is Corrupt**

**Special Pod Reqd
See RepairManual**

If there is a communication problem between the validator and the **CPM**, the LCD screen will display these alternating messages:

Try plugging in the **CPM** into another validator to isolate which device may be malfunctioning. ➡

**Special Pod Reqd
See Repair Manual**

**I2C Bus Failure!
See RepairManual**

SYSTEMS PLUS MANAGEMENT
TOOL KIT

SYSTEMS PLUS MANAGEMENT TOOL KIT SHOWN ABOVE WITH TEST STATION (P/N 00660009)
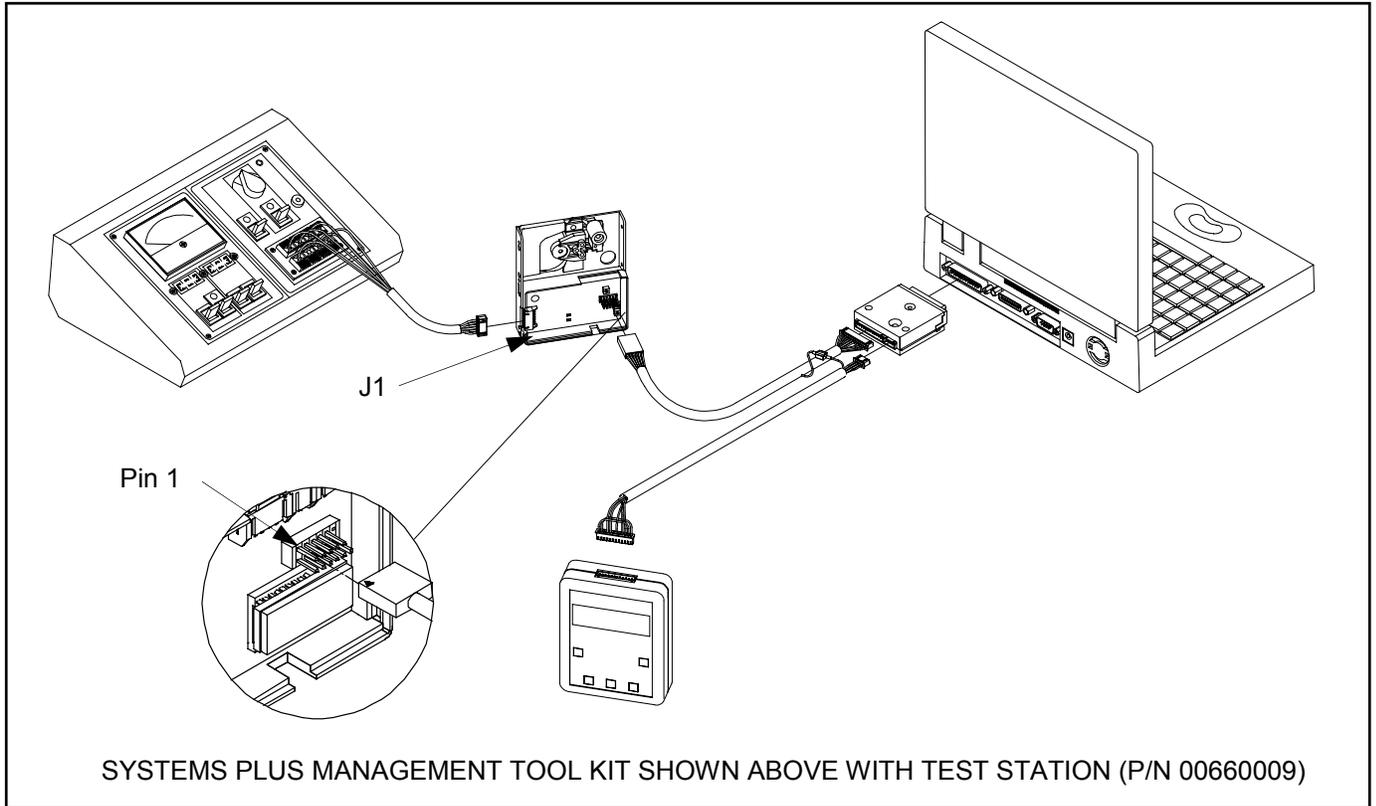
THE SYSTEMS PLUS MANAGEMENT TOOL KIT HOME SCREEN

To use your **SYSTEMS PLUS MANAGEMENT TOOL KIT (SPMT)** connect the peripherals as shown above. Apply power to Intelligent Comparitor. (In the illustration above power is being supplied by the test station.) Turn on laptop. The laptop home screen will appear as shown below.

Home
Page
screen ➔

Coin Mechanisms
www.coinmech.com

Intelligent Comparitor
I.C. TOOL SUITE

Please
Enter

1- to Open the Coin Mech PC-Scope

2- to Update the Programming Module

3- to copy new data from a: floppy disc

4- to Record Token Drop onto a: floppy

USING THE PC-SCOPE UTILITY OF YOUR
SYSTEMS PLUS MANAGEMENT TOOL KIT

To access the pc-scope at your home screen select option **"1- to open the Cm pc-scope"**

FUNCTIONS OF PC-SCOPE SCREEN

1- Currently loaded coin data file

2- Gate timing

3- Pot check

4- Pot "C"

6 "V" Adjust Virtual Settings

5- Pot "S"

7- Zoom

8- Coil balance

9- Exit the menu

11- Auto mode

10- Normal

12-scopepic

FUNCTIONS

1. Loaded file- Identifies the coin data file loaded in the IC mech memory
2. Gate timing- Time between gate opening and closing after electronic signal has been received
3. Pot check- Indicates if the Q1 potentiometer needs adjustment
4. Pot "C"- Displays the recommended and actual voltage of pot "C" when testing a pcb with "Real" pots
5. Pot "S"- Displays the recommended and actual voltage of pot "S" when testing a pcb with "Real" pots
6. "V" adjusts the virtual settings of both pot "C" and pot "S" when testing a pcb with "Virtual" pots.
7. Zoom controls- Allows expansion of displayed wave forms for greater detail
8. Coil balancing- Pressing "B" takes you to the sensor coil balancing screen
9. Exit the menu- Pressing "Q" takes you out of the current screen
10. Normal Mode- Pressing "N" allows you to trigger pc-scope on a coin drop
11. Auto Mode- Pscope is in auto run mode
12. Scopepic- Pressing "P" displays picture of typical waveform. (NOTE: Must have files in scopepic directory). Refresh- Pressing "F" refreshes the picture and picture screen after additional coin drop.

IDENTIFYING THE WAVEFORMS

Q1
(GREEN)

ANTI-NULL
(RED)

BARCODE
(BLUE)

POT "S"
(VIOLET)

POT "C"
(BROWN)

GROUND

```
                                                              W1
    Coin Mechanisms inc. -Programmable Intelligent Comparitors-
Mech Name = MTT--5 rev 1  Micro must be Checksum type .6Cx /.7Cx GateTime=05
```

```
                                                5v      - Q1 pot Adjustment -
                                                            NOT  Required

                                                4v      Memory Voltage= 1.3
                                                        --- Pot C VIRTUAL ---
                                                        Press 'V' to Adjust
                                                3v      Auto Mode to Adjust

                                                2v      Memory Voltage= 2.5
                                                        --- Pot S VIRTUAL ---
                                                        Press 'V' to Adjust
                                                1v
                                                        -- ZOOM Controls --
                                                        Press '1' for 1:1
                                                0v      Press '2' for 2:1
                                                        Press '3' for 3:1
```

```
-[P] = Picture ON/OFF-                          Press 'B' for Balance
  Press 'A' Key       Press 'N' Key
  for Auto Mode       for Normal Mode
  Scope Retriggers    Single Scope Shot         Press 'Q' key to QUIT
- TOGGLE --> [R] [G]  -INSTALL SAMPLE TOKEN-
```

TO CHECK AND ADJUST ON BOARD POTENTIOMETERS

Note that the voltage settings for the two adjustable potentiometers may be required to change. See the recommended and actual voltage displayed on the pc-scope screen.
Should the settings on the display be different than those recorded on the CPM label, use a small slotted 2.0 mm screwdriver to turn the respective potentiometer until the actual voltage matches the recommended voltage on the CPM label

```
Recommended =  1.7
--- Pot C voltage ---
    Actual =   1.7
```

Pot "C" Recommended voltage

Pot "C" Actual voltage

```
Recommended =  1.9
--- Pot S voltage ---
    Actual =   1.8
```

Pot "S" Recommended voltage

Pot "S" Actual voltage

POT "Q1"

POT "C"

POT "S"

21

TO CHECK AND ADJUST VIRTUAL POTENTIOMETERS

Note that the voltage settings for the two adjustable potentiometers may be required to change. Should your setting need to change the display will show a **Press 'V' to Adjust** command. By pressing the 'V' key you can change both your pot setting. The screen below will appear when the 'V" key is pressed and guides you through the pot setting change.

NOTE: For recommended pot settings refer to the CPM back label or contact Coin Mechanisms.

```
Memory Voltage= 1.7
--- Pot C VIRTUAL ---
Press 'V' to Adjust
Auto Mode to Adjust
```
Pot "C" Recommended voltage
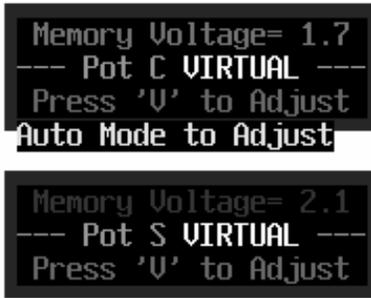
```
Memory Voltage= 2.1
--- Pot S VIRTUAL ---
Press 'V' to Adjust
```
Pot "S" Recommended voltage

POT "Q1"

POT "C" LIGHT

0950-000043
NONOPTIC.7C1

To adjust your pot setting from this screen simply enter the new desired pot setting for pot "C". Once the voltage has been entered press the **TAB** key to toggle to the pot "S" line. Enter desired pot setting for pot "S". Once all pot settings have been entered press **CTRL-P** to load new pot settings into the comparitor E2 memory. Once the pot settings have been loaded, the program will return you to the PC-Scope screen.

```
    Coin Mechanisms inc. -Programmable Intelligent Comparitors-
Mech Name = MTT--5 rev 1  Micro must be Checksum type .6Cx /.7Cx GateTime=05

   ┌──────────────────────────────────┐      ┌─ Q1 pot Adjustment ─┐
   │   This screen is used to preset or│      │     NOT  Required    │
   │ change the virtual pot settings stored   └─────────────────────┘
   │      in the mech's E2 memory.     │
   │ ──────────────────────────────── │      ┌─────────────────────┐
   │                                   │      │ Memory Voltage= 1.3 │
   │  ► Enter voltage for PotC?  X.X ◄ │      │ --- Pot C VIRTUAL ---│
   │                   ^               │      │ Press 'V' to Adjust │
   │    Enter voltage for PotS?  X.X   │      │ Press 'R' to Reset  │
   │                                   │      └─────────────────────┘
   │  (TAB selects between PotC and PotS)     ┌─────────────────────┐
   │                                   │      │ Memory Voltage= 2.5 │
   │ <CTRL-P> - Place new virtual pot  │      │ --- Pot S VIRTUAL ---│
   │            settings into mech's memory.  │ Press 'V' to Adjust │
   │ <CTRL-S> - Return to Scope with   │      └─────────────────────┘
   │            existing settings.     │
   └──────────────────────────────────┘      ┌─── ZOOM Controls ───┐
                                              │ Press '1' for 1:1   │
                                              │ Press '2' for 2:1   │
                                              │ Press '3' for 3:1   │
                                              └─────────────────────┘
                                              ┌─────────────────────┐
                                              │ Press 'B' for Balance│
   ┌──────────────┐    ┌──────────────┐       └─────────────────────┘
   │ Press 'A' Key │    │ Press 'N' Key │      ┌─────────────────────┐
   │ for Auto Mode │    │ for Normal Mode│     │ Press 'Q' key to QUIT│
   │ Scope Retriggers│  │ Single Scope Shot│   └─────────────────────┘
   └──────────────┘    └──────────────┘
```

CHECKING THE SENSOR COILS USING THE PC-SCOPE FUNCTION

After following the SENSOR COIL REPLACEMENT AND MECHANICAL ADJUSTMENT PROCEDURE to correctly assemble and torque the sensor coil assembly, the next steps will show you if your coil set is balanced and how to adjust it for electronic balance.

Note: Coil balancing is done without a resident coin in token holder. The token holder must be in place.

