



Toolmarks Examination Test No. 11-529 Summary Report

This test was sent to 234 participants. Each sample set contained four items: Item 1 consisted of three punch-outs and Items 2, 3 and 4 each consisted of one punch-out. Participants were requested to examine these items and report their findings. Data were returned from 180 participants (77% response rate) and are compiled into the following tables:

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

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

Manufacturer's Information

Each sample set contained four items: Item 1 consisted of three punch-outs produced using the Punch Press "from the suspect's house" and Items 2, 3 and 4 each consisted of one punch-out "recovered from the scene". Hot rolled carbon steel was used for all four items. Participants were requested to determine which, if any, of the recovered questioned punch-outs (Items 2 - 4) were produced from the same punch press as the known punch-outs (Item 1).

SAMPLE PREPARATION-

Items were prepared using a single Toolset Punch .400" punch and two different dies (one for Items 1 and 2, and the other for Items 3 and 4) and packaged separately from each other.

ITEMS 3 and 4 (ELIMINATION): Multiple hot rolled carbon steel bars were used for the production of the punch-outs with an OBI Punch Press (8 ton). The punch-outs were collected and packaged together as a batch in zip top bags. This process was repeated until the required number was produced. Out of each batch, the necessary number of punch-outs were selected and inscribed with the following item numbers: "3" or "4" (one punch-out each). The punch-outs were then coated with 3 in 1 oil to prevent the toolmarks from rusting. Any excess oil was removed with a paper towel. The punch-outs were then packaged into a glassine bag and a pre-labeled coin envelope for each Item 3 and 4. Items 3 and 4 were sealed into the pre-labeled sample pack envelopes and kept together as an elimination batch.

ITEMS 1 and 2 (IDENTIFICATION): Multiple hot rolled carbon steel bars were used for the production of the punch-outs with an OBI Punch Press (8 ton). The punch-outs were collected and packaged together as a batch in zip top bags. This process was repeated until the required number was produced. Out of each batch, the necessary number of punch-outs were selected and inscribed with the following item numbers: "1" (three punch-outs) or "2" (one punch-out each). The punch-outs were then coated with 3 in 1 oil to prevent the toolmarks from rusting. Any excess oil was removed with a paper towel. The punch-outs were then packaged into a glassine bag and a pre-labeled coin envelope for each Item 1 and 2. Items 1 and 2 were kept together as an association batch and packaged into the sample pack as described below.

SAMPLE SET ASSEMBLY: For each sample set, Items 1 and 2 of the same association batch were placed into a pre-labeled sample pack envelope that contained Items 3 and 4 from the same elimination batch. This process was repeated until all of the sample sets were prepared. Once verification was completed, the sample packs were sealed with evidence tape and initialed "CTS".

VERIFICATION-

During test production, 10% of the punch-outs from each batch were selected and intercompared to confirm that markings were consistent within each batch. Laboratories that conducted the predistribution examination of the completed sample sets reported the expected identification and eliminations.

Summary Comments

This test was designed to allow participants to assess their proficiency at a toolmark examination involving striated type toolmarks. Each sample set contained four items: Item 1 consisted of three punch-outs produced using the Punch Press "from the suspect's house" and Items 2, 3 and 4 each consisted of one punch-out "recovered from the scene". Participants were requested to determine which, if any, of the questioned punch-outs were produced with the same die as the known punch-outs. The Item 2 punch-out was produced with the same die used to produce the Item 1 punch-outs. The Item 3 and Item 4 punch-outs were produced with a second, unknown die. [Refer to Manufacturer's Information for preparation details.]

Of the 180 responding participants, 172 (96%) identified the Item 2 punch-out as having been produced with the same die that produced the Item 1 punch-outs and either eliminated (154) or reported "inconclusive" (18) for Items 3 and 4. [Many labs will not as a matter of policy eliminate without access to the tool or when class characteristics match.] Five participants identified Items 2, 3 and 4 punch-outs as having been produced by the same die that produced the Item 1 punch-outs. The remaining 3 participants did not identify or eliminate Items 2, 3 and 4 as having been produced by the die that produced Item 1.

Many participants noted that Items 3 and 4 were produced with a second, unknown die different from the one used to produce Items 1 and 2. Although instructed to only examine the die marks, numerous participants also noted that, although a different die was used to produce Items 3 and 4, the same punch produced all 4 items.

Examination Results

Were any of the questioned punch-outs (Items 2, 3, or 4) produced with the same die as represented by Item 1?

TABLE 1

WebCode	Item 2	Item 3	Item 4	WebCode	Item 2	Item 3	Item 4
2C3QAN	Yes	No	No	7DQAKR	Yes	No	No
2HLA38	Yes	No	No	7E84L2	Yes	Inc	Inc
2XTPR	Yes	No	No	7ENHTB	Yes	No	No
2Y74HP	Yes	No	No	7ZNGFA	Yes	No	No
2Y9LQL	Yes	Inc	Inc	8B3T9Y	Yes	No	No
2Z48DL	Yes	No	No	8CNZQ9	Yes	Inc	Inc
2ZZPD2	Yes	No	No	8DUU9U	Yes	No	No
33PCF3	Yes	No	No	8N4RQ4	Yes	No	No
3EHWRE	Yes	No	No	8N972J	Yes	No	No
3PZDHZ	Yes	No	No	8RLVGL	Yes	No	No
3UUDUA	Yes	No	No	8RPEPH	Yes	No	No
3XCGKR	Yes	No	No	8TXLE6	Yes	No	No
3XP6T7	Yes	No	No	93NDRN	Yes	No	No
443D3K	Yes	Yes	Yes	9FTMLQ	Yes	No	No
44YKAA	Yes	No	No	9JBRC9	Yes	No	No
48GXVH	Yes	Inc	Inc	AN64Q6	Yes	No	No
4CKWX8	Yes	Yes	Yes	AYZFUV	Yes	Inc	Inc
4QAQWP	Yes	No	No	BB8KMJ	Yes	No	No
64TP6U	Yes	No	No	BD49ZG	Yes	No	No
6ED66K	Yes	No	No	BF7ZZD	Yes	No	No
6Q3AP8	Inc	Inc	Inc	BGYPKU	Yes	No	No
6X464Y	Yes	No	No	BJEKLY	Inc	Inc	Inc
72ZBXV	Yes	No	No	BL6LP2	Yes	No	No
74PHKD	Yes	No	No	BLGZQE	Yes	No	No
7DPEXF	Yes	Inc	Inc	BX6DBY	Yes	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	WebCode	Item 2	Item 3	Item 4
C3CZQU	Yes	No	No	GXKJ4H	Yes	No	No
CATLKL	Yes	No	No	GZAUBQ	Yes	No	No
CAW6TH	Yes	No	No	H233UT	Yes	No	No
DNEAKB	Yes	Inc	Inc	H2HBUG	Yes	No	No
E238GY	Yes	Inc	Inc	H62J7M	Yes	No	No
EA6XLN	Yes	No	No	H7WYJK	Yes	No	No
ECCDQ9	Yes	Inc	Inc	H8RKAQ	Yes	No	No
EHKWVT	Yes	Inc	Inc	H93K97	Yes	No	No
EJBXYV	Yes	No	No	H9L763	Yes	No	No
EN36DX	Yes	No	No	HM4V3J	Yes	No	No
EV3MTA	Yes	No	No	HMYT2D	Yes	No	No
F2LAZK	Yes	No	No	J2FUMB	Yes	No	No
F4CDVD	Yes	No	No	JQCY46	Yes	Inc	Inc
F8XZNZ	Yes	No	No	KBAR8M	Yes	Yes	Yes
FBEKC2	Yes	No	No	KL7D76	Yes	No	No
FD6LF4	Yes	No	No	KQBCYD	Yes	No	No
FEC2MA	Yes	No	No	KWHW7H	Yes	No	No
FLQTZZ	Yes	No	No	KXDHXN	Yes	No	No
FPX4ZN	Yes	No	No	L7F9PP	Yes	No	No
FTF3PQ	Yes	No	No	LCQ8HG	Yes	No	No
FVKVG4	Yes	No	No	LX7PPD	Yes	No	No
FZPW6R	Yes	No	No	MQRAK7	Yes	No	No
G67JPC	Yes	No	No	MTRE69	Yes	No	No
GNFF99	Yes	No	No	MVYUAU	Yes	No	No
GPB2XT	Yes	No	No	N48JUK	Yes	Inc	Inc
GPT3N2	Yes	No	No	N6ZG2Q	Yes	No	No
GTT7NB	Yes	No	No	N89NCJ	Yes	No	No
GXJQFX	Yes	No	No	NADFDK	Yes	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	WebCode	Item 2	Item 3	Item 4
NB6HZY	Yes	Inc	Inc	RM4FGV	Yes	No	No
NB829W	Yes	No	No	RMPYGW	Yes	Inc	Inc
NC3J9C	Yes	No	No	RTJRX7	Yes	No	No
NF2ZJK	Yes	No	No	T96X3G	Yes	No	No
NHQ4ED	Yes	No	No	TJKMA8	Yes	No	No
NJLP4X	Yes	No	No	U2J39D	Yes	No	No
NP3A24	Yes	No	No	UCWGG7	Yes	No	No
NTAPE2	Yes	No	No	UE6DP4	Yes	No	No
NVR7CM	Yes	No	No	UF2X9W	Yes	No	No
NVVMRY	Yes	Inc	Inc	UJLZ49	Yes	No	No
NXLNV2	Yes	No	No	UKYHFV	Yes	No	No
NZ7DEE	Yes	No	No	UL8KBX	Yes	No	No
NZPK6G	Yes	No	No	V68DYG	Inc	Inc	Inc
P9VLDA	Yes	No	No	VFHJ8Q	Yes	No	No
PBLP83	Yes	No	No	VFWTGQ	Yes	No	No
PFAQRN	Yes	No	No	VK943T	Yes	No	No
PKPYC7	Yes	No	No	VMX8XL	Yes	No	No
PU22WL	Yes	No	No	VQJUW2	Yes	Inc	Inc
PXYJ2E	Yes	No	No	VXZ9WU	Yes	No	No
Q3J9K2	Yes	No	No	W9AK7Y	Yes	No	No
Q4WVZV	Yes	Inc	Inc	WA49QF	Yes	No	No
Q6AAN6	Yes	No	No	WA8TEJ	Yes	Yes	Yes
Q6TCDR	Yes	No	No	WDTFDX	Yes	No	No
Q8GHZA	Yes	No	No	WGNB2C	Yes	No	No
QA8MU3	Yes	No	No	WK6WHD	Yes	No	No
QTFUY4	Yes	No	No	WKJ22J	Yes	No	No
R896MX	Yes	No	No	WLWWHA	Yes	Inc	Inc
RHXK22	Yes	No	No	WVKNTF	Yes	No	No

TABLE 1

WebCode	Item 2	Item 3	Item 4	WebCode	Item 2	Item 3	Item 4
WYLMML	Yes	No	No				
X4CFVR	Yes	No	No				
X976NT	Yes	No	No				
XBVJ4U	Yes	No	No				
XCPG8V	Yes	No	No				
XEENTD	Yes	No	No				
XR2VNT	Yes	No	No				
XWC27K	Yes	No	No				
XXPFUU	Yes	No	No				
Y8CRRR	Yes	No	No				
Y94RMH	Yes	No	No				
YM4TZJ	Yes	No	No				
YPTZL2	Yes	No	No				
YQ4YJV	Yes	Yes	Yes				
YYCJYV	Yes	No	No				
Z2FL8M	Yes	No	No				
Z9F4LY	Yes	No	No				
ZNHFFC	Yes	No	No				

Response Summary		Total Participants: 180		
<i>Were any of the questioned punch-outs (Items 2, 3, or 4) produced with the same die as represented by Item 1?</i>				
Responses		<u>ITEM 2</u>	<u>ITEM 3</u>	<u>ITEM 4</u>
	Yes	177 (98%)	5 (3%)	5 (3%)
	No	0 (0%)	154 (86%)	154 (86%)
	Inc	3 (2%)	21 (12%)	21 (12%)

