

UConn Center for Voting Technology Research

Forensic Analysis Report

AV-OS System

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December 2022

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Research Associates: J. Wohl, G. Johnson Jr.



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Final Report

Distribution authorized to the Connecticut Secretary of the State office; December 2022. Other requests should be referred to the Connecticut Secretary of the State office.

Prepared for Connecticut Secretary of the State
165 Capitol Ave
Hartford, CT 06106

Executive Summary:

Moderators at a Connecticut polling location detected an anomaly while closing out the November 8, 2022 midterm election. They detected a discrepancy between the number of voters who signed in and the number of ballots counted by the tabulator. After further investigation and processing all ballots cast through a backup tabulator, their initial suspicion of an anomaly was further supported by the evidence. This was promptly reported to the Secretary of the State.

The UConn VoTER Center was asked to investigate the discrepancy by the Secretary of the State. An initial test conducted at the Registrar of Voters office in the reporting town occurred after the quiet period on December 5, 2022. This testing confirmed that the tabulator failed to direct ballots to the correct place. The discrepancy appeared to involve ballots which the tabulator would, under normal conditions, return to the voter; in some cases such ballots were not returned to the voter but rather deposited into the ballot box. The tabulator was observed to be making a loud periodic noise. The Secretary of the State's office requested that the VoTER Center take possession of the malfunctioning tabulator on December 12, 2022. The tabulator was retrieved by the VoTER Center on December 14, 2022 for forensic analysis.

Evidence gathered during forensic analysis showed that the internal rollers that advance paper ballots through the tabulator had been damaged. These were discolored, glazed, and the surface of the rollers had been flattened in spots. In addition, one of the internal rollers was missing a large fragment, leaving an irregular surface which may cause the roller to lose contact with paper ballots as they pass through the tabulator. The irregular surface of the roller is consistent with the noise observed when the tabulator was first examined. The failure appears to be mechanical in nature. None of the electronic components, including the memory card, appear to be involved. The anomaly was originally detected by moderators who compared the number of tabulated ballots against the number of voters casting votes on that day. This is common practice in adherence to the procedures prescribed in the Moderator's Manual [1]. The VoTER Center recommends a modification to pre-election tabulator testing to detect similar damage in tabulators currently in service and strict adherence to post-election procedures.

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DESTROY THIS REPORT WHEN NO LONGER NEEDED. DO NOT RETURN IT TO THE ORIGINATOR.

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1 Initial Report

On November 9, 2022, a Registrar of Voters contacted the Secretary of the State office to report a discrepancy between the count of ballots from the AV-OS tabulator and the number of voters that had checked in to vote for the midterm election the previous day. Moderators at the polling location hand-counted the ballots cast which supported the hypothesis that the tabulator had accepted, but not counted, up to 38 ballots. This registrar also reported that some ballots containing overvotes in various races were not returned by the tabulator. All cast ballots were tabulated using a backup tabulator or hand-counted; this total matched the count of signed-in voters from the voter register. This report was referred to the University of Connecticut Center for Voting Technology Research (VOTER) for investigation. The VOTER Center followed up with the registrar. The registrar sent copies of the tabulator tapes from both the backup and primary tabulators used in the election. These are attached in Appendix A. There is a difference of 32 ballots in the total ballots counted by the tabulators. In addition, 6 ballots were returned by the backup tabulator and hand-counted.

Interview with Registrar of Voters

On November 11, 2022, the registrar of voters (RoV) met virtually with members of the UConn Voting Technology Research Center. During this meeting, the registrar reported receiving a phone call early in the morning of election day reporting that the tabulator in question was returning ballots. The caller claimed to have observed 10 voter's ballots be returned by the tabulator. Moderators were contacted, but did not report any difficulties with the tabulator. At 8 PM, the voter card was processed through the tabulator. After three counts of the voter register (standard practice for the precincts administered by this registrar), 3147 voters had checked in but the tabulator count was at 3109. A hand count of ballots produced a total of 3145 ballots.¹ The problem was reported at 11:47 PM and the ballots were processed with a backup tabulator which produced a count of 3141 ballots. Six ballots, returned by the (backup) tabulator, were then hand-counted. Therefore, the final count, using the backup tabulator and hand-counted ballots, matched the count of the voter register.

¹This total is within the accepted error of a human hand-count.

The following recommendations were made by the UConn VoTER Center:

- Preserve the two tabulators used in this district as well as the ballots. No maintenance should be done to these tabulators in order to preserve any forensic trail.
- VoTER will audit the two memory cards from these tabulators.
- After the quiet period, VoTER will visit the RoV office and test the primary tabulator with the ballots cast at the election.
- The RoV requested this precinct to be included in the audits conducted on November 28th-30th.

The VoTER Center notes that the discrepancy was detected by the proper use of a ballot manifest. The CT Election Moderator Manual [1] requires moderators to compare the number of electors voting to ensure it matches the number of ballots cast.

2 Objective Analysis

Tabulator Black-Box Testing

On December 5, 2022, members of the UConn VOTER Center visited the Registrar of Voters office to conduct a test on the primary tabulator from the midterm election on November 8, 2022.

Testing Process

The following process was followed to test the AV-OS tabulator to determine if the failure is reproducible.

1. The UConn VOTER Center provided a memory card unassociated with the midterm election and previously configured for the precinct associated with the tabulator,
2. The original memory card was removed and the newly configured memory card was inserted into the AV-OS tabulator,
3. Ballots cast during the November 8th election were inserted into the primary AV-OS tabulator until the counter on the tabulator read 1000 ballots cast, and
4. The ballots passed through the tabulator were hand-counted to compare with the tabulator count.

The tabulator was placed on a folding table and plugged into a conventional 110v receptacle. Ballots processed by the tabulator were collected in a cardboard box placed on the floor behind the tabulator.

Testing Results

During testing it was observed that the tabulator was louder than expected, generating a consistent, periodic rattle. During testing, it was observed that the normal operation of the AV-OS tabulator was to (i.) advance the ballot nearly completely through the tabulator, (ii.) stop or slightly reverse the ballot, and, after a brief pause, (iii.) either completely advance the ballot

through the tabulator or return the ballot back to the voter. When a ballot is advanced into the ballot box, we say it is “accepted;” otherwise we say it is “returned.”

