



Serial Number Restoration Test No. 11-525 Summary Report

This test was sent to 321 participants. Each participant received a sample pack containing a piece of stainless steel bar stock which had been stamped with a six digit serial number which was then obliterated. Also included was a piece of aluminum bar stock intended as a standard for the size, shape and positioning of the stamped digits. Participants were asked to attempt to restore the obliterated serial number. Data were returned from 266 participants (83% response rate) 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 (Item 1) and a piece of aluminum bar stock. 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 6 digits (082483).

SAMPLE PREPARATION-

Each sample set contained a piece of 1" x 1/4" x 3" 304 stainless steel bar stock that was stamped using a punch press. The stamp consisted of 6 digits (082483) that are 1/8" in height. The serial number was then obliterated by removing material from the bar stock using a vertical milling machine. A consistent amount of material was removed from each piece of bar stock.

A piece of aluminum bar stock was also included in the sample set to provide an example of the shape and size of the stamped digits as well as the positioning of the obliterated serial number.

SAMPLE SET ASSEMBLY: An Item 1 was enclosed in chip board and the sides taped to securely contain the sample. The aluminum standard was wrapped in chip board and both were placed in their respective pre-labeled envelopes. Each sample pack was packaged with an Item 1 and aluminum standard. This process was repeated until all of the sample packs were prepared. Once verification was completed, all sample packs were further sealed with a piece of evidence tape and initialed "CTS".

VERIFICATION-

Predistribution laboratories recovered the obliterated 6 digit serial number and reported "082483".

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 digits. 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 6 digits (082483). [Refer to Manufacturer's Information for production details.]

Of the 266 responding participants in Table 1: "Recovered Digits", 252 (95%) recovered the six digits consistent with the Manufacturer's Information. Nine of the remaining 14 participants recovered five of the six digits. Three participants recovered four of the six digits. One participant recovered three of the six digits. The final participant did not respond and wrote in their Conclusions that "acid etching was unsuccessful".

Of the 266 responding participants in Table 4: "Recovery Methods", 186 participants used only chemical processing for the serial number restoration. Another 43 participants used magnetic processing only. Thirty-four participants reported using combined magnetic and chemical processing. Three participants did not report a recovery method in this table.

Recovered Digits

Please indicate the recovered characters below.

TABLE 1

WebCode	Digit1	Digit2	Digit3	Digit4	Digit5	Digit6
23N89A	0	8	2	4	8	3
26UNPD	0	8	2	4	8	3
29UH6P	0	8	2	4	8	3
2ANMZ3	0	8	2	4	8	3
2QCVYL	0	8	2	4	8	3
2T4WZ4	0	8	2	4	8	3
2VAE2K	0	8	2	4	8	3
2XC6JT	0	8	2	4	8	3
2ZKEEB	0	8	2	4	8	3
2ZX77R	0	8	2	4	8	3
2ZXPTP	0	8	2	4	8	3
2ZYF2T	0	8	2	4	8	3
37MXXL	0	8	2	4	8	3
3GW8ED	0	8	2	4	8	3
3JLDYB	0	8	2	4	8	3
3LRYMB	0	8	2	4	8	3
3QUBNM	0	8	2	4	8	3
432FCU	0	8	2	4	8	3
44DBZ8	0	8	2	4	8	3
44Q7KA	0	8	2	4	8	3
44W23Z	0	8	2	4	8	3
47H23G	0	8	2	4	8	3
4HQV8E	0	8	2	4	8	3
4KE3UW	0	8	2	4	8	3
4PPPE8	0	8	2	4	8	3
4Q4K88	0	8	2	4	8	3
4TA6V8	0	8	2	4	8	3
4TBEEK	0	8	2	4	8	3

TABLE 1

WebCode	<u>Digit1</u>	<u>Digit2</u>	<u>Digit3</u>	<u>Digit4</u>	<u>Digit5</u>	<u>Digit6</u>
4XL2QA	0	8	2	4	8	3
63VL8E	0	8	2	4	8	3
66LP38	0	8	2	4	8	3
68LCHC	0	8	2	4	8	3
69LUIYZ	0	8	2	4	8	3
6DYWJB	0	8	2	4	8	3
6EPXKT	0	8	2	4	8	3
6GAFHY	0	8	2	4	8	3
6KEGJ2	0	8	2	4	8	3
6KFAJV	0	8	2	4	8	3
6LTQUN	0	8	2	4	8	3
6PCWF4	0	8	2	4	8	3
6RAY2E	0	8	2	4	8	3
6T6JQY	0	8	2	4	8	3
7CCFG9	0	8	2	4	8	3
7E6G7B	0	8	2	4	8	3
7FE8RU	0	8	2	4	8	3
7G6BML	0	8	2	4	8	3
7G8JNZ	0	8	2	4	8	3
7NRLQV	0	8	2	4	8	3
7RUK7U	0	8	2	4	8	
7TN9NQ	0	8	2	4	8	3
7UEAQ8	0	8	2	4	8	3
7VR44M	0	8	2	4	8	3
8ANDTD	0	8	2	4	8	3
8EHC43	0	8	2	4	8	3
8FXRFJ	0	8	2	4	8	3
8RMTRJ	0	8	2	4	8	3
8VKX3X	0	8	2	4	8	3
8WFJU4	0	8	2	4	8	3
8XXL44	0	8	2	4	8	3

TABLE 1

WebCode	<u>Digit1</u>	<u>Digit2</u>	<u>Digit3</u>	<u>Digit4</u>	<u>Digit5</u>	<u>Digit6</u>
8Z646K	0	8	2	4	8	3
8Z6W6D	0	8	2	4	8	3
93VJP7	0	8	2	4	8	3
93XP3Z	0	8	2	4	8	3
9BD723	0	8	2	4	8	3
9CLV8E	0	8	2	4	8	3
9EWBJX	0	8	2	4	8	3
9FAX6T	0	8	2	4	8	3
9FQKC9	0	8	2	4	8	3
9GW7Z9	0	8	2	4	8	3
9HFRW7	0	8	2	4	8	3
9J8CWN	0	8	2	4	8	3
9LCNDJ	0	8	2	4	8	3
9M9YDT	0	8	2	4	8	3
9N3487	0	8	2	4	8	3
9TVQH2	0	8	2	4	8	3
9YNHWU	0	8	2	4	8	3
A3GQUA	0	8	2	4	8	3
A6QVAJ	0	8	2	4	8	3
A8F3UF	0	8	2	4	8	3
A8M8K4	0	8	2	4	8	3
AL6XLR	0	8	2	4	8	3
ATA9ZH	0	8	2	4	8	3
AUQ3ZR	0	8	2	4	8	3
AYEWRX	0	8	2	4	8	3
B2GTET	0	8	2	4	8	3
B3DRPR	0	8	2	4	8	3
B4NLT7	0	8	2	4	8	3
BE9W3X	0	8	2	4	8	3
BHTLMB	0	8	2	4	8	3
BJKMNT	0	8	2	4	8	3

TABLE 1

WebCode	Digit1	Digit2	Digit3	Digit4	Digit5	Digit6
BJY7AB	0	8	2	4	8	3
BPBZMV	0	8	2	4	8	3
BW9QPX	0	8	2	4	8	3
BYE6L4	0	8	2	4	8	3
C2YE9A	0	8	2	4	8	3
C3MD3T	6	8	2	4	8	6/8/3
C8PQ47	0	8	2	4	8	3
CE3XLU	0	8	2	4	8	3
CT386P	0	8	2	4	8	3
CTFW7G	0	8	2	4	8	3
CV8W8X	0	8	2	4	8	3
CWJRUQ	0	8	2	4	8	3
DP3UZH	0	8	2	4	8	3
DTCUXN	0	8	2	4	8	3
DUAWRY	0	8	2	4	8	3
DV2XTF	0	8	2	4	8	3
E3F9FF	0	8	2	4	8	3
EAEXUY	0	8	2	4	8	3
EK3YYU	0	8	2	4	8	3
ENZZK4	0	8	2	4	8	3
EQQJ3A	0	8	2	4	8	3
EUL3KT	0	8	2	4	8	3
F49VP4	0	8	2	4	8	3
F7YYKV	0	8	2	4	8	3
FGYMCT	0	8	2	4	8	3
FLCCXM	0	8	2	4	8	3
FX4Y4H	0	8	2	4	8	3
FYCWUZ	0	8	2	4	8	3
FZD2XU	0	8	2	4	8	3
G2LMWU	0	8	2	4	8	3
G9HBW7	0	8	2	4	8	3

TABLE 1

WebCode	Digit1	Digit2	Digit3	Digit4	Digit5	Digit6
GK8VWP	0	8	2	4	8	3
GLNNTX	0	8	2	4	8	3
GTAEGD	0	8	2	4	8	3
HBNFPL	0	8	2	4	8	3
HPGB4R	0	8	2	4	8	3
HRNM62	0	8	2	4	8	3
HRQTKG	0	8	2	4	8	3
HZK8YM	0	8	2	4	8	3
J6WDEU	0	8	2	4	8	3
J77E3D	0	8	2	4	8	3
J9A7CE	0	8	2	4	8	3
JA2Q2D	0	8	2	4	8	3
JANMEK	0	8	2	4	8	3
JCQY6M	0	8	2	4	8	3
JGAK2L	0	8	2	4	8	3
JH2L34	0	8	2	4	8	3
JHJHQW	0	8	2	4	8	3
JNK2HU	0	8	2	4	8	3
JVL97A	0	8	2	4	8	3
JVMXED	0	8	2	4	INC	INC
K7QDZC	0	8	2	4	8	3
KANUEQ	0	8	2	4	8	3
KEAFXR	0	8	2	4	8	3
KFQ77G	0	8	2	4	8	3
KHG8AK	0	8	2	4	8	3
KHHXJN	0	8	2	4	8	3
KVZ9TQ	0	8	2	4	8	3
L267TN	0	8	2	4	8	3
L3XHDN	0	8	2	4	8	3
L8A9YJ	0	8	2	4	?	?
LBFA38	0	8	2	4	8	3

TABLE 1

WebCode	Digit1	Digit2	Digit3	Digit4	Digit5	Digit6
LDEA2X	0	8	2	4	8	3
LRXVKR	0	8	2	4	8	3
M8MKUT	0	8	2	4	8	3
MACA9L	0	8	2	4	8	3
MGGTU6	0	8	2	4	8	3
MQ3WYJ	0	8	2	4	8	3
MRUB8U	0	8	2	4	8	3
MUG7X3	0	8	2	4	8	?
MUG8YN	0	8	2	4	8	3
MUNRQH	0	8	2	4	8	3
MVCRN9	0	8	2	4	8	3
MWLHNG	0	8	2	4	8	3
MX64KD						
MZNDCQ	0	8	2	4	8	3
N6B3AN	0	8	2	4	8	3
N92KRU	0	8	2	4	8	?
NA86FU	0	8	2	4	8	3
NFH6TL	0	8	2	4	8	3
NJVZEA	0	8	2	4	8	6?
NRUJZD	0	8	2	4	8	3
NY7QBM	0	8	2	4	8	3
NYPC4D	0	8	2	4	8	3
P3QU4E	0	8	2	4	8	3
P4THW4	0	8	2	4	8	3
P7Q4UM	0	8	2	4	8	3
PAPK4V	0	8	2	4	8	3
PJBLLQ	0	8	2	4	8	3
PLE2WW	0	8	2	4	8	3
PMWB74	0	8	2	4	8	3
PR6B4A	0	8	2	4	8	3
PRRZRG	0	8	2	4	8	?

TABLE 1

WebCode	Digit1	Digit2	Digit3	Digit4	Digit5	Digit6
PTVJ8J	0	8	2	4	8	3
PWK2QB	0	8	2	4	8	3
Q8FW2B	0	8	2	4	8	3
Q8ZEJY	0	8	2	4	8	3
QBE92G	0	8	2	4	8	3
QBT2VT	0	8	2	4	8	3
QFAVXQ	0	8	2	4	8	3
QFAZ78	0	8	2	4	8	3
QHXT9X	0	8	2	4	8	3
QJPUAE	0	*	2	4	8	3
QKZEQ9	0	8	2	4	8	3
QLVEYZ	0	8	2	4	8	?
QPFMKY	0	8	2	4	8	3
QRHP2N	0	8	2	4	8	3
QU9BVU	0	8	2	4	9	3
QUAQ6Q	0	8	2	4	8	3
QZDPGG	0	8	2	4	8	3
RC8JCB	0	8	2	4	8	3
RK2ENM	0	8	2	4	8	3
RLEWUE	0	8	2	4	8	3
RPC7E	0	8	2	4	8	3
RQ46UT	0	8	2	4	8	3
RRJV64	0	8	2	4	8	3
T7WN92	0	8	2	4	8	3
TAWYZU	0	8	2	4	8	3
TFLGFQ	0	8	2	4	8	3
TJ4ZLA	0	8	2	4	8	3
TLMACM	0	8	2	4	8	3
TMLV8K	0	8	2	4	8	3
TNCW92	0	8	2	4	8	3
TRX6GW	0	8	2	4	8	3

TABLE 1

WebCode	Digit1	Digit2	Digit3	Digit4	Digit5	Digit6
U6GJDA	0	8	2	4	8	3
U9DGBE	0	8	2	4	8	3
U9U8AK	0	8	2	4	8	3
UAPTY6	0	8	2	4	8	3
UC2N4N	0	8	2	4	8	3
UCFWTX	0	8	2	4	8	3
UE3UJU	0	8	2	4	8	3
UE8ARN	0	8	2	4	8	3
UF3QBD	0	8	2	4	8	3
UN6Q7R	0	8	2	4	8	3
UN6X7X	0	8	2	4	8	3
UNRFQD	0	8	2	4	6	3
UXQ2BC	0	8	2	4	8	3
UYQ92P	0	8	2	4	8	3
V2E8Q8	0	8	2	4	8	3
V8HZYH	0	8	2	4	8	3
VBEJLV	*	*	2	4	8	*
VEZJZW	0	8	2	4	8	3
VT2Z9J	0	8	2	4	8	3
VYN7M6	0	8	2	4	8	3
VZDZ3F	0	8	2	4	8	3
W8W7BD	0	8	2	4	8	3
W99ZEM	0	8	2	4	8	3
WD6GT8	0	8	2	4	8	3
WMTA3H	0	8	2	4	8	3
WQALXE	0	8	2	4	8	3
WV3G3R	0	8	2	4	8	3
X4QUDC	0	8	2	4	8	3
X982X6	0	8	2	4	8	3
XDGKWX	0	8	2	4	8	3
XL9EYG	0	8	2	4	8	3

TABLE 1

WebCode	<u>Digit1</u>	<u>Digit2</u>	<u>Digit3</u>	<u>Digit4</u>	<u>Digit5</u>	<u>Digit6</u>
XPW3WG	0	8	2	4	8	3
XRV9PM	0	8	2	4	8	3
Y3BWG7	0	8	2	4	8	3
Y462ZZ	0	8	2	4	8	3
YNEMRE	0	8	2	4	8	3
YNVTYG	0	8	2	4	8	3
YQKZJE	0	8	2	4	8	3
YRNJ32	0	8	2	4	8	3
YT8MC2	0	8	2	4	8	3
YT8RG3	0	8	2	4	8	3
YVQFRW	0	8	2	4	8	3
Z2EVWZ	0	8	2	4	8	3
Z2XQCF	0	8	2	4	8	3
Z43VVP	0	8	2	4	8	3
Z6UWW8	0	8	2	4	8	3
ZMFUHD	0	8	2	4	8	3
ZNC6HM	0	8	2	4	8	3
ZNTJKQ	0	8	2	4	8	3
ZTLPYR	0	8	2	4	8	3
ZVBWLA	0	8	2	4	8	3
ZWMDW3	0	8	2	4	8	3

