



The Originators of Metered Parking

Series II
APM-2X/4X Mechanism
Service Manual

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SECTION I: GENERAL INFORMATION

The procedures outlined in this manual represent the best methods for maintaining and repairing the POM Series II electronic parking meter. It is advisable to read these instructions carefully, as a clear understanding will make the job of maintaining and repairing the meters much easier.

A. FACILITY

It is important to have an adequate facility for meter service requirements. The facility should include the following:

1. A workbench or table with anti-static pad and good lighting.
2. All necessary tools and supplies to perform the task correctly.
3. Storage for spare parts and mechanisms. Spare parts can be stored in cabinets or special containers that feature drawers with dividers. Spare circuit boards should be stored inside anti-static bags. Spare mechanisms are best stored on well-constructed shelves with batteries or solar pak removed. Spare batteries should be stored in an environment with a dry, moderate temperature for maximum shelf life. See manufacturer suggestions for storage.
4. Sturdy shelves or racks for storage of spare complete meters or cases.

B. LIST OF TOOLS REQUIRED

The following tools will be required to perform routine maintenance and repairs on POM's Model Series II parking meter. Substitution of tools other than those recommended will make the task more difficult and can cause meter damage.

PART NO.	DESCRIPTION
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108-565	#1 Phillips Screwdriver
108-566	1/8"Slot Head Screwdriver
100-828	#2 Phillips Screwdriver
300-119	Dielectric Compound
300-226	Camel Hair Brush
300-420	Digital Multi-Meter, DC

C. RECOMMENDED MAINTENANCE INTERVALS

Several variables affect the requirement for maintenance of parking meters: frequency of use, environment, and abuse. Because the Series II has no moving parts in the actuation of the meter, less preventive maintenance should be required.

POM utilizes components that are rated for a wide range of temperatures and other environmental factors found in normally inhabited regions. POM takes every step possible in the manufacture and assembly of electronic meters to make sure the finished product resists extreme environments. POM parking meters are inspected for quality of material, workmanship, and proper operation before shipment to the customer. However, electronic meters, like mechanical meters, have coin entrances and cannot be fully sealed from environmental forces. Therefore, like mechanical meters, electronic meters must be routinely checked (and preventative measures taken) for infiltration and corrosion, especially in coastal or northern regions. The parking meter technician should also check for buildup of pollutants, dust, sand, or insect matter (i.e. spider webs). As a guide, POM suggests that routine preventive maintenance be performed on each mechanism every 6 months to one year. Failure to properly inspect and maintain POM products may result in environmental damage that is not covered under POM warranty.

Meters should also be checked daily on the street for coin jams, card jams, vandalism, battery failure, or any other condition that would affect the daily effectiveness of the parking meter system. While this inspection can be made by maintenance personnel, error messages can also be detected and reported by collection and enforcement personnel (see "Error Messages").

SECTION II: ON-STREET REPAIRS

A. CLEARING JAMS

The free-fall design of the Series II coin chute is extremely resistant to jams. If, however, someone is able to force paper or other objects into the chute to prevent the free passage of coins, the rear rotary status signal will rotate to yellow/red. If there is time on the meter, it will continue to run down, but after the time reaches 00:00, the message "jAM" (upper coin chute blockage) or "JAM" (blockage of lower coin chute) will appear on the front display. Series II's with optional rear LCDs will show "OUT OF ORDER" to indicate jam/error. Approximately one minute after the jam is cleared, the front and rear signals will return to normal automatically. There is no need to reset the meter.

To clear a coin chute jam:

1. Remove the mechanism from the housing.
2. Remove the rate plate by pressing upward (from underneath the plate) while pulling it out horizontally.
3. Remove the small, rectangular chute cover -- you will now be able to look down through the chute and see the foreign object.

4. Turn the meter upside down and shake out any loose coins or debris. Gently pry out any remaining debris, preferably through the top of the chute, being careful not to damage the anti-backup finger in the chute. Do not try to push a jam through the bottom of the chute, especially while the mechanism is still in the housing. It will simply block coins somewhere else before they can reach the coin box below.

5. Wait a moment to see that the meter displays return to their normal modes. It is possible that some paid time may be remaining on the meter, but this time will have been running down during the jam period.