There are several valid reasons that a ballot should be returned to a voter:

1. The ballot contains an overvote;
2. The ballot contains no votes;
3. The ballot is not a legal ballot for this election or district;
4. The tabulator did not obtain a usable scan of the ballot.

In any case, the tabulator determines—for each scanned ballot—whether to continue to advance the ballot through the reader or reverse the rollers to return the ballot. We say that a ballot is “admissible” when the tabulator restarts the rollers in the same direction used to initially draw the ballot into the tabulator. Otherwise, the rollers are restarted in the reverse direction, in which case we say that the ballot is “inadmissible.” Under normal operation, admissible ballots are tabulated, the LCD ballot counter on the tabulator is incremented, and the ballot is accepted. Under normal operation, inadmissible ballots are not tabulated, the LCD counter is not incremented, and they are returned to the voter.

While testing, the tabulator seemed to occasionally “lose it’s grip” on the current ballot at the point when it would usually be stopped within the tabulator. At this point the ballot would fall into the collection box placed on the floor below regardless of whether it was admissible or not. For admissible ballots, this failure would not produce a conspicuous change of behavior: the ballot would be tabulated, the LCD counter on the machine would be incremented, and the ballot would correctly arrive in the ballot box. For inadmissible ballots, this failure would result in an important change in behavior: as usual for inadmissible ballots, the ballot would not be tabulated, the LCD counter would not be incremented, but the ballot would be placed in the ballot box instead of being returned to the voter. We note that in the case with inadmissible ballots, while the rollers would correctly reverse direction, the ballot would already have fallen into the ballot box.

Once the ballot count on the LCD reached 1000 ballots, the ballots in the collection box were hand counted by the members of the UConn VoTER Center that were present and the two Registrars of Voters. The hand count

yielded a total of 1013 ballots. This indicates that 13 ballots were passed through the AV-OS but not tabulated. These results are summarized in Table 1.

Number of ballots accepted	Tabulator Count	Difference	% failure
1013	1000	13	1.28%

Table 1. Failure rate during initial testing.

To summarize: It appears that the tabulator in question was occasionally failing to return inadmissible ballots. The result was that these inadmissible ballots were not counted (as usual for inadmissible ballots), but were deposited in the ballot box instead of being returned to the voter.

Post-Analysis

Once the analysis was complete, the ballots and AV-OS tabulator were restored to their containers. The Registrars of Voters returned all materials and machines to their normal storage locations. The results were later communicated to the Connecticut Secretary of the State Office.

3 AV-OS Structure

This chapter describes the structures and components of the AV-OS tabulator relevant to the anomalous behavior observed.

AV-OS

Removing the four screws from the bottom of the AV-OS tabulator reveals the tabulator is separated into two pieces, a top and bottom. The top portion is composed of the plastic cover and the reader assembly which is attached to the top with four screws. Figure 1 shows the two pieces and identifies the reader assembly attached to the top. We focus our attention on the reader assembly as this contains the rollers which are in contact with the ballot as it passes through the tabulator as well as the motor, belt, and pulley system which drives the rollers.

Reader Assembly

The reader assembly, shown in Figure 2, is attached to the top of the AV-OS case. It is connected to the components contained in the bottom of the AV-OS case via one power cable and one ribbon cable.

Drive Motor

The relevant exterior components of the reader assembly are the drive motor, belt and pulleys. The drive motor is a 24v DC motor. The belt is composed of a material like rubber, is fairly elastic, and resembles an o-ring. These components are labeled in Figure 2.

Rollers

The reader assembly is also composed of two main pieces. These are held together by four screws and connected via a 10-pin connector. Separating the two main pieces, as shown in Figure 3, reveals there are two main components. Each component is composed of two rollers, one LED light source, and one light sensor. Note, the rollers on the bottom portion of the reader assembly are made of a material with a rough surface and are driven by the motor and pulleys on the side of the assembly. Each of these rollers is attached to a shaft

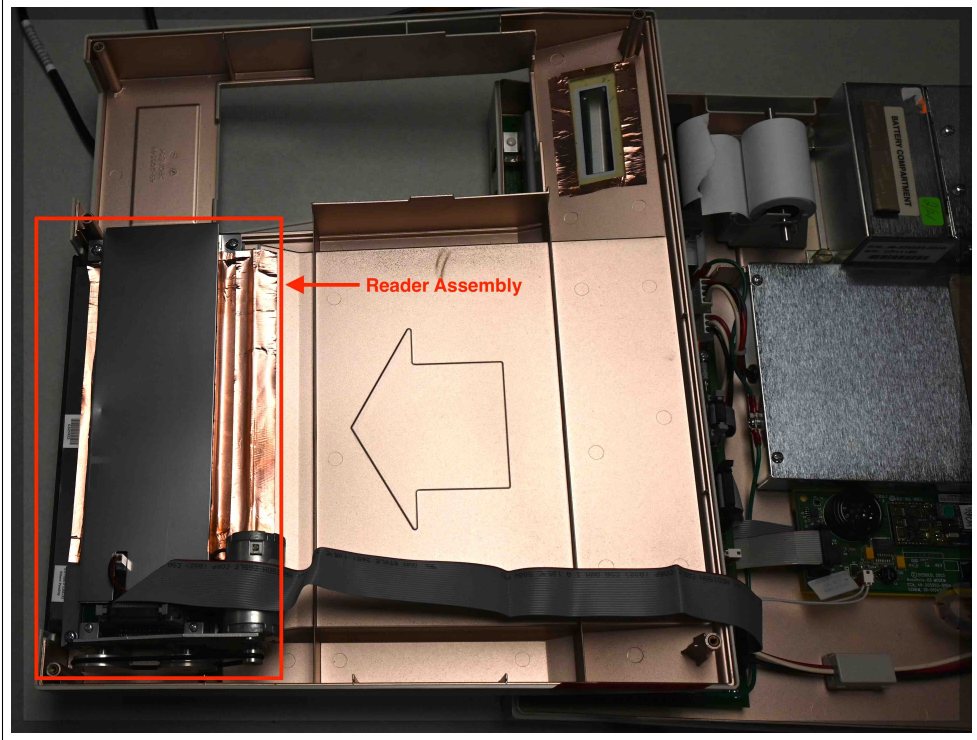


Figure 1. Open AV-OS tabulator with top and bottom sections separated.