Response Summary						Participants: 266
	<u>Digit1</u>	<u>Digit2</u>	<u>Digit3</u>	<u>Digit4</u>	<u>Digit5</u>	<u>Digit6</u>
Consensus	0	8	2	4	8	3
Number	263	263	265	265	261	255
Percent	99%	99%	100%	100%	98%	96%

Conclusions

TABLE 2

WebCode	Conclusions
23N89A	Item 1 was submitted with its[<i>sic</i>] serial number defaced by apparent circular grinding. Digits "0824" were readable with oblique lighting, but no other digits could be confirmed. After a chemical restoration, digits "082483" were readable.
26UNPD	Examination of the submitted piece of stainless steel bar stock found the applied serial number has been obliterated. Physical and chemical processing of the piece of stainless steel bar stock restored the obliterated serial number to read 082483.
29UH6P	After an attempt to chemically restore the erased serial number on the stainless steel bar the following serial number was recovered "082483"
2ANMZ3	Using the acid etch method, the number "082483" was restored in the area of obliteration on Item 1.
2QCVYL	The restored serial number is: 082483.
2T4WZ4	Defaced serial number on item #1 was restored and appeared to read "082483".
2VAE2K	Examination of the submitted piece of metal found the Manufacturer's serial number to have been obliterated. Physical and chemical processing of the submitted metal restored the obliterated, original serial number to read "082483".
2XC6JT	Acidic method used on this sample has allowed us to come to light its serial number which is 082483.
2ZKEEB	The obliterated serial number was restored and is 082483. No further exams will be conducted.
2ZX77R	Examination and processing of the Q-1 stainless steel bar stock restored the original obliterated serial number, which was determined to be "082483".
2ZXPTP	A full restoration was achieved in which all obliterated numbers were made recognizable. The restored number is 082483.
2ZYF2T	Examination and chemical processing restored the obliterated serial number, which was determined to be "082483".
37MXXL	Serial number successfully restored to 082483.
3GW8ED	Using standard restoration techniques, the obliterated serial number on Exhibit 1 was restored to read: "0 8 2 4 8 3".
3JLDYB	The restored serial number for Item # 1 is: 082483
3LRYMB	The serial number of the stainless steel bar stock described in the item #1 was restored and corresponds to 082483.
3QUBNM	The serial number on the Item 1 piece of bar stock was restored to read 0 8 2 4 8 3.
432FCU	The defaced area on the Item 1 metal was examined and processed for serial number restoration. The characters 082483 were observed on the defaced area.
44DBZ8	The submitted piece of stainless steel bar stock with suspected obliterated serial number (Item 1) was examined. The stainless steel bar stock was found to have been submitted with a section milled/ground off, on one side. Attempts were made to recover the obliterated serial number on (Item 1). The restored serial number was determined to be #082483. Images were taken of the recovery process and will be retained in the [Laboratory] Firearms/Tool Marks Section for future comparison purposes.

TABLE 2

WebCode	Conclusions
44Q7KA	The Exhibit #1 firearm was processed/analyzed utilizing chemical etching techniques. The obliterated serial number was restored and found to be 082483 of a possible 6 character structure.
44W23Z	The Item 1 obliterated serial number was chemically processed and restored to read "082483".
47H23G	Examination of the submitted metal bar stock found the manufacturer's serial number to have been obliterated. Physical processing of the submitted metal bar stock restored the obliterated, original serial number to read "082483".
4HQV8E	The obliterated serial number of Item 1 was restored to read 082483.
4KE3UW	The obliterated serial number has been recovered. It reads: 082483
4PPPE8	Item 1 has a serial number that has been obliterated by grinding from the appearance of grind marks on the stainless steel bar surface. The serial number that has been recovered from the stainless steel bar after testing is 082483
4Q4K88	The obliterated serial number of Item 1 was restored to read 082483.
4TA6V8	The obliterated serial number of Item 1 was restored to be 082483.
4TBEEK	Serial number was fully restored to read (082483)
4XL2QA	Physical processing of the submitted item restored the obliterated, original serial number to read "082483".
63VL8E	Examinations showed the serial number of Item 1 to be obliterated. The serial number of Item 1 was restored using magnetic particle restoration techniques and was found to read: 082483.
66LP38	The obliterated serial number on the Item 1 bar stock was restored to read 082483.
68LCHC	It was read marking with the content: 0, 8, 2, 4, 8, 3 as result of research on the appointent sample as: Item 1. Decoded sings were sings situated on the sample appointend as: the standars Aluminium, according to that is was stated that on sample - Item 1 was applied sings correspondence to the shape and the size of sings witch were bing found on the standard - sample (the standard Aluminium). [sic]
69LUYZ	The following numbers were observed: 082483.
6DYWJB	The area in the center of the bar stock has been defaced. The serial number was restored using chemical etching techniques and found to be 082483.
6EPXKT	The obliterated serial number was restored to read 082483.
6GAFHY	On the examined piece of stainless steel bar stock was stamped the serial number "082483".
6KEGJ2	Item 1-1: Piece of stainless steel bar stock: Visual examination of this item revealed the presence of apparent grind marks on a piece of metal identified to me as stainless steel bar stock. This area was etched with acid solutions and the following was restored: 0 8 2 4 8 3.
6KFAJV	Restoration by Chemical etching revealed that the original serial number on the stainless steel bar was "082483".
6LTQUN	The serial number has been restored successfully and appeared clearly and entirely.
6PCWF4	Visual examination of this item revealed the presence of polish marks on the topside of the metal piece. This area was magnetically processed and etched with acid solutions and the

TABLE 2

WebCode	Conclusions
	following was restored: 082483.
6RAY2E	Examination and processing of Item 1 restored the original, obliterated serial number. The serial number was determined to be "082483."
6T6JQY	The serial was restored to read: 0 8 2 4 8 3.
7CCFG9	Through the restoration process of the serial number, the following was determined: 1. The serial number of the stainless steel bar was restored and corresponds to: 082483.
7E6G7B	Chemical treatment with steel etching solution on Item #1's obliterated area revealed the following serial number "082483". After the serial number was raised the area was cleaned with acetone, then a layer of oil was rubbed on top to preserve the number from further deterioration.
7FE8RU	Using chemical etching techniques, the serial number was restored to read: 0 8 2 4 8 3
7G6BML	[No Conclusions Reported.]
7G8JNZ	Item 1 - one (1) stainless steel bar stock. 1 - aluminum standard. The submitted specimen marked Item 1 is a piece of stainless steel bar stock with a suspected obliterated serial number. Item 1 was microscopically and chemically processed. As a result of examination it was concluded that Item 1 obliterated serial number was restored to its original number to read 082483.
7NRLQV	The obliterated surface on the small rectangular piece of stainless steel was restored to read 082483.
7RUK7U	Serial number restoration via acid etching yielded the partial serial number 08248_. The last digit is probably a "3". The partial serial number 08248_ should be checked through [database].
7TN9NQ	The number on the piece of bar stock was restored to read 082483.
7UEAQ8	Serial number is milled off. A serial number restoration was conducted on Item 1. The serial number 082483 was restored by acid etching.
7VR44M	Upon electrochemical treatment on the filed surface, the original number was restored and read as 082483.
8ANDTD	The serial number area on Item 1 was prepared and treated with restoration reagents and the following characters were raised: 082483
8EHC43	A serial nubersic restoration was conducted on item 1. The number 082483 was restored by acid etching.
8FXRFJ	The above stainless steel bar stock in Item 1 was examined and chemically processed to restore the obliterated serial number. The obliterated serial number has been restored to: 082483.
8RMTRJ	Examination and chemical processing of Item 1 restored the original, obliterated serial number to read "082483".
8VKX3X	The primary meaning of obliterated serial number was "082483".
8WFJU4	The serial number of the stainless steel bar described as Item 1 was restored and corresponds to: 082483.
8XXL44	The serial number on Item 1 had been completely removed. The serial number was polished and chemically restored to 082483.

TABLE 2

WebCode	Conclusions
8Z646K	The serial number area on Item 1 was prepared and treated with acid restoration solutions. The serial number was restored to legible condition and was 082483.
8Z6W6D	The serial number on the bar stock was restored to read 082483.
93VJP7	The serial number restored is 082483.
93XP3Z	The serial number of Item 1 was obliterated when received. It was restored to read "082483."
9BD723	Serial number is milled off. A serial number restoration was conducted on Item 1. The serial number 082483 was restored by acid etching.
9CLV8E	After applying different reagents the serial number obtained is 082483.
9EWBJX	The serial number was chemically processed and restored to read 082483.
9FAX6T	Examination and restoration of the obliterated area on Item 1 revealed the following characters interpreted as "082483".
9FQKC9	I found, there was filling mark on the surface of the steel bar, on electrochemical treatment on the filled surface region. I found a number '082483' emerged on the filled surface. Hence, I am of the opinion that the number of the steel bar was tempered and the original number was '082483'. [sic]
9GW7Z9	On examination, I found that the surface of stainless steel bar stock had been filled[sic]. No number was observed. On electrochemical treatment, I developed a number "082483".
9HFRW7	Examination and processing of the Q-1 metal bar restored the original obliterated serial number, which was determined to be 082483.
9J8CWN	The serial number, 082483 was restored on the specimen.
9LCNDJ	A visual examination was conducted of the Item 1 piece of stainless steel bar stock. It was noted that the serial number had been obliterated from the middle of the bar stock. Microscopic examination and magnetic processing restored the original obliterated serial number to read "082483".
9M9YDT	The serial number got to removal approximately 0.3 mm deeply.[sic] According to the result of the examinations the removed serial number was 082483.
9N3487	Using standard laboratory techniques, the serial number was restored to read: 082483
9TVQH2	The serial number 082483 was restored on the stainless steel bar, Exhibit 1.
9YNHWU	Treatment of the serial number site revealed the erased number to be 082483.
A3GQUA	1) The serial number of Item 1 was restored using mechanical polishing and magna flux techniques and was found to be: 082483.
A6QVAJ	I restored the obliterated serial number on the submitted piece of metal to 082483.
A8F3UF	A stamped serial number bearing the numbers 082483 was restored on Item 1.
A8M8K4	The number that has been whiped[sic] out is "082483". There is no indication for any other digits.
AL6XLR	The serial number "082483" was restored on the stainless steel bar, Exhibit 1.
ATA9ZH	Restoration procedures revealed a complete serial number of 082483.
AUQ3ZR	Treatment and examination of the stamped number erasure site of the metal (Item 1) established that the number stamped on it was 082483.

TABLE 2

WebCode	Conclusions
AYEWRX	The obliterated area of the Item 1 barstock was fully restored to read: 082483.
B2GTET	The number on the material was removed. We applied etching solution to the area. The digits of the number "082483" are restored after the chemical (acidic) method.
B3DRPR	The obliterated serial number was partially restored and concluded to most likely be 082483.
B4NLT7	The obliterated serial number was restored using chemical etching techniques and was found to read: 082483.
BE9W3X	Examination of Item #1 revealed one (1) portion of metal bar stock approximately 2¾ inches long, 1 inch wide, with serial number obliterated. Using standard laboratory restoration techniques, an attempt was made to restore the serial number on Item #1 with the following results: Serial Number: 0 8 2 4 8 3 was restored to Item #1.
BHTLMB	Examination and chemical processing of Item 1 restored the original obliterated serial number which was determined to be "082483".
BJKMNT	The number on the item #1, bar stock, was restored to read 082483.
BJY7AB	The serial number of Item 1 was restored using Magnetic Particle Inspection and was found to be: 082483.
BPBZMV	Item 1 - Piece of stainless steel bar stock with suspected obliterated serial number. The submitted specimen marked Item 1 was examined and identified as a bar stock with a suspected obliterated serial number. The obliterated serial number was chemically processed and successfully restored to read "082483".
BW9QPX	The following serial number of item 1 consists of "082483".
BYE6L4	Physical and chemical processing of the submitted firearm[sic] restored the obliterated, original serial number to read "082483".
C2YE9A	Examination of the piece of stainless steel bar stock found the manufacturer's serial number to have been obliterated. Physical processing of the submitted piece of bar stock restored the obliterated, original serial number to read "082483".
C3MD3T	The numbers that have been restored from the bar were as following[sic]: The first digit might be number 6, the second digit is number 8, the third digit is number 2, the fourth digit is number 4, the fifth digit is number 8, the sixth digit was hard to be[sic] identified but it might be the number 3 or 6 or 8.
C8PQ47	Using standard laboratory techniques, the serial number on Item #1 was restored to read: 082483
CE3XLU	Visual examination and chemical treatment of the serial number area on the piece of bar stock, Item 1, reveals the following number: 082483.
CT386P	I examined the stainless steel bar and saw that the serial number was obliterated by apparent grinding. The obliterated area was located in the middle of the bar. I ground and polished the area. Chemical etching restored the serial number to "082483". I documented the restoration with photographs.
CTFW7G	Upon electrochemical treatment on the filed surface, the number 082483 was restored.
CV8W8X	The serial number "082483" was observed on the steel bar stock, Exhibit Item 1.
CWJRUQ	The serial number on the stainless steel piece (SN - Test No. 11-525 Item 1) was restored to read 082483.

TABLE 2

WebCode	Conclusions
DP3UZH	The cut-out area on Item 1 was chemically processed and restored to read "0 8 2 4 8 3".
DTCUXN	Using chemical etching techniques, the serial number was restored to read 0 8 2 4 8 3.
DUAWRY	The obliterated characters on Item 1 were restored and read: "0 8 2 4 8 3".
DV2XTF	The obliterated serial number on Item 1 was restored to read 082483.
E3F9FF	The number obliterated from metallic plate, after reaction of acid ferric-chloride solution, it was regenerated and became visible. The following digits could be read: 082483
EAEXUY	The serial number of the bar was obliterated, the method for recovery the serial number used during the examination are acidic method. The same was restored and correspondence to 082483. [sic]
EK3YYU	The obliterated serial number on item 1 was chemically processed and restored to read "082483"
ENZZK4	Based on the above examination and findings, I am of my opinion that the original serial number on the piece stainless steal[sic] bar stock Item 1 is 082483.
EQQJ3A	Various serial number restoration techniques were used on submitted metal block (Item 1). The following characters were restored: 0 8 2 4 8 3.
EUL3KT	The Acetone was cleaning area of deletion, before to apply Magneticas Particles method (Magnaflex), revealing the first five digits (08 248), the sixth digit was not very visible, I proceed for remov toolmarks to use the number delete. I get the six number 082483. [sic]
F49VP4	Examinations showed the serial number of Item 1 to be obliterated. The serial number of Item 1 was restored using magnetic particle restoration techniques and was found to read 082483.
F7YYKV	The obliterated serial number on the Item 1 piece of stainless steel bar stock was restored to read 082483.
FGYMCT	Examination of item 1 revealed one (1) piece of metal bar stock with serial number obliterated. Using standard Laboratory restoration techniques, an attempt was made to restore the serial number on item 1 with the following results: Serial number 0 8 2 4 8 3 was restored on item 1.
FLCCXM	Exhibit 1 (Item 1) - One piece of stainless steel bar stock with an obliterated serial number. The serial number was chemically restored and found to be: 082483.
FX4Y4H	Item 1 is a piece of stainless steel bar stock with suspected obliterated serial number. Using standard restoration techniques, the obliterated serial number on Item 1 was restored to read: 0 8 2 4 8 3.
FYCWUZ	The serial number printed in the piece of the stainless steel described in the exhibit #1 could be restored totally and its[sic] corresponds to: 082483.
FZD2XU	Visual examination of this item revealed the presence of grind marks on the center of the bar. This area was etched with acid solutions and the following was restored: [sic]
G2LMWU	The original defaced serial number was physically and chemically processed to read: "0 8 2 4 8 3".
G9HBW7	Examinations showed the serial number of Item 1 had been obliterated. The serial number of Item 1 was restored using magnetic particle restoration techniques and was found to read: 082483.

