



COIN MECHANISMS INC.

Where The Money Meets The Machine

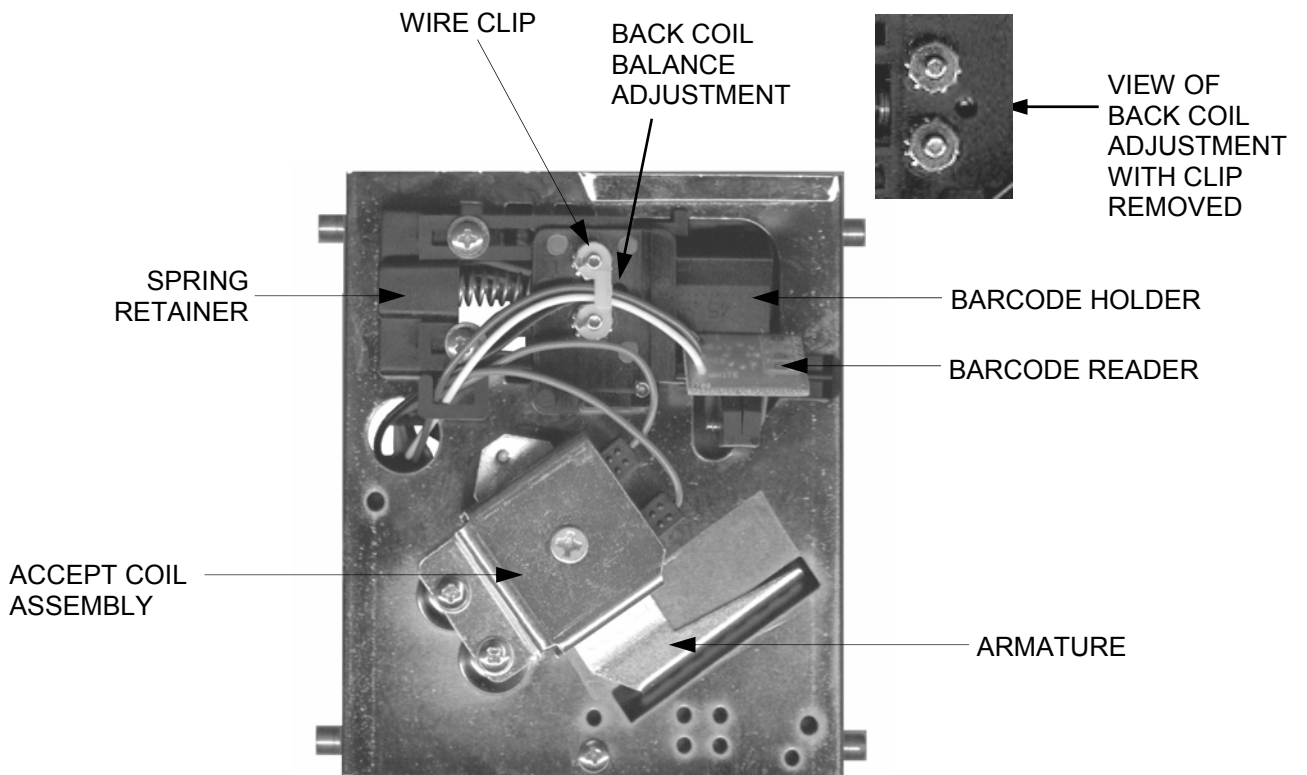
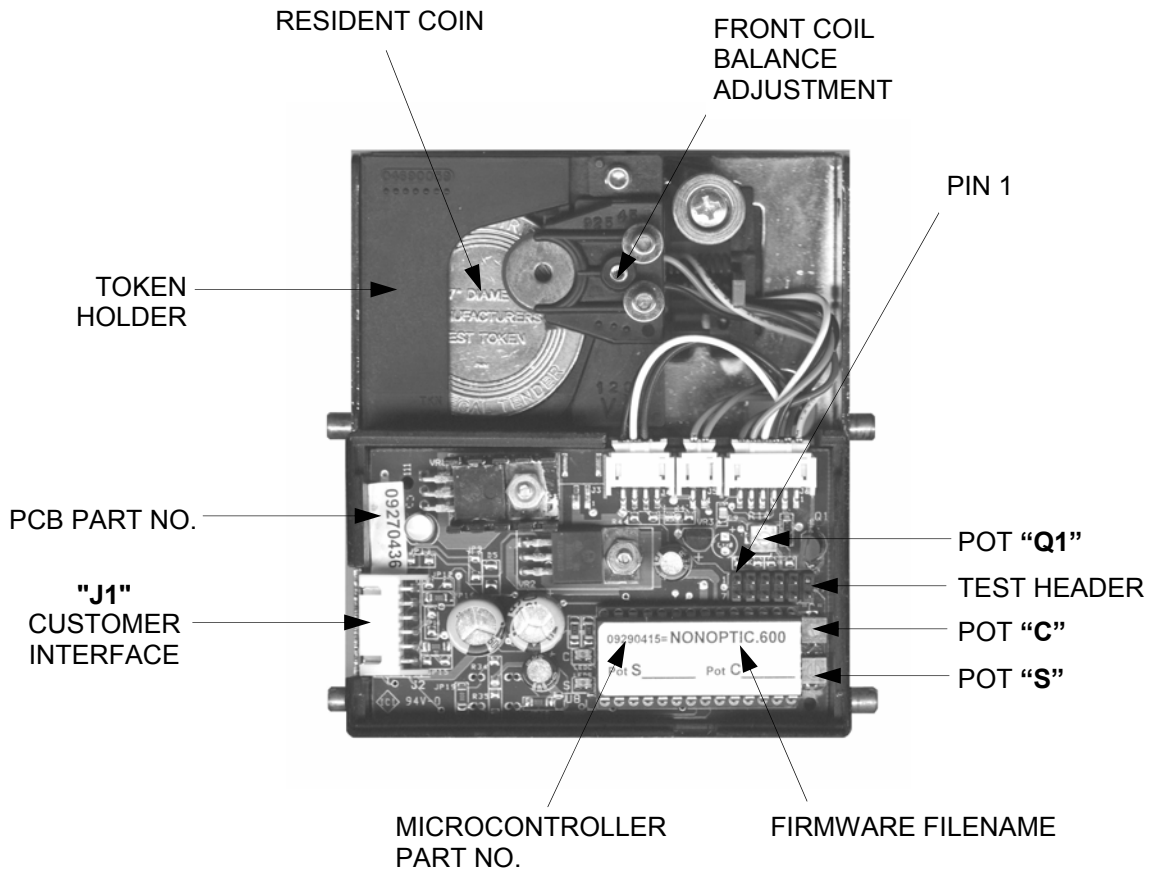
PO Box 5128, 400 Regency Drive, Glendale Heights, IL 60139-5128 VOICE: 630/924-7070 1-800-323-6498 FAX: 630/927-7088

