



USER MANUAL
COMPARATOR TEST STATION P/N 00660003
REV. 1 6/19/99

FRONT PANEL LAYOUT

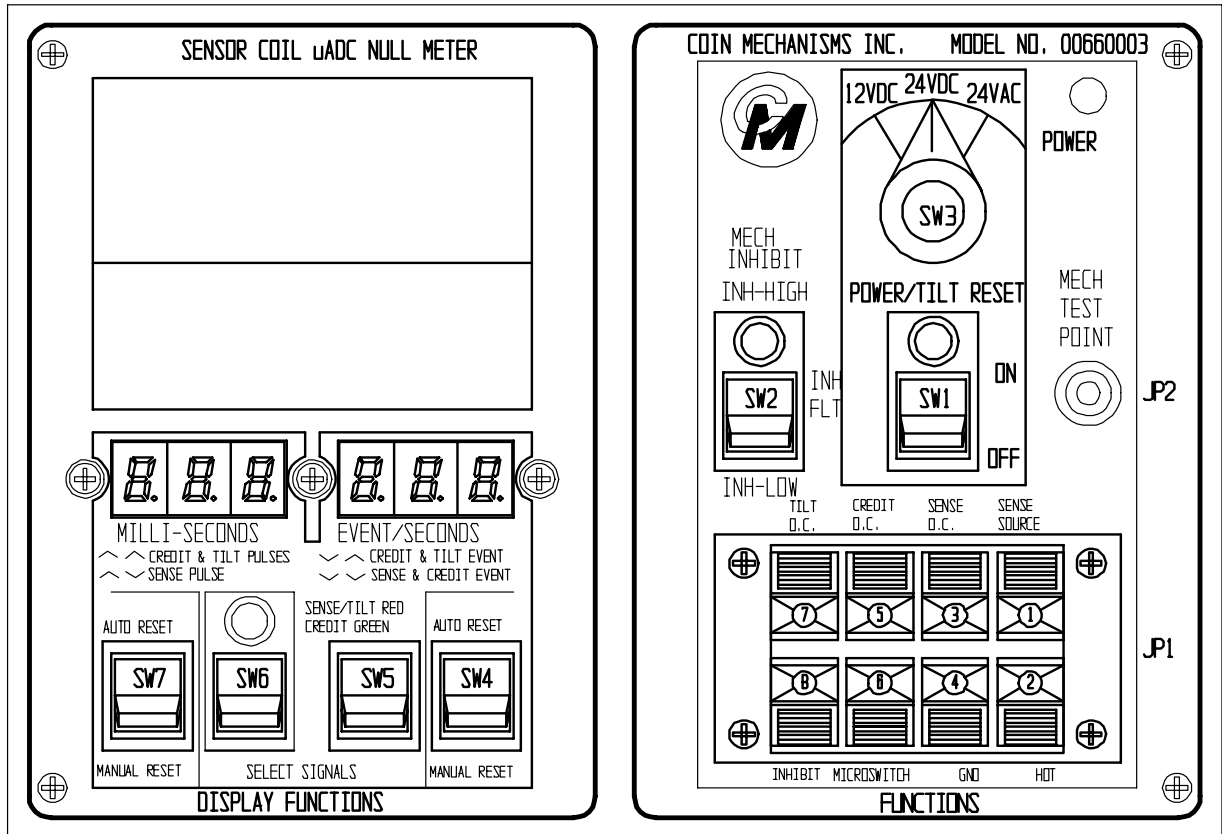


FIG. 1

OVERVIEW

The Comparator Test Station can be used to test, adjust and troubleshoot all Coin Mechanisms coin validation products. The input supply voltage is selectable to 110V, 120V, 220V, or 240VAC. The internal power supply can be externally set to three output voltages 12VDC, 24VDC and 24VAC. Switches can be toggled to simulate a machine's inhibit control lines and display output signals such as the sense, credit and tilt, and can be viewed on the two numerical displays and as well as on a dual-color LED. The sensor coil null meter is used to balance sensor coils on Comparator models.

DISPLAY FUNCTIONS

QUICK REFERENCE TABLE POSITIONS FOR SIGNAL SELECT SWITCHES SW6 AND SW5

SW6	SW5	DISPLAY FUNCTIONS
UP↑	UP↑	CREDIT and LONG TILT PULSE WIDTHS
UP↑	DOWN↓	SENSE PULSE WIDTHS
DOWN ↓	UP↑	SINGLE CREDIT PULSE WIDTHS and EVENT also UNWANTED TILT PULSES can be detected
DOWN ↓	DOWN↓	SENSE and CREDIT EVENT

Table 1

All output signals can be viewed individually or simultaneously by toggling the corresponding switches (see TABLE 1). The dual-colored LED indicates which signal or signals are being displayed, LED red = sense or tilt, LED green = credit.

The left 3-digit 7-segment display measures output signals such as the sense, credit, or some tilt signals in milli-seconds.

The right 3-digit 7-segment display measures longer output signals such as the tilt signal in seconds, the first counter overflows to the second counter and displays signals in seconds. Signals can be measured accurately up to 15 minutes.

The right display also doubles as a coin/event counter. It can help in detecting false crediting or numerous crediting.

Both counters utilize external reset switches, (SW7, SW4) the 3-position switches can be set for manual reset or the test station's internal auto-reset mode which occurs in approximately 2 seconds after each display of time. In auto-reset mode the next incoming signal will reset the counters and then that signal will be displayed. Typically the manual reset (SW4) is used for coin counting (accumulating), The milli-second counter reset switch (SW7) can typically run in the auto-reset mode.

I / O HOOKUP FUNCTIONS

For simplified choices regarding operation of the test station refer to TABLE 1.

FRONT PANEL HOOK-UP: JP1

1 = SENSE input, sourcing signals only. (from sense output of Comparitor)

2 = OUTPUT VOLTAGE (pos. +) to Comparitor, selected via SW3 and controlled via SW1. SW1 is used to switch power on or off only to the unit under test connected to hot terminal 2 of JP1.

Caution: Care must be taken to ensure that the proper voltage range is selected before connecting the unit to be tested.

3 = SENSE input, open collector signals only. (from sense output of Comparitor)

4 = COMMON, GROUND

5 = CREDIT input, open collector signals only. (from credit output of Comparitor)

6 = Micro-Switch N.O. connection only, (with internal debounce circuit) Mechanical Mechs

micro-switch connection = N.O. tab to JP1 #6 and switch COMM. tab to JP1 #4.

