Collaborative Testing Services, Inc

Forensic Testing Program

Toolmarks Examination Test No. 18-528 Summary Report

Each sample set consisted of one screwdriver (Item 1) and two paint can lids (Items 2 and 3) containing the questioned toolmarks. Participants were requested to determine if the recovered screwdriver had struck either of the questioned paint can lids. Data were returned from 178 participants and are compiled into the following tables:

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

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

Manufacturer's Information

Each sample set contained a screwdriver (Item 1), two 1/4 pint paint can lids containing questioned toolmarks (Items 2 and 3) and two 1/4 pint paint can lids for testing purposes. Participants were requested to determine which, if any, of the questioned toolmarks were made by the submitted tool. The Item 3 paint can lid was struck by the Item 1 screwdriver. The Item 2 paint can lid was struck by a different screwdriver that was not provided for examination.

ITEM 2 (ELIMINATION MARKS): The Item 2 paint can lid (with blue paint) was struck by a Pittsburgh® 5/16" x 6" slotted screwdriver (not provided) and packaged into a pre-labeled Item 2 envelope and assembled into the sample pack box as described below. The above process was repeated until all elimination toolmarks had been prepared.

ITEMS 1 and 3 (IDENTIFICATION MARKS): The Item 3 paint can lid (with red paint) was struck by the Item 1 Stanley® 5/16" x 6" slotted screwdriver and packaged into a pre-labeled Item 3 envelope. The corresponding screwdriver was labeled with an Item 1 label and packaged in bubble wrap. Items 1 and 3 were then immediately assembled into the sample pack box as described below. The above process was repeated until all identification toolmarks had been prepared.

SAMPLE SET ASSEMBLY: The corresponding Item 1 screwdriver and Item 3 paint can lid were packaged into a pre-labeled sample pack box along with the Item 2 paint can lid and two additional paint can lids for testing purposes. This process was repeated until the required number of sample sets were produced. Once verification was completed, the sample sets were sealed with evidence tape and initialed "CTS".

VERIFICATION: In addition to the sample sets examined and confirmed by predistribution laboratories, 10 randomly selected sample sets were examined by a qualified toolmark examiner who also confirmed the expected results.

Summary Comments

This test was designed to allow participants to assess their proficiency at a toolmark examination involving impression type toolmarks. Each sample set consisted of one screwdriver (Item 1) and two paint can lids (Items 2 and 3) containing the questioned toolmarks. Participants were requested to determine if the recovered screwdriver had struck either of the questioned paint can lids. The Item 3 paint can lid was struck by the Item 1 screwdriver. The Item 2 paint can lid was struck by a screwdriver that was not provided for examination. [Refer to Manufacturer's Information for preparation details.]

Of the 178 responding participants, 178 (100%) identified the Item 1 screwdriver as having struck the Item 3 paint can lid and either eliminated (167) or were inconclusive (11) as to it having struck the Item 2 paint can lid.

In regards to Item 2, as a matter of policy, many labs will not eliminate without access to the tool or when class characteristics match.

Examination Results

Were the suspect toolmarks on either of the paint can lids (Items 2 and 3) produced by the questioned screwdriver (Item 1)?

TABLE 1

WebCode	Item 2	Item 3	WebCode	Item 2	Item 3
269KX3	Inc	Yes	89PTQA	No	Yes
2K2DKP	No	Yes	8CQY6F	No	Yes
2LFYWC	No	Yes	8D7G6F	No	Yes
2VACDY	Inc	Yes	8ETZ4R	No	Yes
2ZVYPW	No	Yes	97HZ8V	No	Yes
3922M2	No	Yes	97YEBY	No	Yes
43VMJC	No	Yes	98VRZC	No	Yes
48UWVY	No	Yes	9BQJ9A	No	Yes
4JMHZ9	No	Yes	9HD6J3	No	Yes
4LNQZD	No	Yes	9WWP4V	No	Yes
4MGLML	No	Yes	A4R9JW	No	Yes
4Z7LDN	No	Yes	A6J676	Inc	Yes
64PTJ3	No	Yes	A7GF28	No	Yes
68P2PX	No	Yes	ABMD77	No	Yes
69WE8Z	Inc	Yes	ATBMAV	Inc	Yes
6GCZG4	No	Yes	AVW7FY	No	Yes
6KV2FW	No	Yes	AZQ7UV	No	Yes
6N92A3	No	Yes	BDUQRD	No	Yes
6RA3CK	No	Yes	BH44CX	No	Yes
6UGF3Y	No	Yes	BW4VAV	No	Yes
6XJ27Y	No	Yes	CAPKQD	No	Yes
72F83F	No	Yes	CFV98K	No	Yes
7JFANR	No	Yes	CZ2TYE	No	Yes
7VBUDB	No	Yes	D3384J	No	Yes
826XLZ	No	Yes	DBCL3E	No	Yes
832BAD	No	Yes	DDMJFV	No	Yes

TABLE 1

WebCode	Item 2	Item 3	WebCode	Item 2	Item 3
DM72RF	No	Yes	KHRPXL	Inc	Yes
DMT8CF	No	Yes	KJLM2L	No	Yes
DWF9RP	No	Yes	KKG2QZ	No	Yes
EMA824	No	Yes	KKLDFG	No	Yes
EUNMHY	No	Yes	KR6JDN	No	Yes
EWRFCW	No	Yes	LLPD92	No	Yes
F47TLF	No	Yes	LLT3BD	Inc	Yes
F637A9	No	Yes	LNWN7Q	No	Yes
FEP8PH	No	Yes	LUJH23	No	Yes
FHQ9RZ	No	Yes	MB6JEJ	No	Yes
FT9LCQ	No	Yes	MCW6VU	No	Yes
G2GL2J	No	Yes	MCXGHK	No	Yes
G9GWGN	No	Yes	MMWCFF	No	Yes
G9VPQX	No	Yes	MQY7HQ	No	Yes
GCG6KY	No	Yes	MRC7RK	No	Yes
GNAQP9	No	Yes	N2UNQ6	No	Yes
GQZYTH	No	Yes	N33XGG	No	Yes
GYT337	No	Yes	N9WQYC	No	Yes
H76NKA	No	Yes	NBKP2T	No	Yes
HEZLAX	No	Yes	NCV6KF	No	Yes
HYN9W7	No	Yes	NUC7EH	No	Yes
J6T724	No	Yes	NV7UXD	No	Yes
J99UGU	No	Yes	P4ETX3	No	Yes
JA74DX	No	Yes	P99UZG	No	Yes
JCAX9G	Inc	Yes	PLBKGE	No	Yes
JJQH8M	No	Yes	PPWZE2	No	Yes
JJR9MH	No	Yes	PVN8UP	No	Yes
K8AVYL	No	Yes	PZT9QD	No	Yes
KAFYLM	No	Yes	Q7ZYXP	No	Yes

TABLE 1

WebCode	Item 2	Item 3	WebCode	Item 2	Item 3
QD27JJ	No	Yes	UAM3YJ	No	Yes
QF67DP	No	Yes	UEYTF8	Inc	Yes
QJ3MNX	No	Yes	UPLUX2	No	Yes
QQRX79	No	Yes	UVM46U	No	Yes
QVXUP9	No	Yes	UXUE66	No	Yes
QZDBYD	No	Yes	V2AB9K	No	Yes
R39GTA	No	Yes	V6BEXM	No	Yes
R3XBZE	Inc	Yes	V72KCR	No	Yes
RBPEUF	No	Yes	V74AE4	No	Yes
RDX2GF	No	Yes	VBY4EP	No	Yes
RFG3F9	No	Yes	VLFQNQ	No	Yes
RH9Y63	No	Yes	VR2JX6	No	Yes
RHPFXA	No	Yes	VY7FMW	No	Yes
RJ7VMQ	No	Yes	VZD3UA	No	Yes
RKWV9M	No	Yes	W4UH99	No	Yes
RQGVPY	No	Yes	WAZDLG	No	Yes
RTLJ4P	No	Yes	WDYPN8	No	Yes
RVDEQX	No	Yes	WJ8X6C	No	Yes
T2W2Y9	No	Yes	WK4BUP	No	Yes
T6JL7X	No	Yes	WLVKL7	No	Yes
T9UWW8	No	Yes	WRZ7RN	No	Yes
TGA9FY	No	Yes	WWANLB	No	Yes
TH37N7	Inc	Yes	WX72BN	No	Yes
THLDNW	No	Yes	X2KYGP	No	Yes
TMGWX8	No	Yes	X3TBW7	No	Yes
TNVBGA	No	Yes	X499QQ	No	Yes
TRRUJ9	No	Yes	XACE49	No	Yes
TYT8GQ	No	Yes	XB9TTM	No	Yes
U8GMJZ	No	Yes	XKY7XD	No	Yes

TABLE 1

WebCode	Item 2	Item 3	WebCode	Item 2	Item 3
XPBEYH	No	Yes			
XRWN2A	No	Yes			
Y79WMR	No	Yes			
YBNCBY	No	Yes			
YWMXRF	No	Yes			
ZGN7QC	No	Yes			
ZJUT4G	No	Yes			
ZL2THV	No	Yes			
ZP3WAH	No	Yes			
ZRKFRR	No	Yes			

Response Summary

Total Participants: 178

Were the suspect toolmarks on either of the paint can lids (Items 2 and 3) produced by the questioned screwdriver (Item 1)?

Responses		ITEM 2	ITEM 3
	Yes	**0** *(0.0%)*	**178** *(100.0%)*
	No	**167** *(93.8%)*	**0** *(0.0%)*
	Inc	**11** *(6.2%)*	**0** *(0.0%)*

Conclusions

TABLE 2

WebCode	Conclusions
269KX3	Based on agreement of discernible class characteristics and sufficient corresponding individual detail, the toolmark exhibited on the paint can lid, Item 3, was identified as having been created using the slotted screwdriver, Item 1. The toolmarks exhibited on the paint can lid, Item 2, exhibits similar class characteristics as those displayed on test toolmarks created using the slotted screwdriver, Item 1. However, due to the lack of corresponding individual detail, Item 2 could neither be identified nor eliminated as having been created using the slotted screwdriver, Item 1. The results of these examinations are inconclusive.
2K2DKP	There was sufficient disagreement of individual characteristics to determine that the impression mark on the paint tin lid, Item 2 (blue paint lid) had not been made by the screwdriver, Item 1. There was sufficient agreement of class characteristic and individual characteristic markings to determine that the impression mark on the paint tin lid, Item 3 (red paint mark) had been made by the screwdriver blade tip, Item 1.
2LFYWC	The marks on the paint can lid marked Item 3 were produced by the screwdriver marked Item 1. The marks on the paint can lid marked Item 2 were not produced by the screwdriver marked Item 1.
2VACDY	Results of Examination: Item 1 is a Stanley flat head screwdriver. Toolmarks present on the Item 3 paint can lid were identified as having been produced by the Item 1 screwdriver. Due to a lack of sufficient corresponding microscopic marks of value, no conclusion could be reached as to whether the toolmarks present on the Item 2 paint can lid were created by the Item 1 screwdriver.
2ZVYPW	After examination of screwdriver (item 1), we did stamp named (Item 4) marked with black paint. As result, (Item 3) that marked with red paint match with (Item 4) and screwdriver use in the crime scene.
3922M2	The evidence in items 1, 2, and 3 was analyzed by physical and microscopic examination. The toolmarks present on the paint can lid in item 2 were determined not to have been by the screwdriver in item 1, and further analysis is pending submission of another tool for additional comparison. The toolmarks present on the paint can lid in item 3 were determined to have been made by the screwdriver in item 1.
43VMJC	2.1 The marks on the item 3 mentioned in 3.3 were produced by the screwdriver mentioned in 3.1. 2.2 The marks on item 2 mentioned in 3.2 were not produced by the screwdriver mentioned in 3.1.
48UWVY	The suspect toolmarks on Item 3 paint can lid (marked with red paint)were produced by the questioned Item 1 screwdriver. The suspect toolmarks on Item 2 paint can lid (marked with blue paint)were not produced by the questioned Item 1 screwdriver.
4JMHZ9	Examinations showed the tool marks present on Item #3 were made by Item #1. Examinations showed the tool marks present on Item #2 were not made by Item #1.
4LNQZD	During the examination of the screwdriver marked Item 1 replications using the screwdriver were made for test purpose. The replications were then compared with paint can lids marked Item 2 and Item 3 using a comparison microscope and it was found that the marks on the paint can lid marked Item 3 (one marked with red paint) were produced by the screwdriver marked Item 1. The marks on the paint can lid marked Item 2 (one marked with blue paint) were not produced by the screwdriver marked Item 1.
4MGLML	Item 1 is a functional screwdriver. The toolmarks on the struck paint lid, Item 2 does not possess similar class characteristics as those exhibited by the toolmarks created by the screwdriver, Item 1. There is also a lack of matching of individual microscopic details. The struck paint lid, Item 2 was eliminated as having been produced by the screwdriver, Item 1. The toolmarks on the struck paint lid, Item 3 were positively identified as having been produced by the screwdriver, Item 1, since there is an agreement of class characteristics and sufficient matching of individual microscopic details.
4Z7LDN	The toolmark of Item 2(marked with blue paint) is not produced by Item 1(screwdriver recovered from suspect). (Shape of toolmark and scratch are discordant overall.) The toolmark of Item 3(marked with