Conclusions

TABLE 2

WebCode	Conclusions
2C3QAN	Item #2 was made by the submitted Punch Press Machine, Item #1. Items #3 and #4 were made by a second punch press.
2HLA38	The results of the examination strongly support that the punch-out item 2 has been produced with the same die as the punch-outs item 1. The results of the examination strongly support that the punch-outs item 3 and 4 have not been produced with the same die as punch-outs item 1.
2XXTPR	The three known punch-outs in Item #1 were examined and compared to the questioned punch-outs in Item #2, #3, and #4. Item #2 was identified as having been punched by the same punch press that produced the punch-outs from Item #1. The punch-outs in Items #3 and #4 were identified as having been punched by the same punch press, but a different punch press than Items #1 and #2. Two punch-presses are represented from the submitted evidence.
2Y74HP	Items A1-1-1, A1-1-2 and A1-1-3 (submitted as item "1": known) are consistent in class characteristics with the submitted items 2, 3 and 4 questioned evidence. Item 1 compared to item 2. The toolmark evidence in question was made with the same tool, tool not received. Item 1 compared to item 3. The toolmark evidence in question was not made with the same tool, tool not received. Item 1 compared to item 4. The toolmark evidence in question was not made with the same tool, tool not received.
2Y9LQL	The Item 2 punch-out was made by the same tool that produced the Item 1 punchouts. The Item 3 and Item 4 punchouts were made by the same tool, but could not be identified to the Item 1 and Item 2 punchouts due to exhibiting similar class characteristics, but different individual characteristics.
2Z48DL	Microscopic examination and comparison reveals the questioned toolmarks on Item 1B were made by the same tool as Item 1A. Microscopic examination and comparison reveals the questioned toolmarks on Items 1C and 1D were not made by the same tool as Item 1A. Microscopic examination and comparison reveals the questioned toolmarks on Items 1C and 1D were made by the same tool.
2ZZPD2	The questioned punch-out marked "Item 2" were[sic] examined and found to bear similar class and individual characteristics as the three known punch-outs from "Item 1". Item 2 was therefore produced with the same die as the punch-outs from "Item 1". Each of the questioned punch-outs marked "Item 3" and "Item 4" were examined and found to bear similar class and individual characteristics as one another. "Item 3" and "Item 4" were therefore produced with the same die. This die was different from the die that produced the punch-outs from "Item 1".
33PCF3	The Item 2 punch-out was microscopically compared to the Item 1 punch-outs with positive results. The Item 2 punch-out was made by the same tool that made the Item 1 punch-outs. The Item 3 and Item 4 punch-outs were microscopically compared to the Item 1 punch-outs with negative results. The Item 3 and Item 4 punch-outs were not made by the same tool that made the Item 1 punch-outs.
3EHWRE	The item 2 punch-out was produced with the same die as the item 1 punch-outs. The items 3 and 4 punch-outs were both produced with a single die, but not the die that produced the items 1 and 2 punch-outs. The conclusion that the items 3 and 4 punch-outs were not produced with the same die that produced the items 1 and 2 punch-outs is predicated on the assumption that the die has not been reconditioned, re-sharpened, worn, or altered in any significant way.
3PZDHZ	The punch-out in Item #2 was formed by the same punch press as Item #1. The punch-outs

TABLE 2

WebCode	Conclusions
	in Items #3 and #4 were formed by the same punch-out press, however, this is a different punch-out press than the one used to form Items #1 and #2.
3UUDUA	On the side of the item 2 there are striationmarks which corresponds in individual characteristics with the item 1. The marks on the item 2 are left by the same die as the marks on the item 1. On the side of the item 3 there are striationmarks which corresponds in individual characteristics with the item 4. The marks on the item 3 are left by the same die as the marks on the item 4. On the sides of the items 3 and 4 there are striationmarks which doesn't correspond in individual characteristics with the item 1. The marks on the items 3 and 4 are not left by the same die as the marks on the item 1. [sic]
3XCGKR	Item #1 consists of three (3) punch-outs from a press machine. Item #2 is one (1) punch-out which was identified as having been produced by the Item #1 punch press machine. Item #3 and #4 are two (2) punch-outs that were identified as having been produced by the same punch press machine; however, Items #3 and #4 were not identified as having been produced by the Item #1 punch press machine.
3XP6T7	[No Conclusions Reported.]
443D3K	Items 2, 3 and 4 were produced with the same die as represented by item 1.
44YKAA	I have found a match between the toolmarks found on one of the Questioned punch-out from the warehouse, Item 2, and the marks produced by the suspect's Punch Press Machine, Item 1. This punch-out from the warehouse, Item 2, was produced by the suspect's Punch Press Machine, Item 1. No match was found between the toolmarks found on the other Questioned punch-outs from the warehouse, Items 3 and 4, and the marks produced by the suspect's Punch Press Machine, Item 1. These punch-outs from the warehouse, Items 3 and 4, were not produced by the suspect's Punch Press Machine, Item 1. I have also found a match between the toolmarks found on both Questioned punch-outs from the warehouse, Items 3 and 4. These 2 punch-outs from the warehouse, Items 3 and 4, were produced by the same Punch Press Machine, other than Item 1.
48GXVH	1) The Exhibit 1 punch-out discs and the Exhibit 2 punch-out disc were made by the same punch press. 2) The Exhibit 3 and 4 punch-out discs were made by the same punch press. 3) The Exhibit 1 punch-out discs were compared to the Exhibit 3 and 4 punch-out discs and were inconclusive. While consistent in general class characteristics, there was a general disagreement of individual characteristics; however a more definitive conclusion could not be made due to the lack of submission of the actual tool used.
4CKWX8	All the punch-outs were produced by the same Punch Press Machine that was found in the suspect's house.
4QAQWP	Among the three questioned punch-outs collected in the warehouse, only the one inscribed with "2" was produced with the same die as punch-outs with "1". The remaining punch-outs (inscribed with "3" and "4") were produced with the same die, but not the one that had been used to produce punch-outs inscribed with "1". In other words, there were two different dies used; one to produce punch-outs inscribed with "2" and "1", and second die used to produce punch-outs inscribed with "3" and "4".
64TP6U	Toolmarks observed on punch-out #2, Test# 11-529, were microscopically examined and compared with test toolmarks on the known punch-outs submitted as #1, Test# 11-529. Numerous corresponding individual characteristics were observed. Therefore, it is my opinion that punch-out #2, Test# 11-529, was produced with the same die as punch-outs #1, Test# 11-529. Toolmarks observed on punch-outs #3 and #4, Test# 11-529, were microscopically examined and compared with each other. Numerous corresponding individual characteristics were observed. Therefore, it is my opinion that these two punch-outs

TABLE 2

WebCode	Conclusions
	#3 and #4, Test# 11-529, were produced with the same die. These toolmarks on the two punch-outs #3 and #4, Test# 11-529, were further microscopically examined and compared with test toolmarks on the known punch-outs submitted as #1, Test# 11-529. It is my opinion that these two punch-outs #3 and #4, Test# 11-529, were not produced with the same die as the test punch-outs submitted as #1, Test# 11-529.
6ED66K	Item 2 was produced with the same Punch Press Machine that produced Item 1. Item 2 and Item 3 were produced with the same Punch Press Machine, however, this was not the same Punch Press Machine that produced Item 1.
6Q3AP8	Toolmarks present on the punch-out, Item 2, are in agreement with those present on the punch-outs, Item 1; however significance cannot be determined without the examination of the tool. Toolmarks present on the punch-out, Item 3, are in agreement with those present on the punch-out, Item 4; however significance cannot be determined without the examination of the tool. Toolmarks present on the punch-outs, Items 3 & 4, were neither identified nor eliminated as having been produce[sic] by the same tool as the punch-outs, Item 1.
6X464Y	Item 2 was marked by the same stamping die as Item 1. Items 3 and 4 were eliminated as having been marked by the same stamping die as Items 1 and 2. Items 3 and 4 were marked by the same stamping die.
72ZBXV	Item 1.1 is said to be three test punch-outs from a Punch Press Machine. Items 1.2, 1.3 and 1.4 are three punch-outs. Item 1.2 was microscopically compared to Item 1.1. Item 1.2 was identified as having been produced by the same die of the punch press machine that Item 1.1 was said to have come from. Items 1.3 and 1.4 were microscopically compared to Item 1.1 and to each other. Items 1.3 and 1.4 were eliminated as having been produced by the same die of the punch press machine that Item 1.1 was said to have come from. Items 1.3 and 1.4 were identified as having been produced by the same die from a punch press machine.
74PHKD	1. Examinations showed Item 2 was produced with the same die as Item 1. 2. Examinations showed Items 3 and 4 were not produced with the same die as Item 1. 3. Examinations showed Items 3 and 4 were produced with the same unknown die.
7DPEXF	The punch-out (item 2) was made by the punch press (dye[sic]) represented by the known punch-outs (item 1). The punch-outs (items 3 & 4) were made by a single punch press (dye[sic]). However, they were neither identified to nor eliminated from the punch-out (item 2) or the punch press represented by the punch-outs (item 1). The results of these comparisons were inconclusive.
7DQAKR	The geometrical shape of the side surface of Item 1 is very similar to that of Item 2, but much different to that of Item 3 and 4. The striation marks of the side surface of Item 1 are equal to that of Item 2.
7E84L2	Item #1 and Item #2 bear marks consistent with having been produced by the same die. It can not be determined if Item 3 or Item 4 were produced by the same die as Item 1 or Item 2 even though items 3 and 4 bear marks consistent with having been produced by a die in common with each other.
7ENHTB	I microscopically examined and compared the punch outs in Items 1 through 4 with the following results. The punch outs in Item 2 were made from the same machine that known punch-outs in Item 1 had reportedly originated from based on consistent class characteristics and matching individual detail. The punch outs in Items 3 and 4 were made from the same machine based on consistent class characteristics and matching individual detail. The class characteristics were similar between the punch outs, however there was sufficient disagreement in the individual detail between Items 1 and Items 3 for an elimination to be made. Therefore, the punch outs in Items 3 and 4 were made by a different tool than the one that created the

TABLE 2

WebCode	Conclusions
	punch outs in Items 1 and 2.
7ZNGFA	Item 2 was made in the die recovered from the suspect. Items 3 and 4 were made by the same die. However, it was not the one recovered from the suspect.
8B3T9Y	Toolmarks noted on the discs contained in Items 1 and 2 were produced by the same tool. Toolmarks noted on the discs contained in Items 3 and 4 were produced by the same tool. Toolmarks noted on Items 3 and 4 were not made by the tool that produced the marks noted on Items 1 and 2.
8CNZQ9	Toolmark examination of the submitted items determined that toolmarks on the sides of Item 1 and Item 2 were produced by the same tool, which employed a shearing action. Toolmarks on the sides of Item 3 and Item 4 were produced by the same tool, which employed a shearing action. Due to a lack of sufficient corresponding individual toolmarks of value, no conclusion could be reached as to whether the same shearing tool was used to mark the sides of Items 1 through 4. Additional toolmark examination of the undersides of Items 1 through 4 determined that all of these items were stamped by the same punch.
8DUU9U	Comparative examinations of Item 1 (three known punch outs from punch press machine from suspect's house) against Item 2 (questioned punch out from warehouse) showed the presence of matching features. This indicates that the die from the punch press machine used to produce Item 1 was also used to produce Item 2. Comparative examinations of Item 1 against Items 3 and 4 (two questioned punch outs from warehouse) showed the presence of different features. This indicates that the die from the punch press machine used to produce Item 1 was not used to produce Items 3 and 4. Items 3 and 4 were intercompared and the comparison showed the presence of matching features. This indicates that the die from the punch press machine used to produce Item 3 was also used to produce Item 4.
8N4RQ4	Initial examination of items 1 through 4 showed the metal slugs possessed toolmarks consistent with a punch press (rollover edges, burnished sides with striations followed by fractures and a burr). Further examination with a stereomicroscope and a toolmark comparison microscope demonstrated one punch and two different dies were used to make the slugs. Item 2 was made by the same die as item 1. Item 3 was made by a different die than item 1. Item 4 was made by a different die than item 1. It was made by the same die as item 3.
8N972J	There is sufficient agreement of class characteristics and sufficient agreement of individual characteristics, therefore it can be stated that Item #1 and Item #2 are punch-outs made by the same punch press machine (from suspect's house).
8RLVGL	Punch-out from Item 2 has similar characteristics with punch-outs from Item 1. Punch-outs from Item 3, and Item 4 did not have similar characteristics with Item 1. In conclusion, punch-out from Item 2 might be produce[sic] with the same die as punch-outs from Items 1.
8RPEPH	The questioned punch-out in item 2 was determined to have been made by the same die as the three (3) known punch-outs in item 1. The two (2) questioned punch-outs in items 3 and 4 were determined not to have been made by the same die as represented by item 1.
8TXLE6	Tools, like the die used in the punch press machine, have individual surface features, due to their manufacturing process and use. These surface features can be transferred onto objects that are worked with the die. If a toolmark shows sufficient details that were caused by the corresponding individual structures of the die, the die can be identified to have caused the toolmark. Due to the individual features in the toolmarks on the submitted punch-outs, it is proven that: The toolmarks on Item 1 (known sample from suspect's house) and Item 2 were caused by the same die. The toolmarks on Item 3 and Item 4 were caused by the same die. The toolmarks on Item 3 and Item 4 were not caused by the die used for Item 1 and Item 2.
93NDRN	Items 1-1 through 1-3, and 2 through 4 are consistent with ferrous metal punch blanks. There