Intelligent Comparitor[®] Coil Balancing Procedure Customer

Rev 0 6/8/2004

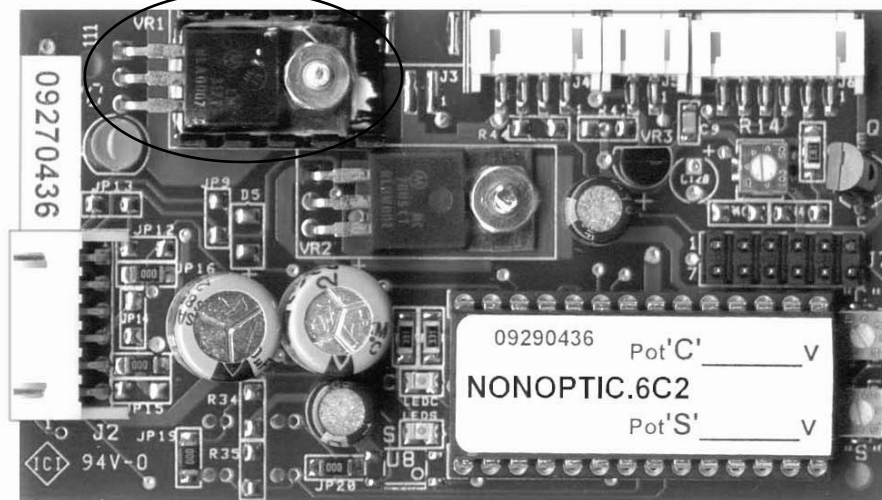


INTELLIGENT COMPARITOR REFERENCE GUIDE



IDENTIFYING A 12 VOLT OR A 24 VOLT CIRCUIT BOARD

24 VOLTS HAS A SECOND
REGULATOR WITH A HEAT SINK



24 VOLT CIRCUIT BOARD

A 24 VOLT CIRCUIT BOARD USES AN ACCEPT COIL WITH GRAY LEADS
(NOTE- BALLY MODEL 16 WIDE BODY IC'S USE AN ACCEPT COIL WITH
GREEN WIRES AND A GOLD ARMATURE)