7 = TILT input, open collector signals only. (from tilt output of Comparitor)

8 = INHIBIT output, controlled via SW2. (to inhibit input of Comparitor)

Switch SW1 is used to switch power on or off only to the unit under test connected to hot terminal 2 of JP1

INHIBIT SWITCH

The Inhibit switch SW2 has marked settings on the front panel INH/HIGH, INH/FLT and INH/LOW function as outlined below. The inhibit function output sends a signal level to the Comparitor to disable it from accepting coins.

INH/HIGH = 12VDC, 24VDC or 15VAC

INH/FLT = OPEN (Floating connection)

INH/LOW = GROUND

To enable the Comparitor to accept coins (Comparitor Accept Mode) apply the proper signal level to the inhibit wire, refer to Comparitor Specification Sheet.

SENSOR COIL NULL METER

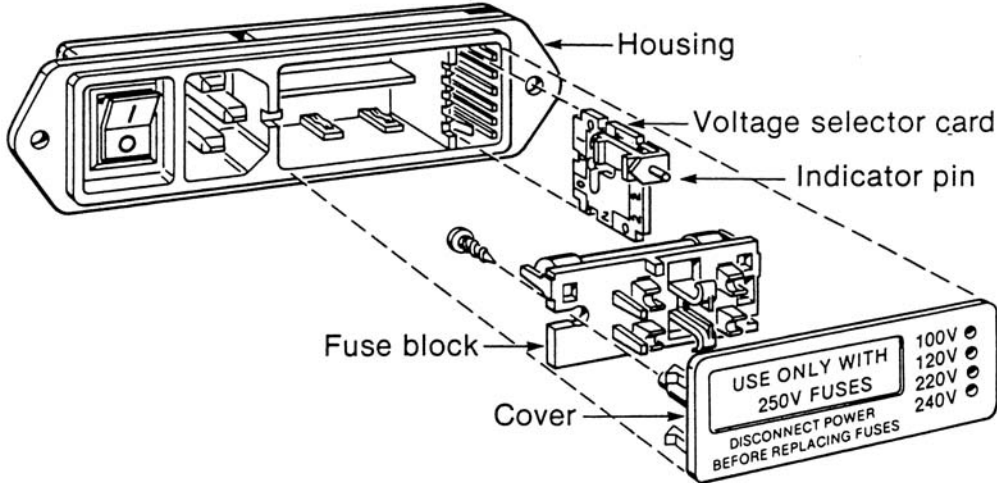
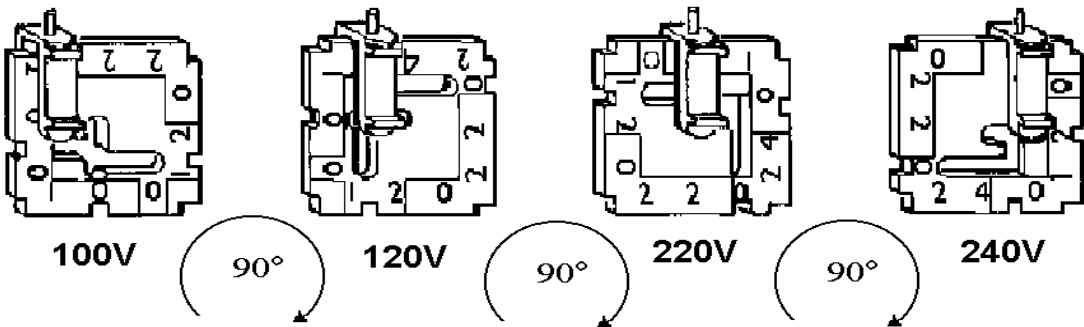
JP2 = Comparitor Test Point, use banana/mini-clip lead and connect to Comparitors Test Point, refer to schematic or Test Point identification at the end of this document. This test point is typically used to view the null waveform on the null meter or oscilloscope.

VOLTAGE SELECTION

To change voltage: open cover, using small blade screwdriver or similar tool: set aside cover/fuse block assembly: pull voltage selector card straight out of housing, using

indicator pin; orient selector card so that desired voltage is readable at the bottom; orient

VOLTAGE SELECTOR CARD ORIENTATION



**COIN COMPARITOR
PIN NUMBER INDENIFICATION**

FIG #1 depicts the pin out configuration of the six pin CC-46. Use interface "A" on units

with a JST header. This configuration can also apply to the CC-40 comparitors.

Refer to the machine manual to determine what outputs pertain to your machine.

Fig # 2 depicts the pin out configuration of the CC-33 and the CC-37 comparitors. Use interface "B" with three pin JST header. The pin outs are the same for both comparitors.

Fig # 3 depicts the pin out configuration of the CC-32 and the CC-36 comparitors. Use interface "C" with six-pin MOLEX header. The pin outs are the same for both comparitors.

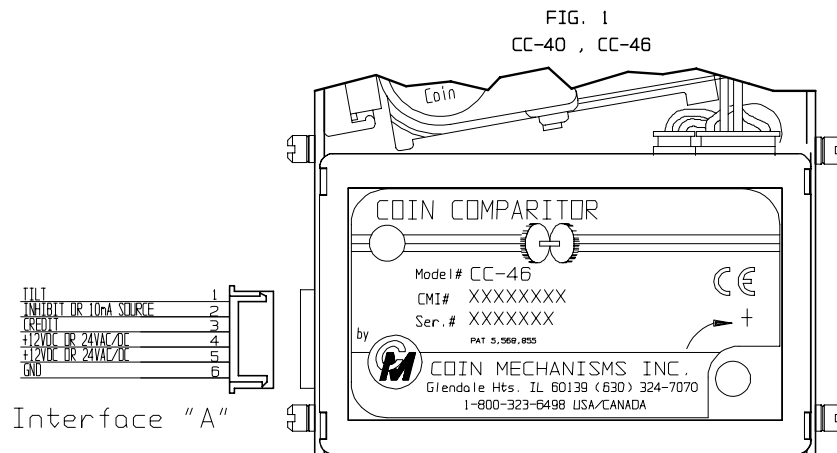
Fig # 4 depicts the pin out configuration of the IC-33 and IC-37 with a JST header. Use interface "A" on units with a JST header. The pin outs are the same on both comparitors.

Fig # 5 depicts the pin out configuration for the IC-16. Use interface "C" with six-pin MOLEX header.

Fig # 6 depicts the pin out configuration of the six pin CC-46. Use interface "A" on units with a JST header. This configuration can also apply to the CC-16 comparitors. Refer to the machine manual to determine what outputs pertain to your machine.

Fig # 7 depicts the pin out configuration for the seven pin CC-46. Use interface "D" on units with a seven pin Molex header. This configuration can also apply to the CC-62 or IC-62 comparitor.

Fig # 8 depicts the pin out configuration of the IC-32 and IC-36 with a JST header. The pin outs are the same on both comparitors. Any additional pin out configuration can be determined by referring to the specific comparitor specification sheets.



