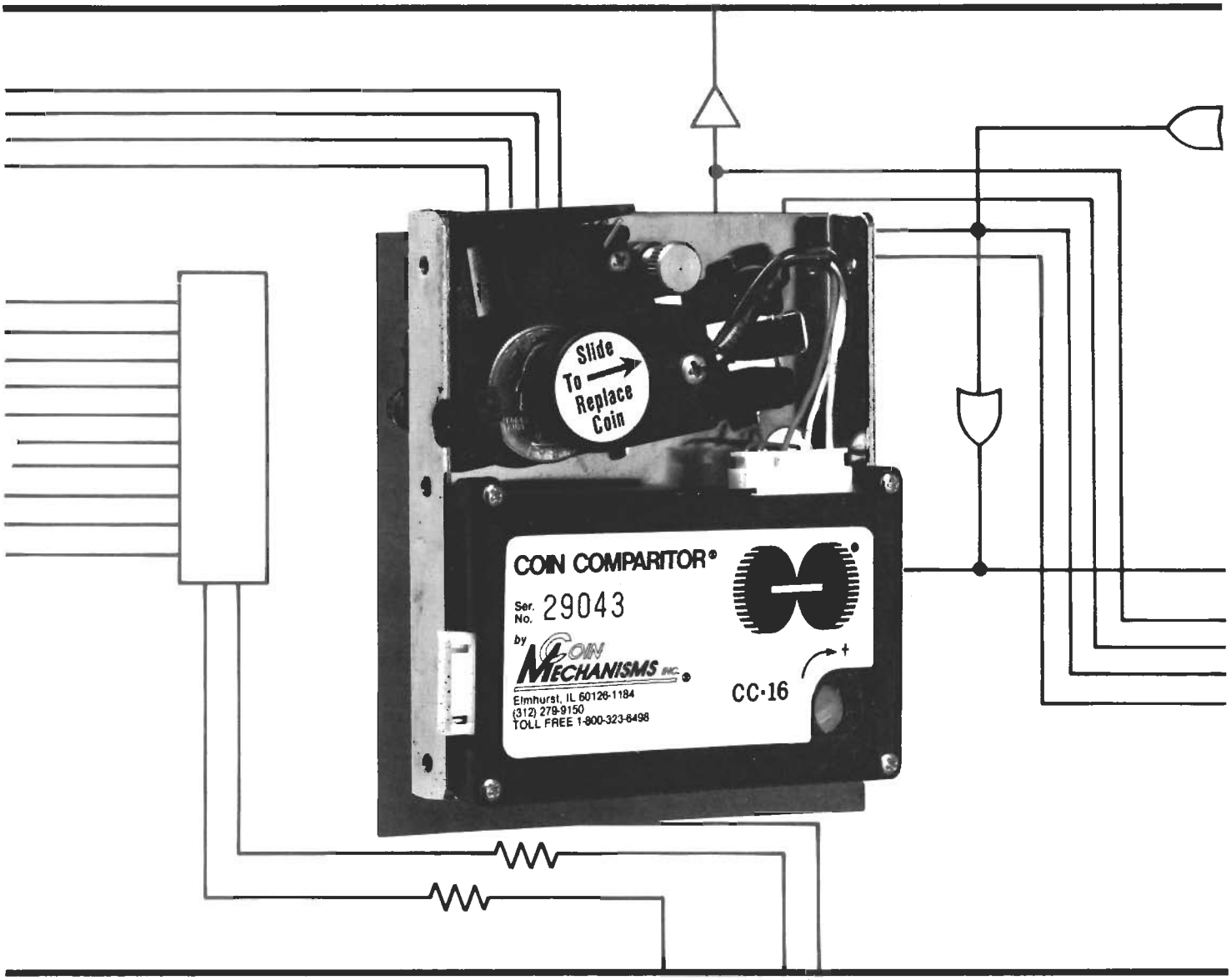
COIN COMPARITOR®
MODEL
CC-16



COIN MECHANISMS INC.