12 VOLTS HAS ONE REGULATOR
AND A CAUTION LABEL



12 VOLT CIRCUIT BOARD

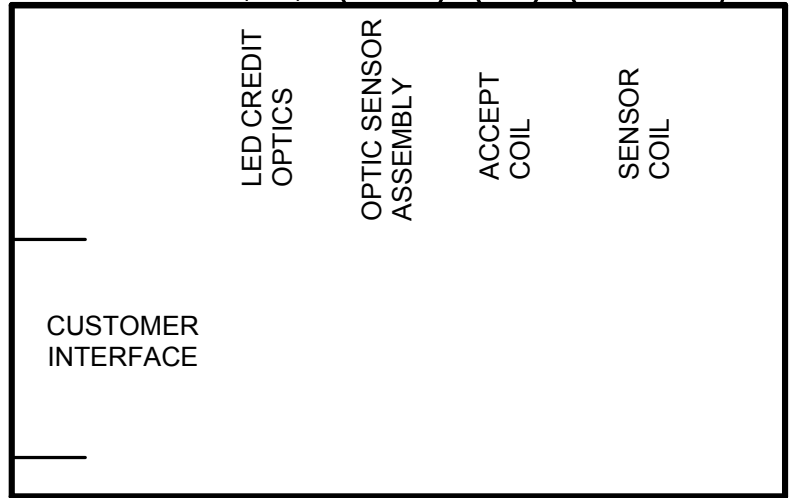
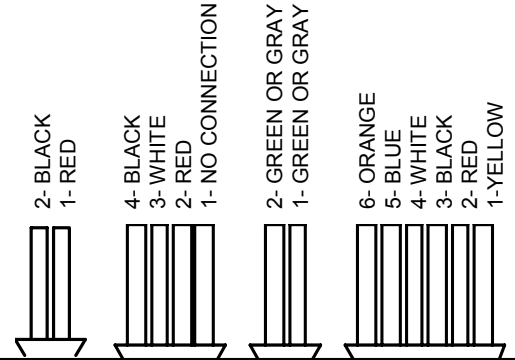
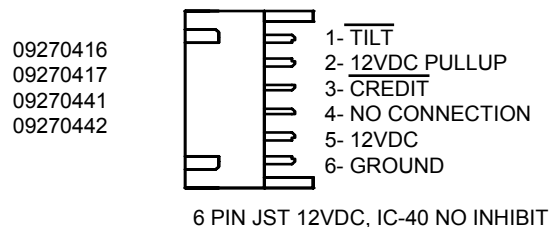
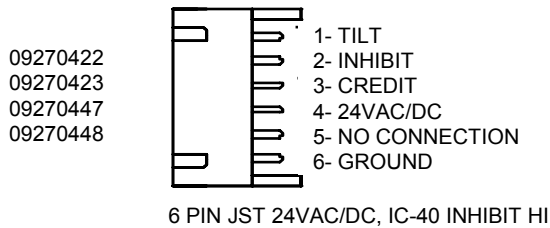
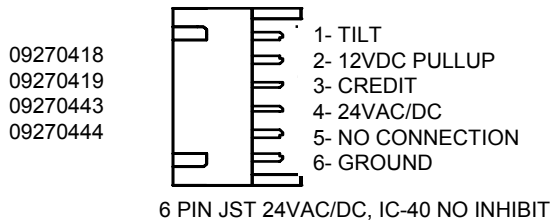
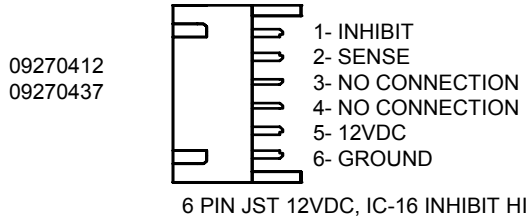
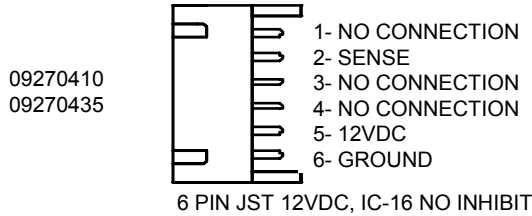
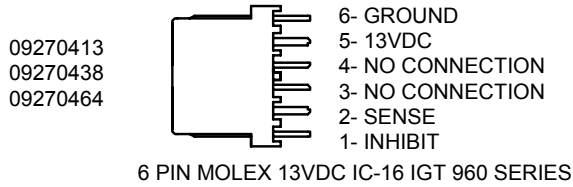
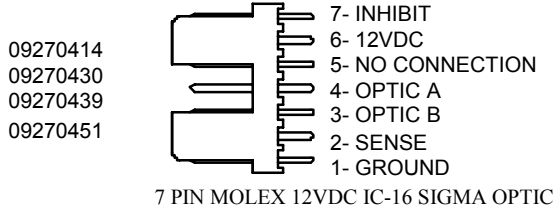
A 12 VOLT CIRCUIT BOARD USES AN ACCEPT COIL WITH GREEN LEADS