TABLE 2

WebCode	Conclusions
	are sufficient individual marks to conclude that they were all punched with the same punch. There are sufficient individual marks to conclude that item 2 was punched using the same die used to punch the items 1-1 through 1-3 punch blanks. There are sufficient individual characteristics to conclude that items 3 and 4 were punched using the same die. However they were not punched using the same die that punched items 1-1 through 1-3 and 2.
9FTMLQ	The punch-outs in Items 1 and 2 were found upon microscopic comparison to have been made by the same die. The punch-outs in Items 3 and 4 were found upon microscopic comparison to have been made by the same die. However, these punch-outs were not made by the same die (in its submitted condition) that cut Items 1 and 2.
9JBRC9	Our laboratory examined three punch-outs from Punch Press Machine from the suspect's house (Item 1) and the evidential material from warehouse (Items 2, 3 and 4). Materials were analysed by the application of the comparison microscope Leica FSC and the examined images were digitally processed using Lucia Forensic application. As a result of the performed comparison it was found: 1. Item 2 was produced with the same die as that represented by Item 1. 2. Item 3 and 4 wasn't[sic] produced with the same die as that represented by Item 1.
AN64Q6	Three "exemplar" metal punch-outs (Items 001-01A, 001-01B, and 001-01C) and three questioned metal punch-outs (Items 001-02, 001-03, and 001-04) were submitted for comparison. The punch-outs were produced by a punch press, a machine designed to produce holes in materials such as metal. The holes were produced by a punch and die, components of the punch press. The punch-outs were examined microscopically and toolmarks produced by both a punch and die were observed on all of them. For the purposes of this exercise, it must be distinctly understood that any toolmarks examined are presumed to be unique to the tool used to produce those toolmarks because no tool or tools of interest were made available for evaluation. The die marks observed on the "exemplar" punch-outs (Items 001-01A, 001-01B, and 001-01C) were compared microscopically and it was concluded that the die marks were produced by a single die. The die marks observed on the questioned punch-outs (Items 001-02, 001-03, and 001-04) were compared microscopically to the die marks observed on the "exemplar" die marks. It was concluded that: 1. The die marks observed on Item 001-02 were produced by the die used to produce the die marks observed on Items 001-01A, 001-01B, and 001-01C. 2. The die marks observed on Items 001-03 and 001-04 were not produced by the die used to produce the die marks observed on Items 001-01A, 001-01B, and 001-01C. 3. The die marks observed on Items 001-03 and 001-04 were produced by a single die.
AYZFUV	Toolmarks present on Items #1 and #2 were made by the same tool. Toolmarks present on Items #3 and #4 were made by the same tool; however, these punch-outs could not be associated with the test punch-outs (Item #1) or with Item #2 by use of toolmarks.
BB8KMJ	The 3 known 'punch-outs' in item 1 were examined when their general characteristics were noted. All 3 'punch-outs' were found to exhibit similar characteristics to each other. The 'punch-out' in item 2 was examined when it was found to show agreement in dimensions and fine detail around the edge to the 'punch-out' in item 1. In our opinion they have been produced by the same punch press machine. The 'punch-outs' in item 3 and item 4 were examined when they were found to show differences in fine detail around the edges to the 'punch-out' in item 1. In our opinion they have not been produced by the same punch press machine.
BD49ZG	Exhibit 2 was determined to have been made by same punch press as Exhibit 1. Exhibits 3 and 4 were excluded from Exhibit 1.
BF7ZZD	Identification: Based on the comparison of class and individual characteristics of the test tool mark punch-outs (Item 1) with the tool marks exhibited on the punch-out (Item 2), the tool

TABLE 2

WebCode	Conclusions
	marks on the punch-outs Items 1 and 2 were identified as having been created by the use of the same die. Elimination: Based on the differences of individual characteristics, the tool marks exhibited on the punch-outs (Items 3 and 4) were eliminated as having been created by the use of the same die as the tool marks exhibited on the test tool mark punch-outs (Item 1). Identification: Based on the comparison of class and individual characteristics of tool marks exhibited on punch-out (Item 3) with the tool marks exhibited on the punch-out (Item 4), the tool marks on the punch-outs Items 3 and 4 were identified as having been created by the use of the same die.
BGYPKU	A microscopic comparison was made of the die marks on the punch out in Exhibit 1 and the die marks on the punch out in Exhibits 2, 3 and 4. Based on agreement of class and sufficient agreement of individual characteristics, Exhibit 2 was forced through the same die as Exhibit 1. Based on a disagreement of individual characteristics, Exhibits 3 and 4 were not forced through the same die as Exhibit 1. A microscopic comparison was made of the die marks on Exhibits 3 and 4. Based on agreement of class and sufficient agreement of individual characteristics, Exhibit 3 and 4 were forced through the same die.
BJEKLY	There are patterns of toolmarks present on each of the punch outs, Items 1, 2, 3 and 4; however, their significance cannot be determined without examination of the punch press machine. The punch outs, Items 2, 3 and 4, can neither be identified nor eliminated as having been produced by the same machine that produced the punch outs, Item 1.
BL6LP2	Item #2 is a circular metal punch-out which was identified as having been produced by the item #1 die. Items #3 and #4 consist of two (2) circular metal punch-outs which were identified as having been produced by the same die however, they were not produced by the Item #1 die.
BLGZQE	Item 2 was made by the same die as Item 1. Item 3 and Item 4 were made by a second die. Item 3 and Item 4 were not made by the same die as Item 1 and Item 2 based on differences in individual characteristics.
BX6DBY	Exhibits 1 through 4 are metal disks with a diameter of 0.40 inch. Microscopic comparisons were conducted between Exhibit 1, 2, 3, and 4. Based on agreement of all discernible class characteristics and sufficient agreement of individual characteristics, Exhibits 1 and 2 were identified as having been made by the same punch die. Based on agreement of all discernible class characteristics and sufficient agreement of individual characteristics, Exhibits 3 and 4 were identified as having been made by the same punch die. However, due to differences in individual characteristics, Exhibits 3 and 4 were eliminated as having been made in the punch die that made Exhibits 1 and 2.
C3CZQU	The Item 1 and 2 punch-outs were produced by the same die. The Item 3 and 4 punch-outs were not produced by the same die that produced the Item 1 punch-outs. The Item 3 and 4 punch-outs were produced by the same die.
CATLKL	Sample no 2 comes from the same matrix as the sample no 1. Sample no 3 and no 4 do not come from that matrix. Note: Results of researches refer to the lateral side surface of the samples and not to the surface on which the designation was applied in this form of numbers 1, 2, 3, 4.[sic]
CAW6TH	Microscopic examination and comparison of the three (3) punchouts from Item 1 with the one (1) punchout from Item 2 revealed sufficient evidence to conclude that the toolmarks on the Items 1 and 2 punchouts were produced by the same tool. Microscopic examination and comparison of the Item 3 punchout and the Item 4 punchout revealed sufficient evidence to conclude that the toolmarks on the Items 3 and 4 punchouts were produced by the same tool. Microscopic examination and comparison of the three (3) punchouts from Item 1 with the Item 3 and Item 4 punchouts revealed sufficient evidence to conclude that [sic] tool that produced

TABLE 2

WebCode	Conclusions
	the toolmarks on the Item 1 punchouts was not the same tool that produced the toolmarks on the Items 3 and 4 punchouts.
DNEAKB	One of the submitted evidence steel punch-outs (Item 2) was identified as having been produced by the same tool that made the submitted steel punch-outs (Item 1). The two remaining submitted evidence steel punch-outs (Items 3 and 4) could not be identified or eliminated as having been produced by the same tool that made the submitted test steel punch-outs (Item 1) due to a lack of reproducible marks. Two of the submitted evidence steel punch-outs (Items 3 and 4) were identified as having been produced by the same tool.
E238GY	Examination of Item 2 determined that it contains toolmarks that were produced by the same tool that produced the toolmarks on Item 1. Examination of Item 3 determined that it contains toolmarks that were produced by the same tool that produced the toolmarks on Item 4. Due to a lack of sufficient corresponding microscopic marks of value no further associations could be made between the submitted items.
EA6XLN	The item 2 punch-out is identified as being punched-out by the die that punched-out the item 1 punch-outs. The item 3 and 4 punch-outs are eliminated from being punched-out by the die that punched-out the item 1 punch-outs. The item 3 and 4 punch-outs are identified as being punched-out by the same unknown die.
ECCDQ9	Four of the six punch-outs (1A, 1B, 1C, and 2) were produced with the same die. Two of the six punch-outs (3 and 4) were produced with the same die. Four of the six punch-outs (1A, 1B, 1C, and 2) were neither identified nor eliminated as having been produced by the same die as were the other two punch-outs (3 and 4). There is agreement in all discernable class characteristics; however, there is insufficient agreement in the individual characteristics to establish an identification.
EHKWVT	The tool in Item 1 was identified as having made the toolmarks in Item 2. The tool in Item 1 could not be identified or excluded as having made the toolmarks in Items 3 and 4 due to insufficient agreement of individual characteristics.
EJBXYV	Items 1A-C consist of three (3) silver metal round punch outs, with a diameter of approximately 1 3/32 of an inch. These items were examined for the presence of toolmarks and marks of value were found. A microscopic comparison was conducted between the punch outs and there is sufficient agreement of individual characteristics to identify all of them as having been produced by the same tool, i.e. machine. Items 2, 3 and 4 were examined for the presence of toolmarks and marks of value were found. A microscopic comparison was conducted between Items 2, 3, 4 and Item 1A. There is sufficient agreement of individual characteristics to identify Items 2 and 1A as having been produced by the same tool, i.e. machine. Due to a difference in individual characteristics, Items 3 and 4 were eliminated as having been produced by the same tool as Exhibits 1A and 2. A microscopic comparison was conducted between Items 3 and 4 and there is sufficient agreement of individual characteristics to identify them as having been produced by the same tool, i.e. machine.
EN36DX	The toolmarks on the punch out in submission 2 were produced by the same tool which produced the toolmarks on the test punch outs in submission 1. The toolmarks produced on the punch outs in submissions 3 and 4 were not produced by the tool which produced the toolmarks on the punch outs in submission 1.
EV3MTA	Item 1 and Item 2 were cut by the same tool. Item 3 and Item 4 weren't cut by the Punch Press Machine from suspect's house. But they were cut by another tool.
F2LAZK	The questioned punch-out, Item 2 was produced with the same die as represented by item 1. The questioned punch-out inscribed with 3 and 4 were not produced with the same die as represented by item 1.

TABLE 2

WebCode	Conclusions
F4CDVD	Sufficient agreements of class and individual characteristics confirmed the item 2 punch out was produced by the same tool as the item 1 punch outs. Sufficient disagreements of individual characteristics confirmed the item 3 and item 4 punch outs were not produced by the same tool as the item 1 punch outs. Sufficient agreements of class and individual characteristics confirmed the item 3 and item 4 punch outs were produced by the same tool.
F8XZNY	The punch-out Item 2 was produced by the same punch-press die that produced the punch-outs in Item 1. The punch-outs Item 3 and Item 4 were produced by the same punch-press die, but different from the punch-press die that made Item 1.
FBEKC2	It was determined that the punch-outs in Items 1 and 2 were made by the same tool. It was determined that the punch-outs in Items 3 and 4 were not made by the same tool as the punch-out in Item 1.
FD6LF4	Microscopic examination and comparison reveals the questioned toolmarks on Items 1 and 2 were made by the same tool. Microscopic examination and comparison reveals the questioned toolmarks on Items 3 and 4 were made by the same tool. Microscopic examination and comparison reveals the questioned toolmarks on Items 1 and 2 were not made by the same tool as the questioned toolmarks on Items 3 and 4.
FEC2MA	The questioned punch-out metal disk in item 2 was determined to match the known punch-out metal disks in item 1; therefore, items 2 and 1 were made by the same die. The two (2) questioned punch-out metal disks in items 3 and 4 were determined not to match the known punch-out metal disks in item 1; therefore, items 3 and 4 were made by a different die than item 1.
FLQTZZ	[No Conclusions Reported.]
FPX4ZN	The three (3) metal punch-outs in Item 1 and the metal punch-out in Item 2 were identified as having been produced by the same tool. The metal punch-outs in Items 3 and 4 were identified as having been produced by the same tool; however, a different tool than the one that produced the metal punch-outs in Items 1 and 2.
FTF3PQ	Item #2: The punch-out was compared to the known punch-out exemplars, Item #1. Sufficient corresponding individual tool mark signatures were observed to conclude that the punch-out was produced with the die in the suspect's punch press machine. Item #3: The punch-out was compared to the known punch-out exemplars, Item #1. Differences in individual tool mark signatures were observed to eliminate the die in the suspect's punch press machine as producing the punch-out. Item #4: The punch-out was compared to the known punch-out exemplars, Item #1. Differences in individual tool mark signatures were observed to eliminate the die in the suspect's punch press machine as producing the punch-out. The punch-out was also compared to Item #3. Sufficient corresponding individual tool mark signatures were observed to conclude that both punch-outs were produced by the same die.
FVKVG4	Item #2: The punch-out was compared to the known punch-outs of Item #1. Sufficient corresponding individual tool mark signatures were observed to conclude that the punch-outs were produced by the same die. Item #3: The punch-out was compared to the known punch-outs of Item #1. Differences in the individual tool mark signatures were observed to conclude that the punch-out of Item #3 was produced by a different die than the punch-outs of Item #1. Item #4: The punch-out was compared to the known punch-outs of Item #1. Differences in the individual tool mark signatures were observed to conclude that the punch-out of Item #4 was produced by a different die than the punch-outs of Item #1. The punch-out was also compared to the punch-out of Item #3. Sufficient corresponding individual tool mark signatures were observed to conclude that the punch-outs were produced by the same die.

