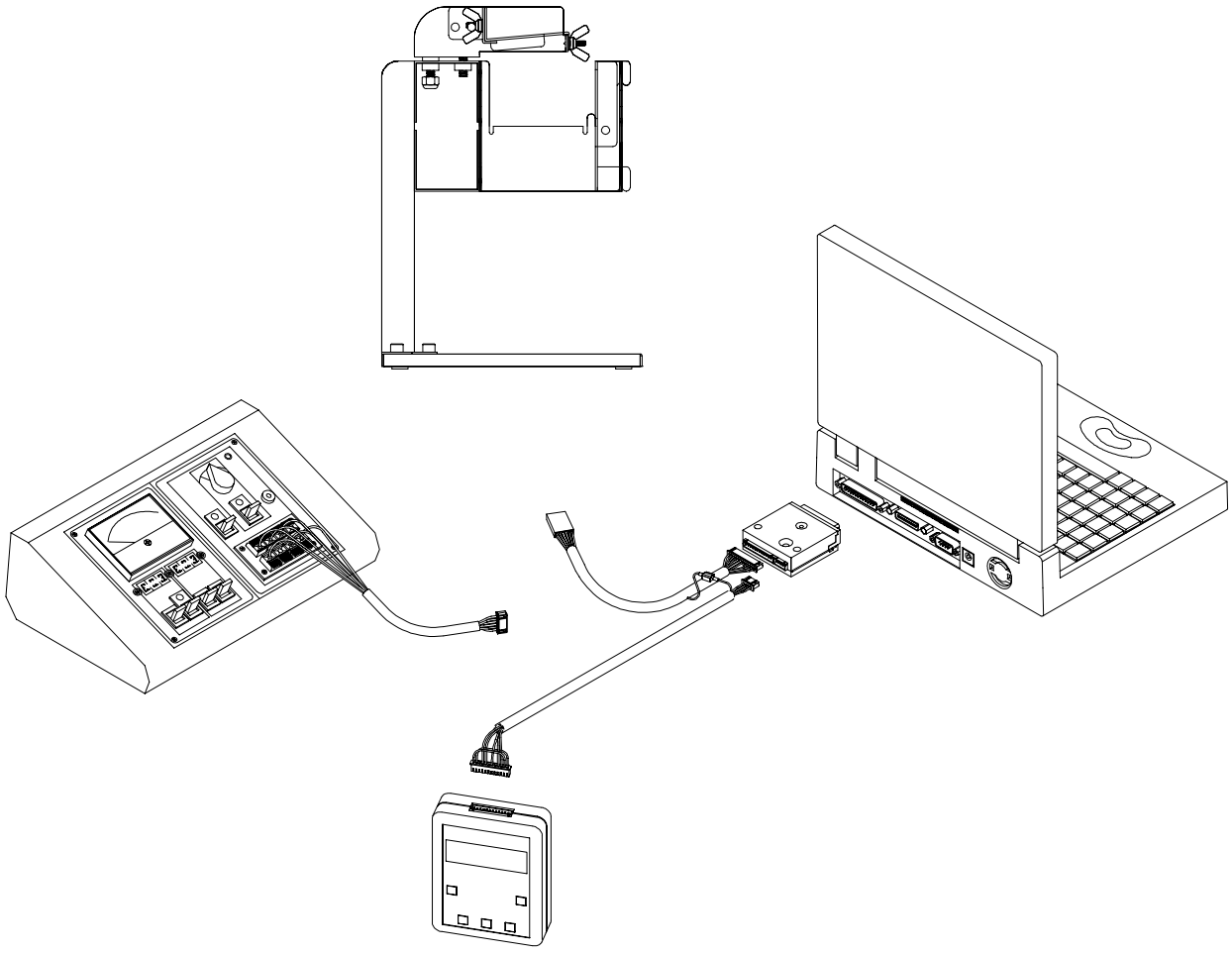
COIN MECHANISMS INC.

Where The Money Meets The Machine

PO Box 5128, 400 Regency Drive, Glendale Heights, IL 60139-5128 VOICE: 630/924-7070 1-800-323-6498 FAX: 630/924-7088

Intelligent Comparitor®
System Plus
Technical Manual
U.S.

Rev. 1
6/8/2004



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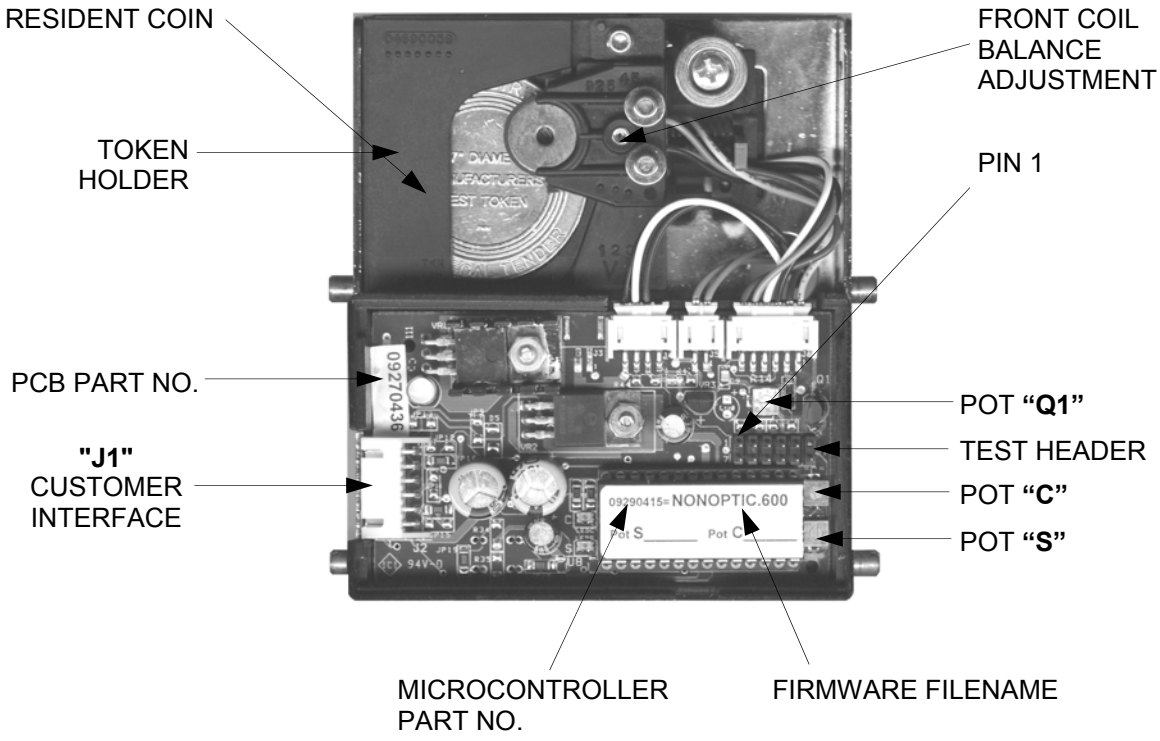
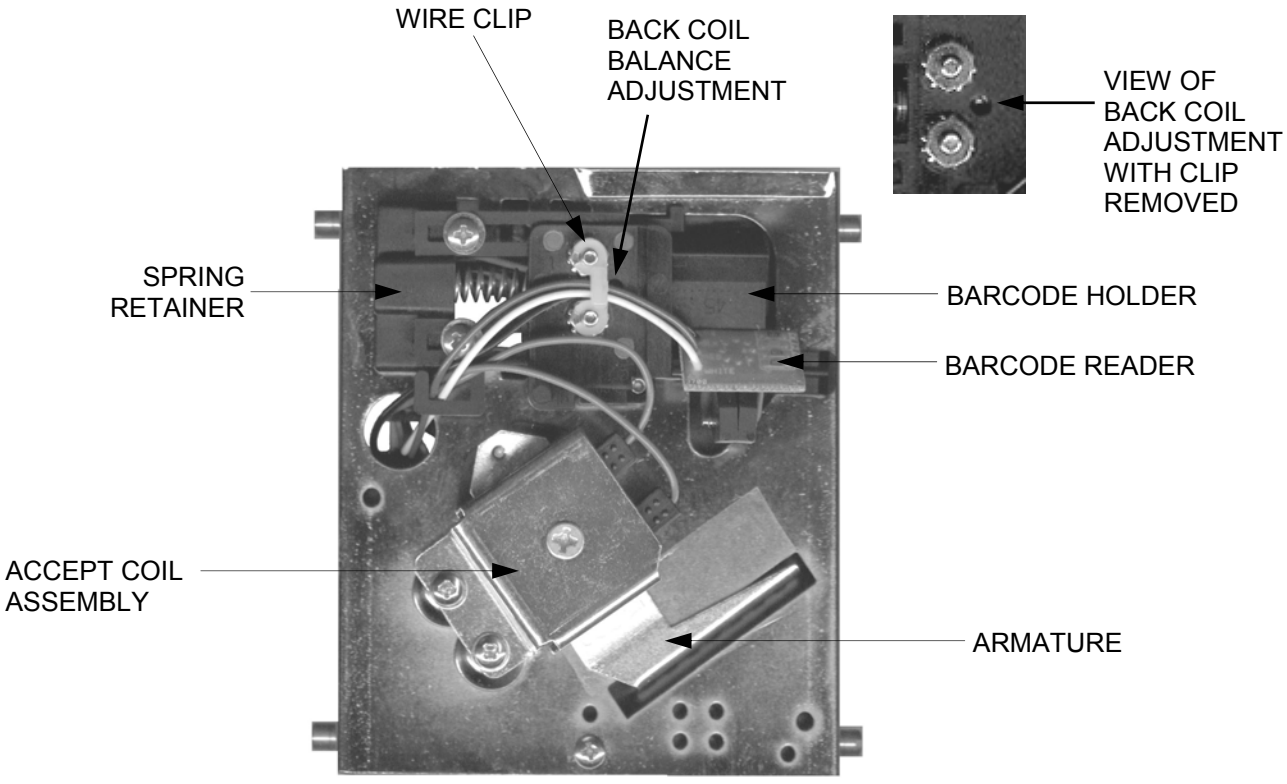
INTELLIGENT COMPARITOR
REFERENCE GUIDE
(PCB with “REAL” Pots)





INTELLIGENT COMPARITOR
REFERENCE GUIDE
(PCB with “Virtual” Pots)

RESIDENT COIN

TOKEN HOLDER

COIL BALANCE ADJUSTMENT

PIN 1

TEST HEADER

PCB PART NO. LOCATED ON BACK SIDE OF PCB

POT Q1

POT “C” LIGHT

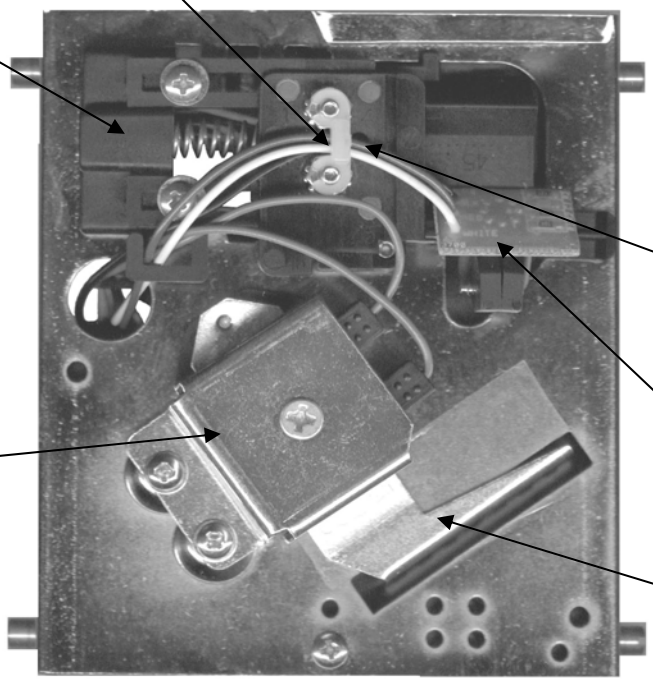
“J1” CUSTOMER INTERFACE

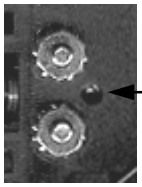
MICRO PART NO.

FIRMWARE FILE EXTENSION AND REVISION

WIRE CLIP

SPRING RETAINER





VIEW OF BACK COIL ADJUSTMENT WITH CLIP REMOVED

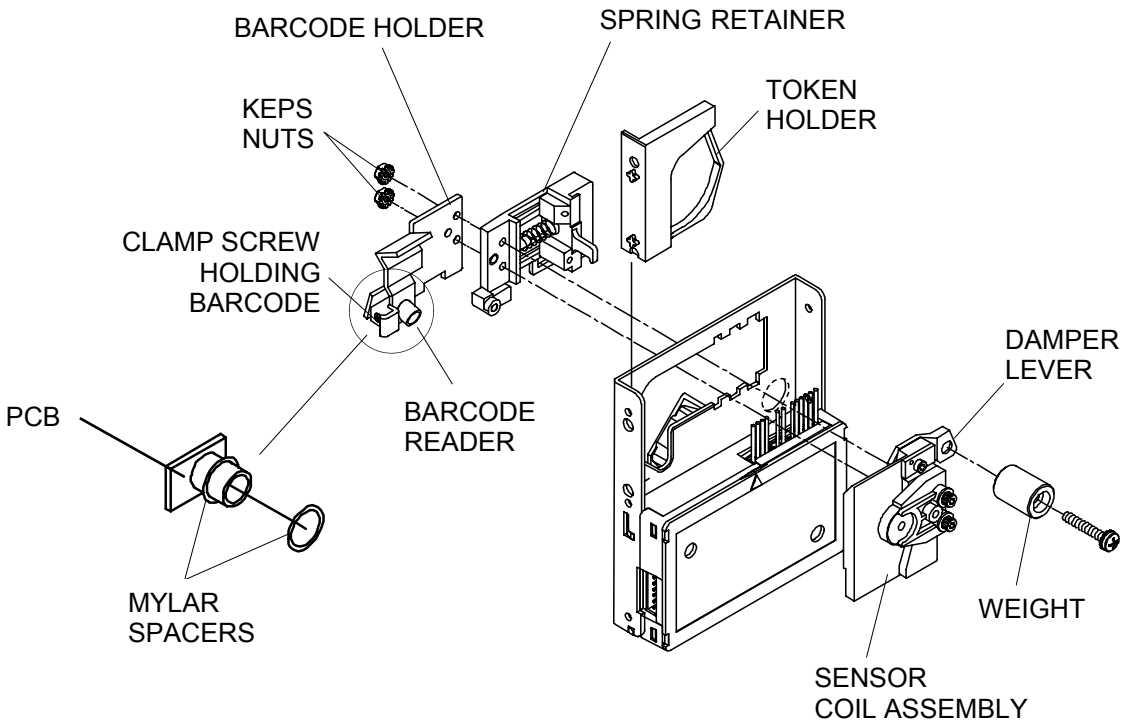
BACK COIL ADJUSTMENT

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

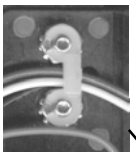
- Remove the barcode reader from the old barcode holder by loosening the screw clamping it in place. The reader may have mylar spacers on it which are used to focus the barcode reader. Do not remove, the spacers are for focusing the barcode reader. Transfer reader into new holder.
- If mylar spacers 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 !!

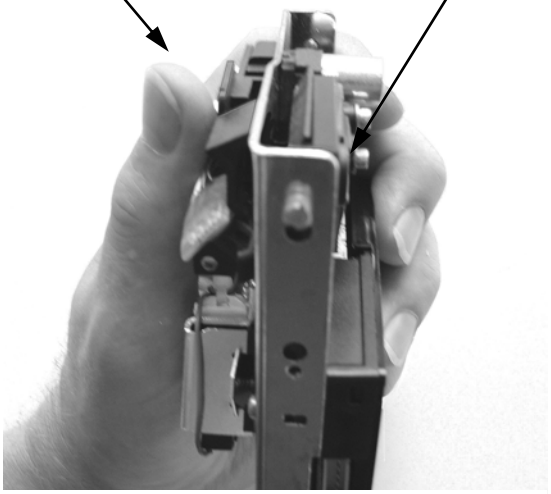
Coin Mechanism's and most game manufacturers recommend that the Game be powered down before changing any parts including the coin acceptor.

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.



Clip and screws on back

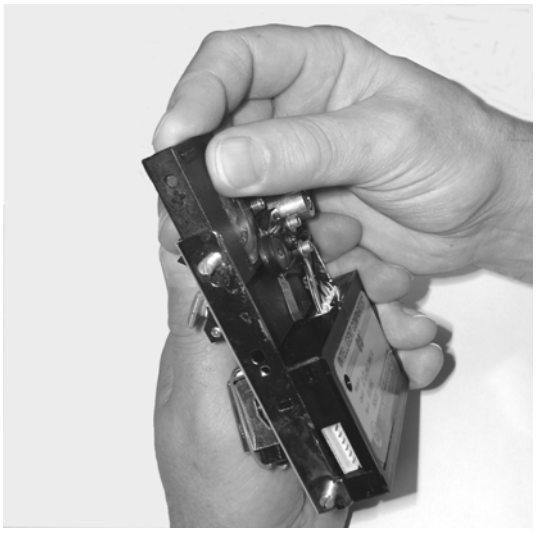
<u>Do not</u> push on the front of the coil assembly. Damper lever damage may occur.



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

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 0.2mm (0.008") 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