TABLE 2

WebCode	Conclusions
	red paint) is produced by Item 1. (Shape of toolmark and scratch are accord overall.)
64PTJ3	The questioned toolmark on the paint can lid, item 2, was not made by the screwdriver (Item 1). There were sufficient differences observed to eliminate. The questioned toolmark on the paint can lid, item 3, was made by the screwdriver (Item 1). This identification was established by having sufficient agreement of unique surface contours to identify.
68P2PX	The toolmarks observed on the paint can lid in Submission 3 were produced by the screwdriver in Submission 1. The toolmarks observed on the paint can lid in Submission 2 were not produced by the screwdriver in Submission 1.
69WE8Z	The toolmark in item 1.3, was identified as having been made by the screwdriver, item 1.1. The screwdriver, item 1.1, made toolmarks that are consistent in all observable class characteristics (flat action, length, and width) as the toolmark in item 1.2. While there is some disagreement of reproducible individual microscopic markings, the screwdriver could neither be eliminated nor identified as having made the toolmark. The results are inconclusive.
6GCZG4	Exhibit 1 is a Stanley brand slotted screwdriver. Test toolmarks were created for comparison purposes. The test standards were labeled as Exhibits 1.T1 - 1.T3 and will be returned with the screwdriver. Examination of Exhibits 2 and 3 (paint can lids) disclosed an impression near the center of each lid, consistent with being made by a flat-bladed tool, such as a screwdriver or similar type tool. Exhibits 2 and 3 were visually examined and microscopically compared to test standards from Exhibit 1. Microscopic examination and comparison disclosed an agreement of class characteristics, but sufficient differences in individual characteristics to conclude that the toolmarks on Exhibit 2 were not made by Exhibit 1. Microscopic examination and comparison disclosed sufficient agreement of class and individual characteristics to conclude that the toolmarks on Exhibit 3 were made by Exhibit 1.
6KV2FW	Each of the two damaged paint can lids (Item 2, Item 3) recovered from scene bears an impressed (compression) toolmark of which probably correspond those of a screwdriver tip or a similar shaped tool. However, upon close examination, the individual characteristics of the toolmark of Item 2 can be differentiated from those of the toolmark of Item 3; therefore, the two marks can not result from the very same tool. For comparison purpose, we produced compression test marks by striking the tailpiece of the handle of the questioned screwdriver (Item 1), after placing the tip of the latter against the provided test lids. Upon inspection, we observed that the test marks had sufficient reproductible individual characteristics to allow suitable comparisons. Thereafter, we observed that the individual characteristics of the test toolmarks both match those of the toolmark on Item 3 whereas they are strictly incompatible with those of the toolmark on Item 2. Thus, we can conclude that the toolmark on Item 3 was produced by the questioned screwdriver (Item 1) and that the toolmark on Item 2 was produced by another tool.
6N92A3	Disagreements of class and individual characteristics confirmed the toolmark on item 2 was not made by the item 1 screwdriver. Sufficient agreements of class and individual characteristics confirmed the toolmark on item 3 was made by the item 1 screwdriver.
6RA3CK	The toolmarks on Item #2 and Item #3 were microscopically examined and compared to one another. Marks on both items were consistent with compression marks from a screwdriver. Test marks from Item #1 were made on the enclosed paint can lids. The known test marks were then compared to the tool marks on Item #2 and Item #3. In my opinion, the tool marks on Item #3 were identified as being made by the submitted screwdriver, Item #1. The tool marks on Item #2 were not made by Item #1.
6UGF3Y	Toolmarks present on Item 3 were microscopically examined and identified as having been produced by the Item 1 Stanley brand tool. Toolmarks present on Item 2 were microscopically examined, compared, and eliminated as having been produced by the Item 1 Stanley brand tool due to differences in class characteristics. Two tests produced using Item 1 are being returned as Item 1T in Sample Pack T1 and should be maintained for possible future examinations.
6XJ27Y	A. The toolmarks on the paint can lids - item 3, were produced by the screwdriver - item 1. B. The toolmarks on the paint can lids - item 2, were not produced by the screwdriver - item 1.

TABLE 2

WebCode	Conclusions
72F83F	3. On 2018-05-25 during the performance of my official duties I received a sealed evidence bag with number PW4000732353 from Case Administration of the Ballistics Section, containing the following: 3.1 One (1) inner white container box, sealed with red "EVIDENCE" seal tape, containing the following: 3.1.1 One (1) Stanley Fatmax-brand screwdriver, marked with a sticker "Item 1". I marked the screwdriver with "178195/18 1". 3.2.1 One (1) brown unsealed envelope, marked with a sticker "Item 2", containing the following exhibit : 3.2.1.1 One (1) paint can lid with a blue stripe, marked by me with "178195/18 2". 3.3.1 One (1) brown unsealed envelope, marked with a sticker "Item 3", containing the following exhibit : 3.3.1.1 One (1) paint can lid with a red stripe, marked by me with "178195/18 3". 3.4.1 Two (2) paint can lids for possible test mark purposes, not marked by me. 4. The intention and scope of this forensic examination comprise the following: 4.1 Microscopic individualization of tool marks. 4.2 Examination of tools and tool mark related materials. 5. I examined the paint can lids mentioned in paragraphs 3.2.1.1 and 3.3.1.1 using a comparison microscope and found microscopic comparable marks which can possibly be utilized for individualization. 6. I examined the screwdriver mentioned in paragraph 3.1.1 and made imprints, marked by me as "195T1" and "195T2" for test purposes. 7. I compared the individual and class characteristic markings on the test imprints, exhibits and tool mentioned in paragraphs 3.1.1, 3.2.1.1, 3.3.1.1 and 6 using a comparison microscope and found: 7.1 The imprint mark on the paint can lid mentioned in paragraph 3.3.1.1 was produced by the screwdriver mentioned in paragraph 3.1.1. 7.2 The imprint mark on the paint can lid mentioned in paragraph 3.2.1.1 was not produced by the screwdriver mentioned in paragraph 3.1.1.
7JFANR	Item #1 (Stanley screwdriver), Item #2 (paint can lid - blue), and Item #3 (paint can lid - red) were examined and microscopically compared between 5/29/2018 and 5/30/2018. Based on agreement of all discernible class characteristics and sufficient agreement of individual characteristics, the tool mark on Item #3 (paint can lid - red) was positively identified as having been made by Item #1 (screwdriver). Based on disagreement of class and individual characteristics, the tool mark on Item #2 (paint can lid - blue) was eliminated as having been made by Item #1 (screwdriver).
7VBUDB	Toolmark Analysis: Methodology - Comparison Microscopy: Test marks were made with Item 1, the Stanley screwdriver, using submitted and laboratory standard testing media. Tests 1A, the test marks, were sealed in a manila envelope and will be retained in the laboratory for possible future analysis. The tool mark on Item 3, the paint can lid, was made with Item 1, the Stanley screwdriver, based upon corresponding class and individual microscopic characteristics. The tool mark on Item 2, the paint can lid, was not made with Item 1, the Stanley screwdriver, based upon different individual microscopic characteristics.
826XLZ	The signals observed in ITEM 3 have been produced by the ITEM tool 1. It is ruled out that the appreciable damages in ITEM 2 have been generated by the ITEM tool 1 and therefore have a common origin.
832BAD	Item 1 is a Stanley, flat head screwdriver. Toolmarks present on the Item 3 paint can lid were identified as having been produced by the Item 1 screwdriver. Toolmarks present on the Item 2 paint can lid were excluded as having been created by the Item 1 screwdriver due to differences in class characteristics.
89PTQA	I compared the individual and class characteristics markings on the paint can lids marked Item 1 using a comparison microscope and found: 2.1 The marks on the paint can lid marked Item 3 was produced by the screwdriver marked Item 1. 2.1 The marks on the paint can lid marked Item 2 was not produced by the screwdriver marked Item 1.
8CQY6F	3. On 2018-05-23 during the performance of my official duties I received a sealed evidence bag with number PW4000732356 from Case Administration of the Ballistics Section, containing the following: 3.1 One (1) sealed box marked "Test No. 18-528: TOOLMARKS EXAMINATION", containing the following: 3.1.1 One (1) screwdriver with a black, yellow and red handle marked "Test No. 18-528 Item 1". 3.1.2 One (1) envelope marked "Test No. 18-528 Item 2", containing the following exhibit: 3.1.2.1 One (1) paint can lid marked with blue paint marked by me "178300/18 2". 3.1.3 One (1) envelope marked "Test No. 18-528 Item 3", containing the following exhibit: 3.1.3.1 One (1) paint

TABLE 2

WebCode	Conclusions
	can lid marked with red paint marked by me "178300/18 3". 3.1.4 One (1) unmarked paint can lid marked by me "178300/18 Test 1". 3.1.5 One (1) unmarked paint can lid marked by me "1783000/18 Test 2". 4. The intention and scope of this forensic examination comprise of the following: 4.1 Examination of tools and toolmark related materials. 4.2 Microscopic individualization of toolmarks. 5. I examined the screwdriver mentioned in paragraph 3.1.1 and made replications for test purposes using the paint can lids mentioned in paragraphs 3.1.4 and 3.1.5 which were marked by me "178300/18 Test 1" and "178300/18 Test 2". 6. I compared the individual and class characteristic markings on the paint can lids mentioned in paragraphs 3.1.2.1, 3.1.3.1 and paragraph 5 using a comparison microscope and found: 6.1 The mark on the paint can lid mentioned in paragraph 3.1.3.1 was produced by the screwdriver mentioned in paragraph 3.1.1. 6.2 The mark on the paint can lid mentioned in paragraph 3.1.2.1 was not produced by the screwdriver mentioned in paragraph 3.1.1.
8D7G6F	The questioned toolmark on Item 3 was made by the submitted screwdriver, Item 1. The questioned toolmark on Item 2 was made by a second tool.
8ETZ4R	Item 1-1 is a flat-blade screwdriver. It was used to create test toolmarks in two paint can lids. Item 1-2-1 is a paint can lid with an impressed toolmark. Based on agreement of all discernible class characteristics, the toolmark on item 1-2-1 was microscopically compared to a test toolmark made by the item 1-1 screwdriver. The toolmark on item 1-2-1 was eliminated as having been made by the item 1-1 screwdriver based on sufficient differences in the patterns of microscopic markings observed between the items. Item 13-1 is a paint can lid with an impressed toolmark. Based on agreement of all discernible class characteristics, the toolmark on item 1-3-1 was microscopically compared to a test toolmark made by the item 1-1 screwdriver. The toolmark on item 1-3-1 was identified as having been made by the item 1-1 screwdriver based on sufficient similarities in the patterns of microscopic markings observed between the items.
97HZ8V	Test toolmarks were created using the slotted screwdriver, Item 1, and microscopically compared to the impressed toolmarks on the paint can lids, Items 2 and 3. Based on agreement of discernible class characteristics and sufficient corresponding individual detail, the impressed toolmark on the paint can lid, Item 3, was identified as having been created using the slotted screwdriver, Item 1. Based on significant disagreement of class characteristics, the impressed toolmark on the paint can lid, Item 2, could not have been created using the slotted screwdriver, Item 1.
97YEBY	The impressed toolmark on the paint can lid (Item 3) was identified as having been produced by the Stanley brand screwdriver (Item 1). The impressed toolmark on the paint can lid (Item 2) was excluded as having been produced by the Stanley brand screwdriver (Item 1).
98VRZC	3. On 2018-05-29 during the performance of my official duties I received a sealed evidence bag with number PW4000732358 from Case Administration of the Ballistics Section, containing the following: 3.1 One (1) flat screwdriver marked by me "178349/18 Item 1". 3.2 One (1) tin lid (blue painted) marked by me "178349/18 Item 2". 3.3 One (1) tin lid (red painted) marked by me "178349/18 Item 3". 3.4 Two (2) tin lids, not marked by me". 4. The intention and scope of this forensic examination comprise the following: 4.1 The identification and examination of tools and toolmark related materials. 4.2 Microscopic individualization of toolmarks. 5. I examined the screwdriver mentioned in paragraph 3.1 and made replications for test purposes marked by me "178349/18 Item 1T1" and "178349/18 Item 1T2" respectively. 6. I compared the individual and class characteristic markings on the tin lids mentioned in paragraphs 3.2 and 3.3 as well as the replications mentioned in paragraph 5 using a comparison microscope and found: 6.1 The marks on the lid mentioned in paragraph 3.3 were produced by the tool mentioned in paragraph 3.1. 6.2 The marks on the lid mentioned in paragraph 3.2 were not produced by the tool mentioned in paragraph 3.1.
9BQJ9A	I used the screwdriver recovered from the suspect marked as Item one to punch on the paint can lid that was provided to be used as a test. I then compared the marks on the paint lid can test and marks on the 1st and 2nd paint can lid that were found on the scene. I found that the marks on the can lid test compared with the marks on the 2nd paint can lid marked Item 3. That means the screwdriver found with suspect was the one used to punch the lid and found on the scene.