TABLE 2

WebCode	Conclusions
FZPW6R	On examination, I found that the toolmarks on item 1 (three known punch-outs from Punch Press Machine) and item 2 (Questioned punch-out) were come[sic] from the same source (Punch Press Machine from suspect's house). I also found that the toolmarks on item 3 (Questioned punch-out) and item 4 (Questioned punch-out) were not produced by the Punch Press Machine from suspect's house.
G67JPC	Microscopic examination and comparison of the tool marks present on the punch-outs, Item 1, reveals that all three punch-outs were made by the same punch press machine. Microscopic examination and comparison of the tool marks present on the punch-out, Item 2, with the tool marks present on the Item 1 punch-outs reveals that the same punch press machine was used to make all four punch-outs. Microscopic examination and comparison of the tool marks present on the punch-out, Item 3, with the tool marks present on the punch-out, Item 4, reveals that these two punch-outs were made by the same punch press machine. Differences in individual characteristics were sufficient to determine that the punch press machine that made the Item 3 and Item 4 punch-outs is a different punch press machine than that which made the Item 1 and Item 2 punch-outs.
GNFF99	The comparison of the toolmarks of item 1 with the toolmarks of item 2 was positive; the comparison shows that the three punch-outs/diecuts of item 1 were produced with the same punching machine as item 2. The comparison of the toolmarks of item 1 with items 3 and 4 was negative; the stamping machine used for item 1 was not the same that was used for items 3 and 4. But item 3 and 4 were produced with the same punching machine.
GPB2XT	The findings of the investigation regarding the punch out Item 2 are much more probable if the toolmarks in Item 2 and Item 1 were caused by the same die than if they were caused by two different dies. The findings of the investigation regarding the punch outs Item 3 and Item 4 are more probable if the toolmarks in Item 3 and Item 4 and the toolmarks in Item 1 were caused by (two) different dies than if they were caused by the same die.
GPT3N2	The Item 1 punch-outs match each other and were punched through the same die. The Item 2 punch-out matched the Item 1 punch-outs and was punched through the same die. The Items 3 and 4 punch-outs match each other and were punched through the same die. The Items 3 and 4 punch-outs did not match the Item 1 punch-outs and were not punched through the same die.
GTT7NB	On comparison, I found that the characteristic marks on the "Item 2" (Questioned punch-out from warehouse, "2") is similar to those on the "Item 1" (Three known punch-outs from Punch Press Machine from suspect's house, "1"). Hence, I am of the opinion that the "Item 2" is produced by the same punch press machine as "Item 1". Examination also showed that the "Item 3" (Questioned punch-out from warehouse, "3") and "Item 4" (Questioned punch-out from warehouse, "4") were produced by the same unknown punch press machine.
GXJQFX	The three (3) punch-outs in item #1 were directly compared to each other and sufficient agreement was found to determine that they were all produced by the same punch press machine. Used for comparison were the striated marks found around the circumference of the punch-out. The punch-out in item #2 was directly compared to the punch-out in item #1 and a positive identification was made. They both have been produced by the same punch press machine. There was sufficient agreement found on the side of the punch-outs in the striated marks for the comparison. The punch-outs in items #3 and #4 were directly compared to each other and a positive identification was made. They both have been produced by the same punch press machine. There was sufficient agreement found on the side of the punch-outs in the striated marks for the comparison. Items #3 and #4 were not produced by the same punch press machine as three (3) punch-outs in item #1.
GXKJ4H	My examinations showed the following: The punched out disk Item 2 had been produced by

TABLE 2

WebCode	Conclusions
	the same Punch Press Machine die used to produce the disks contained in Item 1. The punched out disks contained in Item 3 and Item 4 had both been produced in the same Punch Press Machine, not being the Punch Press Machine used to produce the disks contained in Item 1.
GZAUBQ	The toolmarks on the punch outs in items 1 and 2 were identified as having been made by the same die. The toolmarks on the punch outs in items 3 and 4 were identified as having been made by the same die. The toolmarks on the punch outs in items 1 and 2 were excluded as having been made by the same die as the toolmarks on the punch outs in items 3 and 4.
H233UT	The known punch-outs in Exhibit 1 were microscopically compared to each other and to the punch-outs in Exhibits 2, 3 and 4. Based on an agreement of class characteristics and sufficient agreement of individual characteristics, Exhibit 2 was made by the same die as the punch-outs in Exhibit 1. Based on an agreement of class characteristics and a disagreement of individual characteristics, Exhibits 3 and 4 were not made with the same die as the punch-outs in Exhibit 1.
H2HBUG	Item #2 was punch by suspect press machine from house.[sic]
H62J7M	The punch-out in item 2 was identified as having been made by the same press as the punch-outs in item 1. The punch-out in item 3 was identified as having been made by the same press as the punch-out in item 4. The punch-outs in items 3 and 4 were excluded as having been made by the same press as the punch-outs in items 1 and 2.
H7WYJK	Sufficient agreements of class and individual characteristics confirmed the Item 2 metal punch-out was made from the same tool as the Item 1 test standard metal punch-outs. Sufficient disagreements of individual characteristics confirmed Item 3 and 4 were not made by the same tool as the Item 1 test standard metal punch-outs. However, sufficient agreements of class and individual characteristics confirmed the Item 3 and 4 metal punch-outs were made from the same tool.
H8RKAQ	Exhibit 1 consists of three (3) known punch-outs taken from the suspect's Punch Press Machine. These punch-outs, designated as 1A, 1B and 1C, were examined and microscopically inter-compared. There is agreement of all discernible class characteristics and sufficient agreement of individual characteristics to identify them as having been produced by the same Punch Press Machine. The Exhibit 2 punch-out was examined and microscopically compared to Exhibits 1A, 1B and 1C. There is agreement of all discernible class characteristics and sufficient agreement of individual characteristics to identify it as having been produced by the same Punch Press Machine as Exhibits 1A, 1B and 1C. Exhibits 3 and 4 punch-outs were examined and microscopically compared. There is agreement of all discernible class characteristics and sufficient agreement of individual characteristics to identify them as having been produced by the same Punch Press Machine. Exhibits 3 and 4 punch-outs were examined and microscopically compared to Exhibits 1A, 1B, 1C and 2. Although there is an agreement of all discernible class characteristics, however, due to significant disagreement of individual characteristics, Exhibits 3 and 4 were not produced by the same Punch Press Machine which produced Exhibits 1A, 1B, 1C and 2.
H93K97	Items #1, 2, 3 and #4 (known & unknown punch-outs) were examined on 10-18-2011. The questioned toolmarks on Item #2 (punch-out from warehouse) were positively identified as having been produced by the same die tool as Item #1 (known punch-outs). The questioned toolmarks on Item #3 and #4 (punch-out from warehouse) were eliminated as having been produced by Item #1 (known punch-outs). The questioned toolmarks on Item #3 and #4 (punch-out from warehouse) were positively identified as having been produced by the same die tool.
H9L763	1. Examinations showed Item 2 was produced with the same die as Item 1. 2. Examinations

TABLE 2

WebCode	Conclusions
	showed Items 3 and 4 were not produced with the same die as Item 1. 3. Examinations showed Items 3 and 4 were produced with the same unknown die.
HM4V3J	Known punchout specimens made with the suspect's tool (Items 1) were compared microscopically with questioned specimens 2, 3, and 4. The result of the comparison of Item 2 with Items 1 was positive. Items 1 and 2 have matching striations and were produced with the same tool. The results of the comparisons of Items 3 and 4 with Items 1 were negative. Items 3 and 4 have different random, individual characteristics (striations) from Items 1, and were not produced with the suspect's tool. However, Items 3 and 4 have matching striations and were both produced with the same tool, not yet identified.
HMYT2D	The punch out from item #2 was identified as having been cut by the same tool that generated set #1. Items #3 and #4 were not cut by tool #1, but were each cut by the same, second tool. Item #3 match item #4.
J2FUMB	Item 2 was cut by the same punch press as Item 1. Items 3 & 4 were cut by a different punch press than Item 1. However they were cut by the same machine.
JQCY46	The evidence punch-out, Item 2, was created by the same Punch Press Machine that created the test punch-outs, Item 1. The evidence punch-outs[sic], Items 3 & 4, due to a lack of matching patterns of striations, but a similar appearance of striations, could not be identified or eliminated as having been created by the same Punch Press Machine as the tests, Item 1. The two evidence punch-outs, Items 3 and 4, were created by the same Punch Press Machine.
KBAR8M	A microscopic comparative examination of the items #1 through item #4 disclosed that the toolmarks present on the items #1 (three punch outs) and the items #2 through item #4 punch outs were produced by the same tool, (suspect's punch press machine).
KL7D76	Examination of die toolmarks: Assuming that there is no subclass influence, punch-out #2 was produced with the same dies used to produce Item 1, the three known punch-outs from the Punch Press Machine from the suspect's house. Also assuming that there is no subclass influence, punch-outs #3 and 4 were both produced with the same die, but not the die used to produce the Item 1 known punch-outs and the Item 2 questioned punch-out. Examination of punch toolmarks: Assuming that there is no subclass influence, all three known punch-outs, Item 1, and all three questioned punch-outs, Items 2, 3 and 4, were punched out with the same punch. The matching die and punch toolmarks on the metal punch-outs were found to consist of numerous coarse and fine striations which met the conservative QCMS identification criteria for three-dimensional toolmarks. However, the determination that this agreement is sufficient to individualize the punch-outs as having been produced by any particular die or punch is dependent on an evaluation of the working surfaces of the dies and punch. From an examination of the working surfaces of the punch-out dies and punch, it may be possible to determine whether toolmarks produced by these dies and punch are individual or consist, either wholly or in part, of subclass toolmark characteristics. Without having the dies and punch to examine, the strongest associative evidence statement that can be made is that there is a strong indication, based on the extensive variation in size and depth of striae that agree, that punch-out #2 was produced from the die found in the suspect's Punch Press Machine, Item 1. Punch-outs #3 and 4 were definitely not produced from the die found in the suspect's Punch Press Machine. There is also a strong indication, based on the extensive variation in size and depth of striae that agree, as well as agreement of impression type of toolmarks, that all submitted punch-outs, both known and questioned, were punched out with the same punch.
KQBCYD	Item 2 has been produced in the same puncture press machine as the Items 1. The items 3 and 4 have been produced in another machine.
KWHW7H	It was determined utilizing comparison microscopy that the partial toolmark impression

