Collaborative Testing Services, Inc
FORENSIC TESTING PROGRAM

P.O. Box 650820
Sterling, VA 20165-0820
e-mail: forensics@cts-interlab.com
Telephone: +1-571-434-1925
Web site: www.cts-forensics.com

Serial Number Restoration
Test No. 23-5251 Summary Report

Each sample set contained a piece of bar stock with an obliterated serial number with an upward arrow for orientation. Also included was a piece of aluminum bar stock intended as a standard for the size, shape, and positioning of the stamped characters. Participants were requested to restore the obliterated serial number utilizing their laboratory recovery methodologies and report their findings. Data were returned from 245 participants and are compiled into the following tables:

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This report contains the data received from the participants in this test. Since these participants are located in many countries around the world, and it is their option how the samples are to be used (e.g., training exercise, known or blind proficiency testing, research and development of new techniques, etc.), the results compiled in the Summary Report are not intended to be an overview of the quality of work performed in the profession and cannot be interpreted as such. The Summary Comments are included for the benefit of participants to assist with maintaining or enhancing the quality of their results. These comments are not intended to reflect the general state of the art within the profession.

Participant results are reported using a randomly assigned "WebCode". This code maintains participant's anonymity, provides linking of the various report sections, and will change with every report.

Manufacturer's Information

Each sample set consisted of a piece of bar stock that contained an obliterated serial number and a piece of aluminum bar stock intended as a standard for the size, shape, and positioning of the stamped characters. Participants were requested to attempt to restore the obliterated serial number utilizing their laboratory restoration methodologies and report the recovered serial number. The serial number to be restored consisted of 6 characters (5A6B41).

SAMPLE PREPARATION: Each piece of cold rolled steel bar stock (Item 1) was stamped with six characters (5A6B41), along with an upward arrow for orientation, and then obliterated by a grinding machine. Additionally, a piece of aluminum bar stock was also included in the sample as a reference standard with the alphanumeric characters 0-9 and A-F, H, J, K, and N. The characters were stamped in the same font and size as those on the steel bar stock.

SAMPLE SET ASSEMBLY: For each sample set, a steel bar stock and an aluminum bar stock were separately enclosed in chipboard, placed in their respective pre-labeled envelopes, and then packed into a larger sample set envelope and sealed.

VERIFICATION: All predistribution laboratories reported the expected responses and restored all six obliterated serial number characters. Chemical restoration methods were used by all predistribution laboratories.

Summary Comments

This test was designed to allow participants to assess their proficiency in the restoration of an obliterated serial number. Participants were provided with a piece of bar stock that contained an obliterated serial number (Item 1) and a piece of aluminum bar stock intended as a standard for the size, shape, and positioning of the stamped characters. Participants were requested to restore the obliterated serial number utilizing their laboratory recovery methodologies and report the recovered serial number. The serial number to be restored consisted of six characters (5A6B41). (Refer to Manufacturer's Information for preparation details).

In Table 1 Recovered Characters, 233 of the 245 responding participants (95%) restored all six characters (5A6B41). Nine participants restored five of the six characters and of those, six participants reported two options for one character. Of the remaining three participants, two restored four of the six characters, and the remaining participant could not restore any characters.

In Table 3 Sample Preparation, the most commonly reported preparation methods were visual and polishing. In Table 4 Recovery Methods, the majority of participants used a combination of both chemical and magnetic recovery methods. No trends were noted between the methods used and the challenges experienced by participants.

Recovered Characters

Please record the recovered characters below.

TABLE 1

Recovered Characters						
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
242T8C	5	A	6	B	4	1
27P9EY	5	A	6	B	4	1
2A6RH2	5	A	6	B	4	1
2FGFHX	5	A	6	B	4	1
2UZ86J	5	A	6	B	4	1
2XD6C7	5	A	6	B	4	1
2XZF9T	5	A	6	B	4	1
39ET43	5	A	6 OR 8	B	4	1
3D4AFT	5	A	6	B	4	1
3GKU39	5	A	6	B	4	1
3LERRZ	5	A	6	B	4	1
3YMAPU	5	A	6	B	4	1
3YMJBY	5	A	6	B	4	1
44D4Z2	5	A	6	B	4	1
48F3BT	5	A	6	B	4	1
49AV7C	5	A	6	B	4	1
4BDQPF	5	A	6	B	4	1
4C7NV2	5	A	6	B	4	1
4GLWJZ	5	A	6	B	4	1
4GZHVM	5	A	6	B	4	1
4TQEUZ	5	A	6	B	4	1
4UQ6AV	5	A	6	B	4	1
4X7MHZ	5	A	6	B	4	1
624MV2	5	A	6	B	4	1
626DBW	5	A	6	B	4	1
64A4BK	5	A	6	B	4	1
67Z6HU	5	A	6	B	4	1
68ACFV	5	A	6	B	4	1
69NJ3X	5	A	6	B	4	1
6AEMRX	5	A	6	B	4	1
6E9L7T	5	A	6	B	4	1
6KUUAK	5	A	6	B	4	1

TABLE 1

	Recovered Characters					
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
6YXVC2	5	A	6	B	4	1
73WTXD	5	A	6	B	4	1
79GYNT	5	A	6	B	4	1
79JJK9	5	A	6	B	4	1
79X7VW	5	A	6	B	4	1
7BN6AU	5	A	6	B	4	1
7HNNA6	5	A	6	B	4	1
7HPLKZ	5	A	6	B	4	1
7KBB3R	5	A	6	B	4	1
7M37RL	5	A	6	B	4	1
7P8U8B	5	A	6	B	4	1
7QYQV6	5	A	6	B	4	1
7QZRDW	5	A	6	B	4	1
89FG8A	5	A	6	B	4	1
8HL74T	5	A	6	B	4	1
8W47HY	5	A	6	8	4	1
9422FW	5	A	6	B	4	1
94YFJG	5	A	6	B	4	1
98E2CN	5	A	6	B	4	1
9CUHLT	5	A	6	B	4	1
9EZVAL	5	A	6	B	4	1
9FTRYF	5	A	6	B	4	1
9G6JQW	5	A	6	B	4	1
9HZ86L	5	A	6	B	4	1
9JR4UF	5	A	6	B	4	1
9LLREW	5	A	6	B	4	1
9NHHCV	5	A	6	B	4	1
9PW366	5	A	6	B	4	1
9ZFG7M	5	A	6	B	4	1
A2AL38	5	A	6	B	4	1
AAKRWP	5	A	6	B	4	1
AAMB3Z	5	A	6	B	4	1
AGK6WR	5	A	6	B	4	1
AJ6YVD	5	A	6	B	4	1

TABLE 1

	Recovered Characters					
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
AJACJA	5	A	6	B	4	1
AJRKAP	5	A	6	B	4	1
B4DGJN	5	A	6	B	4	1
BFHYUN	5	A	6	B	4	1
BP8K38	5	A	6	B	4	1
BP8NRC	5	A	6	B	4	1
BRXM7B	5	A	6	B	4	1
BRYJG7	5	A	0	B	4	1
BYHPDD	5	A	6	B	4	1
BZ9T3D	5	A	6	B	4	1
C2LZML	5	A	6	B	4	1
CB6EN3	5	A	6	B	4	1
CDBWLY	5	A	6	B	4	1
CKT6AV	5	A	6	B	4	1
CMHJTD	5	A	6	B	4	1
CMK2YP	5	A	6	B	4	1
CX2XVF	5	A	6	B	4	1
D2ZLWM	5	A	6	B	4	1
D77FQJ	5	A	6	B	4	1
D7TQM7	5	A	6	B	4	1
DBKVHV	5	A	6	B	4	1
DCJZX6	5	A	6	B	4	1
DHGUPB	B	A	G	B	4	1
DJW9Y7	5	A	6	B	4	1
DNBRFM	5	A	6	B	4	1
DPLNRJ	5	A	6	B	4	1
DTHD9Q	5	A	6	B	4	1
DXVXEC	5	A	6	B	4	1
EALA6V	5	A	6	B	4	1
ECD7TP	5	A	6	B	4	1
ECUQJN	5	A	6	B	4	1
ELGKBG	5	A	6	B	4	1
EN7P8U	5	A	6	B	4	1
EQCE9H	5	A	6	B	4	1

TABLE 1

	Recovered Characters					
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
ER3HWJ	5	A	6	B	4	1
ER4BWC	5	A	6	B	4	1
EUUELD	5	A	6	B	4	1
EXQ6RN	5	A	6	B	4	1
FQQZJ6	5	A	6	B	4	1
G3DM36	5	A	6	B	4	1
G66QR7	5	A	6	B	4	1
G94Y4T	5	A	6	B	4	1
GKECJ9	5	A	6	B	4	1
GMKYT8	5	A	6	B	4	1
GREWJJ	5	A	6	B	4	1
GU4XRR	5	A	6	B	4	1
GZ6EV7	5	A	6	B	4	1
H2XRUH	5	A	6	B	4	1
H4PQ9G	5	A	6	B	4	1
H4RB4W	5	A	6	B	4	1
HEMMC4	5	A	6	B	4	1
HGDNF7	5	A	6	B	4	1
HGGBWK	5	A	6	B	4	1
HNAK3A	5	A	6	B	4	1
HT8668	5	A	6	B	4	1
HVX7CG	5	A	6	B	4	1
HXLKWK	5	A	6	B	4	1
HZPH47	5	A	6	B	4	1
J2DD4K	5	A	6	B	4	1
J3RV66	5	A	6	B	4	1
J9Y7G6	5	A	6	B	4	1
JJTKEG	5	A	6	B	4	1
JJV6BW	5	A	6	B	4	1
KAM3GJ	5	A	6	B	4	1
KG6LKJ	5	A	6	B	4	1
KVMD9P	5	A	6	B	4	1
KW48AY	5	A	6	B	4	1
KXEAXJ	5	A	6	B	4	1

TABLE 1

	Recovered Characters					
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
KYPCJH	5	A	6	B	4	1
KZ2U23	5	A	6	B	4	1
L6869M	5	A	6	B	4	1
LAJT9J	5	A	6	B	4	1
LDZCTD	5	A	6	B	4	1
LEEKGF	5	A	6	B	4	1
LHETLQ	5	A	6	B	4	1
LHV42B	5	A	6	B	4	1
LTXACC	5	A	6	B	4	1
M3GZBA	5	A	6	B	4	1
M3HXL6	5	A	6	B	4	1
M7G9H6	5	A	6	B	4	1
M7GDWD	5	A	6	B	4	1
M97F4M	5	A	6	B	4	1
MBPU72	5	A	6	B	4	1
MMZ6VD	5	A	6	B	4	1
MPR9KD	5	A	6	B	4	1
MQZK2F						
MT72GX	5	A	6	B	4	1
MVYP2E	5	A	6	B	4	1
MX4HUR	5	A	6	B	4	1
MYE7BJ	5	A	6	B	4	1
N6JKEZ	5	A	6	B	4	1
NABRW9	5	A	6	B	4	1
NKV47Z	5	A	6	B	4	1
NLNMGD	5	A	6	B	4	1
NLNW2J	5	A	6	B	4	1
NUYYMJ	5	A	6	B	4	1
NVCJFU	5	A	6	B	4	1
P393T9	5	A	6	B	4	1
P3QNP7	5	A	6	B	4	1
P6X8PM	5	A	6	B	4	1
P78B2P	5	A	6	B	4	1
P8N9TP	5	A	6	B	4	1

TABLE 1

	Recovered Characters					
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
PBKYTA	5	A	6	B	4	1
PCWV67	5	A	6	B	4	1
PENRTY	5	A	6	B	4	1
PNR3ZP	5	A	6	B	4	1
Q76Q6A	5	A	6	B	4	1
QGLT9M	5	A	6	B	4	1
QJCUCP	5	A	6	*	4	1
QKQ79A	5	A	6	B	4	1
QLJALG	5	A	6	B	4	1
QLYDF9	5	A	6	B	4	1
QMB7AB	5	A	6	B	4	1
QMC3GZ	5	A	6	B	4	1
QNPG69	5	A	6	B	4	1
QP28DD	5	A	6	B	4	1
QQCBMV	5	A	6	B	4	1
R2NZY7	5	A	6	B	4	1
R3F4M7	5	A	6	B	4	1
R6MELV	5	A	6	B	4	1
R8EDZT	5	A	6	B	4	1
RBDNWT	5	A	6	B	4	1
RCMJUE	6	A	6	8	4	1
RF8LKK	5	A	6	B	4	1
RKK7R7	5	A	6	*	4	1
RKL2DW	5	A	6	B	4	1
RMPRJC	5	A	6	B	4	1
RX97KU	5	A	6	B	4	1
RY24QE	5	A	6	B	4	1
TC2KV8	5	A	6	B	4	1
TKFBFD	5	A	6	B	4	1
TL8AUC	5	A	6	B	4	1
TU6237	5	A	6	B	4	1
TU8J9G	5	A	6	B	4	1
TVHQ84	5	A	6	B	4	1
UDQ74N	5	A	6	B	4	1