After selecting the pc-scope option on your SPMT, press "B" to access the coil balance option on the pc-scope screen. If the coil set is balanced the wave form amplitude will display below the arrows as in fig. 1, no further adjustment is necessary.

arrow
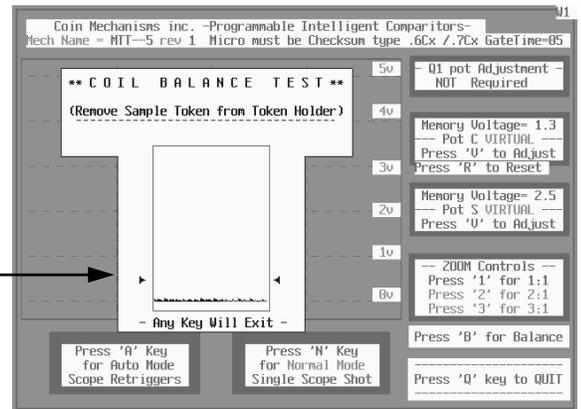
balanced sensor coil
wave form below arrows
Fig. 1

If the wave form amplitude displays above the arrows as in figure 2, the coil set needs to be balanced. See
SENSOR COIL ELECTRONIC BALANCE SECTION

arrow
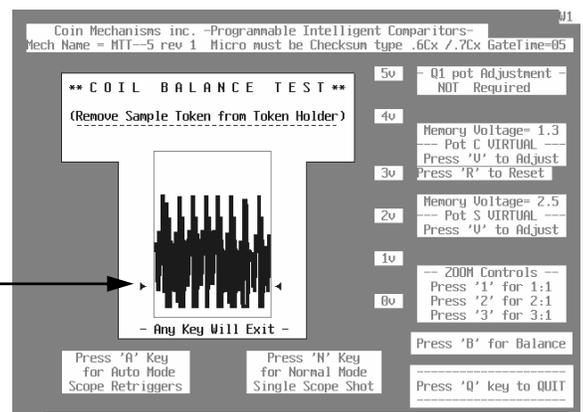
unbalanced sensor coil
wave form above arrows
Fig. 2

FOCUSING THE BARCODE READER

 A sample token must be installed in the token holder. <u>Be sure the barcode reader is flush to the holder</u>. Activate the oscilloscope utility by choosing the pc-scope option. Default of the pc-scope is automatic mode. Press "N" to switch to normal mode.

Using a test token, drop the token several times observing the amplitude waveform. If the amplitude deflection is approximately at ground for the duration of the code, the reader is focused

See following page for examples of 16 code waveform

Wave representative of focused barcode reader
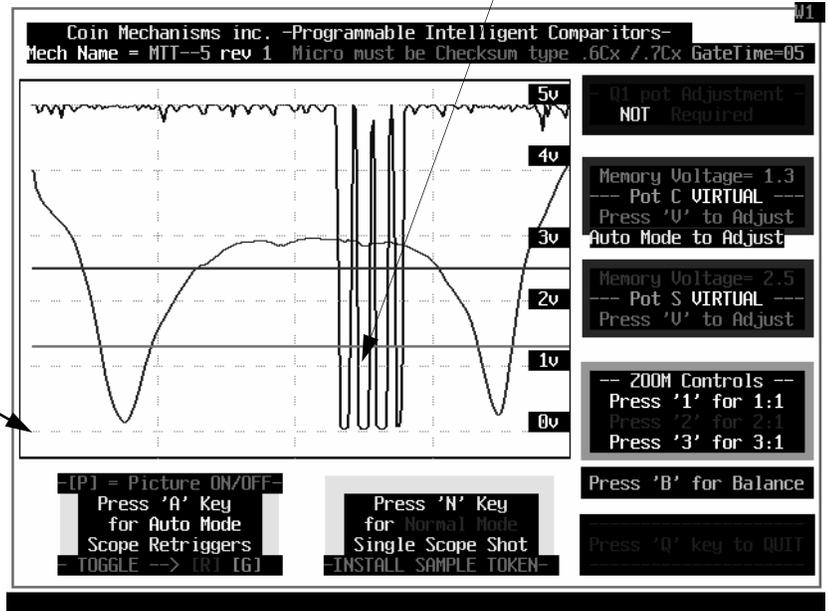
GROUND

FOCUSED 32 CODE WAVEFORM

If the waveform is not at ground, add or subtract spacers until the greatest deflection is achieved.

Be sure to properly torque the clamp screw after each adjustment using a #0 Philips torque driver set not to exceed 17 in-oz.

Spacers are available in .010 in. (p/n 04690243) and .020 in. (p/n 04690244) thicknesses.

Wave representative of poorly focused barcode reader

GROUND
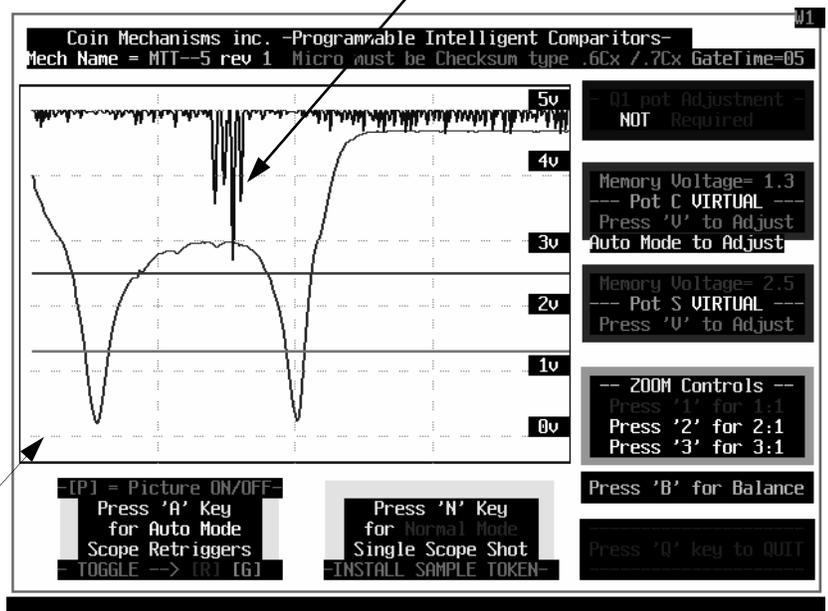
UNFOCUSED 32 CODE WAVEFORM

FOCUSING THE BARCODE READER
Cont'd

Wave representative of
focused barcode reader
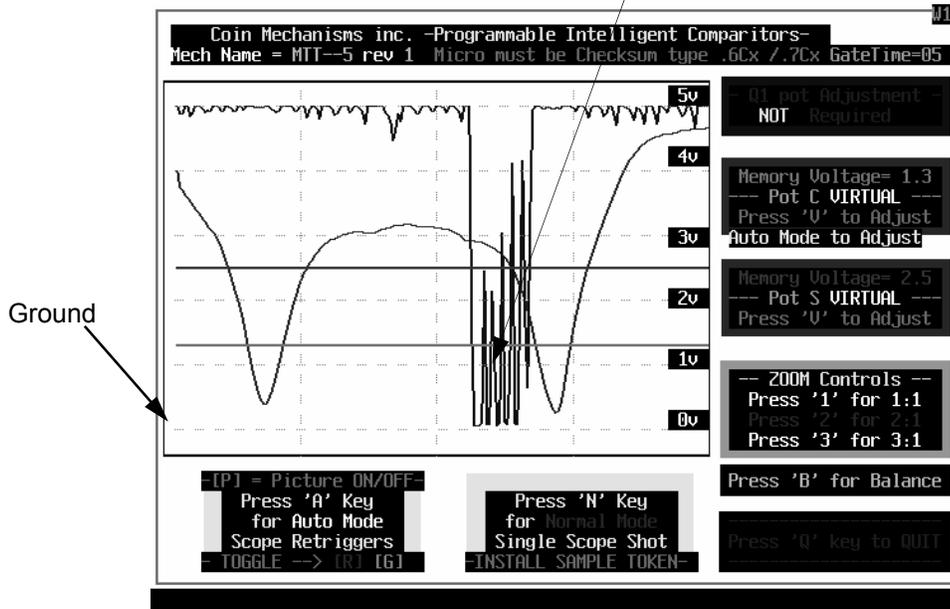
FOCUSED 16 CODE WAVE FORM

Wave representative of poorly
focused barcode reader
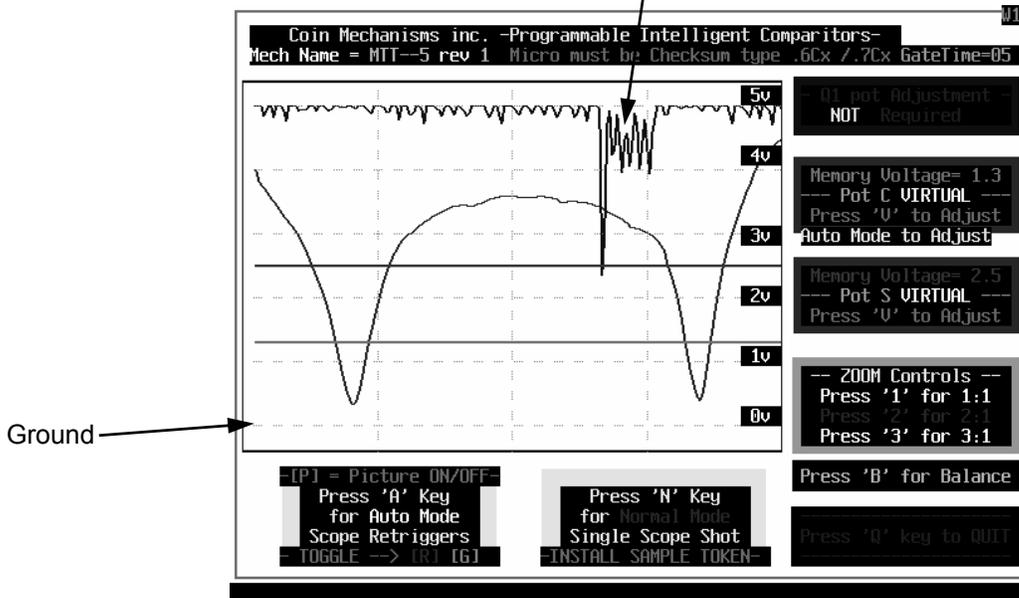
UNFOCUSED 16 CODE WAVE FORM

ERROR MESSAGES

If this screen appears it may be because the CPM is disabled or the power connection is broken. Check for power and breaks in the interfaces. Press <CTRL-P> to retry after correcting connection or any key to exit this program.

```
(Please press CTRL-P to retry)

**********************************************************************
*** This is a Coin Mechanisms, Inc. proprietary application program ***
**********************************************************************

               There is a problem communicating with the
                  PC-to-I.C. coin mechanisms interface.

         Please make sure the PC-to-I.C. coin mechanisms interface
                      and Mech are attached and powered.

          Press CTRL-P to re-establish communication with the
                  PC-to-I.C. coin mechanisms interface.

               If having difficulty - please ensure that the
               CMOS setup of LPT1 is PS/2 Bidirectional or ECP.
               Note: CMOS setup of LPT1 cannot be in Compatible Mode.

   If this screen appeared while uploading to a Mech or POD, the Mech or POD
   is possibly disabled - Please Retest any attached Mechs and PODs.

(Press any other key to Exit this program.)
```

SENSOR COIL ELECTRONIC BALANCING

Scenario 1

▶ Turn the back coil adjustment screw clockwise until the amplitude is smallest.

Note: Once the front adjustment screw bottoms (amplitude begins to decrease), it should not take more than a quarter turn before the smallest amplitude has been reached. If more than a quarter turn is required, reject the assembly.

▶ Slide the proper token into the drop gap between the number #1 coil and the number #2 coil. The clearance should be 2mm. (If the token population varies signicantly in thickness, use thickest token)

▶ If it is not, continue to turn the back coil adjustment screw clockwise until the clearance is 2mm, then insert the 1/16 in. hex drive bit back into the front coil adjusting screw and turn the screw with 1/16 in. hex drive wrench clockwise until the smallest amplitude has again been reached.

▶ If the clearance is greater, turn the spring retainer adjustment screw clockwise until the gap is reduced to 2mm, then Insert the 1/16 in. hex drive bit back into the number (3) coil adjusting screw and turn the clockwise until the smallest amplitude has again been reached.

Scenario 2

▶ If while adjusting the front coil adjusting screw, the amplitude (for oscilloscope this is voltage amplitude, for CPM this would be number of bars) decreases, Slide the proper token into the gap between the #1 coil and the #2 coil, and turn the back coil adjusting screw clockwise until the clearance is 2mm.