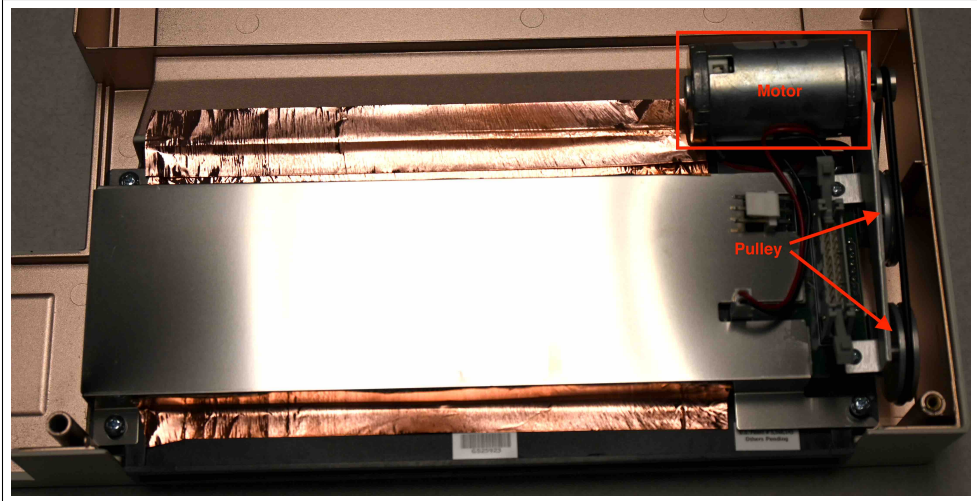


Figure 2. External view of the AV-OS reader assembly and relevant components.

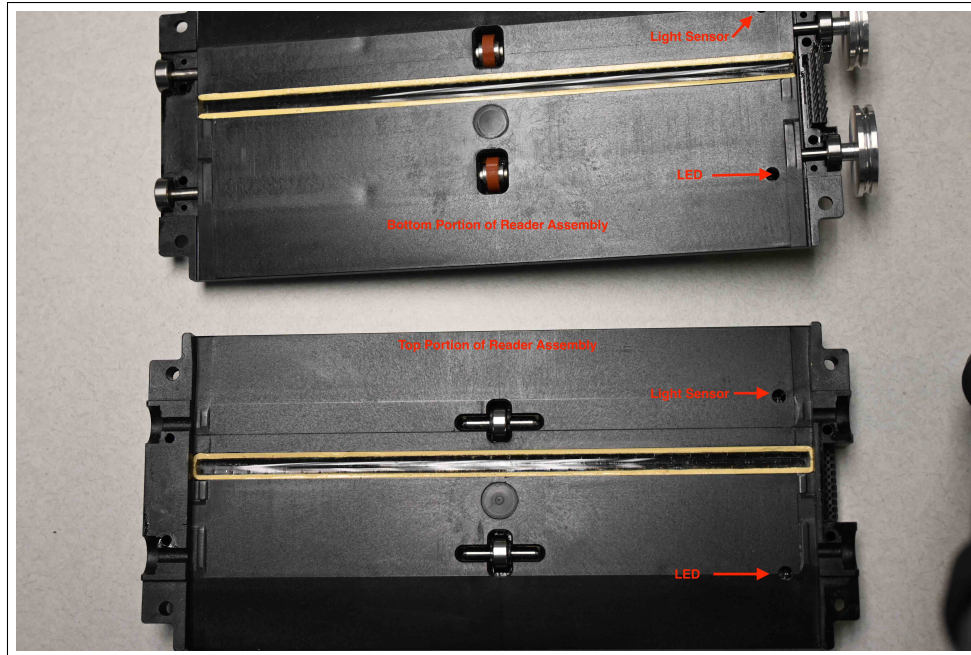


Figure 3. Reader assembly with top and bottom components separated. Note, this photo does not depict the device under test.

that is attached to one of the pulleys driven by the DC motor. The rollers on the top portion of the reader assembly are simply metal bearings and are free to roll in either direction. They are positioned inside of recesses on the plastic frame of the top half of the reader assembly. Therefore, when assembled, the metal bearing rollers hang freely within the top portion of the reader assembly and rest on top of the rollers in the lower portion.

Normal Operation

As observed during black-box testing, the normal operation of the AV-OS tabulator consists of a ballot inserted into the AV-OS tabulator which interrupts the light transmission between the first LED and light sensor. The tabulator then advances the ballot through the reader assembly by driving the bottom rollers via the DC motor. The ballot is scanned, stopped, and reversed slightly before exiting the reader assembly. As discussed earlier; at this point the tabulator determines the ballot to be either “admissible” or “inadmissible”: If the ballot is admissible, the tabulator tabulates the votes, increments the ballot count which is displayed on the LCD screen of the tabulator, and accepts the ballot, advancing it through the reader assembly so that it exits the back (typically into a collection bin). If the ballot is inadmissible the rollers are reversed so that the ballot exits the reader assembly from the same side it originally entered; this returns the ballot to the voter.

4 Forensic Analysis

Based on the results of the objective analysis, the Connecticut Secretary of the State office asked the UConn VOTER Center to take possession of the tabulator in question which is to be replaced by the Secretary of the State. The VOTER Center has been asked to conduct a forensic analysis of the tabulator to determine, if possible, the cause of the malfunction observed by moderators on election night and the VOTER Center during black-box testing. The VOTER Center took possession of the AV-OS tabulator on December 14, 2022.

Additional Black-Box Testing

Additional black-box testing was conducted using blank ballots from the November 8, 2022 midterm election. With the observation that the tabulator error is related to ballot scans that were inadmissible but failed to be returned to the voter, this test was conducted with blank ballots which should always be returned by the tabulator. The noise observed during black-box testing was persistent throughout the remainder of testing. Results from black-box testing are shown in Table 2.

Number of scans	number of failures	% failure
401	65	16%

Table 2. Failure rate during black-box testing.

White-Box Testing

White-box testing consisted of the operation of the AV-OS tabulator with the cover removed revealing the operation of some of the components of the reader assembly.

Inspection of Motor and Pulley System

The AV-OS tabulator under test was opened and the reader assembly was removed from the top portion of the AV-OS system. No obvious damage or misconfiguration was observed in the external components of the reader

assembly. The main observable components on the exterior of the reader assembly are the motor, belt, and pulley.