TABLE 1

	Recovered Characters					
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
UL8PL3	5	A	6	B	4	1
UNXQP6	5	A	6	B	4	1
UUZ2EB	5	A	6	B	4	1
VADPCC	5	A	6	B	4	1
VB6LZ7	5	A	6	B	4	1
VGT9UQ	5	A	6	B	4	1
VPMJXU	5	A	6	B	4	1
VUVY93	5	A	6	B	4	1
VVT8GM	5	A	6	B OR 8	4	1
VZGWV6	5	A	6	B	4	1
W4HFEH	5	A	6	B	4	1
W8EYJ3	5	A	6	B	4	1
WCBQPD	5	A	6	B	4	1
WCRKPN	5	A	6	B	4	1
WEWCH2	5	A	6	(8,B)	4	1
WHVND2	5	A	6	B	4	1
WPWZCJ	5	A	6	B	4	1
WR9F7K	5	A	6	B	4	1
WTJJE3	5	A	6	B	4	1
WUQWZA	5	A	6	B	4	1
WW2N87	5	A	6	B	4	1
WWFBJT	5	A	6	B	4	1
WWHVE9	5	A	6	B	4	1
WZFECZ	5	A	6	B	4	1
X4CKB3	5	A	6	B	4	1
X7LBXL						
XX47H7	5	A	6	B	4	1
XY4WX2	5	A	6	B	4	1
Y8BZDY	5	A	6	B	4	1
Y94W2T	5	A	6	B/8	4	1
YC48V8	5	A	6	B	4	1
YC4VKX	5	A	6	B	4	1
YKEG88	5	A	6	B	4	1
Z7CBT3	5	A	6	B	4	1

TABLE 1

Recovered Characters						
WebCode	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
ZARR27	5	A	6	B	4	1
ZE8DUD	5	A	6	B	4	1
ZGTWXW	5	A	6	B	4	1
ZJMLHD	5	A	6	B	4	1
ZL3FWP	5	A	6	8	4	1
ZPRH4Y	5	A	6	B	4	1
ZQGVN3	5	A	6	B	4	1
ZT8YD3	5	A	6	B	4	1
ZW6HE2	5	A	6	B	4	1
ZZ8CGC	5	A	6	B	4	1

Response Summary						Participants: 246
	Character 1	Character 2	Character 3	Character 4	Character 5	Character 6
	5	A	6	B	4	1
Number	242	244	241	236	244	244
Percent	98.4%	99.2%	98.0%	95.9%	99.2%	99.2%

Conclusions

TABLE 2

WebCode	Conclusions
242T8C	The item 1 serial number was restored. The number is 5A6B41.
27P9EY	Serial number was polished and Davis chemical's were used to restore serial number.
2A6RH2	Defaced Bar Stock (Item #1) was chemically/magnetically processed. Its serial number was restored to read: 5A6B41.
2FGFHX	Item #1: bar stock with an obliterated area. The characters "5A6B41" were restored.
2UZ86J	The obliterated serial number on Lab Item 1 was restored to read 5A6B41.
2XD6C7	The Exhibit's surface was lightly polished, using grinding paper 600. The polished surface was then treated with Fry's reagent. The results were successfully photographed.
2XZF9T	The serial number was restored to read: 5A6B41.
39ET43	I attempted a serial number restoration using chemical etching and magnetic particle testing and obtained the following digits of the serial number: 5 A (6 or 8) B 4 1 The numbers 6 or 8 in parentheses above indicates that the digit of the serial number was either the number six (6) or the number eight (8).
3D4AFT	The serial number was erased. I was able to restore the serial number to read 5A6B41
3GKU39	Our reports populate in a table format, so no explanations of my results are included. Table header is "Restoration Results" and would list "5A6B41" below it.
3LERRZ	Chemical etching of the obliterated area on the piece of steel bar stock, Item 1, revealed the serial number to be “5A6B41”. The piece of aluminum bar stock labeled “Aluminum Standard” from Item 1 was used for reference purposes only. No further examination was performed on this Item. All evidence will be returned to the submitting agency.
3YMAPU	Item #1 was a piece of steel bar stock with an obliterated area on one side. Upon restoration, the characters "5 A 6 B 4 1" were restored.
3YMJBY	[No Conclusions Reported.]
44D4Z2	On examination, I found that there were filing mark on the cold rolled steel bar stock and no number were observed. After electrochemical treatment, the obliterated serial number was restored and read as 5A6B41.
48F3BT	Restoration Results: 5A6B41
49AV7C	Item 1-1 was submitted with a defaced serial number. Chemical etching and magnetic restoration techniques were used to restore the serial number. The serial number was restored and found to be: 5A6B41.
4BDQPF	1. Examination of Exhibit 1 revealed one ferromagnetic metal bar with an area of obliteration. 2. Serial number restoration techniques were performed on the obliterated area of Exhibit 1 and the following characters were observed: 5 A 6 B 4 1
4C7NV2	The serial number of the steel bar, Exhibit ITEM 1, was restored and observed to be 5A6B41.
4GLWJZ	The serial number on the piece of bar stock, Exhibit 4, was determined to be 5 A 6 B 4 1.
4GZHVM	The serial number on Item 1 was restored to read 5A6B41 using magnetic particle inspection and chemical etching techniques.
4TQEUZ	The piece of cold rolled steel bar stock's (Item 1) obliterated serial number located on the front of the plate was chemically processed and restored to read "5A6B41".
4UQ6AV	Item 1 was sanded and polished. Acid was applied to the area of the obliterated serial number. The serial number was recovered and found to be 5A6B41.

TABLE 2

WebCode	Conclusions
4X7MHZ	Scraping process on the aluminum bar was done properly so there was no need for sanding. After applyin the electro-magnetic method for 2 minutes, the characters become visible. It bacame clear after applying fry solution and turner solution in 2 minutes.
624MV2	1. Serial number restoration was attempted on the obliterated serial number located on the item 1 steel bar stock using Magnetic Particle Inspection (MPI) and chemical etching. 2. The serial number was fully restored to be “5A6B41”
626DBW	Findings: Item 1: Steel bar: 5A6B41 (serial number restored). Remarks: All evidence will be returned to the submitting agency. Analytical Detail: Serial number restoration findings offered above were determined using sanding and/or chemical etching techniques.
64A4BK	Examination and chemical processing of Item 1 restored the original obliterated serial number which was determined to be “5A6B41".
67Z6HU	The Item 1 steel plate obliterated serial number was chemically processed, restored, and interpreted as “5A6B41”.
68ACFV	Examination of the submitted cold rolled steel bar stock found the manufacturer’s serial number to have been obliterated. The obliterated, original serial number was restored to read “5A6B41”.
69NJ3X	The serial number was restored to read: 5 A 6 B 4 1. The standard was not examined further.
6AEMRX	A request has been made to determine if the obliterated serial number or marking on the item submitted can be recovered. The serial marking on the steel bar stock, SNR2, has been removed from one flat side. Following application of the polishing, electromagnetic and chemical processes, I determine the serial marking of the steel bar stock, item SNR2, to be 5A6B41.
6E9L7T	The serial number was fully restored to read '5A6B41'
6KUUAK	Chemical restoration revealed the serial number to be 5A6B41.
6YXVC2	The serial number was restored and determined to be "5A6B41"
73WTXD	Restored characters: 5A6B41
79GYNT	The serial number of the plate described in item1 was restored and corresponds to: 5A6B41. [Initials] 14/nov/2023
79JJK9	After application of acid solution we were able to reveal the following characters : 5A6B41
79X7VW	Findings: The piece of steel bar stock, item #1, was visually and microscopically examined and determined to have an area of apparent obliteration present on its face. Sanding and chemical etching of the obliterated area revealed the serial number to be 5A6B41. Remarks: The additional submitted piece of aluminum bar stock, item #1, was viewed to reference possible characters but not otherwise examined. All evidence will be returned to the submitting agency. Analytical Detail: Serial number restoration findings offered above were determined using sanding and/or chemical etching techniques.
7BN6AU	A serial number restoration was conducted on the area of obliteration on the piece of metal in Item 1. Standard restoration techniques revealed the following characters: "5A6B41".
7HNNA6	Serial number restoration Lab Item #1-2 Restoration Results: 5A6B41
7HPLKZ	The serial number on the center of Item 1 was determined to be "5A6B41".
7KBB3R	The submitted piece of steel bar stock, item 1, was observed to have a completely obliterated serial number. In an attempt to restore this number, a magnetic enhancement technique was performed, and the following characters were revealed: “5 A 6 B 4 1”. Digital images were captured for documentation purposes.
7M37RL	The Item #1 steel bar stock was physically & chemically processed. Its serial number was restored to read: 5A6B41.

TABLE 2

WebCode	Conclusions
7P8U8B	1. Examination of Exhibit 1 revealed one ferromagnetic metal bar stock with an obliterated area approximately at its center. Standard restoration techniques were conducted, the obliterated area was restored, and the following characters were observed: 5 A 6 B 4 1. 2. Exhibit 1 measures 62.68 mm long, 25.47 mm wide, and 6.30 mm thick. All measurements are approximate. TECHNICAL NOTES: Serial number restoration is dependent upon multiple factors to include the original stamping/engraving method, material type, obliteration method, and depth of material removed. The reported characters convey only the appearance of characters or partial characters that the examiner observed after the application of standard serial number restoration techniques. These characters are not considered absolute to the exclusion of other possible characters with similar shape or form.
7QYQV6	Item 1 restoration results: 5A6B41
7QZRDW	The obliterated number on the Q1 steel bar stock was polished and chemically restored to reveal the number "5 A 6 B 4 1".
89FG8A	The serial number of the metal bar, Item# 1, was restored and determined to be 5A6B41. Methods Used: Macroscopic Examination, Chemical Etching
8HL74T	Examined the specimen marked Item 1. The obliterated serial number was magnetically chemically processed and restored to read 5A6B41.
8W47HY	The steel bar was initially noted to have no visible serial number. It was then examined using physical, chemical and lighting techniques when the serial number, 5A6841, became apparent.
9422FW	The above item was visually examined, photographed, and the obliterated area was processed for an identifiable serial number. The obliterated area on the item was observed to be a ferrous metal, without a coating. The obliterated area on the item was prepared prior to attempts at recovery with sanding, and polishing methods, using 120 grit sand paper and 100 grit steel wool. The item was chemically treated with Davis, Turner's, and Fry's reagents. A full serial number was restored, and observed to be 5 A 6 B 4 1.
94YFJG	The restored marking on the presented steel bar (Test No. 23-5251 Item 1) can be read as 5A6B41
98E2CN	Standard restoration techniques used on Item #1 revealed the following characters: 5A6B41.
9CUHLT	The piece of cold rolled steel bar stock's (Item 1) obliterated serial number located on the front of the plate was chemically processed and restored to read "5A6B41".
9EZVAL	The serial number was restored to read 5A6B41.
9FTRYF	The obliterated serial number was chemically processed and restored to read "5A6B41"
9G6JQW	The evidence in item 1 was analyzed by physical and microscopic examination. The obliterated area on the piece of cold rolled steel bar stock in item 1 was chemically etched and the serial number was determined to be 5A6B41.
9HZ86L	The serial number from the piece of metal (Item 1) had been erased by mechanical means. I was able to forensically restore this erased serial number, which read 5A6B41.
9JR4UF	The obliterated serial number was chemically processed and restored to read "5 A 6 B 4 1"
9LLREW	I processed and examined the steel bar stock to reveal the obliterated serial number using the Magnetic Particle Reagent method. It revealed the obliterated serial number as 5A6B41. The procedure was photographed and documented.
9NHHCV	The serial number on the bar stock, Exhibit 3, was determined to be 5A6B41.
9PW366	The obliterated surface on the steel bar stock (Item 1) was not sanded any more (very smooth surface) but chemically processed. All characters could have been seen during the examination, but not all at the same time. Some have been visible later than other ones, but all clearly identifiable. The difficulty of the test this year was comparable to the test on 2020.
9ZFG7M	The serial number was restored to read 5A6B41

TABLE 2

WebCode	Conclusions
A2AL38	The obliterated area of Item 1 was chemically processed for serial number restoration. The serial number was restored to read "5A6B41".
AAKRWP	[No Conclusions Reported.]
AAMB3Z	Restoration Results: 5A6B41
AGK6WR	Item 1 was physically processed to attempt to recover the serial number. The serial number was recovered as 5A6B41.
AJ6YVD	The restoration of obliterated serial number have been done using physical and chemical prossessing. The following characters have been restored: 5A6B41
AJACJA	1. Examination of Exhibit 1 revealed it to be one ferromagnetic metal bar measuring approximately 63mm long, 25mm wide, and 6mm thick. The obliterated area is on one side, measuring approximately 37mm long and 25mm wide. a. The obliterated area of Exhibit 1 was restored, and the following characters were observed: 5 A 6 B 4 1.
AJRKAP	Item 1 was a rectangular block of reportedly cold-rolled steel. A reported serial number was obliterated from the center of the block. Polishing, magnetic, and chemical serial number restoration techniques were applied to the surface. The serial number of 5A6B41 was restored. The Item 2 aluminum standard block contained alphanumeric exemplars and was used for reference only.
B4DGJN	Upon chemical etching on the steel bar in Item 1, six characters "5A6B41" were revealed. The six characters were found to agree in style and size with the corresponding characters stamped on the aluminum standard.
BFHYUN	Examination of the submitted cold rolled steel bar stock found the manufacturer's serial number to have been obliterated. The obliterated, original serial number was restored to read "5A6B41".
BP8K38	Visual examination and chemical treatment of the serial number area on the bar stock, Item 1A, reveal the following number: 5A6B41. Item 1B was inspected to verify and document contents. No analysis was performed on the item listed.
BP8NRC	Item 1 is a section of steel bar stock with an obliterated serial number. Using standard restoration techniques, the obliterated serial number on Item 1 was restored to read: 5 A 6 B 4 1.
BRXM7B	Standard restoration techniques revealed the following characters on item #1, "5A6B41".
BRYJG7	The location of obliterated serial number on the surface of Item 001 was chemically and physically processed and the serial number was able to be restored as 5 A 0 B 4 1.
BYHPDD	The serial number 5A6B41 was restored on the item 1 steel bar stock.
BZ9T3D	The erased serial number is perceived to be 5A6B41.
C2LZML	The obliterated six alphanumeriic characters on the steel bar stock (Item 1) were restored as followed: 5 A 6 B 4 1
CB6EN3	The hypothesis that the serial number is 5 A 6 B 4 1 is very strongly supported
CDBWLY	5A6B41
CKT6AV	The serial number of Submission 001 as restored is 5A6B41.
CMHJTD	The number revealed on the plate is 5A6B41.
CMK2YP	Restoration Results: 5A6B41
CX2XVF	The deleted or altered series was restored and the series was determined to be 5A6B41
D2ZLWM	An obliterated area was observed on the metal bar in Item 1-1. The characters "5A6B41" were restored.
D77FQJ	Restoration revealed the following characters "5A6B41".