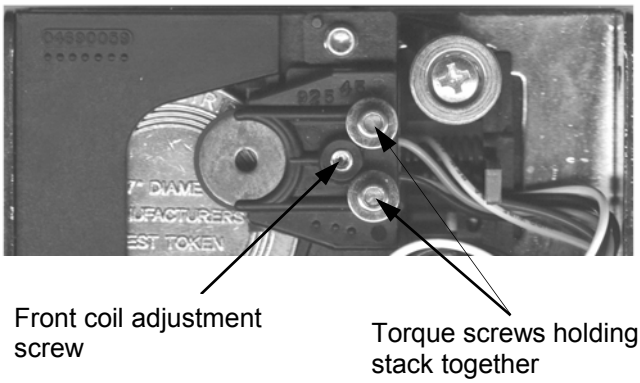


Fig. 1

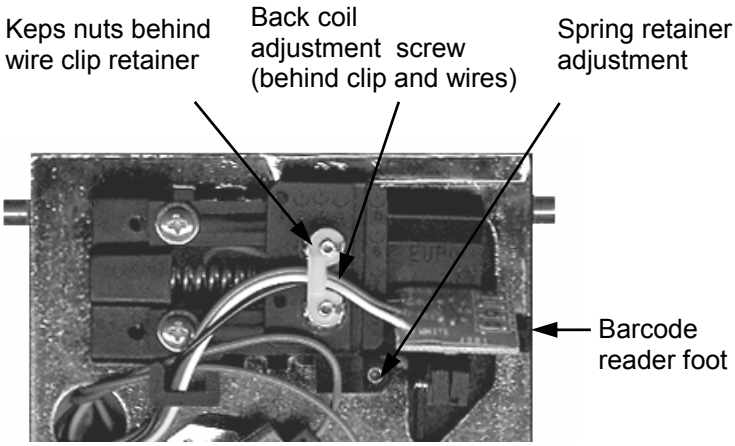


Fig. 2

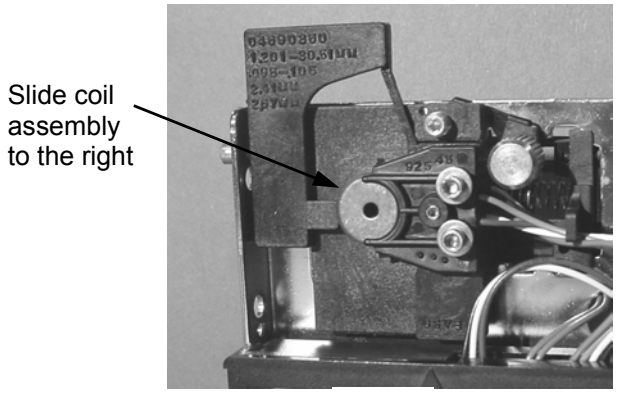


Fig. 3

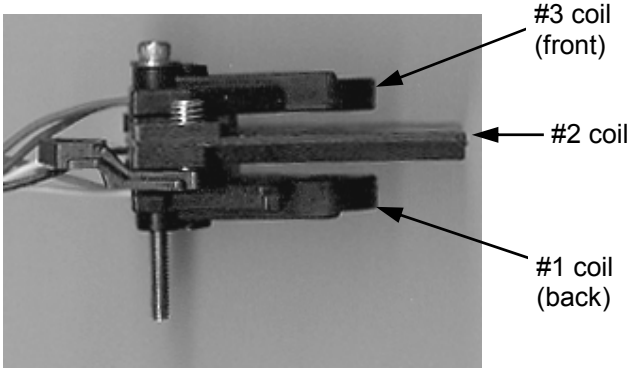


Fig. 4

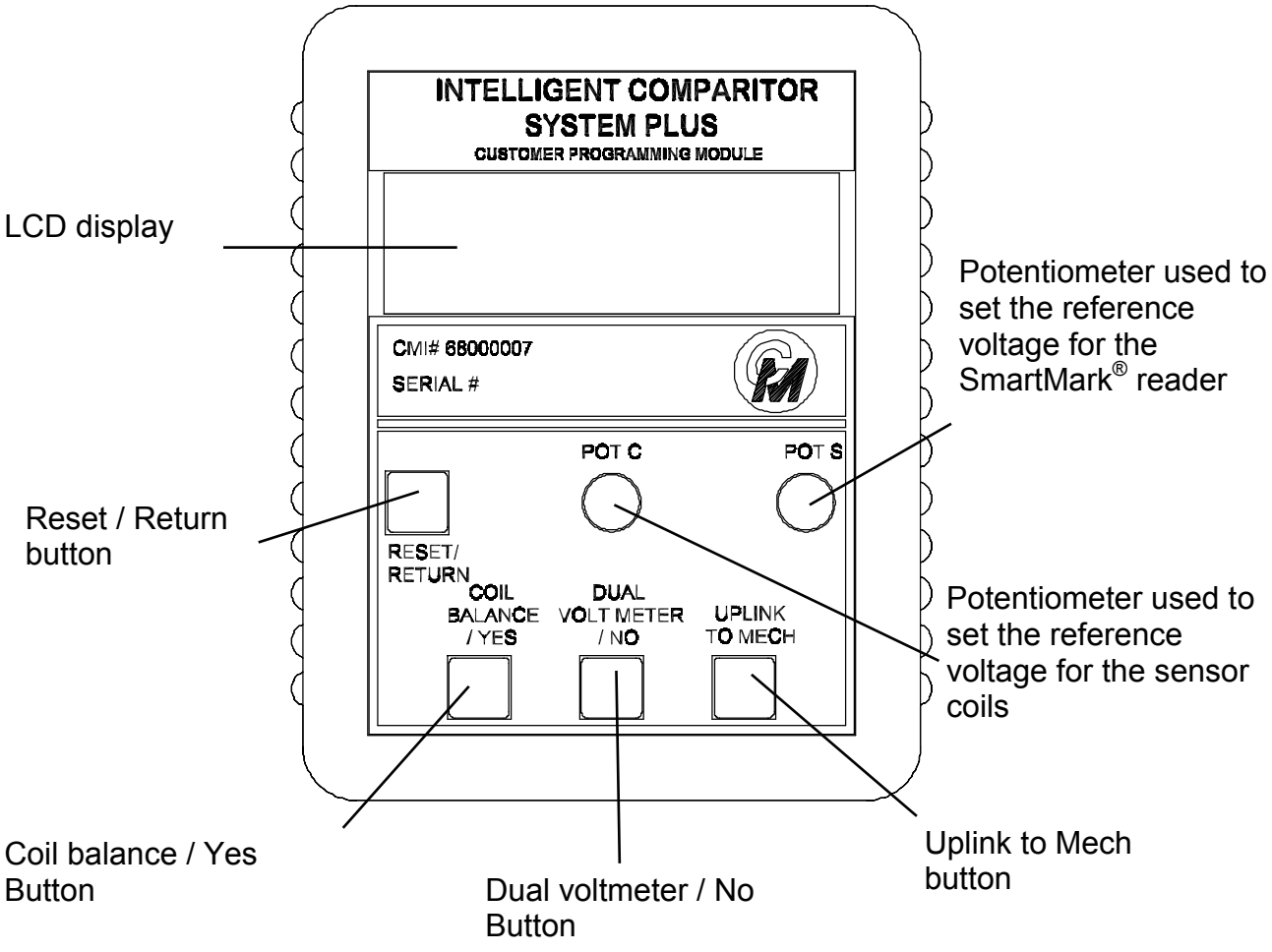
THE CUSTOMER PROGRAMMING MODULE

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



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:

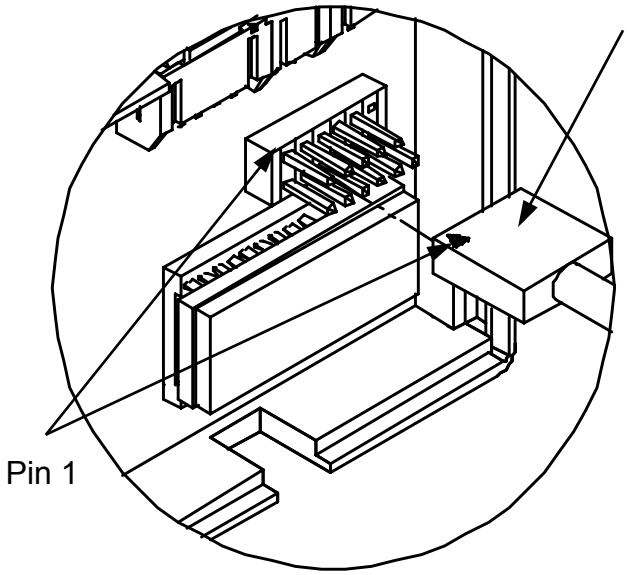
- Improve accept rate of tokens which may have diminished due to wear or to a refill
- Reject an unwanted cross-play token or fraud

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.



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

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**.

➔

Intelligent Comparitor Test

—Your Casino Name—
POD VERSION and ARRAY REVISION

PROGRAMMING OR UPDATING USING A CPM

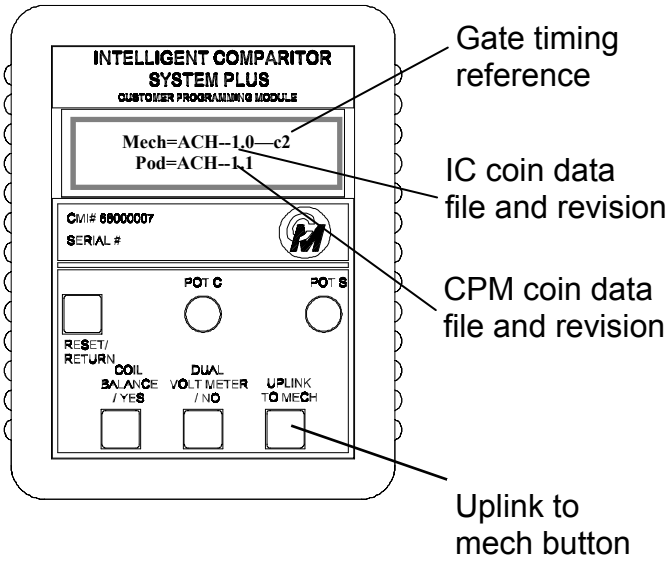
Your casino has been assigned a 3 digit alpha acronym.

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.

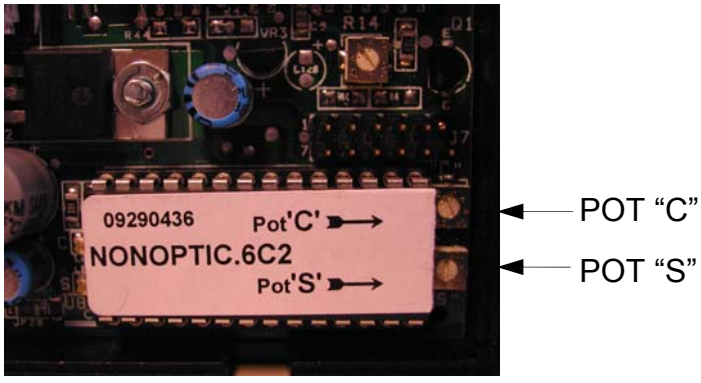


Press the ***Uplink to Mech*** button a second time and the LCD screen will display a prompt to confirm that you want to uplink the coin data file contained in the **CPM** to the validator.

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**



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.

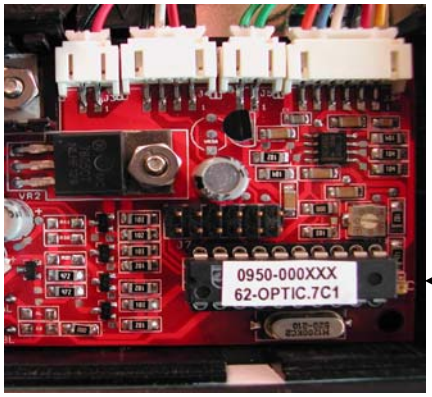
➔

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.

➔



← 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

PROGRAMMING OR UPDATING
USING A CPM - CONTINUED

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

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

➔

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

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

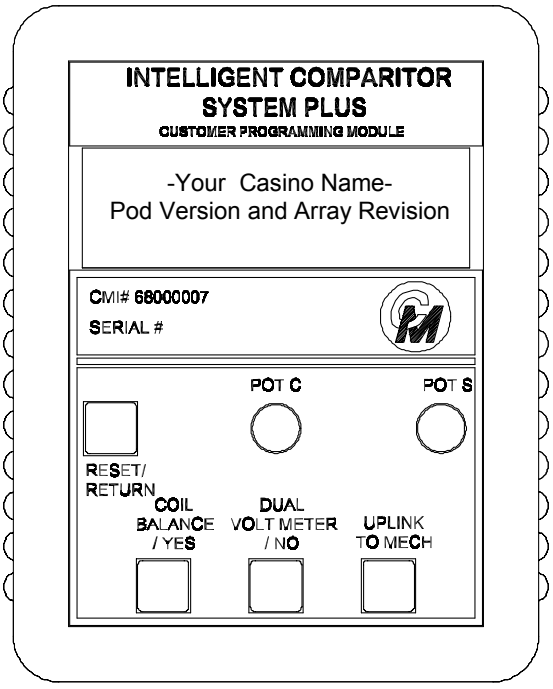
Press the ***Uplink to Mech*** button to show that Mech and Pod contain the same coin data file. The process is now complete.

➔

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 ➔



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

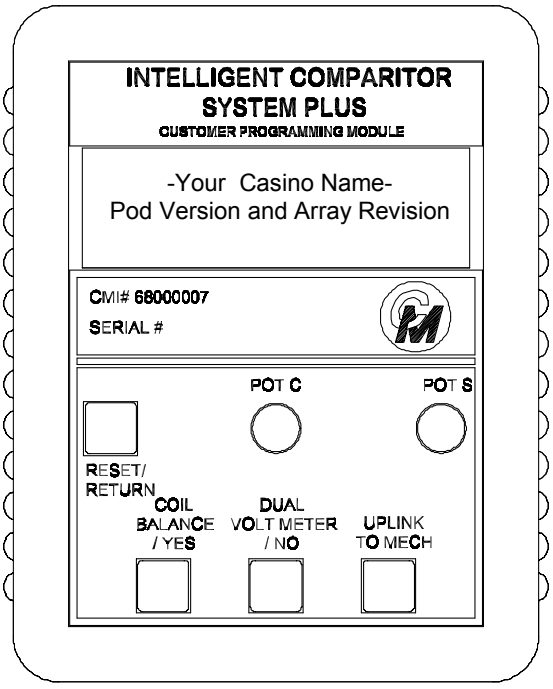
Denomination	Pot 'S'	Pot 'S'	Pot 'C'
	New Token	Worn Token	+/- 0.4volt
50 Cent	1.7 volts	0.8 volts	2.3 volts
1 Dollar	1.9 volts	0.5 volts	1.2 volts
2 Dollar	2.5 volts	0.8 volts	2.0 volts
5 Dollar	2.5 volts	0.8 volts	3.2 volts
10 Dollar	1.6 volts	1.1 volts	1.8 volts

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. ➔

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

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



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

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

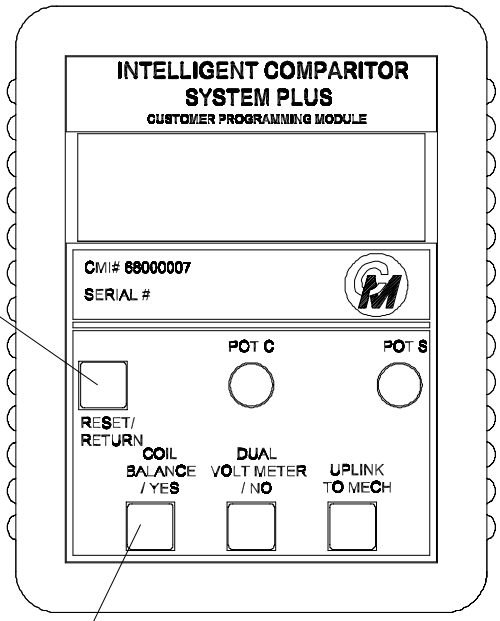
CHECKING AND ADJUSTING THE SENSOR COIL

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.**



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.

Example Only

COIL BALANCE -LO
■■■

If the sensor coil requires balancing the LCD screen will display more than six bars and if > 0.7 volts a “HI” voltage value will display. Refer to **SENSOR COIL BALANCING SECTION** to adjust coil balance into the "LO" region.

COIL BALANCE - HI
■■■■■■■■■■■ **1.2**

Example Voltage

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**

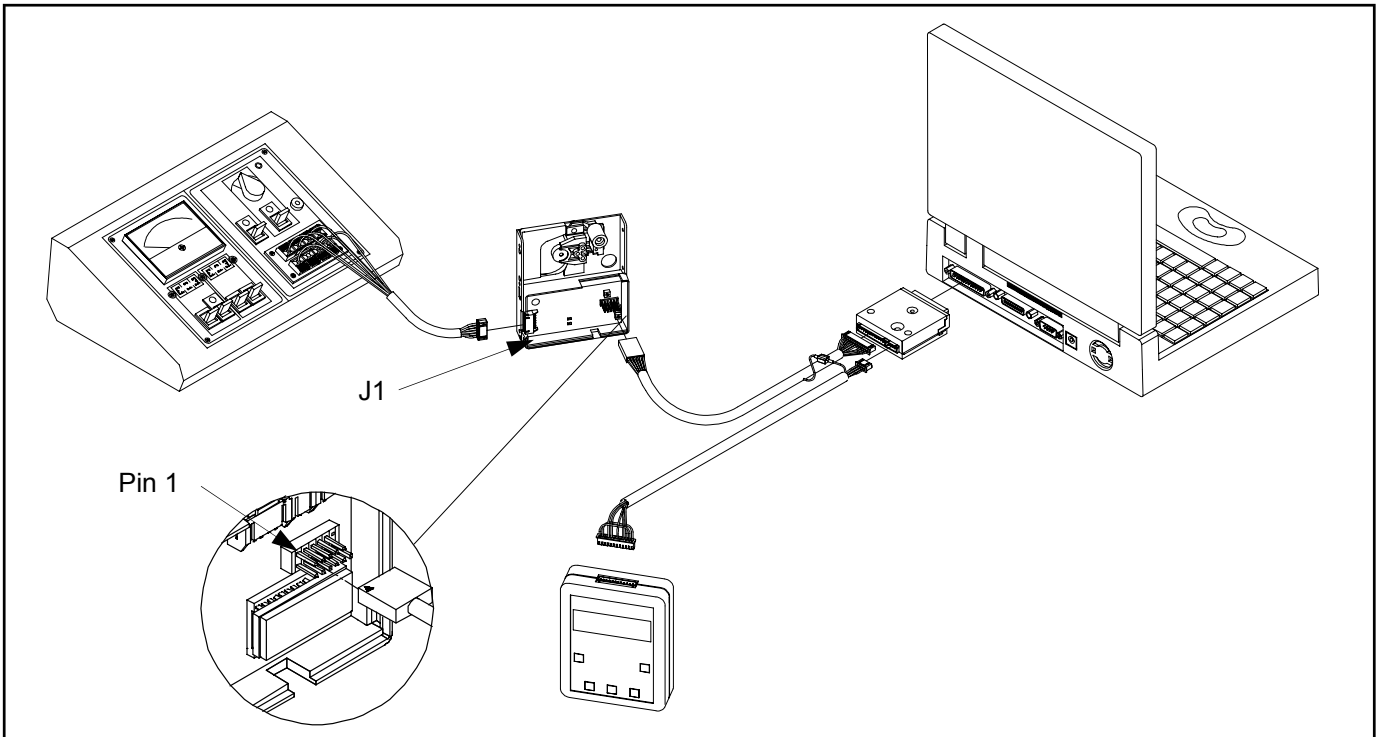
If the coin data file for the denomination of the validator is not contained in the **CPM**, the LCD will display: ➔ **Mech Denomination Not in this POD**

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

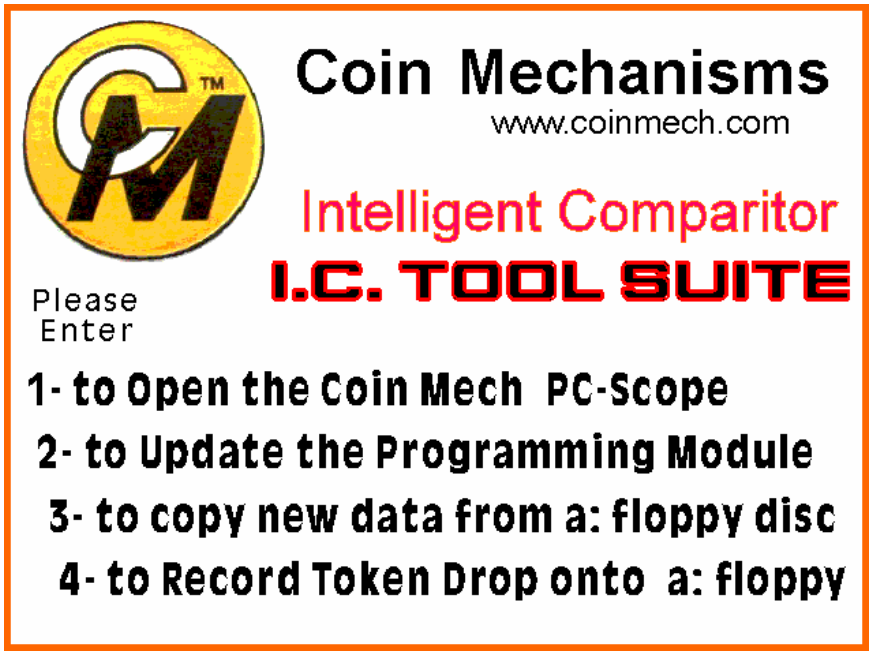


SYSTEMS PLUS MANAGEMENT TOOL KIT SHOWN ABOVE WITH TEST STATION (P/N 00660009)

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.