TABLE 2

WebCode	Conclusions
9HD6J3	1. Examination of Exhibit 1 revealed one Stanley Fatmax slotted screwdriver. Exhibit 1.1 (Test standards from Exhibit 1) was created for comparison and is being returned with Exhibit 1. 2. Examination of Exhibits 2 and 3 revealed each exhibit contains one silver colored paint can lid with an impression type toolmark suitable for comparison. A. Microscopic comparison revealed toolmarks on Exhibit 2 were not made by the tool in Exhibit 1. B. Microscopic comparison revealed toolmarks on Exhibit 3 were made by the tool in Exhibit 1.
9WWP4V	The following findings reflect the professional opinion of the examiner authoring this report. Examination of Item 1 revealed one (1) Stanly brand flathead screwdriver, approximately 10 ¾" long, with red, black, and yellow grip. Examination of Item 2 revealed one (1) paint can lid with toolmarks observed with blue paint. Examination of Item 3 revealed one (1) paint can lid with toolmarks observed with red paint. Microscopic examination of Item 3 with tests created with Item 1 revealed the toolmarks observed on Item 3 were created by Item 1. The toolmarks observed on Item 2 were not created by Item 1.
A4R9JW	The submitted paint can lid (Item 3) was identified as having been stamped by the submitted screwdriver (Item 1). The submitted paint can lid (Item 2) was eliminated as having been stamped by the submitted screwdriver (Item 1) due to insufficient corresponding class characteristics.
A6J676	Test marks made with Item 1 were microscopically compared to toolmarks on Items 2 and 3, and Item 1 was identified as being the source of the toolmarks on Item 3. Item 1 could not be identified or eliminated as being the source of toolmarks on Item 2 due to agreement of class and disagreement of individual characteristics, but insufficient for an elimination. (see below)[Table 3: Additional Comments]
A7GF28	Item 1 (a screwdriver) produced the toolmark on Item 3 (a paint can lid). Item 1 did not produce the toolmark on Item 2 (a paint can lid).
ABMD77	2.1 I compared the individual and class characteristics markings on the paint can lids and the replications made by the screwdriver using a comparison microscope and found: 2.2 The marks on the paint can lid marked Item 3 were produced by the screwdriver. 2.3 The marks on the paint can lid marked Item 2 were not produced by the screwdriver.
ATBMAV	The toolmark on the paint can lid (Item 01-02) was neither identified to nor eliminated from having been produced by the screwdriver (Item 01-01) due to the agreement of class characteristics, but lack of individual characteristics; the result is inconclusive. The toolmark on the paint can lid (Item 01-03) was identified as having been produced by the screwdriver (Item 01-01).
AVW7FY	Item 2 can be eliminated as having been made by the screwdriver of Item 1 based on dissimilar class & individual characteristics. Item 3 was microscopically identified as having been made by the screwdriver of Item 1 based on similar class and individual characteristics.
AZQ7UV	The Item 1 screwdriver was examined. Two (2) tests produced using Item 1 are being returned as Item 1T in container 1 and should be maintained for possible future examinations. Toolmarks present on Item 2 were microscopically examined, compared, and eliminated as having been produced by the Item 1 screwdriver due to differences in individual characteristics. Toolmarks present on Item 3 were microscopically examined, compared, and identified as having been produced by the Item 1 screwdriver.
BDUQRD	When comparing Item 001-01 to Item 001-02 I observed differences in class characteristics. Based on the differences seen, I conclude the tool mark on Item 001-02 was not produced by the submitted tool, Item 001-01. When comparing Item 001-01 to Item 001-03 I observed agreement of all discernable class characteristics and sufficient agreement of individual characteristics to conclude the tool mark on Item 001-03 was produced by the submitted tool, Item 001-01.
BH44CX	The casts were microscopically compared. The toolmark on Exhibit 3 was identified as having been made by the Exhibit 1 screwdriver. The toolmark on Exhibit 2 was eliminated as having been made by the Exhibit 1 screwdriver.

TABLE 2

WebCode	Conclusions
BW4VAV	Microscopic comparison of the toolmark found on Item #3 with test marks made by Item #1 revealed matching individual characteristics. These findings confirm the toolmarks found on Item #3 were made by the submitted screwdriver, Item #1. Microscopic comparison of the toolmark found on Item #3 with test marks made by Item #1 revealed different class characteristics (blade tip shape-squared off vs. rounded). These findings confirm the toolmarks found on Item #2 were not made by the submitted screwdriver, Item #1.
CAPKQD	I compared the paint can lids item 2 and 3 with each other and found a difference in class (tool tip width) and differences in individual marks. Items 2 and 3 were marked with different tools. I compared the paint can lids item 2 and 3 with test impressions made with item 1 and found correspondence of individual stria between item 3 and test marks from item 1. Item 1 was used to cause the impression in the paint can lid item 3. Item 1 is excluded as having marked paint can lid item 2.
CFV98K	The questioned toolmark on item 3, was made by the submitted screwdriver, item 1.The questioned toolmark on item 2 was not made by the submitted screwdriver, item 1.
CZ2TYE	The toolmark found on Item 3 was made by the Item 1 screwdriver. The toolmark found on Item 2 was not made by the Item 1 screwdriver. Class characteristics present are consistent with those produced by the impact of a slotted screwdriver or another tool with a similar working surface utilized in such a fashion.
D3384J	The toolmark located on the submitted paint can lid, Item 01-02, was not made by the submitted tool, Item 01-01. The toolmark located on the submitted paint can lid, Item 01-03, was identified as having been made by the submitted screwdriver, Item 01-01.
DBCL3E	The toolmark of First paint can lid(Item 2, marked with blue paint) is not produced by the screwdriver recovered from suspect(Item 1). The toolmark of Second paint can lid(Item 3, marked with red paint) is produced by the screwdriver recovered from suspect(Item 1)
DDMJFV	The toolmark on item 1.2 was microscopically compared to test marks made with the standard screwdriver contained in item 1.1 with the following results. The toolmark on item 1.2 was eliminated as having been made with the standard screwdriver contained in item 1.1. The toolmark on item 1.3 was microscopically compared to test marks made with the standard screwdriver contained in item 1.1 with the following results. The toolmark on item 1.3 was identified as having been made with the standard screwdriver contained in item 1.1.
DM72RF	Summary: The toolmark on the second paint can lid recovered from the scene (Item 3) was made by the tip of the screwdriver recovered from the suspect (Item 1). The toolmark on the first paint can lid recovered from the scene (Item 2) was not made by the screwdriver recovered from the suspect (Item 1). Examination: The toolmark on Item 2 and Item 3 were microscopically compared to test marks made with Item 1. The toolmark on Item 2 was eliminated from being made with Item 1 based on class characteristic differences observed. The toolmark on Item 3 was identified as being made with Item 1 based on sufficient corresponding individual characteristics observed.
DMT8CF	Item 2 isn't produced by item 1. Item 3 is produced by item 1.
DWF9RP	Items #01.01; #01.02; & #01.03- Using laboratory supplied test material, the submitted screwdriver was utilized to generate four (4) known impressed toolmarks for comparison purposes; labeled GK1 through GK4. Microscopic examination and comparison of these known impressed toolmarks with the questioned impressed toolmarks found on Items #01.02 and #01.03 revealed the following: Item #01.02 (Marked with Blue Paint) questioned impressed toolmark revealed sufficient disagreement of individual characteristics to conclude it was not the result of the use of the submitted Stanley screwdriver, Item #01.01; the result of a second tool. Item #01.03 (marked with Red Paint) questioned impressed toolmark revealed sufficient agreement of individual characteristics to conclude it was the result of the use of the submitted Stanley screwdriver, Item #01.01.
EMA824	The toolmark on the paint can lid marked with red paint (Item 3) was made by the screwdriver (Item 1) while that on the paint can lid marked with blue paint (Item 2) was not.

TABLE 2

WebCode	Conclusions
EUNMHY	1. Examinations showed the tool marks on Item 2 were not made by Item 1. 2. Examinations showed the tool marks on Item 3 were made by Item 1.
EWRFCW	The following submitted evidence was visually and microscopically examined: Exhibit 1: Flat-head screwdriver. Exhibit 2: Paint can lid; damaged. Exhibit 3: Paint can lid; damaged. 1. Exhibit 1 is a Stanley brand, ten inch long, flat-head screwdriver consistent with being used as a flat-bladed prying tool. Exhibit 1 was used to create test standards for comparison using sheet lead and a pristine paint can lid. The test materials were labeled as Exhibit 1.1 and are being retained with the tool. 2. The damage on Exhibits 2 and 3 was microscopically compared to the test marks created using Exhibit 1. a. Exhibit 1 did not cause the damage on Exhibit 2. b. Exhibit 1 was identified as the cause of the damage on Exhibit 3.
F47TLF	Examinations showed the toolmark in Item 3, marked with red paint, was made by Item 1, Stanley Fatmax slotted screwdriver. Examinations showed that the toolmark in Item 2, marked with blue paint, was not made by Item 1, Stanley Fatmax slotted screwdriver, due to differences in individual marks.
F637A9	Item 2 (blue): Due to differences found in characteristics of the tool impression on the item 2 (blue) and characteristics of the tip's surface of questioned screwdriver (item 1), the tool impression on paint can lid recovered from scene - item 2 (blue), was not produced by questioned screwdriver - item 1.
FEP8PH	Our examination with a comparison light microscope leads us to the following conclusion: Item 2 (blue) The toolmark on the paint can lid (Item 2) and the comparison marks made by the screwdriver (Item 1) show no mathing marks. The toolmark (Item 2) wasn't caused by the screwdriver (Item 1). Item 3 (red) The toolmark on the paint can lid (Item 3) and the comparison marks made by the screwdriver (Item 1) show numerous well matching marks with general and individual characteristics. The toolmark (Item 3) was caused by the screwdriver (Item 1).
FHQ9RZ	I compared the individual and class characteristic markings on the paint lids to the replications made from the screwdriver using a comparison microscope and found a) The markes on the paint lid marked Item 2 were not produced by the screwdriver. 2) The markes on the paint lid marked Item 3 were produced by the screwdriver.
FT9LCQ	The toolmarks in the indentation on the paint can lid with a blue mark (2) were not produced with the submitted slot head screwdriver (1). The toolmarks in the indentation on the paint can lid with a red mark (3) were produced with the submitted slot head screwdriver (1).
G2GL2J	The suspect toolmark on the can lid (item 3 - marked with red paint) was produced by the questioned screwdriver. The toolmark on item 2 (marked with blue paint) was not produced by the submitted screwdriver
G9GWGN	Items 1, 2, and 3 were examined and analyzed using microscopy. The toolmark on Item 3 was identified as having been produced by the Item 1 Stanley brand screwdriver. The toolmark on Item 2 was eliminated as having been produced by the Item 1 tool due to sufficient differences in individual characteristics. Two (2) tests produced using the Item 1 tool are being returned as Item 1T in Container T1 and should be maintained for possible future examinations.
G9VPQX	I compared the individual and class characteristic markings on ITEM 2, ITEM 3 AND TEST MARKINGS PRODUCED BY the SCREWDRIVER MARKED ITEM 1 using a comparison microscope and found: The marks on the PAINT CAN LID MARKED ITEM 3 WERE produced by the SCREWDRIVER MARKED ITEM 1. The marks on the PAINT CAN LID MARKED ITEM 2 WERE NOT produced by the SCREWDRIVER MARKED ITEM 1
GCG6KY	Items 1-3 were examined. Items 2 and 3 were found to exhibit toolmarks. These toolmarks were microscopically compared to tests made with Item 1. Toolmarks exhibited on Item 2 were not made by Item 1. Toolmarks exhibited on Item 3 were made by Item 1.
GNAQP9	The screwdriver (Item A1) was used to make impression test toolmarks on metal paint can lids. These test toolmarks were then microscopically compared to the toolmarks on the questioned paint can lids (Item A2 and Item A3). Microscopic comparison revealed that the questioned toolmark in Item A2 and