TABLE 2

WebCode	Conclusions
D7TQM7	1) The obliterated area on Exhibit 1 (Metal Bar Stock) was restored and the following characters were observed: 5 A 6 B 4 1. TECHNICAL NOTES: Serial number restoration is dependent upon multiple factors to include the original stamping/engraving method, material type, obliteration method, and depth of material removed. The reported characters convey only the appearance of characters or partial characters that the examiner observed after the application of standard serial number restoration techniques. These characters are not considered absolute to the exclusion of other possible characters with similar shape or form.
DBKVHV	The obliterated serial number on the steel bar stock (Item 1) was recovered to read 5A6B41.
DCJZX6	1) Examination of Exhibit 1 revealed one ferromagnetic metal bar measuring 63mm long, 24mm wide, and 6mm thick. 2) One side of Exhibit 1 contains an area obliterated by a grinding type tool. The obliterated area was restored and the following six characters were observed: 5 A 6 B 4 1. All measurements are approximate. Exhibits discussed in the forensic discipline reports were examined; all results are accredited and formed using accepted scientific and professional practices. The [Laboratory] Department is accredited under ISO/IEC [Certificate Number]. See certificate number [Number] issued by [Accrediting Body].
DHGUPB	Once the procedure was carried out following the steps for developing the serial numbers of a firearm, the following characters were obtained as a result. B A G B 4 1
DJW9Y7	The obliterated serial number on Item 1 was chemically restored and determined to be 5A6B41.
DNBRFM	Mechanical and Chemical processing of the submitted bar stock revealed that the original serial number is 5A6B41.
DPLNRJ	Lab Item(s)#: 1 Restoration Results: 5A6B41
DTHD9Q	Examination and chemical processing of the piece of cold rolled steel bar stock using serial number restore solutions #2 and #3 restored the original obliterated serial number which was determined to be 5A6B41. The procedure was photographed and documented accordingly.
DXVXEC	1A: One piece of cold rolled steel bar stock with suspected obliterated serial number. The serial number had been obliterated from the steel bar stock. Serial number restoration techniques yielded the full serial number 5A6B41. 1B: One piece of aluminum standard bar stock. The aluminum standard was used as a reference for determining the characters in the restored serial number for Item 1A.
EALA6V	Results: Serial Number Restoration Lab Item(s)# Restoration Results 1 5A6B41
ECD7TP	Bar stock (1) was chemically and magnetically processed. Its serial number was restored to read 5A6B41.
ECUQJN	Recovered Characters: 5A6B41
ELGKBG	As a result of applying the electromagnetic restoration process onto the obliterated area of Item 1, I identified the obliterated numerical and alpha numerical characters to be '5A6B41'.
EN7P8U	The serial number on the metal bar, item 1, was restored to read 5A6B41.
EQCE9H	Using the magnetic particle restoration and acid-etch methods, the serial number on the piece of metal (01-AA/Item 1) was completely restored to read, "5A6B41". No further examinations were conducted with the piece of aluminum (01-AB/not listed on submission form).
ER3HWJ	Examined the specimen marked Item 1. The obliterated serial number was magnetically and chemically processed and restored to read 5A6B41.
ER4BWC	Visual inspection of Item 1 revealed a defaced area. The defaced area was magnetically processed, resulting in a full recovery of the Item 1 serial number. The recovered number reads as follows: 5A6B41.
EUUELD	The serial number on Item 1 was restored to read: 5A6B41, using magnetic particle inspection and chemical etchant techniques.
EXQ6RN	The serial number on the piece of cold rolled steel bar stock, Exhibit 1, was determined to be: 5 A 6 B 4 1

TABLE 2

WebCode	Conclusions
FQQZJ6	Processing of Exhibit 1 restored an obliterated number whose characters were concluded to be “5A6B41”.
G3DM36	RESTORATION: The serial number for Item 1 was chemically restored to: 5A6B41
G66QR7	5A6B41 was appeared on the steel bar during analysis
G94Y4T	The characters restored on Item 1 are the following: "5A6B41"
GKECJ9	Item 1A: One piece of stainless steel bar stock with suspected obliterated serial number The serial number was fully restored using chemical restoration techniques. The serial number was determined to be 5A6B41. Item 1B: Aluminum Standard bar stock. The characters applied into the aluminum standard bar stock were used as a guide in determining the characters in the restored serial number on Item 1A.
GMKYT8	The serial number on Item 1 was restored to read 5A6B41 using chemical etching techniques.
GREWJJ	The piece of steel bar stock had an area of obliteration in the center of the side with an arrow on it. The area was lightly sanded and etched with chemical reagents. A serial number of 5A6B41 was restored.
GU4XRR	The serial number of the Item 01-01 steel bar was recovered to read “5 A 6 B 4 1”.
GZ6EV7	During the production of removed signs on the metal, appeared "5A6B41"
H2XRUH	The obliterated serial number on the Item 1 was restored and found to be 5 A 6 B 4 1.
H4PQ9G	The serial number of the metal plate, described in piece 1, corresponding to Item 1, was restored and correspond to: 5A6B41.
H4RB4W	Serial number restoration and recovery techniques were applied to the defaced serial number of the bar stock (Item 001). The serial number of the firearm was restored to read: 5A6B41
HEMMC4	Lab Item 1 Restoration Results: 5A6B41
HGDNF7	Examination and restoration of Item 1 (a piece of steel) revealed the following characters: "5A6B41".
HGGBWK	Item #1: Piece of bar stock “5A6B41” (serial number restored) Remarks: All evidence will be returned to the submitting agency. Analytical Detail: Serial number restoration findings offered above were determined using sanding and/or chemical etching techniques.
HNAK3A	Item #1 was chemically processed. Its serial number was restored to read: 5 A 6 B 4 1.
HT8668	Examinations showed the serial number of Item 1 to be obliterated. The serial number was restored using magnetic particle restoration and chemical etching techniques and was found to be: 5A6B41.
HVX7CG	Serial number restoration was performed on item 1. The serial number 5A6B41 was restored.
HXLKWK	The serial number was chemically restored to read: 5 A 6 B 4 1
HZPH47	After carrying out the identification serial restoration procedure, the alphanumeric serial 5A6B41 was obtained.
J2DD4K	1. The serial number on the steel bar stock, Exhibit 2, was determined to be 5A6B41.
J3RV66	Examination and restoration of the serial number on Item 1 (a piece of steel) revealed the following characters: "5A6B41".
J9Y7G6	The serial number on Item 1 was restored to read 5A6B41 using magnetic particle inspection and chemical etching techniques.
JJTKEG	The magnetic block was treated to reveal serial number successfully restored and determined to be 5A6B41
JJV6BW	The obliterated surface of Item 1 (Q1) was visually analyzed and the serial number restoration process utilizing acid etching solutions was employed. The obliterated number was restored and produced a serial number of: 5A6B41.

TABLE 2

WebCode	Conclusions
KAM3GJ	As a result of physical, chemical and magnetic examinations on the metal plate (Item1), the serial number read as 5A6B41 was detected.
KG6LKJ	Chart format: restored to read 5A6B41
KVMD9P	5A6B41
KW48AY	1. Exhibit 1 consists of the Exhibit 1.1 metal barstock with the serial # removed and the Exhibit 1.2 character standard. a. Restoration techniques were used on the obliterated area of Exhibit 1.1 and the following characters were observed: 5 A 6 B 4 1
KXEAXJ	The serial number on Item #1 was chemically restored to read 5A6B41. Serial number restoration findings offered above were determined using sanding and/or chemical etching techniques.
KYPCJH	Chart form, Restored to read: 5A6B41
KZ2U23	The characters "5A6B41" were recovered on the steel bar stock.
L6869M	Items – Description/Visual Examination Item 1: A piece of steel bar stock with suspected obliterated serial number. Examination Results Item 1 – steel bar stock. Using chemical serial number restoration techniques, an attempt was made to restore the obliterated serial number with the following results: Serial Number: 5 A 6 B 4 1 was restored on Item 1.
LAJT9J	I visually inspected item 1 and found no readily visible alpha or numeric characters. Attempts to restore the serial number were made by acid etching resulting in the serial number being restored to read, 5A6B41. See photo attached of the restored number.
LDZCTD	Item 1 had an obliterated serial number and appeared smooth as received. Item 1 was magnetically and chemically treated to restore the serial number; the following characters were noted: "5A6B41".
LEEKGF	Item 1 Restoration Results 5A6B41
LHETLQ	Lab Item(s) # Restoration results 1-1 5A6B41
LHV42B	Restoration Results: 5A6B41
LTXACC	Serial Number Restoration Analysis: Methodology: Physical (Visual Examination, Magnetic Particle Inspection), Microscopy (Comparison Microscope), Chemical (Reagent Etching). Serial number restoration procedures revealed the serial number on Item 1, the metal bar stock, to be: 5 A 6 B 4 1
M3GZBA	A serial number restoration was carried out on a piece of bar stock (Item 2305220/001) with an obliterated number. After the application of a chemical reagent, the following characters were developed - 5A6B41. The characters were confirmed using a known reference sample of alphanumeric numbers used in the manufacturing process. The developed characters had similar font and size to the reference sample provided.
M3HXL6	The obliterated serial number on the steel bar stock was chemically processed and fully restored to read "5A6B41"
M7G9H6	The obliterated serial number on the steel bar stock was chemically processed and fully restored to read "5A6B41"
M7GDWD	Exhibit 1.1 was found to be a piece of cold rolled steel bar stock with an obliterated serial number. Mechanical and Chemical processing of the submitted Exhibit 1.1 bar stock revealed that the original serial number is 5A6B41.
M97F4M	Using Magnetic Particle Inspection and the application of chemical reagents, the obliterated number on Item 1 was restored to reveal the serial number 5A6B41.
MBPU72	1A: A piece of cold rolled steel bar stock with suspected obliterated serial number. The serial number was fully restored using chemical restoration techniques. The serial number was determined to be 5A6B41. 1B: One rectangular piece of aluminum standard stock bar. The characters stamped into the aluminum stand stock bar were used as a guide in determining the characters in the restored serial number on Item 1A.