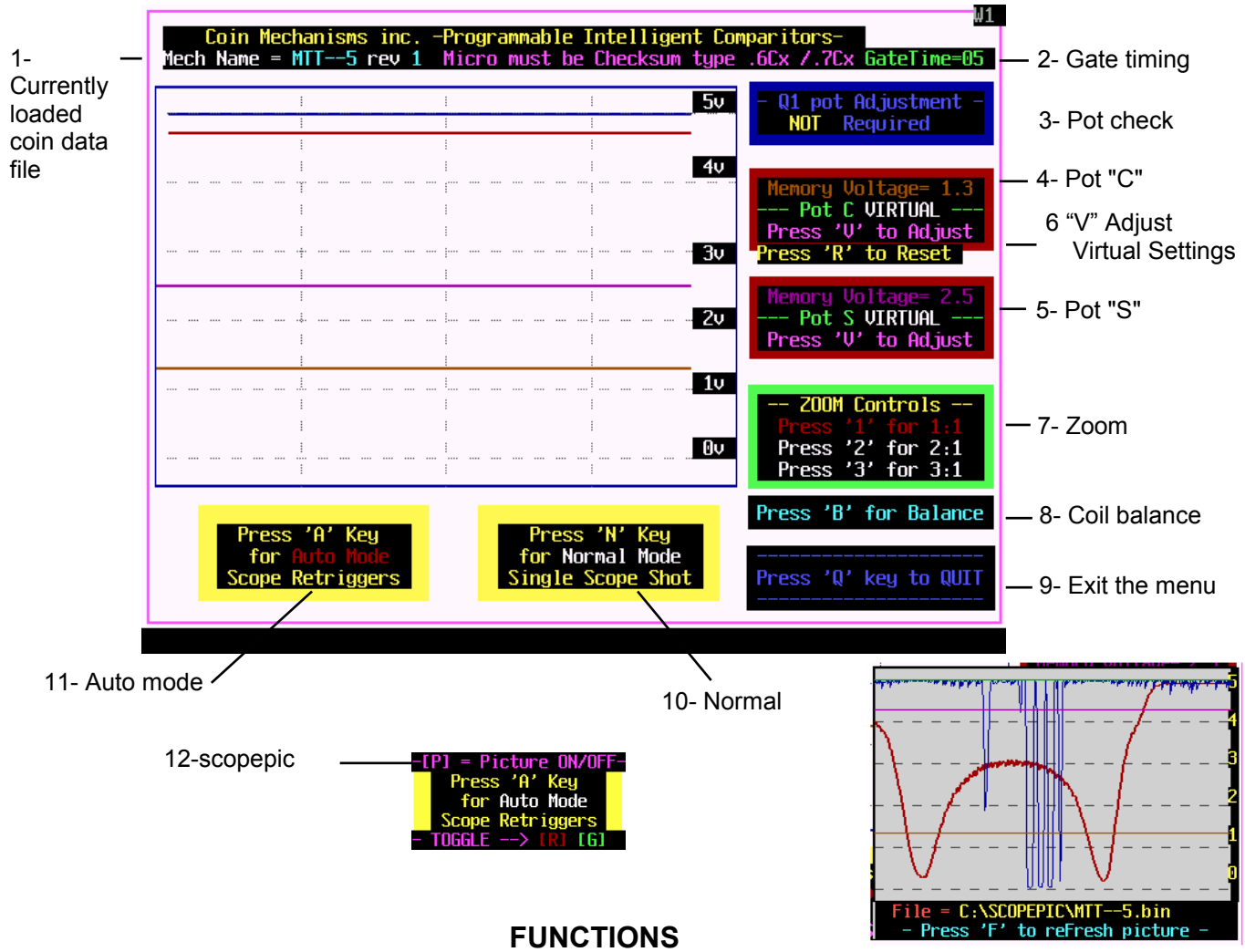
Home Page screen ➔



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"**

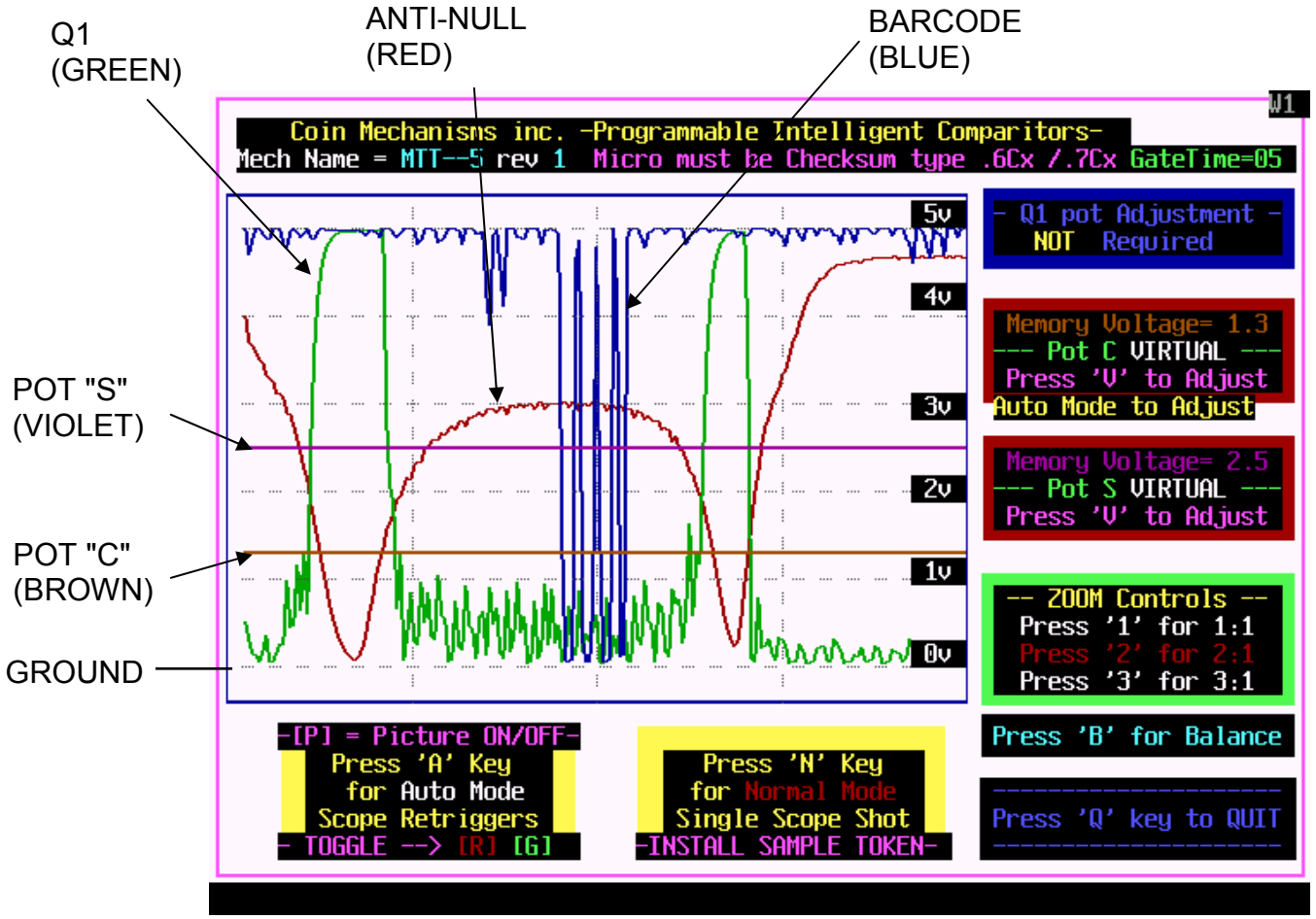
FUNCTIONS OF PC-SCOPE SCREEN



FUNCTIONS

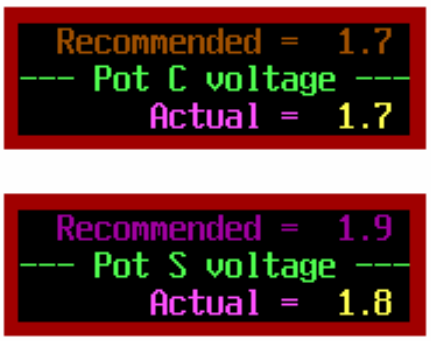
1. Loaded file- Identifies the coin data file loaded in the IC mech memory
2. Gate timing- Time between gate opening and closing after electronic signal has been received
3. Pot check- Indicates if the Q1 potentiometer needs adjustment
4. Pot "C"- Displays the recommended and actual voltage of pot "C" 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



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

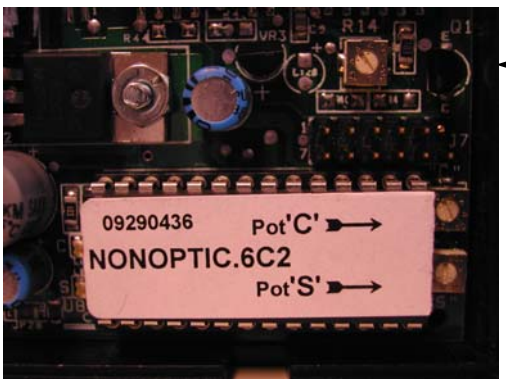


Pot "C" Recommended voltage

Pot "C" Actual voltage

Pot "S" Recommended voltage

Pot "S" Actual voltage



POT "Q1"

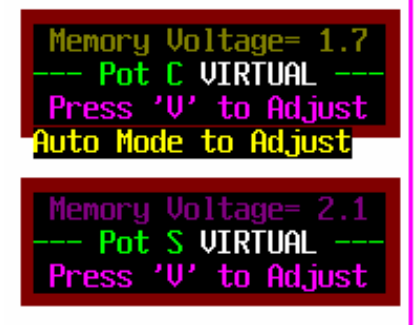
POT "C"

POT "S"

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.

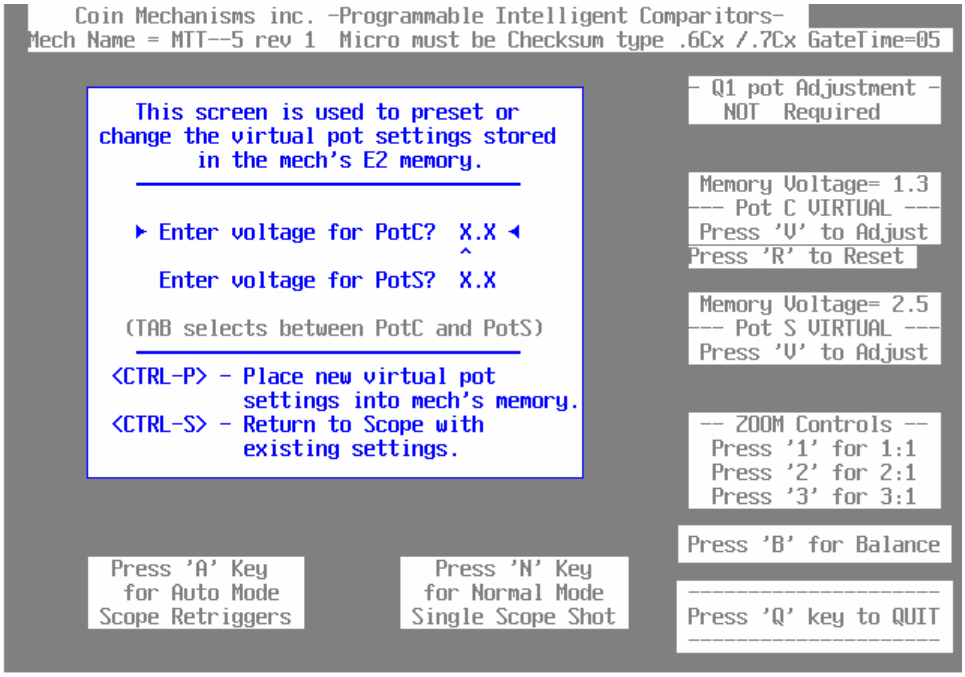
NOTE: For recommended pot settings refer to the CPM back label or contact Coin Mechanisms.



Pot "C" Recommended voltage

Pot "S" Recommended voltage

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.



CHECKING THE SENSOR COILS USING THE PC-SCOPE FUNCTION

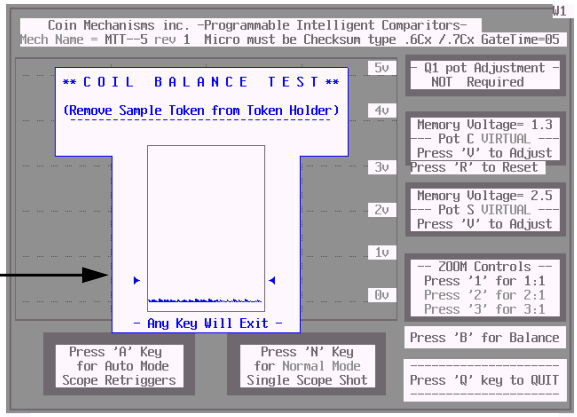
After following the SENSOR COIL REPLACEMENT AND MECHANICAL ADJUSTMENT PROCEDURE to correctly assemble and torque the sensor coil assembly, the next steps will show you if your coil set is balanced and how to adjust it for electronic balance.

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 →

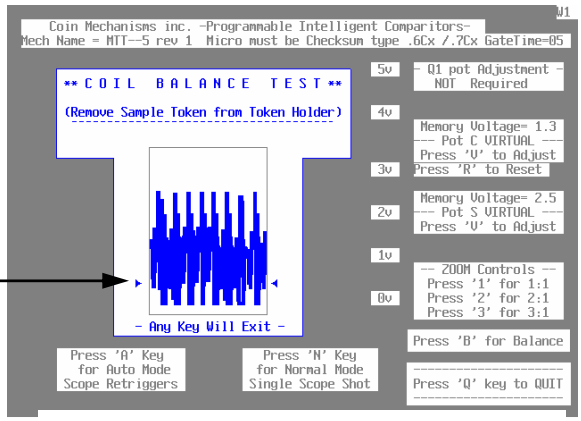


balanced sensor coil
wave form below arrows
Fig. 1

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

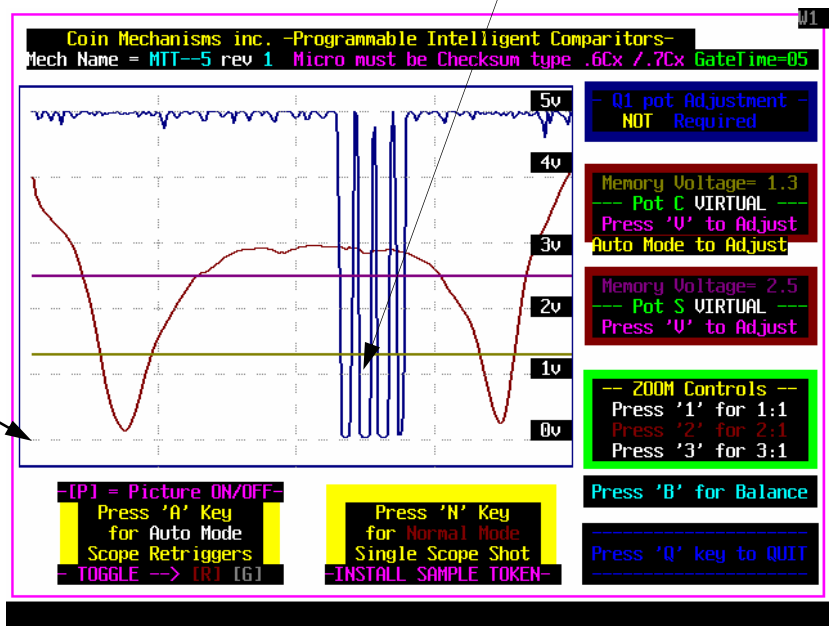
FOCUSING THE BARCODE READER

A sample token must be installed in the token holder. Be sure the barcode reader is flush to the holder. 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

Wave representative of focused barcode reader

GROUND



FOCUSED 32 CODE WAVEFORM

See following page for examples of 16 code waveform

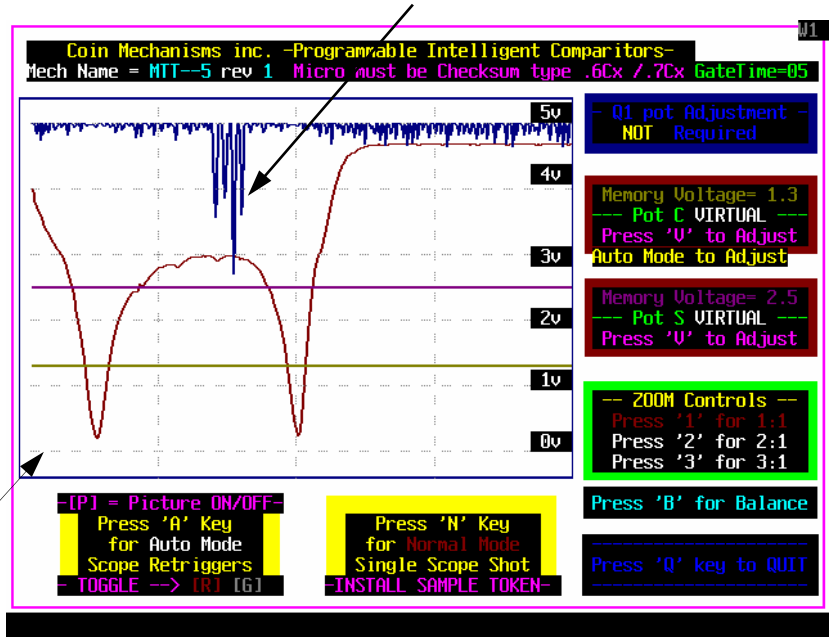
If the waveform is not at ground, add or subtract spacers until the greatest deflection is achieved.

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.

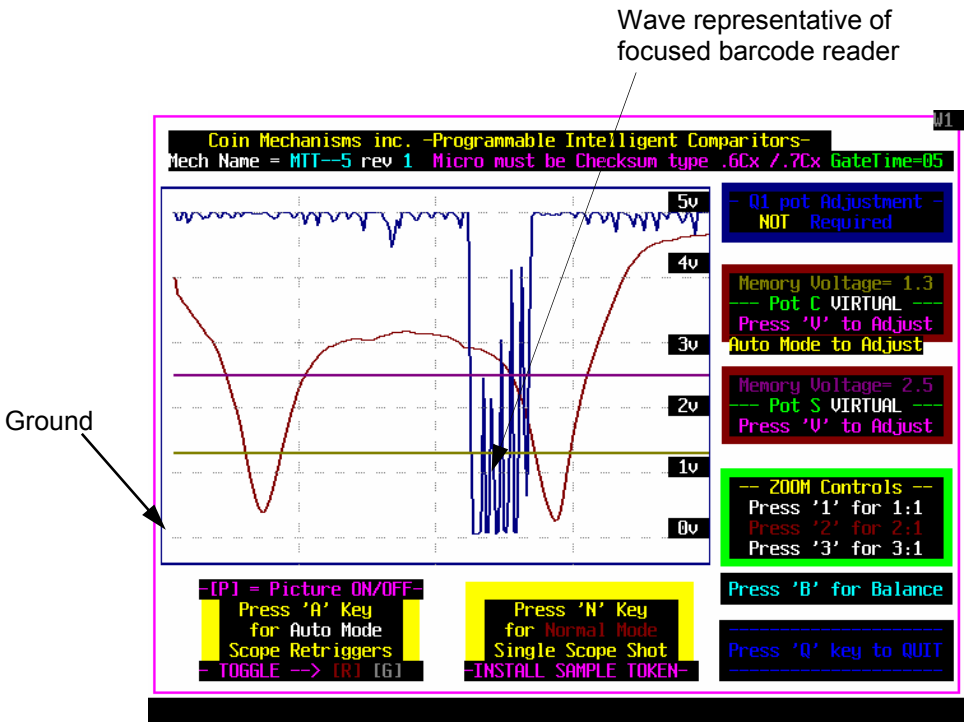
Wave representative of poorly focused barcode reader

GROUND

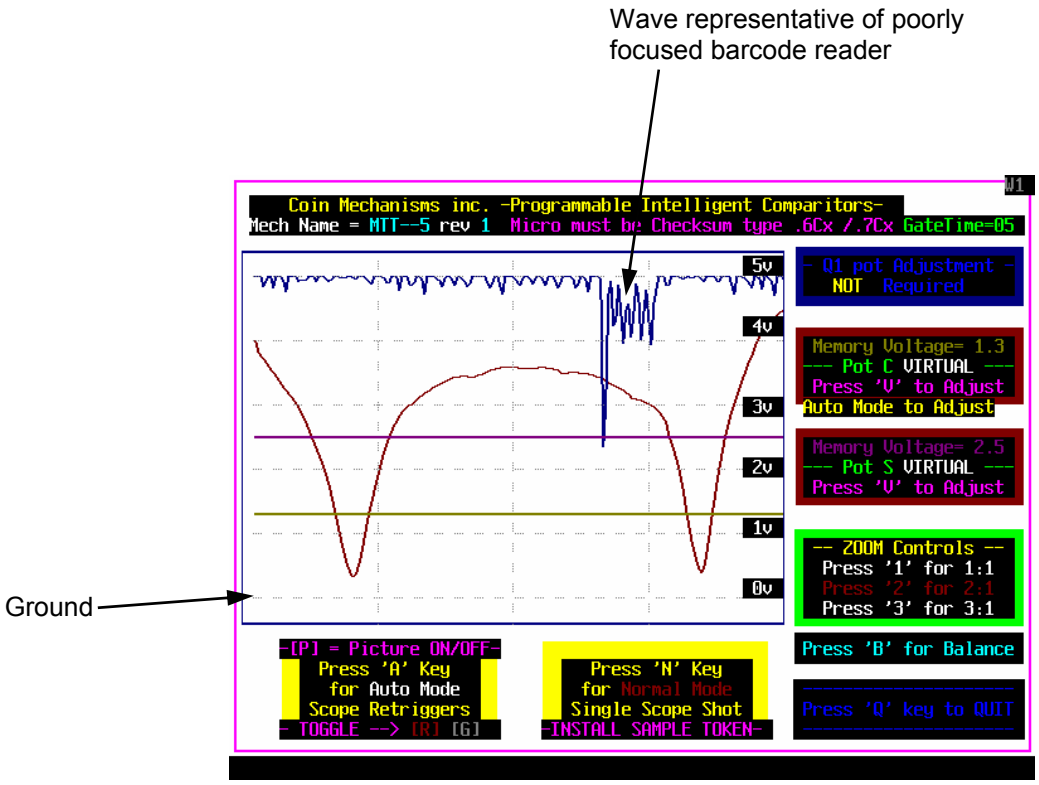


UNFOCUSED 32 CODE WAVEFORM

FOCUSING THE BARCODE READER
Cont'd

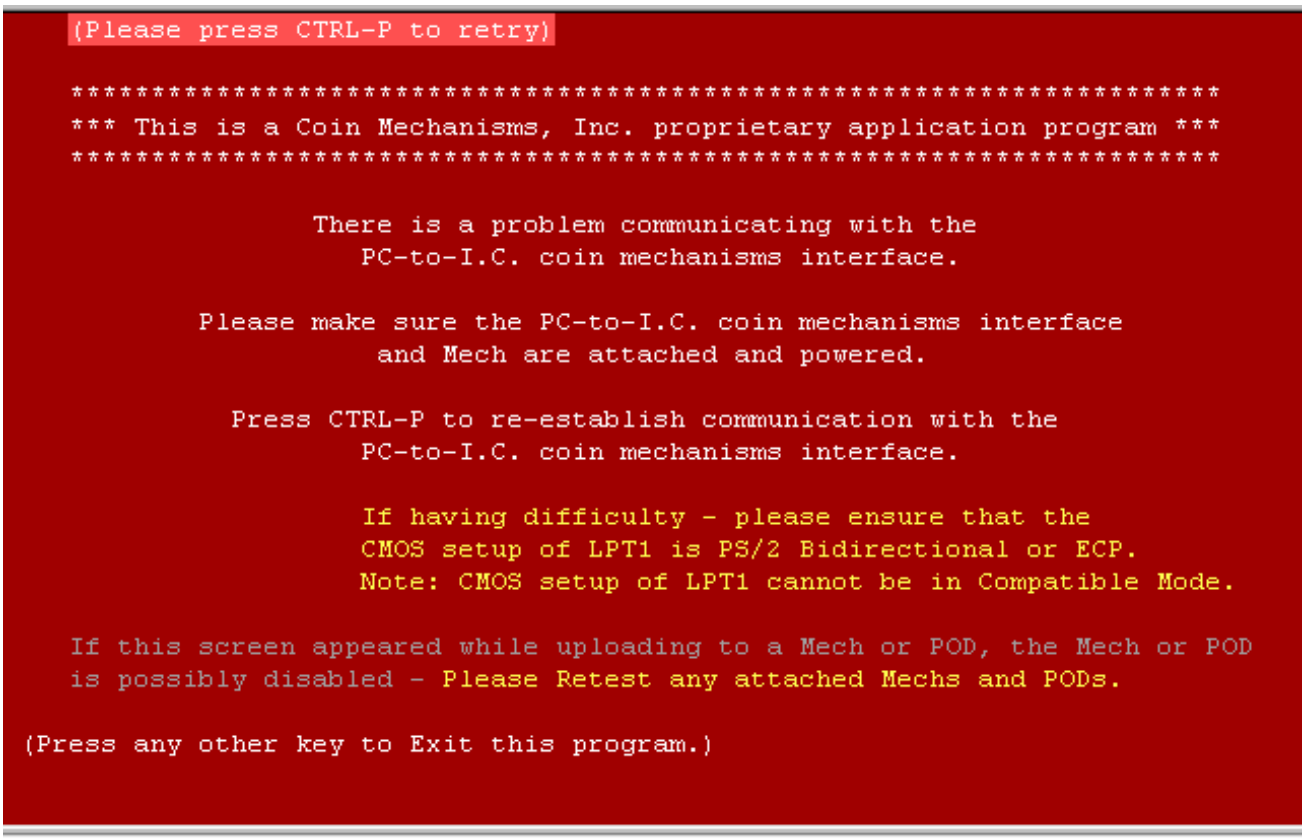


FOCUSED 16 CODE WAVE FORM



UNFOCUSED 16 CODE WAVE FORM

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.