The reader assembly was removed from the top portion of the AV-OS tabulator case. The reader assembly was then reconnected to the components in the lower portion of the tabulator via the power and ribbon cables. A test was run to observe the motor and pulley operation in both the normal and abnormal operation. These tests were conducted using both blank ballots and ballots with at least one vote. The motor and pulley appear to function normally. The external operation of the motor and pulleys was captured via video recording at 120 frames per second.

Reversing a Ballot

Analysis of the captured video shows the expected operation of the motor, belt, and pulleys. However, ballots inserted into the reader assembly were observed to continue moving out of the reader assembly while the motor and pulleys were moving in the opposite direction. Under these conditions, an observer would expect the ballot to reverse direction to be returned by the tabulator. Figure 4 shows three frames of video captured during this test. The first image is a captured frame showing a ballot moving through the reader assembly just before the motor and rollers stop forward motion. The second frame, captured two frames after the first, shows the moment the DC motor, and therefore the rollers, stop momentarily. The third frame, captured two frames after the second, shows the motor and rollers moving in the reverse direction, but the ballot moving forward out of the reader assembly.

Inspection of Internal Rollers

Once analysis of the external components of the reader assembly completed, the reader assembly was opened to inspect the internal components. Of particular interest are the rollers which advance ballots through the reader assembly. The cover and circuit board attached to the bottom half of the reader assembly were removed to expose the rollers which are driven by the DC motor. Recall that ballots passing through the reader assembly pass over these rollers as they travel through the reader assembly. As shown in Figure 5, the surface of the rollers which is in contact with ballots appears glazed, discolored and shows signs of wear. By the coloring, the rollers appear burnt. The surface is uneven with “dead spots” visible. Upon further inspection, a fragment of the roller material was found partially underneath the ribbon cable and copper

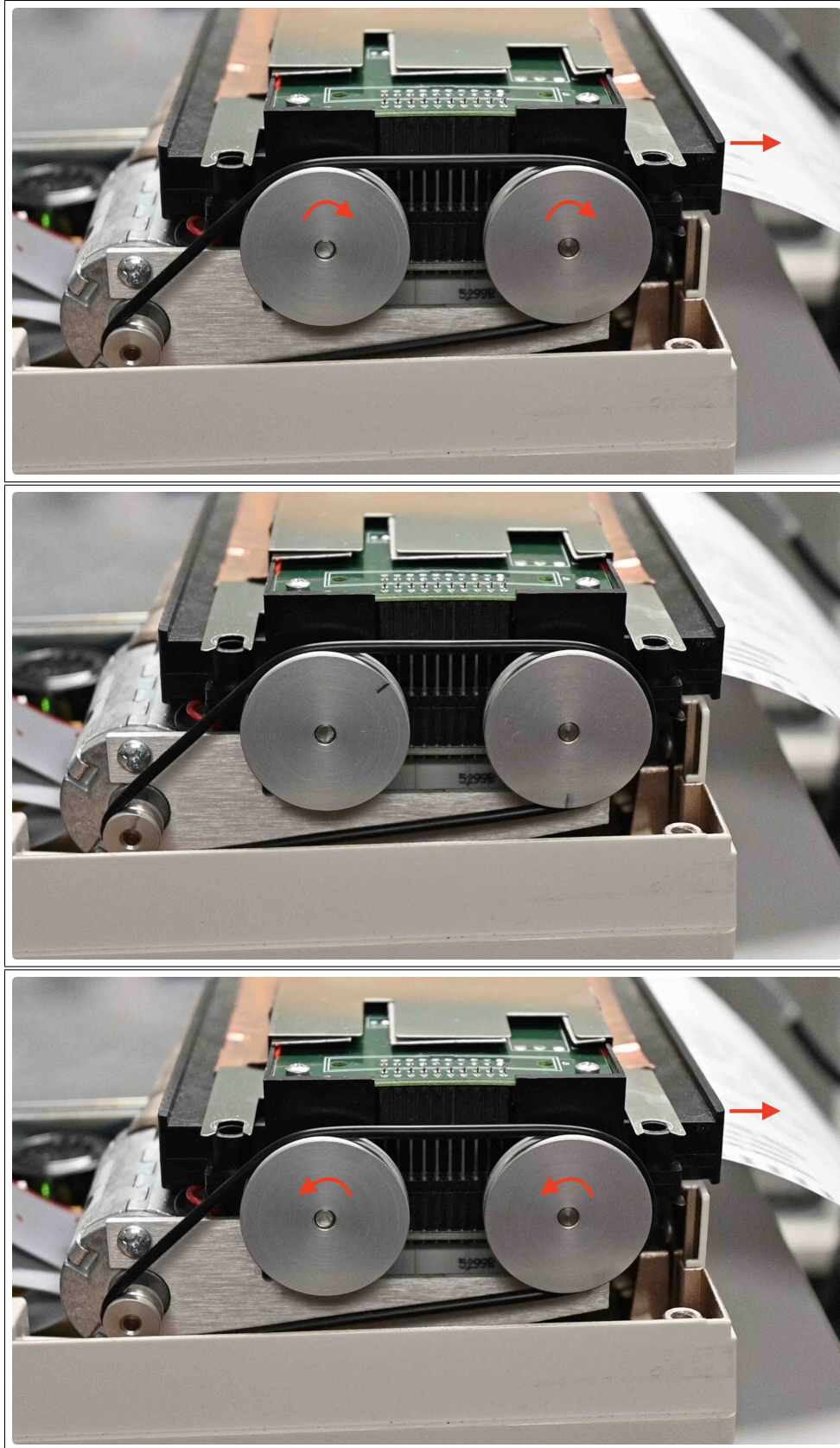


Figure 4. Three frames of video at the moment the ballot is reversed in the AV-OS tabulator. Video captured at 120fps.