TABLE 2

WebCode	Conclusions
	a test toolmark from Item A1 have significant disagreement in class characteristics. The screwdriver, Item A1, did not produce the impressed toolmark on the paint can lid, Item A2. Microscopic comparison revealed that the questioned toolmark in Item A3 and a test toolmark from Item A1 have the same class characteristics and sufficient corresponding individual marks to conclude that the screwdriver (Item A1) produced the impressed toolmark on the paint can lid (Item A3).
GQZYTH	Observed toolmark on Item2 has not been produced by Item1. Observed toolmark on Item3 has been produced by Item1.
GYT337	Comparison microscope examinations were conducted and it is the finding of this examiner that: 1) The toolmark in Item 3 was made by the submitted Stanley Fatmax Screwdriver (Item 1). 2) The toolmark in Item 2 was not made by the submitted Stanley Fatmax Screwdriver (Item 1) based on differences in class characteristics.
H76NKA	The tool impression on test item 3 was found to show agreement in class characteristics and fine detail with the submitted screwdriver, such that in our opinion the screwdriver is responsible for the impression. The tool impression on test item 2 was found to show agreement in class characteristics, however there were differences noted in fine detail such that in our opinion the screwdriver is not responsible for the impression.
HEZLAX	THE MARKS ON THE PAINT CAN LID ITEM 3 WERE PRODUCED BY THE SCREWDRIVER ITEM 1 THE MARKS ON THE PAINT CAN LID ITEM 2 WERE NOT PRODUCED BY THE SCREWDRIVER ITEM 1
HYN9W7	Submission #001-3 toolmark was microscopically compared to test marks made by submission #001-1. Submission #001-1 screwdriver was identified as having made submission #001-3 toolmark. Submission #001-2 toolmark was microscopically compared to submission #001-3 & testmarks from sub#001-1. Submission #001-1 screwdriver was eliminated as having made submission #001-2 toolmark based on a difference in individual characteristics.
J6T724	3. On 2018-05-29 during the performance of my official duties I received a sealed evidence bag with number PW4000732359 from Case Administration of the Ballistics Section, containing the following items: 3.1 One (1) screwdriver marked by me “178217/18 item 1”. 3.2 One (1) paint can lid marked by me “178217/18 item 2”. 3.3 One (1) paint can lid marked by me “178217/18 item 3”. 3.4 Two (2) paint can lids for test purposes not marked by me. 4. The intention and scope of this forensic examination comprises of the following: 4.1 The examination of tools and toolmark related materials. 4.2 Microscopic individualization of toolmarks. 5. I examined the screwdriver mentioned in paragraph 3.1 and made replications for test purposes with the paint can lids mentioned in paragraph 3.4 and marked them as “test 1” and “test 2” respectively. 6. I compared the individual and class characteristic markings on the paint can lids mentioned in paragraphs 3.2 and 3.3 using a comparison microscope and found: 6.1 The marks on the pant can lid mentioned in paragraph 3.3 were produced by the screwdriver mentioned in paragraph 3.1. 6.2 The marks on the pant can lid mentioned in paragraph 3.2 were not produced by the screwdriver mentioned in paragraph 3.1.
J99UGU	Examinations showed the suspect toolmarks on Item 2 were not produced by Item 1. Examinations showed the suspect toolmarks on Item 3 were produced by Item 1.
JA74DX	Sufficient disagreement of individual characteristics confirmed the tool mark on the 1.2 paint can lid was not made by the 1.1 screwdriver. Sufficient agreements of class and individual characteristics confirmed the tool mark on the 1.3 paint can lid was made by the 1.1 screwdriver.
JCAX9G	Examination of Items 2 and 3 revealed tool marks which had been produced by a single-bladed type tool. These tool marks were microscopically examined in conjunction with test tool marks produced by the Item 1 screwdriver. Based on these comparative examinations, it was determined that: A. The tool mark present on Item 3 had been produced by the blade of Item 1. B. The tool mark present on Item 2 bears no individual characteristics to link it as having been produced by the blade of Item 1.
JJQH8M	Microscopic comparisons of the impressed toolmark from Item #3 (paint can lid - red paint) with test toolmarks generated using Item #1 revealed matching individual characteristics. This finding confirms that the toolmark observed on Item #3 was generated by the submitted screwdriver, Item #1.

TABLE 2

WebCode	Conclusions
	Microscopic comparisons of the impressed toolmark from Item #2 (paint can lid - blue paint) with test toolmarks generated using Item #1 revealed different class characteristics (blade tip shapes - squared off vs. rounded edges). This finding confirms that the toolmark observed on Item #2 was not generated by the submitted screwdriver, Item #1.
JJR9MH	Examination of the paint can lids in Item 2 and Item 3 revealed the presence of a toolmark situated roughly in the center of each lid. Using the screwdriver in Item 1, test toolmarks were produced. These test toolmarks were microscopically examined in conjunction with the questioned toolmarks present on Item 2 and Item 3. Based on these comparative examinations, it was determined that: A)The toolmark present on Item 3 had been produced by Item 1. B)The toolmark present on Item 2 had not been produced by Item 1 due to differences in class characteristics.
K8AVYL	Microscopic comparisons of Item #2 with test toolmarks from Item #1 revealed different class characteristics (blade tip shapes – rounded vs squared). This finding confirms that the toolmark on Item #2 was not made by Item #1. Microscopic comparisons of Item #3 with test toolmarks from Item #1 revealed matching individual characteristics. This finding confirms that the toolmark on Item #3 was made by Item #1.
KAFYLM	The impression mark observed on the paint can lid, Item 3, was created by the screwdriver, Item 1. The impression mark observed on the paint can lid, Item 2, was not created by the screwdriver, Item 1.
KHRPXL	01-01-AA : One Stanley brand screwdriver (Item 1). Unable to eliminate or identify the submitted Stanley screwdriver as having been used to make the impression mark on one of the two submitted paint can lids (Item 1-02-AA) due to agreement in class characteristics but a lack of consistent and reproducible individual marks. The submitted Stanley screwdriver was identified as being used to make the impression mark on one of the submitted paint can lids (Item 1-03-AA). 01-02-AA : One small paint can lid marked with blue paint (Item 2). 01-03-AA : One small paint can lid marked with red paint (Item 3). Unable to eliminate or identify the impression marks on the two submitted paint can lids (Items 1-02-AA and 1-03-AA) as having been made by the same tool due to agreement in class characteristics but a lack of consistent and reproducible individual marks. Unable to eliminate or identify the submitted Stanley screwdriver as having been used to make the impression mark on one of the two submitted paint can lids (Item 1-02-AA) due to agreement in class characteristics but a lack of consistent and reproducible individual marks. The submitted Stanley screwdriver was identified as being used to make the impression mark on one of the submitted paint can lids (Item 1-03-AA). 01-04 : One small paint can lid (submitted for testing purposes). The paint can lid was used for testing purposes. 01-05 : One small paint can lid (submitted for testing purposes). The paint can lid was used for testing purposes.
KJLM2L	Microscopic comparisons of the impressed toolmark on the paint can lid from Item #3 with test marks made using the screwdriver from Item #1 revealed matching individual characteristics. This finding confirms the screwdriver from Item #1 produced the toolmark on Item #3. Microscopic comparisons of the impressed toolmark on the paint can lid from Item #2 with test marks made using the screwdriver from Item #1 revealed differences in class characteristics (blade tip shape). This finding confirms the screwdriver from Item #1 did not produce the toolmark on Item #2.
KKG2QZ	Item 1 is a Stanley Fatmax® Standard 5/16 inch by 6 inch screwdriver that was identified as having produced the toolmarks present on the Item 3 paint can lid. Due to a discernible difference in class characteristics, the toolmarks present on the Item 2 paint can lid were excluded as having been produced by the Item 1 screwdriver. Tools that could have produced the toolmarks present on the Item 2 paint can lid include other bladed tools, similar to the Item 1 screwdriver.
KKLDFG	Examinations showed the tool mark on Item 2 was not created by Item 1. Examinations showed the tool mark on Item 3 was created by Item 1.
KR6JDN	Exhibit 1 is a Stanley brand standard, slotted screwdriver that contains a blade width of approximately 9/32 of an inch and bears toolmarks of value for comparison. Test impressions were taken of Exhibit 1 and designated 1-T1 through 1-T4. Exhibits 2 and 3 each contains an impression produced by a bladed type tool that bears toolmarks of value for comparison. Exhibits 2 and 3 were microscopically

TABLE 2

WebCode	Conclusions
	compared to the Exhibit 1 test specimens. These comparisons identified the Exhibit 3 impression as having been produced by Exhibit 1. However, Exhibit 1 was excluded as having produced the Exhibit 2 impression based on a difference in a class characteristic, as well as extreme differences in individual characteristics.
LLPD92	On 2018-05-21 during the performance of my official duties I received a sealed evidence bag with number PA4002349527 from Case Administration of the Ballistics Section, containing the following exhibits: 3.1 One (1) Stanley Fatmax standard screwdriver marked by me "178172/18". 3.2 Two (2) paint can lids marked by me "178172/18 A1" and "178172/18 A2" respectively. 3.3 One (1) paint can lid marked by me 172T1. 3.4 One (1) paint can lid not marked by me. 4. The intention and scope of this forensic examination comprise of the following: 4.1 Microscopic individualization of tool marks. 4.2 Examination of tools and tool mark related materials. 5. I compared the individual and class character markings on the paint can lids mentioned in paragraphs 3.2 and 3.3 using a comparison microscope and found: 5.1 The marks on the paint can lid mentioned in paragraph 3.2 marked "178172/18 A2" was produced by the screwdriver mentioned in paragraph 3.1. 5.2 The marks on the paint can lid mentioned in paragraph 3.2 marked "178172/18 A1" was not produced by the screwdriver mentioned in paragraph 3.1.
LLT3BD	CONCLUSIONS: MICROSCOPIC COMPARISON EXAMINATIONS OF THE TOOLMARK IMPRESSIONS ON SUBMITTED ITEM 2 (Q1) PAINT CAN LID (BLUE PAINT), AND ITEM 3 (Q2) PAINT CAN LID (RED PAINT), AGAINST THE TEST TOOLMARK IMPRESSIONS FROM SUSPECTED RECOVERED SCREWDRIVER ITEM 1 (K1), REVEAL THAT SUFFICIENT AGREEMENT OF INDIVIDUAL CHARACTERISTICS EXISTS TO IDENTIFY THE FOLLOWING: SUSPECTED RECOVERED SCREWDRIVER ITEM 1 (K1) PRODUCED THE TOOLMARK IMPRESSIONS THAT ARE ON ITEM 3 (Q2) PAINT CAN LID (RED PAINT).
LNWN7Q	1. Exhibit 1 is a Stanley FatMax brand screwdriver. Exhibit 1 was used to create the Exhibit 1.1 test standards for comparison purposes. 2. Exhibits 2 and 3 consist of two paint can lids. Examination of Exhibits 2 and 3 disclosed an area of damage on each lid which is consistent with a flat bladed tool, such as a screwdriver, being used in a striking action. The damaged areas on Exhibits 2 and 3 were microscopically compared to test standards from Exhibit 1. a. Exhibit 1 was eliminated as having caused the damage present on Exhibit 2. b. Exhibit 1 was identified as having caused the damage present on Exhibit 3.
LUJH23	Item 4: we used one of the additional points can lids for possible test mark purposes by using screwdriver (item 1) After comparing (item 4) to (item 2) Blue and item 3 Red we found that: (Item 3) and (item 4) mark's were produced by (item 1). (Item 2) mark's were not produced by (item 1)
MB6JEJ	The toolmark present on the Item 01-02 paint can lid was eliminated from having been impressed by the Item 01-01 screwdriver. The toolmark present on the Item 01-03 paint can lid was identified as having been impressed by the Item 01-01 screwdriver. The Item 01-04 paint can lids were utilized in the generation of test toolmarks and will be retained by the laboratory.
MCW6VU	HAVING CONDUCTED A TOOLMARK COMPARISON BETWEEN ITEM 1 (SCREWDRIVER) AND ITESM 2 & 3 (TIN LIDS) I FORMED THE FOLLOWING OPIONION: ITEM 1 CAN BE EXCLUDED FROM HAVING PRODUCED THE IMPRESSED TOOLMARK ON ITEM 2 (TIN LID). ITEM 1 WAS RESPONSIBLE FOR HAVING PRODUCED THE IMPRESSED TOOLMARK ON ITEM 3. (TIN LID).
MCXGHK	Identification: Based on the agreement of discernible class characteristics and sufficient matching individual detail, the tool marks exhibited on the metal lid, TE-2(Item 3), were identified as having been created by the use of the screwdriver, T-1(Item 1). Elimination: Based on the significant disagreement of class and/or individual characteristics, the tool marks exhibited on the metal lid, TE-1(Item 2), were eliminated as having been created by the use of the screwdriver, T-1(Item 1).
MMWCFF	Item 1 consists of a Stanley Fatmax ® screwdriver with a blade approximately .325 inches wide with red, yellow and black rubber handle. Item 2 consists of a paint can lid bearing an impressed-type toolmark which exhibit sufficient differences in individual characteristics from marks produced by the screwdriver in Item 1 to eliminate the tool as the source of the impressed-type mark in the Item 2 paint