TABLE 2

WebCode	Conclusions
GK8VWP	The serial number "082483" was restored on the stainless steel bar.
GLNNTX	Item 1 is a piece of stainless steel bar stock, approximately 2.8" inches long, with an obliterated serial number. K-1 is a piece of aluminum standard with a representation of the size and shape of digits stamped into Item 1. An obliterated serial number on Item 1 was restored to read 082483. A comparison microscope, caliper, Magnaflux™, and digital imaging equipment were used in the restoration process.
GTAEGD	The image of the obliterated serial number on item 1 was revealed to read: 0 8 2 4 8 3.
HBNFPL	Using the acid-etch method, the number on the steel bar stock (Item 1) was completely restored as "0 8 2 4 8 3".
HPGB4R	The submitted sample is a piece of magnetizable flat steel. On one side the sample has a milling of approximately 23.8x25.4 mm and a depth of approximately 0.5 mm. After preparing the sample, the Magnetic Particle Method was used to examine it. The obliterated serial number was restored with this method and was clearly visible.
HRNM62	The grinded surface on the stainless steel bar was electrochemically treated and a set of numbers was observed and read as "082483". Hence, I am of the opinion that the original number was "082483".
HRQTKG	On the 22nd March 2011 I examined a stainless steel bar approximately L70mm x W25mm x D6 mm. On the centre of bar was a milled strip approximately 25mm wide and .5mm deep. I prepared the milled surface by utilizing silicon carbide wet & dry paper of various grades polishing the surface to a mirror finish. I then applied Fry's Reagent to the surface which revealed the numbers "082483". The numbers are of similar font both in size and type as the aluminum standard provided.
HZK8YM	An obliterated area was observed on the piece of stainless steel bar stock (item 1). Using standard serial number restoration techniques, the obliterated number was restored. That number is: 082483.
J6WDEU	The submitted specimen a stainless steel bar stock marked Item 1 has an obliterated serial number. The obliterated serial number was microscopically and chemically processed and restored to read "082483".
J77E3D	Item 1 is a piece of stainless steel bar stock with suspected obliterated serial number. Using standard restoration techniques, the obliterated serial number on Item 1 was restored to read 082483.
J9A7CE	The serial number of Item 1 was recovered and reads: 082483
JA2Q2D	On the piece of stainless steel bar (item 1), there was a zone of material loss. In this zone were used at first wet magnetic particle inspection and secondly corrosive method with the reagents of Fry, Mayer-Eichholz and Adler. In both procedures were made visible the following six-digit number: 082483. [sic]
JANMEK	Forensic procedures were applied to the machined area, and a series of previously stamped characters were restored, that read: 082483.
JCQY6M	There was a deep obliteration to the serial numbers on the metal piece that we received, and it was by using a tool with a circular head with sharp blades [sic] led to the obliteration of the serial number.
JGAK2L	Visual examination and chemical treatment of the serial number area on the bar stock, Item 1, reveals the following number: 082483.
JH2L34	Examination of the submitted bar stock found the manufacturer's serial number to have been

TABLE 2

WebCode	Conclusions
	obliterated. Physical and chemical processing of the submitted bar stock restored the original, obliterated serial number to read "082483". A search of the [State] system found that the submitted bar stock has/has not been reported stolen.
JHJHQW	After use of our standard procedures for obliterated serial numbers restoration, we found the following numbers: 082483.
JNK2HU	Laboratory restoration procedures revealed the following serial number: 082483.
JVL97A	Examination and processing of the Q-1 bar stock restored the original obliterated serial number, which was determined to be 082483.
JVMXED	The partially restored six digit serial number on Item 1 was 0824**, with the asterisks representing unknown digits. Although the fifth and sixth digits could not be fully restored, the fifth digit may be a "6" or an "8", and the sixth digit may be an "8" or a "9".
K7QDZC	A serial number restoration was performed on the stainless steel bar stock, Item 1. The serial number appears to be 082483.
KANUEQ	Examination of the metal bar in Item 1 revealed an obliterated area. Standard chemical restoration techniques revealed the following characters: "082483".
KEAFXR	The surface was obliterated. 082 digits were observed using oblique light, by magnetic restoration, the obliterated serial number was restored: 082483, which corresponds to the digits provided on the standard of comparison Aluminium Standard (component for performing the test).
KFQ77G	On the 24th February 2011 I received an item for examination. I prepared the surface using silicon paper of varying abrasiveness. I then applied a solution of Fry's Reagent which I swabbed over the surface for 27 min. After this time I was able to recover the number 082483. I was able to digitally record this number. I then compared this number against a known standard. The recovered number appears to be of the same font style and size of that of the standard.
KHG8AK	Item #1. Through standard serial number restoration techniques the following serial number was restored to read: 082483.
KHHXJN	The obliterated serial number on the block of metal, item 01, was restored chemically to read 082483.
KVZ9TQ	I found the surface area bearing the serial number to have been obliterated by filling[sic]. I am of the opinion that the serial number had been tampered with. On electrochemical treatment, I developed the digits 082483. I am of the opinion that the original serial number was 082483.
L267TN	Visual examination of this item revealed the presence of grind marks on the center of the bar. This area was etched with acid solutions and the following was restored: 082483.
L3XHND	Examination and processing of the Q-1 bar stock restored the original obliterated serial number, which was determined to be 082483.
L8A9YJ	The serial number was partially restored to read 0824??. The second to last character could be a 0, 6, 8, or 9 and the last character could be a 3 or 5.
LBFA38	The serial number was resolved by using magnetic particle inspection (MPI) to read 082483.
LDEA2X	The serial number of the piece of stainless steel bar stock in item 1 was determined to be 082483
LRXVKR	Examination of Item 1 revealed an area from which metal had been removed. This area was

TABLE 2

WebCode	Conclusions
	prepared and chemically processed in an effort to restore any obliterated serial number information to a legible condition. As a result of this processing, the number "082483" was developed.
M8MKUT	Examination of the surface of the stainless steel bar revealed evidence of an obliterated serial number. The surface was treated and the following original serial number was restored: 082483
MACA9L	Item 1-1: Trace Item-Piece of stainless steel bar stock with suspected obliterated serial number- Visual examination of this item revealed the presence of grind marks on the center of the block. This area was etched with acid solutions and the following was restored: 0 8 2 4 8 3.
MGGTU6	Chemical detection of numbers on a metal sample (25mm x 70mm). Start time at 15H00 and finished at 17H00. Numbers stamped = 082483
MQ3WYJ	The serial# of the piece of stainless steel bar stock was restored and determined to be serial# 082483.
MRUB8U	The serial number of Item 1, as restored, is 082483.
MUG7X3	Examination of item #1 revealed an obliterated area. Standard restoration techniques revealed the following characters: "08248?". The question mark represents a partially restored character that is consistent with being a "3".
MUG8YN	Item #1 is a stainless steel bar with suspected obliterated serial numbers. Serial number restoration procedures were performed and the serial number was restored to read 082483.
MUNRQH	Visual examination and chemical treatment of the serial number area on the stainless steel bar stock reveals the following number: 0 8 2 4 8 3.
MVCRN9	Item 1 was examined and processed. The original obliterated Serial Number was restored and determined to be "082483".
MWLHNG	Exhibit 1 has an area of obliteration in the middle across the width of the bar stock. The obliteration appears to be accomplished by a rotating cutter such as an end mill. The tool marks may have value for identification purposes and are preserved in a cast designated as 1F1. The area was processed magnetically and chemically and the serial number was fully restored to read: 082483.
MX64KD	Serial number restoration techniques via acid etching were unsuccessful.
MZNDCCQ	Item 1 was examined and cleaned prior to applying the Magnetic Particle Inspection Method to the suspected obliterated area. The restoration method revealed (6) digit serial number interpreted as (082483). The numerical characters of the restored serial number are consistent with the characters evident on the provided reference standard. The suspected obliterated serial number was restored as (082483) within reasonable scientific certainty.
N6B3AN	Visual examination and chemical testing of the obliterated area on the steel bar stock, Item 1, revealed the following number: 082483.
N92KRU	The item #1 metal plate consisted of an obliterated serial number. The area of obliteration was processed with chemical etchants and the following number was restored: 08248?. The "?" could be a "3" or "8".
NA86FU	Mechanical and chemical restoration of the obliterated serial number on item #1 was conducted, and the following numbers were recovered: 082483. No numbers were restored in front of the 0, or after the 3.

TABLE 2

WebCode	Conclusions
NFH6TL	The serial number on the submitted bar stock was completely removed. Polishing and treating with acid resulted in the restoration of the number 082483.
NJVZEA	After applying a forensic restoration technique, I was able to determine that the first five of the six obliterated serial numbers were 08248 and that the sixth and final digit may be a 6. It is also possible to say that the said sixth digit is inconsistent with being 1, 2, 4, 7, 8, 9 or 0. It was not possible to rule out it being a 3 or 5 as it was very faint.
NRUJZD	A section of the bar had been machined or similar and no stamped numbers were observed. Forensic restoration techniques were applied to the questioned area and a series of previously stamped characters was restored that read: 082483.
NY7QBM	Chemical processing was used to restore the obliterated serial number on the steel bar stock. It revealed the following characteristics: "0, 8, 2, 4, 8, and 3"
NYPC4D	An attempt was made to restore the serial number on item 1. The following number was restored: 082483.
P3QU4E	1. Examination of Item 1 (bar stock) disclosed the questioned damage to be consistent with having been made by a milling type tool. 2. Using the Magnetic Particle Inspection (MPI) procedure with Magna-Flux, the obliterated damage was consistent with being: 082483.
P4THW4	The obliterated serial number of item 1 consist[sic] of six digits. The restored[sic] digits of item 1 - piece of stainless steel bar stock are "0 8 2 4 8 3"
P7Q4UM	The original serial number was determined to be 082483.
PAPK4V	The obliterated serial number of Item 1 was restored by using chemical etching techniques. The serial number was found to be: 082483.
PJBLLQ	Following electrochemical aching[sic], using the Fry's Reagent, the obliterated serial number was recovered - 082483.
PLE2WW	The serial number on the piece of stainless steel bar stock in item 1 was determined to be 082483.
PMWB74	The serial number area of Item 1 was prepared and treated with a chemical reagent. As a result, the following characters were observed 0 8 2 4 8 3.
PR6B4A	The obliterated serial number on the metal bar in Item #1 was completely restored and found to be 0 8 2 4 8 3.
PRRZRG	"Number restoration techniques restored a line of characters. These were "0 8 2 4 8 ?", where the "?" was most likely to have been either a "3" or an "8"."
PTVJ8J	The serial number "082483" was restored on the stainless steel bar stock, Item 1
PWK2QB	The obliterated serial number on this exhibit was restored. The serial number is 082483.
Q8FW2B	The obliterated serial number on the test sample was located on the top side of the sample where an area was defaced. The area was magnetically and / or chemically processed and it was restored to read "082483".
Q8ZEJY	Using standard laboratory restoration techniques, the obliterated serial number on Item #1 (stainless steel Bar stock) was restored to read: 082483
QBE92G	The piece of metal stock had an area of milling on it. The area was polished and chemically etched in an attempt to restore any characters[sic] that may have been obliterated. Numerals were restored and in my opinion the following were originally present: 082483.
QBT2VT	The surface was obliterated, by magnetic and chemical restoration, the obliterated serial

TABLE 2

WebCode	Conclusions
	number was restored: 082483, which corresponds to the digits provided on the standard of comparison Aluminium Standard (component for performing the test).
QFAVXQ	Using magnetic restoration techniques, the original obliterated serial number was restored to read "082483".
QFAZ78	Examination and chemical processing of Ex. #1 restored the obliterated serial number to read "082483".
QHXT9X	The numbers could clearly be identified.
QJPUAE	Serial number restoration was performed on the item 1 piece of bar stock. The serial number 0*2483 was restored, with the * representing a 6 or an 8.
QKZEQ9	The serial number on item 1 was restored and determined to be 082483.
QLVEYZ	Examination of Item 1 revealed the presence of an obliterated area. Restoration of the obliterated area revealed the following inscription: 08248?. The '?' denotes being either a 3 or 5.
QPFMKY	The obliterated serial number on the Item 1 steel block was restored to read "082483."
QRHP2N	In our opinion, the number "082483" was recovered by treatment of an abraded area of the metal
QU9BVU	The chemical treatment was successful in chemically restoring a serial number on the bar. The serial number on the bar was restored to read: 0 8 2 4 9 3
QUAQ6Q	Photos were taken of the area of a metal plate where the serial number had been obliterated by grinding. The area was pretreated with a dremel tool. The area was then treated with a acidic solution for aluminum, Fry's solution, and Hcl. The following serial number was restored: 0 8 2 4 8 3. The restored serial number was photographed.
QZDPGG	The six recovered digits from the piece of stainless steel bar stock were found to be "082483".
RC8JCB	Test item 1 had an area of metal removed with what appeared to have been a milling tool or similar. I treated that area and restored the following characters; 082483.
RK2ENM	Using the acid etch method, the Item 1 obliterated serial number was restored to read: 0 8 2 4 8 3.
RLEWUE	The obliterated area was processed revealing the following serial number: 0 8 2 4 8 3.
RPCK7E	Item 1-1: piece of metal: Visual examination of this item revealed the presence of grind marks on one side in the center of the piece of metal. This area was etched with acid solutions and the following was restored: 0 8 2 4 8 3.
RQ46UT	Using standard laboratory techniques, the serial number/identification data on Item 1 (Test No. 11-525) was restored to read 082483.
RRJV64	The serial number (Item 1) appeared to have been scratched so that the characters were illegible. Using polishing and chemical etching techniques the serial number was restored to read 082483.
T7WN92	The serial number was restored to read, "082483".
TAWYZU	1. The serial number in item 1 was restored and determined to be "082483". 2. A second metal bar was also submitted for use [sic] an exemplar. No tests were done on this metal bar.
TFLGFQ	The serial number area on Item 1 was prepared and chemically processed and the serial number was restored to read "082483".