TABLE 2

WebCode	Conclusions
MMZ6VD	Submission 001 was examined and found to have an obliterated serial number. Submission 001 was photographed prior to polishing with a Dremel tool. Magnetic processing was not effective in restoring the serial number. Chemical etchants were applied to the polished surface in an effort to restore the serial number. The serial number was restored to read 5A6B41.
MPR9KD	Examination and chemical processing of item 1 restored the original obliterated serial number, which was determined to be "5A6B41".
MQZK2F	[No Conclusions Reported.]
MT72GX	The following characters were recovered: 5A6B41
MVYP2E	Findings: Item Description Comparison: Conclusion: #1: one (1) rectangular piece of metal. N/A. 5A6B41 (serial number restored). Remarks: The remaining submitted rectangular piece of metal (aluminum standard) from item #1 was not examined at this time. All evidence will be returned to the submitting agency. Analytical Detail: Serial number restoration findings offered above were determined using sanding and/or chemical etching techniques.
MX4HUR	The obliterated serial number on Item #1 was completely restored and found to be 5 A 6 B 4 1.
MYE7BJ	Results of Examinations: The examination and processing of the obliterated serial number on the Item 1 bar stock was restored to read "5A6B41".
N6JKEZ	The obliterated serial number was chemically proccessed and restored to read 5A6B41.
NABRW9	The original stamped sequence had been erased from the length of mild steel bar by milling or similar. A six character stamp sequence was chemically restored to read 5A6B41.
NKV47Z	Both MagnaFlux and Electrochemcial etching worked.
NLNMGD	5A6B41 (serial number restored)
NLNW2J	Serial number restoration was completed via the use of chemical etching. Metal was a magnetic material. Serial number chemicals used consisted of Davis & Frys Reagent, Turner for highlight. Light sanding was completed prior to first step. Please refer to S/N Restoration worksheet and photographs for further information. The following steps were taken to obtain the serial number Visual Photograph Light sanding- photograph document findings Davis- photograph document findings Fry-photograph document findings Turner to highlight-photograph, document findings and had full restoration of 5A6B41
NUYYMJ	[No Conclusions Reported.]
NVCJFU	1. Examination of Exhibit 1 revealed one ferromagnetic metal bar measuring 63.84mm long, 25.27mm wide, and 6.25mm thick with an obliterated area in the approximate center. a. The obliterated area measures 37.68mm long, 25.27mm wide, and 5.99mm thick. b. The obliterated area of Exhibit 1 was restored and the following characters were observed: 5 A 6 B 4 1. Please note all measurements are approximate. TECHNICAL NOTES: Serial number restoration is dependent upon multiple factors to include the original stamping/engraving method, material type, obliteration method, and depth of material removed. The reported characters convey only the appearance of characters or partial characters that the examiner observed after the application of standard serial number restoration techniques. These characters are not considered absolute to the exclusion of other possible characters with similar shape or form.
P393T9	The serial number was restored to read 5A6B41
P3QNP7	The serial number was restored to read 5A6B41.
P6X8PM	Lab Item(s)# 1-1 Restoration Results 5A6B41
P78B2P	Item 001.001 was visually analyzed, and the result of the serial number restoration analysis are as follows: The serial number on the section of metal bar stock (Q1) was fully restored using chemical restoration methods and reads "5A6B41".

TABLE 2

WebCode	Conclusions
P8N9TP	Chemical restoration techniques were applied to item #1 and the original serial number was restored as 5A6B41.
PBKYTA	As a result of physico-chemical treatment appropriate for steel, symbols 5A6B41 appeared on the steel bar (Item 1).
PCWV67	Forensic restoration methods applied to the milled area of the metal bar stock restored a series of characters with similar font and style to the “Aluminium standard” bar stock supplied. The restored characters read: 5A6B41.
PENRTY	The piece of cold rolled steel bar stock was processed with Magnaflux and acid etching chemicals to restore the obliterated serial number. The serial number was restored as 5A6B41.
PNR3ZP	9846-001 One metal plate with an obliterated serial number. Item 9846-001 had a serial number that was chemically restored to read “5A6B41”.
Q76Q6A	Utilized MPI
QGLT9M	Examination of the steel bar in Item #1 revealed an obliterated area. Standard restoration techniques revealed the following characters: "5A6B41"
QJCUCP	The obliterated serial number was partially restored to read 5A6*41. The * could represent either a B or an 8.
QKQ79A	The serial number of the metal piece, described in piece 1, corresponding to “Item 1”, was restored and corresponds to: 5A6B41. [Initials] November 17, 2023
QLJALG	the restored serial number is 5A6B41
QLYDF9	The serial number of the bar stock, Exhibit ITEM 1, was restored and observed to be "5A6B41"
QMB7AB	The serial number on Item #1 was obliterated as received. Restoration attempts revealed the characters 5A6B41.
QMC3GZ	Exhibit SNR2 was examined and found to have an obliterated serial number. Magnetic and chemical processing restored the serial number to read: 5A6B41
QNPG69	The serial number of the piece of cold rolled steel bar stock, described in item 1, was restored and correspond to: 5A6B41. [Initials] 27/nov/2023
QP28DD	Item #1: piece of steel bar stock with obliterated serial number Serial number restored to read: 5A6B41 Serial number restoration findings offered above were determined using sanding and/or chemical etching techniques.
QQCBMV	Lab Item #1: Serial Number Restoration results: 5A6B41
R2NZY7	The serial number on Item 1 was completely obliterated. Serial number restoration was performed, and the following serial number was restored: 5 A 6 B 4 1.
R3F4M7	Submission 1 contained bar stock with an obliterated serial number, item 1-1, and an aluminum standard, item 1-2. The primary serial number, located in the middle of the bar stock, appeared to have been deliberately obliterated through grinding. I used polishing, magnetic particle inspection, and chemical etching techniques to fully restore the following serial number: 5 A 6 B 4 1 According to the submitted paperwork, the serial number for this item should have six characters. The examination was documented with a series of 22 digital images.
R6MELV	The characters 5A6B41 were restored on the Item 1 bar stock. This should be considered the complete serial number.
R8EDZT	The following characters were restored "5A6B41"
RBDNWT	The following characters were restored: 5A6B41
RCMJUE	The obliterated serial number was restored. The restored number is "6A6841".

TABLE 2

WebCode	Conclusions
RF8LKK	The serial number on the metal plate (Exhibit 01) was mechanically and chemically treated and restored to read 5A6B41. The stamped metal plate (Exhibit 02) was documented and photographed; however, no further analysis was performed.
RKK7R7	An obliterated area was found on the center of Item 23-5251 Item 1. Standard serial number restoration techniques were used to reveal the following characters 5A6*41. The * is representative of the characters B or 8.
RKL2DW	The obliterated serial number was chemically processed and restored to read "5A6B41".
RMPRJC	Report in Chart Form: Item #1: Steel Bar Stock - Serial Number Restoration. FINDINGS: The serial number on the bar stock, Item #1, was chemically restored to read: 5A6B41.
RX97KU	The obliterated serial number located on the Exhibit 1 steel bar stock was processed. The characters were concluded to be 5A6B41.
RY24QE	By means of the procedure of developing the serial number of the steel bar identified as Item 1 of Exhibit No. 23-5251, by means of the magnetic method, the highlighting of the alphanumeric digits "5A6B41" was obtained.
TC2KV8	Examination of the submitted cold rolled steel bar stock found the manufacturer's serial number to have been obliterated. The obliterated, original serial number was restored to read "5A6B41".
TKFBFD	The number 5A6B41 was recovered through the destructive and invasive chemical technique, using Fry's reagent.
TL8AUC	The piece of cold rolled steel bar stocks' (Item #1) obliterated serial number located on the front of the plate was chemically processed and restored to read "5A6B41"
TU6237	FOR THE GIVEN CTS,DESTRUCTIVE METHOD WAS USED BY USING FRY'S REAGENT. FIRSTLY THE DREMEL TOOL WAS USED TO SMOOTH UP THE SURFACE. THEN THE REAGENT WAS WIPED ON THE METAL SHEET. AFTER FEW ATTEMPTS OF USING THE REAGENT ON THE METAL SHEET THE RESULT WAS VISIBLE.
TU8J9G	Item #1 restoration results 5A6B41
TVHQ84	A serial number restoration / examination was carried out on 06/11/2023. Item Examined: A piece of cold rolled steel bar stock with suspected obliterated serial number. As a result of the examination, the following characters were identified. These are presented with a high degree of certainty. Due to the level of obliteration, identifying characters that were difficult to decipher are presented as a #:
UDQ74N	Visual examination and chemical treatment of the serial number area on the center of the barstock, Item 1A, reveal the following number: 5 A 6 B 4 1 Item 1B was inspected to verify and document contents. No analysis was performed on the item listed. Item 1A = stainless steel barstock Item 1B = aluminum reference standard
UL8PL3	The serial number had been erased from the sample piece, but was able to be restored successfully using chemical etching techniques.
UNXQP6	Standard serial number restoration techniques revealed the following characters: 5A6B41.
UUZ2EB	The resotred genuine number is 5A6B41.
VADPCC	The obliterated serial number on Item 1 was restored to read 5A6B41.
VB6LZ7	5A6B41 (report is grid based)
VGT9UQ	Item 1-1 A piece of cold rolled steel bar stock with suspected obliterated serial number: Visual examination of this item revealed the presence of polish marks on one side of the bar stock. This area was magnetically processed and etched with acid solutions and the following was restored: 5 A 6 B 4 1
VPMJXU	Once the surface of the stainless steel platen was prepared, the surface that had an area with material wear was polished with 1200 sandpaper, applying the non-destructive magnetic method test (MAGNAFLUX) and the alphanumeric characters 5A6B41 were revealed.

TABLE 2

WebCode	Conclusions
VUVY93	The serial number of the piece of cold rolled steel bar stock, Exhibit ITEM 1, was restored and observed to be "5A6B41".
VVT8GM	The obliterated serial number on the metal bar submitted in laboratory evidence item 1 was chemically restored to reveal a partial serial number 5 A 6 * 4 1. The * character could be a B or an 8.
VZGWV6	Based on my finding, I am of the opinion that the steel bar was tempered and after electrochemical restoration process, the serial number was restored and read as 5A6B41.
W4HFEH	The visual analysis and serial number restoration process was performed on October 5, 2023. Attempts to restore the obliterated serial number by means of polishing and chemical etching methods were successful and the serial number was restored to read 5A6B41.
W8EYJ3	The serial number was restored by using magneto-optical and chemichal eching methods. On Item 1 a string of 6 characters was restored: "5A6B41".
WCBQPD	In table format: Serial Number Restoration Lab Item(s)# Restoration Results 1-1 5A6B41
WCRKPN	The obliterated serial number on the bar stock (Item 1) was chemically restored and determined to be 5A6B41.
WEWCH2	Item 1 was received with a possible obliterated serial number. Physical, magnetic, and chemical processes were used to restore the serial number. The serial number was determined to consist of six characters. The 4th character did not restore clearly and may be one of two characters (8, B). The partially restored serial number is 5A6(8,B)41.
WHVND2	The serial number of Item 1 was examined using magnetic particle inspection and then chemically processed and determined to be 5A6B41.
WPWZCJ	The Item 1 serial number was restored and found to be: 5A6B41.
WR9F7K	A serial number restoration was performed on item 1-1, and the serial number was found to be: 5A6B41.
WTJJE3	The serial number of the piece of cold rolled steel bar stock, Exhibit ITEM 1, was restored and observed to be "5A6B41".
WUQWZA	After application of magnetic particle inspection and acid etch methods, the serial number of Item 1 (bar stock) was restored and interpreted as 5A6B41.
WW2N87	[No Conclusions Reported.]
WWFBJT	Using magnetic and chemical methods, the obliterated serial number located on the face of Item 001A, was restored to read 5A6B41.
WWHVE9	A. The serial number of the piece cold rolled steel bar stock, described in item 1, was restored and correspond to: 5A6B41. [Initials] November 21, 2023
WZFECZ	Serial Number Restoration Analysis: Methodology- Physical (Visual Examination). Microscopy (Comparison Microscope). Magnetic Particle Inspection. Serial number restoration procedures revealed the serial number on Item 1, the bar stock, to be: 5 A 6 B 4 1
X4CKB3	Recovered Characters: 5A6B41
X7LBXL	Visual examination and chemical treatment of the serial number area on the bar stock, Item 1A, fail to reveal the original serial number. Item 1B was inspected to verify and document contents. No analysis was performed on the item listed.
XX47H7	The piece of cold rolled steel bar's (Item #1) obliterated serial number located on the front of the plate was chemically processed and restored to read "5A6B41"
XY4WX2	Item 1 was sanded and polished. Acid was applied to the area of the obliterated serial number. The serial number was recovered and found to be 5A6B41.
Y8BZDY	The serial number was restored using a combination of chemical and physical etchants to read 5A6B41.

TABLE 2

WebCode	Conclusions
Y94W2T	The original markings on the submitted item (Item 1) are restored as follows: 5A6B41 or 5A6841. The restored 4th character is questionable and could be B or 8.
YC48V8	[No Conclusions Reported.]
YC4VKX	Examination of the bar stock in Item #1 revealed an obliterated area. Restoration Results: 5A6B41
YKEG88	Examination and chemical processing of [Laboratory] Item 001 restored the original obliterated serial number which was determined to be 5A6B41. The requesting agency will be responsible for entering the serial number into the National Crime Information Center (NCIC) Stolen Gun Files.
Z7CBT3	The one (1) piece of steel bar stock, item #1, was visually examined and found to have an obliterated serial number. Chemical etching of the obliterated area revealed the serial number to be 5A6B41.
ZARR27	The identification number on the steel bar was reset to read 5A6B41, this conclusion was verified by firearms expert [Name].
ZE8DUD	The item was physically and chemically processed. Its serial number was restored to read: 5A6B41
ZGTWXW	Serial number restored to read 5A6B41.
ZJMLHD	The suspected obliterated serial number has been completely restored and the number is : 5A6B41
ZL3FWP	Visual examination and chemical treatment of Item 1 restored the obliterated serial number to read "5A6841". Item 1 was referred to ATF for a Firearms Trace and checked for stolen through [Center], a computer search that resulted in a return of "No Record" for this make, model, and caliber. Item 1 is being returned.
ZPRH4Y	Restoration Results: 5A6B41
ZQGVN3	The serial number was restored to read: 5A6B41
ZT8YD3	Upon electrochemical treatment on the filled surface, the number restored is 5A6B41. Hence, I am the opinion that the original number is "5A6B41".
ZW6HE2	Item 1 was processed for serial number restoration. Examination and restoration of the obliterated area on Item 1 revealed the following characters "5A6B41".
ZZ8CGC	The serial number on the metal plate (Exhibit 01) was mechanically treated and restored to read 5A6B41. The metal plate (Exhibit 02) was documented and photographed; however, no further analysis was performed.