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, replace the assembly.

- Slide the proper token into the drop gap between the number #1 coil and the number #2 coil. The clearance should be 0.2mm (0.008”).(If the token population varies significantly in thickness, use thickest token)

- If it is not, continue to turn the back coil adjustment screw clockwise until the clearance is 0.2mm (0.008”), 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 (0.008”), 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

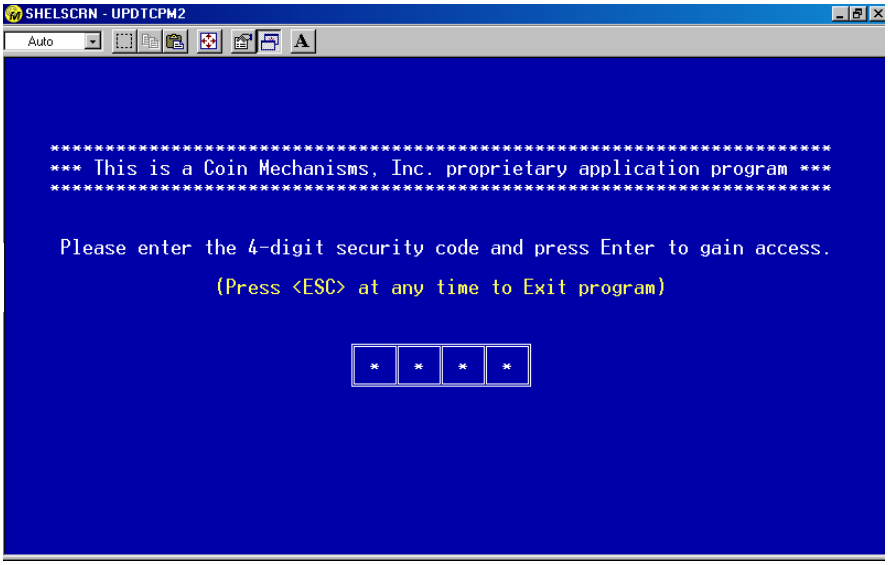
- If while adjusting the front coil adjusting screw, the amplitude (for oscilloscope this is voltage amplitude, for CPM this would be number of bars) decreases, Slide the proper token into the gap between the #1 coil and the #2 coil, and turn the back coil adjusting screw clockwise until the clearance is 0.2mm (0.008”).

- 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

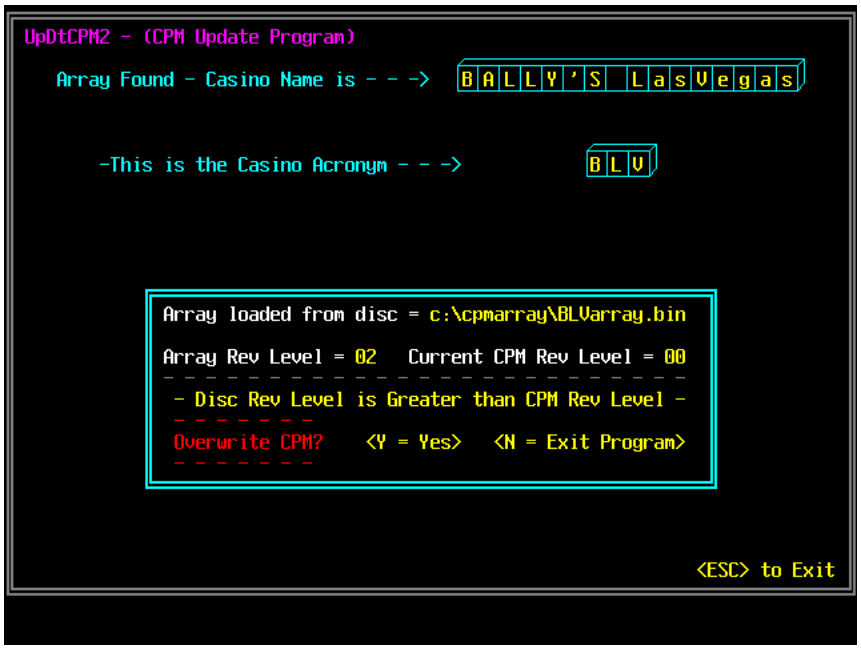


You will see this screen prompt. Type your 3-digit casino acronym as shown at right and press enter

TO UPDATE THE PROGRAMMING MODULE - cont'd

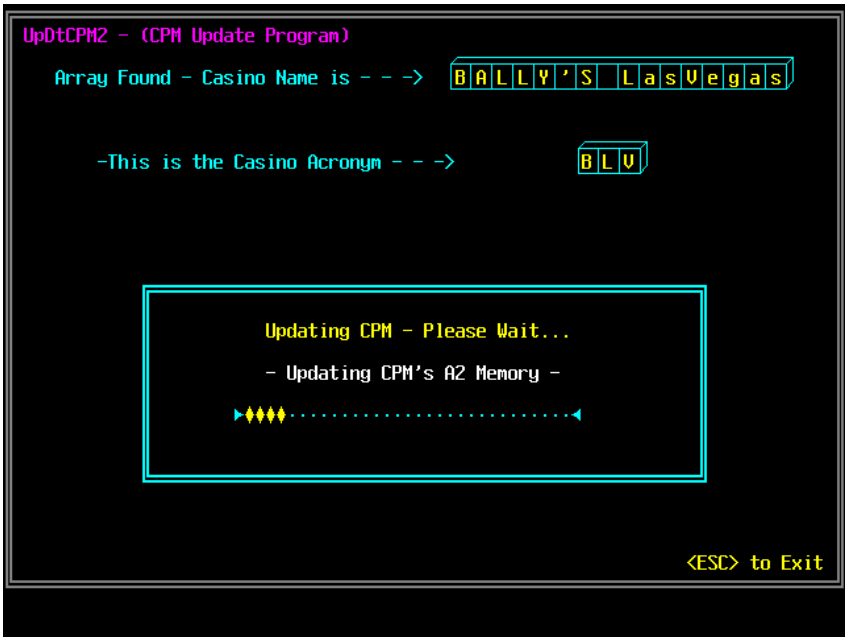
After you enter your acronym, the laptop will look for your array. The screen will confirm that it is found and display the warning not to press any buttons while the cpm is updating.

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.

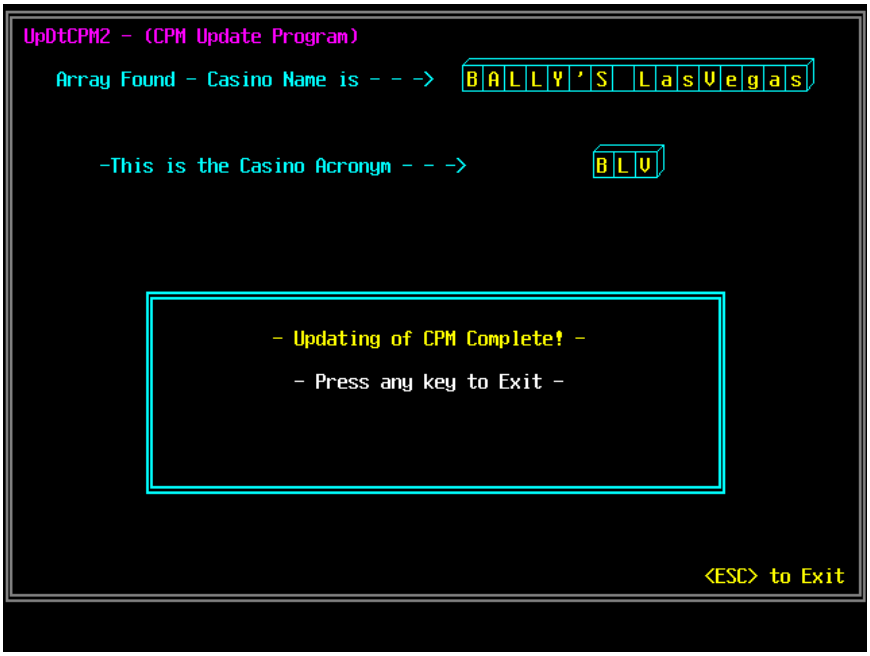


TO UPDATE THE PROGRAMMING MODULE - cont'd

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.



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



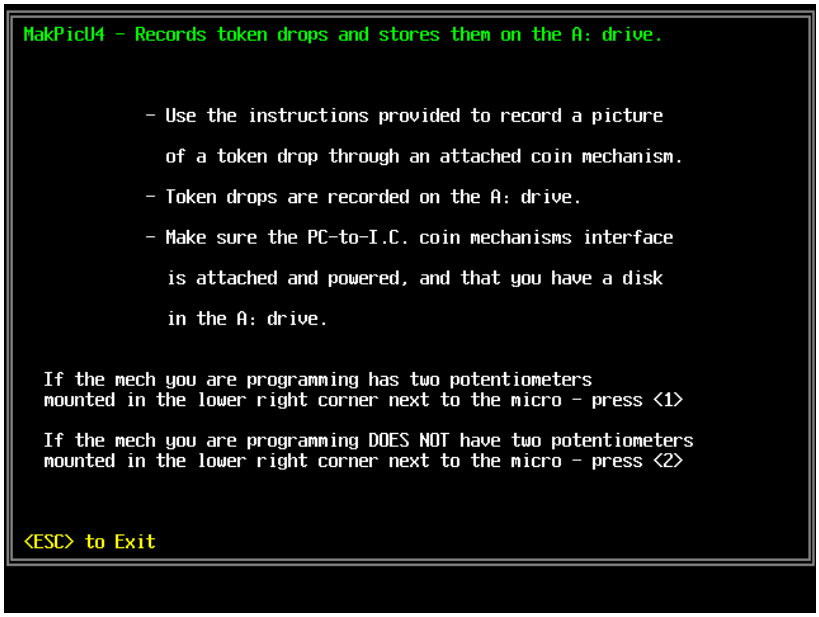
TO COPY NEW COIN DATA FILES FROM A FLOPPY DISK

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.

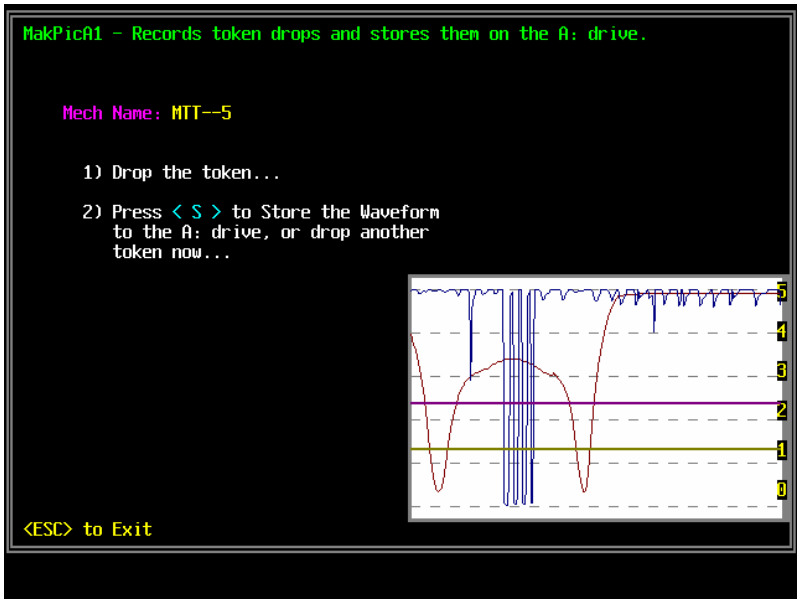
TO RECORD A TOKEN WAVEFORM

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

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.



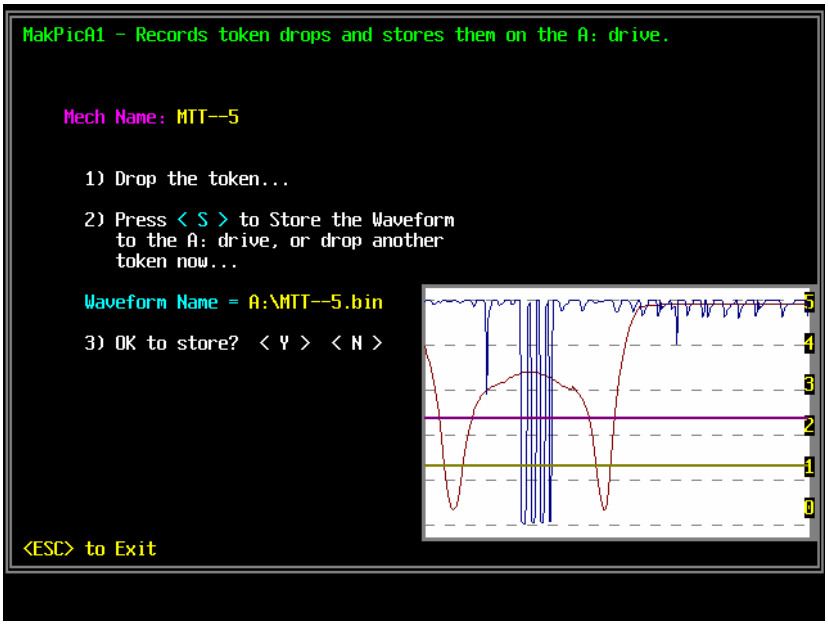
When you are satisfied that you have the picture that you want, press “S”.



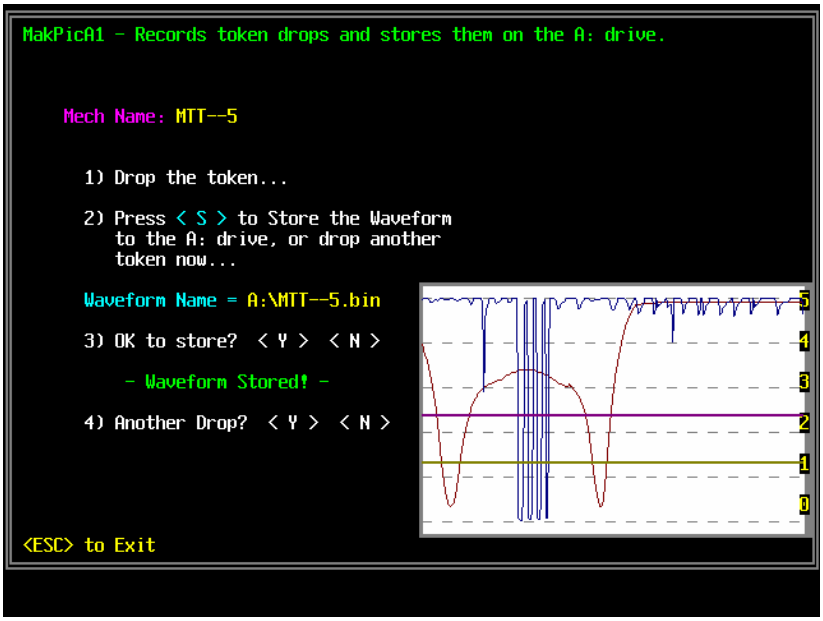
TO RECORD A TOKEN WAVEFORM Cont'd

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: ➔



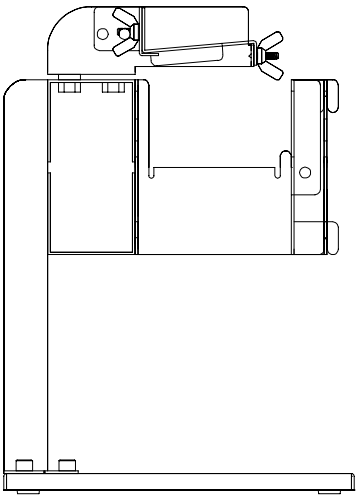
You will see this screen when the file has been copied to the A: drive. ➔