▶ Insert the 1/16 in. Hex drive bit back into the front coil adjusting screw again and turn the screw clockwise until the smallest amplitude is reached.

TO UPDATE THE PROGRAMMING MODULE

To access the update function at your home screen select option
"2- to update the Programming Module" (Before preceding make sure your updated floppy
is inserted to a: e.g. array file is called XXXArray.bin where XXX is your casino acronym.)

After choosing
selection 2,
You will see this
screen prompt. Type
your 4-digit security
code (TEST) at the
prompt as shown at
right and press enter

➡

```
SHELSCRN - UPDTCPM2                                          _ 8 X
 Auto          ▢▢▢▢ ▢ ▢▢ A



    ***********************************************************************
    *** This is a Coin Mechanisms, Inc. proprietary application program ***
    ***********************************************************************


    Please enter the 4-digit security code and press Enter to gain access.

            (Press <ESC> at any time to Exit program)


                        ┌───┬───┬───┬───┐
                        │ * │ * │ * │ * │
                        └───┴───┴───┴───┘
```
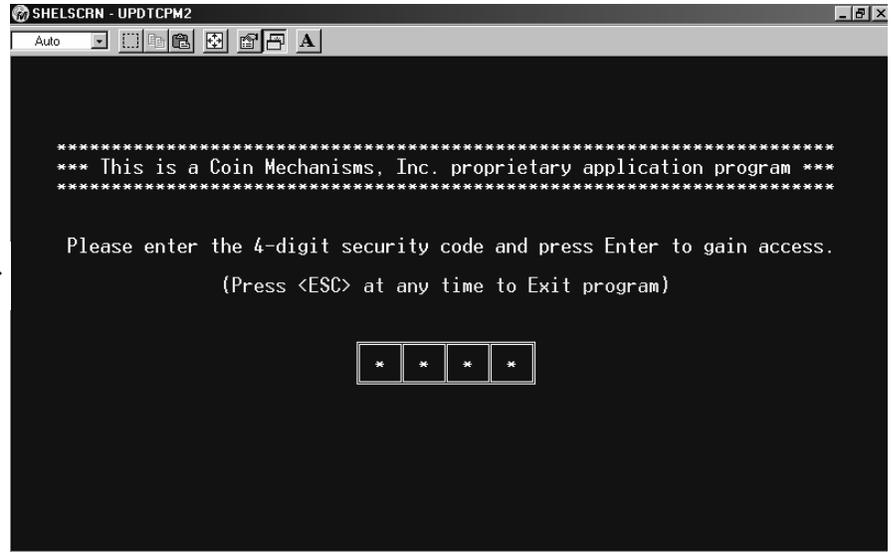
You will see this
screen prompt. Type
your 3-digit casino
acronym as shown at
right and press enter

➡

```
UpDtCPM2 - (CPM Update Program)

                                           ┌─┬─┬─┬─┬─┬─┬─┬─┬─┬─┬─┬─┬─┬─┐
                                           └─┴─┴─┴─┴─┴─┴─┴─┴─┴─┴─┴─┴─┴─┘

        -Key in the Casino Acronym - - ->      ┌─┬─┬─┐
              (Then Press Enter)               └─┴─┴─┘
        This acronym will be used to search     ↑
        for an existing array in c:\cpmarray\




        -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --

        Follow the Instructions to Update the attached CPM




                                                        <ESC> to Exit
```

```
UpDtCPM2 - (CPM Update Program)

  Array Found - Casino Name is - - ->   BALLY'S LasVegas


-- -- -- -- -- -- -- -- -- -- -- -- --
Make sure the CPM is properly connected        BLV

and powered. Press <ENTER> to continue,

    or <ESC> to exit this program.
-- -- -- -- -- -- -- -- -- -- -- -- --


              *** W A R N I N G ! ***
           Do NOT press any buttons on the Customer
          Programming Module (CPM-POD) during this
             Update - else data will be corrupted.
                *** W A R N I N G ! ***

                                            <ESC> to Exit
```

After you enter your acronym, the laptop will look for your array. The screen will confirm that it is found and display the warning not to press any buttons while the cpm is updating.

```
UpDtCPM2 - (CPM Update Program)

  Array Found - Casino Name is - - ->   BALLY'S LasVegas


       -This is the Casino Acronym - - ->      BLV




          +---------------------------------------------+
          | Array loaded from disc = c:\cpmarray\BLVarray.bin |
          | Array Rev Level = 02   Current CPM Rev Level = 00 |
          | - - - - - - - - - - - - - - - - - - - - - - |
          |  - Disc Rev Level is Greater than CPM Rev Level - |
          | - - - - - - -                               |
          | Overwrite CPM?    <Y = Yes>   <N = Exit Program> |
          | - - - - - - -                               |
          +---------------------------------------------+

                                            <ESC> to Exit
```

Once you have hit the enter key the screen will display what revision your pod is at and what revision your array that you are loading is at. The screen will then ask your if you want to overwrite your pod. If the array revision is greater than the pod revision overwriting is recommended. Overwriting a lower array revision into a higher pod revision is not allowed.

TO UPDATE THE PROGRAMMING MODULE - cont'd

As the CPM is updating, the screen will read as shown on right. It will inform you when update is complete. This will take approximately 2 minutes.

➜

```
UpDtCPM2 - (CPM Update Program)
   Array Found - Casino Name is - - ->   BALLY'S LasVegas

         -This is the Casino Acronym - - ->        BLV


            ┌─────────────────────────────────────┐
            │                                     │
            │      Updating CPM - Please Wait...   │
            │                                     │
            │       - Updating CPM's A2 Memory -   │
            │                                     │
            │   ►♦♦♦♦·························◄     │
            │                                     │
            └─────────────────────────────────────┘


                                          <ESC> to Exit
```

Once updating of the CPM is complete you will be asked to press any key to exit.

➜

```
UpDtCPM2 - (CPM Update Program)
   Array Found - Casino Name is - - ->   BALLY'S LasVegas

         -This is the Casino Acronym - - ->        BLV


            ┌─────────────────────────────────────┐
            │                                     │
            │      - Updating of CPM Complete! -   │
            │                                     │
            │       - Press any key to Exit -      │
            │                                     │
            │                                     │
            └─────────────────────────────────────┘


                                          <ESC> to Exit
```

TO COPY NEW COIN DATA FILES FROM A FLOPPY DISK

To store a new cpm array file on your laptop, insert your floppy disc with new data into the a: drive. At your home screen select option **"3- to copy new data from a: floppy disc".** When you press the 3 key the laptop will automatically load all files on your floppy into their appropriate location on the laptops hard drive. This completes loading files from your floppy into the laptop.

TO RECORD A TOKEN WAVEFORM

To access the function which copies a token waveform onto a disk select option
"4- to Record Token drop onto a: floppy

```
MakPicU4 - Records token drops and stores them on the A: drive.


                  - Use the instructions provided to record a picture

                    of a token drop through an attached coin mechanism.

                  - Token drops are recorded on the A: drive.

                  - Make sure the PC-to-I.C. coin mechanisms interface

                    is attached and powered, and that you have a disk

                    in the A: drive.

        If the mech you are programming has two potentiometers
        mounted in the lower right corner next to the micro - press <1>

        If the mech you are programming DOES NOT have two potentiometers
        mounted in the lower right corner next to the micro - press <2>



 <ESC> to Exit
```

After selecting option 4, you will see this instruction screen. Read the instructions carefully and determine which mechanism you are working with and press the corresponding number.

➜

```
MakPicA1 - Records token drops and stores them on the A: drive.


     Mech Name: MTT--5


         1) Drop the token...

         2) Press < S > to Store the Waveform
            to the A: drive, or drop another
            token now...




 <ESC> to Exit
```

When you are satisfied that you have the picture that you want, press "S".

➜
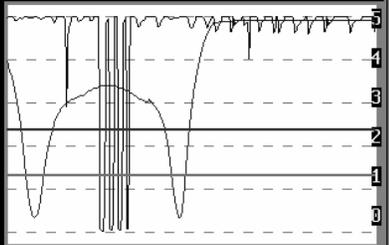
TO RECORD A TOKEN WAVEFORM Cont'd

To access the function which copies a token waveform onto a disk select option
"4- to Record Token drop onto a: floppy

This screen reminds you that you need to have a floppy disk in drive A:

➡

```
MakPicA1 - Records token drops and stores them on the A: drive.


   Mech Name: MTT--5


     1) Drop the token...

     2) Press < S > to Store the Waveform
        to the A: drive, or drop another
        token now...

     Waveform Name = A:\MTT--5.bin

     3) OK to store?  < Y >  < N >




<ESC> to Exit
```
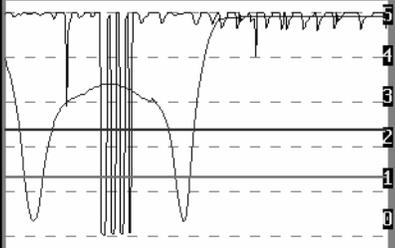
You will see this screen when the file has been copied to the A: drive.

➡

```
MakPicA1 - Records token drops and stores them on the A: drive.


   Mech Name: MTT--5


     1) Drop the token...

     2) Press < S > to Store the Waveform
        to the A: drive, or drop another
        token now...

     Waveform Name = A:\MTT--5.bin

     3) OK to store?  < Y >  < N >

        - Waveform Stored! -

     4) Another Drop?  < Y >  < N >




<ESC> to Exit
```
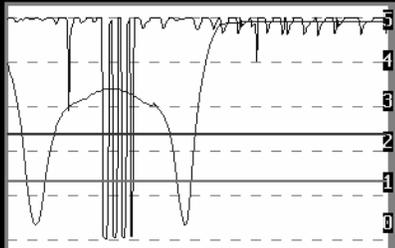
TROUBLE SHOOTING GUIDE

CONDITION	CAUSE	FIX	TIPS
Poor coin acceptance	• dirty lens on barcode reader	clean by swabbing with alcohol and buff dry with soft lint free cloth	*spilled drinks, cigarette smoke and fingerprints often cause this type of malfunction* **WARNING:** do not use ammonia based cleaners- damage to lens will occur.
	• incorrect damper lever installed during conversion		
	• sticky or frozen damper lever	disassemble and clean	damper lever will not move or operates slowly *spilled drinks often cause this type of malfunction*
	• sticky or frozen accept gate	disassemble and clean	*spilled drinks often cause this type of malfunction*
	• incorrect potentiometer settings	check settings	*floor personal adjusting potentiometer unnecessarily*
	• extremely worn tokens	contact Coin Mechanisms	may require software adjustment
No acceptance	• mech installed in incompatible host machine	Confirm pcb voltage and denomination with CPM	
	• mech installed in incorrect location	verify property with CPM	
	• incorrectly denominated circuit board	check part numbers	
	• no power	check for broken wires on mech or harness connection from slot machine	
	• sticky or frozen damper lever	disassemble and clean	damper lever will not move or operates slowly *spilled drinks often cause this type of malfunction*
	• sticky accept gate.	disassemble and clean	*spilled drinks often cause this type of malfunction*
	• dirty lens on barcode reader	clean by swabbing with alcohol and buff dry with soft lint free cloth	*spilled drinks, cigarette smoke and fingerprints often cause this type of malfunction* **WARNING:** do not use ammonia based cleaners- damage to lens will occur.
	• defective or damaged barcode reader	change barcode reader	oscilloscope wave form will not appear correct
	• defective or damaged circuit board	change circuit board	produces flat line in oscilloscope analysis