6. If you want to test the mechanism, see "Testing Modes" so your test coins do not affect the electronic audit. Reset the meter to take it out of test mode, and put full time on the mechanism if desired with the handheld communicator.

7. Reinstall the chute cover and rate plate.

8. Return the mechanism to the housing, properly seated, press the reset button and lock the dome.

To clear a card reader jam:

A card reader jam, an incompatible card, or a card inserted incorrectly and left will cause "ERR" to flash 3 times, followed by "PULL CARD" flashing about 15 times. Meter will then return to 00:00 with "OUT OF ORDER" flashing.

If a card or other object is protruding from the card reader, remove it carefully. If this is all that is in the card reader, the meter will return to its operational mode. If it does not, insert a flat hook fashioned from thin, rigid plastic and gently pull out any remaining debris.

If a coin chute or card reader is damaged by a jam, or the jam cannot be easily removed on the street, see Replacing Coin Chute and/or Card Reader.

B. REPLACING COIN CHUTE AND/OR CARD READER

A few spare coin chutes and card readers should be kept in stock to replace any that may become damaged. These components are very easy to replace:

1. Remove the mechanism from the housing by unlocking and removing the dome; then lift the mechanism free of the housing. Remove the battery or solar pak.
2. Using a #2 Phillips screwdriver, remove the large screw at the upper right-hand corner of the mechanism frame front, then the two shorter screws at the back holding the bottom of the mechanism frame.
3. Separate the mechanism frame from the circuit board/display housing. The coin chute and/or card reader will unplug from this housing and can be removed from their indentions in the back of the mechanism frame without the use of tools.
4. Plug the new coin chute and/or card reader into their respective plugs in the circuit board/display housing.
5. Aligning the indentions in the back of the mechanism frame and the screw holes, reinstall the mechanism frame and replace the Phillips screws. It may be helpful to place a card in the card reader to guide the mechanism frame.
6. Press the small white Reset button.

7. If you replaced the coin chute, it may appear that the meter is now ready for operation. However, since each coin chute has its own tolerances making it unique, you may find that some coins will skip time. For that reason, we strongly suggest you retrain the mechanism (see "Training for Acceptable Coins").

Note: If you decide to remove the card reader so that the meter will only accept coins, you must load a new mechanism specification that disables the card reader and assigns no time to the card.

C. REPLACING BATTERY OR SOLAR PAK

The Series II meter is powered by a 9V alkaline, 9V lithium, 6v lithium, AA alkaline pak, or an optional solar power pak used in conjunction with a 9V lithium battery. The batteries snap onto a harness accessible at the back of the mechanism. If the solar pak is used, the 9v lithium battery is snapped to the solar pak harness, and the mechanism circuit board harness is snapped to the solar pak.

To check battery charge, push the small Reset button protruding from the electronics housing in the front, upper left-hand area (circuit board revisions 7 and later). The LCD will show a series of numbers – Prom number (8 digits displayed in 2 sets of 4 numbers at a time), Meter ID number (also 8 digits displayed in 2 sets of 4 numbers), r_XX (where XX is the rate number assigned by MeterManager from within the mechanism specification) and the battery voltage charge.

When the charge on a 9V alkaline is down to "6.0" or "5.5" volts, the battery is within a day or two of becoming too low to power the meter. Low power is also indicated on the front LCD by showing periods between each digit, i.e. "0.0:0.0". Battery charge can also be checked

using a handheld communicator and MeterManager software for reporting (see MeterManager user manual).

To check the battery charge when a solar pak is being used, do not use the reset button. Instead, use a voltage meter and connect to the plus and minus terminals in the back of the solar pak housing.

To change the battery:

1. Remove the mechanism from the housing.
2. Simultaneously push in and up on the plastic battery compartment cover on the back of the mechanism.
3. Tilt the meter back and allow the battery to fall out. Do not insert objects to pry out the battery because the circuit board, exposed behind the battery, may become damaged.
4. Disconnect the battery and **immediately press reset** on the meter. Brush off any corrosion that may be present on the snap harness, and then apply a light coating of dielectric compound, P/N 300-119, to the snap harness and battery terminals.
5. Do not try to put the battery on backward, as a short circuit can occur. Circuit board repairs for this are not covered under our warranty. Snap on the new battery and **immediately press reset**. Push the battery back into the battery case, and slide in the battery cover.
6. Note the battery charge when the Reset button is depressed. A good battery should register a charge between 8.7 and 9 volts (for 9v alkaline or lithium) or 5.8-6.5 volts (for 6v lithium).