TABLE 2

WebCode	Conclusions
	can lid. Item 3 consists of a paint can lid bearing an impressed-type toolmark which, based on sufficient correspondence of class and individual details, were identified as having been made by the screwdriver in Item 1.
MQY7HQ	Microscopic comparison revealed the tool mark in the Item 3 paint can lid (lab exhibit 3) was made by the Item 1 screwdriver (lab exhibit 1). Test-marks produced using laboratory material and a casting made if the tip of the exhibit 1 screwdriver will be returned with the evidence as lab exhibit 1.1 The tool mark in the Item 2 paint can lid (lab exhibit 2) was not made by the exhibit 1 screwdriver. This exclusion was based upon differences in class characteristics.
MRC7RK	I conducted a microscopic comparison examination of toolmarks produced by Item 1 (Screwdriver) with those from Items 2 & 3 (tin lids). Item 2 is eliminated as being a match with significant disagreement of individual characteristics. In my opinion Item 2 was not produced by Item 1. Item 3 is an identification and match. There is agreement of a combination of individual characteristics and all discernible class characteristics where the extent of the agreement exceeds that which can occur in the comparison of toolmarks made by different tools and is consistent with the agreement demonstrated by toolmarks known to have been produced by the same tool. In my opinion Item 3 was produced by Item 1.
N2UNQ6	The overall shape, size, and striations on the side of item1 screwdriver blade are similar with the toolmark on item3.
N33XGG	Examination of the Stanley screwdriver, item #1, revealed minimal wear from use. Test marks were made by the Stanley screwdriver, item #1, in the two (2) submitted paint can lids, item #1, and are being returned with the other items of evidence. Examination of the one (1) paint can lid, item #2, revealed an area of impressed tool mark damage in the center of the lid. Microscopic comparisons of the area of damage on the paint can lid, item #2, with test marks made by the Stanley screwdriver, item #1, revealed different class (blade styles) and individual characteristics, confirming that the area of tool mark damage on the paint can lid, item #2, was not made by the Stanley screwdriver, item #1. Examination of the one (1) paint can lid, item #3, revealed an area of impressed tool mark damage in the center of the lid. Microscopic comparisons of the area of damage on the paint can lid, item #3, with test marks made by the Stanley screwdriver, item #1, revealed matching class (blade styles) and individual characteristics, confirming that the area of tool mark damage on the paint can lid, item #3, was made by the Stanley screwdriver, item #1. All evidence will be returned to the submitting agency.
N9WQYC	Test toolmarks from Item 1 were microscopically examined with the toolmarks present on Item 2 and Item 3. Based on these comparative examinations, it was determined that: A) Due to a difference in class characteristics, the toolmark on Item 2 had not been produced by Item 1. B) The toolmark on Item 3 had been produced by Item 1.
NBKP2T	1. The toolmark present on the exhibit paint tin lid designated “Item 3” was identified within the limits of practical certainty as having been made by the exhibit screwdriver designated “Item 1”. 2. The toolmark present on the exhibit paint tin lid designated “Item 2” was eliminated as having been made by the exhibit screwdriver designated “Item 1”.
NCV6KF	Item A1-1: Markings produced with the Item A1-1 submitted tool are consistent in class characteristics with tool marks observed on the Items A1-2 and A1-3 submitted metal can lids. Item A1-2: Tool marks observed on the Item A1-2 submitted metal can lid are consistent in class characteristics with test markings produced with the Item A1-1 submitted screwdriver. Item A1-3: Tool marks observed on the Item A1-3 submitted metal can lid are consistent in class characteristics with test markings produced with the Item A1-1 submitted screwdriver. Item A1-1 was compared to item A1-2. Toolmarks present on the Item A1-2 metal can lid exhibit the same discernable class characteristics as those produced by the Item A1-1 screwdriver; however, sufficient differences in individual characteristics were observed microscopically to eliminate the Item A1-1 screwdriver as having produced the toolmarks on the Item A1-2 metal can lid. Item A1-1 was compared to item A1-3. The Item A1-3 toolmarks were examined, compared microscopically, and identified as having been produced by the Item A1-1 screwdriver.

TABLE 2

WebCode	Conclusions
NUC7EH	The paint can lid (CTS Item 2) was not struck by the screwdriver (CTS Item 1). The paint can lid (CTS Item 3) was struck by the screwdriver (CTS Item 1).
NV7UXD	Test toolmarks produced using the screwdriver in Item 1 were microscopically examined in conjunction with the toolmarks present on the paint can lids in Item 2 and Item 3. Based on these comparative examinations it was determined that: A. The toolmark present on Item 2 had not been produced by Item 1 due to differences in class characteristics. B. The toolmark present on Item 3 had been produced by Item 1.
P4ETX3	Item 3 was identified as having been produced by Item 1. Item 2 was eliminated from having been produced by Item 1 due to a difference in class characteristics.
P99UZG	Examination of the screwdriver, item 1, revealed it to be a Stanley Fat Max flat tip screwdriver. Examination of the paint can lids, items 2 and 3, revealed toolmark damage consistent with having been made by a flat bladed tool. The area of toolmark damage on the paint can lid, item 3, was microscopically compared to test toolmarks made by the submitted screwdriver, item 1. These comparisons revealed matching class and individual characteristics, confirming that the area of toolmark damage present on the paint can lid, item 3, was made by the submitted screwdriver, item 1. The area of toolmark damage on the paint can lid, item 2, was microscopically compared to test toolmarks made by the submitted screwdriver, item 1. These comparisons revealed dissimilar class (blade tip style) and individual characteristics, confirming that the area of toolmark damage present on the paint can lid, item 2, is excluded as having been made by the submitted screwdriver, item 1. The two (2) new paint can lids, item 1, were used for test purposes. All evidence will be returned to the submitting agency.
PLBKGE	Visual examination of the one (1) Stanley screwdriver, item #1, revealed wear / damage to the blade tip consistent with use. Visual examination of the two (2) paint can lids, items #2 and #3, revealed the presence of tool mark damage consistent with having been made by a flat-bladed tool. The tool mark damage present on the one (1) paint can lid, item #3, was microscopically compared with test tool marks made with the Stanley screwdriver, item #1. These comparisons revealed matching individual tool mark characteristics, confirming that the tool mark damage on the one (1) paint can lid, item #3, was created by the Stanley screwdriver, item #1. The tool mark damage present on the one (1) paint can lid, item #2, was microscopically compared with test tool marks made with the Stanley screwdriver, item #1. These comparisons revealed different individual tool mark characteristics, excluding the Stanley screwdriver, item #1, as having created the tool mark damage on the one (1) paint can lid, item #2. BCI supplied lead and one (1) of the additional submitted paint can lids, item #1, were used for test purposes and will be returned with the evidence. The remaining paint can lid, item #1, was not examined at this time. All evidence will be returned to the submitting agency.
PPWZE2	The tool mark present on item 2 was eliminated as having been produced by the blade tip of item 1 based on the significant differences of subclass and individual characteristics. The tool mark present on item 3 was identified as having been produced by the blade tip of item 1 based on the sufficient agreement of class and individual characteristics.
PVN8UP	I COMPARED THE INDIVIDUAL AND CLASS CHARACTERISTIC MARKINGS ON THE CASTS MARKED AS 589(2)C1 - C2, 589(3)C1 - C2 AND 589T1 - T4 USING A COMPARISON MICROSCOPE AND FOUND: THE MARKS ON THE PAINT CAN LID MARKED 176589/18 (3) WERE PRODUCED BY THE SLOTTED SCREWDRIVER MARKED 176589/18 (1). THE MARKS ON THE PAINT CAN LID MARKED 176589/18 (2) WERE NOT PRODUCED BY THE SLOTTED SCREWDRIVER MARKED 176589/18 (1).
PZT9QD	Item 1.1 tests and ITem 1.3 were microscopically examined and compared. Based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics, Item 1.1 is identified as having made the toolmark on ITem 1.3. Item 1.1 tests and ITem 1.2 were microscopically examined and compared. Based on the observed differences in class characteristics, Item 1.1 is eliminated as having made the toolmark on ITem 1.2.
Q7ZYXP	2. I compared the class and individual characteristic markings on the can lids marked Item 2, Item 3 and test marks produced by Item 1 using a comparison microscope and found: 2.1 The marks on the

TABLE 2

WebCode	Conclusions
	can lid marked Item 2 were not produced by the screwdriver marked Item 1. 2.2 The marks on the can lid marked Item 3 were produced by the screwdriver marked Item 1.
QD27JJ	The impression tool mark noted on the top of the paint can lid (Item 2) was not made by the screwdriver (Item 1). The impression tool mark noted on the top of the paint can lid (Item 3) was identified as having been made by the screwdriver (Item 1).
QF67DP	2.1 The marks on item 3 mentioned in 3.3 were produced by the screwdriver mentioned in 3.1. 2.2 The marks on item 2 mentioned in 3.2 were not produced by the screwdriver mentioned in 3.1.
QJ3MNX	In my opinion, the findings demonstrate conclusively that the screwdriver (Item 1) HAS made the tool impression on the tin lid (Item 3). In my opinion, the findings demonstrate conclusively that the screwdriver (Item 1) has NOT made the tool impression on the tin lid (Item 2).
QQRX79	Examination of Item #1 revealed a Stanley FatMax Standard Screwdriver. Microscopic examination of test toolmarks produced using Item #1 and the toolmarks on the paint can lids in Items #2 and #3 revealed that: A. The toolmark on Item #3 had been produced by Item #1. B. The toolmark on Item #2 had not been produced by Item #1 due to differences in class characteristics.
QVXUP9	Examination of the tool in Item 1 revealed it to be a flathead screwdriver. Examination of the small paint can lids in Item 2 and Item 3 revealed one impressed toolmark on each. The toolmarks present on Item 2 and Item 3 were microscopically examined in conjunction with test toolmarks made with Item 1. Based on these comparative examinations the following was determined: a. The toolmark on Item 3 was made with Item 1. b. The toolmark on Item 2 bears different class characteristics than Item 1. Therefore, the toolmark on Item 2 was not made with Item 1.
QZDBYD	Test toolmarks created using the slotted screwdriver, Item 1, were microscopically compared to the toolmarks exhibited on the paint can lids from Items 2 and 3. Based on significant disagreement of class characteristics, the toolmark exhibited on the paint can lid, Item 2, could not have been created using the slotted screwdriver, Item 1. Based on agreement of discernible class characteristics and sufficient corresponding individual detail, the toolmark exhibited on the paint can lid, Item 3, was identified as having been created using the slotted screwdriver, Item 1.
R39GTA	As a result of the microscopic comparison it is certain, that the toolmarks on the paint can lid marked as "Item 3" have been produced by the Screwdrver marked as "Item 1". Furthermore the comparsion showed that it can be excluded, that the toolmarks on the paint can lid marked as "Item 2" have been produced by the Screwdriver marked as "Item 1".
R3XBZE	Comparisons of the first paint can lid (Item 01-02) to the screwdriver (Item 01-01) and the second paint can lid (Item 01-03) were inconclusive due to agreement of discernible class characteristics and disagreement of individual characteristics, but insufficient for an elimination. The screwdriver (Item 01-01) produced the toolmark on the second paint can lid (Item 01-03).
RBPEUF	The tool impression on the 'blue' paint tin lid (Item 2) WAS NOT made by the screwdriver (Item 1). The tool impression on the 'red' paint tin lid (Item 3) was made by the screwdriver (Item 1).
RDX2GF	Exhibit 1 is a flat blade screwdriver, Stanley FatMax brand. Test toolmarks were produced using Exhibit 1 and designated 1-T1 and 1-T2. Exhibits 2 and 3 consist of two paint can lids. These were examined for the presence of comparable toolmarks, and impressed toolmarks of value were found. Microscopic comparisons were conducted between the Exhibit 2 and 3 toolmarks and test toolmarks from Exhibit 1. There is agreement of class characteristics; however, due to significant differences in individual characteristics, it was determined that the Exhibit 2 toolmark was not produced by the Exhibit 1 screwdriver. There is agreement of all discernible class characteristics and sufficient agreement of individual characteristics to determine that the Exhibit 3 toolmark was produced by the Exhibit 1 screwdriver.
RFG3F9	Item 1 (a screwdriver) was used to create test marks for comparative examinations (Item 1-1). Comparative examinations of the toolmark on Item 2 (a paint can lid marked with blue paint) against test marks created using Item 1 showed the presence of different features. This means that Item 1 was

TABLE 2

WebCode	Conclusions
	not used to create the toolmark on Item 2. Comparative examinations of the toolmark on Item 3 (a paint can lid marked with red paint) against test marks created using Item 1 showed the presence of matching features. This means that Item 1 was used to create the toolmark on Item 3.
RH9Y63	The screwdriver (Item 1) was identified as the source of the impression on one of the paint can lids (Item 3). The screwdriver (Item 1) was eliminated as the source of the impression on one of the paint can lids (Item 2).
RHPFXA	Examination of Item 2 and Item 3 revealed one impressed tool mark per paint can lid. Each tool mark is suitable for comparison purposes. Test impressed marks were made using the Item 1 flat blade screwdriver. Based on agreement of class characteristics, the tool mark on Item 3 was microscopically compared to test exemplars from Item 1. The tool mark on Item 3 was identified based on individual characteristics as having been made by the Item 1 screwdriver. Based on the presence of similar class characteristics, the tool mark on Item 2 was microscopically compared to test exemplars from Item 1 and to the tool mark on the Item 3 paint can lid. The tool mark on Item 2 was eliminated as having been made by the Item 1 screwdriver based on the significant disagreement of individual characteristics. Any additional flat bladed tools, such as a screwdriver, that are recovered during the course of this investigation should be submitted for comparison purposes to the Item 2 paint can lid.
RJ7VMQ	The Item 1 screwdriver was eliminated as having produced the toolmark on Item 2. The Item 1 screwdriver was identified, within the limits of practical certainty1, as having produced the toolmark on Item 3.
RKWV9M	The marks on the paintcan lid mark item 3 were produce by the screwdriver marked item 1. The marks on the paintcan lid mark item 2 were not produce by the screwdriver marked item 1.
RQGVPY	The toolmark of Item 2(marked with blue paint) is not produced by the screwdriver recovered from suspect(Item 1). The toolmark of Item 3(marked with red paint) is produced by the screwdriver recovered from suspect(Item 1)
RTLJ4P	The marks on the paint can lid marked Item 3 (red) were produced by the screwdriver marked Item 1.
RVDEQX	Upon examination, I found that: (i) The characteristic marks on the second paint can lid recovered from scene (Item 3) and the characteristics marks on the paint can lid produced by screwdriver recovered from suspect (Item 1) to be similar. Therefore, I am of the opinion that the marks on Item 3 was produced by the screwdriver recovered from suspect (Item 1). (i) The characteristic marks on the first paint can lid recovered from scene (Item 2) and the characteristics marks on the paint can lid produced by screwdriver recovered from suspect (Item 1) to be dissimilar. Therefore, I am of the opinion that the marks on Item 2 was not produced by the screwdriver recovered from suspect (Item 1).
T2W2Y9	The toolmark on the paint can lid of item #2 was eliminated as having been made by the screwdriver of #1. The toolmark on the paint can lid of item #3 was microscopically identified as having been made by the screwdriver of #1.
T6JL7X	The known tool, item 1, is excluded as a possible source of the questioned toolmark on item 2. The known tool, item 1, is the source of the questioned toolmark on item 3.
T9UWW8	The item 1 screwdriver is identified as having made the tool mark on item 3. The item 1 screwdriver is eliminated as having made the tool mark on item 2
TGA9FY	Tool Mark Analysis: Methodology - Comparison Microscopy: Test marks were made with Item 1, the screwdriver, using submitted testing media and laboratory media. Item 1A, the test marks, was sealed in a manila envelope and will be retained in the laboratory for possible future analysis. The tool mark on Item 2, the paint lid with blue paint, was not made with Item 1, the screwdriver, based upon different individual microscopic characteristics. The tool mark on Item 3, the paint lid with red paint, was made with Item 1, the screwdriver, based upon corresponding class and individual microscopic characteristics.