TABLE 2

WebCode	Conclusions
TJ4ZLA	Using chemical etching techniques, the serial number was restored to read: 0 8 2 4 8 3.
TLMACM	Examination and chemical processing of Exhibit 1 restored the original serial number, which was determined to be "0 8 2 4 8 3"
TMLV8K	Examination of the submitted stainless steel bar stock found the serial number to have been obliterated. Physical and chemical processing of the submitted stainless steel bar stock restored the obliterated, original serial number to read "082483".
TNCW92	I visualized the serial number on Item 1 (the piece of stainless steel bar stock) and found it to be 082483.
TRX6GW	On Item 1 was revisualized a marking with 6 digits: "082483"
U6GJDA	Examination of Exhibit 1 (Stainless steel bar stock) disclosed that the serial number has been obliterated. The serial number of Exhibit 1 was restored to read 0 8 2 4 8 3.
U9DGBE	Examination and chemical processing of Item 1 restored the original obliterated numbers, which were determined to be "0 8 2 4 8 3".
U9U8AK	Examination and processing of Item 1 restored the original obliterated serial number to read "082483."
UAPTY6	Using chemical etching techniques, the serial number was restored to read 082483.
UC2N4N	Using standard laboratory techniques, the serial number was restored to read: 082483
UCFWTX	Examination and chemical processing restored the obliterated serial number, which was determined to be "082483".
UE3UJU	Item #1 (stainless steel bar stock) was examined on April 12, 2011. An area of obliteration was observed in the middle portion, on one side of Item #1 (bar stock). The serial number was found to be obliterated by a milling tool with arch type signatures. The obliterated serial number on Item #1 (stainless steel bar stock) was recovered as 082483
UE8ARN	Using standard laboratory techniques the serial number was restored to read: "082483"
UF3QBD	Visual examination and chemical treatment of the serial number area on the metal bar, Item 1, reveals the following number: 082483.
UN6Q7R	On 2-11-11 the following piece of evidence was received by this technician. One 3 x 1 piece of stainless steel, the middle portion had been removed. A request for possible serial restoration was attached. After a visual inspection and the use of different grades of sand paper and acids the following numbers were observed (082483). The numbers were photographed and the area was sealed with a sealer.
UN6X7X	On examination, I found the plate has been tempered[sic]. Upon electrochemical treatment on the filed region, I developed digits 082483.
UNRFQD	One side of the piece of metal was scratched. Two digits and some partial digits were observed in this scratched area prior to attempts at recovery. The two digits appeared to be a "2" and a "4". A restoration carried out on this scratched area revealed a sequence of the following six digits: "0 8 2 * 6 3". No letters or digits were restored in this area before the "0" or after the "3". *This digit could not be formally identified but in my opinion it is a "4".
UXQ2BC	The serial number 082483 into the questioned sample was restored with Magnaflux.
UYQ92P	The serial number was restored to read: 082483.
V2E8Q8	The obliterated serial number, located on Item 1, was chemically/magnetically processed and

TABLE 2

WebCode	Conclusions
	restored to read "082483".
V8HZYH	Standard laboratory techniques for restoring effaced stampings in metal were employed in the damaged area of the bar stock Item 1. The number 0 8 2 4 8 3 was restored to Item 1.
VBEJLV	The obliterated serial number on item #1 was partially restored to read **248*. The asterisk for digit #1 most likely represents a "0", "6" or a "2". The asterisk for digit #2 most likely represents a "3" or an "8". Attempts to restore the sixth digit were unsuccessful.
VEZJZW	Item 1's serial number area was prepared, etching solutions were applied, and the following serial number was restored: 082483.
VT2Z9J	On 2-24-2011, I received Serial Number Restoration Proficiency Test No. 11-525 from the Crime Lab Quality Coordinator for testing. From Serial Number Restoration Proficiency Test No. 11-525: Item 1: One (1) piece of Stainless Steel bar stock with suspected obliterated serial number. Results: Serial number processing resulted in the restoration of the obliterated serial number. Restored serial number is: 0 8 2 4 8 3. Results were photographed and verified. Item 1 will be returned to the Quality Assurance Coordinator. I hereby certify that this is a report of the conclusions of an examination performed by me.
VYN7M6	I made an examination of the surface of the metal and saw that an area had been milled. I made an examination of the area and recovered the series of numbers '082483'.
VZDZ3F	The obliterate number was restored using acidic method and this correspond to 082483. In this procedure use Fry'reagents to development the obliterate number. [sic]
W8W7BD	The obliterated serial number has been restored as 082483.
W99ZEM	Were recovered numbering 082483 through magnetic restoration, which corresponds to the digits provided on the standard of comparison Aluminium Standard (component for performing the test).
WD6GT8	Examination of Exhibit 1 (Bar stock) disclosed that the serial number has been obliterated. The serial numbers restored on Exhibit 1 are consistent with 082483.
WMTA3H	Item #1 obliterated serial number was restored using chemical etchant techniques and was found to be 082483. Item #2[sic] was used to read the serial number on Item #1.
WQALXE	The serial number on Item 1 was completely obliterated (grinding). The surface was polished, followed by application of Fry's Reagent until the serial number was restored to read 082483.
WV3G3R	The serial number of item #1 was processed using mechanical polishing and chemical etching. Processing was able to restore the serial number to "0 8 2 4 8 3".
X4QUDC	The serial number is 082483
X982X6	The test kit was received from [Quality Manager] in a taped/sealed box initialed CTS and labeled 2011 Forensic Testing Program, Test No. 11-525: Serial Number Restoration, Sample Pack: SN. This box contained two sealed envelopes, one labeled Item 1 Test No. 11-525, the other labeled Aluminum Standard Test 11-525. Item 1 contained one non-ferrous plate measuring 2/34"x1"x1/4" with a 1"x1" area obliterated by circular grinding. This plate was photographed as received. Item 2 contained one Aluminum Standard plate measuring 17/8"x1"x3/16" with a 1"x1" polished area stamped with the numerals 1234567890. This plate was photographed as received and a dry erase transfer was affixed to the note page for reference. The test plate was polished with a cloth wheel and Flitz Polish then subjected to a series of chemical etchings. The obliterated serial was fully restored to read - 082483. The restored serial number was photographed then preserved with clear fingernail polish. Items 1 & 2 were repackaged, sealed and returned to [Quality Manager].

TABLE 2

WebCode	Conclusions
XDGKWX	Restoration procedures on exhibit SN (Item 1) revealed the serial number to be: 082483.
XL9EYG	I concluded that the recovered serial number on Item 1 consisted of the following six digits: 082483
XPW3WG	Examination of the submitted bar found the manufacturer's serial number to have been obliterated. Physical & chemical processing of the submitted bar restored the obliterated, original serial number to read "082483".
XR9VPM	Were recovered numbering 082483 through magnetic restoration, which corresponds to the digits provided on the standard of comparison Aluminium Standard (component for performing the test).
Y3BWG7	The obliterated area on one side of Exhibit 1 was treated chemically with acid etchants in an attempt to obtain a serial number. The serial number "082483" was observed.
Y462ZZ	The obliterated serial number on the stainless steel bar stock in Item 1 was completely restored and found to be 0 8 2 4 8 3.
YNEMRE	Standard laboratory techniques for restoring effaced stampings in metal have been employed on the machined (milled) face of Item 1. The restored number on this bar is "0 8 2 4 8 3".
YNVTYG	Using standard laboratory techniques, the serial number on Item 1 was restored to: 082483
YQKZJE	Utilizing the electromagnetic method, the obliterated serial number was restored to read 0,8,2,4,8,3.
YRNJ32	The block of stainless steel metal was examined and an area was observed that appeared to have been machined away. This area was photographed to document its condition. The area was then polished with a Dremel tool to remove the toolmarks and etched with chemical reagents. The number 0 8 2 4 8 3 was restored in the obliterated area. The area was coated with clear finger nail polish to preserve the restored numbers.
YT8MC2	"Serial number restoration via acid etching techniques yielded the full serial number 082483 on the above-described piece of bar stock."
YT8RG3	A grey stainless bar stock was examined 70 mm x 25 mm x 6 mm. The top centre face of bar stock displayed a machined surface. There was evidence of stampings or partial characters. The machined surface was then subjected to a forensic restoration. A series of previously stamped characters were recovered.
YVQFRW	Examination and processing of the obliterated serial number on the Item 1 piece of bar stock was restored to read "082483".
Z2EVWZ	After the preparation of the area where the number was obliterated Griffin's Reagent was utilized to treat the prepared service[sic]. While the chemical treatment was performed the number 082483 became visible.
Z2XQCF	The obliterated serial number was partially restored and concluded to most likely be 082483.
Z43VVP	Main conclusion of this report is to recover[sic] digits.
Z6UWW8	The sample was cleaned and examined before applying the method of magnetic particle inspection (Magnaflex), [sic] the deleted area. The restoration method revealed six figures for the numbers (082483)
ZMFUHD	The obliterated six digit serial number was recovered as: "0-8-2-4-8-3.
ZNC6HM	Examination of the submitted stainless steel bar stock found the manufacturer's serial number to have been obliterated. Physical and chemical processing of the submitted stainless steel

TABLE 2

WebCode	Conclusions
	bar stock restored the obliterated, original serial number to read 082483.
ZNTJKQ	Restoration procedures revealed the digits of the obliterated serial number as follows: 082483.
ZTLPYR	The serial number area of Item 1 was prepared and treated with various reagents and the numbers 0 8 2 4 8 3 were developed.
ZVBWLA	The serial number area on Item 1 was visually and chemically examined for serial number information. Based on these examinations, in my opinion, the serial number 082483 was recovered.
ZWMDW3	Our work allowed to recover the milling cutter obliterated serial number on the item number 1 as: 0 8 2 4 8 3

Sample Preparation

TABLE 3

WebCode	Sample Preparation
23N89A	Oblique lighting to observe submitted condition; light grinding to smooth the concerned area; polishing of the concerned area; then acid. (Observation made after each step, but readable digits were less visible as I proceeded.)
26UNPD	Polishing
29UH6P	The area was rubbed down using fine sand paper and subsequently polished using a "dremel" device
2ANMZ3	Polishing
2QCVYL	I did a visual examination of the sample. I examined the obliterated area with magnets to determine whether it was magnetic or non-magnetic (ferrous or non-ferrous). I then subjected the obliterated area to hand sanding/polishing with varying grades of wet/dry sandpaper.
2T4WZ4	See if sample was magnetic. Light polish
2VAE2K	Dremel tool to file down the obliteration attempt at polishing. The[sic] began Acid Etching
2XC6JT	The sample was sanded by hand with the sandpaper.
2ZKEEB	Photography, Sanding, Steel wool
2ZX77R	The obliterated area was lightly polished to prepare the sample for recovery.
2ZXPTP	400 & 600 grit wet paper was used to remove mill marks & make smooth.
2ZXF2T	Light sanding.
37MXXL	Polishing with Dremel tool
3GW8ED	Sanding and polishing.
3JLDYB	Clean area with acetone, verify[sic] number, polish with fine grit sand paper.
3LRYMB	Polishing.
3QUBNM	Very light polishing.
432FCU	Cleaned the defaced area prior to processing.
44DBZ8	Dremel tool (polish) #44 disc
44Q7KA	Visual exam, light polish and chemical etching. Acetone applied prior to chemical etching.
44W23Z	Polishing with grinding wheel
47H23G	Visual examination using stereomicroscope, polishing to remove milling marks
4HQV8E	Sanding; Polishing
4PPPE8	The sample was photograph[sic] and the grind mark was traced by carbon and transparent tape. The sample surface was then clean[sic] with cotton wool soaked in AR grade acetone.
4Q4K88	Sanded smooth and applied Fry's reagent.
4TA6V8	oblique lighting, polishing
4TBEEK	Visual Examination.
4XL2QA	A small amount of polishing

TABLE 3

WebCode	Sample Preparation
63VL8E	Mechanical polishing techniques
66LP38	Polishing was used to remove prior obliteration starting with various grades of sandpaper and finishing with simichrome polish until the surface[sic] was smooth with all scratches removed
68LCHC	The place with dirt marked of the sample Item 1 was removed with the use of milling method. The material of the sample - Item 1 is magnetic. [sic]
6DYWJB	polished w/ Dremel tool until smooth. Cleaned w/ Acetone
6EPXKT	Sanding and polishing
6GAFHY	Surface of sample was prepared by small grinding tool and polisher.
6KEGJ2	Polish.
6KFAJV	Casting and sanding
6LTQUN	Manual polishing with coarse and fine sandpaper (emery) in the following order: 280/360/480/600/1000/1200/3-0/4-0 "paper of rose". Polishing with rotating tool (Dremel) + felt + cream "glass quality". Degrease with acetone.
6PCWF4	no surface prep
6RAY2E	None. Partial serial number was visible when received.
6T6JQY	The area was polished using fine sand paper (320 grit)
7CCFG9	I used the polish method with fine grit sand paper (#220) and then I cleaned the surface with SKC-HF (Cleaner/Remover).
7E6G7B	The area was cleaned with acetone and then visually inspected. The area was then gently polished with a fine grit dremel tool. Steel etching solution was gently applied with a swab.
7FE8RU	polished until smooth
7G8JNZ	Dremel polishing tool was used.
7NRLQV	Buffed w/ a rotary tool with a felt wheel.
7RUK7U	Lightly ground bar stock
7TN9NQ	The area in question was polished.
7UEAQ8	1) Light and magnification; 2) Acid Etching
7VR44M	No surface preparation was necessary prior to restoration.
8ANDTD	Sandpaper & Steel Wool
8EHC43	1) Light & magnification; 2) Polish by hand w/ sand paper; 3) Mechanical Polish by buffing wheel; 4) Sample cleaned prior to acid etching
8FXRFJ	Polished
8RMTRJ	Removal of mill marks w/ sandpaper and some steel wool
8VKX3X	The sample surface was prepared by means of grinding (sand paper and grinding tool was used) and polishing.
8WFJU4	First, the sample was cleaned with a delicate task wipe to remove any residual dirt that may have [sic], then I used a sandpaper to polish the area.
8XXL44	Polishing

TABLE 3

WebCode	Sample Preparation
8Z646K	The machine marks on the serial number area were smoothed with 320 and 400 grit emery paper prior to treatment.
8Z6W6D	Sanding (sand paper)
93VJP7	Acetone, Fine Sand paper.
93XP3Z	Polishing, fine sanding
9BD723	1. Buffed; 2. Cleaned w/ acetone
9CLV8E	The working surface was cleaned and polished.
9EWBJX	I used sandpaper to sand down and get a mirror-like finish. I then used Acidic Ferric, Fry's Reagent and Nitric Acid to retrieve the numerals.
9FAX6T	Water & Acetone were used to clean Item 1. The obliterated area on Item 1 was then polished with a 240 grit metal polishing wheel to a near-mirror bright finish.
9FQKC9	JKM C004 - Examination and Restoration of Erased Identification Markings.
9HFRW7	No polishing or other prior processing of sample was necessary.
9J8CWN	polished with motorized grinder
9LCNDJ	A #2 eraser was used to polish the obliterated area. Using side lighting several ghost fragments could be seen.
9M9YDT	Before the etching procedure the surface was abraded down by abrasives[sic] papers.
9N3487	a Dremel, a hand held rotary tool, was used prior to & throughout the restoration attempt
9TVQH2	Polishing with varying grades of sandpaper
9YNHWU	Polishing of the serial number site using an abrasive stone.
A3GQUA	1) mechanical polishing
A6QVAJ	I used 600 grit sand paper as well as steel wool to prepare the surface for restoration.
A8F3UF	Polish the cut out and tooled area of Item 1 with a fine grit Dremel tool wheel.
A8M8K4	a) Applying white spray color. b) grinding using gradation of 150, 400 600 gradation[sic] polishing using a lens shaped silicon polishing head, polishing using a felt cylinder and "liquid diamond"
AL6XLR	Polishing with sandpaper to remove milling marks
ATA9ZH	Polishing.
AUC3ZR	Metal surface polished smooth.
AYEWRX	Slight buffing was performed, followed by a series of chemical reagent applications
B2GTET	The surface cleaned of dirt. The area is photographed[sic]. The surface is polished with fine emery.
B3DRPR	Metal polishing
B4NLT7	Ex. 1 was polished
BHTLMB	Polished surface w/ dremel tool
BJKMNT	1) photoed[sic]; 2) visually and microscopically examined; 3) polished with a dremel tool; 4) chemically etched with 20% Nitric acid; 5) results photoed[sic]