To add a solar power pak to supplement battery operation:

1. Remove the mechanism from the housing.
2. Simultaneously push in and up on the plastic battery compartment cover on the back of the mechanism.
3. Tilt the meter back and allow the battery to fall out. Do not insert objects to pry out the battery because the circuit board, exposed behind the battery, may become damaged.
4. Disconnect the battery and **immediately press reset** on the meter. If contacts on the harness show any signs of corrosion, brush them off and apply a light coating of dielectric compound (P/N 300-119).
5. Do not attempt to install the snap connector backward, as this can cause a short circuit if left too long. Circuit board repairs for this are not covered under warranty. Snap contacts from solar power pak harness to a 9V/6V lithium battery. Snap the harness coming from the circuit board onto the fixed terminal on the solar pak.
6. Push the battery, wires and harness back into the battery compartment.
7. Slide the solar power pak onto the battery compartment in lieu of the battery cover, using the same action once used to insert the battery cover. The meter must have the battery voltage limits changed to work with the Solar Pak VII. Contact POM for instructions.
8. Reset the meter and check. In the shade or dark, the voltage should show close to 9.0. In bright sunlight, the voltage may indicate anywhere from 4-6V. Don't be

alarmed by this; only 4 volts will go to power the meter. When sunlight drops below a level adequate to power the meter, the battery will take over. To check the voltage of the battery during daylight, use a voltage meter and connect to the plus and minus terminals on the back of the solar pak.

9. Remove the dome retainer from the housing cap assembly. Replace it with a modified dome retainer, cut away to allow the solar panel to come up into the back window. Note: the solar pak will not work with Duncan models using zinc upper housings with hinged domes, as it interferes with the locking system.

10. If the former dome retainer included an enforcement plate and you want to continue to have this information displayed in the window, order clear enforcement decals from POM.

To replace a solar pak with another solar pak:

1. Remove the mechanism from the housing.
2. Gently push in and up on the solar power pak on the back of the mechanism. Unsnap the wire harnesses.

Follow instructions 4-8 above.

D. TESTING MODES

The Series II measures the coin's diameter and metallic content in order to determine if the coin is valid. This is accomplished by comparing the present measured values with the Series II's coin table. The coin table is a set of parameters stored in the Series II's non-volatile memory that is based on a sample of the valid coin set. At the factory, the Series II is "trained" to accept a valid coin set specified by the customer. This involves inserting 10 of each coin into the Series II. The sampling of

the 10 trained coins is temporarily stored in the Series II's memory. When the 10th coin is inserted, an average value is stored based on the coins metallic content as well as the frequency generated by the coins rising and falling edge, a margin for error is then added above and below the average value. Therefore a precise coin signature is stored based on metallic content and frequency. Likewise a minimum, maximum, & average metallic content number is stored for the particular coin. The same process is duplicated for each coin in the valid coin set.

Before placing a meter back into service, be sure to test the operation with coins. Ideally, you should keep a set of test coins that represent the top and bottom of the tolerance for coin diameter and width to ensure that all acceptable coins are indeed accepted out on the street. Any time you want to test coin acceptance without affecting the electronic audit, use the testing modes available for testing out of the housing or while in the housing.

D-01 Mode -- turns off the audit counter, shows time for valid coins, and shows parameters for invalid coins. To use this mode, hold a coin in the slot and press the Reset button. When you see D-01, immediately remove the coin and wait until you see 00:00. You may now insert coins to check for acceptance. If numbers appear after a valid coin, try retraining the meter (see "Training for Acceptable Coins"). If this does not fix the problem take note of the numbers displayed and call POM for assistance. Two criteria must be met for a coin to be valid. First, the coin signature must fall within the minimum and maximum range generated by the coins frequency. Second, the content must be less than the meter's preset content number. When you finish and want to turn the audit back on, simply press the Reset button again.

If coins consistently register incorrect time, load the correct rate into a communicator and transmit it to the meter (see MeterManager User Manual). Begin coin checking again.

If you are sure the correct rate is loaded into the meter, and some coins still do not give correct time or no time at all, the meter may need to be "retrained" for acceptable coins. See "Training for Acceptable Coins."