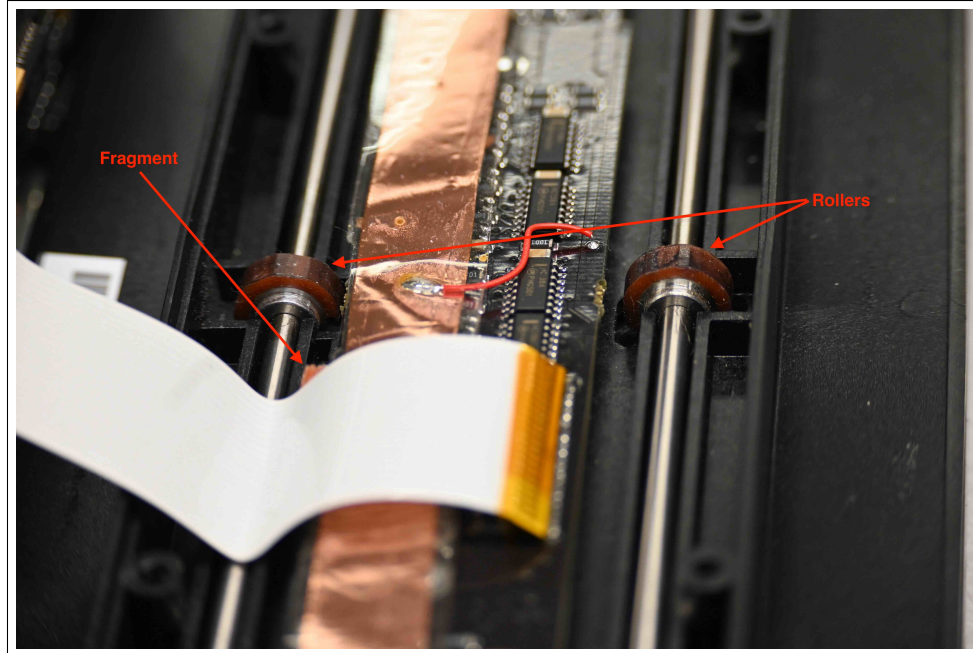


Figure 5. Internal inspection of reader assembly rollers.

tape inside this component. Advancing the roller slightly revealed a significant portion of rear roller had broken with a large fragment of roller material missing. In normal operation, this is the only roller in contact with a ballot when the ballot is stopped in the reader assembly before being returned or accepted into the collection bin. The damaged roller is shown in Figure 6. The fragments retrieved from the reader assembly are shown in Figure 7.

Repair History

The serial number of the tabulator under test is 42670 as shown on the back of the AV-OS tabulator in Figure 8 and noted on the tabulator tape from November 8, 2022 as shown in Appendix A.

This tabulator, along with all of the other tabulators in the reporting district, had been cleaned and tested by a qualified technician on March 17, 2022 as well as February 22, 2021.



Figure 6. Damaged roller missing a large fragment.

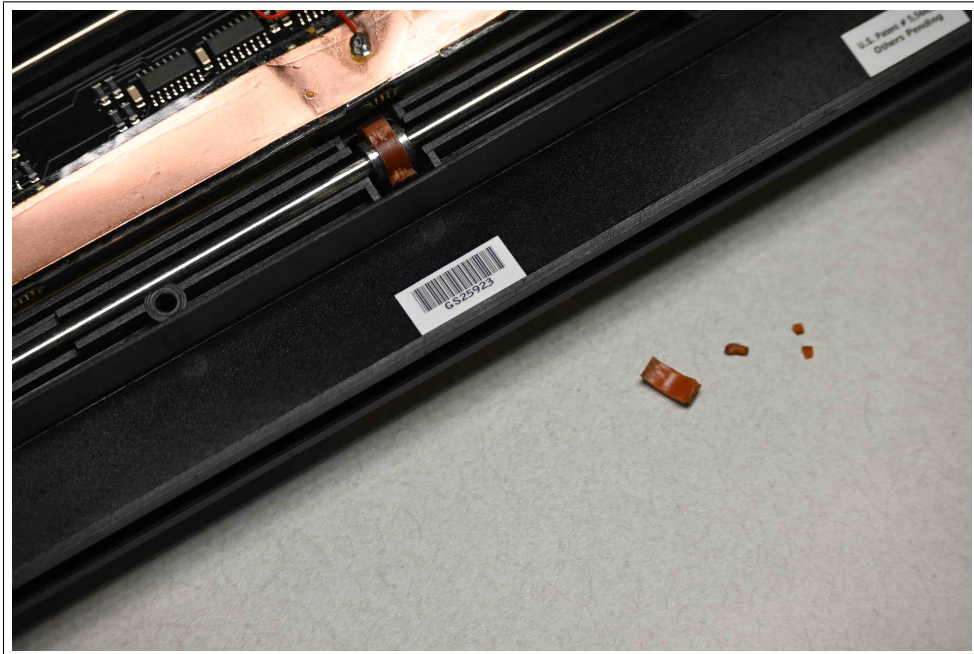


Figure 7. Roller fragments retrieved from the reader assembly.



Figure 8. Image of the back of the AV-OS tabulator showing the serial number.

5 Conclusions

All evidence indicates damage due to wear in the AV-OS tabulator caused it to be sporadically unable to reverse ballots to return them to the voter; this led to untabulated ballots being accepted and deposited in the ballot box. The failure was related to wear and damage to the rollers inside the reader assembly. The last inspection and testing occurred eight months before the failure was reported.

The wear resulted in an uneven surface on both rollers. The damage resulted in an extremely uneven surface on one of the rollers. The damage consisted of a large piece of the roller material that had broken off of the roller. It is presumed that the upper roller that rests on this damaged roller is the source of the noise heard when operating the tabulator. The upper roller likely drops when the missing section of the bottom roller rotates to the top and the upper roller is subsequently struck by the uneven edge due to the missing section of bottom roller. This missing section likely causes the bottom roller to lose contact with the ballot passing through the tabulator. If this occurs when the tabulator is attempting to stop or reverse the ballot, the forward momentum of the ballot may cause it to exit the tabulator before contact between the roller and ballot is restored. In particular, this may prevent the tabulator from successfully returning the ballot to the voter.

During election day, we suspect that inadmissible ballots with which the roller lost contact were deposited into the collection bin rather than returned to the voter. These ballots were not tabulated and were not reflected on the tabulators LCD counter. This led to a disagreement between the total number of tabulated ballots and the total number of ballots in the ballot box.

It is expected for mechanical systems, such as the AV-OS tabulator, to experience wear after years of service. It is possible the current maintenance testing procedure is not adequate to detect all defects of this type. Pre-election testing procedures for tabulators can be enhanced to detect this type of wear so that affected tabulators can be repaired before they are put into service for an election.