TABLE 3

WebCode	Sample Preparation
BJY7AB	The surface of Item 1 was cleaned with a solvent to remove any foreign substances.
BPBZMV	Fine grit sandpaper, Polishing wheel
BW9QPX	First I took a picture of the sample, then I polished the area with a dremel tool to smooth it out. I took Nitric Acid and etched the area to see if anything happened. Then I cleaned the area with distilled water and used ferric chloride. Neither of those chemicals worked, so I used a stronger chemical, Turner's Reagent and Fry's Reagent to further etch the area where the serial number was.
BYE6L4	Sanding with a fine sandpaper and light grinding with a grinding wheel.
C2YE9A	Fine grit sanding by hand and with powered dremel tool with oil lubricant to smooth the obliterated surface.
C3MD3T	it has been magnified using a digital camera, after that different lights were applied on the bar with different angles and was wiped mechanically using sand paper, and finally a chemical mixture was used on the plate.
C8PQ47	Documented condition (including suspected obliteration method) and photographed. Found Item #1 is slightly magnetic.
CT386P	Polished with polishing wheel and polishing compound
CV8W8X	Magnetic attempt = no preparation[sic]; Chemical attempt = light sanding & polishing
CWJRUQ	Polished obliterated surface with Dremel & sand paper.
DP3UZH	Polishing.
DTCUXN	Polishing using sandpaper & dremel
DUAWRY	Microscopically examine for partial characters remaining visible. Solvent-wash (acetone) surface and microscopically examine again. Smooth surface with fine emery cloth. Wash and microscopically examine again. Determine magnetic properties (nil) and assess for optimal reagents to apply.
DV2XTF	Sanding obliterated area
E3F9FF	The suspected surface was polished with grinding paper till it became mirror-like.
EAEXUY	The methods used, polishing the surface on the same direction from obliterated area, after polishing, applied acidic cleaning the obliterated area.
EK3YYU	visual observation followed by a polishing of the obliterated area & check for magnetic properties
EQQJ3A	Polishing
EUL3KT	1. Description of the specimen. 2. Verification by inspection of ferrous magnetic. 3. Baker cleaning reagent. 4. Polishing with No. 400 and 600 sandpaper. 5. Application of metal particles in solution. 6. Magnetic field generation Magnaflux equipment
F49VP4	Mechanical polishing techniques
F7YYKV	Hand polishing with fine emory[sic] paper
FGYMCT	No smoothing or polishing was done
FLCCXM	polishing (dremel)
FX4Y4H	Buffing Wheel
FYCWUZ	I use[sic] a soft sandpaper, then I began to apply the different reagent.

TABLE 3

WebCode	Sample Preparation
FZD2XU	minimal amount of polishing with Dremel, case was documented w/ photography
G2LMWU	Item 1 was polished using a Dremel tool with an abrasive polishing wheel in preparation for chemical etching.
G9HBW7	The suspected area was polished with a medium (stone) wheel and steel wool.
GK8VWP	Examine the metal to see if any partial characters are visible.
GLNNTX	Polished obliterated area of Item 1.
GTAEGD	The item was polished with steel wool and wiped with paper towels.
HBNFPL	Polishing with a Dremel tool.
HPGB4R	The sample was cleaned, any remains of grease were removed, polished and the sample was then lacquered white to enhance contrast.
HRNM62	Clear[sic] the stainless steel bar with acetone.
HRQTKG	Image taken of stainless steel bar prior to preparation. Five grades of silicon-carbide paper 240-360-600-800-1200 to remove machining marks and bring the surface to a mirror finish. Acetone was used to clean the surface prior to the application of the reagent.
HZK8YM	Prior to attempts at recovery, the sample was viewed under a stereomicroscope in an attempt to see any digits which may not have been completely obliterated. The sample was then sanded with fine grit sandpaper, and then polished to a mirror-like finish.
J6WDEU	Item 1 was buffed prior to attempts to restore the serial number.
J77E3D	Buffing Wheel
J9A7CE	Slight polishing with emery paper
JA2Q2D	For both methods of recovering were used the following preparation: grinding and polishing.[sic]
JANMEK	Method 2 Version 1 - Cast of surface taken. Method 1 Version 2 - Preparation of surface. Method 9 Version 1 - chemical restoration of steel.
JCQY6M	we restored the serial number by using chemical etching.
JGAK2L	Light polishing of the area with a Dremel polishing attachment.
JH2L34	Light sanding with sand paper and smoothing with dremel tool.
JHJHQW	1. Determination of kind of method (ferro-magnetic stainless steel). 2. Polish the surface to a mirror-like finish by hand-held power tool as "Dremel" (grade 600).
JNK2HU	The suspected area of steel block was polished using a polishing wheel with a dremel tool
JVL97A	The obliterated area was prepared for processing by polishing using a polishing stone and a Dremel tool.
JVMXED	Polishing with fine sand paper
K7QDZC	Polished obliterated area using a dremel type tool.
KANUEQ	Scribed item for future recognition. Examined item documenting obliteration type, any observed marks, then measured and photographed the item overall and obliterated surface areas.
KEAFXR	The surface was cleaned with acetone, then, was lifted with Mikrosil® and graphite and finally returned to clean the surface with acetone.

TABLE 3

WebCode	Sample Preparation
KFQ77G	Area sanded to mirror finish using silicon paper 240-600-1250. Cleaned with Acetone to remove any debris
KHG8AK	dremel polish
KHHXJN	Polishing with a rotary tool.
KVZ9TQ	Visual examination using a magnifying glass.
L267TN	Surface was polished using sand paper.
L3XHDN	None. Sample already had a smooth and even surface.
L8A9YJ	light sanding, during restoration - lt. Dremel tool
LDEA2X	A dremel tool with a polishing wheel was used to polish the obliterated area.
LRXVKR	Area of obliteration was lightly polished with an abrasive impregnated rubber attachment on a Dremel tool in conjunction with the application of a light lubricant (Kroil). The area was then cleaned with an acetone-dampened cloth to remove the residue from polishing and any remaining lubricant prior to the application of acid solutions.
M8MKUT	The surface of the stainless steelbar[sic] was cleaned with acetone followed by treatment with emery paper (P400grade) to provide a smooth surface.
MACA9L	Polishing the sample with sandpaper on a dremel.
MGGTU6	Cleaning with sandpaper and acetone
MQ3WYJ	A Dremel tool with a fine sandpaper attachment and hand sanding with fine sandpaper.
MRUB8U	sanding, by hand (with sandpapers of 150, 220 and 400 grit). Followed by application of Fry's Reagent.
MUG7X3	I put my initials, date, test #, and item # on item #1 with blue ink. I then did a visual exam of item #1 which revealed no characters.
MUG8YN	1. Initial inspection of the serial number area. 2. Record the "as received" condition of the serial number area by stereo[sic] microscope. 3. The serial number area was cleaned with acetone. The serial number was polished with abrasive tool.
MUNRQH	The stainless steel bar stock was examined under low magnification (4x), lighting the surface of the bar stock at many different angles. No visible numbers were observed. The surface was not polished further with any abrasive - as the surface of the obliterated area was at a near smooth surface.
MVCRN9	Polished
MWLHNG	The surface was prepared with a polishing wheel on a Dremel rotary tool.
MX64KD	Grinding and sanding.
MZNDCCQ	Polishing of the suspected obliterated area and cleaning the surface with Acetone
N6B3AN	Visual examination and photography of the obliterated area, followed by initial application of Fry's reagent. Once reactivity was determined to be slow removal of metal, the area was rinsed and then polished using a dremel tool. The surface was cleaned with an acetone dampened cloth prior to further chemical testing.
N92KRU	The area of obliteration was sanded with sand paper before etchants were applied.
NA86FU	Circular/milled marks were removed using a Dremel tool and a fine bit till all marks were removed, and the area of the suspect obliteration was smooth.

TABLE 3

WebCode	Sample Preparation
NFH6TL	polish
NJVZEA	Wet and dry emery paper, coarse to fine grades (P180, 240 & 1000 grits) to a mirror finish.
NRUJZD	Method 1 Version 2.4 - cleaning & polishing. Method 2 Version 1.2 - casting prior to polishing.
NY7QBM	1. Visually examined and photographed as received. 2. Magnet and magnaflux application. 3. Cleaned surface and sanded with 240 grit sand paper.
NYPC4D	Polish with a dremel tool & use wet & dry sandpaper plus H2O.
P4THW4	The surface was polished with grinding paper of various sizes till the surface became a mirror like surface and all the scratches were removed.
P7Q4UM	Light sanding
PAPK4V	Mechanical polishing of Item 1 at the area of obliteration.
PJBLLQ	Polishing the surface using the Struers Transpol 2 portable grinding machine, applying 600 grit SiC grinding paper.
PLE2WW	"Dremel" tool with polishing wheel to polish the obliterated area.
PMWB74	The serial number area was prepared with sandpaper and steel wool. Fry's Reagent was then tested on a small corresponding area for verification, and then it was applied to the serial number area
PRRZRG	The area of metal containing evidence of obliteration was sanded with grades 80, 120, 150, 240, 420, 600 & 1000 Wet + Dry sand paper.
PTVJ8J	Fine grit sandpaper was used to polish the sample to a mirror smooth finish.
PWK2QB	Extra fine rubberized abrasive
Q8FW2B	The sample was polished.
Q8ZEJY	Ex #1 was photographed prior to restoration. The surface was smoothed with 400 grit sandpaper and then treated with etching solution
QBE92G	Polishing with Wet & Dry Paper followed by metal polish.
QBT2VT	The surface was cleaned with acetone, then, was lifted with graphite and finally returned to clean the surface with acetone.
QFAZ78	Polish obliterated area w/ Dremel tool and abrasive wheel
QHXT9X	Polishing with Dremel (hand held rotary tool).
QJP UAE	The piece of bar stock was polished with a dremel tool to remove/smooth out the surface prior to attempts at recovery. The piece of bar stock was also polished two additional times with the dremel to attempt to remove the deep gouge through the first and second number.
QKZ EQ9	Polishing of the surface using a Dremel tool with a sanding wheel.
QLVEYZ	Examination under a stereoscope, polish
QPFMKY	Polishing with flexible shaft abrasive wheel.
QRHP2N	None - it was decided that polishing was unnecessary.
QU9BVU	Cleaned with Acetone.
QUAQ6Q	The ground off area was pretreated with a dremel tool to smooth the are[sic] to a[sic] even mirrored surface.

TABLE 3

WebCode	Sample Preparation
QZDPGG	Cleaning with water and ethanol
RC8JCB	Emery grade 600 sand paper was used to smooth out milling marks prior to recovery.
RK2ENM	Polishing
RLEWUE	Sanding of obliterated area; Processed w/ Magnuflux[sic] & a magnet
RPACK7E	Magnetic Attemp[sic] - Polish - Magnetic And Acid
RQ46UT	1st place small drops of 3 in 1 multipurpose oil on the area to assist in reading the numbers that were visable[sic]. Than[sic] polished the area to a mirror finish
RRJV64	Sanding w/ sandpaper
T7WN92	Polishing
TAWYZU	The abraded surface of the metal bar was sanded with very fine paper to smooth the abraded surface.
TFLGFQ	I used the Dremel (Cratex wheel) and sand paper.
TJ4ZLA	Visual/stereoscopic examination, Photographic examination, Sanding/polishing with a Dremel
TLMACM	None. A partial serial number was observed when I visually examined Exhibit 1
TMLV8K	Dremel tool with sanding disk attachment, coarse and fine sand paper.
TNCW92	In accordance with our technical procedures, the surface was not prepared prior to using magnetic particle inspection (MPI) with Magnaflux. If the visualization of the serial number had not been possible without surface preparation, I would have sanded the surface and reattempted visualization with Magnaflux.
TRX6GW	Photographs of the item were taken
U9DGBE	None for magnetic, light sanding and buffing with rubberized rotary wheel.
U9U8AK	None. Partial serial number was visible.
UAPTY6	The exhibit was lightly sanded/polished with fine grit sand paper.
UC2N4N	Light sanding
UCFWTX	light sanding
UE8ARN	A Magnaflux attempt was made without sample preparation[sic]. Subsequently, a hand held rotary tool was used with a polishing wheel to prepare sample.
UF3QBD	Sanding with both 400 grit sandpaper and a dremel tool equipped with a polishing wheel were used to prepare the sample.
UN6Q7R	The piece of metal was first checked visually to see if any numbers were visible. Different acid strengths were tested to see which would work better
UNRFQD	I sanded by hand, using water to lubricate the abrasive paper and substrate surface. I began using a rough '80' grade paper and sanded in one direction, perpendicular to the deepest marks, until most markings followed the line of sanding. I then changed to a finer grade of paper in the following order (120, 240, 400, 600, 1200) until the surface was polished to a mirror-like finish.
UYQ92P	Hand sanding with sand paper of coarse, then fine grit.
V8HZYH	Surface was sanded with 220, 320, then 400 grit paper.

TABLE 3

WebCode	Sample Preparation
VBEJLV	Just a light buff to smooth the area.
VEZJZW	The serial number area was sanded by wrapping various ascending grits of sand paper around a flat file and sanding while Item 1 was secured in a bench vice. Steel wool was used as a final polishing media.
VT2Z9J	Method #1: Visual examination. Method #2: Light sanding with sandpaper. Method #3: Polish with dremel.
VYN7M6	Surface was sanded smooth.
VZDZ3F	Before this analysis the surface was observed to verify if some number were seen and soon it were come to polish it to begin to recover. [sic]
W8W7BD	The sample was emiered[sic] using an emery cloth.
W99ZEM	The area was photographed and then lifted with graphite and cleaned with acetone to remove impurities.
WD6GT8	Magnetic Particle Inspection
WMTA3H	Item #1 was photographed and polished to remove milling marks.
WQALXE	Polishing, cleaning with acetone.
WV3G3R	I polished the obliterated area with a rotary hand tool.
X4QUDC	Polishing
X982X6	The sample was photographed as received. Use of a magnet revealed the test plate was non-ferrous. The obliterated area was lightly polished with a cloth wheel treated with Flitz Polish. The plate was then cleaned with Acetone.
XDGKWX	polished with emery wheel
XL9EYG	Obliterated area was carefully grinded with a dremel tool to remove most of the obliteration marks, then lightly sanded with fine grade sand paper as necessary to polish the obliterated surface. This area was also examined for any digits recovered from the above physical method.
XPW3WG	visual, sanding
XRV9PM	The area was photographed and then polished with No. 600 sandpaper
Y3BWG7	The obliterated area was smoothed with an abrasive wheel.
YNEMRE	Prior to etching, the Item was wet sanded with 200/400/600 grit wet/dry sand paper and water.
YNVTYG	To prepare the sample I simply applied a magnet to the sample and observed that the sample was slightly magnetic.
YQKZJE	The item was polished using fine sandpaper, and buffed using a Dremel tool.
YRNJ32	Dremel tool with Gratex wheel (rubber with abrasive) and cloth tips with polish to remove the toolmarks and bring the surface to a mirror like smoothness. Cleaned with Acetone to remove any polish and oils. Etched with chemical reagents to restore the numbers.
YT8MC2	Lightly ground toolmarked surface w/ Dremmel[sic]. Also used a fine polishing cloth during restoration.
YT8RG3	Clean bar stock with a cloth + brake cleaner solution. Prepared surface by polishing ground area with water and a fine wet/dry sandpaper (1200).