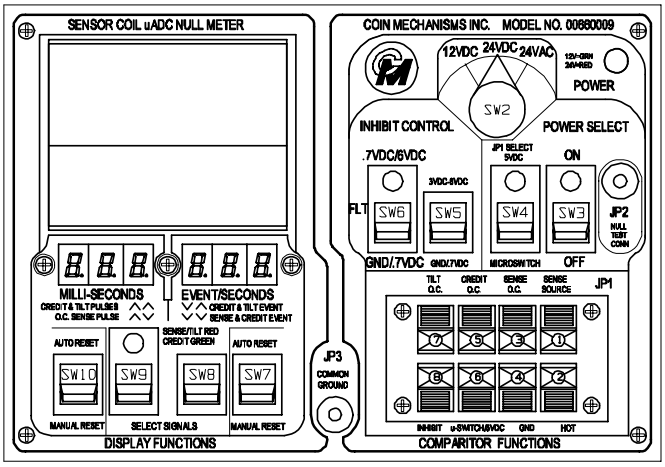
TROUBLE SHOOTING GUIDE

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

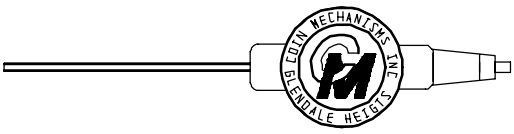
TEST EQUIPMENT
REFERENCE GUIDE



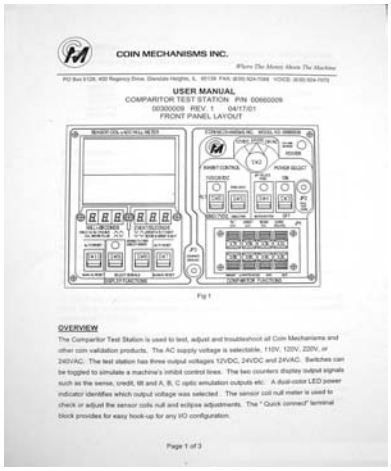
TEST STAND
P/N 05000009



TEST STATION
P/N 00660010 with PAL video
P/N 00660009 with VHS video

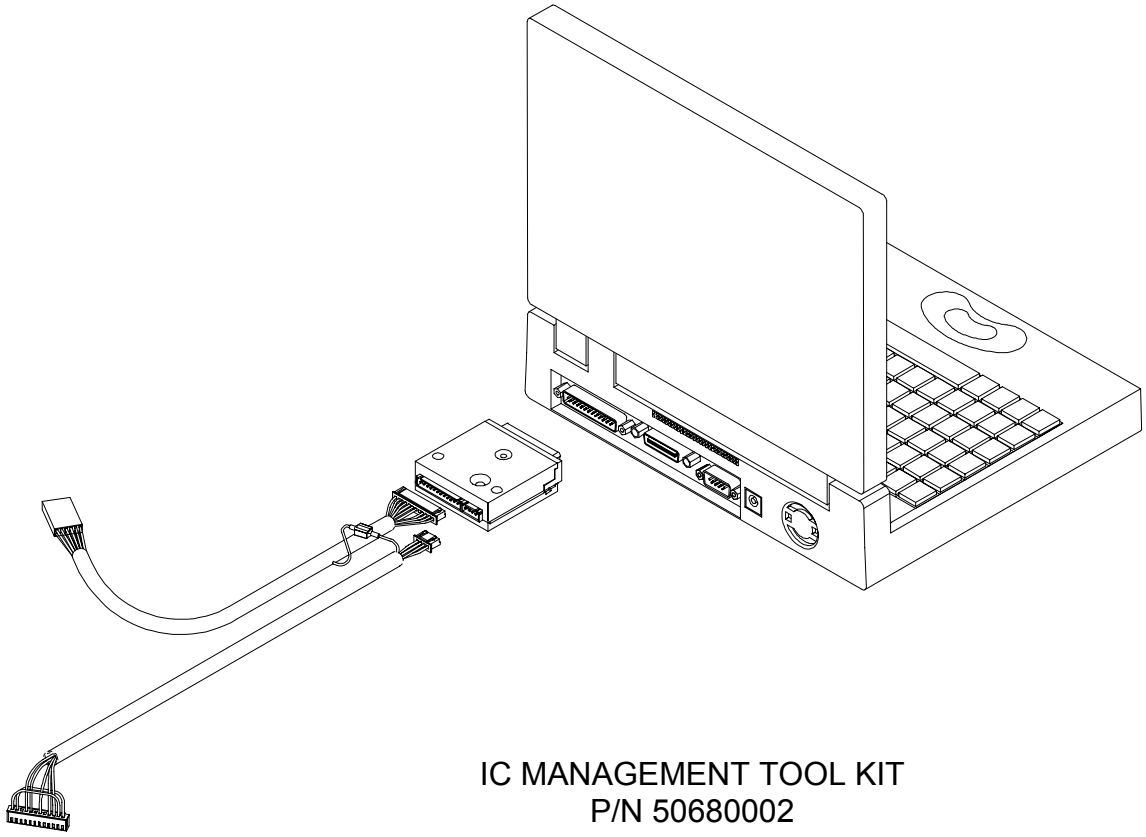


ADJUSTING TOOL
(1/16 in hex drive)
P/N 05090003

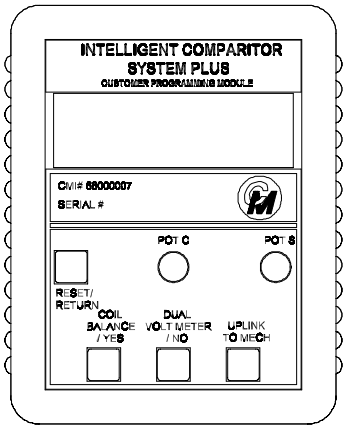


TEST STATION MANUAL
P/N 00300009

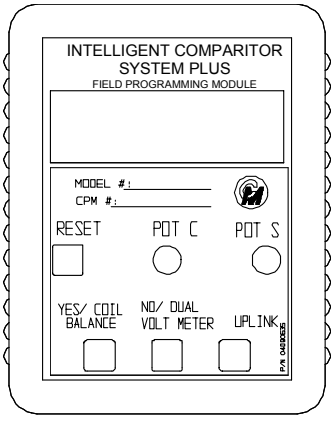
TEST EQUIPMENT
REFERENCE GUIDE
Cont'd



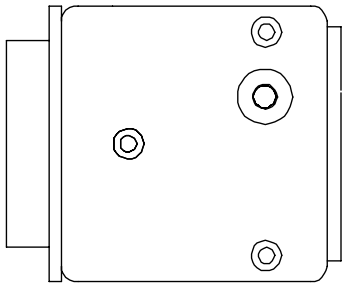
IC MANAGEMENT TOOL KIT
P/N 50680002



CPM
P/N 68000007

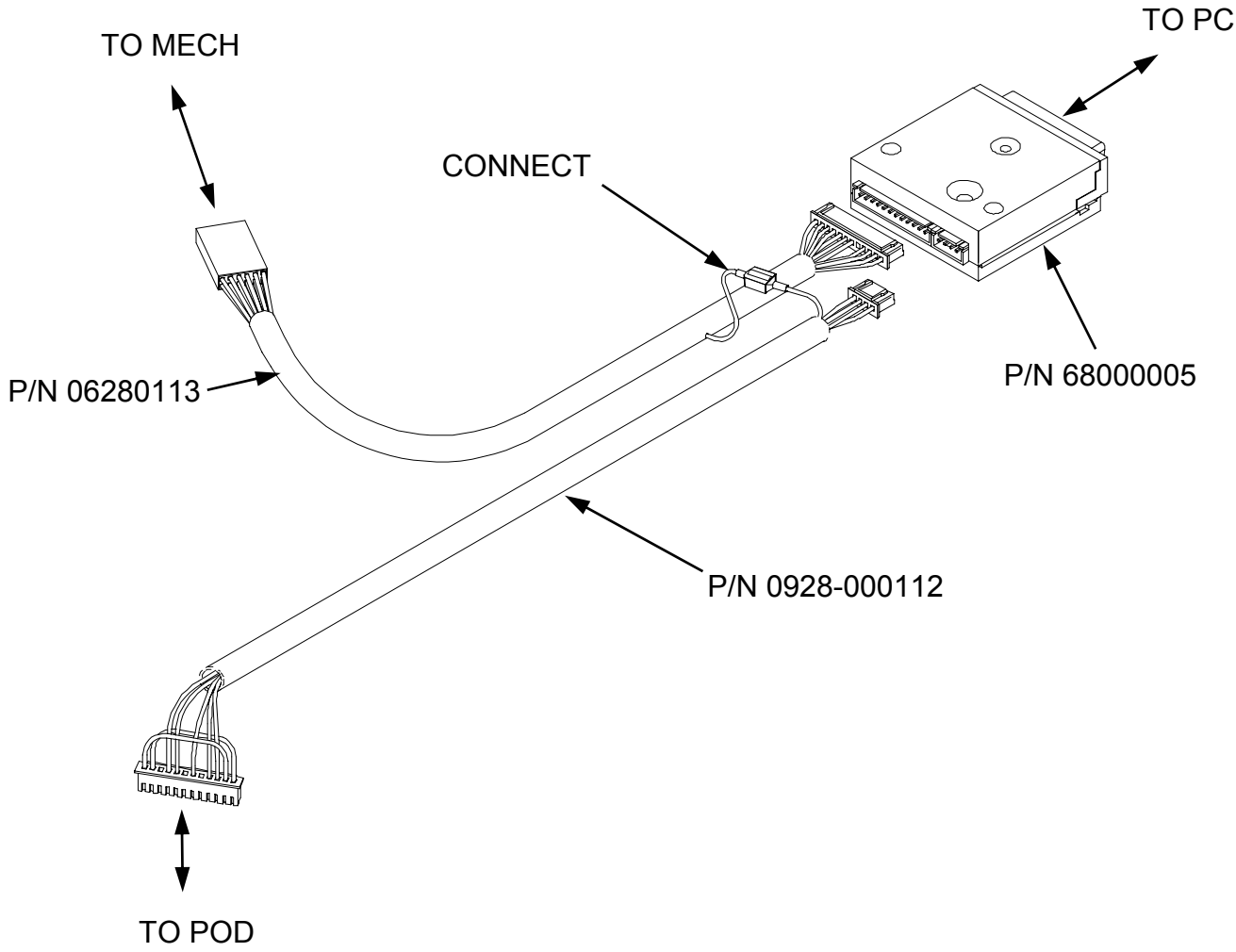


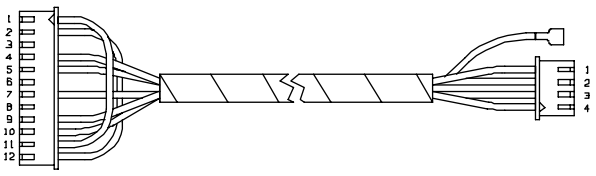
FPM
P/N 68000011



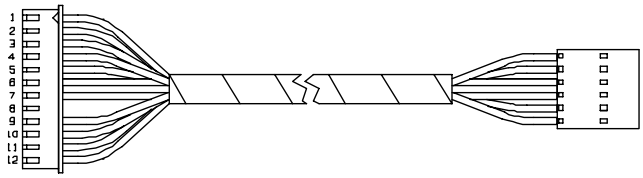
DONGLE
P/N 68000005

TEST EQUIPMENT
REFERENCE GUIDE
Cont'd

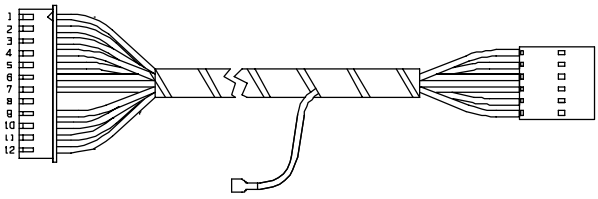




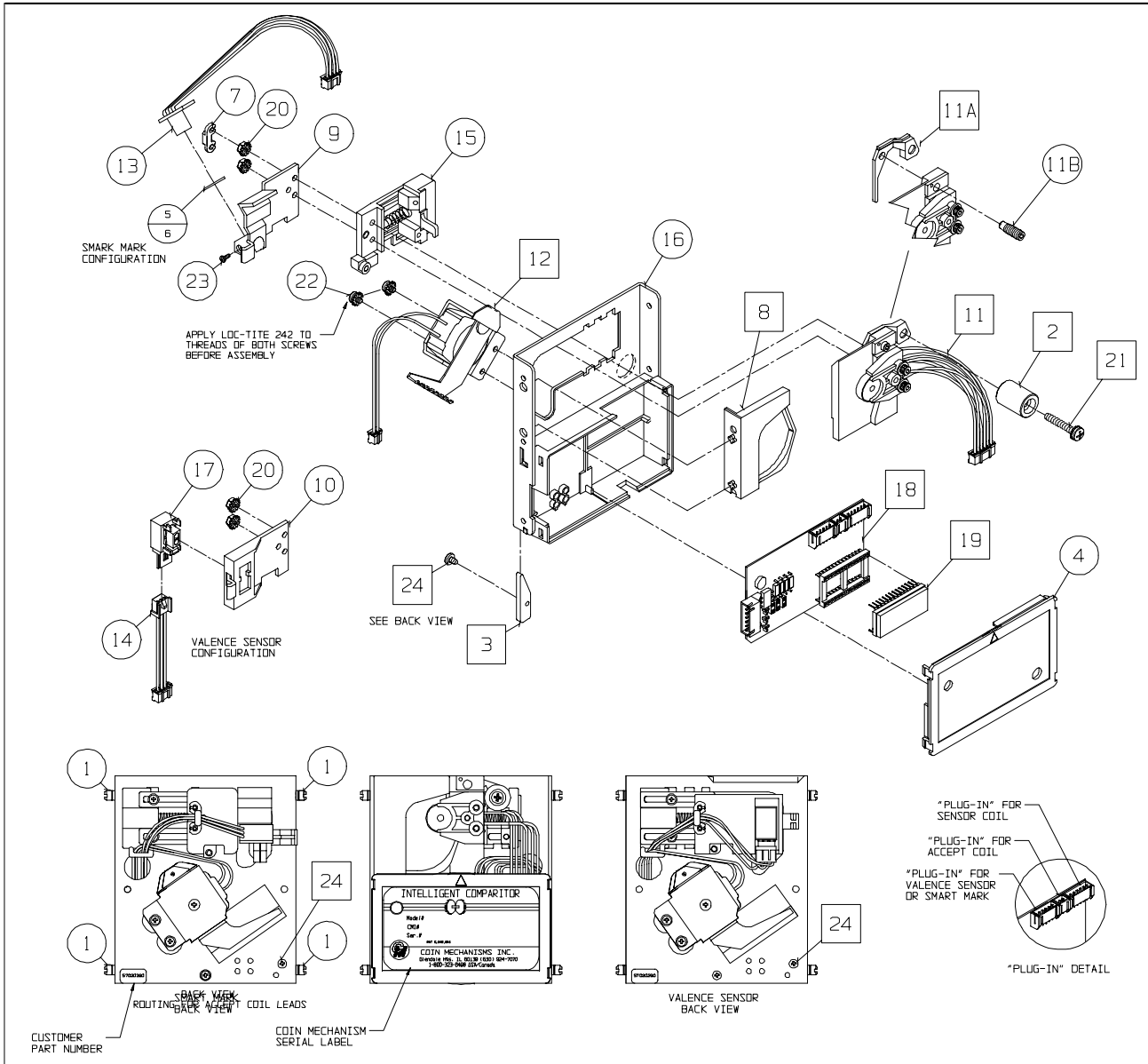
P/N 0928000112
FOR DONGLE



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	0406XXXX	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, 87C752 (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.

NO.	ECO NO.	REVISIONS	DATE/BY
		RELEASED; SEE INDIVIDUAL P/N'S FOR REVISION LEVELS	9/11/02 DF

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

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

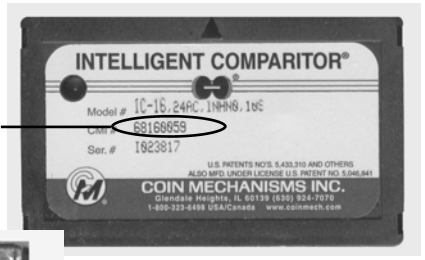
TITLE: IC-16, P/N IDENTIFICATION

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

DWG NO. D0681603

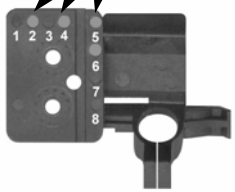
SIZE: D SCALE: N/A FINISH: N/A SHT 1 OF 2

CRITICAL SYMBOLS
▼ = CUSTOMER
▼ = PROCESS
▼ = BOTH



INTELLIGENT COMPARITOR P/N

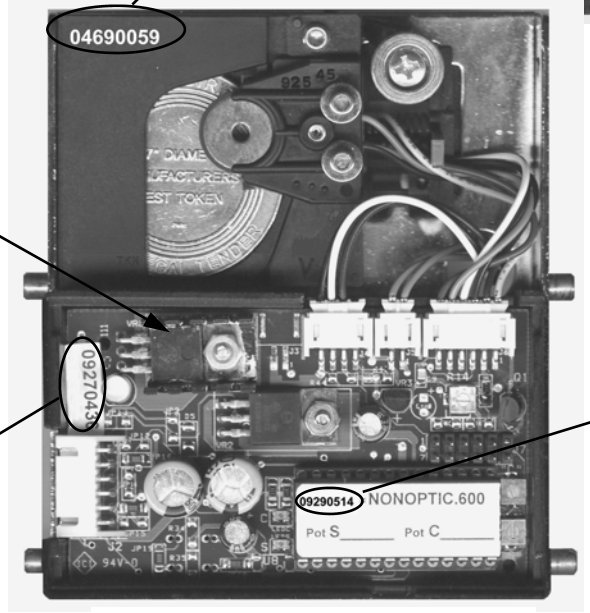
IC COVER



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

BARCODE

TOKEN HOLDER P/N

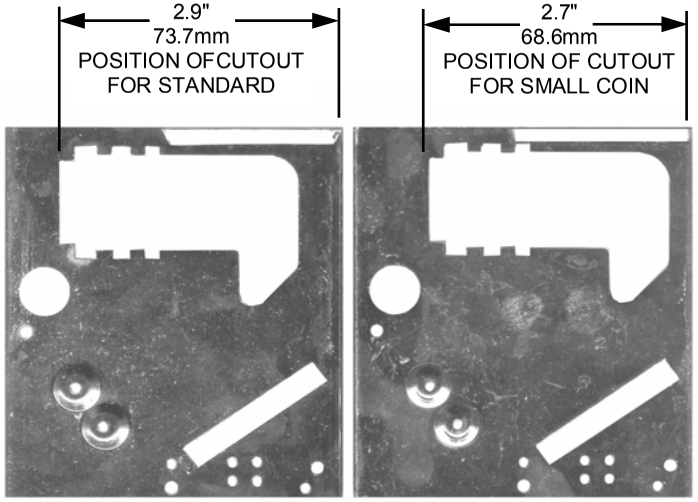


12 VOLT WILL HAVE IDENTIFYING LABEL INSTEAD OF REGULATOR

PCB P/N

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

IC WITH COVER REMOVED



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

P/N 06680022-SMALL COIN
COIN DIAMETERS
.870" [22.1mm] -1.575" [40.0mm]

SENSOR COIL SLOT POSITION

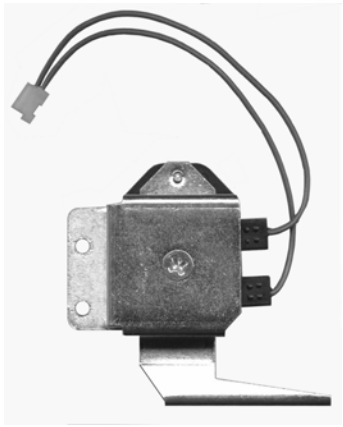
P/N 05690XXX LAST SIGNIFICANT DIGITS MOLDED ON DAMPER LEVER

DAMPER

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]

COIN EXIT SPACERS



ACCEPT COIL ASSEMBLY

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

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

	RELEASED; SEE INDIVIDUAL P/N'S FOR REVISION LEVELS	9/12/02 DF
NO.	ECO NO. REVISIONS	DATE/BY

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

TOLERANCES NOT SPECIFIED
FRACTIONS= ± 1/64
ANGLES= ±1°
.X= ±.010
.XXX= ±.005
HOLE DIA.= ±.002

CRITICAL SYMBOL

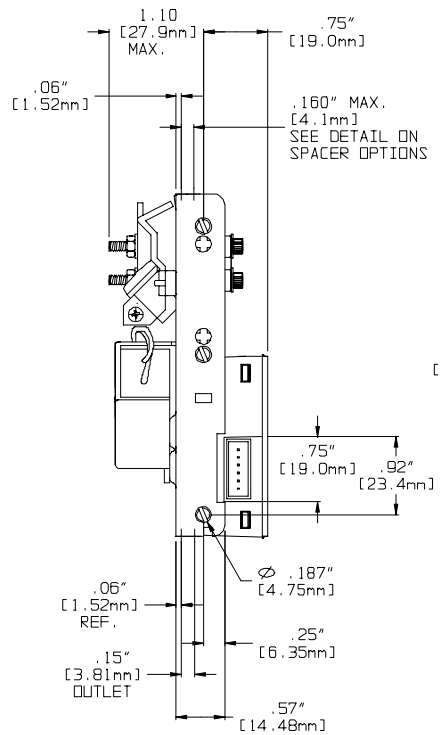
TITLE: IC-16 P/N IDENTIFICATION

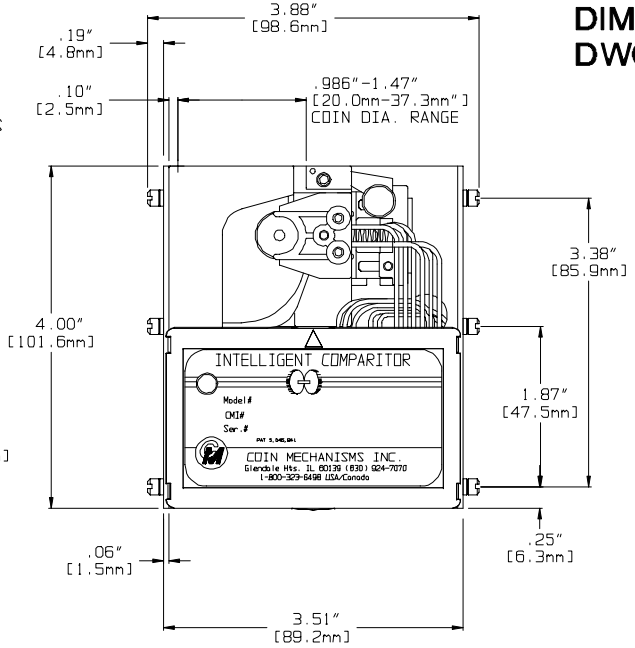
DRAWN	DF	DATE	6/7/02
CHKD		DATE	
APP		DATE	

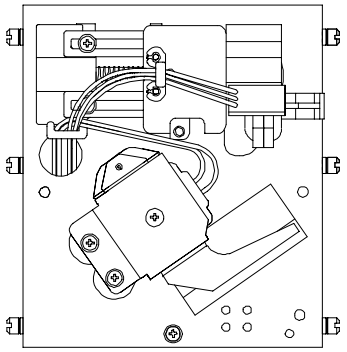
DWG NO. D0681603

SIZE: B N/A FINISH: N/A SHT 2 OF 2

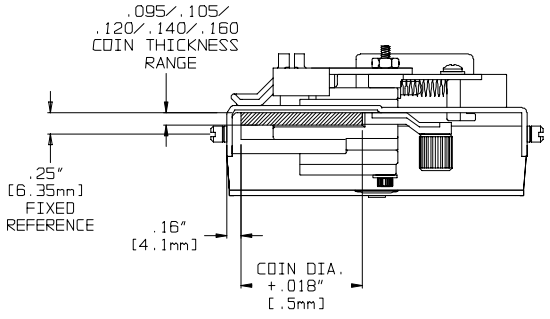
IC-16
SMART MARK
DIMENSIONS
DWG# ENG00089