ParkCard readers (if applicable) should also be tested before placing Series II meters back into service. The maintenance technician should keep a ParkCard for the sole purpose of testing card readers. Again, you should use D-01 to put the mechanism into test mode so your testing will not increase the audit count. The testing will, however, decrement the card, so keep a special card handy solely for the purpose of testing. Remember to take the mechanism out of test mode after checking the ParkCard operation.

To test the card reader:

1. Put the mechanism in test mode.
2. Insert the ParkCard. The LCD should flash the remaining value of the card four times to indicate remaining dollar amount left on the card, then "- - -" will appear. Then time will begin to increment on the LCD. If these increments of time match the rate loaded into the meter, then the meter is ready for service. Press Reset to erase the time.
3. Take the mechanism out of test mode. Any ParkCard used thereafter will be recorded in the audit.

SECTION III: ROUTINE IN-HOUSE MAINTENANCE

A. INSPECTION OF THE MECHANISM

Before beginning disassembly of a mechanism for repairs or maintenance, it is advisable to first inspect for visible damage. Examine each component of the mechanism for signs of breakage, bending, missing parts, etc. Make note of these deficiencies in order to assure repair or replacement during reassembly.

B. DISASSEMBLY OF MECHANISM

1. Begin disassembly of the Series II mechanism by first removing the rate plate -- lift up the center and slide it forward.
2. Using a #2 Phillips screwdriver, remove the large screw at the upper right-hand corner of the mechanism frame front, then the two shorter screws at the bottom, back.
3. Separate the mechanism frame from the circuit board/display housing. Unplug and remove the battery or solar pak. (Do not pry the battery out, simply tilt the mechanism and allow the battery to fall out). Unplug the coin chute and/or card reader assemblies.
4. Remove the four screws securing the shell back to the shell front. Gently pull the shell apart, lifting wiring harness from the shell back (for flag-wheel meters).
5. Remove the screws holding the circuit board on the shell front.

C. MECHANISM CLEANING AND CONTACT LUBRICATION

The circuit board may be cleaned with canned air or a soft brush. If corrosion appears on the contact points of either end of the wiring harness, plugs on the motor board, and/or

plugs for the coin chute and card reader, this corrosion should be gently brushed away using an available camel hair brush (p/n 300-226) and these areas coated with dielectric compound. Clean the inside of the shell with standard window cleaner.

Cleaning the inside of the coin chute. Use minimal force to avoid scratching the coin chute's interior surface. Use a Q-tip, slightly moistened with clean soapy water. Dawn dishwashing detergent or similar products are recommended.

The optional card reader can be cleaned by flushing with canned air or warm water. If water is used, be sure the reader is completely dry before re-installing in the mechanism. Do not try to disassemble the card reader, as the circuit board is soldered to the reader.

D. UPGRADING OR REPLACING SOFTWARE

Electronic malfunction or upgrading to new features may require changes to the meter program. To accomplish this:

1. Remove the cover from the auxiliary port.
2. Plug in the cable from the program transfer box.
3. Start the PC program.
4. The meter should now display a blank screen. When finished, the PC program will indicate so.
5. Unplug the cable and press the meter reset button again.

E. REPLACING THE BATTERY CABLE

1. Remove the battery and disassemble the mechanism down to the main circuit board assembly.

2. Take note of the two colored wires on the battery cable and the locations where the battery cable wires are soldered to the main board, labeled J1 on the front of the board. The red wire is connected to the bottom hole labeled "+". The black wire is connected to the top hole.

3. Desolder the battery cable wires and remove them from the main board.

4. Insert the red and black wires of the new battery cable from the back of the main board through the small hole located next to the large capacitor (C1) on the left side of the board. Pull the battery cable wires through the hole and insert the red wire through the lower hole labeled "+", and black wire through the upper hole. The ends of the battery cable wires should now be protruding through the back of the main board.

5. Flip the main board over so that the backside of the board is facing up. Solder the red and black wires connections, making sure the two solders do not touch each other. After the connections have cooled, take a clean brush, and apply a few drops of alcohol to brush, gently wiping area touched around and over the connections. Next take a small bottle of distilled water and turning board on its side, flush area soldered so any small amounts of debris can be washed away. Allow the board to dry thoroughly, touch the solder connections with conformal coating to waterproof.