INTELLIGENT COMPARITOR SYSTEM PLUS INTERFACE IDENTIFICATION

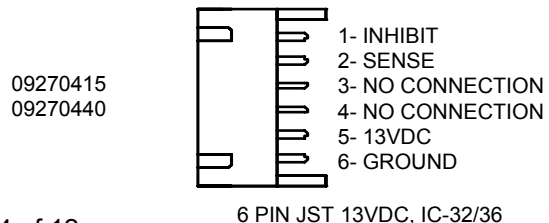
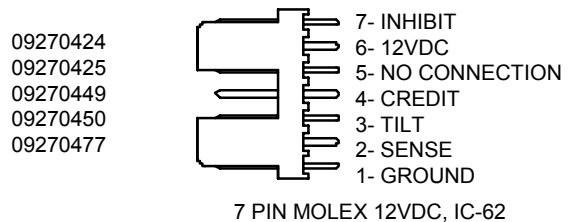
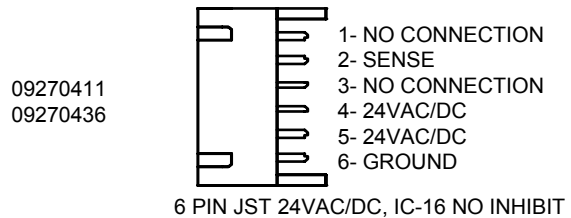
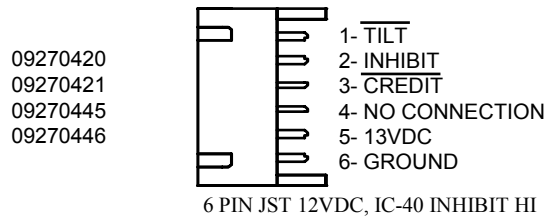
LOCATE CONTROL PCB PART NUMBER BELOW AND REFER TO ADJACENT CUSTOMER INTERFACE DIAGRAM

Later version pcbs will have p/n format 0927-007XXX
Where XXX = Last 3 Digits of part numbers listed below

PCB PART NO. CUSTOMER INTERFACE



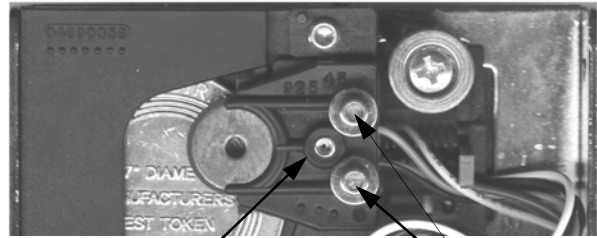
PCB PART NO. CUSTOMER INTERFACE



SENSOR COIL MECHANICAL BALANCING

1. Use a 1/16 in. hex drive bit and loosen both coil adjustment screws. (see fig. 1 & 2)
2. 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)
3. Use a 1/16 in. hex drive bit to loosen the spring retainer adjustment screw. (see fig. 2)
4. Using a torque driver set to 3 in.-lbs. with a 1/4 in. hex socket, torque on the Keps nuts. (see fig. 2)
5. 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.
6. 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.
7. Using the 1/16 in. Hex drive bit, turn the spring retainer adjustment screw clockwise until it just touches the mainplate.

- If you are using an oscilloscope see document #00300001 or go to next page.