TABLE 2

WebCode	Conclusions
TH37N7	SUFFICIENT AGREEMENT OF INDIVIDUAL CHARACTERISTICS EXISTS TO IDENTIFY TOOL IMPRESSION Q1 ITEM 3 RED LID TO TEST IMPRESSION OF K1 SCREWDRIVER. ITEM 2 (Q1) BLUE PAINT CAN LID COULD NOT BE IDENTIFIED OR ELIMINATED AS HAVING BEEN MADE WITH ITEM 1 (K1) SCREWDRIVER DUE TO SIMILAR CLASS CHARACTERISTICS BUT LACK OF SUFFICIENT REPETITIVE INDIVIDUAL CHARACTERISTICS.
THLDNW	The screwdriver, Item 1, was used to produce the indented toolmark on the paint can lid, Item 3. The screwdriver, Item 1, was not used to produce the indented toolmark on the paint can lid, Item 2.
TMGWX8	Test toolmarks from the screwdriver in Item 1 were microscopically examined in conjunction with the marks on Items 2 & 3. Based on these examinations it was determined that: A) The toolmark on Item 3 was created by Item 1. B) The toolmark on Item 2 bears no marks to link it to Item 1.
TNVBGA	[No Conclusions Reported.]
TRRUJ9	Items 1, 2 and 3 The Item 2 and 3 can lids and test toolmarks (Items 1.1 & 1.2) produced by the Item 1 screwdriver were examined and microscopically compared to each other with the following result: Toolmarks on Item 2 can lid were eliminated as having been made by the Item 1 screwdriver based on differences in individual characteristics. Toolmarks on Item 3 can lid were identified as having been made by the Item 1 screwdriver. Test toolmarks from Item 1 have been retained in a packet labeled Packet TLM1. This packet is being returned to the submitting agency.
TYT8GQ	A toolmark present on the Item 3 paint lid was identified as having been produced by the Item 1 screwdriver. Due to a difference in class characteristics (width and shape of the blade) the toolmark present on the Item 2 paint lid was not produced by the Item 1 screwdriver.
U8GMJZ	The Item 2 tool mark has significant disagreement of discernible class characteristics and/or individual characteristics and is eliminated as having been produced by Item 1. The Item 3 tool mark has agreement of all discernible class characteristics and sufficient agreement of individual characteristics to determine the Item 3 tool mark was produced by Item 1.
UAM3YJ	Examinations showed that the tool mark present on Item 2 (paint can lid) was not made by Item 1 (screwdriver). Examinations showed that the tool mark present on Item 3 (paint can lid) was made by Item 1 (screwdriver).
UEYTF8	The test marks from the screwdriver (Item 1) and the toolmark on the paint lid (Item 3) were microscopically examined and compared. Based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics, the toolmark on the paint lid (Item 3) is identified as having been produced by the screwdriver (Item 1). The test marks from the screwdriver (Item 1) and the toolmark on the paint lid (Item 2) were microscopically examined and compared. There is observed agreement of their class characteristics. However, there is insufficient agreement or disagreement of their individual characteristics to either identify or eliminate the toolmark on the paint lid (Item 2) as having been produced by the screwdriver (Item 1).
UPLUX2	At the first stage of the examination we made possible test marks on two additional can lids represented. After Item 2 and Item 3 were compared under the microscope LEICA DFC 495. The comparison showed that the marks on Item 3 was struck by the screwdriver recovered from suspect.
UVM46U	Examined the specimen marked #1. It is a Stanley brand flared tip slotted screwdriver. Examined the specimen marked #2. It is a metal paint can lid. Examined the specimen marked #3. It is a metal paint can lid. The paint can lid marked #3 exhibits an impressed toolmark. This toolmark was microscopically compared to test standards and identified as having been made by the submitted screwdriver. The paint can lid marked #2 exhibits an impressed toolmark. This toolmark was microscopically compared to test standards and eliminated as having been made by the submitted screwdriver.
UXUE66	Microscopic examination and comparison of the impressed toolmarks on Item 2 revealed it can be eliminated as having been produced by the Stanley screwdriver (Item 1) based on significant differences in individual characteristics. Microscopic examination and comparison of the impressed

TABLE 2

WebCode	Conclusions
	toolmark on Item 3 revealed sufficient agreement of class and individual characteristics in a pattern to conclude they were created by the Stanley screwdriver (Item 1).
V2AB9K	The tool mark located on the Q-1 (Item 2) paint can lid was not produced by the K-1 (Item 1) screwdriver. The tool mark located on the Q-2 (Item 3) paint can lid was produced by the K-1 (Item 1) screwdriver.
V6BEXM	Tool Mark Analysis: Methodology - Comparison Microscopy: Test marks were made with Item 1, the Stanley screwdriver, using submitted and laboratory standard testing media. Item 1A, the test marks, was sealed in a manila envelope and will be retained in the laboratory for possible future analysis. The tool mark on Item 2, the paint can lid, was not made with Item 1, the Stanley screwdriver , based upon different class and individual microscopic characteristics. The tool mark on Item 3, the paint can lid, was made with Item 1, the Stanley screwdriver, based upon corresponding class and individual microscopic characteristics.
V72KCR	3. On 2018-05-30 during the performance of my official duties I received a sealed evidence bag with number PW4000731518 from Case Administration of the Ballistics Section, containing the following exhibits: 3.1 One (1) screwdriver marked by me 178201/18 Item 1. 3.2 One (1) paint can lid marked by me 178201/18 Item 2. 3.3 One (1) paint can lid marked by me 178201/18 Item 3. 4. The intention and scope of this forensic examination comprise the following: 4.1 Examination of tools and tool mark related materials 4.2 Microscopic individualization of tool marks. 5. I examined the screwdriver mentioned in paragraph 3.1 and made replications for tests purposes, which were marked 201T1 and 201T2 respectively. 6. I compared the individual and class characteristic markings on the paint can lids mentioned in paragraphs 3.2 and 3.3 and the tests mentioned in paragraph 5 and found: 6.1 The marks on the paint can lid mentioned in paragraph 3.2 was not produced by the screwdriver mentioned in paragraph 3.1. 6.2 The marks on the paint can lid mentioned in paragraph 3.3 was produced by the screwdriver mentioned in paragraph 3.1.
V74AE4	Item 2 (Q-1) was not marked by item 1 (K-1). Item 3 (Q-2) bears marks consistent with having been marked by item 1 (K-1).
VBY4EP	3. On 2018-05-17 during the performance of my official duties I received a sealed evidence bag with number PW4000732357 from Case Administration of the Ballistics Section, containing the following: 3.1 One (1) Stanley fatmax manufactured screwdriver marked by me “178182/18 1”. 3.2 Two (2) tin paint can lids marked by me “178182/18” each and “2” and “3” respectively. 4. The intention and scope of this forensic examination comprise of the following: 4.1 The examination of tools and tool mark related materials. 4.2 Microscopic individualization of tool marks. 5. I examined the paint can lids mentioned in paragraph 3.2 using a comparison microscope and found microscopic comparable marks which can possibly be utilized for individualization. 5.1 I examined the paint lids mentioned in paragraph 3.2 and made replications for test purposes which I marked 182T1 and 182T2 respectively. 6. I compared the individual and class characteristics markings on the paint lids mentioned in paragraph 3.2 with the replications mentioned in paragraph 5.1 using a comparison microscope and found: 6.1 The marks on the paint lids mentioned in paragraph 3.2 were not produced by the same tool. 6.1 The marks on the paint lid mentioned in paragraph 3.2 marked “178182/18 3” was produced by the screwdriver mentioned in paragraph 3.1. 6.2 The marks on the paint lid mentioned in paragraph 3.2 marked “178182/18 2” was not produced by the screwdriver mentioned in paragraph 3.1.
VLFQNQ	3. On 2018-05-22 during the performance of my official duties I received a sealed evidence bag with number PW4000732354 from Case Administration of the Ballistics Section containing the following exhibits: 3.1 One (1) screwdriver marked by me "178356/18 Item 1". 3.2 One (1) paint can lid, marked with blue paint, marked by me "178356/18 Item2". 3.3 One (1) paint can lid, marked with red paint, marked by me "178356/18Item3". 4. The intention and scope of this forensic examination comprise of the following: 4.1 Examination of tools and toolmark related materials. 4.2 Microscopic individualization of toolmarks. 5. I examined the screwdriver mentioned in paragraph 3.1 and made replications for test purposes, which were marked “178356/18Item 1T1” and “178356/18Item 1T2”. 6. I compared the individual and class characteristics markings paint can lids mentioned in

TABLE 2

WebCode	Conclusions
	paragraphs 3.2 and 3.3 as well as the tests mentioned in paragraph 5 and found: 6.1 The marks on the paint lids mentioned in paragraph 3.3 was produced by the screwdriver mentioned in paragraph 3.1. 6.2 The marks on the paint lid mentioned in paragraph 3.2 was not produced by the screwdriver mentioned in paragraph 3.1.
VR2JX6	Item 2 and Item 3 toolmarks had class characteristics that were compared to test marks made with Item 1. The presence of class characteristics and sufficient individualizing marks were found to reach the conclusion that Item 1 was used to create the mark in Item 3. However, even though there were class characteristics present, the individual features seen in the testmarks made with Item 1 were not observed in the mark in Item 2. The Item 3 toolmark was identified as having been produced by Item 1. The Item 2 toolmark was eliminated as having been produced by Item 1.
VY7FMW	The screwdriver (0001-AA / Item 1) was examined and used to make test toolmarks at [Laboratory]. The toolmarks observed on the metal paint can lid (0001-AB / Item 2) were microscopically compared to the test toolmarks made using the screwdriver (0001-AA / Item 1) with NEGATIVE RESULTS. The toolmarks on the 0001-AB / Item 2 metal paint can lid were not made with the 0001-AA / Item 1 screwdriver. The toolmarks observed on the metal paint can lid (0001-AC / Item 3) were microscopically compared to the test toolmarks made using the screwdriver (0001-AA / Item 1) with POSITIVE RESULTS. The toolmarks on the 0001-AC / Item 3 metal paint can lid were made with the 0001-AA / Item 1 screwdriver.
VZD3UA	Examination of the screwdriver, item #1, revealed it is a Stanley Fatmax flat bladed screwdriver. Examination of the one (1) paint can lid (marked with blue paint), item #2, revealed the presence of an impressed toolmark. The toolmark damage present on the one (1) paint can lid (marked with blue paint), item #2, was microscopically compared with test toolmarks made with the screwdriver, item #1. These comparisons revealed different class characteristics (blade style / shape) and individual characteristics, confirming the toolmark damage on the one (1) paint can lid (marked with blue paint), item #2, is excluded as having been made by the submitted screwdriver, item #1. Examination of the one (1) paint can lid (marked with red paint), item #3, revealed the presence of an impressed toolmark. The toolmark damage present on the one (1) paint can lid (marked with red paint), item #3, was microscopically compared with test toolmarks made with the screwdriver, item #1. These comparisons revealed matching individual blade tip characteristics, confirming the toolmark damage on the one (1) paint can lid (marked with red paint), item #3, was made by the submitted screwdriver, item #1. The two (2) new paint can lids, item #1, were used for test purposes. All evidence will be returned to the submitting agency.
W4UH99	The impression on Item 3 was microscopically examined and identified as having been produced by the Item 1 screwdriver. The impression on Item 2 was microscopically examined and eliminated as having been produced by Item 1. Seven (7) tests using Item 1 and laboratory stock materials were produced and are being returned as Item 1T in Container Sample Pack T1 and should be maintained for possible future examinations.
WAZDLG	The marks on the paint can lid marked item 3 were produced by the screwdriver marked item 1. The marks on the paint can lid marked item 2 were not produced by the screwdriver marked item 1.
WDYPN8	Item 1 was examined and is a Stanley Fatmax screwdriver. Six (6) tests produced using the Item 1 screwdriver are being returned as Item 1T in Container 1 and should be maintained for possible future examinations. The toolmark present on the Item 3 paint can lid was microscopically examined and identified as having been produced by the Item 1 tool. The toolmark present on the Item 2 paint can lid was microscopically examined and eliminated as having been produced by the Item 1 tool due to sufficient differences in individual characteristics.
WJ8X6C	The screwdriver has no significant damage or missing parts and could function as designed. The questioned toolmark on the exhibit 2 can lid was not made by the exhibit screw driver. The questioned toolmark on the exhibit 3 can lid was made by the blade tip of the exhibit 1 screw driver
WK4BUP	3. On 2018-05-29 during the performance of my official duties I received a sealed evidence bag with number PW4000732355 from Case Administration of the Ballistics Section, containing the following