6. Install battery and press the Reset button on the front of the circuit board. The

front display should show several numbers consecutively until finally displaying 00:00.

F. REPLACING THE ROTARY WHEEL

A dirty, faded or bent rotary wheel may need replacement. Simply remove the push pin securing the wheel, and lift the wheel from its post. Lay the new wheel face down on the post with the yellow trouble section positioned at the top (where it will show in the window when the shells are reassembled). Reinstall the push pin, flat side down.

G. REPLACING THE ROTARY WHEEL MOTOR

Should the small stepper motor that drives the rotary signal wheel become damaged or faulty, you may replace the motor assembly.

1. Remove the battery or solar pak from the circuit board.
2. Remove the four screws from the back of the mechanism. Carefully remove the top and bottom halves gently unplugging the motor from the main board. Handle with care as not to damage the plug.
3. Remove two small screws and washers and lift the motor from the compartment in the shell back.
4. Install the new motor, leaving screws loose. Align the motor to engage the rotary wheel teeth and tighten the top screw, then the bottom. Holding the motor with one hand, rotate the wheel from Expired to Yellow; if the wheel binds at any time during the rotation, ease the tension off the wheel by moving the motor slightly away from the teeth of the wheel. Recheck wheel movement and tighten the two small screws holding the motor.

5. Reinstall the bottom half of the back shell carefully lining up and snapping together the motor plug with the plug on the main board.

6. Install the top half of the back shell making sure the teeth on the flag wheel are aligned with the motor pinion and the tab on the wheel is positioned towards the top of the shell. Make sure that the wheel is not pressing too tightly against the motor pinion and the screws are not put in too tight. This can be checked by pressing the reset button or manually turning the wheel and observing the ease of movement.

H. REASSEMBLY OF MECHANISM

Following the cleaning and maintenance of the Series II mechanism, the mechanism must be reassembled as follows:

1. Place the reset plunger and spring in the hole next to the threaded brass fitting. Install the circuit board in the shell front making sure to line up the IR lights in the proper location.
2. Carefully align the bottom back shell so that the motor board plug is aligned with the plug on the main board. Also put the battery snap through the shell back opening as you combine the back and front shells.
3. Install the top half of the back shell making sure the teeth on the flag wheel are aligned with the motor pinion and the tab on the wheel is positioned towards the top of the shell. Make sure that the wheel is not pressing too tightly against the motor pinion and the screws are not put in too tight. This can be checked by pressing the reset button or manually turning the wheel and observing the ease of movement.
4. Install battery (and solar pak if applicable); if battery, replace battery cover. Do not attempt to plug these in backwards, as

a short circuit can occur! Repair for this type of damage is not covered under warranty.

5. Carefully plug in coin chute (and card reader if applicable), making sure all pins go into their proper holes without bending.

6. Install mechanism frame, lining up the coin chute and card reader with their indentions. Install front screw and two rear screws.

7. Reset and check the rotary wheel's rotation from yellow to expired. Insert coins and check wheel's rotation from expired to timing mode. Check time per coin or card -- see Testing Modes. Reset and place meter into operation.

I. TRAINING FOR ACCEPTABLE COINS

1. Hold a coin in the coin slot and press the Reset button. The display will show "D-01", then "D-02". Pull the coin out of the slot after you see "D-02".

2. After displaying several numbers, the display will show "C1:10". This means that Coin 1 is ready to be trained with 10 coins. Coin 1 is usually the largest denomination coin you plan to use in the meter, except when US Dollar is used. Coin 2 is usually the next largest coin in denomination, etc. If you indicated to POM that you planned to use only 4 types of coins, your PROM was programmed for only 4 coins and you will be prompted to train only 4. However, the Series II can be programmed for up to 16 different coins (including the invalid coin ID) if you asked for it when ordering.

3. Run 10 of the first coin through the meter (i.e. 10 quarters). Warning: it is better to feed through 10 different coins to get a variety of readings due to coin size tolerances.

If you feed one coin through 10 times, you will find that coins of the same denomination may not buy time.

4. After you insert the 10th coin, the display will show several numbers and then display "C2:10". You should now insert 10 of the next denomination coin (i.e. 10 dimes).