6 Recommendations

The damage detected in the AV-OS tabulator under test was mechanical in nature. This damage hindered the normal movement of ballots through the tabulator. The damage negatively impacted ballot scans which were inadmissible exclusively. The VOTER Center recommendations below address detecting tabulators with damage of this type both before they are used in an election and before results are reported to the Secretary of the State.

1. We propose adding an additional test to be conducted when a tabulator is configured for an election [2]. In addition to testing the tabulator and memory card with test ballots containing all combinations of votes, we recommend testing configured tabulators with a ballot which the tabulator should return. This can be a blank sheet, blank ballot, ballot for another election or district, or a ballot containing an overvote. We will refer to such a ballot as a “blank ballot.” The Registrars of Voters Association of Connecticut (ROVAC) does include scanning a blank ballot in their training for testing tabulator and memory cards prior to an election.² What we recommend is an amplification of this test. The blank ballot should be inserted into the tabulator at least fifty (50) times. Each time, the ballot should be returned by a tabulator which is functioning properly. If a blank ballot passes through the tabulator, regardless of any message on the LCD screen, the tabulator should not be used for an election until serviced by a qualified technician.
2. As prescribed in the Connecticut Moderator’s Handbook for Elections and Primaries [1], moderators should continue to compare the number of voters checking into a polling location against the ballot count on the LCD display of the AV-OS tabulator. This important check will help detect tabulator malfunctions of this type so that ballots can be re-canvassed using a backup tabulator. For example, the district which reported this failure routinely hand counts the number of voters who checked in from the voter register three (3) times on election night and compares this to the count of total ballots on the tabulator.
3. As a preventative measure, we recommend all registrars test all of their tabulators using a blank ballot following the procedure outlined in Item 1.

²<http://rovac.org/uploads/documents/Test%20Decks.pdf>

If any tabulators fail this test, they should be repaired as soon as possible and should be taken out of service until they can be repaired. Conducting this test as soon as possible will allow additional time for repairs to be made.

References

- [1] Connecticut Secretary of the State, 165 Capitol Ave, Hartford, CT 06106. *Moderator's Handbook for Elections and Primaries*, 2013.
- [2] Registrars of Voters Association of Connecticut, <http://rovac.org/>. *Manual of Procedures for Registrars of Voters*, 2017.

Appendix A: Tabulator Tapes

The following pages contain copies of the tabulator tapes from the primary and backup AV-OS tabulators used in the November 8, 2022 midterm election.

RACE # 70
 BLANKS 97
 THOMAS DEM 1731
 THOMAS WKF 45
 THOMAS UNK 2
 THOMAS TOT 1778
 DOMINIC RAPINI 1200
 CYNTHIA JENNINGS 66
 # WRITE-INS 0

 TREASURER
 RACE # 80

BLANKS 91
 RUSSELL DEM 1615
 RUSSELL WKF 49
 RUSSELL UNK 2
 RUSSELL TOT 1666
 HARRY ARORA 1382
 JENNIFER BALDWIN 64
 JOANNA LAISCELL 18
 # WRITE-INS 0

 COMPTROLLER
 RACE # 90

BLANKS 99
 SCANLON DEM 1661
 SCANLON IND 43
 SCANLON WKF 42
 SCANLON UNK 2
 SCANLON TOT 1748
 MARY FAY 1294
 # WRITE-INS 0

 ATTORNEY GENERAL
 RACE # 100

BLANKS 65
 TONG DEM 1847
 TONG WKF 49
 TONG UNK 4
 TONG TOT 1900
 JESSICA KORDAS 1132
 A. P. PASCARELLA 31
 KEN KRAYESKE 13
 # WRITE-INS 0

 JUDGE OF PROBATE
 RACE # 110

BLANKS 947
 SEAN PEOPLES 2177
 # WRITE-INS 17

 REGISTRAR OF VOTERS
 RACE # 120

BLANKS 148
 CHARLES MURRAY 1713
 LISBETH BECKER 1280
 # WRITE-INS 0

 QUESTION 1
 RACE # 201

BLANKS 178
 YES 1889
 NO 1074

 QUESTION 2
 RACE # 202

BLANKS 221
 YES 1822
 NO 1098

BALLOTS CAST BY PRECINCT
 PRECINCT QUANTITY
 [REDACTED] 3141

WE, THE UNDERSIGNED,
 DO HEREBY CERTIFY THE
 ELECTION WAS CONDUCTED
 IN ACCORDANCE WITH THE
 LAWS OF THE STATE.

 SIGNATURES
 [REDACTED]

THOMAS WKF 0
 THOMAS UNK 0
 THOMAS TOT 0
 DOMINIC RAPINI 0
 CYNTHIA JENNINGS 0
 # WRITE-INS 0

 TREASURER
 RACE # 80

BLANKS 0
 RUSSELL DEM 0
 RUSSELL WKF 0
 RUSSELL UNK 0
 RUSSELL TOT 0
 HARRY ARORA 0
 JENNIFER BALDWIN 0
 JOANNA LAISCELL 0
 # WRITE-INS 0

 COMPTROLLER
 RACE # 90

BLANKS 0
 SCANLON DEM 0
 SCANLON IND 0
 SCANLON WKF 0
 SCANLON UNK 0
 SCANLON TOT 0
 MARY FAY 0
 # WRITE-INS 0

 ATTORNEY GENERAL
 RACE # 100

BLANKS 0
 TONG DEM 0
 TONG WKF 0
 TONG UNK 0
 TONG TOT 0
 JESSICA KORDAS 0
 A. P. PASCARELLA 0
 KEN KRAYESKE 0
 # WRITE-INS 0

 JUDGE OF PROBATE
 RACE # 110

BLANKS 0
 SEAN PEOPLES 0
 # WRITE-INS 0

 REGISTRAR OF VOTERS
 RACE # 120

BLANKS 0
 CHARLES MURRAY 0
 LISBETH BECKER 0
 # WRITE-INS 0

 QUESTION 1
 RACE # 201

BLANKS 0
 YES 0
 NO 0

 QUESTION 2
 RACE # 202

BLANKS 0
 YES 0
 NO 0

BALLOTS CAST BY PRECINCT
 PRECINCT QUANTITY
 [REDACTED] 0

WE, THE UNDERSIGNED,
 DO HEREBY CERTIFY THE
 ELECTION WAS CONDUCTED
 IN ACCORDANCE WITH THE
 LAWS OF THE STATE.