TABLE 2

WebCode	Conclusions
	detected on item 2 was positively made by the tool used to create the item 1 test impressions. It was determined utilizing comparison microscopy that the partial toolmark impressions detected on item 3 and item 4 were not made by the item 1 tool.
KXDHXN	Examinations: Determine if any of the questioned punch-outs (Items 2 through 4) were produced with the same die as the known punch-outs (Item 1). Findings: Item 1 consists of three known punch-outs, approximately .40" in diameter. Item 2 consists of a punch-out, approximately .40" in diameter. Item 3 consists of a punch-out, approximately .40" in diameter. Item 4 consists of a punch-out, approximately .40" in diameter. The questioned punch-outs, Items 2 through 4, were examined, documented, and compared with the known punch-outs, Item 1, with the following results: Items 1 and 2 toolmarks were identified as having been produced by the same die. Because of a difference in individual characteristics, Items 3 and 4 toolmarks could not have been produced by the die which produced Item 1 punch-outs. A stereoscope, comparison microscope, caliper, and digital imaging equipment were used in the examination of the toolmarks.
L7F9PP	Examination of the known Item 1 'punch-outs' in conjunction with the questioned Items 2, 3 and 4 'punch-outs' determined that Item 2 was produced by the same tool as from Item 1. Both Item 1 and Item 2 were produced by the same die. Items 3 and 4 were both produced by the same die but not the die used to produce Items 1 and 2.
LCQ8HG	Item 2 was punched out by the same die as Item 1 (Punch-outs created by die in press from suspect's house). Items 3 and 4 were punched out by a common, same die, however die is different from the die that punched out Items 1 and 2.
LX7PPD	An examination of all six circular metallic discs (3 x marked #1 and #2 - #4) revealed them to be similar in design and appearance. I made an examination of all six discs comparing the shear marks located on their edges using a comparison microscope. This type of examination allows two objects to be viewed simultaneously so that microscopic marks left behind the surface of the discs by the punch during manufacturing can be compared and assessed. As a result of this examination I formed the opinion that two different punches were utilised to create the six punch-outs as follow: i - the three known punch-outs, marked '1' each, were created using the same Punch Press Machine that created the punch-out, marked '2'. ii - the punch-out, marked '3', were[sic] created using the same press that created the punch-out '4'.
MQRAK7	The known punch outs from item 1 were compared to the punch outs, items 2, 3 and 4. It was determined that item 2 was punched out by item 1. Items 3 and 4 were punched by the same machine; however, not by item 1.
MTRE69	a. The toolmarks on Items 2 and Items 1 have similar shape and striations. b. The toolmarks on Items 3 and Items 1 have different shape and striations. C. The toolmarks on Items 4 and Items 1 have different shape and striations.
MVYUUAU	The metal punch-out of item #2 was microscopically identified as having been made by the same die that produced the known samples of item #1. The metal punch-outs of items #3 and #4 were eliminated as having been made by the same die as item #1. Furthermore, these punch-outs were both microscopically identified as having been made by a second unknown die.
N48JUK	The tool that made the test cuts in item 1 was identified as having made the toolmarks on the punch-out in item 2. The tool that made the test cuts in item 1 could not be identified as having made the toolmarks on the punch-outs in items 3 and 4. Although the toolmarks in items 3 and 4 exhibited similar class characteristics as the test cuts in item 1, they did not exhibit sufficient agreement of individual characteristics. The toolmarks on the punch-out in item 3 were identified as having been made by the same tool that made the toolmarks on the punch-out in item 4.

TABLE 2

WebCode	Conclusions
N6ZG2Q	M1 (metal disc - Item #2) was made from T1 (punch press). M2 (Item #3) and M3 (Item #4) were made from the same punch press, not T1.
N89NCJ	I conducted an examination of the three discs in Item 1 and the single disc in each of Items 2, 3 and 4. This revealed that all of the discs appeared to be made of the same (dark grey) metal and are all approximately 10.2mm in diameter, 3.25mm thick and 1.89 grams in weight. The top third of each disc around its circumference had quality striated information present. I conducted a comparative microscopic examination between these discs and compared the striations which revealed the following - Items 1 and 2 had been produced by the same machine. Items 3 and 4 had been produced by the same machine but different to the one responsible for creating Items 1 and 2.
NADFDK	Exhibits 1 through 4 are metal disks that were cut by a circular shearing type tool(s) with a diameter of approximately 3/8 of an inch. The edges of Exhibits 1 through 4 bear toolmarks of value for comparison. Microscopic comparison identified Exhibits 1 and 2 as having been cut by the same tool based on the agreement of all discernible class characteristics and the sufficient correspondence of individual characteristics. Additionally, Exhibits 3 and 4 were identified as having been cut by the same tool based on the agreement of all discernible class characteristics and the sufficient correspondence of individual characteristics. It was concluded that Exhibits 1 and 2 were cut from a different tool than the one that cut Exhibits 3 and 4 based on the extreme difference in individual characteristics.
NB6HZY	The toolmarks on the punch-out (Item #2) were identified as having been made by the Punch Press Machine (Item #1). The toolmarks on the punch-outs (Items #3 and #4) were compared to the toolmarks made by the Punch Press Machine (Item #1) and could neither be identified nor eliminated as having been made by this machine.* The toolmarks on the punch-outs (Items #3 and #4) were each identified as having been made by the same tool.
NB829W	Examinations showed that Item 2 was produced by the same die represented by Item 1. Examinations showed that Items 3 & 4 were produced by the same unknown die. Examinations showed that the die represented by Item 1 did not produce Items 3 & 4.
NC3J9C	[No Conclusions Reported.]
NF2ZJK	The Exhibit #1 metal test discs were reportedly produced by a suspect's punch press machine. All three discs contain sufficient individual striated toolmarks of value for comparison. The Exhibit #2, Exhibit #3 and Exhibit #4 are metal discs similar in shape and material as the Exhibit #1 test discs. All three discs contain sufficient individual striated toolmarks of value for comparison. Microscopic comparisons between the Exhibit #1 test discs and the Exhibits #2, #3 and #4 discs revealed the following: Based on agreement of all discernible class characteristics and sufficient agreement of individual characteristics, it was concluded that the toolmarks on the Exhibit #2 disc were identified as having been produced by the same tool which produced the toolmarks on the Exhibit #1 test discs. Although there is an agreement of all discernible class characteristics between the toolmarks found on Exhibit #1 tests, Exhibit #3 and Exhibit #4, due to significant differences in individual characteristics, it was determined that the toolmarks on Exhibits #3 and #4 were not produced by the same tool as the toolmarks on the Exhibit #1 test discs. Further comparison revealed that there exists sufficient agreement of individual characteristics to conclude that the toolmarks on the Exhibit #3 disc and the Exhibit #4 disc were produced by the same tool.
NHQ4ED	Items #2, 3 & 4 were microscopically compared to each other and Item #1. The results of the examinations with Item #1 and Item #2 were positive. There are matching striations, therefore, Item #2 was made from the same Punch Press Machine as Item #1. The results of the examinations with Item #3 & 4 and Item #1 were negative.

TABLE 2

WebCode	Conclusions
NJLP4X	Examination of the submitted evidence was conducted, and the findings are as follows: 1. Item #2, the questioned punch-out was produced from the same punch press machine that made the tests provided as item #1. 2. Items #3 and #4, the questioned punch-outs were not made with the same punch press machine that produced the tests provided as item #1. 3. Items #3 and #4, the questioned punch-outs were produced from the same punch press machine.
NP3A24	Upon comparison, I found the characteristic marks on Item 2 (Questioned punch-out from warehouse) to be similar to Item 1 (Unknown punch-outs from Punch Press Machine from suspect's house). Therefore, I am of the opinion the Item 2 and Item 1 were produced from the same punch press machine. I found the characteristic marks on the Item 3 (Questioned punch-out from warehouse) and Item 4 (Questioned punch-out from warehouse) to be dissimilar to Item 1 (Unknown punch-outs from Punch Press Machine from suspect's house).
NTAPE2	The known punch out disks in item 1 were examined and compared with items 2 thru 4 with the following results: It is the opinion of the examiner that item 2 was caused by the machine in item 1. It is also the opinion of the examiner that items 3 & 4 were caused by the same machine but not the machine in item 1.
NVR7CM	Item 2 was only produced by the Punch Press Machine from the suspect's house (Item 1). Item 3 and item 4 were not produced by the Punch Press Machine from the suspect's house (item 1). Item 3 and item 4 were produced by the same Punch Press Machine other than (Item 1).
NVVMRY	Microscopic comparison shows that the punch-out of Exhibit 2 was made by the same punch press die that produced the known punch-outs of Exhibit 1. Microscopic comparison shows that the punch-outs of Exhibits 3 and 4 were made by the same punch press die. It is inconclusive if the punch-outs of Exhibits 3 and 4 were produced by the same die that punched the Exhibit 1 and 2 punch-outs. There is agreement of all discernible class characteristics and disagreement of individual characteristics, however without knowing the condition of the die that punched Exhibits 1 and 2, the Exhibit 3 and 4 punch-outs cannot be excluded from being produced by the die that punched the Exhibit 1 and 2 punch-outs.
NXLNV2	It is our opinion that the toolmarks present on the Items 1A-1C and Item 2 punch-outs were made by the same tool. It is our opinion that the toolmarks present on the Items 3 and 4 punch-outs were made by the same tool, but a different tool than the one that produced the toolmarks on the Items 1A-1C and 2 punch-outs.
NZ7DEE	The Item 1 punch-out toolmarks were microscopically compared to Item 2 toolmarks, finding class and individual characteristic correspondence. Item 2 was made by the same Punch Press Machine die that created the Item 1 punch-outs. The Item 1 punch-out toolmarks were microscopically compared to the Item 3 and 4 toolmarks, finding significant individual characteristic differences. Items 3 and 4 were not made by the same Punch Press Machine die that created the Item 1 punch-outs.
NZPK6G	It was determined that the punch out in item 2 was created in the same punch press that created items 1 (a, b, c). It was determined that the punch outs in items 3 and 4 were created in the same punch press. It was determined that the punch outs in items 3 and 4 were not created in the same punch press that created items 1 (a, b, c).
P9VLDA	Item 2 was identified to both the female die and the male punch that made the known punch-outs (Item 1). Items 3 and 4 were identified to the male punch that made the known punch-outs (Item 1), but were made with a different female die.
PBLP83	The punch-outs in Items 2, 3, and 4 were microscopically examined in conjunction with the known punch-outs in Item 1. Based on these comparative examinations, it was determined that: A. The toolmarks present on the punch-out in Item 2 had been produced by the same

TABLE 2

WebCode	Conclusions
PFAQRN	<p>punch press machine that produced the toolmarks present on the known punch-outs in Item 1. B. The toolmarks present on the punch-outs in Items 3 and 4 had been produced by the same unknown punch press machine. However, the toolmarks present on the punch-outs in Items 3 and 4 bear no marks to link them as having been produced by the same punch press machine that produced the toolmarks present on Items 1 and 2.</p> <p>The metal disks were examined. Item #1 contained three metal disks reportedly produced by the same known press. The other Items each consisted of a single disk from an unknown source. The disks are made of metal and are magnetic. They measure approximately 0.403" in diameter and are approximately 0.130" thick. I scribed the letters A, B, and C on the disks from Item #1 to identify them. The sides of the disks had striations that extended around the entire circumference of the edge, running perpendicular to the faces and about half the width of the disk. The other half of the width of the edges appeared as a shear or fracture zone. The striations are irregular and vary in width and depth. The tool edge that produced the striations on the sides of the disks appears to have a unique surface contour; therefore, the striations on the sides of the disk are likely individual and can be used for identification if sub-class characteristics can be eliminated. Sub-class characteristic influence can be determined by examination of the actual tools used. Item #1C was microscopically compared to Items #2 through 4. Sufficient agreement of individual characteristics was observed in the striations on the sides of the disks to conclude that Item #2 was produced by the same die as Item #1C. Items #3 and 4 had different striations than Item #1C and can be excluded as being produced by the same die as Item #1C. Items #3 and 4 were microscopically compared and sufficient agreement of individual characteristics was observed in the striations on the sides of the disks to conclude that both were produced in the same, unknown die. All of these associations are conditional on the assumption that there are no sub-class characteristic influences present in the toolmarks examined.</p>
PKPYC7	<p>Exhibits 1 through 4 were examined for the presence of comparable toolmarks. The toolmarks observed along the outer edges of Exhibits 1 through 4 were microscopically compared. Based on agreement of all discernible class characteristics and sufficient agreement of individual characteristics, it was determined that the toolmarks located on Exhibits 1 and 2 were produced by the same tool. Based on agreement of all discernible class characteristics and sufficient agreement of individual characteristics, it was determined that the toolmarks located on Exhibits 3 and 4 were produced by the same tool. However, due to differences in individual characteristics, it was determined that the toolmarks on Exhibits 3 and 4 were not produced by the same tool that produced the toolmarks on Exhibits 1 and 2.</p>
PU22WL	<p>Item 1 was microscopically compared to each other and to Items 2, 3 and 4. Based on an agreement of class characteristics and sufficient agreement of individual characteristics, Item 2 was produced with the same die as Item 1. Based on an agreement of class characteristics but disagreement in individual characteristics Items 3 and Items 4 were not produced with the same die as Item 1.</p>
PXYJ2E	<p>A microscopic examination was conducted using a comparison microscope, comparing the known punch-out disks (Item 1) with those questioned punch-out disks of Items 2, 3 & 4. Item 2 is positively identified as having been produced by the same punch press die as those of Item 1. There is agreement of a combination of individual characteristics and all discernible class characteristics where the extent of agreement exceeds that which can occur in the comparison of toolmarks made by different tools and is consistent with agreement demonstrated by toolmarks known to have been produced by the same tool. Items 3 & 4 are eliminated as having been produced by the same punch press die as that that produced Item 1. There is significant disagreement of individual class characteristics. Items 3 & 4 are a match for each other and were produced by the same punch press die but different to the one that produced</p>