TABLE 3

WebCode	Sample Preparation
YVQFRW	Polishing 600 grit sandpaper
Z2EVWZ	Numbers 400, 600, 800 and 1000 sandpaper were utilized to remove the milling marks from surface. Steel wool were then used to polish the area.
Z2XQCF	Polishing
Z43VWP	To prepare the sample prior at recovery, we had to polished this surface, then get was removed with acetone. [sic]
Z6UWW8	1. Description of the specimen. 2. Verification by inspection of ferrous magnetic. 3. Baker cleaning reagent. 4. Polishing with No. 600 sandpaper. 5. Application of metal particles in solution. 6. Magnetic field generation Magnaflux equipment
ZMFUHD	The sample was cleaned with solvent.
ZNTJKQ	polish
ZTLPYR	Surface of metal bar was sand papered (400 grit) then cleaned with alcohol prior to use of frys[sic] reagent.
ZVBWLA	A dremel was used to polish the obliterated area before chemical processing.
ZWMDW3	Pictures taken before any operation; Examination of the item with a magnifying binocular; Polishing of the obliterated surface

Recovery Methods

TABLE 4

WebCode	Recovery Methods
23N89A	Cupric Ammonium Chloride, 8 minutes
26UNPD	Fry's Reagent, 10 min
29UH6P	10% HCl in ethanol, 15 mins; Fry's reagent, 5 mins
2ANMZ3	Turner's (wiped on with cotton swab), a few seconds; Fry's (dropped on with a pipet, then wiped with a cotton swab), 30 second intervals, multiple times; 25% Nitric Acid (wiped on with cotton swab), 10 seconds
2QCVYL	Polish/Etch (Davis' Solution) - Total time - 1 hr 26 mins, 1-2 mins at a time; Polish/Etch (Frye's[sic] Solution) - Total time - 46 mins, 1-2 mins at a time
2T4WZ4	Polish; Fry's[sic], hours; Nitric acid, minutes[sic]
2VAE2K	Acid Etching with Acidic Ferric Chloride, total 20 min
2XC6JT	We examined the sample under different play of light and noticed what might emerge. We then used acidic method (solution made with 65g copper chloride, 180g hydrochloric acid and 100 ml distilled water). Only two wiping up require[sic]
2ZKEEB	Fry's Reagent, 4-10 min; Turners[sic] Reagent, 2 min; Nitric Acid/Phosphate, 30 sec
2ZX77R	Magnetic Particle Imaging
2ZXPTP	Fry's etchant was applied with cotton tip swabs, about 30 minutes
2ZYF2T	chemical: Frye's[sic] Reagent, ~1 min; Ferric Chloride, ~1 min; Acidic Ferric Chloride, ~1 min; 10% Chromic Acid, ~1 min
37MXXL	6 coats of Fry's solution were applied each for about 1 minute and then washed off until numbers were visible
3GW8ED	Fry's Reagent, About 15-20 min.
3JLDYB	Acid Method - Fry's Reagent, .35 Minutes
3LRYMB	Fry's Reagent, 3 minutes
3QUBNM	Fry's Reagent was swabbed over area, ~15 min.
432FCU	Magnaflux - Magnetic Particle
44DBZ8	Polish - Dremel; Magnaflux/Magnet - preliminary; Fry's Reagent 100% - 5 min.; Sodium Hydroxide 10% - contrast, 2 min.
44Q7KA	Visual, 10 min; Polish, 15 min; Sodium Hydroxide, 20 min; Nitric Acid, 20 min; Fry's Reagent, 20 min
44W23Z	Ferric Chloride, 10 min processing; Nitric acid, 1 minute
47H23G	magnaflux
4HQV8E	Fry's Reagent, 10-30 sec.

TABLE 4

WebCode	Recovery Methods
4KE3UW	Magnetic Method. (It took 5 seconds)
4PPPE8	Electrochemical etching using ammonium chloride solution
4Q4K88	Fry's, 5 mins
4TA6V8	Cupric chloride, 10-15 min
4TBEEK	Sanding; Fry's Reagent, 1 min; Acidic Ferric Chloride, 2 min
4XL2QA	Magnaflux
63VL8E	Magnetic particle restoration
66LP38	Chemical restoration procedure using Aqua Regia, 2 minutes
68LCHC	The method with the use of the constant - magnetic detoscope[sic] and magnetic powder, 5 min; The method with the use of the reagent adding - Adler, 10 min
69LUIZ	[No recovery methods reported.]
6DYWJB	Alternating Acid/base (25% Nitric, Frye's[sic] reagent, NaOH), <1 min
6EPXKT	Magnetic Particle Inspection (MPI)
6GAFHY	During the examination was used acid etching method, 30.[sic]
6KEGJ2	Magnetic method; Acidic method, sev. seconds/application
6KFAJV	Etching, 5 mins
6LTQUN	Fry[sic] reagent, 6-7 min; Polishing (1200 -> "paper of rose" & rotating tool & acetone[sic]); Fry[sic] reagent, 4-5 min; +HNO3 (20% 3-4 drops), 1-2 min; Drying -> polishing -> Fry[sic] reagent -> picture
6PCWF4	Magnetic Particle Method; Acid Etching - Fry's Reagent, less than 1 min.
6RAY2E	Magna Flux, 1 min; Davis, 3-4 min; Turner, 3-4 min; Fry, 2-3 min
6T6JQY	Diluted Fry's Reagent was applied numerous times w/ a swab, ~20 mins Total
7CCFG9	Magnetic Restoration Method: 1) Prepared Bath 9 CM; 2) Prepared Bath 7HF
7E6G7B	Frye[sic] Reagent[sic] Steel chemical etching solution, 4 min.
7FE8RU	Davis Reagent (swabbed), 2-5 seconds; Turner's Reagent (swabbed), 2-5 seconds; Fry's Reagent (swabbed), 2-5 seconds
7G6BML	[No recovery methods reported.]
7G8JNZ	Fry's reagent, seconds; Turners[sic] reagent, seconds
7NRLQV	Fry's reagent, less than 5 min.
7RUK7U	Grinding then acid etch using Fry's Reagent - 2 hrs total

TABLE 4

WebCode	Recovery Methods
7TN9NQ	Acidic Ferric Chloride, Swiping 1-2 min; 10% Sodium Hydroxide, Swiping 1-2 min; Fry's Reagent, Swiping 1-2 min; Acidic Ferric Chloride, Swiping 1-2 min; Fry's Reagent, Swiping 1-2 min
7UEAQ8	Acid etching was applied and removed numerous times, 1-2 minutes each time.
7VR44M	Electrochemical Treatment, 10-15 minutes
8ANDTD	Turner's Reagent, 1 min; Fry's Reagent, 10 min
8EHC43	Acid etching applied and removed various times; Polished & retested, approximate time spent 1¼ hours.
8FXRFJ	Fry's reagent
8RMTRJ	Sandpaper (320); Davis/Turner, ~1 min; Turner/Fry's, ~5-7 min
8VKX3X	Chemical etching, 20 minutes
8WFJU4	The method that were[sic] used during examination was the chemical restoration process (acidic method). The Acid[sic] that were used: a- Fry's Reagent, 4 minutes; b-Acidic Ferric Chloride, 1 minute
8XXL44	Mixed Acid, 30 sec; Nitric Acid, 30 sec; Fry's Reagent, 5 sec
8Z646K	Davis' Reagent, 5 min.; Turner's Reagent, 10 min.; Fry's Reagent, 2 min.; Turner's Reagent, 10 min.; Water wash and oil
8Z6W6D	Acidic Ferric Chloride, few minutes
93VJP7	Chemical reagent Frys[sic], 5 minutes
93XP3Z	Visual exam; Fry's Reagent, 3-4 min.
9BD723	Applied acid etching numerous times, 15-20 seconds.
9CLV8E	1°. - Non destructive method. Electromagnetic system with ferrous particles (Magnaflux). 2°. - Destructive. Chemical reagents specific for ferrous metals, Few minutes.
9EWBJX	Chemical Etch; Acidic Ferric, 5 min; Fry's Reagent, 2 min; Nitric Acid, 30 sec; Fry's Reagent, 2-3 min; Nitric Acid, 30 sec; Fry's Reagent, 2 min
9FAX6T	Chemical Restoration Method - Fry's Reagent, 50 minutes
9FQKC9	1) Chemical treatment using 5% Sodium Hydroxide Solution for 15 minutes and followed by, Electrochemical treatment using Cupric Ammonium Chloride Solution for 8 minutes
9GW7Z9	Electrochemical treatment, 3 hours
9HFRW7	Magnetic Particle Inspection
9J8CWN	magnaflux
9LCNDJ	Magnetic Restoration, 5 sec.; Total serial number could be read "082483"
9M9YDT	electrolytic process of etching with Fry reagent, 10 min

TABLE 4

WebCode	Recovery Methods
9N3487	Fry's Reagent + Davis' Reagent, 1 minute each; 10% Nitric acid, 5 minutes; 30% Nitric acid, 10 minutes; Turner's Reagent, Dremel, Turner's Reagent, 10 minutes, 3 minutes, 5 minutes; Acidic Ferric Chloride, 20 minutes
9TVQH2	Magnaflux (with black bath); Acid etching (with Frye's[sic] reagent), 5-10 minutes
9YNHWU	Polishing with abrasive stone, 30 mins; Fry's Reagent, 6 hrs.
A3GQUA	Magna Flux
A6QVAJ	Fry's reagent (numerous applications followed by a water wash), 12 min total
A8F3UF	Apply Fry's reagent, 15 Minutes
A8M8K4	magnet stray method; Applying a solution according to "Fry" for 3x2 min., 3x1 min. and 1x2 mi[sic], 11 minutes; After each application the sample was cleaned using a paper towel; After the 3rd, 5th and 7th application the sample was cleande[sic] using 3% ethanolic nitric acid
AL6XLR	First attempt = Magna Flux; Acid etching (Frye's[sic] reagent), One hour; Second attempt = Magna Flux
ATA9ZH	Fry's Reagent, material was worked for 30 minutes
AUQ3ZR	Application of Fry's Reagent, 15 minutes.
AYEWRX	chemical - 25% Nitric Acid, ~2 min; chemical - Davis, ~4 min; chemical - Turner, ~ 2 min; chemical - Fry, ~5 min
B2GTET	The surface is polished with fine grade emery, 3-5 minutes; Etching solution applied with a cotton swab, 3-5 minutes (25 gr Fe Cl3+25ml Hcl+100 ml water)
B3DRPR	Polishing, Restore-A-Gel for steel, Total Time = 5 hours
B4NLT7	Chemical Fry's reagent, 1 min.
BE9W3X	Swabbing with etching Acids - Dilute Fry's, not left on (ponded)
BHTLMB	1) Magnet w/ Magnaflux 9cm prepared bath; 2) Magnaflux + Bath; 3) Nitric Acid, <1 min; 4) Davis' Reagent, <1 min; 5) Turner's Reagent, <1 min; 6) Fry's Reagent, multiple applications + rinses, up to approx. ½ hour
BJKMNT	Chemical etching with 20% Nitric acid using swabbing technique, 2 minutes
BJY7AB	Magnetic Particle Inspection
BPBZMV	Turner's Reagent, ~1 minute; Fry's Reagent, ~1 minute; Nitric Acid, <1 minute
BW9QPX	Polishing; Nitric Acid, 5 minutes; Ferric Chloride, 8 minutes; Turner's Reagent, 4 minutes; Fry's Reagent, 4 minutes.
BYE6L4	magna flux
C2YE9A	Light Sanding; Magnetic Particle Inspection
C3MD3T	[No recovery methods reported.]

TABLE 4

WebCode	Recovery Methods
C8PQ47	Black Magnaflux (Magnetic Particle Inspection)
CE3XLU	Visual examination; Chemical treatment, Approx. 10 min.
CT386P	Chemical Etching - Ferric Chloride; Chemical Etching - Acidic Ferric Chloride, ~2 min (multiple applications of ~2 min each)
CTFW7G	Electrochemical etching using cupric ammonium chloride solution, 5-10 minutes
CV8W8X	Magnaflux; Chemical (Fry's Reagent), max. 5 min.
CWJRUQ	Fry's Reagent, ~2 mins; Polish; Fry's Reagent, ~4 mins
DP3UZH	Fry's Reagent, ~1½ min; Polish; Fry's Reagent, ~2 min
DTCUXN	Davis Reagent, ~10 secs; Turner's Reagent, ~10 secs; Fry's Reagent, 10-20 secs
DUAWRY	Microscopic exam before and after surface cleaning and polishing; Turner's Reagent, 10 minutes; Davis' Reagent, 10 minutes; Ferric Chloride in conc. HCl, 10 minutes; Fry's Reagent, 30 minutes
DV2XTF	Davis; Turners[sic]; sanded; Fry's; sanded; Fry's
E3F9FF	After the surface was polished, it was treated with acid ferric-chloride solution for the restoration of the serial number, the acidic solution was placed for about two (2) hours.
EAEXUY	Polishing area, 2 minutes; Acidic Method (Fry's Reagent), 15 minutes; Acidic Method (Turner's Reagent), 15 minutes
EK3YYU	Davis, ~2 min; Turner's, ~2 min; Fry's, ~2 min; Fry's, ~2 min
ENZK4	Electrochemical etching using Cupric Ammonium Chloride solution, 10-15 minutes
EQQJ3A	Polishing; Magnaflux; (Polishing/Magnaflux repeated twice)
EUL3KT	Magnetic method (Magnaflux)
F49VP4	Magnetic particle restoration/photography
F7YYKV	Polishing; Acid Etch w/ Fry's Reagent, ~ 5 minutes
FGYMCT	Fry's & modified Fry's used & not ponded
FLCCXM	Chemical - Fry's Reagent, <1 minute total time; Chemical - Davis Reagent, <1 minute total time
FX4Y4H	Fry's Reagent, 4-5 min; 25% Nitric Acid, 2-3 min
FYCWUZ	Fry's Reagent, 5 minutes; Turner Reagent, 2 minutes
FZD2XU	10% NaOH, swabbing only; Ferric Chloride, swabbing only; Acidic Ferric Chloride, swabbing only; Nitric Acid, 25% (to clear things up), swabbing only
G2LMWU	Acid etch with several applications of Fry's Reagent, ~10 minutes
G9HBW7	Magnetic Particle Restoration.