TABLE 2

WebCode	Conclusions
	exhibits: 3.1 One (1) Stanley Fatmax flat screwdriver marked by me "178338/18 1". 3.2 Two (2) paint can lids marked by me "178338/18" each and "2" and "3" respectively. 4. The intention and scope of this forensic examination comprises of the following: 4.1 Examination of tools and toolmark related materials. 4.2 Microscopic individualization of toolmarks. 5. I examined the Stanley Fatmax flat screwdriver mentioned in paragraph 3.1 and made replications for test purposes and marked them 338T1 and 338T2. The tests marked 338T1 and 338T2 were made on two (2) lead plates. 6. I compared the individual and class characteristic markings on the two (2) paint can lids mentioned in paragraph 3.2 with the tests mentioned in paragraph 5 using a comparison microscope and found: 6.1 The marks on the paint can lid mentioned in paragraph 3.2 marked "178338/18 3" were produced by the flat screwdriver mentioned in paragraph 3.1. 6.2 The marks on the paint can lid mentioned in paragraph 3.2 marked "178338/18 2" were not produced by the flat screwdriver mentioned in paragraph 3.1. 7. The exhibits and tests mentioned in paragraphs 3.1, 3.2 and 5 were disposed of as follows: 7.1 On 2018-05-29 the exhibits mentioned in paragraphs 3.1 and 3.2 were sealed in an evidence bag with number PW4000618985 and handed over to Case Administration of the Ballistics Section. 7.2 On 2018-05-29 the tests mentioned in paragraph 5 marked 338T1 and 338T2 were sealed in an evidence bag with number PA5001536801 and filed in case file with LAB 178338/18.
WLVKL7	Because of a difference in individual characteristics, the toolmark on the paint can lid (item 2) could not have been produced by the flat-head screwdriver (item 1). The toolmark on the paint can lid (item 3) was identified as having been produced by the flat-head screwdriver (item 1).
WRZ7RN	Item 1 is a Stanley brand slotted screwdriver bearing the text "FATMAX." Item 2 is a paint can lid with an impressed toolmark. Due to a difference in class characteristics, the toolmarks present on the Item 2 paint can lid were excluded as having been created by the Item 1 screwdriver. Item 3 is a paint can lid with an impressed toolmark. Toolmarks present on the Item 3 paint can lid were identified as having been produced by the Item 1 screwdriver.
WWANLB	[No Conclusions Reported.]
WX72BN	3. On 2018-05-14 during the performance of my official duties I received a sealed evidence bag with number PW4000732360 from Case Administration of the Ballistics Section, containing the following: 3.1 One (1) white carboard box marked "2018 CTS Forensic Testing Program" "Test No. 18-528:" "TOOLMARKS EXAMINATION", "Sample Pack: T1" containing the following: 3.1.1 One (1) STANLEY fatmax flat screwdriver marked by me 178325/18 1" 3.2.1 One (1) brown envelope marked "Test No. 18-528", "Item 2" containing the following: 3.2.1.1One (1) paint can lid marked by me "178325/18 2". 3.3.1 One (1) brown envelope marked "Test No. 18-528", "Item 3" containing the following: 3.3.1.1One (1) paint can lid marked by me "178325/18 3". 3.4.1 Two (2) additional paint can lids. 4. The intention and scope of this forensic examination comprise of the following: 4.1 Examination of tools and toolmark related materials. 4.2 Microscopic individualization of toolmarks. 5. I examined the screwdriver mentioned in paragraph 3.1.1 and made a replication for test purposes, which I marked "178325/18T1", on one of the marked paint can lids mentioned in paragraph 3.4.1. 6. I compared the individual and class characteristic markings on the test mentioned in paragraph 5, with the exhibits mentioned in paragraphs 3.2.1.1 and 3.3.1.1 and found: 6.1 The marks on the exhibit mentioned in paragraph 3.3.1.1 were produced by the screwdriver mentioned in paragraph 3.1.1. 6.2 The marks on the exhibit mentioned in paragraph 3.2.1.1 were not produced by the screwdriver mentioned in paragraph 3.1.1.
X2KYGP	I compared the individual and class characteristic markings on the paint can lids marked ITEM 2, ITEM 3 and tests produced by the screwdriver marked ITEM 1 using a comparison microscope and found: The marks on ITEM 3 were produced by the screwdriver marked ITEM 1. The marks on ITEM 2 were not produced by the screwdriver marked ITEM 1.
X3TBW7	The evidence in items 1, 2, and 3 was analyzed by physical and microscopic examination. The toolmarks present on the first paint can lid in item 2 were determined not to have been made by the screwdriver in item 1. Further analysis is pending submission of another tool for additional comparison. The toolmarks present on the second paint can lid in item 3 were determined to have

TABLE 2

WebCode	Conclusions
	been made by the screwdriver in item 1.
X499QQ	The Laboratory was requested to determine if the submitted screwdriver was used to create either of the toolmarks on the submitted paint can lids. Item 1, the submitted screwdriver, was examined and subsequently used to make test impressions in metal paint can lids that were similar to the questioned evidence. Items 2 and 3, metal paint can lids bearing one questioned screwdriver tip impression each, were examined. All class characteristics of the impression in Item 3 agreed with those of Item 1. A microscopic comparison of the test impressions produced by Item 1 with the questioned toolmark on Item 3 revealed a sufficient amount of agreement of individual characteristics to establish that the questioned toolmark was made by Item 1. Item 1 was eliminated as having made the questioned toolmark on Item 2 due to differences in class characteristics, including differences between the shape and dimensions of the tool's working surface and those of the questioned toolmark.
XACE49	Item #2 was examined and found to be a paint can lid containing a single impressed toolmark. The toolmark is rectangular in shape and is characterized by squared corners with a defect in one corner. Microscopic comparisons of Item #2 with the test marks generated by Item #1 revealed different class characteristics (shape). This finding confirms that the screwdriver from Item #1 did not generate the toolmark in Item #2. Item #3 was examined and found to be a paint can lid containing a single impressed toolmark. The toolmark is rectangular in shape and is characterized by rounded corners. Microscopic comparisons of Item #3 with the test marks generated by Item #1 revealed matching individual characteristics. This finding confirms that the screwdriver from Item #1 generated the toolmark in Item #3.
XB9TTM	Item 1 is a screwdriver bearing the trade name of Stanley. The toolmark present on the Item 3 paint can lid was identified as having been produced by the Item 1 tool. The Item 1 tool was excluded as having created the toolmark present on the Item 2 paint can lid due to a discernable difference in class characteristics (toolmark length).
XKY7XD	1. Examination of Exhibit 1 revealed one Stanley FatMax slotted screwdriver with a yellow, red, and black handle. 2. Examination of Exhibits 2 and 3 revealed one paint can lid with damage consistent with that caused by the tip of a slotted screwdriver. 3. Microscopic comparison of the Exhibit 2 paint can lid revealed the damage was not created by the Exhibit 1 screwdriver. 4. Microscopic comparison of the Exhibit 3 paint can lid revealed the damage was created by the Exhibit 1 screwdriver.
XPBEYH	Item 1.1 is a Stanley Fatmax brand screwdriver. Test marks were made in a test lid. Item 1.2 is a small paint can lid with an area of damage. The area of damage was microscopically compared to the tests from Item 1.1. Item 1.1 was eliminated as having caused the damage to Item 1.2. Item 1.3 is a small paint can lid with an area of damage. The area of damage was microscopically compared to the tests from Item 1.1. Item 1.1 was identified as having caused the damage to Item 1.3.
XRWN2A	The quantity and quality of the features present on Item 3, when compared to test marks made by Item 1 showed that the mark on Item 3 had been made by Item 1 to the practical exclusion of all other tools. The mark present on Item 2 had been made by a different tool.
Y79WMR	The defect (tool mark) on item 2 was excluded as having been produced by item 1. The defect (tool mark) on item 3 was identified as having been produced by item 1.
YBNCBY	Microscopic examination and comparison identified item #1 as having made the impression in item #3. Item #1 was eliminated as having made the impression in item #2.
YWMXRF	2.1. The marks on the paint can lid mentioned in 3.2 marked 175133/18 Item 3 were produced by the screwdriver mentioned in 3.1. 2.2. The marks on the paint can lid mentioned in 3.2 marked 175133/18 Item 2 were not produced by the screwdriver mentioned in 3.1.
ZGN7QC	The tool mark on Item #3 was made the submitted screwdriver, Item #1. The tool mark on Item #2 was not made by the submitted screwdriver, Item #1, based on differences in class characteristics.
ZJUT4G	Identification: The following items were compared and found to show the presence of matching features. Item 1 (screwdriver), Item 3 (lid). Elimination: The toolmark located on the item 2 (metal lid)

TABLE 2

WebCode	Conclusions
	was excluded as having been made by the item 1 screwdriver as received.
ZL2THV	In my opinion: 1. The tool mark evidence provides conclusive support for the proposition that the screwdriver (item 1) made the tool mark in the paint tin lid (item 3). 2. The tool mark in the paint tin lid (item 2) was NOT caused by the screwdriver (item 1), elimination.
ZP3WAH	The marks on the paint can lid marked Item 3 (Red) were produced by the screwdriver marked Item 1.
ZRKFRR	This lab made test marks on the can lids by item 1. The test marks are the same with item 3, test marks and item 3 are same size, shape and striation. The item 2 is not match with test marks. So, item 3 was made by item 1 but item 2 was not made by item 1.

Additional Comments

TABLE 3

WebCode	Additional Comments
269KX3	No pattern of agreement present between Item 2 and Test, however, without establishing reproducability of marks on Item 2, conclusion was inconclusive.
2K2DKP	The following sub-exhibits were recovered during the examination: Item1/NG1 'Metal debris from blade tip, Item 1'. Item1/NG2 'Test tool marks from Item 1'
4MGLML	The damage to the struck paint lid, item 2 was produced by another tool.
A6J676	Due to agreement of class (size, approx. length & width, general shape) of tool to toolmarks on Item 2, but disagreement of individual characteristics (outline of edges of toolmarks, fine microscopic marks) Item 1 was not ID'ed as the source of Item 2. However, due to limited specimens (only 2 collected from scene), unknown history of tool during commission of crime (how much was it used? Which marks were made 1st, 2nd, etc.? Could it have changed/damaged slightly during the vandalism?) and slight differences in test marks made with differing pressures, it could not be eliminated as the source either. Inconclusive result.
ATBMAV	The toolmark on the paint can lid (Item 01-02) was neither identified to nor eliminated from having been produced by the screwdriver (Item 01-01) due to the agreement of class characteristics, but lack of individual characteristics; the result is inconclusive.
CZ2TYE	Item 2 toolmark was eliminated due to differences in class characteristics. The "ends" of the tool that made the mark in Item 2 are squared off, while Item 1 is notably rounded in shape. Also, there are some slight dimensional (width) differences noted. A small defect was noted on the edge of the Item 1 blade during stereoscopic examination. This defect corresponded with a gross defect found in the toolmark on Item 3.
F637A9	Item 3 (red): Due to corresponding characteristics found in the tool impression of the item 3 (red) and characteristics of the tip's surface of questioned screwdriver (item 1), the tool impression on paint can lid recovered from scene - item 3 (red), was produced by the questioned screwdriver - item 1.
G2GL2J	The questioned toolmarks (item 2 and item 3) on two damaged paint can lids recovered from scene were compared to test toolmarks produced by the submitted screwdriver. Microscope examination and comparison (comparison microscope from Leitz and ToolScan from LIM) of test toolmarks from the submitted screwdriver with the recovered can lid marked with red paint (item 3) revealed significant agreement of individual characteristics but exhibit disagreement to item 2.
JCAX9G	The tool mark on Item 2 bears some general class characteristics (width & length) as the Item 1 test tool marks but the individual characteristics that were found in the tool mark on Item 3 that matched tests from Item 1 were not present on Item 2. The tool mark on Item 2 could have been produced when the blade of Item 1 was in a different state of wear.
KHRPXL	Investigative Leads and Requirements for Further Analysis: The impression mark on one of the two submitted paint can lids (Item 1-02-AA) was consistent with being produced by a prying type tool. Possible tools that could have been used to produce the impression mark include, but should not be limited to: a chisel, screwdriver, or pry bar.
KKG2QZ	Methods: Tool: The type, action, and manufacturer of a tool are normally determined by directly observing the function and manufacturer markings on the tool in question. When these are not present, published materials and tool literature in the Firearms/Toolmarks Discipline reference library may be used to make determinations. When a microscopic comparison is necessary using a questioned tool, test samples are created using a test material that is softer or similar in quality to the item being compared. Toolmark Examination: Toolmarks, whether they are present on two evidence items or on