5. When the display says "C3:10", insert 10 different coins of the third denomination (i.e. 10 nickels).

6. When the display says "C4:10", insert 10 different coins of the next denomination (i.e. 10 dollars).

7. When you have inserted the last coin and you are no longer prompted for other coins, the display will show the coin parameter ranges, then "00:00". Press the Reset button and the meter is now trained. Verify that the correct rate is installed. See the MeterManager User Manual. If you want to test the coins after loading a rate, see "Testing Modes".

8. D - 02 mode also allows training of only one coin type without retraining the other coins to be accepted by the meter. For example, if a U.S. meter accepting U.S. quarters, dimes and nickels requires the nickels to be retrained, you may skip directly to the nickels. When you see "C1:10", place a coin or other flat object in the coin slot and quickly remove the coin. The display will now say "C2:10". Repeat the previous procedure. The display will now read, "C3:10". The meter is now ready to retrain nickels.

SECTION IV: ELECTRONIC MESSAGES

The Series II's digital readout may register error or mode messages. The following is a list

of these messages, their meanings, and action required.

D- 0 1

Coin testing mode -- Time can be bought without activating rotary flag, and invalid coins show parameter numbers. Coins inserted in this mode do not show up on the audit count. See "Testing Modes" for instructions. If you do not wish to be in this mode, press the Reset button for normal operation.

D - 0 2

Coin training mode -- See "Training for Acceptable Coins". If you have entered this mode accidentally, press Reset for normal operation.

D - 03

Advanced coin testing mode -- Used in conjunction with a PC to record coin parameter numbers.

ERR

Error -- This message will flash 3 times for an incompatible card, a card inserted incorrectly and left, a used-up or non-applicable card or any other flat object that is left in the reader, followed by "PULL CARD" flashing about 15 times. The error message will eventually disappear and the rotary signal will rotate to yellow, and the meter will return to 00:00 with "OUT OF ORDER" flashing. This error condition will also show if a valid ParkCard is inserted upside down or backward. Remove the card or object; the mechanism periodically checks for jams and will reset the rotary flag.

jAM

jam -- This message appears if the upper coin chute is blocked. This message will not show until all time has run off the meter. Remove the blockage (see Clearing Jams).

JAM

Jam -- This message appears if there is a blockage of the lower portion of the coin chute. This message will not show until all time has run off the meter. Remove the blockage (see Clearing Jams).

0 . 0 : 0 . 0

Low battery – This message appears when the battery has reached the upper threshold and needs to be replaced.

L.O:W.

Dead battery – This message appears when the battery has reached the lower threshold voltage. The meter will not accept coins or cards. Replace the battery and press reset.

[0 0]

This message means that the mechanism has not been trained for acceptable coins or has lost its training, such as when a new coin chute has been installed or after the original one has become unplugged and reinstalled. See "Training for Acceptable Coins."

r 01

Rate Number – This message appears during a reset. The rate number is changed with a handheld communicator.

00:00

This message, specifically the decimal point below the colon, indicates that the last coin to pass through the coin chute was recognized as a slug failing to match any of the pre-programmed ranges of acceptable coin training parameters. The decimal point shall remain until a valid coin is inserted into the mechanism.

SECTION V: TESTING FOR NORMAL DC CURRENT DRAW

A Digital Multi-Meter with DC current measuring capabilities may be used to check the current draw in a Series II. Excessive current draw may indicate circuit board problems or a cold solder joint on the coin chute coil. The following guidelines are helpful in isolating the problem to one part of the Series II. If the DC current draw is high, it is helpful to begin with the main board alone and verify the guidelines as external boards are connected.

Connect the Digital Multi-Meter in series with the positive terminal of the battery. Set the DMM to a DC current range capable of measuring 100 mA or higher. Use the DMM to verify the following DC current draws:

Complete Unit:

40-60 μ A avg. Series II at rest with coin chute. Red LCD or rotary flag.

40-60 μ A avg. Series II at rest with coin chute and card reader. Red LCD or rotary flag.

Coin Chute:

40-60 μ A avg. Coin chute at rest. Tested while connected to the main board.

5mA avg. Coin chute while a coin is held in the coin slot. **NOTE:** If the coin slot is blocked for more than approximately 45 seconds, the expired rotary wheel will move to yellow; the expired LCD display will change to flashing red. The front LCD display will show jAM.

Card Reader:

40-60 μ A avg. Card reader at rest. Tested while connected to main board.