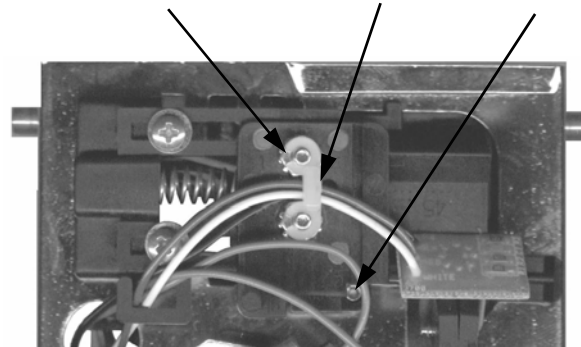


Front coil adjustment screw

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

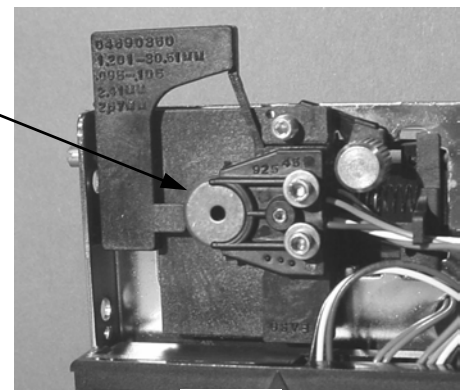
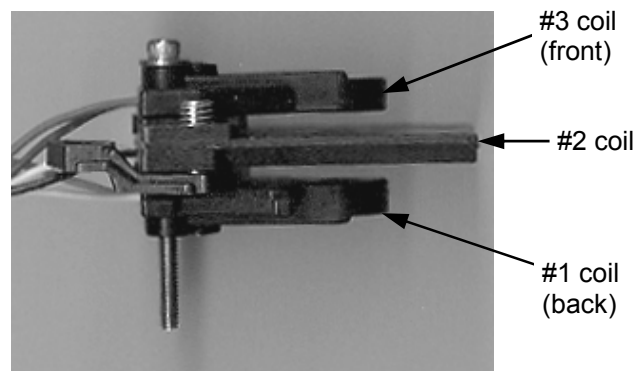


Fig. 3



#3 coil (front)

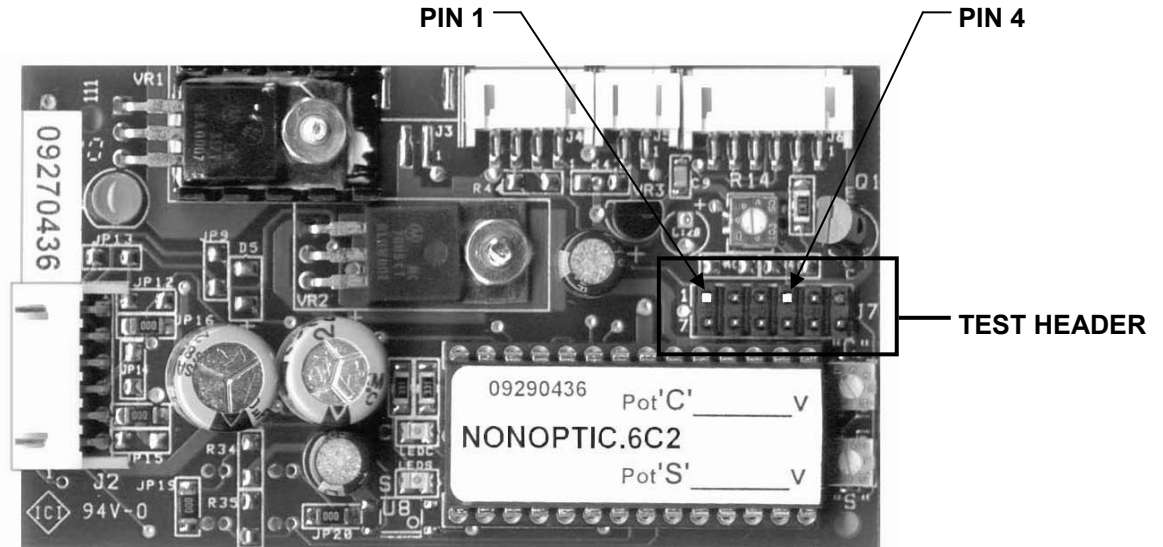
#2 coil

#1 coil (back)

Fig. 4

SENSOR COIL ELECTRONIC BALANCING

CONNECT OSCILLOSCOPE OR mV AC METER TO PIN 1 (TEST POINT) AND TO PIN 4 (GROUND) TO MEASURE LOWEST NULL



Scenario 1

- ▶ Turn the back coil adjustment screw clockwise until the null 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 0.2mm (0.008in). (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 (0.008in). 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 0.2mm (0.008in). Then insert the 1/16 in. hex drive bit back into the number (3) coil adjusting screw and turn it clockwise until the smallest amplitude has again been reached.

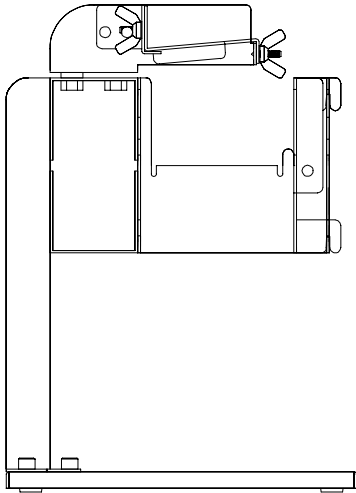
Scenario 2

- ▶ 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 (0.008in).
- ▶ 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.