COIN COMPARITOR PIN NUMBER IDENTIFICATION

FIG. 2
CC-33 , CC-37

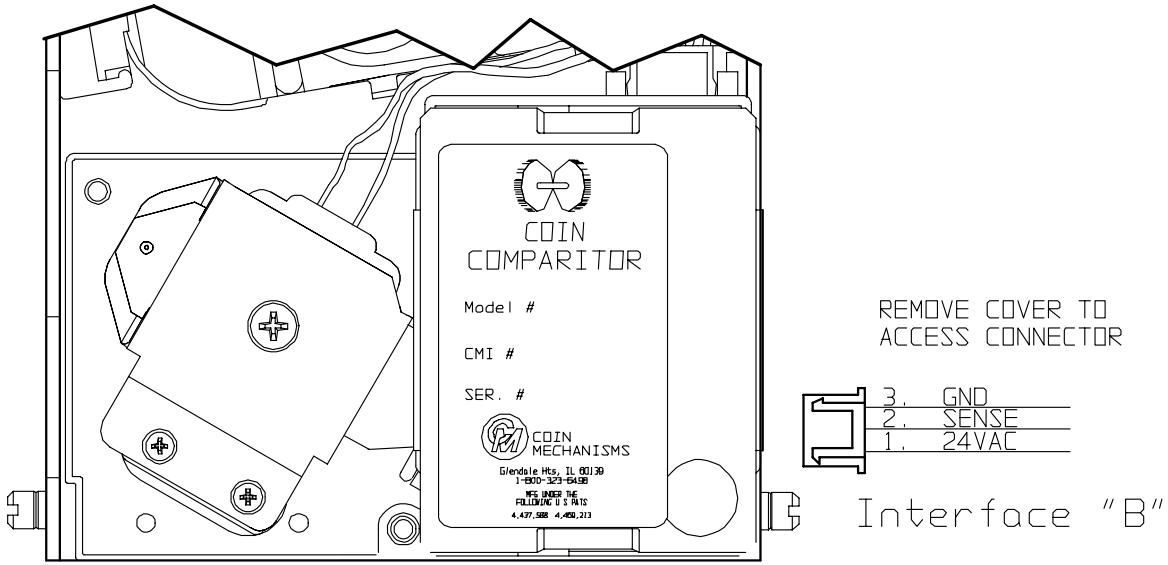
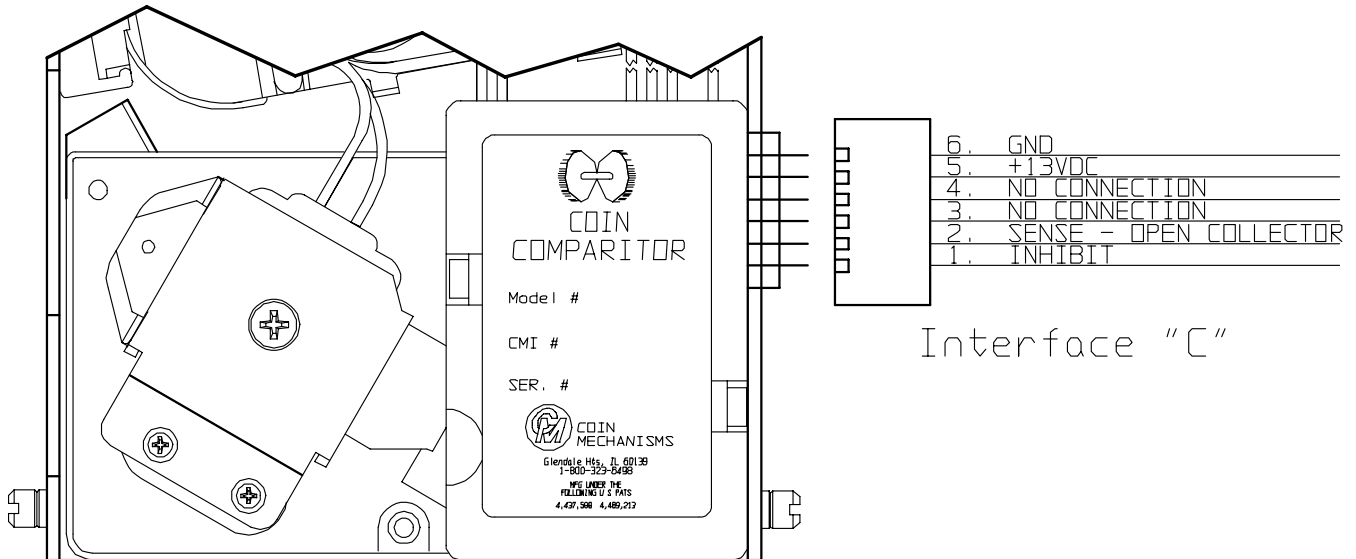