Sample Preparation

(listed in order of use)

TABLE 3

Sample Preparation			
WebCode	**Method**	**Tool Used**	**Grit Size**
242T8C	Polishing	Emery paper	
27P9EY	None	Polishing	
2A6RH2	None		
2FGFHX	Visual	Stereoscope	
2UZ86J	None		
2XD6C7	Sanding	Sand paper	600
2XZF9T	Sanding	Sand paper	Ultra Fine
39ET43	None		
3D4AFT	Polishing	Emery paper	P400 and ultra fine
3GKU39	None		
3LERRZ	Visual	Stereoscope	
3YMAPU	None		
3YMJBY	Sanding	Acetone	600 thickness
44D4Z2	Visual	physical observation	
48F3BT	None		
49AV7C	None		
4BDQPF	None		
4C7NV2	Visual	Stereoscope	
4GLWJZ	Sanding Polishing	Sand paper Steel wool	
4GZHVM	Visual	Magnifying Glass	
4TQEUZ	None	Visual	
4UQ6AV	Sanding Polishing	Sand paper Steel wool	1500 grit
4X7MHZ	Cleaning	Microscope	

TABLE 3

Sample Preparation			
WebCode	**Method**	**Tool Used**	**Grit Size**
624MV2	None		
626DBW	None		
64A4BK	Polishing	Rotary Tool	
67Z6HU	Visual	Stereoscope	
68ACFV	Polishing	Dremel	
69NJ3X	Visual	Stereoscope	
	Sanding	Sand paper	P80
6AEMRX	Polishing	Dremel	60, 100, 1000
6E9L7T	Visual	Stereoscope	
6KUUAK	Visual	Stereoscope	
6YXVC2	None		
73WTXD	None		
79GYNT	Visual	Stereoscope	
	Polishing	Sand paper	500
	Polishing	Acetone	
	Sanding	Sand paper	220, 120
79JJK9	Sanding	Sand paper	320
	Cleaning	Acetone	
79X7VW	None		
7BN6AU	Visual		
7HNNA6	None		
7HPLKZ	None		
7KBB3R	None		
7M37RL	Polishing	Dremel	
7P8U8B	Visual	Microscope	
7QYQV6	Polishing	Dremel	
7QZRDW	Sanding	Sand paper	Fine
89FG8A	None		

TABLE 3

Sample Preparation			
WebCode	**Method**	**Tool Used**	**Grit Size**
8HL74T	Polishing	Dremel	
8W47HY	Sanding	Sand paper	P320
	Sanding	Sand paper	1200
9422FW	Sanding	Sand paper	120 grit
	Polishing	Steel wool	100 grit
94YFJG	Cleaning	Ethanol	not used
98E2CN	Polishing	Dremel	
9CUHLT	None	Visual	
9EZVAL	Polishing	Polishing wheel	
9FTRYF	Visual	Eye	
9G6JQW	Visual	Stereoscope	
	Polishing	Dremel	425 wheel
9HZ86L	Visual	Microscope	
	Sanding	Emery paper	Ultra Fine (3M Wet and Dry)
9JR4UF	Sanding	Sand paper	100
9LLREW	Visual		
9NHHCV	Visual		
	Sanding	Sand paper	
9PW366	None		
9ZFG7M	Sanding	Sand paper	Ultra Fine
	Polishing	Rubber Wheel	
A2AL38	None		
AAKRWP	Cleaning	Acetone	
AAMB3Z	Visual	Stereoscope	
AGK6WR	None		
AJ6YVD	Polishing	Sand paper	600
	Cleaning	Acetone	
AJACJA	Sanding	Sand paper	220

TABLE 3

Sample Preparation			
WebCode	**Method**	**Tool Used**	**Grit Size**
AJRKAP	Polishing	Sand paper	1500
B4DGJN	Visual	Microscope	No sanding.
BFHYUN	Polishing	Dremel	
BP8K38	Sanding	Sand paper	220
	Visual	Stereoscope	
BP8NRC	None		
BRXM7B	Visual	Stereoscope	
BRYJG7	Cleaning	Acetone	
	Polishing	Sand paper	fine
	Visual	Stereoscope	and Oblique Lighting
BYHPDD	None		
BZ9T3D	Polishing	Dremel	
C2LZML	Polishing	Rotary Tool	
CB6EN3	Visual	Microscope	
CDBWLY	Visual		
	Polishing	Dremel	
CKT6AV	Visual	Stereoscope	
CMHJTD	Visual	Stereoscope	1500
CMK2YP	None		
CX2XVF	Polishing	Dremel	
D2ZLWM	None		
D77FQJ	None		
D7TQM7	Visual		
DBKVHV	Visual	Microscope	
	Polishing	Dremel	
DCJZX6	Sanding	Sand paper	180 and 400
DHGUPB	Sanding	Dremel	180
DJW9Y7	None		

TABLE 3

Sample Preparation			
WebCode	**Method**	**Tool Used**	**Grit Size**
DNBRFM	Polishing	Sand paper	320
DPLNRJ	Visual	Unaided eye	
	Visual	Camera with zoom lens	
	Polishing	Dremel	
DTHD9Q	Cleaning	Metal Surfacing Solution	
DXVXEC	Visual	Microscope	
	Polishing	Dremel	Polishing wheel
EALA6V	Visual	Stereoscope	
ECD7TP	None		
ECUQJN	Polishing	Dremel	
	Visual	Stereoscope	
ELGKBG	Cleaning	Acetone	
	Visual	ALS	
EN7P8U	Visual	Stereoscope	
EQCE9H	None		
ER3HWJ	Polishing	Dremel	
ER4BWC	Visual	Microscope	
EUUELD	None		
EXQ6RN	Visual	Stereoscope	
FQQZJ6	Polishing	Rotary Tool	
G3DM36	Visual	Stereoscope	
G66QR7	Visual	Acetone	
G94Y4T	Visual	Stereoscope	
GKECJ9	Visual	Microscope	
	Polishing	Dremel	
GMKYT8	Visual		
GREWJJ	Visual	Stereoscope	
	Sanding	Sand paper	600

TABLE 3

Sample Preparation			
WebCode	**Method**	**Tool Used**	**Grit Size**
GU4XRR	None		
GZ6EV7	Cleaning	Ethanol	
H2XRUH	Sanding	Sand paper	320
	Sanding	Sand paper	600
	Sanding	Sand paper	1500
	Sanding	Sand paper	2000
H4PQ9G	Visual	Magnifying glass	
	Visual	Microscope	
	Polishing	Sand paper	Grit Size: 500,220
H4RB4W	None		
HEMMC4	Visual	Stereoscope	
HGDNF7	Sanding	Dremel	Extra Fine
HGGBWK	None		
HNAK3A	None		
HT8668	None		
HVX7CG	None		
HXLKWK	None		
HZPH47	Polishing	Dremel	1200
J2DD4K	Polishing	Rotary Tool	220
	Sanding	Sand paper	600
J3RV66	None		
J9Y7G6	Visual	Eyes, photographic	
JJTKEG	None		
JJV6BW	None		
KAM3GJ	Sanding	Dremel	fine grained
	Polishing	Dremel	felt
KG6LKJ	None		

TABLE 3

Sample Preparation			
WebCode	**Method**	**Tool Used**	**Grit Size**
KVMD9P	Visual	Stereoscope	
	Polishing	Rotary Tool	
KW48AY	None		
KXEAXJ	None		
KYPCJH	None		
KZ2U23	None		
L6869M	None	Stereoscope	
LAJT9J	None		
LDZCTD	Visual	Stereoscope	None, item appeared smooth
LEEKGF	Visual	Stereoscope	
	Polishing	Dremel	
LHETLQ	Visual	Stereoscope	
LHV42B	Visual	Stereoscope	
LTXACC	None		
M3GZBA	Sanding	Sand paper	1200
M3HXL6	Visual	Microscope	
M7G9H6	Visual	Microscope	
M7GDWD	Polishing	Emery paper	320
M97F4M	None		
MBPU72	Visual	Microscope	
	Polishing	Dremel	polishing wheel
MMZ6VD	Polishing	Dremel	Extra fine
MPR9KD	Visual		
MQZK2F	None		
MT72GX	Polishing	Dremel	
MVYP2E	None		
MX4HUR	None		

TABLE 3

Sample Preparation			
WebCode	**Method**	**Tool Used**	**Grit Size**
MYE7BJ	None		
N6JKEZ	None	Sand paper	fine
NABRW9	Polishing	Rotary Tool	
	Sanding	Emery paper	Wet & Dry - Ultra Fine
NKV47Z	Sanding	Emery paper	320
	Polishing	Dremel	
	Cleaning	Acetone	
NLNMGD	Visual	Stereoscope	
NLNW2J	Visual	naked eye	
	Polishing	Steel wool	
NUYYMJ	Cleaning	Acetone	
NVCJFU	None		
P393T9	Polishing	Rubber Wheel	
	Sanding	Sand paper	Ultra Fine
P3QNP7	Sanding	Sand paper	800
	Sanding	Emery paper	Ultrafine
	Polishing	Metal Polish cream - Autosol	
P6X8PM	Cleaning	Magnaflux SKC-S cleaner	
	Polishing	Rotary Tool	
P78B2P	None		
P8N9TP	None		
PBKYTA	Visual	Digital camera	
	Polishing	Sand paper	1500
	Cleaning	paper	
PCWV67	None		
PENRTY	Visual	Stereoscope	
PNR3ZP	None		
Q76Q6A	Visual		
QGLT9M	Visual	Stereoscope	

TABLE 3

Sample Preparation			
WebCode	**Method**	**Tool Used**	**Grit Size**
QJCUCP	Visual		
QKQ79A	Visual	Magnifying Glass	
	Polishing	Stereoscope	Grit size #100, #220 and #500
QLJALG	Visual	Stereoscope	
	Polishing	Dremel	120
QLYDF9	Sanding	Sand paper	1500
	Polishing	Steel wool	
QMB7AB	None		
QMC3GZ	Polishing	Rotary Tool	
QNPG69	Visual	Microscope	
	Polishing	Sand paper	500, 220
QP28DD	None		
QQCBMV	None		
R2NZY7	None		
R3F4M7	Visual	MPI	
	Sanding	Sand paper	Fine
	None		
R6MELV	Visual	Stereoscope	
R8EDZT	None	Stereoscope	
RBDNWT	Visual	visually examined to see that it was already smooth and did not need to be polished	
RCMJUE	Sanding	Hand sanding	Wet-Dri 400 Grit
RF8LKK	None		
RKK7R7	Polishing	Dremel	
RKL2DW	None		
RMPRJC	None		
RX97KU	Visual	Stereoscope	
RY24QE	Sanding	Sand paper	1200

TABLE 3

Sample Preparation			
WebCode	**Method**	**Tool Used**	**Grit Size**
TC2KV8	Sanding	Sand paper	600-A (fine)
TKFBFD	Visual	Stereoscope	
	Cleaning	Acetone	
	Sanding	Emery paper	400
TL8AUC	None	Visual	
TU6237	Visual	Microscope	
	Sanding	Dremel	
	Cleaning	Acetone	
TU8J9G	Visual		
TVHQ84	Sanding	Sand paper	400, 800, 1000
UDQ74N	None		
UL8PL3	Polishing	Steel wool	
UNXQP6	Visual	Stereoscope	
UUZ2EB	Polishing	Sand paper	80-120
VADPCC	None		
VB6LZ7	Visual	Stereoscope	
VGT9UQ	None		
VPMJXU	Sanding	Emery paper	1200
VUVY93	Sanding	Sand paper	400 grit
	Cleaning		Magnaflux SKS cleaner
VVT8GM	None		
VZGWV6	Cleaning	Acetone	
W4HFEH	Visual	Magnifying Eye Loupe	
	Polishing	Dremel	
W8EYJ3	Visual	Stereoscope	
	Polishing	Dremel	
	Cleaning	water, soft cloth	
WCBQPD	None		

TABLE 3

Sample Preparation			
WebCode	**Method**	**Tool Used**	**Grit Size**
WCRKPN	Visual		
WEWCH2	None		
WHVND2	Polishing	polishing paper	
WPWZCJ	Visual	Stereoscope	
WR9F7K	Visual	Stereoscope	
WTJJE3	Visual	angled lighting and a camera	
	Sanding	Sand paper	600
	Polishing	Rotary Tool	Green polish paste
WUQWZA	None		
WW2N87	Sanding	Acetone	600 thickness
WWFBJT	Polishing	Dremel	
WWHVE9	Visual	Microscope	
	Visual	Magnifying Glass	
	Cleaning	Acetone	
	Sanding	Sand paper	#220, #120, #100
	Polishing	Sand paper	#500
WZFECZ	None		
X4CKB3	None		
X7LBXL	Sanding	Sand paper	1000 grit
XX47H7	Visual		
XY4WX2	None		
Y8BZDY	Visual		
	Polishing	Dremel	
	Sanding	Sand paper	
Y94W2T	Visual	Stereoscope	
	Cleaning	Acetone	
YC48V8	Cleaning	Sand paper	400
YC4VKX	Visual	Naked eye	

TABLE 3

Sample Preparation			
WebCode	**Method**	**Tool Used**	**Grit Size**
YKEG88	Visual		
Z7CBT3	None		
ZARR27	Visual	Stereoscope	
	Sanding	Dremel	180
	Polishing	Sand paper	240
	Cleaning	Acetone	
ZE8DUD	Polishing	Rotary Tool	
ZGTWXW	Grinding	Rubber Wheel	
	Polishing	Autosol metal polish	
ZJMLHD	Visual	Photography	
ZL3FWP	Visual	Stereoscope	
ZPRH4Y	Visual		
ZQGVN3	Sanding	Sand paper	1000
	Polishing	Dremel	
ZT8YD3	Visual	Stereoscope	
	Sanding	Sand paper	1000 grit
	Cleaning	Acetone	
ZW6HE2	Visual		
	Polishing	Dremel	Ultra fine
ZZ8CGC	None		

Response Summary

Participants: 246

Sample Preparation

Visual Method: 91

Sanding Method: 47

Polishing Method: 69

None: 83

Note: Participants may use more than one sample preparation method therefore the total number of preparation methods reported may not be equivalent to the total number of participants.