TABLE 4

WebCode	Recovery Methods
GK8VWP	Use Davis reagent, about 10 minutes; Use Davis reagent with electricity (6V), about 5 minutes
GLNNTX	Magnaflux
GTAEGD	Magnetic Particle Inspection
HBNFPL	Acid Etch Method (Fry's, Turner's, 50% HCL Acid and Acetone), ~30 Minutes
HPGB4R	Magnetic Particle Method
HRNM62	1) electrochemical etching using Cupric Ammonium Chloride solution
HRQTKG	Used acidic method, Fry's Reagent, appeared within 1 minute, left for 15 minutes; Stopped re-action with water and preserved numbers with gun oil.
HZK8YM	Davis Reagent, used cotton swab; Turner's Reagent, used cotton swab; Fry's Reagent, used cotton swab.
J6WDEU	Acidic Ferric Chloride, <1 min.; Nitric Acid, <1 min.; Fry's Reagent, <1 min.
J77E3D	Fry's Reagent, ~5 minutes
J9A7CE	Magnetic particle; Ferric Chloride in concentrated HCl, 15 min; Fry's Reagent, 1 hour
JA2Q2D	1) wet magnetic particle inspection (MPI); 2) Fry reagent, 10 min; Mayer-Eichholz reagent, 5 min; Adler reagent, 30 sec
JANMEK	Method 9 Version 1 - (fry's[sic] reagent) for chemical restoration of steel, approx 2 hrs.
JCQY6M	chemical (fry solution no: 1)
JGAK2L	Fry's Reagent, not measured; 25% Nitric Acid, not measured
JH2L34	Frys[sic] Reagent, <5 minutes
JHJHQW	Chemical and electrolytic methods: Fry's reagent, Total 15 min; DC power supply (12.5V); Running water to stop process.
JNK2HU	Once the steel block was polished smooth, I treated the area with modified frys[sic] reagent for several minutes. Then treated the area with a 20% HNO3 solution for 1 minute. I repeated the acidic method previously explained twice more until the number was recovered.
JVL97A	Magnetic Particle Inspection (Magnaflux)
JVMXED	Chemical Etchant - Acidic Ferric Chloride, unknown*
K7QDZC	Fry's Reagent (cupric chloride/hydrochloric acid/water), 30-60 seconds
KANUEQ	Applied swabs of Modified Fry's, approx. 4 min.; Smooth surface with dremel tool, approx. 20 sec.; Applied alternating swabs Modified Fry's & 20% Nitric Acid, approx. 10 min.
KEAFXR	Magnetic restoration (Magnaflux ®), 3 min
KFQ77G	Fry's Reagent, 27 min

TABLE 4

WebCode	Recovery Methods
KHG8AK	Magnetic restoration using Magnaflux; polishing using dremel tool; Fry's Reagent, ~15 minutes
KHHXJN	Chemical Etching with Acidic Ferric Chloride, ~15 mins.
KVZ9TQ	1. Acid electrochemical treatment using cupric ammonium chloride solution as the etchant. 2. 6 V battery connected to plate at one end and a cotton swab at the other end. 3. Apply steady stroke with swab using the etchant, Etchant not left on material. Process took 1-2 minutes. 4. Wash away etchant with water.
L267TN	Acid etching, ~10 minutes
L3XHDN	Magnetic Particle Inspection (MagnaFlux)
L8A9YJ	Turner's; Fry's; Acidic Ferric Chloride; Nitric Acid; 10% NaOH, all 1 to 3 seconds per swipe
LBFA38	Magnetic particle inspection (MPI)
LDEA2X	Fry's reagent (lot # FRY040411T118), approx. 5 minutes
LRXVKR	Turner's Reagent, 1 minute; Fry's Reagent, 2 minutes
M8MKUT	Acidic method - Turnes[sic] Reagent, 10 minutes; Acidic method - Acid, Copper II sulphate, 10 minutes; Acidic method - Fry's Reagent, 10 minutes
MACA9L	polishing; acid etching (Frye's[sic] reagent), ~10 mins; magnetic (magnet + THF magnaflux)
MGGTU6	Several applications of acidic method, 2 hours
MQ3WYJ	1) Ferric Chloride; 2) Acidic Ferric Chloride; 3) 10% NaOH; 4) 10% Nitric Acid; 5) 25% Nitric Acid; 6) Davis Reagent; 7) Turner's Reagent/25% Nitric Acid
MRUB8U	sanding; Fry's reagent, 1-3 minutes, per swab
MUG7X3	Polished -> no characters visible; Applied 20% nitric acid and acidic ferric chloride interchangeably to the obliterated area with cotton tipped swabs, chemical application took ~ 2 hrs.; "Rem oil" was placed on item #1 after restoration was complete to stabilize the chemical reaction
MUG8YN	Turner's Reagent (chemical), 20 min.; Turner's Reagent (chemical), 15 min.; Turner's Reagent (chemical), 15 min.; Turner's Reagent (chemical), 5 min.; Turner's Reagent (chemical), 5 min.
MUNRQH	Diluted Fry's Reagent was applied to the surface and wiped away, 1 min intervals x 5; Wiped away Fry's Reagent & applied a sodium bicarbonate solution; Re-application of Fry's reagent, 1 min intervals x 5; Above methods repeated until number recovered, Total time ~ 1 hour
MVCRN9	Magnetic
MWLHNG	Magnetic Particle Inspection; Davis' Reagent, 2 minutes; Fry's Reagent, 15 minutes
MX64KD	Grinding & Sanding; 25% HNO3, seconds to minutes; FeCl3, seconds to minutes; Acidic FeCl3, seconds to minutes; 10% NaOH, seconds

TABLE 4

WebCode	Recovery Methods
MZNDCCQ	Magnetic Particle Inspection Method
N6B3AN	Fry's Reagent, ~4 minutes
N92KRU	Fry's Reagent, 3-5 minute intervals; Acidic Ferric Chloride, 3-5 minute intervals; Sodium Hydroxide, 30 second intervals; water used between application intervals
NA86FU	Dremel till smooth; Dilute Fry's Reagent, worked with cotton swab, repeated several times, <2 minutes; More concentrated Fry's Reagent, worked with cotton swab several times, <2 minutes
NFH6TL	Fry's reagent applied and wiped with cotton swab, 30 seconds at a time and wiped
NJVZEA	Applied Fry's Reagent & Nitric Acid, reapplied 4 times, 90 secs each chemical. Washed with water and reapplied Fry's Reagent & Nitric Acid 6 times, 45-90 seconds each (Cotton bud used to dry surface between applications.)
NRUJZD	Method 9 Version 1 - Chemical Etching using Fry's Reagent, 2 hours
NY7QBM	1. Magnaflux; 2. Fry's Reagent, ~10 min.; 3. Davis Reagent, ~10 min.; 4. Turner's Reagent, ~10 min; 5. Nitric Acid, ~5 min
NYPC4D	I used chemical etchants: Ferric Chloride, till it dried; Nitric Acid, Acidic Ferric Chloride & Fry's scrubbed back & forth with the etchant on a cotton swab.
P3QU4E	Visual Examination and MPI
P4THW4	The method used to recover the obliterated number was treatment with the "Acidic Ferric Chloride Solution" of the suspected surface, the solution was placed for about 1.5 hours and constantly observed until the digit were recovered.
P7Q4UM	Fry's Reagent, ~20 min
PAPK4V	Mechanical Polishing; Magnetic Particle; Davis Reagent, 5 Min.; Fry's Reagent, 3 Min.; Turner's Reagent, 5 Min.
PJBLQ	Polishing (see above), 1 minute; Electrochemical etching, using the Fry's Reagent, 10 minutes (*); Contrast solution (10% HNO3), 2 minutes (*); Acetone (for cleaning the surface following restoration), 1 minute
PLE2WW	Fry's Reagent, ~ 4 minutes
PMWB74	sand paper; steel wool; Fry's Reagent, ~3 min.
PR6B4A	Chemical etching with Fry's reagent, ~20-25 min.
PRRZRG	Wiping with 25% Nitric acid, wiped off after few seconds; Pooling with 25% Nitric acid, up to 30 seconds; Wiping with "Fry's" reagent (CuCl2, HCl, H2O), wiped off after few seconds; Pooling with "Fry's" reagent, up to 30 seconds.
PTVJ8J	Magnetic Particle Restoration; Chemical Restoration, 10 min.
PWK2QB	Fry's Reagent, about 30-60 seconds
Q8FW2B	Magnetic testing; Fry's Reagent, 30 Minutes; 25% Nitric Acid Reagent, 15 Minutes

TABLE 4

WebCode	Recovery Methods
Q8ZEJY	Etching Solution #2 (Frys[sic]), 2½ hrs total
QBE92G	Wiping with Fry's Reagent, 1-2 minutes
QBT2VT	Magnetic restoration (Magnaflux ®), 1 min; Heat, 1 min; Solution of HCl/HNO ₃ , 1 min; Water/acetone/polished; Magnetic restoration (Magnaflux ®), 1 min
QFAVXQ	MPI (magnetic particle inspection)
QFAZ78	Magnetic particle inspection; Acid (Griffin's reagent), <5 minutes
QHXT9X	Steel No. 2: Etchant, 5 min; Steel No. 3: Etchant, 2 min
QJPUAE	Davis, ~20 min total; Turner, ~20 min total; Fry, ~30 min total; Nitric, ~30 min total; Fry/Nitric, ~20 min total; Fry + Electrolytic, ~30 min total
QKZEQ9	Ferric Chloride, ~5-6 min; Acidic Ferric Chloride, ~46 min; 25% Nitric Acid (for highlighting), ~30 sec.
QLVEYZ	Acidic Ferric Chloride, ~5-20 minutes/step
QPFMKY	Fry's Reagent, multiple applications, ~15 min. total
QRHP2N	Swabbed with acids "Fry A + B", multiple application; HCl/cupric chloride + HN ₃ , ~5 secs each; Acetone to clean surface after restoration.
QU9BVU	Fry's Reagent, 30 mins; Acidic Ferric Chloride, 45 mins
QUAQ6Q	Commercially prepared acidic solution for aluminum, 5 mins; Fry's solution, 2 mins; Hcl Solution, 10 mins
QZDPGG	Etch with 50% nitric acid twice (quenching with water in between), 10s; Etched with 50% nitric acid thrice (quenching with water in between), 20s; Etch with Fry's reagent thrice (quenching with ethanol), 10s; Etch with Fry's reagent twice (quenching with ethanol), 15s; Etch with Fry's reagent ten times (quenching with ethanol), 10s
RC8JCB	Chemical Etching method was used. Alternate swabbing of 25% HCL and 10% FECl ₃ , Approx 30 sec
RK2ENM	Polishing; Fry's Reagent - multiple small applications, approx 30 mins
RLEWUE	Magnuflux[sic] & Magnet
RPCK7E	Magnetic; Acid, seconds -> minutes
RQ46UT	Chemical Etching: Acidic Ferric Chloride, ~10 sec
RRJV64	Acidic Ferric Acid, 15-20 seconds w/ each swab
T7WN92	Polishing; magnetic particle inspection; chemical solution (Fry's Solution), about 1/2 hour
TAWYZU	Chemical etchings using Acidic Ferric Chloride and washed with de-ionized water after each etching, five one minute etchings; Chemical etching using Acidic Ferric Chloride and washed with de-ionized water after each etching, six five minute etchings.
TFLGFQ	Davis Reagent, 35 seconds; Turner's Reagent, 3 minutes; Fry's Reagent, 1-2 minutes

TABLE 4

WebCode	Recovery Methods
TJ4ZLA	Davis Reagent, ~10-15 sec.; Turner's Reagent, ~10-15 sec.; Fry's Reagent, ~ 5 min.
TLMACM	Visual; Magnaflux[sic] Red; Davis' Reagent, 5 to 6 minutes; Truner's[sic] Reagent, 5 to 6 minutes; Fry's Reagent, 8 to 10 minutes
TMLV8K	Phosphoric/nitric acid & Fry's solution, ~1 min; Fry's solution, ~1 min
TNCW92	Magnetic Particle Inspection (MPI) with Magnaflux
TRX6GW	magnetic particle method; magneto-optical method
U6GJDA	magnetic particle
U9DGBE	Magnetic; Frye's[sic], 15 minutes
U9U8AK	Magnaflux; Davis, 2 Minutes; Magnaflux; Turner, 3 Minutes; Fry, 3 Minutes
UAPTY6	Sanding/Polishing; Davis Reagent (w/ cotton swab), seconds; Turner's Reagent (w/ cotton swab), seconds; Fry's Reagent (w/ cotton swab), seconds
UC2N4N	Black Magnaflux; Red Magnaflux; Fry's Reagent (Wiped), 1-2 seconds
UCFWTX	Chemical: FeCl ₃ , ~1 min.; Acidic FeCl ₃ , ~ 1 min; 10% Chromic Acid, ~ 1 min
UE3UJU	magnetic flux - red
UE8ARN	Magnaflux - Black; Turner's reagent - continuous swabbing, approximately 5 min - Twice; 10% NaOH - Continuous swabbing, approximately 5 in[sic]; Fry's reagent - Continuous swabbing, approximately 10 min; Magnaflux - Red
UF3QBD	Fry's reagent, 2-3 minutes; 10% sodium hydroxide, 1 minute; Fry's reagent, 1 minute
UN6Q7R	used sand paper to smooth out surface then used two different acids, 40 min; area was photographed; area was sealed with sealer
UN6X7X	Electrochemical process, 20 minutes
UNRFQD	10% nitric acid, applied directly (x 10), <5 seconds; Frys[sic] reagent, wiped over surface (x 8), ~3 seconds; Frys[sic] reagent, applied directly (x 2), ~5 seconds
UXQ2BC	Magnetic (Magnaflux)
UYQ92P	Chemical etch: Acidic Ferric Chloride, 4 hours; Sodium Hydroxide (10%), 10 min; Nitric Acid (25%), 5 min
V2E8Q8	Magnaflux - magnetic method; Fry's Reagent; 25% Nitric Acid; 50% Nitric Acid
V8HZYH	Magnetic particle, on unprepared surface; Magnetic particle, on prepared surface; Chemical etching with Fry's reagent (repeated applications), 1 - 1½ hours; Magnetic particle, between applications of Fry's reagent
VBEJLV	Acidic Ferric Chloride @ 15-20 sec.; 2 step Acid @ 30 sec.; Fry's Reagent, swabbed immediately; Nitric Acid, swabbed immediately
VEZJZW	Turner's and Fry's reagents were used by swabbing w/ cotton tipped applicators, 15 to 30 seconds

TABLE 4

WebCode	Recovery Methods
VT2Z9J	Acidic Method (25% Nitric Acid), 5 minutes; Acidic Method (Acidic Ferric Chloride), 5-10 minutes; Acidic Method (Fry's Reagent), 5 minutes
VYN7M6	Acidic method, 10 minutes.
VZDZ3F	Acidic Method (Fry's Reagent), 3 minute
W8W7BD	Chemotechnical etching using solutions containing hydrochloric acid, copper chloride and distilled water (2 solutions with different concentrations), 30 min.
W99ZEM	Magnetic restoration (Magnaflux ® 7HF y 9CM), 1 min
WD6GT8	Visual Examination; Magnetic Particle Inspection
WMTA3H	Chemical etchant (Acids & Base), wiped on and off with swab
WQALXE	Fry's Reagent, ~10 mins. total - left reagent on for 30-45 secs at a time, followed by repetitive[sic] swiping with swabs
WV3G3R	Fry's Reagent, <1 min; Griffin's Reagent, <1 min; Alternating Fry's/Griffin's, ~3 min
X4QUDC	37% HCl with CuCl ₂ , 8 hours
X982X6	Etched with Acidic Ferric Chloride, Approx 3 minutes; Etched with 25% Nitric Acid, Approx 2 minutes; Water rinse; Etched with Fry's Reagent, Approx 5 minutes; Water rinse
XDGKWX	HNO ₃ /HCl/Glycerol, 1 min; Acidic Cupric Sulfate, 10 min; Fry's Reagent, 10 min; 10% NaOH, 1 min; 25% Nitric Acid, 1 min
XL9EYG	Physical grinding and sanding of surface. Chemical restoration using Fry's reagent, less than 15 minutes
XPW3WG	acid etch, Fry's
XRV9PM	Magnetic restoration (Magnaflux ®); Solution of HCl and HNO ₃ , 5 min; Fry reagent[sic], 3 min; Davis reagent, 2 min
Y3BWG7	Acid Etch Ferric Chloride, 2 - 3 minutes; Acid etch Nitric Acid, 2 - 3 minutes; Acid etch Fry's Reagent, 1 - 2 minutes; Acid etch Hydrochloric Acid, 5 - 6 minutes
Y462ZZ	Chemical Etching Solutions, ~10 minutes total
YNEMRE	Magnaflux (Black) prior to prep.; Wet sanding; Etching with Fry's reagent, 45 minutes; Rinse with water; Magnaflux (Black)
YNVTYG	Red Magnaflux; Black Magnaflux
YQKZJE	Electromagnetic
YRNJ32	Ferric Chloride, 3 min; Acidic Ferric Chloride, 30 min total in 5 min blocks
YT8MC2	25% Nitric Acid, a few seconds to a few minutes for each; Ferric Chloride, a few seconds to a few minutes for each; Acidic Ferric Chloride, a few seconds to a few minutes for each; 10% Sodium Hydroxide, a few seconds to a few minutes for each; *and alternated between acids when restoration was not initially successful.