FIG. 3
CC-32 , CC-36



COIN COMPARITOR PIN NUMBER IDENTIFICATION

FIG. 4
IC-33, IC-37

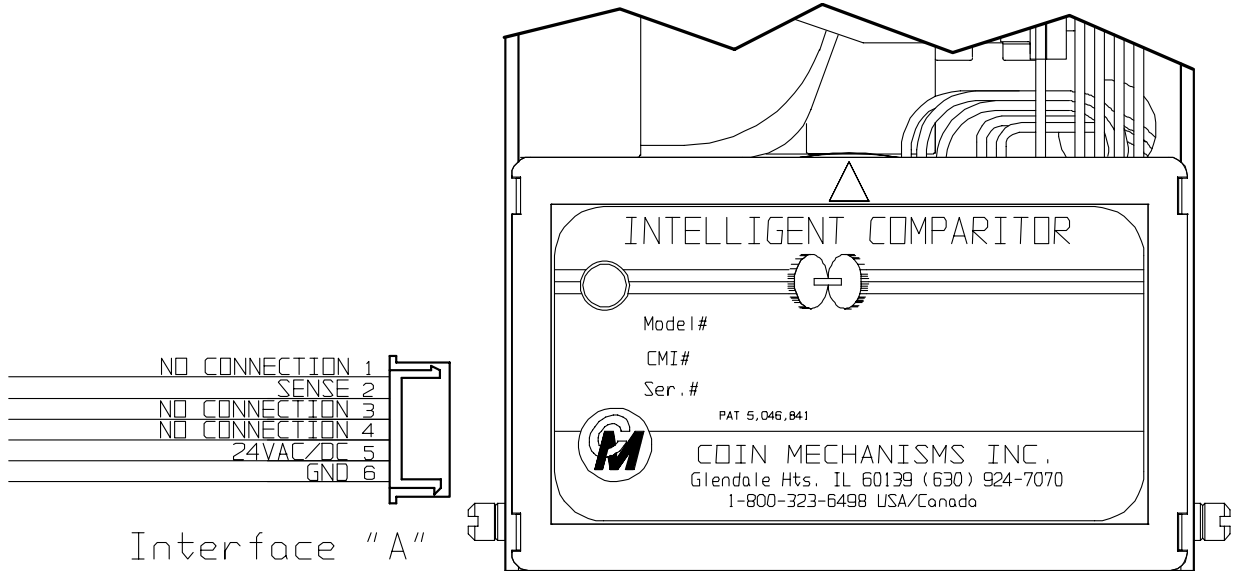
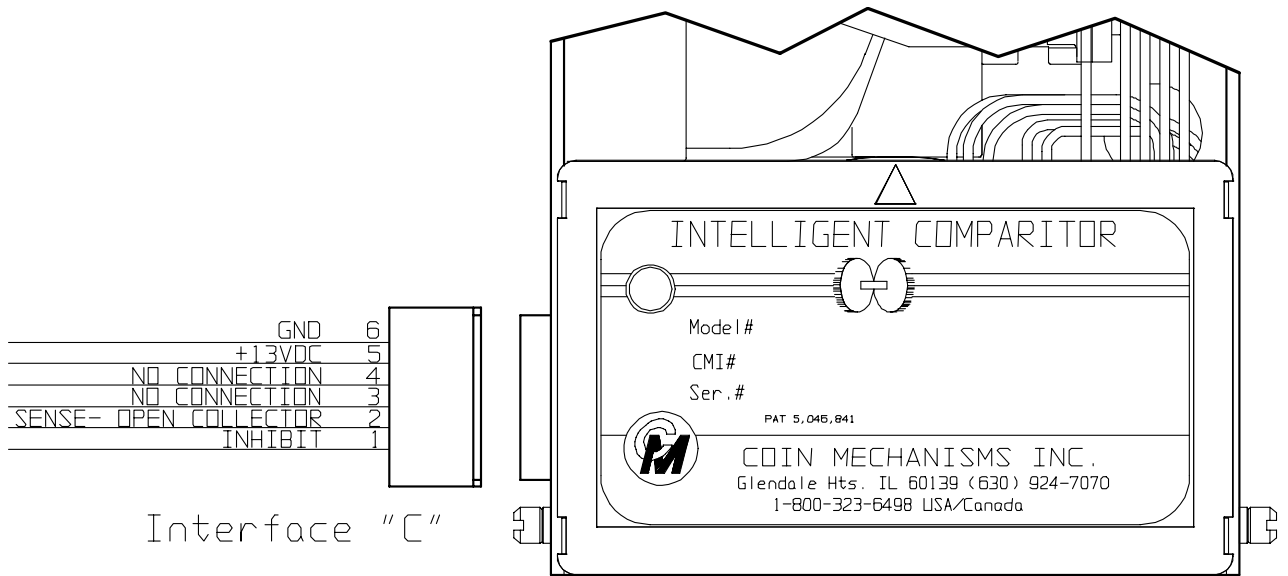
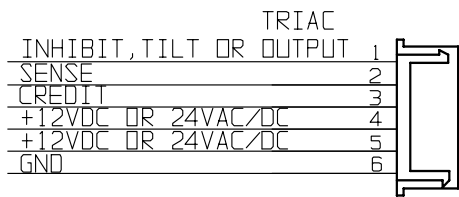


FIG. 5
CC-16, IC-16
13VDC INH



COIN COMPARITOR PIN NUMBER IDENTIFICATION

FIG. 6
CC-16 , CC-46



Interface "A"

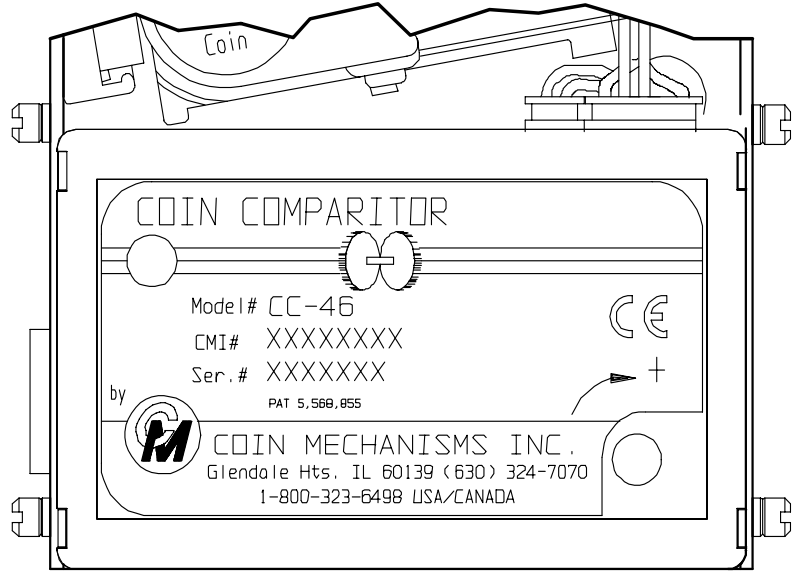
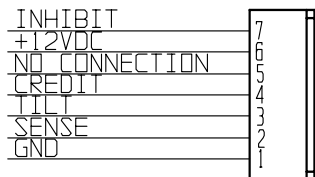
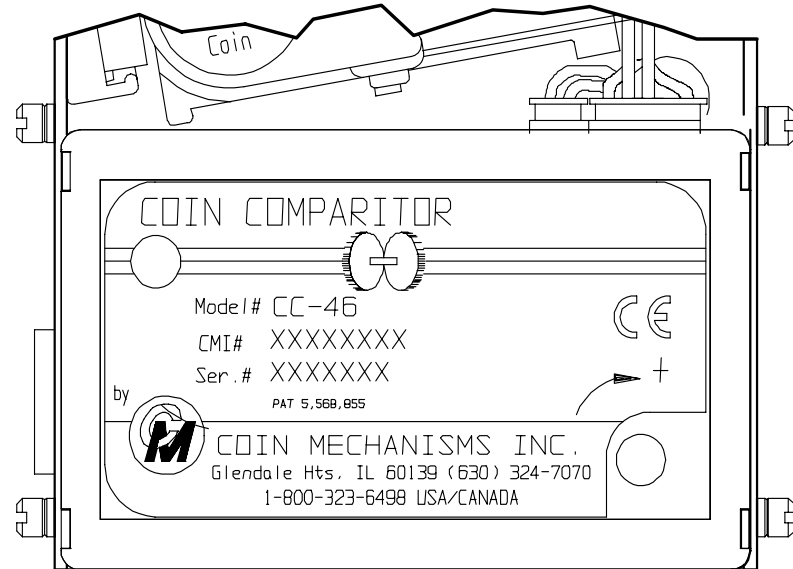