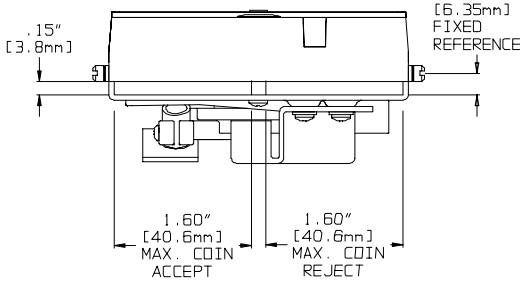




BACK VIEW
ROUTING FOR ACCEPT COIL LEADS

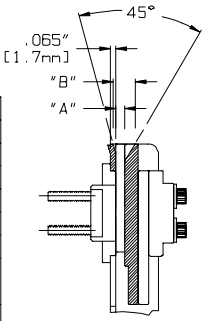


COIN ENTRY



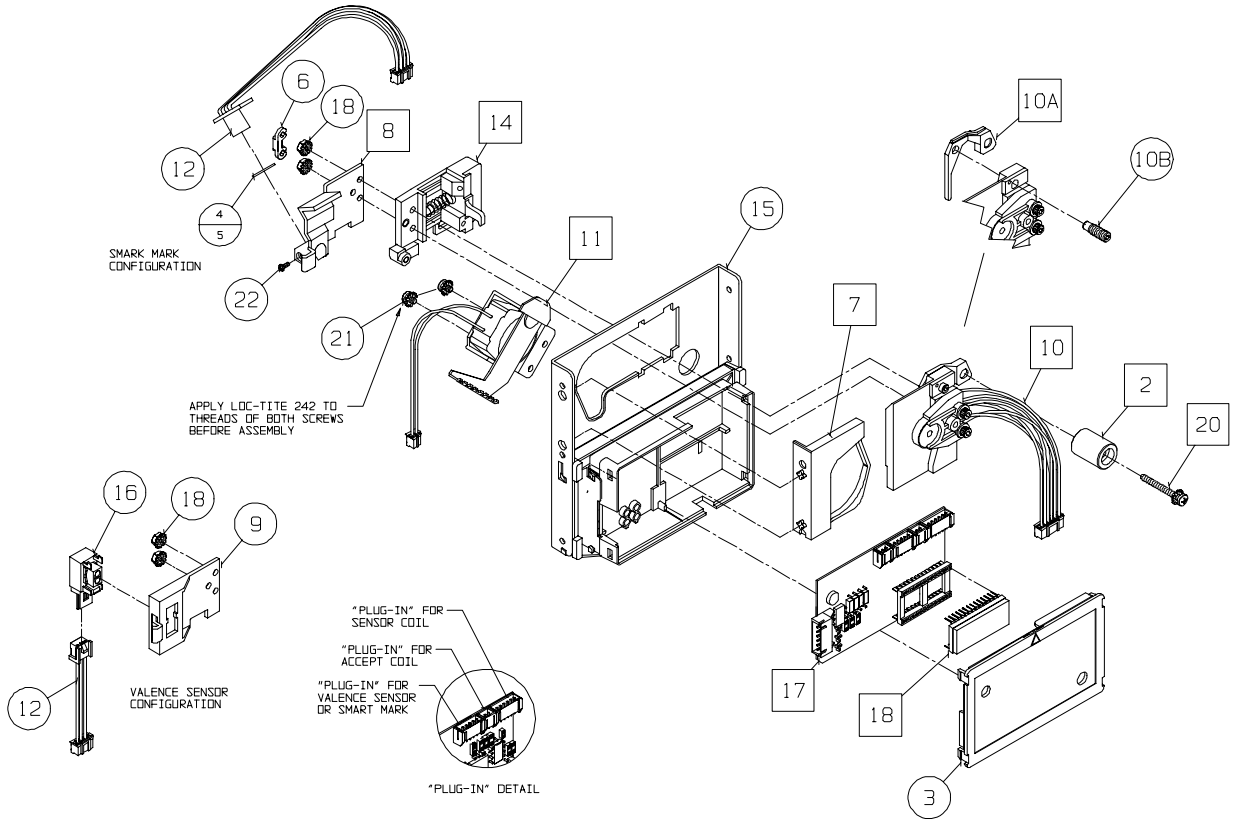
COIN EXIT

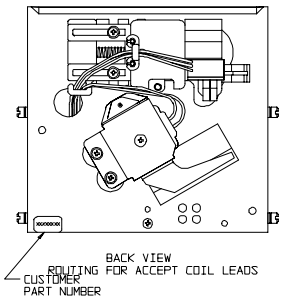
.160" [4.1mm]	.310" [7.9mm]
.140" [3.6mm]	.290" [7.4mm]
.120" [3.0mm]	.270" [6.9mm]
.105" [2.7mm]	.255" [6.5mm]
.095" [2.4mm]	.245" [6.2mm]
.082" [2.1mm]	.232" [5.9mm]
.072" [1.8mm]	.222" [5.3mm]
"A" SPACER	"B" ENTRY
SPACER	OPTIONS

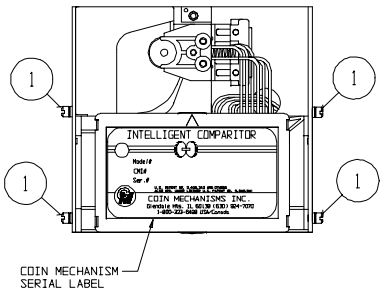


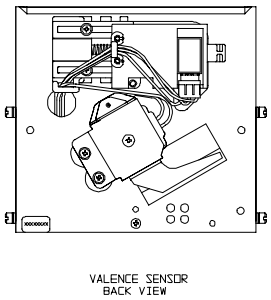
COIN MECHANISMS INC.

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-coinnech@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
10	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	06280101	1	HARNESS, VAL, 3 PIN AMP, 4 PIN PHR, RED/BLK/VIO, 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	0950-000XXXX	1	IC, 87C752, (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 BALLONS.
2. SEE INDIVIDUAL BILLS OF MATERIALS FOR HARNESS REQUIREMENTS.

NO.	ECO NO.	REVISIONS	DATE/BY
		RELEASED; SEE INDIVIDUAL P/N'S FOR REVISION LEVELS	9/12/02 DF

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

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

TITLE: IC-16, WIDE BODY P/N IDENTIFICATION

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

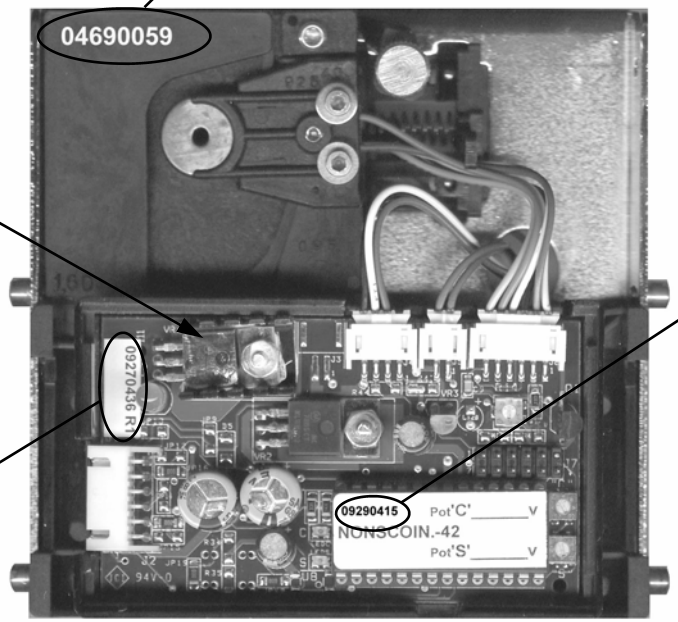
DWG NO. D0681605

CRITICAL SYMBOLS
▼ = CUSTOMER
▼ = PROCESS
▼ = BOTH

SIZE: D | SCALE: N/A | FINISH: N/A | SHT 1 OF 2

12 VOLT WILL
HAVE IDENTIFYING
LABEL INSTEAD
OF REGULATOR

TOKEN HOLDER P/N



PCB P/N

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

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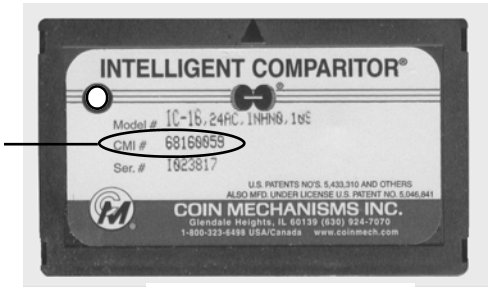
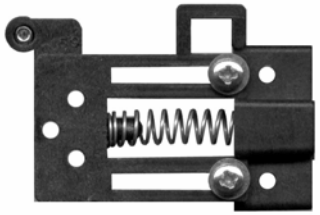


INTELLIGENT
COMPARITOR P/N

IC COVER



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

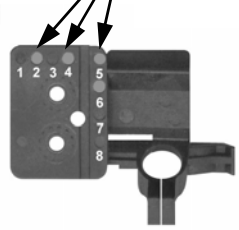
P/N 06650269= FOR COIN DIAMETERS 1.812" [46.0mm] AND ABOVE

SPRING RETAINER ASSEMBLY

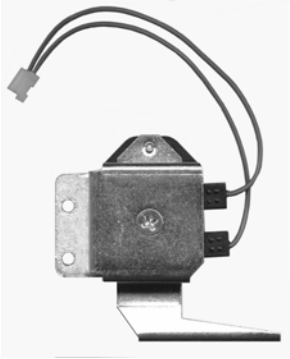
P/N 05690XXX
LAST SIGNIFICANT
DIGITS MOLDED
ON DAMPER LEVER

DAMPER LEVER

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



BARCODE HOLDER



ACCEPT COIL ASSEMBLY

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

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

		RELEASED; SEE INDIVIDUAL P/N'S FOR REVISION LEVELS	9/12/02 DF
NO.	ECO NO.	REVISIONS	DATE/BY

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

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

CRITICAL SYMBOL

SIZE: B | N/A

TITLE: IC-16WB P/N IDENTIFICATION

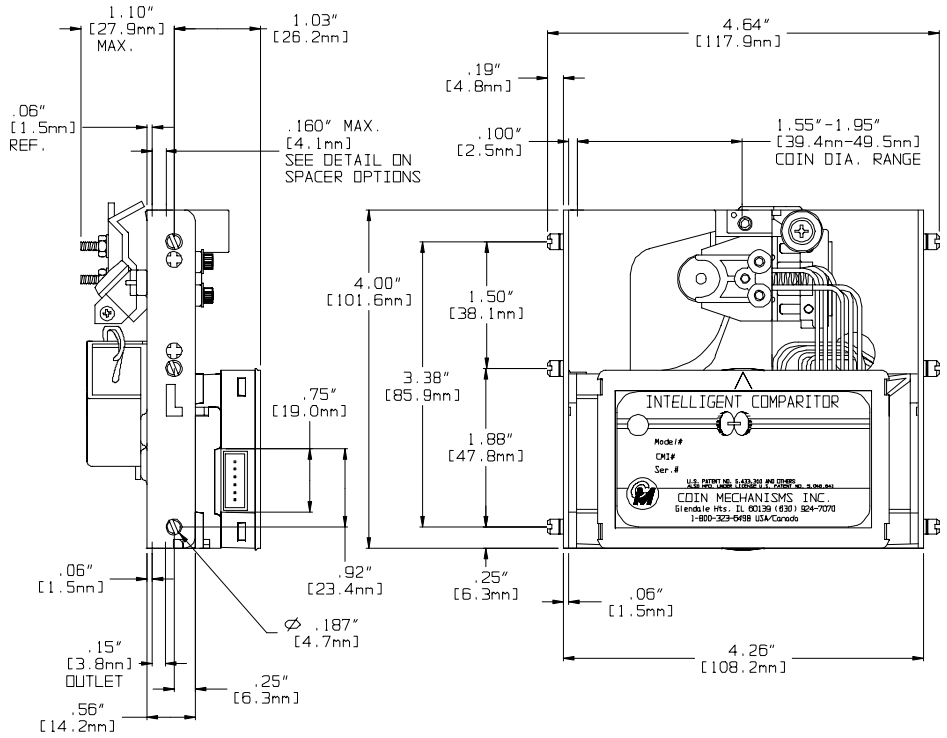
DRAWN	DF	DATE	6/7/02
CHKD		DATE	
APP		DATE	

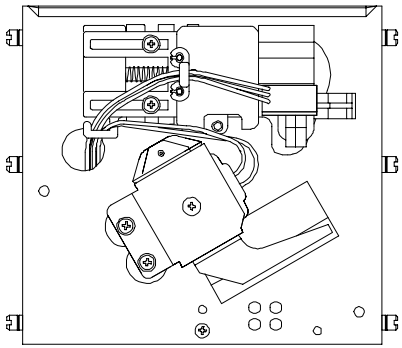
DWG NO. D0681605

FINISH: N/A | SHT 2 OF 2

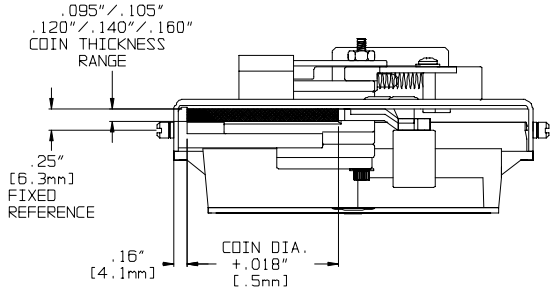
IC-16WB
SMART MARK
DIMENSIONS
DWG# ENG00100

Comparitor™

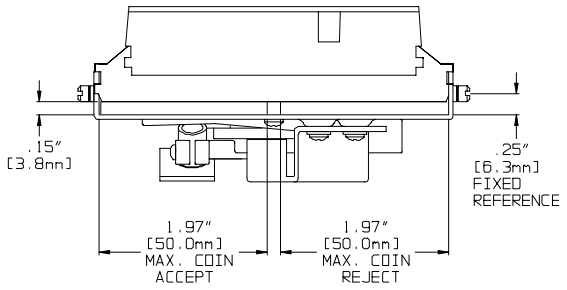




BACK VIEW
ROUTING FOR ACCEPT COIL LEADS

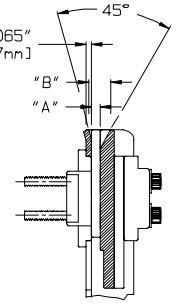


COIN ENTRY



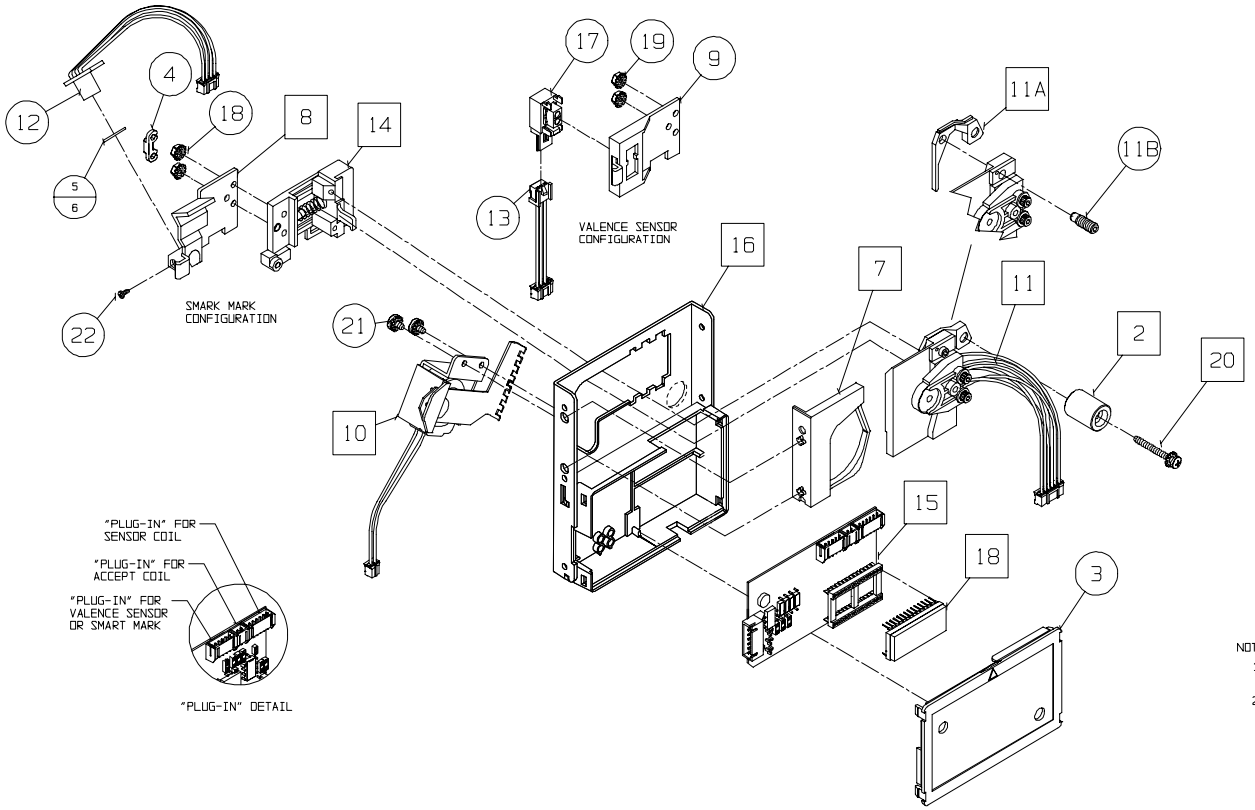
COIN EXIT

.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	



COIN MECHANISMS INC.

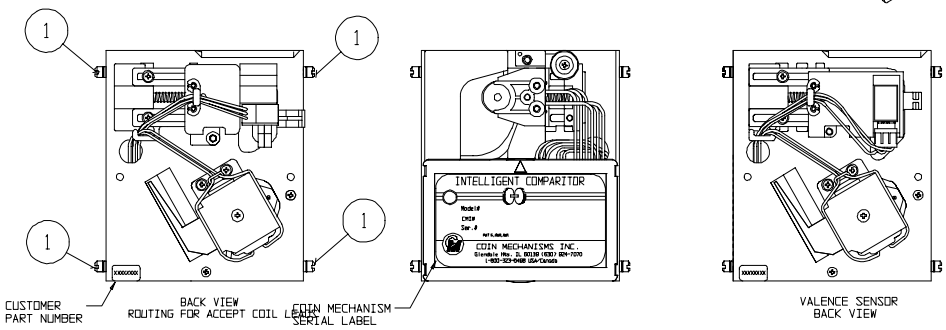
P.O. Box 5128, Glendale Heights, IL 60139-5128 P/N ENG00100 -5/02
630/924-7070*1-800/323-6498*FAX 630/924-7088*E-MAIL-coinmech@coinmech.com
VISIT OUR WEB SITE AT www.coinmech.com



MATERIAL COLUMN			
ITEM	P/N	QTY	MATL' DESCRIPTION
1	04060005-01	4	STUD, #6
2	0406XXXX	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	0469XXXX	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)
	06250199	1	COIL & BRKT, ASSY, GRY, 4", PHR (SEE PAGE 2)
11	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	06280101	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	06680024	1	CHASSIS, IC-32/33, SALES
17	08290208	1	PHOTOINTERRUPTER, REFLECTIVE
18	0950-000XXXX	1	IC, 87C752, (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 BALLONS.
2. SEE INDIVIDUAL BILLS OF MATERIALS FOR HARNESS REQUIREMENTS.



	RELEASED; SEE INDIVIDUAL P/N'S FOR REVISION LEVELS	9/12/02 DF
NO.	ECO NO. REVISIONS	DATE/BY

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

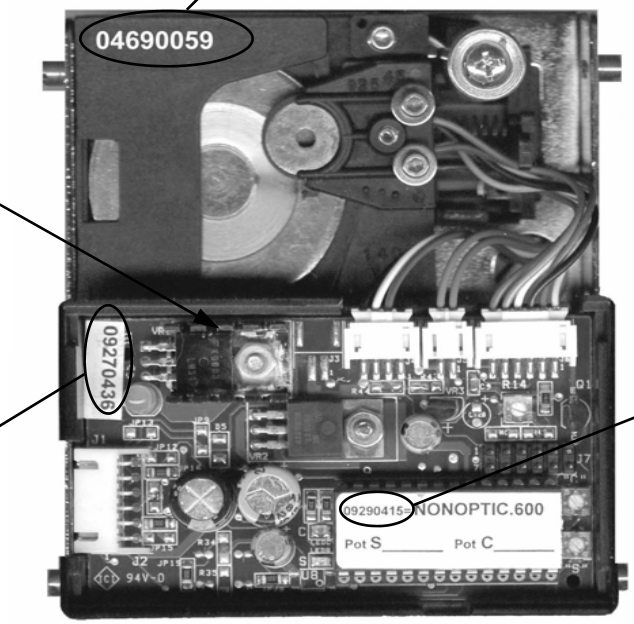
TOLERANCES NOT SPECIFIED
FRACTIONS= ± 1/64
ANGLES= ±1°
.XX= ±.010
.XXX= ±.005
HOLE DIA.= ±.002