Recovery Methods

(listed in order of use)

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
242T8C	Fry's Reagent	1-2 minutes
27P9EY	Davis	less than 3 minutes.
2A6RH2	MagnaFlux	
	Ferric Chloride	
2FGFHX	MagnaFlux	
	Fry's Reagent	6 minutes total
	20% Nitric Acid	5 minutes total
2UZ86J	MagnaFlux	
	Davis Reagent	5 minutes
	Fry's Reagent	10-15 minutes
2XD6C7	Fry's Reagent	The polished surface was treated with Fry's reagent for about 60 minutes. The process (using Fry's Reagent) was alternate repeatedly several times, till the serial number was restored completely.
2XZF9T	Fry's Reagent	5 minutes total
39ET43	Fry's Reagent	12 minutes initially then some hours
	Magnetic Particle Inspection (MPI)	3 minutes
3D4AFT	Fry's Reagent	3 minutes
3GKU39	MagnaFlux	This process was used because we are required to use it first on magnetic areas; it did not give good results
	Fry's Reagent	Left on for as long as it took to run a swab back and forth over the area; alternated with 25% Nitric Acid = total of 5 swabs were used
3LERRZ	Fry's Reagent	A few seconds to a few minutes
3YMAPU	MagnaFlux	
	Fry's Reagent	5 to 10 minutes
	20% Nitric Acid	1 to 2 minutes
3YMJBY	Regula device	
44D4Z2	Acid Etch Method	5 minutes
48F3BT	MagnaFlux	
	Fry's Reagent	swiped with cotton swab
	20% nitric acid	swiped with cotton swab

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
49AV7C	MagnaFlux	
	Turner's Reagent	5 min
	Fry's Reagent	5 min
4BDQPF	MagnaFlux	
	Davis Reagent	two minutes
4C7NV2	MagnaFlux	
	Acid Etch Method	a few minutes
4GLWJZ	MagnaFlux	
	Fry's Reagent	
4GZHVM	Magnetic Particle Inspection (MPI)	
	Turner's Reagent	2 minutes
	Fry's Reagent	4 minutes
4TQEUZ	Davis Reagent	~2min (repeated)
	Turner's Reagent	~2min (repeated)
	Fry's Reagent	~2min (repeated)
4UQ6AV	Acid Etch Method	15-20 minutes
	Turner's Reagent	15-20 minutes
4X7MHZ	Acid Etch Method	2 minutes
	Electro-magnetic	
624MV2	Magnetic Particle Inspection (MPI)	
	Turner's Reagent	
	Fry's Reagent	
626DBW	Fry's Reagent	times varied
64A4BK	Acid Etch Method	2 -3 minutes
67Z6HU	Fry's Reagent	
68ACFV	MagnaFlux	
	Fry's Reagent	5 minutes
69NJ3X	MagnaFlux	
	Fry's Reagent	applied multiple times
	Acid Etch Method	10 % Nitric Acid for approx. 5 minutes
	Fry's Reagent	applied multiple times
6AEMRX	MagnaFlux	
	Fry's Reagent	up to 1minute
6E9L7T	MagnaFlux	
	Acid Etch Method	2 minutes

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
6KUUAK	Fry's Reagent	10 minutes
	Acid Etch Method	5 minutes
6YXVC2	Magnetic Particle Inspection (MPI)	
	Davis	30 seconds
	Turner's Reagent	10 seconds
	Fry's Reagent	30 seconds
	Turner's Reagent	10 seconds
	Fry's Reagent	30 seconds
	Fry's Reagent	30 seconds
	Fry's Reagent	30 seconds
	Davis	30 seconds
73WTXD	MagnaFlux	
	Fry's Reagent	swbbed about 10-15 minutes
79GYNT	Davis's Reagent	15 minutes
	Turner's Reagent	15 minutes
	Fry's Reagent	10 minutes
79JJK9	Acid Etch Method	5 MINUTES
79X7VW	Fry's Reagent	~1-2 Minutes
	25% Nitric Acid	~1-2 Minutes
	Sanding	~20 Seconds
	Fry's Reagent	~5 Minutes
7BN6AU	MagnaFlux	
	Fry's Reagent	15-45 second increments of application (alternating between Fry's and 20% Nitric Acid); approximately 10 swabs used
	Acid Etch Method	15-45 second increments of application (alternating between Fry's and 20% Nitric Acid); approximately 10 swabs used
7HNNA6	MagnaFlux	
	Fry's Reagent	~5 minutes
7HPLKZ	Magnetic Particle Inspection (MPI)	
	Magnetic Particle Inspection (MPI)	
	Davis	30 seconds
	Fry's Reagent	30 seconds
	Davis	30 seconds
	Davis	30 seconds
	Fry's Reagent	30 seconds
	Davis	30 seconds
7KBB3R	Magnetic Particle Inspection (MPI)	

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
7M37RL	Fry's Reagent	15 min
7P8U8B	MagnaFlux	
	Davis Reagent	~30 minutes
	Polishing	Sand paper 400 grit
	MagnaFlux	
	Turner's Reagent	~20 minutes
	MagnaFlux	
	Fry's Reagent	~5 minutes
7QYQV6	MagnaFlux	
	Acidic Ferric Chloride	5-15 seconds at a time
	20% Nitric Acid	5-15 seconds at a time
	Acetone	
	Remington Oil	
7QZRDW	Fry's Reagent	15 seconds
89FG8A	Davis Reagent	3 minutes
	10% Nitric	3 minutes
	Turner's Reagent	15 minutes
8HL74T	MagnaFlux	
	Davis Reagent	1 minute
	Turner's Reagent	1 Minute
	Fry's Reagent	1 Minute
8W47HY	Fry's Reagent	applied at approximately 30 min intervals. Total Time approx 4 hours. Reaction stopped and checked between applications.
	MagnaFlux	
9422FW	Davis Reagent	25 seconds
	Turner's Reagent	25 seconds
	Fry's Reagent	25 seconds
94YFJG	Electro-acid	not used
98E2CN	MagnaFlux	
	Fry's Reagent	10-15 minutes
	20% Nitric Acid	10-15 minutes
9CUHLT	Davis Reagent	~ 2 minutes (repeated)
	Turner's Reagent	~ 2 minutes (repeated)
	Fry's Reagent	~ 2 minutes (repeated)
9EZVAL	Fry's Reagent	25 min

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
9FTRYF	25% Nitric Acid	1 minute
	Davis' Reagent	1 minute
9G6JQW	Fry's Reagent	5 minutes (x5)
9HZ86L	Fry's Reagent	5 Minutes
9JR4UF	Acidic Ferric Chloride	2 minutes
9LLREW	Magnetic Particle Inspection (MPI)	
9NHHCV	MagnaFlux	
	Fry's Reagent	
9PW366	Acid Etch Method	Different acids, all in all about 15 minutes
9ZFG7M	Fry's Reagent	13 minutes in total
A2AL38	Davis Reagent	5 minutes
	Turner's Reagent	1 minute
AAKRWP	Fry's Reagent	1
AAMB3Z	MagnaFlux	
	Acidic Ferric Chloride	2-3 minutes
	Acid Etch Method	2-3
AGK6WR	Magnetic Particle Inspection (MPI)	
AJ6YVD	Fry's Reagent	2 X 1' of acid application
AJACJA	MagnaFlux	
	Fry's Reagent	5 min
AJRKAP	Magnetic Particle Inspection (MPI)	
	Acid Etch Method	25% HNO3 Approx. 1-2 minutes
B4DGJN	Fry's Reagent	about 15 minutes
BFHYUN	Fry's Reagent	5 minutes
BP8K38	Fry's Reagent	30 seconds
	25% Nitric Acid	10 seconds
BP8NRC	Fry's Reagent	2-3 Minutes
BRXM7B	Fry's Reagent	
	MagnaFlux	
	Acid Etch Method	swipe with cotton swab for a minutes
BRYJG7	Fry's Reagent	sets of 5 min and then sets of 1 min

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
BYHPDD	MagnaFlux	swabbed
	Davis	swabbed
	Turner's Reagent	swabbed
	Fry's Reagent	swabbed
	25% Nitric Acid	swabbed
BZ9T3D	MagnaFlux	
	Electro-acid	Momentary, brushed on
C2LZML	Electro-magnetic	
	Acid Etch Method	4 hours
CB6EN3	Fry's Reagent	5 min
CDBWLY	MagnaFlux	
	Fry's Reagent	few minutes
CKT6AV	Acidic Ferric Chloride	9x - 20 to 30 seconds each
CMHJTD	MagnaFlux	Not
CMK2YP	MagnaFlux	
	Fry's Reagent	20 seconds
CX2XVF	MagnaFlux	
D2ZLWM	MagnaFlux	
	Fry's Reagent	about 30-60 seconds with repeated swiping of the acid agent over the area restored
D77FQJ	MagnaFlux	
	Fry's Reagent	
	20% Nitric Acid	swabbings across, not left static
D7TQM7	Turner's Reagent	30 seconds
	Fry's Reagent	30 seconds
DBKVHV	Fry's Reagent	20 minutes
DCJZX6	MagnaFlux	
	Davis	5-10 seconds
	Turner's Reagent	5-10 seconds
	Fry's Reagent	5-10 seconds
DHGUPB	MagnaFlux	
DJW9Y7	Acid Etch Method	Davis, Turner and Fry's reagent
DNBRFM	MagnaFlux	
	Fry's Reagent	3 minutes

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
DPLNRJ	MagnaFlux	
	Fry's Reagent	Swabbed repeatedly every few seconds, then wiped away to view surface
	20% Nitric Acid	Swabbed repeatedly every few seconds, then wiped away to view surface
DTHD9Q	Acid Etch Method	Solution #2 10 minutes, Solution #3 15 Minutes
DXVXEC	25% Nitric Acid	Approx. 30 seconds
EALA6V	MagnaFlux	
	Fry's Reagent	Less than 1 minute
ECD7TP	MagnaFlux	
	Ferric Chloride	
ECUQJN	MagnaFlux	
	Acidic Ferric Chloride	1 min
	Fry's Reagent	1 min
	Nitric Acid	1 min
ELGKBG	Electro-magnetic	
	Oblique lighting using ALS	
EN7P8U	Fry's Reagent	10 minutes
EQCE9H	Magnetic Particle Inspection (MPI)	
	Turner's Reagent	8 minutes
	Fry's Reagent	3 minutes
	Magnetic Particle Inspection (MPI)	
	Turner's Reagent	5 minutes
	Acid Etch Method	2 minutes
	Fry's Reagent	3 minutes
ER3HWJ	Fry's Reagent	Ten minutes
	MagnaFlux	
ER4BWC	MagnaFlux	
EUUELD	MagnaFlux	
	Fry's Reagent	Process took 15 minutes
EXQ6RN	MagnaFlux	
	Fry's Reagent	10 minutes
FQQZJ6	Magnetic Particle Inspection (MPI)	4 minutes
	Fry's Reagent	
G3DM36	Fry's Reagent	chemical processing was approximately 2 hours.
G66QR7	Fry's Reagent	