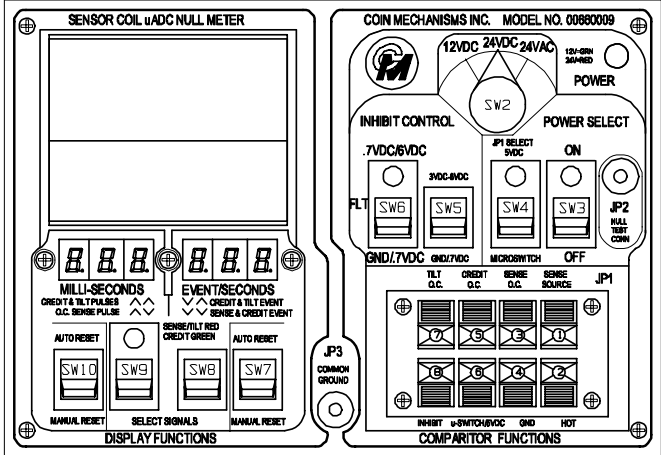
TROUBLE SHOOTING GUIDE

CONDITION	CAUSE	FIX	TIPS
Poor coin acceptance	<ul style="list-style-type: none"> dirty lens on barcode reader 	clean by swabbing with alcohol and buff dry with soft lint free cloth	<i>spilled drinks, cigarette smoke and fingerprints often cause this type of malfunction</i> WARNING: do not use ammonia based cleaners- damage to lens will occur.
	<ul style="list-style-type: none"> incorrect damper lever installed during conversion 		
	<ul style="list-style-type: none"> sticky or frozen damper lever 	disassemble and clean	damper lever will not move or operates slowly <i>spilled drinks often cause this type of malfunction</i>
	<ul style="list-style-type: none"> sticky or frozen accept gate 	disassemble and clean	<i>spilled drinks often cause this type of malfunction</i>
	<ul style="list-style-type: none"> incorrect potentiometer settings 	check settings	<i>floor personnel adjusting potentiometer unnecessarily</i>
No acceptance	<ul style="list-style-type: none"> extremely worn tokens 	contact Coin Mechanisms or Eurocoin	may require software adjustment
	<ul style="list-style-type: none"> mech installed in incompatible host machine 	Confirm pcb voltage and denomination with CPM	
	<ul style="list-style-type: none"> mech installed in incorrect location 	verify property with CPM	
	<ul style="list-style-type: none"> incorrectly denominated circuit board 	check part numbers	
	<ul style="list-style-type: none"> no power 	check for broken wires on mech or harness connection from slot machine	
	<ul style="list-style-type: none"> sticky or frozen damper lever 	disassemble and clean	damper lever will not move or operates slowly <i>spilled drinks often cause this type of malfunction</i>
	<ul style="list-style-type: none"> sticky accept gate. 	disassemble and clean	<i>spilled drinks often cause this type of malfunction</i>
	<ul style="list-style-type: none"> dirty lens on barcode reader 	clean by swabbing with alcohol and buff dry with soft lint free cloth	<i>spilled drinks, cigarette smoke and fingerprints often cause this type of malfunction</i> WARNING: do not use ammonia based cleaners- damage to lens will occur.
	<ul style="list-style-type: none"> defective or damaged barcode reader 	change barcode reader	oscilloscope wave form will not appear correct
	<ul style="list-style-type: none"> defective or damaged circuit board 	change circuit board	produces flat line in oscilloscope analysis