TEST EQUIPMENT
REFERENCE GUIDE
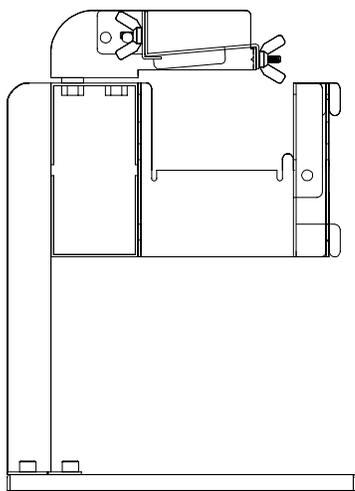
TEST STAND
P/N 05000009
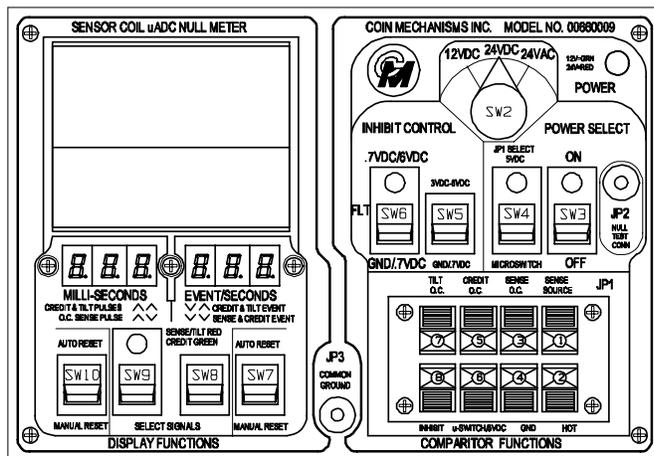
TEST STATION
P/N 00660010 with PAL video
P/N 00660009 with VHS video
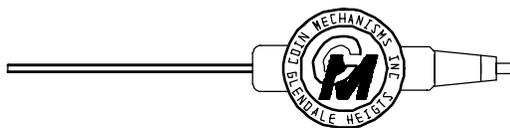
ADJUSTING TOOL
(1/16 in hex drive)
P/N 05090003

TEST STATION MANUAL
P/N 00300009

TEST EQUIPMENT
REFERENCE GUIDE
Cont'd
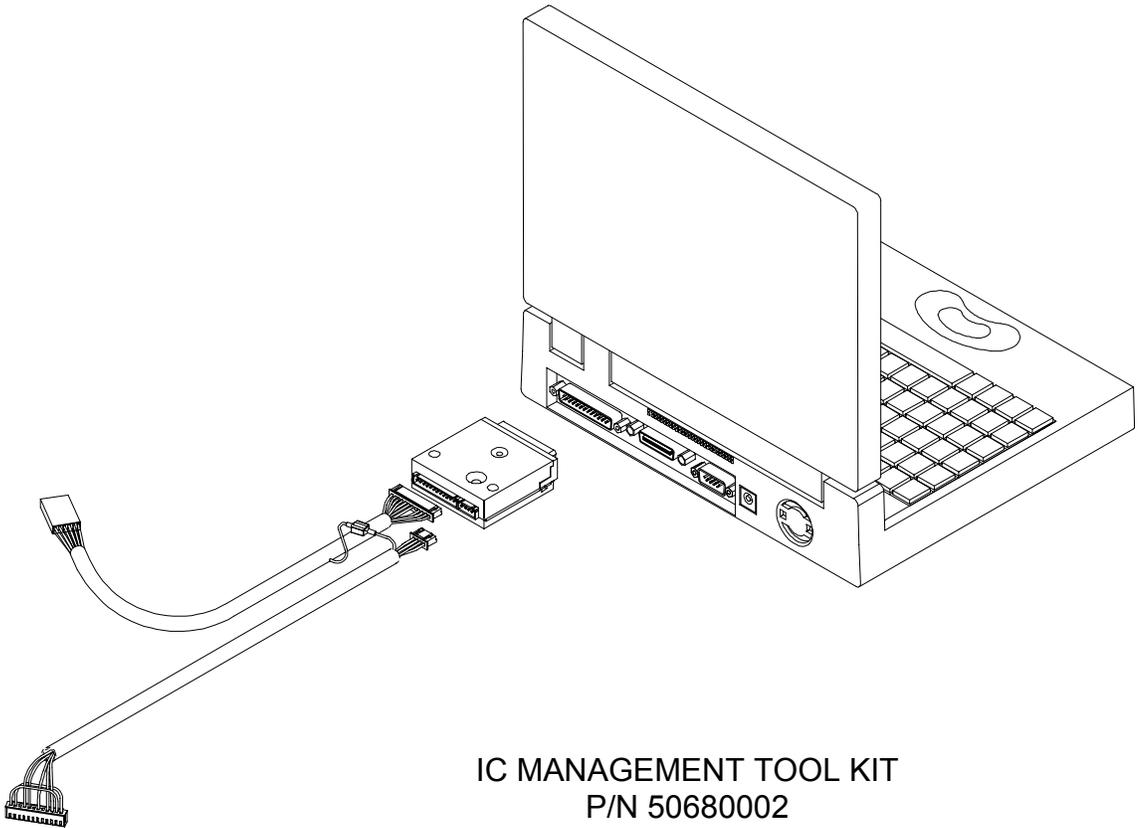
IC MANAGEMENT TOOL KIT
P/N 50680002

**INTELLIGENT COMPARITOR
SYSTEM PLUS**
CUSTOMER PROGRAMMING MODULE

CMI# 68000007
SERIAL #

POT C   POT S

RESET/
RETURN

COIL
BALANCE
/ YES

DUAL
VOLT METER
/ NO

UPLINK
TO MECH

CPM
P/N 68000007

INTELLIGENT COMPARITOR
SYSTEM PLUS
FIELD PROGRAMMING MODULE

MODEL #:
CPM #:

RESET   POT C   POT S

YES/ COIL
BALANCE

NO/ DUAL
VOLT METER

UPLINK
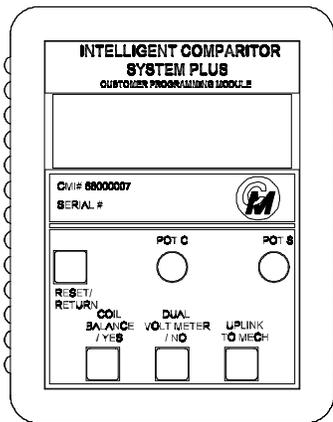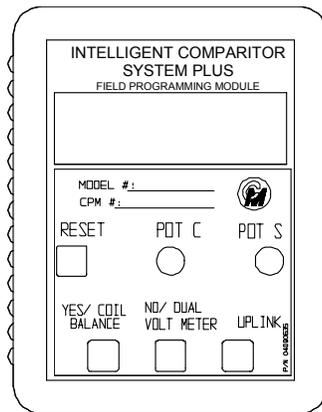
FPM
P/N 68000011
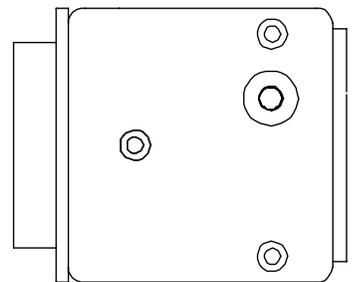
DONGLE
P/N 68000005

TEST EQUIPMENT
REFERENCE GUIDE
Cont'd

TO MECH

TO PC

CONNECT

P/N 06280113

P/N 68000005

P/N 0928-000112

TO POD
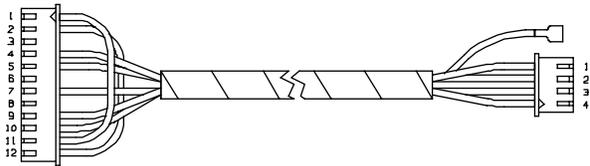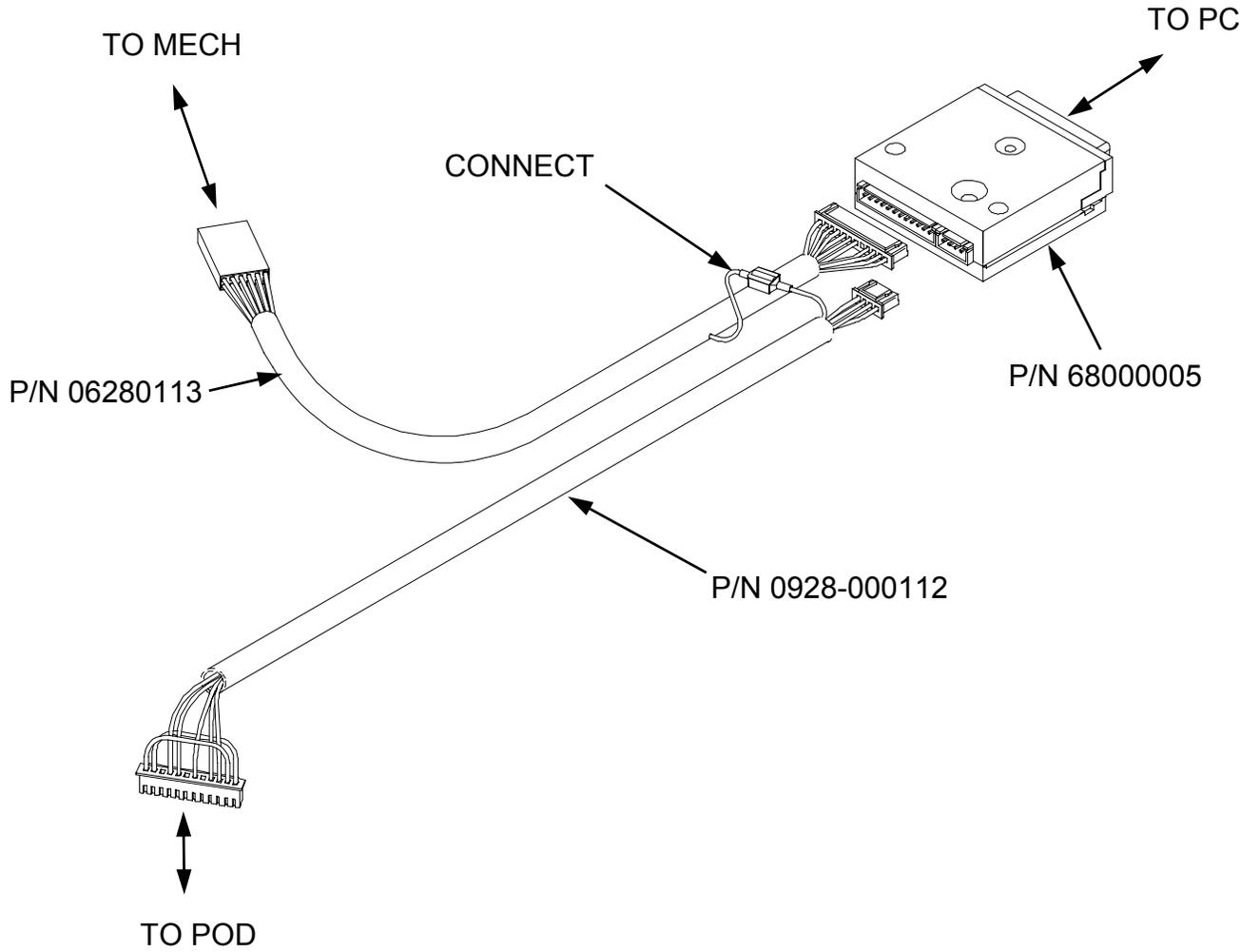
P/N 0928000112
FOR DONGLE
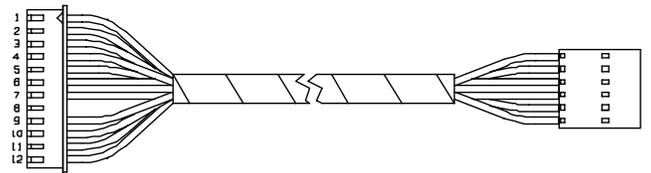
P/N 09280109
FOR PROGRAMMING POD
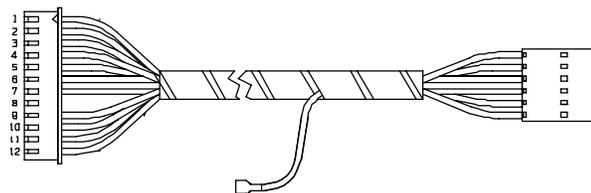
P/N 06280113
FOR DONGLE

MATERIAL COLUMN

ITEM	P/N	QTY	MATL' DESCRIPTION
1	04060005-01	4	STUD, #6
2	0406IXXXX	1	WEIGHT, DAMPER, (SEE DOC #09300019)
3	04660113	1	SPACER, COIN EXIT, .113 (SEE PAGE 2)
	04690406	1	SPACER, COIN EXIT, IC, .146, EURO (SEE PAGE 2)
4	04660165	1	COVER, PCB HSG, UNIVERSAL
5	04690243	A/R	SPACER, IC, .010
6	04690244	A/R	SPACER, IC, .020
7	04690276	1	CLIP, WIRE, BARCODE, IC
8	0469XXXX	1	HOLDER, TKN, IC, (SEE PAGE 2)
9	0469XXXX	1	HOLDER, BC RDR, (SEE PAGE 2)
10	04690104	1	HOLDER, VALENCE READER
11	0625XXXX	1	COIL, ASSY, SENSOR, IC (SEE PAGE 2)
11A	0569XXXX	—	LEVER, ASSY, DAMPER, IC, (SEE PAGE 2)
11B	04690266-01	—	PIN, PIVOT, DAMPER, IC
12	06250134	1	COIL & BRKT, ASSY, GRN, 4", PHR (SEE PAGE 2)
	06250195	1	COIL & BRKT, ASSY, GRY, 4", PHR (SEE PAGE 2)
13	06270045	1	PCB, ASSY, BC RDR, SM, TESTED
14	06280101	1	HARNESS, VAL, 3 PIN AMP, 4 PIN PHR, RED/BLK/VIO, 5.25
15	06650258	1	RETAINER, ASSY, IC, SPRING
16	06680017	1	CHASSIS, IC-16, STANDARD COIN (SEE PAGE 2)
	06680022	1	CHASSIS, IC-16, SMALL COIN (SEE PAGE 2)
17	08290208	1	PHOTOINTERRUPTER, REFLECTIVE
18	0927XXXX	1	PCB, CTRL, IC, (SEE PAGE 2)
19	0950-000XXX	1	IC, B7C752, (SEE PAGE 2)
20	436-4	2	NUT, 4-40, HEX, KEPS
21	P-166-6-X	1	SCREW, 6-32 X (SEE DOCUMENT #09300019)
22	P-186-4-3	2	SCREW, 4-40 X 3/16, PHIL/SQ, INT SEMS WASHER
23	P-217-2-5	1	SCREW, 2 X 5/16, PHIL, PH, HI-LO
24	P-221-4-3	1	SCREW, 4 X 3/16, PHIL, TYPE 45, PLASTITE

NOTES:
1. SEE INDIVIDUAL BILLS OF MATERIALS FOR VARIABLE SINGLE COMPONENTS INDICATED BY SQUARE BALLONS.
2. SEE INDIVIDUAL BILLS OF MATERIALS FOR HARNESS REQUIREMENTS.