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
G94Y4T	MagnaFlux	
	25% Nitric Acid	5 minutes
GKECJ9	25% Nitric Acid	15 seconds
GMKYT8	MagnaFlux	
	Turner's Reagent	5 minutes
	Fry's Reagent	5 minutes
GREWJJ	Davis	10 mins
	Fry's Reagent	25 mins
GU4XRR	MagnaFlux	
GZ6EV7	Electro-acid	5 minutes
H2XRUH	Acidic Ferric Chloride	10 minutes
H4PQ9G	Davis's Reagent	30 mins.
	Turner's Reagent	5 mins
	Fry's Reagent	15 mins
H4RB4W	Magnetic Particle Inspection (MPI)	
	Turner's Reagent	multiple short applications <15 min total
	Fry's Reagent	multiple short applications <15 min total
	25% Nitric Acid	multiple short applications <5 min total
HEMMC4	MagnaFlux	
	Fry's Reagent	1 minute
	Acidic Ferric Chloride	30 seconds
	Nitric Acid 20%	30 seconds
HGDNF7	Magnetic Particle Inspection (MPI)	
HGGBWK	Fry's Reagent	30 seconds to a minute (multiple times)
	Acetone	Cleaned with after restoration
	Gun oil	Left on after restoration
HNAK3A	Fry's Reagent	1-2 min, approx 6 times
HT8668	MagnaFlux	
	Fry's Reagent	approximately 2-3 minutes
HVX7CG	MagnaFlux	
	Acid Etch Method	Davis- 10 minutes
	Turner's Reagent	1 minute
HXLKWK	MagnaFlux	
	Acid Etch Method	(10% Nitric Acid) 5 minutes
HZPH47	MagnaFlux	
	Fry's Reagent	10 minutes

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
J2DD4K	MagnaFlux	
	Fry's Reagent	
J3RV66	Magnetic Particle Inspection (MPI)	
J9Y7G6	MagnaFlux	
	Turner's Reagent	2 minutes
	Fry's Reagent	2 minutes
JJTKEG	Fry's Reagent	15 minutes
JJV6BW	Acid Etch Method	
	Fry's Reagent	Approximately 4 minutes
KAM3GJ	Electro-magnetic	5 minutes
	Turner's Reagent	2 minutes
	Fry's Reagent	2 minutes
	Acid Etch Method	1 minutes
KG6LKJ	Fry's Reagent	10 minutes
KVMD9P	MagnaFlux	5 minutes
	Fry's Reagent	
KW48AY	MagnaFlux	
	Fry's Reagent	
	Nitric Acid	
KXEAXJ	Fry's Reagent	10 minutes
KYPCJH	Acid Etch Method	30+ minutes
KZ2U23	MagnaFlux	
	Acid Etch Method	Only 3-4 minutes
L6869M	Fry's Reagent	5 minutes
LAJT9J	Acid Etch Method	3 min total
LDZCTD	Magnetic Particle Inspection (MPI)	with Magnaflux
	Fry's Reagent	two minutes
	25% Nitric	two minutes
LEEKGF	MagnaFlux	
	Fry's Reagent	seconds to minutes
	Acidic Ferric Chloride	seconds to minutes
	Nitric Acid	seconds to minutes
LHETLQ	MagnaFlux	
	Acid Etch Method	alternated with Fry's
	Fry's Reagent	alternated with 25% Nitric Acid

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
LHV42B	MagnaFlux	
	Acidic Ferric Chloride	30-35 seconds, swabbed
	Nitric acid	20-25 seconds, swabbed
	Fry's Reagent	10-15 seconds, swabbed
	Stabilized with oil	
LTXACC	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	20 minutes total
M3GZBA	Fry's Reagent	6 minutes
M3HXL6	Davis Reagent	3 min
	Fry's Reagent	3 min
	25% Nitric Acid	
M7G9H6	Davis Reagent	3min
	Fry's Reagent	3min
	25% Nitric Acid	
M7GDWD	MagnaFlux	
	Fry's Reagent	5 Minutes
M97F4M	Magnetic Particle Inspection (MPI)	
	25% Nitric Acid	~5 seconds
MBPU72	25% Nitric Acid	chemical reagent was applied for approximately 10 seconds
MMZ6VD	MagnaFlux	
	Acidic Ferric Chloride	30 seconds
	Nitric Acid	30 seconds
MPR9KD	MagnaFlux	
	Davis Reagent	30 sec
	Turner's Reagent	30 sec
	Fry's Reagent	30 sec
MT72GX	Acidic Ferric Chloride	10 - 15 seconds - repeated 2-3 times
	Fry's Reagent	10 - 15 seconds - repeated 2-3 times
MVYP2E	Fry's Reagent	Varying Amounts - Swipes with Swabs
MX4HUR	Fry's Reagent	~ 10 minutes
MYE7BJ	Nitric Acid	
	Cupric Ammonium Chloride	
N6JKEZ	10% sodium chloride	One minute
	25% Nitric Acid	Two minutes
	Acidic Ferric Chloride	One minute
NABRW9	Fry's Reagent	4 - 5 minutes

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
NKV47Z	MagnaFlux	
	Acid Etch Method	5 minutes
NLNMGD	Fry's Reagent	5-10 minutes
NLNW2J	Davis Reagent	swiped multiple times
	Fry's Reagent	swiped multiple times
	Turner's Reagent	swiped for highlight
	oil	one drop when finished
NUYYMJ	Turner's Reagent	
NVCJFU	MagnaFlux	
	Davis	15-30 seconds
	Turner's Reagent	15-30 seconds
	Fry's Reagent	30 seconds
	MagnaFlux	
P393T9	Fry's Reagent	5 minutes in total
P3QNP7	Fry's Reagent	result within 3 minutes
P6X8PM	MagnaFlux	
	Fry's Reagent	~1 minute
	25% Nitric Acid	~1 minute
P78B2P	Fry's Reagent	2 min
	Acid Etch Method	3 min
	Turner's Reagent	5 min
P8N9TP	Fry's Reagent	2min
	Acid Etch Method	2min
PBKYTA	Acid Etch Method	15 minutes
	Acid Etch Method	30 minutes
PCWV67	Fry's Reagent	1 hour on and off
PENRTY	MagnaFlux	
	Fry's Reagent	2-3 Seconds
PNR3ZP	MagnaFlux	
	Davis' Reagent	15 minutes
	Turner's Reagent	2 hours
	Fry's Reagent	30 minutes
	Acidic Ferric Chloride	10 minutes
Q76Q6A	Magnetic Particle Inspection (MPI)	
QGLT9M	MagnaFlux	
	Fry's Reagent	approximately 3 minutes

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
QJCUCP	Davis Reagent	5 min
	Fry's Reagent	15 min
	Sodium Hydroxide	5 min
QKQ79A	Acid Etch Method	82 minutes
	Davis Reagent	32 minutes
	Turner's Reagent	25 minutes
	Fry's Reagent	20 minutes
	Sodium bicarbonate	5 minutes
QLJALG	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	
QLYDF9	MagnaFlux	
	Fry's Reagent	3 minutes, then wiped off and examined.
QMB7AB	MagnaFlux	
	Fry's Reagent	total time = approximately 3 minutes
	20% nitric acid	total time approximately 30 seconds
QMC3GZ	MagnaFlux	
	Fry's Reagent	less than 1 minute
	MagnaFlux	
QNPG69	Acid Etch Method	
	Davis Reagent	10 min
	Turner's Reagent	10 min
	Fry's Reagent	5 min
QP28DD	Fry's Reagent	
	Acidic Ferric Chloride	a few minutes
	Acid Etch Method	25% Nitric Acid for a few minutes
QQCBMV	MagnaFlux	
	Acid Etch Method	Swabbed on with cotton tip applicator
R2NZY7	MagnaFlux	
	Fry's Reagent	Under a minute at a time
R3F4M7	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	30 secs
	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	2 minutes
R6MELV	MagnaFlux	
	Davis'	5 mintues
	Turner's Reagent	5 minutes
	Fry's Reagent	2 minutes

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
R8EDZT	Fry's Reagent	1 min
	MagnaFlux	2 min
RBDNWT	MagnaFlux	
	20% Nitric Acid	
	Fry's Reagent	
RCMJUE	MagnaFlux	
RF8LKK	MagnaFlux	One minute
	Davis	One minute
	Turner's Reagent	One minute
	Fry's Reagent	One minute
RKK7R7	MagnaFlux	
	MagnaFlux	
	Fry's Reagent	~60-90 seconds
	MagnaFlux	
RKL2DW	25% Nitric Acid	a few seconds
RMPRJC	Fry's Reagent	5 minutes
RX97KU	MagnaFlux	
	Davis	
	Turner's Reagent	
	Fry's Reagent	
RY24QE	MagnaFlux	
TC2KV8	MagnaFlux	
TKFBFD	Fry's Reagent	10 minutos
TL8AUC	Davis' Reagent	Approximately 2 minutes (repeated)
	Turner's Reagent	Approximately 2 minutes (repeated)
	Fry's Reagent	Approximately 2 minutes (repeated)
TU6237	Fry's Reagent	few minutes
TU8J9G	MagnaFlux	
	Fry's Reagent	3 minutes
	25% Nitric Acid	1 minute
TVHQ84	Fry's Reagent	
UDQ74N	Fry's Reagent	~5 - 10 seconds, repeat ~10 times
UL8PL3	Fry's Reagent	10 minutes
UNXQP6	Fry's Reagent	~ 20 minutes

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
UUZ2EB	Acid Etch Method	
	Modified Fry	Two minutes alternatively
VADPCC	Fry's Reagent	1 minute
VB6LZ7	MagnaFlux	
	Fry's Reagent	~1 min
	Acidic Ferric Chloride	~1 min
	20 % Nitric Acid	~1 min
VGT9UQ	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	~2 minutes
	HCl	~1 minute
	Fry's Reagent	~1 minute
VPMJXU	MagnaFlux	
VUVY93	MagnaFlux	not discernable
	Fry's Reagent	Reapplied for approx. 15 minutes before characters could be observed
VVT8GM	Turner's Reagent	a few seconds to a minute
	Fry's Reagent	a few seconds to a minute
VZGWV6	Acid Etch Method	10 minutes
W4HFEH	Turner's Reagent	~30 sec
	Acid Etch Method	Davis' ~30 sec
	Acid Etch Method	Aqua Regia ~30 sec
	Acid Etch Method	Fort's ~20 sec
	Acid Etch Method	Aqua Regia ~20 sec
	Turner's Reagent	~10 sec
	Acid Etch Method	Aqua Regia ~ 10 sec
W8EYJ3	magnetic field method (fluid pad)	
	magneto-optical method	
	chemical etching	OBERHOFFER 60 seconds
	chemical etching	MEYER-EICHHOLZ 60 seconds
	chemical etching	NITAL 40 seconds
WCBQPD	MagnaFlux	
	Acidic Ferric Chloride	swiped with cotton swabs
	20% Nitric Acid	swiped with cotton swabs
	Fry's Reagent	swiped with cotton swabs
WCRKPN	Davis Reagent	20 minutes
	Turner's Reagent	10 minutes

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
WEWCH2	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	3-4 swipes of cotton swab x multiple rounds
	Turner's Reagent	3-4 swipes of cotton swab x multiple rounds
	Davis Reagent	3-4 swipes of cotton swab x multiple rounds
WHVND2	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	3-5 minutes
WPWZCJ	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	Total of 2 minutes
WR9F7K	Fry's Reagent	
WTJJE3	MagnaFlux	
	Fry's Reagent	5 minutes
WUQWZA	Magnetic Particle Inspection (MPI)	
	Fry's Reagent	Approx. 2 mintues
WW2N87	Regula device	
WWFBJT	MagnaFlux	
	Acid Etch Method	Davis Reagent; total of 5 minutes wiping the surface with a cotton swab
	Turner's Reagent	total of 10 minutes wiping the surface with a cotton swab
WWHVE9	Davi's Reagent	8 minutes
	Turner's Reagent	19 minutes
	Fry's Reagent	30 minutes
WZFECZ	Magnetic Particle Inspection (MPI)	
X4CKB3	MagnaFlux	
	Fry's Reagent	5 minutes
	Acid Etch Method	10 minutes
	Acidic Ferric Chloride	10 minutes

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
X7LBXL	Fry's Reagent	5 minutes
	Fry's Reagent	10 minutes
	Fry's Reagent	5 - 10 minutes
	Fry's Reagent	35 minutes
	Fry's Reagent	20-25 minutes
	Fry's Reagent	20-25 minutes
	Fry's Reagent	10-15 minutes
	Griffin Reagent	5-10 minutes
	25% Nitric Acid	5-10 minutes
	Griffin Reagent	10 minutes
	25% Nitric Acid	10 minutes
	Griffin Reagent	45 minutes
	25% Nitric acid	45 minutes
	Griffin Reagent	10-20 minutes
	25% Nitric Acid	10-20 minutes
	Griffin Reagent	10-20 minutes
	25% Nitric acid	10-20 minutes
	Griffin Reagent	45 minutes
	25% Nitric acid	45 minutes
XX47H7	Davis	~ 2 mins (repeated)
	Turner's Reagent	~ 2 mins (repeated)
	Fry's Reagent	~ 2 mins (repeated)
Y8BZDY	Davis Reagent	
	Turner's Reagent	
	Fry's Reagent	
	Turner's Reagent	
Y94W2T	Magnetic Particle Inspection (MPI)	
	Electro-magnetic	
	Acid Etch Method	60 minutes total
YC48V8	MagnaFlux	
YC4VKX	MagnaFlux	
	Fry's Reagent	1-3 minutes
	20% Nitric Acid	1-3 minutes
	Acidic Ferric Chloride	1-3minutes
YKEG88	Fry's Reagent	less than 5 minutes total
Z7CBT3	Fry's Reagent	A couple minutes.
ZARR27	MagnaFlux	
	Fry's Reagent	5 min.