TABLE 2

WebCode	Conclusions
	Items 1 & 2.
Q3J9K2	I compared the markings transferred to the punch-outs by the punch press machine die during the punching process using a comparison macroscope and found the following: 2.1 - There is sufficient agreement of class and individual characteristics to determine that the punch-outs in Items 1 and 2 had been produced by the same die. 2.2 - There is sufficient agreement of class and individual characteristics to determine that the punch-outs in Items 3 and 4 had been produced by the same die. 2.3 - There is agreement of class characteristics but sufficient disagreement of individual characteristics to determine that the punch outs in Item 1 and the punch-outs in Items 3 & 4 had not been produced by the same die.
Q4WVZV	The punch-out scrap (item 2) was produced with the same die as the test punch-out scraps (items 1a-1c). The punch-out scraps (items 3 and 4) were not identified to nor eliminated from having been produced by the same die as the test punch-out scraps due to the lack of reproducible patterns of striations. Differences may be due to a different die or a different feed rate using the same die. The punch-out scraps (items 3 and 4) were produced with a single unknown die.
Q6AAN6	In my opinion: A) The findings provide conclusive evidence to support the view that the punch-out item 2 was produced by the same die that produced the punch-outs in item 1. B) The punch-outs in items 3 & 4 could not have been produced by the die that produced the punch-outs in item 1, with the die in its current condition.
Q6TCDR	As a result of the microscopic comparison it is certain that the punch marks (fractured and shear surfaces) present at the three known punch-outs Item 1 and the punch marks present at the questioned punch-out Item 2 complement one another. The punch marks present at the punch-outs Item 3 and Item 4 cannot be correlated with those present on Item 1 and Item 2. Thus can be assumed that the toolmarks present on Item 1 and Item 2 have been produced by the same tool (punch, die plate). For a final conclusion concerning the use of the same tool as the producer of the punch marks it will be necessary to examine this tool.
Q8GHZA	On analysis, I found: 1) The characteristics[sic] marks on questioned punch-out (inscribed with '2') were found to match with three known punch-outs from Punch Press Machine from suspect's house (inscribed with '1'). 2) The characteristics[sic] marks on questioned punch-out (inscribed with '3' & '4') did not match with three known punch-outs from Punch Press Machine from suspect's house (inscribed with '1'). Hence I am of the opinion that the toolmarks on Item 2 and Item 1 were produced by the same Punch Press Machine. The toolmarks on Item 3 and 4 were produced by another Punch Press Machine.
QA8MU3	[No Conclusions Reported.]
QTFUY4	On examination and comparison, I found: i) the characteristic fine striations on the questioned punch-out from Warehouse (item 2) to correlate with the characteristic fine striations on the three known punch-outs from Punch Press Machine from suspect's house (item 1). Hence I am of the opinion that the 'Item 2' was produced by the same Punch Press Machine as 'Item 1'. ii) the characteristic fine striations on the questioned punch-out from Warehouse (item 3) and the questioned punch-out from Warehouse (item 4) do not correlate with the characteristic fine striations on the three known punch-outs from Punch Press Machine from suspect's house (item 1). Hence I am of the opinion that the 'Item 3' and 'Item 4' were not produced by the same Punch Press Machine as 'Item 1'.
R896MX	On examination, I found that: (i) The toolmarks on the questioned punch-out from warehouse (Item 2) were similar with three known punch-outs from Punch Press Machine from suspect's house (Item 1). (ii) The toolmarks on the questioned punch-outs from warehouse (Items 3 and 4) were dissimilar with three known punch-outs from Punch Press Machine from suspect's house (Item 1). In my opinion, the questioned punch-out from warehouse (Item 2) could have

TABLE 2

WebCode	Conclusions
	been produced with the suspect's punch press machine.
RHXK22	Comparative examinations of Item 2 (questioned punch-out) against Item 1 (three punch-outs said to be known samples from Punch Press Machine from suspect's house) showed the presence of matching features. This means that Item 2 and the punch-outs of Item 1 were made using the same tool. Comparative examinations of Item 3 (questioned punch-out) and Item 4 (questioned punch-out) against Item 1 showed the presence of different features. This means that Items 3 and 4 can be eliminated as having been made from the same tool, in its present condition, as the punch-outs of Item 1. Comparative examinations of Item 3 against Item 4 showed the presence of matching features. This means that Items 3 and 4 were made using the same tool.
RM4FGV	The Item 2 punch-out was produced by the same die as the Item 1 knowns. The Items 3 and 4 punch-outs were not formed through the same die as Items 1 and 2, but were produced by the same second die.
RMPYGW	The punch-out, item 2, was identified as having been cut in the same punch press machine as the three punch-outs, item 1. The two punch-outs, items 3 and 4, were identified as having been cut in the same punch press machine. However, both items could not be eliminated nor identified as having been punched in the same punch press as item 1. Note* Laboratory policy does not allow for Tool Mark eliminations to be based on individual characteristics.
RTJRX7	The submitted specimens marked Items 2 through 4 were examined and identified as three (3) gray metal punch outs. Items 2 through 4 were microscopically compared to Item 1 sample punch outs. As a result of microscopic examination it was concluded that Item 2 was identified as having been punched out by the same tool as Item 1. Items 3 and 4 were identified as having been punched out by the same tool and not Item 1.
T96X3G	(1) and (2) - Agreement in all discernable class characteristics and sufficient agreement in individual striated marks on the sides of the dies for ID. These were made by the same tool. (3) and (4) - Agreement in all discernable class characteristics and sufficient agreement in individual striated marks on the sides of the dies for ID. They were made by the same tool. However, they are eliminated as having been made by the same tool that made (1) and (2) due to lack of agreement in individual striated marks.
TJKMA8	The punch-out, Item 2, was manufactured by the same punch press machine which manufactured the punch-outs, Item 1. The punch-outs, Item 3 and Item 4 were not manufactured by the same punch press machine which manufactured the punch-outs, Item 1. The punch-outs, Item 3 and Item 4, were manufactured by one and the same punch press machine (other than the punch press machine which manufactured the punch-outs, Item 1).
U2J39D	Manufacturing marks in [sic] form of fine striations were found on the rim of each submitted punch-out. Microscopic examination revealed that the manufacturing[sic] marks on the known punch-outs Item 1 agreed in fine striation pattern with those on the questioned punch-out Item 2, indicating that the questioned punch-out Item 2 was produced with the same die as represented by Item 1. Microscopic examination revealed that the manufacturing marks on the questioned punch-out Item 3 agreed in fine striation pattern with those on the questioned punch-out Item 4, but disagreed with those on the known punch-outs Item 1. These findings indicated that both punch-outs Item 3 and Item 4 were not produced with the same die as represented by Item 1.
UCWGG7	Item 2 was produced by the Punch Press Machine from the suspect's house. Items 3 and 4 were not produced by the Press Punch Machine from the suspect's house. Items 3 and 4 were produced by the same Punch Press Machine.
UE6DP4	Examination shows that the side surface of Item 2 has the same toolmarks as those of Item 1,

TABLE 2

WebCode	Conclusions
	but the toolmarks on the sides of Item 3 and Item 4 are not equal to those of Item 1.
UF2X9W	The item #2 punchout was made by the same punchout press as the item #1 known punchouts. The items #3 and #4 punchouts were both made by the same punchout machine but not made by the punchout press that made the #1 known punch outs.
UJLZ49	Items 1 and 2 were identified as having been cut by the same unknown tool. Items 3 and 4 were identified as having been cut by the same unknown tool. Items 1 and 2 were not cut by the same unknown tool as Items 3 and 4.
UKYHFV	Unknown 2 was made in the Punch Press Machine from the suspect's home. Unknowns 3 and 4 were made in a second Punch Press.
UL8KBX	Known punch-outs from Item 1 were microscopically examined in conjunction with punch-outs in Items 2, 3 and 4. Based on the comparative examinations, the following was determined: A. The punch-out in Item 2 was produced on the same machine as Item 1. B. The punch-outs in Items 3 and 4 were not produced on the same machine as Item 1. C. The punch-out in Item 3 was produced on the same machine as Item 4.
V68DYG	1. The toolmarks on the punch-outs, Exhibits 2, 3 and 4, were neither identified nor eliminated as having been produced with the same tool as the punch-outs, Exhibit 1.
VFHJ8Q	Item #1 - Three punch-outs reportedly produced from punch press at suspects house. The three punch-outs matched each other and were produced from the same die. Item #2 - One punch-out reportedly recovered from warehouse. The punch out matched the Item #1 punch-outs. The punch out was produced from the same die that reportedly produced the Item #1 punch-outs. Item #3 & 4 - One punch out reportedly recovered from warehouse. The punch-outs did not match the Item #1 punch-outs. The punch-outs were not produced from the same die that reportedly produced the Item #1 punch-outs. The punch outs matched each other and were produced from a second die.
VFWTGQ	Items #1 and #2 were punched out by the same die. Items #3 and #4 were punched out by the same die. They were not punched out by the same die as Items #1 and #2.
VK943T	The three punch-outs (Items 2, 3, and 4) were examined noting the presence of striated toolmarks on the edge of each punch-out. Microscopic comparisons of these marks to the striated toolmarks on edges of the known punch-outs (Item 1) identified Item 2 as having been punched with the same die represented by Item 1. Items 3 and 4 were eliminated as having been punched with the die represented by Item 1 due to differences in individualizing characteristics.
VMX8XL	A microscopic examination and comparison of the three (3) known submitted punch outs from the known Punch Press Machine marked item #1 to three submitted questioned punch outs marked item #2, #3, #4 revealed item #2 was produced by the punch press machine that produced item 01. Items #3 and 4 were produced by another machine.
VQJUW2	Toolmarks present on Item 2 were made by the die represented by Item 1. Toolmarks present on Items 3 and 4 could neither be identified nor eliminated as having been made by the die represented by Item 1. Toolmarks present on Items 3 and 4 were made by the same die.
VXZ9WU	a. The questioned punch-out identified as Item 2 was produced with the same die as represented by Item 1 (located at the Punch Press Machine recovered from suspect's house). B. The questioned punch-outs identified as Item 3 and Item 4 were not produced with the same die as represented by Item 1. These Items (3 and 4) were produced with one same die.
W9AK7Y	Unaided visual examination has shown Items 1 through 4 to be consistent with each other in shape, construction, and appearance; each displaying striated marks on their circumference surfaces. Microscopic comparison of the circumference marks disclosed Items 1 and 2 were

TABLE 2

WebCode	Conclusions
	marked by the same punch press die. Microscopic comparison also disclosed Items 3 and 4 were marked by the same punch press die, but not the same die as Items 1 and 2.
WA49QF	Based on similar class characteristics and sufficient correspondence of individual toolmarks produced by the cutting die, the metal discs within Exhibits 1 and 2 were cut using the same die. Based on similar class characteristics and sufficient correspondence of individual toolmarks produced by the cutting die, the metal discs within Exhibits 3 and 4 were cut using the same die. Based on significant differences of individual toolmarks, the die responsible for cutting Exhibits 1 and 2 is different than the die responsible for cutting Exhibits 3 and 4.
WA8TEJ	One of the known punch-outs from Item 1 was microscopically compared to the submitted evidence punch-outs in Items 2 through 4. Item 2 - Sufficient agreement in class and individual characteristics on the side edge and bottom of the punch-out was observed to conclude that the punch-out in Item 2 was made on the same punch press as Item 1. Items 3 and 4 - Although, the side edge of the punch-outs of Items 3 and 4 have sufficient agreement in class and individual characteristics to each other, they have significant disagreement in individual characteristics to the side edge of the known punch-out in Item 1. The bottom of the punch-outs of Items 3 and 4 have sufficient agreement in class and individual characteristics to each other and to the bottom of Item 1. Items 2, 3, and 4 - The tool marks on the bottom of the punch-outs of Items 2, 3, and 4 were made on the same punch press as Item 1.
WDTFDX	Items 1-4 were compared microscopically with each other. Items 1 and 2 were found to have matching striations, thus were made by the same punch press as each other. Items 3 and 4 were found to have matching striations, thus were made by the same punch press as each other. However, the striations on Items 1 and 2 differ from those on Items 3 and 4. This means only Item 2 was made by the suspect's punch press.
WGNB2C	The striated marks on the sides of the test punch-outs (item 1) described as being made using the Punch Press Machine from the suspect's house were compared to the striated marks on the sides of the punch-outs from the warehouse (items 2, 3 and 4). These striated marks would be left by the die used to produce the punch-out. An excellent correspondence of striated marks was found between one of the punch-outs (item 2) and the test punch-outs (item 1). In my opinion, this correspondence means that the Punch Press Machine made this punch-out from the warehouse. No correspondence of striated marks was found between the remaining two punch-outs (items 3 and 4) and the test punch-outs (item 1). In my opinion, these two punch-outs were not made using the die in the Punch Press Machine.
WK6WHD	Exhibits 1A, 1B, 1C, 2, 3 and 4 consists of six (6) metal discs and [sic] examined for the presence of comparable toolmarks. Toolmarks found were microscopically compared between Exhibits 1A, 1B, 1C, 2, 3 and 4. Exhibits 1A, 1B, 1C and 2 have similar class characteristics and sufficient agreement of individual characteristics to conclude that the toolmarks on these Exhibits were produced by the same tool. Exhibit 3 and 4 have similar class characteristics and sufficient agreement of individual characteristics to conclude that the toolmarks on these Exhibits were produced from the same tool. Exhibit 1A, 1B, 1C, 2, 3 and 4 have similar class characteristics. However, due to a difference in individual characteristics, the Exhibits 3 and 4 toolmarks were not produced from the same tool that produced the Exhibits 1A, 1B, 1C and 2 toolmarks.
WKJ22J	The submitted punch (Item #2) was produced with the same die as the known punch outs from Punch Press Machine from the suspect's house (Item 1). The submitted punch's[sic] (Item #3) and (Item #4) were produced with the same die; however not the same die as the known punch outs from Punch Press Machine from the suspect's house (Item 1).
WLWWHA	The Item 1 punch-outs were reported to be from the Punch Press Machine from the suspect's