"PLUG-IN" DETAIL
"PLUG-IN" FOR SENSOR COIL
"PLUG-IN" FOR ACCEPT COIL
"PLUG-IN" FOR VALENCE SENSOR OR SMART MARK

VALENCE SENSOR BACK VIEW

INTELLIGENT COMPARATOR
COIN MECHANISMS INC.
COIN MECHANISM SERIAL LABEL

SEE BACK VIEW

APPLY LOC-TITE 242 TO THREADS OF BOTH SCREWS BEFORE ASSEMBLY

SMARK MARK CONFIGURATION

VALENCE SENSOR CONFIGURATION

SMART MARK BACK VIEW
COIL LEADS ROUTING

BARCODE

COLOR, PLACEMENT AND NUMBER OF DOTS IDENTIFIES BARCODE HOLDER P/N

5 6 7 8
1 2 3 4

SENSOR COIL SLOT POSITION

2.7"
68.6mm
POSITION OF CUTOUT FOR SMALL COIN

P/N 0668022-SMALL COIN
COIN DIAMETERS
.870" [22.1mm] -1.575" [40.0mm]

2.9"
73.7mm
POSITION OFCUTOUT FOR STANDARD

P/N 06680017-STANDARD COIN
COIN DIAMETERS
1.045" [26.5mm] -1.575" [40.0mm]

IC COVER

INTELLIGENT COMPARITOR®

Model # IC-16 24HC.1NH6.16¢
Ser. # 1923817

COIN MECHANISMS INC.

U.S. PATENTS NOTE 5,483,310 AND OTHERS
ALSO WORLD WIDE LICENSEE U.S. PATENTS 5,711,418
www.coinmech.com

INTELLIGENT COMPARITOR P/N
58160055

ACCEPT COIL ASSEMBLY

P/N 06250134= GREEN WIRES FOR LOW VOLTAGE (12VDC)

P/N 06250195= GRAY WIRES FOR HIGH VOLTAGE (24VAC)

MICRO P/N (MAY HAVE 0950-000XXX FORMAT)

IC WITH COVER REMOVED

TOKEN HOLDER P/N
04690059

09270430

NONOPTIC.600
Pot C
Pot S
09290514

12 VOLT WILL HAVE IDENTIFYING LABEL INSTEAD OF REGULATOR

Caution 13 Vdc. maximum

09270440

PCB P/N

COIN EXIT SPACERS

P/N 04660113
FOR COIN DIAMETERS BETWEEN
1.044" [26.5mm]-1.124" [28.5mm]

P/N 04690406
FOR COIN DIAMETERS BETWEEN
.898" [22.8mm] -1.043" [26.5mm]

406

PER

LAST SIGNIFIGANT
P/N XXX069950XXX

IC-16
SMART MARK
DIMENSIONS
DWG# ENG00089

Comparitor™

BACK VIEW
ROUTING FOR ACCEPT COIL LEADS

INTELLIGENT COMPARITOR

Model #
CM#
Ser. #

COIN MECHANISMS INC.
Glendale Hts., IL 60139 (630) 924-7070
1-800-323-6498 USA/Canada

3.38" [85.9mm]
1.87" [47.5mm]
.25" [6.3mm]
3.88" [98.6mm]
.986"-1.47" [20.0mm-37.3mm"] COIN DIA. RANGE
3.51" [89.2mm]
.19" [4.8mm]
.10" [2.5mm]
4.00" [101.6mm]
.06" [1.5mm]

.75" [19.0mm]
.160" MAX. [4.1mm] SEE DETAIL ON SPACER OPTIONS
.92" [23.4mm]
.75" [19.0mm]
Ø .187" [4.75mm]
.25" [6.35mm]
.57" [14.48mm]
1.10 [27.9mm] MAX.
.06" [1.52mm] REF.
.15" [3.81mm] OUTLET
.06" [1.52mm]
.25" [6.35mm]

45°
.065" [1.7mm]
"B"
"A"

"A" SPACER	"B" ENTRY
SPACER OPTIONS	
.160" [4.1mm]	.310" [7.9mm]
.140" [3.6mm]	.290" [7.4mm]
.120" [3.0mm]	.270" [6.9mm]
.105" [2.7mm]	.255" [6.5mm]
.095" [2.4mm]	.245" [6.2mm]
.082" [2.1mm]	.232" [5.9mm]
.072" [1.8mm]	.222" [5.3mm]

.25" [6.35mm] FIXED REFERENCE
1.60" [40.6mm] MAX. COIN REJECT
1.60" [40.6mm] MAX. COIN ACCEPT
.15" [3.8mm]
COIN EXIT

COIN ENTRY

.095/.105/ .120/.140/.160 COIN THICKNESS RANGE
COIN DIA. + .018" [.5mm]
.16" [4.1mm]
.25" [6.35mm] FIXED REFERENCE

COIN MECHANISMS INC.

P.O. Box 5128, Glendale Heights, IL 60139-5128   P/N ENG00089 -5/02
630/924-7070*1-800/323-6498*FAX 630/924-7088*E-MAIL-coinmech@coinnech.com
VISIT OUR WEB SITE AT www.coinnech.com

MATERIAL COLUMN

ITEM	P/N	QTY	MATL' DESCRIPTION
1	04060005-01	4	STUD, #6
2	0406XXXX	1	WEIGHT, DAMPER, (SEE DOC #09300019)
3	04660165	1	COVER, PCB HSG, UNIVERSAL
4	04690243	A/R	SPACER, IC, .010
5	04690244	A/R	SPACER, IC, .020
6	04690276	1	CLIP, WIRE, BARCODE, IC
7	0469XXXX	1	HOLDER, TKN, IC, (SEE PAGE 2)
8	0469XXXX	1	HOLDER, BC RDR, (SEE PAGE 2)
9	04690104	1	HOLDER, VALENCE READER
10A	0625XXXX	1	COIL, ASSY, SENSOR, IC, (SEE PAGE 2)
10A	0569XXXX	—	LEVER, ASSY, DAMPER, IC, (SEE PAGE 2)
10B	04690266-01	—	PIN, PIVOT, DAMPER, IC
11	06250259	1	COIL& BRKT ASSY, IC, GRN (SEE PAGE 2)
	06250260	1	COIL& BRKT ASSY, IC, GRY (SEE PAGE 2)
12	06270045	1	PCB, ASSY, BC RDR, SM, TESTED
13	0628O101	1	HARNESS, VAL, 3 PIN AMP, 4 PIN PAR, RED/BLK/VID, 5.25
14	0665XXXX	1	RETAINER, ASSY, IC, SPRING (SEE PAGE 2)
15	0666001B	1	CHASSIS, IC-16WB
16	08290208	1	PHOTOINTERRUPTER, REFLECTIVE
17	0927XXXX	1	PCB, CTRL, IC, (SEE PAGE 2)
18	0050-000XXX	1	IC, B7C752, (SEE PAGE 2)
19	436-4	2	NUT, 4-40, HEX, KEPS
20	P-166-6-X	1	SCREW, 6-32, (SEE DOCUMENT #09300013)
21	P-186-4-3	2	SCREW, 4-40 X 3/16,PHIL/SQ. INT SEMS WASHER
22	P-217-2-5	1	SCREW, 2 X 5/16, PHIL, PH, HI-LO

NOTES:

1. SEE INDIVIDUAL BILLS OF MATERIALS FOR VARIABLE SINGLE COMPONENTS INDICATED BY SQUARE BALLOONS.

2. SEE INDIVIDUAL BILLS OF MATERIALS FOR HARNESS REQUIREMENTS.

RELEASED: SEE INDIVIDUAL P/N'S FOR REVISION LEVELS

COIN MECHANISMS INC.
400 REGENCY DR.
GLENDALE HEIGHTS, IL 60139

TITLE IC-16, WIDE BODY P/N IDENTIFICATION

DWG NO. DO681605

SHT 1 OF 2

SMARK MARK CONFIGURATION

APPLY LOC-TITE 242 TO THREADS OF BOTH SCREWS BEFORE ASSEMBLY

BACK VIEW ROUTING FOR ACCEPT COIL LEADS
CUSTOMER PART NUMBER

VALENCE SENSOR CONFIGURATION

"PLUG-IN" DETAIL

"PLUG-IN" FOR SENSOR COIL

"PLUG-IN" FOR ACCEPT COIL

"PLUG-IN" FOR VALENCE SENSOR OR SMART MARK

VALENCE SENSOR BACK VIEW

INTELLIGENT COMPARITOR

COIN MECHANISM SERIAL LABEL

IC COVER

INTELLIGENT COMPARITOR®
COIN MECHANISMS INC.
Model # IC-16.24AC.1NHN9.1ØS
SN/# 68166059
Ser.# 1Ø23817

INTELLIGENT
COMPARITOR P/N

SPRING RETAINER ASSEMBLY

P/N 06650258= FOR COIN DIAMETERS BELOW 1.812" [46.0mm]

P/N 06650269= FOR COIN DIAMETERS 1.812" [46.0mm] AND ABOVE

MICRO P/N
(MAY HAVE 0950-000XXX FORMAT)

IC WITH COVER REMOVED

TOKEN HOLDER P/N

04690059

09290415
NONSCOIN.-42
Pot 'C'
Pot 'S'

09270436 R1

Caution 13 Vdc. maximum
09270440

12 VOLT WILL
HAVE IDENTIFYING
LABEL INSTEAD
OF REGULATOR

PCB P/N

ACCEPT COIL ASSEMBLY

P/N 06250259= GREEN WIRES FOR LOW VOLTAGE (12VDC)

P/N 06250260= GRAY WIRES FOR HIGH VOLTAGE (24VAC)

COLOR, PLACEMENT
AND NUMBER OF DOTS
IDENTIFIES BARCODE
HOLDER P/N

BARCODE HOLDER

1 2 3 4   5   6   7   8

P/N 05690XXX
LAST SIGNIFICANT
DIGITS MOLDED
ON DAMPER LEVER

38

DAMPER LEVER

41

IC-16WB
SMART MARK
DIMENSIONS
DWG# ENG00100

Comparitor™

BACK VIEW
ROUTING FOR ACCEPT COIL LEADS

.160" [4.1mm]	.310" [7.9mm]		
.140" [3.6mm]	.290" [7.4mm]		
.120" [3.0mm]	.270" [6.9mm]		
.105" [2.7mm]	.255" [6.5mm]		
.095" [2.4mm]	.245" [6.2mm]		
.082" [2.1mm]	.232" [5.9mm]		
.072" [1.8mm]	.222" [5.3mm]		
"A" SPACER	"B" ENTRY		
SPACER OPTIONS			

.065" [1.7mm]

"B" "A"

45°

INTELLIGENT COMPARITOR

Model:#
CM:#
Ser.#

U.S. PATENT NO. 5,033,601 AND OTHER
PATENTS PENDING IN THE U.S. AND FOREIGN COUNTRIES
COIN MECHANISMS INC.
Glendale Hts, IL 60139 (630) 924-7070
1-800-323-6498 USA Canada

4.64" [117.9mm]

1.55"-1.95" [39.4mm-49.5mm] COIN DIA. RANGE

4.00" [101.6mm]

3.38" [85.9mm]

1.50" [38.1mm]

1.88" [47.8mm]

.19" [4.8mm]

.100" [2.5mm]

.25" [6.3mm]

4.26" [108.2mm]

.06" [1.5mm]

1.03" [26.2mm]

1.10" [27.9mm] MAX.