TABLE 4

Recovery Methods		
WebCode	**Method**	**Time**
ZE8DUD	Fry's Reagent	3-5 MINUTES
ZGTWXW	Fry's Reagent	9 minutes appeared almost immediately improved slightly
ZJMLHD	MagnaFlux	5 minutes
	Acid Etch Method	15 minutes
ZL3FWP	MagnaFlux	
ZPRH4Y	MagnaFlux	5 minutest
	Fry's Reagent	10 minutes
	20% Nitric Acid	5 minutes
ZQGVN3	Fry's Reagent	10 minutes while swiping multiple times
	Acidic Ferric Chloride	3 minutes while swiping several times
ZT8YD3	Fry's Reagent	
ZW6HE2	Fry's Reagent	5 minutes
	Fry's Reagent	4 minutes
	Fry's Reagent	5 minutes
ZZ8CGC	MagnaFlux	

Response Summary

Participants: 244

Recovery Methods

Chemical Processing: 217

Magnetic Processing: 131

Note: Participants may use more than one sample recovery method therefore the total number of recovery methods reported may not be equivalent to the total number of participants.

Additional Comments

TABLE 5

WebCode	Additional Comments
39ET43	The third digit (from extreme left) of the serial number appeared to be the number six (6) but due to the shape obtained during restoration attempts, the possibility of the digit being the number eight (8) could not be excluded.
4BDQPF	Technical Notes: Serial number restoration is dependent upon multiple factors to include the original stamping/engraving method, material type, obliteration method, and depth of material removed. The reported characters convey only the appearance of characters or partial characters that the examiner observed after the application of standard serial number restoration techniques. These characters are not considered absolute to the exclusion of other possible characters with similar shape or form. Exhibits discussed in the forensic discipline reports were examined; all results are accredited and formed using accepted scientific and professional practices. The [Department] is accredited under ISO/IEC 17025. See certificate number [Number] issued by [Accrediting Body].
4TQEUZ	Acid was not left on the material for any extended time but was swabbed over the obliterated area and wiped away multiple times for approximately 10-15 minutes.
4X7MHZ	After applying the electro magnetic method and then turner and fry solutions to the etched surface, the number was determined as 5A6B41.
79GYNT	During the initial inspection, the magnet was used to certify magnetic properties by determining a ferrous material (stainless steel), in order to identify if it has remnants on its surface, the "Stereo" microscope was used, a magnifying glass was used. Sandpaper was also used, the size of grit of the sandpaper that was used was: 500, 220 and 120; acetone was used to clean the obliterated surface and sodium bicarbonate was used to neutralize the acids. [Initials] 14/nov/2023 The restoration process had a time period of: 40 minutes. [Initials] 14/nov/2023 Davis's Reagent: 15 minutes with Turner's Reagent; 15 minutes with Davis's Reagent; 10 minutes with Fry's Reagent. [Initials] 14/nov/2023
7BN6AU	The overall area of obliteration appears to smooth. The materials surface, since smooth, did not necessitate polishing prior to application of additional restoration methods. The material is magnetic. There is an arrow stamped into the surface indicating orientation. An aluminum standard was provided as a reference for the size and shape of the possible alphanumeric characters used in the obliterated serial number.
8HL74T	Evidence inventoried on 9/28/2023. Rectangular, magnetic, metal bar. Area obliterated by an unknown type abrasive method. Obliterated area was polished utilizing a dremel tool equipped with polishing wheel. Magnetically treated utilizing black magnaflux and chemically treated utilizing Davis, Turner, and Fry's reagents. Serial number restored to read 5A6B41.
9CUHLT	Acid was not left on the material for any extended period of time, but rather was swabbed over the obliterated area and wiped away multiple times for approximately 10 - 15 minutes.
9PW366	The obliterated surface was smooth enough to skip the sanding. We just rubbed the surface slowly with different acid saturated cotton swabs.
AJACJA	TECHNICAL NOTES: Serial number restoration is dependent upon multiple factors to include the original stamping/engraving method, material type, obliteration method, and depth of material removed. The reported characters convey only the appearance of characters or partial characters that the examiner observed after the application of standard serial number restoration techniques. These characters are not considered absolute to the exclusion of other possible characters with similar shape or form.
CMHJTD	Six ballistics experts participated in the test.
CMK2YP	Fry's Reagent was applied with a cotton swab, and consistently swiped on and wiped off of the metal until the serial number was visible.

TABLE 5

WebCode	Additional Comments
CX2XVF	When applying magnaflux the approximate time is 4 minutes
DHGUPB	In addition to sandpaper, a Dremel stone disc and a plush polishing disc were used.
ER4BWC	There are alpha characters that closely resemble numerical characters interspersed without any clue as to the structure of the serial number or any resemblance to a typical structure. In a real case, you would typically have an idea of where the alpha characters are. This exercise is starting to cross the line between a challenging, but realistic, scenario and an unrealistic scenario contrived for the sake of increasing difficulty.
GKECJ9	The serial number was fully restored and able to be visually viewed by the naked eye, however; photographs taken were difficult to visualize. The serial number was also verified by an additional Scientist for this reason.
H4PQ9G	1. The restoration process had a time period of: 55 minutes. [Initials] November 15, 2023. 2. Acid was cleaned with delicate task wipers constantly to white down the characters appearing during each step. After the restoration process, sodium bicarbonate solution was used to neutralize acid residues on the surface. [Initials] November 15, 2023
JJV6BW	No polishing was necessary to prepare the surface for application of the acid etching solution.
KW48AY	TECHNICAL NOTES: Serial number restoration is dependent upon multiple factors to include the original stamping/engraving method, material type, obliteration method, and depth of material removed. The reported characters convey only the appearance of characters or partial characters that the examiner observed after the application of standard serial number restoration techniques. These characters are not considered absolute to the exclusion of other possible characters with similar shape or form.
LAJT9J	See attached report. [Report not provided with submission]
MYE7BJ	Methods: Serial Number Restoration. Magnetic, thermal, and chemical methods may be used for the restoration of serial numbers. Conclusions regarding restored characters are made by visual examination of the restored surface under a variety of lighting conditions. Information regarding the alpha-numeric structure or the general location of serial numbers is obtained when necessary from reference sources or from firearms in the Laboratory's Reference Firearms Collection. Limitations: Serial Number Restoration Except for the magnetic method, serial number restoration is a destructive examination and it is possible that the obtained results may not be reproduced in any subsequent examinations. Restored serial numbers are sometimes only visible during a portion of the reconstruction process, and are not necessarily visible at the conclusion of the process.
NKV47Z	Both methods were sucessful.
NLNW2J	The serial number was fully restored to 5A6B41 on 10/4/23. Photographs were taken of the process and the completed serial number was witnessed and verified by Supervisor [Name].
PNR3ZP	The surface of the obliteration was very smooth. For this reason no sanding was necessary.
QKQ79A	1. The metal piece, identified as “Aluminum Standard”, described in piece 1, was used as a character reference. [Initials] November 17, 2023 2. After restoration process, sodium bicarbonate solution was used to neutralize acid residues on the surface. [Initials] November 17, 2023
QNPG69	The acid was cleaned with delicated task wipers, constantly, to write down the characters appearing during each step. [Initials] 27/NOV/2023
RKK7R7	Item 23-5251 Item 1 was polished between Magnaflux 1 and Magnaflux 2.
TL8AUC	Acid was not left on the material for any extended time, but rather was swabbed over the obliterated area and wiped away multiple times for approximately 10-15 minutes.

TABLE 5

WebCode	Additional Comments
UL8PL3	The chemical reagent worked very well on this sample.
UNXQP6	As received, the serial number had been obliterated due to a grinding action. Fry's reagent (Lot #081015RJS) saturated cotton-tipped applicators were used for the serial number restoration. Positive Control: A saturated swab was touched to a piece of bar stock and a reaction was observed. Standard serial number restoration techniques revealed the following characters: 5A6B41.
VPMJXU	The alphanumeric characters of the result obtained are similar in morphology (text source) to the printed samples of test 23-5251 (aluminum standard).
VZGWV6	The original serial number was restored and read as 5A6B41.
WEWCH2	First treatment due to smooth surface was MPI - 1st round: Appears to be six characters (5), A, 6, (8, B), ?, ? - Also, not sure there is anything before the first number (5) Decided to do some pre-treatment at this point - sanded against the grains that were visible on the surface (perpendicular to the arrow) with P220 and P320 sand paper. 2nd round: Characters still not appearing any better than the first round. Moved to chemical etching at this point. Following several attempted rounds of chemical etchants: The 4th character is just not clearly an 8 or clearly a B in order to eliminate one or the other after doing several rounds of chemical etchants which would be followed by MPI to visualize the characters (give contrast). Will be more conservative and leave both as options for the 4th character.
WWHVE9	1. The acid was cleaned with delicated task wipers, constantly to write down the characters appering during each step. [Initials] November 21, 2023 2. To make the restoration process, the gray rectangular aluminum piece that was submitted along with Item 1, was used for size and shape reference purposes. [Initials] November 21, 2023
X7LBXL	Application of acids were alternately applied with NaHCO3 solution to observe the serial number restoration. Time given for amount of time acid was in contact with the bar stock is the amount of time alternately applying acid & NaHCO3 solution - it is not meant as a solid amount of time. Most contact with acid and bar stock were moments of passes in that time period - and the amount of time those passes were being made. Additionally, acid would be dabbed away during the application passes and NaHCO3 applied between passes and dabs.
XX47H7	No acid was left on the surface for an extended time. The surface containing the obliterated serial number was swabbed and wiped multiple times for approximately 15-20 minutes.
YC4VKX	Magnaflux was used to determine approximate location of the obliterated characters. Magnaflux and chemical restoration was attempted prior to polishing. Magnaflux and chemical restoration were used alternatively throughout the restoration process. Total time restoring using acidic chemicals was approximately 15 minutes.
ZARR27	Positive result with the "Magna-flux" magnetic method and confirmed with the acid fry method.

-End of Report-
(Appendix may follow)

Collaborative Testing Services ~ Forensic Testing Program

Test No. 23-5251: Serial Number Restoration

DATA MUST BE SUBMITTED BY **Nov. 27, 2023, 11:59 p.m. EST** TO BE INCLUDED IN THE REPORT

Participant Code: U1234A WebCode: 92WDYL

The Accreditation Release section can be accessed by using the "Continue to Final Submission" button above. This information can be entered at any time prior to submitting to CTS.

Please Note: A piece of aluminum bar stock labeled as 'Aluminum Standard' was also included in the sample set and is intended as a reference for size, shape and positioning of the stamped alphanumeric characters used in the serial number.
-Use caution when handling the samples, as there may be sharp areas on the Item 1 bar stock and aluminum standard.
-An arrow symbol has been stamped in an upward position on the Item 1 barstock to represent the orientation.

Items Submitted (Sample Pack SNR2):
Item 1: A piece of cold rolled steel bar stock with suspected obliterated serial number.

1.) Please record the restored characters below.

The serial number on this material consists of 6 characters.

Item 1:

2.) What would be the wording of the Conclusions in your report?

Please note: *Any additional formatting applied in the free form space below will not transfer to the Summary Report and may cause your information to be illegible. This includes additional spacing and returns that present your responses in lists and tabular formats.*

3.) What methods were used to prepare the sample prior to attempts at recovery?

eg. Sanding, Polishing, Visual, etc. (Please describe in order.)

Method	Tool Used	If sanding was done what grit size was used?

4.) What recovery methods were used during your examination?

eg. Fry's, Acid Etch, MagnaFlux, etc. (Please list in order of use)

Method	If an acidic method was used how long was the acid left on the material?

5.) Additional Comments

Please note: *Any additional formatting applied in the free form space below will not transfer to the Summary Report and may cause your information to be illegible. This includes additional spacing and returns that present your responses in lists and tabular formats.*

RELEASE OF DATA TO ACCREDITATION BODIES

The Accreditation Release is accessed by pressing the "Continue to Final Submission" button online and can be completed at any time prior to submission to CTS.

CTS submits external proficiency test data directly to ASCLD/LAB, ANAB, and/or A2LA. Please select one of the following statements to ensure your data is handled appropriately.

○ This participant's data is intended for submission to ASCLD/LAB, ANAB, and/or A2LA. (Accreditation Release section below must be completed.)
○ This participant's data is **not** intended for submission to ASCLD/LAB, ANAB, and/or A2LA.

Have the laboratory's designated individual complete the following steps
only if your laboratory is accredited in this testing/calibration discipline
by one or more of the following Accreditation Bodies.

Step 1: Provide the applicable Accreditation Certificate Number(s) for your laboratory

ANAB Certificate No.
(Include ASCLD/LAB Certificate here)

A2LA Certificate No.

Step 2: Complete the Laboratory Identifying Information in its entirety

Authorized Contact Person and Title

Laboratory Name

Location (City/State)