TABLE 2

WebCode	Conclusions
	house. Shear marks produced by the die present on the Item 1 punch-outs were identified as having been produced by the same die that produced shear marks on the Item 2 punch-out. Shear marks produced by the die on the Item 3 and Item 4 punch-outs were identified as having been produced by the same die. However, due to a lack of sufficient agreement in the individual microscopic marks of value, no conclusion could be reached as to whether the shear marks present on the Item 3 and Item 4 punch-outs were produced by the same die that produced the shear marks on the Item 1 and Item 2 punch-outs.
WVKNTF	Six pressings (moulded pieces, compacts) in diameter of 10 and thickness of 3 mm were submitted for investigation. Three punch-outs were described as "1" (test traces from suspect's house) and next three punch-outs were labelled "1", "2", "3" (questioned punch-outs from a warehouse). On all punch-outs, slipped marks (striations) in the external diameter were found, made by the punch press machine. Therefore, they were suitable for individual toolmark identification. Punch-outs on submitted castings were compared against one another. Toolmarks on the punch-press described "1" were made by the same tool like impressions from the warehouse labelled "2". Castings described as "3" and "4" were made by a different punch press machine. [sic]
WYMLL	Examinations showed the tool marks on Item 2 were made by the same punch as the tool marks on Item 1. Examinations showed the tool marks on Item 3 and Item 4 were not made by the same punch as the tool marks on Item 1 and Item 2. Examinations showed the tool marks on Item 3 and Item 4 were made by the same unknown punch.
X4CFVR	Examinations showed Item 2 was made by the same tool used to create Item 1. Examinations showed Items 3 and 4 were made by the same unknown tool, and were not made by the same tool which produced Items 1 and 2.
X976NT	On examination, I found that the striation marks on the questioned punch-out "Item 2" matched the striation marks on "Item 1": The known punch-out from punch press machine. The striation marks on the questioned punch-out "Item 3" and "Item 4" did not match the striation marks on "Item 1": The known punch-out from punch press machine. Hence, in my opinion the tool marks "Item 2" was produced by the punch press machine from the suspect's house.
XBVJ4U	Comparison of test punch press disks labeled Item 1 with Item 2 disk revealed the presence of matching features. This means that Item 2 was made from the same punch press die used to create test disks labeled Item 1. Comparison of test punch press disks labeled Item 1 with Item 3 disk and Item 4 disk failed to reveal an identification. This means that Item 3 and Item 4 were made using a different punch press die than that which made test disks Item 1. Comparison of Item 3 disk and Item 4 disk revealed the presence of matching features. This means that Item 3 and Item 4 were created using the same punch press die.
XCPG8V	The punch-outs from Items 1 through 4 were examined and microscopically compared to each other with the following results. The toolmarks on the punch-outs from Items 1 and 2 were produced by one tool. The toolmarks on the punch-outs from Items 3 and 4 were produced by a second tool.
XEENTD	Item 1 consists of three punch-outs from a suspect punch press. They measure approximately .40" in diameter and .13" thick. The items 2 through 4 are punch-outs from a punch press. They measure approximately .40" in diameter and .13" thick. These items have marks produced by a punch and marks produced by a die. Items 2 through 4 were microscopically compared to each other and to the three punch-outs from Item 1. Based on the microscopic comparisons, the following conclusions were made: Die Marks. 1) The Item 2 punch-out was identified as having been marked by the same die as the Item 1 punch-outs. 2) The Items 3 and 4 punch-outs were identified as having been marked by the same unknown die. 3) Based

TABLE 2

WebCode	Conclusions
	on distinct differences in individual characteristics, the Items 3 and 4 punch-outs can be eliminated as having been marked by the same die that marked the punch-outs from Items 1 and 2.
XR2VNT	The Item 1.1 and 1.2 toolmarks were identified as having been made by the same tool. The Item 1.3 and 1.4 toolmarks were eliminated as having been made by the same tool that made the Item 1.1 toolmarks. The Item 1.3 and 1.4 toolmarks were identified as having been made by the same tool.
XWC27K	1. In the opinion of this examiner, questioned punch-out Item 2 was produced with the same die as the known punch-outs of Item 1. 2. In the opinion of this examiner, questioned punch-out Item 3 and questioned punch-out Item 4 were produced by the same die but not the die that produced the known punch-outs of Item 1.
XXPFUU	The known punch-outs, Item 1, and the questioned punch-outs, Items 2, 3 and 4, were microscopically examined and inter-compared. Based on these comparisons, in my opinion, the punch-out Item 2 was made with the same die that produced the known punch-outs Item 1. The punch-outs Item 3 and Item 4 were made by the same die, however they are excluded as being made by the die that made the punch-outs Item 1 and Item 2.
Y8CRRR	1) Examinations showed Item 2 was produced with the same tool as Item 1. 2) Examinations showed Item 3 and Item 4 were not produced with the same tool as Item 1. 3) Examinations showed Item 3 and Item 4 were produced with the same unknown tool.
Y94RMH	The toolmarks present on the cut edges of Item 2 have been identified as having been made by the suspect Punch Press Machine designated Item 1. The toolmarks present on the cut edges of Items #3 & 4 were not made by the suspect Punch Press Machine designated Item 1. The toolmarks present on the cut edges of Item 3 have been identified as having been made by the same Punch Press Machine as the toolmarks present on Item 4.
YM4TZJ	Items 1 and 2 were produced by the same punch press die. Items 3 and 4 were produced by the same punch press die, but not the same die as Items 1 and 2.
YPTZL2	A high degree of correspondence was noted between the detail on the punch outs from items 1 and 2. The results of this examination provide conclusive support for the proposition that the punch outs in items 1 and 2 were produced using the same die. No correspondence was noted between the detail on the punch outs from item 1 and items 3 and 4. The die used to produce the punch outs in items 3 and 4 was different to the one used to produce those in item 1. A high degree of correspondence was noted between the detail on the punch outs from items 3 and 4.
YQ4YJV	In my opinion, the tool mark evidence provides conclusive support for the proposition that the punch-outs of items 2, 3 and 4 were produced by the same die that was used to produce the punch-outs of item 1.
YYCJYV	The detail produced from the die on the side of the recovered punch outs was compared with that present on the control samples. The detail present on item 2 was found to match the control items. The detail on items 3 and 4 was found to be different from the control samples. Overall, in my opinion, the findings provide conclusive evidence that the recovered punch out from item 2 has been produced by the same die used to produced[sic] the 3 control punch outs from item 1. In my opinion, items 3 & 4 have been produced using a different die from the one used to produce the control punch outs.
Z2FL8M	Microscopic examination and comparison reveals the questioned toolmarks on the punch-out, Item 2, and the known toolmarks on the punch-outs, Item 1, were made by the same die. Microscopic examination and comparison reveals the questioned toolmarks on the punch-outs, Items 3 and 4, and the known toolmarks on the punch-outs, Item 1, were not

TABLE 2

WebCode	Conclusions
Z9F4LY	<p>made by the same die. Microscopic examination and comparison reveals the questioned toolmarks on the punch-outs, Items 3 and 4, were made by the same die.</p>
	<p>The set of disks submitted as item 1 were compared to the question disk #2, #3 and #4 with the following results: The perimeter of disk 2 was identified to the perimeter of disks from set #1 and these were cut with the same tool. The perimeter of disks #3 and #4 match each other and were not cut with the same tool as set #1. Disks #3 and #4 represent a second tool. The underside of all disks (3 from set 1, disk 2, 3 and 4) have matching stria and each were marked on the underside by the same tool.</p>
ZNHFFC	<p>Exhibit 1 (A through C), and Exhibits 2 through 4 consist of six (6) metal discs which contain striated toolmarks of value for comparison. Microscopic comparisons were conducted between Exhibit 1 (A through C), and Exhibits 2 through 4. Exhibits 1 (A through C) and 2 have agreement of all discernible class characteristics and a sufficient agreement of individual characteristics to identify each as having been produced by the same tool. Exhibits 3 and 4 have agreement of all discernible class characteristics and a sufficient agreement of individual characteristics to identify each as having been produced by the same tool. Due to a difference in individual characteristics, it was determined that Exhibits 3 and 4 were not produced by the same tool as Exhibit 1.</p>

Additional Comments

TABLE 3

WebCode	Additional Comments
2Y74HP	Only die markings used for identification. Punch markings are consistent on all submitted items.
2Z48DL	CTS Item 1 = Item 1A; CTS Item 2 = Item 1B; CTS Item 3 = Item 1C; CTS Item 4 = Item 1D
3UUDUA	This kind of produktion proses is not known in our laboratory. We would have liked to see the photograph of the puhch pressmaschine. [sic]
3XP6T7	The item 3 (questioned punch-out) and item 4 (questioned punch-out) have been produced from the same Punch press machine.
6Q3AP8	Due to lack of tool submission, any agreement observed lacks significance (toolmarks may or may not be subclass carry over). If a suspect tool is submitted, or more than one surface is allowed to be considered, conclusions may vary accordingly.
7DPEXF	Note: The inconclusive results above (items 3 & 4 vs. items 1 & 2) are due to the presence of similar class characteristics on all of the punch-outs.
7E84L2	Items 3 & 4 bear no significant corresponding characteristics that would suggest they were produced by the same die as items 1 & 2. They do, however, share the same class characteristics. Unit procederes[sic] do not allow exclusions under such conditions.
7ZNGFA	The questioned punch-outs recovered at the warehouse, items 2, 3, and 4, were compared to punch-outs, item 1, made with a punch press from the suspect's house. There was sufficient agreement of individual characteristics to conclude that item 2 was made with the die in the punch press from the suspect's house. Items 3 and 4 exhibit individual characteristics that show they were made by the same die. The characteristics on items 3 and 4 were different than those on item 1 and 2.
8N4RQ4	I do not think the slugs should have been inscribed on a toolmark surface.
8N972J	There is sufficient agreement of class and individual characteristics therefore it can be stated that Item #3 and #4 were made by the same press, but a different press [sic] the one used to produce Item #1 and #2. This can be stated because of a significant disagreement in individual characteristics produced by the press for Items #1 & #2 and the individual characteristics produced by the press for Item #3 and #4.
8RLVGL	It was very difficult to determine the characteristics from each punch-outs because of the various fine lines and marks on the punch-outs. It will be better if tools are provided together with the items that have the toolmarks impression.
AN64Q6	Punch marks observed on the punch-outs were also compared microscopically. Punch marks observed on the "exemplar" punch-outs (Items 001-01A, 001-01B, and 001-01C) were examined microscopically and it was concluded that the punch marks were produced by a single punch. The punch marks observed on the questioned punch-outs (Items 001-02, 001-03, and 001-04) were also compared microscopically to the punch marks observed on the "exemplar" punch-outs. It was concluded that the punch marks observed on the[sic] all three questioned punch-outs were produced by the punch used to produce the punch marks observed on the "exemplar" toolmarks. Punches and dies are interchangeable components of a punch press. Therefore, the punch-outs could have been produced by any punch press capable of accommodating the punch and dies used to produce those punch-outs.
AYZFUV	The identification of Item #2 to Item #1 can be made using ample striae from around the punch-out working surfaces. A black Sharpie was used to index two sections of the punch-out working surface. The cross-identification of Item #3 to Item #4 can be made using ample striae from around the punch-out working surfaces. A red Sharpie was used to index a section of the punch-out working surface. Items #2, #3, and #4 possess the same class