***** SIGNATURES *****
 [REDACTED]

 ELECTION RESULTS REPORT

 STATE ELECTION
 [REDACTED]
 DATE: 11/09/22
 POLL CTR: [REDACTED]
 DISTRICT 1
 VERSION: 1 COPY: 0
 COUNT: 1 SIZE: 128
 ACCU-VOTE: 1.96.6
 REPORT: USMA 2.2.1
 PRECINCT CHECK: 69491
 COUNTER CHECK: 33790

TIME: 00:45:56 11/09/22

 ** PRECINCT: [REDACTED] **
 DIST 1 OFFICIAL

 BALLOTS CAST 3141

 GOVERNOR & LT. GOVERNOR
 RACE # 10

BLANKS 15
 LAMONT/BYSIEWI DEM 1817
 LAMONT/BYSIEWI CTP 6
 LAMONT/BYSIEWI WKF 37
 LAMONT/BYSIEWI UNK 10
 LAMONT/BYSIEWI TOT 1870
 STEFANOWSKI/DEVULIN 1195
 HOTALING/BECKETT 61
 # WRITE-INS 0

 U.S. SENATOR
 RACE # 15

BLANKS 46
 BLUMENTHAL DEM 1850
 BLUMENTHAL WKF 53
 BLUMENTHAL UNK 7
 BLUMENTHAL TOT 1910
 LEORA LEVY 1180
 # WRITE-INS 5

 REP. IN CONGRESS DIST 2
 RACE # 22

BLANKS 53
 JOE COURTNEY 1965
 MIKE FRANCE 1081
 WILLIAM HALL 21
 KEVIN BLACKER 20
 # WRITE-INS 1

 STATE SENATOR
 RACE # 30

BLANKS 63
 RAHMAN DEM 1725
 RAHMAN WKF 62
 RAHMAN UNK 7
 RAHMAN TOT 1794
 JACQUELINE CRESPIAN 1284
 # WRITE-INS 0

 STATE REP. ASSM 13
 RACE # 43

BLANKS 57
 DOUCETTE DEM 1774
 DOUCETTE IND 49
 DOUCETTE WKF 41
 DOUCETTE UNK 5
 DOUCETTE TOT 1869
 DONNA MEIER 1215
 # WRITE-INS 0

ELECTION ZERO REPORT

STATE ELECTION

DATE: 11/08/22
POLL CTR:
DISTRICT 1
VERSION: 1 COPY: 0
COUNT: 1 SIZE: 128
ACCU-VOTE: 1.96.6
REPORT: USMA 2.2.1
PRECINCT CHECK: 69491
COUNTER CHECK: 0

TIME: 21:51:44 11/08/22

** PRECINCT:
DIST 1 OFFICIAL

BALLOTS CAST 0

GOVERNOR & LT. GOVERNOR
RACE # 10

BLANKS 0
LAMONT/BYSIEWI DEM 0
LAMONT/BYSIEWI CTP 0
LAMONT/BYSIEWI WKF 0
LAMONT/BYSIEWI UNK 0
LAMONT/BYSIEWI TOT 0
STEFANOWSKI/DEVLIN 0
HOTALING/BECKETT 0
WRITE-INS 0

U.S. SENATOR
RACE # 15

BLANKS 0
BLUMENTHAL DEM 0
BLUMENTHAL WKF 0
BLUMENTHAL UNK 0
BLUMENTHAL TOT 0
LEORA LEVY 0
WRITE-INS 0

REP. IN CONGRESS DIST 2
RACE # 22

BLANKS 0
JOE COURTNEY 0
NIKE FRANCE 0
WILLIAM HALL 0
KEVIN BLACKER 0
WRITE-INS 0

STATE SENATOR
RACE # 30

BLANKS 0
RAHMAN DEM 0
RAHMAN WKF 0
RAHMAN UNK 0
RAHMAN TOT 0
JACQUELINE CRESPIAN 0
WRITE-INS 0

STATE REP. ASSM 13
RACE # 43

BLANKS 0
DOUCETTE DEM 0
DOUCETTE IND 0
DOUCETTE WKF 0
DOUCETTE UNK 0
DOUCETTE TOT 0
DONNA MEIER 0
WRITE-INS 0

SECRETARY OF THE STATE
RACE # 70

BLANKS 0

BLANKS 96
 THOMAS DEM 1711
 THOMAS MKF 45
 THOMAS UNK 2
 THOMAS TOT 1758
 DOMINIC RAPINI 1189
 CYNTHIA JENNINGS 66
 # WRITE-INS 0

 TREASURER
 RACE # 80

BLANKS 91
 RUSSELL DEM 1595
 RUSSELL MKF 48
 RUSSELL UNK 2
 RUSSELL TOT 1645
 HARRY ARORA 1291
 JENNIFER BALDWIN 64
 JOANNA LAISCELL 18
 # WRITE-INS 0

 COMPTROLLER
 RACE # 90

BLANKS 99
 SCANLON DEM 1641
 SCANLON IND 43
 SCANLON MKF 42
 SCANLON UNK 2
 SCANLON TOT 1728
 MARY FAY 1292
 # WRITE-INS 0

 ATTORNEY GENERAL
 RACE # 100

BLANKS 63
 TONG DEM 1825
 TONG MKF 49
 TONG UNK 4
 TONG TOT 1878
 JESSICA KORDAS 1124
 A. P. PASCARELLA 31
 KEN KRAYESKE 13
 # WRITE-INS 0

 JUDGE OF PROBATE
 RACE # 110

BLANKS 938
 SEAN PEOPLES 2154
 # WRITE-INS 17

 REGISTRAR OF VOTERS
 RACE # 120

BLANKS 150
 CHARLES MURRAY 1693
 LISBETH BECKER 1266
 # WRITE-INS 0

 QUESTION 1
 RACE # 201

BLANKS 176
 YES 1868
 NO 1065

QUESTION 2
 RACE # 202

BLANKS 220
 YES 1803
 NO 1086

BALLOTS CAST BY PRECINCT
 PRECINCT QUANTITY
 [REDACTED] 3109

WE, THE UNDERSIGNED,
 DO HEREBY CERTIFY THE
 ELECTION WAS CONDUCTED
 IN ACCORDANCE WITH THE
 LAWS OF THE STATE.
 Serial # 42670
 [REDACTED]