TABLE 3

WebCode	Additional Comments
	one evidence item and one test-mark created in the Laboratory, undergo two stages of comparison. First, the toolmarks are examined to determine and compare their class characteristics. The class characteristics of toolmarks include type of cutting action and the size and orientation of gripping or cutting surfaces. If the class characteristics of the toolmarks are not clearly different, the examination moves to a second stage using comparative microscopy. A microscopic comparison examination consists of a search of the impressed and striated marks present in two toolmarks to determine if patterns of similarity exist. At the completion of these comparisons, one of the following three opinions is issued: 1) Exclusion (Elimination): If two toolmarks or a tool and toolmark have incompatible class characteristics, an Exclusion opinion is rendered. Exclusion opinions based on general differences are not required to be verified. However, an exclusion opinion based on a minor difference in a measured class characteristic cannot be reported unless a second qualified firearms/toolmarks Examiner has examined the items in question and reached the same conclusion. 2) Identification: If the following conditions are met during the comparison of microscopic marks, an opinion of Identification is rendered: a) The degree of similarity is greater than the examiner has ever observed in previous evaluations of toolmarks known to have been created by different tools. b) The degree of similarity is equivalent to that normally observed in toolmarks known to have been created by the same tool. When these conditions are met the likelihood another tool could have produced the same mark is so remote as to be considered a practical impossibility. An Identification opinion cannot be reported unless a second qualified toolmarks Examiner has examined the items in question and reached the same conclusion. 3) Inconclusive (No Conclusion): If the conditions required for an Exclusion or Identification are not observed, an opinion of Inconclusive is rendered. A failure to meet the conditions for an Exclusion or Identification could be the result of limited microscopic marks of value, a lack of any observed microscopic similarity, or microscopic similarity that is present but too limited to meet the criteria for identification. Limitations: Tool: The results of tool examinations describe type and/or operating condition of the tool as it was received in the Firearms/Toolmarks Discipline. Toolmark Examination: Firearms/Toolmark Identification is an empirical science that relies on objective measurements and a subjective comparison of microscopic marks of value. Due to changes in tool working surfaces from wear, corrosion and abuse or the employment of unusual tool/work piece orientations, toolmarks created by the same tool are not always identifiable as such.
LLT3BD	THOUGH THERE ARE SIMILAR CLASS CHARACTERISTICS, THE TOOLMARK IMPRESSIONS ON ITEM 2 (Q1) PAINT CAN LID (BLUE PAINT) COULD NOT BE IDENTIFIED OR ELIMINATED AS HAVING BEEN PRODUCED BY SUSPECTED RECOVERED SCREWDRIVER ITEM 1(K1),DUE TO THE INSUFFICIENT AGREEMENT OF THE INDIVIDUAL MICROSCOPIC MARKINGS PRESENT BETWEEN ITEM 1(K1) AND ITEM 2 (Q1). “Sufficient agreement” exists between two toolmarks means that the agreement is of a quantity and quality that the likelihood another tool could have made the mark is so remote as to be considered a practical impossibility. Sufficient agreement is related to the significant duplication of random toolmarks as evidence by a pattern or combination of patterns of surface contours.
LUJH23	We used: Projectina Vision X Comparison Microscope
MB6JEJ	Agency Item 1 = Lab Item 01-01. Agency Item 2 = Lab Item 01-02. Agency Item 3 = Lab Item 01-03. Paint can lids submitted for use as tests = Lab Item 01-04
R39GTA	The comparsion has been performed with a comparative microscope using the original material.
R3XBZE	This analyst has a high standard for elimination based on disagreement of individual characteristics.
RJ7VMQ	LIMITATIONS: 1Practical Certainty: Since it is not possible to collect and examine samples of all tools, it is not possible to make an identification with absolute certainty. However all scientific research and testing to date and the continuous inability to disprove the principles of toolmark analysis have demonstrated that tools produce unique, identifiable characteristics which allow examiners to reliably make identifications. Toolmark Identification is an empirical science that relies on objective observations

TABLE 3

WebCode	Additional Comments
	and a subjective interpretation of microscopic marks of value. NOTES: This report contains interpretations and opinions based on scientific data. Some samples may have been altered or consumed during testing or may deteriorate with time. To obtain information about sample availability for re-testing or additional testing please contact the writer of this report.
T6JL7X	Item 1 exhibits a disagreement in class characteristics observed in questioned toolmark on item 2 sufficient for an elimination. Item 1 exhibits agreement in class and individual characteristics observed in questioned toolmark on item 3 sufficient for an identification.
TH37N7	ITEM 2 (Q1) BLUE PAINT CAN LID COULD NOT BE IDENTIFIED OR ELIMINATED AS HAVING BEEN MADE WITH ITEM 1 (K1) SCREWDRIVER DUE TO SIMILAR CLASS CHARACTERISTICS BUT LACK OF SUFFICIENT REPETITIVE INDIVIDUAL CHARACTERISTICS.
TYT8GQ	Methods: Tool: The type, action, and manufacturer of a tool are normally determined by directly observing the function and manufacturer markings on the tool in question. When these are not present, published materials and tool literature in the Firearms/Toolmarks Discipline reference library may be used to make determinations. When a microscopic comparison is necessary using a questioned tool, test samples are created using a test material that is softer or similar in quality to the item being compared. Toolmark Examination: Toolmarks, whether they are present on two evidence items or on one evidence item and one test-mark created in the Laboratory, undergo two stages of comparison. First, the toolmarks are examined to determine and compare their class characteristics. The class characteristics of toolmarks include type of cutting action and the size and orientation of gripping or cutting surfaces. If the class characteristics of the toolmarks are not clearly different, the examination moves to a second stage using comparative microscopy. A microscopic comparison examination consists of a search of the impressed and striated marks present in two toolmarks to determine if patterns of similarity exist. At the completion of these comparisons, one of the following three opinions is issued: 1) Exclusion (Elimination): If two toolmarks or a tool and toolmark have incompatible class characteristics, an Exclusion opinion is rendered. Exclusion opinions based on general differences are not required to be verified. However, an exclusion opinion based on a minor difference in a measured class characteristic cannot be reported unless a second qualified firearms/toolmarks Examiner has examined the items in question and reached the same conclusion. 2) Identification: If the following conditions are met during the comparison of microscopic marks, an opinion of Identification is rendered: a) The degree of similarity is greater than the examiner has ever observed in previous evaluations of toolmarks known to have been created by different tools. b) The degree of similarity is equivalent to that normally observed in toolmarks known to have been created by the same tool. When these conditions are met the likelihood another tool could have produced the same mark is so remote as to be considered a practical impossibility. An Identification opinion cannot be reported unless a second qualified toolmarks Examiner has examined the items in question and reached the same conclusion. 3) Inconclusive (No Conclusion): If the conditions required for an Exclusion or Identification are not observed, an opinion of Inconclusive is rendered. A failure to meet the conditions for an Exclusion or Identification could be the result of limited microscopic marks of value, a lack of any observed microscopic similarity, or microscopic similarity that is present but too limited to meet the criteria for identification. Limitations: Tool: The results of tool examinations describe type and/or operating condition of the tool as it was received in the Firearms/Toolmarks Discipline. Toolmark Examination: Firearms/Toolmark Identification is an empirical science that relies on objective measurements and a subjective comparison of microscopic marks of value. Due to changes in tool working surfaces from wear, corrosion and abuse or the employment of unusual tool/work piece orientations, toolmarks created by the same tool are not always identifiable as such.
UEYTF8	As per the inconclusive result for the paint lid (Item 2): There was agreement of all discernible class characteristics without agreement or disagreement of the individual characteristics due to the following: an absence, insufficiency, or lack of reproducibility of the individual characteristics.
X499QQ	Strength of Associations Made in the Identification of Toolmarks: The identification of the toolmark on Item 3 as having been made by Item 1 is made to the practical, not absolute, exclusion of all other toolmarks. This is because it is not possible to examine all tools in the world, a prerequisite for absolute

TABLE 3

WebCode	Additional Comments
	certainty. The conclusion that sufficient agreement for identification exists between two toolmarks means that the likelihood another tool could have made the questioned mark is so remote as to be considered a practical impossibility.
XB9TTM	Methods: Tool: The type, action, and manufacturer of a tool are normally determined by directly observing the function and manufacturer markings on the tool in question. When these are not present, published materials and tool literature in the Firearms/Toolmarks Discipline reference library may be used to make determinations. When a microscopic comparison is necessary using a questioned tool, test samples are created using a test material that is softer or similar in quality to the item being compared. Toolmark Examination: Toolmarks, whether they are present on two evidence items or on one evidence item and one test-mark created in the Laboratory, undergo two stages of comparison. First, the toolmarks are examined to determine and compare their class characteristics. The class characteristics of toolmarks include type of cutting action and the size and orientation of gripping or cutting surfaces. If the class characteristics of the toolmarks are not clearly different, the examination moves to a second stage using comparative microscopy. A microscopic comparison examination consists of a search of the impressed and striated marks present in two toolmarks to determine if patterns of similarity exist. At the completion of these comparisons, one of the following three opinions is issued: 1) Exclusion (Elimination): If two toolmarks or a tool and toolmark have incompatible class characteristics, an Exclusion opinion is rendered. Exclusion opinions based on general differences are not required to be verified. However, an exclusion opinion based on a minor difference in a measured class characteristic cannot be reported unless a second qualified firearms/toolmarks Examiner has examined the items in question and reached the same conclusion. 2) Identification: If the following conditions are met during the comparison of microscopic marks, an opinion of Identification is rendered: a) The degree of similarity is greater than the examiner has ever observed in previous evaluations of toolmarks known to have been created by different tools. b) The degree of similarity is equivalent to that normally observed in toolmarks known to have been created by the same tool. When these conditions are met the likelihood another tool could have produced the same mark is so remote as to be considered a practical impossibility. An Identification opinion cannot be reported unless a second qualified toolmarks Examiner has examined the items in question and reached the same conclusion. 3) Inconclusive (No Conclusion): If the conditions required for an Exclusion or Identification are not observed, an opinion of Inconclusive is rendered. A failure to meet the conditions for an Exclusion or Identification could be the result of limited microscopic marks of value, a lack of any observed microscopic similarity, or microscopic similarity that is present but too limited to meet the criteria for identification. Limitations: Tool: The results of tool examinations describe type and/or operating condition of the tool as it was received in the Firearms/Toolmarks Discipline. Toolmark Examination: Firearms/Toolmark Identification is an empirical science that relies on objective measurements and a subjective comparison of microscopic marks of value. Due to changes in tool working surfaces from wear, corrosion and abuse or the employment of unusual tool/work piece orientations, toolmarks created by the same tool are not always identifiable as such.

-End of Report-
(Appendix may follow)

Appendix: Data Sheet

*****

Collaborative Testing Services ~ Forensic Testing Program

Test No. 18-528: Toolmarks Examination

DATA MUST BE RECEIVED BY ***June 11, 2018*** TO BE INCLUDED IN THE REPORT

Participant Code: WebCode:

Accreditation Release Section

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

☐ This participant's data is intended for submission to ASCLD/LAB, ANAB, and/or A2LA.
(Accreditation Release section on the last page must be completed and submitted.)

☐ This participant's data is NOT intended for submission to ASCLD/LAB, ANAB or A2LA.

Scenario:

Police are investigating the vandalism of a homeowner's garage. Paint cans were found strewn around the garage leaking paint from holes that appeared to have been punched in the lid. A suspect was apprehended near the garage shortly after the incident occurred and police seized a screwdriver from his possession. During the investigation two paint cans were recovered where the lids had been struck but not punctured. Investigators are submitting the screwdriver along with the two damaged paint can lids for your examination.

Please note the following:
-Each Item is in a labeled envelope, it is suggested that when the items are removed from their labeled envelopes, they be marked sufficiently using laboratory procedure.
-Two additional paint can lids have been included for possible test mark purposes.

Items Submitted (Sample Pack T1):

Item 1: Screwdriver recovered from suspect.

Item 2: First paint can lid recovered from scene (marked with blue paint).

Item 3: Second paint can lid recovered from scene (marked with red paint).

1.) Were the suspect toolmarks on either of the paint can lids (Items 2 and 3) produced by the questioned screwdriver (Item 1)?

Item 2	Yes	☐	No	☐	Inconclusive*	☐
Item 3	Yes	☐	No	☐	Inconclusive*	☐

*Should an item(s) be marked "Inconclusive", please document the reason in the Additional Comments section of this data sheet.

Please return all pages of this data sheet.

Printed: July 09, 2018

Participant Code:
WebCode:

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

3.) Additional Comments

Return Instructions: Data must be received via online data entry, fax (please include a cover sheet), or mail by ***June 11, 2018*** to be included in the report. Emailed data sheets are not accepted.

QUESTIONS?
TEL: +1-571-434-1925 (8 am - 4:30 pm EST)
EMAIL: forensics@cts-interlab.com
www.ctsforensics.com

Participant Code:

ONLINE DATA ENTRY: www.cts-portal.com
FAX: +1-571-434-1937
MAIL: Collaborative Testing Services, Inc.
P.O. Box 650820
Sterling, VA 20165-0820 USA

Please return all pages of this data sheet.

Printed: July 09, 2018

Collaborative Testing Services ~ Forensic Testing Program

RELEASE OF DATA TO ACCREDITATION BODIES

The following Accreditation Releases will apply only to:

Participant Code: WebCode:

for Test No. **18-528: Toolmarks Examination**

This release page must be completed and received by ***June 11, 2018*** to have this participant's submitted data included in the reports forwarded to the respective Accreditation Bodies.

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

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

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

A2LA Certificate No. _____

Step 2: Complete the Laboratory Identifying Information in its entirety

Signature and Title _____

Laboratory Name _____

Location (City/State) _____

Accreditation Release

Return Instructions

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.