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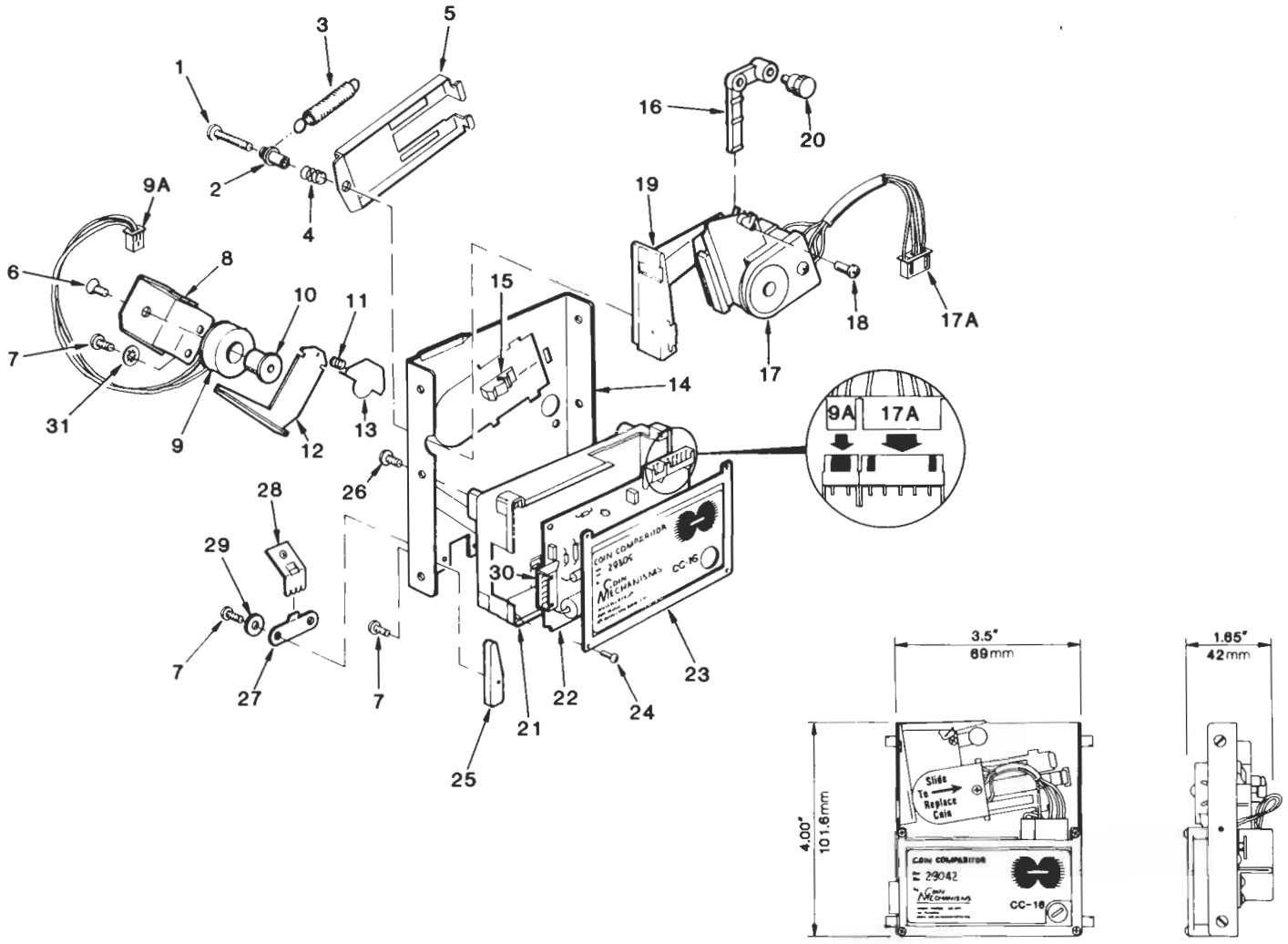