7mA avg. Card reader flashing ERR and PULL CARD.

9mA avg. Card reader while reading information on card.

Rotary Flag:

32mA avg. Wheel turning.

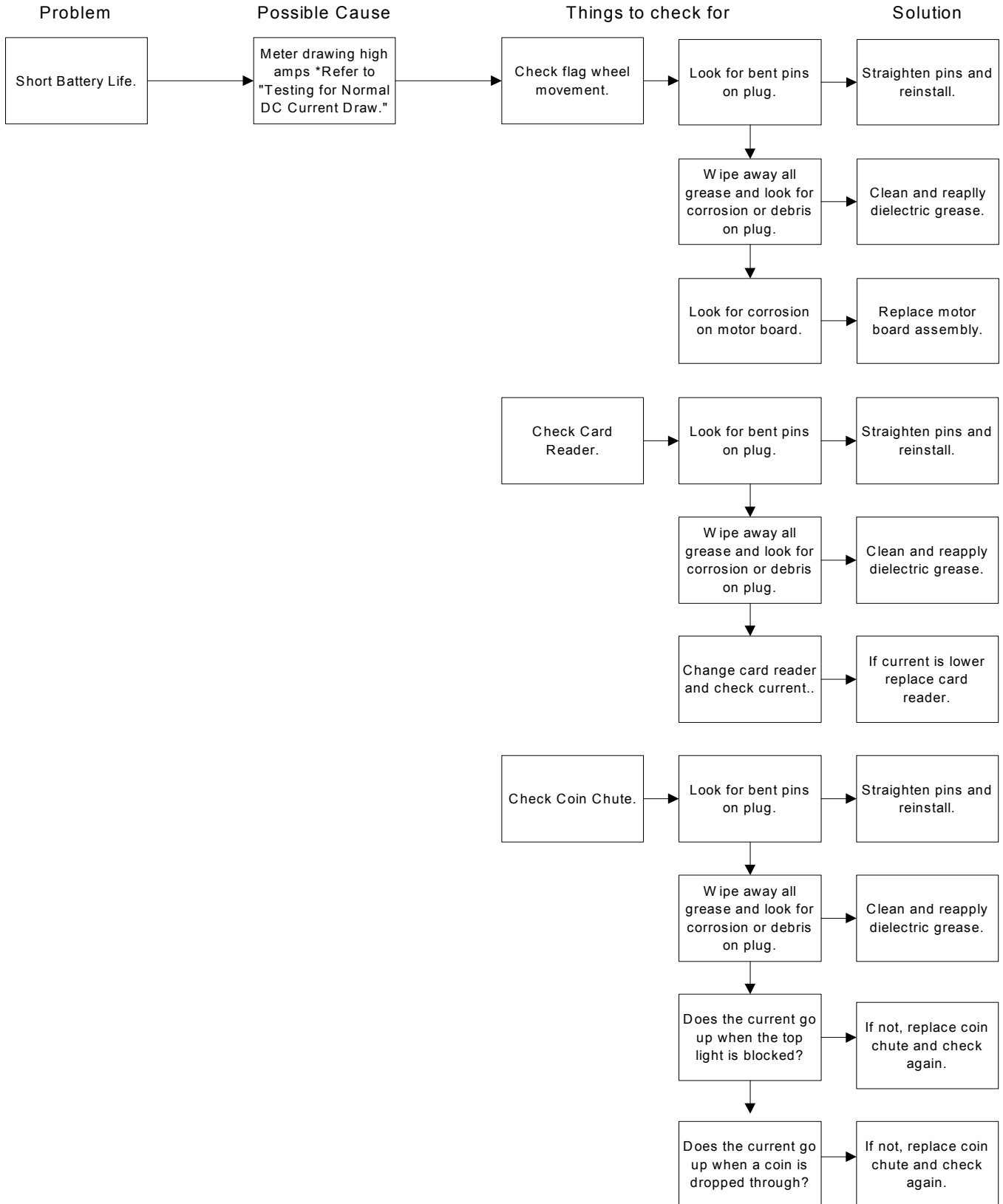
32mA max. Wheel turning. Quick pulses at the end of the expired cycle.

45mA avg. Wheel turning during reset.