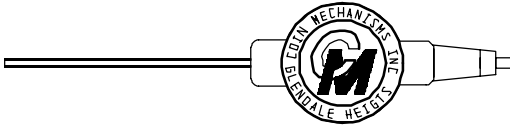
TEST EQUIPMENT REFERENCE GUIDE



TEST STAND
P/N 05000009



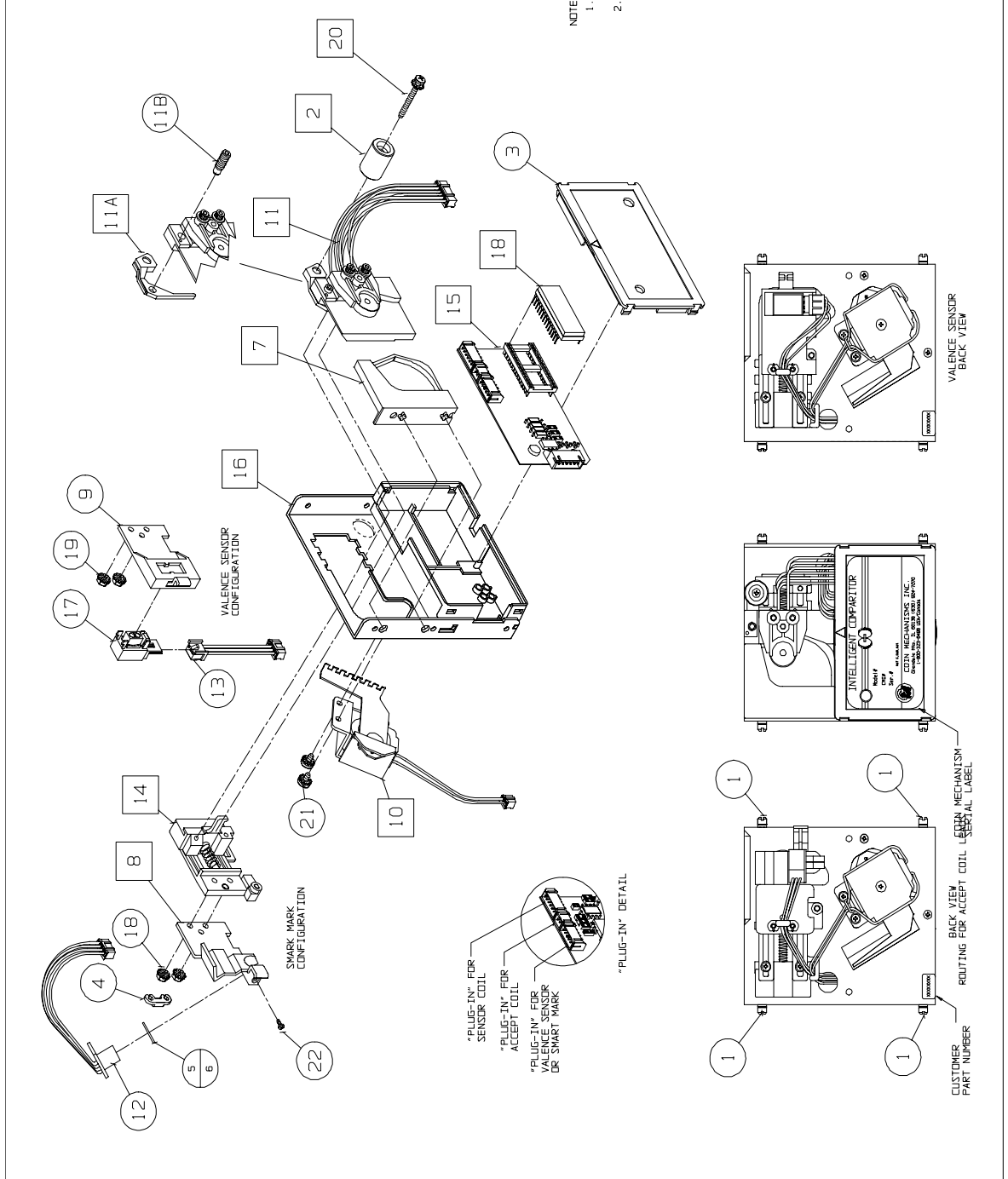
TEST STATION
P/N 00660010



ADJUSTING TOOL
(1/16 in hex drive)

MATERIAL COLUMN		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	04660276	1	CLIP, WIRE, BARCODE, IC	
5	04690243	A/R	SPACER, IC, .010	
6	04690244	A/R	SPACER, IC, .020	
7	0469XXXX	1	HOLDER, TRN, 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)	
11	0625XXXX	1	COIL, ASSY, SENSOR	
11A	0569XXXX	—	LEVER, ASSY, DAMPER, IC (SEE PAGE 2)	
11B	0469066-01	—	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/VID, 5.25	
14	0665XXXX	1	RETAINER, ASSY, IC	
15	0827XXXX	1	PCB, CTRL, IC, (SEE PAGE 2)	
16	06680024	1	CHASSIS, IC-32/33, SALES	
17	08290208	1	PHOTOINTERRUPTER, REFLECTIVE	
18	0859-000XXXX	1	IC, 87752, (SEE PAGE 2)	
19	438-4	2	NUT, 4-40, HEX, KEFS	
20	P-166-6-X	1	SCREW, 6-32 (SEE DOCUMENT #09300019)	
21	P-166-4-3	2	SCREW, 4-40 X 3/16, PHIL/SID, INT SENS WASHER	
22	P-217-2-5	1	SCREW, 2 X 5/16, PHIL/L, PH, H1-LD	