.06" [1.5mm] REF.

.160" MAX. [4.1mm] SEE DETAIL ON SPACER OPTIONS

.75" [19.0mm]

.92" [23.4mm]

Ø .187" [4.7mm]

.25" [6.3mm]

.06" [1.5mm]

.15" [3.8mm] OUTLET

.56" [14.2mm]

.095"/.105" .120"/.140"/.160" COIN THICKNESS RANGE

COIN DIA. +.018" [.5mm]

COIN ENTRY

.25" [6.3mm] FIXED REFERENCE

.16" [4.1mm]

.25" [6.3mm] FIXED REFERENCE

1.97" [50.0mm] MAX. COIN ACCEPT

1.97" [50.0mm] MAX. COIN REJECT

.15" [3.8mm]

COIN EXIT

COIN MECHANISMS INC.

P.O. Box 5128, Glendale Heights, IL 60139-5128
630/924-7070*1-800/323-6498*FAX 630/924-7088*E-MAIL-coinmech@coinmech.com
VISIT OUR WEB SITE AT www.coinmech.com

P/N ENG00100 -5/02

MATERIAL COLUMN

ITEM	P/N	QTY	MATL' DESCRIPTION
1	04060005-01	4	STUD, #6
2	0405XXXX	1	WEIGHT, DAMPER, (SEE DOCUMENT #09300019)
3	04660165	1	COVER, PCB HSG, UNIVERSAL
4	04690276	1	CLIP, WIRE, BARCODE, IC
5	04690243	A/R	SPACER, IC, .010
6	04690244	A/R	SPACER, IC, .020
7	0469XXXX	1	HOLDER, TKN, IC, (SEE PAGE 2)
8	0459XXXX	1	HOLDER, BC RDR, (SEE PAGE 2)
9	04690104	1	HOLDER, VALENCE READER
10	06250193	1	COIL & BRKT, ASSY, GRN, 4", PHR (SEE PAGE 2)
11	06250199	1	COIL & BRKT, ASSY, GRY, 4", PHR (SEE PAGE 2)
11A	0625XXXX	1	COIL, ASSY, SENSOR,
11A	0569XXXX	—	LEVER, ASSY, DAMPER, IC (SEE PAGE 2)
11B	04690266-01	—	PIN, PIVOT, DAMPER, IC
12	06270045	1	PCB, ASSY, BC RDR, SM, TESTED
13	0628O101	1	HARNESS, VAL, 3 PIN AMP, 4 PIN PHR, RED/BLK/VIO, 5.25
14	0665XXXX	1	RETAINER, ASSY, IC,
15	0927XXXX	1	PCB, CTRL, IC, (SEE PAGE 2)
16	066B0024	1	CHASSIS, IC-32/33, SALES
17	0829O208	1	PHOTOINTERRUPTER, REFLECTIVE
18	0950-000XXX	1	IC, B7C752, (SEE PAGE 2)
19	436-4	2	NUT, 4-40, HEX, KEPS
20	P-166-6-X	1	SCREW, 6-32 (SEE DOCUMENT #09300019)
21	P-186-4-3	2	SCREW, 4-40 X 3/16, PHIL/SQ, INT SEMS WASHER
22	P-217-2-5	1	SCREW, 2 X 5/16, PHIL, PH, HI-LO

NOTES:
1. SEE INDIVIDUAL BILLS OF MATERIALS FOR VARIABLE SINGLE COMPONENTS INDICATED BY SQUARE BALLOONS.
2. SEE INDIVIDUAL BILLS OF MATERIALS FOR HARNESS REQUIREMENTS.

COIN MECHANISMS INC.
400 REGENCY DR.
GLENDALE HEIGHTS, IL 60139

RELEASED; SEE INDIVIDUAL P/N'S FOR REVISION LEVELS

TITLE: IC-32/33, P/N IDENTIFICATION

DWG. NO. D06B3202

SHT 1 OF 2

VALENCE SENSOR BACK VIEW

INTELLIGENT COMPARTOR

COIN MECHANISM SERIAL LABEL

CUSTOMER PART NUMBER

BACK VIEW ROUTING FOR ACCEPT COIL LABEL

VALENCE SENSOR CONFIGURATION

SMARK MARK CONFIGURATION

"PLUG-IN" DETAIL

"PLUG-IN" FOR SENSOR COIL

"PLUG-IN" FOR ACCEPT COIL

"PLUG-IN" FOR VALENCE SENSOR OR SMART MARK

INTELLIGENT COMPARITOR P/N

IC COVER

TOKEN HOLDER P/N

04690059

12 VOLT WILL
HAVE IDENTIFYING
LABEL INSTEAD
OF REGULATOR

09270440

PCB P/N

09270436

MICRO P/N
(MAY HAVE 0950-
000XXX FORMAT)

09290415

IC WITH COVER REMOVED

ACCEPT COIL

P/N 06250193= GREEN WIRES FOR LOW VOLTAGE (12VDC)

P/N 06250199= GRAY WIRES FOR HIGH VOLTAGE (24VAC)

COLOR, PLACEMENT
AND NUMBER OF DOTS
IDENTIFIES BARCODE
HOLDER P/N

BARCODE HOLDER

P/N 05690XXX
LAST SIGNIFICANT
DIGITS MOLDED
ON DAMPER LEVER

38

DAMPER

44

IC-32/33
SMART MARK
DIMENSIONS
DWG# ENG00094

Comparitor™

BACK VIEW
ROUTING FOR ACCEPT COIL LEADS

xxxxxxx

.065"
[1.7mm]

45°

"B"
"A"

P/N 06280102

EXISTING MOLEX
CONNECTOR FROM
MACHINE

"A" SPACER		"B" ENTRY	
.160"	[4.1mm]	.310"	[7.9mm]
.140"	[3.6mm]	.290"	[7.4mm]
.120"	[3.0mm]	.270"	[6.9mm]
.105"	[2.7mm]	.255"	[6.5mm]
.095"	[2.4mm]	.245"	[6.2mm]
.082"	[2.1mm]	.232"	[5.9mm]
.072"	[1.8mm]	.222"	[5.3mm]
		SPACER OPTIONS	

INTELLIGENT COMPARITOR

Model #
CMT#
Ser. #

COIN MECHANISMS INC.
Glendale Hts., IL 60139 (630) 924-7070
1-800-323-6498 USA/Canada

PAT'S. & OMR. PAT'S

3.88"
[98.6mm]

1.34"-1.47"
[34.0mm-37.3mm]
COIN DIA. RANGE

.19"
[4.8mm]

.100"
[2.5mm]

3.51"
[89.2mm]

.92"
[23.4mm]

1.88"
[47.8mm]

3.38"
[85.9mm]

4.00"
[101.6mm]

.112"
[2.8mm]
HARNESS
PROTRUSION

.06"
[1.5mm]

.25"
[6.3mm]

.25"
[6.35mm]
FIXED
REFERENCE

1.60"
[40.6mm]
COIN ACCEPT

COIN EXIT

1.60"
[40.6mm]
COIN REJECT

.15'
[3.8mm]

COIN ENTRY

COIN DIA.
+.018"
[.5mm]

.75"
[19.0mm]

.160" MAX.
SEE DETAIL ON
SPACER OPTIONS

1.16"
[29.5mm]

.75"
[19.0mm]

Ø .187"
[4.7mm]

.25"
[6.3mm]

1.10"
[27.9mm]
MAX.

.06"
[1.5mm]
REF.

.06"
[1.5mm] REF.

.15"
[3.8mm]
OUTLET

.57"
[14.5mm]

.095/.105/
.120/.140/.160
COIN THICKNESS
RANGE

.16"
[4.1mm]

.25"
[6.3mm]
FIXED
REFERENCE

COIN MECHANISMS INC.

ITEM	P/N	QTY	MAT'L DESCRIPTION
			MATERIAL COLUMN
1	04060005-01	4	STUD, #6
2	0406XXXX	1	WEIGHT, DAMPER, (SEE DOCUMENT #09300019)
3	04660165	1	COVER, PCB HSG, UNIVERSAL
4	04690243	A/R	SPACER, IC, .010
5	04690244	A/R	SPACER, IC, .020
6	04690276	1	CLIP, WIRE, BARCODE, IC
7	0469XXXX	1	HOLDER, TKN, IC, (SEE PAGE 2)
8	0469XXXX	1	HOLDER, BC, 45°, (SEE PAGE 2)
9	04690104	1	HOLDER, VALENCE READER
10	0625XXXX	1	COIL, ASSY, SENSOR
10A	0569XXXX	—	LEVER, ASSY, DAMPER, IC
10B	04690266-01	—	PIN, PIVOT, DAMPER, IC
11	06250193	1	COIL & BRKT, ASSY, GRN, 4", PHR (SEE PAGE 2)
	06250199		COIL & BRKT, ASSY, GRY, 4" PHR (SEE PAGE 2)
12	06270045	1	PCB, ASSY, BC RDR, SM, TESTED
13	06280101	1	HARNESS, VAL, 3 PIN AMP, 4 PIN PWR, RED/BLK/VID, 5.25
14	0665025B	1	RETAINER, ASSY, IC, SPRING
15	06680023	1	CHASSIS, IC-36/37, SALES
16	08290208	1	PHOTOINTERRUPTER, REFLECTIVE
17	0927XXXX	1	PCB, CTRL, IC (SEE PAGE 2)
18	0950-000XXX	1	IC, B7C752 (SEE PAGE 2)
19	436-4	2	NUT, 4-40, HEX, KEPS
20	P-166-6-X	1	SCREW, 6-32 (SEE DOCUMENT #09300019)
21	P-186-4-3	2	SCREW, 4-40 X 3/16,PHIL/SQ, INT SENS WASHER
22	P-217-2-5	1	SCREW, 2 X 5/16, PHIL, PH, HI-LO

NOTES:
1. SEE INDIVIDUAL BILLS OF MATERIALS FOR VARIABLE SINGLE COMPONENTS INDICATED BY SQUARE BALLONS.
2. SEE INDIVIDUAL BILLS OF MATERIALS FOR HARNESS REQUIREMENTS.

RELEASED: SEE INDIVIDUAL P/N'S FOR REVISION LEVELS

9/12/02 DF — DATE/BY

REVISIONS

CRITICAL SYMBOLS
▶ = CUSTOMER
▶ = PROCESS
▶ = BOTH

COIN MECHANISMS INC.
400 REGENCY DR.
GLENDALE HEIGHTS, IL 60139

This drawing is the property of and contains proprietary information of Coin Mechanisms Inc. The drawing shall be returned upon request and shall not be copied or disclosed in whole or in part or its contents divulged and will not be used in any way detrimental to the interest of Coin Mechanisms.

TOLERANCES NOT SPECIFIED
FRACTIONS: ± 1/64
XX/XX = ±.010
XXX/XX = ±.005
HOLE DIA = ±.002

TITLE: IC-36/37, P/N IDENTIFICATION

DRAWN / DATE
CHKD / DATE
APP / DATE   4/30/02

DWG NO. D0683603
SIZE: D SCALE: N/A   FINISH: N/A   SHT 1 OF 2

VALENCE SENSOR BACK VIEW

COIN MECHANISM SERIAL LABEL

INTELLIGENT COMPARITOR
COIN MECHANISMS INC.