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

DRAWN	DF	DATE	4/30/02
CHKD		DATE	
APP		DATE	
DWG NO.	D0683202		
SIZE: D	SCALE: N/A	FINISH: N/A	SHT 1 OF 2

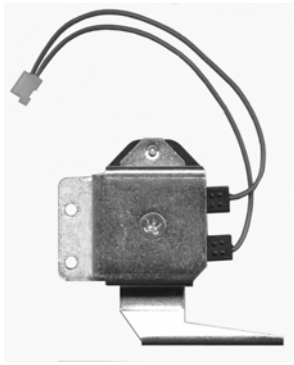
CRITICAL SYMBOLS
▼ = CUSTOMER
▼ = PROCESS
▼ = BOTH

12 VOLT WILL HAVE IDENTIFYING LABEL INSTEAD OF REGULATOR



IC WITH COVER REMOVED

IC COVER

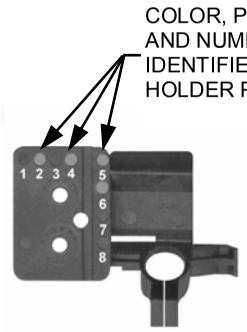


ACCEPT COIL

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

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

DAMPER



BARCODE HOLDER

	RELEASED; SEE INDIVIDUAL P/N'S FOR REVISION LEVELS	9/12/02 DF
NO. / ECO NO.	REVISIONS	DATE/BY

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

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

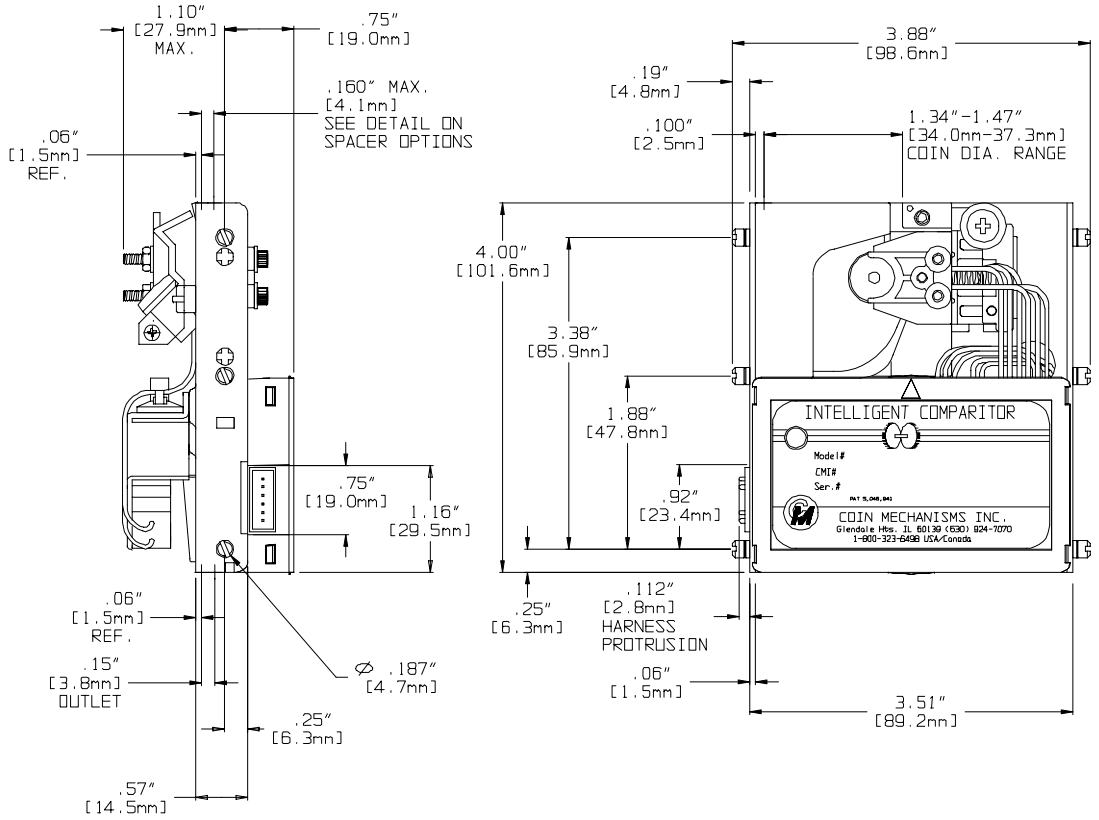
CRITICAL SYMBOL

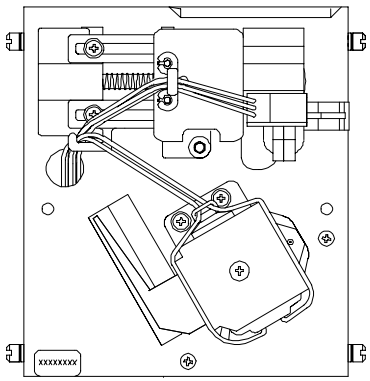
TITLE: IC-32/33 P/N IDENTIFICATION

DRAWN	DF	DATE	6/7/02
CHKD		DATE	
APP		DATE	
DWG NO.	D0683202		
SIZE: B	N/A	FINISH: N/A	SHT 2 OF 2

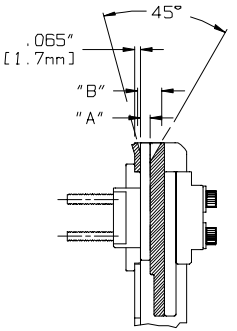
IC-32/33 SMART MARK DIMENSIONS DWG# ENG00094

Comparitor™

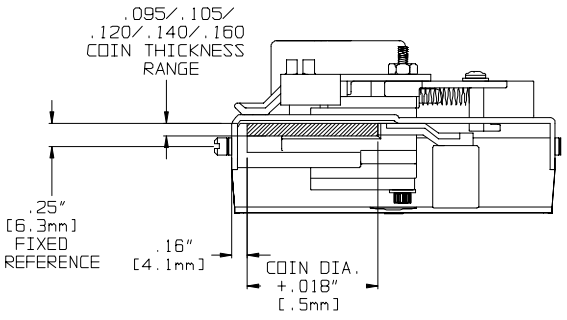




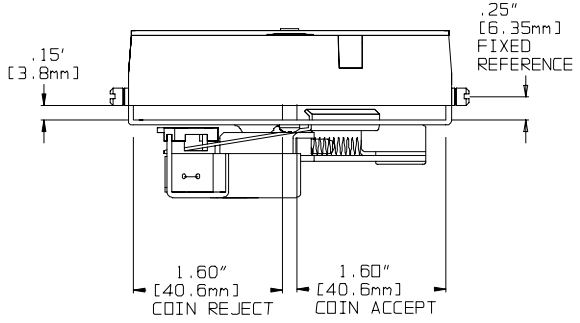
BACK VIEW
ROUTING FOR ACCEPT COIL LEADS



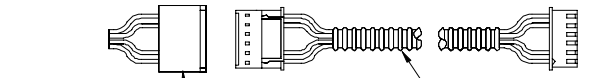
.160" [4.1mm]	.310" [7.9mm]
.140" [3.6mm]	.290" [7.4mm]
.120" [3.0mm]	.270" [6.9mm]
.105" [2.7mm]	.255" [6.5mm]
.095" [2.4mm]	.245" [6.2mm]
.082" [2.1mm]	.232" [5.9mm]
.072" [1.8mm]	.222" [5.3mm]
"A" SPACER	"B" ENTRY
SPACER OPTIONS	



COIN ENTRY



COIN EXIT



COIN MECHANISMS INC.
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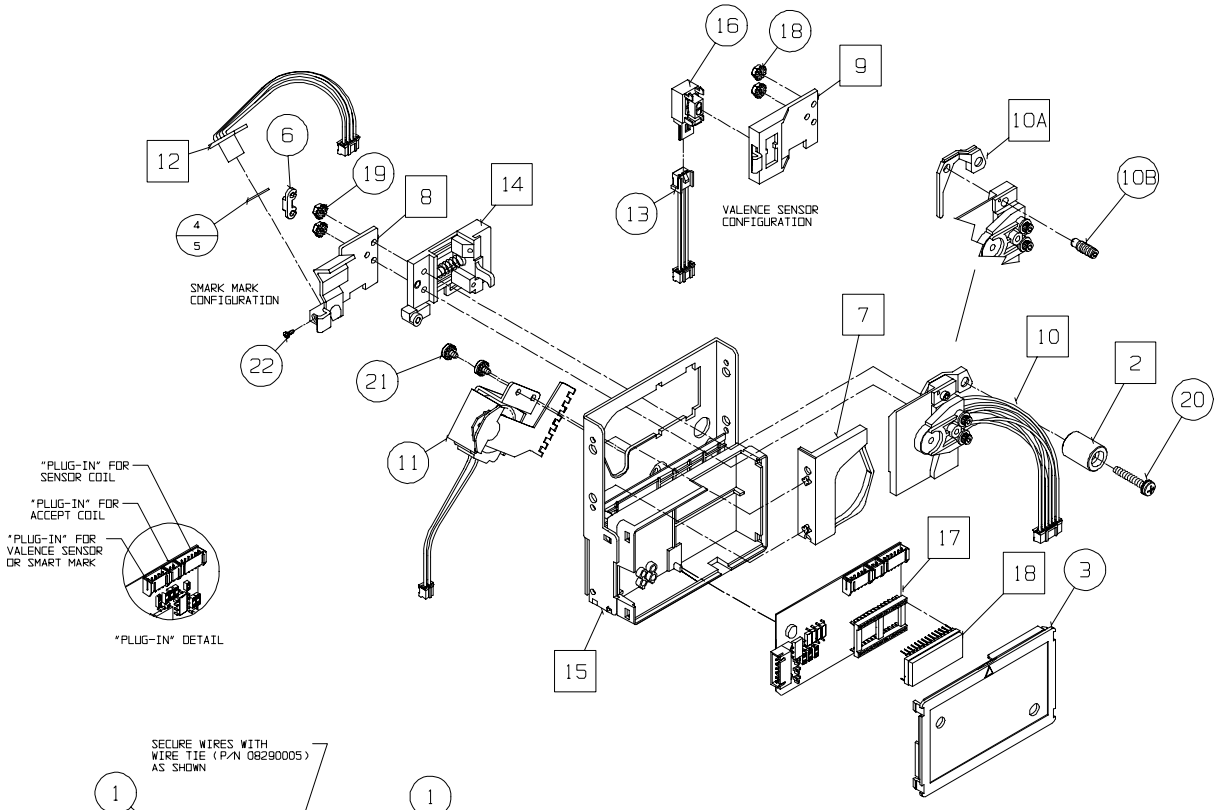
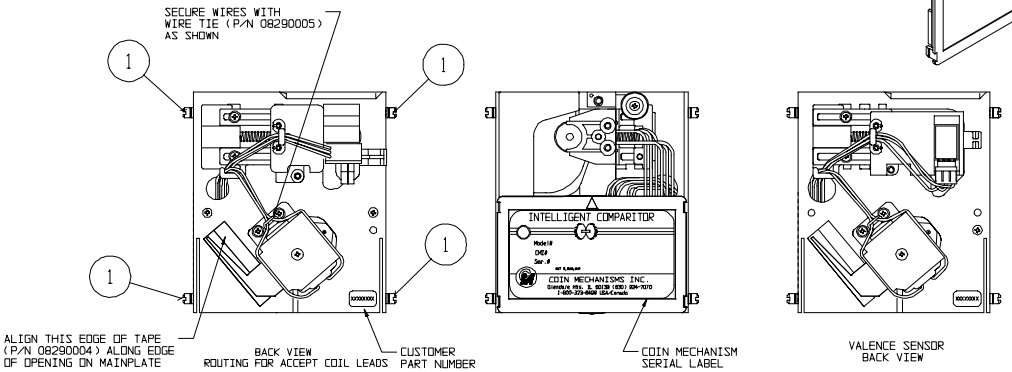
630/924-7070*1-800/323-6498*FAX 630/924-7088*E-MAIL-coinmech@coinmech.com
VISIT OUR WEB SITE AT www.coinmech.com

P/N ENG00094 -5/02





MATERIAL COLUMN			
ITEM	P/N	QTY	MATL' DESCRIPTION
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	1	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 PHR, RED/BLK/VIO, 5.25
14	06650258	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	0950-000XXXX	1	IC, 87C752 (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 BALLONS.
2. SEE INDIVIDUAL BILLS OF MATERIALS FOR HARNESS REQUIREMENTS.

NO.	ECO NO.	REVISIONS	DATE/BY
		RELEASED; SEE INDIVIDUAL P/N'S FOR REVISION LEVELS	9/12/02 DF

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

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

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

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

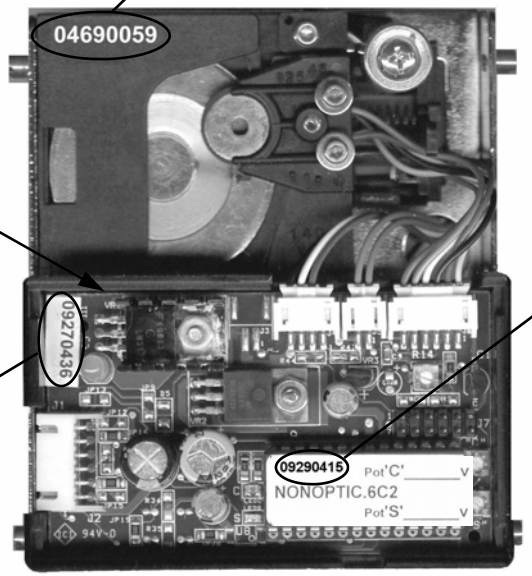
DWG NO. D0683603

CRITICAL SYMBOLS
▼ = CUSTOMER
▼ = PROCESS
▼ = BOTH

SIZE: D | SCALE: N/A | FINISH: N/A | SHT 1 OF 2

12 VOLT WILL HAVE IDENTIFYING LABEL INSTEAD OF REGULATOR

TOKEN HOLDER P/N



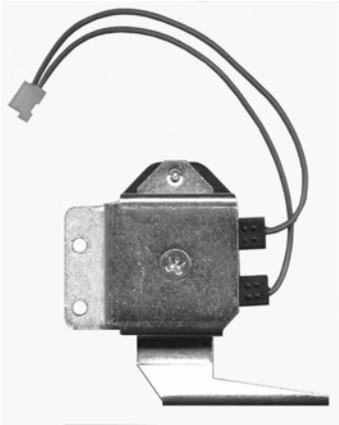
PCB P/N

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

IC WITH COVER

INTELLIGENT COMPARITOR P/N

IC COVER



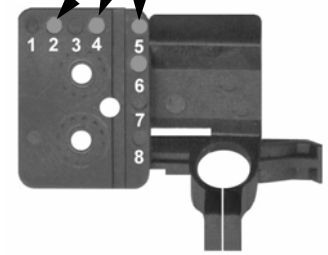
P/N 06250193= GREEN WIRES FOR LOW VOLTAGE (12VDC)

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

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

DAMPER

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

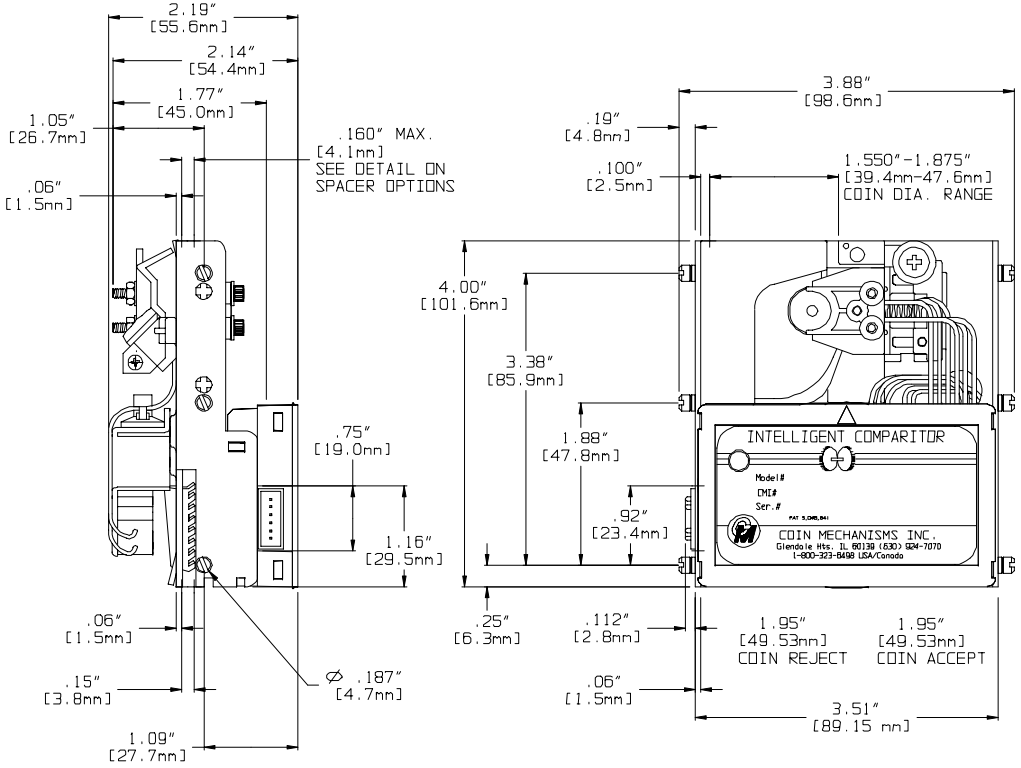


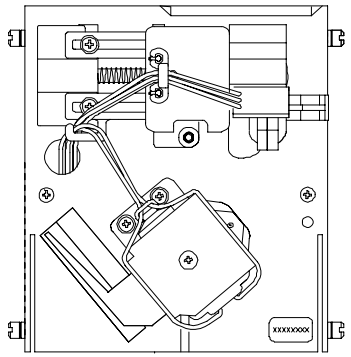
BARCODE HOLDER

	RELEASED; SEE INDIVIDUAL P/N'S FOR REVISION LEVELS		9/12/02 DF
NO. / ECO NO.	REVISIONS		DATE/BY
COIN MECHANISMS INC. 400 REGENCY DR. GLENDALE HEIGHTS, IL 60139	TOLERANCES NOT SPECIFIED FRACTIONS= ± 1/64 ANGLES= ±1° .XX= ±.010 .XXX= ±.005 HOLE DIA.= ±.002	TITLE: IC-36/37 P/N IDENTIFICATION	
		DRAWN: DF	DATE: 6/7/02
		CHKD	DATE
This drawing is the property of and contains proprietary information of Coin Mechanisms Inc. The drawing shall be returned upon request and is not to be copied or disclosed without written authorization and will not be used in any way detrimental to the interest of Coin Mechanisms.	CRITICAL SYMBOL	APP	DATE
		DWG NO. D0683603	
	SIZE: B N/A	FINISH: N/A	SHT 2 OF 2

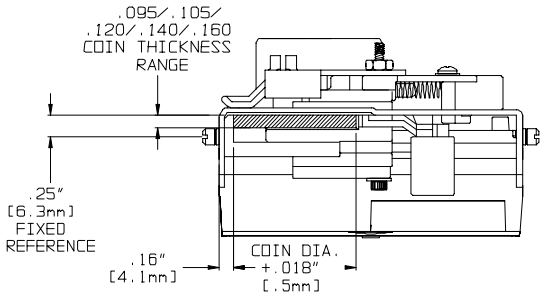
IC-36/37
SMART MARK
DIMENSIONS
DWG# ENG00087

Comparitor™

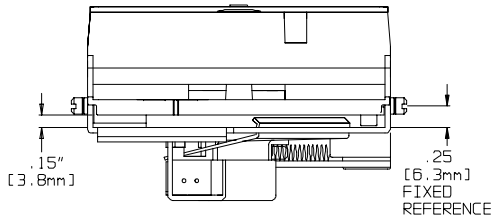




BACK VIEW
ROUTING FOR ACCEPT COIL LEADS

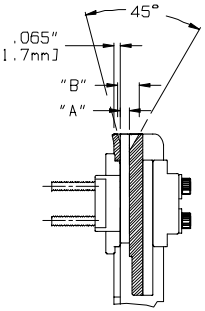


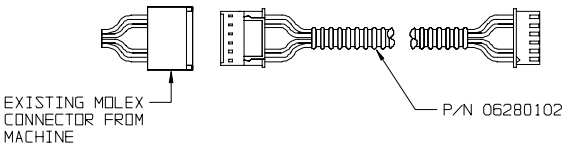
COIN ENTRY



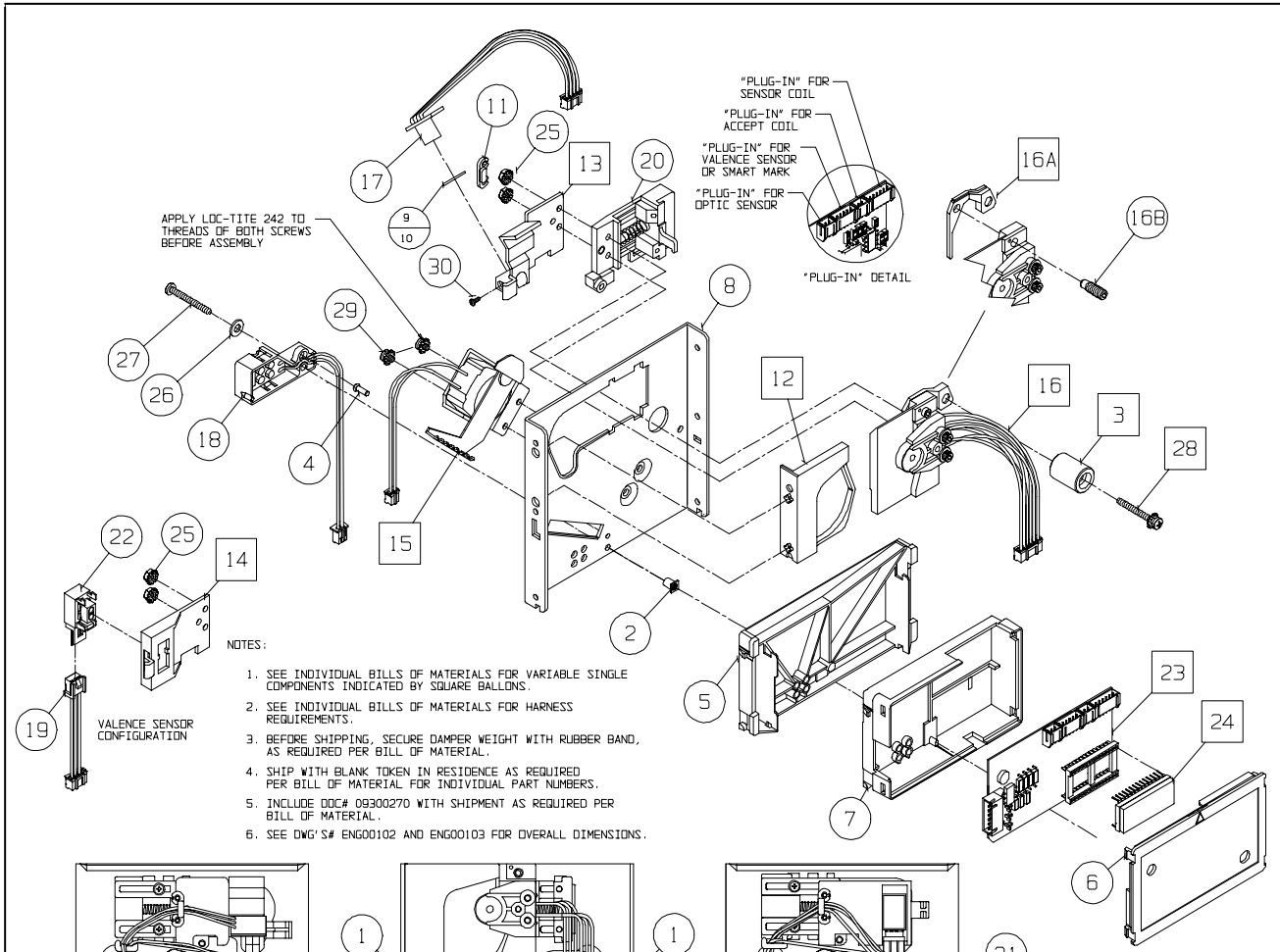
COIN EXIT

.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	





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



MATERIAL COLUMN

ITEM	P/N	QTY	MATL' DESCRIPTION
1	04060005-01	4	STUD, #6
2	04060036	1	INS, NUT, #4-40
3	0406XXXX	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	0469XXXX	1	HOLDER, TKN, IC,
13	0469XXXX	1	HOLDER, BC RDR,
14	0469XXXX	1	HOLDER, VALENCE READER,
15	0625XXXX	1	COIL & BRKT, ASSY,
16	0625XXXX	1	COIL, ASSY, SENSOR, IC
16A	0569XXXX	——	LEVER, ASSY, DAMPER, IC
16B	04690266-01	——	PIN, PIVOT, DAMPER, IC
17	0627XXXX	1	PCB, ASSY, BC RDR,
18	0627XXXX	1	PCB, ASSY, OPTICS
19	06280101	1	HARNESS, VAL, 3 PIN AMP, 4 PIN PHR, RED/BLK/VIO, 5.25
20	0665XXXX	1	RETAINER, ASSY, IC, SPRING
21	08290004	.0006	TAPE, MYLAR, .5 WIDE
22	08290208	1	PHOTOINTERRUPTER, REFLECTIVE
23	0927XXXX	1	PCB, CTRL, IC
24	0929XXXX	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