Dwg. No.	Part No.	Description	Qty.
1	P-216-4-12	#4-40 x 3/4 Phillips Pan Head Screw Taptite	1
2	CC-151	Spring Retaining Bushing	1
3	CC-152	Extension Spring	1
4	CC-153	Compression Spring	1
5	CC-245	#1 Sensor Coil Retaining Shield for Molded Disc	1
6	P-102-5-6	#5-40 x 3/8 Phillips Flat Head Screw	1
7	P-104-4-3	#4-40 x 3/16 Phillips Screw	6
8	CC-233	Coil Mounting Bracket (Compression Spring Style)	1
9	CC-147-200LT	200 Ohm Coil Red Leads & Connector	1
9A	XHP-2	2 Post Housing	1
10	CC-219-4	Core Pin	1
11	CC-232-1	Armature Compression Spring	1
12	CC-230-LT	Armature & Tape Ass'y	1
13	CC-231	Armature Spring Retainer	1
14	CC-240	Vertical Drop Main Plate W/Notch	1
15	CC-161	Safety Stop	1

Dwg. No.	Part No.	Description	Qty.
16	CC-162-1MT	Dampner Lever Ass'y	1
17	CC-168-1LT	Sensor Coil & Brk't Ass'y	1
17A	XHP-5	5 Post Housing	1
18	P-216-4-6	#4-40 x 3/8 Phillips Pan Head Screw	1
19	CC-176-LT	Rail Ass'y W/Set Screw & Rail Insert	1
20	X-516	Dampner Weight (Threaded)	1
21	CC-254	P.C. Board Housing (4 Corner Mtg.)	1
22	PEM-46-VT	LS Circuit Board	1
23	CC-255	Cover (Photo Optics) (4 Corner Mtg.)	1
24	P-104-2-4	#2-56 x 1/4 Phillips Pan Head Machine Screw	4
25	CC-228	Coin Exit Spacer	1
26	P-216-4-4	#4-40 x 1/4 Phillips Pan Head Screw Taptite	2
27	CC-204	Anti-Stringing Lever Retainer	1
28	CC-202-1LT	Anti-Strining Lever Assembly	1
29	600-6-1	#6 Double Thick Washer	2
30	S6B-XHA	6 Base & Post Ass'y Side Entry	1
31	630-4	#4 Lock Washer	1

CC-16 COIN COMPARITOR WITH SIDE CONNECTOR

THEORY OF OPERATION

The Comparitor is an electronically controlled coin tester which positions a sample coin in a magnetic field, then passes a test coin through a similar magnetic field to create a null in the sensor coils (ie., Comparing the fields). The presence of the test coin is detected by sensing the quality of the null whereby the test coin is accepted in response to the duration of the null. The spiked signal source used in the sensor coils is comprised of an oscillator for producing a square wave voltage, means for differentiating the square wave consisting of a capacitor connected in series between the oscillator and the exciter coils. Differentiation creates a spiked signal having a plurality of frequencies spanning the range to include what can be characterized as high frequencies and low frequencies. The low frequencies are at about the oscillator frequency. The high frequencies are the actual spikes created by differentiating the edges of the square wave. The multiple frequency signal is an important element in distinguishing coins of similar but different material. It is found that some materials typically those which are poor conductors such as lead, attenuate higher frequencies to a greater extent than low frequencies, while other materials, typically good conductors such as silver, attenuate in just the opposite fashion. Since the signal which drives the exciter coils has both high and low frequencies at different respective amplitudes, during some portion of the frequency band when a test coin of similar size but different material than the sample coin is passing through the magnetic field it will be unable to attenuate the spiked signal to the same degree as the sample coin, and succeding circuitry will respond to that by rejecting the coin. With a sample coin in place and no test coin in the field, the detector coil senses a large unbalance which drives an amplifier to saturation. This amplifier output is actually following the spiked wave form coupled from the exciter coils to the detector coil, but the actual nature of the output depends on the material of the sample coin, as to whether primarily the high frequencies or low frequencies are reproduced. The null detector and timers are insensitive to the large output from the amplifier in this quiescent mode. When a test coin passes through the magnetic field in the gap, if it matches the sample coin, at some point during its travel it will create an interference in its gap which matches the interference created by the sample coin in its gap. As a result, the output of the amplifier will decrease toward zero as the null is approached and then return to its high quiescent level after the coin passes through. The null detector senses that null and if its quality matches certain predetermined standards indicating the test coin matches the sample it activates a one-shot multivibrator to energize the coil and draw the armature in, thereby accepting the coin into the cash box.