FIG. 7
CC-46 , CC-62, IC-62

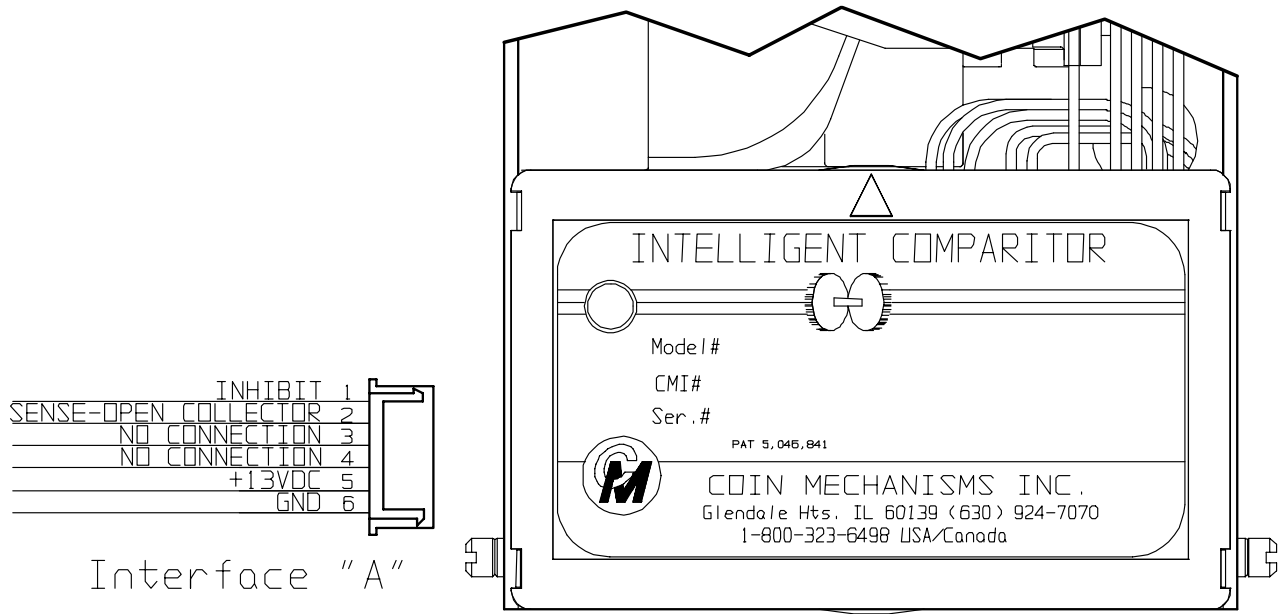


Interface "D"

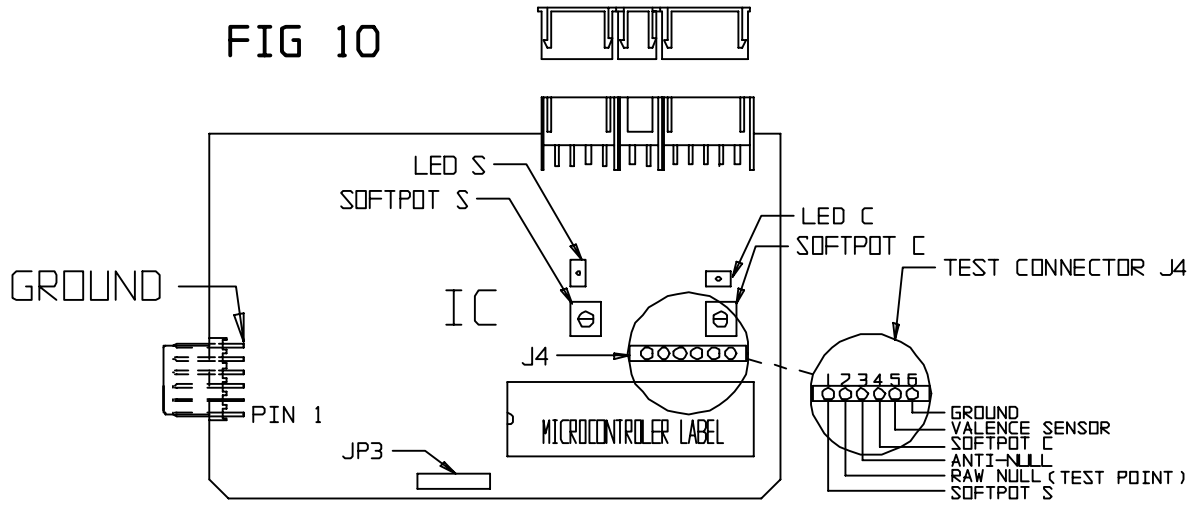
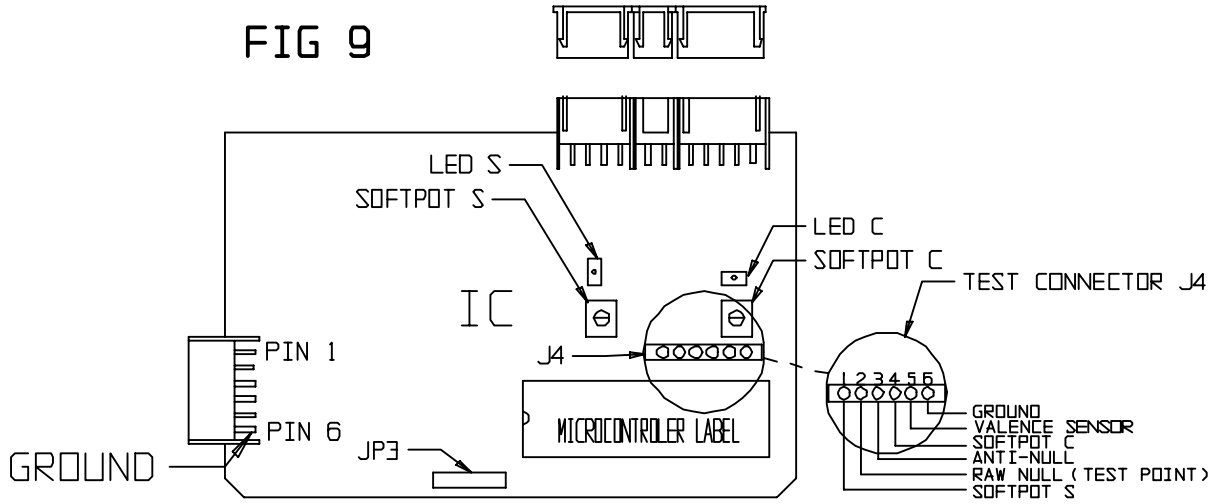