TABLE 3

WebCode	Additional Comments
	characteristics as the test punch-outs in Item #1. It is possible that Items #3 and #4 were produced by a different punch press machine than the one that produced the tests in Item #1 as well as Item #2; however, due to the fact that the history of the punch press machine that produced the tests in Item #1 is unknown, it cannot be determined if the difference in the individual characteristics is due to a different punch press machine or due to use or abuse of the punch press that produced the tests in Item #1.
BB8KMJ	The 'punch-outs' in items 3 and 4 were found to be similar in dimensions and fine detail around the edges. In our opinion, the 'punch-outs' in items 3 and 4 were produced by the same punch press machine.
BF7ZZD	Note: Items 1 - 4 all exhibited a "cupped" area that exhibited detail in excellent agreement and appears to be consistent with the punch part of a punch and die type tool. This would indicate that all items were created by the use of a single punch. However, per instructions, only the tool marks related to the die were evaluated. It is relatively disappointing that no tool was included with this examination. Because of the amount of variables involved in these type of examinations, the use of the tool to create the test tool marks provides invaluable information that is used to make defensible conclusions. This examination implies that investigators have a tool, but I am not allowed to use it in my evaluation of the questioned items. It was also unusual that the instructions advise to only evaluate some of the detail on the items and not all the detail exhibited.
BGYPKU	There will be confusion regarding what are die marks and what are punch marks. The confusion could be avoided if the punch marks had been marked with a marker with instructions to not use these marks for comparison.
C3CZQU	The punch in the Item 1 punch-out machine was used to create Items 2, 3 and 4.
DNEAKB	Items 3 and 4 exhibited the same class characteristics as Items 1 and 2, and therefore could not be eliminated as having been produced by the same tool despite having a noticeable difference in the appearance of the individual characteristics. Our laboratory does not routinely eliminate items without a difference in class characteristics. The phrase "due to a lack of reproducible marks" is a standardized statement our agency now requires us to put on all inconclusive determinations in response to an ASCLD requirement.
E238GY	Due to a lack of sufficient corresponding microscopic marks of value.[sic]
EHKWVT	The toolmarks in Items 3 and 4 were identified as having been made by the same tool.
EN36DX	The toolmarks produced on the punch outs in submission 1 and in submission 2 are uniform around the circumference of the punch outs. The punch outs in submissions 3 and 4 have several areas with scalloped edges around the circumference of the punch outs.
FLQTZZ	The Item 3 (questioned punch-out) and Item 4 (questioned punch-out) have been produced from the same Punch press machine.
GPB2XT	The toolmarks in Item 1, 2, 3 and 4 caused by the punch are corresponding. Reference Wikipedia. Die set - A die set of a punch press machine consists of a set of punches (male) and dies (female) which, when pressed together, form a hole in a workpiece (and may also deform the workpiece in some desired manner). The punches and dies are removable, with the punch being attached to the ram during the punching process. The ram moves up and down in a vertically linear motion, forcing the punch through the material into the die.
GXKJ4H	The Intel from this examination would suggest either, two different Punch Press Machines had been operating in the warehouse or two different dies had been in use by the one Punch Press Machine.
H233UT	There are several problems with this test. First, some books and websites for purchasing punch and die sets will refer to the "male" portion as the punch or die. The "female" portion is referred

TABLE 3

WebCode	Additional Comments
	to as the die block or die. The directions for this test state that all examinations are to be focused on the die toolmarks only. The problem is the nomenclature for the punch and die sets can vary resulting in the examination of toolmarks unintended by the test producer. Second, a die or die block must be much harder than the toolworking surface in order for it to shape the material. The die or die block does not change much over time and can result in subclass carry-over from one punch out to another. Subclass features are not unique and can result in erroneous conclusions. All of the punch-outs in this test were made with the same punch/die, but not the same die/die block. Items 3 and 4 were made using the same die block.
H2HBUG	Items #3 and #4 were punch by same punch machine, different from suspect's press machine from suspect house.[sic]
HM4V3J	(Name of verifying examiner would be included in narrative)
JQCY46	The striations found on Items 3 & 4 are similar in appearance to those found on evidence Item 2 and the tests, Item 1. However, none of the striations on 3 or 4 could be matched to the striations on 1 or 2. Therefore the "inconclusive" finding. Should a suspect Machine be[sic] submitted, a more definitive conclusion might by[sic] obtained.
KL7D76	There are some types of freshly manufactured firearm and non-firearm tool working surfaces that have been determined, through forensic testing, to be capable of creating individual toolmarks. When evaluating questioned and exemplar toolmarks known to have been made with these tool working surfaces, it is not necessary to have the responsible tool working surfaces available for examination. However, when tool working surfaces, such as those on the punch-out dies and punches used to create the known and questioned toolmarks for this proficiency test, have not been previously evaluated for their ability to create subclass toolmarks, these tool working surfaces must be available for study and evaluation before it can be determined if they produce unique marks. If they are not made available for study and evaluation, conditional toolmark identifications, such as the ones made in this proficiency test, are the strongest associations that should be reported.
KQBCYD	The punch-outs Item 3 and 4 have been produced in the same punch press machine.
LCQ8HG	It is possible that the dies used in the punch press are interchangeable. The die that was used to punch out Items 3 and 4 should be searched for, as[sic] if located may provide further information.
N48JUK	Although the toolmarks in items 3 and 4 exhibited similar class characteristics as the test cuts in item 1, they did not exhibit sufficient agreement of individual characteristics.
N89NCJ	A straightforward test. I appreciate the different scenarios that are created by CTS over the years for the toolmark tests. This variety does provide for some learning experiences as from time to time a scenario is given (like this one) I've not encountered before in my own casework. Despite it being quite easy, different types of scenarios are always good to do.
NB6HZY	* laboratory policy prohibits the elimination of toolmarks based on individual characteristics.
NHQ4ED	Items #3 and Item #4 have matching striations, therefore, Items #3 and 4 were made by the same Punch Press Machine.
NVVMRY	It would be difficult to exclude Exhibits 3 and 4 from the die that punched Exhibit 1 without knowing the type of die used and its condition.
NZ7DEE	Toolmarks on Items 3 and 4 were microscopically inter-compared, finding class and individual characteristic correspondence. Items 3 and 4 were made by the same tool die (tool not submitted).
PFAQRN	The conditional identifications of Item 2 (unknown) to Item 1 (known) and of Item 3 to Item 4 are made to the practical, not absolute, exclusion of all other tools. The reason why the

TABLE 3

WebCode	Additional Comments
	<p>identifications are not absolute is because it will never be possible to examine all tools in the world, a prerequisite to making absolute identifications. The conclusion that "sufficient agreement" exists between two toolmarks (test and questioned) for identification means that the likelihood that other tools could have made the questioned toolmarks identified in this case is so remote as to be considered a practical impossibility. In the context of the examinations performed in this case, the term "practical impossibility", which currently cannot be expressed in mathematical terms, means that as a result of extensive empirical research and validation studies that have been conducted in the field of firearm and toolmark identification, as well as the cumulative results of training and casework examinations I have either performed, peer reviewed, or been made aware of through publications. It is my opinion that no tools will be found that exhibit as much microscopic agreement with the questioned toolmarks identified in this case as the die that produced Items 1 and 2 and the unknown die that produced Items 3 and 4, respectively.</p>
PU22WL	Item 3 and Item 4 were produced with the same die.
PXYJ2E	This test was akin to an examination of fired projectiles and therefore required very little preparation prior to using the comparison microscope. Relatively easy test.
Q4WVZV	Inconclusive results explained in reporting section- class characteristics are the same with differences in individual characteristics. Differences may be due to a different feed rate or a different die.
Q6AAN6	Items 3 and 4 were cut by the same die.
Q6TCDR	The comparison has been carried out using a Leica FSC stereo microscope and a Leica DFC 420 camera. The method "tool marks examination" is accredited.
QTFUY4	I also found the characteristic fine striations on the questioned punch-out from Warehouse (item 3) to correlate with the characteristic fine striations on the questioned punch-out from Warehouse (item 4). Hence I am of the opinion that the 'Item 3' and 'Item 4' were produced by the same Punch Press Machine.
RM4FGV	It is very unfortunate that the same punch was used for all items. It invalidates the premise of a Punch Press Machine linking the suspect to the scene.
V68DYG	1. The toolmarks present on the punch-out, Exhibit 2 are in agreement with the known punch-outs, Exhibit 1, however the significance of this agreement can only be determined by an inspection of the tool. 2. The toolmarks present on the punch-outs, Exhibits 3 and 4 are in agreement with one another and are different from those present in Exhibit 1, however the significance of this difference can only be determined by an inspection of the tool.
VK943T	Items 3 and 4 were identified as having been punched by the same die.
VQJUW2	Toolmarks present on Items 2, 3, and 4 were made by the punch represented by Item 1. In the absence of a tool identified as having made the die marks on Items 3 and 4, and in the absence of the seized tool for examination for indications of alterations (including re-grinding/sharpening) or damage which could affect individual characteristics, and with which to make tests to assess potential for changes through use, the die represented by the tests, Item 1, has not been eliminated as having created the die marks on Items 3 and 4. This conclusion recognizes that subsequent use, misuse, or handling of a tool including re-grinding, may result in changes to the individual characteristics of the tool surfaces as imparted at the time of use which may affect the possibility of future identifications. Note: If this were an actual case this examiner would request that the suspect tool be submitted for direct examination.
WKJ22J	Great sample test !!!

TABLE 3

WebCode	Additional Comments
WLWWHA	<p>1) Exclusion - If two toolmarks or a tool and toolmark have incompatible class characteristics, an Exclusion opinion is rendered. 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 similar to that normally observed in toolmarks known to have been created by the same tool. 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. Additionally, separate from the instructions which stated "Please note the toolmarks in question are related to the die only." The Item 1 through Item 4 punch-outs were identified as having been produced by the same punch.</p>
WVKNTF	<p>The results were obtained applying SOP no.: TZK-03 method "examination of tools and toolmarks", in laboratory no. 1494 accredited by the [Country] Accreditation Institute. Optical stereomicroscope SteREO Discovery V8 was used for the casework, utilizing oblique light. Finally, the toolmarks were documented by the Lucia BallScan. Please find enclosed the fotodocumentation[sic].</p>
XEENTD	<p>Punch Marks. 1) The Items 2 through 4 punch-outs were all identified as having been marked by the same punch that marked the punch-outs from Item 1.</p>
YQ4YJV	<p>In addition to a correspondence in general size and shape of the punched area, each of the punch-outs of items 2, 3 and 4 bears highly characteristic striation/impressed detail around the internal circumference of the lip of the numbered surface that matches the detail present on the punch-outs of item 1, when examined microscopically.</p>

Appendix: Data Sheet

Collaborative Testing Services ~ Forensic Testing Program

Test No. 11-529: Toolmarks Examination

DATA MUST BE RECEIVED BY December 12, 2011 TO BE INCLUDED IN THE REPORT

Participant Code:

WebCode:

Accreditation Release Statement

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

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

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

Scenario:

Police are investigating the underground manufacturing of firearm sound suppressors. An informant has led investigators to an abandoned warehouse, where they have collected three punch-outs from the baffle production area. The informant has also named a suspect whose home was subsequently searched. During the search, a punch press was found. Investigators are requesting that you examine the toolmarks on the questioned punch-outs recovered from the warehouse and determine if they could have been produced with the suspect's punch press machine.

Please note the toolmarks in question are related to the die only.

Items Submitted:

Item 1: Three known punch-outs from Punch Press Machine from suspect's house (inscribed with "1")

Item 2: Questioned punch-out from warehouse (inscribed with "2")

Item 3: Questioned punch-out from warehouse (inscribed with "3")

Item 4: Questioned punch-out from warehouse (inscribed with "4")

1.) Were any of the questioned punch-outs (Items 2, 3, or 4) produced with the same die as represented by Item 1?

Item 2: Yes No Inconclusive*

Item 3: Yes No Inconclusive*

Item 4: 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.

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RELEASE OF DATA TO ACCREDITATION BODIES

The following Accreditation Releases will apply only to:

Participant Code:

WebCode:

for Test No. **11-529: Toolmarks Examination**

This release page must be completed and received by **December 12, 2011** to have this participant's submitted data included in the reports forwarded to the respective Accreditation Bodies.

ASCLD/LAB RELEASE

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

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

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

Signature _____ Date _____

Laboratory Name _____

Location (City/State) _____

FQS-INTERNATIONAL RELEASE

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

FQS-International Certificate No. _____

Signature and Title: _____ Date _____

Laboratory Name _____

Location (City/State) _____

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.

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