NO.	ECO NO.	REVISIONS	DATE/BY
		RELEASED; SEE INDIVIDUAL P/N'S FOR REVISION LEVELS	4/30/02 DF

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

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

TITLE: IC-40/62WB

DRAWN: DF DATE: 4/30/02
CHKD: DATE:
APP: DATE:
DWG NO. D0684003
FINISH: N/A
SIZE: D SCALE: N/A
SHT 1 OF 1

CRITICAL SYMBOLS
▼ = CUSTOMER
▼ = PROCESS
▼ = BOTH

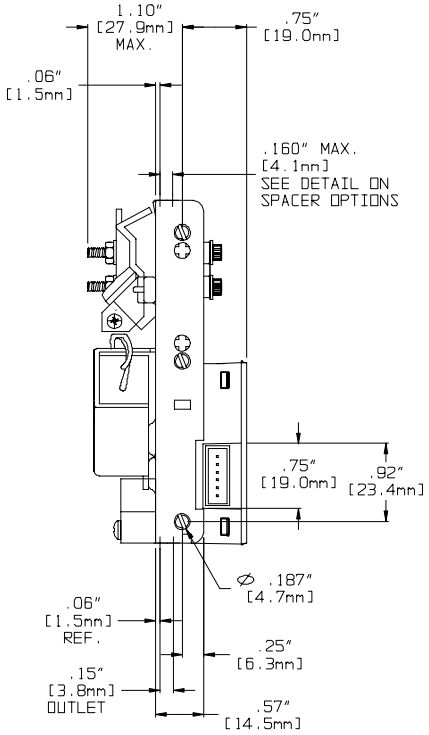
2.7"
68.6mm
POSITION OF CUTOUT
FOR SMALL COIN

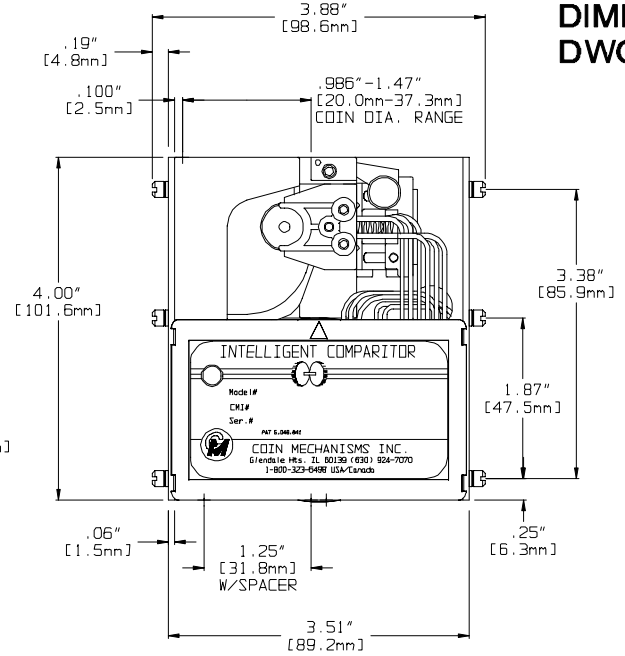
P/N 06680019-STANDARD COIN
COIN DIAMETERS
1.045" [26.5mm] -1.575" [40.0mm]

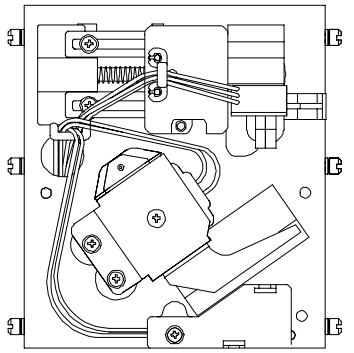
P/N 06680021-SMALL COIN
COIN DIAMETERS
.870" [22.1mm] -1.575" [40.0mm]

IC-40/62
SMART MARK
DIMENSIONS
DWG# ENG00106

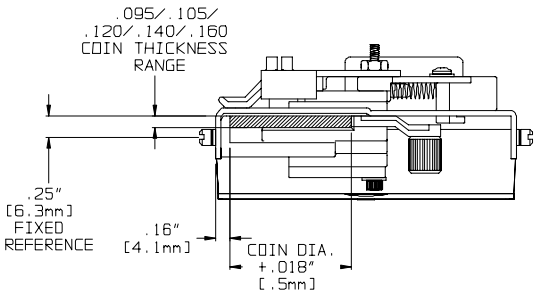
Comparitor™



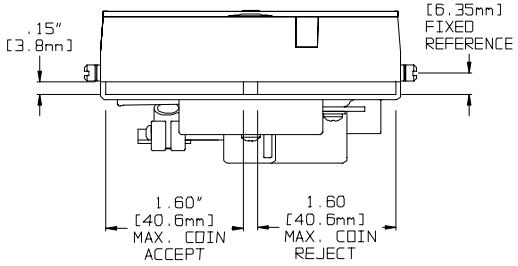




BACK VIEW
ROUTING FOR ACCEPT COIL LEADS



COIN ENTRY



COIN EXIT

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.140" [3.6mm]	.290" [7.4mm]
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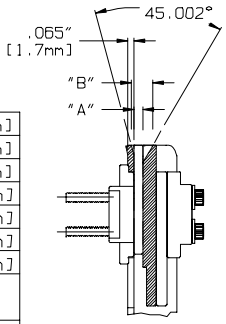
.072" [1.8mm]	.222" [5.3mm]
"A" SPACER	"B" ENTRY
SPACER OPTIONS	



COIN MECHANISMS INC.

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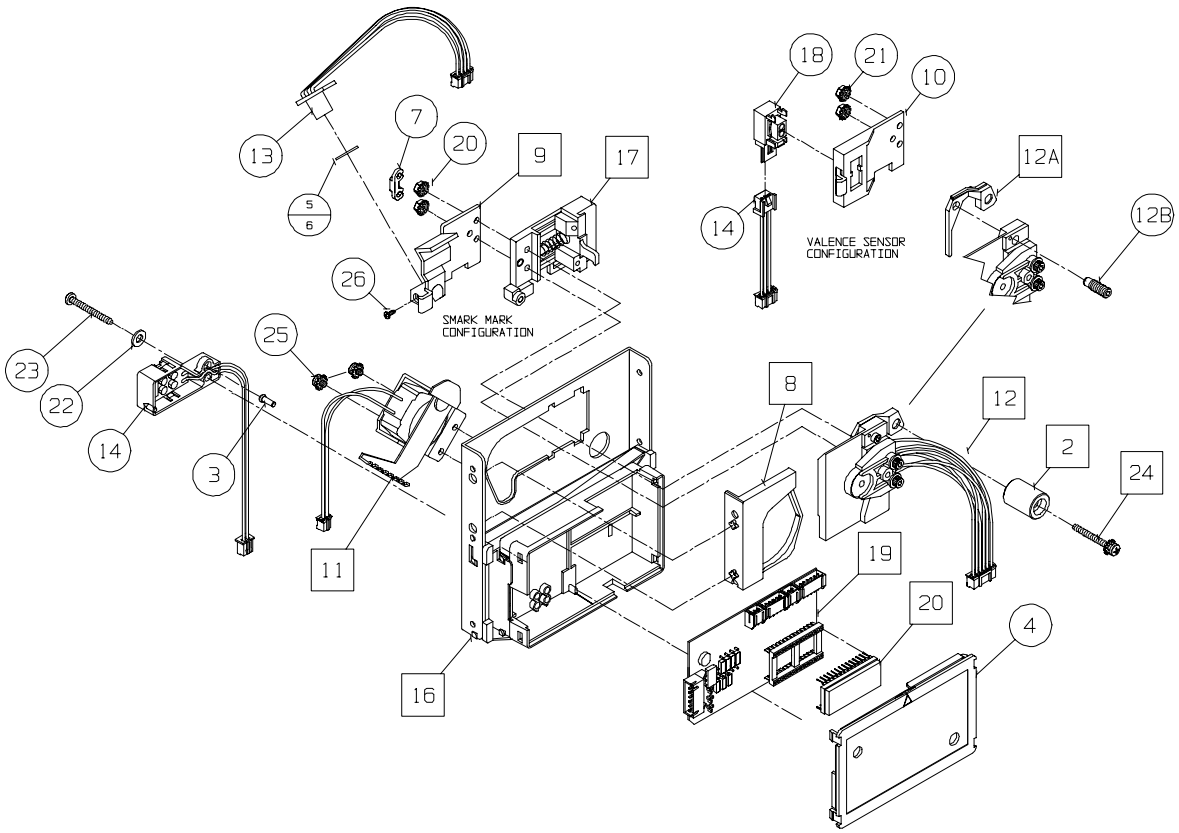
630/924-7070*1-800/323-6498*FAX 630/924-7088*E-MAIL-coinmech@coinmech.com
VISIT OUR WEB SITE AT www.coinmech.com

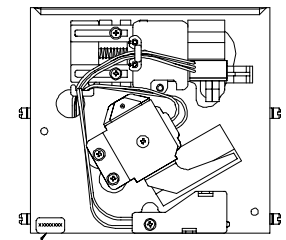
P/N ENG00106 -5/02

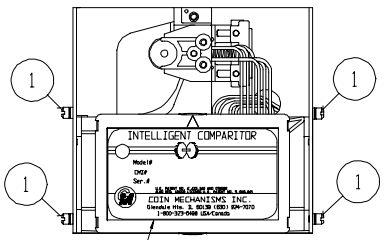


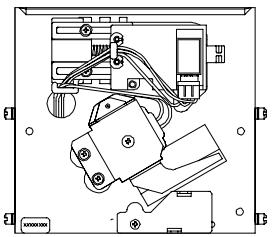
MATERIAL COLUMN			
ITEM	P/N	QTY	MATL' DESCRIPTION
1	04060005-01	4	STUD, #6
2	0406XXXX	1	WEIGHT, DAMPER, (SEE DOCUMENT #09300019)
3	04660034	1	PIN, COIN DEFLECTOR
4	04660165	1	COVER, PCB HSG, UNIVERSAL
5	04690243	A/R	SPACER, IC, .010
6	04690244	A/R	SPACER, IC, .020
7	04690276	1	CLIP, WIRE, BARCODE, IC
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)
	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	04690266-01	——	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	08290208	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	1	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

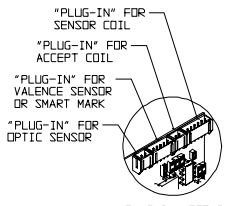
NOTES:

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









NO.	ECO NO.	REVISIONS	DATE/BY
		RELEASED; SEE INDIVIDUAL P/N'S FOR REVISION LEVELS	9/12/02 DF

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

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

TITLE: IC-40/62, WIDE BODY, P/N IDENTIFICATION

DRAWN	DF	DATE	9/3/02
CHKD		DATE	
APP		DATE	

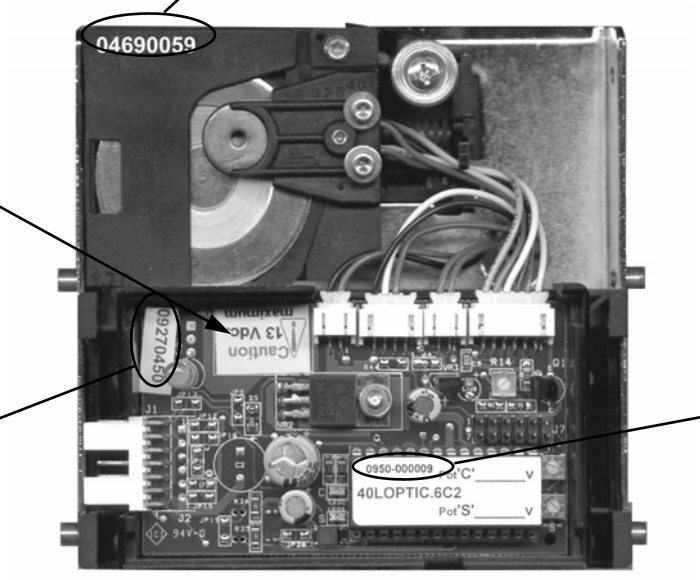
DWG NO. D0684605

CRITICAL SYMBOLS
▼ = CUSTOMER
▼ = PROCESS
▼ = BOTH

SIZE: D | SCALE: N/A | FINISH: N/A | SHT 1 OF 2

24 VOLT WILL HAVE REGULATOR INSTEAD OF LABEL

TOKEN HOLDER P/N



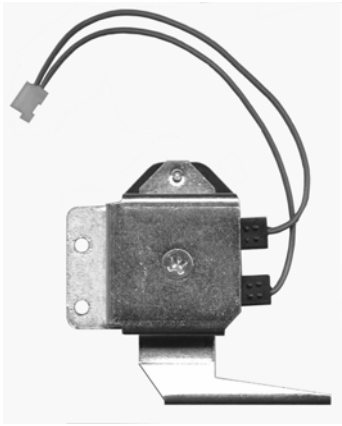
PCB P/N

MICRO P/N
(MAY HAVE 0929XXXX FORMAT)

IC WITH COVER REMOVED

INTELLIGENT COMPARITOR P/N

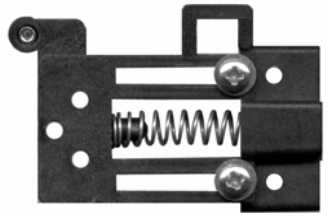
IC COVER



ACCEPT COIL ASSEMBLY

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

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

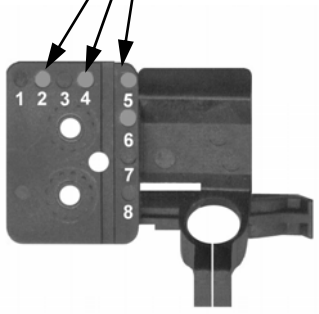


SPRING

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

DAMPER LEVER

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



BARCODE HOLDER

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

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

RELEASED; SEE INDIVIDUAL P/N'S FOR REVISION LEVELS		9/12/02 DF
NO. / ECO NO.	REVISIONS	DATE/BY

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

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

CRITICAL SYMBOL

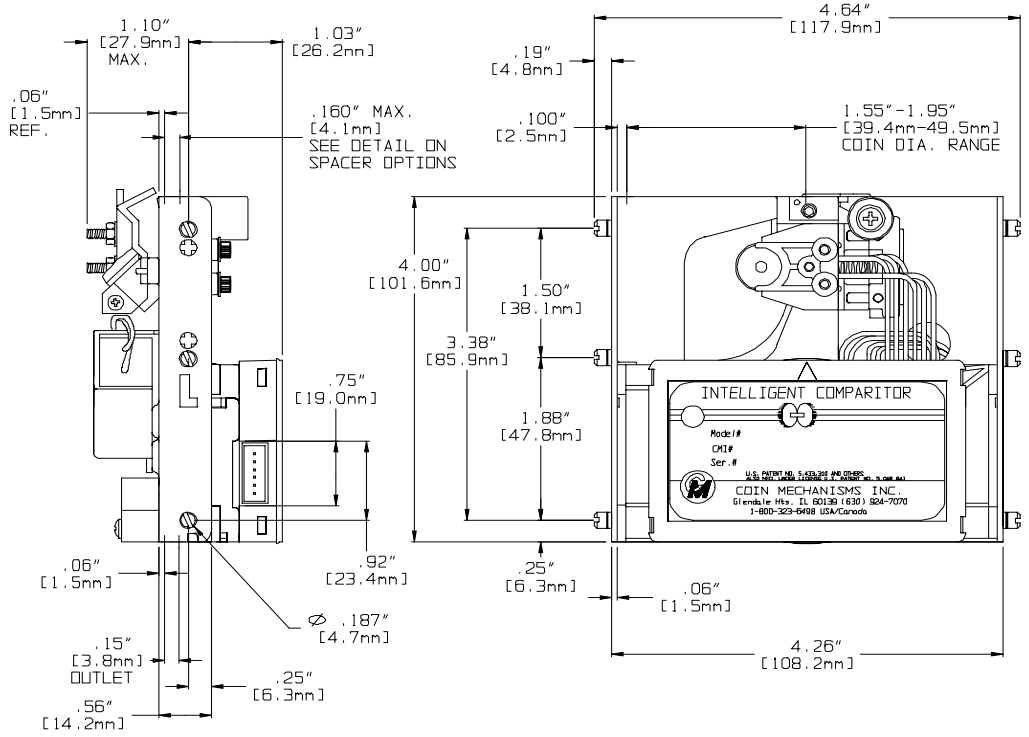
TITLE: **IC-16 P/N IDENTIFICATION**

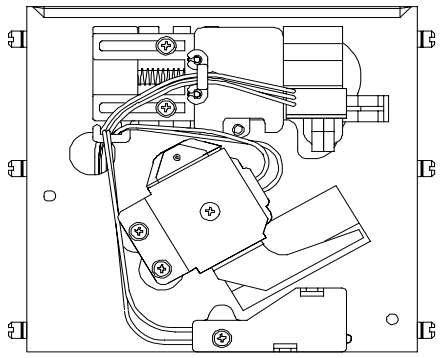
DRAWN	DF	DATE	6/7/02
CHKD		DATE	
APP		DATE	

DWG NO. D0681603

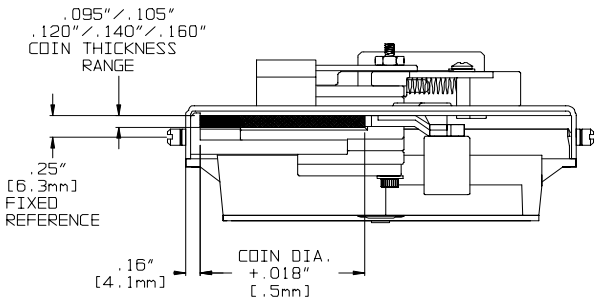
SIZE: B | N/A | FINISH: N/A | SHT 2 OF 2

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

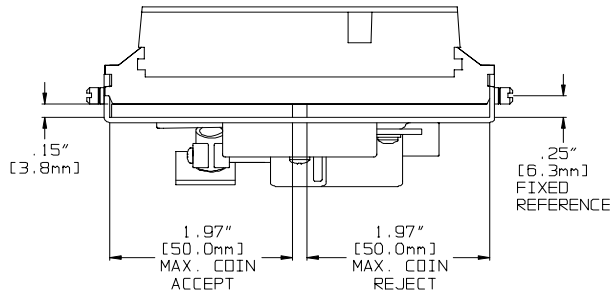




BACK VIEW
ROUTING FOR ACCEPT COIL LEADS

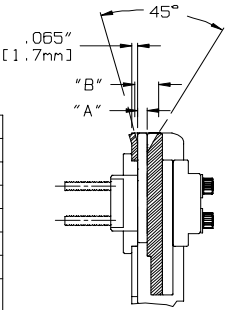


COIN ENTRY



COIN EXIT

.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	



COIN MECHANISMS INC.

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630/924-7070*1-800/323-6498*FAX 630/924-7088*E-MAIL-coinmech@coinmech.com
VISIT OUR WEB SITE AT www.coinmech.com