COIN COMPARITOR PIN NUMBER IDENTIFICATION

FIG. 8
IC-32, IC-36



**COIN COMPARITOR
TEST POINT INDENTIFICATION**



COIN COMPARITOR TEST POINT INDENTIFICATION

FIG 11

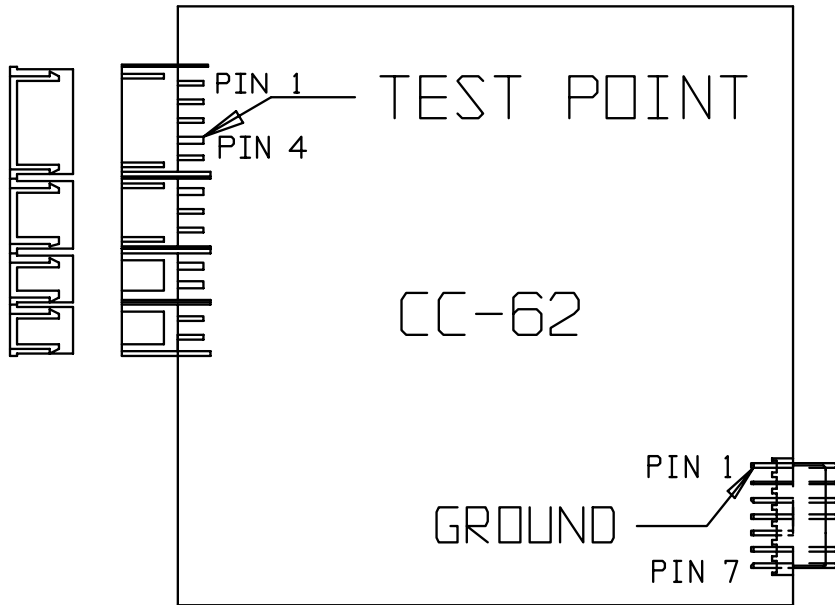
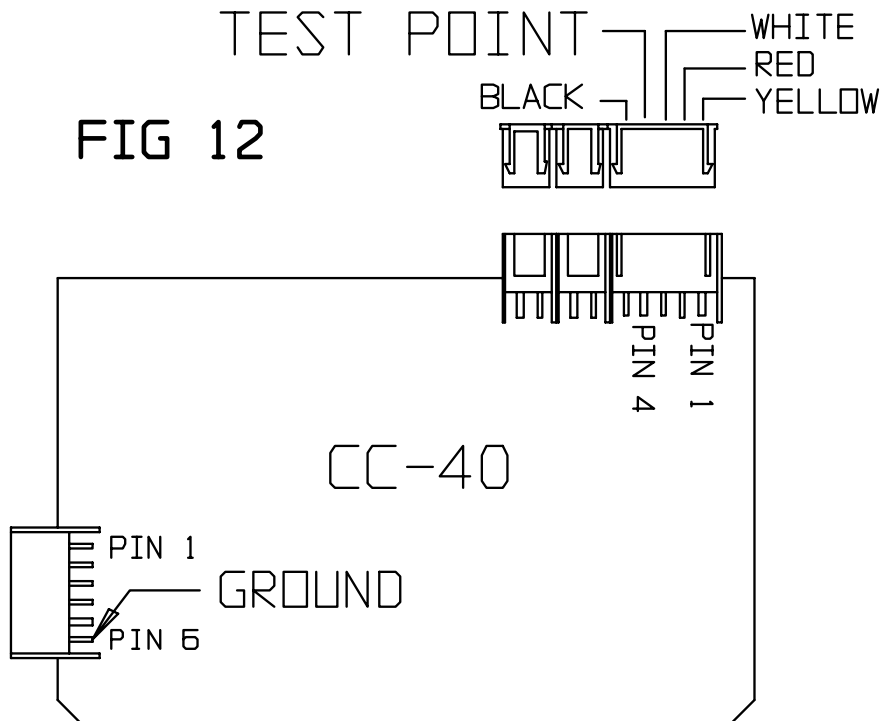
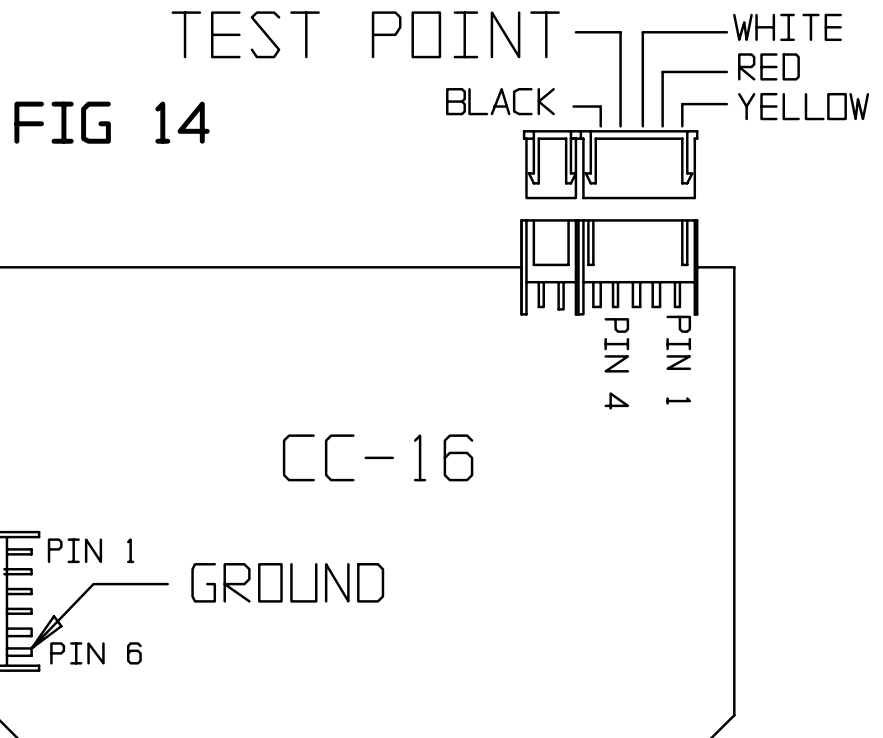
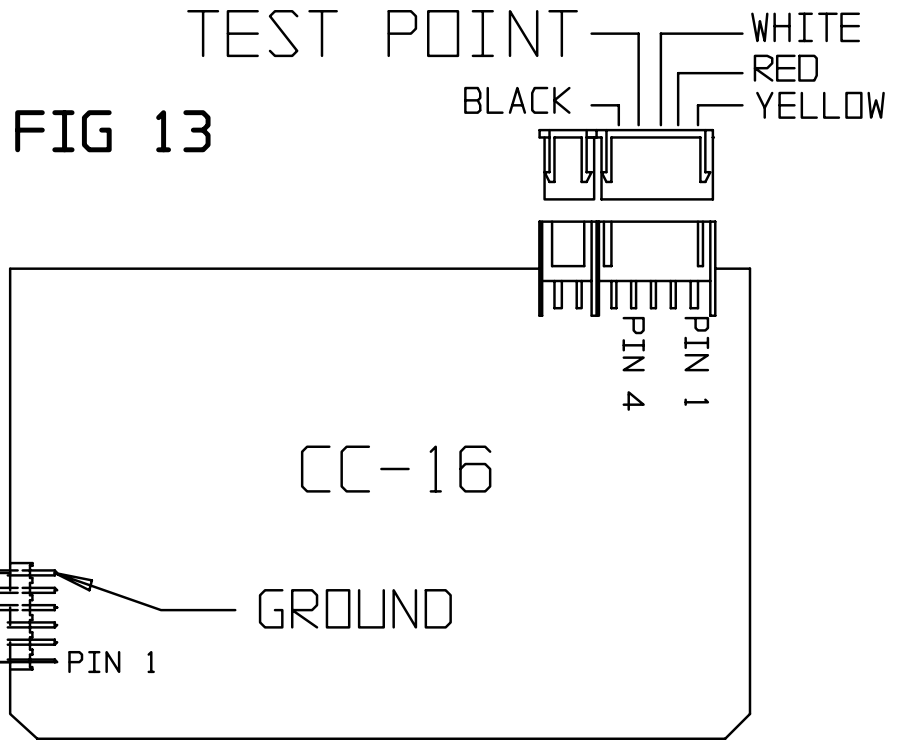