***** SIGNATURES *****
 [REDACTED]

ELECTION RESULTS REPORT

STATE ELECTION

DATE: 11/08/22
 POLL CTR: [REDACTED]
 DISTRICT 1
 VERSION: 1 COPY: 0
 COUNT: 1 SIZE: 128
 ACCU-VOTE: 1.96.6
 REPORT: USMA 2.2.1
 PRECINCT CHECK: 54880
 COUNTER CHECK: 32757

TIME: 20:06:05 11/08/22

 ** PRECINCT: [REDACTED] **
 DIST 1 OFFICIAL

 BALLOTS CAST 3109

 GOVERNOR & LT. GOVERNOR
 RACE # 10

BLANKS 15
 LAMONT/BYSIEWI DEM 1794
 LAMONT/BYSIEWI CTP 6
 LAMONT/BYSIEWI MKF 37
 LAMONT/BYSIEWI UNK 10
 LAMONT/BYSIEWI TOT 1847
 STEFANOWSKI/DEVILIN 1186
 HOTALING/BECKETT 61
 # WRITE-INS 0

 U.S. SENATOR
 RACE # 15

BLANKS 46
 BLUMENTHAL DEM 1828
 BLUMENTHAL MKF 53
 BLUMENTHAL UNK 7
 BLUMENTHAL TOT 1888
 LEGRA LEVY 1170
 # WRITE-INS 5

 REP. IN CONGRESS DIST 2
 RACE # 22-

BLANKS 52
 JOE COURTHEY 1941
 MIKE FRANCE 1074
 WILLIAM HALL 21
 KEVIN BLACKER 20
 # WRITE-INS 1

 STATE SENATOR
 RACE # 30

BLANKS 62
 RAHMAN DEM 1785
 RAHMAN MKF 62
 RAHMAN UNK 7
 RAHMAN TOT 1774
 JACQUELINE CRESPIAN 1273
 # WRITE-INS 0

 STATE REP. ASSM 13
 RACE # 43

BLANKS 56
 DOUCETTE DEM 1753
 DOUCETTE IND 49
 DOUCETTE MKF 41
 DOUCETTE UNK 4
 DOUCETTE TOT 1847
 DONNA MEIER 1206
 # WRITE-INS 0

 SECRETARY OF THE STATE
 RACE # 70

RUSSELL DEM 0
 RUSSELL MKF 0
 RUSSELL UNK 0
 RUSSELL TOT 0
 HARRY ARORA 0
 JENNIFER BALDWIN 0
 JOANNA LAISCELL 0
 # WRITE-INS 0

 COMPTROLLER
 RACE # 90

BLANKS 0
 SCANLON DEM 0
 SCANLON IND 0
 SCANLON MKF 0
 SCANLON UNK 0
 SCANLON TOT 0
 MARY FAY 0
 # WRITE-INS 0

 ATTORNEY GENERAL
 RACE # 100

BLANKS 0
 TONG DEM 0
 TONG MKF 0
 TONG UNK 0
 TONG TOT 0
 JESSICA KORDAS 0
 A. P. PASCARELLA 0
 KEN KRAYESKE 0
 # WRITE-INS 0

 JUDGE OF PROBATE
 RACE # 110

BLANKS 0
 SEAN PEOPLES 0
 # WRITE-INS 0

 REGISTRAR OF VOTERS
 RACE # 120

BLANKS 0
 CHARLES MURRAY 0
 LISBETH BECKER 0
 # WRITE-INS 0

 QUESTION 1
 RACE # 201

BLANKS 0
 YES 0
 NO 0

QUESTION 2
 RACE # 202

BLANKS 0
 YES 0
 NO 0

BALLOTS CAST BY PRECINCT
 PRECINCT QUANTITY
 [REDACTED] 0

WE, THE UNDERSIGNED,
 DO HEREBY CERTIFY THE
 ELECTION WAS CONDUCTED
 IN ACCORDANCE WITH THE
 LAWS OF THE STATE.

***** SIGNATURES *****
 [REDACTED]

 SECRETARY OF THE STATE
 RACE # 70

STATE ELECTION

DATE: 11/08/22
POLL CTR: [REDACTED]
DISTRICT 1
VERSION: 1 COPY: 0
COUNT: 1 SIZE: 128
ACCU-VOTE: 1.96.6
REPORT: USMA 2.2.1
PRECINCT CHECK: 54880
COUNTER CHECK: 0

TIME: 05:48:47 11/08/22

** PRECINCT: [REDACTED] **
DIST 1 OFFICIAL

BALLOTS CAST 0

GOVERNOR & LT. GOVERNOR
RACE # 10

BLANKS 0
LAMONT/BYSIEWI DEM 0
LAMONT/BYSIEWI CTP 0
LAMONT/BYSIEWI WKF 0
LAMONT/BYSIEWI UNK 0
LAMONT/BYSIEWI TOT 0
STEFANOWSKI/DEULIN 0
HOTALING/BECKETT 0
WRITE-INS 0

U.S. SENATOR
RACE # 15

BLANKS 0
BLUMENTHAL DEM 0
BLUMENTHAL WKF 0
BLUMENTHAL UNK 0
BLUMENTHAL TOT 0
LEORA LEVY 0
WRITE-INS 0

REP. IN CONGRESS DIST 2
RACE # 22

BLANKS 0
JOE COURTHEY 0
MIKE FRANCE 0
WILLIAM HALL 0
KEVIN BLACKER 0
WRITE-INS 0

STATE SENATOR
RACE # 30

BLANKS 0
RAHMAN DEM 0
RAHMAN WKF 0
RAHMAN UNK 0
RAHMAN TOT 0
JACQUELINE CRESPIAN 0
WRITE-INS 0

STATE REP. ASSM 13
RACE # 43

BLANKS 0
DOUCETTE DEM 0
DOUCETTE IND 0
DOUCETTE WKF 0
DOUCETTE UNK 0
DOUCETTE TOT 0
DONNA MEIER 0
WRITE-INS 0

SECRETARY OF THE STATE
RACE # 70

BLANKS 0
THOMAS DEM 0
THOMAS WKF 0
THOMAS UNK 0
THOMAS TOT 0
DOMINIC RAPINI 0
CYNTHIA JENNINGS 0
WRITE-INS 0

TREASURER
RACE # 80

BLANKS 0