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



ECO NO.	REVISED	REVISED	REVISED	9/7/02
NOI NO.	NOI NO.	NOI NO.	NOI NO.	DATE/BY
		TITLE: IC-32/33, P/N IDENTIFICATION DATE: 4/30/02 DRAWN BY: [blank] CHECKED BY: [blank] APPR: [blank]		
THIS DRAWING IS THE PROPERTY OF COIN MECHANISMS INC. THE DRAWING IS TO BE RETURNED TO THE ORIGINAL SOURCE UPON REQUEST. THIS DRAWING IS NOT TO BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF COIN MECHANISMS.		CRITICAL SYMBOLS: □ = CUSTOMER ▽ = DIMENSIONS ▽ = PARTS □ = FINISH □ = SCALE/INVA FINISH: N/A DWG NO.: 00683202 SHEET 1 OF 2		

MATERIAL COLUMN			
ITEM	P/N	QTY	MAT'L DESCRIPTION
1	D468005-01	4	STLD. #8
2	D468XXXX	1	WEIGHT, DAMPER, (SEE DOCUMENT #09B00019)
3	D468003A-02	1	PIN, COIL DEFLECTING
4	D4680119	1	SPACER, COIN EXIT, .110 (SEE PAGE 2)
4	D4680406	1	SPACER, COIN EXIT, IC .146, EURO (SEE PAGE 2)
5	D4680185	1	COVER, PCB HSG, UNIVERSAL
6	D4680243	A/R	SPACER, IC, .010
7	D4680244	A/R	SPACER, IC, .020
8	D4680276	1	CLIP, WIRE, BARCODE, IC
9	D468XXXX	1	HOLDER, TKN, IC, (SEE PAGE 2)
10	D468XXXX	1	HOLDER, BC ROD, (SEE PAGE 2)
11	D4680104	1	HOLDER, VALENCE READER
12	0825XXXX	1	COIL, ASSY, SENSOR, IC
12A	058BXXXX	—	LEVER, ASSY, DAMPER, IC, (SEE PAGE 2)
12B	D4680266-01	—	PIN, PIVOT, DAMPER, IC
13	08250134	1	COIL & BRKT. ASSY, GRN. 4", PHR (SEE PAGE 2)
13	06250185	1	COIL & BRKT. ASSY, GRN. 4", PHR (SEE PAGE 2)
14	0827XXXX	1	PCB, ASSY, OPTICS, IC, (SEE PAGE 2)
15	08270045	1	PCB, ASSY, BC ROD, SH, TESTED
16	08280101	1	HARNES, VAL, 3 PIN W/P, 4 PIN PHR, RED/BLACK/VD, 5.25
17	08650259	1	RETAINER, ASSY, IC, SPRING
18	06800109	1	CHASSIS, IC-40/82 STD ON (SEE PAGE 2)
19	08680021	1	CHASSIS, IC-40/82 3M ON (SEE PAGE 2)
20	0827XXXX	1	PHOTOINTERLUPT, REFLECTIVE
21	0850-000000	1	IC, CTRL, IC, (SEE PAGE 2)
21	436-4	2	NUT, 4-40, HEX, KEFS
22	600-4	1	WASHER, FLAT, #4
24	P-104-4-12	1	SCREEN, 4-40 X 3/4, PHIL, MS
25	P-188-6-X	1	SCREEN, 6-32 X (SEE DOCUMENT #09300019)
26	P-186-4-3	2	SCREEN, 4-40 X 3/16, PHIL/30, INT SEMS WASHER
27	P-217-2-5	1	SCREEN, 2 X 5/16, PHIL, PH, HE-LO
28	P-221-4-3	1	SCREEN, 4 X 3/16, PHIL, TYPE 45, PLASTITE

NOTES:
 1. SEE INDIVIDUAL BILLS OF MATERIALS FOR VARIABLE SINGLE COMPONENTS INCLUDED BY SOURCE BALLONS.
 2. SEE INDIVIDUAL BILLS OF MATERIALS FOR HARNES REQUIREMENTS.

NO.	REV.	DATE	BY
1	1	9/11/02	UP

REVISONS	
REVISION	DATE
1	4/28/02

TITLE	
IC-40/82, P/N	IDENTIFICATION

DRAWN	
DATE	4/28/02

CHECKED	
DATE	

APPROVED	
DATE	

DWG. NO.	
D0684603	

PROJECT	
IC-40/82	