TABLE 4

WebCode	Recovery Methods
YT8RG3	A combination of Frys[sic] Reagent + Electrical Etcher was used. A wet swab of Frys[sic] was wiped across machined surface for approximately 10 minutes with low current, 10 mins.
YVQFRW	Magnetic; very little Acid, <2 mins; Magnetic
Z2EVWZ	Sandpaper of different grade, 15 min; fine steel wool to polish area, 5 min; Griffin's Reagent, 20 min
Z2XQCF	Chemical Processing, approx. 5 hours
Z43VVP	Electro chemical digestion with chemical reaction of adler, 1/2 h
Z6UWW8	Magnetic method (Magnaflux)
ZMFUHD	Electro magnetic
ZNC6HM	Fry's Reagent, approx 10 min.
ZNTJKQ	Frys'[sic] reagent, 20-30 sec. each time
ZTLPYR	Fry's, Turner's, Fry's/Turner's, Total of 1½ hours.
ZVBWLA	Approximately 3 treatments of Fry's Reagent for a couple of minutes each time.
ZWMDW3	Recovery using the action of an acid adapted to hard metal (steel, stainless steel, ...); Application of a Qtip soaked with this acid on the surface to be treated (5 applications for a total of about 3 minutes); Complete recovery of the six digits

Response Summary		Participants: 266
Examination Methods		
	Chemical Processing:	186
	Magnetic Processing:	43
Combined Magnetic and Chemical Processing:		34
	No Response:	3

Additional Comments

TABLE 5

WebCode	Additional Comments
23N89A	Digits "082483" remain visible after cleaning Item 1 of acid, then drying.
2ANMZ3	Times noted above are approximations.
2ZXPTP	Easy test
2ZYF2T	Frye's[sic] Reagent was used first with no results. Other chemicals (FeCl ₃ , Acidic FeCl ₃ , and 10% Chromic) applied alternately in ~1 minute intervals. Towards the end only Acidic FeCl ₃ was used since the best results were obtained with this chemical.
44DBZ8	Recovery was photographed - Images will be retained in the Laboratory Firearms/Toolmarks section for future comparison.
44Q7KA	Gross grinding marks on Exhibit. Started w/ Nitric/Sodium Hydroxide due to mild magnetic reaction. Fry's utilized primarily to restore #.
47H23G	Milling marks did not fully obliterate serial number
4KE3UW	Easy Test
4XL2QA	Photographs were taken before & after
6DYWJB	Acids/base were applied using cotton swab from left to right. Chemicals were on for short periods of time, wiped off w/ Kimwipe - evaluated and reapplied until numbers were visible. Upon completion, water and acetone were applied to area.
6LTQUN	HNO ₃ must be mixed with Fry[sic] reagent.
6T6JQY	After the restoration the area was cleaned w/ H ₂ O and then swabbed with gun oil.
7G8JNZ	The acidic method was applied with a swab and worked continuously into the steel bar stock.
7RUK7U	Top & bottom of barstock wer[sic] non-magnetic - sides were magnetic
7VR44M	The restoration was straight forward with no complications.
8VKX3X	Before the etching process started, some warming up of the sample was applied in order to facilitate the etching process.
8Z646K	Numbers were legible during first application of Turner's Reagent. Reagents potency checked on area of Item 1 adjacent to serial number.
9HFRW7	A horseshoe magnet and "Magnaflux" prepared bath were used.
9N3487	Black Magna Flux was used for better visualization for taking a photograph
9TVQH2	Acid etching used to verify the sixth digit
A6QVAJ	I used 600 grit sand paper to even out the surface. I then used steel wool to polish the surface. I applied Fry's reagent (soak for about 2 minutes each X 6) each soak followed by a water wash. I was able to restore the serial number.
A8F3UF	This was a fairly straightforward test. I appreciated that a stamped number standard was included with the test.
A8M8K4	The digits were best to recognize after 4 min. of etching.

TABLE 5

WebCode	Additional Comments
AL6XLR	First attempt (Magna Flux) revealed numbers but not clearly enough to identify. Acid etching provided a strong platform for second attempt with Magna Flux that resulted in positive identification.
C3MD3T	the stainless steel bar was found to be an aluminum bar instead and that was found by a magnet test. in addition, some chemicals that are used on aluminum to restore damaged data on it was applied on the bar and the number were destroyed instead. [sic]
ENZK4	I found filing marks on the area bearing the suspected obliterated serial number.
EQQJ3A	Four characters (of six) were visible in oblique light upon receipt. Minimal preparation was necessary to obtain the final two characters.
FLCCXM	Serial numbers encountered in casework frequently include alphabetic letters. A proficiency test that had an alpha-numeric sequence would be beneficial. The questioned serial numbers appear to be stamped less deep and are obliterated more uniformly than seen in casework.
FZD2XU	Difficult to document with photography due to shine of metal.
HRQTKG	If the fry's[sic] Reagent was unsuccessful, a further chemical concentrate of HCl (Hydrochloric Acid) could be used as some stainless products require a heavier concentrate.
JHJHQW	At each step of analysis sample preparation pictures were taken.
JNK2HU	I found that the first digit to be recovered was very close to the edge of where it had been defaced. This made recovery more difficult to get the polishing wheel to that area. Possibly it would be a better practice to center the number on the block. Thank you.
JVL97A	The restored serial number was visually verified by a second examiner.
JVMXED	*Etchant applied to evidence w/ swab multiple times for varying lengths at any one time.
K7QDZC	Took four cycles of polishing and applying Fry's Reagent (approximately 30-60 seconds each time) for all six numbers to be restored.
KEAFXR	Chemical restoration processes were not required.
L8A9YJ	As received, the bar was ground down unevenly (at an angle). The two characters in the more deeply ground region were not readable during the restoration.
MQ3WYJ	Reagents were not left on the stainless steel bar stock for any extended period of time. Reagents were continually being swiped across the stamped area. Reagents were used for about 5 minutes before moving onto the next reagent; however about 15 minutes was used for the final set of reagents.
MUG7X3	A total of 3 images were taken (in file). Item #1 does not appear to be stainless steel due to it being non-ferrous (not magnetic). [From Table 1 - Recovered Digits: Participant wrote "? = a partially restored character that is consistent with being a "3"." below the response for Item 1.]
MUNRQH	After the number was recovered, the bar stock's surface was neutralized with a sodium bicarbonate solution, rinsed with water, wiped dry, and then treated with WD-40.
MX64KD	Bar oriented with the long side up and down.
NJVZEA	Photo/cast 'as is'. However despite 4 of the 6 digits being legible they didn't transfer to the casting medium; only the milling striae did. When applying chemicals, five digits became visible. The sixth, most likely a 6, is very faint and a 3 or 5 could not decisively [sic] ruled out.
NRUJZD	The first five characters were observed within the first hour, however the last character took an

TABLE 5

WebCode	Additional Comments
	additional hour to observe after further continual etching. Prior to etching and polishing that particular area was observed to bear additional localised grinding.
NY7QBM	Above sequence applied several times. Most characters developed quickly and were clear. The last character appeared initially as a "5". Final restoration revealed it is a "3".
P3QU4E	Good test.
PJBLLQ	(*) - The process (using Fry's Reagent followed by contrast solution) was alternate[sic] repeatedly several times, till the serial number was restored completely and photographed. The entire restoration process took about an hour and a quarter. (**) Stainless steel is not so common in our Lab in cases of serial number restoration. The most common surfaces are made of steel sheets (like in automotive chassis numbers), cast iron or aluminum (both - in vehicle engines). Since serial restoration work usually includes both numerals and alphabetic letters (in vehicle chassis numbers, for instance), it would have been advisable, and more realistic, to include also letters in the obliterated "number" of the test.
PRRZRG	[From Table 1 - Recovered Digits: Participant wrote "Likely either a "3" or an "8"" next to the response "?".]
Q8FW2B	Magnetic flux testing revealed the presence and location of the digits, however only the first 2 characters were decipherable from this method.
Q8ZEJY	Ex #1 was photographed after restoration
QBE92G	Formula: Copper Chloride 90g; conc. HCl 120ml; dist. water 100ml
QJP UAE	There was a deep gouge that traversed (through middle of) first two numbers. I was able to polish it out to determine the first number; however the gouge was located in such a place on the 2nd number, that I could not distinguish between a 6 and an 8.
QLVEYZ	Constant rubbing with cotton swab. Final number appears to be a '3', but at some points during restoration, appeared to have possibly been a '5'.
QU9BVU	Serial number was viewed using oblique lighting.
QUAQ6Q	Photos were taken prior to any processing and then taken of the recovered serial number. Black print powder was rubbed on the serial number to see if that made the number more pronounced but it didn't appear to change the contrast. The area was also sprayed with DW30 to preserved[sic] the area from rusting or pitting.
RC8JCB	Mild heat was applied with gas torch during the recovery process, enough to boil the pooling acid on the metal.
RQ46UT	With the Acid I just constantly swabbed the acid in one direction until the numbers appeared. Than[sic] I stopped the reaction and than[sic] added some more 3 in 1 oil over the area with the serial number.
TAWYZU	During the sixth five minute etching a few of the digits started to fade.
TJ4ZLA	After each step of the process to recover the serial number, photographs were taken. Also, the sample was photographed prior to any recovery attempts.
UF3QBD	After treatment, metal was neutralized with Sodium Bicarbonate and coated with oil.
UN6Q7R	Would like to see other metals
V2E8Q8	The chemicals were left on the material until the desired results were achieved.

TABLE 5

WebCode	Additional Comments
VEZJZW	The area was never allowed to dry during acid application and fresh solution was applied approx. every 15 seconds until the complete number was visible. Dried off prior to photographing.
W99ZEM	Chemical restoration processes were not required
WMTA3H	Serial number photographed and verified
X982X6	Photographs are attached to the written report. Restored area was preserved with clear nail polish. Kit components were repackaged and returned to [Quality Manager].
YT8MC2	Bar stock with obliterated serial number is not magnetic, thus acid etchants for non-ferrous metal were used to restore serial number.
YT8RG3	Very easy test.
Z43VVP	We used one of a few methods which we know to recover[sic] such digits. We could also use magnetic method, which could be good as well.

Appendix: Data Sheet

Collaborative Testing Services ~ Forensic Testing Program

Test No. 11-525: Serial Number Restoration

DATA MUST BE RECEIVED BY April 18, 2011 TO BE INCLUDED IN THE REPORT

Participant Code:

Webcode:

Accreditation Release Statement

CTS submits external proficiency test data directly to ASCLD/LAB and FQS-International. 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 and/or FQS-International. (Accreditation Release section on the last page must be completed and submitted.)

This participant's data is **NOT** intended for submission to ASCLD/LAB or FQS-International.

Please Note: The Aluminum standard included with the sample pack contains a representation of the size and shape of the characters stamped into the questioned sample. It is also a representation of the positioning of the obliterated stamp.

Items Submitted (Sample Pack SN):

Item 1: Piece of stainless steel bar stock with suspected obliterated serial number.

1.) Please indicate the recovered characters below.

The serial number on this material consists of 6 digits.

Item 1: _____

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

Please return all pages of this data sheet.

Page 1 of 3

Participant Code:

Webcode:

Additional Testing Information

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

Five horizontal lines for text entry.

4.) What methods of recovery were used during your examination? (Please list in order of use)

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

Method

Table with two columns: Method and If an acidic method was used how long was the acid left on the material?. Contains five rows of horizontal lines for data entry.

5.) Additional Comments

Five horizontal lines for text entry.

Return Instructions

Participant Code:

Data Sheets can be mailed or faxed (please include a cover sheet) and must be received by April 18, 2011 to be included in the report.

MAIL: Collaborative Testing Services, Inc. FAX: +1-571-434-1937 or Toll-Free (U.S. only): 1-866-FAX-2CTS (329-2287) Forensic Testing Program P.O. Box 650820 TEL: +1-571-434-1925 (8 am - 4:30 pm EST) Sterling, VA 20165-0820 USA EMAIL: forensics@cts-interlab.com www.ctsforensics.com

Please return all pages of this data sheet.

RELEASE OF DATA TO ACCREDITATION BODIES

The following Accreditation Releases will apply only to:

Participant Code: _____

WebCode: _____

for Test No. **11-525: Serial Number Restoration**

This release page must be completed and received by **April 18, 2011** to have this participant's submitted data included in the reports forwarded to the respective Accreditation Bodies.

ASCLD/LAB RELEASE

If your lab has been accredited by ASCLD/LAB and you are submitting this data as part of their external proficiency test requirements, have the laboratory's designated individual complete the following.

The information below must be completed in its entirety for the results to be submitted to ASCLD/LAB.

ASCLD/LAB Legacy Certificate No. _____ ASCLD/LAB International Certificate No. _____

Signature _____ Date _____

Laboratory Name _____

Location (City/State) _____

FQS-INTERNATIONAL RELEASE

If your laboratory maintains its accreditation through FQS-International, please complete the following form in its entirety to have your results forwarded.

FQS-International Certificate No. _____

Signature and Title: _____ Date _____

Laboratory Name _____

Location (City/State) _____

Return Instructions

Accreditation Release

Please submit the completed Accreditation Release at the same time as your full data sheet. See Data Sheet Return Instructions on the previous page.

*Questions? Contact us 8 am-4:30 pm EST
Telephone: +1-571-434-1925
email: forensics@cts-interlab.com*

Please return all pages of this data sheet.

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