FIG 12



**COIN COMPARITOR
TEST POINT IDENTIFICATION**



**COIN COMPARITOR
PIN NUMBER IDENTIFICATION**

FIG 15

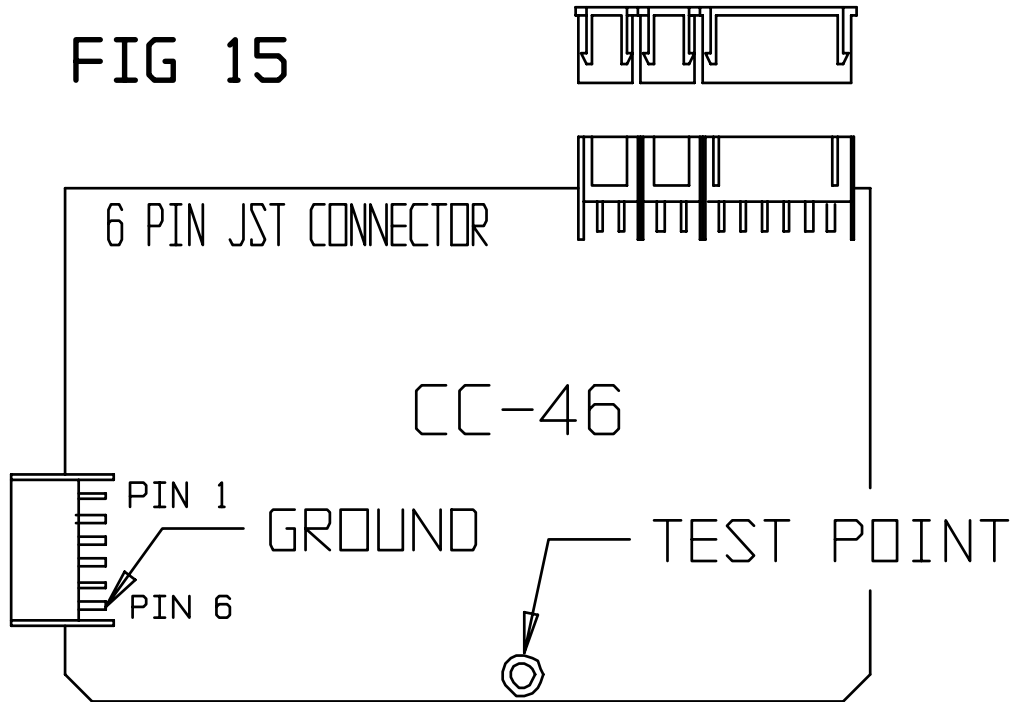
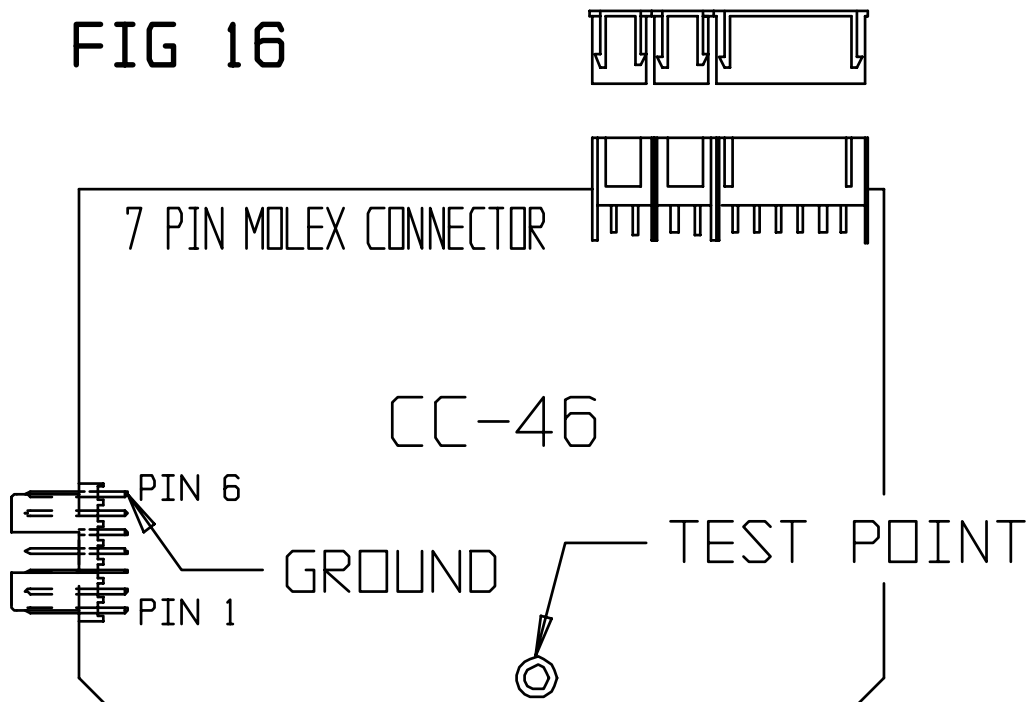