COIN SIZE SPECIFICATION

Coin diameter range .705" thru 1.575" (17.9mm thru 40 mm).

Note: For dia, of 1.205" thru 1.575" (22.61mm thru 40 mm), a plug spacer is recommended.

Recommended maximum thickness of coin: .110" (2.79mm).

Coin Entry slot control is necessary for oversize protection beyond .040" (1.02mm) of coin in sample holder.

VOLTAGE

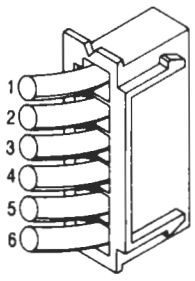
The operating voltage for the CC-16 Comparitor is established by the Power Cord. Normally each unit is shipped with a standard power cord containing the four wires necessary for each voltage range. This allows the operator the ability to choose the range he requires. After determining the operating voltage, the unused lines (wires) should be removed from the connector. The three ranges are:

12 thru 20 Volts A.C. or D.C.*
20 thru 30 Volts A.C. or D.C.
50 Volts A.C. or D.C.

*12 VDC operation requires a regulated power supply.

Current Demand: Idle 40 mAmps
Peak 140 mAmps

1. —
2. —
3. 50V
4. 24V
5. 12V
6. Ground



INSTALLATION INSTRUCTIONS

To connect the CC-16 Comparitor, the proper operating voltage must be determined.

TURN POWER OFF

INSTALLING THE SAMPLE COIN:

Looking at the front of the Comparitor, slide (without lifting) the sensor coil assembly to the right. Replace the sample coin blank with the desired coin, and then carefully release. In most cases, the coin will automatically seat itself. When properly seated, the coin will rest firmly between the sensor coil assembly and the ribs on the rail insert.

REPLACING THE EXISTING ACCEPTOR:

1) Remove the acceptor.
2) Disconnect the coin return linkage.
3) Remove the blockout coil, if used.
4) In some cases, the Comparitor mounting studs may need to be relocated to meet manufacturer's mounting specifications.
5) Mount CC-16 into equipment.

WIRING INSTRUCTIONS

Now that the correct power cord has been determined, the CC-16 is ready to be wired into the machine.

OPERATING VOLTAGE:

1) The neutral or ground of the voltage source should be wired directly to the BLACK wire (Pin #6) of the power cord.
2) Depending on the type of cord, the hot or positive of the voltage source should be wired directly to either the ORANGE wire (Pin #5) or YELLOW wire (Pin #4) or RED wire (Pin #3).

These connections now provide the operating voltage and lockout capability, if previously used, to the CC-16 Comparitor.

SPECIAL FEATURE

Also included in the CC-16 Comparitor is a +6V (Reference to Comparitor GND) output signal. This signal is provided upon 'Acceptance' of a good coin, which is triggered by the sensing circuit. This output is located at Pin #2 (Violet Wire) on the power cord, only upon request, and can be used as required.

POTENTIOMETER ADJUSTMENT

Each Comparitor leaving the factory is adjusted to give excellent discrimination against slugs. However, some high quality slugs may need a finer adjustment:

1) Adjust potentiometer CW until high quality slug is rejected.
2) Insert proper coin to ensure accurate acceptance.
3) Repeat steps 1 and 2, if necessary.

CHECKLIST

BEFORE TURNING POWER ON

1) Make sure that all connections are properly insulated.
2) Tuck wire to prevent interference with coin travel or coil armature movement.
3) Check the power cord for firm connection to the P.C. board.
4) Make sure the Comparitor is mounted securely in the equipment.
5) Check the entry chute alignment by inserting the proper coin. The coin should fall freely, without stopping, through the Comparitor and reject out of the equipment.

TURN POWER ON

1) Insert the proper coin. It should be recognized by the Comparitor and accepted.
2) Repeat step 1 several times to make certain the unit is functioning properly.

The Comparitor should now be ready for operation. If a problem exists, review all of the instructions. If you are unable to resolve the problem, call our service department for assistance.

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4. CONFIGURING THE COMPARATOR FOR USE IN THE UNIVERSAL SLOT MACHINE