CUSTOMER PART NUMBER

BACK VIEW
ROUTING FOR ACCEPT COIL LEADS

SECURE WIRES WITH WIRE TIE (P/N 08290005) AS SHOWN

"PLUG-IN" DETAIL
"PLUG-IN" FOR SENSOR COIL
"PLUG-IN" FOR ACCEPT COIL
"PLUG-IN" FOR VALENCE SENSOR OR SMART MARK

VALENCE SENSOR CONFIGURATION

SMARK MARK CONFIGURATION

ALIGN THIS EDGE OF TAPE (P/N 08290004) ALONG EDGE OF OPENING ON MAINPLATE

IC COVER

INTELLIGENT COMPARITOR®

COIN MECHANISMS INC.
Glendale Heights, IL 60139

Model # IC-37,24AC,1NHNO,$10
CMI 68378011
Ser. # 1010300

U.S. PATENTS NOS. 5,433,310 AND OTHERS)
ALSO MFG UNDER LICENSE U.S. PATENT NO 5,048,641
1-800-323-6489 USA/Canada   www.coinmech.com

INTELLIGENT
COMPARITOR P/N

P/N 06250193= GREEN WIRES FOR LOW VOLTAGE (12VDC)

P/N 06250199= GRAY WIRES FOR HIGH VOLTAGE (24VAC)

IC WITH COVER

TOKEN HOLDER P/N

04690059

MICRO P/N
(MAY HAVE 0950-000XXX
FORMAT)

09290415
NONOPTIC.6C2
Pad 'C'
Pad 'S'

09270436

PCB P/N

Caution
13 Vdc.
maximum

09270440

12 VOLT WILL
HAVE IDENTIFYING
LABEL INSTEAD
OF REGULATOR

BARCODE HOLDER

COLOR, PLACEMENT
AND NUMBER OF DOTS
IDENTIFIES BARCODE
HOLDER P/N

1 2 3 4   5   6   7   8

DAMPER

38

P/N 05690XXX
LAST SIGNIFICANT
DIGITS MOLDED
ON DAMPER LEVER

47

IC-36/37
SMART MARK
DIMENSIONS
DWG# ENG00087

Comparitor™

BACK VIEW
ROUTING FOR ACCEPT COIL LEADS

.065"
[1.7mm]

45°
"B" "A"

P/N 06280102

"A" SPACER	"B" ENTRY
.160" [4.1mm]	.310" [7.9mm]
.140" [3.6mm]	.290" [7.4mm]
.120" [3.0mm]	.270" [6.9mm]
.105" [2.7mm]	.255" [6.5mm]
.095" [2.4mm]	.245" [6.2mm]
.082" [2.1mm]	.232" [5.9mm]
.072" [1.8mm]	.222" [5.3mm]

SPACER OPTIONS

EXISTING MOLEX CONNECTOR FROM MACHINE

INTELLIGENT COMPARITOR

COIN MECHANISMS INC.
Glendale Hts, IL 60139 (630) 924-7070
1-800-323-6498 USA/Canada

Model #
DWG#
Ser. #

3.88"
[98.6mm]

1.550"-1.875"
[39.4mm-47.6mm]
COIN DIA. RANGE

.19"
[4.8mm]

.100"
[2.5mm]

3.38"
[85.9mm]

4.00"
[101.6mm]

1.95"
[49.53mm]
COIN ACCEPT

1.95"
[49.53mm]
COIN REJECT

3.51"
[89.15 mm]

1.88"
[47.8mm]

.92"
[23.4mm]

.112"
[2.8mm]

.06"
[1.5mm]

.25"
[6.3mm]

COIN EXIT

.25"
[6.3mm]
FIXED REFERENCE

.15"
[3.8mm]

COIN ENTRY

COIN DIA.
+.018"
[.5mm]

.25"
[6.3mm]
FIXED REFERENCE

.16"
[4.1mm]

.095/.105/
.120/.140/.160
COIN THICKNESS RANGE

.160" MAX.
[4.1mm]
SEE DETAIL ON
SPACER OPTIONS

2.19"
[55.6mm]

2.14"
[54.4mm]

1.77"
[45.0mm]

1.05"
[26.7mm]

.06"
[1.5mm]

.15"
[3.8mm]

.06"
[1.5mm]

1.16"
[29.5mm]

.75"
[19.0mm]

1.09"
[27.7mm]

Ø .187"
[4.7mm]

COIN MECHANISMS INC.
P.O. Box 5128, Glendale Heights, IL 60139-5128
630/924-7070*1-800/323-6498*FAX 630/924-7088*E-MAIL-coinmech@coinmech.com
VISIT OUR WEB SITE AT www.coinmech.com
P/N ENG00087 -5/02

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MATERIAL COLUMN

ITEM	P/N	QTY	MATL' DESCRIPTION
1	04060005-01	4	STUD, #6
2	04060036	1	INS, NUT, #4-40
3	0406XXX	1	WEIGHT, DAMPER,
4	04660034	1	PIN, COIN DEFLECTOR
5	04660164	1	COVERPLATE, WIDEBODY, UNIVERSAL
6	04660165	1	COVER, PCB HSG, UNIVERSAL
7	04660166-23	1	HSG, PCB, UNIVERSAL, MILLED
8	04690161-05	1	MAINPLATE, IC-16WB/62WB
9	04690243	A/R	SPACER, IC, .010
10	04690244	A/R	SPACER, IC, .020
11	04690276	1	CLIP, WIRE, BARCODE, IC
12	0469XXX	1	HOLDER, TKN, IC,
13	0469XXX	1	HOLDER, BC RDR,
14	0469XXX	1	HOLDER, VALENCE READER,
15	0625XXX	1	COIL & BRKT, ASSY,
16	0625XXX	1	COIL, ASSY, SENSOR, IC
16A	0569XXX	—	LEVER, ASSY, DAMPER, IC
16B	04690266-01	—	PIN, PIVOT, DAMPER, IC
17	0627XXX	1	PCB, ASSY, BC RDR,
18	0627XXX	1	PCB, ASSY, OPTICS
19	06280101	1	HARNESS, VAL, 3 PIN AMP, 4 PIN PHR, RED/BLK/VID, 5.25
20	0665XXX	1	RETAINER, ASSY, IC, SPRING
21	08290004	.0006	TAPE, MYLAR, .5 WIDE
22	08290020B	1	PHOTOINTERRUPTER, REFLECTIVE
23	0927XXX	1	PCB, CTRL, IC
24	0929XXX	1	IC, 87C752,
25	436-4	2	NUT, 4-40, HEX, KEPS
26	600-4	1	WASHER, FLAT, #4
27	P-104-4-12	1	SCREW, 4-40 X 3/4, PHIL, PH, MS
28	P-166-6-X	1	SCREW, 6-32
29	P-186-4-3	2	SCREW, 4-40 X 3/16, PHIL/SQ, INT SEMS WASHER
30	P-217-2-5	1	SCREW, 2 X 5/16, PHIL, PH, HI-LO

RELEASED: SEE INDIVIDUAL P/N'S FOR REVISION LEVELS

REVISIONS

CRITICAL SYMBOLS
▼ = CUSTOMER
▼ = PROCESS
▼ = BOTH

COIN MECHANISMS INC.
400 REGENCY DR
GLENDALE HEIGHTS, IL 60139

TITLE: IC-40/62WB

DRAWN: DF   DATE: 4/30/02
CHKD: DATE:
APP: DATE:

DWG NO. D0684003

SIZE: D   SCALE: N/A   FINISH: N/A   SHT 1 OF 1

TOLERANCES
NOT SPECIFIED
FRACTIONS: ±.054
ANGLES: ±1°
XX= ±.010
HOLE DIA= ±.005
XXX= ±.005

NOTES:

1. SEE INDIVIDUAL BILLS OF MATERIALS FOR VARIABLE SINGLE COMPONENTS INDICATED BY SQUARE BALLOONS.
2. SEE INDIVIDUAL BILLS OF MATERIALS FOR HARNESS REQUIREMENTS.
3. BEFORE SHIPPING, SECURE DAMPER WEIGHT WITH RUBBER BAND, AS REQUIRED PER BILL OF MATERIAL.
4. SHIP WITH BLANK TOKEN IN RESIDENCE AS REQUIRED PER BILL OF MATERIAL FOR INDIVIDUAL PART NUMBERS.
5. INCLUDE DOC# 09300270 WITH SHIPMENT AS REQUIRED PER BILL OF MATERIAL.
6. SEE DWG' S# ENG00102 AND ENG00103 FOR OVERALL DIMENSIONS.

APPLY LOC-TITE 242 TO THREADS OF BOTH SCREWS BEFORE ASSEMBLY

'PLUG-IN' DETAIL

'PLUG-IN' FOR SENSOR COIL

'PLUG-IN' FOR ACCEPT COIL

'PLUG-IN' FOR VALENCE SENSOR OR SMART MARK

'PLUG-IN' FOR OPTIC SENSOR

ALIGN THIS EDGE OF TAPE (P/N 08290004) ALONG EDGE OF OPENING ON MAINPLATE

VALENCE SENSOR BACK VIEW

VALENCE SENSOR CONFIGURATION

BACK VIEW

ROUTING FOR ACCEPT COIL LEADS

CUSTOMER PART NUMBER

COIN MECHANISM SERIAL LABEL

INTELLIGENT COMPARITOR

COIN MECHANISMS INC.

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DAMPER LEVER

P/N 05690XXX
LAST SIGNIFICANT
DIGITS MOLDED
ON DAMPER LEVER

38

SENSOR COIL SLOT POSITION ON

2.7"
68.6mm
POSITION OF CUTOUT
FOR SMALL COIN

P/N 06680021-SMALL COIN
COIN DIAMETERS
.870" [22.1mm] -1.575" [40.0mm]

2.9"
73.7mm
POSITION OF CUTOUT
FOR STANDARD COIN

P/N 06680019-STANDARD COIN
COIN DIAMETERS
1.045" [26.5mm] -1.575" [40.0mm]

IC COVER

INTELLIGENT COMPARITOR®

Model # IC-40 12DC INHH1/0.925/23.50H1
CMI # 08469817
Ser.# 1031255

COIN MECHANISMS INC.
Glendale Heights, IL 60139
U.S. PATENTS NO'S 5,483,310 AND OTHERS
ALSO MFD UNDER LICENSE U.S. PATENT NO 5,040,661
1-800-323-6498 USA/Canada
www.coinmech.com

INTELLIGENT
COMPARITOR P/N

BARCODE HOLDER

MICRO P/N
(MAY HAVE 0950-000XXX FORMAT)

COLOR, PLACEMENT
AND NUMBER OF DOTS
IDENTIFIES BARCODE
HOLDER P/N

1 2 3 4 5 6 7 8

ACCEPT COIL ASSEMBLY

P/N 06250134= GREEN WIRES FOR LOW VOLTAGE (12VDC)

P/N 06250195= GRAY WIRES FOR HIGH VOLTAGE (24VAC)

IC WITH COVER REMOVED

TOKEN HOLDER P/N

04690059

Pot 'C'
NONSCOIN-42
Pot 'S'
09290430

maximum
Caution
13 Vdc.

09270449

PCB P/N

OPTIC

OPTIC PCB P/N

COIN EXIT SPACERS

P/N 04660113
FOR COIN DIAMETERS
BETWEEN
1.044" [26.5mm]-1.124" [28.5mm]

P/N 04690406
FOR COIN DIAMETERS
BETWEEN
.898" [22.8mm] -1.043" [26.5mm]

406

IC-40/62
SMART MARK
DIMENSIONS
DWG# ENG00106

Comparitor™

BACK VIEW
ROUTING FOR ACCEPT COIL LEADS

3.38"
[85.9mm]

1.87"
[47.5mm]

.25"
[6.3mm]

3.88"
[98.6mm]

.986"-1.47"
[20.0mm-37.3mm]
COIN DIA. RANGE

INTELLIGENT COMPARITOR
Model #
CM #
Ser. #
COIN MECHANISMS INC.
Glendale Hts., IL 60139 (630) 924-7070
1-800-323-6498 USA/Canada

3.51"
[89.2mm]

1.25"
[31.8mm]
W/SPACER

.06"
[1.5mm]

.100"
[2.5mm]

.19"
[4.8mm]

4.00"
[101.6mm]

45. .002°

"B"
"A"

.065"
[1.7mm]

"A" SPACER	"B" ENTRY	SPACER OPTIONS
.160" [4.1mm]	.310" [7.9mm]	
.140" [3.6mm]	.290" [7.4mm]	
.120" [3.0mm]	.270" [6.9mm]	
.105" [2.7mm]	.255" [6.5mm]	
.095" [2.4mm]	.245" [6.2mm]	
.082" [2.1mm]	.232" [5.9mm]	
.072" [1.8mm]	.222" [5.3mm]	

.25"
[6.35mm]
FIXED
REFERENCE

1.60"
[40.6mm]
MAX. COIN
REJECT

1.60"
[40.6mm]
MAX. COIN
ACCEPT

.15"
[3.8mm]

COIN EXIT

.75"
[19.0mm]
MAX.