FIG 16



COIN COMPARITOR

TEST POINT IDENTIFICATION

FIG 17

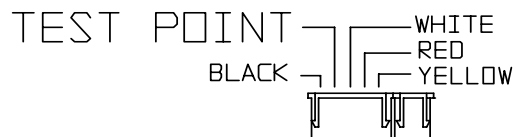
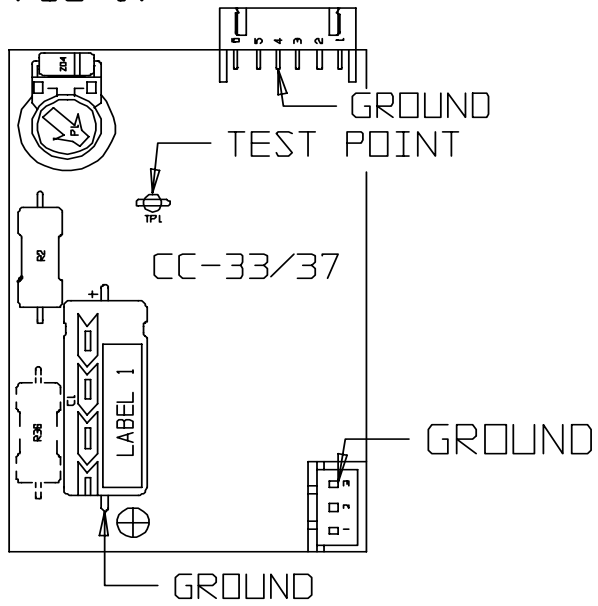


FIG 18

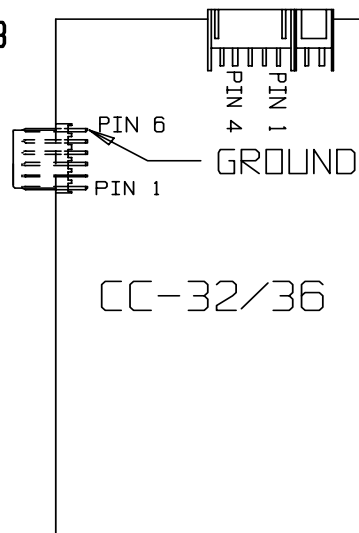


TABLE 1 MATRIX	CC10,CC16, DD16H112D & IC16	CC30 - series	CC20,CC40,CC50 IC40	CC46 & MC SERIES	CC61,CC62 DD62,2CC62& IC62	IC33,IC37	IC-32,IC36
SW1	Power ON/OFF	Power ON/OFF	Power / Tilt reset	Power / Tilt reset	Power / Tilt reset	Power ON/OFF	Power ON/OFF
SW2	INH FLT = INHIBIT (center position) INH/LOW = ENABLE (bottom position)	N/A	INF FLT = INHIBIT (center position) INH/LOW = ENABLE (bottom position)	High or Low INHIBIT Refer to Spec Sheet	INH/LOW = INHIBIT (bottom position) INH/FLT = ENABLE (center position)	N/A	INF FLT = INHIBIT (center position) INH/LOW = ENABLE (bottom position)
SW3	VOLTAGE Refer to Spec Sheet	VOLTAGE Refer to Spec Sheet	VOLTAGE Refer to Spec Sheet	VOLTAGE Refer to Spec Sheet	VOLTAGE Refer to Spec Sheet	VOLTAGE Refer to Spec Sheet	VOLTAGE Refer to Spec Sheet
SW4	User preference	User preference	User preference	User preference	User preference	User preference	User preference
SW5 Sense	NO SETTING REQUIRED	NO SETTING REQUIRED	n/a	SENSE = (Refer to Spec Sheet)	SENSE = JP1 #3 (bottom position)	SENSE = (bottom position)	SENSE = (bottom position)
SW5 Credit	n/a	n/a	CREDIT = JP1 #5 (top position)	CREDIT = (Refer to Spec Sheet)	CREDIT = JP1 #5 (top position)	N/A	N/A
SW5 Tilt	n/a	n/a	TILT = JP1 #7 (top position) For long Tilts also set SW6 (top position)	TILT = (Refer to Spec Sheet)	TILT = JP1 #7 (top position)	N/A	N/A
SW6 Coin	EVENT (bottom position)	EVENT (bottom position)	EVENT (bottom position)	EVENT (Refer to Spec Sheet)	EVENT (bottom position)	EVENT (bottom position)	EVENT (bottom position)
SW6 Sense	EVENT (bottom position)	EVENT (bottom position)	EVENT (bottom position)	EVENT (Refer to Spec Sheet)	EVENT (bottom position)	EVENT (bottom position)	EVENT (bottom position)
SW6 Credit	n/a	n/a	EVENT (bottom position)	EVENT (Refer to Spec Sheet)	EVENT (bottom position)	N/A	N/A
SW6 Tilt	n/a	n/a	(top position)	High going tilts to JP1#1 Low tilts are set same as CC40 or CC/IC62	(top position)	N/A	N/A
SW7	User preference	User preference	User preference	User preference	User preference	User preference	User preference
JP2	PG 11 / FIG 13 & 14	PG 13 / FIG 17 & 18	PG 10 / FIG 12	PG 12 / FIG 15 & 16	PG 10/ FIG 11	PG 9 / FIG 9	PG 9 / FIG 10
JP1	1 = SENSE, Sourcing 2 = +Input Voltage 3 = n/a 4 = Ground, common 5 = n/a 6 = n/a 7 = n/a 8 = Inhibit, see SW2 See DD16H112D Specs	1 = SENSE, Sourcing 2 = +Input Voltage 3 = n/a 4 = Ground, common 5 = n/a 6 = n/a 7 = n/a 8 = n/a	1 = n/a 2 = + Input Voltage 3 = n/a 4 = Ground, common 5 = Credit, low 6 = n/a 7 = Tilt, low 8 = Inhibit, see SW2	1 = Sense, see Specs 2 = + Input Voltage 3 = Sense, see Specs 4 = Ground, common 5 = Credit, see Specs 6 = n/a 7 = Tilt, see Specs 8 = Inhibit, see Specs	1 = Sense, see Specs 2 = +Input Voltage 3 = Sense, see Specs 4 = Ground, common 5 = Credit, see Specs 6 = n/a 7 = Tilt, see Specs 8 = Inhibit, see Specs	1 = Sense, see Specs 2 = +Input Voltage 3 = Sense, see Specs 4 = Ground, common 5 = N/A 6 = N/A 7 = N/A 8 = Inhibit, see Specs	1 = Sense, see Specs 2 = +Input Voltage 3 = Sense, see Specs 4 = Ground, common 5 = N/A 6 = N/A 7 = N/A 8 = Inhibit, see Specs