SECTION VI: TROUBLE SHOOTING GUIDE

The following flow chart can be used to assist in the troubleshooting and repair of the meter. To use, simply find the problem on the chart and follow the test points across the page. If all tests have been made and the meter still has the problem, send it in to POM for repair.

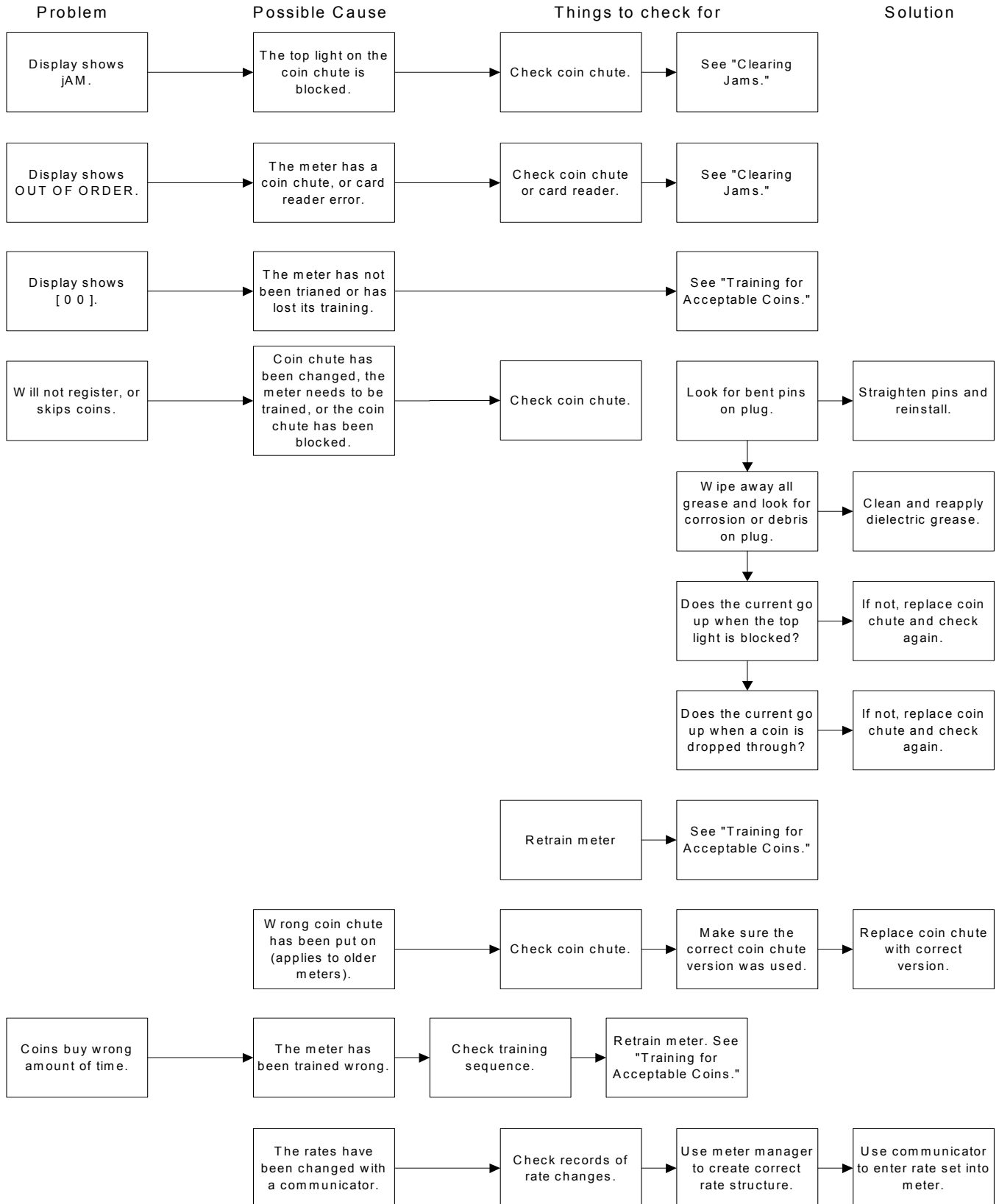
Series II
APM-E Mechanism
Service Manual



Series II
APM-E Mechanism
Service Manual



Series II
APM-E Mechanism
Service Manual



Series II
APM-E Mechanism
Service Manual



Series II
APM-E Mechanism
Service Manual