.160" MAX.
[4.1mm]
SEE DETAIL ON
SPACER OPTIONS

.92"
[23.4mm]

.75"
[19.0mm]

Ø .187"
[4.7mm]

.25"
[6.3mm]

.57"
[14.5mm]

1.10"
[27.9mm]
MAX.

.06"
[1.5mm]

.06"
[1.5mm]
REF.

.15"
[3.8mm]
OUTLET

.095/.105/
.120/.140/.160
COIN THICKNESS
RANGE

COIN DIA.
+.018"

.16"
[4.1mm]

.25"
[6.3mm]
FIXED
REFERENCE

COIN ENTRY

COIN MECHANISMS INC.

P.O. Box 5128, Glendale Heights, IL 60139-5128
630/924-7070*1-800/323-6498*FAX 630/924-7088*E-MAIL-coinmech@coinmech.com
VISIT OUR WEB SITE AT www.coinmech.com

P/N ENG00106 -5/02

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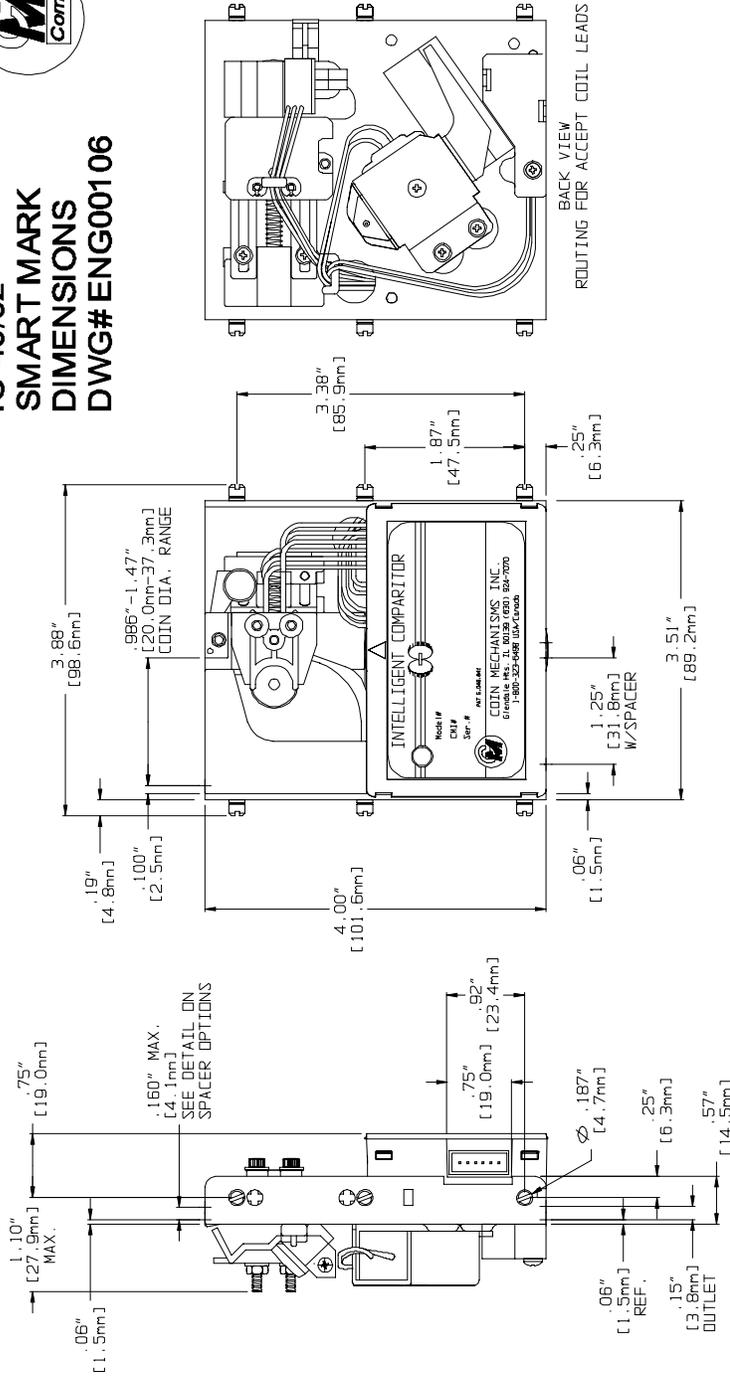| ITEM	P/N	QTY	MATL	DESCRIPTION
1	04060005-01	4		STUD, #5
2	0406XXXX	1		WEIGHT, DAMPER, (SEE DOCUMENT #09300019)
3	04660034	1		PIN, COIN DEFLECTOR
4	04660165	1		COVER, PCB HSG, UNIVERSAL
5	04690243	A/R		SPACER, IC, .010
6	04690244	A/R		SPACER, IC, .020
7	04690276	1		CLIP, WIRE, BARCODE, IC
8	0469XXXX	1		HOLDER, TKN, IC, (SEE PAGE 2)
9	0469XXXX	1		HOLDER, BC RDR, (SEE PAGE 2)
10	04690104	1		HOLDER, VALENCE READER
11	06250259	1		COIL & BRKT, ASSY, GRN, 4", PHR (SEE PAGE 2)
12	06250260	1		COIL & BRKT, ASSY, GRY, 4", PHR (SEE PAGE 2)
12	0625XXXX	1		COIL, ASSY, SENSOR, IC
12A	0569XXXX	—		LEVER, ASSY, DAMPER, IC (SEE PAGE 2)
12B	0469026G-01	—		PIN, PIVOT, DAMPER, IC
13	06270045	1		PCB, ASSY, BC RDR, SM, TESTED
14	0627XXXX	1		PCB, ASSY, OPTICS (SEE PAGE 2)
15	06280101	1		HARNESS, VAL, 3 PIN AMP, 4 PIN PHR, RED/BLK/VIO, 5.25
16	06680020	1		CHASSIS, IC40/62WB, SALES
17	0665XXXX	1		RETAINER, ASSY, IC,
18	0829020B	1		PHOTOINTERRUPTER, REFLECTIVE
19	0927XXXX	1		PCB, CTRL, IC (SEE PAGE 2)
20	0950-000XXXX	1		IC, 87C752, (SEE PAGE 2)
21	436-4	2		NUT, 4-40, HEX, KEPS
22	600-4	4		WASHER, FLAT, #4
23	P-104-4-12	1		SCREW, 4-40 X 3/4, PHIL, PH, MS
24	P-166-6-X	1		SCREW, 6-32 (SEE DOCUMENT #09300019)
25	P-186-4-3	2		SCREW, 4-40 X 3/16, PHIL/SQ, INT SEMS WASHER
26	P-217-2-5	1		SCREW, 2 X 5/16, PHIL, PH, HI-LO

NOTES:
1. SEE INDIVIDUAL BILLS OF MATERIALS FOR VARIABLE SINGLE COMPONENTS INDICATED BY SQUARE BALLONS.
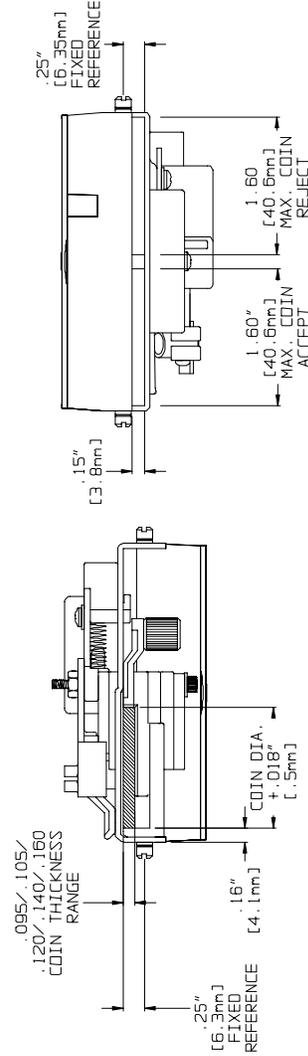2. SEE INDIVIDUAL BILLS OF MATERIALS FOR HARNESS REQUIREMENTS.

TITLE: IC-40/62, WIDE BODY, P/N IDENTIFICATION
DWG NO. D0684605

IC COVER

INTELLIGENT COMPARITOR P/N

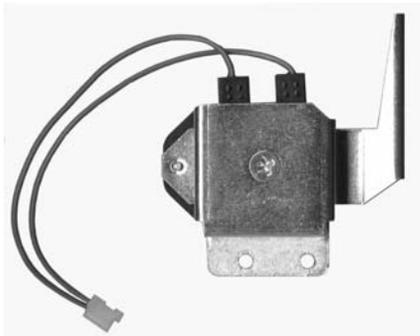## IC WITH COVER REMOVED

TOKEN HOLDER P/N

MICRO P/N
(MAY HAVE 0929XXXX FORMAT)

24 VOLT WILL
HAVE
REGULATOR
INSTEAD OF
LABEL

PCB P/N

ACCEPT COIL ASSEMBLY

P/N 06250259= GREEN WIRES FOR LOW VOLTAGE (12VDC)
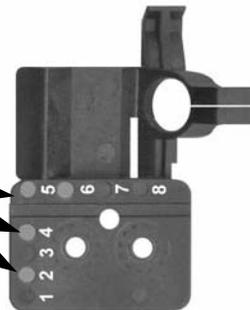
P/N 06250260= GRAY WIRES FOR HIGH VOLTAGE (24VAC)
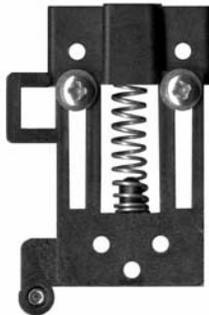
SPRING

P/N 06650258= FOR COIN DIAMETERS BELOW 1.812" [46.0mm]

P/N 06650269= FOR COIN DIAMETERS 1.812" [46.0mm] AND ABOVE

BARCODE HOLDER

COLOR, PLACEMENT
AND NUMBER OF DOTS
IDENTIFIES BARCODE
HOLDER P/N

DAMPER LEVER

P/N 05690XXX
LAST SIGNIFICANT
DIGITS MOLDED
ON DAMPER LEVER

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IC-40WB/62WB
SMART MARK
DIMENSIONS
DWG# ENG00102

Comparitor™

BACK VIEW
ROUTING FOR ACCEPT COIL LEADS

45°

.065"
[1.7mm]

"B"
"A"

"A" SPACER	"B" ENTRY
.160" [4.1mm]	.310" [7.9mm]
.140" [3.6mm]	.290" [7.4mm]
.120" [3.0mm]	.270" [6.9mm]
.105" [2.7mm]	.255" [6.5mm]
.095" [2.4mm]	.245" [6.2mm]
.082" [2.1mm]	.232" [5.9mm]
.072" [1.8mm]	.222" [5.3mm]

SPACER OPTIONS

4.64"
[117.9mm]

1.55"-1.95"
[39.4mm-49.5mm]
COIN DIA. RANGE

INTELLIGENT COMPARITOR

COIN MECHANISMS INC.
Glendale Hts., IL 60139 (630) 924-7070
1-800-323-6498 USA/Canada

Model #
Cat.#
Ser. #

U.S. PATENT NO. 4,509,633 AND OTHERS

4.26"
[108.2mm]

.06"
[1.5mm]

.19"
[4.8mm]

.100"
[2.5mm]

1.50"
[38.1mm]

1.88"
[47.8mm]

.25"
[6.3mm]

3.38"
[85.9mm]

4.00"
[101.6mm]

1.03"
[26.2mm]

.160" MAX.
[4.1mm]
SEE DETAIL ON
SPACER OPTIONS

.75"
[19.0mm]

.92"
[23.4mm]

Ø .187"
[4.7mm]

1.10"
[27.9mm]
MAX.

.06"
[1.5mm]
REF.

.06"
[1.5mm]

.56"
[14.2mm]

.15"
[3.8mm]
OUTLET

.25"
[6.3mm]

.25"
[6.3mm]
FIXED
REFERENCE

.095"/.105"
.120"/.140"/.160"
COIN THICKNESS
RANGE

.16"
[4.1mm]

COIN DIA.
+.018"
[.5mm]

COIN ENTRY

.25"
[6.3mm]
FIXED
REFERENCE

1.97"
[50.0mm]
MAX. COIN
ACCEPT

1.97"
[50.0mm]
MAX. COIN
REJECT

.15"
[3.8mm]

COIN EXIT

COIN MECHANISMS INC.

P.O. Box 5128, Glendale Heights, IL 60139-5128
630/924-7070*1-800/323-6498*FAX 630/924-7088*E-MAIL-coinmech@coinmech.com
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P/N ENG00102 -5/02